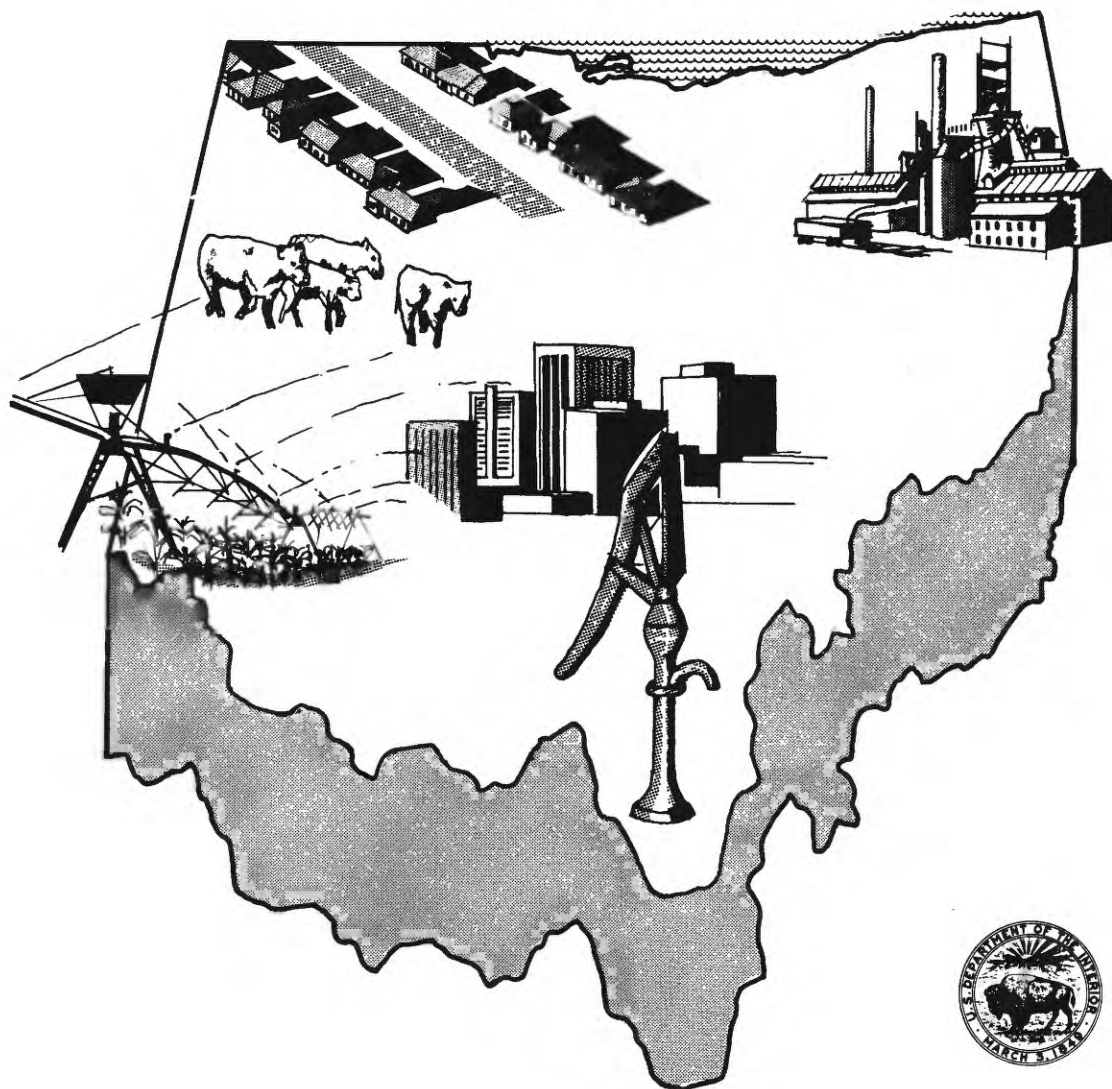


# **WATER USE IN OHIO 1975**

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 81-17

Prepared in cooperation with the  
OHIO DEPARTMENT OF NATURAL RESOURCES,  
DIVISION OF WATER





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

WATER USE IN OHIO, 1975

by R. Michael Hathaway and Michael Eberle

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Columbus, Ohio

1981

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

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## CONVERSION FACTORS

Factors for converting inch-pound units to International System (SI) units:

To convert from	To	Multiply by
inch (in)	millimeter (mm)	25.4
gallons per day (gal/d)	liters per day (L/d)	3.785
Million gallons per day (Mgal/d)	cubic meters per second (m <sup>3</sup> /s)	0.0438
billion gallons per day (Bgal/d)	cubic meters per second (m <sup>3</sup> /s)	43.8

## WATER USE IN OHIO, 1975

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### ABSTRACT

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The estimated water use in Ohio for all purposes in 1975 was 16,431 million gallons per day (Mgal/d). Of this total, 15,321 million gallons per day were taken from surface water while the remaining 1,110 million gallons per day represent ground-water withdrawals. Totals by category are as follows (in million gallons per day): Thermoelectric power generation, 12,404; self-supplied industrial use, 2,362; public water supplies, 1,423; rural domestic and livestock, 201; and irrigation, 40. Per capita water use was calculated to be 1,528 gallons per day for an Ohio population of 10,751,000 in 1975.

Jefferson County led all Ohio counties in total water use with 3,447 million gallons per day. This was nearly three times the usage of second-ranking Gallia County where withdrawals were 1,242 million gallons per day. The extensive water use in both of these Ohio River counties is due to large withdrawals for thermoelectric power generation. Cuyahoga, Lorain, and Lake Counties, all in the Cleveland metropolitan area, rank third, fourth, and fifth in the state with respective totals of 1,061, 1,047 and 1,030 million gallons per day. Water use is more diverse in this area, with public supplies, industrial use, and thermoelectric power making significant impacts.

### INTRODUCTION

The availability of water has been an important factor in Ohio's development. Ohio's rivers were the settlers' first avenues of transportation and their first sources of power for manufacturing. Shallow hand-dug wells provided water to a growing farm population. The construction of canals beginning in 1825 continued to encourage the growth of cities and industries and stimulate agricultural production. Today, Ohio is still characterized by this diverse agricultural-industrial economy. Precipitation in Ohio averages 38 inches annually. Evapotranspiration losses are about 25 inches per year. The remaining 13 inches per year available for use are equivalent to

25 billion gallons of water per day, or about one and one-half times Ohio's average daily use. In addition to precipitation in drainage basins within Ohio, water from basins outside the state provides 110 billion gallons per day to Lake Erie and 42 billion gallons per day to the Ohio River.

This report summarizes estimates of Ohio water use for 1975. These figures are revisions of data which were compiled by the U.S. Geological Survey in the Circular, "Estimated Water Use in the United States, 1975," (Murray and Reeves, 1976). In that circular, water-use figures were aggregated for the state of Ohio as a whole, and for the U.S. Water Resources Council's Great Lakes and Ohio River hydrologic regions.

Although the information presented in the circular is valuable for national and regional water planning, it is too general for describing water use patterns or analyzing supply versus demand problems within Ohio. Statewide averages which indicate an abundance of water obscure the fact that the distribution of water and user population are unequal. Historically, the State's largest water users have concentrated into areas where abundant water supplies were available. Population and water demands have grown dramatically during this century, and there are areas in the state where local requirements for water are straining available resources. Managing water supplies in these areas will be an increasingly difficult task without comprehensive water-use information to complement existing surface-water and ground-water data.

In response to this situation, the U.S. Geological Survey is expanding its water-use investigations. This report is the first of a series of publications on Ohio water use which will provide basic information by county and by type of use.

#### ACKNOWLEDGMENTS

The authors extend their gratitude to the Ohio Department of Natural Resources, Ohio Environmental Protection Agency, Ohio State University Cooperative Extension Service, and to all other organizations and individuals who have aided in the preparation of this report.

#### DEFINITIONS

In this report, "water use" is defined as water taken from a surface or underground source and conveyed to a place of use. It should be noted that only 4 or 5 percent of the water used in Ohio is actually consumed, that is, removed from the water environment by evaporation, incorporated into products or crops, or ingested by humans and animals.



"Public supply" refers to water made available to fifty or more users by means of a water utility.

"Self-supplied industrial water" is that portion of industrial water used from sources other than public supplies. In instances in which an industrial plant used water from both public-supply and self-supply sources, the usage figures are reported separately under each category.

Water used in "thermoelectric power generation" is self-supplied water for steam electric generating plants, almost all of which is used for cooling. Some thermoelectric plants use small quantities of water from the public-supply category.

"Rural water use" refers to withdrawals by households and farmsteads whose sources of water are individual wells, cisterns, or other self-supplies. Both domestic and livestock uses are grouped under this category. Irrigation water use is considered separately.

Average daily quantities of water used are expressed throughout this report in millions of gallons per day (Mgal/d). These daily averages are derived for the most part from estimates of total annual use in each of the report categories.

#### HOW THE 1975 WATER USE INFORMATION WAS COLLECTED

Obtaining data for the 1975 U.S. Geological Survey circular (Murray and Reeves, 1976) involved a number of information sources.

Data on public supplies were available directly from the Ohio Environmental Protection Agency (EPA). The estimates of self-supplied industrial water use were based on Ohio EPA permits for wastewater discharge.

