

Marine Science Information Resources in Scandinavia

Joan Collins
Librarian
North Sea Centre
Hirtshals, Denmark
and
Bent Gaardestrup
Danish Institute of Fisheries & Marine Research
Charlottenlund, Denmark

ABSTRACT

Marine research in Denmark is biased towards fisheries, and the major resources of marine science information are thus located in fisheries research libraries. Recent developments in library cooperation, particularly the database FISHLINE, and access to Danish marine science information are presented. The recently established regional and European groups of marine science libraries and information centres give greater scope for cooperation and resource-sharing. The idea behind bringing together the major fisheries organizations, both research and industry, at the North Sea Centre in Hirtshals is to promote the further development of the fishing industry. The newest of the fisheries libraries in Denmark reflects this link between research and industry. The location of major marine science libraries in Norway and their participation in the cooperative systems of Norwegian research libraries is described. The integrated library system BIBSYS, whose on-line union cataloguing module became operational in 1980, includes some of the Norwegian marine science libraries holdings.

The Nordic Council for Scientific Information and Research Libraries (NORDINFO) works for an improved and more effective library and information service for researchers and others who use scientific and technical information. Its most important function is the coordination and financing of cooperative library projects in the Nordic countries.

MARINE SCIENCE INFORMATION RESOURCES IN DENMARK

Marine research in Denmark is heavily biased towards fisheries research. Although Denmark is a small country both in size and in the number of inhabitants, with a population of just over five million, it was number 13 in the 1986 FAO statistics of the top fishing nations (landing 1.8 million metric tons.) The fishing industry thus plays an important part in the Danish economy, particularly on a regional basis where many of the communities on the west coast of Jutland owe their existence to the fishing industry.

At the 10th IAMSLIC Annual Conference, Mogens Sandfaer presented a paper entitled "Networking through FISHLINE," in which he outlined the major Danish fisheries research organizations, their fields of work and publications, and the state of the art in 1984. What I have to say with regard to Denmark is an extension of that paper inasmuch as I will refer to marine science organizations generally, and I will bring us up to date with the state of the art of the database FISHLINE and the means of access to marine science information. We were asked by the conference to cover marine science information resources in Scandinavia. A more interesting regional coverage would, in fact, include the other Nordic countries of Finland and Iceland, not only because of close cooperation within fisheries research, but also because much of the

library cooperation is organized on a Nordic basis. However, this is far too large an area for the scope of this paper, so in addition to Denmark we have concentrated on Norway, which is the most important neighbour for us with regard to marine fisheries information resources. In Denmark some of the more important fisheries research areas are multi-species modeling; acoustics; predation and food preferences. Within fishing gear research, the development of new trawl designs aimed at reducing fuel consumption plays a leading role. The fish-processing research and development community is involved in finding ways of making trash or low value fish more attractive for human consumption i.e., higher value, in the development of new products and particularly finished (ready-to eat) products.

Apart from fisheries research, marine science research generally is carried out by the universities or government departments, and I have illustrated their location and subject areas in Figure 1. This is not the complete picture, and for full coverage I would refer you to a publication by the Danish National Committee on Oceanography, 1984, entitled *Marine Science and Technology Institutions in Denmark*. This gives a list of all organizations, central and peripheral, with full names and addresses, areas of work, membership of international bodies, etc.

Fisheries Research Libraries

In general, then, the major marine research institutes are concerned with fisheries research, and the major collections of marine literature are essentially fisheries research libraries. If we look at some of the characteristics of these libraries, there are several interesting features:

1. Their size: all are relatively small with typically one or two professional staff.
2. Their funding: a mixture of state, semi-state and private sector.
3. Their relatively well-developed level of cooperation and coordination.
4. The diversity of their collections and clientele.

The two major collections are fisheries and marine biology at the Danish Institute of Fisheries and Marine Research, and fish processing and products at the Technological Laboratory of the Ministry of Fisheries. These are long-standing collections serving mainly the researchers of the respective institutes and the research community in general. The new library at the North Sea Centre has no extensive collection of scientific/technical literature, but a small current collection of core fisheries research literature and information of interest to the fishing industry.

