Fisheries Literature Services: An Overview

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Information availability on fisheries and aquaculture has lagged behind that of other disciplines, reflecting the minor role of fisheries in national economies, particularly of the developed countries from which information systems generally emanate.

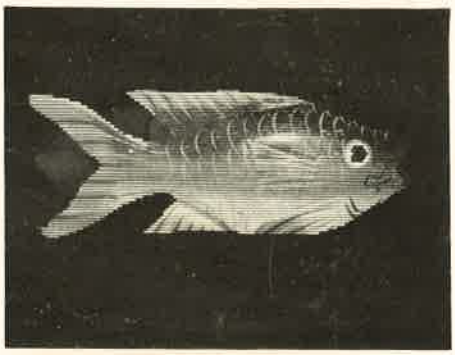
Western Developments

Fisheries scientists began their break from the painstaking searches of *Biological Abstracts* and *Zoological Record* with the advent of abstracting, or secondary, journals for the aquatic sciences—*Aquatic Science and Fisheries Abstracts* (ASFA), *Oceanic Abstracts* and related journals—*Pollution Abstracts*, etc.

Later, these became marketable "databases" when computer systems, such as DIALOG, began to operate. One database, AQUACULTURE, can only be searched by computer. The others are still available in published form also.

Other secondary journals have taken over the previous library service of providing contents pages of relevant primary journals, e.g., FAO's publications, *Freshwater and Aquaculture Contents Tables* and *Marine Science Contents Tables;* the Institute for Scientific Information's (ISI) *Current Contents* has overtaken them in coverage and services offered, such as publication ordering and provision of authors' addresses.

Some of the computerized databases offer hard copy availability of all papers indexed. They also provide abstracts, a major advantage over the *Contents* journals. However, the databases and abstract journals provide the researcher with historical information only, and a limited overview of recent, primary literature at that. The extension worker, the statistician, etc., are hardly served.



The coverage of the various aquatic secondary journals and databases overlaps and is restricted to more important sources. "Grey" literature is scarce, and there is always geographical bias, either intentional or circumstantial. AQUACULTURE, for example, began as a referral collection (all items are on microfiche) for U.S.A. aquaculture only (see article, p. 11); ASFA has broadened its coverage from predominantly European and North American to include Japanese, Russian and Latin American primary literature (see article, p. 6). However, the Japanese segment recently dropped out due to financial problems, although Japan itself is now well served in this area (see article, p. 12).

These vagaries of secondary journals/databases are rarely publicized but they illustrate the existing less-than-perfect basis for fisheries information retrieval.

Developing Countries

Turning to the developing countries, particularly in the tropics, fisheries information sources, other than individual libraries, are almost non-existent. In Southeast Asia, two little known services support fisheries workers to some extent. BIOTROP, the Indonesian-based Regional Centre for Tropical Biology, offers bibliographic services which include aquatic biology; and AGRIASIA, the regional computerized literature service for agriculture. Produced since 1977 by the Agricultural Information Bank of Asia (AIBA), a SEARCA (Southeast Asian Regional Center for Graduate Study and Research in Asia) project, AGRIASIA is a quarterly bibliographic journal, containing current literature on agriculture, including a large amount of grey material. Aquatic Sciences and Fisheries form one subject entry, but they are not covered completely. From 1982, abstracts, previously absent, are also included.

With a little digging, quite a large number of other sources of bibliographic information on fisheries can be unearthed. I have compiled a list of them (see p. 5) to supplement the articles in this issue; there is some bias towards Southeast Asia, but together the sources cover most of the world's fisheries-related publications.

Other Developments

ASFA is the recognized central source of fisheries bibliographic information. Its network has been gradually spreading into the developing regions (p. 6), and proposed regional and national systems are usually designed to link up eventually to ASFA.

In Southeast Asia, SEAFDEC is developing various information systems (SEAFIS; SAFIS—see article, p. 25) in both fisheries and aquaculture. FAO has an embryonic international aquaculture information system that includes statistics and production data as well as a literature database (AQUIS—see article, p. 9).

The only existing database with fisheries material in Southeast Asia, AIBA, has no interaction with ASFA, and in the South Pacific an emerging bibliographic center is also concentrating on setting its own house in order (see article, p. 20).

The International Centre for Marine Resources Development (ICMRD) at the University of Rhode Island, U.S.A. is developing a computerized special library which, in view of ICMRD experience and

location, is initially concentrating on Latin American fisheries. In Canada, the International Development Research Centre (IDRC) now provides a bibliographic current awareness service to its fisheries project personnel in developing countries around the world. The output from this service is also available to other institutions.

