# Concentrations of Selected Herbicides, Herbicide Metabolites, and Nutrients in Outflow from Selected Midwestern Reservoirs, April 1992 through September 1993

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## CONVERSION FACTORS, MISCELLANEOUS ABBREVIATIONS, AND ABBREVIATED WATER-QUALITY UNITS

| Multiply | By | To obtain |
|---|---|---|
| acre | 4,047 | square meter |
| acre-foot (acre-ft) | 1,233 | cubic meter |
| acre-foot per acre (acre-ft/acre) | 0.3048 | cubic meter per square meter |
| foot (ft) | 0.3048 | meter |
| mile (mi) | 1.609 | kilometer |
| pound (lb) | 453.6 | gram |
| square mile ($mi^2$) | 2.590 | square kilometer |
| ton | 0.9072 | megagram |

Temperature can be converted to degrees Celsius (°C) or degrees Fahrenheit (°F) by the equations:

$$°C=5/9\ (°F-32)$$
$$°F=9/5\ (°C)+32.$$

### Miscellaneous Abbreviations

electronvolt (eV)
inside diameter (id)
mass to charge (m/z)
millisecond (ms)
milliseconds per ion (ms/ion)
volt (V)
volume-to-drainage-area ratio (Vol/DA)

### Abbreviated Water-Quality Units

kilopascal (kPa)
liter (L)
meter (m)
microgram per liter (µg/L)
microliter (µL)
micrometer (µm)
milligram per liter (mg/L)
milliliter (mL)
milliliter per minute (mL/min)
millimeter (mm)
nanogram (ng)
nanogram per microliter (ng/µL)

# Concentrations of Selected Herbicides, Herbicide Metabolites, and Nutrients in Outflow From Selected Midwestern Reservoirs, April 1992 through September 1993

*By* Elisabeth A. Scribner, Donald A. Goolsby, E. Michael Thurman, Michael T. Meyer, *and* William A. Battaglin

## Abstract

Water samples were collected from 76 reservoirs in the Midwestern United States from April 1992 through September 1993 for the analysis of selected herbicides, herbicide metabolites, and nutrients. This report presents a description of the study area, selection of reservoirs, sample-collection methods, sample preparation, laboratory methods, herbicide, nutrient, and quality-assurance data, and analytical results. Reservoir sites were sampled in 1992—during early spring before application of herbicides, during the first major runoff after application of herbicides and after significant flushing of the reservoir during late summer, and during early fall. In 1993, samples were collected during early winter, late winter, and midsummer and during September following the 1993 flood. During August 1992, water temperature and dissolved-oxygen profiles were obtained from 17 selected reservoirs to investigate the effect of stratification on herbicide concentrations. Samples were analyzed by gas chromatography/mass spectrometry for 11 herbicides and 6 metabolites and by solid-phase extraction and enzyme-linked immunosorbent assay for alachlor ethane sulfonic acid.

The data from the reservoir study have been useful in determining the occurrence and temporal distribution of selected herbicides and their metabolites in outflow from selected reservoirs in the upper Midwest. The reservoir study also provided data to determine if the persistence of large concentrations of herbicides in reservoir outflow can be quantified on the basis of reservoir and drainage-basin characteristics, water and land use, herbicide use, and climate.

## INTRODUCTION

This is the fifth in a series of water-quality reports intended to present the analytical results from studies of herbicides and nutrients in water resources of the Midwestern United States. This report presents the analytical results from a study of 11 preemergent herbicides, six triazine metabolites, and nutrients in outflow from 76 reservoirs located in 11 Midwestern States (fig. 1). Previous reports have presented analytical results from regional studies of herbicides and nutrients in ground water (Kolpin and others, 1993), surface water (Scribner and others, 1993), storm runoff (Scribner and others, 1994), and precipitation (Goolsby and others, 1995). This study of herbicides and nutrients in reservoirs was conducted during 1992–93 and is one of several regional-scale studies conducted by the U.S. Geological Survey (USGS) as part of the Toxic Substances Hydrology Program.

Modern agricultural practices in the United States often require extensive use of herbicides for production of corn, soybeans, sorghum, and other row crops. Data compiled by Gianessi and Puffer (1991) indicate that about two-thirds of the 628 million lb of

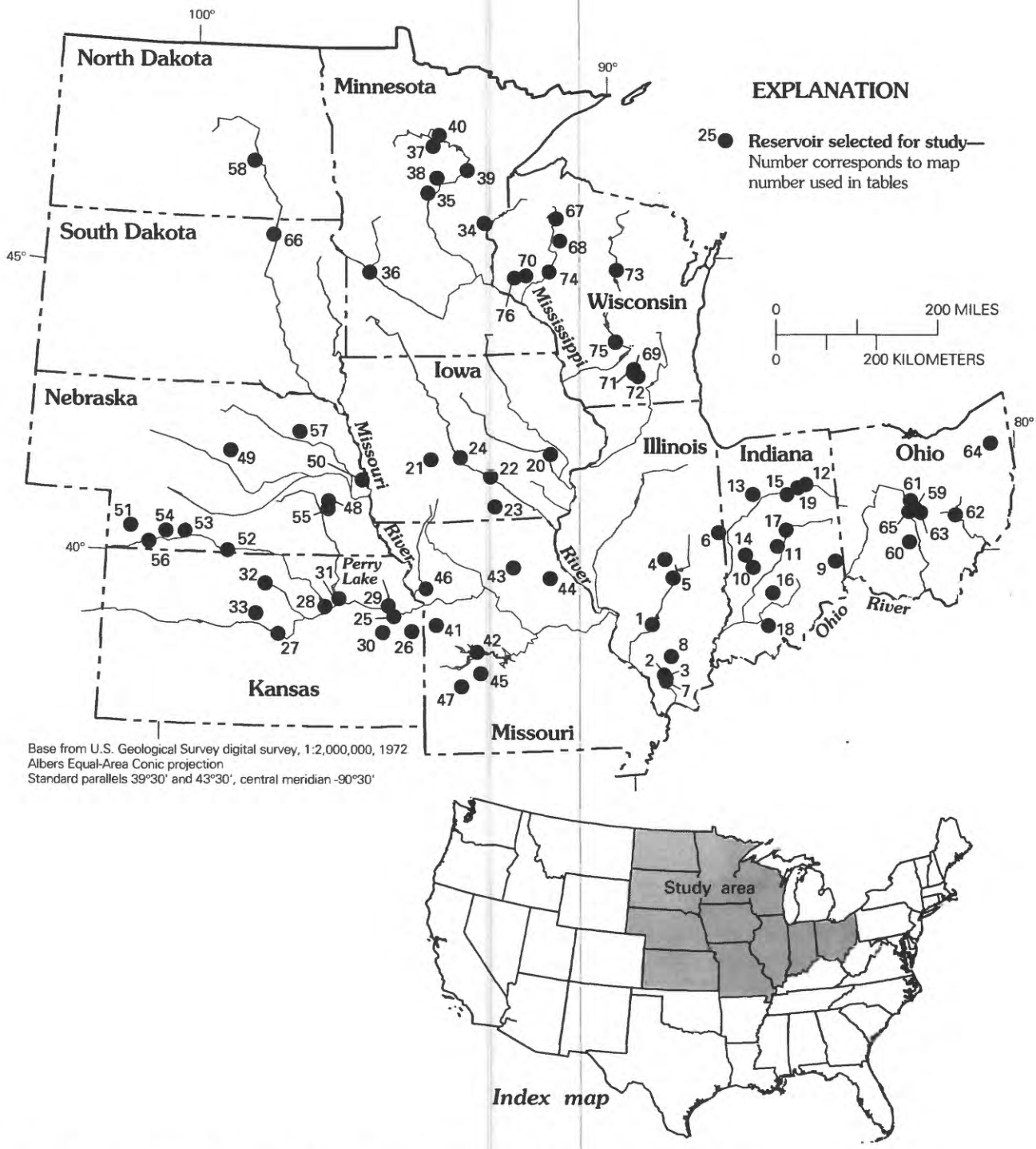


**Figure 1.** Location of study area and selected reservoirs in the Midwestern United States.

herbicides applied annually in the United States (Aspelin and others, 1992) are used in crop production in the Midwestern United States. As a result, the Midwest is a major source area for transport of herbicides into the atmosphere, ground water, and streams. A summary of agricultural practices and herbicide and land use for the Midwestern United States, by county, can be found in Battaglin and Goolsby (1995).

Reservoirs are an important part of hydrologic systems in the Midwestern United States. According to data compiled by Ruddy and Hitt (1990), about 440 large reservoirs in 11 upper Midwestern States

discharge streamflow to the Mississippi River. The function of these reservoirs is to impound surface water for many uses, including flood control, hydropower, navigation, recreation, and aquatic life habitat. These large reservoirs and numerous small reservoirs also serve as sources of drinking water for public supplies.

In addition to storing surface water, reservoirs also store undesirable substances such as sediment and toxic chemicals including pesticides. Much of the sediment entering reservoirs is deposited on the bottom of the reservoirs. However, chemicals such as soluble herbicides generally remain in the water column and are stored only temporarily until they are flushed from the reservoir or removed from solution by biotic and abiotic processes.

Storage of herbicides is a potential problem in reservoirs that receive drainage from agricultural areas in the upper Midwest. Recent studies by the USGS (Thurman and others, 1991, 1992; Goolsby and others, 1993; Goolsby and Battaglin, 1995) have shown that most streams in the upper Midwest contain herbicides at some time during the year. Large quantities of herbicides are flushed from agricultural fields each spring and summer during rainfall following application of herbicides. Goolsby and Battaglin (1995) showed that median concentrations of the herbicides alachlor, atrazine, cyanazine, and metolachlor in streams increased from March 1989 to July 1989. Also, Thurman and others (1991) showed that the median concentrations of herbicides in Midwestern streams in 1989 ranged from less than 0.30 µg/L before planting to as much as 3.0 µg/L after planting and that the maximum concentrations in a few small streams reached 100 µg/L. During late spring and early summer, concentrations of atrazine can exceed the U.S. Environmental Protection Agency's (1992) Maximum Contaminant Level (MCL) for finished drinking water of 3.0 µg/L for several weeks to several months in both small streams and large rivers, such as the Mississippi River (Goolsby and others, 1993).

Because reservoirs collect and store water, they can be affected by storm runoff that contains large concentrations of herbicides for a much longer period of time than the streams that supply the reservoirs (Stamer and Zelt, 1992; Stamer and others, 1995). This can substantially affect the water quality of streams downstream from reservoirs.

The length of time that reservoirs discharge water with increased concentrations of herbicides depends on a number of factors, including residence time of water in the reservoir, timing of inflow to the reservoir, land use and herbicide use in the contributing drainage area, and the timing and intensity of rainfall. Unregulated streams exhibit the flush effect (Thurman and others, 1991), which can produce high concentrations of herbicides for short periods of time. In contrast, maximum concentrations of herbicides in streams regulated by reservoirs are much lower, but increased concentrations can persist for much longer periods of time. Stamer and Zelt (1992) have shown that atrazine concentrations in Perry Lake, Kansas, remained near or greater than the MCL of 3.0 µg/L from March 1989 through October 1989 and were greater than 1.0 µg/L through February 1990, whereas atrazine concentrations in the principal tributary to Perry Lake exceeded the MCL for only a few months during late spring. Atrazine concentrations in some samples collected from the tributaries exceeded 10 µg/L during late spring. Most of the water in Perry Lake was replaced with spring runoff containing these increased atrazine concentrations. Because little additional inflow to Perry Lake occurred after early summer, this "herbicide-enriched" water was stored in the reservoir until the next spring when the cycle was repeated.

The process of storage and attenuation of herbicides documented in Perry Lake occurs in most other Midwestern reservoirs to a greater or lesser degree depending on the physical and hydrologic characteristics of the reservoirs and land use in the reservoir drainage basins. Data on file at USGS, Lawrence, Kansas, show atrazine concentrations in mid-winter samples collected during 1990–92 from several large reservoirs in Illinois, Iowa, Kansas, and Missouri (table 1). Water samples collected at the outflow from many of these reservoirs had atrazine concentrations of at least 2.0 µg/L during this time, which likely reflected the storage of herbicide-enriched inflow originating from the spring flush.

Processes such as microbial degradation, hydrolysis, photolysis, sorption, and volatilization could serve to remove herbicides from solution in reservoirs (Paris and Lewis, 1973; Butler and others, 1975; Geller, 1980; Jones and others, 1982; Jones and Winchell, 1984; Dries and others, 1987; Pelizzetti and Tosato, 1990; Plimmer, 1990; Goldberg and others, 1991; Kolpin and Kalkhoff, 1993). The rates at which these processes may occur vary for each herbicide and are a function of many factors including water temperature, pH, and dissolved oxygen. Herbicide metabolites

**Table 1.** Atrazine concentrations in water samples collected from Midwestern reservoirs during winter months, 1990–92

[Data on file with U.S. Geoloigcal Survey, Lawrence, Kansas. Vol/DA, volume-to-drainage-area ratio; acre-ft, acre-feet; GC/MS, gas chromatography/mass spectrometry; ELISA, enzyme-linked immunosorbent assay; µg/L, micrograms per liter, --, not data]

| Map no. (fig. 1) | Reservoir name | Sample date (month/day /year) | Vol/DA (acre-ft/acre) | Atrazine concentration by GC/MS (µg/L) | Atrazine concentration by ELISA (µg/L) |
|---|---|---|---|---|---|
| | | **Illinois** | | | |
| 1 | Carlyle Lake outflow | 01/03/92 | 0.14 | -- | 2.3 |
| 4 | Lake Decatur outflow | 01/08/92 | .05 | -- | .20 |
| 5 | Lake Shelbyville outflow | 01/08/92 | .31 | -- | 1.1 |
| 8 | Rend Lake spillway | 01/02/92 | .59 | -- | .60 |
| -- | Lake Springfield at Spaulding Dam | 01/30/92 | .34 | -- | 4.0 |
| -- | Lake Springfield at Sugar Creek | 01/30/92 | .34 | -- | 2.5 |
| | | **Iowa** | | | |
| 20 | Coralville Lake | 02/21/92 | .01 | -- | .20 |
| 22 | Lake Red Rock | 02/12/92 | .01 | -- | .20 |
| 23 | Rathbun Lake | 12/01/90 | .58 | 3.7 | -- |
| 23 | Rathbun Lake | 02/20/92 | .58 | -- | 2.8 |
| 24 | Saylorville Lake | 02/12/92 | .02 | -- | .10 |
| -- | Corydon Reservoir | 02/01/92 | -- | -- | 10 |
| | | **Kansas** | | | |
| 29 | Perry Lake | 02/03/91 | .34 | 3.9 | -- |
| | | **Missouri** | | | |
| 43 | Long Branch Lake | 12/01/90 | .50 | 2.0 | -- |
| 46 | Smithville Lake | 12/01/90 | 1.1 | 4.0 | -- |

such as deethylatrazine and deispropylatrazine (Thurman and others, 1991), cyanazine amide, deethylcyanazine, and deethylcyanazine amide (Meyer, 1994), and alachlor metabolites (Pereira and Rostad, 1990; Aga and others, 1994; Thurman and others, 1996) have been detected in samples from streams. Additional metabolites are likely to be present, but suitable analytical methods are not presently available to test for all of them.

## Purpose and Scope

The purpose of this report is to describe the data-collection and analytical methods, the onsite and laboratory quality-assurance procedures, the reservoir volume, evaporation, and stage measurements, and to present the results of analyses for 11 herbicides, 6 metabolites, and nutrients. These data were derived from samples collected at 76 Midwestern reservoirs during April 1992 through September 1993.

## Objectives of Study

The primary objectives of the study were to determine the occurrence and temporal distribution of selected herbicides, herbicide metabolites, and nutrients in the outflow from selected reservoirs in the upper Midwest and to determine if the persistence of large concentrations of herbicides in reservoir outflow could be related on the basis of reservoir and drainage-basin characteristics, water and land use, herbicide use, and climate.

# DESCRIPTION OF STUDY AREA

The study area (fig. 1) is defined as all hydrologic units in parts of 11 States (Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin) that drain to the Ohio, upper Mississippi, and lower Missouri Rivers. This area comprises about 450,000 $mi^2$ and is virtually

the same area covered by the 1989–90 reconnaissance of herbicides in streams (Thurman and others, 1991, 1992; Scribner and others, 1993).

## SELECTION OF RESERVOIRS

Reservoirs studied were selected from the reservoir data base compiled by Ruddy and Hitt (1990). This data base contains information for about 440 reservoirs in the study area that have a normal storage volume of 5,000 acre-ft or maximum capacities of at least 25,000 acre-ft. To meet the objectives of the study, data on reservoir volume and reservoir discharge (on at least a monthly frequency) were needed to determine the residence time of water in the reservoir and the timing of outflow. In addition, the reservoir outflow had to be accessible for sampling. These data were screened, with the assistance of USGS district offices, to determine which reservoirs met the selection criteria. As a result of this screening, 74 reservoirs in the reservoir data base were selected for sampling. Two additional reservoirs, Lakes Monona and Waubesa in Wisconsin (map numbers 71 and 72, fig. 1) which form a chain of reservoirs receiving outflow from Lake Mendota (map number 69, fig. 1) were also sampled. These three reservoirs were treated as a single unit. A listing of all 76 reservoirs that were sampled, along with selected characteristics, are given in table 2. The location of these reservoirs is shown in figure 1.

## METHODS

### Sample-Collection Schedule

Outflow from each reservoir was sampled eight times (approximately bimonthly) from April 1992 through September 1993. The timing and frequency of these samples made it possible to determine approximately when maximum and minimum concentrations of herbicides occurred in the reservoir outflow.

The time of sample collections were:

(1) Late April or early May 1992—Samples were collected before significant postplanting reservoir discharge occurred.
(2) Late June or early July 1992—Samples were collected after significant postplanting runoff and flushing of the reservoir had occurred.
(3) Late summer or late August 1992.
(4) Early fall or mid-October 1992.
(5) Early winter or early January 1993.
(6) Late winter or mid-March 1993.
(7) Midsummer 1993.
(8) September 1993 following the 1993 flood.

### Sample-Collection Methods

Water samples were collected downstream from each reservoir near the centroid of flow or at other outflow points that would provide a representative sample of reservoir discharge. If the reservoir had both a top and bottom release, the sample was collected at a sufficient distance downstream to ensure adequate mixing, or an equal-width increment, depth-integrated sampling technique was used (Ward and Harr, 1990). About 2 L of water were obtained using depth-integrating samplers. The collection bottle used in the sampler was made of glass and precleaned as described in the "Quality Assurance" section under "Decontamination Procedures." If depth-integrated samples from several points in the cross section were required to obtain sufficient sample volume, the individual samples were composited in a precleaned glass, Teflon, or stainless-steel container that held 2 to 4 L. The compositing container and bottles used in the sampler were rinsed thoroughly with sample water before compositing began.

In late July or August 1992, near the time of maximum water stratification, temperature and dissolved-oxygen profiles were obtained at 17 selected reservoirs (see table 2) using a dissolved-oxygen meter with a thermister. Profile measurements were made at approximately 3-ft intervals in the deepest part of each reservoir. A closer spaced interval was used in the thermocline region, which is the region of maximum rate of water-temperature change. At each depth, temperature and dissolved-oxygen readings were allowed to stabilize before results were recorded. Water samples for herbicide and nutrient analyses were collected from these reservoirs within 3 ft of the water surface and as close to the reservoir bottom as possible without disturbing the sediment by using a Kemmerer-type point sampler. Sampling was conducted at the same locations that temperature and dissolved-oxygen profiles were measured and were far enough away from reservoir outlet structures to avoid mixing effects that might be caused by outflow.