The level of cooperation between Danish research libraries in general is well developed, with most of the named libraries, as well as all university libraries, inputting their cataloguing to the on-line union catalogue SAMKAT. The major fisheries libraries have extended this cooperation by means of the shared database FISHLINE. Mogens Sandfaer in his paper in 1984 described the hardware, software and philosophy behind the construction of FISHLINE. The developments since 1984 have not been radical, but there have been improvements in both the technical features and contents of the database.

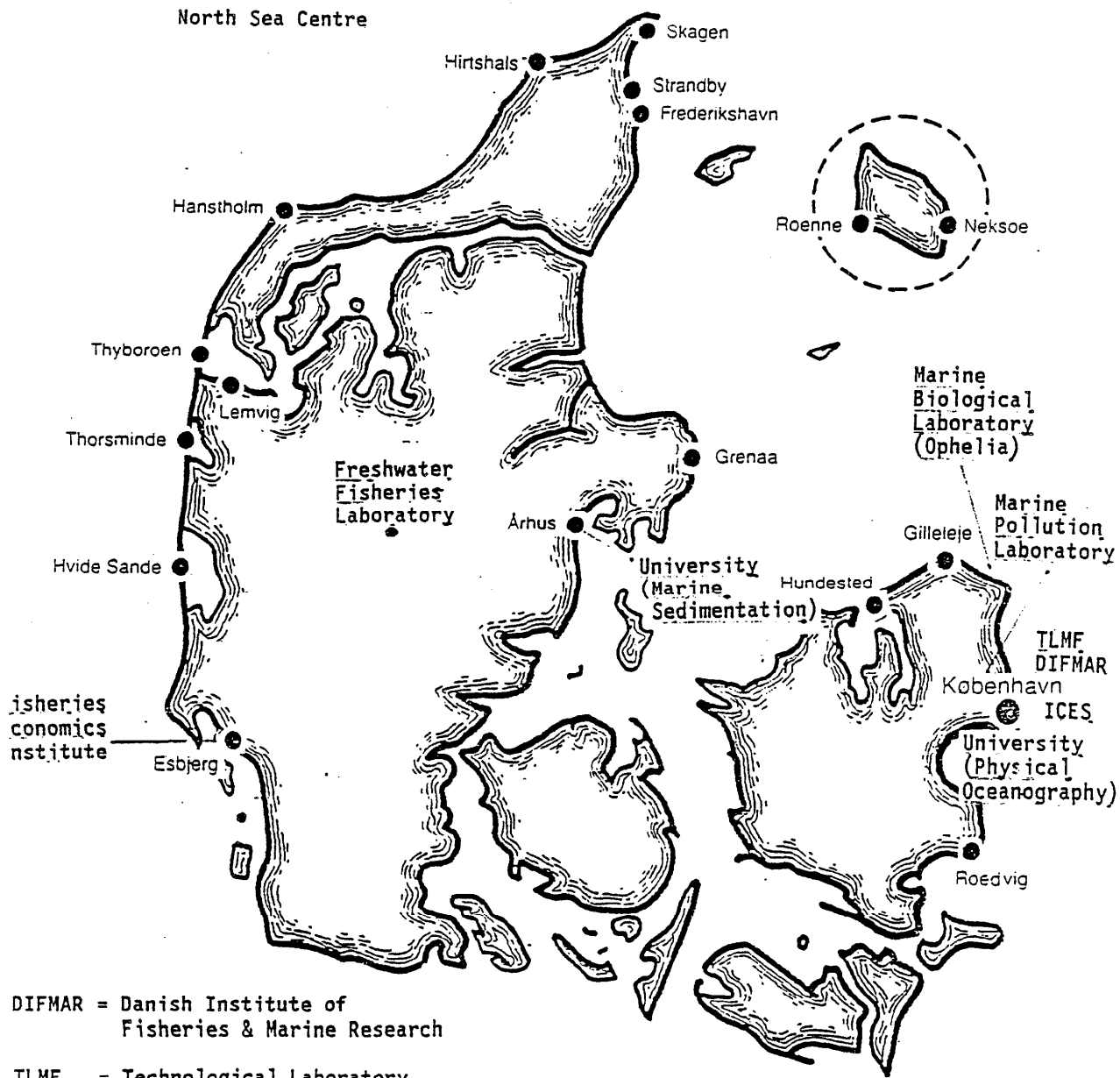
Figure 2 schematically represents the FISHLINE network. The input routines have become well-established. After a fairly slow beginning due to insufficient staff, the level of input is now keeping up with current material and a large proportion of the older libraries' materials is now in the database.

