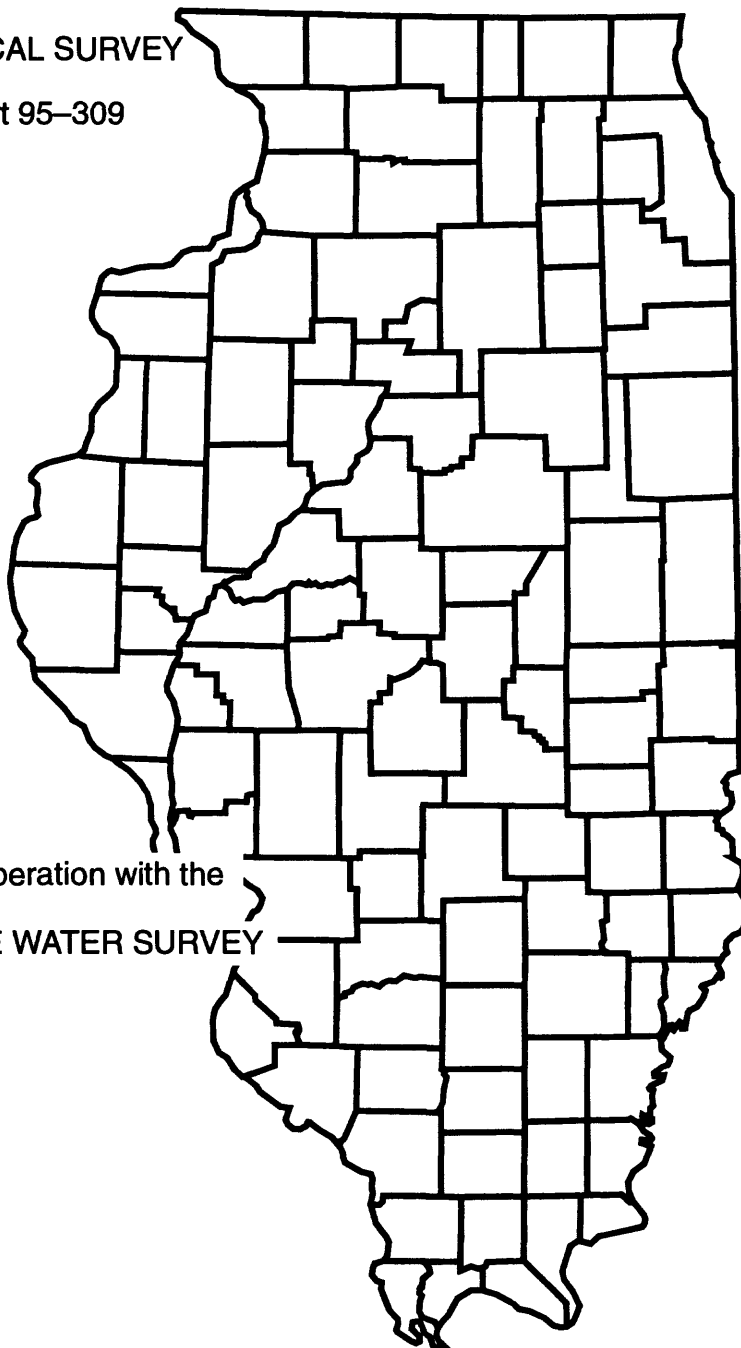


ESTIMATED WATER WITHDRAWALS AND USE IN ILLINOIS, 1988

U.S. GEOLOGICAL SURVEY

Open-File Report 95-309



Prepared in cooperation with the
ILLINOIS STATE WATER SURVEY

Estimated Water Withdrawals and Use in Illinois, 1988

By Charles Avery

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ILLINOIS STATE WATER SURVEY

Urbana, Illinois
1995

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CONVERSION FACTORS

	Multiply	By	To obtain
	foot (ft)	0.3048	meter
	inch (in.)	25.4	millimeter
million gallons per day (Mgal/d)		3,785	cubic meter per day
gallon per day (gal/d)		0.003785	cubic meter per day
gigawatt-hour (GWh)		$3,413 \times 10^9$	British thermal unit

Estimated Water Withdrawals and Use in Illinois, 1988

By Charles Avery

Abstract

The total amount of water withdrawn in Illinois during 1988 was about 18,756 million gallons per day (Mgal/d). About 1,170 Mgal/d, or 37 percent, of the total water withdrawn in Illinois, excluding withdrawals for thermoelectric-power generation, was ground water; about 1,998 Mgal/d of surface water was withdrawn and used, excluding withdrawals for thermoelectric-power generation. About 25 Mgal/d of the total ground water withdrawn was saline. Seventy-five percent of the total surface water, excluding withdrawals for thermoelectric-power generation, was withdrawn by public-supply facilities. Self-supplied industrial withdrawals were the next largest use of surface water. Thirty-nine percent of the total ground water was withdrawn by public-supply facilities. Irrigation was the next largest use of ground water. Sixty-two percent of the total water withdrawn, excluding thermoelectric withdrawals, in Illinois during 1988 was for public-supply facilities. Self-supplied withdrawals by industries and for irrigation were the next largest uses of water in Illinois during 1988.

The total water withdrawn for thermoelectric-power generation was about 15,589 Mgal/d. Water withdrawn and delivered from public-supply facilities in Illinois during 1988 totaled about 1,956 Mgal/d. Surface water and ground water were the sources for about 1,495 and 462 Mgal/d, respectively, of the withdrawals for public supply. The total water obtained from Lake Michigan for public-water supply was about 1,214 Mgal/d. About 122 Mgal/d

was withdrawn for self-supplied domestic purposes. Total self-supplied withdrawals and deliveries from public-water facilities for commercial use were about 654 Mgal/d. About 159 Mgal/d was self supplied by the commercial establishments. Total irrigation water withdrawals were about 302 Mgal/d. Although irrigated acreage in Illinois has increased from 265,036 acres in 1986 to 281,370 acres in 1988, the most significant factor for the increased irrigation water use was the drought conditions throughout the entire State. Total estimated livestock withdrawals were about 56 Mgal/d. Total self-supplied withdrawals and deliveries from public-supply facilities for industrial purposes were about 743 Mgal/d. About 480 Mgal/d was self-supplied withdrawals by industrial facilities. A total of about 94 Mgal/d was withdrawn during mining activities. A total of about 34 Mgal/d was withdrawn during mining from ground-water sources; about 25 Mgal/d of the ground water withdrawn was saline.

INTRODUCTION

Water-use information aids in the planning and management of water resources in Illinois. Water-use data serve the needs of governmental agencies, public water-supply operators, water-resource managers, and researchers for assessing current water-use patterns and anticipating future water demands. This report, prepared in cooperation with the Illinois State Water Survey (ISWS), provides statewide water-use data for 1988. The

last comprehensive water-use report for Illinois (Kirk, 1987) provides data for 1986.

The State of Illinois has an abundant but finite supply of *surface water*¹ and *ground water*. The State is bounded by major surface-water resources; the Mississippi River on the western border, the Ohio and Wabash Rivers on the south and southeast, and Lake Michigan on the northeast (fig. 1). Major tributaries to the rivers bounding the State are the Illinois, Kaskaskia, Rock, Big Muddy, Embarras, and Kankakee Rivers. No saline surface-water sources are found in Illinois. Ground water is also a widely available *freshwater* resource in Illinois. Major aquifers underlying Illinois include the saturated unconsolidated sand and gravel deposits, the Pennsylvanian-Mississippian aquifer, Silurian aquifer, and the Cambrian-Ordovician aquifer (U.S. Geological Survey, 1985).

Definition of terms is critical in understanding water-use data. Water-use terms utilized in this report are presented in the glossary (at the back of the report). Definitions of water-use terms in the glossary are from Solley and others (1993). This report deals primarily with water *withdrawals*. Some withdrawal data are documented quantities, obtained from questionnaires sent to water users by the ISWS, of water withdrawn for *public supply*, for commercial establishments, for industrial and mining activities, and for thermoelectric-power generation. Other withdrawal values are estimated quantities of water, determined by extrapolating from related known data for the categories of domestic, irrigation, and livestock use. Water withdrawn in a county or hydrologic unit (drainage basin) may or may not be used in the same county or hydrologic unit; when water-withdrawal values are estimated, it is assumed that the water was withdrawn in the same county or hydrologic unit as its use, which may or may not be the case, however.

Data bases of water-use information are maintained by the ISWS and the U.S. Geological Survey (USGS). The data base maintained by the USGS includes water-withdrawal data collected and aggregated by the ISWS, water-returns data collected by the Illinois Environmental Protection Agency, and water-use data estimated by the USGS. This USGS data base contains a site-specific water-use data system (SSWUDS) and an aggregated water-use data system (AWUDS).

¹Italicized terms are defined in the Glossary.

Purpose and Scope

The purpose of this report is to present aggregated data on water withdrawals during 1988 in Illinois. Water-withdrawal data were collected from public-supply facilities, mining companies, thermoelectric-power generating plants, and self-supplied commercial and industrial establishments. Withdrawals for self-supplied domestic, irrigation, and livestock purposes were estimated by means of methods discussed later in the report. The data for the entire State were aggregated by county (fig. 1) and hydrologic unit (fig. 2).

Acknowledgments

The author thanks James R. Kirk, Kenneth J. Hlinka, Kris K. Klindworth, and Kay M. Charles of the Illinois State Water Survey for the time and effort expended to collect and compile the water-withdrawal data for 1988.

METHODOLOGY

Water-withdrawal data are collected or estimated using various methods. Data provided by the water users are generally more accurate than estimates because they are measured values, in most cases.

Collection of Water-Withdrawal Data

Water-withdrawal data (primarily site-specific metered usage) for public-supply facilities, mining companies, thermoelectric-power generating plants, and self-supplied commercial and industrial establishments are obtained every year from questionnaires sent to about 4,000 water users by the ISWS. The water users are asked to return the forms to the ISWS where the data are checked and digitized. If a water user does not respond to the questionnaire, a second questionnaire is sent, and a follow-up telephone call is made as a final recourse. If it is determined that a water user cannot provide the data, an amount is estimated by extrapolating data from previous years. If no previous data are available to make an estimate, no withdrawal data for that water user are entered into the data base. These data are aggregated by

county and hydrologic unit by the ISWS and released to the USGS.

Water-Withdrawals Estimation Techniques

Water use for self-supplied domestic, irrigation, and livestock purposes is estimated from other related data available by county aggregation. The estimated withdrawal data are subsequently aggregated by hydrologic unit by multiplying the proportion of each hydrologic unit within a county by the water-use estimate for the county. It is assumed that all unmetered *self-supplied water* use for domestic purposes, irrigation, and livestock in Illinois is obtained from ground-water sources, except for a small amount of surface water used for irrigation. The estimated withdrawal data are entered directly into AWUDS. Deliveries from public supplies were estimated for domestic, commercial, industrial, and thermoelectric-power generation uses.

Self-Supplied Domestic Withdrawals

Self-supplied *domestic water use* is estimated by multiplying an estimated rural domestic per capita water use for each county by the self-supplied population for each county. The estimated rural domestic per capita water use in each county is the average per capita water use of the small water-supply systems that serve 800 people or less and have two or less commercial establishments (Kirk, 1987, p. 7). The self-supplied population is the difference between the total county population and the population served by public water-supply facilities in the county. The statewide average rural domestic per capita water use during 1988 was calculated at 95 gal/d.

Irrigation Withdrawals

Irrigation water withdrawals are estimated by multiplying the irrigated crop acreage by the rainfall deficit during the crop growing season (Kirk, 1987). The irrigated crop acreage in each county was obtained from the University of Illinois Cooperative Extension Service (written commun., 1989). The

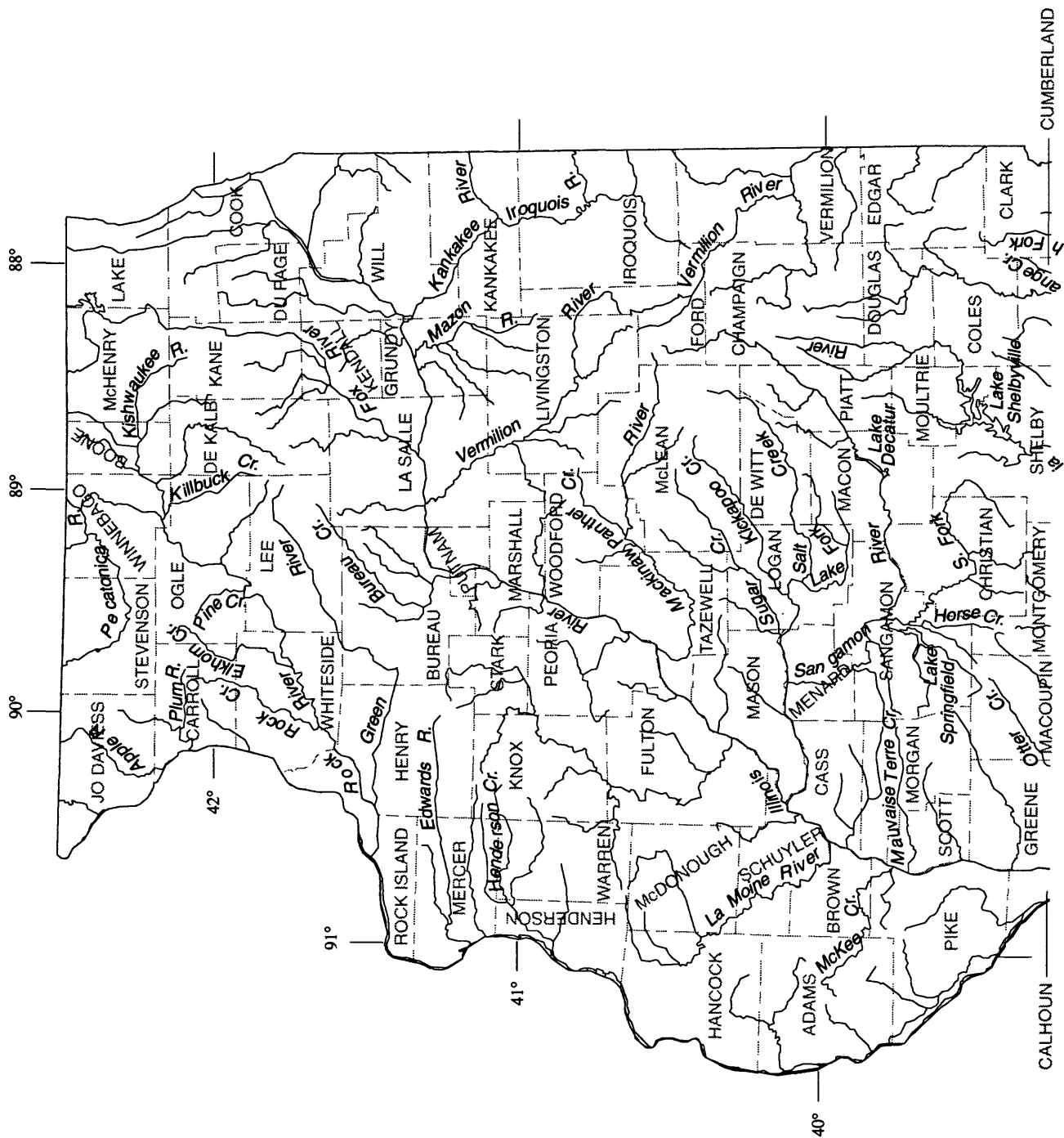
rainfall deficit between May 1 and August 31, 1988, was determined as a weekly cumulative computation for each county by the following procedure.

1. If more than 1.25 in. of rain falls during the first week of the growing season, half the amount of rain exceeding 1.25 in. is added to the rain amount during the following week. If less than 1.25 in. of rain falls during the first week, the difference between the actual rainfall and 1.25 in. is the rainfall deficit and is estimated to be the quantity of water, in inches, applied by irrigation that week.
2. For each subsequent week during the growing season, one-half of the cumulative rainfall during the previous week in excess of 1.25 in. is added to the rainfall amount for the week. If the cumulative rainfall amount for a week is less than 1.25 in., then the difference is the rainfall deficit and is estimated to be the quantity of water, in inches, applied by irrigation that week. The rainfall deficits for each week are then added to determine the total *irrigation water use* for the year.

The average weekly rainfall and the rainfall deficits were determined for each county for the 1988 crop-growing season. The total irrigation water use in each county was calculated by multiplying the total rainfall deficit, in inches, by the irrigated acreage for the county. The total irrigation water use was divided by 365 days to obtain a daily rate for the year. In addition to crop irrigation, this water-use category includes the water used to irrigate commercial, municipal, and institutional lawns and parks, golf courses, and plant nurseries.

Livestock Withdrawals

Water use for livestock purposes is determined by multiplying the county population of each major type of farm animal by the estimated water directly consumed by the animal and other water used in association with the animal (Kirk, 1987). The major animal populations for each county were obtained from the U.S. Bureau of Census (1989). The estimated water used from direct consumption by and uses associated with each animal type are as follows:



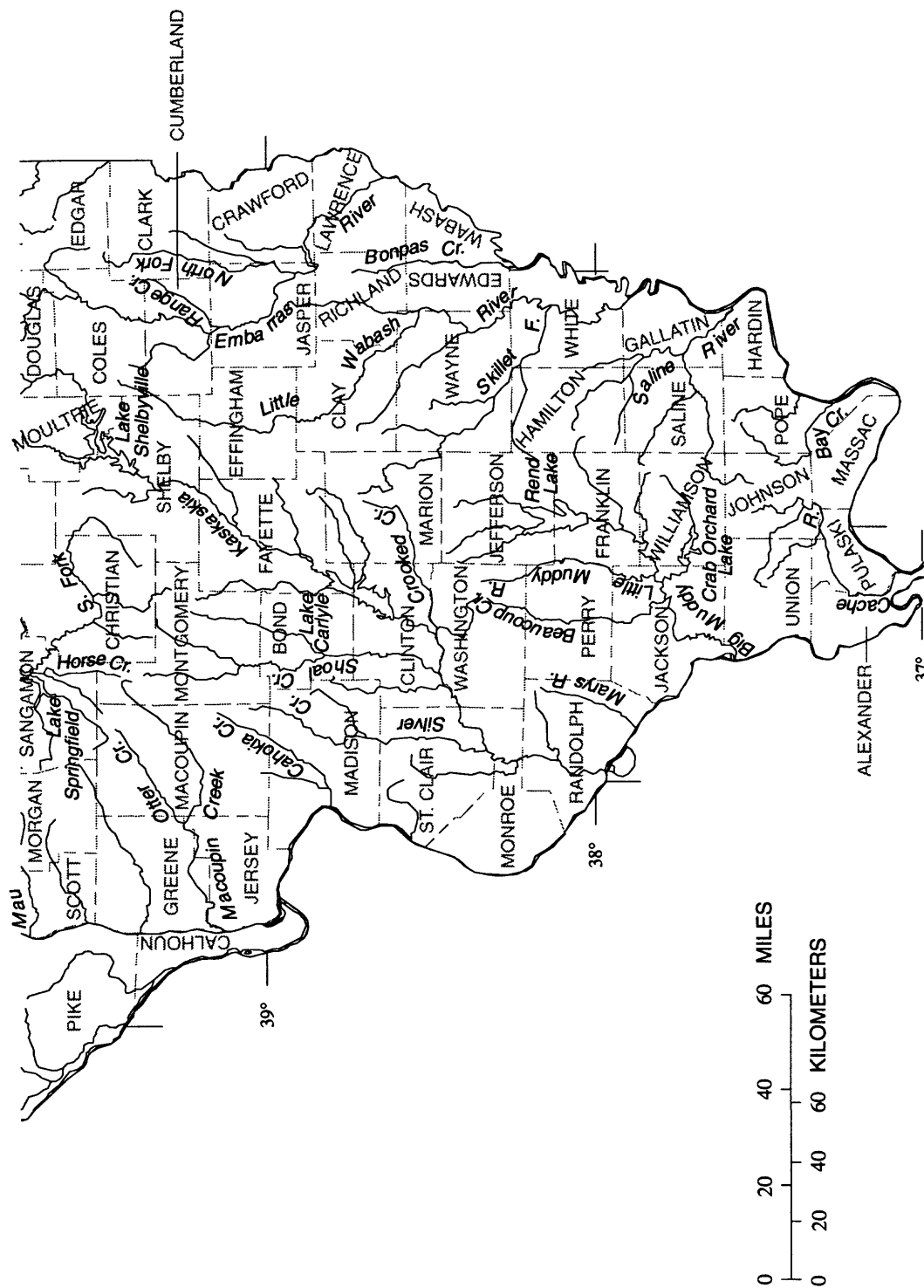


Figure 1. Counties and major surface-water bodies in Illinois.

