CHAPTER 8

EXISTING INTERNATIONAL INFORMATION SYSTEM ON MARINE FISHERIES

Information explosion has been responsible to develop more and more information systems in the world. In the earlier days there were information systems only in major subject areas like Mathematics, Physics, Biological sciences, etc. Later minor subjects also gained more popularity. Chemical abstracts, Medlars, Biological abstracts and Zoological records were the leading information systems in relation to biological sciences. Understanding the magnitude of the revolution in the information field and the difficulties in the collection, dissemination and exchange of information in a standardised form, UNESCO has taken active interest in the formation of more and more information systems. Mechanisation influenced the functioning of information systems and gradually the number of information systems increased. The first computerised information system of the United Nations was probably the International trade data bank, which
was running on a computer as early as 1958. At present there are over four hundred UN operated information systems. Nuclear Information System (INIS) was the first computerised International Information System started by UNESCO in a co-ordinated way. Following INIS, International Information System for Agricultural Science and Technology (AGRIS) was formed. A number of International Information Systems are available now.

**Important International Information Systems**

The major International Information Systems connected with marine fisheries are detailed below:

- International Information Systems for the Agricultural Sciences and Technology (AGRIS).

The large increase in the volume of scientific and technical literature, and more specifically that concerned with agriculture and allied fields, has prompted many countries and institutions to consider whether new information systems in the Agricultural field are necessary or not. In 1969, a number of organisations providing and planning to provide
information services in the field of food and agriculture approached the Director General of FAO, requesting him to sponsor a meeting to investigate what might be the possibilities and advantages of co-operation. After detailed discussion they decided to have an International Information System for Agriculture Sciences. AGRIS began its operation in January, 1972 with the following objectives:

1. To create a single comprehensive, current inventory of world-wide agricultural literature which not only reflects research results, production activities and rural development but also identifies all related problems in the field of agricultural interest to FAO (SISCON, 1982).

2. To meet the information needs of the agricultural community by providing current awareness and specialised subject retrieval services from the inventory and to fulfil subsequent document delivery requests.

3. To interact with new or existing secondary specialised information services in order to increase their efficiency and rectify administrative gaps or duplication.
AGRIS is a computer based decentralised system with FAO as the co-ordinating centre responsible for (1) receiving (2) integrating and (3) processing bibliographic data submitted by national or regional centres spread all over the world. About 106 such centres are participating in the programme. These centres are charged with the responsibility of (1) collecting (2) cataloguing (3) classifying and (4) submitting their national inputs, directly. At present there are four regional centres which co-ordinate AGRIS activities among the countries and they establish and maintain contact with participating centres to develop programmes, monitor input and output services, produce and maintain manuals and teaching materials. The Data Base is maintained in Vienna and its output services are available in the following two forms (SISCN, 1982).

1. A printed monthly bibliography called Agrindex.

2. An output magnetic tape, the format of which can be adopted to meet the needs of individuals, research programmes and national and regional information centres. The unique feature of
these tapes are that since June 1979 they contain the abstracts as well. But their limitation is that the abstracts pertain those countries which send their input through magnetic tapes.

**Aquaculture Information System (AQUIS)**

In aquaculture, a great deal of non-conventional data have been accumulated, at farm level or in reports of research stations, production units, etc. These data are the result of experiences and observations of farmers, researchers or extension workers. Such non-conventional data seldom get published and if not stored, will eventually get lost with time. With over 100 years of research, large quantities of data have been compiled and some of these are published in international journals, magazines and books. This type of the conventional information is relatively easier for retrieval. However, information published in local languages and local literature is less accessible, and as such it can also be termed as non-conventional in the global sense. With greater recognition of the contribution of aquaculture towards
increasing fish production and its development potentials, there is a pressing need to make available complete information on aquafarming systems, level of technologies, past experiences and research findings all over the world to the government policy makers, investors, farmers and researchers and trainers.

**ADCP Information activities**

The information activities of the Aquaculture Development Co-ordination Programme (ADCP), an inter-regional project of FAO/UNDP, include the collection, processing, storage and dissemination of aquaculture information to end users. A computerized system for data collection and retrieval, known as the Aquaculture Informational System (AQUIS) has now been developed and operated using the minicomputers installed in different centres of the Inter-regional Network of Aquaculture Centres (PILLAY, 1982).

**AQUIS Package**

The information activities at each centre consist of two parts. The main activity is the establishment of the numerical Data Bank. AQUIS Bibliographic
references processed, using the MINISIS software developed by the International Development Research Centre (IDRC) constitute the second part (PILLAY, 1982).

**Objectives**

The objective of any data bank is to provide exhaustive replies to certain queries. The queries for which AQUIS has been designed are those faced daily by everyone involved in aquaculture e.g.

