

ORIGIN AND FUNCTIONS OF THE WATER RESOURCES SCIENTIFIC INFORMATION CENTER

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ABSTRACT

The Center (WRSIC) was established in the U.S. Department of the Interior in 1968 and transferred to the USGS Water Resources Division in 1982. It acquires, abstracts, and indexes the major water resources literature, primarily hydrology and related areas, and makes information available to the water resources community and the public. To accomplish this mission, the Center amassed a computerized bibliographic database of currently over 230,000 abstracts. These abstracts are published in the journal *Selected Water Resources Abstracts (SWRA)* at about 1,000 abstracts per month. The Center also publishes annual cumulative indexes by subject, author, organization, and accession number. Online commercial searches are provided by Dialog, and CD-ROMs are available through at least three vendors -- NISC, OCLC, and Compact Cambridge (CSA). Searching strategies are discussed to aid the user in constructing the best possible search of the complete database.

The Water Resources Scientific Information Center (WRSIC) was established in the Office of Water Resources Research (later the Office of Water Research and Technology) in the Department of the Interior in 1968. The Center was transferred to the Department's U.S. Geological Survey-Water Resources Division in 1982.

The Water Resources Division (WRD) of the U.S. Geological Survey (USGS) deals both with the water at the land surface (surface water) and below the land surface (ground water). Thus, the WRD measures water flow in streams and rivers, and levels of lakes at about 12,000 sites each year. It also measures the depth of ground water at about 50,000 sites each year to assess changes of water in storage. The study of water quality includes both surface water and ground water; therefore, water-quality samples are collected at about 7,600 ground-water sites and at about 2,900 surface-water stations each year.

Each year the USGS answers about 90,000 requests for water information. Much of the information comes from the USGS's computerized database on 460,000 data points. About 300 organizations access this data base about 10,000 times a year. Recently the National Water Information Clearing House (NWIC) was established to refer external requests for information. Requests for numeric data are generally handled by the National Water Data Exchange (NAWDEX); and bibliographic requests are answered by WRSIC. All printed technical reports are made available to the public through the USGS's *Books and Open File Reports* (Denver, Colorado). (Note: Most of the above points were presented on a VCR played at the conference.)

The mission of WRSIC is to acquire, abstract, and index the major water resources literature of the world and make this information available to the water resources community and the public (see Figure 1).

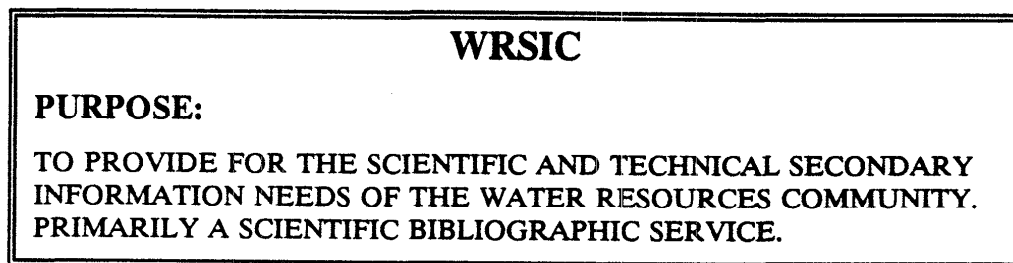


Figure 1: Mission of the Water Resources Scientific Information Center

While the Center's coverage is primarily freshwater hydrology, headland to headland, ten major subject categories are emphasized:

- 1) Nature of Water (Basic Research);
- 2) Water Cycle (Hydrology);
- 3) Water Supply Augmentation and Conservation;
- 4) Water Quantity Management and Control;
- 5) Water Quality Management and Protection;
- 6) Water Resources Planning;
- 7) Resources Data (Computers);
- 8) Engineering Works (Hydraulics);
- 9) Manpower, Grants, and Facilities; and
- 10) Scientific and Technical Information.

