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MED POL**

UNITED NATIONS ENVIRONMENT PROGRAMME



**FOUNDATION FOR INTERNATIONAL STUDIES
UNIVERSITY OF MALTA**



**EURO-MEDITERRANEAN CENTRE ON
MARINE CONTAMINATION HAZARDS**

**REPORT OF THE TRAINING WORKSHOP ON ASPECTS
OF MARINE DOCUMENTATION IN THE MEDITERRANEAN
23-26 NOVEMBER 1992**

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Note: This document is not an official publication but a compilation on the Training Workshop on Aspects of Marine Documentation in the Mediterranean, intended to facilitate communications and the sharing of knowledge among researchers co-operating within the framework of UNEP Regional Seas Action Plans as well as to improve awareness of regional activities and capabilities.

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Note: Le présent document ne constitue pas une publication officielle mais une compilation des informations sur l'Atelier de formation sur des aspects de la documentation marine en Méditerranée, destinée à faciliter les communications et le partage des connaissances parmi les chercheurs coopérant dans le cadre des plans d'action pour les mers régionales du PNUE ainsi qu'à améliorer la sensibilisation en matière d'activités de capacités régionales.

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Prepared by Allen Varley,
and edited by Damian C. Iwueke

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INTRODUCTION

The rate of pollution, industrialisation, tourism and other pressures on the Mediterranean environment mean that the Mediterranean community must commit itself to concerted efforts in the management and conservation of its environment. As a result there is an ever-increasing need for access to information and the exchange of documents regarding the Mediterranean marine environment. The aims of the Training Workshop that was held in Malta were to focus on the various information and documentation aspects of marine environmental pollution, protection and conservation in the Mediterranean, including also the Black Sea region, and to evaluate experiences with regard to the systems of collecting, collating, documenting, disseminating and sharing information in marine affairs. It was hoped that consideration of perspectives for co-operation, and the improvement of information availability and transfer, would lead to positive suggestions for future action. The Training Workshop was aimed at librarians, documentation officers, information workers, marine scientists and policy makers. No specialised knowledge was assumed, and an interdisciplinary approach was adopted.

The organisers were: the Documentation Centre of the Foundation for International Studies, Malta; the Euro-Mediterranean Centre on Marine Contamination Hazards of the Council of Europe based at the Foundation for International Studies and the All-Russia Scientific Research Institute of Marine Fisheries and Oceanography (VNIRO), Moscow. Support was provided by the International Ocean Institute, Malta, and the Co-ordinating Unit for the Mediterranean Action Plan (MAP) of the United Nations Environment Programme, Athens.

Twenty-five participants from 15 countries attended the workshop. Participants included both information professionals and the users of marine and environmental information (see Annex III). The four-day programme consisted of nine lectures, working group sessions, demonstrations and plenary discussions. (See Annex IV)

It is hoped that the distribution of this report to marine libraries, documentation centres and institutes in the Mediterranean region will stimulate and encourage co-operative efforts to improve marine information services and the systems which provide access to them.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the Executive Director of the Foundation for International Studies, Dr James Calleja for his support and advice in organizing the Training Workshop. My thanks also go to Prof. Salvino Busuttil, Co-ordinator of the Mediterranean Action Plan (MAP) for his advice and the travel support provided by MAP which enabled two participants to attend the workshop. Mr. Anton Micallef, Director of the Euro-Mediterranean Centre was extremely helpful in the planning and organization of the workshop, as was Mr. Charles Galdies, Project Officer of the Centre. Furthermore, I would like to acknowledge the financial support received from the Euro-Mediterranean Centre which made it possible for five participants to attend the workshop.

Dr. Anna Mallia, former Academic Director of the International Ocean Institute (IOI) was also involved in the preliminary planning of the workshop while Dr. Gerard Ackers, Interim Director of the Institute supported and approved full scholarship for two participants as contribution from the IOI.

Dr. Ivan Bukhanevich, Director of VNIRO, Moscow, helped in the initial drafting of topics which were discussed during the workshop.

My special thanks go to Mr. Allen Varley, former Head of Library and Information Services at the Plymouth Marine Laboratory and Marine Biological Association, UK and to Mrs Athena Davaki of UNEP, Athens for contributing their wealth of experience to the smooth running of the workshop. The two acted as 'Consultants' throughout the duration of the Training Workshop and assisted a great deal in the drafting of this report. Dr David Farrugia, apart from lecturing during the workshop, he contributed to the demonstration of regional networking using his company's hardware and software, as did Jovan Kurbalija of the Mediterranean Academy of Diplomatic Studies of the University of Malta. I am also grateful to the other lecturers and chairpersons who accepted our invitations to lecture and chair the various sessions of the workshop.

Finally, I would like to thank Mrs Maria Bugeja and Ms Charmaine Randich, my two secretaries for their excellent work before, during and after the conference, especially in the typing of all the documents relating to the workshop.

Any comments or suggestions for future activities and/or requests for additional information on the workshop or applications for membership to the proposed Mediterranean and Black Sea Regional Network of Marine Libraries as was agreed during the Training Workshop, would be welcomed and should be addressed to the undersigned.

Damian Iwueke
Librarian
Foundation for International Studies
University of Malta, Valletta, Malta

March, 1993

OPENING OF THE TRAINING WORKSHOP

The Workshop Co-ordinator and Librarian of the Foundation for International Studies, Mr Damian Iwueke welcomed participants on behalf of the Executive Director of the Foundation, Dr James Calleja. Mr Iwueke spoke about the need for co-operation, information sharing and improved communication among marine librarians and scientists. He also raised the possibility of forming a Mediterranean network of marine information workers.

Mr Anton Micallef, Director of the Euro-Mediterranean Centre on Marine Contamination Hazards spoke about the need for marine information dissemination around the Mediterranean and networking which will, if possible, incorporate also the Black Sea region. He gave a brief description of the activities of the Euro-Mediterranean Centre and stressed the Centre's commitment to regional co-operation.

Mrs Athena Davaki, Librarian of the Co-ordinating Unit for the Mediterranean Action Plan, conveyed the greetings and best wishes of Professor Salvino Busuttil, the Co-ordinator for a successful Workshop, and noted the Co-ordinator's keen interest and support for co-operation in information transfer and exchange. Mrs Davaki expressed her strong belief in the value of co-operation between marine libraries on a regional basis, and referred to regional initiatives of this nature in other parts of the world.

The Minister of Education and Human Resources, Honourable Dr Ugo Mifsud Bonnici opened the Training Workshop. He spoke about environmental problems in the Mediterranean and the explosion of information and publications in this field. He stressed his belief in the value of libraries and information services, and commended the initiative of the organisers in stimulating the development of a Mediterranean marine information network and group. He also informed participants of the Government of Malta's initiatives in marine environmental issues, especially the Law of the Sea, and of the government's support for marine institutions and programmes in Malta.

