

storet

EPA's
Computerized
Water Quality
Data Base

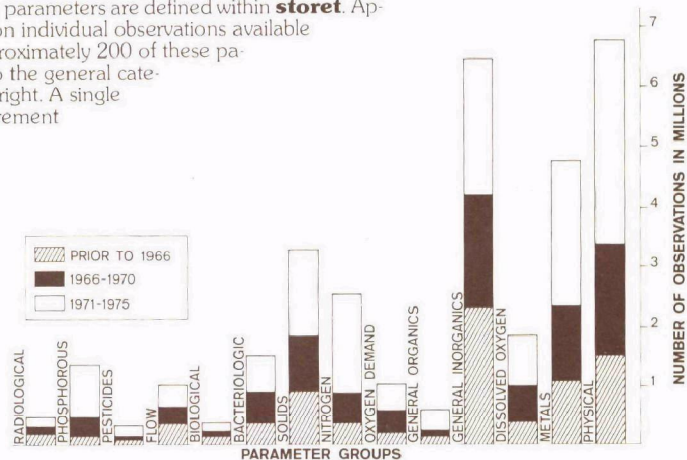
**the right
answer**

U. S. Environmental Protection Agency
Office of Water and Hazardous Materials
Washington, D. C.

storet provides water quality data

on the
right
parameters

Some 1800 unique water quality parameters are defined within **storet**. Approximately 80% of the 40 million individual observations available within the system pertain to approximately 200 of these parameters which are grouped into the general categories shown in the table to the right. A single observation represents a measurement of a single parameter at a specific location, or station, at a specific point in time.



at the
right
stations

storet contains data on samples taken from more than 200,000 unique collection points located on essentially all of the Nation's rivers, lakes, streams, and other waterways. The shadings of the map reflect the relative concentrations of sampling and monitoring stations. The blow-up of the Saginaw River Basin shows its drainage area and the specific locations of sampling points.

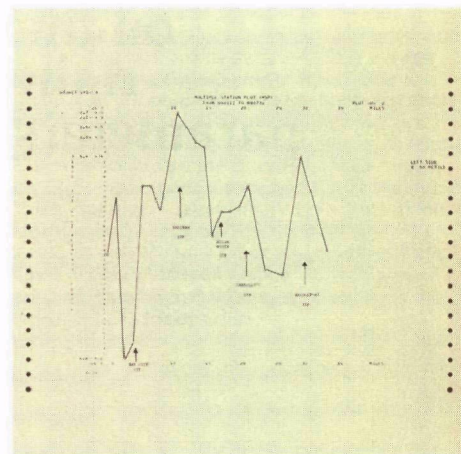


basin planning

A river basin is the area drained by a single river and its tributaries. A water quality management basin plan is a management document that identifies the water quality problems of a particular basin, or portion of a basin, and sets forth an effective remedial program to alleviate those problems. Overall basin needs and priorities are assessed, actions scheduled, and the necessary coordination with concerned organizations planned.

The needs and priorities are based largely upon water quality data and the analysis of this data. For example, fecal coliform bacteria is a common indicator of pollution problems in areas affected by major municipal/industrial activity. A plot of coliform along a stretch of a river can quickly ascertain the presence of a bacterial source and the extent of a pollution problem.

The development of an effective planning process is crucial to effective water quality management. This is particularly true for river basin planning as required under various sections of PL 92-500. River basin plans are primarily the responsibility of the states, and the law delineates the rather extensive amount of information that must be provided.