There has been a marked improvement in telecommunications, both at the input stage, where the method of transmission to the database is more effective, and at the searching stage where the database is on-line via the public packet-switching network DATAPAK. I have produced a brief guide to searching FISHLINE in English for those interested - and there is at present no charge for using the database.

With regard to external data, it has always been intended that we would extract records in machine-readable form from other relevant sources. This has not yet been realized, but we are at present negotiating with the host computer to input FAO fisheries documentation. This is available on magnetic tape at a very reasonable price, and the conversion of records to FISHLINE's format does not appear too problemati-

Figure 1

Marine Research Locations in Denmark



DIFMAR = Danish Institute of Fisheries & Marine Research

TLMF = Technological Laboratory of the Ministry of Fisheries

ICES = International Council for the Exploration of the Sea

cal. We are awaiting distribution of Version 2 of Micro CDS/ISIS in the hope that this will enable us to exchange records more easily with other databases, both local and international.

There have been no new partners in FISHLINE, possibly as a result of the rapid developments in microcomputer-based on-line systems with which many smaller libraries have now produced in-house catalogues.

Access to Danish Marine Science Information

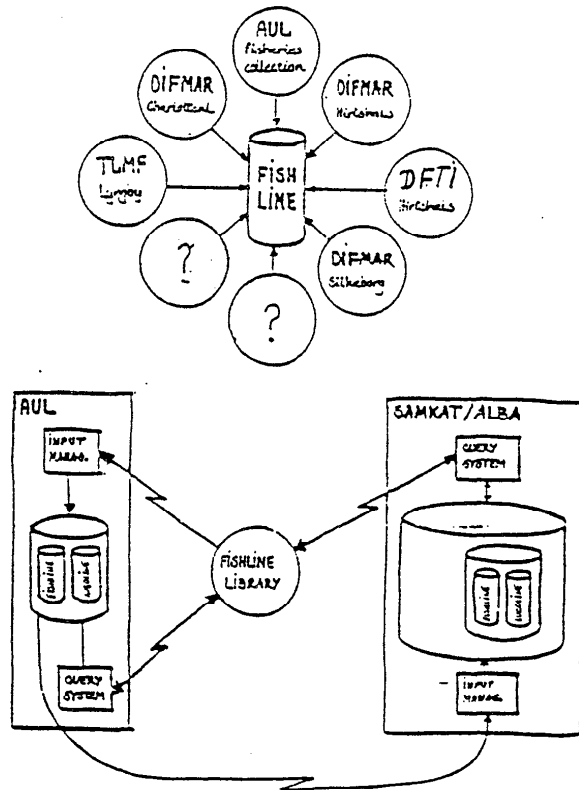
Well, how do you get access to the published work of Danish marine scientists? Getting hold of the publications is not such a great problem once you have found a reference, as the number of institutions involved is small. Locating references is possibly the most difficult problem.

Having tried to be systematic in presenting the coverage of Danish marine science publications in international sources, I concluded that it would possibly be easier to discuss where not to find them. However, I compromised. I'm not talking about the results of Danish research published in international journals; these are obviously covered by databases such as ASFA, BIOSIS, etc. But what happens to research reports and journals actually published in Denmark? AGRIS covers some of the fish pathology literature input by the Royal Veterinary and Agricultural College. There is as yet no Danish input centre in ASFA, so very little is to be found there. Our colleagues in Germany input the Danish contributions to ICES Council Meetings. The list of periodicals covered by ASFA includes the core fisheries journal *Dana*, but it is not in the database. One or two Canadian translations of Danish reports are in ASFA, and the journal *Ophelia* is covered by ASFA. However, we are at last applying to FAO to become an ASFA partner so the situation will improve. NTIS covers the English language reports of the Danish Fisheries Technology Institute. So, internationally the coverage is somewhat diffuse.

