



# WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

## ESTIMATED WATER USE IN OHIO, 1990

### Mining Data

#### Introduction

Our Nation's social and economic development has depended on and will continue to depend on the availability of usable water. In 1950, the U.S. Geological Survey (USGS) began publishing water-use data on a national level every 5 years to assist in the management of our Nation's water resources. The USGS currently collects and (or) estimates water-use data for the following categories: public supply, domestic, commercial, industrial, thermoelectric power, mining, livestock, animal specialties, irrigation, hydroelectric power (instream use), sewage treatment, and reservoir evaporation.

In 1977, Congress authorized the National Water-Use Information Program. The program encourages the USGS and a State-level agency in each of the 50 States to cooperate in the collection and dissemination of water-use data. In Ohio, the USGS and the Ohio Department of Natural Resources, Division of Water (ODNR-DW), are cooperators in this effort.

In 1990, ODNR-DW implemented the Water Withdrawal Facility Registration Program for Ohio, which requires those water consumers who have the capacity to withdraw 100,000 gallons of water daily to register with the ODNR-DW. Consumers whose daily capacity is less than 100,000 gallons are not required to register. The information collected from the registrants is maintained in computerized data bases at the ODNR-DW and the Ohio District Office of the USGS.

This Fact Sheet, which summarizes Ohio's 1990 mining water-use data, is one of a series that supplements, by category, the national USGS publication on water use.

#### Mining

The mining category includes those registrants that withdraw water for use in the extraction of naturally occurring minerals (such as coal, crude petroleum, and natural gas) in Ohio. The category also includes mining activities such as quarrying, dewatering, and milling. The 98 mining facilities that registered with ODNR-DW in 1990 withdrew water at an estimated rate of 243 Mgal/d (million gallons per day). Ohio ranked eighth in the Nation in total withdrawals for mining.

#### Ground Water

In 1990, mining facilities in Ohio withdrew an estimated 203 Mgal/d from ground-water sources, which represents about 84 percent of the total amount of water withdrawn for use in mining. The greatest ground-water withdrawals for an Ohio county, an estimated 87 Mgal/d, were reported by mining facilities in Washington County, whereas facilities in two counties reported withdrawals of 5 to 20 Mgal/d.

Most Ohio counties reported ground-water withdrawals of less than 10,000 gal/d (gallons per day) (fig. 1).

The water was obtained from six principal aquifer systems (alluvial, outwash, Pennsylvanian, Mississippian, Silurian, and Ordovician) in Ohio. About 82 percent of the total estimated amount of ground water used by mining facilities was withdrawn from the alluvial aquifers.

The greatest ground-water withdrawals, an estimated 117 Mgal/d, were reported by mining facilities involved in the production of construction sand and gravel. Mining facilities involved in the production of clay, ceramic, and refractory minerals reported the least amount of ground-water withdrawals, estimated to be less than 100 gal/d.



**Figure 1.** Estimated ground-water withdrawals for mining in Ohio, by county, 1990.

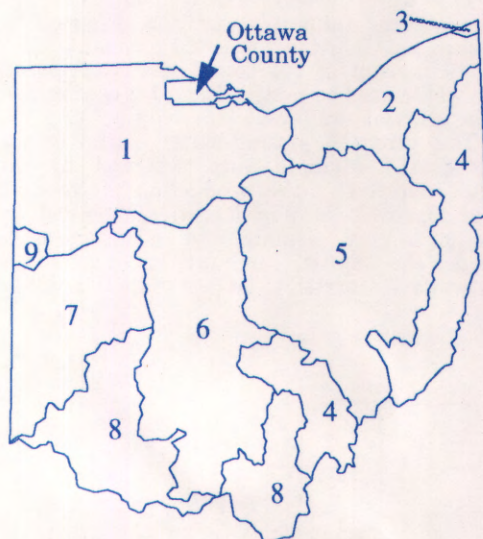
#### Surface Water

In 1990, mining facilities in Ohio withdrew an estimated 40 Mgal/d from surface-water sources. This quantity represents about 16 percent of the total water withdrawn for use in mining. The greatest surface-water withdrawals for an Ohio county, an

estimated 4 Mgal/d, were reported by mining facilities in Ottawa County, whereas facilities in several counties reported withdrawals of less than 10,000 gal/d.

Surface-water withdrawals for mining are shown by drainage basin in figure 2. About 22 percent of the total estimated amount of surface water used by mining facilities in Ohio was withdrawn in the Muskingum River basin.

The greatest surface-water withdrawals, an estimated 14 Mgal/d, were reported by mining facilities involved in the production of construction sand and gravel. Mining facilities involved in the production of clay, ceramic, and refractory minerals reported the least amount of surface-water withdrawals, estimated to be 10,000 gal/d.



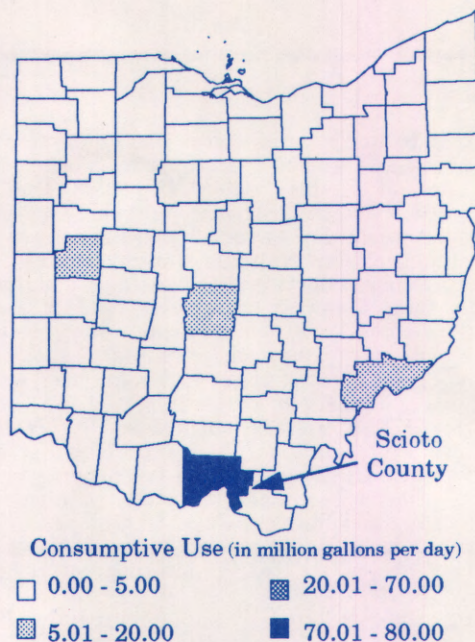
Drainage Basin	Water Withdrawals (in million gallons per day)
1. Western Lake Erie	8
2. Southern Lake Erie	3
3. Eastern Lake Erie	1
4. Upper Ohio River	4
5. Muskingum River	9
6. Scioto River	8
7. Great Miami River	1
8. Middle Ohio River	6
9. Wabash River	0

**Figure 2.** Estimated surface-water withdrawals from drainage basins in Ohio for mining, 1990.

#### Consumptive Use

The estimated total consumptive use (the total water withdrawn minus the total water returned) for mining in 1990 was 140 Mgal/d, which represents about 58 percent of the total amount of water withdrawn for use in mining. Ohio ranked third in the Nation in total consumptive use for mining. The greatest consumptive use for an Ohio county, an estimated 77 Mgal/d, was reported by mining facilities in Scioto County, whereas facilities in three counties reported consumptive use of 5 to 20 Mgal/d. Most Ohio counties reported consumptive use of less than 10,000 gal/d (fig. 3).

The greatest consumptive use, an estimated 86 Mgal/d, was reported by mining facilities involved in the production of crushed and broken limestone. Mining facilities involved in the production of clay, ceramic, and refractory minerals reported the least amount of consumptive use, estimated to be less than 100 gal/d.



**Figure 3.** Estimated total consumptive use for mining in Ohio, by county, 1990.

#### Selected References

- Ohio Department of Natural Resources, Division of Water, 1991, Water Withdrawal Facility Registration Program—1990 water-use data: Data on file at the Division of Water office in Columbus, Ohio.
- Solley, W.B., Pierce, R.R., and Perlman, H.A., 1993, Estimated use of water in the United States in 1990: U.S. Geological Survey Circular 1081, 76 p.

**Additional information on water use in Ohio can be obtained from:**

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