research

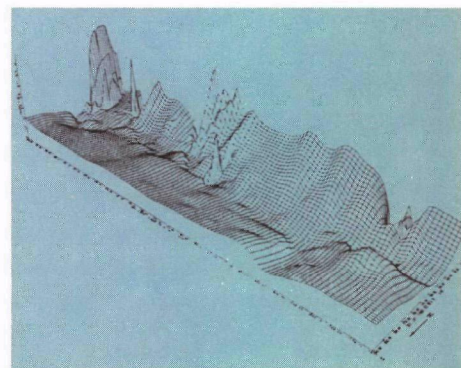
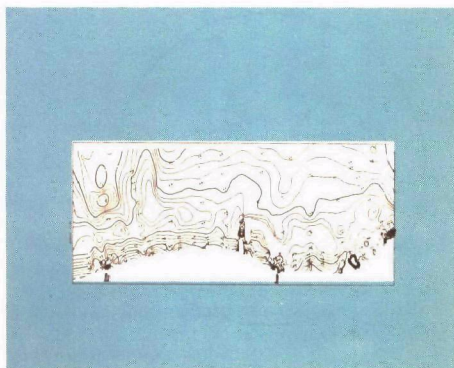
In order to achieve our national objective of having water that is clean enough both for recreational activity and for the protection of fish and wildlife, numerous research and development efforts have been initiated to acquire a thorough understanding of the complex and variable biological systems that characterize our waterways. Research tells us what a specific level of a specific pollutant does to humans, animals, and crops. It establishes thresholds at which we might expect adverse effects from environmental pollutants, alone or in combination. (And from these thresholds, criteria for water quality standards can be established.) It provides the basic scientific knowledge we need to safeguard the public health and to balance the benefits of a specific product against its environmental risks.

A representative effort is that of the EPA Grosse Ile Laboratory's Research Program to improve the water quality of the Great Lakes. This Lab is involved with a number of other agencies in developing the scientific information needed to assess the effectiveness of implemented programs on

Great Lakes water quality, to form the basis for needed control actions, and to develop the scientific information needed to support the Canadian/U. S. Agreement for the Great Lakes. Over a dozen U. S. and Canadian agencies, universities, and joint commissions are participating in this extensive program launched in 1972.

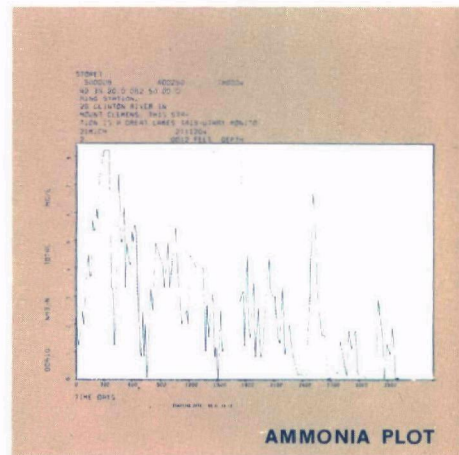
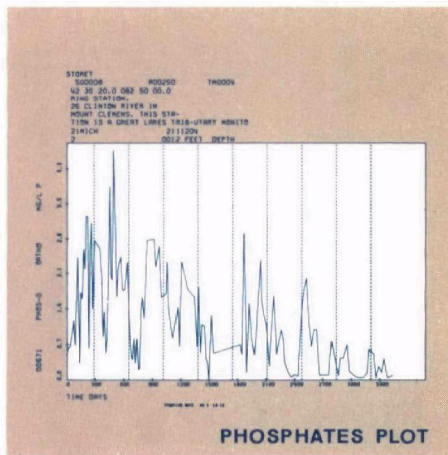
Since this is an on-going, international program involving both water quality management and research, it is essential that all data gathered on the water quality of the Great Lakes be readily accessible by all investigators. Accordingly, all participants are required to enter all collected data into **storet**, thereby greatly expediting the use and analysis of the information through sharing of data. This significant, multi-organizational research program not only illustrates the value of **storet** in research-oriented endeavors, but also it demonstrates how the use of an accepted central system can foster cooperation among a group of organizations sharing common interests.

CHLOROPHYLL A IN LAKE ONTARIO TWO PERSPECTIVE VIEWS



monitoring & surveillance

The data in **storet** originates from samples taken as part of individual monitoring programs conducted by the states and other organizations. Several objectives of these monitoring efforts are to identify and assess quantitatively the magnitude of existing and potential water pollution problems, and to detect any trends or changes over a period of time. Reports such as the trend plots shown here, which show presence of phosphates and ammonia as a function of time, vividly point out where problems do and do not exist.



npdes
permit
program

Far-reaching goals were established by PL 92-500: By 1983, water clean enough for swimming, boating, and protection of fish, shellfish, and wildlife; and by 1985, no discharges whatsoever of pollutants into the Nation's waters! To achieve these ambitious but essential goals, the law established a national permit program, known as NPDES—the National Pollutant Discharge Elimination System, to control the discharge of pollutants into any waterway. This program is the mechanism for insuring that effluent limits are met, that the necessary technology is applied, and that all requirements of the 1972 law for controlling discharges and complying with water quality standards are met on schedule. Permits are to be granted to individual dischargers only after they show that their effluents will not contaminate a waterway in excess of established water quality standards, or will not lower its existing quality.

