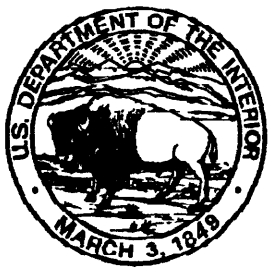
U. S. GEOLOGICAL SURVEY

FEDERAL-STATE COOPERATIVE

WATER-RESOURCES PROGRAM

FISCAL YEAR 1995

Compiled by Melvin Lew and Betty Dodds



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CONTENTS

FIGURES

TABLES

U.S. GEOLOGICAL SURVEY FEDERAL-STATE
COOPERATIVE WATER-RESOURCES PROGRAM,
FISCAL YEAR 1995

Compiled by Melvin Lew
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ABSTRACT

The Federal-State Cooperative Program is a major U.S. Geological Survey (USGS) activity for the collection, analysis, and reporting of information on the quantity, quality, and use of the Nation's water resources. The fundamental characteristic of the program is that most of the work is undertaken by the USGS through joint-funding agreements, with State, regional, and local agencies providing at least one-half the funds. The main objectives of the program are (1) to collect, on a systematic basis, data needed for the continuing determination and evaluation of the quantity, quality, and use of the Nation's water resources; and (2) to appraise the availability and the physical, chemical, and biological characteristics of surface and ground water through data analysis and interpretive water-resources investigations and research. During fiscal year (FY)1995, Cooperative Program activities were underway in offices in every State, Puerto Rico, and several territories in concert with about 1,100 cooperating agencies. In FY 1995, Federal funding of $62.1 million was matched by cooperating agencies, which also provided more than $28.2 million unmatched for a total program of about $152 million. This amounted to nearly 38 percent of the total funds for the USGS's water-resources activities. This report presents examples of FY 1995 investigations, as well as information on hydrologic data collection and water-use activities.

INTRODUCTION

Reliable supplies of suitable quality water are necessary to the health and well-being of America's people, cities, and businesses. Numerous Federal, State, regional, and local agencies share keen interests in appraising the Nation's water resources and seeking solutions to water-related problems. Because of their varying missions and areas of responsibility, these many agencies hold diverse perceptions of approaches, needs, and priorities. The U.S. Geological Survey's (USGS) Federal-State Cooperative Program accommodates this diversity through joint planning and funding (50:50 matching) of systematic studies of water quantity, quality, and use on a national basis. The Cooperative Program has contributed to water-resources knowledge for 100 years. From its earliest days, the Program has been responsible directly for the development of procedures for streamgaging, concepts of surface-water and ground-water flow, and analytical techniques for investigations of water quality.

Most areas are experiencing increasing demands on water supplies because of population growth, industrial expansion, or additional irrigation of cropland. Many places are subject to floods, and many parts of the country have been affected severely by drought, if not by chronic water shortages. In some locations, deteriorating quality of surface water and, especially, ground water is of major concern. Shifts in population, changes in land use, and transformations in mineral and food-production activities are placing new demands on existing water supplies. Competition for currently available supplies of water of acceptable quality has heightened dramatically among domestic, industrial, and agricultural users. As a result, a growing need exists for reliable hydrologic data to facilitate planning, development, and management of the resource.

The first USGS cooperative water-resources investigation was with the State of Kansas in 1895. In 1905, Congress appropriated funds specifically for cooperative studies, marking the official beginning of the program. In 1928, Congress gave formal recognition to the Federal-State partnership and limited the Federal financial contribution for cooperative water-resources studies to no more than 50 percent of the total funds for each investigation.

During fiscal year (FY) 1995, hydrologic data collection, interpretive investigations, and research were conducted under the provisions of the Cooperative Program by USGS Water Resources Division (WRD) personnel in offices in every State, in Puerto Rico, and in several territories in concert with about 1,100 cooperating agencies (see appendix A). The locations of principal WRD offices are shown in figure 1. State, county, and municipal agencies participate in the program, as do interstate-compact organizations, State universities, conservation districts, sanitary districts, drainage districts, flood-control districts, and other similar organizations. In FY 1995, Federal funding of $62.1 million was matched by non-Federal cooperating agencies, which also provided more than $28.2 million unmatched funding, for a total of about $152 million. This total constituted nearly 38 percent of the total funds for the USGS's program of water-resources activities (figure 2). The USGS Federal Program, funded by appropriations by Congress, amounted to about 30 percent, and reimbursements

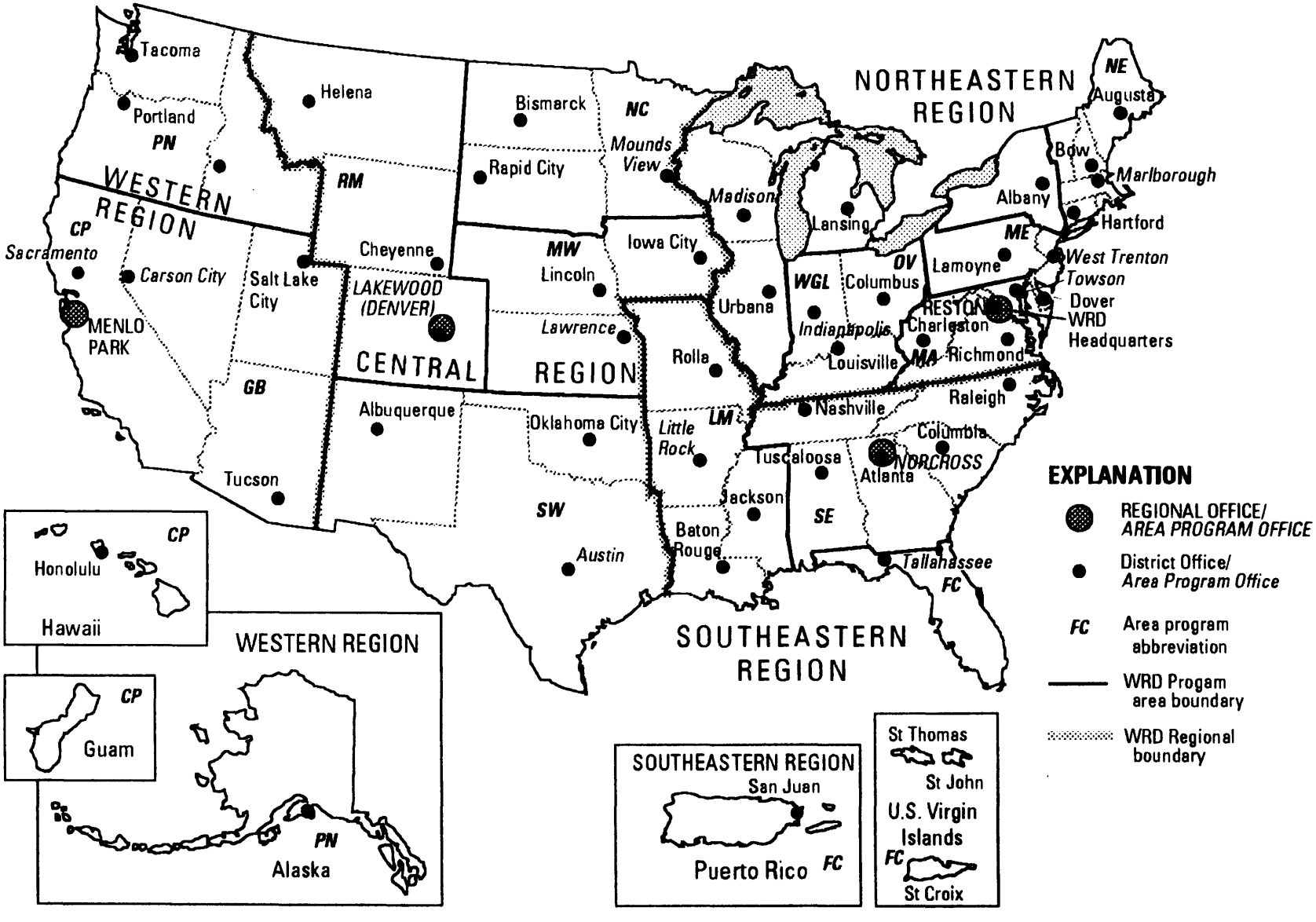
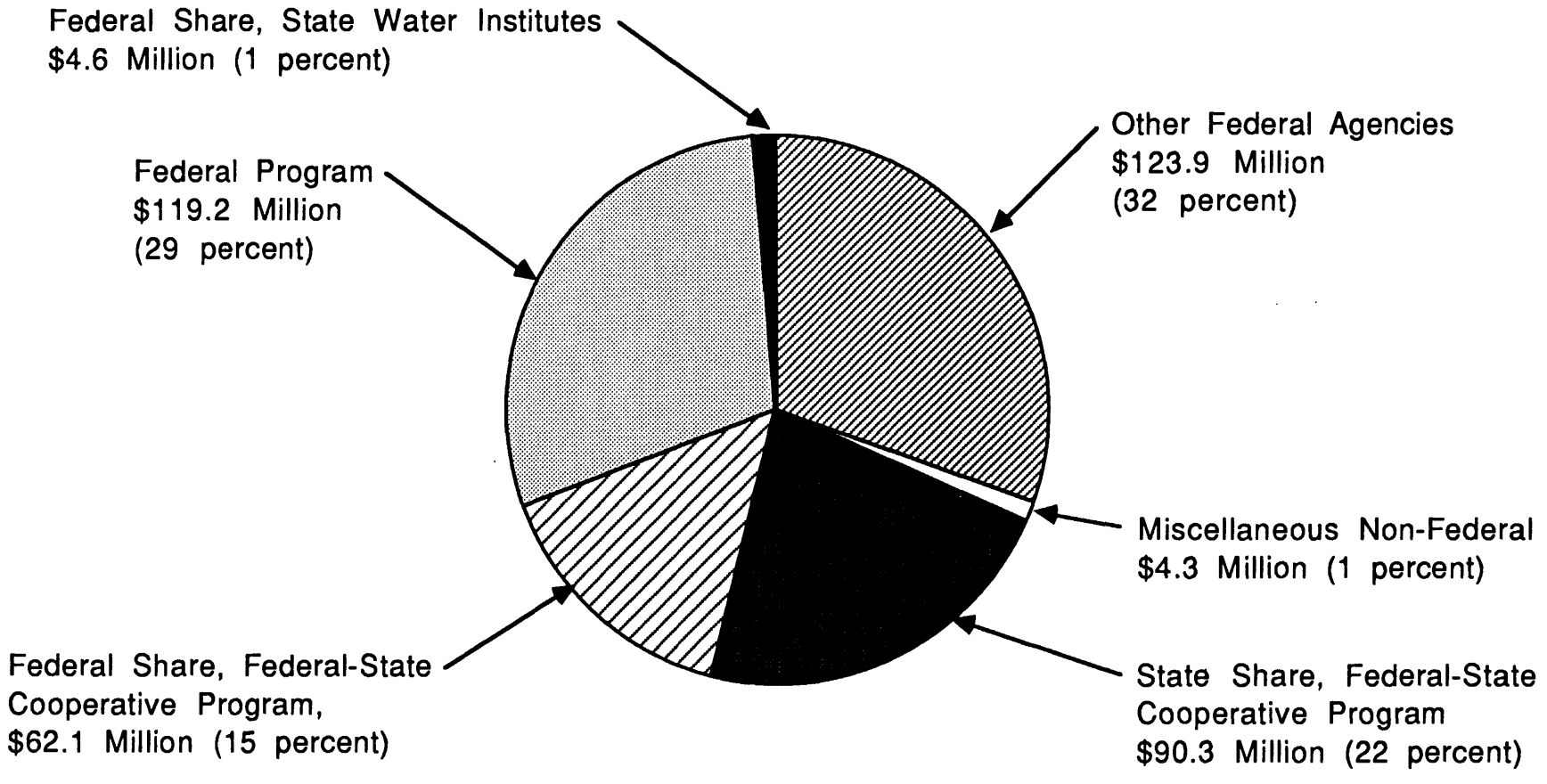