INTRODUCTION OF PARTICIPANTS

A session on the first day allowed the participants to introduce themselves and give brief descriptions of the activities of their organisations and institutes. Several of the members distributed brochures and documents relating to their institutes, and on the final day, Captain Said Merdan from Egypt gave a short presentation on the work of the Suez Canal Authority. The participants also completed short questionnaires concerning the library and information facilities at their institutes, their computer knowledge and level of expertise, and their expectations from the Training Workshop. The results of the questionnaire are summarised in Annex I.

LECTURES, DISCUSSIONS AND WORKING GROUPS

Nine lectures were given, each introduced by a chairperson, and followed by question-and-answer sessions and discussions. The lectures and discussions are summarised below.

Morning Session, 23 November 1992

COMPUTATION OF THE DIRECTORY OF MEDITERRANEAN MARINE ENVIRONMENTAL CENTRES

Speaker: Mrs Athena Davaki
Librarian, Co-ordinating Unit for the Mediterranean Action Plan, UNEP, Athens, Greece

Chairperson: Mr Allen Varley, Former Head of Library and Information Services, Plymouth Marine Laboratory and Marine Biological Association, Plymouth, United Kingdom

Since the inception of UNEP's Regional Seas Programme in 1974, the need for up-to-date complete information on the relevant institutions working in each of the regions was recognised. To facilitate communication and co-operation a series of directories was published which provide information on governmental, international, United Nations, private and other institutions which are engaged in research, education, training, laboratory and other work that contributes to an improved understanding of the marine environment.

The three earlier editions of the Directory of Mediterranean Marine Environmental Centres, published by UNEP and FAO in 1976, 1977 and 1985 proved to be valuable sources of reference which served as tools for regional co-operation. Therefore an updated edition of the Directory was prepared in 1991/1992 by the UNEP Co-ordinating Unit for the Mediterranean Action Plan.

The Directory contains up-to-date information on 142 Mediterranean marine environmental institutions and their facilities, and lists almost 2000 scientists, with details of their research interests.

The methodology of collecting the information by questionnaire, its editing and entering into two databases (institutions and personnel) were described. An IBM PC/AT compatible computer, with Unesco Micro CDS/ISIS software, was employed, together with word processing software. Details of the databases, record structures and data entry screens were illustrated. The printed directory lists institutions alphabetically within country; laboratories and departments belonging to the same institution appear alphabetically under the parent institution, with Francophone institutions appearing in the French language. An index of professional/scientific staff, with their subject specialities, follows the main body of the information. The Aquatic Sciences and Fisheries Information System (ASFIS) thesaurus was used as a source of subject descriptors.

It is expected that updated editions of the directory will be published periodically, while the databases will continue to be updated as new or amended information is received.

Discussion

Comments were made on the problems of obtaining and validating information collected through questionnaires, and on the special features of databases which were required to produce records sorted at several levels and arranged for printing. For indexing which would facilitate database searching and for printed indexes, a controlled list of subject descriptors or keywords is required. It was noted that the directory is a valuable source of information on marine library and information facilities in the region, and that the database could also be used to produce special directories of individual countries, subject experts, libraries, etc. Updating the directory could be a possible co-operative project for a Mediterranean marine information network or group.

Afternoon Session, 23 November

MARINE INFORMATION CENTRE ESTABLISHMENT AND DEVELOPMENT

Speaker: Mr Allen Varley, Former Head of Library and Information Services, Plymouth Marine Laboratory and Marine Biological Association, Plymouth, United Kingdom

Chairperson: Mrs Carmen Banica
Romanian Institute for Human Rights, Bucharest, Romania

The research efforts and observations of scientific institutions and programmes, and the activities of researchers, industry, scholars, policy makers and legislators generate a continuously accumulating mass of published information, together with a demand for access to it.

Research information and knowledge is transferred in a variety of ways, but the established medium is through the published literature. It is estimated that some 30,000 scientific and technical documents are published each year on the marine environmental sciences, technology, oceanography, fisheries and related subjects. For effective transfer the literature must be available and accessible, and the researcher must be aware or have the means to become aware, of its information content. The information centre is the link between the producers of information and the users.

An information centre cannot operate without access to a library or a collection of documents, so it normally: (a) Includes a library; or (b) Is part of a library; or (c) Is co-located with a library.

The information centre therefore is concerned with the use and exploitation of the information contained in a library, and with scientific and technical literature from external sources. Basic elements to be considered in establishing an information centre, or when developing or extending information activities and services should include: Planning and management; Subject scope; Collection and arrangement of documents; Library services to users; Information services to users; Automation; International information systems; Role of United Nations and international agencies; Co-operation and network development.

The speaker requested participants to share their problems and concerns, and to consider user needs and current gaps and deficiencies in marine and environmental information services, at their own local and institutional level, and also at national, regional and international levels before establishing a marine science library or information centre.

Copies of the speaker's "Marine Information Centre Development: an Introductory Manual", which had been prepared for the Intergovernmental Oceanographic Commission (IOC), and published by Unesco as IOC Manuals and Guides No. 23 (1991), were distributed to the participants.

Discussion

Questions were raised about automation, and it was clear that a number of the participants worked in isolation and were keen to benefit from the experiences of other library and information professionals. Enquiries were made about training in the use of Unesco's Micro CDS/ISIS bibliographic software, and whether standard database structures, record and input formats were available. It was stated that the IOC was developing a project called "Ocean PC" which included software for oceanographic data entry and manipulation, and that it was hoped that recommended bibliographic database structures, using CDS/ISIS would also be provided. Clearly if bibliographic records were to be shared and exchanged within the region, and possibly with other regions and internationally, common standards and record structures were desirable, even if the same software was not used. In larger libraries and university libraries it was felt that there is a need for some members of the library and information staff to have specialist subject knowledge; it was suggested that in order to be fully aware of user needs, the librarian or senior information staff should attend scientific meetings, and institute scientific programme discussions

Morning Session, 24 November

MARINE INFORMATION DOCUMENTATION SYSTEMS: DATABANKS, DISSEMINATION, APPLICATION AND UPGRADING OF DATABANKS.

Speaker: Dr Ivan Bukhanevich
Director of Information Centre, All-Russia Scientific Research Institute of Fisheries and Oceanography (VNIRO), Moscow, Russia

Chairperson: Mr Allen Varley, Former Head of Library and Information Services, Plymouth Marine Laboratory and Marine Biological Association, Plymouth, United Kingdom

A description was given of the geographic situation of the Mediterranean, and of the characteristics of the Azov and Black Seas as parts of the Mediterranean area.