Estimates of the domestic component of rural water use were calculated by comparing U.S. Bureau of the Census population figures for each Ohio county with the total number of people served by public water supply systems in that county and determining the rural population served by individual water supplies. Multiplying the rural population by 50 gallons per day per capita produced the estimated water use.

The 50 gallons-per-day figure was adopted by the U.S. Environmental Protection Agency's "Manual of Individual Water Supply Systems" (1973). This manual suggests a range of 50 to 75 gallons per person per day for estimating rural domestic water use in single family dwellings with modern pressurized systems. The conservative end of the range was used to allow for the

unknown proportion of hand-pumped wells and antiquated pressurized systems still in use in Ohio.

Water used for livestock was computed from population data provided by the U.S. Department of Agriculture, Crop Reporting Service. The population reported for each type of animal was multiplied by the following per-capita-use rates (U.S. EPA, 1973): Milk cows, 35 gal/d; other cattle and calves, 12 gal/d; hogs, 4 gal/d; and sheep 2 gal/d.

Estimates for irrigation water use were provided by the Cooperative Extension Service of the Ohio State University. The estimates were based on a total water application of 6 inches per acre over 41,000 acres for the 1975 growing season.

Information on water used in thermoelectric power production was compiled from telephone calls and letters to each of the public utility companies serving Ohio. Utility company officials provided written information in every instance.

#### PREVIOUS STUDIES

As early as the end of the nineteenth century, water use information was being collected in conjunction with hydrologic and sanitary surveys of Ohio. The first systematic studies of the state's water resources were undertaken to determine the quality of water being used in various urban areas. By the late 1800's, some public water supply systems in Ohio had become notorious for delivery of unpalatable and unsanitary water. Prevailing conditions prompted the Ohio State Board of Health to determine the severity of these problems. The ensuing studies took a broad view of the water supply difficulties in these locations. Although water use was not always discussed in great detail, the water use information which was reported was usually helpful. Expressed as total gallons per day for a system and as gallons per capita per day for the population served, these data provided indicators of the efficiency of the existing systems and of potential demand for upgraded systems.

One of the first of these studies appeared as U.S. Geological Survey Water-Supply Paper 91 (Flynn and Flynn, 1904). The authors compiled results of numerous hydrologic and sanitary studies in the Sandusky, Maumee, Great Miami, Little Miami, and Muskingum River basins. Besides the descriptions of 104 public water systems, including per capita use figures for each, the report provides an account of the early history of water power in Ohio and its decline by the turn of the century. Approximately 10 years later, the Ohio Board of Health published two reports of an investigation of public water supplies of municipalities on the Ohio River (Dittoe, 1913; continued by Bair, 1915).

By the 1920's, major improvements in water treatment and distribution had virtually eliminated the health hazards associated with the early public supplies. Little additional sanitary survey work was performed or documented until the early 1940's. By this time, growing concentrations of population and increasing per capita demands were placing considerable strain on existing Ohio water supplies. In 1942, the State Legislature created the Ohio Water Supply Board as an investigative agency to gather hydrologic information.

The initial work of the Water Supply Board was a county by county study of water availability and demand, beginning with areas where problems appeared to be the most severe. From 1942 through 1945, the Board published 15 county reports containing water use data for towns and prominent industries in each study area. (See listings under Harker and Bernhagen in Selected Bibliography.)

In 1946, the activities of the Board were expanded and its name was changed to the Ohio Water Resources Board. County water resources studies continued with publications on Fayette County (Bernhagen, Sanderson, and Cummins, 1946), Tuscarawas County (Cummins and Sanderson, 1947), Montgomery County (Norris, Cross, and Goldthwait, 1948), and Greene County (Norris, Cross, and Goldthwait, 1950). In 1949, the Board was incorporated into the newly-formed Ohio Department of Natural Resources as the Division of Water. Although the programs of the Division of Water have continued to broaden, information on water availability and water use has periodically been published in their Bulletins, Water Plan Inventory Report series, and Water Development Plan reports. (See Selected Bibliography under Ohio Department of Natural Resources, Division of Water.)

Five of the Water Plan Inventory reports are devoted entirely to water use. "Water Use in Ohio" (Rudnick, 1959) was a statewide examination of public, self-supplied industrial, and rural water withdrawals in 1955. Figures were tabulated by major river basin as well as by county. The study reported that water use in Ohio was then approximately 13 billion gallons per day. Ohio ranked first in the United States in self-supplied industrial water use with a withdrawal rate of over 10 billion gallons per day (including water used in electric power generation).

"Irrigation and Rural Water Use in Ohio" (Woldorf, 1959) gave results of a comprehensive survey of Ohio's rural water use, including that for irrigation. Rural water use at that time totaled 216 Mgal/d, of which 60 Mgal/d was used in farm homes, 47 Mgal/d for livestock, 45 Mgal/d for golf course irrigation, 33 Mgal/d for suburban homes in rural areas, and the remaining 32 Mgal/d for farm, greenhouse, and nursery irrigation.

"Industrial Water Use in Ohio" (Rudnick, 1960) provided information on industrial use by type of industry, major river basin, county, and municipality. Data were based on a 1955 mail survey. Detailed analyses were made of 4,823 responses from factories which used 1,000 gal/d or more. Withdrawals for industrial purposes, including electric power generation, amounted to 10,645 Mgal/d, about 92 percent of the total water use for the state. Power generation was the largest use at 7,400 Mgal/d. Manufacturing used 3,125 Mgal/d and an additional 120 Mgal/d were used for miscellaneous industrial purposes.

"Municipal Water Supply in Ohio, 1955 and 1957" (Rudnick, 1962) provided a more detailed analysis of municipal water data originally obtained for "Water Use in Ohio" (Rudnick, 1959). Information from 1955 was augmented with the results of a 1957 follow-up survey. Considerable emphasis was placed on water source, economics, and population distribution in relation to per capita water use. Ohio public water supplies delivered 966 Mgal/d to a population of 6,791,000 in 1955 and 996 Mgal/d to 7,332,800 people in 1957.

The most recent water use publication of the Ohio Division of Water is the "Inventory of Municipal Water Supply Systems by County" (Rudnick, 1977). The report describes existing public water supply systems on an individual basis. It does not contain aggregated county or state water-use totals.

#### SUMMARY OF OHIO WATER USE, 1975

The results of the 1975 Ohio water-use survey are presented in the final section of the report. Tables 1 through 6 rank Ohio counties from greatest to least use for (1) Total water use, (2) public supplies, (3) rural, (4) irrigation, (5) self-supplied industrial, and (6) use in thermoelectric power production. Each of these tables is preceded by a map (figures 1 through 6) indicating the leading counties for water use of that category. Table 7 presents water-use figures in all categories for each county.

Total water withdrawals in Ohio in 1975 were 16,431 Mgal/d. Of this total, 15,321 Mgal/d were taken from surface water sources and the remaining 1,110 Mgal/d represent ground water withdrawals. Per capita water use was calculated to be 1,528 gallons per day for an Ohio population of 10,751,000 in 1975.

Jefferson County led all Ohio counties in total water use with 3,447 Mgal/d. This was nearly three times the usage of second-ranking Gallia County where withdrawals were 1,242 Mgal/d. The heavy water use in both of these Ohio River counties is due to large withdrawals for thermoelectric power production.

Cuyahoga, Lorain, and Lake Counties, all in the Cleveland metropolitan area, rank third, fourth, and fifth in the state with respective totals of 1,061, 1,047, and 1,030 Mgal/d. Water use is more diverse in the Cleveland metropolitan area, with public supplies, industrial use, and thermoelectric power making significant impacts.

Surface water is a primary source in many areas of the state. The same five counties in the same order lead in surface water withdrawals. Amounts used in million gallon per day, are as follows: Jefferson, 3,429; Gallia, 1,239; Cuyahoga, 1,056, Lorain, 1,035; and Lake, 1,023.

Ground water is not used heavily in the state on the whole, however, a few areas have developed large-scale ground-water resources associated with glacial deposits in buried valleys. This is true of the three leading counties in ground-water use; Montgomery County (171 Mgal/d), Stark County (110 Mgal/d), and Butler County (65 Mgal/d).

Public supplies withdrew 1,423 Mgal/d in Ohio in 1975; 1,022 Mgal/d from surface water<sup>7</sup> and 401 Mgal/d from ground-water sources. The three leading counties were Cuyahoga County with 372 Mgal/d, Hamilton County with 145 Mgal/d, and Franklin County with 114 Mgal/d.

Summit, Stark, and Lorain Counties led the state in rural water use with 19.7, 13.1, and 12.9 Mgal/d, respectively. In addition to farming operations, there are a large number of suburban homes with individual water supplies in each of these counties which contribute significantly to the rural totals. Rural water use for the entire State amounted to 201 Mgal/d, of which the majority (162 Mgal/d) was from ground-water sources.

Water use for farm and golf course irrigation was estimated to be 40 Mgal/d statewide, 28 Mgal/d from surface water and 12 Mgal/d from ground-water sources. Clark County ranked first with 3.9 Mgal/d, followed by Lorain County with a 2.9 Mgal/d and Lake County with 2.6 Mgal/d.