FIGURE 1 -- U.S. Geological Survey, Water Resources Division, regional boundaries and location of principal offices in fiscal year 1995.

Water Resources Investigations, FY 1995
$404.4 Million



Direct Appropriations, $185.9 Million

Reimbursements from Others, $218.5 Million

FIGURE 2 -- Actual obligations of the U.S. Geological Survey, Water Resources Division, Fiscal Year 1995.

from other Federal agencies, collectively referred to as the USGS Other Federal Agency Program, amounted to about 32 percent.

This report describes some aspects of the Federal-State Cooperative Program, and provides information on selected accomplishments in FY1995. The report presents examples of recent investigations as well as information on hydrologic data collection and water-use activities.

FUNCTIONS OF THE COOPERATIVE PROGRAM

In fulfilling its water-resources mission, the USGS performs four principal functions:

- It collects data needed for the continuing determination and evaluation of the quantity, quality, and use of the Nation's water resources.
- It conducts analytical and interpretive appraisals to describe the occurrence, availability, and physical, chemical, and biological characteristics of surface and ground water.
- It conducts research in hydraulics, hydrology, and related scientific and engineering fields.
- It disseminates water data and the results of investigations and research.

The Federal-State Cooperative Program, a partnership between the USGS and State and local agencies, provides information that forms the foundation for many of the Nation's water-resources management and planning activities. In addition, the information may function as an early warning of emerging water-related problems. The fundamental characteristic of the Program is that local and State agencies provide at least one-half the funds, but the USGS does most of the work. Having the USGS do the work results in consistency of data-collection methodology and archival, and storage of the information in a common database readily available to all. The knowledge gained in the studies is published and added to the growing body of information about the hydrology of the region or area.

Most work in the Cooperative Program is directed toward potential and emerging long-term problems, such as water supply, waste disposal, ground-water quality, floods, droughts, environmental protection. Data collected by the USGS and the results of its studies are accepted by parties on both sides of disputes and furnishes the basis required for interstate and international compacts, Federal law and court decrees, congressionally mandated studies, regional and national water-resources assessments, and planning activities.

A comprehensive and forward-looking program of hydrologic data collection and investigations is needed to provide the information necessary for the wise development and use of the Nation's water resources. The jointly planned and funded Cooperative Program provides assurance that the information needed to meet

national and local needs will be produced and shared. Because rivers and aquifers cross jurisdictional lines, studies and data collected in one county or one State can have great value in adjacent counties or States. Having one agency involved in these studies provides compatible information that can be shared and compared from one jurisdiction to the next.

Within the Cooperative Program, typically about half of the funds support the collection of hydrologic data; the remaining half support water-use information and hydrologic investigations and research. During FY 1995, the USGS was involved in about 475 investigations as part of the Cooperative Program. Investigations encompass areas that range in size from less than a square mile to multistate regions. In these investigations, the USGS scientists compile and integrate information to define, characterize, and evaluate the areal extent, quality, and availability of the water resource. Since the early 1970's, an increasing number of investigations have emphasized water-quality issues, such as aquifer contamination, river quality, storm-runoff quality, and the effects of acidic rain, mining, urbanization, and agricultural chemicals and practices on the hydrologic system.

In 1977, the Congress of the United States recognized the need for uniform, current, and reliable information on water use and directed the USGS to establish a National Water-Use Information Program to complement the USGS data on the availability and quality of the Nation's water resources. As a result, the National Water-Use Information Program became part of the USGS's Federal-State Cooperative Program. As of 1995, all 50 States and Puerto Rico participate in the program at various levels of involvement.

PROGRAM PRIORITIES

Program priorities are developed in response to mutual Federal, regional, State, and local requirements. Thus, the USGS and cooperating agencies work together in a continuing process that leads to adjustments in the Program each year. Through the pooling of support, the USGS is able to conduct studies that lead to an improved understanding of the Nation's water resources to the mutual benefit of all levels of government--at substantial financial savings. The number of requests for scientific and technical assistance continues to grow especially from State agencies responsible for ground-water protection and for controlling and mitigating ground-water contamination. State offerings typically exceed Federal matching funds by as much as $20 million or more each year ($28 million in FY 1995), reflecting the increasing emphasis on water-quality issues as well as other concerns regarding the availability, distribution, and use of water resources.

The strong linkage between the Cooperative Program, the Federal Program, and the Other Federal Agency Program is clearly reflected in the FY 1995 program priorities. The National Water-Quality Assessment (NAWQA) Federal Program, for example, will continue to build on water-quality information developed over many decades within the Cooperative Program. Data collection supported by the Federal Program and by other Federal agencies provides additional information. Ground-water contamination

studies funded by military and civilian Federal agencies are providing valuable hydrologic information and research in basic physical processes. These are but a few examples of the interdependence among programs.

The following topics were identified as highest priority in developing the FY 1995 Cooperative Program:

WATER QUALITY--The need to define the quality of the Nation's water resources remains among the highest Cooperative Program priorities. An improved knowledge of ground-water processes, such as flow dynamics, solute transport, and the geochemical and biological reactions that alter, add, or remove constituents is needed to enhance the evaluation of and capability to predict the effects of human activities on ground-water resources. In some areas, additional studies to characterize and map aquifers are needed to define present ground-water quality conditions against which future changes can be evaluated and to protect water supplies from contamination.

The quality of the Nation's streams continues to be a high-priority concern of the Cooperative Program. Additional water-quality information is needed to evaluate the effects of land use--especially agricultural and urban land use--and ground-water discharge on overall stream quality, fluvial and bed-sediment chemistry, and stream biota. Investigations of the effects of nonpoint sources, particularly those related to agriculture and urbanization, are of special interest. River-basin models that simulate the physical, chemical, and biological processes occurring in the basin are needed to quantify these effects, to evaluate management alternatives, and otherwise support State watershed-management programs.

WATER SUPPLY AND DEMAND--The future health and economic welfare of the Nation's population is dependent upon a continuing supply of uncontaminated freshwater. Many existing sources of water are being stressed by increasing withdrawals and use along with increasing instream-flow requirements to meet a variety of human and environmental needs. Recent drought in some areas of the country has accentuated the need for better water-supply and demand information. The era of building large dams and conveyance systems is coming to an end. As the Nation approaches the 21st Century, the relatively limited water supply and established infrastructure must be managed more effectively to meet increasing demands. "New" supplies likely will be from conservation, recycling, reuse, and improved water-use efficiency rather than from ambitious development projects. The Nation is now in an era of integrated water management that balances traditional supply-management options with progressive demand-management options. It is apparent that more detailed and more site-specific water-use information is needed to monitor the effects of demand-management options and to manage the water-supply network more efficiently.

WETLANDS, LAKES, RESERVOIRS, AND ESTUARIES--These valuable ecosystems merit special attention because of their importance as fish and wildlife habitat, recreational areas, and sources of water supply. Wetlands, in particular, are areas where important water-treatment and purification processes can occur naturally. Despite their relative sensitivity to human activities, these areas continue to be subject to developmental pressures. Studies that improve our understanding of the physical,

chemical, and biological processes of these ecosystems and their watersheds are needed to evaluate development and management alternatives.

HYDROLOGIC DATA--The hydrologic-data program constitutes the foundation for watershed and aquifer management and for many other WRD programs. Large amounts of data and specialized interpretation often are required by State and Federal agencies to manage water resources and determine water-rights. Enhancement of the hydrologic-data program, improved accessibility to available information, and coordination of program activities with those of other agencies continue to be high-priority activities.

HYDROLOGIC HAZARDS--Economic losses from floods, lake-level changes, mud and debris flows, sedimentation, land subsidence and other hydrologic hazards can amount to several billions of dollars annually. Studies of the basic processes underlying these hazards are needed to improve the ability to forecast probabilities of occurrence and the likely magnitudes of hydrologic hazards.

INDIAN WATER RIGHTS--The USGS has a long history of assisting in appraisals of the water resources of Indian lands. The protection and management of the Indian Tribe's natural resources are major elements of the trust responsibility of the Secretary of the Interior. Cooperative activities that concern these resources continue to merit high-priority consideration.

EXAMPLES OF INVESTIGATIONS

Many Cooperative Program activities provide information necessary for making water-management decisions. Investigations are undertaken in response to a specific need but produce information and/or techniques that are applicable to other situations in related settings. Several examples follow.

- ALABAMA, FLORIDA, AND GEORGIA--Water Resources Investigations: In cooperation with the Georgia Department of Natural Resources, Environmental Protection Division, the USGS is evaluating the occurrence and availability of ground water and the effects of ground-water development on the overall water resources of the Apalachicola-Chattahoochee-Flint and Alabama-Coosa-Tallapoosa River Basins, located in parts of Georgia, Alabama, and Florida. In authorizations by Congress in 1990, the U.S. Army Corps of Engineers was funded to conduct a comprehensive study of the two river basins. The Corps of Engineers, together with the three States, requested the USGS to conduct the hydrologic investigation element of the study. Alabama, Florida, and Georgia consider this activity as one of their highest priorities because litigation among the States has virtually halted future water-resources development. The information developed in this study will be used by all three States and the Corps of Engineers to resolve these issues.

