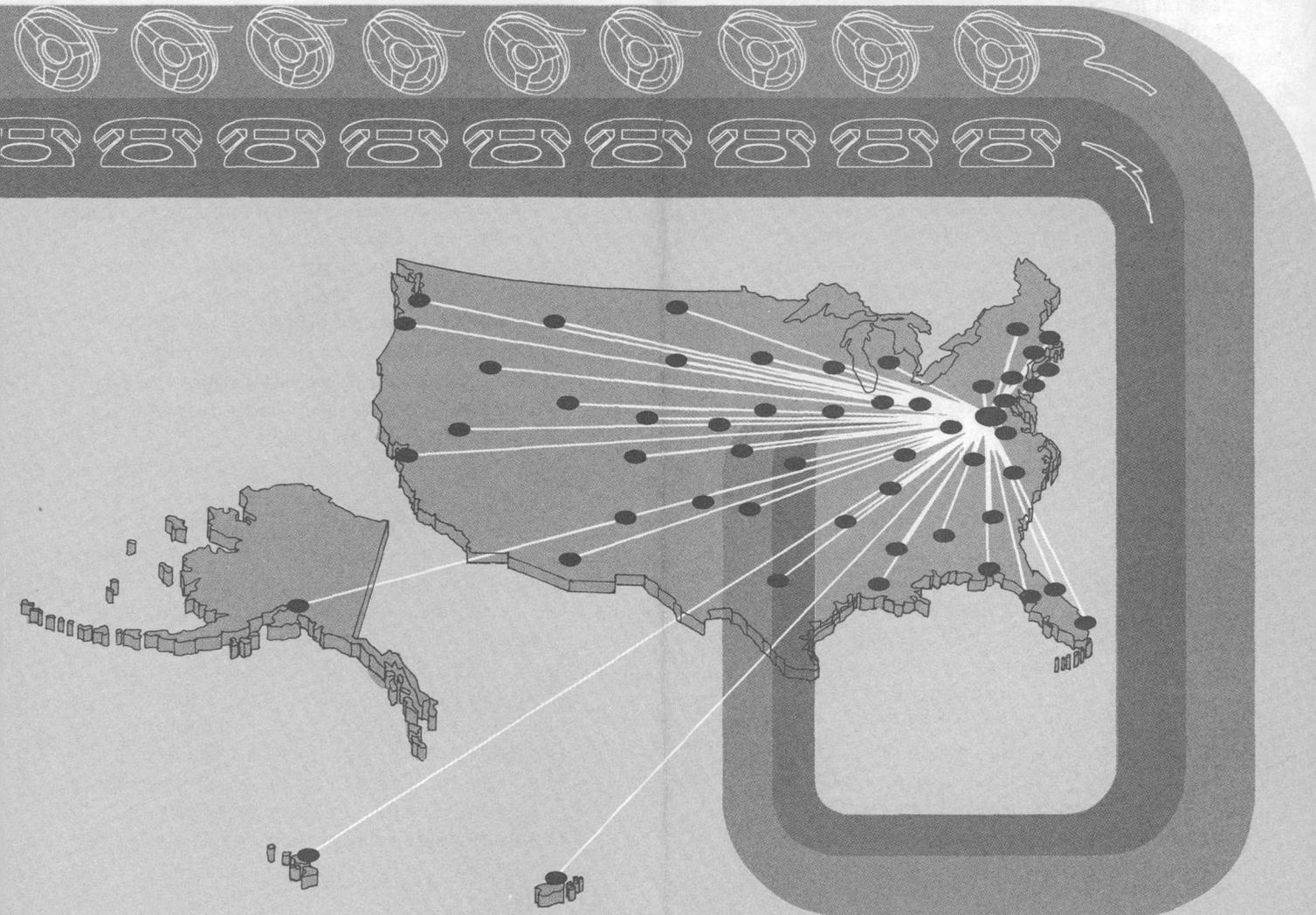


As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

NAWDEX:

Key to Finding Water Data



NAWDEX:

Key to Finding Water Data

by Melvin D. Edwards

As our Nation's resources are developed, water will play an increasingly important role, both as a resource to be developed and as a resource to be protected. The proper development and protection of our water resources, however, will depend on adequate data on the quantity and quality of our water. Much data have already been collected by hundreds of agencies, and much more are continuously being collected.