**Table 2.** Selected characteristics of reservoirs sampled for this study

[x, water temperature and dissolved-oxygen profiles available; --, information not available; $mi^2$, square miles]

| Map no. (fig. 1) | Site identifer | Reservoir name | River name | Water temperature and dissolved-oxygen profile | Surface area (acres) | Drainage area ($mi^2$) | Purpose or use of reservoir[1] |
|---|---|---|---|---|---|---|---|
| | | | **Illinois** | | | | |
| 1 | 05593000 | Carlyle Lake | Kaskaskia River | x | 24,580 | 2,717 | CNRS |
| 2 | 05598050 | Crab Orchard Lake | Crab Orchard Creek | -- | 6,910 | 215 | ORS |
| 3 | 05598025 | Devils Kitchen Lake | Big Grassy Creek | -- | 810 | 19 | R |
| 4 | 05573540 | Lake Decatur | Sangamon River | x | 2,604 | 906 | RS |
| 5 | 05592000 | Lake Shelbyville | Kaskaskia River | x | 11,100 | 1,054 | CNR |
| 6 | 03338890 | Lake Vermillion | Vermillion River | x | 1,000 | 298 | RS |
| 7 | 05598015 | Little Grassy Lake | Little Grassy Creek | -- | 1,000 | 15 | OR |
| 8 | 05596000 | Rend Lake | Big Muddy River | x | 18,900 | 488 | CORS |
| | | | **Indiana** | | | | |
| 9 | 03276000 | Brookville Lake | East Fork of Whitewater River | -- | 5,280 | 379 | CR |
| 10 | 03359000 | Cataract Lake | Mill Creek | -- | 4,840 | 295 | CR |
| 11 | 03353451 | Eagle Creek Reservoir | Eagle Creek | -- | 1,350 | 162 | CRS |
| 12 | 03323500 | Huntington Lake | Wabash River | -- | 900 | 707 | CR |
| 13 | 03332500 | Lake Shafer | Tippecanoe River | -- | 1,291 | 1,710 | HR |
| 14 | 03340900 | Mansfield Lake | Raccoon Creek | -- | 3,910 | 216 | CR |
| 15 | 03327000 | Mississinewa Lake | Mississinewa River | x | 3,180 | 807 | CR |
| 16 | 03372500 | Monroe Lake | Salt Creek | -- | 10,750 | 441 | CR |
| 17 | 03350500 | Morse Reservoir | Cicero Creek | -- | 1,375 | 217 | S |
| 18 | 03374500 | Patoka Lake | Patoka Lake | -- | 8,880 | 168 | CRS |
| 19 | 03324500 | Salamonie Lake | Salamonie River | x | 2,665 | 553 | CR |

**Table 2.** Selected characteristics of reservoirs sampled for this study—Continued

| Map no. (fig. 1) | Site identifer | Reservoir name | River name | Water temperature and dissolved-oxygen profile | Surface area (acres) | Drainage area ($mi^2$) | Purpose or use of reservoir[1] |
|---|---|---|---|---|---|---|---|
| | | | **Iowa** | | | | |
| 20 | 05453510 | Coralville Lake | Iowa River | -- | 24,800 | 3,115 | CR |
| 21 | 05483450 | Lake Panorama | Middle Raccoon River | -- | 1,270 | 432 | RS |
| 22 | 05488100 | Lake Red Rock | Des Moines River | -- | 8,950 | 12,323 | CR |
| 23 | 06903900 | Rathbun Lake | Chariton River | x | 11,000 | 549 | CNRS |
| 24 | 05481650 | Saylorville Lake | Des Moines River | -- | 8,700 | 5,823 | CR |
| | | | **Kansas** | | | | |
| 25 | 06891478 | Clinton Lake | Wakarusa River | -- | 7,000 | 367 | CRS |
| 26 | 06914995 | Hillsdale Lake | Big Bull Creek | -- | 4,575 | 144 | CRSO |
| 27 | 06865000 | Kanopolis Lake | Smoky Hill River | -- | 3,560 | 7,857 | CIR |
| 28 | 06857050 | Milford Lake | Republican River | -- | 15,709 | 24,880 | CS |
| 29 | 06890898 | Perry Lake | Delaware River | -- | 11,146 | 1,117 | CRS |
| 30 | 06912490 | Pomona Lake | Hundred Ten Mile Creek | x | 3,865 | 322 | CRS |
| 31 | 06886900 | Tuttle Creek Lake | Big Blue River | -- | 14,875 | 9,628 | CNR |
| 32 | 06874200 | Waconda Lake | Solomon River (offstream) | -- | 12,602 | 5,076 | C |
| 33 | 06868100 | Wilson Lake | Saline River | -- | 9,045 | 1,917 | CI |
| | | | **Minnesota** | | | | |
| 34 | 05338500 | Cross Lake | Snake River | x | 1,013 | -- | O |
| 35 | 05247000 | Gull Lake Reservoir | Gull River | -- | 13,139 | 287 | CR |
| 36 | 05301000 | Lac Qui Parle Reservoir | Minnesota River | x | 12,800 | 6,100 | CR |
| 37 | 05206500 | Leech Lake Reservoir | Leech Lake River | -- | 160,545 | 1,163 | CR |
| 38 | 05231000 | Pine River Reservoir | Pine River | -- | 15,190 | 562 | CR |
| 39 | 05219000 | Sandy Lake Reservoir | Sandy River | -- | 10,643 | 421 | CR |
| 40 | 05201500 | Winnibigoshish Reservoir | Mississippi River | x | 114,799 | 1,442 | CR |

**Table 2.** Selected characteristics of reservoirs sampled for this study—Continued

| Map no. (fig. 1) | Site identifer | Reservoir name | River name | Water temperature and dissolved-oxygen profile | Surface area (acres) | Drainage area ($mi^2$) | Purpose or use of reservoir[1] |
|---|---|---|---|---|---|---|---|
| | | | **Missouri** | | | | |
| 41 | 3845370941935 | Harrisonville Lake | Middle Big Creek (outflow) | -- | 537 | 14 | SR |
| 42 | 06922500 | Harry S Truman Reservoir | Osage River | -- | 55,600 | 11,500 | CHR |
| 43 | 06906200 | Long Branch Lake | East Fork Little Chariton | -- | 2,400 | 109 | CRS |
| 44 | 05507800 | Mark Twain Lake | Salt River | -- | 18,600 | 2,300 | CHS |
| 45 | 06921350 | Pomme de Terre Lake | Pomme de Terre River | -- | 16,100 | 611 | CHN |
| 46 | 06821140 | Smithville Lake | Little Platte River | -- | 7,200 | 213 | CRS |
| 47 | 06919000 | Stockton Lake | Sac River | -- | 24,900 | 1,160 | CH |
| | | | **Nebraska** | | | | |
| 48 | 06803450 | Branched Oak Lake | Oak Creek | x | 1,800 | 167 | CR |
| 49 | 06787500 | Calamus Reservoir | Calamus River | -- | -- | -- | IOR |
| 50 | 06610746 | Cunningham Lake | Knight Creek | -- | -- | -- | CR |
| 51 | 06832500 | Enders Reservoir | Frenchman Creek | -- | 2,405 | 1,300 | CIR |
| 52 | 06849500 | Harlan County Lake | Republican River | -- | 22,800 | 20,753 | CI |
| 53 | 06842500 | Harry Strunk Lake | Medicine Creek | -- | 4,820 | 850 | CIR |
| 54 | 06837500 | Hugh Butler Lake | Red Willow Creek | -- | 2,682 | 600 | CIR |
| 55 | 06803132 | Pawnee Lake | North Branch Middle Creek | -- | 740 | -- | CR |
| 56 | 06829500 | Swanson Lake | Republican River | -- | 10,040 | 8,100 | CIR |
| 57 | 06799090 | Willow Creek Reservoir | Willow Creek | x | -- | -- | R |
| | | | **North Dakota** | | | | |
| 58 | 06469425 | Pipestem Reservoir | Pipestem Creek | -- | 1,100 | 400 | CR |

**Table 2.** Selected characteristics of reservoirs sampled for this study—Continued

| Map no. (fig. 1) | Site identifer | Reservoir name | River name | Water temperature and dissolved-oxygen profile | Surface area (acres) | Drainage area ($mi^2$) | Purpose or use of reservoir[1] |
|---|---|---|---|---|---|---|---|
| | | | **Ohio** | | | | |
| 59 | 03228805 | Alum Creek Lake | Alum Creek of Black Walnut Creek | x | 3,387 | 122 | CRS |
| 60 | 03230900 | Deer Creek Lake | Deer Creek | -- | 1,277 | 277 | COR |
| 61 | 03225500 | Delaware Lake | Olentangy River | -- | 8,700 | 381 | CORS |
| 62 | 03147500 | Dillon Lake | Licking River | x | 10,285 | 748 | COR |
| 63 | 03228500 | Hoover Reservoir | Big Walnut Creek | -- | 2,825 | 190 | RS |
| 64 | 03091500 | Milton Reservoir | Mahoning River | -- | 1,660 | 276 | CRS |
| 65 | 03221000 | O'Shaughnessy Reservoir | Scioto River | -- | 829 | 987 | RS |
| | | | **South Dakota** | | | | |
| 66 | 06470992 | Sand Lake | James River | -- | 5,220 | 2,400 | O |
| | | | **Wisconsin** | | | | |
| 67 | 05365500 | Chippewa Flowage | Chippewa River | -- | 15,300 | 775 | OR |
| 68 | 05360500 | Dairyland Reservoir | Flambeau River | -- | 1,950 | 1,928 | HR |
| 69 | 05428000 | Lake Mendota | Yahara River | x | 9,842 | 254 | NR |
| 70 | 05369000 | Lake Menomin | Red Cedar Lake | -- | 1,405 | 1,770 | HR |
| 71 | 05429000 | Lake Monona | Yahara River | -- | 3,274 | 279 | NR |
| 72 | 05429500 | Lake Waubesa | Yahara River | -- | 2,080 | 327 | NR |
| 73 | 05398000 | Lake Wausau | Wisconsin River | -- | 1,918 | 4,020 | HR |
| 74 | 05356000 | Lake Wissota (5548) | Chippewa River | -- | 6,180 | 5,548 | HR |
| 75 | 05404000 | Lake 7746 | Wisconsin River | -- | 2,150 | 7,746 | HR |
| 76 | 05370000 | Spring Valley Lake | Eau Galle River | -- | 233 | -- | CR |

[1]Purpose or use of reservoir: C, flood control; H, hydropower; I, irrigation, N, navigation; O, other; R, recreation; S, water supply.

## Sample Preparation

Herbicide samples were filtered through a 1-µm glass-fiber filter using a peristaltic pump. Nutrient samples were filtered through 0.45-µm membrane filters. Filters were leached with about 200 mL of distilled water followed by 25 to 50 mL of sample prior to collection of the sample.

The filtrate for herbicide analysis was collected in four precleaned, baked 125-mL amber glass bottles. The filtrate for nutrient analysis was collected in a 125-mL amber polyethylene bottle and treated with a mercuric chloride preservative. About 100 mL of sample were filtered into a 250-mL polyethylene bottle for silica analysis. The remainder of the water in the compositing container was used for onsite measurements of specific conductance and pH. All samples were chilled immediately and shipped to the appropriate laboratory within 3 days of collection. Herbicide samples were sent to the USGS laboratory in Lawrence, Kansas, for gas chromatography/mass spectrometry (GC/MS) analysis (Thurman and others, 1990) and enzyme-linked immunosorbent assay (ELISA). Nutrient and silica samples were shipped to the USGS National Water-Quality Laboratory in Arvada, Colorado, for analysis (Fishman and Friedman, 1989).

## Laboratory Methods

Herbicide sample bottles received at the USGS laboratory in Lawrence, Kansas, were logged in, assigned identification numbers, and refrigerated at 4 °C until analyzed. All of the reservoir samples were analyzed for 11 herbicides, two atrazine metabolites, and three cyanazine metabolites by GC/MS. The analysis included alachlor, ametryn, atrazine, cyanazine, metolachlor, metribuzin, prometon, prometryn, propazine, simazine, and terbutryn as well as two atrazine metabolites, deethylatrazine and deisopropylatrazine, and three cyanazine metabolites, cyanazine amide, deethylcyanazine, and deethylcyanazine amide. In addition, the ethane sulfonic acid (ESA) metabolite of alachlor was isolated by solid-phase extraction (SPE) and analyzed by ELISA using the method of Aga and others (1994).

### Gas Chromatography/Mass Spectrometry

Samples selected for GC/MS confirmation were extracted on carbon-18 ($C_{18}$) solid-phase cartridges by an automated procedure (Meyer and others, 1993). A Waters Millilab workstation was used for solid-phase extraction of the analytes. $C_{18}$ Sep-Pak-Plus cartridges were preconditioned sequentially with 2 mL each of distilled water, 6 mL ethyl acetate, 2 mL methanol, and 3 mL distilled water. Each 123-mL water sample was spiked with 100 µL of a surrogate standard, terbuthylazine (1.23 ng/µL), and pumped through the cartridge at a rate of 20 mL/min by the robotic probe. Analytes were eluted with ethyl acetate and spiked robotically with 100 ng of phenanthrene-$d_{10}$. The ethyl acetate layer was transferred by probe to a clean test tube. The robotic probe was washed between samples by immersing in ethyl acetate and bubbling air through the probe to prevent sample cross contamination of herbicide standards. Finally, the extract was evaporated with a Turbovap at 45 °C under a nitrogen stream to a volume of 100 µL and pipetted into a 100-µL crimp-top, polystyrene vial with a glass liner.

For the analysis of the 11 herbicides and atrazine metabolites, deethylatrazine and deisopropylatrazine, automated GC/MS analyses of the sample eluates were performed on a Hewlett-Packard Model 5890 GC and a 5970A mass selective detector (MSD). Operating conditions were as follows: ionization voltage, 70 eV; ion-source temperature, 280 °C; electron multiplier, 400 V over the autotune voltage; direct capillary interface at 280 °C, initial GC oven temperature, 60 °C, tuned daily with perfluorotributylamine; dwell time, 25 to 50 ms/ion. Separation of the herbicides was carried out using a Hewlett Packard fused-silica, ultra-1 capillary, 12 m x 0.2 mm id, GC column of methyl silicone film with a thickness of 0.33 µm. Helium was used as the carrier gas at a flow rate of 1 mL/min and a head pressure of 35 kPa. The column temperature was held at 60 °C for 1 minute and then ramped at 6 °C per minute to 250 °C. Injector temperature was 280 °C. The filament and multiplier were not turned on until 15 minutes into the analysis. Quantification of the base peak of each compound was based on the response of the 188 ion m/z of the internal standard, phenanthrene-$d_{10}$. Confirmation of the compound was based on the presence of the molecular ion and two confirming ions with a retention-time match of ±0.2 percent relative to phenanthrene-$d_{10}$. The preceding procedure is described in detail by

Thurman and others (1990) and Meyer and others (1993).

For the separation of the cyanazine metabolites, cyanazine amide, deethylcyanazine, and deethylcyanazine amide, a Hewlett Packard ultra-2 capillary, 12 m x 0.2 mm, GC column of methyl silicone with 5-percent phenyl film was used. The GC/MS conditions for these analysis were the same as for the regular herbicide method except for the following: direct capillary interface at 210 °C, initial GC oven temperature, 140 °C; ramp rate, 15 °C per minute to 250 °C. Atrazine, cyanazine, deethylatrazine, and deisopropylatrazine were also analyzed to compare against the preceding GC/MS method. The quantitation limit for atrazine, deethylatrazine, deisopropylatrazine, cyanazine, cyanazine amide, and deethylcyanazine was 0.05 µg/L and for deethylcyanazine amide, 0.50 µg/L. This procedure is described by Meyer (1994).

#### Solid-Phase Extraction and Enzyme-Linked Immunosorbent Assay for Alachlor Ethane Sulfonic Acid

Alachlor ESA was analyzed by SPE-ELISA using the method described in Aga and others (1994). The SPE procedure was automated with a Waters Millilab workstation for analysis of the analytes. The $C_{18}$ Sep-Pak cartridges were preconditioned sequentially with 2 mL methanol, 6 mL ethyl acetate, 2 mL methanol, and 2 mL distilled water. Each 100-mL water sample was passed through a cartridge at a flow rate of 20 mL/min. The cartridge was eluted first with 3 mL ethyl acetate to remove parent alachlor and then eluted with 3 mL methanol to remove alachlor ESA, which was collected in a separate test tube. The methanol extracts were evaporated to dryness under nitrogen at 45 °C using a Turbovap. The samples then were reconstituted with 5 mL of distilled water and analyzed using an Alachlor RaPID assay kit. The concentrations of alachlor ESA were calculated by the following equation (Brady, 1995):

$$\text{logit}(y) = \ln(y/1-y), \quad (1)$$

where $y$ = absorbance reading, which transformed data using alachlor ESA standards of 0, 1.0, 5.0, and 20 µg/L. Every 10th sample was analyzed in duplicate.

#### Nutrients

Dissolved nitrite plus nitrate, nitrite, ammonia, and orthophosphate were determined by an automated colorimetric procedure (Fishman and Friedman, 1989). Dissolved nitrate was calculated as the difference between determinations for nitrite plus nitrate and nitrite. Silica was determined by an automated procedure described in Fishman and Friedman (1989).

## QUALITY ASSURANCE

Quality-assurance procedures for this study were carried out by USGS personnel in accordance with a written work plan for the study.

### Decontamination Procedures

Onsite quality-assurance procedures required all bottles and sampling equipment to be cleaned by washing glass containers, filter units, and tubing with a phosphate-free laboratory detergent and rinsing with tap water, then rinsing with organic-free, deionized, or distilled water, rinsing with methanol, and rinsing again with organic-free water to remove traces of methanol. Bottles were inverted to drain and dry.

### Sample Collection and Analysis

Quality-assurance samples consisted of blind replicates, blind spikes, field equipment blanks, and laboratory duplicates. About 5 percent of the samples were blind replicates, and an additional 5 percent of the samples consisted of blind spikes and field equipment blanks. All samples were collected in duplicate or triplicate. About 10 percent of all samples were analyzed in duplicate at the USGS laboratory in Lawrence, Kansas.

In addition, blind replicate samples for herbicide analysis were obtained during each sampling period. Replicates of regular samples were labeled with fictitious site information and submitted to the USGS laboratory in Lawrence, Kansas, along with the regular samples for herbicide analysis. Results for the blind replicate analyses are included under sample type "BD" in table 5 at the end of this report.

Blind spikes for herbicide analysis were independently prepared by the USGS National Water-Quality Laboratory in Arvada, Colorado, and submitted by

several USGS offices. These samples consisted of 125-mL bottles filled with solutions of known herbicide concentrations. They were labeled as reservoir samples and sent to the USGS laboratory in Lawrence, Kansas. Results for spike samples analyzed during the eight sampling rounds are shown in table 3.

Field equipment blanks for herbicides were obtained on the first sample processed and about every 20th sample thereafter. Organic-free water was filtered into four 125-mL amber baked glass bottles labeled as a field equipment blank and shipped overnight to the USGS laboratory in Lawrence, Kansas, along with the regular herbicide samples. During the 1992–93 sampling period, no herbicides were detected in any of the 37 field equipment blanks analyzed.