- ARIZONA--Changes in Aquifer Storage in the Tucson Area: A USGS study in cooperation with Pima County has demonstrated the use of special geophysical techniques to monitor changes in water storage in the unconfined aquifer along a

portion of Rillito Creek near Tucson. The purpose of the investigation was to estimate the specific yield of the aquifer and amounts of recharge near the site of a proposed artificial-recharge facility. A temporal gravity method provided for the first time direct measurements of changes in ground-water storage. Direct measurement of ground-water storage will allow for a more reliable understanding of overall water availability. The temporal gravity method is expected to be a useful tool in future ground-water investigations wherever storage depletion occurs in unconfined aquifers.

• DELAWARE, MARYLAND, PENNSYLVANIA, AND VIRGINIA--Bridge Scour Studies: The undermining (scouring) of bridge-pier and abutment foundations by erosive action of water can result in structural failure of bridges. The numerous equations that have been developed to predict scour produce a wide range of estimates for the same set of conditions. However, field data to test the validity of these equations are sparse. The USGS, in cooperation with State Highway Departments in Delaware, Maryland, Pennsylvania, and Virginia, has developed techniques for measuring scour continuously at bridge piers to improve the predictive equations. The results of these and other similar USGS studies are being used by engineering firms, State departments of transportation, and the Federal Highway Administration to determine the risk of, and to prevent bridge failure. Bridges identified as having high risk for destructive scour are investigated in detail by private or State engineers who devise ways to safeguard the bridge.

• MIDWEST FLOODS, 1993: During the 1993 Mississippi River floods, the USGS field personnel made more than 2,000 visits to streamgaging stations in the flood-affected areas to verify that the instruments were working and communicating properly, to make repairs as needed, and to make direct measurements of the streamflow. Approximately 70 percent of the USGS streamgaging stations in the flood region were operated in cooperation with various State and local agencies. The data from the gaging stations were provided continuously to the National Weather Service and the U.S. Army Corps of Engineers and formed the basis for flood forecasts that allowed people and personal property to be evacuated from areas about to be inundated. It also enabled the Corps of Engineers and others to focus flood-fighting activities where they would be most useful. Without the long-standing gaging station network and well-developed communications systems, accurate forecasts could not have been made and loss of life and damage to property would have been far greater than it was (there were 47 lives lost, and $16 billion in property damages). This same experience with the real-time use of the USGS gaging station data is repeated several times each year as catastrophic floods strike various sections of the Nation. In addition, the hydrologic information is used by transportation planners to design safe bridges and roadways and to establish valid zoning and insurance regulations that protect people and property during future floods.

• MONTANA--Ground-Water Vulnerability in Ravalli County: The population of the Bitterroot Valley in Ravalli County of western Montana is increasing at the fastest rate in the State. Much of the increase in population is occurring outside the limits of established municipalities with each dwelling having its own well and septic system. The potential for contamination and depletion of the underlying aquifers is large, but little specific information is available regarding the quality and quantity of ground water in the developing areas. The USGS, in cooperation with the Ravalli County

Commission, the State of Montana, and the University of Montana, is assessing the sensitivity of the aquifers in the Valley to contamination and depletion. The study will provide county residents with important information about current ground-water conditions as they relate to the different climatic, topographic, and geologic controls. The County Commission will use the results of the investigation to make informed management decisions regarding future growth in the county.

• NEW HAMPSHIRE--Evaluation of Crystalline Bedrock Aquifers: The performance of fractured crystalline bedrock units as aquifers is not well understood because of the great variability in their water-bearing properties. In New Hampshire, ground water from bedrock provides 25 percent of the total drinking water and 85 percent of the self-supplied domestic drinking water. An investigation by the USGS, in cooperation with the New Hampshire Department of Environmental Services, is designed to produce information on potential yield and water quality of bedrock aquifers throughout the State and to develop an approach that can be used for locating potentially high yielding bedrock zones. The objectives will be accomplished by determining the yield from existing wells and combining this information with lineament and fracture patterns in the bedrock along with other hydrogeologic data. The results are expected to serve as a guide for management and regulatory agencies at State and local levels, and to be of value to studies of fractured bedrock aquifers in other parts of the county.

• NORTH CAROLINA--About 77 percent of the households in the Research Triangle area of eastern North Carolina, one of the most rapidly growing regions of the State, depend on surface-water supplies for drinking water. Since 1988, the USGS, in cooperation with the Triangle Area Water Supply Monitoring Project Steering Committee (representing twelve agencies in a six-county area) and in partnership with North Carolina Division of Environmental Management, has monitored water quality at up to 34 sites in two major multipurpose reservoirs, seven small upland drinking-water reservoirs, four rivers near major run-of-river drinking-water supplies, and numerous tributaries to these systems. The goals of this ongoing study are to develop a long-term data base of nutrients, major ions, and trace elements that can be used to measure water quality trends and examine differences in water-quality of raw water supplies among different water-supply source types; to establish a data base for synthetic organic compounds (SOC's); and to provide a framework for short-term investigation of emerging drinking water-supply issues such as disinfection by-products, the possible presence of cryptosporidia and giardia, and pesticide contamination from nonpoint sources. Loadings of nutrients and selected metals into and out of the water-supply reservoirs have been computed for 1988-94, and compared with similar information for the period 1982-87. The investigation has led to increased cooperation among State and local agencies and to a more efficient use of resources for monitoring. Study results are being used in the development of plans to protect present and future water supplies.

• OREGON--Ground-Water in the Portland Basin, Oregon and Washington: The Portland Basin is home to nearly 1.5 million people in northwestern Oregon and southwestern Washington. The population of the region is increasing rapidly, resulting in an increased demand for water. Most of the water needs in the Oregon part of the basin are met by surface water from the Bull Run watershed; in Clark County,

Washington, ground water supplies most water needs. However, In the late 1970's ground water was identified as the source that would supply Portland's emergency needs if the Bull Run supply were ever interrupted or if additional water was needed during periods of drought. A well field was developed for this purpose, but its use has been hampered by the discovery of trichloroethylene (TCE) and other organic contaminants in nearby wells. In Clark County, contamination, declining ground-water levels, and concerns over depletion of streamflow by wells also have underscored the need for a more quantitative understanding of the ground-water resource. The USGS, working with the City of Portland, Clark County, and the Oregon Water Resources Department, recently completed an extensive assessment of the ground-water resources of the basin that included collecting data on more than 15,000 wells and springs, mapping major aquifers, monitoring ground-water levels, estimating ground-water withdrawals, estimating recharge to aquifers, and developing a simulation model of the ground-water system. As a result of the study, the understanding of the ground-water hydrology in the basin is much improved, areas of water-level declines are known, the amount of ground water currently used in the basin has been quantified, information is available for a wide variety of site-specific studies, and quantitative information is available for water resource managers to evaluate utilization of ground-water resources as a regional water supply alternative. The data and interpretations from the study have been published in a series of seven reports. The Portland Basin simulation model has been used by the City of Portland and its consultants to develop more detailed models of contaminant transport near the Columbia South Shore well field, and by Clark County to assist with stormwater management and land-use planning. Two subsequent USGS cooperative studies with Clark County have utilized the simulation model and data from the study to address the issues of: (1) vulnerability of aquifers to contamination and (2) well-head protection.

- TEXAS--Long-Term Water Quality Trends in the Rio Grande Watershed: Within the Rio Grande international watershed, the USGS is using sediment cores from reservoirs to define long-term trends in water quality. The study is a cooperative effort with the Texas Natural Resource Conservation Commission, El Paso County Water Improvement District No. 1, and U.S. Bureau of Reclamation, in consultation with the International Boundary and Water Commission. The coring procedure allows for the development of water-quality trend information in watersheds where historical data are lacking. This innovative approach, developed as part of the USGS National Water-Quality Assessment (NAWQA) Program, is being applied to Elephant Butte Reservoir, New Mexico; Amistad International Reservoir, Texas/Mexico; and Falcon International Reservoir, Texas/Mexico. Occurrence and trends in radionuclides in the upper Rio Grande basin and organochlorine pesticides (such as DDT) in the middle and lower basin are of particular interest.

- VIRGINIA--Shenandoah River Instream Flows: Minimum instream flow requirements to protect stream habitat have become an issue nationwide because of the conflicts between increased water use and downstream flow requirements. The objective of this study is to define minimum instream flow requirements as determined by the U.S. Fish and Wildlife Service. The USGS, in cooperation with the Lord Fairfax Planning District Commission, will coordinate the work and will collect and analyze flow data for the development of a river model. The project will be overseen by a

technical advisory committee composed of State and local agencies, as well as water suppliers and citizen groups. Information from the USGS study will be used by local officials to manage instream flow and to select areas for further investigation.

• SOUTH CAROLINA--Rates of Petroleum Hydrocarbon Degradation: The USGS, in cooperation with the South Carolina Department of Natural Resources, is investigating an extensively contaminated shallow water-table aquifer underlying a fuel-tank farm in Hanahan, South Carolina. Data collected to date have revealed that petroleum hydrocarbons in the aquifer are being degraded in a complex pattern of zones dominated by chemically distinct conditions that change dynamically in time and space. Future studies are planned to determine relative rates of hydrocarbon degradation under these conditions and how degradation rates are affected by changes in conditions. This information will benefit the evaluation and design of low-cost bioremediation strategies at this and similar sites nationwide.

HYDROLOGIC DATA COLLECTION ACTIVITIES

Because knowledge of surface water and ground water in the United States is essential to ensuring the well-being of its people and the viability of its economy, hydrologic data collection is a necessary role of government. The USGS maintains a nationwide system of streamgaging stations, ground-water observation wells, and water-quality sampling locations for ground and surface waters. The USGS funding support for the hydrologic data program is derived from three major sources: the USGS Federal Program, the Federal-State Cooperative Program, and reimbursements from other Federal agencies. A wide variety of agencies furnish support to the Survey, and activities at a single data-collection site commonly are funded by a combination of sources. In FY 1995, the Cooperative Program provided sole support for almost 57 percent of the continuous-record streamflow measurement stations in the total USGS network. In combination with other funding sources, the Program provided partial support for another 7 percent of the total network of these stations.

The USGS currently collects data at many sites (table 1): more than 11,600 surface-water stage and discharge stations, about 31,000 wells where ground-water level and (or) pumpage data are collected annually or more frequently, and approximately 3,000 surface-water stations and 6,300 wells where water-quality data are collected.

