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* Report, Annexes I and II appear in English, French and Spanish. For reasons of budgetary constraints, Annex III to IX remain untranslated.

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1. OPENING

1. The Rector of the University of Las Palmas de Gran Canaria, Prof. Francisco Rubio Royo, called the meeting to order at 10.00h on 8 May 1995 and welcomed the Participants to the Fourth Session of the IOC Regional Committee for the Central Eastern Atlantic (IOCEA) which took place at the University of Las Palmas de Gran Canaria, Canary Islands.
2. He then gave the floor to the Chairman IOCEA, Dr. Gueye.
3. The Chairman of the IOC Regional Committee for the Central Eastern Atlantic thanked the Government of Spain for hosting the Meeting and, in particular, the University. He also expressed his appreciation to the IOC. He recalled IOCEA-III and that that meeting very much stressed the importance of regional co-operation. He referred to difficulties delaying the co-operation process, with respect to communication. His speech is given in Annex III-A.
4. The Rector of the University invited the Executive Secretary IOC, Dr. Kullenberg, to take the floor.
5. Dr. Kullenberg welcomed the Participants on behalf of IOC and UNESCO. He referred to IOCEA-II (Lagos, Nigeria, 1990) and III (Dakar, Senegal, 1993) and expressed his appreciation that IOCEA-IV could be held in the marine science institute of a University and thanked the authorities for the invitation to host the Fourth Session of IOCEA.
6. The Executive Secretary IOC pointed out that the concern for the oceans as well as coastal zones had increased since the Rio Summit and referred also to the importance of implementing the instruments under the Agenda adopted at UNCED. He also referred to the particular importance of the United Nations Convention on the Law of the Sea (UNCLOS) as an instrument to deal with the oceans.
7. Dr. Kullenberg recalled the role of IOC in facilitating co-operation by providing a mechanism through which Member States could agree to work together. He stressed the importance of science in solving many problems affecting the world community and the support which science provides for the implementation process of mechanisms such as the Convention on Biological Diversity, the Framework Convention on Climate Change and Agenda 21 of UNCED. He referred to the scientific community as a resource to be used, which must be utilized for the common good in the implementation of these agreements and to help solve the problems facing society.
8. The Executive Secretary IOC informed the Participants of the recently established IOC Science and Communication Center for Harmful Algae, Copenhagen, Denmark, as an encouraging example of an activity which strongly promotes international co-operation, and expressed his hope that an analogous, supplementary and complementary center could be built in Vigo, Spain.
9. He finally stressed the significance of formulating a realistic IOCEA programme of work for the next three years, which should also strive to attract donors' attention.
10. The Rector of the University then invited the Secretary of Maritime Fisheries, Mr. Loira Rúa, to take the floor.
11. Mr. Rúa expressed great satisfaction at being able to host IOCEA-IV in the Canary Islands, due both to the importance of the Meeting and the great need for regional co-operation.
12. He referred to instruments and programmes such as: Chapter 17 of Agenda 21 of UNCED; a regional component of the Global Ocean Observing System (GOOS); the Marine Pollution Monitoring Programme (MARPOLMON) which is associated to the Global Investigation of Pollution in the Marine Environment (GIPME); and the Canary Current Study (CCS).
13. Mr. Loira Rúa also mentioned regional activities such as the IOC Course on Acoustics for the Evaluation of Fishery Stocks held in Tenerife (28 November-2 December 1994), and organized in collaboration

with the Centro Oceanográfico de Canarias, Instituto Español de Oceanografía, as well as those carried out by the Center for Remote Sensing based in the Canary Islands.

14. He also referred to the Second International Conference on Oceanography held in Lisbon, Portugal, in November 1994, which took place at the same time that UNCLOS entered into force.
15. The Secretary of Fisheries expressed his appreciation for the HAB Center in Copenhagen and informed the Participants on the progress of establishing the HAB center in Vigo, which will operate in co-ordination with that in Copenhagen. His speech is given in Annex III-B.
16. Finally, the Rector of the University of Las Palmas de Gran Canaria himself took the floor. He stressed the important human potential of the Canary Islands in relation to the marine environment, which is provided through the Faculty of Marine Science of the University. He recalled the history of the Faculty, which was the first in Spain in this field, and stressed the interdisciplinarity of its programmes. The potential within the University, combined with the Spanish Center for Oceanography in Tenerife and the Center of Remote Sensing in Gran Canaria, represents a basis for scientific co-operation.
17. The Rector referred to on-going co-operation with the University of Mauritania and co-operation with Senegal. His speech is given in Annex III-C.

2. ADMINISTRATIVE ARRANGEMENTS

18. The Chairman of IOCEA, Dr. Gueye, took the floor.
19. The Delegate of Portugal called the Meeting's attention to the decision of UNESCO that Portuguese should be used as an official language in meetings with participants from Lusophone countries.
20. The Chairman took note of the remark made by the Delegate of Portugal.

2.1 ADOPTION OF THE AGENDA

21. The Provisional Agenda was introduced by Mr. G. Soares, Technical Secretary. The Meeting adopted the Agenda as given in Annex I.

2.2. DESIGNATION OF THE RAPPORTEUR FOR THE SESSION

22. The Chairman invited the Representatives of Côte d'Ivoire and Sierra Leone to serve as Rapporteurs for the Meeting. Mr. Abe and Mr. Johnson, from Côte d'Ivoire and Sierra Leone, respectively, accepted the invitation of the Chairman, and the meeting nominated them with acclamation.

2.3. CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

23. The Technical Secretary for the Meeting introduced the timetable to the Participants, as well as the Documentation for the Meeting. A List of Documents would be prepared.
24. It was agreed that, given the agreed two-and-a-half hour lunch break, the Meeting could use part of it, should there be the need, for *ad hoc* consultations or working groups on specific subjects.

3. REPORT ON INTERSESSIONAL ACTIVITIES

25. The Technical Secretary presented the report of the IOC Secretariat on intersessional activities, referring to Document IOCEA-IV/6 and the Annual Report 1994 of IOC. *Inter alia*, he referred to:
- (i) a meeting on living marine resources (Casablanca, Morocco, 28-30 June 1993), organized by IOC in collaboration with the Institut Scientifique des Pêches Maritimes of Morocco, which was aimed at considering different regional projects already identified at IOCEA-III and the establishment of a regional group of experts; this was preceded by a meeting related to the study of the Canary Current System (CCS) and associated COMEMIR activities (Las Palmas, Canary Islands, 25 June 1993);
 - (ii) a second meeting (Las Palmas, Canary Islands, 31 January-2 February 1994), convened following a recommendation of the meeting held in Casablanca, June 1993. The purpose of the meeting was the preparation of a sub-regional integrated programme to study the Canary Current System (CCS) and associated up-welling phenomena, including living and non-living resources (COMEMIR). Three projects related to living resources were considered: (a) a study of vertical distribution of larvae of coastal pelagic fish (contribution to the study of the relation circulation/larvae/advection/recruitment); (b) an evaluation of coastal demersal and pelagic resources through experimental cruises; and, (c) a study of cephalopods fisheries and their development;
 - (iii) the First IOCEA Training Workshop on Acoustic Methods (Tenerife, Canary Islands, 28 November-2 December 1994), organized in collaboration with the Centro Oceanográfico de Canarias, Instituto Español de Oceanografía;
 - (iv) a meeting on Methodology of Evaluation, which took place in Las Palmas during the week preceding IOCEA-IV;
 - (v) activities related to remote sensing were initiated and their development was discussed at a meeting at the Centre Royal de Télédétection Spatiale (CRTS) (Rabat, Morocco, 8 June 1994). The organization of an International Workshop on Space Oceanography Climate and Marine Resources in North-Western Africa was considered and agreed upon. The meeting will take place at CRTS, 10-14 October 1995, and will be sponsored by IOC, WMO, FAO and the EU Joint Research Center.
26. The Participants were invited to comment on the report on intersessional activities.
27. The Representative of Mauritania asked the Technical Secretary whether the IOC Secretariat had sought funds for a research project on cephalopods. In response, Mr. Soares informed the Meeting that the project had been submitted to the European Union for funding, but that, unfortunately, they did not respond favorably.
28. The Delegate of Congo brought up the issue of several activities (e.g. workshops) related to fisheries in the area between North Guinea and Cameroon, whereas Congo was not invited to participate in them. He asked IOC to ensure a stronger involvement of Congo and other countries in this kind of activities.
29. The Technical Secretary recalled that Congo had been involved in several exercises, and took note of the request expressed by the Delegate of Congo.
30. The Delegate of Senegal informed the Meeting that research proposals have been submitted to IOC and other donors, and that in most cases IOC had asked to reduce the content of them. In particular, he referred to a project on cephalopods fisheries and a project on the influence of currents on the vertical distribution of larvae. The Representative of Senegal also referred to the Course on Acoustics Methods for fish stock evaluation held in Tenerife, Canary Islands. He informed the Regional Committee of the success in bringing in outside experts as an example of local effort, and stressed the importance of including this kind of resource on a regular basis.

31. The Delegate of Portugal referred to the real difficulties in the implementation process of regional activities. He mentioned the following slowing-down factors: the means for action at the regional level have been insufficient; communication between the Member States is not effective; sub-regional efforts should be made, in the form of activities aimed at developing national co-operation. He also referred to the issue of South Africa as a very positive change which needed to be encouraged and recognized by IOC to re-establish solidarity and dialogue with South Africa. All the above points, stated the Delegate of Portugal, should be brought to the attention of IOC-XVIII.
32. The Delegate of France stressed problems related to communication with the IOC Secretariat in Paris as far as the e-mail system is concerned.
33. The Delegate of Mauritania referred to the pilot project on cephalopods fisheries involving Mauritania, Senegal and Morocco and funded by France and Spain. He stressed the need to expand this project to other countries, and emphasized the need for strong regional co-operation, in order to achieve concrete results.
34. The Representative of Côte d'Ivoire expressed his appreciation to the Executive Secretary IOC for all the activities which have taken place since IOCEA-III in Dakar. He stressed the importance of the issue of sedimentary budget/dynamics and that this should be included within the report as a recommendation, in order to fill the gap on sediment dynamics and river input.
35. The Representative of Nigeria stressed the importance of co-operation between IOCEA and IOCINCWIO, in order to exchange views and approaches. He suggested that a representative of IOCEA be present at the IOCINCWIO sessions and vice versa, and perhaps at other selected IOC meetings.
36. Several Delegates stressed the importance of cephalopods fisheries for the region, which involves several aspects, from the biology of species to the knowledge of circulation patterns and the sea-bottom morphology.
37. As a result of the discussion, the Executive Secretary IOC proposed to form a group to discuss and finalize the issue of a cephalopods fisheries project.
38. The Chairman took note of the approval of this proposal by the Meeting.
39. It was decided that the communication issue would be discussed under Agenda Item 4.2.
40. The Meeting endorsed the intersessional report and expressed its appreciation for the work accomplished during the intersessional period, noting that most of the Programme 1993-96 adopted at IOCEA III (Dakar, 18-22 January 1993) had been implemented. The remainder would be retained as appropriate in the Programme of Work to be adopted by this Session.