On a national level the situation is much better. FISHLINE covers reports, books and conference proceedings held by the participating libraries, and therefore has the majority of relevant Danish research reports. As it is not policy to input journal articles which are covered by other databases, the only titles covered are those published in Denmark. As FISHLINE is now publicly available via DATAPAK, it provides relatively easy access to Danish marine science publications. Last but not least, personal contacts are still one of the most important means of access to information - particularly the relatively grey fisheries information. As an example, one of the areas of interest to me at the North Sea Centre is fishing gear technology - particularly trawl gear used in industrial fishing. This area is very poorly represented in ASFA, or any other database to my knowledge. Establishing contacts with sister institutions around the industrialized world has been the basis of building up our collection of gear technology publications. The recent establishment of a European group of marine and freshwater science librarians will provide a forum for us to improve the exchange of information and experience which has previously been carried out on an informal basis. A recently established fisheries technology institute in Finland is applying for funds from NORDINFO - in order to set up a working group of fisheries librarians in the Nordic Countries. Before leaving Denmark I will elaborate on the facilities and ideas of the North Sea Centre, which houses the most recent fisheries library. The North Sea Centre is a non-profit private foundation founded in 1979 with the aim of providing facilities for fisheries and marine research in order to promote further development of the fishing industry. The Centre houses two government-funded fisheries institutions (departments of DIFMAR and TLMF), two private non-profit institutions (the Danish Fisheries Technology Institute and the North Sea Museum), a high school, and a growing number of private firms and organizations within the fisheries sector. The library, which was started as a cooperative venture in 1983, has therefore a fairly broad spectrum of users and a mixed variety of tasks. It has not and will not build up a major collection of fisheries research literature. Its main function is to serve the information needs of the North Sea Centre institutions and also to provide an information service to industry on a commercial basis. The range of queries and information needs makes the job of librarian rarely dull. But life is no fun unless one can also be a centre of excellence - no matter how small. So we have built up collections in three areas of particular interest to the North Sea Centre organizations: fishing gear technology, EEC fisheries regulations and the economics of fisheries in EEC countries, and fisheries projects in developing countries. The last has been in response to the information needs of fisheries biologists, economists, fishermen, etc. going out to developing countries on projects funded by the DANIDA, the Danish national aid organization. The North Sea Centre also hosts training courses in all aspects of fisheries for people from developing countries. We have also recently carried out a sector evaluation of EEC

Figure 2

Structure of the FISHLINE Database



Developments since 1984:

1. Well-established input routines i.e. greater level of input
2. Improved telecommunications.
3. External data : FAO tapes
MICRO CDS/ISIS
4. No new partners

aid to fisheries in the ACP countries. However, given the nature of the literature of the above-mentioned subject areas, you could say that we are a "grey" centre of excellence.

MARINE SCIENCE INFORMATION RESOURCES IN NORWAY

There is a great deal of similarity between the organization of marine science information resources in Norway and those in Denmark. A lot of what has been said about the distribution of resources, size of libraries, emphasis on fisheries, etc. applies no less to our Norwegian neighbours.

Norway has been and still is one of the most important fishing nations in the world, and the fishing industry plays a very important role in the Norwegian national economy. Norway participated very actively in the foundation of the International Council for the Exploration of the Sea about ninety years ago and is one of the pioneers in the field of marine research.

Large resources are put into a broad spectrum of research, from the biological, sociological, technical and ecological to the legal and economic aspects of the marine sciences. This means that research is dispersed in many locations at university departments, research institutes and small research stations situated along the beautiful fiords of the rugged North Sea, Norwegian Sea and Arctic Ocean coasts.