Even though a vast amount of data is being collected, the potential user faces a bewildering problem in trying to determine if the specific information he needs has been collected and where it is available. To help solve these problems of matching user needs to available data, NAWDEX—the *N*ational *W*ater *D*ata *EX*change—has been established.

The Development of NAWDEX

The design characteristics for NAWDEX were first presented by the Federal Interagency Water Data Handling Work Group, a task group of the Federal Interagency Advisory Committee on Water Data, in October 1971. The implementation of the program was recommended by the Federal Interagency Advisory Committee on Water Data and the non-Federal Advisory Committee on Water Data for Public Use. These committees work under the auspices of the U.S. Geological Survey's Office of Water Data Coordination, which implements the guidelines for the coordination of Federal

activities in the acquisition, storage, and dissemination of water data as prescribed by Circular A-67 issued by the Office of Management and Budget in 1964. The U.S. Geological Survey accepted the lead-role responsibility for implementing NAWDEX and work began on this effort in January 1973. The program was formally established and made operational in January 1976.

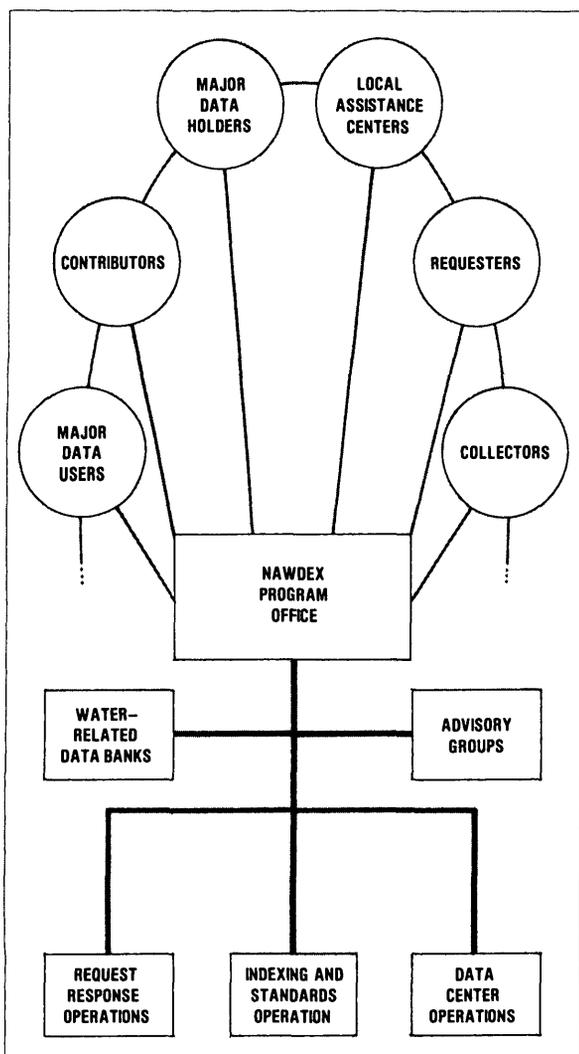
What is NAWDEX?

NAWDEX is a national confederation of water-oriented organizations working together to improve access to water data. Its primary objective is to assist users of water data in the identification, location, and acquisition of needed data.

How NAWDEX is Organized

NAWDEX consists of member organizations from the water-data community. These members are linked so that their water-data holdings may be readily exchanged for maximum use. A central Program Office coordinates this linkage and provides overall management of the program.

The Program Office is located administratively within the Water Resources Division of the U.S. Geological Survey. The Office provides data-exchange policy and guidelines to all participants in the NAWDEX program. It maintains close working relationships with the U.S. Geological Survey's Office of Water Data Coordination in updating the "Catalog of Information on Water Data" and in obtaining advice and counsel from the (Federal) Interagency Advisory Committee on Water Data and the (non-Federal) Advisory Committee on Water Data for Public Use. The Program Office also establishes working relationships with U.S. organizations that maintain water-related data banks and with



foreign organizations that maintain water-data information systems.

The Program Office encompasses four major areas of operation: (1) maintaining an internal data center, including access to automated data processing facilities for maintenance and use of its information files; (2) indexing water data held by participating organizations; (3) providing facilities and personnel for responding to requests for water data; and (4) formulating recommended water-data handling and exchange standards.