4. PROGRAMME MATTERS

4.1 SCIENCES

4.1.1 Oceans and Climate

41. The Chairman introduced the Agenda Item dealing with oceans and climate, referring to the Annotated Agenda and the Programme of Work for 1993-96 (Recommendation IOCEA-III.1).
42. The Technical Secretary referred to the World Climate Research Programme (WCRP), and in particular

to the new developments of CLIVAR. He mentioned the main objectives of the programme, and also referred to TOGA and WOCE.

43. The Executive Secretary IOC added some information concerning WCRP. He recalled that TOGA had been completed and informed the Regional Committee that a new Director had been appointed for WCRP, and that the Region was involved in the Programme. An adjustment of WCRP reflects a "new attitude" in climate studies, namely that of bringing new aspects in the study of the climate system, including that of possible human impacts. This also relates to the Framework Convention on Climate Change (FCCC), of which the First Conference of the Parties took place recently in Berlin, Germany (March-April 1995). The Executive Secretary IOC emphasized WCRP as one of the main international efforts towards the understanding of the climate system, and, therefore, stated that it was imperative that its results be brought to the attention of the FCCC. He then referred to a second major effort concerning the climate issue, namely the International Geosphere-Biosphere Programme (IGBP), in particular its sub-programmes JGOFS and LOICZ. The question of how the Region should deal with the climate issue should be transmitted to the forthcoming session of the IOC Assembly, where the role of the IOC in the study of the climate system would be discussed in detail.
44. The Delegate of Nigeria commented on WCRP, TOGA and CLIVAR. He referred to the TOGA Conference recently held in Melbourne, Australia, where the achievements of the programme were presented. He pointed out that TOGA focused on the Pacific System, and that there were very limited efforts concerning the Atlantic Ocean. It was now time to focus attention on the Atlantic System and, in particular, the equatorial part, and he stated that IOC could play an important role in this respect. He informed the participants of a joint exercise at the Nigerian Institute for Oceanography and Marine Research and NOAA (USA) to collect data along the route Lagos-Rio de Janeiro, Brazil. Six transects had been made so far, and data were transmitted directly to the NOAA Office in Washington. He informed the Regional Committee of the readiness of Nigeria to make those data available.
45. The Delegate of France pointed out that the reason why TOGA focused on the Pacific was because of the important role this ocean plays as to climate modulation, which has worldwide implications. He also referred to the availability of funds from countries such as Australia and USA. He informed the Participants that since early 1995, ORSTOM researchers had been exchanging views and programme proposals on how to develop a CLIVAR programme in the Atlantic. The Delegate of France referred to the point raised by the Delegate of Nigeria under Agenda Item 3, concerning the need for an exchange of information between IOCEA and IOCINCWIO. The same kind of process will be necessary with respect to activities concerning the oceans and climate, for example, by promoting the exchange of meteorological data between Dakar and Nairobi.
46. The Delegate of Portugal drew attention to the importance of involving the Southern part of the African region and the South Atlantic. He stressed the point that the question of the role of the oceans in the climate system required a considerable effort in terms of international solidarity. He also said that a critical assessment of the results of WOCE and TOGA had to be made so as to expand the capacity building process. The Delegate called for a detailed balance in resources and needs in the Region in regard to the oceans and the climate issue, including the question of equipment needed for these kind of studies. This should be approached from a TEMA perspective.
47. The Executive Secretary IOC asked the Participants if IOCEA intended to keep the recommendation expressed at IOCEA-III to organize a workshop on how the Region could benefit from the results from WOCE and TOGA. Should this be the case, he said, it might be appropriate to include the experience and expertise of South Africa.
48. The Delegate of Mauritania stressed the complexity of the climate issue, and the consequent need for such a workshop. This workshop should also take into account the problem of how the climate influences fisheries. He pointed out that the question of climate could be considered from different points of view, but that in this part of the Atlantic Ocean the fishery perspective was the most important one.
49. Several Delegates expressed their support to the Delegate of Portugal and stressed the need to identify

priority areas, so as to best use the results from the TOGA and WOCE Programmes. They pointed out that the same should be done with IGBP.

50. The Delegate of Guinea referred to GOOS as the most appropriate tool for the countries in the Region to achieve better understanding in ocean-climate interactions. He pointed out however that equipment and training and, more generally, TEMA activities for the implementation of a regional GOOS were lacking.

51. Following the suggestion of the Delegate of Nigeria, the Chairman invited the Participants to establish an *ad hoc* working group to produce a document on how IOCEA should deal with the issue of ocean and climate. The group was composed of Nigeria (Co-ordinator), France, Morocco, Togo, Spain, Côte d'Ivoire and Guinea.

4.1.2 Living Resources

52. The Chairman introduced the sub-item dealing with living resources and referred to the Programme of Work 1993-96 and the intersessional report. He noted the establishment of the Regional Group of Experts on OSLR. He then gave the floor to the Technical Secretary.

53. The Technical Secretary asked the Representative of Senegal, the Rapporteur of the Working Group dealing with methodologies for the assessment of living resources which took place prior to IOCEA-IV (Las Palmas, Canary Islands, 5-6 May 1995), to introduce the related report.

54. The Delegate of Senegal referred to the results of the meeting and informed the Participants that it had been suggested to establish two groups of experts, one on demersal resources and the other on pelagic resources.

55. The Delegate of Portugal stressed the enormous importance of living resources and proposed the establishment of a sessional *ad hoc* group dealing with the issue. The objective of this *ad hoc* group would be to define priorities and then provide inputs to their implementation at the Plenary Session. The Delegate of Portugal expressed his disappointment for the absence of FAO and CEEAC representatives at the Meeting. He then made an offer on behalf of the Government of Portugal to host a meeting for the development of a regional cephalopods fishery project.

56. The Technical Secretary referred to the continuous interest of FAO in the activities carried out by IOC in the Region. He informed the Participants that an FAO regional officer for fisheries would visit IOC by the end of the month to discuss terms of co-operation.

57. The Delegate of Cameroon expressed his appreciation at being able to attend an IOCEA meeting for the first time. He stressed the importance of stock evaluation aimed at the development of management policies in the context of the Gulf of Guinea.

58. The Delegate of Côte d'Ivoire referred to the boundary between the North and the South Central Eastern Atlantic at the latitude level of Guinea, which divides the Region into a South and North one. He suggested the constitution of scientific sub-committees to face living resources issues in each sub-region. Sub-groups could be established from the Regional Group of experts on OSLR. This would lead to the development of sub-regional programmes based on common methodologies, which should be followed by the search for funding partners and extra-budgetary support.

59. The Delegate of France stressed that Guinea represents a limit between regions that could be considered scientifically different and that, therefore, it was necessary to take into account the scientific aspects which characterize different areas of the Eastern Central Atlantic.

60. The Delegate of Mauritania referred to the history of the current project on cephalopods fishery. He informed the Regional Committee that the project had been continuing for six years as a multi-lateral project

involving Mauritania, Senegal and Morocco, and that this project should be used as a basis for the development of a broader one, in which any country of the Region could participate.

61. The Delegate of Guinea called for regional participation in the LME Project in the Gulf of Guinea, which is funded by GEF and implemented by UNIDO.
62. The Delegate of Togo called for the establishment of a working group dealing with living resources in the ten-twelve countries of the Southern part of the Region, with a view to methodological aspects. This could be achieved through the organization of a three-day workshop.
63. The Delegate of Spain welcomed the offer made by Portugal to host a workshop for the development of a regional cephalopods fishery project. He noted the need to prepare such a project in the most appropriate way, making it attractive to potential donors. In this sense, he pointed out the need to name a highly qualified specialist for the co-ordination of the project. This co-ordinator would be responsible for gathering all existing information on cephalopods in the region, as well as the current research activities being carried out in this field by the regional research centers. He suggested that this information be used as a baseline in the preparation of the renewed project. In this respect he also suggested that the IOC Secretariat should provide the workshop to be held in Portugal with the comments made by the EU after the original project was submitted for funding. The Delegate of Spain agreed on the possibility of dividing the Region into three sub-regions depending on the latitude, but stressed the need to establish natural boundaries, which would require further discussion.
64. The Delegate of Guinea noted that the cephalopods project should be open to all countries expressing their interest in it. He supported the proposal made by the Delegate of Togo concerning a workshop on living resources involving the countries belonging to the Southern sub-region, but also expressed his interest in being associated with activities in the Northern one.
65. The Chairman established an *ad hoc* sessional working group to deal with the cephalopods fishery issue, whose aim would be to propose recommendations on the issue; there will have to be continuity between this working group and the proposed meeting in Lisbon.
66. The floor was then given to the Technical Secretary, who informed the Meeting about an initiative of Portugal to establish an *ad hoc* working group to deal with the issue of environment and fishery resources.
67. The Delegate of Portugal explained the three working lines of the Working Group, namely: environment and fishery resources; estuaries and lagoons, including the issue of their living resources' exploitation; and, identification of national needs concerning the topic.
68. It was agreed that the Delegates of Mauritania and Portugal would serve as Co-ordinators for the *ad hoc* sessional working group on a cephalopods fishery project and on environment and living resources, respectively.
69. The Technical Secretary referred to the Training Course on Up-welling Systems (Atlantic Ocean, Eastern Boundary), a joint effort of IOC and the CEC MAST Programme, hosted by the University of Las Palmas (24 July-11 August 1995). He then introduced Prof. Disteche, University of Liege, Belgium, Co-ordinator of the event.
70. Prof. Disteche informed the Participants that representatives from fourteen African countries would be selected for the training course and that participants from thirteen European countries would attend as well. The course is a joint effort of the EU MAST Programme and IOC aimed to bring together researchers and students from Africa and Europe interested in up-welling phenomena in the Eastern Atlantic Ocean, from Ireland to South Africa.
71. Dr. Arid, from the Delegation of Morocco, introduced the International Workshop on "Space Oceanography: Climate and Marine Resources in the Northwest of Africa", co-sponsored by UNESCO-IOC,

FAO, WMO, and JRC (ISPRA), and hosted by the Centre Royal de Télédétection Spatiale, Rabat (10-14 October 1995). This course would be followed by a workshop on Space Remote Sensing, with the collaboration of several agencies involved in the field of remote sensing.

72. The Delegate of Portugal stressed the need to make the most of these initiatives for the development of products and projects, the results of which should then be inserted into the IOCEA working lines.
73. In the afternoon session, the Chairman invited the Co-ordinators of the two *ad hoc* sessional working groups to brief the Meeting on their results. The reports of the two *ad hoc* sessional working groups were adopted. They are reported in Annexes IV and V.
74. The Regional Committee welcomed the offer of Portugal to host a workshop in Lisbon for the development of a regional cephalopods project which should be elaborated in the most appropriate way, making it attractive to potential donors.
75. The Regional Committee recognized that the Southern sub-region should benefit from special attention, particularly the Gulf of Guinea, and agreed on the organization of a workshop on living resources involving the countries of the Southern part of the sub-region. Links with the LME project in the Gulf of Guinea should be envisaged.
76. The Executive Secretary IOC stressed the strong need to ensure linkages between different activities. He referred to the planned Regional Workshop on Coastal Zone Integrated Management (Guinea, 3-9 December 1995) and the International Workshop on Space Oceanography to be held in Rabat, Morocco, in October 1995 as examples.
77. The Chairman expressed his personal agreement with this, as long as the participants in the different activities have the competence to encompass the different disciplines covered by the different meetings.

