

## SEARCHING MARINE SCIENCE BIBLIOGRAPHIC INFORMATION

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Communication of scientific results is one of the long-practiced functions in the scientific process. The communication may be oral or written. This helps to avoid unnecessary duplication of scientific effort and also adds to the knowledge which in turn benefit to stimulate the thought and provoke new ideas among the fellow colleagues.

Written communication of scientific results has gained more importance over its counterpart - the oral communication - simply because it establishes the credibility of the scientific results and this channel is considered to be more powerful in communicating from one to many. With the increasing scientific activity brought the world, enormous literature is being published in variety of forms making an individual difficult to keep track of all relevant information. It is beyond the reach of any one to be self sufficient. Thus the libraries, aimed to collect, store and disseminate relevant information find a very important place in the scientific endeavour. The libraries today are storing different information in conventional and non-conventional forms and are equipped with the tools to find out an appropriate information required by the user.

The literature could be conveniently grouped into the primary and secondary. The primary literature contains first reports of laboratory studies and field investigations, details of new hypotheses, descriptions of new equipment, etc. In this category publications like periodicals, theses, research reports, conference proceedings, patents and standards etc., could be conveniently placed. The secondary literature consists of distilled information available in primary literature and presented in convenient form. Bibliographies, abstracting and indexing periodicals, review journals, monographs, textbooks and numerous reference books like dictionaries, directories, encyclopaedias, etc. could be considered as the forms of secondary literature. In reality these categories are rather arbitrary and the dividing lines between them are far from distinct. Many periodicals for instance contain a mixture of primary and secondary information.

Use of these different kinds of literature depend on the kind of user or his information requirements. For example let us consider the case of someone who wants an information on items like: which are the countries bordering Caribbean sea, or who is working in the field of study of his interest in a specific region, or what is the annual average rainfall, etc. This can be obtained from the standard reference books. In other case a researcher who is starting to investigate a completely new topic may very well require a short introduction to help clarify the subject. He can get this most easily from a text book or even encyclopaedias. If someone who is preparing for a lecture in short time, a review on that topic would be the best source for him. Even those, who are registering for the higher degrees and need to submit dissertation, should look for the reviews initially.

However, a worker who wishes to keep himself up-to-date with his subject, such readymade tools might not be just sufficient. An ideal situation is to keep track of and read everything that is of immediate interest and browse through the items of peripheral interest. But with evergrowing size of literature in any field, its scatter in variety of forms of documents, this has become increasingly difficult. The secondary literature in the form of bibliographies, abstracting and indexing services, current awareness services, etc., have come to rescue. They are designed to direct the potential readers to the items of their interest. Following paragraphs describe availability and utility of such secondary sources of information in the field of marine sciences. Bibliographies, abstracting and indexing journals, etc., are designed to direct the potential readers to the items of their interest.

#### BIBLIOGRAPHIES:

A modern bibliography is a list containing details of almost any type of publication - journal articles, reports, theses, patent specifications, etc. Bibliographies usually concern themselves with any literature on a particular subject and/or from a particular country and/or language for a specified period. In view of the volume of literature published, all modern bibliographies are necessarily restricted in one way or another. Even with these restrictions, the publication of bibliographies is not economical today as the modern techniques have replaced them easily. Hence they are published only on very special occasions. There is no strict rule or standard in practice to place the items in bibliography. The entries in the bibliography are listed in classified order or alphabetically by author or chronological order or in combination of any of these aspects. To facilitate its use, most of the bibliographies are provided with an author and/or subject index.

#### ABSTRACTING AND INDEXING JOURNALS:

Typically, an abstracting or indexing journal is a publication produced at regular intervals and designed to guide the reader to items of interest appearing in the primary literature. An indexing journal consists of a list giving enough bibliographic information about each item for it to be traced. This list is generally arranged in classified order. On an addition of abstracts to these items it could be considered as an abstracting journal. In the field of marine sciences, the Deep Sea Research Part B: Oceanographic Literature Review is the first indexing/abstracting journal (Volume 1: 1953). This part had a been split from its research papers part (A) in 1969. 'Oceanic abstracts' came into existence in the year 1964 as 'Oceanic index and citation journal'. This was followed by another reputed abstracting journal 'Aquatic Sciences and Fisheries Abstracts' (ASFA) in 1969, previously named as 'Aquatic Biology Abstracts'. Today it is published in two parts: 1. Biological sciences and living resources and 2. Ocean technology and non-living resources with the joint efforts of Unesco, IOC, FAO, UNDP and published by Cambridge Scientific Abstracts. This journal is considered as most reliable, and comprehensive in its coverage. More than 26000 references published in the field of marine brackish and freshwater studies are cited. Another offshoot of this abstracting journal commenced recently is the 'Aquaculture abstracts'. ASFA authorities claim that more than 5000 journals