Membership in NAWDEX

Membership in NAWDEX is voluntary and is open to any water-oriented organization that wishes to take an active role. Membership includes organizations from Federal, State, interstate, local governmental, academic, and private sectors of the water-data community. No dues or fees are associated with becoming a member. Members are required, however, to sign a memorandum of understanding with the Program Office that defines a member's general commitment to take an active role in NAWDEX activities, to provide information on its data holdings for indexing purposes, and to provide data from its holdings upon request.

Local Assistance Centers

For users' convenience, NAWDEX services are available through a nationwide network of Local Assistance Centers. An initial network of 53 Centers is located in 45 States and Puerto Rico. The Centers provide direct access to NAWDEX and make local-area expertise available to aid in identifying and locating needed data. Additional Centers will be added to the network, as needed, to meet the demands of the user community. The locations of Local Assistance Centers are given on pages 14 and 15.

A current directory containing the names, addresses, and telephone numbers of all Local Assistance Centers is available free from the NAWDEX Program Office.

NAWDEX Services

The function of NAWDEX is not to become a repository of water data. Instead, the Program Office indexes the data held by NAWDEX members and participants to

provide a central source of water-data information available from a large number of organizations. These data may be in both computerized and noncomputerized form.

NAWDEX provides a variety of services to assist its users in identifying, locating, and obtaining the data they need.

Identifying sources of water data

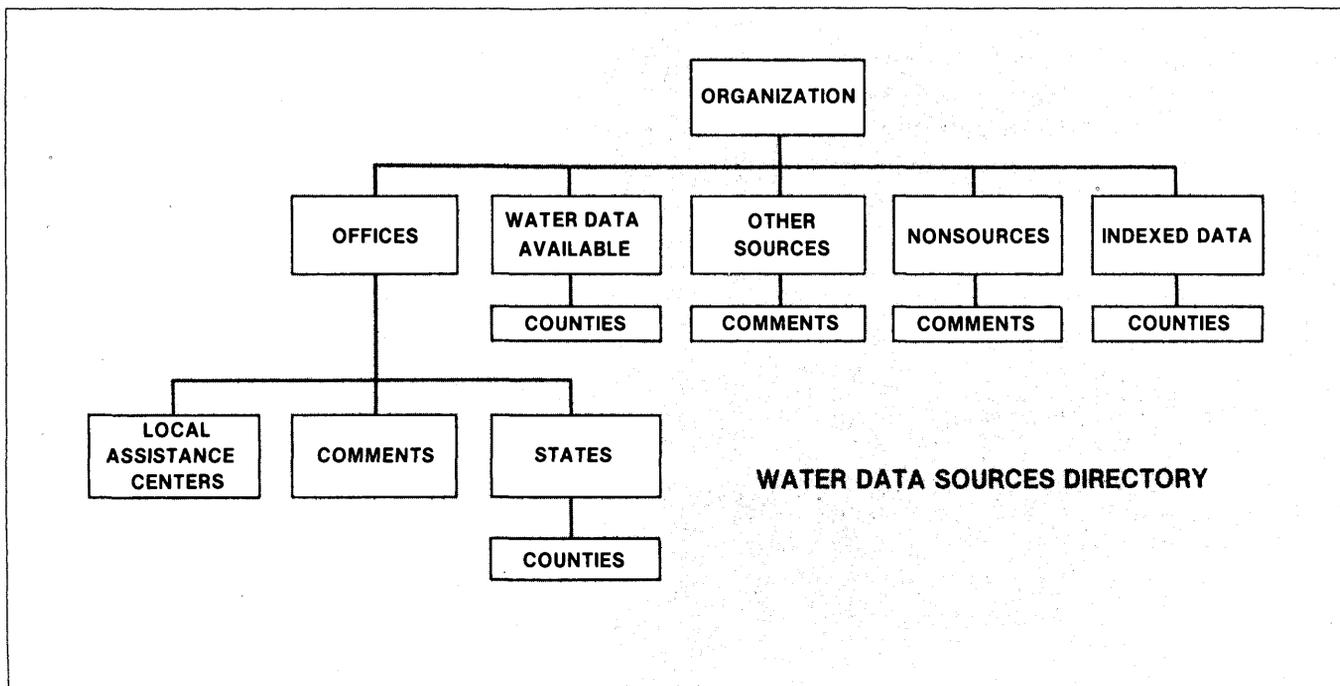
NAWDEX has extensive information available that identifies organizations that are sources of water data. This information is provided through a computerized Water Data Sources Directory maintained in the U.S. Geological Survey's computer system in Reston, Va., and is accessible by most Local Assistance Centers via computer terminals.