EXPLANATION

HYDROLOGIC- UNIT CODE	DRAINAGE BASIN NAME
04040001	Little Calumet-Galien
04040002	Pike-Root
04060200	Lake Michigan (not shown)
05120108	Middle Wabash-Little Vermilion
05120109	Vermilion (Wabash River drainage)
05120111	Middle Wabash-Busseron
05120112	Embarras
05120113	Lower Wabash
05120114	Little Wabash
05120115	Skillet
05140203	Lower Ohio-Bay
05140204	Saline
05140206	Lower Ohio
07060005	Apple-Plum
07080101	Copperas-Duck
07080104	Flint-Henderson
07090001	Upper Rock
07090003	Pecatonica
07090004	Sugar
07090005	Lower Rock
07090006	Kishwaukee
07090007	Green
07110001	Bear-Wyaconda
07110004	The Sny
07110009	Peruque-Piasa
07120001	Kankakee
07120002	Iroquois
07120003	Chicago
07120004	Des Plaines
07120005	Upper Illinois
07120006	Upper Fox
07120007	Lower Fox
07130001	Lower Illinois-Senachwine Lake
07130002	Vermilion (Illinois River drainage)
07130003	Lower Illinois-Lake Chautauqua
07130004	Mackinaw
07130005	Spoon
07130006	Upper Sangamon
07130007	South Fork Sangamon
07130008	Lower Sangamon
07130009	Salt
07130010	La Moine
07130011	Lower Illinois
07130012	Macoupin
07140101	Cahokia-Joachim
07140105	Upper Mississippi-Cape Girardeau
07140106	Big Muddy
07140108	Cache
07140201	Upper Kaskaskia
07140202	Middle Kaskaskia
07140203	Shoal
07140204	Lower Kaskaskia

(modified from Seaber and others, 1987)

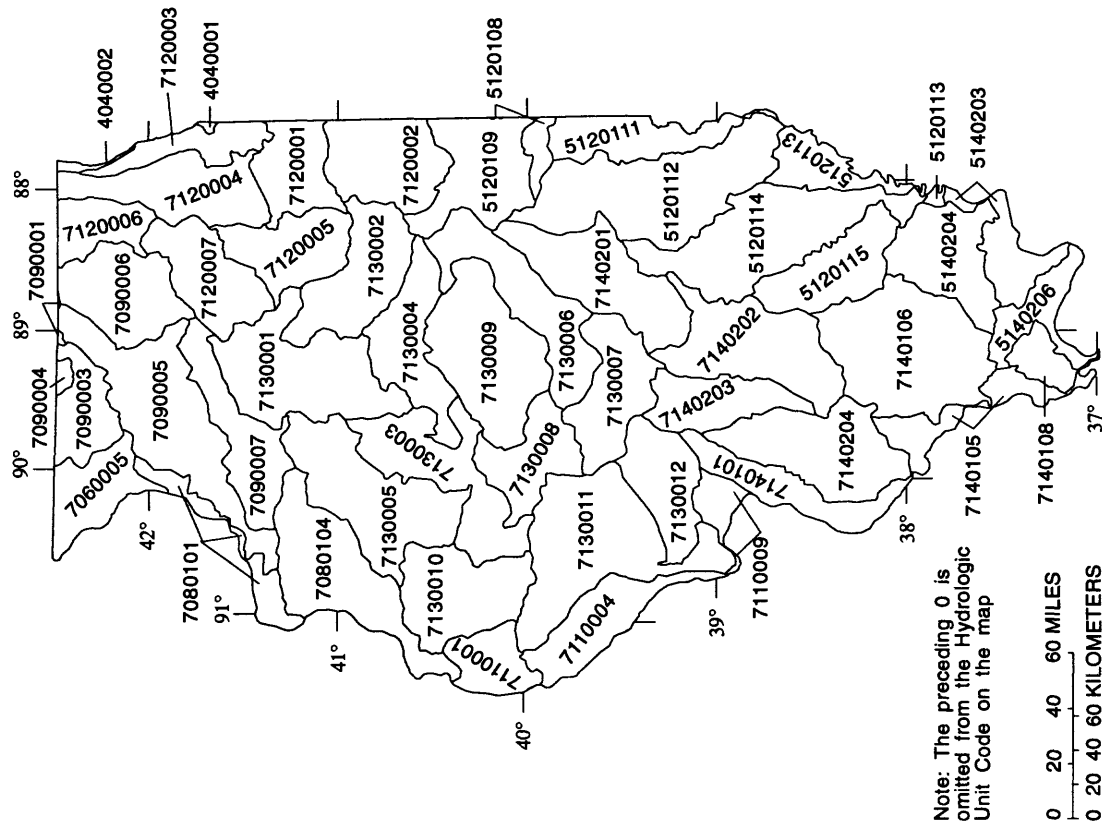


Figure 2. Hydrologic-unit boundaries in Illinois.

Animal type	Estimated water use (gallons per day)
Dairy cows	35.0
Beef cattle	12.0
Horses and mules	12.0
Hogs	4.0
Goats	3.0
Sheep	2.0
Turkeys	.12
Chickens	.06
Rabbits	.05
Mink	.03

ESTIMATED WATER WITHDRAWALS AND USE IN ILLINOIS, 1988

Only *offstream uses* of water in Illinois are presented in this report; *instream uses*, such as for hydroelectric-power generation, are not considered. Data are aggregated by county and hydrologic unit. Surface-water and ground-water withdrawals are aggregated by major categories of water use.

Public-Supply Withdrawals

Water withdrawn and delivered from public-supply facilities in Illinois during 1988 totaled about 1,956 Mgal/d (tables 1 and 2; all tables at end of report); about 1,806 Mgal/d was withdrawn in 1986 (Kirk, 1987). Surface water and ground water were the sources for about 1,495 and 462 Mgal/d, respectively, of the withdrawals for public supply; about 1,369 and 437 Mgal/d of surface water and ground water, respectively, were used in 1986 (Kirk, 1987).

Withdrawals from ground water and surface water for public supply are subsequently delivered to water users connected to the water-distribution system. Water from public-supply facilities is delivered to households for domestic purposes, to commercial establishments, to industrial concerns, and for thermoelectric-power generation. Forty-six, seventy-six, and thirty-five percent of the water used for domestic, commercial, and industrial purposes, respectively, were delivered by public-supply facilities. A minimal amount (less than 2 Mgal/d) of water was delivered by public-supply facilities to thermoelectric-power generators.

Eighty-nine percent of the population of Illinois are served by public-supply facilities. The largest withdrawals of ground water were in Champaign, Cook, Du Page, Kane, Lake, La Salle, McHenry,

Madison, Peoria, Tazewell, Will, and Winnebago Counties (fig. 3). The largest amounts of surface water withdrawn for public supply were from Lake Michigan and the Mississippi and Sangamon Rivers. About 1,214 Mgal/d, or 78 percent of the surface water withdrawn and used in Illinois for public supply, is obtained from Lake Michigan (hydrologic unit 04060200) (table 2). Other counties with large withdrawals from surface-water sources for public supply were Macon, Madison, and Sangamon (fig. 4).

Estimated Self-Supplied Domestic Withdrawals

Self-supplied water for domestic use includes the relatively small amounts of water used for individual households. All self-supplied domestic water in Illinois is reported to be ground water obtained from a water well or spring (Kirk, 1987). About 122 Mgal/d is estimated to have been withdrawn for self-supplied domestic purposes in 1988 (tables 1 and 2); about 105 Mgal/d was estimated to have been used in 1986 (Kirk, 1987).

About 12 percent of the total water used for domestic use in Illinois was self supplied. The largest withdrawals of self-supplied domestic water were in Cook, Du Page, Kane, Lake, McHenry, Will, and Winnebago Counties (fig. 5). The population served by public-supply facilities and the self-supplied population in Illinois are shown in tables 3 and 4. The proportion of self-supplied to public-supplied population is greatest in Calhoun, Cumberland, Henderson, Jasper, Johnson, Kendall, and Shelby Counties.

Commercial Withdrawals

Total self-supplied withdrawals and deliveries from public-water facilities for commercial use were about 654 Mgal/d (tables 5 and 6). About 159 Mgal/d was self supplied by the commercial establishments. More surface water than ground water was withdrawn for self-supplied commercial use. The largest self-supplied commercial withdrawals of ground water were in Champaign, Cook, Du Page, Jackson, Madison, Mason, St. Clair, Williamson, and Winnebago Counties (fig. 6). The

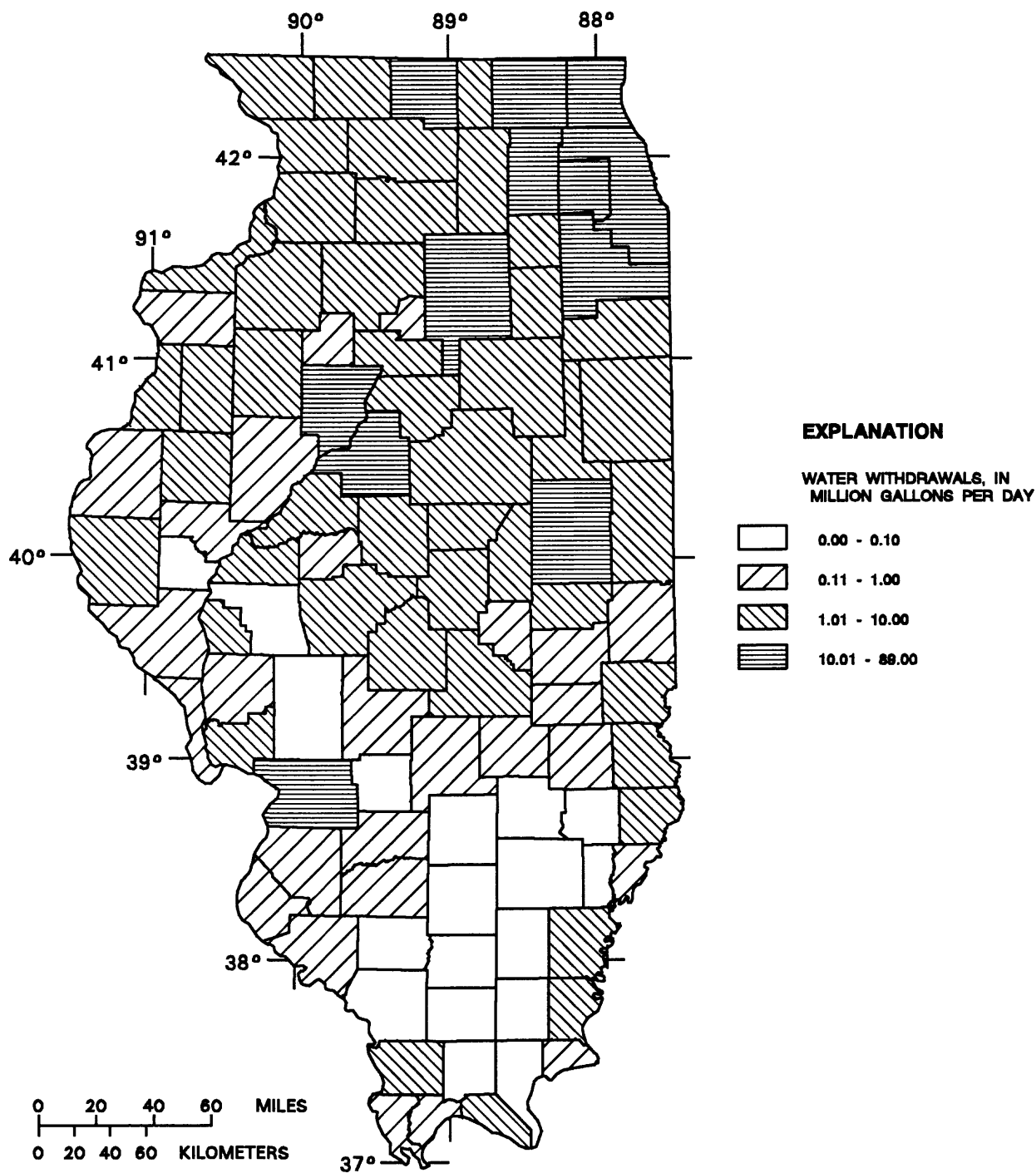


Figure 3. Public-supply withdrawals of ground water in Illinois, by county, 1988.

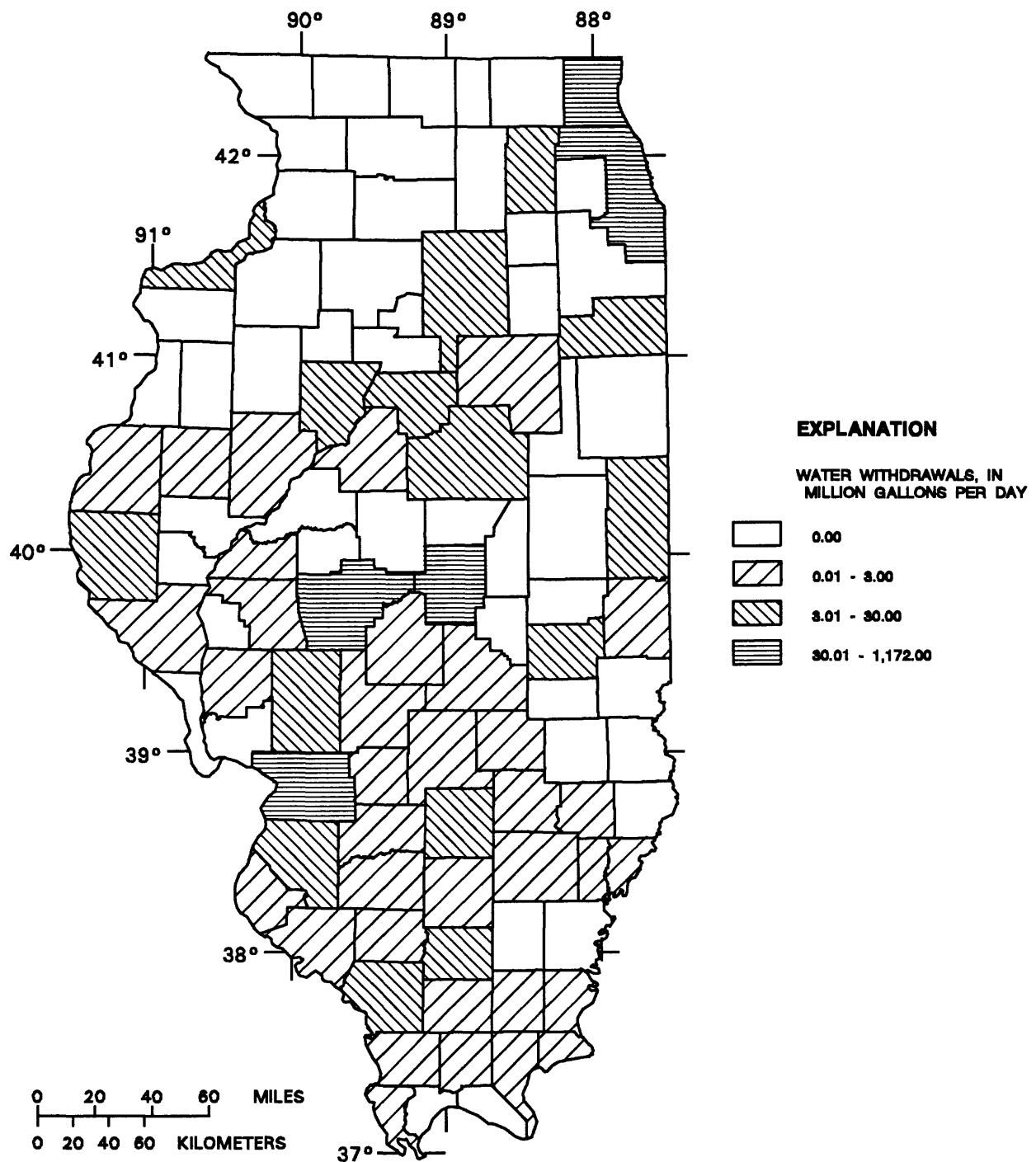


Figure 4. Public-supply withdrawals of surface water in Illinois, by county, 1988.

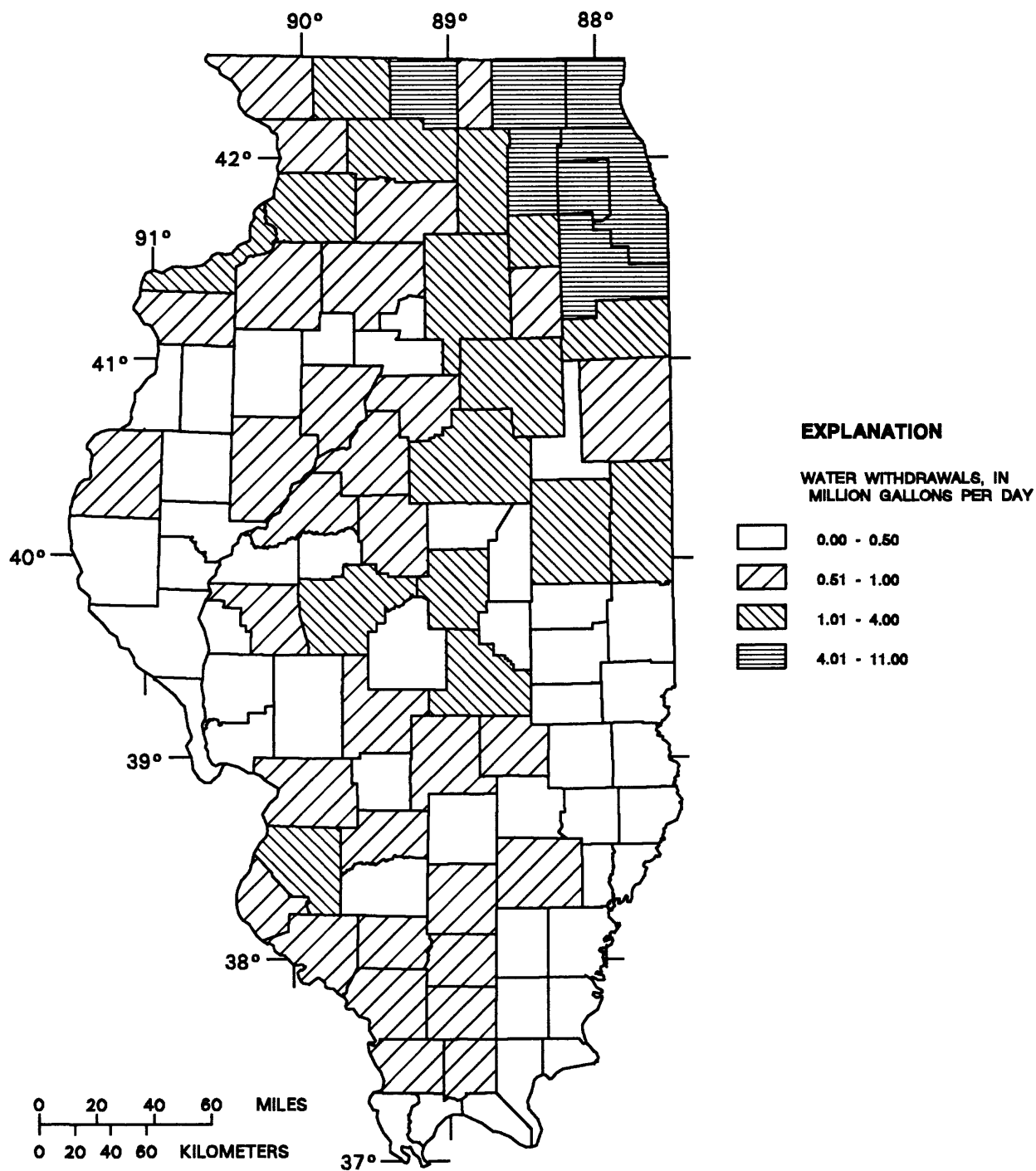


Figure 5. Estimated self-supplied domestic withdrawals of water in Illinois, by county, 1988.

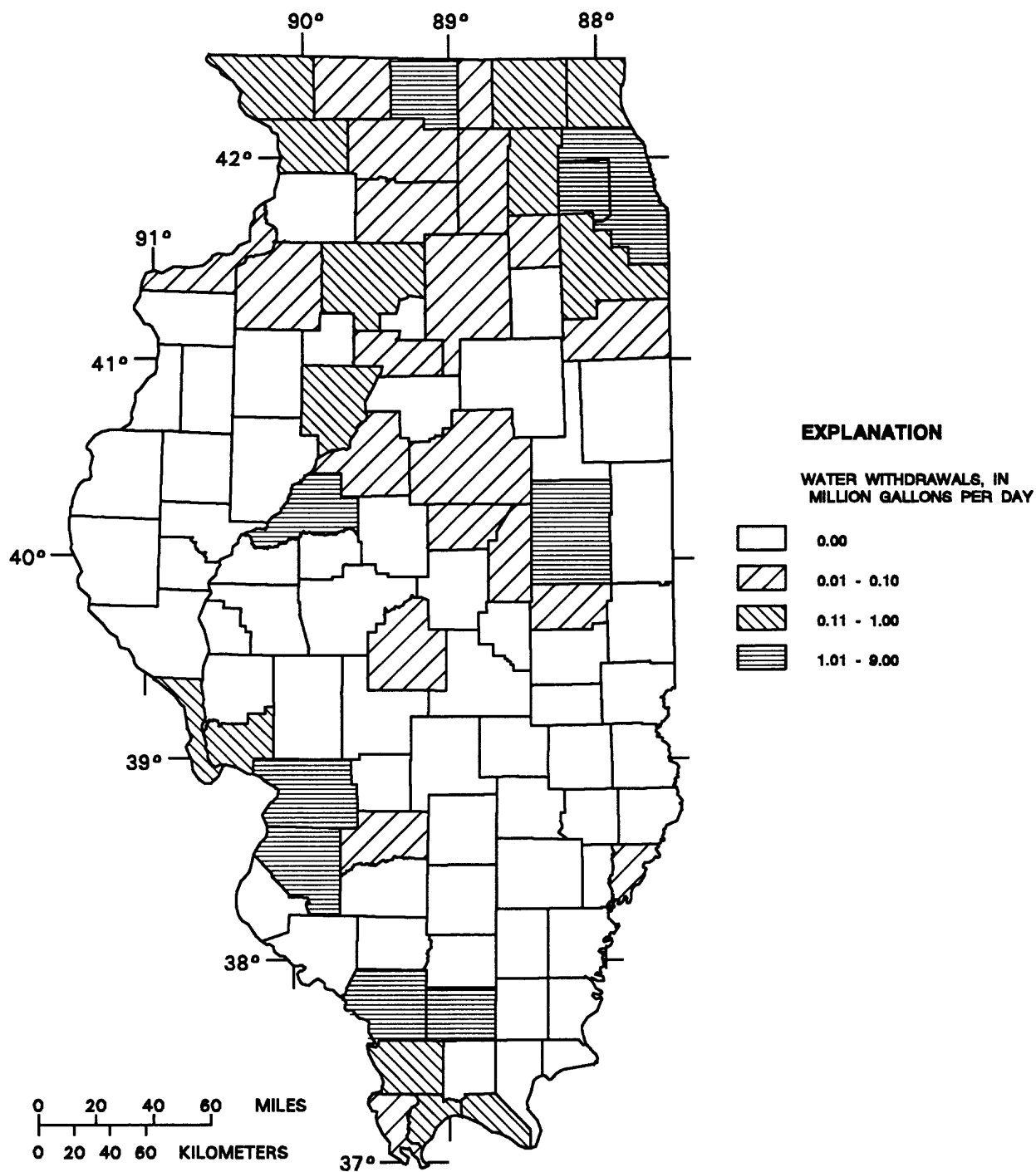


Figure 6. Self-supplied commercial withdrawals of ground water in Illinois, by county, 1988.

largest self-supplied commercial withdrawals of surface water were in Calhoun, Cook, Fulton, and Jersey Counties (fig. 7).

