

## European Marine Science Information Centres: Towards a European Network

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### ABSTRACT

Current developments and future prospects for closer cooperation between European marine science libraries and information centres are discussed on a national and regional basis. A proposed European marine information and data referral service and other initiatives supported by the Commission of the European Communities are described. Concern is expressed over the proliferation of incompatible yet overlapping databases, and a call is made for a greater integration of systems and of human effort.

Upwards of 500 European institutions, organisations and research bodies are listed in *FAO/IOC/UN International Directory of Marine Scientists*.<sup>1</sup> The majority are supported by public funds through government departments, agencies or universities, and several of them have been conducting marine research for more than one hundred years. Research on fisheries, oceanography, biology and hydrography has been carried out from the earliest times. In more recent years environmental protection, pollution, offshore technology and the exploitation of marine resources have attracted attention, adding to the rich variety of research results which are disseminated in journals, books, reports, data compilations and other information products.

### BACKGROUND

In Europe the processes of research and information dissemination are aided by the activities of several international agencies and groups who are instrumental in bringing scientists together, establishing standards, and sponsoring or acting as catalysts for regional and international projects. Prominent amongst them are the International Council for the Exploration of the Sea (ICES), based in Denmark, and its southern counterpart the Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (Monaco).

Unesco's Division of Marine Sciences and Intergovernmental Oceanographic Commission (IOC), with headquarters based in Paris, and the Food and Agriculture Organisation (FAO) in Rome, are particularly active. Others include the International Maritime Organisation, the International Hydrographic Bureau, the European Science Foundation, and the European Association of Marine Sciences and Techniques (commonly known by its French acronym-AESTM).

A good example of a regional group working within closely defined boundaries is the Convention for the Protection of the Marine Environment of the Baltic Sea Area, usually referred to as the Helsinki Commission.<sup>2</sup> This group provides a framework for cooperation between marine scientists in the area and between states with different political and economic systems. In the past decade the Commission of the European Communities (CEC) has become increasingly active in stimulating and funding marine scientific, technological and environmental projects in the twelve member states which comprise the European Community – a "subset" of the wider geographic area defined as Europe.

Libraries have cooperated for many years on a limited scale through formal agreements for the exchange of publications and inter-library loan arrangements, but only in comparatively recent times have scientific libraries been encouraged to seek more active links. This process has coincided with the recognition of information as a valuable resource, the related growth of information units either in the libraries or as separate departments (often known as information centres or documentation centres), and the wide availability of electronic means of processing, storing and retrieving information.

The early 1970s saw the birth, in Europe, of the Aquatic Sciences and Fisheries Information System (ASFIS) and its major product *Aquatic Sciences and Fisheries Abstracts (ASFA)*. A cooperative working agreement between FAO and institutes in the Federal Republic of Germany and France, and later with a London publisher, formed the basis of the successful international partnership which today has centres in an increasing number of countries worldwide. European ASFIS/ASFA centres and input networks are currently located in France, the Federal Republic of Germany, Norway, Portugal, the United Kingdom and the USSR, with secretariats in FAO, Rome and IOC/Unesco, Paris. The ASFA database is accessible online through several European hosts, and the possibilities of a coordinated European input to ASFIS/ASFA involving more countries and centres, with appropriate output services and products aimed specifically at European users, have been seriously discussed from time to time.

The active participation of the IOC as an ASFIS/ASFA secretariat has stimulated closer links between the marine information and the oceanographic data communities, the latter having a well-established and highly coordinated network of national oceanographic data centres, together with established procedures and common standards for exchanging and formatting data.

#### NATIONAL NETWORKS

Interaction and cooperation between scientific libraries and information centres based on shared interests in specific scientific disciplines or subject areas, and cutting across local and administrative boundaries, are common today. They are influenced on the one hand by trends in scientific cooperation and linked on the other hand to technological advances and national and international developments in librarianship and information exchange.

In Europe over the past 20 years there have been significant movements towards national groupings of marine or aquatic (i.e. marine and freshwater) sciences libraries and information centres, and during the past five years we have been encouraged to broaden our horizons and seek to form Europe-wide links. The stimulus has been not only from the dramatic increase in economic, social and other interactions, particularly within the European Community, but also from the East/West rapprochement which is encouraging the concept both in philosophical and practical terms of Europe as an entity and a common cultural heritage. Well-established national groups are active, for example, in France and the United Kingdom, while in countries as far apart as Finland and Portugal, efforts are being made to develop networks. The Netherlands MARIS project is an ambitious attempt to establish an integrated marine information and data referral system.