Figure 3 shows the distribution of some of these organizations. The research centres do have valuable local collections but the three most important marine science libraries and documentation centres with professional staff are

1. The library of the Directorate of Fisheries, Institute of Marine Research in Bergen. This is probably the best equipped library concerning marine research in Norway and the whole of Scandinavia. The main collections are in marine biology and hydrology. The serial holdings of the library are included in the Norwegian Union Catalogue of Periodicals (NUCP).

2. The main library of the Directorate of Fisheries, also in Bergen. It has its emphasis on all official publications on fisheries and fisheries statistics, as well as the fishing industry, aquaculture, nutrition, fish processing and quality control. Its serial holdings are reported to NUCP and its books are included in the Norwegian Union Catalogue of Books (NUCB).

3. The library at the Institute of Fisheries, University of Tromsø. This collection covers a broad spectrum of fishery sciences, such as marine biology, fishing technology, fisheries economics and law, sociology, etc., with emphasis on the Arctic region. The university is rather new, and this fact is reflected in the library collections. The serials and books are included in the union catalogues, and Tromsø has for several years contributed to the BIBSYS system. Further details, including addresses, of these libraries are given in the Appendix.

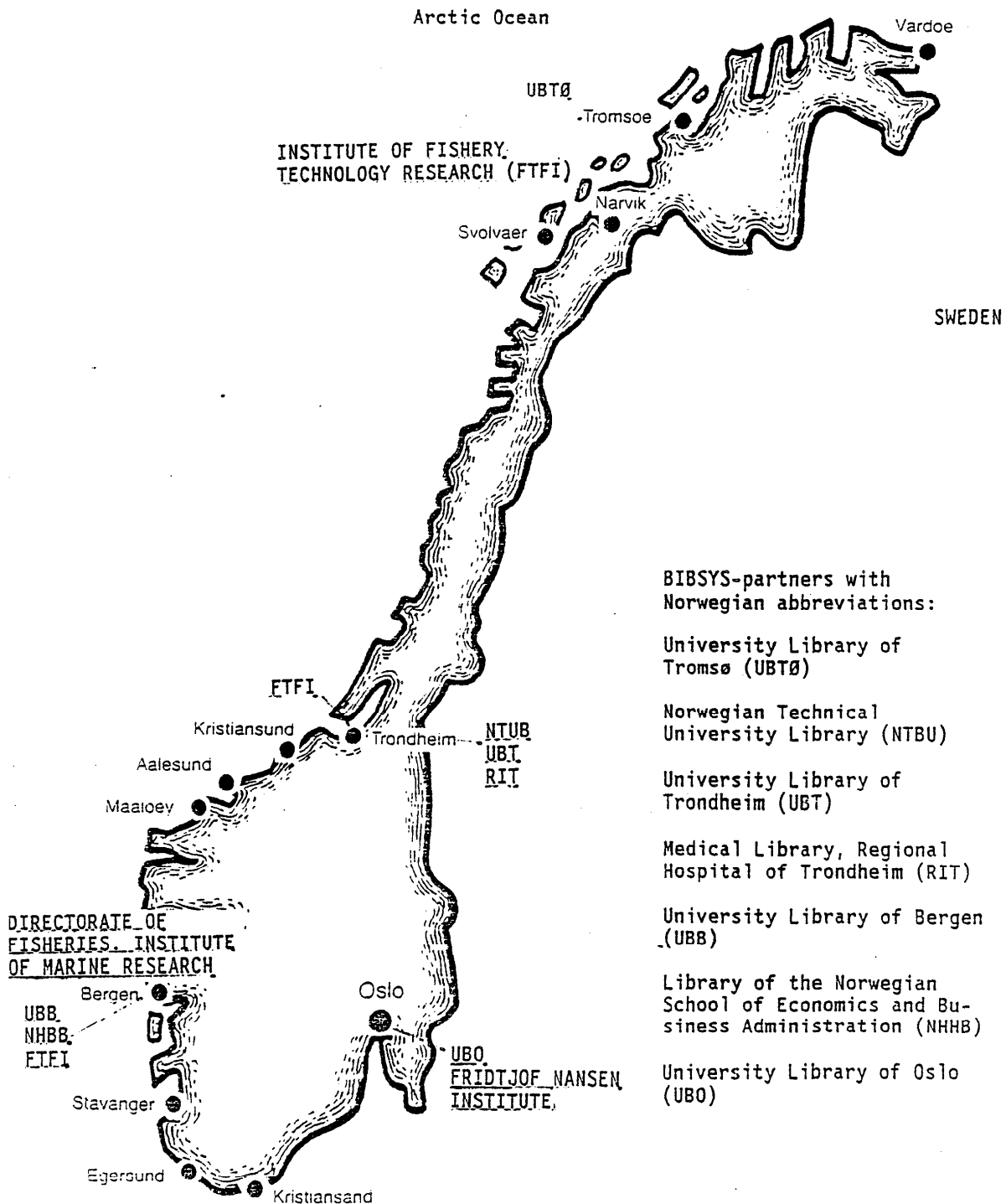
BIBSYS

There is no specific marine science libraries network in Norway, and cooperation takes place via the national networks of research libraries. One of these, BIBSYS, is an integrated on-line system with four subsystems for acquisitions, union cataloguing, query and circulation. The system was commenced as a project in 1973 by the Norwegian Technical University Library, the National Library Service, the Computing Centre at the University of Trondheim, and the University Library of Tromsø. In 1976 the acquisitions and query modules were implemented and set into operation in 1977. The cataloguing and circulation modules were operational in 1980 and 1982. A new release with an on-line reservation facility will be launched in 1989.

The system contains books and monograph series. Serials are included to the extent that the member libraries have had time to input them. All the book acquisitions from the BIBSYS database are loaded into the Norwegian Union Catalogue of Books. BIBSYS also produces catalogues and record extracts for local systems. The acquisition of books and serials in technical fields is loaded into ALIS-database hosted by The Danish Technical University Library in Copenhagen, where on-line reservation in Norway can be carried out. The Danish fishery libraries already use this facility.

