WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

CONTINUOUS-RECORD NETWORKS FOR COLLECTION OF HYDROLOGIC DATA IN OHIO

INTRODUCTION

Since the early part of the 20th century, the U.S. Geological Survey (USGS) has worked with a variety of tax-supported state and local agencies in Ohio to develop a long-term base of statewide water-resources data. A primary part of the mission of the USGS is collecting, on a systematic basis, data needed for the continuing determination and evaluation of the quantity, quality, and use of the Nation's water resources.

CONTINUOUS-RECORD DATA-COLLECTION NETWORKS

To fulfill its mission and responsibilities in the area of data collection, the USGS operates several types of stations to measure the quantity and quality of surface water and ground water. Fundamental to the USGS program, as well as to State and local water-resources programs, are the networks of continuous-record data-collection stations; that is, stations at which water data are collected every day of the year. Continuous-record surface-water stations in Ohio monitor streamflow, reservoir stage and (or) contents, physical and chemical characteristics, and sediment load. Continuous-record ground-water stations in Ohio are equipped to collect water-level data only. Records from these networks are the foundation for many national water-resources management and planning activities and are the basis for early warning of many potential water problems.

About 75 percent of the cost of continuous-record data-collection activities in Ohio is shared with State and local governmental agencies. The Ohio Department of Natural Resources currently (1992) is the principal State cooperating agency in USGS data-collection programs. Other current cooperators in the data programs are the Miami Conservancy District; the cities of Columbus, Toledo, Canton, Akron, Fremont, and Lima; Ross County; the Ohio Environmental Protection Agency; the Toledo Metropolitan Area Council of Governments; the Seneca Soil and Water Conservation District; the Eastgate Development and Transportation Agency; and the Northeast Ohio Regional Sewer District. The rest of the cost is borne by the U.S. Army Corps of Engineers and the USGS.

DATA USERS AND USES

During 1991, the staff of the USGS office in Columbus, Ohio, spent nearly 350 hours answering 650 information inquiries. About two-thirds of these requests were for data from continuous-record stations. The USGS annual water-data report for Ohio, which contains data from all continuous-record stations, was sent to nearly 300 individuals and organizations in 1991.

Among the principal users of these data are State, local, and other Federal agencies that cooperate with the USGS in collection of hydrologic data. Other organizations—academic institutions and private consulting firms in particular—also depend on continuous-record data. Federal agencies use the data for continued refinement of reservoir management for flood control, navigation, and maintenance of streamflow during drought; aquatic-habitat preservation; recreation; analysis of potential hydropower sites; research on pesticide transport and surface-water contamination by runoff; and research on wetlands. State and local agencies use the data for drought planning, water-supply planning and management, flood-plain management, stormwater management, regulation of point-source discharges, regulation of sewage disposal, preservation of wetlands and other habitats, and resolution of conflicts over ground-water use. Academic institutions use the data for training and research in environmental sciences and engineering. Private firms use the data in consulting work.

STATUS OF THE DATA-COLLECTION NETWORKS

The network of hydrologic data-collection stations in Ohio was at its largest around 1980, a time when Federal and State funding for water programs was especially strong. Since then, the numbers of most types of continuous-record stations in Ohio have declined substantially as a consequence of budget cuts in many Federal and State programs (fig. 1). The declines in numbers of stations range from about 15 percent for ground-water stations to greater than 85 percent for water-quality monitors. Trends in the numbers of specific kinds of stations in Ohio for selected years are as follows:

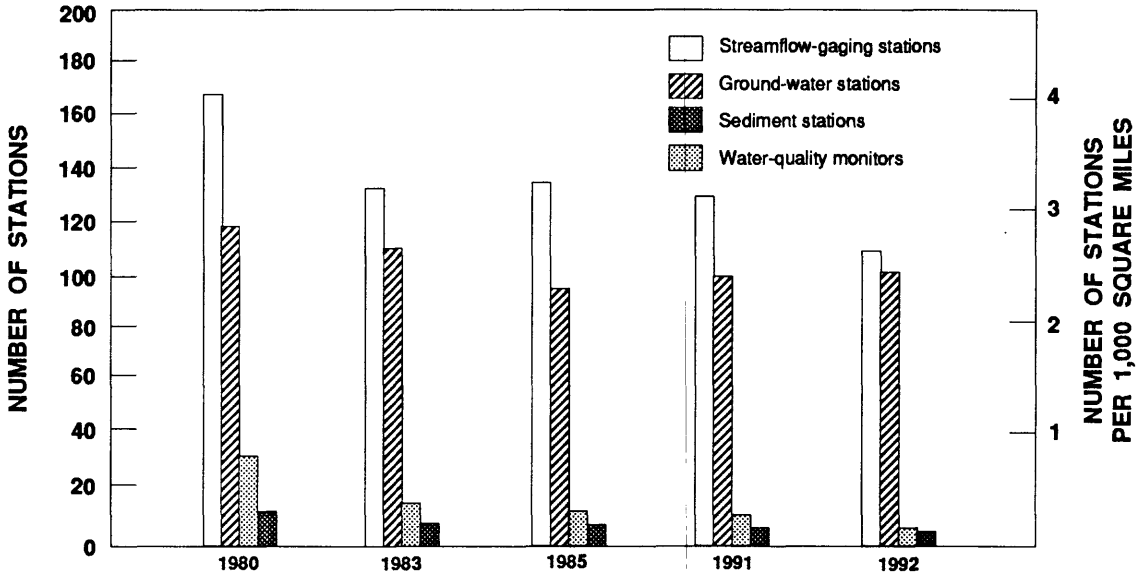

Figure 1. Numbers of continuous-record data-collection stations in four networks in Ohio for selected years.

- The network of streamflow-gaging stations, which provides data that can be used to develop magnitude-frequency relations for floods and low flows, declined by 35 percent from 1980 to 1992. The number of stations decreased from 169 in 1980 to 132 in 1983, remained fairly steady through 1991, and decreased again, to 110 stations, in 1992.

- The ground-water network, which provides data on ground-water levels in representative geologic formations throughout Ohio, declined by 15 percent from 1980 to 1992. The 102 observation wells in the ground-water network in 1992, though fewer than the 119 wells in 1980, represent an increase from the low of 96 wells in 1985.

- The suspended-sediment network, which provides data that can be used to evaluate sediment deposition in reservoirs and stream channels and to estimate sediment yield in areas drained by the sampled stream, declined by 73 percent from 1980 to 1992. The number of stations decreased from 11 in 1980 to 5 in 1983, remained fairly steady through 1991, and decreased to 3 in 1992.

- The network of water-quality monitors (stream stations equipped to record data on basic water-quality characteristics) declined by 87 percent from 1980 to 1992. Only 4 monitors operated in 1992, compared with 31 in 1980. This represents the largest reduction of a continuous-record network in Ohio since 1980.

The trends in numbers of continuous-record stations in Ohio seem to be about the same as the trends for continuous-record stations operated by the USGS nationwide during 1983-91, the period for which nationwide totals are currently available. It is not known at the date of writing whether the number of continuous-record stations nationwide in 1992 will correspond to the substantial reductions in Ohio.

ADDITIONAL INFORMATION

Additional information on the continuous-record data-collection networks in Ohio can be obtained by contacting:

District Chief
Water Resources Division
U.S. Geological Survey
975 West Third Avenue
Columbus, Ohio 43212-3192

SELECTED REFERENCES

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Open-File Report 92-152

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Michael Eberle, 1992