### Gas Chromatography/Mass Spectrometry

For the GC/MS method, each water sample to be analyzed for herbicides and metabolites was spiked with a surrogate standard, terbuthylazine. An internal standard, phenanthrene-$d_{10}$, was added to the sample after it was extracted by SPE. The ratio of the terbuthylazine to the phenanthrene-$d_{10}$ was used to calculate the percent "recovery" of the sample. The internal standard was used to create a ratio with each individual compound to calculate concentrations. Quality-assurance protocols, to ensure the integrity of the sample handling, extraction, and analytical procedures, consisted of 10 percent blank samples and 10 percent standard solutions for the 1992–93 sampling period. Results of the laboratory duplicate analyses are included under sample type "LD" in table 5 at the end of this report.

### Solid-Phase Extraction and Enzyme-Linked Immunosorbent Assay for Alachlor Ethane Sulfonic Acid

For the alachlor ESA method, results were quantified with solutions of alachlor concentration that ranged from 0 to 20 µg/L. Using the calibration curves, optical densities associated with calibration standards were examined. Samples were analyzed in duplicate and averaged. The reporting limit for alachlor ESA was 0.10 µg/L.

## ANCILLARY DATA

The following information was recorded at all sites during each sampling period: the type of sampling location, type and quantity of reservoir discharge, unusual streamflow conditions, weather conditions, and debris conditions in the stream. The volume of water in reservoir storage, in acre-feet, was also obtained for each sampling period from USGS records or U.S. Army Corps of Engineers records. Data on gaged reservoir inflow and outflow, and evaporation, when available, were also accumulated throughout the period of study. These data were obtained as monthly totals from the U.S. Army Corps of Engineers records. Results are presented in table 4 at the end of this report.

Ancillary data including land use, herbicide use, contributing drainage area, and rainfall were obtained from the following sources and stored in a geographic information system (GIS) (Battaglin and Goolsby, 1995):

| | |
|---|---|
| Land use | 1987 Census of agriculture data (U.S. Department of Commerce, 1989a, 1989b) |
| Herbicide use | (Gianessi and Puffer, 1991). |

## ANALYTICAL RESULTS

Analytical results for nine herbicides and six metabolites in water-quality samples collected from 76 reservoirs during 1992–93 are presented in table 5 at the end of this report. Two additional herbicides, prometryn and terbutryn, were analyzed but not detected. Analytical results for herbicide samples collected near the top and bottom of 17 reservoirs are given in table 6. These data show, except for one reservoir in Indiana and two reservoirs in Ohio, that there was very little difference between top and bottom concentrations.

A summary of results presented in table 7 shows that atrazine was the most frequently detected and persistent herbicide, followed by alachlor ESA, deethylatrazine, deisopropylatrazine, metolachlor, cyanazine amide, and cyanazine.

The distribution of herbicide detections in Midwestern reservoirs and reservoirs in which concentrations of one or more herbicides exceeded U.S. Environmental Protection Agency Maximum Contaminant Levels or Health Advisory Levels for drinking water during late April through mid-May and

**Table 3.** Concentrations of selected herbicides and metabolites in quality-assurance samples, 1992

[Alachlor ethane sulfonic acid, cyanazine amide, deethylcyanazine, and deethylcyanazine amide were not selected for quality-assurance procedures; ametryn, prometryn, and terbutryn were not detected; DEA, deethylatrazine; DIA, deisopropylatrazine; GWM, blind spike sample; µg/L, micrograms per liter; <, less than; one-half detection limit was used in calculation of mean values; NWQL, U.S.Geological Survey National Water-Quality Laboratory, Arvada, Colo.]

| Date of collection (month/day) | Quality-assurance identification | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Alachlor (µg/L) | Cyanazine (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 08/21 | GWM1 | 0.09 | 0.10 | <0.05 | 0.08 | 0.05 | 0.08 | 0.08 | 0.07 | <0.05 | 0.07 |
| 08/21 | GWM1 | .08 | .10 | .05 | .08 | .05 | .07 | .07 | .07 | <.05 | .07 |
| 08/21 | GWM1 | .08 | .10 | .05 | .07 | <.05 | .07 | .07 | .06 | <.05 | .07 |
| 08/26 | GWM1 | .08 | .10 | .05 | .07 | .05 | .07 | .07 | .07 | <.05 | .07 |
| 08/26 | GWM1 | .09 | .10 | .05 | .08 | .07 | .07 | .08 | .07 | <.05 | .07 |
| 08/27 | GWM1 | .09 | .12 | .06 | .08 | .06 | .07 | .09 | .07 | <.05 | .07 |
| 08/27 | GWM1 | .08 | .10 | .05 | .07 | .06 | .07 | .08 | .06 | <.05 | .06 |
| 08/27 | GWM1 | .06 | .09 | .05 | .06 | .06 | .06 | .07 | .05 | <.05 | .05 |
| **Mean** | | **.08** | **.10** | **.05** | **.07** | **.05** | **.07** | **.08** | **.07** | **<.05** | **.07** |
| Theoretical | GWM1 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | 0 | .07 |
| NWQL | GWM1 | .08 | .13 | <.05 | .08 | .10 | .07 | .10 | <.05 | <.05 | .10 |
| 08/24 | GWM2 | .69 | .75 | .35 | .55 | .37 | .56 | .51 | .57 | .08 | .56 |
| 08/24 | GWM2 | .69 | .78 | .36 | .57 | .35 | .50 | .55 | .58 | .09 | .57 |
| 08/24 | GWM2 | .71 | .78 | .35 | .56 | .35 | .51 | .54 | .59 | .08 | .66 |
| 08/25 | GWM2 | .77 | .84 | .37 | .62 | .40 | .56 | .59 | .63 | .09 | .62 |
| 08/25 | GWM2 | .78 | .93 | .33 | .73 | .64 | .70 | .78 | .67 | .08 | .58 |
| 08/27 | GWM2 | .83 | .99 | .36 | .78 | .67 | .74 | .83 | .71 | .08 | .62 |
| 08/27 | GWM2 | .85 | .97 | .39 | .74 | .69 | .69 | .81 | .72 | .08 | .63 |
| **Mean** | | **.76** | **.86** | **.36** | **.65** | **.50** | **.61** | **.66** | **.64** | **.08** | **.61** |
| Theoretical | GWM2 | .70 | .70 | .71 | .71 | .69 | .70 | .70 | .70 | .00 | .70 |
| NWQL | GWM2 | .76 | 1.1 | .38 | .75 | .80 | .72 | .72 | .64 | .08 | .74 |

late June through early July 1992 are shown in figure 2. Concentrations of alachlor, alachlor ESA, atrazine, cyanazine, and metolachlor for each of the eight sampling periods (data from table 5) are shown in figures 3*A–E*. These figures also show that atrazine had the largest concentration, followed by alachlor ESA, metolachlor, cyanazine, and alachlor.

Analytical results for nutrients are given in table 8 for the 76 reservoirs and in table 9 for samples collected near the top and bottom of 17 reservoirs. Nitrate, nitrite, and silica concentrations in streams are derived from many anthropogenic and natural sources, including chemical fertilizers, animal wastes, domestic sewages, legumes, mineralization of vegetation, and soil organic matter. Studies in the Midwest have provided results on the geographic distribution of nitrate in streams and also indicate that processes in addition to those governing herbicide transport are important in controlling the transport of nutrients to streams (Goolsby and others, 1993).

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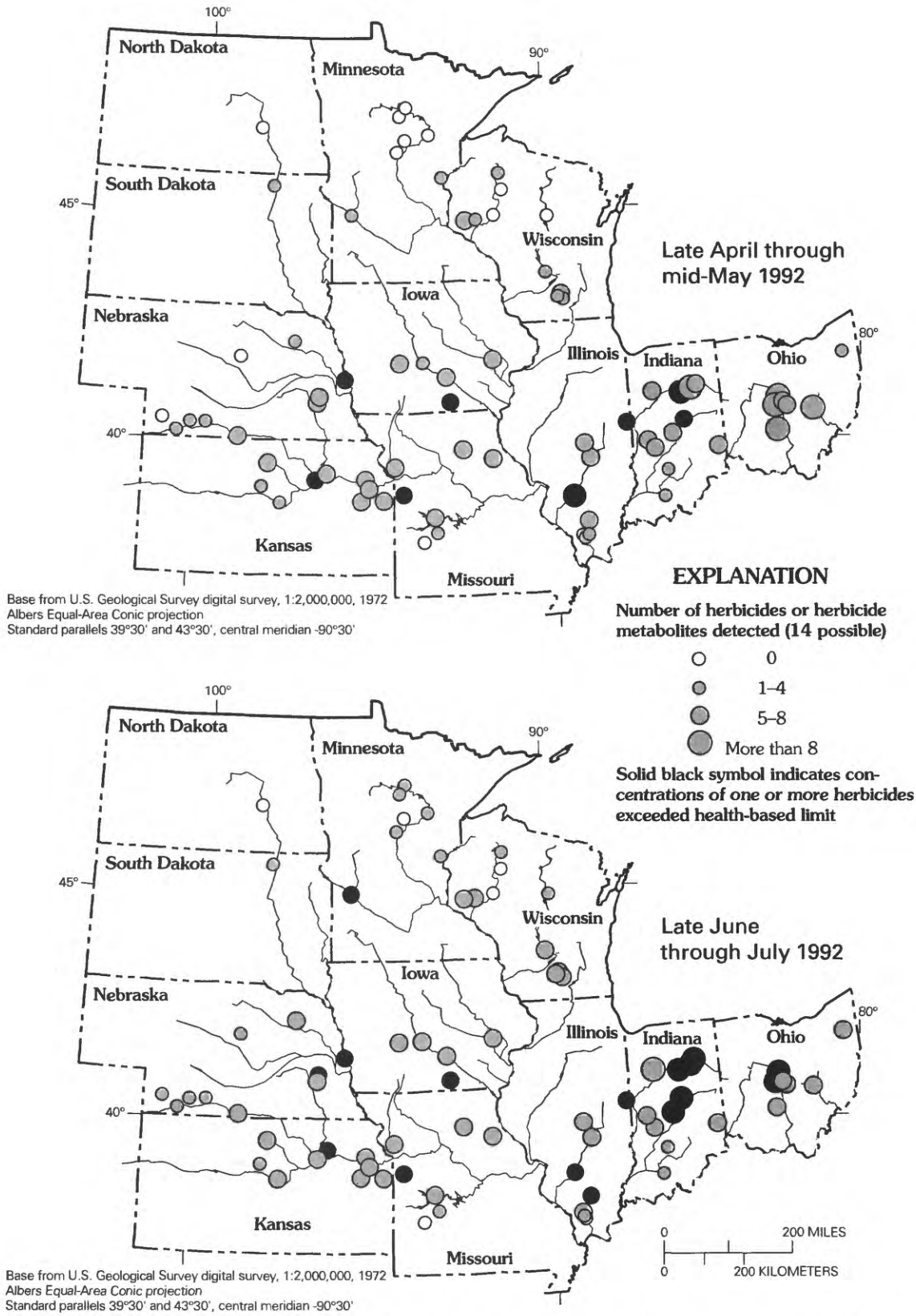


**Figure 2.** Distribution of herbicide detections in selected Midwestern reservoirs and reservoirs in which one or more herbicides exceeded U.S. Environmental Protection Agency Maximum Contaminant Levels or Health Advisory Levels for drinking water during late April through mid-May and late June through early July 1992.

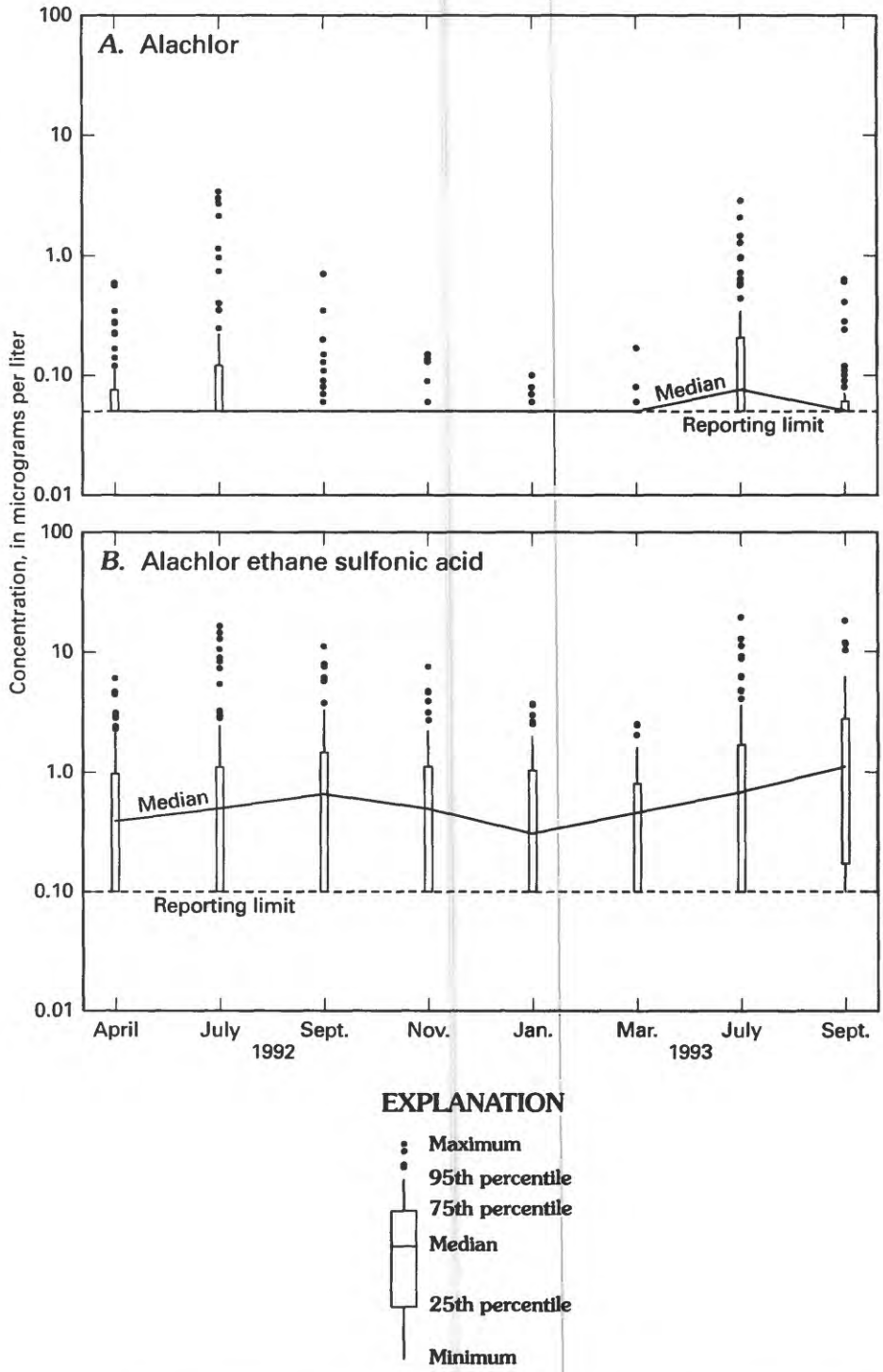


**Figure 3.** Boxplots showing the concentrations of (*A*) alachlor, (*B*) alachlor ethane sulfonic acid, (*C*) atrazine, (*D*) cyanazine, and (*E*) metolachlor during eight sampling periods in 1992–93.

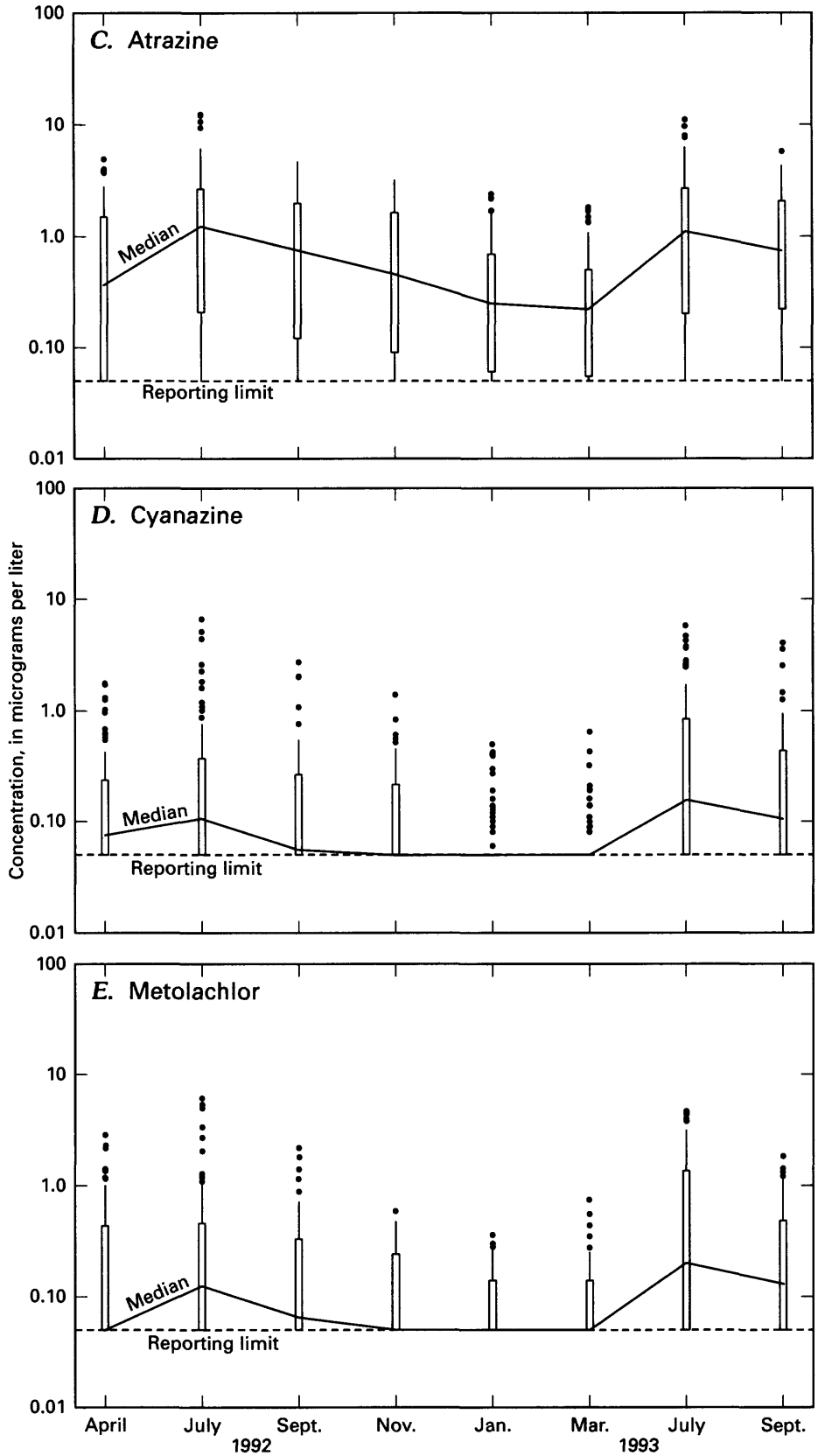


**Figure 3.** Boxplots showing the concentrations of (*A*) alachlor, (*B*) alachlor ethane sulfonic acid, (*C*) atrazine, (*D*) cyanazine, and (*E*) metolachlor during eight sampling periods in 1992–93—Continued.