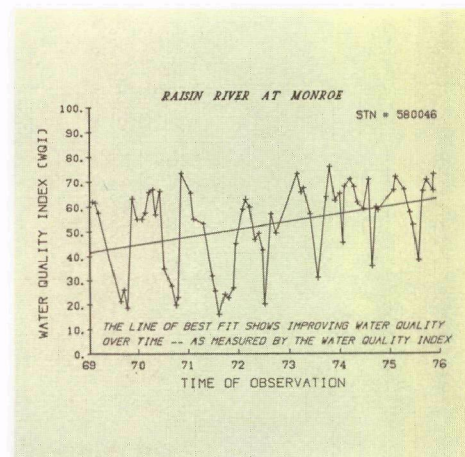
The law allows polluters time to improve facilities, but provides that corrective programs must meet the "best practicable" and "best available" standards of water pollution control technology by 1977 and 1983 respectively.

[illegible]

Under Section 305(b) of PL 92-500, states are required to submit annual reports to EPA on sources of pollution—their nature, extent, recommendations for control, and the cost of these controls. (An excerpt from the State of Michigan's 305(b) report is shown below.) As practices become more sophisticated, these reports should reflect the effects of these sources on the pollution of groundwaters, and provide an inventory of wells which can be used to determine groundwater quality within a state's jurisdiction.

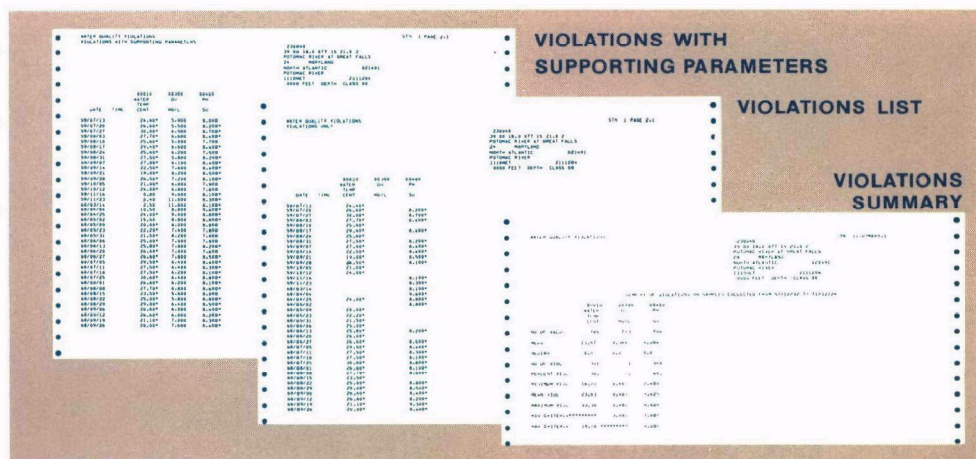
A new activated sewage treatment plant was built on Fountain Creek below Colorado Springs in late 1972. The data in **storet** collected prior and subsequent to the implementation of the new plant were compared. The number of violations for dissolved oxygen had dropped from 53% to 7%, for dissolved solids from 59% to 33%, for BOD from 85% to 73%, and for fecal coliform from 89% to 58%. Similar improvement occurred and was demonstrated when a sewage treatment plant was built in the Fargo, North Dakota area.

These examples show the applicability of using the data in **storet** to demonstrate progress either from an over-all point of view or from the viewpoint of a single effort.



standards & criteria

Associated with specific water uses are the water quality standards which must be met in order for the water to be used for its intended purposes, consistent with the 1983 goals of water quality. Once standards have been established by states in accordance with national criteria, it is necessary to monitor the effect of water pollution abatement and control activities relative to those criteria. A number of **storet** report programs can be used, such as the ones pictured below, to track the progress of water quality improvement efforts.