Estimated Irrigation Withdrawals

Total irrigation withdrawals were estimated to have been about 302 Mgal/d (tables 7 and 8); about 144 Mgal/d was withdrawn in 1986 (Kirk, 1987). Although irrigated acreage has increased from 265,036 in 1986 (Kirk, 1987) to 281,370 acres in 1988, the greatest factor for the increased irrigation in 1988 was the drought conditions throughout the entire State.

Irrigation water is applied during the growing season of May–August, but the total water used is averaged over the entire year (as presented in this report). The source of all irrigation water was ground water, except for a relatively small amount (less than 1 Mgal/d) of surface water applied in Washington County. All irrigation was applied by spray methods; thus, no *conveyance losses* resulted during the process of irrigation. Most of the irrigation water was used in Cook, Kankakee, Lee, Mason, Tazewell, and Whiteside Counties (fig. 8).

Estimated Livestock Withdrawals

Total withdrawals for livestock use were about 56 Mgal/d (tables 7 and 8); about 57 Mgal/d was used in 1986 (Kirk, 1987). It is assumed that the source of water for livestock uses is ground water, either wells or springs. The largest livestock use was in Adams, Carroll, Clinton, De Kalb, Henry, Jo Daviess, Knox, Ogle, Pike, Stephenson, and Whiteside Counties (fig. 9).

Industrial Withdrawals

Self-supplied withdrawals and deliveries from public supply for industrial use were about 743 Mgal/d (tables 9 and 10); about 472 Mgal/d was used in 1986 (Kirk, 1987). The industries included in this category are the 20 major Division D Manufacturing groups from the Standard Industrial Classification Manual (Office of Management and Budget, 1987). About 480 Mgal/d was self-supplied withdrawals by industrial facilities; 32 percent of the

self-supplied water was from ground-water sources. The largest self-supplied withdrawals of ground water for industrial use were in Adams, Cook, Grundy, La Salle, Madison, Morgan, Peoria, Rock Island, Tazewell, Will, and Winnebago Counties (fig. 10). The largest self-supplied withdrawals of surface water for industrial use were in Cook, Lake, La Salle, Madison, Peoria, Rock Island, Tazewell, and Will Counties (fig. 11). No saline ground water or surface water is withdrawn for industrial use.

Mining Withdrawals

A total of about 94 Mgal/d was withdrawn during mining activities; about 85 Mgal/d was withdrawn in 1986 (Kirk, 1987). Both fresh and saline ground water are withdrawn during mining (tables 11 and 12). Only fresh surface water occurs in Illinois; thus, only fresh surface water is used during mining. A total of about 34 Mgal/d of mining withdrawals was from ground-water sources; about 25 Mgal/d of the ground water was saline. About 60 Mgal/d of mining withdrawals was from surface-water sources.

Most of the ground water withdrawn during mining was in the southern Illinois counties of Crawford, Fayette, Gallatin, Hardin, Jasper, Lawrence, Perry, Wabash, Wayne, and White (fig. 12). Most of the surface water withdrawn during mining was in Champaign, La Salle, and Perry Counties (fig. 13). The total consumptive use of the water withdrawn during mining was about 46 Mgal/d, or about 49 percent of the total water withdrawn during mining (tables 11 and 12).

Thermoelectric-Power Generation Withdrawals

Self-supplied withdrawals and deliveries from public supplies for thermoelectric-power generation were about 15,589 Mgal/d (tables 13 and 14); about 12,213 Mgal/d was withdrawn in 1986 (Kirk, 1987). The large increase in withdrawals for thermoelectric-power generation is mainly a result of additional power-generating units going on-line since 1986. Both fossil-fuel and nuclear-fuel thermoelectric-power generators are included in this category.

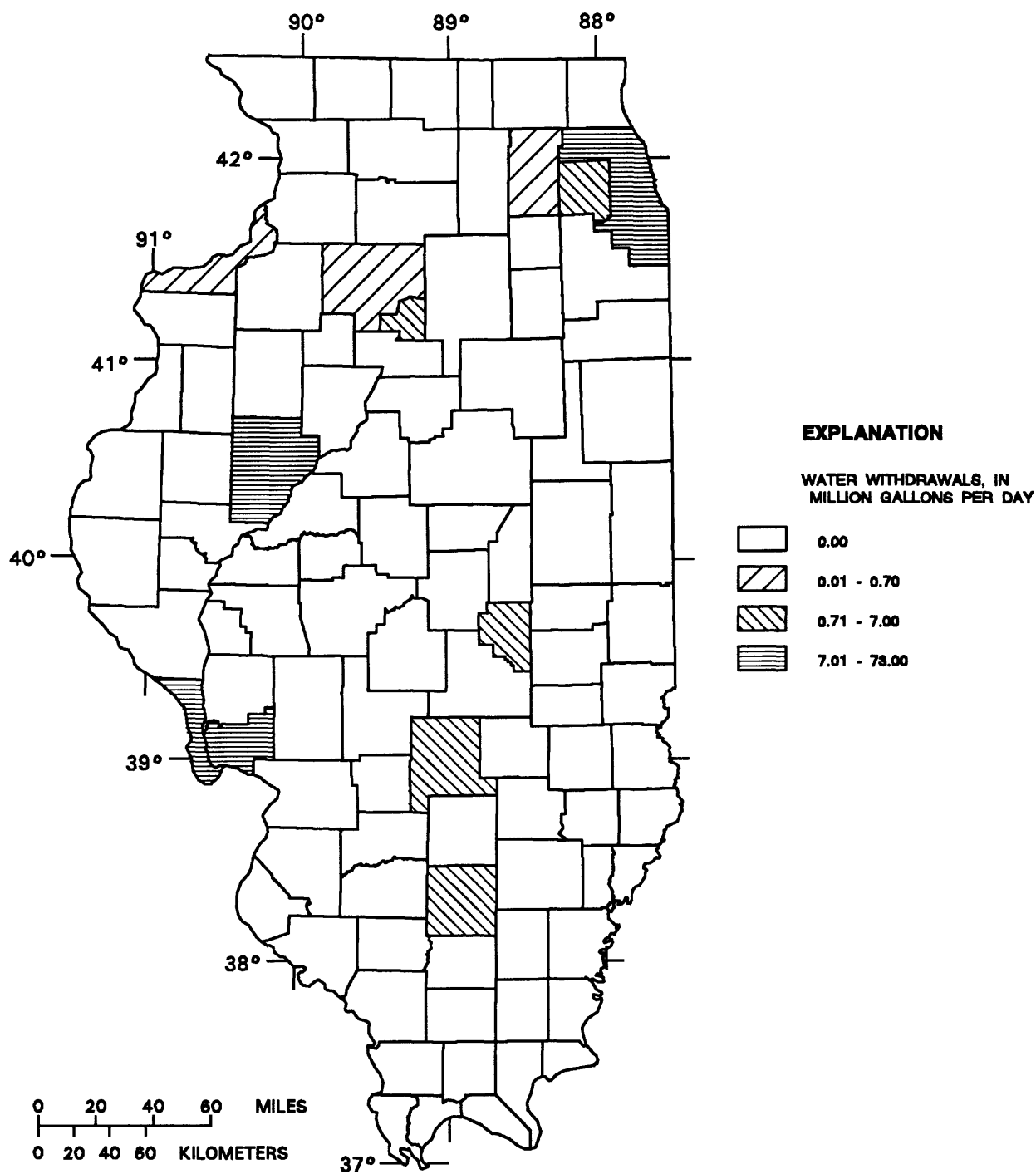


Figure 7. Self-supplied commercial withdrawals of surface water in Illinois, by county, 1988.

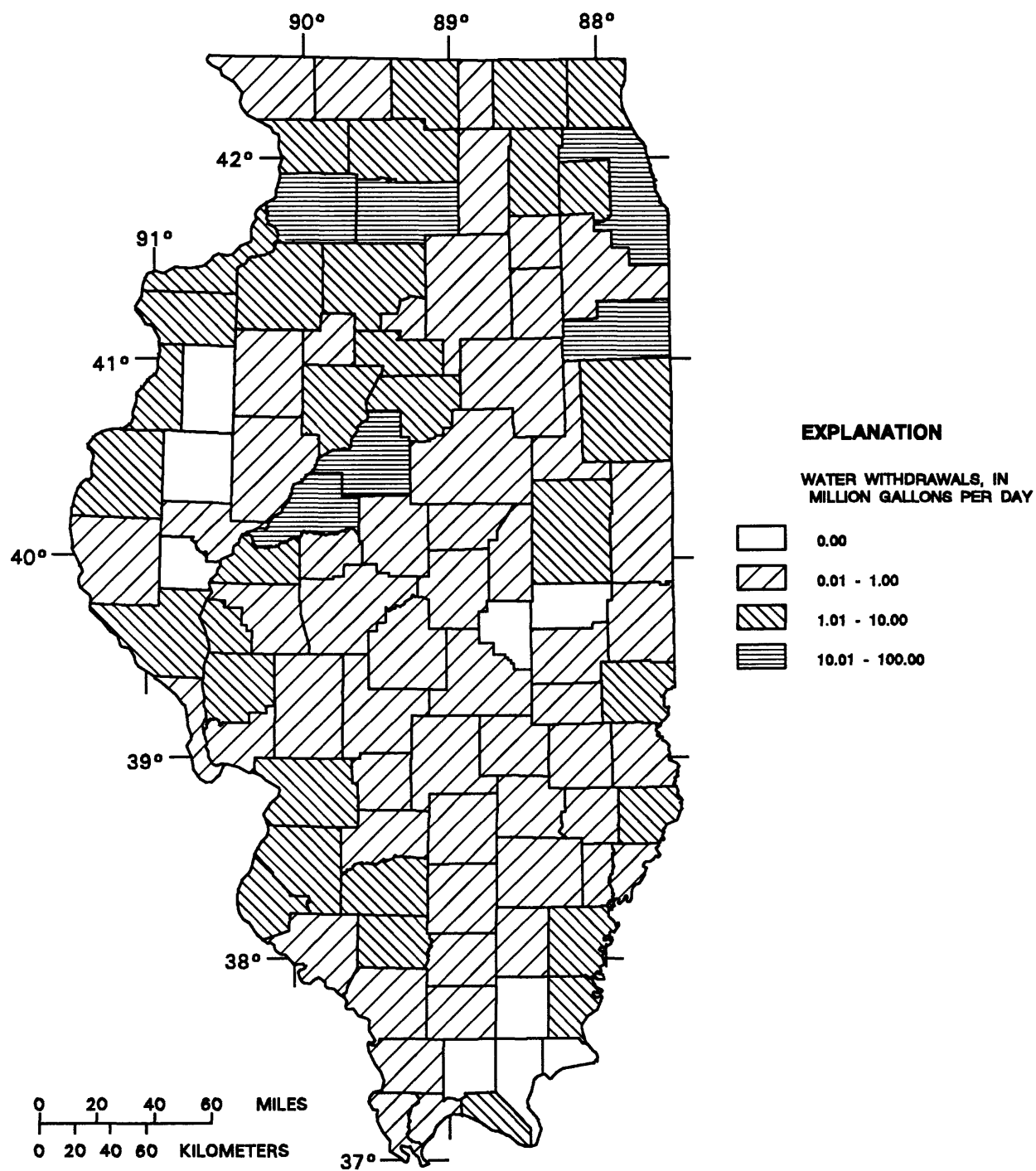


Figure 8. Estimated irrigation withdrawals of water in Illinois, by county, 1988.

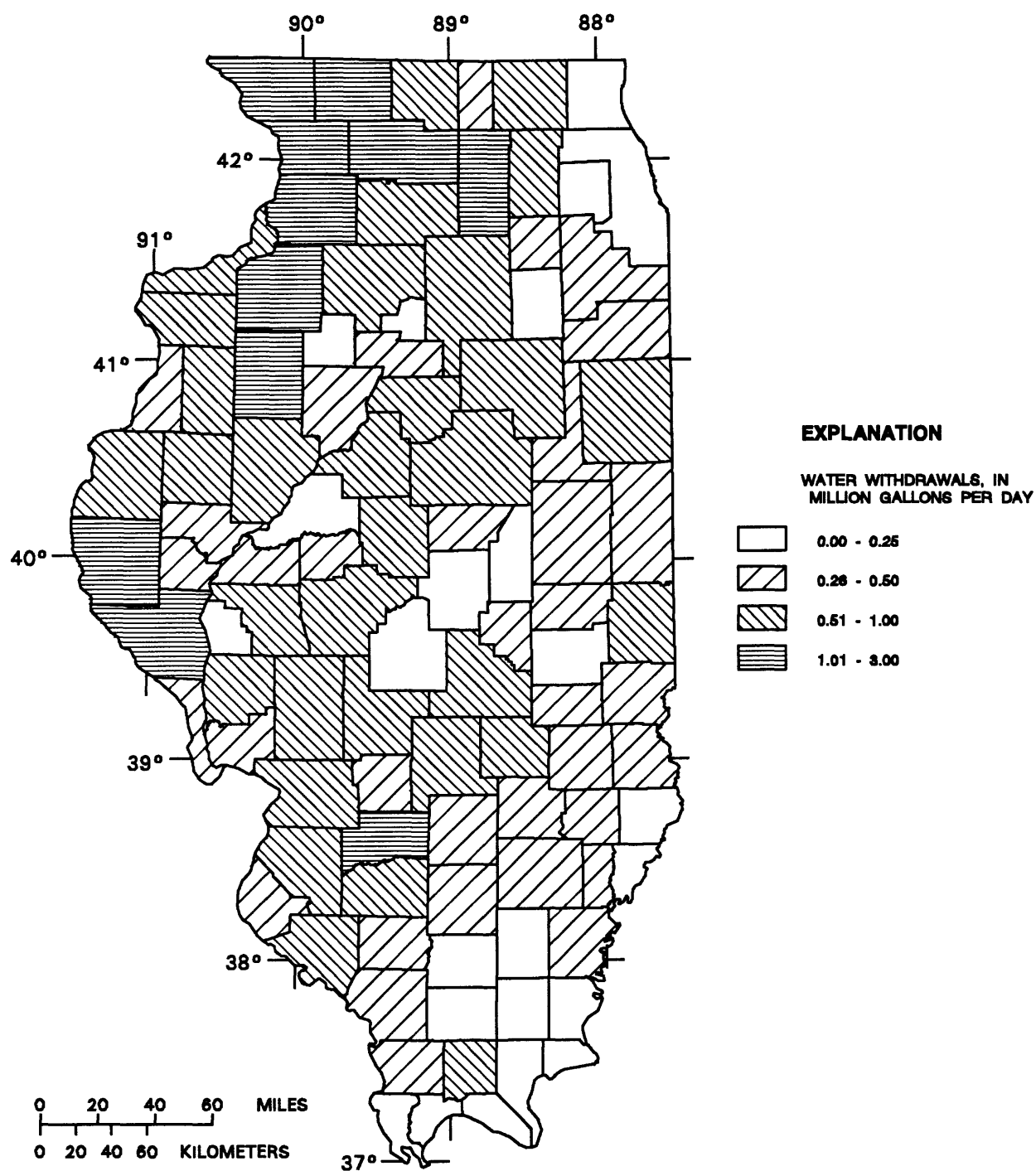


Figure 9. Estimated livestock withdrawals of water in Illinois, by county, 1988.

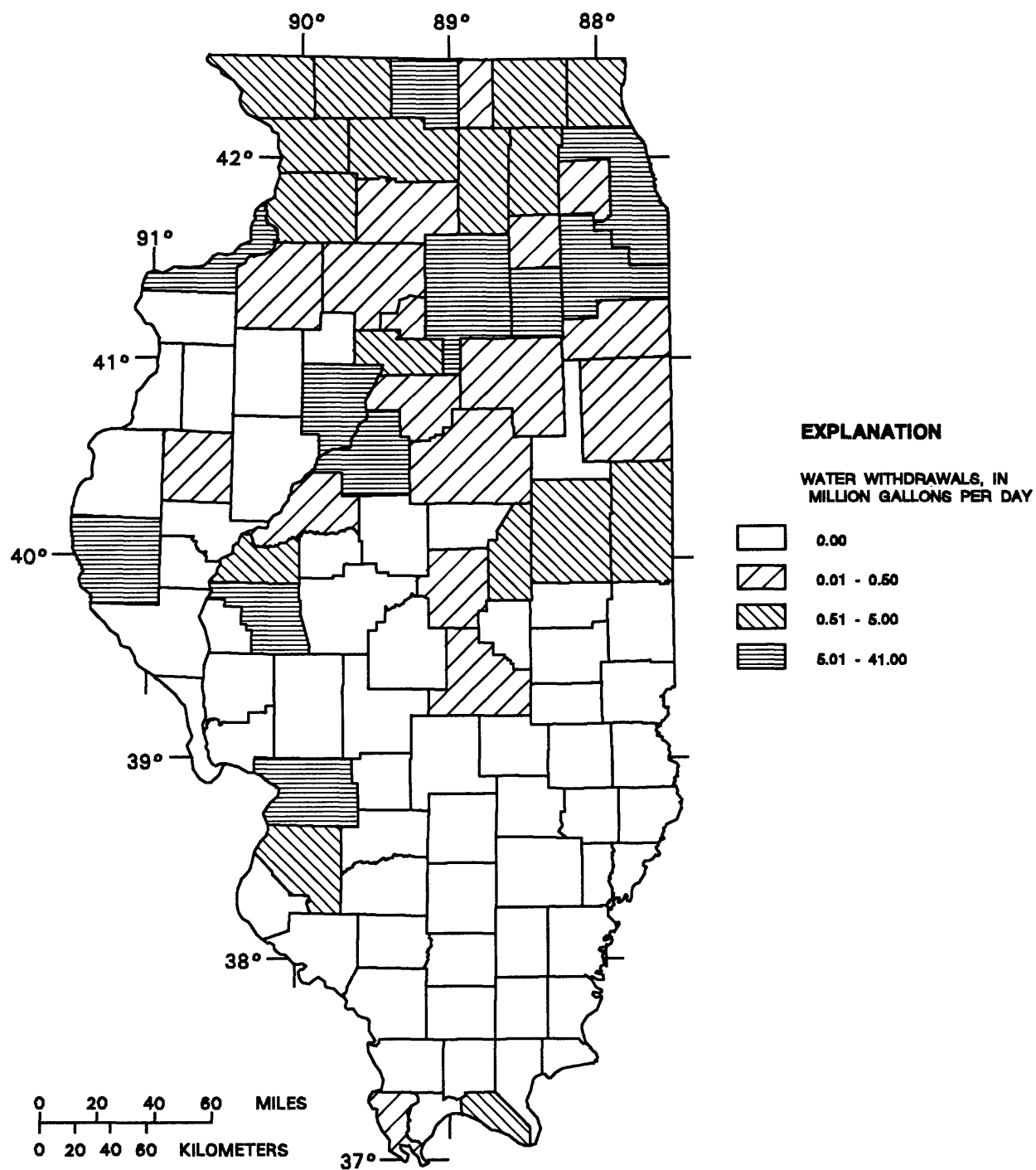


Figure 10. Self-supplied industrial withdrawals of ground water in Illinois, by county, 1988.

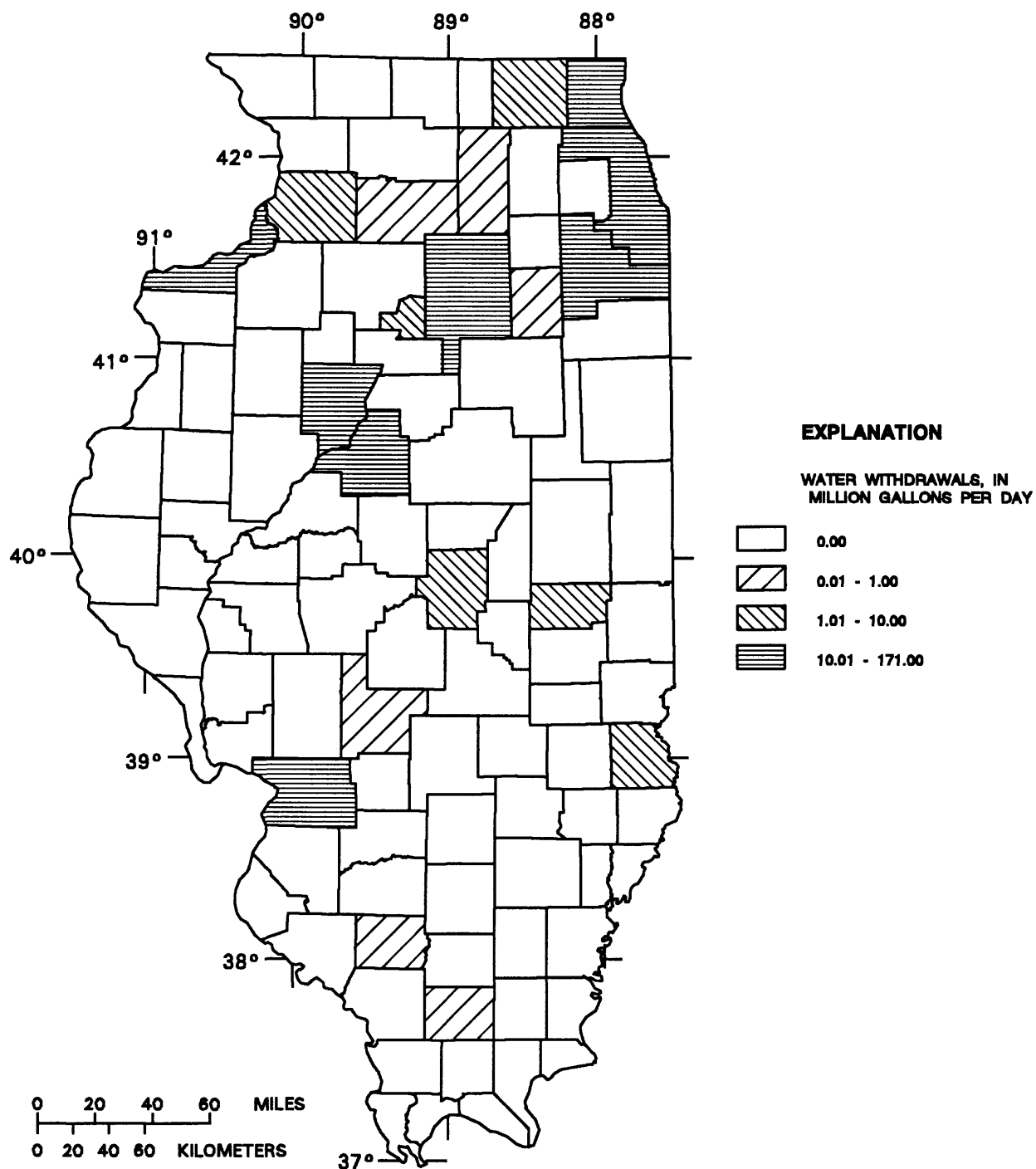


Figure 11. Self-supplied industrial withdrawals of surface water in Illinois, by county, 1988.