Members of the French group meet regularly, cooperate over ASFA input and inter-library loans, and their *Répertoire des Bibliothèques et Centres de Documentation Français pour la Mer et des Eaux*<sup>3</sup> lists forty organisations. The UK group, which includes freshwater as well as marine scientific interests, has been meeting regularly since 1968. Products include a union list of serial holdings and a directory of information resources.<sup>4</sup> Two of the members, the Institute of Oceanographic Sciences Deacon Laboratory, Wormley, and the Proudman Oceanographic Laboratory, Bidston, cooperate to produce a library catalogue/database which is accessible online. Finnish aquatic libraries have initiated formal contacts with a view towards improving cooperation, and the Nordic Marine Librarians are now well established. This group comprises members from northern European countries, including Denmark, Finland, Iceland, Norway and Sweden. Details of their activities are reported elsewhere in these Proceedings.

## Portugal

In Portugal a current marine information project provides a possible model for smaller countries to consider. In 1988 the Junta Nacional da Investigação Científica e Tecnológica (JNICT) launched a national programme of expanded and accelerated development of marine scientific research in Portugal. Key areas of research were identified for funding, and to its credit JNICT included an element for information and data services. Two of the country's major centres, the Instituto Nacional de Investigação das Pescas (INIP) and the Instituto Hidrográfico Marinha (IH), both located in Lisbon, were successful in obtaining funding for a collaborative marine information project to be undertaken by their library/information departments – the Serviço de Informação e Documentação at INIP (which is also the Portuguese ASFIS/ASFA centre) and the Centro de Documentação e Informação at IH. Both possess good libraries, undertake a range of information activities, and are aware of the desirability of building up local capabilities and extending services to outside users.<sup>5,6</sup> The objectives of the project are to improve access to marine scientific information in Portugal, to make documents more readily available, to provide current awareness and other information services, and to encourage cooperation and links within Europe and with international systems such as ASFIS. The programme includes the installation of an ASFA compact disc (CD-ROM) system, and the cooperative development of a computerised bibliographic database. The Unesco Mini-Micro CDS/ISIS software, with field structures conforming to national and international standards, is being used to create a database of books, reports, theses, scientific papers and reports by Portuguese scientists, and the literature about the Portuguese marine environment published by foreigners. It is intended that the database will also generate the Portuguese input to ASFA and will allow the transfer of appropriate records to the Portuguese cooperative bibliographic database and union catalogue PORBASE, which is maintained at the National Library. Retrospective conversion of the library card catalogues and the introduction of automated library housekeeping systems are also proposed. A training element is included, together with the possibility of strengthening links with former Portuguese territories overseas. It is particularly significant that a small country which is far from wealthy has included a marine scientific information project in the national programme.

## Netherlands

The Netherlands Marine Information System (MARIS) was initiated by the Rijkswaterstaat in 1985 and became operational in 1989, primarily to support North Sea exploitation and management. MARIS aims to provide online access to a central point for information, data and expertise about the North Sea. The central host contains several databanks and an overview of available information, with a referral system to other sources based upon a "yellow pages" approach. The system is managed by an interdepartmental coordinating body, and government funding has been allocated for the initial stages. Continuation after 1991 depends on the system's ability to recover an agreed proportion of the running costs.

## EUROPEAN NETWORKS

A significant step towards greater cooperation in Europe was marked by the first meeting of European Marine and Freshwater Sciences Librarians, Information Scientists and Documentalists held in the UK at the Plymouth Marine Laboratory in April 1988.<sup>7</sup> The objectives were to establish and strengthen links, to discuss national, European and international initiatives on information handling, to exchange views on practical day-to-day technical matters, and to improve interlibrary collaboration through the development of a European information network. The meeting was attended by participants from Belgium, Denmark, Eire, England, Finland, France, Monaco, Portugal, Scotland, the USA, and Wales. There was unanimous agreement that closer collaboration within Europe would be fruitful and should be encouraged, and an informal working network should be the aim. This could be achieved by building on existing national groups and networks, by encouraging countries without networks to develop them, and to integrate all into a European group.

It was suggested that the first steps should be to identify networks, institutions and individuals throughout Europe who might usefully cooperate and to collect material for a directory of European marine and freshwater science information resources. Response has been encouraging, and the next meeting is to be held in Paris at the Institut Océanographique in late April 1990. To date the group has no agreed name and no formal constitution or structure; these will be considered at the Paris meeting. During the intersessional period,

members in several countries have worked to develop contacts, and material on which to base a directory of information resources has been compiled for almost 200 institutions in 25 European countries.