The history of the development of marine information and documentation of the Mediterranean area was shown with regard to the former Soviet Union, and then the new Russia. This dates back to 1703, the year when Russia began to use the Azov Sea, giving access to the Mediterranean Sea.

Libraries and information centres play a major role in the research process. The thematic structure of the work of the VNIRO information centre in Moscow was described. The subjects that it covers include oceanography, fisheries, ecology, environmental pollution and conservation, fish products processing, and the law of the sea.

Library processes, including the selection and acquisition of books and journals, and the development of bibliographic databases, were discussed. VNIRO has been the national partner in the international Aquatic Sciences and Fisheries Information System (ASFIS) since 1973, and provides abstracts for the bibliographic database Aquatic Sciences and Fisheries Abstracts (ASFA).

To retrieve information VNIRO uses bibliographic information searching language, and plans to use a laser disc system. The possibilities were considered for the development of complex knowledge systems, using integrated marine databanks which contain all available information and data in a relational structure.

VNIRO maintains integrated databases of information on the Azov Sea and the Black Sea, and has the development methodology to co-operate in building such a database for the whole Mediterranean region.

DISCUSSION

The Russian language was seen as a barrier to information exchange, and in answer to enquiries, Dr Bukhanevich stated that many Russian marine scientific papers were not included in the international bibliographic databases. Also because of the changed situation, Ukrainian literature was not currently being processed for the ASFA database, apart from papers appearing in the journals which are translated cover-to-cover into English by mainly North American publishers. Comments were made on the high prices of these journals. It was agreed that there was a great deal of Russian marine scientific literature on the region, particularly on the Black Sea, which was not being utilised because of the language barrier. It was hoped that co-operative projects could be undertaken to share this information and make it more accessible.

Note: The paper was delivered in Russian, with Dr Konovalov acting as interpreter. It was stated that the full text, in English, would be mailed to participants

MALTA CASE STUDY: NATIONAL DATABASE ON BIODIVERSITY

Speaker: Mr Adrian Mallia
Research Assistant, Malta Council for Science and Technology, Biological Diversity
and Genetic Resources Network, University of Malta

Chairperson: Professor Patrick Schembri
Department of Biology, University of Malta

In order to manage a biological resource one must first know how much of the resource one has and where it exists, and also one must understand the factors that affect population size and structure, and so the importance of continuous monitoring and inventorying can never be overemphasised. In order to conserve biodiversity many kinds of information are required, and recent advances in data management technology make such information more accessible.

The National Database on Biodiversity (NDB) was started in July 1991 as the first project of the Biodiversity Inventorying and Monitoring Working Group of the Malta Council for Science and Technology, in collaboration with the Department of Biology of the University of Malta.

The importance of biological databases is many-fold, and may be summarised as follows: (a) Conservation; (b) Data centralisation; (c) Legislation; (d) Sustainable use and development; (e) Documentation; (f) Planning; (g) International data compilation initiatives; (h) Implementation of international treaties; (j) UNEP Convention on Biological Diversity.

The NDB aims to establish a database system for easy access to data on the fauna and flora of the Maltese Islands, to identify locally occurring organisms of economic importance, and to indicate which species can be exploited in a sustainable manner. It also aims to highlight deficiencies in the knowledge of particular groups and to identify organisms requiring immediate conservation measures, as well as those having cultural and special scientific importance.

The development of the NDB is planned in three phases: (a) Pilot phase during which the system is designed and tested using data from a few groups of organisms; (b) Building phase during which more data on various groups will be entered into the system, and (c) Consolidation phase during which the database will be expanded further and the data made available to different users.

Data for each species is entered in records with 23 fields. The first ten fields of each record deal with the taxonomy of the species as well as the common Maltese and English names. Then there is data on the abundance, distribution and habitat of the species, with a further three fields listing economic, cultural and special scientific importance. Field 17 gives the Red Data Book status for the particular species, while the remaining fields cover exploitation, conservation measures taken and proposed, general notes, references, and list of key works.

The computer hardware to be used includes an IBM 486 compatible computer with (initially) a 203Mb hard disc. The software is "Windows"-based Superbase 4 (Precision Software Ltd) which also includes the capacity to store frames from video film, pictures and distribution maps.

During the pilot phase the system was tested using data from four groups: the *Orchidaceae* (orchids), the *Orobanchaceae* (broomrapes), the *Cerambycidae* (long-horn beetles), and the *Scombridae* (tuna and mackerel).

Once operational, the NDB will facilitate participation in international databases on similar topics, and the possibility of networking, both locally and regionally, is being considered. Such databanks will provide the groundwork for the easier compilation of works such as regional Red Lists and inventories of species.

Discussion

During the discussion it was stated that 220 records are in the database, and a further 800 species records have been prepared. The eventual size of the database could be in the region of 8,000 records. The field structure was further explained, and the possible treatment of groups such as phytoplankton and zooplankton was considered. It would be feasible to integrate data with climatic data to illustrate abundance and distribution at different times of the year. Comments were made on the educational value of the database, and its potential use in schools.

COLLATING AND DISSEMINATING INFORMATION TO 18 FOCAL POINTS: THE EXPERIENCE OF REMPEC

Speaker: Mrs Marie Benoit
Information Officer, Regional Marine Pollution Emergency Response Centre, Malta

Chairperson: Mr Espinoza Rodriguez, Curator, Maritime Museum, Vittoriosa, Malta

In 1975 the Mediterranean coastal states considered setting up a regional oil combating centre, and proved their will to pool forces to combat accidental hydrocarbon pollution and assist one another in cases of emergency.

Given the world oil tonnage that moves through the area, and the fact that the Mediterranean occupies a key location between the oilfields of the Middle East and the industrialised countries of Western Europe and North America, it is obvious that the Mediterranean is more likely than most other seas in the world to suffer from massive spillages.

The Centre was put into operation in Malta in 1976. Originally concerned only with oil spills, the Centre now deals with all aspects of accidental marine pollution in the Mediterranean, and is known as the Regional Marine Pollution Emergency Response Centre. The main objectives are (a) to facilitate co-operation among the States, co-ordinate their efforts in combating a spill if they request assistance, and to communicate to them all pertinent information needed, and (b) to assist those States that requested it in developing their own intervention capabilities, especially in setting up their national contingency plans.

The Malta Centre is managed by the International Maritime Organization, and financed by the Mediterranean countries themselves, through the Mediterranean Trust Fund.

