

Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies



**IODE Group of Experts
on Marine Information
Management**

Third Session

Wormley, UK, 27-30 April 1992

UNESCO

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1. OPENING OF THE SESSION

1 The Chairman of the IOC Committee on International Oceanographic Data and Information Exchange, Dr. Nic Flemming, opened the session at 9.30 on 27 April 1992 at the Institute of Oceanographic Sciences, Deacon Laboratory, Wormley, UK.

2 In his welcoming address he gave a brief description of IODE activities in Marine Information Management. He mentioned that the last few years showed a considerable and steady growth in interest in and recognition of the importance of Marine Information. He stressed the need of IOC Member States for information about information, and for information about data. Marine Information Management is at a critical stage when technology development, achievements in computerisation of individual libraries and improvements of communication links make it possible to plan a truly international system for the development and management of Marine Information for which ASFIS could form the basis.

3 He reminded the participants that IODE-XIII recommended Member States to nominate contact points for Marine Information Management and in invitation letters for the coming Fourteenth Session of the IOC Committee on IODE (30 November - 9 December 1992, Paris, France), IOC Member States were requested to submit national reports not only on their activities in oceanographic data but also in Marine Information Management. He urged the participants to make sure that their respective countries will submit reports on Marine Information Management activities to IODE-XIV as requested and send Marine Information Management experts to the session. He noted that IOC scientific programmes now included a provision to address data needs, and provision for information needs should also be included in all programmes.

4 Dr. Flemming then introduced an interim Chairperson of the Group, Mrs. Pauline Simpson, and wished all participants of the session a pleasant stay in Wormley and every success in their work.

5 Mrs. Simpson then invited Dr. David Pugh, UK Delegate to IOC, to welcome participants on behalf of the Director of IOSDL, Dr. Colin Summerhayes.

6 In his welcoming address, Dr. Pugh stressed the important role of the IOS on the national level in data and information collection and management, and in providing services to different user groups. This brought IOS to the international scene and many experts from IOS laboratories are actively participating in various international scientific, monitoring and data management bodies. The meeting of this Group is giving a new momentum to Marine Information Management development. He noted the rapid increase in our ability to make this information available and called on the group to give particular attention to the future interaction with scientific and monitoring programmes and to try to identify the role and place of Marine Information.

2. ADMINISTRATIVE ARRANGEMENTS

7 The Chair invited comments on the provisional agenda (Document IOC/IODE-MIM-III/1 Prov.). Due to a very heavy Agenda and limited timing given to respond to all concerns of IOC Member States and of the IOC's Technical and Regional committees on Marine Information Management, **the Group decided** to delete Agenda item 8 from the Agenda (Marine Information Management Component on Ocean-PC). It was also proposed under Agenda item 12, Other business, to discuss date and place of the next session.

8 **The Group accepted** these proposals and **adopted the Agenda** as given in Annex I. **The Group recommended** that the IOC Technical Secretary approach individuals and organisations dealing with Marine Information Management and request them to provide the IOC Secretariat, in accordance with the

format accepted by OCEAN-PC, with information on available software to be included in the OCEAN-PC inventory of available software to handle marine data and information.

9 **The Group designated** Mr. David Moulder as rapporteur for the session. Though it was expected to work in plenary, the Group decided to establish *ad hoc* drafting groups to deal with a Marine Information Management action plan and with relevant recommendations.

10 The IOC Senior Assistant Secretary, Dr. Iouri Oliounine, introduced the proposed time schedule, identified changes in the list of documents and informed the Group on administrative arrangements.

11 The Chairman provided information on local arrangements.

3. **REPORT ON INTERSESSIONAL ACTIVITIES**

3.1 IMPLEMENTATION OF RESPONSIBILITIES ASSIGNED TO THE GROUP BY THE SECOND SESSION OF THE GROUP OF EXPERTS AND BY THE IODE COMMITTEE.

12 In introducing the report (Document IOC/IODE-MIM-III/6) Dr. Oliounine highlighted the Group's activities from December 1986 to April 1992. He noted that the intersessional period had been exceptionally long, financial resources were scarce and staff support inadequate, in spite of the fact that the Secretary IOC has undertaken efforts in looking for resources necessary for a successful implementation of the Marine Information Management programme. However, in spite of these negative factors, the Secretariat was successful in arranging a very important Consultative Meeting of experts in Marine Information Management and strategic planning which met with the IOC Secretariat in Enghien-les-Bains, France, in October 1987, to develop a strategy for the Marine Information Management endeavours of the Commission. Further important steps included the following:

- The RECOSCIX-WI0 Project has been successfully implemented in East Africa to develop a regional Marine Information service in the framework of ASFIS.
- Consultant support was provided for MEDI development in 1991 and 1992.
- The ASFA database and printed journal continued to be used by the scientific community as the major archive and source of marine bibliographic information. An exciting development was the provision of the ASFA database on compact disk (CD-ROM).
- IOC Manual No. 23 on Marine Information Centre Development was published in 1991 and widely distributed.
- A Strategy for the Development of the International Aquatic Sciences and Fisheries Information System (ASFIS) was prepared jointly by IOC, FAO and UN-DOALOS/OLA, and published by FAO in 1990.

13 Dr. Oliounine then referred to the decisions of the IOC regional bodies relevant to Marine Information, noting that these would be discussed at length under the various agenda items.

14 **The Group accepted** the report of the Secretariat and **identified** the ways and mechanisms to meet the concerns of IOC Member States in Marine Information Management which will be presented below in the summary report and in the recommendations.

15 **The Group recognised** that information given to it on intersessional activities would need to be addressed further in subsequent Agenda items, especially those dealing with the development of an action plan.

16 **The Group thanked** the Secretary IOC for his efforts to advance Marine Information Management, in spite of a lack of resources.

17 **Noting** the progress in Marine Information Management and an increased interest in information products and services, **the Group reviewed** its Terms of Reference and **adopted** Recommendation MIM-III-1.

18 Dr. Oliounine recalled the death, late last year, of Mr. Steve Tibbitt who was a pioneer in the development of the MEDI Referral System and contributed a great deal to different aspects of Marine Information Management development at international and national levels. The Group joined Dr. Oliounine in paying tribute to Mr Tibbitt's contributions to Marine Information Management.

19 **The Group also noted** the retirement of Dr. Caponio and expressed its appreciation for the enthusiasm and hard work he had put into his many international tasks in Marine Information and for the example of friendliness and kindness that he had set.

20 **The Group regretted** the six-year gap between its sessions which had seriously delayed further developments in Marine Information Management programmes and placed an extra burden on the Third Session of the IODE Group of Experts on Marine Information Management to reactivate and revitalise Marine Information Management after such a long intervening period. **The Group stressed** the necessity for regular two-yearly meetings.