The data are organised in "Data Units" (DU). Each DU contains the following data :-

- Identification data (source, compiler)
- Geographic and climatic data (relevant to the site(s))
- Culture systems/structures (technical data on the structures, water and soil)
- Species (information on stocking and harvesting)
- Feeds (feed and fertilizer data)
- Diseases, losses and mortality
- Integration with crops and livestock
- Economic data
Using the selection criteria described earlier, the user can identify through the cross reference tables one or more Data Units satisfying his requirements, and then request for a complete report on each one.

All data collected and processed at any centre are available in all the centres participating in AQUIS. Information is exchanged at regular intervals using magnetic tapes. Therefore, a search on the AQUIS Data Bank in any Centre will provide information with a worldwide coverage. A search can be made either directly on the computer terminal of a centre, if the user has access to one, or by filling in the appropriate request form and mailing to the nearest centre.

The most difficult part of the endeavour is recognized to be the collection of appropriate data. Although the regional lead centres have already started collection and processing of data, the participation of other national centres, agencies or individuals is essential for the building up of the Data Bank.

**Source of Data**

At the initial stage of AQUIS data collection, the sources used are: scientific papers, theses, field
and mission reports. Field surveys may be required to complete the information available in some of the existing sources.

At a later stage when the data units available in the system are sufficiently representative of the culture systems and species, efforts will be made to complete the necessary information needed for each system and species commodity.

Aquatic Science and Fisheries Information System (ASFIS)

The Aquatic Sciences and Fisheries Information System is an International Information System purely based on marine sciences and allied subjects. It is a computerised modular system for the collection and dissemination of information relevant to the interest of individuals and institutions concerned with aquatic research and the exploitation of the resources of the aquatic environment. Now it is published by Cambridge Scientific Abstracts and compiled by the United Nations Department of International Economic and Social Affairs, the Food and Agriculture Organisation of the United Nations and the Intergovernmental Oceanographic Commission with the collaboration of the ASFIS input partners.
Aquatic Sciences & Fisheries Abstracts published monthly since 1971, represents an amalgamation of Aquatic Biology. Abstracts completed by FAO were published until 1971 by Information Retrieval Ltd in the current bibliography for Aquatic Sciences and Fisheries. To accommodate much expanded coverage, ASFA (January 1978) now publishes two complementary parts, Part 1: Biological Sciences & Living Resources and Part 2: Ocean Technology, Policy and Non-Living Resources. Abstracts with author, subject, taxonomic and geographic indexes (BEEHAN, 1982).

In compiling each month's issue, ASFA's international editorial staff monitors approximately 5,000 primary journals and a wide variety of other source documents. Not only the literature in the field of aquatic sciences, but also literature of related disciplines is covered for papers falling within the scope of ASFA-1.

The table of contents shows the full scope of the journal. All types of source documents dealing with aquatic organisms and their environment (including pollution) are covered. Marine, freshwater and brackish environments are included and the abstracts
cover laboratory studies of aquatic organisms as well as research in the respective fields. Natural resources are an important feature of Part 1 of ASFA, where fisheries are dealt with in particular detail. Abstracts are allocated to the section to which they are most relevant and cross referred to other sections.

At the end of 1981, this data base carried 107,896 references to scientific literature. All indexes are cumulated annually. Nearly 65% of the records refer to papers dealing with biological aspects and the exploitation of living resources. The records are allocated to one or more of the clearly defined subject categories grouped into 44 major subject areas. Subject indexing is based on a hierarchically structured thesaurus of some 5,000 terms. Taxonomic indexing is an authority list which permits indexing down to family, genus and species level as needed. Geographic index includes entries from major geographic/geophysical areas down to minor areas (NEEDHAM, 1982).

At present ASFA subject divisions are very minute and most of the minor subjects are also given importance for the easy use. The taxonomic index and the subject index carry almost all major specimens, names and key words in usage.
INFOFISH, Malaysia

Infofish is an information handling organisation. It deals with the collection and dissemination of information. The main objectives of INFOFISH are:

1. To meet the short-term marketing needs. To provide enough information on fishery industry in buying or selling of fishery products. The organisation aims to set up a clearing house of information about exporters and importers of fishery commodities.

2. To meet the medium-term needs of the industry, the objective is to provide them with a technical information service through which the products, service can primarily learn about processing and handling methods, quality control or other measures to improve the present products.