Mahoning County was the leader in self-supplied industrial water use with 383 Mgal/d. Mahoning County has been known throughout its history for heavy industries such as primary metals, chemicals and allied products, and machinery. The same kinds of industry are also typical of Washington and Cuyahoga Counties, which ranked second and third in self-supplied industrial water use with 270 and 240 Mgal/d, respectively. The state total was 2,362 Mgal/d.

Thermoelectric power production was the largest single category of water use in Ohio in 1975, totaling 12,404 Mgal/d. Most of the total came from surface-water sources. Jefferson County led the state with 3,338 Mgal/d, followed by Gallia County with 1,238 Mgal/d, and Adams County with 915 Mgal/d.

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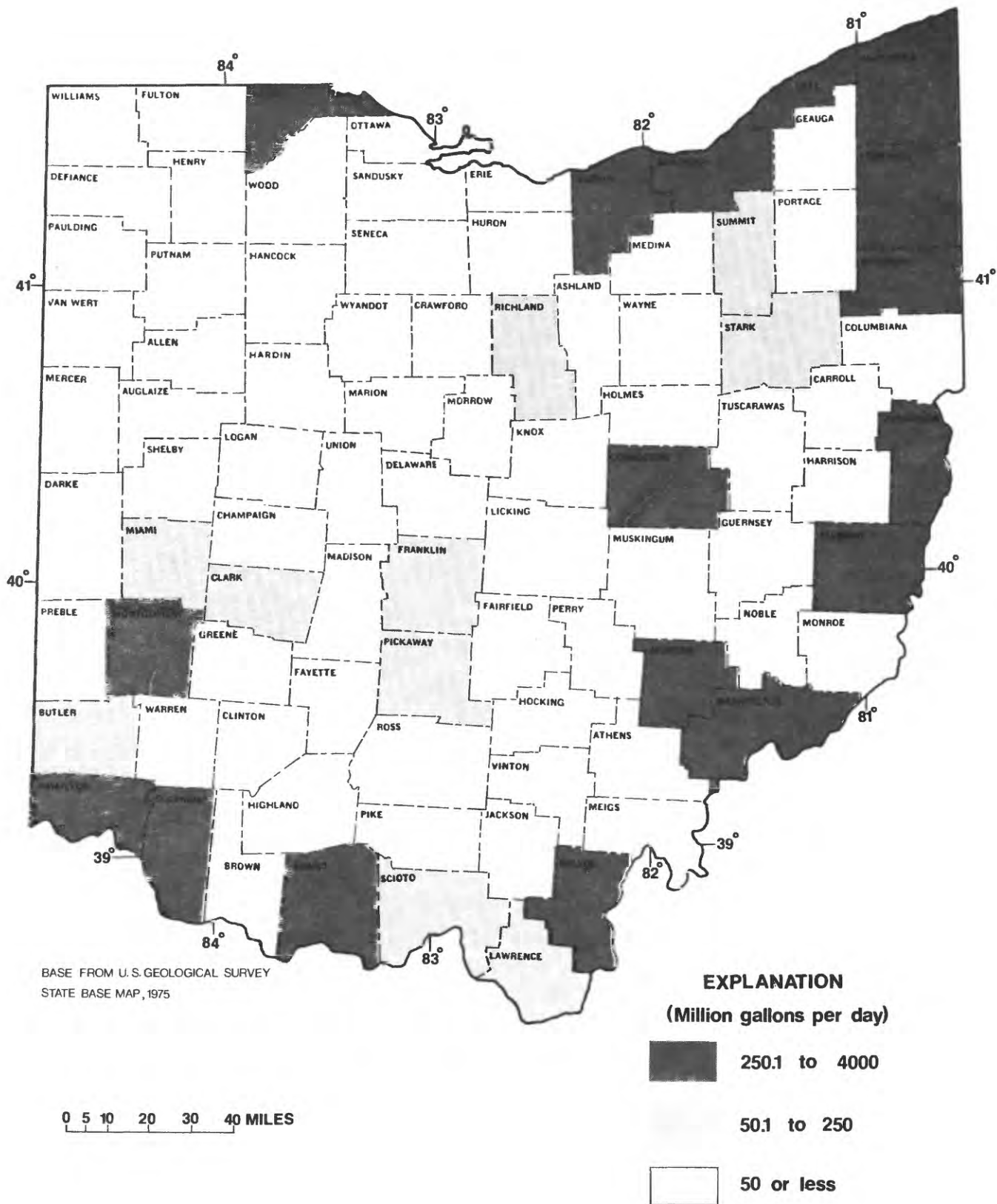
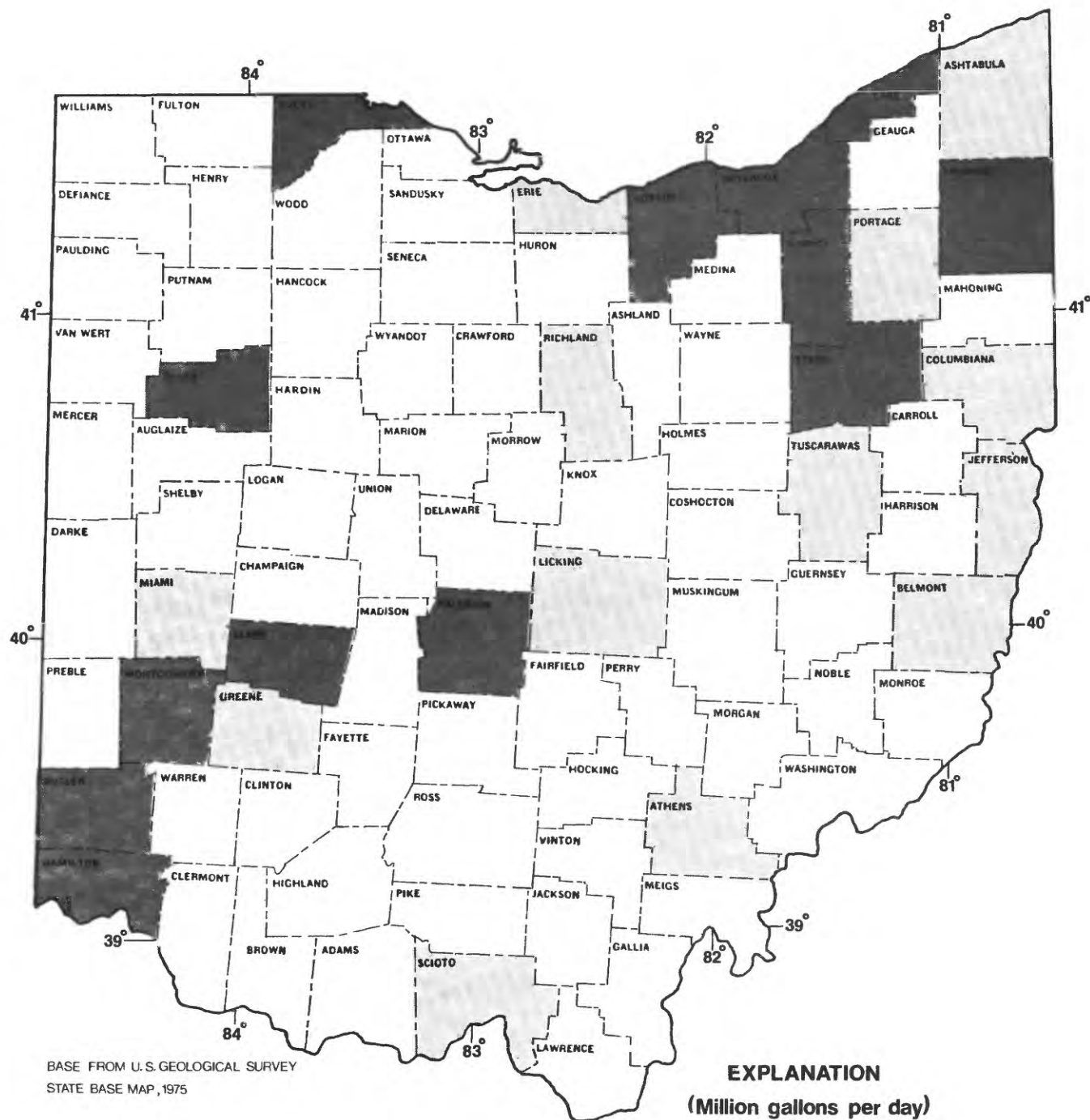


Figure 1.--Total water use by county, 1975.