How much information is there?

Given the minor role of fisheries relative to other food-producing sectors, it can be expected that the scientific literature output of fisheries research will also be small compared to that of agriculture. Advances in agriculture need a high level of technology to intensify yields, reduce predation and disease, etc. Fisheries are not amenable to such intensification, while aquaculture has only recently been recognized as having significant potential. Comparatively then, there ought to be proportionally less fisheries than agricultural literature output.

The major agricultural databases, shown on p. 5 (AGRICOLA, AGRINDEX, CAB Abstracts) are each adding 120,000 or more entries per year. ASFA contains some 15% of that figure in its living resources section (ASFA I). Given the overlaps between the agricultural and between the aquatic databases, a figure of 10% seems a useful comparative relationship between the broadly scientific literature in the two sciences.

Implications for Southeast Asia

The implications for Southeast Asia are worth examining because of the interest of the various agencies in bringing order to bear on the scattered literature resources of the region.

Fish products as protein sources are more important in Asia than most other regions. Nevertheless, the *value* of fisheries production in the major fishing countries of Southeast Asia is only about 9.5% that of agriculture.

The agricultural database in Southeast Asia, AGRIASIA, currently grows by some 10,000 entries per year. Much of it is grey literature and 60% of the total available material is said to be retrieved; that is, there are some 16,500 articles produced per year. Therefore, fisheries contributions are probably somewhat less than 1,650 per year.

Another indicator of relationship between regional and world fisheries literature production is the number of researchers, probably no more than 1,000 in Southeast Asia of a world total of some 15,000+ fisheries scientists.

If the same recovery rate of material can be attained for fisheries as for agriculture (60%), then one can confidently expect about 1,000 articles/year will be retrieved in the region. AGRIASIA consistently includes 5% aquatic science and fisheries entries, or 500/year. The target of a regional system to improve this retrieval is thus between 500 and 1,000 articles/year.

Fisheries information workers can learn much from the experience, nature and size of agricultural information systems. In the case of Southeast Asia, the appropriate *level of effort* for a fisheries bibliographic system is suggested to be 10% of that of a similar agricultural system. The economics of relative production and value of the industries and usership of the information systems may ultimately dictate that this figure be not grossly exceeded.

Computer literature searching

There is nothing mysterious about using computer databases to help locate material you need and to keep you up to date with the latest references in particular subject areas. As the table on p. 5 shows, relevant literature can be scattered across several disciplines and appear in different databases.

- First, locate a database searching service. Your librarian may know of larger libraries with *terminals.* The overseas telecommunications companies have listings of the subscribers to the various communication networks (e.g., Telenet, Tymnet). These include companies and institutions offering search services. Nearly all sources are in developed countries.
- Database marketers charge an average about $50/hour computer time. As well, there are telecommunication charges of $5-15/hour and rent/lease costs of the terminals. Finally the references cost 10-50 cents each. A search may only take a couple of minutes, but you should enquire about expected fees for a search in advance. An average search is around $15-20.
- Write your request carefully. Asking for references about plankton, for example, is not sufficient. (That one word appeared in nearly 41,000 references, abstracts and descriptions in BIOSIS since 1969). Be as specific as possible. This allows high precision and a manageable quantity of output. On the other hand, for something like bibliography preparation, you may want *all* the references that mention your subject area. Be prepared for a big bill. There are other ways to limit the search, depending on the database format, e.g., by specifying language, geographical area, years covered, marine or freshwater.
- The searcher enters the key words in a certain pattern (using Boolean logic operators) and the result is a series of references (with or without abstracts, on your request), which are printed and mailed to the searcher immediately after the search.
- If you have asked to be kept up to date on the subject, a simple codeword to the computer will ensure that you receive a regular, usually monthly, printout of the latest references (and invoice) until you ask it (via your search service) to stop.
- Now, you only have the references. Tracking down the articles in question is often the hard part (see p. 21)!

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  Integrated crop-lives
  Tetangco, M. H.
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Council, 1980, No.
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If you have a direct terminal link to the ASFA database, as we have at ICLARM, an online printout looks like the sample above. It's cheaper to order offline prints (below), which look nicer and are also the format if you mail-order a literature search.