4.1.3 Non-Living Resources

78. The Technical Secretary referred to the International Symposium on the results of the First IOCEA Cruise in the Gulf of Guinea (Lagos, Nigeria, 17-20 May 1994) as a follow-up to the regional project "Sediment Budget Along the West African Coast (and related erosion)". He invited the convener of the Symposium to present the main results of it.
79. The Delegate of Nigeria informed the Regional Committee that the general areas treated by the Symposium were: geomorphology, physico-chemical parameters, heavy metals, mineralogy sedimentology, sediment transport dynamics and coastal erosion and ICAM. The Symposium recommended the following actions:
- (i) that financial resources be made available to countries in the region to enable them to undertake studies on sediment fluxes as adopted during the Abidjan meeting of 25-28 June 1991;
 - (ii) that the Intergovernmental Oceanographic Commission (IOC) be approached for the provision of the necessary equipment;
 - (iii) that financial assistance be made available for samples to be sent to equipped centers within the region for joint analysis by researchers;
 - (iv) that the technical workshops on coastal and marine processes (geophysical, physical, chemical, oceanography) be held as recommended in the Abidjan meeting for the benefit of countries within the region;

- (v) that training of scientists, particularly through TEMA, be carried out with more vigor in the region;
- (vi) that a budgetary evaluation taking into account equipments, missions, current expenses and organizations of workshops be carried out in the region for the next phase of work;
- (vii) that a group of experts be designated with the responsibility of implementing the project on the study of sediment fluxes;
- (viii) that an editorial board be set up for the review of the papers presented and the outcome published for subsequent distribution to all member countries;
- (ix) that the deadline for the first submission of papers to the editorial board presented during the Symposium be set for the end of June 1994;
- (x) that a regional project on integrated coastal and marine management for the IOCEA region be implemented;
- (xi) that a regional center for coastal managers be established in the region.

80. The Delegate of Nigeria informed the Regional Committee that the publication of the proceedings of the International Seminar was nearing completion. For the first time also, a special volume "Coastlines of Western Africa" was published by the American Society of Civil Engineers as part of the Coastlines of the World series during the Coastal Zone '93 Conference in New Orleans, USA. The Nigerian Delegation expressed its acknowledgement to all those who had contributed to this volume, including the IOC.

81. In pursuance of the sediment flux project in the region, a cruise is being planned whereby acoustic methods will be used to study sediment fluxes in the region. It was hoped that IOC would support such a scientific survey and make funds available for the project.

82. The Chairman expressed his appreciation to the Delegate of Nigeria for the report and the excellent work in hosting the Symposium at NIOMR.

83. The Delegate of Morocco pointed out that OSNLR is well developed in the central area of the Region, but that in the South and North regions the Programme was almost absent. She therefore proposed the development of a monograph of the Western African coasts, which would have implications of enormous importance.

84. The Group welcomed the proposal of the Representative of Morocco.

85. The Delegate of Nigeria informed the Regional Committee of the recent Open Science Meeting of IGBP-LOICZ in the Philippines, in which he had participated, sponsored by IOC.

86. Several Delegates stressed the possibility of using the Memorandum of Understanding between IOC and LOICZ of IGBP to address the issue of the typology of coastal zones.

87. The Executive Secretary IOC recalled that OSNLR provides a mechanism to address non living resources-related issues. He referred to the COASTS Programme, which deals with basic physical oceanography, and stressed that the First COASTS Workshop (Liege, Belgium, May 1994) had provided a global review of physics of the coastal zones, as well as a review of dynamics of the interactions between the open ocean and coastal zones in the world. He recalled the need for co-ordinating new proposals with existing activities and ensuring a training component within them.

88. The Delegate of France informed the Participants of the PICOLO Programme, which deals with up-welling and enrichment processes associated with equatorial Atlantic long waves. He told the Meeting that

an ORSTOM vessel will be at Abidjan for this programme. The vessel, on its way from France to Abidjan, will have the opportunity to stop in several places for scientific exchange with IOCEA researchers.

89. The Delegate of Sierra Leone pointed out that, as a general rule, gaps identified during workshops should be used to identify further research lines.
90. Referring to the invitation made by the Delegate of France, the Delegate of Benin asked whether the ship would be available to countries South of Côte d'Ivoire.
91. The Delegate of France ensured the Participants that his country, through ORSTOM, will do its best to fulfil the requests of countries which are neighbors of Côte d'Ivoire.
92. **The Regional Committee appreciated** the activities carried out by IOC within the context of the OSNLR Programme during the intersessional period. It was recommended that the on-going activities should continue.
93. **The Group recommended** that the study of sediments in the coastal zones, which had not been fully implemented, due to the lack of funds and equipment, be considered by IOC among the activities which need to obtain funding priority.
94. **The Regional Committee agreed** that as a follow-up of the sediment flux studies in the Gulf of Guinea sub-region, a cruise should be planned whereby acoustic methods will be used.
95. The Executive Secretary IOC pointed at the need to consider the issue of the transfer of sediments from land to sea within a broader point of view, namely how this relates to the impact of human land-based activities on the marine environment.
96. The Representative of Guinea stated that the problem of coastal dynamics and transfer of sediments was a real one. The Chairman stressed the importance to also approach the problem from a national point of view.

4.1.4 Marine Pollution

97. The Technical Secretary introduced the item referring to the Annotated Agenda and the IOC Annual Report 1994, and recalled the recent developments regarding the termination of WACAF/2, in which IOC, through GIPME, was a partner, and also focusing on follow-up to UNCED's Agenda 21, Chapter 17, and in particular, integrated coastal area management (ICAM). He recalled the interest of the Regional Sub-Committee in this subject expressed at its Third Session, and through the Chair invited the Delegate of Guinea to inform the Regional Committee of the activities, including: a Workshop on Coastal Erosion and Sea-level Variations in Zanzibar, Tanzania, January 1994; a Workshop on Integrated Coastal Zone Management in Karachi, Pakistan, October 1994; the Third IOC-WESTPAC Symposium, Bali, Indonesia, November 1994; and, the Global Conference on Coastal Change, Bordeaux, France, February 1995.
98. The Executive Secretary IOC also stressed the very strong need for IOC to relate its scientific and services programmes to the follow-up to UNCED, and the priority-issues of today, in accordance with the directions of the IOC Assembly. He emphasized the need for co-ordination, recalled that at least three mechanisms exist within the UN System for this as regards the marine environment, namely: ICSPRO, GESAMP and the ACC Sub-Committee on Oceans and Coastal Areas, involving all the major relevant bodies and programmes (including IOC). In this context, he stressed the need for national co-ordination and communication and recalled the mechanism provided by IOC in the form of national committees. This matter was becoming even more important now in relation to the implementation of UNCLOS. The Executive Secretary IOC recalled the revised GIPME Action Plan as reported in the report of the Eight Session of GIPME (Costa Rica, April 1994). He referred to the three GIPME Groups of Experts, namely GEEP, GESREM and GEMSI. These groups provide input to regional activities, whether directly through IOC programmes or through joint

activities such as the IOC-UNEP Mussel Watch Programme; or, through regionally agreed plans/actions such as WACAF, which is now in its second phase and which specifically relates to ICAM. He recalled that at its Third Session IOCEA included within its action plan for 1993-96: the continuation and termination of WACAF/2; the organization of a workshop to present results from WACAF/2; the co-ordination with other elements of WACAF/3 and WACAF/1; and the establishment of a network of baseline stations. This last activity, which would perfectly match the equivalent on-going activity in East Africa, would represent the only approach to guarantee the collection of the necessary information on the state of pollution in the coastal zone. The Executive Secretary IOC recommended that the new IOCEA Action Plan be adhered to in this activity, which would also provide an important scientific element to ICAM. He suggested holding an *ad hoc* discussion during IOCEA-IV so as to formulate the actions to be undertaken. The Group could also consider the need to further develop the planned Workshop on Integrated Coastal Zone Management, Conakry, Guinea, December 1995.

99. The Delegate of Guinea informed the Regional Committee of the interest of his Government in this matter, the involvement and co-sponsorship of UNEP and IOC, and he outlined the programme for the ICAM Workshop. The activity is considered as a regional activity.
100. Several Delegations commented on the ICAM issue and the marine pollution programme in this context, emphasizing: the need to keep a clear linkage between global and regional actions and GIPME as a global marine pollution programme, which through MARPOLMON and its regional components provide input to regional assessments and the regular global assessment of the state of the health of the oceans; that ICAM-related activities occur in different areas through various mechanisms and that coordination is strongly required between national institutions and national focal points; that in some nations (e.g. Senegal, Nigeria) related programmes of training, research and public awareness are being set up, and that information concerning what ICAM actions within the Committee programme cover is important; that the IOC-IOCEA needs to find its appropriate niche in the work of ICAM; that marine pollution studies and assessments have been developing quite well in the past years and that results could be of help in relation to various applications, e.g. state of the environment, human health and fisheries, tourism, sustainable development. It was emphasized that the scientific input to ICAM was strongly needed. It was also emphasized that there is a need to be selective and decide on priorities, and also to evaluate the impact and follow-up of the workshops carried out as part of the regional programme.
101. The Executive Secretary IOC recalled the programme which the Committee had adopted at its Third Session, and that most of these actions in marine pollution have been done or are underway. In relation to monitoring, there is a need to start the establishment of baseline stations which is one of the points of the programme. ICAM is likewise one action therein, although referred to under OSNLR. This activity is now being carried out, e.g. through the Workshop in Conakry. He mentioned that IOC has recently organized several ICAM-related regional waste management action plans, for which the IOCARIBE one, which involves several organizations other than IOC (IMO, the World Bank and others), could serve as a model. Regarding the issue of the Third GIPME Action Plan, the Group might wish to stress the link between global and regional aspects. He recommended that the national focal points ensure the input related to the GIPME questionnaire which IOC had recently circulated in the Region.
102. The Chairman agreed with the proposal of the Executive Secretary IOC and established a sessional *ad hoc* working group comprising Nigeria, Benin, Guinea, Côte d'Ivoire and Morocco, with the Delegate of Nigeria as Co-ordinator.
103. The Delegate of Morocco asked the Executive Secretary IOC to confirm the participation of all IOCEA countries in the marine pollution programme.
104. The Delegate of Portugal noted that the IOC and UNEP regional mechanisms do not correspond to each other, and encouraged the Group to contact UNEP through GIPME to point out that these differences are no longer justified since UNEP participates fully in the GIPME Programme. He stressed that, from a health of the ocean perspective, the region has to be considered as one single area. He also stressed the need for IOCEA to produce a report every two years on the state of the health of the Central Eastern Atlantic.

105. The Delegate of Mauritania informed the Meeting of an Urgency Plan concerning marine pollution elaborated by CNROP, and invited national efforts to be co-ordinated through the focal points in order to develop a regional plan.
106. The Delegate of Nigeria noted the association of the IOCEA programmes with WACAF. He called on IOC to ensure effective implementation of IOC-related aspects in such a collaboration, especially in ICAM.
107. The Executive Secretary IOC pointed out that co-operation with other mechanisms such as WACAF of UNEP is due to pragmatic reasons. He took note of the clear message from the Group that IOC mechanisms should cover the whole Region, from North to South, but invited the Member States to also use IOCEA to gain access to other programmes which have a different geographical cover other than the IOC ones, such as WACAF in the case of Morocco. Regarding the issue of building up infrastructures, he informed the Regional Committee that IOC is not in a position to provide laboratories with equipment. This could be done through an assistance programme, which might eventually be co-ordinated by IOC. He expressed his conviction that the best way to obtain assistance programmes was to show scientific results.