3. It aims to help develop a modern, efficient fisheries industry producing high quality products for the world market. INFOFISH publishes both periodicals and reports (HAMMORBEG, 1982).
INFOFISH Offers Three Separate Units

Trade Promotion Service

This unit deals with the demands of fishery products and acts as a consultancy agent for the exporters and importers of fishery products. This agency publishes price information and market trends fortnightly. The major tools in the information handling process for this unit are the INFOFISH DATA BASE and the COMMUNICATION CHANNELS represented by telephone, telex and correspondence. The price promotion Unit also publishes a fortnightly news-letter with prices and market trend reports, based on information gathered from special market correspondents and experience gained through the trade promotion activities.

The Market Information and Communication Service

This unit which deals with the long-term objective of the project lays emphasis on publication and training. INFOFISH MARKETING DIGEST is the most important publication of this database. It is a monthly publication. It deals with all post-harvest aspects of fisheries, with special emphasis on marketing. The main objective of this publication is to provide enough
information to industrialists. The INFOFISH MARKETING DIGEST consists of articles gathered by INFOFISH from a multitude of articles from all over the world. There are subject specialists on each field for scrutinising the articles. The major producers, exporters and importers get this digest free of cost. There are a large number of people subscribing to this journal. The publication activities also include reports on specific subjects.

There is a National Liaison Office which deals with the industrialists of national importance and with the government authorities.

Technical Advisory Service

To help clients, mostly the producers, with their ad hoc production handling and other problems, the Technical advisory unit was set up. It deals with the medium terms objective of the project. The resources available to the project in this task consist mainly of the Technical Information Centre, which has a highly specialised library of fishery industry literature.

The Technical Information Centre is presently organised as a single manual retrieval system, using
cross reference files rather than a card catalogue. The Technical Advisory Service organises seminars and training courses also on selected subjects.

The INFOFISH DATA BASE is a register of fishery products in the Asian/Pacific Region producers and exporters. The data base also contains registration of companies or institutions with which the project has correspondence. It also maintains a separate file for INFOFISH mailing list.

In short the function of INFOFISH is collecting information regarding the production and distribution of fishery products.

**Oceanic Abstracts**

"Oceanic Abstracts" is published by Pollution Abstracts Subscription Dept. California for the quick dissemination of information. It includes a good coverage of literature connected with ocean. It is publishing nearly 8000 abstracts and 100,000 index listings. It is a concise but informative synopsis of a longer document. The idea is to give the user enough information so that he can decide whether he has to read the entire report that is abstracted.
Pollution abstract is another secondary periodical which helps the users in literature search. It is helpful to the users of marine fisheries. Now both the "Pollution Abstracts" and "Oceanic Abstracts" are good information systems. There are a few national Information Systems which serve the needs of other nations also. The important ones are described below:

Bureau of Fisheries and Aquatic Resources Library Service

Fish and fishery products have been one of the important food products of the Philippines from olden days. Bureau of Fisheries and Aquatic Resources (BFAR) is the major organisation which controls the development, improvement, management, and conservation of the country's fishery resources. For supporting the functions of the BFAR a well equipped library service started functioning. The present fisheries library was built up on the nucleus of several volumes of books and relevant documents given to BFAR by the Fish and Game Administration of the United States Fish and Wild Life Service (USFWS) (LICAUCO, 1982). The Technical Library and Documentation Service (TLDS), is a unit under the Fishery Economics and Information Division of BFAR. Collection and dissemination of information is under the control of TLDS.
TLDS collects documents through gifts, exchanges and purchases. It has a good collection of books, monographs, serials, pamphlets, reprints and technical reports. Though the purpose of this library is to serve BFAR, it functions as a national library. According to the development of fisheries, the collection and service of TLDS is also advancing.