REMPEC does not intervene operationally, but gives technical advice and facilitates and co-ordinates mutual assistance in emergency situations. The Centre provides a framework for the continuous exchange of information, and maintains a small library and documentation centre. REMPEC's information activities are concerned principally with (a) documents; (b) inventories; (c) operational guides, and (d) databanks. A relational database stores and combines information on persons, countries, organisations, national authorities, experts, equipment and products, companies offering services, and details of accidents

Discussion

Some of the publications of REMPEC were examined in more detail, and the links with the 18 focal points in Mediterranean countries, and with the International Maritime Organization, were described. The types of training courses sponsored by REMPEC were mentioned, and the particular problems of the Mediterranean as a semi-closed sea with considerable economic, cultural and geographic variations were stressed.

Afternoon Session, 24 November

MANAGEMENT STRUCTURES FOR MARINE INFORMATION CENTRES - MEDITERRANEAN AND BLACK SEA REGIONAL EXPERIENCE

Speaker: Dr Ivan Bukhanevich
Director of Information Centre, All-Russia Scientific Research Institute of Fisheries
and Oceanography (VNIRO), Moscow, Russia

Chairperson: Mrs Athena Davaki
Librarian, Co-ordinating Unit for the Mediterranean Action Plan, UNEP, Athens, Greece

An overview was presented of institutions active in Black Sea marine and environmental research, and co-operative programmes currently operational or planned.

The activities of the main marine research centres were outlined, together with their publications and data gathering functions. Libraries and information centres play a vital role in managing the ever-increasing amounts of published information and data. Following the changes in the former Soviet Union, new arrangements for co-operation are being developed.

Most of the scientific research is conducted by institutes of ministries or government departments, or institutes of the Academies of Sciences. However university research is growing and undoubtedly links will be strengthened with and between universities and the research institutes.

As well as in Russia and the Ukraine, the other countries of the Black Sea have a long history of marine and fisheries research, and the major institutes were noted. Co-operative research programmes were being discussed in the region.

The VNIRO Information Centre is anxious to co-operate with institutes in the Mediterranean and Black Sea region to improve information management and exchange.

Discussion

Formal and informal links between Black Sea research institutes are being created, and co-operative research projects with institutes both from the Black Sea and from other countries include cruises, data gathering and satellite remote sensing. Electronic communication links are becoming more available. The great amount of information contained in publications in the Russian language was again discussed, and the possibilities of reviewing, condensing, and translating key works were considered. The vision of compatible or linked relational databases storing and making available all relevant marine information and data on the region was contrasted to the poor state of many of the libraries, and the need to upgrade them, and to improve communication and co-operation, not only within the region but also inside individual countries.

Note: The paper was delivered in Russian, with Dr Konovalov acting as interpreter. It was stated that the full text, in English, would be mailed to participants.

Morning Session, 25 November

COMPUTERISATION OF MARINE SCIENCE LIBRARIES

Speaker: Dr David Farrugia
Datatech Computer Centre, Valletta, Malta

Chairperson: Dr Juanito Camilleri
Department of Computer Studies, University of Malta

Computerisation is the introduction of computer technology for collection, storage, manipulation and retrieval of information.

Why computerise? It should be noted that many organisations can work efficiently and effectively without computerisation. However the increase in available information and the increasing demand for information makes the task of the librarian and information manager increasingly difficult without computers. In addition the new means by which information is being distributed makes computers a necessity.

Care is needed before proceeding with computerisation. The real objectives of the new system must be determined; alternative approaches to meet the objectives must be examined; the technical, human and economic liabilities of each alternative must be considered. Benefits identified will be tangible, i.e. directly measurable in financial terms, in for example reducing labour costs, and intangible and not measurable financially. The latter will include "improved access to information" which while enabling the organisation to reap substantial benefits is very difficult to quantify. The options at this stage are (a) to purchase a ready-made software package which will run on affordable or available hardware, or (b) to build your own system.

Assuming that the decision is to buy, the three main attributes necessary for successful systems are (a) user friendliness; (b) flexibility, and (c) maintainability. These attributes were defined and discussed.

Finally, consideration was given to security and the care of data. Accidental loss, damage or corruption of data is experienced by most computer users at some stage; deliberate damage or corruption by virus attack is increasingly common. Systems which are networked or accessible online are vulnerable, as are library machines which are available for casual users. Only "clean" software should be used, and the only real protection is to make frequent backup copies.

Discussion

The participants were asked to consider their understanding of the actual meaning of "computerisation", and to define "information", which in its widest sense included "multi-media" - sound, illustration, data, and animation, as well as text. Information systems of the future could consist of hypertext-type structures imposed on systems of varied media. The concepts of the librarian as information manager, and of the development of the "paperless library" and information systems distributed for fast multi-user access were considered. A Geographic Information System for the Mediterranean was a real possibility; the technology was available and the only need was funding. These perspectives for the future contrasted vividly with the poor situation of many of the libraries known to the participants, where the immediate needs were access to information and to adequate collections of books and journals.

CREATING A DATABASE AND ESTABLISHING A COMPUTER COMMUNICATION NETWORK FOR MARINE SCIENCE INFORMATION CENTRES

Speaker: Mr Jovan Kurbalija
Mediterranean Academy of Diplomatic Studies, University of Malta

Chairperson: Ms Coralie Martin
Project Manager, Management Systems Unit, Malta

The speaker was responsible for developing the software and database system for the library of the Foundation for International Studies.

Basic definitions of records, fields and the elements and functions of databases were given, and a glossary of computer jargon was distributed to the participants. Database software currently available was reviewed. Essentially there are two main types: (a) flat file, and (b) relational. Relational software has the advantages of being able to share data between files, and was recommended for the FIS library database.

It was assumed that most of the libraries would not wish, or would not be able to use mainframe computers, and that PC computers would be used, with DOS operating systems. Four of the relational software packages which would be suitable were mentioned, and it was noted that there

were still problems with "Windows" environment databases, though in about a year there should be an improvement. Because of the need for networking and resource sharing, it was important to select software with networking capabilities.

The "Clipper" development kit had been used to develop the FIS library database. Consultations between the speaker and the FIS Librarian had ensured that the system was easy and friendly both for the library staff and the users. Several versions had been tested, but the system was now operational not only in the FIS library but also in the Mediterranean Academy and the International Maritime Institute.

Discussion

The methodology of defining the needs of the librarians and their users was discussed. A practical approach is essential. Some of the participants described their experiences of automating library catalogues and producing bibliographic databases. In the early days, general database software was found to be inadequate for bibliographic purposes, and this stimulated the development of special bibliographic and library management software. The question was raised as to whether the new relational database software would replace the special library software, or whether library and bibliographic software would continue to be produced, but with a relational structure. Regardless of the software, there was a need for standards and compatible record structures if collaboration in database building, and the transfer and exchange of bibliographic records was to take place. Expert systems containing the full texts of documents were mentioned, and a Geographic Information System which combined oceanographic data was described.