WRSIC also stresses the multidisciplinary nature of water as a resource, i.e., if you select man-made organics as a search area, you will necessarily become involved in cross-cutting several disciplines to obtain your answer, each one with its own index retrieval terms (See Figure 2).

**DISCIPLINE AND PROBLEM
ORIENTATIONS IN WATER
RESOURCE ENVIRONMENT**

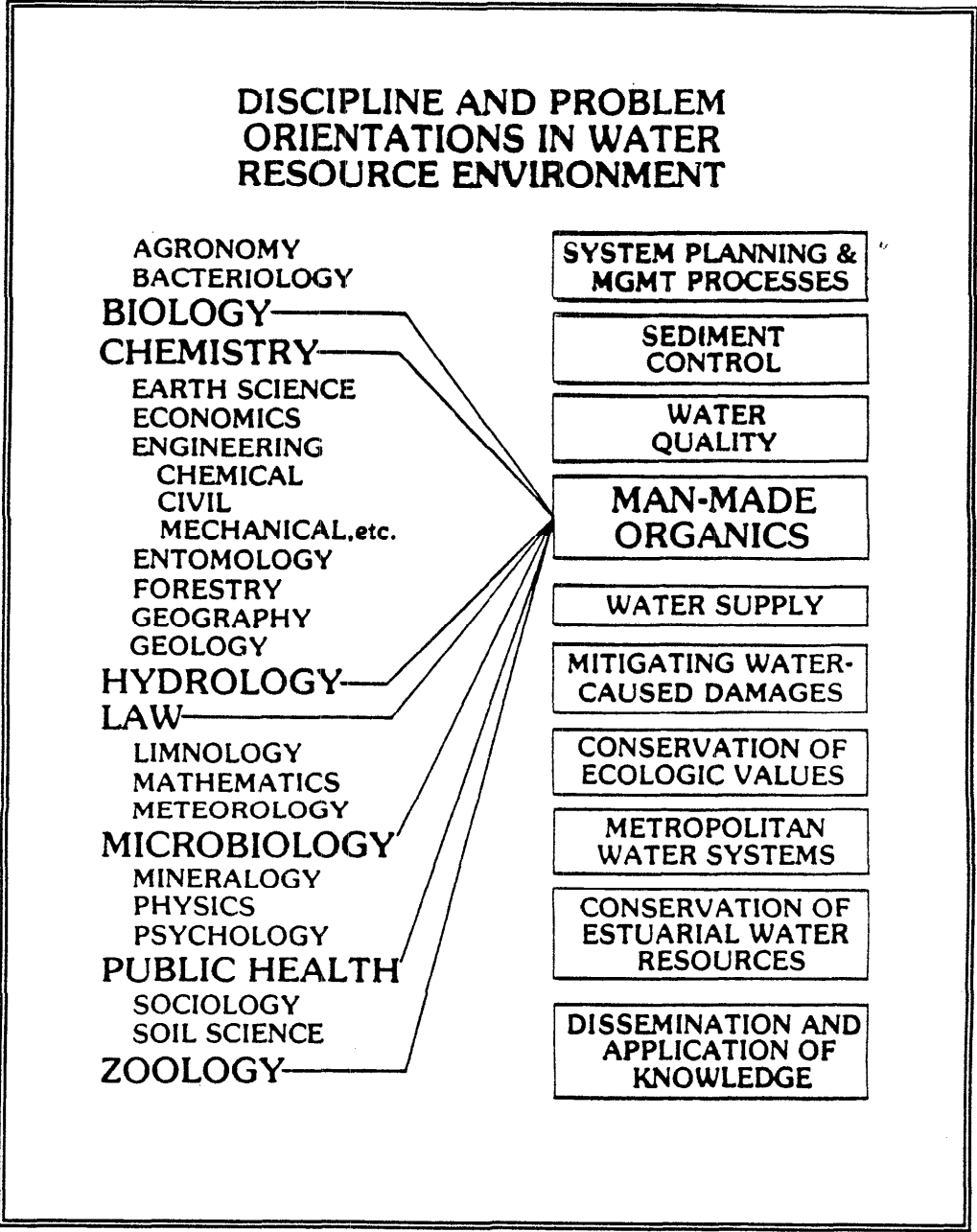


Figure 2.