Proposals to extend the Netherlands MARIS concept to form a European infrastructure for marine information and data were discussed at a European Marine Referral Service Workshop held in the Hague in November 1988.<sup>8</sup> The meeting, which was sponsored by the CEC, was attended by European experts, together with representatives from ICES, IOC, and the CEC. It was agreed that there is a need in Europe for marine and maritime information and data to be made more accessible, and for users to be directed to sources of this information and data. However, a MARIS-type structure might not be suitable for each country, though interconnectivity by modern communications facilities, both between national and international systems and between providers and users of information, were considered essential. Further studies and a pilot project were recommended, and the need to avoid duplication of effort and to use and strengthen existing systems such as ASFIS and the international oceanographic data network was stressed.

### European Community

The Commission of the European Communities (CEC) has been particularly active in promoting not only scientific research, but also infrastructure development to facilitate communications and the processing and exchange of information and data, for the benefit of the 12 member states (Belgium, Denmark, Eire, France, Federal Republic of Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Spain, United Kingdom).

Until 1988 the CEC supported marine research through its environmental programmes. The 1989-1992 Marine Scientific and Technology Programme (MAST) is the first Community research programme specifically devoted to the marine environment. It covers basic and applied marine science, coastal zone science and engineering, marine technology, and supporting initiatives, the latter potentially covering appropriate information and data activities. Many marine institutions in EC countries are benefiting from the injection of additional funding made available through MAST. Other CEC programmes support environmental protection, telecommunications and information technology, and a whole range of related areas.

Two products which are relevant to marine information are ECDIN and SIGLE. The Environmental Chemicals Data and Information Network (ECDIN) contains factual data on chemicals and their impact on man and the environment. The aquatic files include structured information and data, taken from the scientific literature, on the fate and effects of chemicals in the marine and freshwater environments. The database is accessible online through the Datacentralen host (Denmark), and current data on the aquatic environment is provided for the database, on contract, by the libraries of the Plymouth Marine Laboratory and the Freshwater Biological Association, Windermere. SIGLE is the System for Information on Grey Literature in Europe which has been operational since 1981.

In the telecommunications and information technology fields, the CEC is active in promoting research and development, for example, on networks, electronic journals, artificial intelligence, machine translation, and compact disc systems. Two major programmes are the European Strategic Programme for Research and Development on Information Technology (ESPRIT) and Information Market Policy Actions (IMPACT). The latter includes an Action Plan for Libraries which aims to set up a framework and act as a catalyst for cooperation.<sup>9</sup> Five multi-million dollar "action lines" are proposed to be undertaken over the next five years. Key areas identified for consideration include

- (a) Availability of catalogue/bibliographic records in machine readable form as a basic resource for international exchanges;
- (b) Ability to interconnect automated library systems;
- (c) Better access to documents held in European libraries through enhanced inter-library loan mechanisms;
- (d) Modernizing the skills of library workers.

The actions are aimed at both harmonizing and encouraging the use of international guidelines and standards, and the setting up of pilot experiments between cooperating libraries, encouraging both theory and practice. Project proposals are invited, and it is anticipated that they will come from a wide variety of bodies, including all kinds of libraries and organizations responsible for them, private sector suppliers of goods and services, professional associations, library schools, library cooperatives and formal or *ad hoc* international groupings. Although it is to be expected that much of the funding will go to the national libraries, international and national library programmes, the university sector and the information industry, undoubtedly libraries in member countries will benefit generally, and not least from Community recognition of libraries as a valuable common resource.

### THE FUTURE

We have witnessed and contributed to the rapid development of innumerable databases, electronic catalogues and networks. We now have networks of networks, and networks to give access to networks. These contain a proliferation and multiplicity of uncoordinated, overlapping but usually incompatible databases and catalogues, built to standards ranging from primitive to international, and often residing in incompatible machines served by incompatible softwares. Users can consult them only via elaborate and idiosyncratic access procedures and enigmatic search routines.

Information professionals take pride in their ingenuity and dexterity in navigating through these networks; to the end-user and outsider, however, the situation is one of anarchy and duplication of effort. Perhaps it is a necessary stage of evolution, but this electronic "Tower of Babel" desperately needs some order, and I feel that the keyword for the future must be "integration." This means integration not only of telecommunications, systems and procedures, but integration of human effort, resources and planning. Although some information professionals currently regard networks principally as groups of libraries which cooperate to produce commonly-accessible databases, I consider that we should take a serious look at the existing situation, building on what we have, but seeking to apply standards and order, paying due attention to the human factor.

I trust that any European marine information network will concentrate on interaction and collaboration between humans, using technology to facilitate, but not to dominate, the group structure. Integration and harmonization must be the aims, with due regard being given to related national, regional and international scientific information initiatives.

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