Morning Session, 26 November

MARINE ENVIRONMENTAL LEGISLATION - MEDITERRANEAN REGION

Speaker: Dr Simone Borg
International Affairs Division, Parliamentary Secretariat for the Environment, Malta

Chairperson: Dr Maria Dolores Gauci
Maritime Lawyer, 44 Burmarrad Road, St Paul's Bay, Malta

The elements which are fundamental to UNEP's Regional Seas Programme are (a) Co-operation among governments of the region, and (b) Co-ordination of the technical work through the UN system and other international and regional intergovernmental organisations.

The specific activities for any region depend upon the needs and priorities of that region, but all action plans are structured in a similar manner, and include the following interdependent components: (a) Assessment; (b) Management; (c) Institutional, and (d) Legal component. The Legal Component is a binding regional convention elaborated by specific, technical protocols to provide a legal framework for co-operative regional and national action.

In 1976 UNEP convened a conference in Barcelona, and three regional agreements were adopted: (a) The Convention for the Protection of the Mediterranean Sea against Pollution, better known as the Barcelona Convention; (b) Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, known as the Dumping Protocol, and (c) Protocol Concerning Co-operation in Combatting Pollution of the Mediterranean Sea by Oil and other Harmful Substances.

The Barcelona Convention and its Protocols were discussed with regard to the obligations of member states and the settlement of disputes. An overview was then given of the history of international law of the sea, and the UN Convention on the Law of the Sea (UNCLOS). This Convention is the only example of a global instrument which envisages the protection of the marine environment

from the broadest perspective, and which clarifies the question of the extent of the coastal state's authority in various maritime areas. Although not yet in force, the Convention has about 50 ratifications out of the 60 required. It nonetheless shapes and controls the practice of states. The full benefits for peace in the oceans, rational development of resources and protection of the marine environment can only come from its entry into force and widest possible acceptance.

Definitions were given of "Territorial Sea", "Contiguous Zone", and "Exclusive Economic Zone (EEZ)", and the problems of states within Archipelagic Waters were discussed. The Mediterranean under UNCLOS III becomes a complex network of intersecting EEZs, and one is yet to see how the regime created by UNCLOS III could work out smoothly for the Mediterranean. It is of major importance however that Mediterranean States are aware of the new rights and duties which the Convention has bestowed upon them.

Most Mediterranean countries are also parties to relevant international agreements dealing with pollution control and the management of fisheries. They participate in the General Fisheries Council for the Mediterranean, and other mechanisms under the auspices of the FAO and the Economic Commission for Europe.

At national level only a few of the Mediterranean States have effective legislation on coastal land use, and environmental impact assessments have become a common element of project preparation and approval processes only recently in some states.

Enforcement is a problem because very often it is either inappropriate or unaffordable, particularly in the Southern States. When environmental protection is not a political priority, enforcement agencies do not have the capacity to enforce standards or they work with ineffective regulatory measures.

Discussion

Comments were made on the need for co-operation between scientists, administrators and legal experts when measures for environmental protection and resource exploitation were being developed. Participants referred to earlier Workshop discussions during which the concept was introduced of integrated and relational databases containing not only scientific information and data, but also information concerned with the management of an area or region, including the texts of pertinent legal documents and agreements. Questions were asked about possible sanctions which could be taken against offending states or companies, and the problems of vessels operating under flags of convenience. Methods for the assessment of environmental damage, and the "polluter pays" principle were discussed.

PRACTICAL DEMONSTRATIONS

Dr David Farrugia demonstrated the Bulletin Board System which is based in Malta, and which enables members to communicate through electronic mail and to store and transfer files. In a live demonstration Dr Farrugia transmitted and received messages, and uploaded and downloaded text files. The system was offered as a prototype or working system for a Mediterranean marine information network. Members would need access to a personal computer and a modem, and would communicate through normal telephone lines to the host computer in Malta. The costs would be small initially, though if the system were required to store large numbers of documents in the form of text files additional computer storage and related facilities would be needed. Some of the participants already used international electronic mail systems (e.g. Omnet/Sciencenet and Internet), and all agreed that such a facility would improve communication and co-operation over document supply and information exchange in the region.

Mr Jovan Kurbalija demonstrated and explained the features of the library database of the Foundation for International Studies, allowing the participants to have "hands-on" experience. He also demonstrated a relational database which had the features of an expert system. The subject of the database was the Manoel Theatre, combining text, illustrations, portraits, plans, maps and diagrams, with connections and links making a knowledge network through which users could browse and make their own pathways.

On the final day of the Workshop Mr Allen Varley installed the Unesco Micro CDS/ISIS bibliographic software and a small test database in the Foundation library computer. This was shown to some of the participants, that is, those were not familiar with the CDS/ISIS programme. However, time constraints prevented a fuller demonstration.

WORKING GROUPS

The participants were divided into two Working Groups which met daily. The objectives were to stimulate interaction between group members through discussions and sharing experiences and problems. Their mandate was (a) to discuss and comment on the lectures presented; (b) to identify and discuss gaps and deficiencies in marine information provision and marine library and information services at local (institutional) level, national, regional and international levels. User needs and the problems experienced by scientists, administrators and policy-makers in obtaining and using marine information, as well as the difficulties experienced by information workers and librarians were to be considered, and (c) to deliberate on what steps could be taken to improve marine information provision and transfer, both practically and in the immediate future, and in the longer term.

The Working Groups reported daily on their deliberations, and presented reports which were discussed in plenary on the final day of the Training Workshop. The discussions are summarised below.

CONCLUDING SESSION

All participants agreed that information is a valuable resource which could be more effectively utilised through greater co-operation. Gaps and deficiencies in marine information availability and management which were identified by the Working Groups included:

- (a) Lack of adequate collection of marine documents (books, monographs, journals and reports) both at institutional and national level within the Mediterranean region;
- (b) High costs, difficulties and delays in obtaining copies of publications not available locally and inadequate inter-library loan and document delivery systems;
- (c) Lack of awareness of what is being published currently, and what is available in the world literature on particular subjects, because of limited access to bibliographic databases, indexes and catalogues;
- (d) The need for marine information staff to be trained in modern methods of information handling and library management, including computerisation of marine libraries.

The participants recognised that countries in the region are at varying levels of development, and to complicate matters use many different languages. However they share a common environment and heritage, and increasingly are co-operating economically, socially, and scientifically. Therefore the time is ripe to move towards a more positive co-operation in sharing and exchanging marine-environmental information, and through collaborative efforts, improve the level of services. The participants proposed the establishment of a Mediterranean and Black Sea regional network of marine libraries, information and documentation centres.