Table 1.--Total water use in Ohio, in million gallons per day, county rankings, 1975

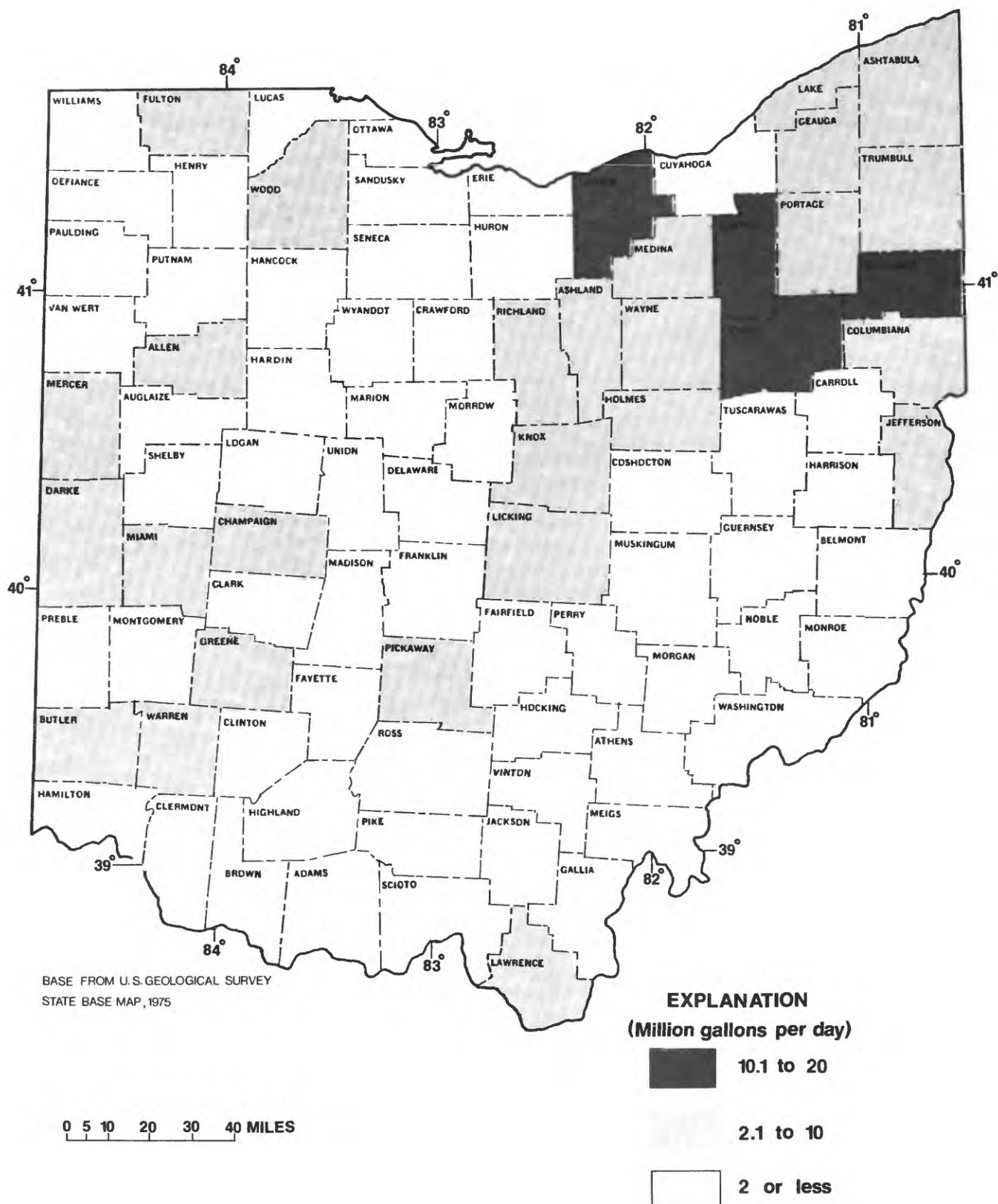
County name				County name			
ranked by	Ground	Surface	Total	ranked by	Ground	Surface	Total
total water use	water	water		total water use	water	water	
Jefferson	18.2	3429.2	3447.4	Wood	9.1	4.4	13.5
Gallia	2.8	1238.7	1241.5	Athens	8.8	3.7	12.5
Cuyahoga	5.0	1056.2	1061.2	Henry	1.7	10.0	11.7
Lorain	12.4	1034.6	1047.0	Warren	9.3	1.0	10.3
Lake	6.9	1023.1	1030.0	Seneca	3.2	6.6	9.8
Adams	3.3	915.4	918.7	Fairfield	8.8	.7	9.5
Lucas	2.2	913.4	915.6	Medina	6.2	3.2	9.4
Morgan	3.1	859.5	862.6	Darke	5.5	2.9	8.4
Hamilton	35.3	549.4	584.7	Huron	2.2	6.1	8.3
Belmont	12.0	549.6	561.6	Auglaize	6.1	1.7	7.8
Ashtabula	3.3	516.7	520.0	Fulton	3.2	4.5	7.7
Montgomery	171.2	305.0	476.2	Logan	6.9	.6	7.5
Clermont	10.1	453.5	463.6	Mercer	5.6	1.8	7.4
Mahoning	11.5	391.1	402.4	Madison	6.8	.5	7.3
Trumbull	11.4	374.0	385.4	Delaware	2.1	4.9	7.0
Coshocton	25.6	263.2	288.8	Holmes	6.4	.6	7.0
Washington	6.1	269.8	275.9	Crawford	3.2	3.6	6.8
Summit	55.6	165.0	220.6	Ashland	5.6	.6	6.2
Scioto	2.8	186.5	189.3	Guernsey	2.0	3.9	5.9
Butler	65.4	122.1	187.5	Champaign	5.1	.7	5.8
Franklin	40.4	115.9	156.3	Pike	1.6	4.2	5.8
Pickaway	15.6	126.8	142.4	Williams	5.4	.4	5.8
Stark	109.5	17.2	126.7	Geauga	4.9	.7	5.6
Clark	27.4	65.1	92.5	Shelby	3.5	1.8	5.3
Lawrence	7.3	76.2	83.5	Hardin	4.6	.5	5.1
Miami	8.8	63.3	72.1	Wyandot	3.5	1.3	4.8
Richland	41.7	8.6	50.3	Perry	1.3	3.3	4.6
Ross	27.0	15.5	42.5	Union	2.9	1.6	4.5
Tuscarawas	15.4	18.8	34.2	Jackson	.7	3.6	4.3
Marion	27.1	5.9	33.0	Putnam	2.9	1.3	4.2
Allen	15.8	13.8	29.6	Highland	3.0	1.1	4.1
Erie	8.0	14.0	22.0	Van Wert	1.9	2.1	4.0
Licking	19.2	1.3	20.5	Clinton	1.6	2.0	3.6
Hancock	12.0	7.9	19.9	Preble	3.0	.5	3.5
Ottawa	6.8	12.6	19.4	Meigs	1.2	2.0	3.2
Portage	18.1	1.3	19.4	Fayette	1.2	1.8	3.0
Columbiana	5.7	12.4	18.1	Morrow	2.6	.4	3.0
Defiance	1.1	16.8	17.9	Brown	1.7	1.0	2.7
Knox	16.9	.8	17.7	Hocking	2.4	.2	2.6
Muskingum	9.2	7.9	17.1	Paulding	1.7	.7	2.4
Wayne	14.6	1.4	16.0	Carroll	2.0	.3	2.3
Monroe	13.5	.7	14.2	Harrison	1.5	.5	2.0
Sandusky	7.8	6.3	14.1	Noble	.5	.5	1.0
Greene	12.1	1.4	13.5	Vinton	.6	.1	.7



**Figure 2.--Public supply water use by county, 1975.**

Table 2.--Public supply water use in Ohio, in million gallons per day, county rankings, 1975

County name				County name			
ranked by	Ground	Surface	Total	ranked by	Ground	Surface	Total
total water use	water	water		total water use	water	water	
Cuyahoga	2.9	369.2	372.1	Wood	0.6	3.7	4.3
Hamilton	8.6	136.0	144.6	Crawford	1.0	3.2	4.2
Franklin	5.9	108.5	114.4	Washington	4.2	0	4.2
Montgomery	103.0	0	103.0	Williams	4.2	0	4.2
Lucas	.4	74.8	75.2	Guernsey	.6	3.5	4.1
Trumbull	1.9	61.6	63.5	Darke	1.8	2.2	4.0
Summit	7.7	53.4	61.1	Ashland	3.7	0	3.7
Stark	32.8	9.5	42.3	Auglaize	3.4	0	3.4
Lorain	0	33.1	33.1	Jackson	.1	3.3	3.4
Butler	23.3	.1	23.4	Lawrence	.9	2.5	3.4
Lake	.4	18.4	18.8	Shelby	2.1	1.3	3.4
Clark	18.7	0	18.7	Champaign	3.0	0	3.0
Allen	2.5	13.2	15.7	Ottawa	.4	2.6	3.0
Richland	7.6	7.1	14.7	Pickaway	2.9	0	2.9
Erie	.6	13.6	14.2	Highland	1.9	.5	2.4
Licking	13.8	0	13.8	Fulton	1.6	.7	2.3
Ashtabula	1.5	9.9	11.4	Madison	2.3	0	2.3
Columbiana	3.0	7.1	10.1	Gallia	2.0	.1	2.1
Jefferson	3.7	5.8	9.5	Hardin	1.9	.2	2.1
Belmont	8.5	.8	9.3	Henry	.6	1.5	2.1
Miami	4.7	4.4	9.1	Mercer	1.1	1.0	2.1
Scioto	1.2	7.9	9.1	Van Wert	.3	1.8	2.1
Tuscarawas	7.6	1.1	8.7	Clinton	.4	1.6	2.0
Portage	8.4	0	8.4	Putnam	1.1	.8	1.9
Athens	4.8	3.4	8.2	Union	.7	1.2	1.9
Greene	8.0	.2	8.2	Wyandot	.8	1.0	1.8
Hancock	.3	7.4	7.7	Hocking	1.7	0	1.7
Wayne	7.4	.1	7.5	Fayette	.2	1.4	1.6
Clermont	7.0	.1	7.1	Geauga	1.6	0	1.6
Muskingum	6.7	.4	7.1	Preble	1.5	0	1.5
Mahoning	6.7	.1	6.8	Adams	1.4	0	1.4
Coshocton	6.7	0	6.7	Meigs	.9	.5	1.4
Warren	6.5	0	6.5	Morrow	1.4	0	1.4
Marion	.8	5.5	6.3	Perry	.2	1.2	1.4
Seneca	.4	5.9	6.3	Morgan	1.3	0	1.3
Huron	.3	5.6	5.9	Brown	.4	.6	1.0
Ross	5.6	0	5.6	Pike	.9	0	.9
Fairfield	5.5	0	5.5	Paulding	.4	.4	.8
Defiance	.4	4.7	5.1	Carroll	.7	0	.7
Logan	5.1	0	5.1	Holmes	.7	0	.7
Sandusky	1.6	3.4	5.0	Harrison	.4	.2	.6
Knox	4.7	0	4.7	Monroe	.2	.3	.5
Delaware	.4	3.9	4.3	Noble	0	.3	.3
Medina	2.6	1.7	4.3	Vinton	.1	0	.1