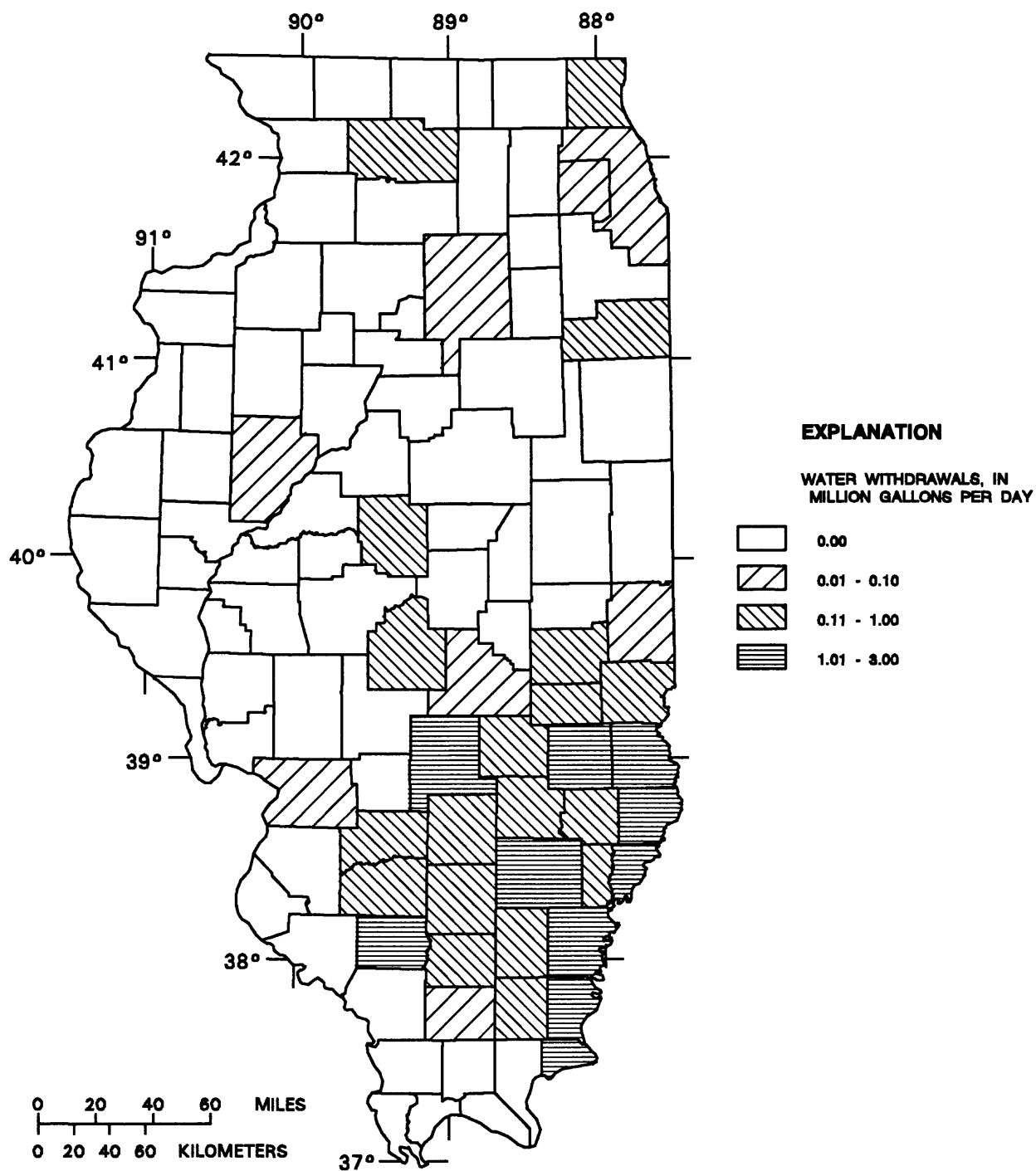


Figure 12. Mining withdrawals of ground water in Illinois, by county, 1988.

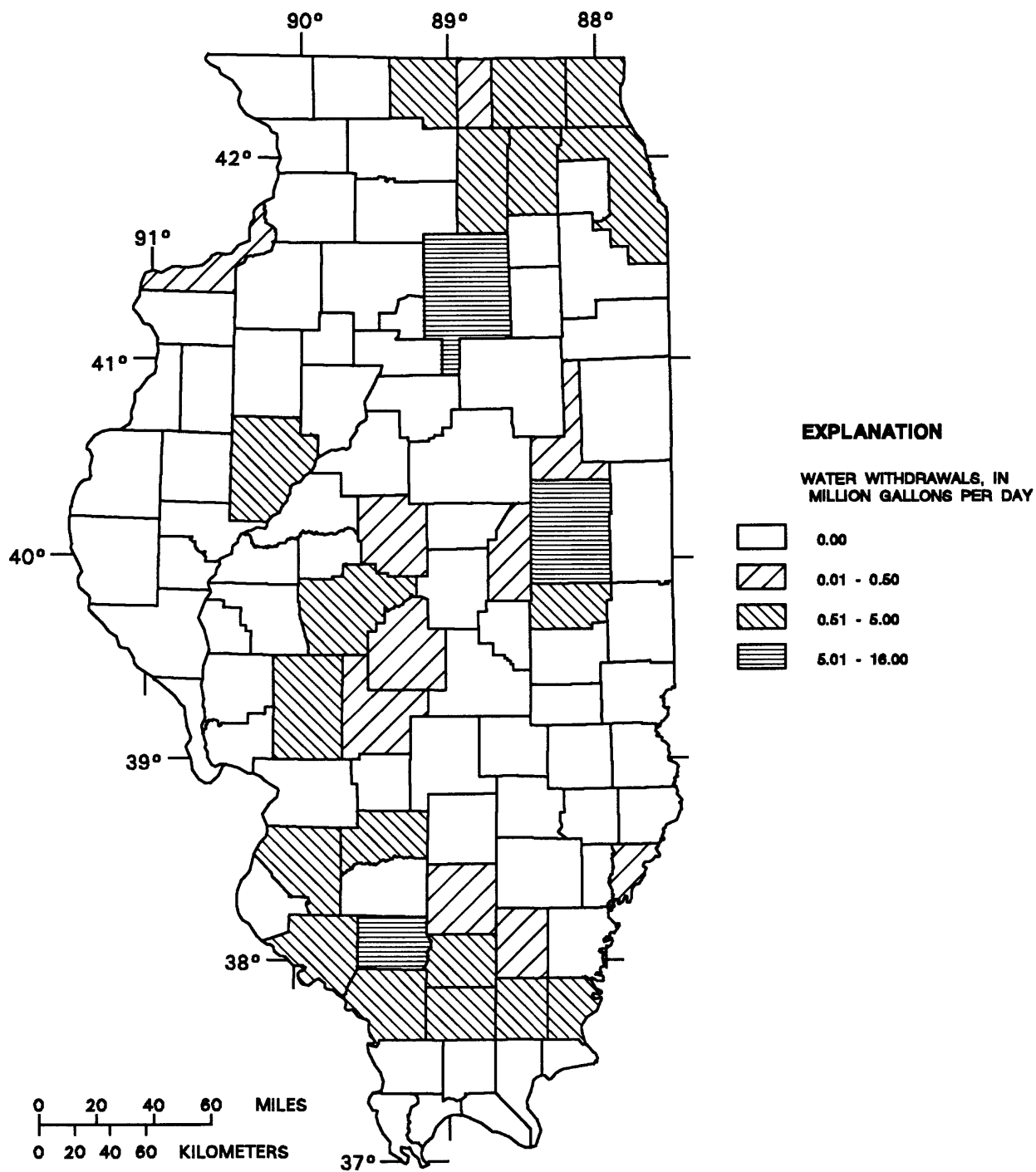


Figure 13. Mining withdrawals of surface water in Illinois, by county, 1988.

Most of the water withdrawn for thermoelectric-power generation is from surface-water sources and is withdrawn at or near the power-generating stations, although a small amount of water is obtained from self-supplied ground water and deliveries from public-water facilities. Most of the ground water withdrawn for thermoelectric-power generation was in Massac, Tazewell, and Will Counties (fig. 14). Most of the surface water withdrawn for thermoelectric-power generation was in Grundy, Lake, Randolph, and Will Counties (fig. 15). *Consumptive use* of water for thermoelectric-power generation was about 375 Mgal/d, or about 2 percent of the total water withdrawn for thermoelectric-power generation.

Total Water Withdrawals

The total amount of water withdrawn in Illinois during 1988 was about 18,756 Mgal/d (tables 15 and 16). The total withdrawal of fresh ground water, surface water, and saline ground water, excluding self-supplied thermoelectric-power withdrawals, was about 3,168 Mgal/d. About 1,170 Mgal/d, or 37 percent, of the total water withdrawn in Illinois, excluding the self-supplied withdrawals for thermoelectric-power generation, was ground water; about 1,998 Mgal/d of surface water was withdrawn, excluding the large self-supplied withdrawals for thermoelectric-power generation. About 25 Mgal/d of the total ground water withdrawn and used in Illinois was saline. Total self-supplied withdrawals and deliveries from public-supply facilities for thermoelectric-power generation was about 15,589 Mgal/d.

Most of the ground water withdrawn in 1988 was in Cook, Du Page, Madison, Mason, Tazewell, Will, and Winnebago Counties (fig. 16). Most of the surface water, excluding self-supplied thermoelectric-power withdrawals, was withdrawn and used in 1988 in Cook, Fulton, La Salle, Lake, Macon, Madison, Peoria, St. Clair, Sangamon, Rock Island, Tazewell, and Will Counties (fig. 17).

Surface-water, ground-water, and total water withdrawals by water-use category for Illinois during 1988 are shown in figure 18. Seventy-five percent of the total surface water, excluding withdrawals for thermoelectric-power generation, was withdrawn by public-supply facilities. Self-supplied industrial

withdrawals was the next largest use of surface water. Thirty-nine percent of the total ground water was withdrawn by public-supply facilities. Irrigation was the next largest use of ground water. Sixty-two percent of the total water withdrawn in Illinois during 1988 was for public-supply facilities. Self-supplied industrial withdrawals and irrigation were the next largest uses of water in Illinois during 1988.

SUMMARY

Water withdrawn from public-supply facilities in Illinois during 1988 totaled about 1,956 Mgal/d. Surface water and ground water were the sources for about 1,495 and 462 Mgal/d, respectively, of the withdrawals for public supply. The total water obtained from Lake Michigan for public supply was about 1,214 Mgal/d. A total of about 122 Mgal/d was withdrawn for self-supplied domestic purposes. Total self-supplied withdrawals and deliveries from public-supply facilities for commercial use were about 654 Mgal/d, of which about 159 Mgal/d was self supplied by the commercial establishments. Total irrigation water withdrawals were about 302 Mgal/d. Although irrigated acreage in Illinois has increased from 265,036 acres in 1986 to 281,370 acres in 1988, the most significant factor for the increased irrigation water use was the drought conditions statewide. Total livestock withdrawals were about 56 Mgal/d. Total self-supplied withdrawals and deliveries from public-supply facilities for industrial use were about 743 Mgal/d. About 480 Mgal/d was self-supplied withdrawals by industrial facilities. A total of about 94 Mgal/d was withdrawn during mining activities. A total of about 34 Mgal/d of ground water was withdrawn during mining activities; about 25 Mgal/d of the ground water was saline. Total self-supplied withdrawals and deliveries from public-supply facilities for thermoelectric-power generation were about 15,589 Mgal/d.

The total amount of water withdrawn in Illinois during 1988 was about 18,756 Mgal/d. The total water withdrawal, excluding self-supplied thermoelectric-power withdrawals, was about 3,168 Mgal/d. About 1,170 Mgal/d, or 37 percent, of the total water withdrawn in Illinois, excluding withdrawals for thermoelectric-power generation, was ground water; about 1,998 Mgal/d of surface water was withdrawn,

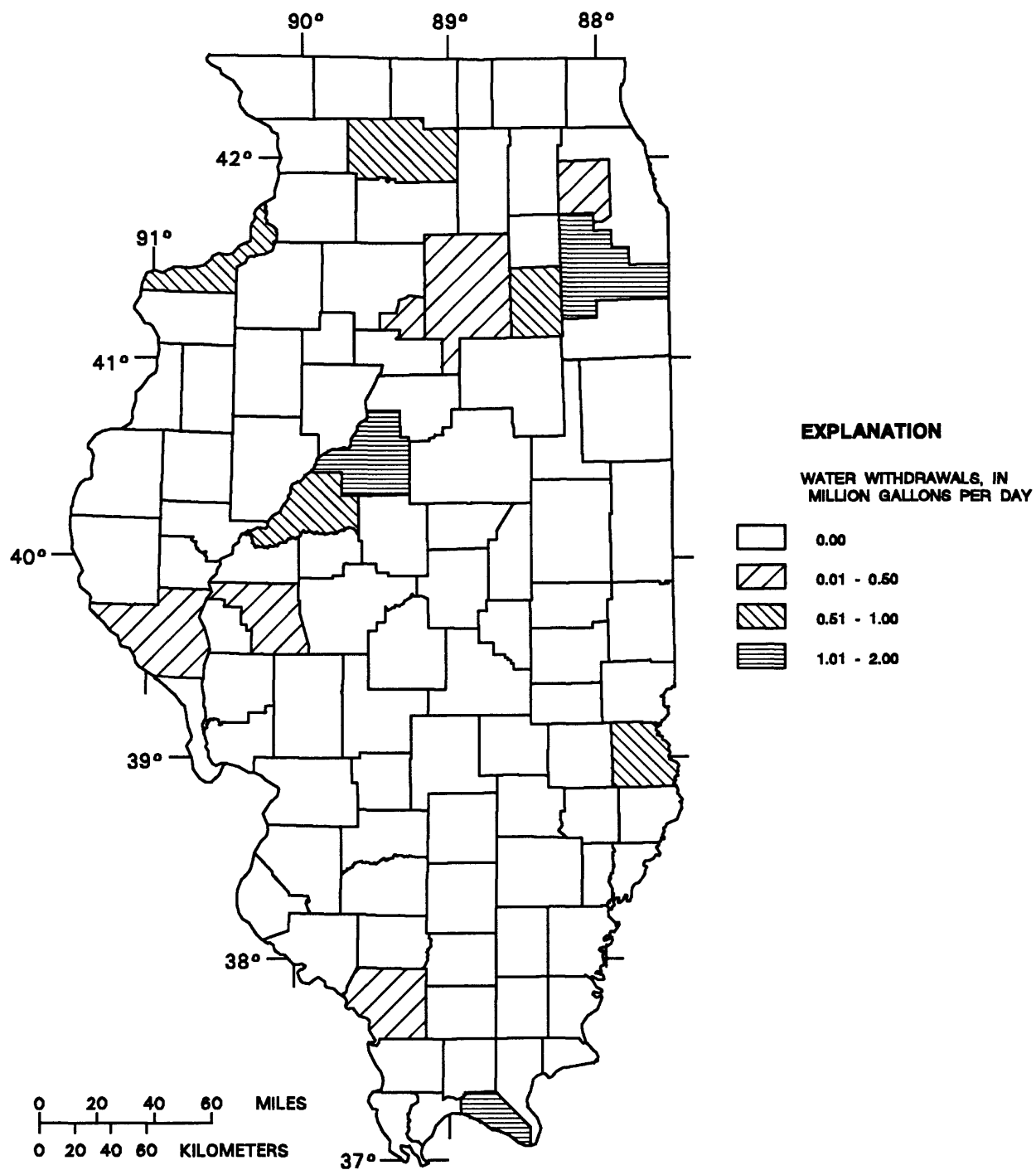


Figure 14. Self-supplied thermoelectric-power withdrawals of ground water in Illinois, by county, 1988.

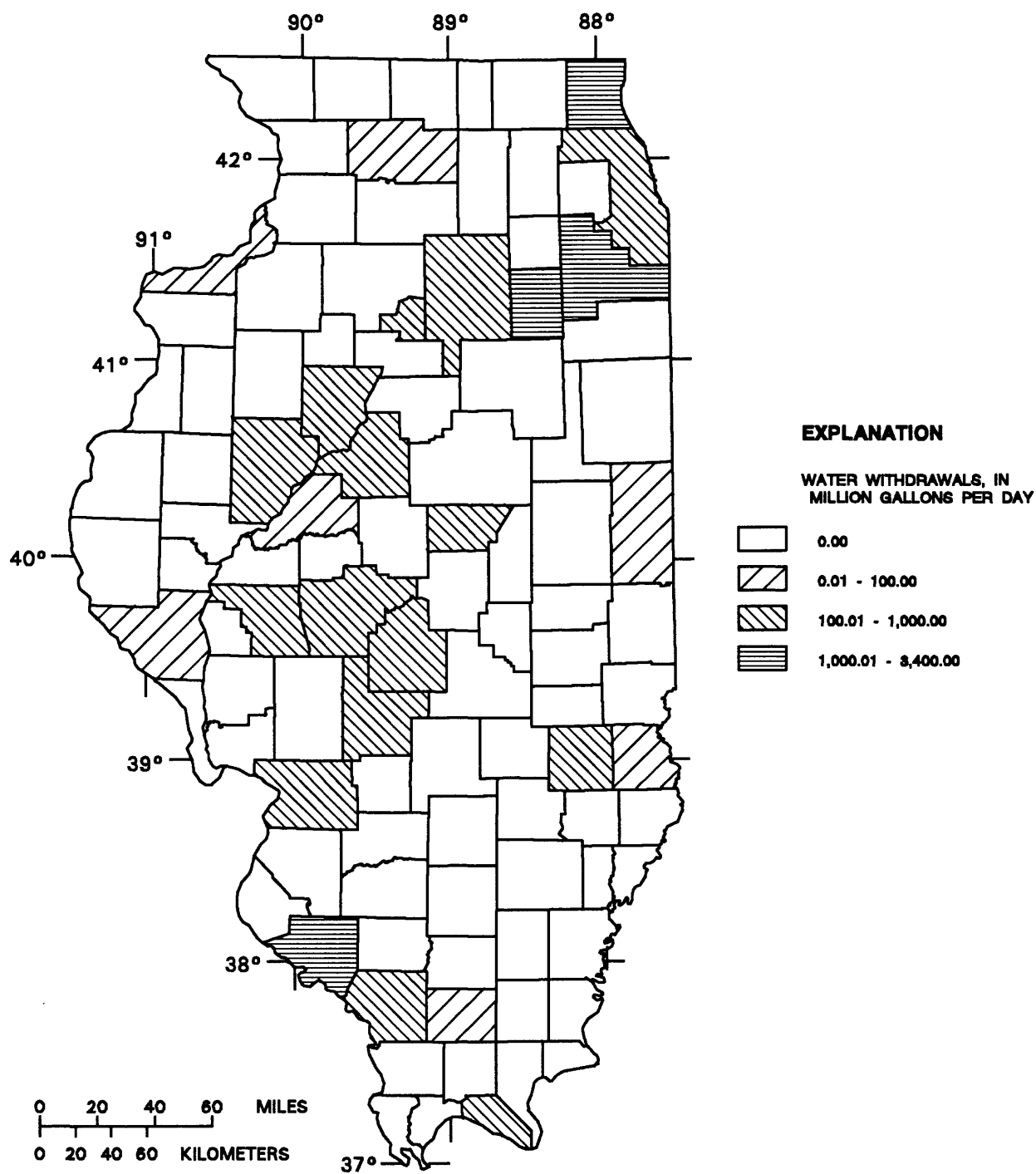


Figure 15. Self-supplied thermoelectric-power withdrawals of surface water in Illinois, by county, 1988.

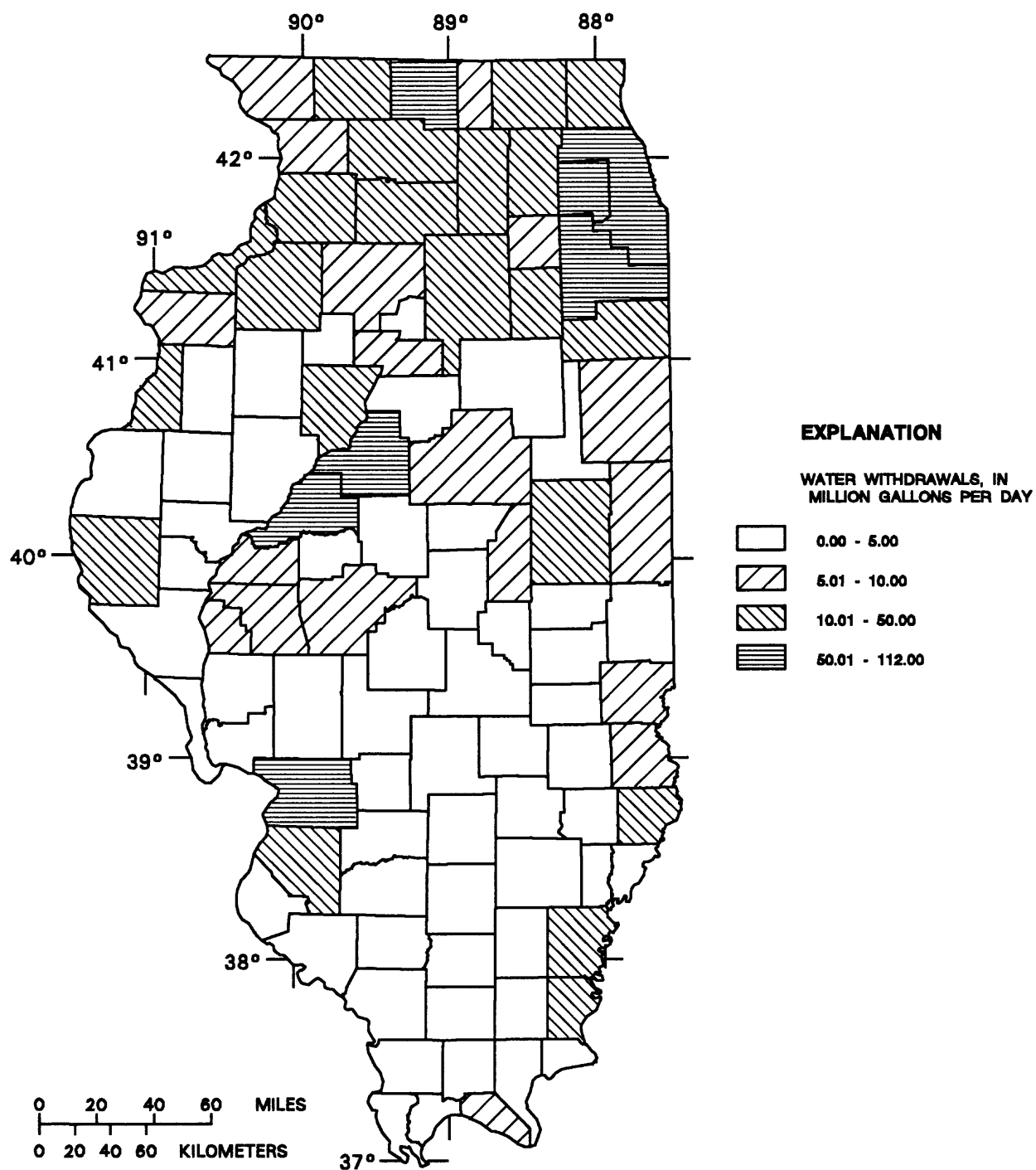


Figure 16. Total withdrawals of ground water in Illinois, by county, 1988.