21 The small size of the Group was a matter of concern. This generated a number of suggestions including a wider regional representation.

3.2 MARINE INFORMATION MANAGEMENT WITHIN THE IODE CONTEXT AND OTHER IOC GLOBAL AND REGIONAL ACTIVITIES.

22 Dr. Flemming, Chairman of the IOC Committee on International Oceanographic Data and Information Exchange, briefly described the Committee's work and the IOC programmes in which IODE is involved. He mentioned TOGA, IGOSS, WOCE, JGOFS, GOES and GEWEX in which Marine Information Management aspects have not yet been included. He gave special attention to GOOS (Global Ocean Observing System) and provided participants with additional details on the programme's development. Dr. Flemming noted that GOOS is still in its initial phase and that Marine Information Management aspects should be considered for inclusion in this very important IOC programme.

23 **The Group stressed** the importance of involving information managers at an early stage in the planning of IOC programmes as Marine Information Management aspects have not been fully and effectively integrated into IOC international and regional planning. This deficiency has, in part, been the result of a limited understanding of the scope of "Marine Information" and **the Group generically outlined** a broader definition of Marine Information:

24 "Marine Information" incorporates sources far broader than conventionally recognised print publications. The basic source elements of Marine Information include (at least): Publications, Maps/charts, Notes, records/documents, Images, Audio, Numeric/spatial data, Samples/specimens/artifacts, Software, Techniques/methodologies, Meta-data/meta-information, Personal expertise.

25 Using a wide variety of technologies, these source elements are typically expressed stored or disseminated in one or more of the following general formats: Manuscript, Print, Tape (audio/video), Photo, Raster, Disk, Other "electronic", Subjective (personal) expression/communication.

26 Marine Information Management in its most effective sense must plan for coherent and integrated management of these elements and formats. This planning must include assessment and evaluation of Marine Information needs. Implementation of Marine Information programs should occur in the

context of a full definition of Marine Information of which the generic description above can act as a base model.

27 **The Group compiled** a list of relevant marine science and information programmes with which **the Group recommends** closer links including WOCE, LOIS, IGBP-DIS and GOOS. **The Group recognised** that one of its major thrusts must be to raise the visibility of the information component within global marine programmes and to ensure that information specialists are included in the strategic planning of all future project. Noting that the Technical and Scientific Committee (TSC) for GOOS is under establishment **the Group recommended** further that the IODE Committee should be advised to include Marine Information Management experts in the TSC.

4. **POLICY DEVELOPMENT IN MEETING NEEDS OF DEVELOPING COUNTRIES IN MARINE INFORMATION MANAGEMENT**

28 The IOC Technical Secretary introduced the document IOC/IODE-MIM-III/9 entitled "Compilation of case-studies on the development of Marine Information Management in selected developing countries". The representatives from Mexico and India presented their respective case-studies:

Mexico

29 Dr. Margarita Almada de Ascensio explained that the "Centro de Informacion Cientifica y Humanistica" (CICH) is currently the only regional ASFA input centre. CICH has tried to explore the possibility of national input centres in the region. Up to now, only Cuba wrote formally to FAO in 1987 requesting the participation within a regional network to start an input centre directly coordinated with CICH-UNAM. FAO supported the travelling of a member of the Latin American ASFA Input Centre at CICH-UNAM to train staff at the Cuban Ministry of Fisheries. This was done in 1988. In April 1992 CICH-UNAM has received the first input from Cuba from one Cuban journal. CICH looks forward to more collaboration with the possibility of establishing this national input centre and others coordinated through CICH-UNAM at the regional centre level.

30 CICH is a comprehensive information centre of the National University of Mexico (UNAM) for all sciences with 2/3 of the effort going to health and 1/3 to other sciences. The CICH has grown slowly into a centre supporting other countries in the region. Dr. Almada de Ascensio further pointed out that postal services are a serious problem in the region which has serious effects on document acquisition and delivery. However, advances in the use of new technologies in telecommunication (e-mail, fax) and use of computers and software such as Micro CDS/ISIS in the region has enhanced scientific information exchange and the development of small databases in the region. She stressed the importance of continuous funding to aid the development of information management in the region, including education and training.

India

31 Mr. Murari P. Tapaswi presented a paper focussing on the problems faced by the developing countries in acquisition of the primary literature and a lack of awareness about available information among user groups. He also suggested possible solutions to tackle this problem by:

- making use of technological advancements like CD-ROMs with full-text literature;
- symbiotic relationship development between libraries in developed and developing countries; and
- lectures and demonstrations on/of latest facilities at user workstations.

RECOSCIX-WIO

- 32 The IOC Technical Secretary presented document IOC/IODE-MIM-III/7 entitled "Progress and experience in the development of a Regional Information Exchange Network: RECOSCIX-WIO". He outlined the strategies followed in the development of a regional information network in the IOCINCWIO region. He mentioned the services provided within the framework of the project, i.e. query handling and document delivery, detailing the procedures, and also gave information on the directory of marine scientists for the Western Indian Ocean region, also a product of RECOSCIX-WIO. He noted that the project had been able to get the cooperation of a large number of document suppliers (libraries) and had also attracted many donors. UNEP recently undertook the printing and publishing of the directory. He added that the project had gained high visibility in the marine science community. He also informed the Group that the project, after being initiated in 1989 and financially supported by the IOC, is now being funded by the Government of Belgium for a period of four years (1991-1995).
- 33 **The Group agreed** that the RECOSCIX experience could be used as a model for the development of information networks in other developing regions. However, **the Group noted** that the model would not be applicable in all regions and recognized the need to be flexible and to prepare possible alternative Marine Information Management programme models in response to particular requirements of small libraries and information units in other regions.
- 34 **The Group agreed** that the IOC regions based on common marine scientific phenomena presented a good basis for a regional approach. However, **the Group stressed** the importance of being able to respond to requests of individual centres or countries outside the identified IOC regions. **The Group noted** that other organisations (FAO, UNEP) have regional boundaries which are different from those of the IOC. **The Group emphasised** that regional centres should have a supporting and catalytic role to their regions, rather than a centralising role.
- 35 **The Group adopted** Recommendation MIM-III.2.
- 36 **The Group stressed** further the importance of continuity of funding of information programmes as this is often a serious problem.
- 37 **The Group recommended** that criteria for the identification of minimum requirements for successful development of Marine Information Management operational services be developed.
- 38 **The Group stressed** the need for specialist training in guidelines, procedures, methods and standards in regions which fulfill the minimum criteria mentioned above.
- 39 Recognizing the need for training, **the Group recommended** the organization of appropriate training courses and workshops in Marine Information Management.
- 40 Following the recommendation to use the regional approach in general and the experience of the RECOSCIX-WIO project in particular, and in view of the training course/workshop, planned within the framework of that project **the Group recommended** that the IOC co-sponsor that activity and invite, as far as funds allow, appropriate participation from other regions.
- 41 **The Group noted** with appreciation the offer made by China to host a training course on Marine Information Management in 1992 with a partial support from the IOC and **invited** other Member States to follow this example.