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tropical Pacific
  Parin, N.V.
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Bibliographic Information Sources for Fisheries

Title	Nature	Frequency or update	Scope	Entries/yr	Source	Commentary
AGRIASIA	Journal	Quarterly from 1977	Agriculture and Fisheries in Asia	10,000	Agricultural Information Bank of Asia, Philippines	Includes 5% fisheries and aquatic sciences
AGRICOLA	Database	Monthly from 1970	World agriculture	120,000	National Agricultural Library (U.S.A.), via DIALOG	—
AGRINDEX	Journal Magtape	Monthly	World agriculture	120,000	FAO (AGRIS)	Contains 2% fisheries and aquatic sciences
AQUACULTURE	Database	Monthly from 1970	World aquaculture	1,200	NOAA, U.S.A., via DIALOG	Offers copies of all citations
AQUACULTURE ABSTRACTS	Journal	Quarterly	Published and unpublished aquaculture	1,000	Aquaculture Dept., SEAFDEC, Iloilo, Philippines	New and retrospective. All documents held in SEAFDEC library
ASFA	Journal Database	Monthly from 1978	World fisheries and aquaculture	28,000	FAO, via DIALOG	Journal monthly from 1971. Best general source
AUSTRALIAN SCIENCE INDEX	Microfiche, Printout	Bimonthly from 1976	Australian science	6,500	CSIRO, P.O. Box 89, Melbourne, Australia	Searches made on request
AUSTRALIAN SCIENTIFIC AND TECHNOLOGICAL REPORTS	Journal	Bimonthly	Reports, conf. papers, theses	3,000	National Library, Canberra, Australia	Includes fisheries
BIOSIS	Journal Database	Monthly from 1969	Worldwide life sciences	125,000	Biological Abstracts, via DIALOG	Covers 8,000 primary journals
CAB ABSTRACTS	Database	Monthly from 1973	World agriculture and biology	144,000	Commonwealth Agricultural Bureaux, via DIALOG	Contents of 26 abstract journals; some include fish-farming and management
FAO DOCUMENTS	Journal Printouts	Monthly	World agriculture and fisheries	3,600	FAO	Includes Fisheries Department output. Searches on request.
FSTA	Journal Database	Monthly	World food science and technology	6,000	International Food Information Service, via DIALOG	Includes fisheries—post-harvest
INDONESIAN BIOLOGICAL, AGRICULTURAL AND AGRO-ECONOMIC INDEX	Journal	Bimonthly	Publications in Indonesia	2,000	Bibliotheca Bogoriensis, Bogor, Indonesia	Includes fisheries
JAPANESE* AGRICULTURAL SCIENCE INDEX	Journal	Monthly in Japanese	Agriculture, fisheries and forestry	10,000	Association of Agriculture and Forestry Statistics	Covers over 50 fisheries journals
JOURNAL OF ABSTRACTS AND REVIEWS	Journal	Quarterly	Indian economics	600	Indian Council of Social Science Research, New Delhi	Includes few fisheries items
KOREAN SCIENTIFIC ABSTRACTS	Journal	Bimonthly	Korean science	700	Korea Scientific and Technological Info. Centre, Seoul	Includes Aquatic Sciences
OCEANIC ABSTRACTS	Journal Database	Monthly from 1964	World marine	9,000	Data Courier, U.S.A., DIALOG	Includes living and non-living resources, shipping and legal aspects
PHILIPPINE ABSTRACTS	Journal	Quarterly	Philippine science and applied sciences	500	Scientific Library and Documentation Div., National Science Development Board	Includes Zoology, Marine Husbandry
POLLUTION ABSTRACTS	Journal Database	Bimonthly from 1970	Environmental	8,500	Data Courier, U.S.A., via DIALOG	Water pollution included
SCISEARCH	Database	Monthly from 1974	World science and technology	96,000	Institute for Scientific Information, U.S.A., via DIALOG	Covers Current Contents, Science citation index

Other, lesser known sources likely to contain some useful fisheries/aquatic science bibliographic material from agricultural journals include:

Abstracts on Tropical Agriculture, monthly publication from Koninklijk Instituut voor de Tropen, Department of Agricultural Research, Mauritskade 63, 1092 Amsterdam, The Netherlands.

Biological and Agricultural Index, monthly publication from H.W. Wilson Co., 950 University Ave., Bronx, New York, U.S.A.

Related disciplines have journals/databases available also. They may be consulted in multidisciplinary studies and include: AQUALINE, ENVIROLINE, ENERGYLINE, SOCIAL SCISEARCH, and SOCIOLOGICAL ABSTRACTS.

The databases recorded above are all available via the DIALOG system. Some are also available through other retrieval systems, SDC Orbit and Bibliographic Retrieval Services (BRS) in the United States, and through other systems in Europe and elsewhere.

*For other Japanese sources, see article p. 12.