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**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993

[--, data not available]

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Illinois | | | | |
| 1 | Carlyle Lake | 04/92 | 292,994 | -- | -- | 75,451 | 445.51 |
| | | 05/92 | 296,514 | -- | -- | 21,679 | 445.65 |
| | | 06/92 | 287,965 | -- | -- | 26,003 | 445.31 |
| | | 07/92 | 283,941 | -- | -- | 40,126 | 445.15 |
| | | 08/92 | 280,170 | -- | -- | 72,972 | 445.00 |
| | | 09/92 | 283,690 | -- | -- | 23,167 | 445.14 |
| | | 10/92 | 270,380 | -- | -- | 3,729 | -- |
| | | 11/92 | 270,380 | -- | -- | 97,071 | -- |
| | | 12/92 | 270,380 | -- | -- | 287,861 | -- |
| | | 01/93 | 270,380 | -- | -- | 394,950 | -- |
| | | 02/93 | 270,380 | -- | -- | 364,300 | -- |
| | | 03/93 | 278,982 | -- | -- | 280,640 | 444.95 |
| | | 04/93 | 374,616 | -- | -- | 208,483 | 448.47 |
| | | 05/93 | 359,964 | -- | -- | 180,476 | 448.02 |
| | | 06/93 | 307,914 | -- | 78,783 | 119,861 | 446.08 |
| | | 07/93 | 419,306 | -- | 150,169 | 25,091 | 449.93 |
| | | 08/93 | 368,925 | -- | 73,924 | 112,483 | 448.29 |
| | | 09/93 | 530,578 | -- | 308,112 | 111,868 | 453.10 |
| 2 | Crab Orchard Lake | 04/92 | 61,490 | -- | -- | 2,356 | -- |
| | | 05/92 | 61,490 | -- | -- | 4,744 | -- |
| | | 06/92 | 61,490 | -- | -- | -- | -- |
| | | 07/92 | 61,490 | -- | -- | -- | -- |
| | | 08/92 | 61,490 | -- | -- | -- | -- |
| | | 09/92 | 61,490 | -- | -- | 615 | -- |
| | | 10/92 | 61,490 | -- | -- | 2,182 | -- |
| | | 11/92 | 61,490 | -- | -- | 9,906 | -- |
| | | 12/92 | 61,490 | -- | -- | 21,319 | -- |
| | | 01/93 | 61,490 | -- | -- | 61,323 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Illinois—Continued | | | | |
| 2 | Crab Orchard Lake— | 02/93 | 61,490 | -- | -- | 6,353 | -- |
| | Continued | 03/93 | 61,490 | -- | -- | 58,561 | -- |
| | | 04/93 | 61,490 | -- | -- | 38,609 | -- |
| | | 05/93 | 61,490 | -- | -- | 26,741 | -- |
| | | 06/93 | 61,490 | -- | -- | 22,051 | -- |
| | | 07/93 | 61,490 | -- | -- | 1,457 | -- |
| | | 08/93 | 61,490 | -- | -- | 220 | -- |
| | | 09/93 | 61,490 | -- | -- | 19,252 | -- |
| 3 | Devils Kitchen Lake | 04/92 | 24,470 | -- | -- | 1,488 | -- |
| | | 05/92 | 24,470 | -- | -- | 2,312 | -- |
| | | 06/92 | 24,470 | -- | -- | -- | -- |
| | | 07/92 | 24,470 | -- | -- | -- | -- |
| | | 08/92 | 24,470 | -- | -- | -- | -- |
| | | 09/92 | 24,470 | -- | -- | -- | -- |
| | | 10/92 | 24,470 | -- | -- | 310 | -- |
| | | 11/92 | 24,470 | -- | -- | 1,200 | -- |
| | | 12/92 | 24,470 | -- | -- | 4,263 | -- |
| | | 01/93 | 24,470 | -- | -- | 5,239 | -- |
| | | 02/93 | 24,470 | -- | -- | 1,389 | -- |
| | | 03/93 | 24,470 | -- | -- | 6,994 | -- |
| | | 04/93 | 24,470 | -- | -- | 8,306 | -- |
| | | 05/93 | 24,470 | -- | -- | 2,506 | -- |
| | | 06/93 | 24,470 | -- | -- | 5,100 | -- |
| | | 07/93 | 24,470 | -- | -- | -- | -- |
| | | 08/93 | 24,470 | -- | -- | -- | -- |
| | | 09/93 | 24,470 | -- | -- | -- | -- |
| 4 | Lake Decatur | 04/92 | 18,800 | -- | -- | 34,846 | -- |
| | | 05/92 | 18,800 | -- | -- | 11,604 | -- |
| | | 06/92 | 18,800 | -- | -- | 8,352 | -- |
| | | 07/92 | 18,800 | -- | -- | 87,039 | -- |
| | | 08/92 | 18,800 | -- | -- | 16,378 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Illinois—Continued | | | | |
| 4 | Lake Decatur—Continued | 09/92 | 18,800 | -- | -- | 1,019 | -- |
| | | 10/92 | 18,800 | -- | -- | 3,608 | -- |
| | | 11/92 | 18,800 | -- | -- | 164,477 | -- |
| | | 12/92 | 18,800 | -- | -- | 65,841 | -- |
| | | 01/93 | 18,800 | -- | -- | 184,036 | -- |
| | | 02/93 | 18,800 | -- | -- | 30,294 | -- |
| | | 03/93 | 18,800 | -- | -- | 131,728 | -- |
| | | 04/93 | 18,800 | -- | -- | 182,987 | -- |
| | | 05/93 | 18,800 | -- | -- | 65,026 | -- |
| | | 06/93 | 18,800 | -- | -- | 63,715 | -- |
| | | 07/93 | 18,800 | -- | -- | 97,734 | -- |
| | | 08/93 | 18,800 | -- | -- | 17,927 | -- |
| | | 09/93 | 18,800 | -- | -- | 79,835 | -- |
| 5 | Lake Shelbyville | 04/92 | 201,302 | -- | -- | 4,145 | 599.13 |
| | | 05/92 | 208,078 | -- | -- | 10,552 | 599.75 |
| | | 06/92 | 209,826 | -- | -- | 24,218 | 599.91 |
| | | 07/92 | 252,991 | -- | -- | 40,621 | 603.55 |
| | | 08/92 | 234,485 | -- | -- | 83,980 | 602.05 |
| | | 09/92 | 212,056 | -- | -- | 21,283 | 600.11 |
| | | 10/92 | 209,790 | -- | -- | 1,230 | -- |
| | | 11/92 | 209,790 | -- | -- | 49,944 | -- |
| | | 12/92 | 209,790 | -- | -- | 190,810 | -- |
| | | 01/93 | 209,790 | -- | -- | 212,990 | -- |
| | | 02/93 | 209,790 | -- | -- | 160,110 | -- |
| | | 03/93 | 202,554 | -- | -- | 109,488 | 599.26 |
| | | 04/93 | 254,628 | -- | -- | 97,111 | 603.67 |
| | | 05/93 | 223,641 | -- | -- | 77,970 | 601.13 |
| | | 06/93 | 234,248 | -- | 44,152 | 28,271 | 601.98 |
| | | 07/93 | 309,223 | -- | 96,456 | 17,990 | 607.65 |
| | | 08/93 | 290,578 | -- | 18,486 | 34,612 | 606.33 |
| | | 09/93 | 369,322 | -- | 129,520 | 31,380 | 611.50 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Illinois—Continued | | | | |
| 6 | Lake Vermillion | 04/92 | 9,208 | -- | -- | 17,903 | -- |
| | | 05/92 | 9,208 | -- | -- | 5,960 | -- |
| | | 06/92 | 9,208 | -- | -- | 13,345 | -- |
| | | 07/92 | 9,208 | -- | -- | 31,055 | -- |
| | | 08/92 | 9,208 | -- | -- | 10,881 | -- |
| | | 09/92 | 9,208 | -- | 2,817 | 2,940 | -- |
| | | 10/92 | 9,208 | -- | 4,903 | 4,752 | -- |
| | | 11/92 | 9,208 | -- | 69,122 | 76,604 | -- |
| | | 12/92 | 9,208 | -- | 20,552 | 20,335 | -- |
| | | 01/93 | 9,208 | -- | 80,723 | 58,659 | -- |
| | | 02/93 | 9,208 | -- | 12,331 | 11,889 | -- |
| | | 03/93 | 9,208 | -- | 53,441 | 58,653 | -- |
| | | 04/93 | 9,208 | -- | -- | 62,688 | -- |
| | | 05/93 | 9,208 | -- | -- | 21,148 | -- |
| | | 06/93 | 9,208 | -- | -- | 33,025 | -- |
| | | 07/93 | 9,208 | -- | -- | 83,129 | -- |
| | | 08/93 | 9,208 | -- | -- | 9,644 | -- |
| | | 09/93 | 9,208 | -- | -- | 30,444 | -- |
| 7 | Little Grassy Lake | 04/92 | 23,690 | -- | -- | 372 | -- |
| | | 05/92 | 23,690 | -- | -- | 922 | -- |
| | | 06/92 | 23,690 | -- | -- | -- | -- |
| | | 07/92 | 23,690 | -- | -- | -- | -- |
| | | 08/92 | 23,690 | -- | -- | -- | -- |
| | | 09/92 | 23,690 | -- | -- | -- | -- |
| | | 10/92 | 23,690 | -- | -- | 336 | -- |
| | | 11/92 | 23,690 | -- | -- | 1,301 | -- |
| | | 12/92 | 23,690 | -- | -- | 4,622 | -- |
| | | 01/93 | 23,690 | -- | -- | 5,680 | -- |
| | | 02/93 | 23,690 | -- | -- | 1,506 | -- |
| | | 03/93 | 23,690 | -- | -- | 7,583 | -- |
| | | 04/93 | 23,690 | -- | -- | 8,971 | -- |
| | | 05/93 | 23,690 | -- | -- | 2,705 | -- |
| | | 06/93 | 23,690 | -- | -- | 5,505 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | **Illinois—Continued** | | | | |
| 7 | Little Grassy Lake— | 07/93 | 23,690 | -- | -- | -- | -- |
| | Continued | 08/93 | 23,690 | -- | -- | -- | -- |
| | | 09/93 | 23,690 | -- | -- | -- | -- |
| 8 | Rend Lake | 04/92 | 232,040 | -- | -- | 19,974 | 407.57 |
| | | 05/92 | 218,445 | -- | -- | 17,712 | 406.90 |
| | | 06/92 | 201,237 | -- | -- | 10,572 | 406.02 |
| | | 07/92 | 188,396 | -- | -- | 4,820 | 405.33 |
| | | 08/92 | 178,744 | -- | -- | 2,241 | 404.80 |
| | | 09/92 | 177,865 | -- | -- | 1,785 | 404.75 |
| | | 10/92 | 183,330 | -- | -- | 1,847 | -- |
| | | 11/92 | 183,330 | -- | -- | 1,785 | -- |
| | | 12/92 | 183,300 | -- | -- | 1,847 | -- |
| | | 01/93 | 183,300 | -- | -- | 26,360 | -- |
| | | 02/93 | 183,300 | -- | -- | 31,180 | -- |
| | | 03/93 | 261,941 | -- | -- | 50,820 | 409.02 |
| | | 04/93 | 274,000 | -- | -- | 50,182 | 409.66 |
| | | 05/93 | 250,000 | -- | -- | 47,484 | 408.55 |
| | | 06/93 | 240,585 | -- | 7,660 | 25,785 | 407.90 |
| | | 07/93 | 238,170 | -- | 26,995 | 23,663 | 407.60 |
| | | 08/93 | 216,690 | -- | 7,458 | 17,653 | 406.60 |
| | | 09/93 | 244,755 | -- | 49,587 | 15,293 | 407.90 |
| | | | **Indiana** | | | | |
| 9 | Brookville Lake | 03/92 | 154,000 | -- | -- | 2,680 | 742.13 |
| | | 04/92 | 186,000 | -- | -- | 4,980 | 748.52 |
| | | 05/92 | 185,000 | -- | -- | 19,100 | 748.34 |
| | | 06/92 | 184,000 | -- | -- | 36,090 | 748.07 |
| | | 07/92 | 186,000 | -- | -- | 56,760 | 748.55 |
| | | 08/92 | 185,000 | -- | -- | 11,480 | 748.38 |
| | | 09/92 | 185,000 | -- | -- | 7,150 | 748.21 |
| | | 10/92 | 174,000 | -- | -- | 17,120 | 746.19 |
| | | 11/92 | 145,500 | -- | -- | 65,890 | 741.02 |
| | | 12/92 | 145,000 | -- | -- | 19,630 | 740.37 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Indiana—Continued | | | | |
| 9 | Brookville Lake— | 01/93 | 145,000 | -- | -- | 52,720 | 740.45 |
| | Continued | 02/93 | 145,000 | -- | -- | 18,600 | 740.59 |
| | | 03/93 | 164,000 | -- | -- | 38,740 | 744.11 |
| | | 04/93 | 185,000 | -- | -- | 44,060 | -- |
| | | 05/93 | 185,000 | -- | -- | 36,980 | -- |
| | | 06/93 | 185,000 | -- | -- | 43,560 | -- |
| | | 07/93 | 184,000 | -- | -- | 24,850 | -- |
| | | 08/93 | 184,000 | -- | -- | 2,400 | -- |
| | | 09/93 | 185,000 | -- | -- | 7,080 | -- |
| 10 | Cataract Lake | 03/92 | 28,000 | -- | -- | 10,260 | 636.98 |
| | | 04/92 | 60,000 | -- | -- | 25,910 | 654.66 |
| | | 05/92 | 29,300 | -- | -- | 38,660 | 637.58 |
| | | 06/92 | 29,300 | -- | -- | 4,350 | 637.59 |
| | | 07/92 | 49,100 | -- | -- | 19,370 | 649.03 |
| | | 08/92 | 29,300 | -- | -- | 37,690 | 637.44 |
| | | 09/92 | 29,300 | -- | -- | 4,300 | 637.55 |
| | | 10/92 | 28,000 | -- | -- | 4,590 | 636.98 |
| | | 11/92 | 75,500 | -- | -- | 22,960 | 661.63 |
| | | 12/92 | 31,500 | -- | -- | 63,510 | 639.01 |
| | | 01/93 | 47,100 | -- | -- | 40,760 | 648.90 |
| | | 02/93 | 27,000 | -- | -- | 38,060 | 636.07 |
| | | 03/93 | 30,000 | -- | -- | 40,120 | 638.27 |
| | | 04/93 | 34,000 | -- | -- | 42,890 | -- |
| | | 05/93 | 29,000 | -- | -- | 26,920 | -- |
| | | 06/93 | 29,000 | -- | -- | 28,200 | -- |
| | | 07/93 | 29,000 | -- | -- | 10,440 | -- |
| | | 08/93 | 73,000 | -- | -- | 39,530 | -- |
| | | 09/93 | 57,000 | -- | -- | 48,070 | -- |
| 11 | Eagle Creek Reservoir | 03/92 | 22,256 | -- | -- | 4,630 | -- |
| | | 04/92 | 22,200 | -- | -- | 26,220 | -- |
| | | 05/92 | 22,359 | -- | -- | 2,740 | -- |
| | | 06/92 | 22,961 | -- | -- | 3,120 | -- |
| | | 07/92 | 23,018 | -- | -- | 15,690 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Indiana—Continued | | | | |
| 11 | Eagle Creek Reservoir— | 08/92 | 22,018 | -- | -- | 2,230 | -- |
| | Continued | 09/92 | 22,131 | -- | -- | 10,610 | -- |
| | | 10/92 | 21,915 | -- | -- | 4,510 | -- |
| | | 11/92 | 22,086 | -- | -- | 50,620 | -- |
| | | 12/92 | 21,495 | -- | -- | 7,950 | -- |
| | | 01/93 | 20,700 | -- | -- | 38,070 | -- |
| | | 02/93 | 21,131 | -- | -- | 6,480 | -- |
| | | 03/93 | 20,756 | -- | -- | 28,800 | -- |
| | | 04/93 | 21,733 | -- | -- | 23,500 | -- |
| | | 05/93 | 22,666 | -- | -- | 10,690 | -- |
| | | 06/93 | 22,780 | -- | -- | 6,640 | -- |
| | | 07/93 | 22,575 | -- | -- | 18,820 | -- |
| | | 08/93 | 22,393 | -- | -- | 1,400 | -- |
| | | 09/93 | 22,757 | -- | -- | 5,300 | -- |
| 12 | Huntington Lake | 03/92 | 4,650 | -- | -- | 24,540 | 738.10 |
| | | 04/92 | 12,000 | -- | -- | 64,100 | 748.67 |
| | | 05/92 | 13,000 | -- | -- | 8,590 | 749.61 |
| | | 06/92 | 13,000 | -- | -- | 27,020 | 749.14 |
| | | 07/9 | 20,000 | -- | -- | 91,890 | 756.21 |
| | | 08/ | 13,000 | -- | -- | 32,890 | 749.17 |
| | | 09/92 | 10,000 | -- | -- | 59,250 | 746.67 |
| | | 10/92 | 7,000 | -- | -- | 27,160 | 742.22 |
| | | 11/92 | 10,000 | -- | -- | 141,300 | 745.62 |
| | | 12/92 | 5,500 | -- | -- | 24,860 | 739.92 |
| | | 01/93 | 4,600 | -- | -- | 110,800 | 738.08 |
| | | 02/93 | 5,200 | -- | -- | 21,940 | 739.40 |
| | | 03/93 | 6,000 | -- | -- | 125,500 | 740.49 |
| | | 04/93 | 13,200 | -- | -- | 89,430 | -- |
| | | 05/93 | 12,600 | -- | -- | 17,060 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Indiana—Continued | | | | |
| 12 | Huntington Lake— | 06/93 | 18,200 | -- | -- | 30,750 | -- |
| | Continued | 07/93 | 15,100 | -- | -- | 153,400 | -- |
| | | 08/93 | 12,600 | -- | -- | 14,690 | -- |
| | | 09/93 | 11,200 | -- | -- | 6,750 | -- |
| 13 | Lake Shafer | -- | -- | -- | -- | -- | -- |
| 14 | Mansfield Lake | 03/92 | 29,400 | -- | -- | 1,340 | 650.05 |
| | | 04/92 | 53,500 | -- | -- | 7,620 | 663.35 |
| | | 05/92 | 51,400 | -- | -- | 6,550 | 662.37 |
| | | 06/92 | 51,400 | -- | -- | 2,140 | 662.05 |
| | | 07/92 | 58,000 | -- | -- | 7,720 | 665.30 |
| | | 08/92 | 51,400 | -- | -- | 12,200 | 662.29 |
| | | 09/92 | 56,000 | -- | -- | 17,290 | 664.52 |
| | | 10/92 | 36,000 | -- | -- | 30,380 | 654.21 |
| | | 11/92 | 101,000 | -- | -- | 6,780 | 681.02 |
| | | 12/92 | 31,000 | -- | -- | 74,940 | 651.75 |
| | | 01/93 | 51,400 | -- | -- | 31,630 | 662.42 |
