



# WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

## SOURCES OF WATER-USE DATA IN MINNESOTA

### WHO NEEDS WATER-USE DATA?

Since the 1976-77 drought in Minnesota, legislators, planners, and citizens have become aware of the need for water management based on knowledge of water availability and use in order to alleviate local water shortages. In addition to maintaining an adequate supply, information on the amount of water used, where it is used, and how it is used is needed to help resolve problems of resource allocation, environmental impact, energy development, and water quality. A reliable water-use-data base providing historical information is needed by management and regulatory agencies to monitor and project the hydrologic effects of water demands.

### HOW ARE WATER-USE DATA COLLECTED IN MINNESOTA?

Water-use data usually are first compiled by the individual user. Knowledge of how much water is withdrawn or discharged commonly is needed for efficient operation or for compliance with State regulations. The Minnesota Department of Natural Resources (MDNR) requires municipalities, industries, powerplants, businesses, and irrigators withdrawing more than 10,000 gallons per day or more than 1 million gallons per year to report monthly and annual withdrawals on the form, "Annual Report of Water Use." The Minnesota Pollution Control Agency requires a monthly report of discharge from a large number of municipal, industrial, and other water users to help determine whether discharge permits should be continued.

Some types of water use data, however, usually are not compiled directly by the users. For instance, farmers or other rural dwellers are not required to record the amount of water they use for domestic purposes or for on-farm livestock watering. These categories are estimated by applying a typical water-use rate to population or agricultural census data. Another category of water use for which estimates are used is power generation by hydroelectric plants. Estimates are based on the amount of energy produced and on plant efficiency.

### WHAT IS THE MINNESOTA WATER-USE DATA SYSTEM?

The Minnesota Water-Use Data Base (MWUDS) is a computerized system for storing and retrieving water-use data used in meeting resource-management objectives. Data for MWUDS are acquired by the MDNR, mostly from the "Annual Report of Water Use" form. The system allows easy access to data on permits, to areal and source-summary statistics, and to other data bases containing related data. The MWUDS identifies nonreporting permit holders for a particular year and allows systematic estimation of water use. Since 1979, the USGS-MN has assisted the MDNR in developing MWUDS to ensure that the system is comprehensive and consistent with guidelines of the National Water-Use Program. (See Horn, 1986.)

### THE ROLE OF THE U.S. GEOLOGICAL SURVEY

In 1979, the U.S. Geological Survey introduced an Aggregated Water-Use Data System (AWUDS). Data in AWUDS are aggregated by county and by watershed. Water-use data for 1985 are now available in AWUDS for each State in any of 12 categories: fossil fuel, geothermal, hydroelectric, and nuclear-power generation, irrigation, agricultural nonirrigation, commercial, domestic, industrial, mining, public supplies, and sewage treatment. Uniform categorization and entry of these data allow comparison of water use from State to State, forming a reliable national water-use data base. A report on the estimated use of water in the United States is published by the USGS every 5 years. (See, for example, Solley and others, 1983.)

Most of the Minnesota water-use data for AWUDS come from the Minnesota Water-Use Data System, and are supplemented by additional water-use data collected or estimated by the USGS-MN. Current (1988) sources of Minnesota water-use data are listed in the table. The cooperation of the agencies listed is much appreciated and is essential to the national data-compilation effort.

### REFERENCES CITED

- Bureau of Census, 1984, 1982 census of agriculture-Minnesota state and county data: U.S. Department of Commerce, v. 1, part 23, 414 p.
- Bureau of Census, 1986, 1984 farm and ranch irrigation survey: U.S. Department of Commerce, 85 p.
- Horn, M. A., 1986, Development of a water-use data system in Minnesota: U.S. Geological Survey Water-Resources Investigations Report 85-4306, 59 p.
- Minnesota Agricultural Statistics Service, 1985, Minnesota agricultural statistics, 82 p.
- Minnesota Department of Health, 1985, Public water supply data, 3 volumes, 1044 p.
- Office of State Demographer, 1985, Minnesota population and household estimates 1984: Minnesota State Planning Agency, St. Paul, 74 p.
- Peterson, D. L., and Hennagir, F. A., 1980, Minnesota live bait industry assessment study: Minnesota Department of Natural Resources, St. Paul, Investigational Report No. 367, 98 p.
- Solley, W. B., Chase, E. B., and Mann, W. B., IV, 1983, Estimated use of water in the United States in 1980: U.S. Geological Survey Circular 1001, 56 p.

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**SOURCES OF WATER-USE DATA IN MINNESOTA**

Source agency	Source format	Use category
<b>WATER WITHDRAWAL</b>		
Minnesota Department of Natural Resources, Division of Waters (Water-Use Management) (612) 296-4802	Computerized data system, -- Minnesota Water Use Data Systems (MWUDS)	Fossil power Hydroelectric power Nuclear power Irrigation See footnote 1
	Computer program used to estimate domestic use from private water supplies not subject to permit (run separately from MWUDS storage; based on difference between county and public-supply population data; data supplied by other agencies)	Domestic
Minnesota Department of Natural Resources, Division of Fish and Wildlife, Fisheries Section (Commercial Fisheries) (612) 296-2308	Paper files, manual data system (supplies number of harvesters and acreage permitted for fish farming). Published survey reports (for example, Peterson and Hennagir, 1980).	Aquaculture
Minnesota Department of Health Division of Environmental Health (612) 623-5330	Published report, (for example, Minnesota Department of Health, 1985) includes population served for municipal and nonmunicipal community systems.	Domestic (non-rural)
U.S. and Minnesota Departments of Agriculture Minnesota Agricultural Statistics Service (Information Service) (612) 296-2230	Published report, (for example, Minnesota Agricultural Statistics Service, 1985) includes State totals only for various livestock species. Occasional livestock survey data (includes county totals).	Nonirrigation agriculture
Minnesota State Planning Agency Planning Information Center (Water Information Coordinator) (612) 297-4986	Clearing house for computerized data distribution, including data bases (for example, WELLS) related to water use.	None
Minnesota State Planning Agency Public Investment Section (State Demographer) (612) 296-2557	Published report, (for example, office of State Demographer, 1985) includes census estimates by county.	Domestic
Minnesota Turkey Growers Association (612) 646-4553	Manual data system (supplies annual State total of number of turkeys and occasional partial county breakdown).	Nonirrigation agriculture
U.S. Bureau of the Census (301) 763-1113	Computerized data system and the published reports (for example, Bureau of Census, 1984; Bureau of Census, 1986) supply census data once every 4 years.	Irrigation and nonirrigation agriculture
<b>WATER RETURN</b> (Discharge to surface-water bodies)		
Minnesota Pollution Control Agency Water Quality Division (612) 296-8856	Computerized data system	Sewage treatment Public supply Mining Commercial See footnote 2

1. Fossil Power, Hydroelectric Power, and Nuclear Power water-use data are reported as Power Generation water use in MWUDS; water used for Public Supply Returns is added to the water used for Sewage Treatment. Data is stored in these use categories, but totals for these categories are not normally provided by MWUDS.
2. Sewage Treatment and Public Supply water-use data are reported as Municipal Water use by the Minnesota Pollution Control Agency; the other water-use data categories are reported as Industrial Water use. Data is stored in the listed water-use categories, but totals for the categories are not normally provided by the system.