are scanned cover-to-cover for inclusion of relevant articles in ASFA. Recent studies have also shown that this is the most used abstracting journal in the field of marine sciences. Though this is a good secondary source for many marine scientists, references on specific studies like bioactive substances from marine biota or marine instrumentation etc., are better covered in abstracting journals devoted to specific disciplines like: Chemical abstracts, Inspec abstracts, IEEE transactions, etc.

Science Citation Index (SCI) published by the Institute for Scientific Information is one of the typical indexing journals. It is based on the principle that current papers on the topic cite older literature deemed by the author to be relevant to his own work. With this one can find most or least cited papers in a discipline. Further, this index does not have restriction of any specific subject. But the list can't be exhaustive because all papers donot receive citations and the journals receiving higher number of citations than the threshold in the world output only are covered in this index of source items. This means alternatively, the journals mainly from developed world are covered. SCI consists of two basic units (both issued quarterly with annual commulations): the Citation Index and the Source Index. The latter consists of a list of items, with full bibliographic details, which have appeared in the journals scanned by this service. The Citation Index consists of references cited in source items and is arranged in alphabetical order of first author. Under each entry appears a list of the items which cited it during the year covered by the index.

#### Current Awareness Services

The time required by the abstracting journals to acquire and abstract the primary literature and then assemble, print and distribute is generally not less than six to nine months, and sometimes even years. If someone is looking for the very latest publications in these journals, he may get disappointed. This need has been partially satisfied by the Current awareness services. Most of the libraries, as and when they receive journals, scan and prepare lists of items of interest to the users. The material produced under this service is called Current Awareness Bulletin.

Another example of this kind of service is the Current Titles Bulletin. The 'Current Contents' issued by the Institute of Scientific Information in various parts is most popular among the scientific community. The parts like: Agriculture, Biology and Environmental Sciences; Engineering Technology and Applied Sciences and Physical, Chemical and Earth Sciences are most relevant to various Marine science studies. These are issued weekly and consist of contents tables reproduc d from latest issues of the journals. The speed of preparation and distribution is the essence of this kind of publication. It results in notifying the users what is published in that/last week. Their backup services like supply of photocopies of the required articles is an added facility. FAO's 'Marine Science Contents Tables' is also published on similar basis which covers only marine science literature.

Such Current awareness services have no lasting value. The papers they cite, are eventually covered by the abstracting journals. Thus libraries

discourage their use as retrospective searching tools by throwing them away after about 2 years.

Even though the several of such secondary services exist, it is not worthwhile to depend wholly on any of these for searching relevant information as they could not be claimed to be exhaustive or comprehensive in their coverage. A regular reading habit of core journals and looking for the other articles in secondary literature could be the best and balanced choice.

#### COMPUTERISED SERVICES:

With the advancement in the field of computer technology, the secondary sources of information are now available on computers too. They are supplied to the individuals in the form of magnetic tapes to be accessed using the computers. The latest technology has made it possible to store large data on a small laser disc, commonly called CD-ROM (Compact Disc - Read Only Memory). This disc stores information of about 600 megabytes size. Most of the abstracting/ indexing journals or even the current awareness bulletins are now available on either such CDs or floppy diskettes or tapes. The information available on these storage devices is indexed word to word. Boolean operators are used for combining different key-ords and formulating search strategy. With these facilities, the required information could be retrieved within shortest possible time. Apart from subscribing the data bases, these could also be accessed by satellite links through nodal agencies like DIALOG in America and ESA in Europe. However, this works out to be very expensive.

Rosenstiel School of Atmospheric and Marine Sciences, Miami, Florida, USA is understood to have a computerised bibliographic data base on Caribbean waters. This would be most useful for the researchers working in this area.

#### OTHER FACILITIES:

Apart from the collection, storage and retrieval activities, the libraries also help in translation, reprographic facilities to the users. However, the extent of these services differ from place to place. By and large libraries today could serve as the backup by relevant bibliographic information assistance to the users in their research.