Table 1. Number of USGS data-collection stations operated in 1995, by source of funds

Types of Stations	Federal Program	Federal-State Cooperative Program	Other Federal Agency Program	Combined Support	Total
SURFACE WATER					
Discharge	583	6,177	2,227	652	9,639
Stage-Only-- Streams, Lakes, and Reservoirs	51	974	859	153	2,037
Quality	765	1,667	384	163	2,979
GROUND WATER					
Water Levels	2,334	26,475	2,105	97	31,011
Quality	704	3,701	1,376	499	6,280

Surface Water Data

Surface-water discharge (flow) data were collected by the USGS at 9,639 stations in 1995. Continuous discharge was computed at 7,185 of these stations, meaning that the flow could be determined for any moment of any day at any station. Partial-discharge records were collected at 2,454 other stations. For example, at stations where there is an interest only in peak flow, data are collected and recorded only above a predetermined stage (water-surface elevation). At all stations where discharge was computed, a record of the stage was maintained either continuously or during certain events at partial-record stations. In addition, information on stage only was collected by the USGS at 1,008 stream stations. Stage data also were collected at 1,029 stations at lakes and reservoirs. In 1995, the Federal-State Cooperative Program served as the sole source of funding for the operation of more than 4,098 continuous surface-water discharge stations and partially funded an additional 507 continuous surface- water discharge stations.

In 1995, stream and lake samples were collected at 2,979 stations nationwide and analyzed for water-quality characteristics, including almost 1,800 stations in the Cooperative and combined support Programs. The types of water-quality characteristics measured vary from site to site. Water-quality data were collected as part of a scheduled, long-term operation at 1,669 stream sites. Samples were collected for short-term projects at 1,310 stations.

Ground-Water Data

Overall in FY 1995, the Cooperative Program supported about 80 percent of the USGS activities in ground-water data collection. These data provide information necessary for the determination of the suitability of ground water for various uses, identification of trends in water quality, and evaluation of the effects of stresses on the Nation's surface-water and ground-water resources. The USGS collected information on ground-water levels at 31,011 sites in 1995; more than 26,500 sites were monitored under the Cooperative Program. Ground-water level data were collected at 26,057 sites to assess long- term trends. When special areal studies were conducted,

some water-level data were collected on a short-term basis to supplement the information available in the area from the long-term sites. In 1995, ground-water level data were collected at 4,954 sites for these investigations.

The quality of water was sampled and analyzed at 6,280 ground-water and spring sites in 1995. To maintain information on the changes in quality of critical aquifers, water samples were collected at 2,299 sites as part of a scheduled, long-term operation. Ground-water-quality data also were collected at 3,981 stations to provide information needed for short-term studies. The Cooperative Program provided support for water-quality data collection at about 4,200 well and spring sites.

Uses of Water Data

Streamgaging stations provide information to assist water managers in making daily operational decisions on water requirements for municipal, industrial, and agricultural use; for hydroelectric power generation; and for storage in reservoirs for flood control. For example, data from many of the USGS gaging stations are used by the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation, and others to operate more than 2,000 flood-control, navigation, and water-supply reservoirs, and more than 3,000 of the stations operated by the USGS are used in the National Weather Service's flood-forecasting system.

Today, more than one half of currently operating streamgaging stations use automated earth-satellite telemetry equipment to transmit data from the collection site. Data are transmitted around the clock by means of two geostationary satellites operated by the National Oceanic and Atmospheric Administration and are received by the USGS and other users. The automated telemetry provides water-data users with provisional near real-time information that meets water-management needs. This system gives the USGS the capability to monitor the operation of the hydrologic stations continuously so that visits to the stations (for maintenance, instrument calibration, and selective data collection) can be planned with maximum effectiveness.

The collection and analysis of surface-water, ground-water, and water-quality data commonly are interrelated. For example, water-quality sampling and analysis provide information on the concentrations of chemical constituents in the water. Some water-quality sampling is done only within pre-specified ranges of discharge as determined by streamgaging stations. These stations also provide the flow data needed to convert concentrations to loads (the total amount of the material transported by the water), which is required to characterize the movement and fate of the material in the stream. Because ground water at times either discharges to, or is recharged by streams, knowledge of the overall hydrologic system is necessary to the understanding of water quality in that system.

NATIONAL WATER-USE INFORMATION ACTIVITIES

The National Water-Use Information program, which is financed through the Federal-State Cooperative Program, compiles, analyzes, and disseminates water-use information to supplement water supply information. The program provides comprehensive, unbiased, and consistent water-use data to Federal and State water-resource planners and managers, and to the general public. This information is needed to quantify the stress on existing surface-water and ground-water sources and to better model and evaluate demand-management options that supplement traditional supply approaches. This partnership ensures the consistency necessary to evaluate water use nationwide. The National Water-Use Information Program maintains a national water use database. The program collects, compiles, and publishes State and national estimates of water use for major water-use categories at least every 5 years. The program provides documentation on water-use estimation and measuring techniques, and has developed instruments to better monitor water use. Water-use estimates are available for the first time at the county and hydrologic cataloging unit levels. In addition, ground-water withdrawals are identified by major aquifer systems. In several States, the USGS established water-use coordinating committees to improve communication and coordination among the various agencies involved in water-use activities.

The following are examples of water-use activities:

- In cooperation with the Kansas State Board of Agriculture, the USGS developed a water-user support data system to assist water managers with decisions about ground-water appropriations and approvals of water-right applications. The geographic information system (GIS) computerized database also is used to evaluate the effects of saline river water on ground-water quality and to investigate the effects of water use on streamflows.

- The USGS, the University of Georgia, and the Georgia Department of Natural Resources have entered into a joint "benchmark farms" study to establish an irrigation information network in southwest Georgia. The network will provide State and local officials with more accurate and detailed irrigation data that can be used to better manage the water resources and permitting programs in the State.

- In Arkansas, computer software developed by the USGS allows Arkansas Conservation District personnel to remotely enter site-specific irrigation and agricultural water-use data for about 54,000 irrigation and agricultural water users. The database provides reliable information for effective management of water resources.

- At the Federal level, the Natural Resource Conservation Service and the U.S. Forest Service use the USGS water-use databases to assist in making assessments of future water demands. The U.S. Environmental Protection Agency uses the USGS water-use information to identify the potential impacts

of underground storage hazards on the public's drinking water supplies and to identify population served by ground-water and surface-water sources.

- Over the years the program has documented significant changes in water-use patterns such as decreases in the use of ground water for irrigation in areas of significant water-level declines due to increased pumping costs, and decreases in industrial water withdrawals due to the use of recycling to achieve wastewater-discharge limits imposed by the Clean Water Act.

QUALITY ASSURANCE AND CREDIBILITY OF DATA

The USGS cooperates with State and local governments and other Federal agencies in conducting investigations and research on the availability, quality, and utilization of surface-water and ground-water resources. Work in this regard depends on the systematic nationwide program of data collection, analysis, and dissemination. Over the years, these programs have achieved a high degree of credibility because the resulting information has been used and tested by many organizations and individuals in government and private sectors. In large measure, this credibility is the result of continuous efforts to ensure that data are collected, analyzed, and disseminated through thoroughly proven methods and techniques under rigorous standards of quality control.

Viewed from today's perspective of environmental concerns, technologic change, resource depletion, and population stress, the USGS data-collection activities are the foundation for many decisions involving water and related resources. The success of these programs in anticipating and responding to changing priorities and emergencies stems directly from its effective blending of Federal, State, and local inputs. The programs shares with Federal and non-Federal cooperators both the cost and the responsibility for the design and management of the system. As a result of these and other characteristics, the data-collection activities have acquired an unusual record of scientific objectivity, which is especially significant in assessing the environmental and legal aspects of water- resource development and control measures.

REPORTING AND AVAILABILITY OF DATA

The USGS publishes hydrologic data in a series of annual reports for each State and catalogs these reports in a monthly list of USGS publications. Between 1990-1994 water years, water-data reports also are available on Compact Disk-Read Only Memory (CD-ROM). The water data reports and the CD-ROM are distributed to participating agencies and to libraries; they are also available for sale by the Branch of Information Services of the USGS in Denver, Colorado. Beginning in 1994, the USGS has been making more of these data accessible on-line virtually instantaneous and free, over the Internet.

The data are stored in the USGS National Water Data Storage and Retrieval System (WATSTORE), which includes a Daily Values File that contains 300 million daily observations of streamflow, water-quality, sediment-discharge, and ground-water level data; a Water Quality File containing 4.1 million surface-water and ground-water analyses; a Peak Flow File contains nearly 600,000 observations of annual peaks of streamflow and river-stage; and a Ground Water Site Inventory File contains information for more than 1.4 million wells.

SUMMARY AND CONCLUSIONS

The USGS's Federal-State Cooperative Program has responded to national needs for hydrologic information since 1895. During FY 1995, water-resources data collection, investigations, and research were conducted in cooperation with about 1,100 State, regional, and local agencies in every State, Puerto Rico, and several Territories. Cooperative Program funding in FY 1995 totaled about $152 million and accounted for nearly 38 percent of the total obligations for the USGS's Water Resources Division. The Cooperative Program provides much of the information required by those responsible for water-resources planning and management, water-supply development, and environmental improvement through hydrologic data collection, investigations, and research. The program is a unique activity in that the cooperating agencies provide more than half the funds, but the USGS performs most of the work. The program is also a primary source for knowledge concerning techniques for collecting and analyzing data on the quantity, quality, use, and flow of surface water and ground water.

The availability of water of acceptable quality is a fundamental limiting factor to economic growth and people's health, safety, and comfort. The Nation needs a comprehensive and forward-looking program of hydrologic data collection and investigations to provide the information necessary to manage water resources. The job is too large to be supported at the Federal or State level alone. The overwhelming success of the jointly planned and funded Cooperative Program provides convincing assurance that the work done by the USGS is of high quality and meets national and local needs.