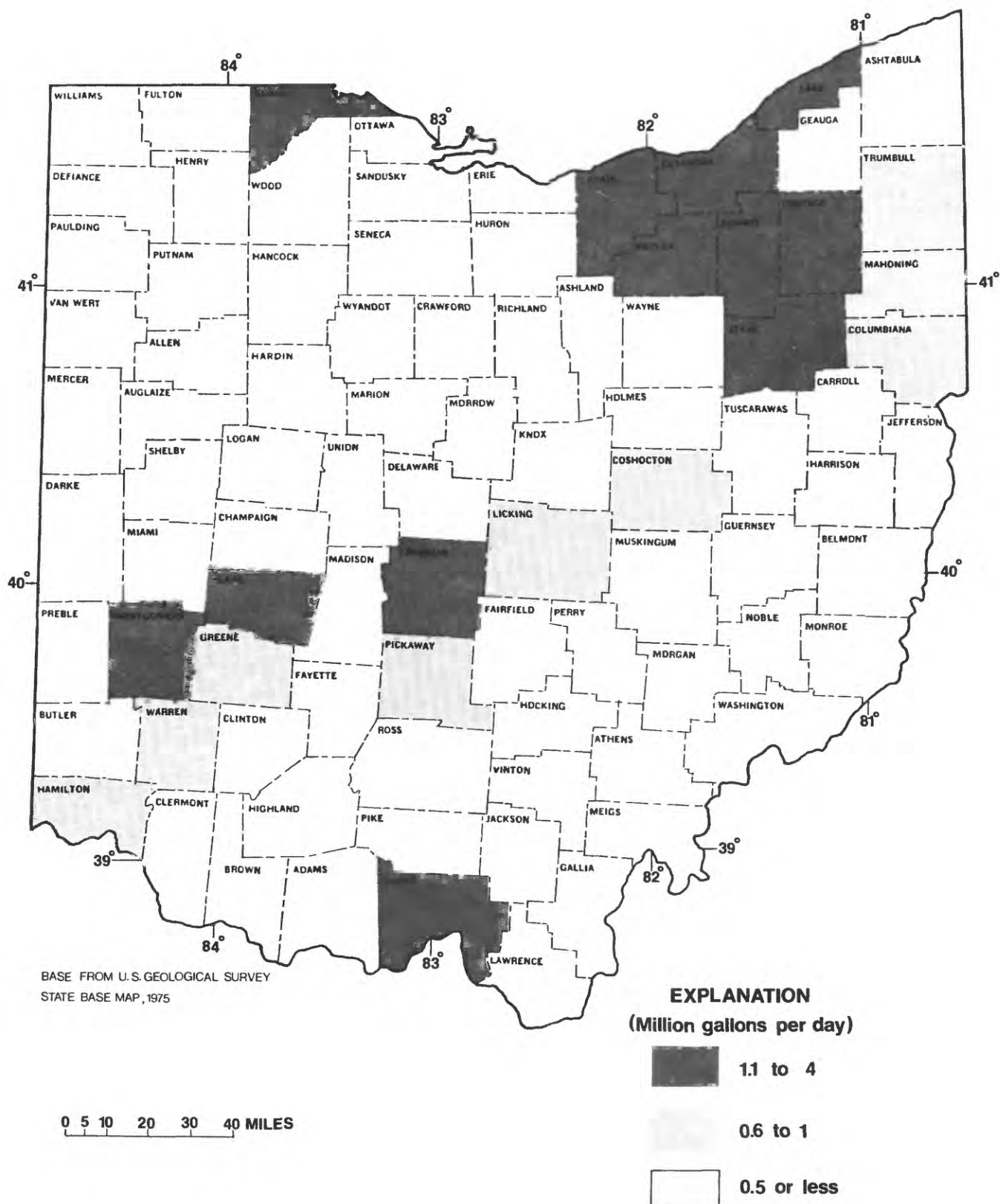


**Figure 3.--Rural water use by county, 1975.**

Table 3.--Rural water use in Ohio, in million gallons per day, county rankings, 1975

County name				County name			
ranked by	Ground	Surface	Total	ranked by	Ground	Surface	Total
total water use	water	water		total water use	water	water	
Summit	17.7	2.0	19.7	Carroll	1.2	0.3	1.5
Lorain	11.5	1.5	13.0	Crawford	1.1	.4	1.5
Stark	11.4	1.6	13.0	Delaware	1.2	.3	1.5
Mahoning	11.0	1.4	12.4	Highland	1.0	.5	1.5
Lake	5.7	.7	6.4	Morrow	1.2	.3	1.5
Trumbull	3.9	.6	4.5	Seneca	1.1	.4	1.5
Wayne	3.1	1.1	4.2	Union	1.1	.4	1.5
Wood	3.3	.5	3.8	Adams	1.0	.4	1.4
Medina	3.1	.6	3.7	Belmont	1.1	.3	1.4
Greene	3.0	.5	3.5	Clermont	1.1	.3	1.4
Licking	2.7	.6	3.3	Fayette	1.0	.4	1.4
Geauga	2.7	.4	3.1	Hancock	1.1	.3	1.4
Columbiana	2.4	.6	3.0	Perry	1.1	.3	1.4
Portage	2.5	.5	3.0	Fairfield	.9	.4	1.3
Darke	2.2	.7	2.9	Guernsey	1.0	.3	1.3
Mercer	1.9	.7	2.6	Huron	1.0	.3	1.3
Miami	2.0	.5	2.5	Williams	1.0	.3	1.3
Richland	2.1	.4	2.5	Marion	1.0	.2	1.2
Ashtabula	1.8	.5	2.3	Gallia	.8	.3	1.1
Butler	1.8	.5	2.3	Harrison	.8	.3	1.1
Jefferson	1.1	1.2	2.3	Henry	.9	.2	1.1
Allen	1.7	.5	2.2	Wyandot	.8	.3	1.1
Holmes	1.6	.6	2.2	Hardin	.8	.2	1.0
Fulton	1.6	.5	2.1	Van Wert	.8	.2	1.0
Lawrence	1.8	.3	2.1	Defiance	.7	.2	.9
Pickaway	1.6	.5	2.1	Hocking	.7	.2	.9
Warren	1.7	.4	2.1	Morgan	.7	.2	.9
Ashland	1.5	.5	2.0	Paulding	.7	.2	.9
Auglaize	1.4	.6	2.0	Pike	.7	.2	.9
Champaign	1.4	.6	2.0	Jackson	.6	.2	.8
Knox	1.5	.5	2.0	Monroe	.6	.2	.8
Preble	1.5	.5	2.0	Athens	.5	.2	.7
Tuscarawas	1.5	.5	2.0	Noble	.5	.2	.7
Shelby	1.4	.5	1.9	Sandusky	.5	.2	.7
Clark	1.3	.5	1.8	Ottawa	.5	.1	.6
Logan	1.3	.5	1.8	Vinton	.5	.1	.6
Ross	1.4	.4	1.8	Meigs	.3	.2	.5
Washington	1.4	.4	1.8	Montgomery	.3	.2	.5
Brown	1.3	.4	1.7	Scioto	.3	.2	.5
Madison	1.2	.5	1.7	Franklin	.2	.2	.4
Clinton	1.2	.4	1.6	Erie	.2	.1	.3
Coshocton	1.2	.4	1.6	Hamilton	.1	.1	.2
Muskingum	1.2	.4	1.6	Lucas	.1	.1	.2
Putnam	1.2	.4	1.6	Cuyahoga	.1	0	.1





**Figure 4.--Irrigation water use by county, 1975.**



Table 4.--Irrigation water use in Ohio, in million gallons per day, county rankings, 1975