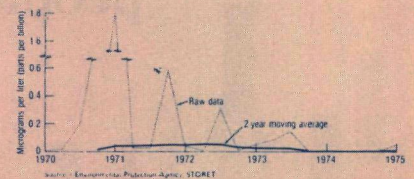


toxic substances

Although many substances are potentially toxic to aquatic life and other organisms when present in sufficient concentration for a sufficient period of time, the term toxic substances generally refers to those substances which are dangerous even in very low concentration. Consequently, the 1977 and 1983 deadlines for limiting pollutant discharges do not apply in the cases of these deadly substances, such as mercury, cadmium, and toxaphene. Steps required to meet standards established for toxic substances must be taken quickly to protect the public health and welfare. To this end, EPA is empowered to restrain discharges of any pollutants which present an imminent and substantial endangerment to the health or livelihood of the public.

All toxic substances for which water quality analyses have been performed are defined within **storet**, and the system can easily accommodate the inclusion of additional substances upon their discovery. Reports such as the one shown below (from a Council on Environmental Quality report) can be readily obtained from **storet** data to demonstrate the presence or absence of toxic substances in any body of water for which data are available.

DDT LEVELS IN U.S. SURFACE WATERS, 1970-74



in summary, the right answer

These pages have shown a number of uses made of **storet**, and its wealth of water quality data, by a variety of governmental agencies and other organizations. To further underscore the role that **storet** can play to help you fulfill your water quality assessment and management objectives, consider the following additional answers that **storet** can provide.

- Help evaluate cost-effectiveness of previously implemented water quality programs
- Help promote water quality programs by substantiating the effectiveness of other similar programs
- Help justify budget requests for water quality programs
- Help cut sampling costs by coordinating efforts with other organizations
- Provide a repository for your data collection efforts
- Help identify where monitoring efforts are needed, thereby determining where funds need to be allocated
- Help design overall programs based upon the successes of others
- Help complete water quality management basin plans
- Help prepare fact sheets required by permit applications
- Detect changes in pollutants that could change existing permits

How can **storet** help you?

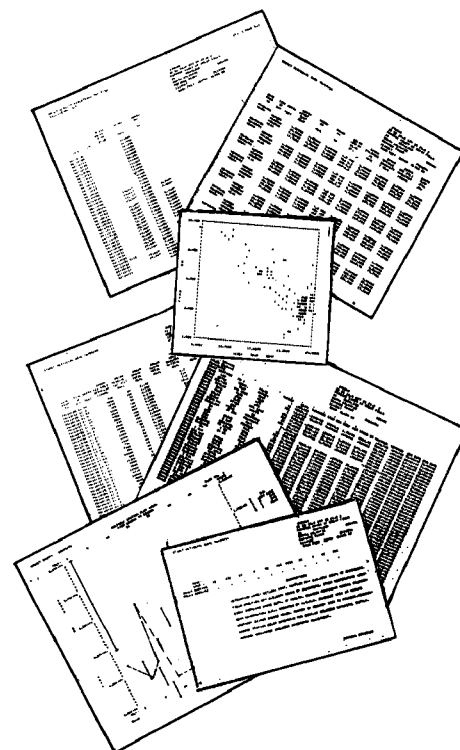
collected
and used
by the right
people

- State Agencies
- Cities and Counties
- Interstate Commissions
- Water Quality Managers
- Environmental Planners
- Sanitary Engineers
- EPA Regional Offices
- EPA Laboratories
- Federal Agencies
- Canadian Agencies
- U. S. Territories

These individuals and organizations actively participate in the collection, storage, retrieval, and analysis of water quality data. All utilize **storet** for these efforts, contributing to the quality and quantity of the parameter observations described on the opposite page. Several Federal agencies—including the U. S. Forest Service, the U. S. Army Corps of Engineers, the Bureau of Reclamation, the U. S. Geological Survey, and the Tennessee Valley Authority—complement the efforts of those having specific geographical interests. Over 40 states, as well as many other organizations, have direct access to **storet** for both storage and retrieval, thereby contributing significantly to the timeliness of **storet**'s data.

and
presented
in the right
formats

The array of representative reports pictured here exemplifies the versatility of **storet** and its water quality data to help users prepare a myriad of detailed, summary, or exception reports relative to their specific areas or locations of interest. Data reported can reflect the latest, most current information available, or it can draw upon the historical depth of the data, going back as far as the late '50s. Most users obtain their reports from small portable computer terminals conveniently located in or near their offices.