| | | 02/93 | 16,200 | -- | -- | 41,170 | 640.69 |
| | | 03/93 | 31,000 | -- | -- | 17,770 | 651.66 |
| | | 04/93 | 52,000 | -- | -- | 10,940 | -- |
| | | 05/93 | 51,000 | -- | -- | 11,240 | -- |
| | | 06/93 | 52,000 | -- | -- | 12,450 | -- |
| | | 07/93 | 51,000 | -- | -- | 20,290 | -- |
| | | 08/93 | 52,000 | -- | -- | 6,440 | -- |
| | | 09/93 | 51,000 | -- | -- | 10,260 | -- |
| 15 | Mississinewa Lake | 03/92 | 49,000 | -- | -- | 20,060 | 727.41 |
| | | 04/92 | 97,000 | -- | -- | 47,450 | 743.42 |
| | | 05/92 | 75,000 | -- | -- | 39,550 | 737.18 |
| | | 06/92 | 75,000 | -- | -- | 77,320 | 737.21 |
| | | 07/92 | 133,000 | -- | -- | 114,500 | 751.27 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Indiana—Continued | | | | |
| 15 | Mississinewa Lake— | 08/92 | 75,000 | -- | -- | 94,230 | 737.17 |
| | Continued | 09/92 | 51,000 | -- | -- | 77,540 | 728.24 |
| | | 10/92 | 49,000 | -- | -- | 25,640 | 727.20 |
| | | 11/92 | 224,000 | -- | -- | 6,830 | 765.08 |
| | | 12/92 | 101,000 | -- | -- | 157,000 | 744.20 |
| | | 01/93 | 24,600 | -- | -- | 209,000 | 713.02 |
| | | 02/93 | 23,300 | -- | -- | 27,310 | 712.12 |
| | | 03/93 | 51,000 | -- | -- | 107,200 | 728.26 |
| | | 04/93 | 80,000 | -- | -- | 69,080 | -- |
| | | 05/93 | 76,000 | -- | -- | 41,790 | -- |
| | | 06/93 | 80,000 | -- | -- | 50,030 | -- |
| | | 07/93 | 75,000 | -- | -- | 131,200 | -- |
| | | 08/93 | 75,000 | -- | -- | 11,860 | -- |
| | | 09/93 | 75,000 | -- | -- | 16,780 | -- |
| 16 | Monroe Lake | 03/92 | 182,000 | -- | -- | 14,680 | 538.41 |
| | | 04/92 | 205,000 | -- | -- | 12,510 | 540.26 |
| | | 05/92 | 193,000 | -- | -- | 17,370 | 539.05 |
| | | 06/92 | 182,000 | -- | -- | 11,260 | 538.03 |
| | | 07/92 | 193,000 | -- | -- | 11,410 | 539.44 |
| | | 08/92 | 182,000 | -- | -- | 19,450 | 538.23 |
| | | 09/92 | 170,000 | -- | -- | 4,530 | 537.83 |
| | | 10/92 | 170,000 | -- | -- | 3,440 | 537.59 |
| | | 11/92 | 190,000 | -- | -- | 9,500 | 538.95 |
| | | 12/92 | 182,000 | -- | -- | 14,070 | 538.30 |
| | | 01/93 | 216,000 | -- | -- | 32,700 | 541.10 |
| | | 02/93 | 193,000 | -- | -- | 48,890 | 539.25 |
| | | 03/93 | 200,000 | -- | -- | 68,750 | 539.91 |
| | | 04/93 | 211,000 | -- | -- | 72,010 | -- |
| | | 05/93 | 182,000 | -- | -- | 54,940 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Indiana—Continued | | | | |
| 16 | Monroe Lake—Continued | 06/93 | 184,000 | -- | -- | 13,750 | -- |
| | | 07/93 | 180,000 | -- | -- | 8,180 | -- |
| | | 08/93 | 192,000 | -- | -- | 13,340 | -- |
| | | 09/93 | 193,000 | -- | -- | 24,990 | -- |
| 17 | Morse Reservoir | 03/92 | 21,367 | -- | -- | 7,946 | -- |
| | | 04/92 | 21,416 | -- | -- | 30,688 | -- |
| | | 05/92 | 21,293 | -- | -- | 4,619 | -- |
| | | 06/92 | 21,281 | -- | -- | 27,843 | -- |
| | | 07/92 | 22,478 | -- | -- | 30,335 | -- |
| | | 08/92 | 21,171 | -- | -- | 10,898 | -- |
| | | 09/92 | 21,404 | -- | -- | 11,478 | -- |
| | | 10/92 | 21,281 | -- | -- | 8,280 | -- |
| | | 11/92 | 21,527 | -- | -- | 65,924 | -- |
| | | 12/92 | 21,616 | -- | -- | 9,790 | -- |
| | | 01/93 | 21,441 | -- | -- | 43,145 | -- |
| | | 02/93 | 21,379 | -- | -- | 6,773 | -- |
| | | 03/93 | 21,465 | -- | -- | 38,226 | -- |
| | | 04/93 | 21,539 | -- | -- | 29,804 | -- |
| | | 05/93 | 21,404 | -- | -- | 13,826 | -- |
| | | 06/93 | 21,551 | -- | -- | 9,072 | -- |
| | | 07/93 | 21,306 | -- | -- | 34,033 | -- |
| | | 08/93 | 21,158 | -- | -- | 2,244 | -- |
| | | 09/93 | 21,342 | -- | -- | 4,017 | -- |
| 18 | Patoka Lake | 03/92 | 162,000 | -- | -- | 1,560 | 534.65 |
| | | 04/92 | 170,000 | -- | -- | 1,550 | 535.33 |
| | | 05/92 | 170,000 | -- | -- | 1,600 | 535.29 |
| | | 06/92 | 168,000 | -- | -- | 1,550 | 534.96 |
| | | 07/92 | 165,000 | -- | -- | 1,600 | 534.70 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Indiana—Continued | | | | |
| 18 | Patoka Lake—Continued | 08/92 | 162,000 | -- | -- | 1,600 | 534.34 |
| | | 09/92 | 161,000 | -- | -- | 1,550 | 534.01 |
| | | 10/92 | 153,000 | -- | -- | 1,560 | 533.45 |
| | | 11/92 | 153,000 | -- | -- | 1,490 | 533.51 |
| | | 12/92 | 153,000 | -- | -- | 1,540 | 533.43 |
| | | 01/93 | 162,000 | -- | -- | 11,150 | 534.47 |
| | | 02/93 | 155,000 | -- | -- | 21,900 | 533.74 |
| | | 03/93 | 170,000 | -- | -- | 14,690 | 535.10 |
| | | 04/93 | 187,000 | -- | -- | 21,900 | -- |
| | | 05/93 | 192,000 | -- | -- | 10,910 | -- |
| | | 06/93 | 194,000 | -- | -- | 7,470 | -- |
| | | 07/93 | 186,000 | -- | -- | 7,690 | -- |
| | | 08/93 | 179,000 | -- | -- | 3,290 | -- |
| | | 09/93 | 183,000 | -- | -- | 1,740 | -- |
| 19 | Salamonie Lake | 03/92 | 32,500 | -- | -- | 15,400 | 745.56 |
| | | 04/92 | 67,000 | -- | -- | 28,250 | 759.97 |
| | | 05/92 | 54,500 | -- | -- | 21,340 | 755.41 |
| | | 06/92 | 54,500 | -- | -- | 26,290 | 755.08 |
| | | 07/92 | 82,000 | -- | -- | 39,780 | 763.83 |
| | | 08/92 | 54,500 | -- | -- | 42,040 | 755.20 |
| | | 09/92 | 54,500 | -- | -- | 41,990 | 755.23 |
| | | 10/92 | 36,000 | -- | -- | 37,900 | 747.67 |
| | | 11/92 | 114,000 | -- | -- | 59,340 | 771.81 |
| | | 12/92 | 12,500 | -- | -- | 132,800 | 731.73 |
| | | 01/93 | 13,000 | -- | -- | 97,740 | 732.21 |
| | | 02/93 | 11,300 | -- | -- | 16,460 | 730.21 |
| | | 03/93 | 40,000 | -- | -- | 64,670 | 749.33 |
| | | 04/93 | 56,000 | -- | -- | 61,810 | -- |
| | | 05/93 | 55,000 | -- | -- | 22,710 | -- |
| | | 06/93 | 60,000 | -- | -- | 37,480 | -- |
| | | 07/93 | 82,000 | -- | -- | 80,990 | -- |
| | | 08/93 | 55,000 | -- | -- | 31,430 | -- |
| | | 09/93 | 50,000 | -- | -- | 16,490 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Iowa | | | | |
| 20 | Coralville Lake | 03/92 | 26,900 | -- | 253,310 | 252,520 | 679.44 |
| | | 04/92 | 29,400 | -- | 239,650 | 241,130 | 680.15 |
| | | 05/92 | 29,600 | -- | 184,720 | 184,050 | 679.36 |
| | | 06/92 | 44,100 | -- | 84,890 | 69,290 | 683.31 |
| | | 07/92 | 97,100 | -- | 259,060 | 203,230 | 690.58 |
| | | 08/92 | 44,400 | -- | 224,220 | 257,880 | 683.36 |
| | | 09/92 | 65,100 | -- | 87,440 | 67,580 | 686.41 |
| | | 10/92 | 65,020 | -- | 55,160 | 51,350 | 686.36 |
| | | 11/92 | 125,610 | -- | 217,530 | 165,090 | 693.14 |
| | | 12/92 | 44,610 | -- | 190,870 | 271,180 | 683.44 |
| | | 01/93 | 43,954 | -- | 117,503 | 115,618 | 683.29 |
| | | 02/93 | 26,995 | -- | 84,888 | 99,552 | 679.39 |
| | | 03/93 | 96,678 | -- | 440,605 | 405,199 | 690.35 |
| | | 04/93 | 396,000 | -- | 673,000 | 462,700 | 709.23 |
| | | 05/93 | 278,000 | -- | 377,300 | 574,800 | 703.50 |
| | | 06/93 | 448,000 | -- | 538,600 | 428,600 | 711.43 |
| | | 07/93 | 478,000 | -- | 1,206,000 | 1,276,000 | 712.65 |
| | | 08/93 | 378,000 | -- | 940,400 | 1,138,000 | 708.38 |
| | | 09/93 | 96,100 | -- | 470,100 | 776,600 | 690.22 |
| 21 | Lake Panorama | 03/92 | 14,350 | -- | 14,630 | 16,260 | 45.48 |
| | | 04/92 | 14,400 | -- | 20,670 | 19,630 | 45.52 |
| | | 05/92 | 14,400 | -- | 14,650 | 12,740 | 45.54 |
| | | 06/92 | 14,300 | -- | 7,690 | 8,050 | 45.46 |
| | | 07/92 | 14,500 | -- | 14,420 | 12,500 | 45.69 |
| | | 08/92 | 14,000 | -- | 8,690 | 10,270 | 45.01 |
| | | 09/92 | 14,400 | -- | 10,740 | 17,300 | 45.52 |
| | | 10/92 | 14,200 | -- | 10,750 | 11,290 | 45.28 |
| | | 11/92 | 14,500 | -- | 24,370 | 22,890 | 45.61 |
| | | 12/92 | 14,300 | -- | 22,913 | 23,820 | 45.30 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Iowa—Continued | | | | |
| 21 | Lake Panorama—Continued | 01/93 | 14,300 | -- | 11,000 | 11,080 | 45.34 |
| | | 02/93 | 14,300 | -- | 8,600 | 8,600 | 45.33 |
| | | 03/93 | 14,300 | -- | 62,050 | 59,530 | 45.29 |
| | | 04/93 | 14,300 | -- | 39,830 | 38,970 | 45.41 |
| | | 05/93 | 14,250 | -- | 46,380 | 48,300 | 45.35 |
| | | 06/93 | 14,400 | -- | 43,110 | 44,590 | 45.52 |
| | | 07/93 | 14,300 | -- | 163,100 | 167,900 | 45.43 |
| | | 08/93 | 14,200 | -- | 41,410 | 37,200 | 45.22 |
| | | 09/93 | 14,500 | -- | 27,750 | 25,540 | 45.62 |
| 22 | Lake Red Rock | 03/92 | 245,000 | -- | 881,310 | 938,670 | 740.88 |
| | | 04/92 | 381,000 | -- | 948,990 | 820,550 | 747.70 |
| | | 05/92 | 272,000 | -- | 569,240 | 671,750 | 742.32 |
| | | 06/92 | 271,000 | -- | 334,100 | 334,460 | 742.32 |
| | | 07/92 | 343,000 | -- | 646,940 | 586,320 | 745.26 |
| | | 08/92 | 271,000 | -- | 464,420 | 521,380 | 742.27 |
| | | 09/92 | 327,000 | -- | 368,440 | 407,500 | 745.41 |
| | | 10/92 | 156,320 | -- | 283,560 | 307,080 | 744.28 |
| | | 11/92 | 184,381 | -- | 723,680 | 670,440 | 746.72 |
| | | 12/92 | 137,313 | -- | 665,860 | 766,860 | 742.35 |
| | | 01/93 | 272,553 | -- | 237,544 | 239,428 | 742.36 |
| | | 02/93 | 271,184 | -- | 213,920 | 215,684 | 742.29 |
| | | 03/93 | 346,616 | -- | 1,066,052 | 970,864 | 745.93 |
| | | 04/93 | 1,040,000 | -- | 1,849,000 | 1,255,000 | 767.00 |
| | | 05/93 | 1,440,000 | -- | 2,065,000 | 1,753,000 | 774.85 |
| | | 06/93 | 1,670,000 | -- | 1,828,000 | 1,670,000 | 778.68 |
| | | 07/93 | 1,230,000 | -- | 4,414,000 | 4,878,000 | 770.90 |
| | | 08/93 | 584,000 | -- | 2,102,000 | 2,743,000 | 754.84 |
| | | 09/93 | 223,000 | -- | 1,597,000 | 1,993,000 | 739.80 |
| 23 | Rathbun Lake | 03/92 | 201,358 | 738 | 15,679 | 18,373 | 904.14 |
| | | 04/92 | 289,669 | 1,622 | 102,734 | 12,802 | 911.25 |
| | | 05/92 | 244,752 | 3,043 | 3,560 | 45,432 | 907.84 |
| | | 06/92 | 209,872 | 4,750 | 1,636 | 31,766 | 904.90 |
| | | 07/92 | 245,376 | 2,848 | 58,443 | 20,094 | 907.89 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Iowa—Continued | | | | |
| 23 | Rathbun Lake—Continued | 08/92 | 215,680 | 3,586 | 25,527 | 51,630 | 905.41 |
| | | 09/92 | 457,709 | 5,415 | 290,221 | 42,776 | 921.57 |
| | | 10/92 | 397,491 | 5,296 | 2,132 | 57,190 | 918.21 |
| | | 11/92 | 417,836 | 3,138 | 58,364 | 34,880 | 919.38 |
| | | 12/92 | 387,975 | 1,402 | 52,106 | 80,570 | 917.65 |
| | | 01/93 | 307,677 | 791 | 13,577 | 93,084 | 912.52 |
| | | 02/93 | 249,002 | 639 | 26,043 | 84,084 | 908.18 |
| | | 03/93 | 251,515 | 904 | 80,856 | 77,437 | 908.38 |
| | | 04/93 | 263,000 | 1,527 | 78,010 | 67,370 | 909.25 |
| | | 05/93 | 294,000 | 2,340 | 73,269 | 42,150 | 911.58 |
| | | 06/93 | 289,000 | 2,969 | 35,772 | 37,740 | 911.23 |
| | | 07/93 | 559,000 | 4,584 | 317,008 | 44,040 | 926.66 |
| | | 08/93 | 479,000 | 6,139 | 36,585 | 112,300 | 922.70 |
| | | 09/93 | 394,000 | 5,040 | 20,936 | 101,600 | 917.99 |
| 24 | Saylorville Lake | 03/92 | 89,100 | -- | 544,411 | 555,201 | 836.43 |
| | | 04/92 | 95,600 | -- | 429,050 | 410,803 | 837.50 |
| | | 05/92 | 89,000 | -- | 265,430 | 260,950 | 836.39 |
| | | 06/92 | 90,100 | -- | 210,050 | 207,200 | 836.59 |
| | | 07/92 | 90,100 | -- | 379,210 | 388,940 | 836.56 |
| | | 08/92 | 89,700 | -- | 242,260 | 230,740 | 836.52 |
| | | 09/92 | 100,000 | -- | 101,000 | 102,210 | 838.33 |
| | | 10/92 | 103,000 | -- | 37,860 | 40,260 | 838.70 |
| | | 11/92 | 89,200 | -- | 357,230 | 338,540 | 841.81 |
| | | 12/92 | 88,662 | -- | 240,540 | 208,270 | 836.37 |
| | | 01/93 | 88,603 | -- | 88,424 | 95,029 | 836.29 |
| | | 02/93 | 88,702 | -- | 62,032 | 61,320 | 836.31 |
| | | 03/93 | 99,720 | -- | 343,378 | 360,620 | 851.23 |
| | | 04/93 | 567,000 | -- | 1,310,000 | 1,058,000 | 883.99 |
| | | 05/93 | 339,000 | -- | 827,300 | 1,117,000 | 866.30 |
| | | 06/93 | 635,000 | -- | 1,268,000 | 1,051,000 | 887.92 |
| | | 07/93 | 537,000 | -- | 1,676,000 | 2,018,000 | 882.03 |
| | | 08/93 | 461,000 | -- | 830,300 | 949,100 | 876.56 |
| | | 09/93 | 139,000 | -- | 449,000 | 800,400 | 843.80 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Kansas | | | | |
| 25 | Clinton Lake | 04/92 | 145,000 | 942 | 9,421 | 638 | 877.70 |
| | | 05/92 | 142,800 | 1,496 | 2,751 | 4,126 | 877.40 |
| | | 06/92 | 133,800 | 1,712 | 9,612 | 16,352 | 876.16 |
| | | 07/92 | 137,400 | 2,753 | 18,543 | 12,495 | 876.66 |
| | | 08/92 | 134,900 | 3,396 | 3,078 | 1,910 | 876.31 |
| | | 09/92 | 133,500 | 3,366 | 3,640 | 1,907 | 876.11 |
| | | 10/92 | 130,767 | 2,485 | 1,507 | 1,291 | 875.73 |
| | | 11/92 | 142,562 | 1,012 | 33,164 | 19,854 | 877.37 |
| | | 12/92 | 128,936 | 615 | 40,949 | 53,492 | 875.47 |
| | | 01/93 | 135,883 | 377 | 17,940 | 10,171 | 876.45 |
| | | 02/93 | 130,060 | 284 | 19,379 | 24,503 | 875.63 |
| | | 03/93 | 138,341 | 434 | 30,417 | 21,235 | 876.79 |
| | | 04/93 | 171,948 | 809 | 87,243 | 52,355 | 881.20 |
| | | 05/93 | 168,509 | 1,373 | 101,881 | 103,398 | 880.77 |
| | | 06/93 | 138,633 | 2,033 | 13,339 | 40,679 | 876.83 |
| | | 07/93 | 226,947 | 3,037 | 93,600 | 1,793 | 887.57 |
| | | 08/93 | 167,798 | 4,594 | 14,340 | 68,313 | 880.68 |
| | | 09/93 | 172,029 | 3,197 | 44,380 | 36,385 | 881.21 |