42 **The Group encouraged** the development and further strengthening of links with other UN, intergovernmental and professional organizations such as UNEP, FAO, ICSPRO, IAMSLIC and EURASLIC involved in different aspects of Marine Information Management.

43 **The Group suggested** the identification of interested donors to provide funding to develop networks in other regions.

5. **PLACE OF IOC MARINE INFORMATION MANAGEMENT PROGRAMME AMONG UN AGENCIES AND OTHER INITIATIVES IN MARINE INFORMATION**

44 The IOC Marine Information Management Programme was reviewed and the advantages of having a UN system-wide Marine Information Programme were highlighted. Information services are costly undertakings and the wise use of the limited resources available to UN organisations is of paramount importance. Within the UN system, there are ongoing and planned undertakings in the field of ocean sciences that would benefit from the existing UN information services. It would be useful to give enhanced visibility to ASFIS products and services in various UN meetings concerned with ocean sciences.

45 **The Group noted with concern** that in recent years the ASFIS programme had not been reviewed at an ICSPRO meeting. In view of the present management problems facing ASFIS **the Group felt** that a review of the information policies at the next meeting of ICSPRO would be most beneficial in providing guidance to the IOC in discharging its co-ordination functions in the maintenance and the growth of ASFIS.

46 **The Group reviewed** the ASFIS strategy plan originally developed by the UN organization members of ICSPRO for Marine Information Management and **recommended** that the participating United Nations agencies in ICSPRO should discuss their own input for the implementation of the joint UN Marine Information Programme. **The Group felt** that a discussion of joint information policy should be taken up at the next ICSPRO session.

47 **The Group further requested** that the IOC Secretariat study the possibility of the active participation of the IMO and WMO in the UN ASFIS programme and monitor the forthcoming UNCED conference in order to identify the information requirements of the scientists engaged in the environmental studies associated with the ocean sciences.

48 **The Group regretted** the absence of representatives of some invited UN agencies and urged that the Group of Experts on Marine Information Management should generate more visibility and impact so as to attract more attention and participation of UN agencies.

6. **DEVELOPMENT OF MARINE INFORMATION MANAGEMENT PUBLICATION/PRODUCTS PROGRAMME**

6.1 **MEDI REFERRAL SYSTEM**

49 Mr. Robert Gelfeld introduced document IODE-MIM-III/10 entitled "Current status and future development of MEDI Referral System". He gave a brief history of the development of the MEDI system which started 15 years ago with the intention of describing data holdings available throughout the marine science community. He mentioned that the system which was originally in a computerised database form was continued as from 1988 in printed form only as it was deemed too complicated for input and use.

50 For two consecutive years (1991, 1992) the IOC hired Mr. Gelfeld as a consultant to update the system with new entries and to prepare output which was made available on diskette (in ASCII and DIF format). The DIF format was implemented in response to recommendation IODE-XIII.3 of the Thirteenth Session of the IOC Committee on International Oceanographic Data

and Information Exchange, New York, 1990. The database now provides 233 full descriptions from 35 organisations in 24 countries. Mr. Gelfeld pointed out that the lack in the IOC Secretariat of a permanent professional for the support of MEDI had been most detrimental to the MEDI programme and its product.

51 Dr. Oliounine informed the Group of the plans of WMO to update INFOCLIMA references and to canvass information on ocean data holdings in spite of a previous agreement between INFOCLIMA and MEDI that instead of duplicating efforts INFOCLIMA will simply have a reference to MEDI when dealing with information on ocean data holdings.

52 **The Group was concerned** with this approach and recommended the Technical Secretary to contact WMO, clarify the situation, and inform the Group and the IODE Committee on the results of this contact.

53 **The Group noted with satisfaction** that there is a great interest from the scientific community in MEDI.

54 **The Group expressed its regret** that no permanent professional staff had been available at the IOC Secretariat for a long time either for Marine Information Management in general or for MEDI in particular.

55 **The Group recommended** to explore the possible use of the British Oceanographic Data Centre's European Directory of Environmental Data (EDMED) System, being developed as a computer-searchable directory to marine environmental data sets, for MEDI entries. Another alternative would be to use NOSIE, a prototype NODC on-line system developed by World Data Center-A (USA). Both systems use the Directory Interchange Format (DIF) as used for MEDI. It was **recommended** that the IOC would approach these institutions in order to investigate their interest to be identified as RNODCs and take over the running of MEDI.

56 **The Group noted** that the post previously available for a Marine Information Management expert within the IOC (P3, Trevor Sankey) had been transferred with Mr. Sankey to his field location in 1991. No new employment had therefore been possible since then.

57 **The Group recommended** that the IODE Committee be advised to recommend to the IOC Assembly to request the UNESCO Director General to restore the post in the 27C/5 of the 1994-1995 biennium.

6.2 PRODUCTS AND SERVICES NEEDED BY DEVELOPING COUNTRIES

58 The IOC Technical Secretary introduced document IOC/IODE-MIM-III/11 entitled "Information products and services needs of developing countries". He commended Mr. Varley on the publication of his "Manual on Marine Information Centre Development: An Introductory Manual" (IOC Manuals and Guides No. 23).

59 He defined the requirements of developing countries in bibliographic information: core literature, secondary services, document delivery mechanisms, local holdings database, directories and registers, and scientific data (not being dealt with by Marine Information Management).

60 He emphasized again the importance of a regional approach for the successful development and provision of the said services and products.

61 **The Group recognised** the importance of core literature. Although a large amount of duplicate historical holdings are available, there is currently no system for the transfer of this material to developing countries. **The Group suggested** that the institutions in developing countries send lists of required material to IAMSLIC. IAMSLIC was invited to provide a project document on core literature delivery to be submitted to IODE-XIV.

62 **The Group recommended** that donors be requested to include funding for core literature in the structure of project budgets.

63 **The Group recommended** that the IOC send a circular letter to IOC Member States with the request to allocate funds to the IOC Trust Fund and/or regional centres earmarked for information centres and libraries in developing countries. This allocation would be used specifically to enable the regional centres to request and pay for bibliographic searches and document delivery services from Marine Information Centres of Excellence throughout the world who could act as Information Brokers for the regional centres. The level of Service fees would be defined by international agreement and based on cost recovery only.