County name				County name			
ranked by	Ground	Surface	Total	ranked by	Ground	Surface	Total
total water use	water	water		total water use	water	water	
Clark	1.2	2.7	3.9	Butler	0	0.1	0.1
Lorain	.9	2.0	2.9	Champaign	0	.1	.1
Lake	.8	1.8	2.6	Defiance	0	.1	.1
Franklin	.7	1.6	2.3	Fulton	0	.1	.1
Cuyahoga	.6	1.5	2.1	Guernsey	0	.1	.1
Summit	.6	1.3	1.9	Hardin	0	.1	.1
Scioto	.5	1.1	1.6	Highland	0	.1	.1
Stark	.5	1.1	1.6	Jackson	0	.1	.1
Lucas	.4	1.0	1.4	Knox	0	.1	.1
Medina	.4	.9	1.3	Lawrence	0	.1	.1
Montgomery	.3	.8	1.1	Logan	0	.1	.1
Portage	.3	.8	1.1	Meigs	0	.1	.1
Greene	.3	.7	1.0	Mercer	0	.1	.1
Licking	.3	.7	1.0	Morrow	0	.1	.1
Columbiana	.3	.6	.9	Ottawa	0	.1	.1
Mahoning	.3	.6	.9	Paulding	0	.1	.1
Pickaway	.2	.6	.8	Putnam	0	.1	.1
Trumbull	.2	.6	.8	Ross	0	.1	.1
Warren	.2	.6	.8	Van Wert	0	.1	.1
Coshocton	.2	.5	.7	Washington	0	.1	.1
Hamilton	.2	.5	.7	Williams	0	.1	.1
Delaware	.1	.3	.4	Adams	0	0	0
Erie	.1	.3	.4	Brown	0	0	0
Fairfield	.1	.3	.4	Carroll	0	0	0
Geauga	.1	.3	.4	Clermont	0	0	0
Jefferson	.1	.3	.4	Clinton	0	0	0
Sandusky	.1	.3	.4	Crawford	0	0	0
Ashtabula	0	.3	.3	Darke	0	0	0
Hancock	.1	.2	.3	Fayette	0	0	0
Henry	.2	.1	.3	Gallia	0	0	0
Huron	.1	.2	.3	Harrison	0	0	0
Marion	.1	.2	.3	Hocking	0	0	0
Miami	.1	.2	.3	Holmes	0	0	0
Muskingum	.1	.2	.3	Madison	0	0	0
Richland	.1	.2	.3	Monroe	0	0	0
Seneca	0	.3	.3	Morgan	0	0	0
Tuscarawas	.1	.2	.3	Noble	0	0	0
Wayne	.1	.2	.3	Perry	0	0	0
Wood	.1	.2	.3	Pike	0	0	0
Allen	.1	.1	.2	Preble	0	0	0
Ashland	.1	.1	.2	Shelby	0	0	0
Belmont	.1	.1	.2	Union	0	0	0
Athens	0	.1	.1	Vinton	0	0	0
Auglaize	0	.1	.1	Wyandot	0	0	0



**Figure 5.--Self-supplied industrial water use by county, 1975.**

Table 5.--Self-supplied industrial water use in Ohio, in million gallons per day, county ranking, 1975

County name				County name			
ranked by	Ground	Surface	Total	ranked by	Ground	Surface	Total
total water use	water	water		total water use	water	water	
Mahoning	0.1	382.4	382.5	Fairfield	2.3	0	2.3
Washington	.5	269.3	269.8	Miami	2.0	0	2.0
Cuyahoga	1.4	238.9	240.3	Hardin	1.9	0	1.9
Scioto	.8	177.3	178.1	Wyandot	1.9	0	1.9
Lorain	0	163.3	163.3	Perry	0	1.8	1.8
Trumbull	5.4	99.3	104.7	Seneca	1.7	0	1.7
Jefferson	10.4	86.8	97.2	Darke	1.5	0	1.5
Lucas	1.3	94.9	96.2	Auglaize	1.3	0	1.3
Lake	0	88.2	88.2	Meigs	0	1.2	1.2
Lawrence	4.6	73.3	77.9	Crawford	1.1	0	1.1
Butler	39.8	30.2	70.0	Morgan	1.1	0	1.1
Stark	64.8	5.0	69.8	Union	1.1	0	1.1
Ashtabula	0	65.0	65.0	Warren	.9	0	.9
Montgomery	61.6	0	61.6	Delaware	.4	.4	.8
Franklin	33.6	5.0	38.6	Greene	.8	0	.8
Ross	20.0	15.0	35.0	Huron	.8	0	.8
Richland	31.9	.9	32.8	Van Wert	.8	0	.8
Summit	29.6	0	29.6	Champaign	.7	0	.7
Marion	25.2	0	25.2	Paulding	.6	0	.6
Hamilton	23.6	.2	23.8	Putnam	.6	0	.6
Coshocton	17.1	0	17.1	Adams	.5	0	.5
Ottawa	5.9	9.8	15.7	Geauga	.5	0	.5
Monroe	12.7	.2	12.9	Logan	.5	0	.5
Defiance	0	11.8	11.8	Guernsey	.4	0	.4
Allen	11.5	0	11.5	Ashland	.3	0	.3
Knox	10.7	.2	10.9	Harrison	.3	0	.3
Hancock	10.5	0	10.5	Williams	.2	0	.2
Clark	5.0	5.4	10.4	Carroll	.1	0	.1
Pickaway	9.6	0	9.6	Highland	.1	0	.1
Muskingum	1.2	6.9	8.1	Medina	.1	0	.1
Sandusky	5.6	2.4	8.0	Athens	0	0	0
Erie	7.1	0	7.1	Brown			
Henry	0	7.0	7.0	Clermont	0	0	0
Portage	6.9	0	6.9	Columbiana	0	0	0
Tuscarawas	5.7	.2	5.9	Fayette	0	0	0
Wood	5.1	0	5.1	Gallia	0	0	0
Holmes	4.1	0	4.1	Hocking	0	0	0
Pike	0	4.0	4.0	Jackson	0	0	0
Wayne	3.9	0	3.9	Morrow	0	0	0
Madison	3.3	0	3.3	Noble	0	0	0
Fulton	0	3.2	3.2	Preble	0	0	0
Belmont	1.3	1.5	2.8	Shelby	0	0	0
Mercer	2.6	0	2.6	Vinton	0	0	0
Licking	2.4	0	2.4	Clinton	0	0	0



**Figure 6.--Thermoelectric power production water use by county, 1975.**

Table 6.--Thermoelectric power production water use in Ohio, in million gallons per day, county rankings, 1975

County name				County name			
ranked by	Ground	Surface	Total	ranked by	Ground	Surface	Total
total water use	water	water		total water use	water	water	
Jefferson	2.9	3335.1	3338.0	Hancock	0	0	0
Gallia	0	1238.3	1238.3	Hardin	0	0	0
Adams	.4	915.0	915.4	Harrison	0	0	0
Lake	0	914.0	914.0	Highland	0	0	0
Morgan	0	859.3	859.3	Hocking	0	0	0
Lorain	0	834.7	834.7	Holmes	0	0	0
Lucas	0	742.6	742.6	Huron	0	0	0
Belmont	1.0	546.9	547.9	Jackson	0	0	0
Clermont	2.0	453.1	455.1	Knox	0	0	0
Cuyahoga	0	446.6	446.6	Lawrence	0	0	0
Ashtabula	0	441.0	441.0	Licking	0	0	0
Hamilton	2.8	412.6	415.4	Logan	0	0	0
Montgomery	6.0	304.0	310.0	Madison	0	0	0
Coshocton	.4	262.3	262.7	Mahoning	0	0	0
Trumbull	0	211.9	211.9	Marion	0	0	0
Pickaway	1.3	125.7	127.0	Medina	0	0	0
Summit	0	108.3	108.3	Meigs	0	0	0
Butler	.5	91.2	91.7	Mercer	0	0	0
Miami	0	58.2	58.2	Monroe	0	0	0
Clark	1.2	56.5	57.7	Morrow	0	0	0
Tuscarawas	.5	16.8	17.3	Muskingum	0	0	0
Columbiana	0	4.1	4.1	Noble	0	0	0
Athens	3.5	0	3.5	Ottawa	0	0	0
Henry	0	1.2	1.2	Paulding	0	0	0
Auglaize	0	1.0	1.0	Perry	0	0	0
Franklin	0	.6	.6	Pike	0	0	0
Wayne	.1	0	.1	Portage	0	0	0
Allen	0	0	0	Preble	0	0	0
Ashland	0	0	0	Putnam	0	0	0
Brown	0	0	0	Richland	0	0	0
Carroll	0	0	0	Ross	0	0	0
Champaign	0	0	0	Sandusky	0	0	0
Clinton	0	0	0	Scioto	0	0	0
Crawford	0	0	0	Seneca	0	0	0
Darke	0	0	0	Shelby	0	0	0
Defiance	0	0	0	Stark	0	0	0
Delaware	0	0	0	Union	0	0	0
Erie	0	0	0	Van Wert	0	0	0
Fairfield	0	0	0	Vinton	0	0	0
Fayette	0	0	0	Warren	0	0	0
Fulton	0	0	0	Washington	0	0	0
Geauga	0	0	0	Williams	0	0	0
Greene	0	0	0	Wood	0	0	0
Guernsey	0	0	0	Wyandot	0	0	0

