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PREFACE

The Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals (MMAP) was developed between 1978 and 1983 jointly by the United Nations Environment Programme (UNEP) and the United Nations Food and Agriculture Organization (FAO) in collaboration with other intergovernmental and non-governmental bodies concerned with marine mammal issues, particularly the International Whaling Commission (IWC), the International Union for Conservation of Nature and Natural Resources (IUCN) and the Convention on International Trade in Endangered Species of wild Flora and Fauna (CITES). In October 1983, the Plan was revised and updated in the light of comments received at the FAO Committee on Fisheries, and in May 1984 the twelfth session of UNEP Governing Council endorsed the Plan. In June 1984, the IWC endorsed the cetacean component of the Plan at its 36th meeting and in November of that year the General Assembly of the IUCN endorsed the promotion of the Plan as a matter of high priority.

The basic objective of the Plan is "to promote the effective implementation of a policy for marine mammals which is as widely acceptable as possible among the governments and peoples of the world." The Plan was built around five areas of concentration: (1) policy formulation, (2) regulatory and protective measures, (3) improvement of scientific knowledge, (4) improvement of law and its application, and (5) enhancement of public understanding. The Plan was intended to stimulate, guide, assist and, where necessary, co-ordinate the activities of existing organizations of all kind, giving emphasis to international actions, while recognizing the importance of national actions.

The Plan also aims to improvement of the systems for the storage and availability of scientific information relating to marine mammals and their environments.

In January 1991, the Third Meeting of the Planning and Co-ordinating Committee of the MMAP identified marine mammal database support work as a priority area, and recommended (1) a review of marine mammal information held in computer databases, (2) an overview of the information held and how it can be accessed, and (3) an assessment of the compatibility of the database system and the possibility of linking these to generate a distributed marine mammal information system. The present document is a review of the available information on marine mammal databases from 32 countries.

Acknowledgements

Due acknowledgement is given to the numerous people who contributed information to this review, without whom it would not have been possible, and particularly to the IUCN Species Survival Commission for the provision of their contact list which provided many of the original addresses. Vera da Silva (University of Cambridge) kindly obtained additional material during the Chicago meeting of the Society for Marine Mammalogy in early December 1991; Stephen Dale of the Cambridge University Scientifics Periodical Library undertook test searches of on-line databases; Djurdje Cvijovic explored the informal academic networks.

We apologise that accents have not been reproduced in the report.

CONTENTS

1. Introduction

The World Conservation Monitoring Centre (WCMC) was commissioned by UNEP's Ocean and Coastal Areas Programme Activity Centre (OCA/PAC) to review marine mammal information held in computer databases and to assess the feasibility of establishing a distributed network of marine mammal databases. The report was required for the Planning and Coordinating Committee meeting (January 1992) of the Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals (MMAP).

This review follows Recommendation 9 of the Report of the FAO Advisory Committee on Marine Resources Research (ACMRR) Working Party on Marine Mammals originally put forward at a meeting in 1973 to 're-examine the adequacy of existing abstracting and bibliographic services, newsletters and other vehicles of scientific communication with respect to marine mammals and their environment and submit proposals for their improvement', and also pertains to Recommendation 3 of the ACMRR report: 'maintaining a register or relevant legislation' (FAO, 1978).

For the purpose of this review, marine mammals were taken to include: cetaceans, pinnipeds, sirenians, polar bears and sea otters.

2. Methods

Three broad strategies were adopted:

2.1 A covering letter and questionnaire (Appendix E) were sent to over 450 organizations and individuals worldwide. Addressees were identified through the relevant IUCN Species Survival Commission Specialist Groups, published sources and personal contacts. Appendix A provides a complete list of contacts.

The aim was to provide wide geographical and specialist coverage. All contacts were regarded as potential holders of computerised information on marine mammals, and addressees were encouraged to respond with details of information held, regardless of the existing degree of computerisation, so that the review could assess the potential for future increases in both the extent and types of information computerised.

2.2 On-line databases potentially holding information on marine mammals were also identified from published sources, and as many test searches as possible were conducted using the Cambridge University Scientific Periodicals Library, the Bath Information and Data Services (BIDS) of the Cambridge University Library Institute for Scientific Information and other Cambridge University on-line systems.

2.3 The academic computer networks were sampled in an effort to explore the more informal data exchange systems.

3. Results

The test-search of the academic networks did not reveal any marine mammal databases as such, but only a small area was searched. It was interesting, however, to find various systems in operation which could serve as models.