4.1.5 International Bathymetric Chart of Central Eastern Atlantic (IBCEA)

108. The Technical Secretary reported on the developments concerning the Programme, referring to the intersessional report.
109. The Delegate of Portugal informed the Participants that Portugal was contributing to the Programme by the editing and preparation of four sheets of the Chart (West coast of the Iberian Peninsula; Madeira; Azores; and, the Cape Verde Archipelagos). Three of the sheets will be produced in co-operation with France. He stressed that co-operation through training and exchange of information was intended to be continued and increased, to assist lusophone African countries. The Delegate of Portugal invited IOC to pay special attention to the need for an update of the nautical charts of the region and recommended the use of new technologies such as multi-beam, differential GPS and GIS.
110. The Delegate of Nigeria expressed his appreciation for the activities carried out by Portugal, and invited the Representative of Portugal to consider the possibility of organizing a meeting (workshop) aimed at assessing the state-of-the-art of nautical cartography in the Region.
111. The Regional Committee agreed that a meeting of the Editorial Board of IBCEA should take place in 1996 and invited the Delegate of Portugal to forward to his Government the request concerning the possibility of having this meeting in Lisbon.
112. The Delegate of Portugal took note of the request, which will be passed on to the Government of Portugal.
113. The Meeting agreed that these activities would be pursued as part of the Programme of Work.

4.2 SERVICES AND GOOS

114. The Technical Secretary introduced the Agenda Item, referring to the intersessional report, the Annual Report 1994 of IOC, the Annotated Agenda and the Programme of Work adopted at IOCEA-III. In particular, he referred to the establishment of a regional dispatch center and an associated pilot phase activity in Côte d'Ivoire. He then asked the Representative of Côte d'Ivoire to inform the Meeting on the state of development of the Center.
115. The Delegate of Côte d'Ivoire informed the Meeting that within the project, which has been named RECOSCIX-CEA, several actions have been already undertaken, in particular: the acquisition of equipment such

as PCs, telephone and fax lines. A questionnaire has been developed and sent out in 400 copies. The expected products of the Project are, *inter alia*, brochures and a newsletter. This latter will be published in French and English at three-monthly intervals and will cover research and monitoring activities, with a list of meetings, training opportunities, etc.

116. Several Delegations expressed their great satisfaction with the progress made and emphasized the need to ensure continuous progress in this action. The relevance of the experience made in the IOCINCWIO Region in the context of RECOSCIX-WIO was also stressed. The initiated exchange between the Regions was noted with appreciation.
117. The Delegate of Portugal stated that the matter of communication covered an area broader than the dispatch center in view of the complexity of the Region. He stressed the need to enhance the information tools available, especially IMS, and regional counterparts of that in the form of newsletters such as those produced for the IOCARIBE and WESTPAC Sub-Commissions. He also stressed that the information management programme at IOC should be strengthened, e.g. by the generation of inventories, preparation of marine science country profiles, provision of a package of information material and harmonization of regional and global newsletters. The Delegate of Portugal informed the Group of the activities of the Information and Documentation Division of the Portuguese Institute of Marine Research (IPIMAR-DID) as a contribution to the establishment of a regional co-operative information network for the IOCEA Region, through facilitating information transfer and resource-sharing.
118. The Chairman expressed appreciation on behalf of the Regional Committee for the developments of RECOSCIX-CEA and for the activities of Portugal in this field.
119. The Delegate of France stressed the importance of the e-mail system and the great potential of Internet. He informed the Regional Committee that the ORSTOM E-mail network is available to IOCEA Member States, although not in all of them. He also said that ORSTOM is ready to make available its expertise in countries where E-mail is not available or where ORSTOM has no partner.
120. The Regional Committee invited the Representative of France to investigate the possibility of providing support to this end.
121. Some Delegates also referred to actions of FAO in the area of communication and emphasized co-ordination and co-operation.
122. The Delegate of Guinea stressed the implementation of the decision to establish the RNODC of IODE for IOCEA at the Centre de Recherche Scientifique. This had been agreed at previous sessions of IOCEA, and he stressed that support should be provided for this from IOC. This was endorsed by the Committee.
123. The Delegate of Portugal stressed that all focal points should receive information and copies of all communications concerning the development of dispatch centers such as those in Abidjan and Mombasa (for the IOCINCWIO Region), and that this action should be seen in relation to the global and inter-regional perspectives also. He also referred to marine information management and marine science country profiles. The Chairman expressed agreement with his approach. During the discussion, reference was made to the significance of this for the development of GOOS.
124. The Delegate of Spain informed the Regional Committee that he had not received the questionnaire concerning the exchange of oceanographic data information, as agreed upon during IOCEA-III. He also referred to a national project aimed at expanding the national oceanographic database, including oceanographic and fishery information concerning the Central Eastern Atlantic. Finally he drew the Meeting's attention to the Regional Maritime Database as envisaged by the Ministerial Conference for Fishery Co-operation among the African Countries bordering the Atlantic Ocean, with the technical assistance of FAO and the financial support of the EU.

125. The Regional GLOSS Co-ordinator, Dr. Awosika, informed the Regional Committee on the development of a regional network of sea-level stations. He noted that only four countries had replied to the questionnaire which was sent out. Only Sierra Leone and Côte d'Ivoire are in a position to receive the tide gauges donated by the Government of Sweden. However, these countries need financial assistance to do this. He urged IOC to provide the minimum funds for these stations to become operational. The Senegal and Nigeria stations are already operational, but there is a strong need to support them with consumables and spare parts in order to ensure the continuity of data collection.
126. The Chairman emphasized the need for the IOCEA Member States to respond to the questionnaire as well as any related request for information.
127. The Delegate of Portugal informed the Regional Committee of a network of twelve tide gauge stations, four of which are committed to the GLOSS Programme.
128. Several Delegates invited IOC to increase awareness in the Region of the need for research on sea-level rise, and requested IOC to assist in the installation of tide gauges.
129. The Delegate of Cameroon indicated his country's desire to participate in the programme, but pointed out that they had not yet received the questionnaire referred to by Dr. Awosika.
130. The Delegate of France informed the Regional Committee about the active role played by ORSTOM in the Gulf of Guinea.
131. The Executive Secretary IOC referred to GOOS and, in particular, to the need to reach Governments and policy-makers, for which the proposed GOOS Capacity Building Panel represents a tool. He mentioned the OCEAN-PC Programme, GTSP, data products on CD-ROM and GODAR.
132. The Chairman recommended co-ordination of all these activities.
- 4.3 FOLLOW-UP TO THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED), ITS AGENDA 21 AND THE TWO CONVENTIONS (FRAMEWORK CONVENTION ON CLIMATE CHANGE AND BIOLOGICAL DIVERSITY)
133. The Technical Secretary introduced the item. He referred to Chapter 17 of Agenda 21, and recalled that UNESCO, through IOC, provides the Secretariat for the ACC Sub-Committee on Oceans and Coastal Areas, which is responsible for reporting on the state of implementation of Chapter 17 for the Commission on Sustainable Development (CSD) Meeting in 1996. As regards the UN FCCC, the Technical Secretary informed the Regional Committee about the support IOC provides to the Subsidiary Body for Scientific and Technical Advice to the Convention as well as the close collaboration between IOC and the Climate Change Convention Secretariat, and the interaction with the Intergovernmental Panel on Climate Change (IPCC).
134. The Delegate of Nigeria requested information on IOC's participation with respect to the Convention on Biological Diversity.
135. Mr. Aricò, IOC Secretariat, informed the Meeting of a recently held IOC-NOAA *ad hoc* Consultation on Marine Biodiversity (Paris, France, 3-5 May 1995). He briefly described the objectives of the Consultation, namely: to review the existing IOC programmes and activities of relevance to marine biodiversity; to consider the future role of IOC with respect to the Convention on Biological Diversity; to advise the IOC Governing Bodies on TEMA-related needs and resources. The Consultation stressed the unique diversity of marine living organisms and recommended that, due to their strong dependence on physical conditions, studies of marine species diversity be integrated in oceanographic studies. Mr. Aricò informed the Meeting that IOC-XVIII will decide on the issue as to whether to establish an IOC programme on biodiversity; or, that marine biodiversity be established as a regional component in all relevant IOC programme activities at global and regional level.

The Consultation recommended that focal points be appointed in the Regions and that activities should be co-ordinated by an Advisory Biodiversity Strategy Group. He finally referred to some recommendations of the Consultation concerning training and capacity building in the field of marine biodiversity, such as long-term high-level education in taxonomy, short-term training in para-taxonomy and training in the development of national inventories and the management of biological data.

4.4 UN CONVENTION ON THE LAW OF THE SEA

136. The Technical Secretary introduced the item, recalling the entering into force of UNCLOS and the role of IOC as a competent international organization in this context.
137. Several Delegates stressed that IOCEA could play an important role to ensure participation in UNCLOS. They also pointed out that management is a priority. This relates to sedimentary flux, on the one hand, and fisheries, on the other. Sedimentary flux needs to be considered a priority issue for researchers in the Region, in order to better understand the question of the sedimentary balance.
138. The Delegate of Mauritania proposed the organization of a two-week seminar on management, including theoretical and practical aspects and involving scientists, fishermen and administrators. The seminar would lead to the production of a document on management policies, focusing on fishery aspects. He invited IOC to support the organization of this seminar. The Delegate also stressed that training and equipment aspects are very important in relation to UNCLOS.

5. CAPACITY BUILDING

139. The Technical Secretary introduced the item referring to the Annotated Agenda and the Programme of Work 1993-96. He also informed the Committee about the *Ad Hoc* TEMA Strategy Meeting held at UNESCO (21-24 March 1995) and invited the Co-chair of that meeting, the present Delegate of Portugal, to provide details of the report.
140. The Delegate of Portugal informed the Regional Committee that a draft strategy had been prepared to respond to the needs of UNCLOS and the follow-up to UNCED. This strategy would be presented to the Eighteenth Session of the IOC Assembly in June 1995 for possible endorsement. If endorsed, it would imply the establishment of a TEMA Group of Experts. The Delegate proposed that, in such an eventuality, a representative of IOCEA be identified at the present session to participate in the TEMA Group of Experts. He proposed the Delegate from Morocco, Prof. Maria Snoussi. The Delegate also stressed the need to reinforce and enhance capacity building in response to UNCED and Agenda 21 and emphasized the preparation of marine science country profiles as relevant tools. As Delegate of Portugal, he recommended that an evaluation be made of the sources of funding for the various projects which have been implemented, as well as those which have not been successful, so as to find a way to obtain new resources. There was a strong need to mobilize support from Governments. The issue should be brought to policy level.
141. In this context, the Delegate from Sierra Leone supported the development of public awareness and pointed out that an event such as the Ocean Day, 8 June, should be used to this end.
142. The Delegate of Ghana welcomed the proposal that the Region be represented at the TEMA Group of Experts and supported the proposal made by the Delegate of Portugal to invite Prof. Snoussi (Morocco) for this task. This was seconded by several Delegates.
143. The Delegate of Guinea insisted that the fact be mentioned in the report of the meeting.
144. The Delegate of Togo also expressed his willingness to act as regional representative at the TEMA-GE.