Figure 3

Marine Research Locations in Norway



BIBSYS-partners with Norwegian abbreviations:

University Library of Tromsø (UBTØ)

Norwegian Technical University Library (NTBU)

University Library of Trondheim (UBT)

Medical Library, Regional Hospital of Trondheim (RIT)

University Library of Bergen (UBB)

Library of the Norwegian School of Economics and Business Administration (NHHB)

University Library of Oslo (UBO)

The Norwegian Union Catalogue of Books and Periodicals was started as a catalogue of foreign literature in Norwegian university, college, regional and special libraries. Periodicals input started in 1933 and became machine-readable in 1972, whereas book input commenced in 1939 and was computerized in 1983. The periodicals database is on-line searchable and is also input to the Nordic Union Catalogue of Periodicals in Scandinavia called NOSP.

The idea of a Nordic Union Catalogue of Periodicals emerged in the late 1950's as part of a post-war Nordic acquisition programme. During the years this developed into a localization and improved interlibrary lending system. The union catalogue idea was originally initiated in 1958 by the Nordic Scientific Librarians Association, which wanted to register all foreign periodicals in Denmark, Norway, Sweden and Finland. After many years of committee work, and due to recommendations, and organizational issues covering technical, economic, library and political concerns, and other changes concerns Norway and Sweden starting production of their own national union catalogues, the report in 1973 concluded that the catalogue should be built on centralized national registrations. That is the way it works today. The project was in 1977 finally realized in a test period which lasted to 1982.

Today Iceland, Norway, Denmark, Finland and Sweden take part in the serial cooperation. About 600 libraries deliver their acquisition records to the NOSP- project through the national centres. The catalogue is updated twice a year. A microform version can be subscribed to, and the on-line version is loaded into the national systems, which means all the Nordic stock of serials is searchable locally. This facilitates locating periodicals and reduces costs. Today, periodicals published in the participating countries are contained in the catalogue. So far, Danish fishery libraries have not contributed to the NOSP catalogue, but it is likely that they will in the near future.