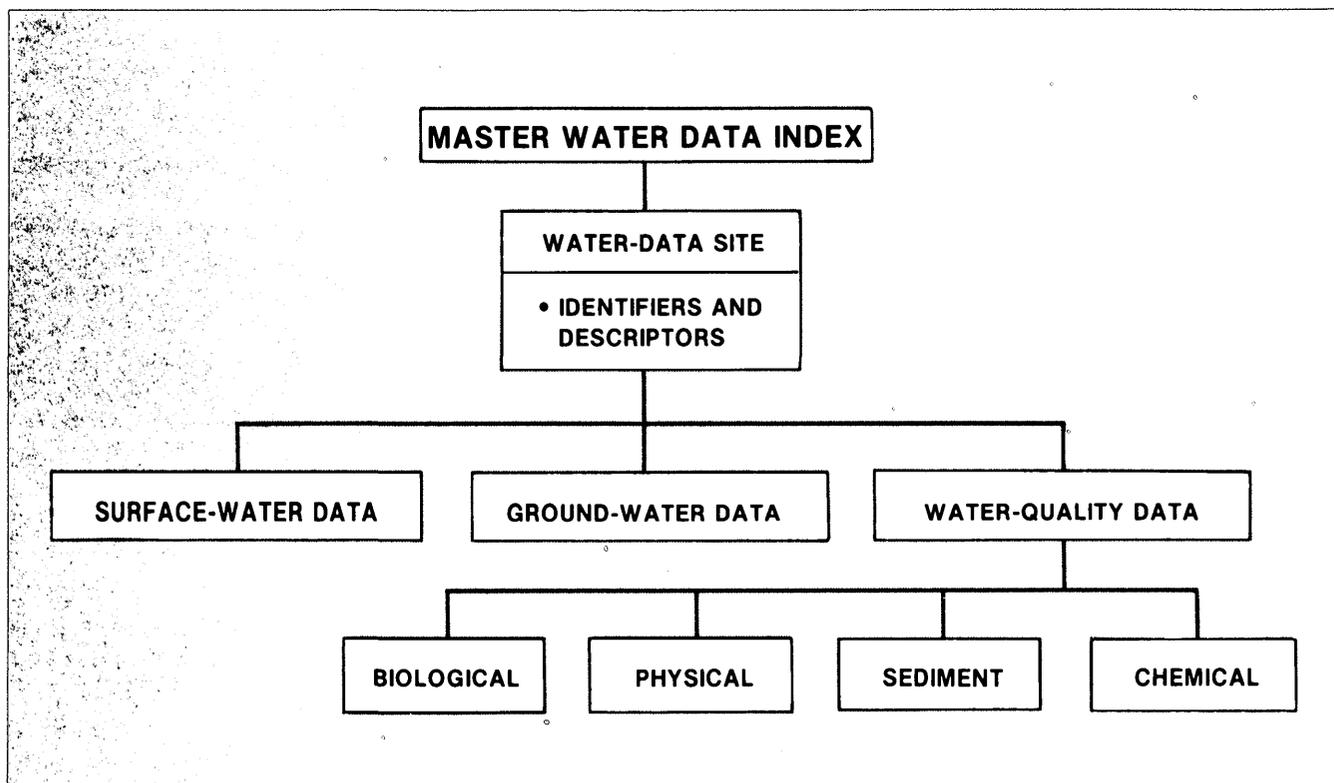
The Water Data Sources Directory identifies organizations that collect water data, locations within these organizations from which water data may be obtained, alternate sources from which an organization's water data may be obtained, the

geographic areas in which an organization collects water data, and the types of water data collected and available. Information has been compiled for more than 400 organizations, and information on other organizations will be added on a continuing basis.

Indexing of water data

NAWDEX, through its Master Water Data Index, provides a nationwide indexing service. This computerized index initially identifies more than 180,000 sites for which water data are available from over 300 organizations, the geographic location of these sites, the data-collecting organization, the types of data available, the periods of time for which data are available, the major water-data parameters for which data are available, the frequency of measurement of the parameters, and the media in which the data are stored. Information on additional sites will be added on a continuing basis.





The Master Water Data Index is also maintained in the U.S. Geological Survey's computer system in Reston, Va., and is accessible by most Local Assistance Centers via computer terminals.