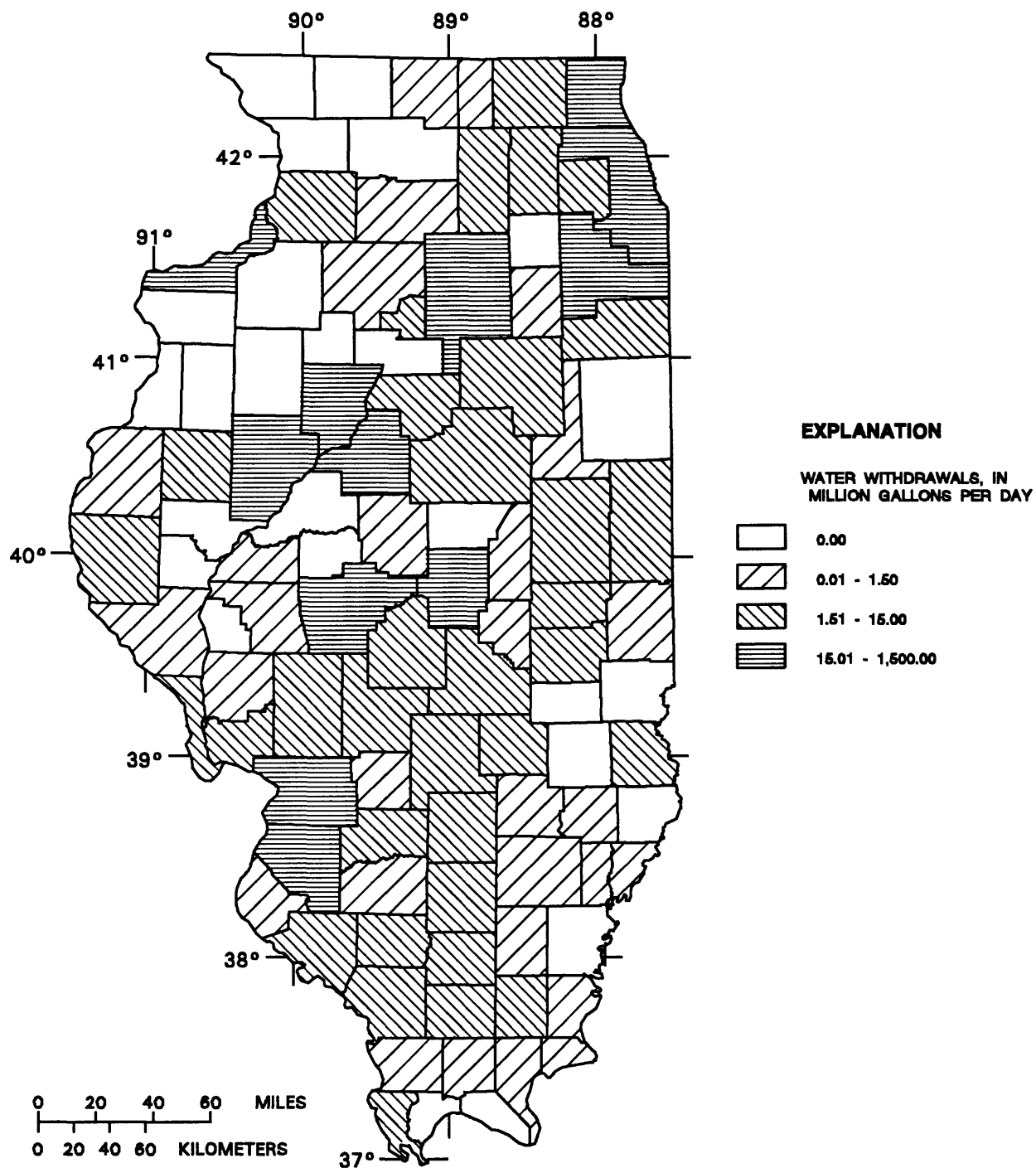
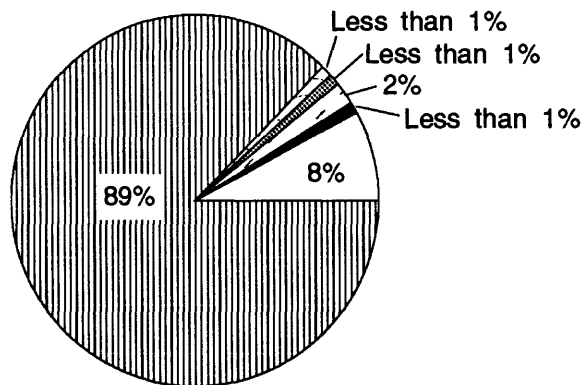


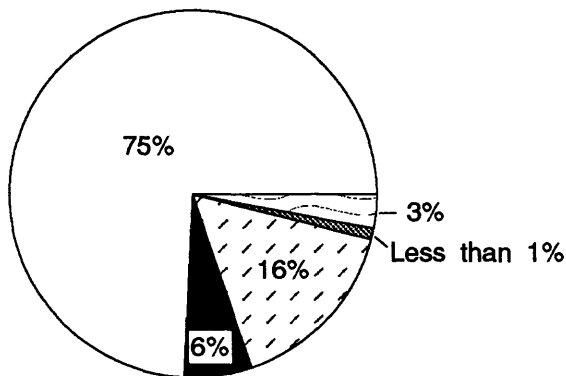
Figure 17. Total withdrawals of surface water, excluding self-supplied thermoelectric-power withdrawals in Illinois, by county, 1988.

SURFACE-WATER WITHDRAWALS











Total = 17,578.70 million gallons per day

SURFACE-WATER WITHDRAWALS (excluding self-supplied thermoelectric power withdrawals)

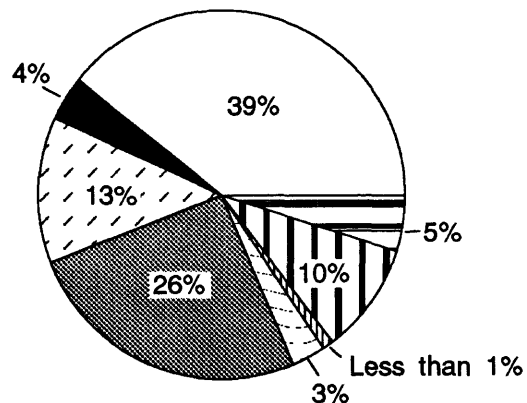


Total = 1,998.07 million gallons per day

EXPLANATION

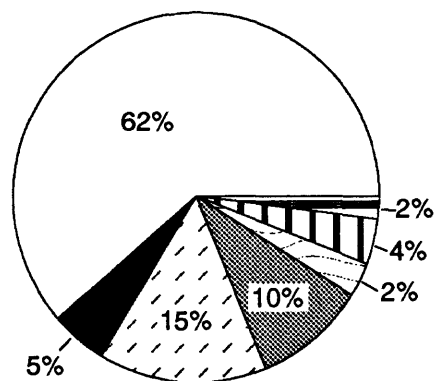
-  PUBLIC-SUPPLY WITHDRAWALS
-  SELF-SUPPLIED COMMERCIAL WITHDRAWALS
-  SELF-SUPPLIED INDUSTRIAL WITHDRAWALS
-  ESTIMATED IRRIGATION WATER WITHDRAWALS
-  MINING WITHDRAWALS
-  SELF-SUPPLIED THERMOELECTRIC POWER WITHDRAWALS
-  ESTIMATED SELF-SUPPLIED DOMESTIC WITHDRAWALS
-  ESTIMATED SELF-SUPPLIED LIVESTOCK WITHDRAWALS

GROUND-WATER WITHDRAWALS



Total = 1,177.49 million gallons per day

TOTAL WATER WITHDRAWALS (excluding self-supplied thermoelectric power withdrawals)



Total = 3,168.47 million gallons per day

Figure 18. Pie diagrams showing surface-water, ground-water and total water withdrawals by water-use category, for Illinois, 1988.

excluding withdrawals for thermoelectric-power generation. About 25 Mgal/d of the total ground water withdrawn was saline. Seventy-five percent of the total surface water, excluding withdrawals for thermoelectric-power generation, was withdrawn by public-supply facilities. Self-supplied industrial withdrawals were the next largest use of surface water. Thirty-nine percent of the total ground water was withdrawn by public-supply facilities. Irrigation was the next largest use of ground water. Sixty-two percent of the total water withdrawn, excluding withdrawals for thermoelectric-power generation, in Illinois during 1988 was for public-supply facilities. Self-supplied industrial and irrigation withdrawals were the next largest uses of water in Illinois during 1988.

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GLOSSARY

TERMS USED IN THIS REPORT (from Solley and others, 1993):

- Commercial water use.** Water for motels, hotels, restaurants, office buildings, other commercial facilities, and institutions. The water may be obtained from a public supply or may be self supplied.
- Consumptive use.** That part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment.
- Conveyance loss.** Water that is lost in transit from a pipe, canal, conduit, or ditch by leakage or evaporation. Generally, the water is not available for further use; however, leakage from an irrigation ditch, for example, may percolate to a ground-water source and be available for further use.
- Delivery.** The amount of water delivered to the point of use.
- Domestic water use.** Water for household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Also called residential water use.
- Freshwater.** Water that contains less than 1,000 mg/L (milligrams per liter) of dissolved solids; generally, more than 500 mg/L of dissolved solids is undesirable for drinking and many industrial uses.
- Gigawatt-hour (GWh).** One billion watt-hours.
- Ground water.** Generally all subsurface water as distinct from surface water; specifically, that part of the subsurface water in the saturated zone (a zone in which all voids are filled with water) where the water is under pressure greater than atmospheric.
- Industrial water use.** Water used for industrial purposes such as fabrication, processing, washing, and cooling, and includes such industries as steel, chemical and allied products, paper and allied products, mining, and petroleum refining. The water may be obtained from a public supply or may be self supplied.
- Instream use.** Water use that is used, but not withdrawn, from a ground- or surface-water source for such purposes as hydroelectric power generation, navigation, water-quality improvement, fish propagation, and recreation. Sometimes called nonwithdrawal use or in-channel use.
- Irrigation water use.** Artificial application of water on lands to assist in the growing of crops and pastures or to maintain vegetative growth in recreational lands, such as parks and golf courses.
- Livestock water use.** Water for livestock watering, feed lots, dairy operations, fish farming, and other on-farm needs. Livestock as used here includes cattle, sheep, goats, hogs, and poultry. Also includes such animal specialities as horses, rabbits, bees, pets, fur-bearing animals in captivity, and fish in captivity.
- Million gallons per day (Mgal/d).** A rate of flow of water.
- Mining water use.** Water use for the extraction of minerals occurring naturally including solids, such as coal and ores; liquids, such as crude petroleum; and gases, such as natural gas. Also includes uses associated with quarrying, well operations (dewatering), milling (crushing, screening, washing, floatation, and so forth), and other preparations customarily done at the mine site or as part of a mining activity.
- Offstream use.** Water withdrawn or diverted from a ground- or surface-water source for public-water supply, industry, irrigation, livestock, thermoelectric-power generation, and other uses. Sometimes called off-channel use or withdrawal use.
- Per capita use.** The average amount of water used per person during a standard time period, generally per day.
- Public supply.** Water withdrawn by public and private water suppliers and delivered to groups of users. Public suppliers provide water for a variety of uses, such as domestic, commercial, thermoelectric-power generation, industrial, and public water use.
- Public-supply deliveries.** Water provided to users through a public-supply distribution system.
- Saline water.** Water that contains more than 1,000 milligrams per liter of dissolved solids.
- Self-supplied water.** Water withdrawn from a surface- or ground-water source by a user rather than being obtained from a public supply.
- Surface water.** An open body of water, such as a stream or a lake.
- Thermoelectric-power water use.** Water used in the process of the generation of thermoelectric power. The water may be obtained from a public supply or may be self supplied.
- Withdrawal.** Water removed from the ground or diverted from a surface-water source for use.

TABLES 1–16

Table 1. Public-supply withdrawals and domestic water use in Illinois, by county, 1988

[All values in million gallons per day]

County	Public-supply withdrawals			Domestic water use		
	Ground water	Surface water	Total	Public-supplied deliveries	Self-supplied withdrawals	Total
Adams	1.63	8.24	9.87	3.69	0.50	4.19
Alexander	.35	1.58	1.93	.55	.14	.69
Bond	.07	.98	1.05	.63	.45	1.08
Boone	4.73	.00	4.73	1.26	.99	2.25
Brown	.07	.00	.07	.29	.14	.43
Bureau	3.37	.00	3.37	1.50	.79	2.29
Calhoun	.39	.00	.39	.15	.26	.41
Carroll	1.76	.00	1.76	.64	.54	1.18
Cass	2.35	.02	2.37	.37	.23	.60
Champaign	22.07	.00	22.07	10.41	2.01	12.42
Christian	1.31	1.81	3.12	1.95	.45	2.40
Clark	1.28	.00	1.28	.05	.40	.45
Clay	.00	.96	.96	.56	.41	.97
Clinton	.24	1.99	2.23	1.14	.85	1.99
Coles	.43	4.83	5.26	2.29	.15	2.44
Cook	25.12	1,171.44	1,196.56	536.77	5.22	541.99
Crawford	2.07	.00	2.07	1.75	.39	2.14
Cumberland	.64	.00	.64	.32	.40	.72
De Kalb	7.78	.00	7.78	4.07	2.28	6.35
De Witt	1.65	.00	1.65	.32	.37	.69
Douglas	1.06	.00	1.06	.65	.34	.99
Du Page	88.88	.00	88.88	51.57	9.07	60.64
Edgar	.34	1.28	1.62	.10	.39	.49
Edwards	.02	.11	.13	.34	.29	.63
Effingham	.26	2.24	2.50	.46	.68	1.14
Fayette	.17	1.11	1.28	.31	.72	1.03
Ford	1.54	.00	1.54	1.06	.24	1.30
Franklin	.00	13.49	13.49	3.21	.60	3.81
Fulton	.84	1.68	2.52	1.11	.67	1.78
Gallatin	2.69	.03	2.72	.32	.08	.40
Green	.41	.30	.71	.66	.23	.89
Grundy	2.79	.00	2.79	1.06	.97	2.03
Hamilton	.02	.00	.02	.47	.31	.78
Hancock	.28	.98	1.26	.77	.69	1.46
Hardin	.16	.15	.31	.22	.09	.31
Henderson	6.31	.00	6.31	.25	.48	.73
Henry	4.52	.00	4.52	2.18	.84	3.02
Iroquois	2.23	.00	2.23	1.05	.82	1.87
Jackson	.07	8.92	8.99	2.87	.59	3.46
Jasper	.40	.00	.40	.04	.47	.51
Jefferson	.00	1.28	1.28	.55	.61	1.16
Jersey	2.36	.00	2.36	.71	.17	.88
Jo Daviess	2.41	.00	2.41	.67	.66	1.33
Johnson	.02	.60	.62	.17	.54	.71
Kane	25.72	9.23	34.95	13.55	10.59	24.14
Kankakee	1.75	12.65	14.40	4.85	2.05	6.90
Kendall	2.03	.00	2.03	1.49	2.49	3.98
Knox	1.43	.00	1.43	3.70	.40	4.10
Lake	17.52	42.51	60.03	33.15	9.42	42.57
La Salle	11.13	3.62	14.75	8.82	1.30	10.12

Table 1. Public-supply withdrawals and domestic water use in Illinois, by county, 1988—Continued

County	Public-supply withdrawals			Domestic water use		
	Ground water	Surface water	Total	Public-supplied deliveries	Self-supplied withdrawals	Total
Lawrence	1.29	0.00	1.29	0.73	0.40	1.13
Lee	3.95	.00	3.95	2.03	.79	2.82
Livingston	1.91	2.26	4.17	1.26	1.03	2.29
Logan	3.37	.00	3.37	1.31	.63	1.94
McDonough	1.33	2.33	3.66	2.10	.44	2.54
McHenry	14.51	.00	14.51	7.91	5.94	13.85
McLean	5.80	5.76	11.56	9.07	1.40	10.47
Macon	1.40	32.55	33.95	22.54	1.22	23.76
Macoupin	.02	3.89	3.91	2.31	.40	2.71
Madison	13.39	44.10	57.49	20.88	.97	21.85
Marion	.03	5.14	5.17	2.96	.48	3.44
Marshall	1.40	.00	1.40	1.08	.30	1.38
Mason	1.16	.00	1.16	.19	.60	.79
Massac	1.94	.00	1.94	.19	.21	.40
Menard	.85	.00	.85	.36	.27	.63
Mercer	.98	.00	.98	.54	.75	1.29
Monroe	.13	.50	.63	1.17	.76	1.93
Montgomery	.73	2.24	2.97	.63	.66	1.29
Morgan	.07	.69	.76	2.82	.53	3.35
Moultrie	.99	.00	.99	.94	.14	1.08
Ogle	6.23	.00	6.23	1.33	1.75	3.08
Peoria	18.76	8.60	27.36	28.88	.71	29.59
Perry	.07	.51	.58	.29	.71	1.00
Piatt	3.95	.00	3.95	.34	.35	.69
Pike	.97	.48	1.45	.36	.40	.76
Pope	.00	.08	.08	.00	.03	.03
Pulaski	.54	.00	.54	.45	.22	.67
Putnam	.49	.00	.49	.26	.03	.29
Randolph	.89	2.93	3.82	.57	.73	1.30
Richland	.08	1.34	1.42	.77	.42	1.19
Rock Island	2.84	14.39	17.23	2.61	1.87	4.48
St. Clair	.19	19.78	19.97	14.50	2.93	17.43
Saline	.00	.21	.21	.59	.20	.79
Sangamon	2.38	31.65	34.03	10.95	2.53	13.48
Schuyler	.63	.00	.63	.40	.26	.66
Scott	5.22	.00	5.22	.17	.17	.34
Shelby	1.20	1.59	2.79	.35	1.07	1.42
Stark	.66	.00	.66	.17	.28	.45
Stephenson	5.90	.00	5.90	.42	1.10	1.52
Tazewell	14.34	.59	14.93	7.17	.96	8.13
Union	1.26	.10	1.36	.95	.52	1.47
Vermilion	1.59	10.77	12.36	5.02	1.40	6.42
Wabash	.78	1.18	1.96	1.05	.26	1.31
Warren	2.21	.00	2.21	.26	.47	.73
Washington	.12	.64	.76	.51	.24	.75
Wayne	.09	1.38	1.47	.77	.54	1.31
White	1.43	.00	1.43	.28	.36	.64
Whiteside	5.62	.00	5.62	1.91	2.06	3.97
Will	33.62	.00	33.62	16.34	10.02	26.36
Williamson	.00	2.49	2.49	2.56	.56	3.12
Winnebago	37.98	.00	37.98	15.71	5.84	21.55
Woodford	1.56	4.37	5.93	1.86	.89	2.75
Total	461.52	1,494.57	1,956.09	903.89	121.57	1,025.46

Table 2. Public-supply withdrawals and domestic water use in Illinois, by hydrologic unit, 1988
[All values in million gallons per day]

Hydrologic unit	Public-supply withdrawals			Domestic water use		
	Ground water	Surface water	Total	Public-supplied deliveries	Self-supplied withdrawals	Total
04040001	0.00	0.00	0.00	0.00	0.32	0.32
04040002	.10	.00	.10	31.11	4.32	35.43
04060200	.00	1,213.94	1,213.94	.05	.00	.05
05120108	.09	.52	.61	.55	.13	.68
05120109	4.09	10.24	14.33	6.24	2.72	8.96
05120111	2.90	1.28	4.18	1.44	.74	2.18
05120112	4.22	1.84	6.06	4.57	1.97	6.54
05120113	2.13	1.29	3.42	1.18	.52	1.70
05120114	1.21	8.66	9.87	3.14	2.42	5.56
05120115	.11	.33	.44	.44	.50	.94
05140203	.42	.23	.65	.35	.24	.59
05140204	2.26	1.01	3.27	.95	.71	1.66
05140206	2.53	2.18	4.71	.58	.70	1.28
07060005	3.87	.00	3.87	1.31	1.04	2.35
07080101	.90	14.39	15.29	2.05	1.54	3.59
07080104	9.96	.56	10.52	4.34	2.24	6.58
07090001	.80	.00	.80	.22	.16	.38
07090003	6.14	.00	6.14	.78	1.27	2.05
07090004	.49	.00	.49	.27	.06	.33
07090005	52.90	.00	52.90	8.73	10.12	18.85
07090006	14.43	.00	14.43	16.47	5.01	21.48
07090007	3.35	.00	3.35	2.07	.66	2.73
07110001	1.20	8.41	9.61	3.51	.49	4.00
07110004	1.13	.00	1.13	.39	.48	.87
07110009	5.24	9.13	14.37	5.66	.49	6.15
07120001	3.07	12.65	15.72	5.01	2.55	7.56
07120002	2.68	.00	2.68	1.19	1.01	2.20
07120003	13.73	.00	13.73	398.97	4.81	403.78
07120004	137.75	.00	137.75	189.11	21.04	210.15
07120005	4.63	.00	4.63	2.27	1.64	3.91
07120006	23.64	.00	23.64	27.51	10.32	37.83
07120007	32.62	9.23	41.85	15.17	9.99	25.16
07130001	24.97	8.52	33.49	40.73	2.46	43.19
07130002	2.20	5.88	8.08	3.04	1.28	4.32
07130003	19.45	1.84	21.29	4.36	1.84	6.20
07130004	4.77	10.72	15.49	1.87	1.12	2.99
07130005	4.82	.00	4.82	2.58	1.24	3.82
07130006	9.58	32.55	42.13	23.98	1.79	25.77
07130007	1.33	33.39	34.72	10.75	1.57	12.32
07130008	1.94	.09	2.03	1.06	1.85	2.91
07130009	10.96	.00	10.96	10.59	2.22	12.81
07130010	1.55	2.51	4.06	2.69	.83	3.52
07130011	8.63	1.39	10.02	4.68	1.23	5.91
07130012	.27	3.03	3.30	2.10	.36	2.46
07140101	8.24	52.21	60.45	9.08	3.13	12.21
07140105	1.59	2.30	3.89	.94	.65	1.59
07140106	.09	26.64	26.73	9.17	3.07	12.24
07140108	.38	.10	.48	.42	.29	.71
07140201	20.01	1.45	21.46	10.87	1.60	12.47
07140202	.36	7.83	8.19	4.06	1.64	5.70
07140203	.77	3.84	4.61	1.85	1.21	3.06
07140204	1.02	4.39	5.41	23.44	1.98	25.42
Total	461.52	1,494.57	1,956.09	903.89	121.57	1,025.46