The TLDS provides general and technical services. General services include: (i) inside use of the collection (2) interlibrary loans (3) retrieval of newspaper clippings (4) Photocopying and (5) document distribution. The main technical services are (1) abstracting and indexing (2) Literature research (3) consultancy and advisory services (4) referral services and (5) Preparation and publication of documents describing the library and its services.
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<th>Scope</th>
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<td>Includes 5% fisheries and aquatic science</td>
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<td>120,000</td>
<td>National Agricultural Library (U.S.A.) via DIALOG</td>
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<td>AGRINDEX</td>
<td>Journal</td>
<td>Monthly</td>
<td>World Agriculture</td>
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<td>FAO (AGRIS)</td>
<td>Contains 2% fisheries and aquatic science</td>
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<td>Journal</td>
<td>Quarterly</td>
<td>Published and unpublished aquaculture</td>
<td>1,000</td>
<td>Aquaculture Dept., SEAFDEC Iloilo, Philippines</td>
<td>New and retrospective. All documents held in SEAFDEC library</td>
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<td>Journal</td>
<td>Monthly</td>
<td>World fisheries and aquaculture</td>
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<td>FAO via</td>
<td>Journal monthly from 1971. Best general source</td>
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<td>Australian Science Index</td>
<td>Microfiche</td>
<td>Bimonthly from 1976</td>
<td>Australian science</td>
<td>6,500</td>
<td>CSIRO P.O. Box 89, Melbourne Australia</td>
<td>Searches made on request</td>
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<td>Australian Scientific and Technological Reports</td>
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<td>Bimonthly</td>
<td>Reports, conference papers, theses</td>
<td>3,000</td>
<td>National Library of Australia, Canberra, Australia</td>
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<td>BIOSIS</td>
<td>Journal</td>
<td>Monthly from 1969</td>
<td>Worldwide life sciences</td>
<td>125,000</td>
<td>Biological Abstracts via DIALOG</td>
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<td>CAB Abstracts</td>
<td>Database</td>
<td>Monthly from 1973</td>
<td>World agriculture and biology</td>
<td>144,000</td>
<td>Commonwealth Agricultural Bureau, via DIALOG</td>
<td>Contents of 26 abstract journals; some include fish farming and management</td>
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<td>FAO Documents</td>
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<td>FAO</td>
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<td>Monthly</td>
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<td>6,000</td>
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<td>Includes fisheries – post harvest</td>
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<td>Journal</td>
<td>Bimonthly</td>
<td>Publications in Indonesia</td>
<td>2,000</td>
<td>Bibliotheca Bogoriensis, Bogor, Indonesia</td>
<td>Includes fisheries</td>
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<td>Japanese Agricultural Science Index</td>
<td>Journal</td>
<td>Monthly</td>
<td>Agriculture, fisheries and forestry</td>
<td>10,000</td>
<td>Association of Agriculture and Forestry Statistics</td>
<td>Covers over 50 fisheries journals</td>
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<td>Journal of Abstracts and Reviews</td>
<td>Journal</td>
<td>Quarterly</td>
<td>Indian economics</td>
<td>600</td>
<td>Indian Council of Social Science Research, New Delhi</td>
<td>Includes few fisheries items</td>
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<td>Korean Scientific Abstracts</td>
<td>Journal</td>
<td>Bimonthly</td>
<td>Korean science</td>
<td>700</td>
<td>Korea Scientific and Technological Info-Centre, Seoul</td>
<td>Includes Aquatic Sciences</td>
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<td>Oceanic Abstracts</td>
<td>Journal Database</td>
<td>Monthly</td>
<td>World marine</td>
<td>9,000</td>
<td>Data Courier U.S.S.A.DIALOG</td>
<td>Includes living and non-living resources, shipping and legal aspects</td>
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<td>Entries/Yr</td>
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<td>PHILIPPINE ABSTRACTS</td>
<td>Journal</td>
<td>Quarterly</td>
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<td>Scientific Library and Documentation Div., National Science Development Board</td>
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<td>SCISEARCH</td>
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<td>96,000</td>
<td>Institute for Scientific Information, U.S.A., via Dialog</td>
<td>Covers Current Contents Science Citation Index</td>
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The International Development Research Centre (IDRC)

Information Services Canada

The IDRC was started in 1972 and it has supported 50 fisheries research projects and 12 fish processing projects. The research programmes focus on applied research projects designed to assist rural fishermen. It has an international exchange programme of information and has provided people from the developing countries with a medium for information sharing and discussion. There is a separate project officer for looking after the functions of fisheries information services. Proper emphasis has been given for the dissemination of relevant information and other supporting services like photocopying and referral services. Their main services include:

(a) A table of contents service.
(b) Specific subject synopsis relevant to aquatic species and culture methods.
(c) Answering individual requests for reprints and books.
(d) A quarterly current awareness bibliography and
(e) A medium of information exchange through the Tropical Fish Processing News letter.

The Seafoods Aquaculture Department Information System, Philippines

The Aquaculture Department (AMD) established in 1973 is one of the important departments of SEAFDEC. The major functions of the department are:

1. To promote and undertake aquaculture research, relevant and appropriate to the region.
2. To develop human resources for aquaculture development and
3. To disseminate and exchange information aquaculture (MANTICS, 1982).

The main function of this information system is to acquire and disseminate the information relevant to aquaculture. There is a separate unit handling the information services. That is known as Research Information Service Unit (RISU). The main function of this unit is to store and disseminate the information relevant to the aquaculture department. There is a feedback system for assessing its functions. RISU
provides statistical services and data processing.

The RISU has a separate publication unit which gathers, processes and disseminates both technical and scientific information. The library unit collects the relevant documents on fish and fisheries and the documents related to aquaculture. It has a good collection of both book materials and non-book materials.

REFERENCES


HAMMARBERG, C. 1982 Information strategy and handling at INFOFISH. In: Proceedings of seminar held in Bangkok, Thailand 1982 pp. 49-63