145. The Delegate of Senegal informed the Committee of the development of the Train-Sea-Coast Programme of UN (DOALOS) and UNDP, and that his Institute had been invited to participate in the related network. This had been accepted, and the Institute was selecting two subject areas to be covered.
146. The Delegate of Cameroon informed the meeting of the activities of FAO in preparing inventories and directories, and stressed the need to complete these inventories agreed upon at IOCEA-IV. This could possibly be done through the regional dispatch centre as a focal point for the region.
147. Several Delegates stressed the need to enhance national capacity-building and establish related national programmes.
148. The Delegate of Congo proposed the establishment of a regional centre for equipment maintenance.
149. The Delegate of Spain informed the Regional Committee of the willingness of the University of Las Palmas de Gran Canaria to provide training, staff for laboratories and equipment. He informed the Participants that a letter of agreement with UNESCO-IOC on this matter will possibly be proposed and signed.
150. The Delegate of Morocco expressed her thanks for her nomination and also informed the Committee of the network for training established in the Mediterranean, involving all countries there.
151. The Executive Secretary IOC informed the Regional Committee that IOC is a partner in the Train-Sea-Coast Programme and had proposed two training centers as part of the network in East and West Africa.

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

152. The Technical Secretary introduced the item. He explained that IOC/IOCEA co-operation with other bodies in the Region mainly concerns UNEP and FAO. He informed the Meeting of the inability of FAO to attend IOCEA-IV for logistical reasons and recalled, as already-mentioned before in the text, that an FAO Delegation will visit IOC to discuss terms of co-operation with IOC in the IOCEA Region, with a view to fisheries biology and training activities.
153. The Chairman invited the Meeting to identify elements which IOC should bring to the attention of the FAO Delegation at the meeting in Paris. The following subjects were identified: the need to approach the FAO Sub-regional Commission for Fisheries; co-operation as to relating satellite information to living resources.
154. The Delegate of France requested IOC to contact FAO with a view to supporting an SST activity which is taking place in Senegal, and which is of use to the FAO GIS.
155. The Delegate of Senegal suggested that IOC contact the Permanent Secretariat of the Sub-regional Commission for Fishery (Mauritania, Senegal, Gambia, Guinea-Bissau, Guinea-Conakry and Cape Verde), in order to adapt its strategy of intervention in the Region on the basis of priorities identified by the IOC Regional Committee.
156. The Delegate of Cameroon invited IOC to contact UNEP to find out about the follow-up on two training courses on marine mammals (in French and in English) organized by the Research Center for Fisheries and Oceanography (Accra, Ghana, 1992), which were to be followed by the elaboration of proposals of projects to be executed in the Region. He recalled the importance of marine mammal-fishery interactions for many of the IOCEA Member States.
157. The Regional Committee also stressed the importance of co-operation with ORSTOM.

158. The Delegate of Cote d'Ivoire stressed the need to be associated with training activities organized by IOI.
159. The Group strongly encouraged all IOCEA Member States to develop initiatives aimed at mutual regional and mutual co-operation.
160. The Delegate of Congo requested the assistance of IOC to approach the EU to examine the question of a project aimed at creating a center for fisheries research with a training center and a center for naval construction in Congo.
161. The Delegate of Nigeria raised the issue of the OSNLR sediment dynamics Project presented to the EU for funding.
162. The Technical Secretary responded that the ACP Group suggested that IOC approach the EU Directorate VIII, but that the project proposal will first need to be reviewed.
163. The Regional Committee recommended that IOC explore the possibility of co-operation with WMO in the Region. It was also recommended that the co-operation with regional and sub-regional organizations be reinforced.

7. FUTURE PROGRAMME OF WORK

7.1 PROGRAMME OF WORK FOR 1996-97

164. The Chairman referred to the proposal of the Executive Secretary IOC to develop a three-year rather than a two-year Programme of Work. He recommended the Regional Committee to be selective and pragmatic, while going through each of the points which will constitute the next IOCEA Programme of Work. He recalled that the Group is in a position to retain all the activities belonging to the previous programme of work, as appropriate.
165. The Delegate of Nigeria asked for clarifications as to the implications of a three-year programme of work.
166. The Technical Secretary explained that the Annotated Agenda referred to an IOCEA Programme of Work for 1996-97 because the IOC budget works on a biennial basis. However, this would not influence the possibility of developing a three-year programme of work, should the Group decide to adopt this option.
167. Several Delegates stressed that it would be more logical to have a two-year programme of work, corresponding to the IOC budget for 1996-97.
168. The Group decided to retain the two-year option, as indicated in the Annotated Agenda.
169. A long discussion followed regarding the development of an IOCEA Programme of Work for 1995-96. **The Regional Committee approved** Recommendation IOCEA-IV.1 and the related Programme of Work 1996-97, as reported in Annex II.
170. During the discussion the issue of organizing an international seminar on oceanography was referred to.
171. Several Delegates expressed the need to organize such a seminar, so as to be able to assess the state-of-the-art in all sectors of oceanography in the IOCEA Region.

172. Other Delegations were more of the opinion that a less broad activity should be organized, specifically a seminar on oceans and climate.
173. The Group subsequently agreed on a Seminar on Oceans and Climate in the Eastern Atlantic.

7.2 IOC MEDIUM-TERM STRATEGY FOR 1996-2001

174. The Technical Secretary introduced the item and referred to Document IOC-XVIII/2 Annex 3 "Draft IOC Medium-Term Strategy". He informed the Participants that it was a matter of discussing the IOC Medium-Term Strategy for 1996-2001, which *inter alia* concerns the role of IOC with respect to Agenda 21, the two Conventions (Framework Convention on Climate Change and the Convention on Biological Diversity) adopted at UNCED and UNCLOS. In particular he referred to the section of the Document concerning the role which the IOC Regional Bodies will play in this respect.
175. The Delegate of Nigeria raised the issue of the possibility to create sub-commissions within IOCEA.
176. The Chairman opened the discussion on this point.
177. Côte d'Ivoire, Sierra Leone and Ghana supported the proposal of Nigeria.
178. The Technical Secretary explained that this would require logistical support (physical venue, secretariat, etc.), and that the decision was up to the IOC Assembly.
179. **The Regional Committee expressed** its wish to create a sub-commission for IOCEA, due to the geographical extension of the area. This would help implement activities in the Region.

8. NATIONAL LIAISON ARRANGEMENTS WITH IOC AND FOR THE IOCEA REGION

180. The Technical Secretary introduced the Agenda Item and stressed the importance of the existence of national mechanisms to ensure liaison with IOC.
181. **The Regional Committee stressed** that efforts at the national level have to be made to ensure that the relevant national mechanisms formulate needs and resources in a correct and complete way.
182. **The Regional Committee reiterated** the importance for the IOCEA Member States of communication means between each other and with the IOC Secretariat.

9. ELECTION OF OFFICERS

183. In accordance with the IOC Statutes and Rules of Procedure, the Technical Secretary invited the Session to propose candidates for the election of the Chairman and Vice-Chairman for IOCEA.
184. The Delegate of Nigeria proposed the present Chairman and Vice-Chairman as candidates.
185. This proposal received strong support from the whole Regional Committee. In particular the following Delegations expressed their support verbally: Côte d'Ivoire, Cameroon, Guinea, Morocco, Mauritania, Sierra Leone, Congo, Benin, Guinea-Bissau and Senegal.
186. Dr. Gueye, Senegal, and Mr. Wellens-Mensah, Ghana, were respectively re-elected Chairman and Vice-Chairman of IOCEA with acclamation. They both thanked the Committee for having expressed their

confidence in them and also the IOC Secretariat for the assistance provided in the past and which will be provided in the future.

10. DATES AND VENUE OF THE FIFTH SESSION OF IOCEA

187. The Technical Secretary invited Member States to make an offer to host the Fifth Session of the IOC Regional Committee for the Central Eastern Atlantic.
188. The Delegate from Côte d'Ivoire extended an invitation to host the meeting in Abidjan. This invitation was supported by Sierra Leone and Guinea.
189. The Chairman welcomed the offer and stated that the exact dates for IOCEA-V, to be held in 1998, will be chosen by Côte d'Ivoire in co-ordination with the IOC Secretariat.
190. The Technical Secretary thanked Côte d'Ivoire on behalf of IOC for the kind offer.

11. ADOPTION OF THE DRAFT REPORT OF THE SESSION

191. **The Regional Committee approved** the draft report of the session.

12. CLOSURE

192. The Delegate of Portugal asked for the floor before the closure ceremony started. The Chairman accorded the floor to the Delegate of Portugal.
193. The Delegate of Portugal expressed her highest considerations to Mr. Soares on behalf of the Government and the Highest Authorities of Portugal for his attendance at IOCEA Meetings. She stressed the excellent work done by Mr. Soares and recalled the efforts made by him in order to strengthen co-operation between countries in the Region within the context of IOCEA.
194. The Chairman and the Regional Committee associated themselves with the statement made by the Delegate of Portugal.
195. Mr. Soares acknowledged with sincere pleasure the kind and warm message expressed by the Delegate of Portugal and the Regional Committee.
196. The Chairman stated that the issue of the marine environment concerned all the participants for the whole week. He stressed how well the Committee worked, and thanked all the participants for their quality of work and enthusiasm. He also thanked: the Spanish and Gran Canaria Authorities; the Authorities of the University of Las Palmas, Gran Canaria; the IOC Secretariat; the interpreters. He made a special mention of Mr. Soares, who had worked to build up IOCEA. He thanked very much the Executive Secretary IOC for his important input to the meeting and continuous support and assistance to the IOCEA countries.
197. The Dean of the Faculty of Marine Science of the University of Las Palmas, Prof. Santana, gave a short speech on behalf of the Rector. He thanked IOC, and in particular the Executive Secretary IOC, Dr. Kullenberg, and Mr. Soares for the privilege of holding IOCEA-IV at the University of Las Palmas. He also thanked all the participants and the people who had participated in the local organization. He finally referred to co-operation between the University and UNESCO-IOC concerning the possibility of offering courses at the graduated and post-graduate levels in marine science.