64 Further realising the need for core literature, noting the methods used in RECOSCIX-WIO but also realising difficulties in the development of document delivery services, **the Group suggested** a study into the document delivery issue.

65 **The Group adopted** Recommendation MIM-III.3.

66 **The Group further recommended** that IOC should identify a standard structure for the computerisation of local holdings based on UNESCO's CDS/ISIS software taking into consideration efforts already undertaken by various organizations and projects in the past to develop such structures.

67 Taking into consideration recommendations formulated during meetings in the past (IOC/MIM-I, IOC/MIM-II, IODE-XIV), **the Group recognised** the need for a continued effort in the development of directories and registers. In line with the regional approach, **the Group expressed the need** to develop a standard directory database structure and invited IAMSLIC in collaboration with IOC and UNEP to identify such a structure noting that regional directories (WIO and EURASLIC) have already been issued using the Micro CDS/ISIS database software.

6.3 NEW TECHNOLOGIES

68 Ms. Carol Watts presented document IODE-MIM-III/12 entitled "New Technologies Developments in Data Management and their Appliance to Marine Information Management". She recognised imaging technology and CD-ROMs, together with the maturation of leading-edge technologies, such as voice automation and optical scanning, as the technologies which will provide the next evolutionary step.

69 She also drew the attention of the Group to the Z39.50 Protocol which is an American National Standard applications-layer protocol within the OSI reference model (developed by the International Standards Organization ISO) and which provides a uniform procedure for client computers to query information resources such as server computers supporting on-line library catalogues. Although it is currently an American National Standard it is expected that Z39.50 will become a compatible superset of an existing ISO Search and Retrieval standard (ISO 10162/10163).

70 **The Group recognised** the needs for funds to develop and stimulate the use of new technologies in telecommunication and global information exchange to meet the increasing requirements of the marine science community.

71 **The Group encouraged** the promotion of global and regional data networks and agreed to provide all practical and technical advice if the need arises.

72 **The Group recommended** the use of optical scanning technology to capture and rescue historical Marine Information and data sets. The Group also **recommended** the IOC that a consultant be hired to develop a pilot

full-text CD-ROM of IOC publications. This precedent will encourage other international agencies to disseminate their products using international standards for CD-ROM full-text for the benefit of the international marine science community.

73 **The Group adopted Recommendation MIM-III-4**

74 The Group was informed of the ARIEL system, operational in the USA by the Research Libraries Group inc., through which documents can be transmitted over Internet. **The Group suggested** further study into this matter.

6.4 HANDBOOK ON MARINE SCIENCE AND TECHNOLOGY RESOURCES

75 Dr. Oliounine provided the participants with information on the history of the "Handbook on Marine Science and Technology Resources". This project was launched in 1984.

76 Based on the decisions of IODE-XII, a final draft was reviewed in 1987 by selected experts who recommended not to publish the Handbook in the format presented by the consultant but instead to consider possibilities of publishing a few separate chapters of the Handbook. The Group was informed that a few extracts on aquaculture were published by the consultant in a Guide on Aquaculture Information. (Turnbull, D.A. (Ed) 1989. Guide to information sources in aquaculture. London: Mansell, 160pp.)

77 Dr. Oliounine informed the meeting of the queries made by some Member States of IOC on the fate of the Handbook and invited the Group to provide guidance to the Chair and the IOC Secretariat on future actions.

78 **The Group noted** that there are now new publications of a commercial nature which to a certain degree answer concerns of developing countries in Marine Information. The series on information sources in the earth sciences published by Bowker-Saur (Wood, D.N. et al (Eds) 1990 Information sources in the earth sciences. London: Bowker-Saur, 518pp.) was mentioned as an example. The need to expand chapters or publish new volumes on Marine Information was stressed. The Group were advised by members from developing countries that rather than using outdated published listings, it is preferable to generate bibliographies of marine sources on a *ad hoc* basis from on line databases.

79 **The Group recognised** with thanks the efforts made by the consultant and the former members of the Group in trying to prepare the Handbook for publication. However, due to new technology development in storage and exchange of Marine Information and to the fact that many references in the draft Handbook are already out of date, **the Group recommended** that the project be terminated and that the Committee on IODE be informed accordingly. Dr. Ed Akyuz enquired whether the original data was stored in machine readable format and if so whether it should be reviewed for anything worth salvaging. IAMSLIC volunteered to review it following information that it was believed to be in machine readable format of some kind. The Technical Secretary was requested to provide IAMSLIC with the last version of the draft of the handbook.

7. **ASFIS/ASFA - STATUS, PROBLEMS AND SEARCH FOR A SOLUTION**

80 Dr. Akyuz introduced a paper entitled "IOC Position Paper on ASFIS", stating the position of the Secretariat to the announced changes in the management of the ASFA product of the ASFIS information system (IOC/IODE-MIM-III/13). This paper was triggered by the FAO intention to "give notice to Cambridge Scientific Abstracts (CSA) by September 1991 to terminate its contract by December 1994, in accordance with the Memorandum of Understanding between CSA and FAO." Three major FAO concerns were highlighted as not being satisfactorily addressed under the ASFA programme:

(1) scope: FAO must concentrate on food from the aquatic environment and pollution as far as it affects fisheries resources and habitat; (2) language: the many non-English speaking countries with a rich history of fisheries research were mentioned as not being represented in ASFA; (3) developing countries: the considerable work needed to be done in these countries regarding information infrastructure building was not being carried out. FAO emphasized that it did not want to weaken or affect existing partners through its withdrawal from the contract with CSA and that it would do everything possible to soften the impact. (ASFA Advisory Board meeting, Rome, 17-21 June 1991, Summary Report)

81 During the ensuing discussions the Group and the observers unanimously agreed that the ASFIS program was indispensable to aquatic scientists and that every effort should be made to accelerate its growth to better meet user needs. Compared with many other information systems, ASFIS is produced with modest resources. Remembering the UN responsibility to the world ocean sciences community **the Group felt** that the organisations concerned should ensure the continuation and further improvement of ASFIS services, as a matter of urgency. **The Group re-iterated its previous observation** that the matter be brought to the attention of the ICSPRO members as soon as possible to request their intervention in the future management of the system. **The Group believed** that IOC as the co-ordinating body of the UN system oceanographic programmes, would be the natural candidate to take on the managerial function for the ASFIS programme, to ensure that the user community receives the services required at acceptable levels.

82 **The Group** reiterating the vital importance of ASFIS services to ocean scientists, **appealed** to the UN agencies interested in marine and fresh-water environments to urgently undertake a strong co-ordinating effort to establish a management network based on frameworks set forth in the ASFIS strategy document for continuing and strengthening ASFIS products and services, especially the ASFA database.