Alabama:
- Alabama Department of--
  - Economic and Community Affairs
  - Emergency Management
  - Environmental Management
  - Transportation
- Anniston, City of
- Auburn University
- Baldwin County Commission
- Birmingham, City of
- Blountsville, Town of
- Century, FL City of
- Coffee County Commission
- Courtland, Town of
- Dallas County Commission
- FL Dept of Environmental Protection
  - Office of Water Policy
- Geological Survey of Alabama
- Greenville, City of
- Huntsville, City of
- Jasper Water Works and Sewer Board
- Jefferson County Commission
- Mobile, Waterworks & Sewer Board, City of
- Montgomery, Waterworks Board, City of
- Parrish, Town of
- Prattville, City of
- Sumter County Commission
- Thomasville, City of
- Tuscaloosa, City of

Alaska:
- Alaska Department of--
  - Community & Regional Affairs--
    - Div. of Energy
  - Environmental Conservation
  - Fish and Game
  - Natural Resources--
    - Div. of Water
    - Div. of Mining & Water Mgmt
  - Transportation
- Alaska Energy Authority
- AK Industrial Dev. & Export Authority
- Anchorage, Municipality of
- Juneau, City and Borough of
- Kenai Peninsula Borough
- Sitka, City and Borough of
- University of Alaska, Fairbanks

Arizona:
- Arizona Department of--
  - Environmental Quality
  - Game and Fish
  - Water Resources

Arizona--continued
- Central AZ Water Conservation District
- Cochise County Flood Control District
- Flagstaff, City of
- Gila Valley Irrigation District
- Gila Water Commission
- Havasupai Tribe
- Hualapai Indian Tribe
- Hopi Tribe
- Maricopa County--
  - Flood Control District
- Metropolitan Domestic Water
  - Improvement Dist
- Metropolitan Water Dist. of Southern California
- Navajo Nation
- Payson, Town of
- Pima County Board of Supervisors
- Safford, City of, Water, Gas, & Sewer Dept.
- Salt River Valley Water Users' Assoc.
- Show Low Irrigation Company
- Tohono O'Dham Nation
- Tucson, City of
- University of Arizona--
  - Research Lab fo Riparian Studies
- Yavapi Tribe

Arkansas:
- Arkansas Department of--
  - Parks and Tourism
  - Pollution Control
- Arkansas Game & Fish Commission
- Arkansas Geological Commission
- Arkansas Soil & Water Conservation Comm.
- Arkansas State Highway Commission
- Arkansas/Oklahoma:
  - Arkansas River Compact Comm.
- Fort Smith, City of
- Little Rock Municipal Water Works
- University of Arkansas--
  - at Fayetteville
  - at Little Rock

California:
- Alameda County--
  - Flood Control & Water Cons. Dist. (Hayward)
  - Water District
- Antelope Valley-East Kern Water Agency
- Atherton, City of
- Borrego Water District
- Calaveras County Water District
- California Department of--
  - Fish and Game
  - Parks and Recreation

California--continued
- Transportation
- Water Resources
- California Water Resources Control Board
- Callequas Municipal Water District
- Carpinteria County Water District
- Casitas Municipal Water District
- Coachella Valley Water District
- Contra Costa County Flood Control & Water Conservation District
- Contra Costa Water District
- CRWQCB--San Francisco Bay Region
- Desert Water Agency
- East Bay Municipal Utility District
- Eastern Municipal Water District
- Georgetown Divide Public Utility District
- Goleta County Water District
- Hetch Hetchy Water and Power
- Hoopa Valley Tribe
- Hopland Band of Pomo Indians
- Humboldt Bay Municipal Water District
- Imperial County Department of Public Works
- Imperial Irrigation District
- Irvine Ranch Water District
- Lompoc, City of
- Los Angeles, County of
- Madera Irrigation District
- Marin Municipal Water District
- Mendocino County Water Agency
- Menlo Park, City of
- Merced Irrigation District
- Mission Springs Water District
- Mojave Water Agency
- Mono, County of
- Montecito Water District
- Monterey County Water Resources Agency
- Monterey Peninsula Water Mgmt. District
- Morongo Band of Mission Indians
- Orange County Water District
- Padre Dam Municipal Water District
- Pechanga Indian Reservation
- Riverside County Flood Control & Water Conservation District
- Sacramento Regional County Sanitation
- San Benito County Water Control & Flood Control District
- San Bernardino Environmental Public Works Flood Control District
- San Bernardino Valley Municipal Water District
- San Diego County Department of Public Works
- San Francisco Water Department
- San Gorgonio Pass Water Agency
- San Juan Basin Authority

California--continued
- San Luis Obispo County Engng. Department
- Santa Barbara, City of, Dept. of Public Works
- Santa Barbara County Water Agency
- Santa Clara Valley Water District
- Santa Cruz, City of
- Santa Cruz County Flood Control & Water Conservation District
- Santa Maria Valley Water Conservation District
- Santa Ynez River Water Conservation District
- Scotts Valley Water District
- Sonoma County--
  - Planning Department
  - Water Agency
- Soquel Creek Cty WD
- Stockton, City of
- Sweetwater Authority
- Tia Juana Valley County WD
- Tulare County Flood Control District
- Turlock Irrigation District
- United Water Conservation District
- University of California-
  - Davis
- Ventura County Public Works Agency
- Water Master--Santa Margarita River Watershed
- Water Replenishment District of So. California
- Woodbridge Irrigation District
- Yolo County Flood Control & Water Conservation District
- Yuba County Water Agency

Colorado:
- Arapahoe County Water & Wastewater Auth.
- Arkansas River Compact Administration
- Aurora, City of
- Black Hawk, City of
- Boulder, City of
- Boulder, County of--
  - Dept. of Public Works
- Breckenridge, Town of
- Breckenridge Sanitation Dist
- Centennial Water and Sanitation District
- Center Soil Conservation Dist.
- Cherokee Metropolitan District
- Clear Creek Board of County Commissioners
- Colorado Department of--
  - Agriculture
  - Health
  - Transportation
- Colorado Division of--
  - Parks & Outdoor Recreation
  - Wildlife

Colorado--continued
- Colorado Office of the State Engineer
- Colorado River Water Conservation District
- Colorado Springs, City of--
  - City Manager
  - Dept. of Public Utilities
- Crested Butte, Town of
- Crested Butte South Metro Dist
- Delta County Board of Commissioners
- Denver Board of Water Commissioners
- Denver, City & County
- Desert Research Institute
- Eagle County Board of Commissioners
- Englewood, City of
- East Grand, County of, WQ Board
- Evergreen Metropolitan District
- Fort Collins, City of
- Fountain Valley Authority
- Fremont Sanitation District
- Garfield, County of
- Glendale, City of
- Glenwood Springs, City of
- Greenwood Village, City of
- Gunnison, City of
- Gunnison, County of
- Lakewood, City of
- Lamar, City of
- Las Animas, City of
- La Plata County
- Longmont, City of
- Loveland, City of
- Lower Fountain Water-Quality Mgmt. Assn.
- Meeker Sanitation District
- Meeker, Town of
- Metropolitan Wastewater Reclamation District
- Moffat, County of, Commissioners
- Mt. Crested Butte Water/Sanitation Dist.
- Northern Colorado Water Conservation District
- Pueblo Board of Water Works
- Pueblo, City of, Department of Utilities
- Pueblo, County of
- Pueblo West Metropolitan District
- Purgatoire River Water Conservation Dist.
- Rio Blanco, County of
- Rio Blanco Water Conservancy District
- Rio Grande Water Conservation District
- Rocky Ford, City of
- Routt, County of
- St. Charles Mesa Water District
- Southeastern Colorado Water Cons. Dist.
- Southern Ute Indian Tribe
- Southwestern Colorado Water Cons. District
- Steamboat Springs, City of
- Teller-Park Soil Conservation District

Colorado--continued
- Trinchera Water Conservation District
- Uncompahgre Valley Water Users Association
- Upper Arkansas Council of Governments
- Upper Arkansas River Water Cons. District
- Upper Eagle Regional Water Authority
- Upper Gunnison River
- Upper Yampa Water Conservancy District
- Urban Drainage and Flood Control District
- Vail Valley Consolidated Water Authority
- Westminster, City of
- Yellow Jacket Water Conservancy District

Connecticut:
- Connecticut Department of--
  - Environmental Protection
  - Transportation, Bureau of Hydraulics & Drainage
- Fairfield, Town of, Conservation Department
- New Britain, City of, Board of Water Commissioners
- South Central CT Regional Water Authority
- Torrington, City of
- Woodbury, Town of

Delaware:
- Geological Survey
- University of Delaware

District of Columbia:
- Department of--
  - Consumer & Regulatory Affairs,
  - Public Works

Florida:
- Boca Raton, City of, Public Utilities
- Bradenton, City of, Public Works
- Broward, County of
- Cape Coral, City of
- Century, City of
- Clearwater, City of
- Cocoa, City of, Utilities and Public Works
- Daytona Beach, City of
- Deerfield Beach, City of
- Dunedin, City of, Public Works & Utilities
- Florida Department of--
  - Environmental Protection
  - Transportation
- Florida Keys Aqueduct Authority
- Fort Lauderdale, City of, Utilities Dept.
- FL Game and Freshwater Fish Commission
- Hallandale, City of, Utilities & Engineering
- Hillsborough, County of
- Hollywood, City of, Public Utilities

Florida--continued
- Inst Phosphate Research
- Jacksonville, City of, Dept. of Public Utilities
- Jacksonville Electric Authority
- Lake, County of
- Lee, County of--
  - Div of Natural Resources Mgmt
- Manatee County--
  - Environmental Action Commission
  - Public Services Dept
- Metropolitan Dade County
- Miami-Dade Water and Sewer Authority
- North Port , City of
- Northwest Florida Water Management District
- Orange County Public Utilities
- Orlando, City of
- Peace River/Manasota Regional Water Supply Authority
- Perry, City of
- Pinellas, County of--
  - Dept of Public Works & Utilities
- Reedy Creek Improvement District
- Sarasota, City of
- Sarasota, County of
- Seminole, County of
- South Florida Water Management District
- South Indian River Water Control
- Southwest Florida Water Management District
- St. Johns River Water Management District
- St. Petersburg, City of, Public Utilities
- Suwannee River Water Management District
- Tallahassee, City of--
  - Electric Department
  - Water Quality Laboratory
- Tampa, City of, Water Dept
- Volusia, County of
- Walton, County of
- West Coast Regional Water Supply Authority

Georgia:
- Albany Doughterty Planning Commission
- Albany Water, Gas, and Light Commission
- Athens-Clarke County--
  - Dept of Public Utilities
- Atlanta, City of, Office of Public Works
- Attapulgus, City of
- Bibb, County of
- Blairsville, Town of
- Brunswick, City of
- Chatham, County of
- Cherokee County Water & Sewerage Authority
- Clayton County Water Authority
- Covington, City of
- Dekalb County Public Works Department