The Water Data Sources Directory and Master Water Data Index contain common identifiers that allow them to be used together. For example, the Master Water Data Index may be used to identify water data available in a geographic area and the Water Data Sources Directory may, then, be used to obtain the names and addresses of organizations from which the identified data may be obtained.

Data search assistance

Through its Local Assistance Centers and by using the Water Data Sources Directory and Master Water Data Index, NAWDEX

can readily assist users of water data in locating data available for a specified geographic area of interest. Listings and summary counts of available data can be provided, or the user can be referred quickly to water-data systems, to bibliographic data services, to other indexing services, or to data-collecting organizations that can provide the information, data, or other services required. Hydrologists knowledgeable in the water resources of local areas can provide assistance at each Local Assistance Center.

Access to large data files of NAWDEX members

While its function is not to provide data storage and retrieval services for its users, NAWDEX does have direct access to some

large water-data bases of NAWDEX members and has reciprocal agreements for the exchange of services with others. These agreements are as follows:

(1) Nearly all NAWDEX Local Assistance Centers have direct access to the computerized data files of the U.S. Geological Survey's National *WATER* Data *STOR*age and *RE*trieval (WATSTØRE) System. The files include a Daily Values File that contains more than 186 million daily observations of streamflow, water quality, sediment discharge, and ground-water-level data; a Water Quality File that contains more than 1.4 million chemical analyses of both surface and ground water; a Peak Flow File that contains over 400,000 annual peak observations of streamflow and river-stage data; and a Ground Water Site Inventory File that contains inventory information for over 600,000 wells. Data from the WATSTØRE system can be provided in a variety of printed table formats, computer-printed graphs, digital plots, statistical analyses, or in machine-readable form.

(2) NAWDEX is an authorized user of the *STOR*age and *RE*trieval (STORET) system of the U.S. Environmental Protection Agency. STORET contains over 40 million individual observations of water-quality parameters for both surface and ground water that have been collected and stored by several Federal organizations and by more than 40 State-governmental organizations. Data can be provided from the system in the form of printed tables, in a variety of statistical analyses, in a variety of graphic displays, and in machine-readable form. STORET services are available through the NAWDEX Program Office in Reston, Va., and the Local Assistance Center facilities provided by the *Texas Natural Resources Information System* (TNRIS) in Austin, Tex.

(3) The *Environmental Data Service* (EDS)

of the *National Oceanic and Atmospheric Administration* (NOAA), a member of NAWDEX, provides bibliographic data services through its *Oceanic and Atmospheric Scientific Information System* (OASIS). OASIS has direct access to over 40 computerized, bibliographic data files that cover a wide array of water and water-related subjects. EDS also has its *ENvironmental Data INdEX* (ENDEX) service available that provides references to more than 10,000 data files available throughout the environmental community. Referral services to OASIS and ENDEX are available through the NAWDEX Program Office and all Local Assistance Centers.

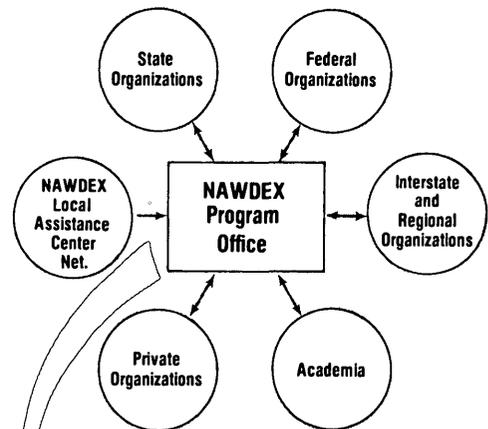
(4) An extensive bibliographic data service that relates specifically to water resources activities is provided by the *Water Resources Scientific Information Center* (WRSIC) of the U.S. Department of the Interior's Office of Water Research and Technology. This system currently has over 100,000 computerized abstracts available that relate to water-resources subjects. Referral services to WRSIC are available through the NAWDEX Program Office and all Local Assistance Centers.