To fully accomplish its broad mission the Center has amassed a bibliographic data base of over 230,000 abstracts as of 1991. Historically, the Center provides access to this information in a variety of services and formats:

- 1) a monthly abstract journal for current awareness of the published literature;
- 2) yearly cumulative indexes for manually searching the literature;
- 3) on-line commercial services for access to the total data base (and internal on-line services for WRD); and
- 4) CD-ROM service to the entire data base.

(See figures 3 and 4. Defunct Services include topical bibliographies and state-of-the-art-reviews. PRIME/DIS is an internal USGS retrieval service.)

WATER RESOURCES SCIENTIFIC INFORMATION CENTER (WRSIC) SERVICES	
*	ACQUIRES, ABSTRACTS, AND INDEXES WATER RESOURCES LITERATURE
*	WORLDWIDE COMPUTERIZED BIBLIOGRAPHIC DATABASE
	-- MORE THAN 200,000; 12,000/YR
	-- AVAILABLE WORLDWIDE
	-- DIALOG AND NTIS
	-- CD-ROM
	-- PRIME
	-- SWRA
*	TECHNICAL INQUIRIES
*	LITERATURE REVIEWS
*	BIBLIOGRAPHIC SEARCHES

FIGURE 3: Water Resources Scientific Information Center

ACCOMPLISHING THE OBJECTIVES THROUGH:

ABSTRACTING JOURNAL
SELECTED WATER RESOURCES ABSTRACTS

TOPICAL BIBLIOGRAPHIES
AERIAL REMOTE SENSING, ETC.

STATE-OF-THE-ART REVIEWS
WATER WELL TECHNOLOGY

COMPUTER SEARCH/RETRIEVAL
DIALOG
CD-ROM
PRIME/DIS

FIGURE 4. Outputs of WRSIC

The monthly journal *Selected Water Resources Abstracts (SWRA)*, adds about 1,0900 abstracts per month. Separately published annual cumulative indexes are arranged by subject, author, organization, and accession number. Informative abstracts of at least 250 words are stressed, as only this type of abstract provides the necessary project description, results, and conclusions to enable a user to determine actual need for the document. Comprehensive subject indexing is stressed, usually 10-12 terms in order for the user to retrieve all relevant information. The Center's *Abstracting and Indexing Guide* covers these two major aspects in more detail. WRSIC's *Water Resources Thesaurus* (Third Edition) which contains about 5,000 descriptor terms is to be used as an aid to indexing but is not intended as a comprehensive list. Each descriptor term in the Thesaurus usually indicates broader or narrower terms to aid in complete indexing (Figure 5).

**CHARACTERISTICS OF OUTPUTS
SELECTED WATER RESOURCES ABSTRACTS (SWRA)**

MONTHLY

INDEXES EACH ISSUE

SUBSCRIPTION THROUGH NTIS

ABSTRACTS

1,000 IN EACH ISSUE ARRANGED IN COWRR CATEGORIES

SUBJECT MATTER INDEX

PERSONAL AUTHOR INDEX

ORGANIZATIONAL INDEX

ACCESSION NUMBER INDEX

FIGURE 5: SWRA Characteristics of outputs.

As can be seen in the accompanying figure (Figure 6) about two thirds of the WRSIC data base is comprised of abstracts of journal articles; nineteen percent of books and monographs; and seventeen percent are technical reports. About 500 journals are screened. Approximately one half are considered core journals, and the remainder are considered peripheral journals, i.e. less than five water resources articles per issue.