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>ADAMS COUNTY</u>						
Ground water	1.4	1.0	0	0.5	0.4	3.3
Surface water	0	.4	0	0	915.0	915.4
Total	1.4	1.4	0	.5	915.4	918.7
<u>ALLEN COUNTY</u>						
Ground water	2.5	1.7	.1	11.5	0	15.8
Surface water	13.2	.5	.1	0	0	13.8
Total	15.7	2.2	.2	11.5	0	29.6
<u>ASHLAND COUNTY</u>						
Ground water	3.7	1.5	.1	.3	0	5.6
Surface water	0	.5	.1	0	0	.6
Total	3.7	2.0	.2	.3	0	6.2
<u>ASHTABULA COUNTY</u>						
Ground water	1.5	1.8	0	0	0	3.3
Surface water	9.9	.5	.3	65.0	441.0	516.7
Total	11.4	2.3	.3	65.0	441.0	520.0

ATHENS COUNTY

Ground water	4.8	.5	0	0	3.5	8.8
Surface water	3.4	.2	.1	0	0	3.7
Total	8.2	.7	.1	0	3.5	12.5

AUGLAIZE COUNTY

Ground water	3.4	1.4	0	1.3	0	6.1
Surface water	0	.6	.1	0	1.0	1.7
Total	3.4	2.0	.1	1.3	1.0	7.8

BELMONT COUNTY

Ground water	8.5	1.1	.1	1.3	1.0	12.0
Surface water	.8	.3	.1	1.5	546.9	549.6
Total	9.3	1.4	.2	2.8	547.9	561.6

BROWN COUNTY

Ground water	.4	1.3	0	0	0	1.7
Surface water	.6	.4	0	0	0	1.0
Total	1.0	1.7	0	0	0	2.7

BUTLER COUNTY

Ground water	23.3	1.8	0	39.8	.5	65.4
Surface water	.1	.5	.1	30.2	91.2	122.1
Total	23.4	2.3	.1	70.0	91.7	187.5

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>CARROLL COUNTY</u>						
Ground water	0.7	1.2	0	0.1	0	2.0
Surface water	0	.3	0	0	0	.3
Total	.7	1.5	0	.1	0	2.3
<u>CHAMPAIGN COUNTY</u>						
Ground water	3.0	1.4	0	.7	0	5.1
Surface water	0	.6	.1	0	0	.7
Total	3.0	2.0	.1	.7	0	5.8
<u>CLARK COUNTY</u>						
Ground water	18.7	1.3	1.2	5.0	1.2	27.4
Surface water	0	.5	2.7	5.4	56.5	65.1
Total	18.7	1.8	3.9	10.4	57.7	92.5
<u>CLERMONT COUNTY</u>						
Ground water	7.0	1.1	0	0	2.0	10.1
Surface water	.1	.3	0	0	453.1	453.5
Total	7.1	1.4	0	0	455.1	463.6



CLINTON COUNTY

Ground water	.4	1.2	0	0	0	1.6
Surface water	1.6	.4	0	0	0	2.0
Total	2.0	1.6	0	0	0	3.6

COLUMBIANA COUNTY

Ground water	3.0	2.4	.3	0	0	5.7
Surface water	7.1	.6	.6	0	4.1	12.4
Total	10.1	3.0	.9	0	4.1	18.1

COSHOCTON COUNTY

Ground water	6.7	1.2	.2	17.1	.4	25.6
Surface water	0	.4	.5	0	262.3	263.2
Total	6.7	1.6	.7	17.1	262.7	288.8

CRAWFORD COUNTY

Ground water	1.0	1.1	0	1.1	0	3.2
Surface water	3.2	.4	0	0	0	3.6
Total	4.2	1.5	0	1.1	0	6.8

CUYAHOGA COUNTY

Ground water	2.9	.1	.6	1.4	0	5.0
Surface water	369.2	0	1.5	238.9	446.6	1056.2
Total	372.1	.1	2.1	240.3	446.6	1061.2

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>DARKE COUNTY</u>						
Ground water	1.8	2.2	0	1.5	0	5.5
Surface water	2.2	.7	0	0	0	2.9
Total	4.0	2.9	0	1.5	0	8.4
<u>DEFIANCE COUNTY</u>						
Ground water	.4	.7	0	0	0	1.1
Surface water	4.7	.2	.1	11.8	0	16.8
Total	5.1	.9	.1	11.8	0	17.9
<u>DELAWARE COUNTY</u>						
Ground water	.4	1.2	.1	.4	0	2.1
Surface water	3.9	.3	.3	.4	0	4.9
Total	4.3	1.5	.4	.8	0	7.0
<u>ERIE COUNTY</u>						
Ground water	.6	.2	.1	7.1	0	8.0
Surface water	13.6	.1	.3	0	0	14.0
Total	14.2	.3	.4	7.1	0	22.0

FAIRFIELD COUNTY

Ground water	5.5	.9	.1	2.3	0	8.8
Surface water	0	.4	.3	0	0	.7
Total	5.5	1.3	.4	2.3	0	9.5

FAYETTE COUNTY

Ground water	.2	1.0	0	0	0	1.2
Surface water	1.4	.4	0	0	0	1.8
Total	1.6	1.4	0	0	0	3.0

FRANKLIN COUNTY

Ground water	5.9	.2	.7	33.6	0	40.4
Surface water	108.5	.2	1.6	5.0	.6	115.9
Total	114.4	.4	2.3	38.6	.6	156.3

FULTON COUNTY

Ground water	1.6	1.6	0	0	0	3.2
Surface water	.7	.5	.1	3.2	0	4.5
Total	2.3	2.1	.1	3.2	0	7.7

GALLIA COUNTY

Ground water	2.0	.8	0	0	0	2.8
Surface water	.1	.3	0	0	1238.3	1238.7
Total	2.1	1.1	0	0	1238.3	1241.5

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>GEAUGA COUNTY</u>						
Ground water	1.6	2.7	0.1	0.5	0	4.9
Surface water	0	.4	.3	0	0	0.7
Total	1.6	3.1	.4	.5	0	5.6
<u>GREENE COUNTY</u>						
Ground water	8.0	3.0	.3	.8	0	12.1
Surface water	.2	.5	.7	0	0	1.4
Total	8.2	3.5	1.0	.8	0	13.5
<u>GUERNSEY COUNTY</u>						
Ground water	.6	1.0	0	.4	0	2.0
Surface water	3.5	.3	.1	0	0	3.9
Total	4.1	1.3	.1	.4	0	5.9
<u>HAMILTON COUNTY</u>						
Ground water	8.6	.1	.2	23.6	2.8	35.3
Surface water	136.0	.1	.5	.2	412.6	549.4
Total	144.6	.2	.7	23.8	415.4	584.7

HANCOCK COUNTY

Ground water	.3	1.1	.1	10.5	0	12.0
Surface water	7.4	.3	.2	0	0	7.9
Total	7.7	1.4	.3	10.5	0	19.9

HARDIN COUNTY

Ground water	1.9	.8	0	1.9	0	4.6
Surface water	.2	.2	.1	0	0	.5
Total	2.1	1.0	.1	1.9	0	5.1

HARRISON COUNTY

Ground water	.4	.8	0	.3	0	1.5
Surface water	.2	.3	0	0	0	.5
Total	.6	1.1	0	.3	0	2.0

HENRY COUNTY

Ground water	.6	.9	.2	0	0	1.7
Surface water	1.5	.2	.1	7.0	1.2	10.0
Total	2.1	1.1	.3	7.0	1.2	11.7

HIGHLAND COUNTY

Ground water	1.9	1.0	0	.1	0	3.0
Surface water	.5	.5	.1	0	0	1.1
Total	2.4	1.5	.1	.1	0	4.1

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>HOCKING COUNTY</u>						
Ground water	1.7	0.7	0	0	0	2.4
Surface water	0	.2	0	0	0	.2
Total	1.7	.9	0	0	0	2.6
<u>HOLMES COUNTY</u>						
Ground water	.7	1.6	0	4.1	0	6.4
Surface water	0	.6	0	0	0	.6
Total	.7	2.2	0	4.1	0	7.0
<u>HURON COUNTY</u>						
Ground water	.3	1.0	.1	.8	0	2.2
Surface water	5.6	.3	.2	0	0	6.1
Total	5.9	1.3	.3	.8	0	8.3
<u>JACKSON COUNTY</u>						
Ground water	.1	.6	0	0	0	.7
Surface water	3.3	.2	.1	0	0	3.6
Total	3.4	.8	.1	0	0	4.3

JEFFERSON COUNTY

Ground water	3.7	1.1	.1	10.4	2.9	18.2
Surface water	5.8	1.2	.3	86.8	3335.1	3429.2
Total	9.5	2.3	.4	97.2	3338.0	3447.4

KNOX COUNTY

Ground water	4.7	1.5	0	10.7	0	16.9
Surface water	0	.5	.1	.2	0	.8
Total	4.7	2.0	.1	10.9	0	17.7

LAKE COUNTY

Ground water	.4	5.7	.8	0	0	6.9
Surface water	18.4	.7	1.8	88.2	914.0	1023.1
Total	18.8	6.4	2.6	88.2	914.0	1030.0

LAWRENCE COUNTY

Ground water	.9	1.8	0	4.6	0	7.3
Surface water	2.5	.3	.1	73.3	0	76.2
Total	3.4	2.1	.1	77.9	0	83.5

LICKING COUNTY

Ground water	13.8	2.7	.3	2.4	0	19.2
Surface water	0	.6	.7	0	0	1.3
Total	13.8	3.3	1.0	2.4	0	20.5