(5) Water data are available through several State-governmental organizations including the *Texas Natural Resources Information System* (TNRIS) supported by the Department of Water Resources in Austin; the *Iowa WATER Resources Data System* (IWARDS) managed by the Iowa Geological Survey in Iowa City; the *Water Resources Data System* managed by the Pennsylvania Department of Environmental Resources in Harrisburg; the *Regional Environmental Assessment Program* (REAP) Resources Reference System in Bismark, N. Dak.; and the *Nebraska Natural Resources Information System* managed by the Nebraska Natural Resources Commission in Lincoln. Several

A PROGRAM TO PROVIDE ACCESS TO WATER DATA



**LOCAL ASSISTANCE CENTERS
53 OFFICES IN 45 STATES**



USER SERVICES

- Data Search Assistance
- Request-Referral Services
- Access to Major Water Data Bases
- Data Source Identification
- Nationwide Index of Water Data

other such systems are available, or under development, which will provide extensive data resources at the State-governmental level. TNRIS and IWARDS serve as NAWDEX Local Assistance Centers. All other NAWDEX member data systems are available by referral through the Program Office and all Local Assistance Centers.

(6) NAWDEX is pleased to be affiliated with the WATER Resources DOCUMENT (WATDOC) Reference Center of the Inland Waters Directorate, Canadian Department of Fisheries and the Environment. The Program Office has a working relationship with WATDOC for the mutual exchange and processing of requests for information or data about water resources activities in Canada and the United States.

Obtaining NAWDEX Services

NAWDEX services are available to everyone. No special requirements exist for

obtaining services. Requests may be directed to the Program Office or any Local Assistance Center by letter, telephone, or personal visit. Upon receipt, NAWDEX reviews each request to assure its clarity and completeness. NAWDEX then provides the requested information or data either from its files or from those to which it has access, or the inquiry is referred directly to the organizations that hold the requested data or information. In this manner, needed data can be obtained from several sources by a single request.

Charges for NAWDEX Services

Services for data-search assistance are provided free of charge to the greatest possible extent by the Program Office and Local Assistance Centers. Charges are assessed, however, for services requiring computer costs, extensive personnel time,

duplicating services, or other costs incurred by NAWDEX when providing services. Charges assessed by the Program Office and by Local Assistance Centers maintained by the U.S. Geological Survey will not exceed the direct costs incurred in responding to a data request. Fee schedules established by Local Assistance Centers that other NAWDEX member organizations maintain are recognized and honored by the Program Office. In all cases, either the Program Office or the Local Assistance Centers will provide estimates of the costs upon request or when substantial costs are anticipated.

Charges may also be assessed by organizations to which a data requester has been referred for data or services. These charges are assessed at the discretion of the responding organization and are paid directly to the assessing organization.

Further Information

For further information about NAWDEX, please contact:

NATIONAL WATER DATA EXCHANGE (NAWDEX)
U.S. Geological Survey
421 National Center
Reston, VA 22092
Telephone: (703) 860-6031 FTS 928-6031

Locations of Local Assistance Centers

ALABAMA, Tuscaloosa
ALASKA, Anchorage
ARIZONA, Tucson
ARKANSAS, Little Rock
CALIFORNIA, Menlo Park
COLORADO, Lakewood (Denver)
CONNECTICUT, Hartford
FLORIDA, Tallahassee, Miami, Orlando,
and Tampa
GEORGIA, Doraville (Atlanta)
HAWAII, Honolulu (serves American Samoa
and Guam)
IDAHO, Boise
ILLINOIS, Champaign
INDIANA, Indianapolis
IOWA, Iowa City (2 locations)
KANSAS, Lawrence
KENTUCKY, Louisville
LOUISIANA, Baton Rouge
MARYLAND, Towson (serves Delaware
and District of Columbia)
MASSACHUSETTS, Boston (serves Maine,
New Hampshire, Rhode Island,
and Vermont)
MICHIGAN, Okemos (Lansing)
MINNESOTA, St. Paul
MISSISSIPPI, Jackson

MISSOURI, Rolla
MONTANA, Helena
NEBRASKA, Lincoln
NEVADA, Carson City
NEW JERSEY, Trenton
NEW MEXICO, Albuquerque
NEW YORK, Albany and Syosset
NORTH CAROLINA, Raleigh
NORTH DAKOTA, Bismark
OHIO, Columbus
OKLAHOMA, Oklahoma City
OREGON, Portland
PENNSYLVANIA, Harrisburg
and Philadelphia
PUERTO RICO, Ft. Buchanan
(San Juan), serves Virgin Islands
SOUTH CAROLINA, Columbia
SOUTH DAKOTA, Huron
TENNESSEE, Nashville
TEXAS, Austin
UTAH, Salt Lake City
VIRGINIA, Richmond, Blacksburg
WASHINGTON, Tacoma
WEST VIRGINIA, Charleston
WISCONSIN, Madison
WYOMING, Cheyenne