ANNEX I

AGENDA**1. OPENING****2. ADMINISTRATIVE ARRANGEMENTS**

2.1 ADOPTION OF THE AGENDA

2.2 DESIGNATION OF THE RAPPORTEUR FOR THE SESSION

2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

3. REPORT ON INTERSESSIONAL ACTIVITIES**4. PROGRAMME MATTERS**

4.1 SCIENCES

4.1.1 Oceans and Climate

4.1.2 Living Resources

4.1.3 Non-Living Resources

4.1.4 Marine Pollution

4.1.5 International Bathymetric Chart of Central Eastern Atlantic (IBCEA)

4.2 SERVICES AND GOOS

4.3 FOLLOW-UP TO THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED), ITS AGENDA 21 AND THE TWO CONVENTIONS (FRAMEWORK CONVENTION ON CLIMATE CHANGE AND BIOLOGICAL DIVERSITY)

4.4 UN CONVENTION ON THE LAW OF THE SEA

5. CAPACITY BUILDING**6. CO-OPERATION WITH OTHER BODIES, PROGRAMMES, DONOR AGENCIES AND REGIONAL ORGANIZATIONS****7. FUTURE PROGRAMME OF WORK**

7.1 PROGRAMME OF WORK FOR 1996-97

7.2 IOC MEDIUM-TERM STRATEGY FOR 1996-2001

8. NATIONAL LIAISON ARRANGEMENTS WITH IOC AND FOR THE IOCEA REGION**9. ELECTION OF OFFICERS****10. DATES AND VENUE OF THE FIFTH SESSION OF IOCEA****11. ADOPTION OF THE DRAFT REPORT OF THE SESSION****12. CLOSURE**

ANNEX II

RECOMMENDATION IOCEA-IV.1

The Regional Committee,

Recalling the implementation of its programme during the intersessional period,

Noting 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;

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, the entry into force of UNCLOS, and the importance of a proper response and follow-up on a regional and national level, and 1998 International Year of the Ocean,

Decides to adopt the programme of work for the regional co-operation over the period 1996-1997 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-IV.1

PROGRAMME OF WORK 1996-97

ACTIVITY (VENUE AND DATES)	ESTIMATED COST AND PRIORITY	IMPLEMENTING INSTITUTION/ COUNTRY-PARTICIPANTS
1) Oceans and Climate		
Workshop on Oceans and Climate in the Eastern Atlantic (Freetown, Sierra Leone, December 1996)	High	IOC; Host Country - All Member States
2) Living Resources		
Workshop on the development of a cephalopods regional fisheries project and on fish-stock assessment methodologies (Portugal 1996 or 1997)	US \$ 15,000 High priority	IOC; Host Country - Recommended Groups of Experts
Workshop on environment and alieutic resources in estuaries and lagoons (Portugal or Guinea, 1996 or 1997)	US \$ 20,000 Medium/High priority	IOC; Host Country - All interested Member States
Sub-regional Workshop on Living Resources from Guinea to Angola (Benin, 1996)	US \$ 15,000 High priority	IOC - Member States belonging to the sub-region
3) Non-Living Resources		
Monograph on the typology of the Western African coasts (1997)	US \$ 10,000 ? High priority	IOC - All Member States
Second IOCEA Cruise in the Gulf of Guinea (1996 or 1997) (preceded by a Co-ordination meeting for the Second IOCEA Cruise in the Gulf of Guinea to be held in 1996)	US \$ 40,000 High priority	IOC - Participating Member states (co-ordination meeting: IOC - University of Venice, Italy, Nigeria, Cote d'Ivoire
Collection of information on river inputs and sediment fluxes	No cost High priority	All Member States (IOC to ensure co-ordination)
4) Marine pollution		
Establishment of a network of baseline stations (from design to the concrete establishment) (1996-97)	US \$...? High priority	IOC; GEF (?) - All Member States
Co-ordination with LME activities in the Region (1996 and 1997)	No cost (?) High priority	IOC; UNIDO; National efforts
5) Ocean Mapping		
IBCEA: continuation of regional projects according to the editorial board plan (covering 1996-97)	---	Spain, Portugal, France (IOC to ensure co-ordination)
IBCEA Editorial Board Meeting (Portugal, 1996)	US \$ 15,000	IOC; Portugal - Participating Member States
6) Communications		
Establishment of an E-mail network in the Region	Very high priority	Donors; IOC - All Member States

7) Ocean observations (support to the establishment of a regional GOOS)		
Establishment of tide gauges (1996 and 1997)	High priority	IOC; Recipient countries
Maintenance of tide gauges (1996-97)	High priority	IOC; National efforts - Concerned Member States
Regional training course on the use and collection of sea-level data (1996-1997)	US \$ 10,000 Medium priority	IOC; Donors - All Member States
Preparation of regional inventories of on-going ocean observations (including coastal ones) (to be started in 1996)	High priority	National efforts; RECOSCIX-CEA
8) IODE		
Establishment of a regional data center in Conakry, Guinea (1996)	--- High priority	IOC to provide assistance - All Member States
Assistance to the establishment of national data centers	US \$...? High priority	IOC; Donors; National efforts
Preparation of inventories of courses, training centers, existing institutions and equipment (1996-1997)	High priority	RECOSCIX-CEA
Training Workshop on Archiving and Transfer of Oceanographic Data and Information (1997?)	Medium/High priority (?)	IOC; RECOSCIX-CEA
9) UNCED		
Implementation of Agenda 21, Chapter 17 (1996-97)	High priority	IOC; UN Agencies; NGOs; Member States
Creation of awareness of governments, policy- and decision-makers and stake-holders (1996 and 1997)	High priority	Member States; IOC Scientists
10) Capacity building		
Assistance in the establishment of a degree course in oceanography at the University of Lagos, Nigeria (1996 and 1997)	High priority	IOC; National effort
Second IOCEA Cruise in the Gulf of Guinea (1996 or 1997) (see above)		
Training components of activity groups 3), 7) and 8)		
Communication to Organizations, Intersessional Meeting of Officers (1996-97)	High priority	IOC Secretariat; IOCEA Officers
Organization of IOCEA-V (1997 and 1998)	High priority	IOC Secretariat; IOCEA Officers; Host Country - All Member States

ANNEX III

SPEECHES

A - OF DR. GUEYE, CHAIRMAN IOCEA

Monsieur le Secrétaire d'Etat à la pêche,
Monsieur le Recteur de l'Université de Las Palmas de Gran Canaria,
Monsieur le Directeur de l'Institut Océanographique Espagnol,
Monsieur le Doyen des Sciences Marines,
Monsieur le Directeur des Pêches de la Grande Canarie,
Honorables délégués,
Mesdames et Messieurs,

Je voudrais, tout d'abord, au nom de tous les participants à la 4^{ème} session de l'IOCEA, remercier les autorités espagnoles pour avoir accepté d'accueillir la réunion; ensuite j'aimerais leur dire tout le plaisir que nous avons d'être sur cette belle terre de la Grande Canarie.

Mesdames, Messieurs,

Nous voici donc à nouveau réunis pour essayer pendant cinq jours de faire avancer, dans la bonne direction, notre ambition commune qui est celle d'oeuvrer à une meilleure connaissance du milieu marin. Nous répondrions, ainsi, à l'attente de nos pays respectifs visant à l'exploitation des richesses de ce milieu et surtout à sa protection.

La dernière session que nous avons tenue à Dakar avait mis l'accent sur le rôle que la coopération régionale doit avoir dans cette perspective. Il est donc très positif que la présente session ait enregistré une si bonne participation.

Voilà un peu plus de trois ans que nous avons adopté un vaste et ambitieux programme de travail. Au cours de nos travaux, nous ferons le point sur ce qui a été fait jusqu'à présent, mais aussi devons-nous nous intéresser davantage au chemin qu'il convient de prendre pour surmonter les différentes difficultés qui jalonnent notre parcours. Elles sont nombreuses, certes, mais je suis sûr que leur identification, loin de nous décourager, constituera au contraire l'élément moteur qui nous aidera à avancer.

Elles sont nombreuses, disais-je. Pour ma part, j'en ai retenu une plus particulièrement. Il s'agit du déficit de communication, de la lenteur ou absence de circulation de l'information entre les différents pays et leurs structures de recherche d'une part, et entre le bureau du Comité Régional et les différents États membres d'autre part. Il y a également la modicité des ressources disponibles par rapport aux besoins. Mais j'ai la ferme conviction que cette 4^{ème} session va offrir l'occasion d'un débat riche et fécond sur les questions inscrites à son ordre du jour. La conjugaison de nos efforts aboutira, sans nul doute, à l'adoption de décisions qui feront avancer notre Comité.

Avant de terminer, je voudrais remercier à nouveau les autorités espagnoles, notamment celles de l'ULPGC, pour leur accueil chaleureux.

Je remercie également la Commission océanographique intergouvernementale pour son soutien déterminant à plusieurs égards.

B - DR. RUA, SECRETARY OF MARITIME FISHERIES

Es para nuestro país una gran satisfacción el acoger, por primera vez, la reunión de la IV Sesión del Comité Regional de la COI para el Atlántico Centro Oriental (IOCEA). Cuando el Rector de la Universidad de Las Palmas nos hizo llegar su interés en proponer a su Universidad como organizadora del evento, nos pareció

una magnífica idea y nuestro Ministro de Agricultura, Pesca y Alimentación se dirigió inmediatamente a la COI para ofrecer a España y a la Universidad de Las Palmas de Gran Canaria como sedes de esta reunión de IOCEA.

La oportunidad de esta reunión es innegable por diferentes razones, entre las que destacaríamos:

- permitirá analizar con una visión más profunda los resultados conseguidos hasta ahora y el camino a seguir sobre todo en temas relacionados con la biodiversidad, en los planes de acción regionales referentes a la puesta en marcha de lo previsto en la Agenda 21, particularmente el capítulo 17, de la cumbre de Río de 1992.

- permitirá estudiar y avanzar en las decisiones referentes a aspectos de la Región relacionados con la potenciación y el intercambio de bases de datos oceanográficos y pesqueros así como los aspectos relativos a satélites oceánicos y sensores remotos de utilidad para la región, todo ello dentro de IODE. Es importante también mantener el interés de la región en todo lo que respecta al Sistema Global de Observación Oceánica, cuya puesta en marcha en otras regiones se va haciendo realidad (EUROGOOS se firmó en diciembre de 1994).

- deberá producir un avance sustancial en la coordinación, intercalibración y recomendaciones de los trabajos ya realizados por el programa sobre "la Vigilancia y Control de la Contaminación del Medio Marino en las Regiones del Africa Centro-Occidental", que forma parte del Sistema Mundial sobre el Control de la Contaminación Marina (MARPOLMON) y al que hay que seguir prestando especial atención para poder disponer de series históricas que permitan comparaciones futuras.

- posibilitará la preparación de un programa subregional sobre el estudio del sistema de la corriente de Canarias y sus afloramientos asociados en relación con los recursos vivos del área, lo cual facilitará el conocimiento necesario sobre aspectos relacionados con la evaluación de los recursos vivos marinos, que serán de gran utilidad en la posterior toma de decisiones para una mejor gestión de estos recursos, todo ello en estrecha colaboración con la organización internacional responsable del conocimiento y asesoramiento en temas relacionados con las pesquerías de esta región. En este contexto ya se ha llevado a cabo recientemente en el C.O. de Tenerife del Instituto Español de Oceanografía un taller de formación, auspiciado por IOCEA, sobre metodologías de evaluación acústica de recursos vivos que va a ser seguido, durante 1995, por otros sobre "Oceanografía Espacial, Clima y Recursos Marinos" a celebrar en Rabat (Marruecos) y sobre "sistemas de afloramiento" que tendrá lugar aquí en Las Palmas.

- conseguirá mejorar la promoción y cooperación de la investigación marina en la Región a través de los proyectos COMAR (estudio y gestión de las zonas costeras), PROMAR (sobre todo en lo referente al desarrollo de la base de datos sobre biodiversidad) y TREDMAR (formación y educación marina) ya en marcha y a los que se incorporará de forma decidida la nueva Facultad de Ciencias del Mar de la Universidad de Las Palmas de Gran Canaria, cuya situación estratégica, facilidades y medios disponibles y firme voluntad de cooperación internacional, estamos seguros van a suponer una muy buena aportación española a esta importantísima tarea y a sus proyectos de Universidad flotante y Facultad global.