83 **The Group noted** the tight time schedule to complete the required strategic and management studies and **recommended** that the Secretary IOC, subject to availability of funds, recruit a consultant to update the present strategy paper for the development of ASFIS, in consultation with the interested UN organisations and the members of the GE-MIM, as well as the preparation of a background paper assessing the future role of IOC in the management of the ASFIS system with a realistic implementation programme, identifying the financial and human resources needed for programme implementation.

84 **The Group adopted** Recommendation MIM-III.5

9. INTERNATIONAL GLOBAL CENTRE ON MARINE INFORMATION

85 Dr. Vyacheslav I. Smirnov introduced document IOC/IODE-MIM-III/8 entitled "Draft Proposal for an International Global Centre on Marine Information". The proposal was developed in response to an IODE request (IODE-XIII, Document IOC/IODE-XIII/3, paragraphs 164 to 168) which recognised the need for analytical and synthesized reviews to meet the need for value-added state of the art reviews by the scientific community.

86 **The Group confirmed** the need for area, subject, methodological and technological reviews and emphasized their usefulness. **The Group**, however, **found** the proposed terms of reference for the Centre too broad and economically unfeasible. In the absence of detailed cost estimates, **the Group felt** that, subject to availability of funds, a feasibility study be undertaken for the progressive establishment of a global network of regional bodies which would have the capability to prepare state of the art reviews which would be centrally co-ordinated. An on-line referral service would be required to inform the users on the availability of the reviews, the design of which should be included in the feasibility study.

87 **The Group adopted** Recommendation MIM-III.6

88 **The Group emphasized** the need to avoid duplication of existing information and data services, and that the functions of the proposed Centre be complementary to the existing global and regional bodies which provide similar information to the marine sciences community.

89 **The Group pointed out** that the nature of the project would require a substantial amount of investment in institutional building and the acquisition and development of computer systems and communications networks. It was realized that the costs would have to be born by the interested Member States.

10. **PREPARATION OF A MARINE INFORMATION MANAGEMENT ACTION PLAN FOR THE NEXT INTERSESSIONAL PERIOD**

90 The increase in volume of Marine Information and the inability of developing countries to have access to even core journals and information was a matter of concern.

91 The lack of awareness often caused by lack of proper communication tools was acknowledged as a serious problem for developing countries. The newly evolving information technologies were highlighted as a way to reduce this problem in an accelerated way.

92 The need for coordinated action in the various IOC regions was expressed and is reflected in the recommendations and actions. In view of the financial limitations of the IOC and other international organizations the efforts to coordinate and collaborate between the UN and non-UN organizations and others were welcomed. A closing of the gap between data and information managers was generally felt to be most urgent.

93 **The Group considered** the proposals of an *ad hoc* drafting group which were established at the beginning of the session to prepare drafts for an action plan and **adopted** Recommendation MIM-III-7 which included actions to be taken in the coming 1-2 years in accordance with identified priorities and responsibilities.

94 **The Group requested** the Chair and the IOC Technical Secretary to undertake all necessary actions in order to organise financial and staff support for the implementation of the agreed actions.

11. **ELECTION OF THE CHAIRMAN OF THE GROUP**

95 The IOC Technical Secretary informed the meeting of the IOC procedure for the election of a Chair of subsidiary bodies and invited the Group to give the names of candidates. **The Group unanimously elected** Mrs. Pauline Simpson, an interim Chair of the Group as the Chair of the Group.

12. **OTHER BUSINESS**

96 Under this Agenda item, the Group considered the place and dates of its next session.

97 **The Group was strongly concerned** with the frequency of its sessions and was of a general opinion that a six years intersessional period is unacceptable and that as far as possible intersessional periods should not be longer than two years. **The Group urged** its Chair to have a one day *ad hoc* meeting of Marine Information experts participating in IODE-XIV in order to review the progress in the implementation of actions agreed upon at the Third Session of the Group of Experts and to establish a joint

approach to the issues relevant to Marine Information included in the agenda of IODE-XIV. **The Group recommended** its Chair and the IOC Technical Secretary send invitations to participate in this Consultative Meeting to all members of the Group.

98 **The Group**, being aware of the urgency in the resolution of the management problems facing the ASFIS programme, **requested** that the Group of Experts meet by October 1993 to re-assess the measures taken by IOC and the interested UN organisations for the development of ASFIS.

99 Furthermore the next Session of the Group **was agreed upon** to immediately precede the 1993 IAMS LIC Annual Conference to be held in Washington, DC. This will give the Group a unique opportunity to use expertise and knowledge of IAMS LIC experts for formulation of the most efficient response to the requests of the IOC Member States in Marine Information Management. It may also help to limit the expenditures needed for the Group meeting.

13. ADOPTION OF THE SUMMARY REPORT

100 **The Group adopted** the draft summary report of its Third Session. **The Group instructed** the IOC Technical Secretary and the Group's Chair to undertake necessary editing and corrections when progressing the final version. **The Group requested** its Chair to bring the report and the recommendations to the attention of IODE-XIV.

14. CLOSURE OF THE MEETING

101 The Chairman closed the meeting on Thursday 30 April 1992 at 17.30 hrs.

102 In closing, the Chair, Mrs. Simpson, thanked the experts, the Rapporteur and the IOC Technical Secretary for their assistance which contributed so much to the success of the meeting and the timely preparation of the report. She extended her thanks to representatives of international organisations present at the meeting for their contributions and most friendly co-operation.

103 Speaking on behalf of the Group, Mr. Varley extended his thanks to the local organizing committee for facilities provided and for their warm hospitality. He also thanked the technical staff for their efforts in helping in the smooth running of the session.

ANNEX I

AGENDA

1. **OPENING OF THE SESSION**
2. **ADMINISTRATIVE ARRANGEMENTS**
3. **REPORT OF THE INTERSESSIONAL ACTIVITIES**
 - 3.1 Implementation of Responsibilities assigned to the Group by the Second Session of the Group of Experts and by the IODE Committee
 - 3.2 Marine Information Management within the IODE context and other IOC Global and Regional Activities
4. **POLICY DEVELOPMENT IN MEETING NEEDS OF DEVELOPING COUNTRIES IN MARINE INFORMATION MANAGEMENT**
5. **PLACE OF IOC MARINE INFORMATION MANAGEMENT PROGRAMME AMONG UN AGENCIES AND OTHER INITIATIVES IN MARINE INFORMATION**
6. **DEVELOPMENT OF MARINE INFORMATION MANAGEMENT PUBLICATION/PRODUCTS PROGRAMME**
 - 6.1 MEDI Referral System
 - 6.2 Products and services needed by developing countries
 - 6.3 New technologies
 - 6.4 Handbook on Marine Science and Technology Resources
7. **ASFIS/ASFA - STATUS, PROBLEMS AND SEARCH FOR SOLUTION**
9. **INTERNATIONAL GLOBAL CENTRE ON MARINE INFORMATION**
10. **PREPARATION OF MARINE INFORMATION MANAGEMENT ACTION PLAN FOR NEXT INTERSESSIONAL PERIOD**
11. **ELECTION OF THE CHAIRMAN OF THE GROUP**
12. **OTHER BUSINESS**
13. **ADOPTION OF THE SUMMARY REPORT**
14. **CLOSURE OF THE MEETING**