The objectives would be to improve marine information facilities, and activities could include:

- (a) Collecting and making more accessible the scientific and technical documents relating to marine research in the region;
- (b) Supporting ongoing research through information searching and retrieval services and document supply;
- (c) Recording and disseminating information about publications relating to the region, particularly reports and "grey" literature;
- (d) Providing mutual support, and a forum for marine information staff in the region, encouraging training and the sharing of technical expertise.

Models of a possible network, both centralised and decentralised, were discussed, but it was felt premature to do more at this stage than to endorse the network concept, and to urge the organisers and supporters of the Training Workshop to pursue the matter and to explore possible structures and sources of support.

A fundamental requirement was to build up a clear picture of existing marine information facilities in the various countries and institutes in the region, noting referral services, subject specialities and access to systems such as the ASFA Compact Disc and other bibliographic services. At an early stage a union list indicating periodical titles and holdings of the co-operating centres would be desirable, and it was considered that a communications network for electronic mail and document file transfer should be an aim.

There was considerable interest in Unesco's Micro CDS/ISIS bibliographic software, which is free and widely distributed, and which can produce records in a variety of formats suitable for regional or international exchange, including import into non- CDS/ISIS systems. Joint bibliographic projects could record the region's published marine literature, and the possibility of building relational "knowledge" databases combining scientific, technical, legal and policy-related texts, together with data, maps and illustrations should be explored. Similarly a database recording scientific reports and observations of unusual biological and geological phenomena in the region might be maintained. At a more basic level, a "Current Contents" service, reproducing and regularly circulating sets of photocopies of title pages of key Mediterranean and Black Sea journals might be considered, as might a monthly current awareness bulletin listing scientific papers and reports published recently on the region.

Clearly a number of actions could be instigated almost immediately which would improve the situation and demonstrate a willingness to co-operate. At the same time there was no shortage of ideas and enthusiasm for the development of more sophisticated services and facilities at a later stage.

The Training Workshop had been the catalyst for the formation of a Mediterranean and Black Sea marine information network. In order to identify potential participating centres, and to maintain momentum, it was agreed that:

- (a) Mrs Athena Davaki would produce a list of Mediterranean marine libraries and information centres and their facilities from the Mediterranean Marine Environmental Centres Directory database;
- (b) The participants from the Black Sea institutions would co-operate to produce a similar list, though perhaps with less detail, for the Black Sea;

- (c) The report of the Training Workshop, together with copies of the lists of Mediterranean and Black Sea marine libraries and information centres, should be sent by the Foundation for International Studies to libraries and information centres that participated in the workshop as well as to relevant institutions and organisations within the Mediterranean and Black Sea regions. The report is also to be made available on request to any interested individuals, organizations or institutions.
- (d) A covering letter and short questionnaire should be attached with the report to each library, inviting them to register their interest in participating in a co-operative network, and asking them for details of their library and information services, their computing facilities, and their possible interest in linking into an electronic mail and communications network;
- (e) Over the next six months, Mr Damian Iwueke (Foundation for International Studies) would co-operate with Mrs Athena Davaki (Co-ordinating Unit for the Mediterranean Action Plan) and Dr Ivan Bukhanevich (VNIRO) and other Training Workshop participants who were able to assist, to develop possible frameworks, options and practical proposals for regional co-operation. Details would be circulated, inviting comments and suggestions, perhaps in the first issue of a group newsletter.

CLOSURE OF THE TRAINING WORKSHOP

The Training workshop was closed by Mr. Anton Micallef, Director of Euro-Med Centre on the 26th November 1992. One of the decisions reached at the concluding session was the setting up of a Steering Committee to work out the modalities of establishing a Mediterranean Network of Marine Libraries and Information Centres which will in the future, also incorporate the Black Sea Region. The Network which is expected to be based at the Foundation would use apart from others, a computerized electronic system for transmitting messages and exchanging Marine information.

On behalf of the participants, Mrs Carmen Banica from Romania expressed the sincere thanks of all to Mr Damian Iwueke and the staff of the Foundation for International Studies for their excellent work in making the training workshop a success and for their assistance and efficiency in the organization of travel and accommodation arrangements and for their kindness and friendship not only during the formal sessions but also socially. Mr Iwueke responded by thanking the participants and speakers for the workshop had ended, it also marked the beginning of co-operation and collaborative effort among Mediterranean marine libraries and information centres.

ANNEX I

QUESTIONNAIRE

A short questionnaire was distributed to participants and lecturers concerning the library and information facilities at their institutes, their computer knowledge and level of experience, and their expectations from the Training Workshop.

SUMMARY OF QUESTIONNAIRES RETURNED

Seventeen questionnaires were returned, including four from lecturers and the Workshop Co-ordinator. Three participants failed to return their questionnaires.

All 17 had a library/documentation centre in their institutes or organizations. Eleven of the institutes were mainly concerned with marine affairs.

Eleven of the participants were also responsible for the library/documentation centre, with a further two having overall, but no specific responsibility.

Two participants described their level of computer knowledge as "beginner", eleven as "intermediate" and four as advanced. Eleven participants said they had heard of Unesco Micro CDS/ISIS bibliographic software.

From the questionnaires returned, fourteen of the participants disclosed that they have access to a computer for library work, while three reported that they did not have a computer. Only four libraries have access to on line systems.

Seven of the participants use computers for bibliographic databases while others use their computer for word processing; directory and mailing list databases. Two also use their computers among others for Geographic Information Systems. A range of non-information uses include numerical modelling, shipping management, and oceanographic and environmental data storage. Two of the libraries in the region run the Aquatic Sciences and Fisheries Abstracts (ASFA) compact disc system.

When asked about their expectations of the Training Workshop, and their future plans, most participants expressed hopes that they would like to learn more in the use of computers for documentation and networking purposes. Many of the participants reported that they were planning to computerize their libraries and needed support and advice in this direction. Interest was expressed that a common documentation procedure should be followed by marine librarians in the region to make their work compatible with each other. All the participants agreed that they were making a step towards regional co-operation by attending the Training Workshop, hoping also that the workshop would help to improve the systems of information retrieval and widen literature availability in the region, and at the same time, contribute to developing an applicable and flexible marine documentation system, first on a Mediterranean regional level which may in the future, also incorporate the Black Sea region.