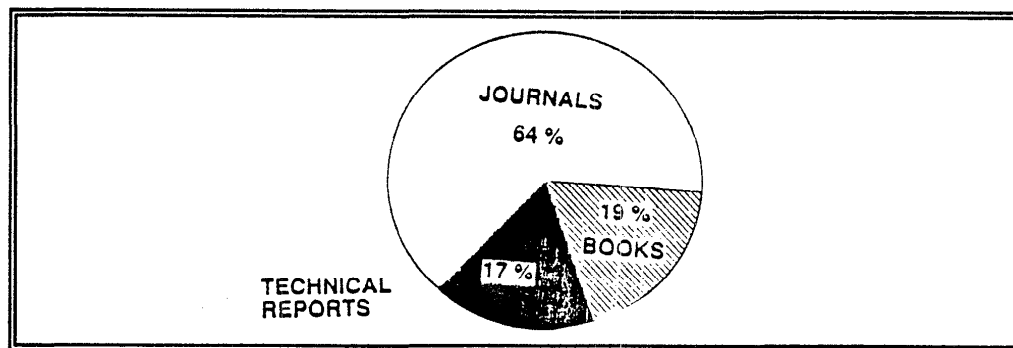


FIGURE 6. Sources of WRSIC Literature.

PUBLICATIONS

WRSIC disseminates information to its users in the form of publications or special literature search services.