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>LOGAN COUNTY</u>						
Ground water	5.1	1.3	0	0.5	0	6.9
Surface water	0	.5	.1	0	0	.6
Total	5.1	1.8	.1	.5	0	7.5
<u>LORAIN COUNTY</u>						
Ground water	0	11.5	.9	0	0	12.4
Surface water	33.1	1.5	2.0	163.3	834.7	1034.6
Total	33.1	13.0	2.9	163.3	834.7	1047.0
<u>LUCAS COUNTY</u>						
Ground water	.4	.1	.4	1.3	0	2.2
Surface water	74.8	.1	1.0	94.9	742.6	913.4
Total	75.2	.2	1.4	96.2	742.6	915.6
<u>MADISON COUNTY</u>						
Ground water	2.3	1.2	0	3.3	0	6.8
Surface water	0	.5	0	0	0	.5
Total	2.3	1.7	0	3.3	0	7.3



MAHONING COUNTY

Ground water	.1	11.0	.3	.1	0	11.5
Surface water	6.7	1.4	.6	382.4	0	391.1
Total	6.8	12.4	.9	382.5	0	402.4

MARION COUNTY

Ground water	.8	1.0	.1	25.2	0	27.1
Surface water	5.5	.2	.2	0	0	5.9
Total	6.3	1.2	.3	25.2	0	33.0

MEDINA COUNTY

Ground water	2.6	3.1	.4	.1	0	6.2
Surface water	1.7	.6	.9	0	0	3.2
Total	4.3	3.7	1.3	.1	0	9.4

MEIGS COUNTY

Ground water	.9	.3	0	0	0	1.2
Surface water	.5	.2	.1	1.2	0	2.0
Total	1.4	.5	.1	1.2	0	3.2

MERCER COUNTY

Ground water	1.1	1.9	0	2.6	0	5.6
Surface water	1.0	.7	.1	0	0	1.8
Total	2.1	2.6	.1	2.6	0	7.4

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>MIAMI COUNTY</u>						
Ground water	4.7	2.0	0.1	2.0	0	8.8
Surface water	4.4	.5	.2	0	58.2	63.3
Total	9.1	2.5	.3	2.0	58.2	72.1
<u>MONROE COUNTY</u>						
Ground water	.2	.6	0	12.7	0	13.5
Surface water	.3	.2	0	.2	0	.7
Total	.5	.8	0	12.9	0	14.2
<u>MONTGOMERY COUNTY</u>						
Ground water	103.0	.3	.3	61.6	6.0	171.2
Surface water	0	.2	.8	0	304.0	305.0
Total	103.0	.5	1.1	61.6	310.0	476.2
<u>MORGAN COUNTY</u>						
Ground water	1.3	.7	0	1.1	0	3.1
Surface water	0	.2	0	0	859.3	859.5
Total	1.3	.9	0	1.1	859.3	862.6

MORROW COUNTY

Ground water	1.4	1.2	0	0	0	2.6
Surface water	0	.3	.1	0	0	.4
Total	1.4	1.5	.1	0	0	3.0

MUSKINGUM COUNTY

Ground water	6.7	1.2	.1	1.2	0	9.2
Surface water	.4	.4	.2	6.9	0	7.9
Total	7.1	1.6	.3	8.1	0	17.1

NOBLE COUNTY

Ground water	0	.5	0	0	0	.5
Surface water	.3	.2	0	0	0	.5
Total	.3	.7	0	0	0	1.0

OTTAWA COUNTY

Ground water	.4	.5	0	5.9	0	6.8
Surface water	2.6	.1	.1	9.8	0	12.6
Total	3.0	.6	.1	15.7	0	19.4

PAULDING COUNTY

Ground water	.4	.7	0	.6	0	1.7
Surface water	.4	.2	.1	0	0	.7
Total	.8	.9	.1	.6	0	2.4

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>PERRY COUNTY</u>						
Ground water	0.2	1.1	0	0	0	1.3
Surface water	1.2	.3	0	1.8	0	3.3
Total	1.4	1.4	0	1.8	0	4.6
<u>PICKAWAY COUNTY</u>						
Ground water	2.9	1.6	.2	9.6	1.3	15.6
Surface water	0	.5	.6	0	125.7	126.8
Total	2.9	2.1	.8	9.6	127.0	142.4
<u>PIKE COUNTY</u>						
Ground water	.9	.7	0	0	0	1.6
Surface water	0	.2	0	4.0	0	4.2
Total	.9	.9	0	4.0	0	5.8
<u>PORTAGE COUNTY</u>						
Ground water	8.4	2.5	.3	6.9	0	18.1
Surface water	0	.5	.8	0	0	1.3
Total	8.4	3.0	1.1	6.9	0	19.4

PREBLE COUNTY

Ground water	1.5	1.5	0	0	0	3.0
Surface water	0	.5	0	0	0	.5
Total	1.5	2.0	0	0	0	3.5

PUTNAM COUNTY

Ground water	1.1	1.2	0	.6	0	2.9
Surface water	.8	.4	.1	0	0	1.3
Total	1.9	1.6	.1	.6	0	4.2

RICHLAND COUNTY

Ground water	7.6	2.1	.1	31.9	0	41.7
Surface water	7.1	.4	.2	.9	0	8.6
Total	14.7	2.5	.3	32.8	0	50.3

ROSS COUNTY

Ground water	5.6	1.4	0	20.0	0	27.0
Surface water	0	.4	.1	15.0	0	15.5
Total	5.6	1.8	.1	35.0	0	42.5

SANDUSKY COUNTY

Ground water	1.6	.5	.1	5.6	0	7.8
Surface water	3.4	.2	.3	2.4	0	6.3
Total	5.0	.7	.4	8.0	0	14.1

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>SCIOTO COUNTY</u>						
Ground water	1.2	0.3	0.5	0.8	0	2.8
Surface water	7.9	.2	1.1	177.3	0	186.5
Total	9.1	.5	1.6	178.1	0	189.3
<u>SENECA COUNTY</u>						
Ground water	.4	1.1	0	1.7	0	3.2
Surface water	5.9	.4	.3	0	0	6.6
Total	6.3	1.5	.3	1.7	0	9.8
<u>SHELBY COUNTY</u>						
Ground water	2.1	1.4	0	0	0	3.5
Surface water	1.3	.5	0	0	0	1.8
Total	3.4	1.9	0	0	0	5.3
<u>STARK COUNTY</u>						
Ground water	32.8	11.4	.5	64.8	0	109.5
Surface water	9.5	1.6	1.1	5.0	0	17.2
Total	42.3	13.0	1.6	69.8	0	126.7

<u>SUMMIT COUNTY</u>						
Ground water	7.7	17.7	.6	29.6	0	55.6
Surface water	53.4	2.0	1.3	0	108.3	165.0
Total	61.1	19.7	1.9	29.6	108.3	220.6
<u>TRUMBULL COUNTY</u>						
Ground water	1.9	3.9	.2	5.4	0	11.4
Surface water	61.6	.6	.6	99.3	211.9	374.0
Total	63.5	4.5	.8	104.7	211.9	385.4
<u>TUSCARAWAS COUNTY</u>						
Ground water	7.6	1.5	.1	5.7	.5	15.4
Surface water	1.1	.5	.2	.2	16.8	18.8
Total	8.7	2.0	.3	5.9	17.3	34.2
<u>UNION COUNTY</u>						
Ground water	.7	1.1	0	1.1	0	2.9
Surface water	1.2	.4	0	0	0	1.6
Total	1.9	1.5	0	1.1	0	4.5
<u>VAN WERT COUNTY</u>						
Ground water	.3	.8	0	.8	0	1.9
Surface water	1.8	.2	.1	0	0	2.1
Total	2.1	1.0	.1	.8	0	4.0

TABLE 7.--WATER USE IN OHIO, 1975, COUNTY ANALYSES.--CONTINUED  
(IN MILLION GALLONS PER DAY)

	Public	Rural	Irrigation	Industrial	Power	Total
<u>VINTON COUNTY</u>						
Ground water	0.1	0.5	0	0	0	0.6
Surface water	0	.1	0	0	0	.1
Total	.1	.6	0	0	0	.7
<u>WARREN COUNTY</u>						
Ground water	6.5	1.7	.2	.9	0	9.3
Surface water	0	.4	.6	0	0	1.0
Total	6.5	2.1	.8	.9	0	10.3
<u>WASHINGTON COUNTY</u>						
Ground water	4.2	1.4	0	.5	0	6.1
Surface water	0	.4	.1	269.3	0	269.8
Total	4.2	1.8	.1	269.8	0	275.9
<u>WAYNE COUNTY</u>						
Ground water	7.4	3.1	1	3.9	.1	14.6
Surface water	.1	1.1	.2	0	0	1.4
Total	7.5	4.2	.3	3.9	.1	16.0



WILLIAMS COUNTY

Ground water	4.2	1.0	0	.2	0	5.4
Surface water	0	.3	.1	0	0	.4
Total	4.2	1.3	.1	.2	0	5.8

WOOD COUNTY

Ground water	.6	3.3	.1	5.1	0	9.1
Surface water	3.7	.5	.2	0	0	4.4
Total	4.3	3.8	.3	5.1	0	13.5

WYANDOT COUNTY

Ground water	.8	.8	0	1.9	0	3.5
Surface water	1.0	.3	0	0	0	1.3
Total	1.8	1.1	0	1.9	0	4.8