| 26 | Hillsdale Lake | 04/92 | 74,540 | 506 | 8,152 | 809 | 916.62 |
| | | 05/92 | 73,160 | 928 | 1,071 | 1,580 | 916.31 |
| | | 06/92 | 72,940 | 1,093 | 2,212 | 1,490 | 916.26 |
| | | 07/92 | 75,950 | 1,956 | 6,545 | 1,490 | 916.93 |
| | | 08/92 | 73,960 | 1,900 | 873 | 1,190 | 916.49 |
| | | 09/92 | 73,600 | 2,180 | 2,156 | 98 | 916.41 |
| | | 10/92 | 72,488 | 1,741 | 823 | 184 | 916.16 |
| | | 11/92 | 97,956 | 1,029 | 26,678 | 179 | 921.34 |
| | | 12/92 | 94,472 | 458 | 28,532 | 31,559 | 920.69 |
| | | 01/93 | 79,558 | 268 | 12,119 | 26,762 | 917.71 |
| | | 02/93 | 71,656 | 194 | 4,939 | 12,651 | 915.97 |
| | | 03/93 | 73,549 | 248 | 13,954 | 11,811 | 916.40 |
| | | 04/93 | 82,371 | 518 | 18,109 | 8,768 | 918.30 |
| | | 05/93 | 87,247 | 869 | 33,699 | 27,946 | 919.29 |
| | | 06/93 | 73,326 | 1,373 | 7,765 | 20,311 | 916.35 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/year) | Volume (acre-feet) | Evaporation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Kansas—Continued | | | | |
| 26 | Hillsdale Lake—Continued | 07/93 | 129,225 | 2,442 | 59,821 | 1,482 | 926.60 |
| | | 08/93 | 86,997 | 3,285 | 5,246 | 44,188 | 919.24 |
| | | 09/93 | 119,927 | 2,368 | 38,291 | 2,987 | 925.13 |
| 27 | Kanopolis Lake | 04/92 | 53,320 | 708 | 1,182 | 1,300 | 1,462.29 |
| | | 05/92 | 52,380 | 1,071 | 1,946 | 1,610 | 1,462.01 |
| | | 06/92 | 75,070 | 1,293 | 31,646 | 8,340 | 1,467.77 |
| | | 07/92 | 100,400 | 2,519 | 52,018 | 26,560 | 1,472.80 |
| | | 08/92 | 68,450 | 2,678 | 51,642 | 83,540 | 1,466.26 |
| | | 09/92 | 49,400 | 2,093 | 6,014 | 20,110 | 1,461.10 |
| | | 10/92 | 49,137 | 1,212 | 7,942 | 1,599 | 1,462.90 |
| | | 11/92 | 52,552 | 730 | 5,222 | 1,077 | 1,463.90 |
| | | 12/92 | 58,509 | 456 | 10,998 | 4,586 | 1,465.50 |
| | | 01/93 | 50,748 | 270 | 7,192 | 14,684 | 1,463.38 |
| | | 02/93 | 55,081 | 266 | 74,186 | 69,588 | 1,464.60 |
| | | 03/93 | 76,644 | 444 | 106,951 | 84,943 | 1,469.62 |
| | | 04/93 | 68,252 | 887 | 54,484 | 61,988 | 1,467.82 |
| | | 05/93 | 96,097 | 1,561 | 93,368 | 63,962 | 1,473.31 |
| | | 06/93 | 94,390 | 2,013 | 50,908 | 50,600 | 1,473.00 |
| | | 07/93 | 339,984 | 4,695 | 391,013 | 140,723 | 1,501.90 |
| | | 08/93 | 171,723 | 5,000 | 65,353 | 228,615 | 1,484.68 |
| | | 09/93 | 81,265 | 2,896 | 53,244 | 140,807 | 1,470.55 |
| 28 | Milford Lake | 04/92 | 323,000 | 1,835 | 13,507 | 1,830 | 1,139.90 |
| | | 05/92 | 324,400 | 3,517 | 6,744 | 1,760 | 1,140.00 |
| | | 06/92 | 354,800 | 3,890 | 35,831 | 2,230 | 1,142.14 |
| | | 07/92 | 448,300 | 8,896 | 222,306 | 129,400 | 1,147.95 |
| | | 08/92 | 397,700 | 9,142 | 119,236 | 149,700 | 1,144.96 |
| | | 09/92 | 406,000 | 10,175 | 47,464 | 26,690 | 1,145.47 |
| | | 10/92 | 440,984 | 7,297 | 76,641 | 34,165 | 1,147.54 |
| | | 11/92 | 440,633 | 3,166 | 44,142 | 41,331 | 1,147.52 |
| | | 12/92 | 354,877 | 1,337 | 66,466 | 150,884 | 1,142.15 |
| | | 01/93 | 359,666 | 944 | 27,838 | 22,099 | 1,142.48 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Kansas—Continued | | | | |
| 28 | Milford Lake—Continued | 02/93 | 367,048 | 801 | 135,124 | 126,938 | 1,142.98 |
| | | 03/93 | 398,819 | 924 | 247,309 | 214,609 | 1,145.03 |
| | | 04/93 | 433,666 | 2,041 | 154,611 | 117,727 | 1,147.12 |
| | | 05/93 | 430,225 | 4,050 | 216,853 | 216,242 | 1,146.92 |
| | | 06/93 | 484,132 | 5,720 | 159,273 | 99,640 | 1,149.93 |
| | | 07/93 | 1,244,586 | 14,360 | 1,331,672 | 556,863 | 1,179.12 |
| | | 08/93 | 646,134 | 17,960 | 249,838 | 830,340 | 1,157.88 |
| | | 09/93 | 448,246 | 8,616 | 179,901 | 369,163 | 1,147.95 |
| 29 | Perry Lake | 04/92 | 238,200 | 1,549 | 73,210 | 59,440 | 893.96 |
| | | 05/92 | 234,800 | 2,606 | 12,833 | 13,440 | 893.68 |
| | | 06/92 | 234,200 | 3,134 | 12,506 | 9,050 | 893.63 |
| | | 07/92 | 311,900 | 5,655 | 164,171 | 82,310 | 899.40 |
| | | 08/92 | 231,600 | 5,964 | 22,354 | 90,350 | 893.42 |
| | | 09/92 | 240,900 | 6,712 | 61,458 | 44,830 | 894.18 |
| | | 10/92 | 243,423 | 4,506 | 8,281 | 1,537 | 894.39 |
| | | 11/92 | 259,618 | 1,769 | 94,939 | 76,970 | 895.66 |
| | | 12/92 | 188,076 | 980 | 92,182 | 162,742 | 889.53 |
| | | 01/93 | 191,747 | 504 | 28,850 | 24,678 | 889.88 |
| | | 02/93 | 188,284 | 450 | 53,812 | 56,824 | 889.55 |
| | | 03/93 | 205,602 | 623 | 57,164 | 39,225 | 891.15 |
| | | 04/93 | 238,114 | 1,638 | 221,712 | 187,559 | 893.96 |
| | | 05/93 | 274,083 | 2,779 | 266,182 | 227,425 | 896.74 |
| | | 06/93 | 245,177 | 3,517 | 48,893 | 74,285 | 894.53 |
| | | 07/93 | 693,404 | 8,959 | 527,425 | 70,243 | 919.32 |
| | | 08/93 | 243,548 | 9,931 | 36,655 | 476,570 | 894.40 |
| | | 09/93 | 315,296 | 5,270 | 86,787 | 9,761 | 899.64 |
| 30 | Pomona Lake | 04/92 | 77,930 | 500 | 14,836 | 9,730 | 977.38 |
| | | 05/92 | 72,530 | 873 | 1,000 | 6,680 | 976.07 |
| | | 06/92 | 71,740 | 1,069 | 6,942 | 5,770 | 975.88 |
| | | 07/92 | 69,970 | 2,019 | 26,370 | 23,700 | 975.45 |
| | | 08/92 | 65,880 | 1,745 | 3,838 | 5,360 | 974.43 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Kansas—Continued | | | | |
| 30 | Pomona Lake— | 09/92 | 64,020 | 2,073 | 1,200 | 998 | 973.95 |
| | Continued | 10/92 | 62,108 | 1,575 | 516 | 922 | 973.46 |
| | | 11/92 | 88,457 | 859 | 28,096 | 893 | 979.67 |
| | | 12/92 | 80,608 | 393 | 34,978 | 42,434 | 977.95 |
| | | 01/93 | 71,391 | 208 | 14,539 | 23,548 | 975.80 |
| | | 02/93 | 58,077 | 167 | 17,326 | 30,473 | 972.37 |
| | | 03/93 | 69,852 | 246 | 27,610 | 15,590 | 975.43 |
| | | 04/93 | 73,054 | 436 | 54,109 | 50,475 | 976.20 |
| | | 05/93 | 90,140 | 839 | 92,063 | 74,135 | 980.02 |
| | | 06/93 | 72,604 | 1,321 | 6,268 | 22,479 | 976.09 |
| | | 07/93 | 162,537 | 2,422 | 93,788 | 1,436 | 992.70 |
| | | 08/93 | 87,602 | 3,431 | 5,008 | 76,510 | 979.49 |
| | | 09/93 | 84,766 | 2,019 | 15,273 | 16,090 | 978.88 |
| 31 | Tuttle Creek Lake | 04/92 | 425,600 | 1,658 | 64,641 | 27,500 | 1,077.38 |
| | | 05/92 | 434,200 | 3,304 | 45,838 | 35,100 | 1,077.91 |
| | | 06/92 | 438,800 | 3,318 | 101,117 | 99,180 | 1,078.19 |
| | | 07/92 | 860,300 | 7,821 | 895,872 | 494,300 | 1,098.25 |
| | | 08/92 | 437,800 | 9,231 | 265,870 | 670,600 | 1,078.13 |
| | | 09/92 | 455,400 | 9,090 | 138,922 | 105,500 | 1,079.18 |
| | | 10/92 | 392,401 | 5,171 | 105,967 | 103,124 | 1,079.03 |
| | | 11/92 | 412,071 | 2,346 | 136,135 | 114,116 | 1,080.27 |
| | | 12/92 | 300,869 | 1,139 | 143,246 | 253,306 | 1,072.32 |
| | | 01/93 | 300,381 | 633 | 61,121 | 60,975 | 1,072.28 |
| | | 02/93 | 299,647 | 565 | 293,911 | 294,078 | 1,072.22 |
| | | 03/93 | 357,889 | 859 | 695,504 | 636,405 | 1,076.67 |
| | | 04/93 | 424,446 | 2,112 | 492,178 | 423,512 | 1,081.02 |
| | | 05/93 | 691,683 | 3,977 | 673,348 | 402,125 | 1,094.21 |
| | | 06/93 | 694,295 | 5,675 | 494,598 | 486,327 | 1,094.32 |
| | | 07/93 | 2,122,626 | 18,012 | 2,584,719 | 1,138,379 | 1,133.46 |
| | | 08/93 | 945,624 | 21,362 | 280,522 | 1,436,155 | 1,103.88 |
| | | 09/93 | 393,329 | 8,834 | 343,993 | 887,438 | 1,079.09 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Kansas—Continued | | | | |
| 32 | Waconda Lake | 04/92 | 187,300 | 1,958 | 6,200 | 893 | 1,450.93 |
| | | 05/92 | 185,000 | 3,963 | 2,366 | 922 | 1,450.71 |
| | | 06/92 | 223,500 | 3,673 | 43,678 | 870 | 1,454.14 |
| | | 07/92 | 258,500 | 5,978 | 44,467 | 2,302 | 1,456.93 |
| | | 08/92 | 239,300 | 6,847 | 26,640 | 40,211 | 1,455.43 |
| | | 09/92 | 233,700 | 7,222 | 6,212 | 4,860 | 1,454.98 |
| | | 10/92 | 236,663 | 4,623 | 12,032 | 4,304 | 1,455.23 |
| | | 11/92 | 235,915 | 2,813 | 6,230 | 4,165 | 1,455.17 |
| | | 12/92 | 242,610 | 1,214 | 14,414 | 6,505 | 1,455.70 |
| | | 01/93 | 239,681 | 952 | 7,246 | 9,223 | 1,455.47 |
| | | 02/93 | 278,073 | 805 | 60,010 | 20,812 | 1,458.39 |
| | | 03/93 | 349,683 | 1,571 | 157,180 | 83,999 | 1,463.20 |
| | | 04/93 | 301,704 | 3,009 | 52,479 | 97,448 | 1,460.06 |
| | | 05/93 | 275,906 | 3,650 | 51,191 | 73,340 | 1,458.23 |
| | | 06/93 | 315,459 | 5,899 | 97,442 | 51,991 | 1,461.00 |
| | | 07/93 | 918,222 | 10,731 | 657,580 | 44,085 | 1,486.93 |
| | | 08/93 | 846,307 | 17,264 | 140,025 | 194,678 | 1,484.65 |
| | | 09/93 | 737,842 | 13,063 | 91,420 | 186,823 | 1,480.95 |
| 33 | Wilson Lake | 04/92 | 191,200 | 1,759 | 1,271 | 984 | 1,509.90 |
| | | 05/92 | 189,100 | 2,912 | 1,702 | 1,040 | 1,509.63 |
| | | 06/92 | 198,600 | 2,386 | 12,789 | 1,000 | 1,510.83 |
| | | 07/92 | 213,100 | 4,251 | 19,374 | 1,100 | 1,512.61 |
| | | 08/92 | 227,600 | 4,278 | 20,099 | 1,160 | 1,514.32 |
| | | 09/92 | 227,000 | 4,637 | 5,014 | 1,180 | 1,514.25 |
| | | 10/92 | 227,161 | 3,072 | 3,402 | 327 | 1,514.27 |
| | | 11/92 | 228,368 | 1,946 | 3,451 | 298 | 1,514.41 |
| | | 12/92 | 231,324 | 1,045 | 4,310 | 307 | 1,514.75 |
| | | 01/93 | 234,585 | 676 | 4,245 | 307 | 1,515.12 |
| | | 02/93 | 257,891 | 549 | 29,518 | 5,663 | 1,517.67 |
| | | 03/93 | 268,354 | 1,025 | 58,804 | 46,322 | 1,518.77 |
| | | 04/93 | 253,470 | 1,811 | 35,762 | 48,835 | 1,517.20 |
| | | 05/93 | 263,771 | 2,590 | 38,206 | 25,313 | 1,518.29 |
| | | 06/93 | 268,162 | 4,058 | 35,879 | 27,429 | 1,518.75 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | **Kansas—Continued** | | | | |
| 33 | Wilson Lake—Continued | 07/93 | 654,695 | 6,573 | 394,030 | 922 | 1,547.73 |
| | | 08/93 | 629,706 | 9,370 | 47,903 | 63,521 | 1,546.29 |
| | | 09/93 | 572,459 | 6,918 | 33,898 | 84,224 | 1,542.83 |
| | | | **Minnesota** | | | | |
| 34 | Cross Lake | 03/92 | 10,156 | -- | -- | 99,070 | -- |
| | | 04/92 | 10,156 | -- | -- | 97,480 | -- |
| | | 05/92 | 10,156 | -- | -- | 36,570 | -- |
| | | 06/92 | 10,156 | -- | -- | 11,470 | -- |
| | | 07/92 | 10,156 | -- | -- | 16,750 | -- |
| | | 08/92 | 10,156 | -- | -- | 7,600 | -- |
| | | 09/92 | 10,156 | -- | -- | 8,410 | -- |
| | | 10/92 | 10,156 | -- | -- | 7,420 | -- |
| | | 11/92 | 10,156 | -- | -- | 13,560 | -- |
| | | 12/92 | 10,156 | -- | -- | 8,440 | -- |
| | | 01/93 | 10,156 | -- | -- | 6,390 | -- |
| | | 02/93 | 10,156 | -- | -- | 5,510 | -- |
| | | 03/93 | 10,156 | -- | -- | 14,250 | -- |
| | | 04/93 | 10,156 | -- | -- | 75,230 | -- |
| | | 05/93 | 10,156 | -- | -- | 50,240 | -- |
| | | 06/93 | 10,156 | -- | -- | 77,320 | -- |
| | | 07/93 | 10,156 | -- | -- | 66,450 | -- |
| | | 08/93 | 10,156 | -- | -- | 18,810 | -- |
| | | 09/93 | 10,156 | -- | -- | 20,420 | -- |
| 35 | Gull Lake Reservoir | 01/92 | 49,080 | -- | -- | 6,518 | 1,193.08 |
| | | 02/92 | 50,768 | -- | -- | 1,956 | 1,193.21 |
| | | 03/92 | 57,634 | -- | -- | 3,382 | 1,193.74 |
| | | 04/92 | 61,938 | -- | -- | 6,189 | 1,194.07 |
| | | 05/92 | 61,153 | -- | -- | 5,472 | 1,194.01 |
| | | 06/92 | 61,153 | -- | -- | 5,593 | 1,194.01 |
| | | 07/92 | 60,501 | -- | -- | 5,472 | 1,193.96 |
| | | 08/92 | 61,284 | -- | -- | 1,230 | 1,194.02 |
| | | 09/92 | 57,110 | -- | -- | 4,582 | 1,193.70 |
| | | 10/92 | 55,810 | -- | -- | 1,107 | 1,193.60 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Minnesota—Continued | | | | |
| 35 | Gulf Lake Reservoir— | 11/92 | 56,851 | -- | -- | 1,964 | 1,193.68 |
| | Continued | 12/92 | 54,907 | -- | -- | 6,395 | 1,193.53 |
| | | 01/93 | 54,003 | -- | -- | 6,260 | 1,193.46 |
| | | 02/93 | 51,419 | -- | -- | 6,042 | 1,193.26 |
| | | 03/93 | 55,036 | -- | -- | 3,499 | 1,193.54 |
| | | 04/93 | 58,159 | -- | -- | 9,088 | 1,193.78 |
| | | 05/93 | 64,551 | -- | -- | 10,311 | 1,194.27 |
| | | 06/93 | 62,021 | -- | -- | 19,127 | 1,194.00 |
| | | 07/93 | 60,891 | -- | -- | 11,969 | 1,193.99 |
| | | 08/93 | 62,331 | -- | -- | 3,376 | 1,194.10 |
| | | 09/93 | 60,501 | -- | -- | 3,207 | 1,193.96 |
| 36 | Lac Qui Parle Reservoir | 01/92 | 46,325 | -- | -- | 16,479 | 933.71 |
| | | 02/92 | 39,180 | -- | -- | 21,110 | 932.72 |
| | | 03/92 | 41,450 | -- | -- | 78,582 | 933.06 |
| | | 04/92 | 37,880 | -- | -- | 63,313 | 932.52 |
| | | 05/92 | 40,740 | -- | -- | 41,628 | 932.96 |
| | | 06/92 | 86,535 | -- | -- | 163,996 | 938.09 |
| | | 07/92 | 59,550 | -- | -- | 146,958 | 935.30 |
| | | 08/92 | 46,625 | -- | -- | 42,796 | 933.75 |
| | | 09/92 | 44,750 | -- | -- | 19,994 | 933.50 |
| | | 10/92 | 49,520 | -- | -- | 7,194 | 934.12 |
| | | 11/92 | 46,175 | -- | -- | 22,136 | 933.69 |
| | | 12/92 | 45,650 | -- | -- | 17,094 | 933.62 |
| | | 01/93 | 45,350 | -- | -- | 8,522 | 933.58 |
| | | 02/93 | 34,695 | -- | -- | 15,080 | 932.03 |
| | | 03/93 | 58,530 | -- | -- | 29,523 | 935.18 |
| | | 04/93 | 67,210 | -- | -- | 273,400 | 936.18 |
| | | 05/93 | 69,015 | -- | -- | 186,000 | 936.37 |
| | | 06/93 | 112,750 | -- | -- | 185,100 | 940.30 |
| | | 07/93 | 118,625 | -- | -- | 430,900 | 940.77 |
| | | 08/93 | 56,660 | -- | -- | 372,000 | 934.96 |