Summary by Allen Varley
Plymouth, UK
9 December 1992

ANNEX II

OPENING SPEECH BY THE HON. DR UGO MIFSUD BONNICI, LL.D, M.P., MINISTER OF EDUCATION AND HUMAN RESOURCES

From very personal experience, I have come to realise very fully that it is just not enough to receive, cherish and accumulate works, printed material and documentation. Information must be immediately utilizable, ready at hand, retrievable. Memory-even good memory-is not enough. Storing, proper cataloguing and listening are also not enough. The marshaling of information focused on the matter in hand is now possible and Information Technology has become an indispensable tool in dealing with the problems of public affairs. I am using the term public affairs, because of the former terms: government and administration, seem now inadequate. Environment policy and action, transcend the narrow confines of government both territorially and in usual interplay of enforcement, conforming through consensus and general education. We have the impression that there is an environmental crises, brought about by the over-consumption, negligent use of natural resources, and air, noise as well as water pollution. The Mediterranean Sea is particularly sensitive as a very closed catchment area.

Different countries have different ways of dealing with the problems. In some countries, some programmes have been quite successful, while in many others, the situation is getting worse. Public awareness is one of the key measures in preventing and solving such environmental problems and the libraries, no doubt, play a major role in providing public awareness and understanding an important national concerns, such as that of the protection of the environment.

Malta has seen a number of initiatives in the direction of enrichment of environment libraries. The library of the Foundation for International Studies, the University Library and the Library of the International Ocean Institute, are to be followed by a proposed Specialist Climate Change Library at the University.

Libraries, whether public, academic or specialized, are non-formal educational institutions, which provide books and information in other forms, that help to develop healthy ways of thinking, positive participation in a day to day activities and favourable dynamic behaviour. Libraries and information centres serve the people in their research needs and continuing education purpose.

The work of libraries, documentation and information officers in the dissemination of information, especially those relating to marine environment cannot be over emphasised.

With regard to documentation on marine publications, we should not forget that there has been an extraordinary increase in the amount of materials published in the past two decades in the field of marine affairs and marine pollution. The rate at which marine scientific documents are produced has continued to accelerate. It is therefore necessary that we should improve our system and technique of documenting these materials.

The training workshop is as one might say, in line with the general heritage of mankind recognising also that we have to think of the possible ways of safeguarding them for the future generations. Malta's initiative in this aspect is, I believe, well known to many of you and we, as a nation have, since our first proposal to the UN in the sixties, continued to focus our interest and promoting as well, projects related to the sea. The Pacem in Maribus Convention in Malta last month was, in a sense, a return to the source

This training workshop is therefore necessary as it brings together specialists in documentation work to discuss areas of improving the acquisition, processing and providing of marine information. Information work is a team work. Beyond the technical differences that affects all information professions, they share the dedication to the concept that information is dynamic, a prelude to action.

ANNEX III

List of Participants

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ANNEX IV

TRAINING WORKSHOP ON ASPECTS OF MARINE DOCUMENTATION IN THE MEDITERRANEAN

**23 - 26 November, 1992
Valletta, Malta**

organised by

- * The Documentation Centre, Foundation for International Studies, Malta
- * Euro - Mediterranean Centre on Marine Contamination Hazards, Malta
- * All - Union Research Institute of Marine Fisheries and Oceanography of Russia

and supported by the

- * International Ocean Institute, Malta
- * Co-ordinating Unit / Mediterranean Action Plan, UNEP, Athens

Purpose

To evaluate experience with regard to the system of collating, documenting and disseminating marine pollution, and protection materials in the Mediterranean region. The workshop will also deal with both publication and non-print materials and will discuss perspectives for the future.

Structure

The four-day programme will consist of seven Sessions and three workshops: The establishment of marine information centres and the documentation aspects of marine publications including data base system, aspects of marine environmental legislation, threatened marine species and protected areas. Working groups will meet simultaneously and present their conclusions and recommendations at the closing Plenary Sessions.

Conference location

Aula Magna, Foundation for International Studies, University of Malta, St. Paul's Street, Valletta, Malta.

Enquiries

Contact: Mr Damian C. Iwueke, Librarian, Foundation for International Studies at the University of Malta, St. Paul's Street Valletta. Tel: 0356 - 234121/2, 224067, Fax 0356 - 230551, Telex 1673 FOUND MW

PROVISIONAL PROGRAMME

Monday 23 November, 1992

- 8.45am Transport from hotel to the Foundation
- 9.00am Registration
- 9.30am Opening / Introduction / Keynote addresses
- 10.00am Coffee Break
- 10.15am Session 1
COMPUTATION OF DIRECTORY OF MEDITERRANEAN MARINE ENVIRONMENTAL CENTRES
- Chairperson: Mr Allen Varley
Former Head
Library and Information Services
Plymouth Marine Laboratory and Marine Biological Association
UK
- Speaker: Mrs Athena Davaki
Librarian
MAP/UNEP
Athens
- 11.45am Questions/discussion
- 12.15pm Break for Lunch
- 2.30pm Introduction of participants/lecturers
- 2.45pm Session 2
MARINE INFORMATION CENTRE; ESTABLISHMENT AND DEVELOPMENT
- Chairperson: Ms Carmen Banica
Romanian Institute for Human Rights
Bucharest
- Speaker: Mr Allen Varley
Former Head
Library and Information Services
Plymouth Marine Laboratory and Marine Biological Association
UK
- 3.30pm Questions / discussion
- 3.45pm Meeting of working groups 1 and 2 to discuss sessions 1 and 2
- 4.30pm Transport back to Hotel
- 6.00pm Reception
- 7.30pm Transport back to hotel

Tuesday 24 November, 1992

- 8.45am Transport from Hotel to Foundation
- 9.00am Session III
MARINE INFORMATION DOCUMENTATION SYSTEMS: DATA BANKS,
DISSEMINATION, APPLICATION AND UPGRADING OF DATABANKS.
- Chairperson: Mr Allen Varley
Former Head
Library and Information Services
Plymouth Marine Laboratory and Marine Biological Association
UK
- Speaker: Dr Ivan Bukharvich
Director
VNIRO
Moscow
- 10.00am Questions/Discussion
- 10.15am Coffee Break
- 10.30am MALTA, CASE STUDY: NATIONAL DATABASE ON BIODIVERSITY
- Chairperson: Professor Patrick Schembri
Department of Biology
University of Malta
- Speaker: Mr Adrian Mallia
Research Assistant
Malta Council for Science and Technology
(Biological Diversity and Genetic Resources Network)
- 11.45am Questions/discussion
- 11.30am Session IV
DISSEMINATING INFORMATION TO 18 FOCAL POINTS - THE EXPERIENCE OF
REMPEC
- Chairperson: Mr Espinoza Rodriguez
Curator
Maritime Museum
Vittoriosa
Malta
- Speaker: Mrs Marie Benoit Information Assistant
REMPEC
Malta
- 12.15pm Questions / discussion
- 12.30pm Break/Lunch

3.00pm **SESSION V**
MANAGEMENT STRUCTURES FOR MARINE INFORMATION CENTRES
MEDITERRANEAN AND BLACK SEA REGIONAL EXPERIENCE