Table 3. Population served by public-supply facilities and self-supplied population in Illinois, by county, 1988

County	Public-supplied population	Self-supplied population	County	Public-supplied population	Self-supplied population
Adams	62,140	6,190	McHenry	104,990	61,300
Alexander	9,700	1,730	McLean	110,610	16,640
Bond	9,770	6,020	Macon	113,000	14,490
Boone	19,210	10,200	Macoupin	43,270	5,480
Brown	3,510	1,740	Madison	236,170	13,140
Bureau	28,890	8,260	Marion	37,310	6,830
Calhoun	2,200	3,460	Marshall	9,840	3,530
Carroll	12,140	5,580	Mason	10,180	7,150
Cass	10,890	3,060	Massac	12,140	2,860
Champaign	143,720	25,310	Menard	8,210	3,230
Christian	29,410	6,090	Mercer	11,000	7,850
Clark	10,780	5,710	Monroe	12,100	9,320
Clay	9,350	5,820	Montgomery	22,860	8,860
Clinton	23,820	10,500	Morgan	29,680	6,750
Coles	49,970	2,170	Moultrie	12,350	2,030
Cook	5,286,160	53,910	Ogle	27,610	18,260
Crawford	14,990	5,560	Peoria	175,170	8,480
Cumberland	4,980	5,800	Perry	13,460	8,740
De Kalb	50,020	23,560	Piatt	11,680	4,370
De Witt	13,200	4,340	Pike	12,530	5,350
Douglas	14,310	4,870	Pope	3,970	450
Du Page	662,770	93,650	Pulaski	5,740	2,740
Edgar	15,350	5,540	Putnam	5,660	310
Edwards	4,450	3,940	Randolph	26,350	8,990
Effingham	21,730	9,770	Richland	12,240	6,060
Fayette	11,710	10,250	Rock Island	144,340	19,460
Ford	11,640	3,010	St. Clair	231,390	36,010
Franklin	34,560	7,770	Saline	25,160	3,360
Fulton	29,290	8,400	Sangamon	165,160	14,160
Gallatin	6,500	1,160	Schuyler	4,490	3,190
Green	12,340	3,120	Scott	3,640	2,290
Grundy	21,600	10,040	Shelby	7,820	15,350
Hamilton	4,880	4,220	Stark	3,320	3,320
Hancock	14,540	8,640	Stephenson	38,080	11,500
Hardin	4,010	1,240	Tazewell	113,510	11,450
Henderson	3,160	5,970	Union	11,710	6,420
Henry	43,620	8,770	Vermilion	73,340	17,700
Iroquois	21,730	10,290	Wabash	10,580	3,540
Jackson	52,680	7,240	Warren	14,610	5,880
Jasper	4,310	6,690	Washington	12,180	2,940
Jefferson	30,280	8,370	Wayne	11,130	7,420
Jersey	18,020	2,250	White	13,240	4,890
Jo Daviess	16,540	6,860	Whiteside	41,300	21,430
Johnson	3,870	6,650	Will	241,760	103,430
Kane	274,370	39,280	Williamson	56,730	1,740
Kankakee	71,970	25,830	Winnebago	190,520	60,750
Kendall	11,580	25,690	Woodford	21,980	10,530
Knox	51,220	4,980	Total	10,365,830	1,280,000
Lake	381,910	97,190			
La Salle	93,910	13,400			
Lawrence	12,420	5,730			
Lee	24,870	8,250			
Livingston	27,560	12,950			
Logan	23,370	7,480			
McDonough	29,800	5,530			

Table 4. Population served by public-supply facilities and self-supplied population in Illinois, by hydrologic unit, 1988

Hydrologic unit	Public-supplied population	Self-supplied population
04040001	176,220	0
04040002	215,190	8,730
04060200	0	0
05120108	7,480	9,890
05120109	111,840	39,310
05120111	29,240	40
05120112	97,120	35,100
05120113	15,770	12,060
05120114	67,530	20,070
05120115	27,990	13,730
05140203	10,230	4,360
05140204	32,480	35,160
05140206	20,030	5,340
07060005	25,590	9,500
07080101	51,030	2,630
07080104	97,170	2,970
07090001	4,100	1,500
07090003	41,150	92,120
07090004	3,130	25,350
07090005	191,260	68,650
07090006	215,550	44,970
07090007	42,430	77,240
07110001	39,060	10
07110004	12,100	21,470
07110009	54,730	1,140
07120001	150,230	54,560
07120002	25,510	25,370
07120003	2,498,680	0
07120004	3,042,390	7,330
07120005	43,420	47,700
07120006	787,820	64,300
07120007	293,670	80,870
07130001	127,850	770
07130002	55,080	14,680
07130003	176,540	25,010
07130004	42,070	50,010
07130005	113,780	56,010
07130006	133,940	49,850
07130007	114,050	1,450
07130008	18,680	85,230
07130009	145,550	14,170
07130010	39,520	11,570
07130011	59,950	29,610
07130012	39,550	10,390
07140101	196,150	11,660
07140105	28,120	8,630
07140106	178,790	8,740
07140108	7,080	8,260
07140201	67,540	22,150
07140202	69,770	9,510
07140203	38,100	5,820
07140204	283,580	45,010
Total	10,365,830	1,280,000

Table 5. Commercial self-supplied withdrawals and deliveries from public-supply facilities for commercial use in Illinois, by county, 1988

[All values are in millions of gallons per day]

County	Self-supplied withdrawals			Deliveries from public-supply facilities	Total self-supplied withdrawals and public-supply deliveries
	Ground water	Surface water	Total		
Adams	0.00	0.00	0.00	1.67	1.67
Alexander	.10	.00	.10	.13	.23
Bond	.00	.00	.00	.02	.02
Boone	.03	.00	.03	.45	.48
Brown	.00	.00	.00	.05	.05
Bureau	.44	.29	.73	.08	.81
Calhoun	.44	7.68	8.12	.03	8.15
Carroll	.14	.00	.14	.08	.22
Cass	.00	.00	.00	.07	.07
Champaign	1.89	.00	1.89	3.99	5.88
Christian	.01	.00	.01	.04	.05
Clark	.00	.00	.00	.00	.00
Clay	.00	.00	.00	.19	.19
Clinton	.01	.00	.01	.05	.06
Coles	.00	.00	.00	2.78	2.78
Cook	4.00	72.14	76.14	378.61	454.75
Crawford	.00	.00	.00	.28	.28
Cumberland	.00	.00	.00	.02	.02
De Kalb	.04	.00	.04	1.18	1.22
De Witt	.04	.00	.04	.01	.05
Douglas	.01	.00	.01	.16	.17
Du Page	1.25	4.21	5.46	13.03	18.49
Edgar	.00	.00	.00	.00	.00
Edwards	.00	.00	.00	.12	.12
Effingham	.00	.00	.00	.08	.08
Fayette	.00	5.30	5.30	.13	5.43
Ford	.00	.00	.00	.13	.13
Franklin	.00	.00	.00	.14	.14
Fulton	.00	16.49	16.49	.21	16.70
Gallatin	.00	.00	.00	.02	.02
Green	.00	.00	.00	.12	.12
Grundy	.00	.00	.00	.56	.56
Hamilton	.00	.00	.00	.00	.00
Hancock	.00	.00	.00	.09	.09
Hardin	.00	.00	.00	.02	.02
Henderson	.00	.00	.00	.01	.01
Henry	.02	.00	.02	.20	.22
Iroquois	.00	.00	.00	.18	.18
Jackson	2.17	.00	2.17	.31	2.48
Jasper	.00	.00	.00	.00	.00
Jefferson	.00	.93	.93	.08	1.01
Jersey	.17	7.78	7.95	.23	8.18
Jo Daviess	.24	.00	.24	.05	.29
Johnson	.00	.00	.00	.01	.01
Kane	.14	.47	.61	3.46	4.07
Kankakee	.04	.00	.04	2.09	2.13
Kendall	.01	.00	.01	.21	.22
Knox	.00	.00	.00	.62	.62
Lake	.28	.00	.28	10.46	10.74
La Salle	.04	.00	.04	1.28	1.32

Table 5. Commercial self-supplied withdrawals and deliveries from public-supply facilities for commercial use in Illinois, by county, 1988—Continued

County	Self-supplied withdrawals			Deliveries from public-supply facilities	Total self-supplied withdrawals and public-supply deliveries
	Ground water	Surface water	Total		
Lawrence	0.00	0.00	0.00	0.10	0.10
Lee	.04	.00	.04	.42	.46
Livingston	.00	.00	.00	.29	.29
Logan	.00	.00	.00	.97	.97
McDonough	.00	.00	.00	.65	.65
McHenry	.71	.00	.71	.98	1.69
McLean	.06	.00	.06	3.70	3.76
Macon	.00	.00	.00	9.41	9.41
Macoupin	.00	.00	.00	.12	.12
Madison	3.65	.00	3.65	6.94	10.59
Marion	.00	.00	.00	.93	.93
Marshall	.01	.00	.01	.06	.07
Mason	8.76	.00	8.76	.02	8.78
Massac	.78	.00	.78	.02	.80
Menard	.00	.00	.00	.07	.07
Mercer	.00	.00	.00	.11	.11
Monroe	.00	.00	.00	.02	.02
Montgomery	.00	.00	.00	.36	.36
Morgan	.00	.00	.00	.93	.93
Moultrie	.00	1.39	1.39	.02	1.41
Ogle	.01	.00	.01	.54	.55
Peoria	.38	.00	.38	8.77	9.15
Perry	.00	.00	.00	.01	.01
Piatt	.02	.00	.02	.02	.04
Pike	.00	.00	.00	.17	.17
Pope	.00	.00	.00	.00	.00
Pulaski	.16	.00	.16	.02	.18
Putnam	.00	.82	.82	.02	.84
Randolph	.00	.00	.00	.14	.14
Richland	.00	.00	.00	.21	.21
Rock Island	.02	.03	.05	.56	.61
St. Clair	8.92	.00	8.92	4.87	13.79
Saline	.00	.00	.00	.09	.09
Sangamon	.00	.00	.00	7.57	7.57
Schuyler	.00	.00	.00	.07	.07
Scott	.00	.00	.00	.02	.02
Shelby	.00	.00	.00	.03	.03
Stark	.00	.00	.00	.01	.01
Stephenson	.01	.00	.01	.01	.02
Tazewell	.02	.00	.02	1.07	1.09
Union	.85	.00	.85	.14	.99
Vermilion	.00	.00	.00	2.10	2.10
Wabash	.02	.00	.02	.11	.13
Warren	.00	.00	.00	.04	.04
Washington	.00	.00	.00	.21	.21
Wayne	.00	.00	.00	.02	.02
White	.00	.00	.00	.01	.01
Whiteside	.00	.00	.00	.30	.30
Will	.48	.00	.48	2.05	2.53
Williamson	3.34	.00	3.34	.65	3.99
Winnebago	1.67	.00	1.67	15.35	17.02
Woodford	.00	.00	.00	.23	.23
Total	41.42	117.53	158.95	495.26	654.21

Table 6. Commercial self-supplied withdrawals and deliveries from public-supply facilities for commercial use in Illinois, by hydrologic unit, 1988
[All values are in million gallons per day]

Hydrologic unit	Self-supplied withdrawals			Deliveries from public-supply facilities	Total self-supplied withdrawals and public-supply deliveries
	Ground water	Surface water	Total		
04040001	0.00	0.00	0.00	0.00	0.00
04040002	.00	14.59	14.59	10.79	25.38
04060200	.00	.00	.00	.00	.00
05120108	.00	.00	.00	.03	.03
05120109	1.87	.00	1.87	2.59	4.46
05120111	.00	.00	.00	.23	.23
05120112	.01	.00	.01	3.13	3.14
05120113	.02	.00	.02	.11	.13
05120114	.00	.00	.00	.63	.63
05120115	.00	.00	.00	.01	.01
05140203	.00	.00	.00	.04	.04
05140204	.00	.00	.00	.19	.19
05140206	.78	.00	.78	.12	.90
07060005	.38	.00	.38	.12	.50
07080101	.01	.03	.04	.42	.46
07080104	.00	.00	.00	.88	.88
07090001	.00	.00	.00	.23	.23
07090003	.01	.00	.01	.01	.02
07090004	.00	.00	.00	.00	.00
07090005	1.71	.00	1.71	3.35	5.06
07090006	.66	.00	.66	14.72	15.38
07090007	.03	.00	.03	.09	.12
07110001	.00	.00	.00	.78	.78
07110004	.44	.07	.51	.18	.69
07110009	.00	.00	.00	1.60	1.60
07120001	.06	.00	.06	2.10	2.16
07120002	.00	.00	.00	.18	.18
07120003	.14	7.75	7.89	41.95	49.84
07120004	5.40	50.12	55.52	347.88	403.40
07120005	.01	.00	.01	.64	.65
07120006	.56	.00	.56	5.02	5.58
07120007	.17	4.37	4.54	3.49	8.03
07130001	.85	1.11	1.96	9.83	11.79
07130002	.00	.00	.00	.79	.79
07130003	8.18	16.49	24.67	.94	25.61
07130004	.00	.00	.00	.25	.25
07130005	.00	.00	.00	.24	.24
07130006	.02	.00	.02	9.46	9.48
07130007	.01	.00	.01	7.55	7.56
07130008	.62	.00	.62	.11	.73
07130009	.11	1.41	1.52	4.70	6.22
07130010	.00	.00	.00	.75	.75
07130011	.18	13.97	14.15	2.08	16.23
07130012	.00	.00	.00	.17	.17
07140101	12.52	.00	12.52	.39	12.91
07140105	.85	.00	.85	.13	.98
07140106	5.51	.93	6.44	1.10	7.54
07140108	.27	.00	.27	.04	.31
07140201	.02	1.39	1.41	3.53	4.94
07140202	.01	5.30	5.31	1.31	6.62
07140203	.00	.00	.00	.39	.39
07140204	.01	.00	.01	9.99	10.00
Total	41.42	117.53	158.95	495.26	654.21

Table 7. Estimated irrigation water withdrawals, irrigated land, and estimated livestock water withdrawals in Illinois, by county, 1988
[Mgal/d, million gallons per day]

County	Estimated irrigation water withdrawals, in Mgal/d		Irrigated land, in acres	Estimated livestock water withdrawals, in Mgal/d
	Ground water	Surface water		
Adams	0.15	0.00	150	1.23
Alexander	.60	.00	700	.04
Bond	.05	.00	50	.44
Boone	.27	.00	260	.46
Brown	.00	.00	0	.28
Bureau	2.42	.00	2,270	.91
Calhoun	.03	.00	30	.33
Carroll	2.29	.00	2,300	1.28
Cass	2.75	.00	2,800	.40
Champaign	2.77	.00	2,660	.26
Christian	.22	.00	190	.24
Clark	5.29	.00	5,390	.49
Clay	.10	.00	100	.41
Clinton	.53	.00	540	1.28
Coles	.01	.00	10	.23
Cook	14.96	.00	15,400	.02
Crawford	.32	.00	320	.30
Cumberland	.01	.00	10	.31
De Kalb	.68	.00	650	1.13
De Witt	.66	.00	590	.30
Douglas	.00	.00	0	.36
Du Page	9.22	.00	9,490	.03
Edgar	.03	.00	30	.58
Edwards	.12	.00	120	.39
Effingham	.21	.00	200	.70
Fayette	.26	.00	250	.57
Ford	.35	.00	300	.27
Franklin	.64	.00	630	.21
Fulton	.69	.00	680	.79
Gallatin	5.97	.00	5,760	.13
Green	1.30	.00	1,210	.77
Grundy	.21	.00	200	.14
Hamilton	.13	.00	140	.24
Hancock	1.18	.00	1,160	.96
Hardin	.00	.00	0	.11
Henderson	5.09	.00	5,150	.49
Henry	3.01	.00	3,050	2.02
Iroquois	2.33	.00	2,000	.77
Jackson	.79	.00	770	.43
Jasper	.03	.00	30	.47
Jefferson	.05	.00	50	.38
Jersey	.11	.00	100	.38
Jo Daviess	.30	.00	300	1.80
Johnson	.00	.00	0	.51
Kane	2.58	.00	2,460	.60
Kankakee	14.40	.00	12,380	.27
Kendall	.46	.00	430	.39
Knox	.03	.00	30	1.15
Lake	5.18	.00	5,330	.12
La Salle	.40	.00	380	.65

Table 7. Estimated irrigation water withdrawals, irrigated land, and estimated livestock water withdrawals in Illinois, by county, 1988—Continued

County	Estimated irrigation water withdrawals, in Mgal/d		Irrigated land, in acres	Estimated livestock water withdrawals, in Mgal/d
	Ground water	Surface water		
Lawrence	7.00	0.00	7,150	0.17
Lee	11.96	.00	11,380	.68
Livingston	.40	.00	340	.70
Logan	.31	.00	270	.52
McDonough	.00	.00	0	.65
McHenry	4.73	.00	4,500	.95
McLean	.30	.00	250	.97
Macon	.08	.00	70	.24
Macoupin	.36	.00	330	.98
Madison	1.79	.00	2,150	.69
Marion	.07	.00	70	.39
Marshall	1.71	.00	1,610	.33
Mason	99.93	.00	87,790	.23
Massac	1.59	.00	1,530	.25
Menard	.56	.00	500	.32
Mercer	2.85	.00	2,880	.81
Monroe	1.27	.00	1,520	.47
Montgomery	.02	.00	10	.71
Morgan	.62	.00	630	.62
Moultrie	.00	.00	0	.38
Ogle	1.28	.00	1,220	1.58
Peoria	1.23	.00	1,000	.46
Perry	1.41	.00	1,380	.33
Piatt	.47	.00	420	.18
Pike	1.36	.00	1,380	1.37
Pope	.00	.00	0	.15
Pulaski	.07	.00	80	.19
Putnam	.96	.00	900	.15
Randolph	.14	.00	140	.60
Richland	.01	.00	10	.29
Rock Island	2.53	.00	2,560	.57
St. Clair	1.13	.00	1,350	.52
Saline	.00	.00	0	.23
Sangamon	.21	.00	180	.64
Schuyler	.16	.00	160	.36
Scott	2.60	.00	2,640	.25
Shelby	.11	.00	100	.51
Stark	.97	.00	910	.23
Stephenson	.91	.00	910	2.19
Tazewell	29.39	.00	24,000	.77
Union	.25	.00	290	.34
Vermilion	.01	.00	10	.40
Wabash	.38	.00	390	.17
Warren	.00	.00	0	.93
Washington	.87	.29	1,200	.88
Wayne	.25	.00	260	.50
White	6.85	.00	7,000	.27
Whiteside	17.96	.00	18,000	1.25
Will	.62	.00	640	.37
Williamson	.03	.00	30	.18
Winnebago	3.37	.00	3,210	.71
Woodford	1.19	.00	970	.62
Total	301.45	.29	281,370	56.27

Table 8. Estimated irrigation water withdrawals, irrigated land, and estimated livestock water withdrawals in Illinois, by hydrologic unit, 1988
[Mgal/d, million gallons per day]

Hydrologic unit	Estimated irrigation water withdrawals, in Mgal/d		Irrigated land, in acres	Estimated livestock water withdrawals, in Mgal/d
	Ground water	Surface water		
04040001	0.00	0.00	0	0.00
04040002	.00	.00	0	.00
04060200	.00	.00	0	.00
05120108	.01	.00	10	.03
05120109	2.18	.00	2,070	.81
05120111	3.01	.00	3,060	.89
05120112	9.23	.00	9,420	1.66
05120113	2.05	.00	2,090	.44
05120114	4.53	.00	4,590	2.26
05120115	1.59	.00	1,630	.40
05140203	1.76	.00	1,700	.38
05140204	4.71	.00	4,610	.71
05140206	1.91	.00	1,910	.65
07060005	1.91	.00	1,910	2.70
07080101	4.02	.00	4,050	.60
07080104	8.73	.00	8,820	3.46
07090001	.09	.00	90	.02
07090003	1.00	.00	1,000	2.21
07090004	.03	.00	30	.01
07090005	31.00	.00	30,420	4.59
07090006	2.34	.00	2,230	1.77
07090007	4.18	.00	4,050	1.12
07110001	.27	.00	270	1.12
07110004	1.05	.00	1,070	1.33
07110009	.78	.00	910	.53
07120001	13.66	.00	11,740	.22
07120002	2.82	.00	2,420	.91
07120003	13.99	.00	14,400	.20
07120004	14.21	.00	14,630	.44
07120005	.69	.00	620	.32
07120006	6.09	.00	5,930	.91
07120007	2.76	.00	2,630	1.11
07130001	17.05	.00	14,510	2.14
07130002	.56	.00	490	.78
07130003	69.95	.00	60,880	1.59
07130004	22.89	.00	19,680	.77
07130005	2.28	.00	2,220	1.99
07130006	.76	.00	690	.39
07130007	.31	.00	280	.65
07130008	12.67	.00	11,260	.88
07130009	18.69	.00	16,380	1.62
07130010	.51	.00	510	1.25
07130011	4.98	.00	4,980	2.23
07130012	.52	.00	490	.87
07140101	2.53	.00	3,010	1.29
07140105	.41	.00	460	.47
07140106	3.05	.05	3,050	1.65
07140108	.27	.00	320	.20
07140201	.66	.00	620	1.07
07140202	1.08	.19	1,280	1.89
07140203	.22	.00	220	1.37
07140204	1.46	.05	1,730	1.39
Total	301.45	.29	281,370	56.29