| | | 09/93 | 58,105 | -- | -- | 92,426 | 935.13 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Minnesota—Continued | | | | |
| 37 | Leech Lake Reservoir | 01/92 | 464,814 | -- | -- | 45,133 | 1,293.73 |
| | | 02/92 | 453,937 | -- | -- | 27,150 | 1,293.63 |
| | | 03/92 | 478,960 | -- | -- | 11,068 | 1,293.86 |
| | | 04/92 | 514,243 | -- | -- | 6,129 | 1,294.15 |
| | | 05/92 | 520,562 | -- | -- | 7,194 | 1,294.20 |
| | | 06/92 | 524,357 | -- | -- | 6,308 | 1,294.23 |
| | | 07/92 | 547,114 | -- | -- | 7,379 | 1,294.41 |
| | | 08/92 | 540,787 | -- | -- | 7,071 | 1,294.36 |
| | | 09/92 | 530,684 | -- | -- | 8,569 | 1,294.28 |
| | | 10/92 | 497,802 | -- | -- | 12,421 | 1,294.02 |
| | | 11/92 | 502,863 | -- | -- | 11,901 | 1,294.06 |
| | | 12/92 | 506,643 | -- | -- | 16,048 | 1,294.09 |
| | | 01/93 | 515,509 | -- | -- | 15,958 | -- |
| | | 02/93 | 509,178 | -- | -- | 9,520 | -- |
| | | 03/93 | 499,067 | -- | -- | 35,170 | -- |
| | | 04/93 | 566,092 | -- | -- | 9,637 | 1,294.56 |
| | | 05/93 | 606,549 | -- | -- | 33,513 | 1,294.88 |
| | | 06/93 | 607,814 | -- | -- | 12,330 | 1,294.89 |
| | | 07/93 | 678,624 | -- | -- | 52,970 | 1,295.45 |
| | | 08/93 | 622,183 | -- | -- | 11,662 | -- |
| | | 09/93 | 601,488 | -- | -- | 49,000 | 1,294.84 |
| 38 | Pine River Reservoir | 06/92 | 102,310 | -- | -- | 5,534 | 1,229.39 |
| | | 07/92 | 102,310 | -- | -- | 14,819 | 1,229.39 |
| | | 08/92 | 103,124 | -- | -- | 3,136 | 1,229.45 |
| | | 09/92 | 99,306 | -- | -- | 11,008 | 1,229.17 |
| | | 10/92 | 95,801 | -- | -- | 5,780 | 1,228.91 |
| | | 11/92 | 95,529 | -- | -- | 6,962 | 1,228.89 |
| | | 12/92 | 89,749 | -- | -- | 11,498 | 1,228.46 |
| | | 01/93 | 86,947 | -- | -- | 9,207 | 1,228.25 |
| | | 02/93 | 84,177 | -- | -- | 7,484 | 1,228.04 |
| | | 03/93 | 86,947 | -- | -- | 5,892 | 1,228.25 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Minnesota—Continued | | | | |
| 38 | Pine River Reservoir— | 04/93 | 100,394 | -- | -- | 4,336 | -- |
| | Continued | 05/93 | 105,716 | -- | -- | 21,114 | -- |
| | | 06/93 | 101,487 | -- | -- | 33,383 | -- |
| | | 07/93 | 101,762 | -- | -- | 47,815 | -- |
| | | 08/93 | 102,036 | -- | -- | 19,948 | 1,229.37 |
| | | 09/93 | 100,667 | -- | -- | 12,296 | 1,229.27 |
| 39 | Sandy Lake Reservoir | 01/92 | 44,604 | -- | -- | 12,113 | 1,214.34 |
| | | 02/92 | 45,268 | -- | -- | 4,602 | 1,214.42 |
| | | 03/92 | 51,273 | -- | -- | 24,349 | 1,215.13 |
| | | 04/92 | 60,430 | -- | -- | 48,794 | 1,216.15 |
| | | 05/92 | 61,629 | -- | -- | 29,084 | 1,216.28 |
| | | 06/92 | 62,389 | -- | -- | 18,149 | 1,216.36 |
| | | 07/92 | 61,629 | -- | -- | 24,226 | 1,216.28 |
| | | 08/92 | 63,628 | -- | -- | 2,583 | 1,216.49 |
| | | 09/92 | 60,886 | -- | -- | 11,306 | 1,216.20 |
| | | 10/92 | 57,753 | -- | -- | 5,288 | 1,215.86 |
| | | 11/92 | 56,306 | -- | -- | 10,116 | 1,215.70 |
| | | 12/92 | 50,499 | -- | -- | 13,835 | 1,215.04 |
| | | 01/93 | 46,272 | -- | -- | 9,698 | 1,214.54 |
| | | 02/93 | 44,115 | -- | -- | 5,377 | 1,214.80 |
| | | 03/93 | 48,694 | -- | -- | 2,884 | 1,214.80 |
| | | 04/93 | 62,676 | -- | -- | 27,561 | 1,216.39 |
| | | 05/93 | 64,199 | -- | -- | 33,513 | 1,216.55 |
| | | 06/93 | 63,058 | -- | -- | 50,250 | 1,216.43 |
| | | 07/93 | 63,342 | -- | -- | 52,970 | 1,216.46 |
| | | 08/93 | 62,772 | -- | -- | 11,662 | 1,216.40 |
| | | 09/93 | 62,389 | -- | -- | 4,455 | 1,216.36 |
| 40 | Winnibigoshish Reservoir | 01/92 | 618,467 | -- | -- | 28,469 | 1,296.95 |
| | | 02/92 | 630,275 | -- | -- | 15,416 | 1,297.13 |
| | | 03/92 | 662,431 | -- | -- | 14,081 | 1,297.62 |
| | | 04/92 | 688,041 | -- | -- | 14,995 | 1,298.01 |
| | | 05/92 | 687,384 | -- | -- | 13,404 | 1,298.00 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Minnesota—Continued | | | | |
| 40 | Winnibigoshish | 06/92 | 688,041 | -- | -- | 6,843 | 1,298.01 |
| | Reservoir—Continued | 07/92 | 709,053 | -- | -- | 17,278 | 1,298.33 |
| | | 08/92 | 716,273 | -- | -- | 19,369 | 1,298.44 |
| | | 09/92 | 700,514 | -- | -- | 31,716 | 1,298.20 |
| | | 10/92 | 667,682 | -- | -- | 42,304 | 1,297.70 |
| | | 11/92 | 646,672 | -- | -- | 38,083 | 1,297.38 |
| | | 12/92 | 638,148 | -- | -- | 37,262 | 1,297.25 |
| | | 01/93 | 630,275 | -- | -- | 34,310 | 1,297.13 |
| | | 02/93 | 623,053 | -- | -- | 26,436 | 1,297.02 |
| | | 03/93 | 627,645 | -- | -- | 24,287 | 1,297.09 |
| | | 04/93 | 659,800 | -- | -- | 9,818 | 1,297.58 |
| | | 05/93 | 714,314 | -- | -- | 6,149 | 1,298.41 |
| | | 06/93 | 709,711 | -- | -- | 33,918 | 1,298.34 |
| | | 07/93 | 730,710 | -- | -- | 41,812 | 1,298.66 |
| | | 08/93 | 710,368 | -- | -- | 58,168 | 1,298.17 |
| | | 09/93 | 690,670 | -- | -- | 39,263 | 1,298.05 |
| | | | Missouri | | | | |
| 41 | Harrisonville Lake | 04/92 | 6,727 | 143 | 1,160 | 1,131 | 9.31 |
| | | 05/92 | 6,586 | 209 | 274 | 167 | 8.96 |
| | | 06/92 | 6,338 | 218 | 232 | 151 | 8.46 |
| | | 07/92 | 6,286 | 252 | 385 | 150 | 8.20 |
| | | 08/92 | 6,113 | 202 | 229 | 150 | 7.75 |
| | | 09/92 | 5,928 | 196 | 178 | 138 | 7.27 |
| | | 10/92 | 5,764 | 134 | 150 | 142 | 6.83 |
| | | 11/92 | 6,879 | 58 | 2,486 | 1,305 | 9.68 |
| | | 12/92 | 6,808 | 43 | 4,082 | 4,109 | 9.51 |
| | | 01/93 | 6,858 | 33 | 1,949 | 1,645 | 9.63 |
| | | 02/93 | 6,808 | 39 | 813 | 692 | 9.51 |
| | | 03/93 | 6,833 | 75 | 1,202 | 807 | 9.57 |
| | | 04/93 | 7,096 | 138 | 3,721 | 2,941 | 10.21 |
| | | 05/93 | 7,170 | 195 | 11,626 | 11,357 | 10.39 |
| | | 06/93 | 6,711 | 212 | 9,245 | 8,958 | 9.27 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Missouri—Continued | | | | |
| 41 | Harrisonville Lake— | 07/93 | 6,837 | 213 | 11,104 | 10,764 | 9.58 |
| | Continued | 08/93 | 6,535 | 224 | 341 | 286 | 8.83 |
| | | 09/93 | 7,018 | 153 | 5,923 | 5,185 | 10.02 |
| 42 | Harry S Truman Reservoir | 03/92 | 1,223,573 | 4,191 | 237,698 | 242,004 | 706.36 |
| | | 04/92 | 1,286,140 | 10,963 | 659,591 | 586,063 | 707.44 |
| | | 05/92 | 1,242,350 | 15,824 | 115,368 | 143,333 | 706.69 |
| | | 06/92 | 1,234,353 | 18,680 | 285,479 | 274,799 | 706.55 |
| | | 07/92 | 1,421,264 | 25,775 | 1,120,489 | 907,804 | 709.60 |
| | | 08/92 | 1,198,407 | 24,319 | 349,597 | 548,140 | 705.91 |
| | | 09/92 | 1,219,064 | 28,556 | 197,940 | 148,724 | 706.28 |
| | | 10/92 | 1,197,856 | 22,867 | 1,159,344 | 114,282 | 705.90 |
| | | 11/92 | 2,353,983 | 25,765 | 2,059,139 | 877,244 | 720.71 |
| | | 12/92 | 2,158,768 | 18,056 | 2,453,671 | 2,630,827 | 718.74 |
| | | 01/93 | 1,488,719 | 8,059 | 1,351,656 | 2,013,644 | 710.60 |
| | | 02/93 | 1,260,268 | 4,346 | 546,506 | 770,610 | 707.00 |
| | | 03/93 | 1,216,813 | 4,453 | 946,770 | 985,777 | 706.24 |
| | | 04/93 | -- | -- | -- | -- | -- |
| | | 05/93 | 1,760,575 | 19,859 | 1,837,288 | 1,311,306 | 714.23 |
| | | 06/93 | 1,248,107 | 22,461 | 633,996 | 1,124,005 | 706.79 |
| | | 07/93 | 4,294,326 | 45,320 | 3,046,219 | 33,197 | 734.88 |
| | | 08/93 | 2,828,902 | 50,503 | 322,463 | 1,737,385 | 724.99 |
| | | 09/93 | 3,690,813 | 42,117 | 1,992,931 | 1,088,904 | 731.27 |
| 43 | Long Branch Lake | 03/92 | 35,932 | 184 | 6,288 | 5,305 | 791.71 |
| | | 04/92 | 37,815 | 333 | 8,749 | 6,538 | 792.45 |
| | | 05/92 | 35,062 | 526 | 484 | 2,710 | 791.36 |
| | | 06/92 | 32,436 | 845 | 204 | 1,986 | 790.94 |
| | | 07/92 | 37,073 | 674 | 9,144 | 3,832 | 792.16 |
| | | 08/92 | 33,074 | 750 | 978 | 4,226 | 790.54 |
| | | 09/92 | 30,460 | 766 | 1,267 | 3,115 | 789.42 |
| | | 10/92 | 29,188 | 770 | 161 | 665 | 788.85 |
| | | 11/92 | 45,254 | 448 | 24,466 | 7,948 | 795.15 |
| | | 12/92 | 39,394 | 236 | 12,952 | 18,570 | 793.05 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Missouri—Continued | | | | |
| 43 | Long Branch Lake—Continued | 01/93 | 37,583 | 139 | 9,917 | 11,590 | 792.36 |
| | | 02/93 | 35,933 | 111 | 4,066 | 5,603 | 791.71 |
| | | 03/93 | 39,765 | 186 | 19,091 | 15,076 | 793.19 |
| | | 04/93 | -- | -- | -- | -- | -- |
| | | 05/93 | 40,679 | 522 | 5,147 | 10,200 | 791.52 |
| | | 06/93 | 37,635 | 599 | 6,575 | 5,605 | 791.67 |
| | | 07/93 | 50,915 | 768 | 55,190 | 39,341 | 797.01 |
| | | 08/93 | 38,572 | 998 | 10,909 | 22,258 | 792.74 |
| | | 09/93 | 43,832 | 772 | 20,172 | 14,138 | 794.66 |
| 44 | Mark Twain Lake | 03/92 | 620,967 | -- | 113,371 | 86,241 | -- |
| | | 04/92 | 642,631 | -- | 154,312 | 124,126 | -- |
| | | 05/92 | 568,149 | -- | 11,068 | 76,661 | -- |
| | | 06/92 | 542,329 | -- | 4,046 | 22,671 | -- |
| | | 07/92 | 543,802 | -- | 40,959 | 26,737 | -- |
| | | 08/92 | 526,659 | -- | 21,580 | 32,231 | -- |
| | | 09/92 | 496,405 | -- | 7,359 | 31,692 | -- |
| | | 10/92 | 453,037 | -- | 1,527 | 36,496 | -- |
| | | 11/92 | 693,477 | -- | 266,182 | 27,947 | -- |
| | | 12/92 | 637,414 | -- | 189,977 | 243,421 | -- |
| | | 01/93 | 606,097 | -- | 87,870 | 187,140 | -- |
| | | 02/93 | 565,428 | -- | 21,260 | 82,195 | -- |
| | | 03/93 | -- | -- | 320,688 | 197,455 | -- |
| | | 04/93 | -- | -- | -- | -- | -- |
| | | 05/93 | 767,391 | -- | 127,874 | 331,239 | 616.49 |
| | | 06/93 | 720,663 | -- | 84,794 | 113,000 | 614.50 |
| | | 07/93 | 1,276,904 | -- | 736,509 | 155,934 | 633.90 |
| | | 08/93 | 1,005,238 | -- | 205,126 | 475,736 | 625.46 |
| | | 09/93 | 1,311,119 | -- | 757,677 | 452,536 | 634.86 |
| 45 | Pomme de Terre Lake | 03/92 | 257,851 | 615 | 17,226 | 11,661 | 841.55 |
| | | 04/92 | 258,101 | 1,468 | 20,350 | 18,628 | 841.58 |
| | | 05/92 | 254,209 | 2,186 | 9,421 | 11,124 | 841.11 |
| | | 06/92 | 242,773 | 2,487 | 7,567 | 16,512 | 839.69 |
| | | 07/92 | 237,433 | 2,862 | 19,557 | 22,037 | 839.01 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Missouri—Continued | | | | |
| 45 | Pomme de Terre Lake— | 08/92 | 238,212 | 2,943 | 9,868 | 6,149 | 839.11 |
| | Continued | 09/92 | 238,056 | 3,521 | 6,545 | 3,178 | 839.09 |
| | | 10/92 | 234,482 | 2,991 | 2,688 | 3,074 | 849.04 |
| | | 12/92 | 308,806 | 1,791 | 102,020 | 116,963 | 847.30 |
| | | 01/93 | 240,797 | 859 | 67,835 | 134,983 | 839.44 |
| | | 02/93 | 256,770 | 613 | 23,028 | 6,440 | 841.42 |
| | | 03/93 | 262,380 | 625 | 61,339 | 55,103 | 842.09 |
| 46 | Smithville Lake | 03/92 | 146,611 | 395 | 11,633 | 719 | 864.89 |
| | | 04/92 | 174,960 | 795 | 32,350 | 3,264 | 868.59 |
| | | 05/92 | 148,001 | 1,440 | 1,466 | 26,985 | 865.08 |
| | | 06/92 | 146,465 | 1,944 | 2,610 | 2,202 | 864.87 |
| | | 07/92 | 176,575 | 3,150 | 43,244 | 12,986 | 868.42 |
| | | 08/92 | 139,473 | 3,241 | 4,804 | 35,665 | 863.90 |
| | | 09/92 | 138,913 | 3,441 | 7,051 | 4,167 | 864.22 |
| | | 10/92 | 107,775 | 2,178 | 2,483 | 31,445 | 860.31 |
| | | 11/92 | 122,577 | 845 | 24,298 | 8,650 | 861.40 |
| | | 12/92 | 137,866 | 571 | 33,263 | 17,404 | 863.67 |
| | | 01/93 | 110,913 | 315 | 11,088 | 37,725 | 859.54 |
| | | 02/93 | 123,543 | 280 | 13,359 | 444 | 861.55 |
| | | 03/93 | 142,029 | 377 | 19,359 | 492 | 864.26 |
| | | 04/93 | -- | -- | -- | -- | -- |
| | | 05/93 | 167,836 | 1,460 | 49,111 | 43,784 | 867.70 |
| | | 06/93 | 151,926 | 1,924 | 9,302 | 23,272 | 865.62 |
| | | 07/93 | 220,286 | 3,126 | 76,939 | 5,442 | 873.81 |
| | | 08/93 | 146,983 | 4,046 | 12,664 | 81,932 | 864.94 |
| | | 09/93 | 209,119 | 2,924 | 72,198 | 7,129 | 872.59 |
| 47 | Stockton Lake | 03/92 | 879,796 | 1,845 | 33,372 | 28,582 | 867.20 |
| | | 04/92 | 905,457 | 4,342 | 50,281 | 20,281 | 868.23 |
| | | 05/92 | 904,707 | 6,403 | 24,367 | 18,712 | 868.20 |
| | | 06/92 | 927,209 | 6,294 | 53,573 | 24,779 | 869.09 |
| | | 07/92 | 1,009,004 | 9,005 | 184,640 | 107,026 | 871.71 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Missouri—Continued | | | | |
| 47 | Stockton Lake— | 08/92 | 890,208 | 9,084 | 43,081 | 139,606 | 867.62 |
| | Continued | 09/92 | 849,239 | 9,872 | 54,327 | 85,420 | 865.95 |
| | | 10/92 | 776,934 | 7,444 | 16,750 | 81,609 | 862.89 |
| | | 11/92 | 1,016,813 | 9,574 | 262,145 | 12,691 | 872.49 |
| | | 12/92 | 1,113,898 | 5,276 | 247,140 | 144,783 | 875.95 |
| | | 01/93 | 977,135 | 2,140 | 145,775 | 280,397 | 871.01 |
| | | 02/93 | 932,085 | 1,519 | 66,426 | 109,954 | 869.28 |
| | | 03/93 | 958,542 | 1,903 | 138,010 | 109,648 | 870.30 |
| | | 04/93 | -- | -- | -- | -- | -- |
| | | 05/93 | 944,515 | 6,395 | 107,306 | 155,988 | 869.76 |
| | | 06/93 | 990,177 | 7,258 | 165,957 | 113,034 | 871.50 |
| | | 07/93 | 1,032,051 | 9,279 | 79,071 | 27,924 | 873.05 |
| | | 08/93 | 1,011,694 | 12,180 | 21,293 | 29,467 | 872.30 |
| | | 09/93 | 1,380,737 | 11,397 | 440,033 | 59,591 | 884.48 |
| | | | Nebraska | | | | |
| 48 | Branched Oak Lake | 03/92 | 25,557 | 231 | 581 | 0 | 1,283.75 |
| | | 04/92 | 25,766 | 453 | 662 | 0 | 1,283.87 |
| | | 05/92 | 25,382 | 769 | 385 | 0 | 1,283.65 |