Chairperson: Mrs Athena Davaki
Librarian
MAP/UNEP
Athens

Speaker: Dr Ivan Bukhanevich
Director
VNIRO
Moscow

3.45pm Questions/discussion

4.00pm Working Groups

4.45-5.00pm Transport back to hotel

Wednesday 25 November, 1992

8.45am Transport from hotel to the Foundation

9.00am **SESSION VI**
COMPUTERIZATION OF MARINE SCIENCE LIBRARIES

Chairperson: Dr Juanito Camillieri
Department of Computer Studies
Univeristy of Malta

Speaker: Dr David Farrugia
Datatech Computer Centre
Valletta
Malta

9.30am Questions / Discussion

9.45am **CREATING A DATA-BASE AND ESTABLISHING COMPUTER**
COMMUNICATION NETWORK FOR MARINE SCIENCE INFORMATION CENTRES

Chairperson: Ms Coralie Martin
Project Manager
Management Systems Unit
Blata l-Bajda

Speaker: Jovan Kurbalija
Mediterranean Academy of Diplomatic Studies
University of Malta

10.15am Questions / Discussions

(Coffee Break)

10.30am **PRACTICAL DEMONSTRATION BY JOVAN KURBALIJA AND DAVID FARRUGIA**
(Board Room)

12.45pm Break/Lunch
3.00pm Sightseeing - Mdina

Thursday 26 November, 1992

SESSION VII

8.45am Transport from Hotel to the Foundation

9.00am **MARINE ENVIRONMENTAL LEGISLATION - MEDITERRANEAN REGION**

Chairperson: Dr Maria Dolores Gauci
Maritime Lawyer
44 Burmarrad Road
St Paul's Bay
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Speaker: Dr Simone Borg
International Affairs Division
Parliamentary Secretariat for the Environment
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9.45am Questions / discussion

10.00am Coffee Break

10.15am Working Groups

12.00am Lunch Break

3.00pm Closing Session

- a) Suggestions on setting up a Mediterranean Marine Sciences Libraries Network
- b) Recommendations and conclusions

4.00pm Transport back to Hotel

PUBLICATIONS OF THE MAP TECHNICAL REPORTS SERIES

1. UNEP/IOC/WMO: Baseline studies and monitoring of oil and petroleum hydrocarbons in marine waters (MED POL I). MAP Technical Reports Series No. 1. UNEP, Athens, 1986 (96 pages) (parts in English, French or Spanish only).
2. UNEP/FAO: Baseline studies and monitoring of metals, particularly mercury and cadmium, in marine organisms (MED POL II). MAP Technical Reports Series No. 2. UNEP, Athens, 1986 (220 pages) (parts in English, French or Spanish only).
3. UNEP/FAO: Baseline studies and monitoring of DDT, PCBs and other chlorinated hydrocarbons in marine organisms (MED POL III). MAP Technical Reports Series No. 3. UNEP, Athens, 1986 (128 pages) (parts in English, French or Spanish only).
4. UNEP/FAO: Research on the effects of pollutants on marine organisms and their populations (MED POL IV). MAP Technical Reports Series No. 4. UNEP, Athens, 1986 (118 pages) (parts in English, French or Spanish only).
5. UNEP/FAO: Research on the effects of pollutants on marine communities and ecosystems (MED POL V). MAP Technical Reports Series No. 5. UNEP, Athens, 1986 (146 pages) (parts in English or French only).
6. UNEP/IOC: Problems of coastal transport of pollutants (MED POL VI). MAP Technical Reports Series No. 6. UNEP, Athens, 1986 (100 pages) (English only).
7. UNEP/WHO: Coastal water quality control (MED POL VII). MAP Technical Reports Series No. 7. UNEP, Athens, 1986 (426 pages) (parts in English or French only).
8. UNEP/IAEA/IOC: Biogeochemical studies of selected pollutants in the open waters of the Mediterranean (MED POL VIII). MAP Technical Reports Series No. 8. UNEP, Athens, 1986 (42 pages) (parts in English or French only).
8. Add. UNEP: Biogeochemical studies of selected pollutants in the open waters of the Mediterranean (MED POL VIII). Addendum, Greek Oceanographic Cruise 1980. MAP Technical Reports Series No. 8, Addendum. UNEP, Athens, 1986 (66 pages) (English only).
9. UNEP: Co-ordinated Mediterranean pollution monitoring and research programme (MED POL - PHASE I). Final report, 1975-1980. MAP Technical Reports Series No. 9. UNEP, Athens, 1986 (276 pages) (English only).
10. UNEP: Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity of selected substances (Activity G). Final reports on projects dealing with toxicity (1983-85). MAP Technical Reports Series No. 10. UNEP, Athens, 1987 (118 pages) (English only).
11. UNEP: Rehabilitation and reconstruction of Mediterranean historic settlements. Documents produced in the first stage of the Priority Action (1984-1985). MAP Technical Reports Series No. 11. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1986 (158 pages) (parts in English or French only).
12. UNEP: Water resources development of small Mediterranean islands and isolated coastal areas. Documents produced in the first stage of the Priority Action (1984-1985). MAP Technical Reports Series No. 12. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (162 pages) (parts in English or French only).

13. UNEP: Specific topics related to water resources development of large Mediterranean islands. Documents produced in the second phase of the Priority Action (1985-1986). MAP Technical Reports Series No. 13. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (162 pages) (parts in English or French only).
14. UNEP: Experience of Mediterranean historic towns in the integrated process of rehabilitation of urban and architectural heritage. Documents produced in the second phase of the Priority Action (1986). MAP Technical Reports Series No. 14. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (500 pages) (parts in English or French only).
15. UNEP: Environmental aspects of aquaculture development in the Mediterranean region. Documents produced in the period 1985-1987. MAP Technical Reports Series No. 15. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (101 pages) (English only).
16. UNEP: Promotion of soil protection as an essential component of environmental protection in Mediterranean coastal zones. Selected documents (1985-1987). MAP Technical Reports Series No. 16. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (424 pages) (parts in English or French only).
17. UNEP: Seismic risk reduction in the Mediterranean region. Selected studies and documents (1985-1987). MAP Technical Reports Series No. 17. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (247 pages) (parts in English or French only).
18. UNEP/FAO/WHO: Assessment of the state of pollution of the Mediterranean Sea by mercury and mercury compounds. MAP Technical Reports Series No. 18. UNEP, Athens, 1987 (354 pages) (English and French).
19. UNEP/IOC: Assessment of the state of pollution of the Mediterranean Sea by petroleum hydrocarbons. MAP Technical Reports Series No. 19. UNEP, Athens, 1988 (130 pages) (English and French).
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