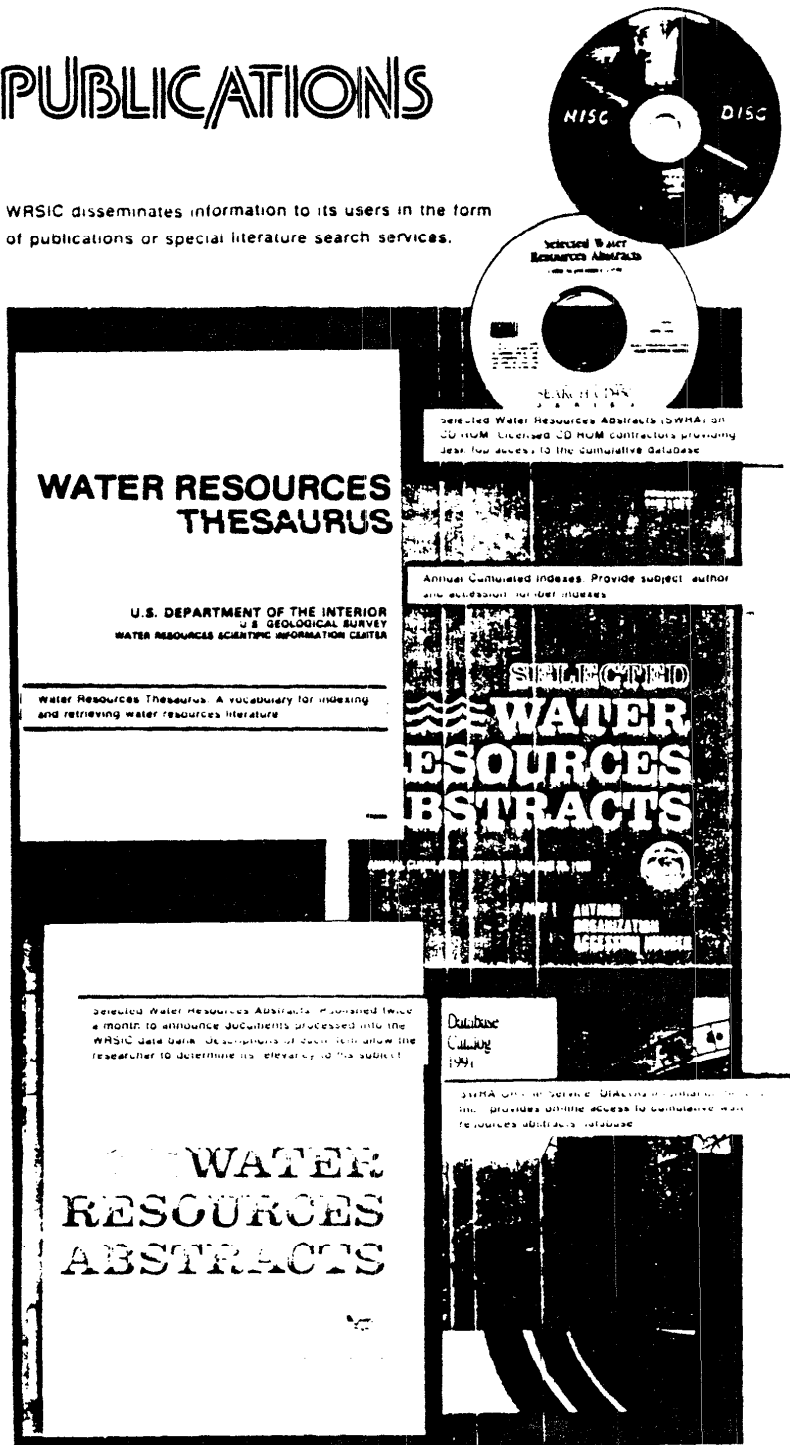


Figure 7. Products of WRSIC. Note: Compact Cambridge not shown.

Online commercial searches of the complete database are currently provided by DIALOG Information Services, Incorporated, Palo Alto, California. DIALOG's File 117 (Water Resources Abstracts) briefly describes the database and how to construct specialized search strategies. The database will become available from the European Space Agency - IRES, Frascati, Italy, as of early 1992.

Since the published version of the database (SWRA and its annual indexes) may not be published in 1992, WRSIC has emphasized the need for the database or CD-ROM, as well as online. Three commercial vendors are currently providing CD-ROM access to search the database:

- 1) National Information Services, Incorporated (NICS), Baltimore, Maryland;
- 2) On-Line Computer Library Center, Incorporated (OCLC), Dublin, Ohio (Note: OCLC will transfer its CD-ROM services to Silver Platter, Norwood, Massachusetts, in early 1992); and
- 3) Compact Cambridge from Cambridge Scientific Abstracts (CSA), Bethesda, Maryland. (See Figure 7 above).

And now a few words about search strategies to aid the user in constructing the best possible search of the complete database. We must remember the flow is from the user through the machine to the database and return. Computer housekeeping problems are important but not all important. Overcoming the computer problems enables the user to get in touch with the database. But the more they know about the database itself, the more likelihood the users will be able to structure a search to get the best possible result from the database.

As an illustration of how this works out in practice, consider the possible marine aspects of the database. From personal knowledge of the categories of Estuaries, Lakes (including the Great Lakes), Desalination and Ocean Oil Pollution would most certainly have valuable marine science information to be retrieved. When the database was queried for a count of "Marine" as a root word it posted 100,900 entries. Using only the Thesaurus terms beginning with "Marine" the following breakdown occurred:

Marine Algae -- 1,300;
Marine Animals -- 1,448;
Marine Bacteria -- 872;
Marine Biology -- 478;
Marine Climates -- 270;
Marine Environment -- 4,713;
Marine Fisheries -- 2,573; and
Marine Geology -- 622.

Likewise, the root word "International" produced 4,136 entries, including:

International Law -- 18,906;
International Waters -- 1,460;
International Hydrological Decade -- 471;
Law of the Sea -- 672.

(Note: These categories are not mutually exclusive of one another).

The point of this exercise is to demonstrate that knowledge of the database coverage is as important, if not more important, than how to get through the computer to the database. Understanding the nature of the database can lead to a better search strategy for more relevant retrieval of information. The larger the database the more important it becomes to use the inventory or "expand" command to gain internal database knowledge for retrieval purposes.

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(Note: Free. Available from WRSIC, 425 National Center, Reston, VA 22092)

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