Georgia--continued
- Douglas, County of--
  - Dept of Planning & Zoning
- FL Dept Environmental Protection--
  - Ofc of Water Policy
- Georgia Department of--
  - Natural Resources--
    - Environmental Protection Div
    - Geologic Survey
    - Water Resources Mgmt. Program
  - Transportation--
    - at Atlanta
    - at Forest Park
- Georgia Forestry Commission
- Gwinnett, County of, Dept. of Transportation
- Helena, City of
- Henry, County of, Bd of Commissioners
- Lawrenceville, City of
- Macon Water Authority
- Monroe Water, Light, and Gas Commission
- Springfield, City of
- St. Johns River Water Municipal Department
- Thomaston, City of
- Thomasville, City of
- Tift County Commission
- Tifton, City of
- Valdosta, City of

Hawaii:
- Hawaii, County of, Dept. of Water Supply
- Hawaii Department of--
  - Agriculture--
    - Agriculture Resource Mgmt Div
  - Land and Natural Resources--
    - Com on Water Resources Mgmt
  - Transportation
- Hawaiian Homes Commission
- Honolulu, City and County of--
  - Board of Water Supply
  - Department of Public Works
- Kauai, County of, Department of Water Supply
- Maui, County of, Department of Water Supply
- National Tropical Botanical Gardens
- Office of Hawaiian Affairs

Idaho:
- Boise, City of, Public Works Dept.
- Clearwater Soil & Water Consv Dist
- Fremont-Madison Irr Dist
- Idaho Department of--
  - Health and Welfare, Div. of Environmental Quality
  - Water Resources
- Nez Perce Indian Tribe

Idaho--continued
- Salmon River Canal Co., Ltd.
- Shoshone, County of
- Southwest Irrigation District
- Water District No. 01 (Idaho Falls)
- Water District No. 31 (Dubois)
- Water District No. 32D (Dubois)

Illinois:
- Bloomington and Normal Sanitary District
- Campton Township, Board of Trustees
- Champaign, City of
- Cook County Forest Preserve District
- Danville Sanitary District
- Decatur, City of
- De Kalb, City of, Public Works Department
- DuPage County Forest Preserve, Planning & Development Section
- DuPage County Department of Environmental Conservation
- Illinois Department of--
  - Conservation
  - Energy and Natural Resources--
    - State Water Survey
  - Transportation--
    - Division of Highways
    - Division of Water Resources
- Illinois Environmental Protection Agency
- Kane, County of
- Kankakee Soil and Water Conservation District
- Lake County Dept. Planning, Zoning, & Environmental Quality
- McHenry County Conservation District
- Monticello City of
- Oak Brook, Village of
- Otter Creek Lake Utility District
- Springfield, City of
- University of Illinois
- Urbana, City of
- Vermillion, County of
- Winnebago County Dept. of Public Works

Indiana:
- Carmel, Town of, Utilities
- Elkhart, City of, Water Works
- Indiana Department of--
  - Environmental Management
  - Natural Resources, Division of Water
  - Transportation
- Indianapolis, City of, Dept. of Public Works
- Purdue University
- St. Joseph River Basin Commission

Iowa:
- Ames, City of
- Cedar Rapids, City of, Engineering Dept
- Clinton, City of
- Coralville, City of
- Davenport, City of
- Des Moines, City of
- Fort Dodge, City of
- Geological Survey Bureau
- Institute of Hydraulic Research
- Iowa City, City of
- Iowa Department of--
  - Transportation, Highway Division
- Iowa State University
- Muscatane Water and Light Board
- Sioux City, City of
- University of Iowa--
  - Hygienic Laboratory

Kansas:
- Arkansas River Compact Administration
- Cameron, MO, City of
- Equus Beds Groundwater Mgmt. District No. 2
- Harvey County Conservation District
- Hays, City of
- Iowa Tribe of Kansas and Nebraska
- Johnson, County of, Dept. of Public Works
- Kansas Geological Survey
- Kansas Highway Commission
- Kansas St. Board of Agriculture
- Kansas State Conservation Commission
- Kansas State University Dept. of Agronomy
- Kansas University Center for Research, Inc.
- Kansas Water Office
- Kickapoo Tribe of Kansas
- Lake Region Res. Conservation Council, Inc.
- Prairie Bend Potawatomie Tribe
- Riley, County of
- Sac and Fox Tribe of Missouri
- Topeka Public Works
- Wichita, City of

Kentucky:
- Bullitt, County of
- Campbellsville Municipal Water
- Carrollton, City of
- Elizabethtown, City of
- Georgetown, City of
- Glasgow Water Company
- Kentucky Department of--
  - Health Services
  - Natural Resources & Environmental Protection Cabinet
- Kentucky River Authority

Kentucky--continued
- Louisville, City of
  - Office of Health & Environment
- Madison County Conservation District
- Metropolitan Sewer District
- Owensboro, City of
- University of Louisville

Louisiana:
- Amite River Basin River Commission
- Calcasieu Parish
- Capital-Area Groundwater Comm.
- East Baton Rouge Parish
- Louisiana Department of--
  - Environmental Quality
  - Natural Resources
  - Transportation and Development
    - Bridge Hydraulics
    - Office of Public Works
  - Wildlife and Fisheries
- Lake Pontchartrain Foundation
- Louisiana Office of Emergency Preparedness
- LSU-Coastal Ecology Institute
- Sabine River Compact Administration
- St. Tammany Parish
- St. John the Baptist Parish
- West Monroe, City of

Maine:
- Greater Portland Council of Governments
- Jay, Town of
- Maine, Department of--
  - Environmental Protection
  - Human Services
  - Transportation
- Maine Geological Survey
- Northern Maine Regional Planning Comm.
- Portland Water District
- University of Maine at Orono
- Windham, Town of

Maryland:
- Baltimore, City of, Water Quality Management
- Calvert County Soil Conservation
- Interstate Comm Potomac River Basin
- Maryland Department of Environment--
  - Water Mgmt. Administration
- Maryland Geological Survey
- Maryland State Highway Administration--
  - Office of Bridge Development

Massachusetts:
- Cape Cod Commission
- Dartmouth, Town of
- Massachusetts Department of--
  - Environmental Management--
    - Div. of Resource Conservation
    - Bureau of Resource Protection
    - Office of Watershed Management
- Massachusetts Highway Department
- Massachusetts Water Resources Authority
- Metropolitan District Commission--
  - Parks, Engng. and Construction Division
  - Watershed Management Division
- Rehoboth, Town of
- Westborough, Town of

Michigan:
- Antrim County Drain Commission
- Battle Creek, City of--
  - Board of Public Utilities
- Bay Mills Indian Community
- Big Rapids, City of
- Cadillac, City of
- Charter Township of Ypsilanti
- Clare, City of
- Coldwater, City of
- Delta Charter Township
- Elsie, Village of, Department of Public Works
- Gerrish Township
- Huron-Clinton Metropolitan Authority
- Huron County Board of Commissioners
- Imlay, City of
- Kalamazoo, City of, Dept. of Public Works
- Lac Vieux Desert Indian Tribe
- Lansing Board of Water & Light
- Michigan Department of--
  - Agriculture, Pesticide & Plant Mgmt
  - Transportation
- Portage, City of
- Portland, City of
- Sault Ste. Marie Indian Tribe
- Southeast Michigan Council Governments
- Tri-County Regional Planning Commission
- Wayne, County of--
  - Div. of Environ. Health
  - Dept of Public Works
- Ypsilanti Community Utilities Authority

Minnesota:
- Beltrami County Soil & Water Cons. District
- Boris Forte Lake Superior Band of Chippewa Indians
- East Otter Tail Soil & Water Cons Dist
- Elm Creek Cons. Mgmt. & Planning Comm.

Minnesota--continued
- Grand Portage Reservation Tribal Council
- Red River Watershed Mgmt. Board
- Lower Sioux Indian Community
- Minnesota Department of--
  - Natural Resources
  - Transportation
- Minnesota Pollution Control Agency
- Pennington Soil & Water Conservation Distt
- Prairie Island Indian Community
- Rochester, City of
- Shakopee Mdowakanton Sioux Community
- Upper Sioux Indian Community

Mississippi:
- Harrison County of
- Jackson, City of
- Jackson County--
  - Board of Supervisors
- Mississippi Department of--
  - Agriculture and Commerce
  - Highways
  - Environmental Quality
    - Office of Land and Water Resources
    - Office of Pollution Control.
- Pat Harrison Waterway District
- Pearl River Basin Development District
- Pearl River Valley Water Supply District

Missouri:
- Cameron, City of
- Cass County Soil and Water Cons. District
- Columbia, City of, Dept. of Public Works
- Illinois Environmental Protection Agency
- Independence, City of, Water Dept.
- Jefferson City Division of Health
- Mid-America Regional Council
- Missouri Department of--
  - Conservation
  - Natural Resources--
    - Division of Geology & Land Survey
    - Div. of Parks, Recreation, & History
    - Div. of Environmental Quality
- Missouri Highway & Transportation Comm.
- Springfield, City of,
  - City Utilities, Emergency Dept.
- St. Francois County Environmental Corp.

Montana:
- Blackfeet Nation
- Fort Peck Indian Reservation
- Judith Basin Conservation District
- Lewis & Clark City-County Health Dept.
- Lower Yellowstone Irrigation Project

Montana--continued
- Montana Bureau of Mines and Geology
- Montana Department of--
  - Fish, Wildlife, and Parks
  - Health and Environmental Sciences
  - Justice
  - Natural Resources and Conservation
  - State Lands
  - Transportation
- North Powell Conservation Dist.
- Northern Cheyenne Tribe
- Ravalli County Commissioners
- Salish & Kootenai Tribes
- Two Leggings Water Users Association
- Wyoming State Engineer

Nebraska:
- Blue River Compact Administration
- Central Platte Natural Resources District
- Lancaster County Board of Commissioners
- Lincoln, City of
- Loup River Public Power District
- Lower Elkhorn Natural Resources District
- Lower Platte North Natural Resources District
- Lower Platte South Natural Resources District
- Lower Republican Natural Resources District
- Middle Republican Natural Resources District
- Nebraska Department of--
  - Environmental Quality
  - Health
  - Roads
  - Water Resources
- Nebraska Game and Parks Commission
- Nebraska Natural Resources Commission
- Nemaha Natural Resources District
- North Platte Natural Resources District
- Papio-Missouri River Natural Resources Dist.
- South Platte Natural Resources District
- Tecumseh, City of
- Twin Platte Natural Resources District
- Univ. of Nebraska, Conservation & Survey Div.
- Upper Big Blue Natural Resources District
- Upper Loup Naural Resources District
- Upper Niobrara-White Natural Resources Dist.
- Upper Republican Natural Resources Dist

Nevada:
- Carson City Utilities Dept
- Carson Water Subconservancy District
- Churchill, County of
- Clark County Regional Flood Control District
- Clark County Sanitation District
- Douglas, County of
- Duck Valley Reservation