Table 9. Industrial self-supplied withdrawals and deliveries from public-water facilities for industrial use in Illinois, by county, 1988

[All values are in million gallons per day]

County	Self-supplied withdrawals			Deliveries from public-supply facilities	Total self-supplied withdrawals and public-supply deliveries
	Ground water	Surface water	Total		
Adams	11.47	0.00	11.47	2.25	13.72
Alexander	.01	.00	.01	.38	.39
Bond	.00	.00	.00	.04	.04
Boone	.15	.00	.15	1.32	1.47
Brown	.00	.00	.00	.00	.00
Bureau	.03	.00	.03	.75	.78
Calhoun	.00	.00	.00	.00	.00
Carroll	1.96	.00	1.96	.16	2.12
Cass	1.29	.00	1.29	.00	1.29
Champaign	4.64	.00	4.64	2.16	6.80
Christian	.00	.00	.00	1.32	1.32
Clark	.00	.00	.00	.00	.00
Clay	.00	.00	.00	.24	.24
Clinton	.00	.00	.00	.00	.00
Coles	.00	.00	.00	.04	.04
Cook	10.02	170.46	180.48	175.53	356.01
Crawford	.00	4.06	4.06	.22	4.28
Cumberland	.00	.00	.00	.00	.00
De Kalb	.56	.16	.72	.20	.92
De Witt	.00	.00	.00	.00	.00
Douglas	.00	5.97	5.97	.01	5.98
Du Page	.40	.00	.40	6.60	7.00
Edgar	.00	.00	.00	.00	.00
Edwards	.00	.00	.00	.03	.03
Effingham	.00	.00	.00	.00	.00
Fayette	.00	.00	.00	.02	.02
Ford	.00	.00	.00	.21	.21
Franklin	.00	.00	.00	.12	.12
Fulton	.00	.00	.00	.01	.01
Gallatin	.00	.00	.00	.00	.00
Green	.00	.00	.00	.00	.00
Grundy	5.68	.06	5.74	.07	5.81
Hamilton	.00	.00	.00	.00	.00
Hancock	.00	.00	.00	.02	.02
Hardin	.00	.00	.00	.00	.00
Henderson	.00	.00	.00	.00	.00
Henry	.02	.00	.02	.21	.23
Iroquois	.06	.00	.06	.04	.10
Jackson	.00	.00	.00	2.41	2.41
Jasper	.00	.00	.00	.00	.00
Jefferson	.00	.00	.00	.01	.01
Jersey	.00	.00	.00	.00	.00
Jo Daviess	1.53	.00	1.53	.33	1.86
Johnson	.00	.00	.00	.00	.00
Kane	1.34	.00	1.34	2.38	3.72
Kankakee	.22	.00	.22	3.89	4.11
Kendall	.31	.00	.31	.22	.53
Knox	.00	.00	.00	3.00	3.00
Lake	1.64	12.73	14.37	1.42	15.79
La Salle	5.78	13.83	19.61	1.46	21.07

Table 9. Industrial self-supplied withdrawals and deliveries from public-water facilities for industrial use in Illinois, by county, 1988—Continued

County	Self-supplied withdrawals			Deliveries from public-supply facilities	Total self-supplied withdrawals and public-supply deliveries
	Ground water	Surface water	Total		
Lawrence	0.00	0.00	0.00	0.03	0.03
Lee	.04	.02	.06	.57	.63
Livingston	.04	.00	.04	.40	.44
Logan	.00	.00	.00	.38	.38
McDonough	.02	.00	.02	.06	.08
McHenry	2.69	1.21	3.90	2.21	6.11
McLean	.03	.00	.03	.95	.98
Macon	.01	8.50	8.51	.00	8.51
Macoupin	.00	.00	.00	.19	.19
Madison	40.03	19.40	59.43	18.56	77.99
Marion	.00	.00	.00	.37	.37
Marshall	1.27	.00	1.27	.00	1.27
Mason	.01	.00	.01	.04	.05
Massac	4.13	.00	4.13	.00	4.13
Menard	.00	.00	.00	.00	.00
Mercer	.00	.00	.00	.00	.00
Monroe	.00	.00	.00	.00	.00
Montgomery	.00	.44	.44	.12	.56
Morgan	6.82	.00	6.82	.98	7.80
Moultrie	.00	.00	.00	.00	.00
Ogle	.58	.00	.58	1.67	2.25
Peoria	9.22	10.70	19.92	1.83	21.75
Perry	.00	.61	.61	.00	.61
Piatt	1.10	.00	1.10	.02	1.12
Pike	.00	.00	.00	.00	.00
Pope	.00	.00	.00	.00	.00
Pulaski	.00	.00	.00	.01	.01
Putnam	.09	4.01	4.10	.07	4.17
Randolph	.00	.00	.00	.11	.11
Richland	.00	.00	.00	.49	.49
Rock Island	12.26	36.07	48.33	2.48	50.81
St. Clair	2.21	.00	2.21	14.04	16.25
Saline	.00	.00	.00	.00	.00
Sangamon	.00	.00	.00	.54	.54
Schuyler	.00	.00	.00	.06	.06
Scott	.00	.00	.00	.00	.00
Shelby	.29	.00	.29	.00	.29
Stark	.00	.00	.00	.00	.00
Stephenson	1.84	.00	1.84	.00	1.84
Tazewell	7.84	14.61	22.45	.77	23.22
Union	.00	.00	.00	.03	.03
Vermilion	2.88	.00	2.88	2.70	5.58
Wabash	.00	.00	.00	.09	.09
Warren	.00	.00	.00	.00	.00
Washington	.00	.00	.00	.71	.71
Wayne	.00	.00	.00	.00	.00
White	.00	.00	.00	.00	.00
Whiteside	2.68	7.37	10.05	.43	10.48
Will	5.57	15.16	20.73	3.89	24.62
Williamson	.00	.37	.37	.61	.98
Winnebago	5.80	.00	5.80	.54	6.34
Woodford	.01	.00	.01	.04	.05
Total	154.57	325.74	480.31	263.06	743.37

Table 10. Industrial self-supplied withdrawals and deliveries from public-water facilities for industrial use in Illinois, by hydrologic unit, 1988
[All values are in million gallons per day]

Hydrologic unit	Self-supplied withdrawals			Deliveries from public-supply facilities	Total self-supplied withdrawals and public-supply deliveries
	Ground water	Surface water	Total		
04040001	0.00	51.37	51.37	0.00	51.37
04040002	.01	75.45	75.46	.75	76.21
04060200	.00	12.73	12.73	.00	12.73
05120108	.00	.00	.00	.00	.00
05120109	2.89	.00	2.89	3.05	5.94
05120111	.00	4.06	4.06	.22	4.28
05120112	.00	.00	.00	.07	.07
05120113	.00	.00	.00	.10	.10
05120114	.00	.00	.00	.75	.75
05120115	.00	.00	.00	.00	.00
05140203	.00	.00	.00	.01	.01
05140204	.00	.00	.00	.00	.00
05140206	4.13	.00	4.13	.39	4.52
07060005	3.49	.00	3.49	.49	3.98
07080101	10.90	36.07	46.97	2.48	49.45
07080104	.00	.00	.00	2.96	2.96
07090001	.41	.00	.41	.18	.59
07090003	1.84	.00	1.84	.03	1.87
07090004	.00	.00	.00	.00	.00
07090005	9.29	7.38	16.67	2.99	19.66
07090006	1.91	1.37	3.28	1.56	4.84
07090007	.02	.00	.02	.02	.04
07110001	11.47	.00	11.47	2.26	13.73
07110004	.00	.00	.00	.00	.00
07110009	8.27	4.62	12.89	3.31	16.20
07120001	.22	.00	.22	3.89	4.11
07120002	.06	.00	.06	.05	.11
07120003	2.11	43.52	45.63	84.66	130.29
07120004	14.86	15.27	30.13	100.30	130.43
07120005	8.69	1.46	10.15	.17	10.32
07120006	2.90	.00	2.90	3.46	6.36
07120007	1.98	.00	1.98	3.03	5.01
07130001	8.19	22.09	30.28	2.99	33.27
07130002	.04	.00	.04	1.30	1.34
07130003	13.91	19.67	33.58	.78	34.36
07130004	.09	.00	.09	.01	.10
07130005	.00	.00	.00	.40	.40
07130006	1.11	8.50	9.61	.16	9.77
07130007	.00	.00	.00	1.75	1.75
07130008	.01	.00	.01	.01	.02
07130009	.03	.00	.03	1.37	1.40
07130010	.02	.00	.02	.12	.14
07130011	6.82	.00	6.82	.98	7.80
07130012	.00	.00	.00	.14	.14
07140101	33.97	14.78	48.75	.34	49.09
07140105	.00	.00	.00	.06	.06
07140106	.00	.99	.99	3.14	4.13
07140108	.01	.00	.01	.00	.01
07140201	4.92	5.97	10.89	1.99	12.88
07140202	.00	.00	.00	1.10	1.10
07140203	.00	.44	.44	.16	.60
07140204	.00	.00	.00	29.08	29.08
Total	154.57	325.74	480.31	263.06	743.37

Table 11. Mining withdrawals and consumptive use in Illinois, by county, 1988
[All values are in million gallons per day]

County	Withdrawals						Consumptive use		
	Ground water		Total	Surface water	Total		Fresh	Saline	Total
	Fresh	Saline			Fresh	Saline			
Adams	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alexander	.00	.00	.00	.00	.00	.00	.00	.00	.00
Bond	.00	.00	.00	.00	.00	.00	.00	.00	.00
Boone	.00	.00	.00	.14	.14	.00	.14	.02	.00
Brown	.00	.00	.00	.00	.00	.00	.00	.00	.00
Bureau	.00	.00	.00	.00	.00	.00	.00	.00	.00
Calhoun	.00	.00	.00	.00	.00	.00	.00	.00	.00
Carroll	.00	.00	.00	.00	.00	.00	.00	.00	.00
Cass	.00	.00	.00	.00	.00	.00	.00	.00	.00
Champaign	.00	.00	.00	6.66	6.66	.00	6.66	1.00	.00
Christian	.05	.46	.51	.27	.32	.46	.78	.16	.46
Clark	.11	.11	.22	.00	.11	.11	.22	.06	.11
Clay	.10	.72	.82	.00	.10	.72	.82	.05	.72
Clinton	.35	.31	.66	1.47	1.82	.31	2.13	.89	.31
Coles	.00	.12	.12	.00	.00	.12	.12	.00	.12
Cook	.05	.00	.05	.62	.67	.00	.67	.10	.00
Crawford	.14	3.60	3.74	.00	.14	3.60	3.74	.07	3.60
Cumberland	.09	.11	.20	.00	.09	.11	.20	.04	.11
De Kalb	.00	.00	.00	2.64	2.64	.00	2.64	.39	.00
De Witt	.00	.00	.00	.00	.00	.00	.00	.00	.00
Douglas	.00	.00	.00	1.61	1.61	.00	1.61	.71	.00
Du Page	.06	.00	.06	.00	.06	.00	.06	.01	.00
Edgar	.00	.09	.09	.00	.00	.09	.09	.00	.09
Edwards	.00	.49	.49	.00	.00	.49	.49	.00	.49
Effingham	.00	.22	.22	.00	.00	.22	.22	.00	.22
Fayette	.00	1.28	1.28	.00	.00	1.28	1.28	.00	1.28
Ford	.00	.00	.00	.04	.04	.00	.04	.01	.00
Franklin	.02	.23	.25	1.43	1.45	.23	1.68	.71	.23
Fulton	.10	.00	.10	.73	.83	.00	.83	.40	.00
Gallatin	1.81	.27	2.08	1.04	2.85	.27	3.12	1.40	.27
Green	.00	.00	.00	.00	.00	.00	.00	.00	.00
Grundy	.00	.00	.00	.00	.00	.00	.00	.00	.00
Hamilton	.00	.51	.51	.32	.32	.51	.83	.16	.51
Hancock	.00	.00	.00	.00	.00	.00	.00	.00	.00
Hardin	1.17	.00	1.17	.00	1.17	.00	1.17	.18	.00
Henderson	.00	.00	.00	.00	.00	.00	.00	.00	.00
Henry	.00	.00	.00	.00	.00	.00	.00	.00	.00
Iroquois	.00	.00	.00	.00	.00	.00	.00	.00	.00
Jackson	.00	.00	.00	1.13	1.13	.00	1.13	.55	.00
Jasper	.00	1.10	1.10	.00	.00	1.10	1.10	.00	1.10
Jefferson	.09	.77	.86	.49	.58	.77	1.35	.29	.77
Jersey	.00	.00	.00	.00	.00	.00	.00	.00	.00
Jo Daviess	.00	.00	.00	.00	.00	.00	.00	.00	.00
Johnson	.00	.00	.00	.00	.00	.00	.00	.00	.00
Kane	.00	.00	.00	.79	.79	.00	.79	.12	.00
Kankakee	.79	.00	.79	.00	.79	.00	.79	.12	.00
Kendall	.00	.00	.00	.00	.00	.00	.00	.00	.00
Knox	.00	.00	.00	.00	.00	.00	.00	.00	.00
Lake	.52	.00	.52	.53	1.05	.00	1.05	.16	.00
La Salle	.01	.00	.01	15.98	15.99	.00	15.99	2.40	.00
Lawrence	.40	7.22	7.62	.00	.40	7.22	7.62	.20	7.22
Lee	.00	.00	.00	.00	.00	.00	.00	.00	.00
Livingston	.00	.00	.00	.00	.00	.00	.00	.00	.00
Logan	.16	.00	.16	.11	.27	.00	.27	.13	.00
McDonough	.00	.00	.00	.00	.00	.00	.00	.00	.00

Table 11. Mining withdrawals and consumptive use in Illinois, by county, 1988—Continued

County	Withdrawals							Consumptive use		
	Ground water			Surface water	Total			Fresh	Saline	Total
	Fresh	Saline	Total		Fresh	Saline	Total			
McHenry	0.00	0.00	0.00	2.84	2.84	0.00	2.84	0.42	0.00	0.42
McLean	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Macon	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Macoupin	.00	.00	.00	1.47	1.47	.00	1.47	.72	.00	.72
Madison	.00	.09	.09	.00	.00	.09	.09	.00	.09	.09
Marion	.00	.65	.65	.00	.00	.65	.65	.00	.65	.65
Marshall	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Mason	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Massac	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Menard	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Mercer	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monroe	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Montgomery	.00	.00	.00	.13	.13	.00	.13	.06	.00	.06
Morgan	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Moultrie	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Ogle	.35	.00	.35	.00	.35	.00	.35	.05	.00	.05
Peoria	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Perry	1.27	.01	1.28	7.19	8.46	.01	8.47	4.15	.01	4.16
Piatt	.00	.00	.00	.03	.03	.00	.03	.00	.00	.00
Pike	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Pope	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Pulaski	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Putnam	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Randolph	.00	.00	.00	.68	.68	.00	.68	.34	.00	.34
Richland	.00	.91	.91	.00	.00	.91	.91	.00	.91	.91
Rock Island	.00	.00	.00	.34	.34	.00	.34	.05	.00	.05
St. Clair	.00	.00	.00	2.41	2.41	.00	2.41	1.10	.00	1.10
Saline	.00	.35	.35	3.64	3.64	.35	3.99	1.78	.35	2.13
Sangamon	.00	.00	.00	1.92	1.92	.00	1.92	.29	.00	.29
Schuyler	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Scott	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Shelby	.00	.04	.04	.00	.00	.04	.04	.00	.04	.04
Stark	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Stephenson	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Tazewell	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Union	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Vermilion	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Wabash	.17	1.23	1.40	.01	.18	1.23	1.41	.09	1.23	1.32
Warren	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Washington	.00	.35	.35	.00	.00	.35	.35	.00	.35	.35
Wayne	.02	1.71	1.73	.00	.02	1.71	1.73	.01	1.71	1.72
White	.30	2.49	2.79	.00	.30	2.49	2.79	.14	2.49	2.63
Whiteside	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Will	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Williamson	.00	.03	.03	2.09	2.09	.03	2.12	1.02	.03	1.05
Winnebago	.00	.00	.00	1.19	1.19	.00	1.19	.18	.00	.18
Woodford	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Total	8.13	25.47	33.60	59.94	68.07	25.47	93.54	20.73	25.47	46.20

Table 12. Mining withdrawals and consumptive use in Illinois, by hydrologic unit, 1988
[All values are in million gallons per day]

Hydrologic unit	Withdrawals							Consumptive use		
	Ground water			Surface water	Total			Fresh	Saline	Total
	Fresh	Saline	Total		Fresh	Saline	Total			
04040001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04040002	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
04060200	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
05120108	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
05120109	.00	.00	.00	.04	.04	.00	.04	.01	.00	.01
05120111	.00	.05	.05	.00	.00	.05	.05	.00	.05	.05
05120112	.67	10.66	11.33	1.61	2.28	10.66	12.94	1.04	10.66	11.70
05120113	.29	2.55	2.84	.01	.30	2.55	2.85	.15	2.55	2.70
05120114	.35	5.32	5.67	.00	.35	5.32	5.67	.17	5.32	5.49
05120115	.01	1.14	1.15	.00	.01	1.14	1.15	.01	1.14	1.15
05140203	1.17	.00	1.17	.00	1.17	.00	1.17	.18	.00	.18
05140204	1.82	1.55	3.37	7.09	8.91	1.55	10.46	4.36	1.55	5.91
05140206	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07060005	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07080101	.00	.00	.00	.33	.33	.00	.33	.05	.00	.05
07080104	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07090001	.00	.00	.00	1.19	1.19	.00	1.19	.18	.00	.18
07090003	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07090004	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07090005	.35	.00	.35	.00	.35	.00	.35	.05	.00	.05
07090006	.00	.00	.00	3.56	3.56	.00	3.56	.53	.00	.53
07090007	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07110001	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07110004	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07110009	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07120001	.79	.00	.79	.00	.79	.00	.79	.12	.00	.12
07120002	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07120003	.05	.00	.05	.00	.05	.00	.05	.01	.00	.01
07120004	.01	.00	.01	.00	.01	.00	.01	.00	.00	.00
07120005	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07120006	.52	.00	.52	3.36	3.88	.00	3.88	.58	.00	.58
07120007	.05	.00	.05	1.95	2.00	.00	2.00	.30	.00	.30
07130001	.00	.00	.00	14.67	14.67	.00	14.67	2.20	.00	2.20
07130002	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07130003	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07130004	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07130005	.10	.00	.10	.73	.83	.00	.83	.40	.00	.40
07130006	.00	.01	.01	7.59	7.59	.01	7.60	1.14	.01	1.15
07130007	.05	.45	.50	1.29	1.34	.45	1.79	.31	.45	.76
07130008	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07130009	.16	.00	.16	.11	.27	.00	.27	.13	.00	.13
07130010	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07130011	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07130012	.00	.00	.00	1.56	1.56	.00	1.56	.76	.00	.76
07140101	.00	.00	.00	.22	.22	.00	.22	.03	.00	.03
07140105	.00	.00	.00	.02	.02	.00	.02	.01	.00	.01
07140106	1.38	1.20	2.58	10.25	11.63	1.20	12.83	5.70	1.20	6.90
07140108	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
07140201	.00	.04	.04	.00	.00	.04	.04	.00	.04	.04
07140202	.00	2.32	2.32	.02	.02	2.32	2.34	.01	2.32	2.33
07140203	.00	.03	.03	.04	.04	.03	.07	.02	.03	.05
07140204	.36	.15	.51	4.30	4.66	.15	4.81	2.28	.15	2.43
Total	8.13	25.47	33.60	59.94	68.07	25.47	93.54	20.73	25.47	46.20

Table 13. Thermoelectric-power self-supplied withdrawals, deliveries from public-supply facilities for thermoelectric-power generation, consumptive use, and power generated in Illinois, by county, 1988
[Mgal/d, million gallons per day; GWh, gigawatt-hour]