ANNEX II

RECOMMENDATIONS

Code	Title
Recommendation MIM-III.1	Revised Terms of Reference of the Group of Experts on Marine Information Management
Recommendation MIM-III.2	Development of Regional Marine Information Networks
Recommendation MIM-III.3	Provision of literature to Developing Countries
Recommendation MIM-III.4	New Technologies and their implementation in Marine Information Management
Recommendation MIM-III.5	ASFIS/ASFA
Recommendation MIM-III.6	International Global Centre on Marine Information
Recommendation MIM-III.7	Action plan of the Group for 1992-1993

Recommendation MIM-III.1

REVISED TERMS OF REFERENCE OF THE GROUP OF EXPERTS ON MARINE INFORMATION MANAGEMENT

The IODE Group of Experts on Marine Information Management,

Recognizing the present trends and importance of implementation of new technologies in telecommunications and information management techniques and methodologies,

Recognizing the importance of access to standardized Marine Information,

Taking into consideration multifarious problems facing Marine Information managers,

Recognizing the requirements of developing countries in Marine Information,

Noting that existing Terms of Reference of the IODE Group of Experts on Marine Information Management as they are presented in the IOC Handbook, do not reflect adequately new technology development,

Recommends the following Terms of Reference:

- 1) Advise the IODE Committee of the IOC on the policy, development and enhancement (or improvement) of information infrastructure that is essential for Marine Information access and exchange, including communication and telecommunication, to meet the needs of the marine community, both in developing and developed countries.
- 2) Encourage the implementation and/or development of standards and formats, suggesting and/or undertaking actions that can be applied nationally, internationally or regionally, to improve the access and exchange of scientific and technical Marine Information.
- 3) Identify the policy, technical and financial problems involved in the development and implementation of Marine Information Management systems and make recommendations towards solutions of these problems.
- 4) Develop programmes to improve the ability of Member States, particularly developing countries, to benefit from, and participate in, Marine Information Management systems and keep Member States informed on how they might best gain access to such systems.
- 5) Advise Secretary IOC and through the IOC Secretariat, other international agencies and programmes, on technical aspects of Marine Information Management.
- 6) Develop strategies and projects for international dissemination of information on marine scientists, programmes and projects.

Recommendation MIM-III-2

DEVELOPMENT OF REGIONAL INFORMATION NETWORKS

The IODE Group of Experts on Marine Information Management,

Acknowledging that Marine Information is a common resource, the rational growth and use of which is indispensable for understanding the ocean and for the wise exploitation and management of its resources,

Noting Recommendation IODE-XIII.8 of the Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, on

the need for increased support at the national level for data and information centres,

Recognizing the role of Marine Information as a necessary prerequisite to development of national and regional infrastructures and **having accepted** the existing IOC regional definitions as a viable framework for establishing information systems,

Taking into consideration the experience gathered during the pilot phase of the regional project RECOSCIX-WIO,

Requests the IOC Secretary and IOC Member States to seek and provide the necessary extrabudgetary funds or identify donors to undertake pilot projects for the development of regional networks;

Requests IOC to solicit expertise in the drafting of minimum criteria for Marine Information Management operational services, in order to enable the development of viable national or regional information networks;

Recommends that IOC opens up electronic mail boxes for national and/or regional centres where technically possible;

Urges IOC to implement strategies and projects for international dissemination of information on marine scientists, institutions, programmes and projects and this in collaboration and coordination with other relevant national and international organizations and **Requests** the Secretary IOC with the help of the IOC Member States to find the necessary funds to undertake these activities.

Recommendation MIM-III-3

PROVISION OF LITERATURE TO DEVELOPING COUNTRIES

The IODE Group of Experts on Marine Information Management,

Recalling Recommendation 2 of the Ad hoc Consultation of Experts on Marine Information Management, Enghien-les-Bains, France, 1987,

Referring to discussions during IODE-XIII (Document IOC/IODE-XIII/3 page 23, paragraph 173) where the need for document delivery systems was mentioned,

Noting the importance of the provision of core literature to developing countries,

Appreciates the offer by IAMSLIC/EURASLIC to make available to developing countries the extensive surplus materials available in their libraries,

Recommends that donor-funded marine science development projects should identify the need, and provide budget allocations for core literature acquisition and information awareness programmes;

Encourages international professional interest groups such as IAMSLIC and EURASLIC, to act as a bridge between donors and receivers;

Recommendation MIM-III.4

NEW TECHNOLOGIES AND THEIR IMPLEMENTATION IN MARINE INFORMATION MANAGEMENT

The IODE Group of Experts on Marine Information Management,

Noting the rapid development of new information technologies and their relevance to Marine Information Management,

Noting the possibilities such technologies can offer for the improved dissemination of Marine Information in developing countries,

Recalling the Sixteenth Session of the IOC Assembly, 1991 where the Assembly stressed that new technology should be introduced in such a way that it could be transferred to developing countries (Document SCMD/97 page 24, paragraph 215),

Recommends that the Secretary IOC with support of the IOC Member States seeks extrabudgetary funds and equipment from Member States to stimulate the use of new technologies in telecommunications and global information exchange to meet the demands of the marine community;

Recommends the IODE Committee to promote the use of globally and regionally designed existing data networks for Marine Information transfer.;

Requests the Secretary IOC to solicit expertise from relevant experts to further investigate document delivery systems to facilitate information transfer through networks such as Internet;

Encourages the use of the latest technologies to support the researcher/scientist with global access to linked multi-media information and digital products;

Urges the IODE Committee to study the ways of utilizing optical scanning technology to capture and rescue historical Marine Information for global ocean programs;

Recommends the Secretary IOC to seek means and expertise to develop a full-text retrieval CD-ROM of IOC documents and publications.