Nevada--continued
- Henderson, City of
- Las Vegas Valley Water District
- Nevada Bureau of Mines and Geology
- Nevada Department of--
  - Conservation and Natural Resources--
    - Division of Environmental Protection
    - Division of Water Resources
  - Transportation
  - Wildlife
- Pyramid Lake Paiute Tribal Council
- Sparks, City of
- Summit Lake Paiute Indian Tribe
- Tahoe Regional Planning Agency
- Walker River Paiute Tribe
- Washoe, County of, Dept. of Public Works

New Hampshire:
- Keene, City of
- New Hampshire Department of--
  - Environmental Services
- Rochester, City of

New Jersey:
- Atlantic Highlands, Borough of
- Bergen, County of
- Brick Township Municipal Utility Authority
- Byram Township Environmental Com
- Delaware River Basin
- Gloucester County Planning Dept.
- Medford, Township of
- Mercer County Park Commission
- Morris County Municipal Utility Authority
- New Brunswick, City of
- New Jersey Department of--
  - Environmental Protection
  - Transportation
- New Jersey Water Supply Authority
- North Jersey District Water Supply Comm.
- Passaic Valley Water Commission
- Pennsylvania Dept of Environmental Protection
- Pinelands Commission
- Rutgers State Univ.--
  - Dept. of Radiation and Environment
- Somerset County Bd of Chosen Freeholders
- Washington Township Municipal Utility Auth.
- West Windsor, Township of

New Mexico:
- Albuquerque, City of
  - Public Works Department--
    - Hydrology Division
    - Water Utility Planning Division

New Mexico--continued
    - Waste Water Division
- Albuquerque Metro. Arroyo Flood Control Auth
- Bernalillo County.
- Canadian River Water Authority
- Costilla Creek Compact Commission
- Elephant Butte Irrigation District
- City of El Paso, Water Utilities
- El Paso County Water Improvement
- La Cienega Acequia
- Las Cruces, City of
- New Mexico Department of--
  - Environment
  - Highways and Transportation
- New Mexico State University--
  - Water Resources Research Institute
- Office of the State Engineer
- Pecos River Compact Commission
- Pueblo de Cochiti
- Pueblo of Zuni
- Raton, City of
- Rio Grande Compact Commission
- Rio San Jose Flood Control District
- Ruidoso, Village of
- Santa Rosa, City of
- Texas Water Development Board

New York:
- Amherst, Town of, Engineering Department
- Auburn, City of
- Camillus, Town of
- Chautauqua, County of, Dept. of Plan. & Dev.
- Clifton Park Water Authority
- Cornell University
- Erie County
- Hudson-Black River Regulating District
- Ithaca, City of, Dept of Public Works
- Livingston, County of
- Monroe County Department of Health
- Nassau County Department of Public Works, Div of Sanitation & Water Supply
- NY City Environmental Protection Admin.--
  - Bureau of Water Supply & Wastewater
- New York State Department of--
  - Environmental Conservation, Planning & Restoration--
    - Bureau of Monitoring & Assessment
  - Health, Bureau of Public Water Supply
  - Transportation
- New York State Power Authority
- Nyack, Village of, Bd. of Water Commissioners
- Onondaga, County of--
  - Department of Drainage & Sanitation
  - Water Authority

New York--continued:
- Saratoga Springs Office of the Commissioner of Public Works
- Seneca Nation of Indians
- State Univ. at Syracuse-- Dept. Environmental Sciences & Forestry
- State Univ. at Buffalo
- Suffolk, County of-- Department of Health Services Water Authority
- Ulster, County of, Health Department
- Victor, Village of

North Carolina:
- Asheville, City of
- Bethel, Town of
- Brevard City of
- Chapel Hill, Town of
- Charlotte, City of
- Charlotte-Mecklenburg Utility Dept.
- Danville, VA, City of
- Durham, City of
- Greensboro, City of
- Jackson County Commissioners
- Lexington, City of
- Lumber River Council of Governments
- Mecklenburg, County of
- Morganton, City of
- North Carolina Coop. Extension Service Dallas & Raleigh
- North Carolina State Department of-- Environment, Health, & Natural Resources Transportation
- Orange County
- Raleigh, City of
- Rocky Mount, City of
- Triangle Area Water Supply Monitoring Project Steering Comm.
- Univ of Nebraska, Civil Engineering Dept
- Western Piedmont Council of Governments

North Dakota:
- Barnes County Soil Conservation Dist.
- Cass County Joint WR Dist.
- Devils Lake Sioux Tribe
- Dickinson, City of
- Grand Forks, City of
- Lower Heart Water Resources District
- Minnesota Polution Control
- Minot, City of
- North Dakota Department of Transportation
- Red River Joint Water Mgmt. Board
- Red River Watershed Management Board
- Southeast Cass Water Resources

North Dakota--continued
- State Health Department
- State Water Commission
- Three Affiliated Tribes
- Turtle Mountain Tribe

Ohio:
- Akron, City of
- Canton, City of
- Columbus, City of, Div of Water
- Eastgate Dev. & Transportation Agency
- Franklin, County Commissioners
- Fremont, City of
- Geauga County Planning Commission
- Lima, City of
- Madison, County Commissioners
- Miami Conservancy District
- N.E. Ohio Regional Sewer District
- Ohio Department of-- Natural Resources Transportation
- Ohio EPA
- Ohio State University, Dept. of Agronomy
- Ross, County Board of Commissionersf
- Summit County Engineers
- Toledo, City of, and Ohio State Univ
- Washington, County Commissioners

Oklahoma:
- Canadian River Municipal Water Authority
- Henryetta, City of
- McGee Creek Authority
- Oklahoma City, City of-- Water and Waste Water Utilities
- Office of the Secretary of the Environment
- Oklahoma Conservation Commission
- Oklahoma Department of Transportation
- Oklahoma Dept of Wildlife Conservation
- Oklahoma Geological Survey
- Oklahoma State Univ.-- Div. of Agri. Sciences & Natural Resources
- Oklahoma Water Resources Board
- Ponca Tribal Business Committee
- Sac and Fox Nation
- Texas Water Development Board
- Tulsa, City of

Oregon:
- Albany, City of
- Ashland, City of
- Bend, City of
- Clackamas County
- Coos County Board of Commissioners
- Coos Bay-North Bend Water Board

Oregon--continued
- Douglas, County of--
  - Natural Resources Division
- Eugene, City of, Water & Electric Board
- Grand Ronde ConFed Tribes
- Gresham, City of--
  - Dept. of Environmental Services
- Jackson, County of--
  - Dept. of Planning & Development
- Jefferson County Commission
- McMinnville, City of
- Oregon Assoc., Clean Water Agencies
- Oregon Department of--
  - Energy
  - Environmental Quality
  - Human Resources, State Health Division
  - Transportation, Highway Division
  - Water Resources
- Portland, City of--
  - Bureau of--
    - Environmental Services
    - Water Works
- Unified Sewerage Agency
- Warm Springs Tribal Council
- Washington State Dept. of Ecology
- West Linn, City of

Pennsylvania:
- Allentown, City of, Engineering Department
- Bethlehem, City of
- Bucks, County of
- Chester County Water Resources Authority
- Delaware County Solid Waste Authority
- Delaware Geological Survey
- Delaware DNREC, Div of Soil & Water Consv
- Delaware River Basin Commission
- Doylestown Township Municipal Authority
- Env Conserv Plng & Restoration
- Harrisburg, City of, Dept. of Public Works
- Hazelton City Authority Water Department
- Jefferson County
- Joint Planning Comm., Lehigh-Northampton Counties
- Letort Regional Authority
- Media Borough Water Department
- New Oxford Municipal Authority.
- North Penn Water Authority
- North Wales Water Authority
- Philadelphia, City of, Water Department
- Pennsylvania Department of--
  - Environmental Resources--
    - Bureau of--
      - Land & Water Conservation
      - Mining and Reclamation

Pennsylvania--continued
      - Water Supply & Community Health
    - Transportation
- Pennsylvania State University
- Roaring Spring Municipal Authority
- Somerset Conservation District
- Sunbury, City of, Municipal Authority
- Susquehanna River Basin Commission
- Union County Emergency Mgmt Svcs
- University Area Joint Authority
- Warwick Township
- Williamsport, City of

Rhode Island:
- Narragansett Bay Water Quality Commission
- North Kingstown, Town of
- Providence, City of, Water Supply Board
- Rhode Island State Dept. of Environ. Mgmt--
  - Division of Water Resources
  - Division of Water Supply
  - Freshwater Wetlands
- State Water Resources Board

South Carolina
- Anderson, City of
- Beaufort-Jasper County Water Authority
- Camden, City of
- Charleston Harbor Project
- Charleston Public Works
- Clarendon/Sumter Soil & Water Conservation District
- Clemson University
- East Carolina Univ., Dept of Biology
- Greer Commission of Public Works
- Laurens County Water & Sewer Com
- Mt. Pleasant Water Works & Sewer Dept.
- Myrtle Beach, City of
- Oconee County Sewer Commission
- South Carolina State Dept of--
  - Health & Environ. Control
  - Transportation
  - Natural Resources--
    - Water Resources Div.
  - Public Service Authority
- Spartanburg Sanitary Sewer District
- Spartanburg Water System
- University of South Carolina--
  - Dept. of Environmental Health Science
- Waccamaw Regional Planning & Dev. Council
- Western Carolina Regional Sewer Authority

South Dakota:
- Area II Minnesota River Basin
- Belle Fourche Irrigation District
- Cheyenne River Sioux Tribe
- East Dakota Water Development District
- Faulk Conservation District
- Lake Kampeska Water Project District
- Lower Brule Sioux Tribe
- Mellette, County of
- North Sioux City, City of
- Oglala Sioux Tribe, Dept of Natural Res.
- Pelican Lake Water Project District
- Rapid City, City of, Public Works Dept
- Roberts, County of
- Rosebud Sioux Tribe
  - Office of Water Resources
- Sioux Falls, City of, Utility Dept
- Sisseton-Wahpeton Dakota Nation
- South Dakota Dept of--
  - Environment and Natural Resources
    - Environmental Regulation Div
    - Geological Survey Division
    - Water Rights Division
  - Game, Fish and Parks
    - Custer State Park Div
  - Transportation
- South Dakota State University
  - Civil Engineering Department
- Spearfish, City of
- Stanley County Conservation District
- Union County Commission
- Vermillion Basin Water Dev Dist
- Watertown, City of
- West Dakota Water Development District
- West River Water Development District
- Wyoming State Engineer

Tennessee:
- Alcoa, City of
- Athens Utility Board
- Bedford County
- Camden, City of
- Crossville, City of
- Dickson, City of
- Dickson County Solid Waste Authority
- Duck River Development Agency
- Eastside Utility District
- Franklin, City of
- Germantown, City of
- Grundy County Soil Conservation District
- Harriman Utility Board
- Harpeth Valley Utility District
- Hixson Utility District
- Johnson City Public Works Dept.