The NOSP catalogue is based on the ISSN according to The International Standard Data System's (ISDS) bibliographic record standards. This means that only periodicals with an ISSN from ISDS can be catalogued. Due to the slow provision of ISSNs from ISDS, different cataloguing rules, and lack of resources, many libraries prefer to maintain a local system instead of NOSP. The NOSP catalogue is administered by an independent group under the Nordic Council for Scientific Information and Research Libraries, which is an institution under The Nordic Council, and seated in Helsinki, Finland.

In spite of the abovementioned constraints, and considering we are crossing national borders, the localization of books and serials has been raised to a higher level by means of automation and Nordic cooperation. The Danish fishery libraries have so far had no independent on-line connection to Norway. This will probably be reconsidered in the future. By having a password to the Norwegian Union Catalogue of Books and Periodicals, we cover our Norwegian sister institutions almost a hundred percent, and with the on-line reservation facility implemented in 1989 it would be a great advantage to us to subscribe to the BIBSYS system, especially if the two fishery libraries in Bergen join in.

Access to Norwegian Marine Science Information

On a national level, and increasingly on a Nordic level, access to the collections of the major marine science libraries in Norway is facilitated by the abovementioned research libraries networks. On an international level, the establishment in 1986 of an input centre to the ASFA database at the Norwegian Oceanographic Data Centre will make access to the high volume of marine science literature from Norway more effective.

I am afraid that we have not been able to do justice to Sweden in this paper, partly due to time constraints and partly because we do not have the same degree of interdependence on Swedish marine fisheries libraries as we do on Norwegian ones. The contacts I have are with the Department of Fisheries in Goteborg, which publishes a very useful series Fisheries Development Series. The laboratory at Lysekil, which is part of the Department of Fisheries, has a small research staff of fisheries biologists and a small research library. A recent publication from the Nordic Council of Ministers presents a survey of fisheries research in the Nordic countries. The research work carried out in all institutions and organizations, although unfortunately not their library resources, is well covered in this document.

APPENDIX

The Major Norwegian Marine Science Libraries

1. Directorate of Fisheries

Institute of Marine Research
Postboks 1870-72
N-5011 Bergen - Nordnes

Holdings: Books ca. 8000 Serials ca. 1300
Staff: 2 professionals
Norwegian Union Catalogue of Periodicals (NUCP) - yes
Norwegian Union Catalogue of Books (NUCB) - no
BIBSYS - no.

2. Directorate of Fisheries

Main Library
Postboks 185
N-5001 Bergen

Holdings: Books ca. 48000 Serials ca. 375
Staff: 2.6 (1 professional)
NUCP - yes NUCB - yes
BIBSYS - no

3. University of Tromsø

Institute of Fisheries
Dramsveien 201
Postboks 3085 Guleng
N-9001 Tromsø

Holdings: Books ca. 20000 Serials ca. 800
Staff: 3.5 (2 professionals)
Special collection: Norwegian Ph.D. theses on fisheries
NUCP - yes NUCB - yes
BIBSYS - yes

BIBLIOGRAPHY

- Bay, J. 1988. *Kortlægning af fiskeriforskning i Norden: rapport til Nordisk Embedsmandskomite for Fiskerispørgsmål*. Copenhagen. 256 p.
- Bronlund, J. & A. Sandvik Moe. 1981. NOSP-online. DD-rapport 810722. Oslo.
- Danish National Committee on Oceanography. 1984. *Marine Science and Technology Institutions in Denmark*. Copenhagen. 13 p.
- Husby, O. & J. Motzfeldt. 1986. *BIBSYS - en beskrivelse af systemet*. Trondheim. 26p.
- Munthe, G. 1985. "Library cooperation between the Nordic Countries." *Tromsø fellesserie* nr. 6:1-21.
- Nordisk Vitenskapelig Bibliotekarforbund. 1973. *Organisasjons- forslag og redegjørelse for et prøveprosjekt*. (NOSP-rapporter). Oslo.
- Sandfaer, M. 1984. "Networking through FISHLINE: state of the art of librarianship in Denmark." *IAMSLIC Conference Proceedings*, Woods Hole, MA 10:173-192.
- Wegelius, P. 1987. NOSP. *Nordinfo-nyt* 10:38-41.