Recommendation MIM-III.5

ASFIS/ASFA

The IODE Group of Experts on Marine Information Management,

Recognizing the urgent need to resolve the management problems facing the ASFIS programme,

Noting Recommendation IODE-XIII.5 on a "Joint FAO-IOC-UN Group of Experts on ASFIS and ASFIS Strategy",

Noting further Recommendations contained in Document IOC/IODE-MIM-III/13 entitled "IOC Position Paper on ASFIS",

Recognizes the need for UN agencies interested in marine and fresh-water environments to undertake a strong co-ordinated effort to establish a managerial network based on frameworks put forth in ASFIS and Marine Information Management strategies for continuing and strengthening ASFIS products, especially the ASFA database;

Recommends that the Secretary IOC brings the item to the attention of the forthcoming ICSPRO Session;

Urges the Secretary IOC to recruit a consultant to prepare a paper assessing the future role of IOC in the management of the ASFIS system with a realistic implementation program, identifying the financial and human resources needed for program implementation, and bring this document to the attention of the forthcoming ICSPRO Session and ASFA Board Meeting.

Recommendation MIM-III.6

INTERNATIONAL GLOBAL CENTRE ON MARINE INFORMATION

The IODE Group of Experts on Marine Information Management,

Realizing the need for assessment, synthesis and analysis of information from relevant organizations of the UN system, as well as others, including non-governmental international organizations, national centres and institutions tackling the problems of sea research and exploitation,

Recognizing the existence of a gap between analysis and synthesis of Marine Information,

Acknowledging the draft proposal submitted by the Russian Federation on the establishment of an International Global Centre on Marine Information,

Realizing that the project, if accepted, will be very costly,

Requests the Secretary IOC, subject to the availability of funds, to undertake a feasibility study for a 'Global Centre', networked with the existing international and regional information centres. The responsibilities of a the consultant are detailed in Annex VI.

Recommendation MIM-III.7

ACTION PLAN OF THE GROUP FOR 1992-1993

Based on discussions and Recommendations adopted by the Group a plan of action for the intersessional period 1992-1993 was defined as given below.

ACTION PLAN

ACTION	Responsibility	Date due
1. Report on diagnostic procedures and definition of minimum requirements for providing information services on national and/or regional level.	IAMSLIC/EURASLIC (T.Moritz) (D.Moulder)	12/92
2. Identify standard bibliographic data structure and documentation.	12/92	IOC Secretariat
3. Identify standard directory record structure.	IOC/EURASLIC/ IAMSLIC	12/92
4. Send circular letter to the IOC Member States with the request to deposit funds in the IOC Trust Fund and/or regional centres, earmarked for information centres and libraries in developing countries to use for funding bibliographic searches and document delivery services from Marine Information Centres of Excellence.	IOC Secretariat	9/92
5. Organise training activities : - co-organize RECOSCIX-WIO Training course on Marine Information	IOC/Belgium/...	8/92

- | | | | |
|-----|---|-------------------------------------|--------------|
| | Management. | | |
| | - co-organize China Marine Information Management course on Marine Information Management. | IOC/China | 11/92 |
| | - organize Marine Information Management Training Courses in other regions. | IOC/other donors | upon request |
| 6. | Study of document delivery services for developing countries. | IOC/IAMSLIC/
EURASLIC | 12/92 |
| | - Investigate and report on document delivery via international telecommunications networks. | IAMSLIC (T.Moritz) | 8/92 |
| 7. | Recommend procedures to facilitate transfer of useful surplus publications to developing countries. | IAMSLIC-CIC/IOC | 10/92 |
| 8. | Investigate ways and means to implement electronic communications in developing countries. | NOAA (B. Gelfeld) | 6/92 |
| 9. | For NOAA to open an OMNET Bulletin Board in order to enable Group of Experts on Information Management members to communicate during the Intersessional period. | NOAA/GE-MIM
(B.Gelfeld, C.Watts) | 5/92 |
| 10. | Develop CD-ROM of UNESCO-IOC documents. | IOC Secretariat | 93- |
| 11. | Provide brief report on interoperability between library catalogues and data directories. | NOAA (B.Gelfeld, C.Watts) | 1/93 |
| 12. | Carry out a pilot project to rescue historical Marine Information at the WDC-A Oceanography to assess resources requirements. | NOAA (B.Gelfeld, C.Watts) | 3/93 |
| 13. | Assess the number, currency and quality of the manual records which constitute the World List of Serials currently held by FAO. | FAO | 6/92 |
| 14. | Contact WMO with regard to their inclusion of full MEDI information in INFOCLIMA and report to the Group and the IODE Committee. | IOC Secretariat | 9/92 |
| 15. | Recruit a consultant to prepare a paper assessing the current situation of ASFIS and ASFA with regard to policies, management structure and operation, and presenting alternatives in view of possible changes. | IOC Secretariat | 10/92 |
| 16. | Recruit expertise to carry out a feasibility study of a 'International Global Centre on Marine Information' | IOC Secretariat | 10/92 |

ANNEX III

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ANNEX IV

LIST OF DOCUMENTS ¹

Document Code	Title
WORKING DOCUMENTS	
IOC/IODE-MIM-III/1	Agenda
IOC/IODE-MIM-III/1 Add.	Timetable
IOC/IODE-MIM-III/2	Annotated Provisional Agenda
IOC/IODE-MIM-III/3	Summary Report (this document)
IOC/IODE-MIM-III/4	List of Documents
IOC/IODE-MIM-III/5	List of Participants
IOC/IODE-MIM-III/6	Intersessional Report with Recommendations Adopted by IOC Regional Bodies Relevant to MIM
IOC/IODE-MIM-III/7	Progress and experience in RECOSCIIX-WIO Development
IOC/IODE-MIM-III/8	Draft Proposal for an International Global Centre on Marine Information
IOC/IODE-MIM-III/9	Compilation of Case-studies on the Development of Marine Information Management in Selected Developing countries
IOC/IODE-MIM-III/10	Current Status and Future Development of MEDI Referral System
IOC/IODE-MIM-III/11	Products and Services needed by developing Countries
IOC/IODE-MIM-III/12	New Technologies Developments in Data Management and their Appliance to Marine Information Management
IOC/IODE-MIM-III/13	IOC Position Paper on ASFIS
IOC/IODE-MIM-III/14	Draft Action Plan

¹ NB: This list is for reference only. No stocks of documents are kept, except for the Summary Report.