- permitirá un serio análisis de las conclusiones y recomendaciones útiles para la Región derivados tanto de la II Conferencia Oceanográfica Mundial celebrada en Lisboa en noviembre pasado como de los trabajos realizados en relación con el futuro de la COI y su relación con la convención de las Naciones Unidas sobre el Derecho del Mar, que entró en vigor el pasado 16 de noviembre de 1994.

España es cada vez más consciente de la extraordinaria importancia que tienen el mar y sus recursos y, por ello, está haciendo importantes esfuerzos para tratar de potenciar seriamente, no sólo con palabras, su papel en la COI.

En este sentido, nuestro país, a través de la Comisión Interministerial de Ciencia y Tecnología y del propio Instituto Español de Oceanografía, se ha incorporado al programa EUROGOOS desde su inicio, ya que cree en la oceanografía operacional como herramienta de futuro.

Asimismo a la dilatada labor realizada por el Centro Oceanográfico de Canarias en esta Región y, además de la organización de esta reunión como prueba de su interés por la misma, se encuentra también en fase muy avanzada la puesta en marcha en el Centro Oceanográfico de Vigo del Instituto Español de Oceanografía, de un Centro científico y de comunicación mundial sobre floraciones algales nocivas que sería la contribución española al programa de Ciencias Oceánicas en Relación con los Recursos Vivos de la UNESCO-COI, todo ello en cooperación con un centro danés semejante que acaba de ponerse en marcha y que complementaría las otras actividades desarrolladas por la oficina del Programa sobre Floraciones Algas Nocivas en la Secretaría de la COI en París, que es la que actuaría de coordinador general.

Así pues, señores Delegados y autoridades presentes, la tarea que se nos presenta durante esta semana de trabajo es importante y les deseo a todos el mayor éxito en ella y como no, les deseo también en nombre de nuestro Gobierno una agradable y feliz estancia en estas maravillosas tierras canarias. Muchas gracias.

C - PROF. ROYO, RECTOR OF THE UNIVERSITY OF LAS PALMAS, GRAN CANARIA

Sres de la Mesa Presidencial,
Sras/Sres Delegados de los países participantes,
Profesores y alumnos de la Facultad de Ciencias del Mar,
Sras y Sres.

Como Rector de la ULPGC quiero agradecer la presencia, en esta sesión inaugural, del Excmo. Sr. Secretario de Pesca Dr. José Loira, así como la del Ilmo Sr. Director del Instituto Español de Oceanografía Dr. Rafael Robles. También agradecer la presencia del Ilmo Sr. Director General de Ordenación Pesquera del Gobierno Autónomo de Canarias Dr. Antonio Lorenzo, que con su colaboración económica ha hecho posible la celebración de esta IV Sesión de la IOCEA en Las Palmas de Gran Canaria. Quiero resaltar la presencia entre nosotros del Dr. Gunnar Kullenberg, Secretario General del Comisión Oceanográfica Intergubernamental (IOC de la UNESCO) y la de su anterior Secretario General el Dr. Mario Ruivo de Portugal; quiero agradecer a la COI la confianza depositada al elegir a la ULPGC como sede de esta IV Sesión de la IOCEA. Finalmente quiero dar la bienvenida a los delegados de los 25 países del área del Atlántico Centro-Oriental, que se han desplazado hasta las Islas Canarias, para trabajar durante estos días en esta sede de la Facultad de Ciencias del Mar.

Se nos ha dado la oportunidad, con esta convocatoria regional, de que los reponsables de la COI, del IEO y los delegados de países africanos de nuestro entorno, conozcan el potencial humano y de recursos existente en la ULPGC. Más específicamente, que conozcan el potencial y la excelencia de la Facultad de Ciencias del Mar y de sus diferentes grupos de investigación relacionados con el medio marino. Es una ocasión que no debemos desaprovechar, y no la vamos a dejar pasar.

La ULPGC, en su actual configuración, fue creada en 1989. Se fundó a partir de la anterior Universidad Politécnica de Canarias (UPC) y la adscripción de centros del área de Ciencias Humanas, Ciencias de la Salud y del área de Ciencias Jurídico-Sociales. En la actualidad cuenta con 22000 alumnos de grado, 1400 de postgrado, 1400 profesores y 750 personal de apoyo. Imparte 33 titulaciones diferentes, de las cuatro grandes áreas antes indicadas.

La Facultad de Ciencias del Mar fue la primera que se creó en la universidad española, y durante diez años la única que existió en el país. Fue creada en octubre de 1982, a iniciativa del Prof. Dr. Federico Mayor Zaragoza, entonces Ministro de Educación y Ciencia de España, y actualmente Secretario General de la Unesco. En la actualidad esta titulación se cursa, también, en las Universidades de Cádiz y de Vigo.

En abril de 1983 se celebraron las Primeras Jornadas sobre los Estudios de Ciencias del Mar, en las que participaron eminentes oceanógrafos españoles, con objeto de definir el plan de estudios de la citada titulación, en su primer ciclo. En dichas Jornadas participaron, entre otros, los Dres. Maldonado (O.Geológica), Losada (O.Física), Fraga (O.Química), Niels (O.Biológica) y Margalef (Ecología). En ellas se definió el carácter multidisciplinar que debía tener la titulación, como aplicación de las disciplinas básicas (Física, Química, Biología, Geología y Matemáticas) al estudio del océano. Al año siguiente, por el mismo procedimiento, se realizaron las Segundas Jornadas sobre los Estudios de Ciencias del Mar, en las que se diseñó el segundo ciclo

de dichos estudios. Esta experiencia ha servido de pauta a las restantes universidades españolas, que ofrecen la citada titulación.

El sistema universitario español se encuentra, en el momento actual, inmerso en un proceso de reforma de los contenidos, así como de su aplicación, de las diferentes titulaciones homologadas que ofrece. Para el caso concreto de la titulación de Ciencias del Mar se ha contado con la colaboración de la Comisión Oceanográfica Intergubernamental, que propició la realización de un estudio informativo, realizado por profesores de proyección internacional y reconocida, que está sirviendo de referencia para la reforma preceptiva de la curricula de Ciencias del Mar. Este nuevo plan de estudios se prevee que entre en vigor en el curso 1996-97.

La Facultad de Ciencias del Mar y los Departamentos a ella asociados de Física-Geología, Biología, Química y Matemáticas se encuentran ubicados en estas nuevas instalaciones, que Vds tendrán ocasión de visitar a continuación, inauguradas hace un año. Además cuenta con dos estaciones costeras, situadas en la zona de Taliarte (Sudeste de Gran Canaria) a unos 15 km de la ciudad de Las Palmas de Gran Canaria.

Para Canarias, los Estudios Superiores de Ciencias del Mar representaron alcanzar una vieja y constante aspiración, que resurgía insistentemente en las reivindicaciones universitarias. En un principio planteadas como: Universidad del Mar, Universidad de Pesca, ... esta titulación universitaria vino a completar, con la enseñanza al máximo nivel (licenciatura y doctorado) una red de instituciones y organismos existentes en Canarias. Esta red es consecuencia de la voluntad y de la vocación oceánica de Canarias, como consecuencia de su carácter archipiélagico; así mismo, por su situación geográfica y su tradición histórica, Canarias es el puente natural y el lugar de encuentro entre Europa, los países del África próxima y América Latina.

La red oceanográfica de instituciones y organismos de Canarias está formada por: el Centro del Instituto Español de Oceanografía en Tenerife, la Especialidad de Biología Marina y la Escuela Superior de Marina Civil de la Universidad de La Laguna, las Escuelas de Formación Profesional NáuticoPesqueras de Gran Canaria y Lanzarote, las titulaciones de Ingeniería Técnica Naval y de Ciencias del Mar de la ULPGC, el Instituto Canario de Ciencias Marinas de Taliarte (Gran Canaria), la Estación de Seguimiento de Satélites del INTA de Maspalomas (Gran Canaria) y, recientemente la creación, por un consorcio entre el Instituto Tecnológico de Canarias y la ULPGC, del Centro de Agronomía Marina de Taliarte. Además cuenta en la administración pública con la: Consejería de Pesca del Gobierno Autónomo de Canarias, las Autoridades Portuarias de Canarias, y a las Demarcaciones de Costas. Todo ello sin olvidar al sector empresarial canario, público y privado, que tan importante es a nivel nacional, para el sector pesquero por ejemplo. Todo este potencial humano, altamente calificado, y los recursos materiales existentes hacen de Canarias lugar ideal de referencia como área de formación, investigación y de entrenamiento para todas las acciones relacionadas con el medio marino.

El profesorado de la facultad de Ciencias del Mar, a pesar de su juventud, es altamente calificado y goza del reconocimiento y consideración de la comunidad científica internacional. A partir de su formación inicial, en alguna de las áreas de las ciencias básicas, se especializó en algún aspecto relacionado con el medio marino y su formación básica. Con su esfuerzo y capacidad se reconvirtieron con estancias en laboratorios e instituciones, nacionales e internacionales, de reconocido prestigio hasta alcanzar identidad propia y el reconocimiento de que gozan en la actualidad. Una parte de sus investigaciones y logros actuales se exponen en los paneles que Vds. verán a la entrada de la Facultad.

Creo que es el momento, por la ocasión y por que es de justicia, recordar a los primeros grupos de docentes y de investigadores, que se incorporaron a la Facultad de Ciencias del Mar. En Oceanografía Física el Dr. Manuel Cantón Garbín (Teledetección) y la Dra Esther Pérez Martell (Caracterización del Afloramiento en el Noroeste de Africa). En Oceanografía Biológica los Dres Santiago Hernández León y Javier Arístegui, participantes en el Proyecto Antártida. En Ecología de habitats y procesos costeros el Dr. Angel Luque Escalona. El Dr. Pascual Caballero y la Dra Asunción Viera. El Dr. Guillermo García Reina (Agronomía Marina) y el grupo creado por el Dr. Carlos Bas de Pesquerías. En Oceanografía Química los Dres Jesús Pérez Peña, Joaquín Hernández Brito y Melchor González Dávila (Contaminación Marina); y José Juan Santana. En Oceanografía Geológica, el Dr. Jesús Martínez (Procesos sedimentarios costeros y playas). Todos estos profesores realizaron, y realizan, un esfuerzo constante para su mejora y formación en el campo, en contraste con la comunidad científica oceanográfica internacional.

Posteriormente se han incorporado profesores calificados, formados en otras universidades nacionales y extranjeras, así como graduados de la primera promoción, después de completar su formación de postgrado en otras universidades y centros de investigación.

La Facultad de Ciencias del Mar tiene una proyección internacional importante. Mantiene relaciones científicas con un amplio conjunto de Universidades, Institutos y Centros de Investigación de Europa, América y África a través de proyectos de investigación de financiación diversa. Estas acciones las lleva a cabo, fundamentalmente, mediante la colaboración con las universidades del Grupo de Santander, al cual pertenece la ULPGC. Esta actuación mediante redes de universidades, se está favoreciendo como el método más adecuado para la cooperación internacional.