County	Self-supplied withdrawals, in Mgal/d			Deliveries from public- water facilities, in Mgal/d	Total self-supplied withdrawals and deliveries, in Mgal/d	Consumptive use, in Mgal/d	Power generated, in GWh
	Ground water	Surface water	Total				
Adams	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alexander	.00	.00	.00	.00	.00	.00	.00
Bond	.00	.00	.00	.00	.00	.00	.00
Boone	.00	.00	.00	.00	.00	.00	.00
Brown	.00	.00	.00	.00	.00	.00	.00
Bureau	.00	.00	.00	.00	.00	.00	.00
Calhoun	.00	.00	.00	.00	.00	.00	.00
Carroll	.00	.00	.00	.00	.00	.00	.00
Cass	.00	.00	.00	.00	.00	.00	.00
Champaign	.00	.00	.00	.00	.00	.00	.00
Christian	.00	810.96	810.96	.00	810.96	8.11	5,005.99
Clark	.00	.00	.00	.00	.00	.00	.00
Clay	.00	.00	.00	.00	.00	.00	.00
Clinton	.00	.00	.00	.00	.00	.00	.00
Coles	.00	.00	.00	.00	.00	.00	.00
Cook	.00	419.18	419.18	.47	419.65	4.20	1,227.01
Crawford	.73	85.20	85.93	.00	85.93	.86	550.76
Cumberland	.00	.00	.00	.00	.00	.00	.00
De Kalb	.00	.00	.00	.00	.00	.00	.00
De Witt	.00	604.93	604.93	.00	604.93	18.15	6,160.00
Douglas	.00	.00	.00	.00	.00	.00	.00
Du Page	.01	.00	.01	.00	.01	.00	.00
Edgar	.00	.00	.00	.00	.00	.00	.00
Edwards	.00	.00	.00	.00	.00	.00	.00
Effingham	.00	.00	.00	.00	.00	.00	.00
Fayette	.00	.00	.00	.00	.00	.00	.00
Ford	.00	.00	.00	.00	.00	.00	.00
Franklin	.00	.00	.00	.00	.00	.00	.00
Fulton	.00	248.68	248.68	.00	248.68	8.22	1,897.94
Gallatin	.00	.00	.00	.00	.00	.00	.00
Green	.00	.00	.00	.00	.00	.00	.00
Grundy	.84	2,007.61	2,008.45	.00	2,008.45	44.19	4,560.62
Hamilton	.00	.00	.00	.00	.00	.00	.00
Hancock	.00	.00	.00	.00	.00	.00	.00
Hardin	.00	.00	.00	.00	.00	.00	.00
Henderson	.00	.00	.00	.00	.00	.00	.00
Henry	.00	.00	.00	.00	.00	.00	.00
Iroquois	.00	.00	.00	.00	.00	.00	.00
Jackson	.05	128.59	128.64	.00	128.64	1.27	460.29
Jasper	.00	408.22	408.22	.00	408.22	4.08	4,210.00
Jefferson	.00	.00	.00	.00	.00	.00	.00
Jersey	.00	.00	.00	.00	.00	.00	.00
Jo Daviess	.00	.00	.00	.00	.00	.00	.00
Johnson	.00	.00	.00	.00	.00	.00	.00
Kane	.00	.00	.00	.00	.00	.00	.00
Kankakee	.00	.00	.00	.00	.00	.00	.00
Kendall	.00	.00	.00	.00	.00	.00	.00
Knox	.00	.00	.00	.00	.00	.00	.00
Lake	.00	2,764.11	2,764.11	.03	2,764.14	70.43	16,564.00
La Salle	.18	630.14	630.32	.00	630.32	82.21	11,500.00

Table 13. Thermoelectric-power self-supplied withdrawals, deliveries from public-supply facilities for thermoelectric-power generation, consumptive use, and power generated in Illinois, by county, 1988—Continued

County	Self-supplied withdrawals, in Mgal/d			Deliveries from public- water facilities, in Mgal/d	Total self-supplied withdrawals and deliveries, in Mgal/d	Consumptive use, in Mgal/d	Power generated, in GWh
	Ground water	Surface water	Total				
Lawrence	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lee	.00	.00	.00	.00	.00	.00	.00
Livingston	.00	.00	.00	.00	.00	.00	.00
Logan	.00	.00	.00	.00	.00	.00	.00
McDonough	.00	.00	.00	.00	.00	.00	.00
McHenry	.00	.00	.00	.00	.00	.00	.00
McLean	.00	.00	.00	.00	.00	.00	.00
Macon	.00	.00	.00	.00	.00	.00	.00
Macoupin	.00	.00	.00	.00	.00	.00	.00
Madison	.00	330.90	330.90	.01	330.91	3.31	1,645.63
Marion	.00	.00	.00	.00	.00	.00	.00
Marshall	.00	.00	.00	.00	.00	.00	.00
Mason	.79	74.93	75.72	.00	75.72	.79	1,270.00
Massac	1.02	462.34	463.36	.00	463.36	4.63	5,156.87
Menard	.00	.00	.00	.00	.00	.00	.00
Mercer	.00	.00	.00	.00	.00	.00	.00
Monroe	.00	.00	.00	.00	.00	.00	.00
Montgomery	.00	342.47	342.47	.00	342.47	3.42	3,400.00
Morgan	.07	163.84	163.91	.00	163.91	1.64	1,476.00
Moultrie	.00	.00	.00	.00	.00	.00	.00
Ogle	.61	50.00	50.61	.00	50.61	1.52	13,480.71
Peoria	.00	359.00	359.00	.01	359.01	3.59	3,289.07
Perry	.00	.00	.00	.00	.00	.00	.00
Piatt	.00	.00	.00	.00	.00	.00	.00
Pike	.02	13.78	13.80	.00	13.80	.14	76.74
Pope	.00	.00	.00	.00	.00	.00	.00
Pulaski	.00	.00	.00	.00	.00	.00	.00
Putnam	.08	136.11	136.19	.00	136.19	1.36	1,594.00
Randolph	.00	1,016.16	1,016.16	.01	1,016.17	10.16	10,143.00
Richland	.00	.00	.00	.00	.00	.00	.00
Rock Island	.65	1.41	2.06	.00	2.06	.07	10,300.00
St. Clair	.00	.00	.00	.00	.00	.00	.00
Saline	.00	.00	.00	.00	.00	.00	.00
Sangamon	.00	291.85	291.85	.74	292.59	2.93	1,603.20
Schuyler	.00	.00	.00	.00	.00	.00	.00
Scott	.00	.00	.00	.00	.00	.00	.00
Shelby	.00	.00	.00	.00	.00	.00	.00
Stark	.00	.00	.00	.00	.00	.00	.00
Stephenson	.00	.00	.00	.00	.00	.00	.00
Tazewell	1.03	820.55	821.58	.00	821.58	24.65	4,363.53
Union	.00	.00	.00	.00	.00	.00	.00
Vermilion	.00	1.60	1.60	.00	1.60	1.60	973.50
Wabash	.00	.00	.00	.00	.00	.00	.00
Warren	.00	.00	.00	.00	.00	.00	.00
Washington	.00	.00	.00	.00	.00	.00	.00
Wayne	.00	.00	.00	.00	.00	.00	.00
White	.00	.00	.00	.00	.00	.00	.00
Whiteside	.00	.00	.00	.00	.00	.00	.00
Will	1.01	3,321.40	3,322.41	.00	3,322.41	68.28	11,296.22
Williamson	.00	86.67	86.67	.00	86.67	4.80	1,144.15
Winnebago	.00	.00	.00	.00	.00	.00	.00
Woodford	.00	.00	.00	.00	.00	.00	.00
Total	7.09	15,580.63	15,587.72	1.27	15,588.99	374.61	123,349.23

Table 14. Thermoelectric power self-supplied withdrawals, deliveries from public-supply facilities for thermoelectric-power generation, consumptive use, and power generated in Illinois, by hydrologic unit, 1988

[Mgal/d, million gallons per day; GWh, gigawatt-hour]

Hydrologic unit	Self-supplied withdrawals, in Mgal/d			Deliveries from public-water facilities, in Mgal/d	Total self-supplied withdrawals and deliveries, in Mgal/d	Consumptive use, in Mgal/d	Power generated, in GWh
	Ground water	Surface water	Total				
04040001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04040002	.00	.00	.00	.00	.00	.00	.00
04060200	.00	2,764.11	2,764.11	.03	2,764.14	70.43	16,564.00
05120108	.00	.00	.00	.00	.00	.00	.00
05120109	.00	1.60	1.60	.00	1.60	1.60	973.50
05120111	.73	85.20	85.93	.00	85.93	.86	550.76
05120112	.00	.00	.00	.00	.00	.00	.00
05120113	.00	.00	.00	.00	.00	.00	.00
05120114	.00	408.22	408.22	.00	408.22	4.08	4,210.00
05120115	.00	.00	.00	.00	.00	.00	.00
05140203	.00	.00	.00	.00	.00	.00	.00
05140204	.00	86.67	86.67	.00	86.67	4.80	1,144.15
05140206	1.02	462.34	463.36	.00	463.36	4.63	5,156.87
07060005	.00	.00	.00	.00	.00	.00	.00
07080101	.65	1.41	2.06	.00	2.06	.07	10,300.00
07080104	.00	.00	.00	.00	.00	.00	.00
07090001	.00	.00	.00	.00	.00	.00	.00
07090003	.00	.00	.00	.00	.00	.00	.00
07090004	.00	.00	.00	.00	.00	.00	.00
07090005	.61	50.00	50.61	.00	50.61	1.52	13,480.71
07090006	.00	.00	.00	.00	.00	.00	.00
07090007	.00	.00	.00	.00	.00	.00	.00
07110001	.00	.00	.00	.00	.00	.00	.00
07110004	.00	.00	.00	.00	.00	.00	.00
07110009	.00	287.73	287.73	.01	287.74	3.31	1,622.00
07120001	.09	1,230.21	1,230.30	.00	1,230.30	36.16	4,560.00
07120002	.00	.00	.00	.00	.00	.00	.00
07120003	.00	161.07	161.07	.10	161.17	1.97	384.00
07120004	1.01	1,826.94	1,827.95	.37	1,828.32	17.94	7,130.13
07120005	.94	3,160.12	3,161.06	.00	3,161.06	142.82	16,509.72
07120006	.00	.00	.00	.00	.00	.00	.00
07120007	.01	.00	.01	.00	.01	.00	.00
07130001	.08	136.11	136.19	.00	136.19	1.36	1,594.00
07130002	.00	.00	.00	.00	.00	.00	.00
07130003	1.81	1,503.16	1,504.97	.01	1,504.98	37.24	10,820.54
07130004	.00	.00	.00	.00	.00	.00	.00
07130005	.00	.00	.00	.00	.00	.00	.00
07130006	.00	.00	.00	.00	.00	.00	.00
07130007	.00	1,102.81	1,102.81	.74	1,103.55	11.05	6,609.19
07130008	.00	.00	.00	.00	.00	.00	.00
07130009	.00	604.93	604.93	.00	604.93	18.15	6,160.00
07130010	.00	.00	.00	.00	.00	.00	.00
07130011	.09	177.61	177.70	.00	177.70	1.77	1,552.74
07130012	.00	.00	.00	.00	.00	.00	.00
07140101	.00	43.17	43.17	.00	43.17	.01	23.63
07140105	.05	128.59	128.64	.00	128.64	1.27	460.29
07140106	.00	.00	.00	.00	.00	.00	.00
07140108	.00	.00	.00	.00	.00	.00	.00
07140201	.00	.00	.00	.00	.00	.00	.00
07140202	.00	.00	.00	.00	.00	.00	.00
07140203	.00	342.47	342.47	.00	342.47	3.42	3,400.00
07140204	.00	1,016.16	1,016.16	.01	1,016.17	10.16	10,143.00
Total	7.09	15,580.63	15,587.72	1.27	15,588.99	374.62	123,349.23

Table 15. Total withdrawals in Illinois, by county, 1988
[All values are in million gallons per day]

County	Withdrawals						
	Ground water			Surface water	Total		
	Fresh	Saline	Total		Fresh	Saline	Total
Adams	14.98	0.00	14.98	8.24	23.22	0.00	23.22
Alexander	1.24	.00	1.24	1.58	2.82	.00	2.82
Bond	1.01	.00	1.01	.98	1.99	.00	1.99
Boone	6.63	.00	6.63	.14	6.77	.00	6.77
Brown	.49	.00	.49	.00	.49	.00	.49
Bureau	7.96	.00	7.96	.29	8.25	.00	8.25
Calhoun	1.45	.00	1.45	7.68	9.13	.00	9.13
Carroll	7.97	.00	7.97	.00	7.97	.00	7.97
Cass	7.02	.00	7.02	.02	7.04	.00	7.04
Champaign	33.64	.00	33.64	6.66	40.30	.00	40.30
Christian	2.28	.46	2.74	813.04	815.32	.46	815.78
Clark	7.57	.11	7.68	.00	7.57	.11	7.68
Clay	1.02	.72	1.74	.96	1.98	.72	2.70
Clinton	3.26	.31	3.57	3.46	6.72	.31	7.03
Coles	.82	.12	.94	4.83	5.65	.12	5.77
Cook	59.39	.00	59.39	1,833.84	1,893.23	.00	1,893.23
Crawford	3.95	3.60	7.55	89.26	93.21	3.60	96.81
Cumberland	1.45	.11	1.56	.00	1.45	.11	1.56
De Kalb	12.47	.00	12.47	2.80	15.27	.00	15.27
De Witt	3.02	.00	3.02	604.93	607.95	.00	607.95
Douglas	1.77	.00	1.77	7.58	9.35	.00	9.35
Du Page	108.92	.00	108.92	4.21	113.13	.00	113.13
Edgar	1.34	.09	1.43	1.28	2.62	.09	2.71
Edwards	.82	.49	1.31	.11	.93	.49	1.42
Effingham	1.85	.22	2.07	2.24	4.09	.22	4.31
Fayette	1.72	1.28	3.00	6.41	8.13	1.28	9.41
Ford	2.40	.00	2.40	.04	2.44	.00	2.44
Franklin	1.47	.23	1.70	14.92	16.39	.23	16.62
Fulton	3.09	.00	3.09	267.58	270.67	.00	270.67
Gallatin	10.68	.27	10.95	1.07	11.75	.27	12.02
Green	2.71	.00	2.71	.30	3.01	.00	3.01
Grundy	10.63	.00	10.63	2,007.67	2,018.30	.00	2,018.30
Hamilton	.70	.51	1.21	.32	1.02	.51	1.53
Hancock	3.11	.00	3.11	.98	4.09	.00	4.09
Hardin	1.53	.00	1.53	.15	1.68	.00	1.68
Henderson	12.37	.00	12.37	.00	12.37	.00	12.37
Henry	10.43	.00	10.43	.00	10.43	.00	10.43
Iroquois	6.21	.00	6.21	.00	6.21	.00	6.21
Jackson	4.10	.00	4.10	138.64	142.74	.00	142.74
Jasper	1.37	1.10	2.47	408.22	409.59	1.10	410.69
Jefferson	1.13	.77	1.90	2.70	3.83	.77	4.60
Jersey	3.19	.00	3.19	7.78	10.97	.00	10.97
Jo Daviess	6.94	.00	6.94	.00	6.94	.00	6.94
Johnson	1.07	.00	1.07	.60	1.67	.00	1.67
Kane	40.97	.00	40.97	10.49	51.46	.00	51.46
Kankakee	19.52	.00	19.52	12.65	32.17	.00	32.17
Kendall	5.69	.00	5.69	.00	5.69	.00	5.69
Knox	3.01	.00	3.01	.00	3.01	.00	3.01
Lake	34.68	.00	34.68	2,819.88	2,854.56	.00	2,854.56
La Salle	19.49	.00	19.49	663.57	683.06	.00	683.06
Lawrence	9.26	7.22	16.48	.00	9.26	7.22	16.48
Lee	17.46	.00	17.46	.02	17.48	.00	17.48
Livingston	4.08	.00	4.08	2.26	6.34	.00	6.34
Logan	4.99	.00	4.99	.11	5.10	.00	5.10
McDonough	2.44	.00	2.44	2.33	4.77	.00	4.77

Table 15. Total withdrawals in Illinois, by county, 1988—Continued

County	Withdrawals						
	Ground water			Surface water	Total		
	Fresh	Saline	Total		Fresh	Saline	Total
McHenry	29.53	.00	29.53	4.05	33.58	.00	33.58
McLean	8.56	.00	8.56	5.76	14.32	.00	14.32
Macon	2.95	.00	2.95	41.05	44.00	.00	44.00
Macoupin	1.76	.00	1.76	5.36	7.12	.00	7.12
Madison	60.52	.09	60.61	394.40	454.92	.09	455.01
Marion	.97	.65	1.62	5.14	6.11	.65	6.76
Marshall	5.02	.00	5.02	.00	5.02	.00	5.02
Mason	111.48	.00	111.48	74.93	186.41	.00	186.41
Massac	9.92	.00	9.92	462.34	472.26	.00	472.26
Menard	2.00	.00	2.00	.00	2.00	.00	2.00
Mercer	5.39	.00	5.39	.00	5.39	.00	5.39
Monroe	2.63	.00	2.63	.50	3.13	.00	3.13
Montgomery	2.12	.00	2.12	345.28	347.40	.00	347.40
Morgan	8.73	.00	8.73	164.53	173.26	.00	173.26
Moultrie	1.51	.00	1.51	1.39	2.90	.00	2.90
Ogle	12.39	.00	12.39	50.00	62.39	.00	62.39
Peoria	30.76	.00	30.76	378.30	409.06	.00	409.06
Perry	3.79	.01	3.80	8.31	12.10	.01	12.11
Piatt	6.07	.00	6.07	.03	6.10	.00	6.10
Pike	4.12	.00	4.12	14.26	18.38	.00	18.38
Pope	.18	.00	.18	.08	.26	.00	.26
Pulaski	1.18	.00	1.18	.00	1.18	.00	1.18
Putnam	1.80	.00	1.80	140.94	142.74	.00	142.74
Randolph	2.36	.00	2.36	1,019.77	1,022.13	.00	1,022.13
Richland	.80	.91	1.71	1.34	2.14	.91	3.05
Rock Island	20.74	.00	20.74	52.24	72.98	.00	72.98
St. Clair	15.90	.00	15.90	22.19	38.09	.00	38.09
Saline	.43	.35	.78	3.85	4.28	.35	4.63
Sangamon	5.76	.00	5.76	325.42	331.18	.00	331.18
Schuyler	1.41	.00	1.41	.00	1.41	.00	1.41
Scott	8.24	.00	8.24	.00	8.24	.00	8.24
Shelby	3.18	.04	3.22	1.59	4.77	.04	4.81
Stark	2.14	.00	2.14	.00	2.14	.00	2.14
Stephenson	11.95	.00	11.95	.00	11.95	.00	11.95
Tazewell	54.35	.00	54.35	835.75	890.10	.00	890.10
Union	3.22	.00	3.22	.10	3.32	.00	3.32
Vermilion	6.28	.00	6.28	12.37	18.65	.00	18.65
Wabash	1.78	1.23	3.01	1.19	2.97	1.23	4.20
Warren	3.61	.00	3.61	.00	3.61	.00	3.61
Washington	2.11	.35	2.46	.93	3.04	.35	3.39
Wayne	1.40	1.71	3.11	1.38	2.78	1.71	4.49
White	9.21	2.49	11.70	.00	9.21	2.49	11.70
Whiteside	29.57	.00	29.57	7.37	36.94	.00	36.94
Will	51.69	.00	51.69	3,336.56	3,388.25	.00	3,388.25
Williamson	4.11	.03	4.14	91.62	95.73	.03	95.76
Winnebago	55.37	.00	55.37	1.19	56.56	.00	56.56
Woodford	4.27	.00	4.27	4.37	8.64	.00	8.64
Total	1,152.02	25.47	1,177.49	17,578.70	18,730.72	25.47	18,756.19

Table 16. Total withdrawals in Illinois, by hydrologic unit, 1988
[All values are in million gallons per day]

Hydrologic unit	Withdrawals						
	Ground water			Surface water	Total		
	Fresh	Saline	Total		Fresh	Saline	Total
04040001	0.32	0.00	0.32	51.37	51.69	0.00	51.69
04040002	4.43	.00	4.43	90.04	94.47	.00	94.47
04060200	.00	.00	.00	3,990.78	3,990.78	.00	3,990.78
05120108	.26	.00	.26	.52	.78	.00	.78
05120109	14.56	.00	14.56	11.88	26.44	.00	26.44
05120111	8.27	.05	8.32	90.54	98.81	.05	98.86
05120112	17.76	10.66	28.42	3.45	21.21	10.66	31.87
05120113	5.45	2.55	8.00	1.30	6.75	2.55	9.30
05120114	10.77	5.32	16.09	416.88	427.65	5.32	432.97
05120115	2.61	1.14	3.75	.33	2.94	1.14	4.08
05140203	3.97	.00	3.97	.23	4.20	.00	4.20
05140204	10.21	1.55	11.76	94.77	104.98	1.55	106.53
05140206	11.72	.00	11.72	464.52	476.24	.00	476.24
07060005	13.39	.00	13.39	.00	13.39	.00	13.39
07080101	18.62	.00	18.62	52.23	70.85	.00	70.85
07080104	24.39	.00	24.39	.56	24.95	.00	24.95
07090001	1.48	.00	1.48	1.19	2.67	.00	2.67
07090003	12.47	.00	12.47	.00	12.47	.00	12.47
07090004	.59	.00	.59	.00	.59	.00	.59
07090005	110.57	.00	110.57	57.38	167.95	.00	167.95
07090006	26.12	.00	26.12	4.93	31.05	.00	31.05
07090007	9.36	.00	9.36	.00	9.36	.00	9.36
07110001	14.55	.00	14.55	8.41	22.96	.00	22.96
07110004	4.43	.00	4.43	.07	4.50	.00	4.50
07110009	15.31	.00	15.31	301.48	316.79	.00	316.79
07120001	20.66	.00	20.66	1,242.86	1,263.52	.00	1,263.52
07120002	7.48	.00	7.48	.00	7.48	.00	7.48
07120003	35.03	.00	35.03	212.34	247.37	.00	247.37
07120004	194.72	.00	194.72	1,892.33	2,087.05	.00	2,087.05
07120005	16.92	.00	16.92	3,161.58	3,178.50	.00	3,178.50
07120006	44.94	.00	44.94	3.36	48.30	.00	48.30
07120007	48.69	.00	48.69	15.55	64.24	.00	64.24
07130001	55.74	.00	55.74	182.50	238.24	.00	238.24
07130002	4.86	.00	4.86	5.88	10.74	.00	10.74
07130003	116.73	.00	116.73	1,541.16	1,657.89	.00	1,657.89
07130004	29.64	.00	29.64	10.72	40.36	.00	40.36
07130005	10.43	.00	10.43	.73	11.16	.00	11.16
07130006	13.65	.01	13.66	48.64	62.29	.01	62.30
07130007	3.92	.45	4.37	1,137.49	1,141.41	.45	1,141.86
07130008	17.97	.00	17.97	.09	18.06	.00	18.06
07130009	33.79	.00	33.79	606.45	640.24	.00	640.24
07130010	4.16	.00	4.16	2.51	6.67	.00	6.67
07130011	24.16	.00	24.16	192.97	217.13	.00	217.13
07130012	2.02	.00	2.02	4.59	6.61	.00	6.61
07140101	61.68	.00	61.68	110.38	172.06	.00	172.06
07140105	4.02	.00	4.02	130.91	134.93	.00	134.93
07140106	14.75	1.20	15.95	38.86	53.61	1.20	54.81
07140108	1.42	.00	1.42	.10	1.52	.00	1.52
07140201	28.28	.04	28.32	8.81	37.09	.04	37.13
07140202	4.98	2.32	7.30	13.34	18.32	2.32	20.64
07140203	3.57	.03	3.60	346.79	350.36	.03	350.39
07140204	6.22	.15	6.37	1,024.90	1,031.12	.15	1,031.27
Total	1,152.04	25.47	1,177.51	17,578.70	18,730.74	25.47	18,756.21