INFORMATION AND OTHER REFERENCE DOCUMENTS

- IOC/IODE-MIM-III/Inf.1 Information on Arrangements and Services Available for the Session
- IOC/IODE-MIM-I/3 Summary Report of the IODE Group of Experts on Marine Information Management, First Session (Rome, 19-23 November 1984)
- IOC/IODE-MIM-II/3 Summary Report of the IODE Group of Experts on Marine Information Management, Second Session (Moscow, 8-9 December 1986)
- IOC/IODE-XII/3 Summary Report of the IOC Technical Committee on International Oceanographic Data Exchange, Twelfth Session (Moscow, USSR, 10-17 December 1986)
- IOC/IODE-XIII/3 Summary Report of the IOC Committee on International Oceanographic Data and Information Exchange, Thirteenth Session (New York, USA, 17-24 January 1990)
- IOC/INF-722 Executive Summary of the *ad hoc* Consultation of Experts on Marine Information Management (Enghien-les-Bains, France, 12-16 October 1987)
- IOC/INF-828 Summary Report of the Expert Consultation on OCEAN-PC, a Standard Software Package for Oceanographic Data Processing and Exchange
- IOC/INF-834 IODE Handbook, Revised Edition, 1991 Unesco
- IOC/TEMA-V/3 Summary Report of the IOC Committee for Training, Education and Mutual Assistance in Marine Sciences, Fifth Session (Paris, 25 February - 1 March 1991)
- IOC Manuals and Guides No. 23 Marine Information Centre Development: An Introductory Manual
- Draft of the Handbook on Marine Science and Technology Resources
- A Strategy for the Development of the International Aquatic Sciences and Fisheries Information System, published by FAO, 1990
- Summary Report of the ASFA Advisory Board Meeting (FAO, Rome, Italy, 18-21 June 1991)

ANNEX V

JOB DESCRIPTION MARINE INFORMATION MANAGEMENT PROFESSIONAL IOC

The Group of Experts on Marine Information Management,

Noting that the time has come when IOC can take a lead among ICSPRO agencies in Marine Information Management and in ASFIS in particular;

Recognizing that Marine Information will be an important component of any future structure of GOOS and other future marine science programmes;

Noting further that Marine Information Management strategy and ASFIS can not be successfully implemented without additional staff support in the IOC Secretariat;

Recommends that the IOC Secretary should take all necessary actions in order to have in the Secretariat a permanent UNESCO staff member with knowledge in information systems and technologies.

This person will work on Marine Information Management in general and on MEDI and ASFIS in particular, and will have the following job description:

- Coordinate the further development and production of products of the MEDI Programme including monitoring of MEDI inputs, processing of information, preparing outputs and dissemination of products;
- Coordinate activities defined in the Action Plan prepared by the Group of Experts in Marine Information Management including TEMA activities;
- Promotion of the Marine Information Management Programme and Activities through relevant international bodies and programmes;
- Promotion and further development of the IOC component of ASFIS;
- Represent the IOC on the Aquatic Sciences and Fisheries Abstracts (ASFA) Board;
- Assist IOC Member States in the planning and development of Marine Information Management systems and services;
- Develop regional information networks and assist the IOC Secretary in seeking extrabudgetary funding for the successful implementation of these networks;

For this the incumbent will be required to have the following expertise:

- Experience in the development and management of marine information services.
- Experience with techniques used in Marine Information Management, including CD-ROMs, optical character recognition and electronic information transfer;
- Word processing, spread-sheets and database management systems with special emphasis on the Micro CDS/ISIS software;
- Telecommunication techniques, including electronic mail and local area networking;

ANNEX VI

TERMS OF REFERENCE FOR IGCM FEASIBILITY STUDY

The objective of this feasibility study will be to re-define :

- the objectives of the project;
- modalities;
- computer hardware and software requirements;
- communications network needs for data accession;
- cost estimates;
- expected benefits by the user;
- nature of the services that the system will provide.

The study will include a state-of-the-art review of scientific and technical information systems and services to determine how such services meet the information requirements of the marine scientific community, their structure and ability to respond to changing requirements. Should the review identify that there is a need for a new information system to meet poorly-met user requirements in producing analytical areas, subject, technology etc. reviews, an **options study** should be undertaken to upgrade and enhance an existing system or develop ways, and identify means, of providing such services.

Restricted distribution

IOC/IODE-MIM-III/14
Paris, 30 April 1992
English only

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Third Session of the IODE Group of Experts
on Marine Information Management
Wormley, UK, 27-30 April 1992

DRAFT ACTION PLAN

DRAFT ACTION PLAN OF THE GROUP FOR 1992-1993

Based on discussions and Recommendations adopted by the Group a plan of action for the intersessional period 1992-1993 was defined as given below.

ACTION PLAN

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2. Identify standard bibliographic data structure and documentation.	IOC Secretariat	12/92
3. Identify standard directory record structure.	IOC/EURASLIC/ IAMSLIC	12/92
4. Send circular letter to the IOC Member States with the request to deposit funds in the IOC Trust Fund and/or regional centres, earmarked for information centres and libraries in developing countries to use for funding bibliographic searches and document delivery services from Marine Information Centres of Excellence.	IOC Secretariat	9/92
5. Organise training activities :		
- co-organize RECOSCIX-WIO Training course on Marine Information Management.	IOC/Belgium/...	8/92
- co-organize China Marine Information Management course on Marine Information Management.	IOC/China	11/92
- organize Marine Information Management Training Courses in other regions.	IOC/other donors	upon request
6. Study of document delivery services for developing countries.	IOC/IAMSLIC/ EURASLIC	12/92
- Investigate and report on document delivery via international telecommunications networks.	IAMSLIC (T.Moritz)	8/92
7. Recommend procedures to facilitate transfer of useful surplus publications to developing countries.	IAMSLIC-CIC/IOC	10/92
8. Investigate ways and means to implement electronic communications in developing countries.	NOAA (B. Gelfeld)	6/92
9. For NOAA to open an OMNET Bulletin Board in order to enable Group of Experts on Information Management members to communicate during the	NOAA/GE-MIM (B.Gelfeld, C.Watts)	5/92

Intersessional period.

- | | | |
|---|---------------------------|-------|
| 10. Develop CD-ROM of UNESCO-IOC documents. | IOC Secretariat | 93- |
| 11. Provide brief report on interoperability between library catalogues and data directories. | NOAA (B.Gelfeld, C.Watts) | 1/93 |
| 12. Carry out a pilot project to rescue historical Marine Information at the WDC-A Oceanography to assess resources requirements. | NOAA (B.Gelfeld, C.Watts) | 3/93 |
| 13. Assess the number, currency and quality of the manual records which constitute the World List of Serials currently held by FAO. | FAO | 6/92 |
| 14. Contact WMO with regard to their inclusion of full MEDI information in INFOCLIMA and report to the Group and the IODE Committee. | IOC Secretariat | 9/92 |
| 15. Recruit a consultant to prepare a paper assessing the current situation of ASFIS and ASFA with regard to policies, management structure and operation, and presenting alternatives in view of possible changes. | IOC Secretariat | 8/92 |
| 16. Recruit expertise to carry out a feasibility study of a 'International Global Centre on Marine Information' | IOC Secretariat | 10/92 |

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