About one in three of the letters evoked responses. A few responders expressed positive interest in co-operating in a distributed system, while a few were very much against the idea. While about 25% of responders, particularly from the larger organizations, said that they did not hold any relevant information, it is known from other sources that, in several cases, such information is held or likely to be held, and these could be investigated further. A number of responses gave contact details for other sources and, where possible, these were followed up. It is clear that most responders either have computerized their data, or propose to do so. The systems in use range from large fully computerized databases available on-line or in portable form, to small collections held by individuals in personal computers. Conditions of access vary, but most are accessible at least to bona fide researchers working on co-operative projects.

Computerised information ranges from field data to press reports and iconography, but the most commonly held items are bibliographical. Few responders gave the sources of their bibliographical information, but there is potentially a significant duplication of effort in accumulating essentially the same bibliographical material in many centres.

The contacts in Appendix A are coded by response type:

- **i** negative responses and those with inappropriate information (n=45);
- **n** no response (n=293);
- **r** response with appropriate information (n=126).

Details on information supplied by those contacts coded **r** are provided in Appendix B, and the tables below are based on analyses of this information. To facilitate an analysis of the replies, four aspects were coded:

* type of information - whether bibliographic or other;
* percent of information held already computerised;
* access to information;
* hardware in use.

Such an analysis is obviously limited by the degree to which free-text responses can be firmly assigned to particular categories. However, bearing in mind these limitations, the analyses below are helpful in describing the current state of marine mammal databases.

Some 110 responses indicated a degree of computerisation (Table 1). Of these, the most commonly used hardware type was IBM-PC, although a number of responses did not include information on hardware. Over half the computerised databases were completely computerised (58). A variety of software is in use (see Appendix B) and no attempt was made to categorise this aspect. Some software implications are discussed in the Recommendations section below.

Information types were categorised as bibliographic or 'other'. Many of the databases included both types of information (52 responses). The category 'other' could be broken down further (e.g. cetaceans, polar bears, sightings, catch statistics, distribution, conservation). The degree to which databases, holding information in each of these major categories, are computerised, and the conditions for access are shown in Tables 2 and 3.

TABLE 1. ANALYSIS OF TECHNICAL INFORMATION

Percent Computerized	IBM-PC	Macin tosh	Mainframe Mini	WANG	CD ROM	Unspec-ified	Total
100%	16	2	3	0	9	29	58
50-99%	11	4	5	1	0	7	25
1-49%	17	5	3	0	0	6	27
0%	2	0	0	0	0	15	17
Total	46	11	11	1	9	57	127

NOTE: Some respondents are using several different types of hardware

TABLE 2. COMPUTERISATION AND ACCESS TO DATABASES ON BIBLIOGRAPHY

Percent Computerized	Online	Future Online	Avail-able	Not Avail	Total
100%	27	1	7	2	37
50-99%	1	2	15	0	18
1-49%	0	3	9	3	15
0%	0	1	3	0	4
Total	28	7	34	5	74

Of the 29 existing on-line databases, only one provides access to non-bibliographic material, however, 13 responses intended or were willing to provide on-line access to such material.

In both Tables 2 and 3, the largest number of responses on accessibility had no current or planned on-line facility, but indicated that the data were available: this is a major factor which should encourage action towards increased access and data exchange.

TABLE 3. COMPUTERISATION AND ACCESS TO DATABASES ON NON-BIBLIOGRAPHIC ('OTHER') MATERIAL					
Percent Computerized	Online	Future Online	Avail-able	Not Avail	Total
100%	1	3	15	3	22
50-99%	0	3	19	0	22
1-49%	0	6	11	2	19
0%	0	1	4	0	5
Total	1	13	49	5	68

4. Recommendations

Several options exist to facilitate broader access to information and data in this area.

1. On-going development, maintenance and distribution of this review. Distribution could be via paper, electronic files, or eventually on-line access.

2. Development of a network providing easy electronic communications among persons working in this field. Ideally, this would include direct connections with existing and potential on-line databases. Individual databases would continue to be maintained as they are now, but the network would provide a "one-stop shopping service" for information. One model for this is the Microbial Strain Data Network which links existing databases on four continents.

3. A new bibliographic database could be developed which would draw upon the "grey literature" now held by many individual researchers. This would supplement the commercial bibliographic databases such as BIOSIS, and a number of responses indicated direct support for such a development. This could be a part of the network described in 2. above, or it could be distributed in paper or electronic copy.

4. A collection could be maintained and be made available to future users of existing data which might otherwise be lost or be difficult to locate or access. This would simply be one or more data archives which could be of substantial value in monitoring trends, or facilitating