Tennessee--continued
- Knoxville, City of
- Lewisburg, City of
- Memphis, City of, Light, Gas, & Water Division
- Memphis Dept of Public Works
- Metropolitan Governments, Nashville, City of, & Davidson, County of
- Murfreesboro, City of, Water & Sewer Dept.
- Red Boiling Springs, Town of
- Rogersville, Town of
- Savannah Valley Utility District
- Sevierville, City of
- Shelby County
- Shelby County Soil Conservation District
- Springfield, City of
- Tennessee Department of--
  - Agriculture
  - Environment & Conservation
    - Div of Pollution Control
  - Transportation--
    - Division of Structures
- Tennessee Ocoee Development Agency
- Tennessee Wildlife Resources Agency
- Tullahoma Utilities Board
- Univ of Tennessee--
  - Agricultural Extension Service
- Wartrace, Town of

Texas:
- Abilene, City of
- Arlington, City of
- Austin, City of
- Barton Springs/Edwards Aquifer Conservation District
- Bexar-Medina-Atascosa Water Dist. No. 1
- Brazos River Authority
- Canadian River Water Authority
- Central Texas Council of Governments
- Coastal Water Authority
- Colorado River Municipal Water District
- Corpus Christi Bay Natural Estuary
- Corpus Christi, City of
- Dallas, City of--
  - Public Works Department
  - Water Utilities Dept
- Edwards Underground Water District
- El Paso County Water Improvement
- Fort Bend Subsidence District
- Fort Worth, City of
- Gainesville, City of
- Galveston, County of
- Georgetown, City of
- Graham, City of
- Greenbelt Municipal & Industrial Water Auth.

Texas--continued
- Guadalupe-Blanco River Authority
- Harris, County of, Flood Control District
- Harris-Galveston Coastal Subsidence District
- Houston, City of
- Houston-Galveston Area Council
- Lavaca-Navidad River Authority
- Lower Colorado River Authority
- Lower Neches Valley Authority
- Lubbock, City of
- Nacogdoches, City of
- North Central Texas Council of Governments
- North East Texas Municipal Water District
- North Texas Municipal Water District
- Orange, County of
- Pecos River Commission
- Sabine River Authority of Texas
- Sabine River Compact Administration
- San Angelo, City of
- San Antonio, City of--
  - Public Service Board
  - Water Systems
- San Antonio River Authority
- San Jacinto River Authority
- Somerville County Water District
- Tarrant, County of, Water Control & Improvement District No. 1
- Texas Agricultural Experiment Station
- Texas Natural Resources Conserv Comm
- Texas Soil and Water Conservation Board
- Texas State Dept. of Transportation
- Texas Water Development Board
- Titus, Co. of, Fresh Water Dist
- Trinity River Authority
- University of Texas-Dept of Geological Sci
- Upper Guadalupe River Authority
- Utah Dept. of Geological Science
- West Central Texas Municipal Water District
- Wichita, Co. of, Water Improvement Dist. No. 2
- Wichita Falls, City of

Utah:
- AZ Dept. of Water Resources
- Bear River Commission
- Central Utah Water Conservation District
- Grantsville, City of
- Kanab, City of, Water Dept.
- Kane County Water Conservancy
- Nephi, City of
- NV Dept. of Conservation & Natural Res.
- Ogden River Water Users Association
- Park City Public Works
- Salt Lake, County of, Flood Control
- St. George, City of--

Utah--continued
  - Water Reclamation Dept
- Tooele, City of
- Tooele County
- Utah Department of--
  - Environmental Health, Div. Water Quality
  - Natural Resources--
    - Oil, Gas, and Mining Div.
    - Water Resources Division
    - Water Rights Division
    - DNR-Div of State Lands & Forests
      - DIV of Sovereign Lands & For
    - Div of Environmental Response & Remediation
- Washington County Water Conserv Dist
- Weber Basin Water Conservancy District
- Weber River Water Users Association
- Utah Div of Wildlife Resources
- Utah State University

Vermont:
- Agency of Transportation--
  - Engineering Services Div
- Department of Environmental Conservation

Virginia:
- Alexandria, City of
- Danville, City of
- Hampton Roads Planning Commission
- James City, County of
- Newport News, City of
- Norfolk, City of
- Northern Virginia Planning District Commission
- Prince William Public Works
- Roanoke, City of
- Southeastern Public Service Authority of VA
- University of Virginia, Dept. of Environmental Sciences
- Virginia Department of--
  - Conservation & Reclamation
  - Environmental Quality
  - Highways and Transportation
- VPI & St. U
- Washington County Serv. Authority
- West Piedmont Planning District Comm

Washington:
- Aberdeen, City of
- Bellevue, City of
- Chelan, County of, Public Utility District No. 1
- Clallam County Dept. Community Develop.
- Douglas, County of, Public Utility District No. 1
- Fish and Wildlife
- Hoh Indian Tribe

Washington--continued
- Kent, City of
- King County Department of Public Works
- Lewis County Board of Commissioners
- Lower Elwha Tribal Community Council
- Makah Indian Tribe
- Muckleshoot Indian Tribe
- Nisqually Indian Tribe
- Oregon Department of Fish and Wildlife
- Pierce, County of, Public Works Dept.
- Port Townsend, City of
- Quileute Tribal Council
- Quinault Indian Business Committee
- Seattle, City of, Light Dept.
- Skagit County Department of Public Works
- Skokomish Indian Tribe
- Snohomish, County of--
  - Board of Commissioners
  - Public Utilities
- Spokane County Conservation
- Tacoma, City of, Department of--
  - Public Utilities
  - Public Works
- Tacoma-Pierce County Health
- Thurston County Department of Public Works
- Umatilla Tribal Council
- Washington Department of--
  - Ecology
  - Fisheries & Wildlife
  - General Administration
  - Health
  - Highways
  - Natural Resources
- Washington State Community Dev
- Whatcom County Planning Dept
- Yakima Tribal Council

West Virginia:
- New Martinsville, City of
- West Virginia Division of--
  - Environmental Protection--
    - Abandoned Mines & Reclamation
  - Highways
- West Virginia Dept of Natural Resources--
  - Office of Waste Management
- West Virginia Geological & Economic Survey

Wisconsin:
- Alma/Moon Lake District
- Auburn, Town of
- Barron, City of
- Beaver Dam, City of
- Big Muskego Lake District
- Brookfield, City of

Wisconsin--continued
- Dane, County of--
  - Department of Public Works
  - Regional Planning Commission
- Darboy Sanitary District
- Delavan, Town of
- Desert Research Institute
- Druid Lake Inland Protection & Rehab. District
- Eagle Spring Lake Management
- Fond Du Lac, City of
- Fontana Walworth Water Pollution Control Comm.
- Fowler Lake Management District
- Geological Survey
- Green Bay Metropolitan Sewerage District
- Green Lake Sanitary District
- Hillsboro, City of
- Kansasville, Town of
- Kaukauna Electric and Water Utilities
- Kimberly Water Works Department
- Lac Du Flambeau Indians
- Lake Keesus Management District
- Lake Nebagamon, Village of
- Lauderdale Lakes Lake Management District
- Little Arbor Vitae Protection & Rehab. District
- Little Chute, Village of
- Little Green Lake Protection & Rehab. District
- Little Muskego Lake District
- Madison Engineering Department
- Madison Metropolitan Sewerage District
- Mead, Township of
- Menasha, Town of, Sanitary District No. 4
- Menominee Indian Tribe of Wisconsin
- Minnesota Polution Control Agency--
  - WQ Division
- Montello Lake Inland Pro & Rehab Dist
- Muskego, City of
- Norway, Town of
- Oconomowoc Lake, Village of
- Okauchee Lake Management District
- Oneida Indian Tribe of Wisconsin
- Park Lake Management District
- Peshtigo, City of
- Potters Lake Rehabilitation & Protection Dist.
- Powers Lake Management District
- Pretty Lake Management District
- Rock County Public Works Department
- St. Germain, Town of
- Southeastern Wisconsin Regional Planning Commission
- Sparta, City of
- Stockbridge-Munsee Indians
- Summit, Town of
- Thorp, City of

Wisconsin--continued
- Twin Lakes Pro & Rehab Dist
- Upper Nemahbin Lake Management District
- Waterford, Town of
- Waupun, City of
- Whitewater-Rice Lake Management District
- Wind Lake Management District
- Wisconsin Department of--
  - Justice
  - Natural Resources
  - Transportation
- Wittenberg, Village of
- Wolf Lake Management District

Wyoming:
- Arapahoe/Shoshone Joint Business Council
- Cheyenne Board of Public Utilities
- Cheyenne, City of
- Colorado State University
- Evanston, City of
- Freemont County Weed and Pest District
- Game and Fish Commission
- Lingle-Ft. Laramie Cons District
- Midvale Irrigation District
- Sandia National Laboratories
- Sar-Encamp-Rawlins Conservation Dist
- Shoshone & Heart Mtn Irrigation Dist
- Star Valley Conservation District
- South Goshen Conservation Dist
- Teton, County of
- Teton County Natural Resources District
- Water Development Commission
- Wyoming Department of--
  - Agriculture
  - Environmental Quality
  - Health and Environment
  - Transportation
- Wyoming State Engineer

American Samoa:
- Environmental Protection Agency of American Samoa
- Power Authority

Guam:
- Guam, Government of, Environmental Protection Agency

Puerto Rico:
- Puerto Rico Aqueduct and Sewer Authority
- Puerto Rico Civil Defense
- Puerto Rico Dept. of Health
- Puerto Rico Department of Natural & Environmental Resources
- Puerto Rico Electric Power Authority
- Puerto Rico Environmental Quality Board
- Puerto Rico Industrial Development Company
- U.S. Virgin Islands Dept. of Planning & Natural Resources
- University of Puerto Rico--
  - Dept of Environmental Health

Trust Territory of the Pacific Islands:
- Commonwealth Utilities Corp., Saipan
- Northern Mariana Islands, Commonwealth of--
  - Div. of Environmental Quality
  - Municipality of TInian and Aquigar
- Government of Palau