La ULPGC coordina varias Cátedras UNITWIN\UNESCO, entre las que cabe destacar la de " Medio Ambiente Y Recursos Marinos del Medio Litoral". Esta es la vía que se está desarrollando para la cooperación en el campo, entre universidades del Grupo, Latinoamericanas y Africanas. En este momento se están preparando, para su presentación, diferentes proyectos Alfa. En África se mantienen relaciones de cooperación, ya antiguas, con Mauritania y más recientemente con Agadir (Marruecos). Con ellas y con Senegal se pretende desarrollar un programa MED-Campus.

La ULPGC solicitó ser la sede de esta IV Sesión de la IOCEA por su vocación en el campo oceanográfico y por su interés en cooperar con la COI y con los diferentes países del área Centro-Oriental del Atlántico. Tanto en función de los recursos y materiales que posee la universidad, como de su posición geográfica y de su tradicional relación histórica con la mayor parte de ellos. Pretendemos que la relación de Canarias con los mismos exceda el ámbito de las relaciones comerciales, para que abarque también lazos científicos y culturales, como forma esencial para el entendimiento y la solidaridad entre los pueblos.

Quiero destacar públicamente la labor desarrollada por el Dr. Angel Luque Escalona, Catedrático de Ecología de la ULPGC, para que esta sesión de la IOCEA pudiese celebrarse aquí en Las Palmas; él ha sido el verdadero promotor local. En nombre de la ULPGC le doy las gracias, y deseo que la Facultad de Ciencias del Mar aproveche esta circunstancia que se le ofrece, para exponer su realidad y su nivel científico a los representantes de los países africanos próximos y los máximos representantes de la COI.

Quiero felicitar, también, al Decano de la Facultad y a sus colaboradores por el clima creado en la misma para la celebración de estas reuniones, así como por el esmero con que ha dispuesto el programa de actos paralelos.

Les deseo a todos Vds una feliz estancia en Gran Canaria, que sus reuniones sean fructíferas, que conozcan esta tierra de Canarias, que nos conozcan mejor, que perciban la hospitalidad de sus gentes, para que al volver a sus respectivos países sean los mejores embajadores de la Facultad de Ciencias del Mar, de la ULPGC y de Canarias. Muchas gracias.

ANNEX IV

REPORT OF THE *AD HOC* SESSIONAL WORKING GROUP ON OCEAN AND CLIMATE

The *Ad Hoc* Sessional Working Group on Ocean and Climate was composed by the Delegates of Nigeria (Co-ordinator), Côte d'Ivoire, France, Guinea, Morocco, Spain and Togo.

The Group agreed that important data concerning ocean and climate are already available in the Region, including the ORSTOM data on SST.

The following programmes and activities relevant to the topic were mentioned:

- (i) a regional programme for the Canary Islands on circulation, hydrography and climate change (participating countries: France and Portugal);
- (ii) the study of the heat budget exchange off Senegal between water and the atmosphere, carried out by ORSTOM;
- (iii) the collection of sea temperature data in Côte d'Ivoire (in collaboration with ORSTOM) for the study of local up-welling phenomena. Related hydrological studies are on-going as well;
- (iv) the collection of sea-level data in Guinea, through the activities of two tide gage stations.

The Group recognized that those activities represent a relevant basis for the development of further investigations on ocean and climate. It was recommended that IOC should ensure that the Region play an active role in ocean climate-related programmes such as CLIVAR.

The Group stressed that the Data Center in Abidjan should collect available data and inform the IOCEA Countries of how to obtain access to those data.

The Group strongly encouraged the participation in present/under development training activities.

It was stressed that it is important that present data be made available through regional and international data centers.

ANNEX V

**REPORT OF THE *AD HOC* SESSIONAL WORKING GROUP
ON A CEPHALOPODS FISHERY PROJECT**

The *Ad Hoc* Sessional Working Group on Cephalopods Fishery was chaired by Mr. Ba, Mauritania. It was decided that Mr. Diop, Mauritania, should act as Rapporteur.

The Group decided that the objectives of the discussion should be: (i) modalities on how to expand the cephalopods fishery project; (ii) identification of the objectives of the proposed Lisbon meeting; (iii) recommendations on methodologies for the assessment of living resources.

Modalities on how to expand the cephalopods fishery project

The Group recalled that the project was originally initiated by Morocco, Mauritania and Senegal and afterwards expanded to include France and Spain. During IOCEA-III all the IOCEA Member States were invited to express their interest in the programme, and to specify research actions to be undertaken. Despite the expression of interest of several Member States, no specific request to adhere to the project was made. The project was then submitted to EU for funding, but was not accepted. No reason was adduced by the EU in this respect. It is therefore imperative for the Regional Committee to be informed of the comments made by EU, so as to adjust the project proposal accordingly.

The Group recommended that the project be made accessible to all the IOCEA countries who are interested to participate. Again, it was reiterated that new participating countries will have to specify through which research activities they would intend to contribute to the Project. The Group also invited the interested countries to assess the state of research on cephalopods nationally, including methodologies utilized and problems encountered. This survey will be co-ordinated by the Co-ordinator for the Project (CNROP, Mauritania), who will then make a synthesis of the information which is available. A possible alternative could be that the results of the survey be discussed in a meeting of cephalopods experts. This would allow the elaboration of a regional project which would take into account the interests of all the countries involved.

Identification of the objectives of the proposed Lisbon meeting

The Group proposed that the following three objectives be achieved by the proposed meeting in Lisbon:

- (i) Discussion and adoption of practical modalities for the implementation of a regional cephalopods fishery project. To this end, all the concerned actors should be involved, including IOC, FAO and other relevant organizations.
- (ii) Training of experts on new methodologies for the evaluation of stocks, including Virtual Population Analysis (VPA) methods. It may also be necessary to tackle specific problems for the assessment of cephalopods stocks.
- (iii) Meetings of the Group of Experts identified by the *Ad hoc* Meeting on Living Resources Evaluation Methodologies, held in Las Palmas, Gran Canaria, prior to IOCEA-IV.

The Group recommended that the above group of experts be limited in number and composed by experts directly involved in the issue of stock evaluation. Two groups of four experts could be designated, one for demersal resources and the other for pelagic resources.

Recommendations on methodologies for the assessment of living resources

The Group invited the Regional Committee to adopt the proposed recommendations, including the proposal to establish a working group involving the countries South of Guinea to consider the state of knowledge on stock assessments realized up to the present, as well as the difficulties encountered.

ANNEX VI

**REPORT OF THE *AD HOC* SESSIONAL WORKING GROUP
ON ENVIRONMENT AND LIVING RESOURCES**

The *Ad Hoc* Sessional Working Group on Environment and Living Resources noted that there was a substantial lack of knowledge in the field of environment and marine littoral resources. The Group stressed that it was essential to assess the state of knowledge on the issue at the national level, including equipment and human resources, work accomplished, etc. All the information which will be collected should be forwarded to the Delegate of Portugal by 20 July 1995.

On this basis, a synthesis would be made and a pre-project for West Africa elaborated. It was proposed that should be organized a workshop for the analysis of the data collected, which would then be used for the design of the above-mentioned pre-project.

The Group identified the following objectives for a project on environment and marine littoral resources:

- (i) To contribute to the integrated management of coastal systems in the IOCEA region, including lagoons and estuaries, in order to guarantee a sustainable utilization of fisheries and promote biodiversity conservation;
- (ii) to improve our scientific understanding on those critical habitats which act as nurseries;
- (iii) to study the trophic nets of those systems and the fate of pollutants, as well as the impact of changes in river fluxes on nurseries and the related trophic chains.

ANNEX VII

REPORT OF THE *AD HOC* SESSIONAL WORKING GROUP ON POLLUTION

The *Ad Hoc* Sessional Working Group on Pollution pointed out that baseline stations for the monitoring of pollution already exist in the Region, but that it was imperative to gather more information on national contributions.

The Global Environmental Facility (GEF) Golf of Guinea (GOG) Programme was referred to as an important exercise relevant to marine pollution studies and as a source of information also on living resources.

The Group recommended the development on an integrated waste management programme for the IOCEA region.

The Group stressed the importance of public awareness activities, such as a regional beach clean up day.

It was noted that phase two of WACAF-II dealt with the transport of pollutants, which is relevant to oceanographic aspects of pollution programmes.

The Group agreed that training is essential to achieve sustainability of research efforts, and that local capacity should be further enhanced.

It was felt that present funding was not sufficient for the carrying out of research activities on pollution.

The Group strongly recommended that a seminar on general oceanography be held in December 1996 in Sierra Leone.

ANNEX VIII

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ANNEX IX

LIST OF ACRONYMS

ACC	Administrative Committee on Co-ordination
CBD	Convention on Biological Diversity
CCS	Canary Current Study
CECAF	Fishery Committee for the Eastern Central Atlantic
CLIVAR	Climate Variability and Predictability
CNROP	Mauritanian National Center for Fishery and Oceanographic Research
COASTS	Programme on Coastal Ocean Advanced Science and Technology Study
COMEMIR	Continental Margin Environment and Mineral Resources Sub-programme
DOALOS	Division for Ocean Affairs and the Law of the Sea
EU	European Union
FAO	United Nations Food and Agriculture Organization
FCCC	Framework Convention on Climate Change
GEEP	Group of Experts on Effects of Pollutants
GEF	Global Environmental Facility
GEMSI	Group of Experts on Methods, Standards and Intercalibration
GESAMP	IMO-FAO-UNESCO-IOC-WMO-WHO-IAEA-UN-UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GESREM	Group of Experts on Standards and Reference Materials
GIPME	Global Investigation of Pollution in the Marine Environment
GIS	Geographical Information System
GODAR	Global Oceanographic Data Archaeology and Rescue Project
GOOS	Global Ocean Observing System
GPS	Global Positioning System
GTSP	Global Temperature-Salinity Pilot Project
ICAM	Integrated Coastal Area Management
ICSPPRO	Inter-secretariat Committee on Scientific Programmes Relating to Oceanography
IGBP	International Geosphere-Biosphere Programme
IMS	International Marine Science Newsletter
IOCARIBE	IOC Sub-Commission for the Caribbean and Adjacent Regions

IOCINCWIO	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean
IODE	International Oceanographic Data and Information Exchange
IOI	International Ocean Institute
JGOFS	Joint Global Ocean Flux Study
LOICZ	Land-Ocean Interactions in the Coastal Zone
MARPOLMON	Marine Pollution Monitoring System
NIOMR	Nigerian Institute for Oceanography and Marine Research
NOAA	National Oceanic and Atmospheric Administration (USA)
OCEAN-PC	Ocean Personal Computer Project
ORSTOM	French Scientific Research Institut for Development and Co-operation
OSNLR	Ocean Science in Relation to Non-living Resources
RECOSCIX-CEA	Regional Co-operation in Scientific Information Exchange in the Central Eastern Atlantic
RECOSCIX-WIO	Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean
RNODC	Responsible National Oceanographic Data Center
SST	Sea-Surface Temperature
TEMA	Training, Education and Mutual Assistance in Marine Sciences
TOGA	Tropical Ocean and Global Atmosphere
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organization
WACAF	Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region
WCRP	World Climate Research Programme
WESTPAC	IOC Sub-Commission for the Western Pacific
WOCE	World Ocean Circulation Experiment
WMO	World Meteorological Organization
XBT	Expendable Bathythermograph

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