and **storet**
can help
you

These two pages have presented an overview of the data available within **storet**. The inside pages describe several examples of how various users today utilize **storet** to achieve a variety of objectives relating to water quality assessment and management.

epa

The Environmental Protection Agency was created in 1970 to foster an integrated, coordinated attack on environmental pollution in cooperation with state and local governments. EPA endeavors to abate and control pollution systematically by proper integration of a variety of research, monitoring, standard setting, and enforcement activities. Through Public Law 92-500, EPA has the overall responsibility to provide water that is clean enough both for recreational activity and for the protection of fish and wildlife. Inherent in this charter is the requirement of maintaining an information inventory concerning the quality of the Nation's waters.

storet

storet is a computerized data base utility maintained by EPA for the **storage** and **retrieval** of parametric data relating to the quality of the waterways of the United States. The system was conceived and initiated under the auspices and administration of the Public Health Service in the early 1960s. Since its early days when **storet** input and output was achieved via the mails, the system has evolved into a comprehensive information data base, accessible by hundreds of users via computer terminals located throughout the country.

**storet—
the right
answer**

This publication was prepared to provide an overview of the content and capabilities of the **storet** system, and to describe a number of uses made of this information by those organizations concerned and involved with the abatement and control of water pollution within the United States.

**for more
information**

For further information on how **storet** can help you fulfill your needs with respect to the collection, reporting, and analysis of water quality data, contact your local **storet** representative. **storet** User Assistance in Washington, D.C. (202-426-7792) can give you names and phone numbers.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: STORET Brochure

RECEIVED
COMM CENTER

DATE: OCT 18

FROM: *Walter S. Pisanop*
Mark A. Pisanop, Director
Water Planning Division

OCT 18 10 13 AM '76

TO: All Regional Water Division Directors
All Regional 208 Coordinators

Technical Guidance Memorandum: Tech- 19

Purpose:

The enclosed brochure outlines some of the capabilities of EPA's computerized data base utility, STORET. The system is maintained for the storage, retrieval, and analysis of parametric data relating to the quality of the waterways of the United States.

Guidance:

This brochure suggests various options available through the STORET system of obtaining and analyzing parametric water quality data. The brochure is intended to highlight the system's capabilities, and should not be considered as an instructional tool. Should you wish more information about the system, desire user documentation, or need to attend a seminar for instructional use, please call STORET User Assistance or the appropriate EPA regional STORET representative from the attached list of STORET contacts.

Enclosure

cc: State and Areawide Agencies

STORET Points of Contact

Telephone Numbers

Region I	Walt Newman Systems Analysis Branch 8-223-5134 617-223-5134
Region II	Herbert Barrack, Director Management Division 8-264-2520 212-264-2520
Region III	Larry Miller, Chief Water Quality Monitoring Office Surveillance & Analysis Division 8-597-9823 215-597-9823
Region IV	John Marlar, Chief Technical Support Branch 8-285-3012 404-526-3012
Region V	Christopher Timm, Director Surveillance & Analysis Division 8-353-2300 312-353-2300
Region VI	David White, Chief Technical & Administration Systems Branch 8-749-3761 214-749-3761
Region VII	Walter Rohohn, Federal Regional Council Representative 8-758-5429 816-374-5429
Region VIII	Keith Schwab, Director Surveillance & Analysis Division 8-327-4935 303-837-4935
Region IX	Clyde Eller, Director Surveillance & Analysis Division 8-556-7858 415-556-7858
Region X	Dr. Gary O'Neal, Director Surveillance & Analysis Division 8-399-1295 206-442-1295

User Assistance

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Region II	Jack Sweeney 8-264-9850 212-264-0388	Region VII	Dennis Degner 8-758-2018 816-374-2018
Region III	Ted Standish 8-597-8046 215-597-8046	Region VIII	Tom Entzminger 8-327-2226 303-837-2226
Region IV	Dan Barber 8-285-5989 404-526-5989	Region IX	William Lewis 8-556-7550 415-556-7550
Region V	Stu Ross 8-353-2061 312-353-2061	Region X	Ray Peterson 8-399-1580 206-442-1580