| | | 06/92 | 25,557 | 789 | 964 | 0 | 1,283.75 |
| | | 07/92 | 27,587 | 968 | 4,858 | 1,860 | 1,284.88 |
| | | 08/92 | 26,338 | 872 | 2,715 | 3,092 | 1,284.19 |
| | | 09/92 | 26,048 | 725 | 1,710 | 1,275 | 1,284.03 |
| | | 10/92 | 23,585 | 533 | 573 | 2,503 | 1,282.61 |
| | | 11/92 | 24,075 | 297 | 787 | 0 | 1,282.90 |
| | | 12/92 | 24,576 | 132 | 633 | 0 | 1,283.19 |
| | | 01/93 | 25,119 | 102 | 645 | 0 | 1,283.50 |
| | | 02/93 | 26,574 | 98 | 1,961 | 404 | 1,284.32 |
| | | 03/93 | 27,424 | 182 | 9,317 | 7,925 | 1,284.79 |
| | | 04/93 | 26,990 | 346 | 3,761 | 3,848 | 1,284.55 |
| | | 05/93 | 26,790 | 422 | 3,374 | 3,152 | 1,284.44 |
| | | 06/93 | 27,713 | 674 | 5,952 | 4,356 | 1,284.95 |
| | | 07/93 | 30,369 | 731 | 18,698 | 15,313 | 1,286.36 |
| | | 08/93 | 28,346 | 693 | 5,607 | 6,938 | 1,285.29 |
| | | 09/93 | 27,823 | 479 | 5,304 | 5,349 | 1,285.01 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Nebraska—Continued | | | | |
| 49 | Calamus Reservoir | 03/92 | 124,451 | -- | 23,070 | 7,267 | 2,243.42 |
| | | 04/92 | 125,108 | 1,590 | 20,220 | 16,000 | 2,243.55 |
| | | 05/92 | 128,220 | 2,180 | 17,450 | 11,770 | 2,244.16 |
| | | 06/92 | 122,640 | 1,610 | 18,540 | 21,850 | 2,243.06 |
| | | 07/92 | 110,280 | 3,440 | 18,990 | 31,190 | 2,240.50 |
| | | 08/92 | 98,820 | 3,910 | 19,950 | 33,330 | 2,237.95 |
| | | 09/92 | 81,400 | 3,540 | 19,410 | 35,350 | 2,233.67 |
| | | 10/92 | 94,672 | 1,139 | 21,544 | 7,137 | 2,236.98 |
| | | 11/92 | 108,105 | 678 | 19,835 | 5,724 | 2,240.03 |
| | | 12/92 | 108,520 | 411 | 19,371 | 18,545 | 2,240.12 |
| | | 01/93 | 108,427 | 449 | 20,328 | 19,972 | 2,240.10 |
| | | 02/93 | 108,658 | 559 | 19,189 | 18,399 | 2,240.15 |
| | | 03/93 | 125,362 | 1,039 | 27,238 | 9,495 | 2,243.60 |
| | | 04/93 | 128,119 | 1,778 | 24,604 | 20,069 | 2,244.14 |
| | | 05/93 | 128,067 | 1,419 | 27,928 | 26,561 | 2,244.13 |
| | | 06/93 | 126,786 | 1,249 | 24,041 | 24,073 | 2,243.88 |
| | | 07/93 | 117,079 | 1,678 | 30,551 | 38,580 | 2,241.93 |
| | | 08/93 | 107,280 | 2,119 | 22,901 | 30,581 | 2,239.85 |
| | | 09/93 | 98,947 | 1,292 | 20,248 | 27,289 | 2,237.98 |
| 50 | Cunningham Lake | 03/92 | 3,422 | 51 | 736 | 607 | 1,121.41 |
| | | 04/92 | 3,543 | 102 | 1,090 | 867 | 1,121.72 |
| | | 05/92 | 3,391 | 172 | 835 | 815 | 1,121.33 |
| | | 06/92 | 3,285 | 167 | 355 | 294 | 1,121.06 |
| | | 07/92 | 3,496 | 210 | 1,242 | 821 | 1,121.60 |
| | | 08/92 | 3,301 | 181 | 466 | 480 | 1,121.10 |
| | | 09/92 | 3,297 | 151 | 389 | 242 | 1,121.09 |
| | | 10/92 | 3,328 | 116 | 486 | 339 | 1,121.17 |
| | | 11/92 | 3,379 | 68 | 593 | 474 | 1,121.30 |
| | | 12/92 | 3,367 | 29 | 453 | 436 | 1,121.27 |
| | | 01/93 | 3,363 | 22 | 421 | 403 | 1,121.26 |
| | | 02/93 | 3,387 | 20 | 371 | 327 | 1,121.32 |
| | | 03/93 | 3,562 | 37 | 1,607 | 1,392 | 1,121.77 |
| | | 04/93 | 3,523 | 71 | 946 | 914 | 1,121.67 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Nebraska—Continued | | | | |
| 50 | Cunningham Lake— | 05/93 | 3,473 | 88 | 1,093 | 1,055 | 1,121.54 |
| | Continued | 06/93 | 3,556 | 140 | 1,535 | 1,311 | 1,121.76 |
| | | 07/93 | 3,723 | 150 | 2,408 | 2,093 | 1,122.17 |
| | | 08/93 | 3,673 | 141 | 1,057 | 964 | 1,122.05 |
| | | 09/93 | 3,453 | 97 | 617 | 740 | 1,121.49 |
| 51 | Enders Reservoir | 03/92 | 21,930 | -- | 1,510 | 18 | 3,096.08 |
| | | 04/92 | 22,850 | -- | 1,320 | 17 | 3,096.90 |
| | | 05/92 | 23,090 | -- | 1,100 | 41 | 3,097.11 |
| | | 06/92 | 23,820 | -- | 1,110 | 176 | 3,097.74 |
| | | 07/92 | 18,060 | -- | 1,040 | 6,890 | 3,092.37 |
| | | 08/92 | 16,520 | -- | 1,620 | 3,720 | 3,090.76 |
| | | 09/92 | 17,350 | -- | 982 | 22 | 3,091.64 |
| | | 10/92 | 18,360 | -- | 1,150 | 26 | 3,092.67 |
| | | 11/92 | 19,610 | -- | 1,270 | 23 | 3,093.91 |
| | | 12/92 | 20,910 | -- | 1,300 | 22 | 3,095.15 |
| | | 01/93 | 22,280 | -- | 1,520 | 29 | 3,096.39 |
| | | 02/93 | 23,680 | -- | 1,540 | 50 | 3,097.62 |
| | | 03/93 | 25,260 | -- | 1,850 | 81 | 3,098.96 |
| | | 04/93 | 26,550 | -- | 1,620 | 94 | 3,100.01 |
| | | 05/93 | 27,970 | -- | 1,770 | 82 | 3,101.13 |
| | | 06/93 | 27,850 | -- | 1,440 | 1,110 | 3,101.04 |
| | | 07/93 | 23,970 | -- | 1,740 | 5,840 | 3,097.87 |
| | | 08/93 | 20,340 | -- | 1,690 | 5,120 | 3,094.61 |
| | | 09/93 | 21,620 | -- | 1,280 | 157 | 3,095.80 |
| 52 | Harlan County Lake | 03/92 | 167,000 | -- | 11,080 | 313 | 1,932.54 |
| | | 04/92 | 172,300 | -- | 8,730 | 157 | 1,933.10 |
| | | 05/92 | 173,100 | -- | 3,870 | 166 | 1,933.19 |
| | | 06/92 | 174,800 | -- | 5,477 | 3,739 | 1,933.36 |
| | | 07/92 | 168,300 | -- | 5,253 | 14,484 | 1,932.68 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Nebraska—Continued | | | | |
| 52 | Harlan County Lake—Continued | 08/92 | 161,800 | -- | 13,860 | 20,219 | 1,931.98 |
| | | 09/92 | 160,400 | -- | 5,010 | 2,788 | 1,931.83 |
| | | 10/92 | 165,900 | -- | 5,742 | 419 | 1,932.42 |
| | | 11/92 | 170,900 | -- | 6,848 | 253 | 1,932.96 |
| | | 12/92 | 177,300 | -- | 5,930 | 185 | 1,932.62 |
| | | 01/93 | 185,300 | -- | 6,721 | 195 | 1,934.45 |
| | | 02/93 | 201,000 | -- | 17,133 | 159 | 1,936.03 |
| | | 03/93 | 271,500 | -- | 62,000 | 1,440 | 1,942.50 |
| | | 04/93 | 291,200 | -- | 20,318 | 479 | 1,944.14 |
| | | 05/93 | 305,000 | -- | 14,788 | 451 | 1,945.23 |
| | | 06/93 | 314,800 | -- | 11,996 | 868 | 1,945.98 |
| | | 07/93 | 397,800 | -- | 68,850 | 4,555 | 1,951.75 |
| | | 08/93 | 421,700 | -- | 36,000 | 20,505 | 1,953.27 |
| | | 09/93 | 409,000 | -- | 24,413 | 34,490 | 1,952.47 |
| 53 | Harry Strunk Lake | 03/92 | 28,870 | -- | 3,330 | 29 | 2,362.04 |
| | | 04/92 | 31,220 | -- | 2,720 | 28 | 2,363.52 |
| | | 05/92 | 32,750 | -- | 2,440 | 24 | 2,364.43 |
| | | 06/92 | 34,180 | -- | 2,490 | 1,150 | 2,365.25 |
| | | 07/92 | 29,790 | -- | 2,210 | 5,930 | 2,362.63 |
| | | 08/92 | 29,620 | -- | 4,090 | 4,190 | 2,362.52 |
| | | 09/92 | 29,790 | -- | 2,090 | 952 | 2,362.63 |
| | | 10/92 | 31,860 | -- | 2,530 | 42 | 2,363.91 |
| | | 11/92 | 34,160 | -- | 2,720 | 28 | 2,365.24 |
| | | 12/92 | 34,800 | -- | 3,020 | 1,740 | 2,365.60 |
| | | 01/93 | 35,160 | -- | 3,070 | 2,560 | 2,365.80 |
| | | 02/93 | 34,730 | -- | 3,820 | 4,590 | 2,365.56 |
| | | 03/93 | 34,270 | -- | 7,280 | 10,780 | 2,365.30 |
| | | 04/93 | 36,100 | -- | 3,570 | 1,950 | 2,366.31 |
| | | 05/93 | 38,030 | -- | 3,870 | 1,710 | 2,367.33 |
| | | 06/93 | 39,420 | -- | 5,020 | 4,190 | 2,368.04 |
| | | 07/93 | 44,790 | -- | 14,570 | 16,390 | 2,370.61 |
| | | 08/93 | 38,850 | -- | 4,800 | 10,700 | 2,367.75 |
| | | 09/93 | 38,720 | -- | 4,300 | 4,390 | 2,367.68 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evaporation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Nebraska—Continued | | | | |
| 54 | Hugh Butler Lake | 03/92 | 25,150 | -- | 1,690 | 236 | 2,572.88 |
| | | 04/92 | 25,590 | -- | 1,050 | 213 | 2,573.24 |
| | | 05/92 | 25,540 | -- | 1,060 | 214 | 2,573.20 |
| | | 06/92 | 25,960 | -- | 1,330 | 622 | 2,573.54 |
| | | 07/92 | 24,530 | -- | 1,370 | 2,560 | 2,572.37 |
| | | 08/92 | 25,160 | -- | 2,180 | 2,690 | 2,572.89 |
| | | 09/92 | 24,220 | -- | 861 | 1,310 | 2,572.11 |
| | | 10/92 | 24,620 | -- | 1,080 | 236 | 2,572.44 |
| | | 11/92 | 25,270 | -- | 1,240 | 225 | 2,572.98 |
| | | 12/92 | 25,950 | -- | 1,180 | 245 | 2,573.53 |
| | | 01/93 | 26,840 | -- | 845 | 245 | 2,574.25 |
| | | 02/93 | 28,200 | -- | 1,410 | 234 | 2,575.30 |
| | | 03/93 | 31,650 | -- | 3,560 | 260 | 2,577.82 |
| | | 04/93 | 32,570 | -- | 1,720 | 234 | 2,578.45 |
| | | 05/93 | 33,310 | -- | 1,700 | 253 | 2,578.95 |
| | | | | -- | | | |
| | | 06/93 | 33,350 | -- | 1,400 | 740 | 2,578.98 |
| | | 07/93 | 35,880 | -- | 4,380 | 2,560 | 2,580.62 |
| | | 08/93 | 34,320 | -- | 1,830 | 2,300 | 2,579.62 |
| | | 09/93 | 34,860 | -- | 1,520 | 891 | 2,579.97 |
| 55 | Pawnee Lake | 03/92 | 7,077 | 98 | 247 | 0 | 1,243.26 |
| | | 04/92 | 7,134 | 185 | 242 | 0 | 1,243.34 |
| | | 05/92 | 7,013 | 303 | 182 | 0 | 1,243.17 |
| | | 06/92 | 7,176 | 317 | 480 | 0 | 1,243.40 |
| | | 07/92 | 8,034 | 385 | 1,279 | 36 | 1,244.58 |
| | | 08/92 | 7,744 | 354 | 278 | 214 | 1,244.19 |
| | | 09/92 | 7,575 | 296 | 127 | 0 | 1,243.96 |
| | | 10/92 | 7,112 | 217 | 516 | 762 | 1,243.31 |
| | | 11/92 | 6,865 | 116 | 633 | 764 | 1,242.96 |
| | | 12/92 | 7,041 | 53 | 229 | 0 | 1,243.21 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Nebraska—Continued | | | | |
| 55 | Pawnee Lake—Continued | 01/93 | 7,255 | 42 | 256 | 0 | 1,243.51 |
| | | 02/93 | 7,603 | 38 | 377 | 0 | 1,244.00 |
| | | 03/93 | 8,040 | 70 | 1,802 | 1,295 | 1,244.58 |
| | | 04/93 | 7,941 | 135 | 516 | 480 | 1,244.45 |
| | | 05/93 | 7,971 | 165 | 936 | 740 | 1,244.49 |
| | | 06/93 | 8,139 | 263 | 1,339 | 908 | 1,244.64 |
| | | 07/93 | 8,835 | 292 | 10,465 | 9,477 | 1,245.62 |
| | | 08/93 | 8,904 | 269 | 2,279 | 1,940 | 1,245.71 |
| | | 09/93 | 8,292 | 188 | 1,579 | 2,001 | 1,244.91 |
| 56 | Swanson Lake | 03/92 | 75,580 | -- | 10,630 | 44 | 2,743.73 |
| | | 04/92 | 81,070 | -- | 7,000 | 39 | 2,745.09 |
| | | 05/92 | 80,860 | -- | 2,330 | 50 | 2,745.04 |
| | | 06/92 | 82,940 | -- | 4,990 | 2,150 | 2,745.54 |
| | | 07/92 | 64,310 | -- | 1,920 | 20,040 | 2,740.76 |
| | | 08/92 | 64,450 | -- | 7,650 | 5,625 | 2,740.80 |
| | | 09/92 | 64,200 | -- | 3,510 | 1,890 | 2,740.73 |
| | | 10/92 | 65,870 | -- | 2,930 | 46 | 2,741.19 |
| | | 11/92 | 69,750 | -- | 5,000 | 43 | 2,742.23 |
| | | 12/92 | 74,000 | -- | 6,210 | 37 | 2,743.33 |
| | | 01/93 | 78,500 | -- | 5,790 | 52 | 2,744.46 |
| | | 02/93 | 86,050 | -- | 6,300 | 83 | 2,746.28 |
| | | 03/93 | 97,700 | -- | 13,340 | 85 | 2,748.93 |
| | | 04/93 | 105,300 | -- | 8,700 | 104 | 2,750.57 |
| | | 05/93 | 111,800 | -- | 8,360 | 94 | 2,751.92 |
| | | 06/93 | 111,400 | -- | 4,720 | 2,829 | 2,751.83 |
| | | 07/93 | 99,670 | -- | 3,350 | 13,503 | 2,749.36 |
| | | 08/93 | 92,720 | -- | 3,310 | 10,427 | 2,747.82 |
| | | 09/93 | 92,500 | -- | 2,780 | 1,764 | 2,747.77 |
| 57 | Willow Creek Reservoir | 03/92 | 4,580 | -- | 1,740 | 346 | 1,621.94 |
| | | 04/92 | 4,880 | -- | 726 | 401 | 1,622.47 |
| | | 05/92 | 5,230 | -- | 1,140 | 438 | 1,623.06 |
| | | 06/92 | 5,150 | -- | 522 | 524 | 1,622.94 |
| | | 07/92 | 4,820 | -- | 437 | 398 | 1,622.38 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | **Nebraska—Continued** | | | | |
| 57 | Willow Creek Reservoir—Continued | 08/92 | 5,320 | -- | 1,200 | 516 | 1,623.22 |
| | | 09/92 | 6,480 | -- | 1,600 | 408 | 1,624.88 |
| | | 10/92 | 7,000 | -- | 1,570 | 1,410 | 1,625.60 |
| | | 11/92 | 7,070 | -- | 1,100 | 1,140 | 1,625.62 |
| | | 12/92 | 6,940 | -- | 780 | 1,010 | 1,625.48 |
| | | 01/93 | 6,920 | -- | 549 | 649 | 1,625.52 |
| | | 02/93 | 6,970 | -- | 885 | 851 | 1,625.59 |
| | | 03/93 | 7,620 | -- | 4,380 | 5,300 | 1,626.49 |
| | | 04/93 | 7,440 | -- | 4,570 | 5,840 | 1,626.42 |
| | | 05/93 | 7,470 | -- | 2,680 | 3,540 | 1,626.32 |
| | | 06/93 | 7,600 | -- | 2,190 | 3,340 | 1,626.55 |
| | | 07/93 | 7,850 | -- | 7,850 | 10,110 | 1,626.95 |
| | | 08/93 | 7,280 | -- | 1,280 | 2,070 | 1,626.10 |
| | | 09/93 | 7,180 | -- | 1,290 | 1,700 | 1,625.97 |
| | | | **North Dakota** | | | | |
| 58 | Pipestem Reservoir | 04/92 | 9,956 | 162 | 1,282 | 1,468 | 1,442.50 |
| | | 05/92 | 8,280 | 202 | 987 | 2,462 | 1,440.17 |
| | | 06/92 | 8,165 | 253 | 138 | -- | 1,440.32 |
| | | 07/92 | 8,005 | 347 | 165 | -- | 1,440.11 |
| | | 08/92 | 7,772 | 244 | 11 | -- | 1,439.79 |
| | | 09/92 | 6,950 | 245 | 323 | -- | 1,439.94 |
| | | 10/92 | 6,822 | 165 | 38 | -- | 1,439.69 |
| | | 11/92 | 6,893 | 89 | 159 | -- | 1,439.83 |
| | | 12/92 | 6,841 | 52 | -- | -- | 1,439.73 |
| | | 01/93 | 6,825 | 30 | 14 | -- | 1,439.70 |
| | | 02/93 | 6,799 | 38 | 12 | -- | 1,439.65 |
| | | 03/93 | 7,597 | 76 | 8,267 | 595 | 1,447.91 |
| | | 04/93 | 14,732 | 221 | 5,500 | 4,941 | 1,448.19 |
| | | 05/93 | 13,857 | 288 | 1,851 | 2,438 | 1,447.43 |
| | | 06/93 | 13,012 | 370 | 2,029 | 2,503 | 1,446.68 |
| | | 07/93 | 55,128 | 734 | 45,375 | 2,525 | 1,470.77 |
| | | 08/93 | 57,207 | 1,061 | 10,671 | 7,531 | 1,471.63 |
| | | 09/93 | 43,607 | 771 | 3,541 | 16,370 | 1,465.66 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Ohio | | | | |
| 59 | Alum Creek Lake | 04/92 | 46,289 | -- | -- | 397 | 875.91 |
| | | 05/92 | 44,196 | -- | -- | 618 | 875.03 |
| | | 06/92 | 41,949 | -- | -- | 782 | 874.06 |
| | | 07/92 | 64,801 | -- | -- | 964 | 882.90 |
| | | 08/92 | 66,427 | -- | -- | 774 | 883.45 |
| | | 09/92 | 67,260 | -- | -- | 517 | 883.73 |
| | | 10/92 | 67,557 | -- | -- | 841 | 883.92 |
| | | 11/92 | 71,000 | -- | -- | 8,271 | 884.96 |
| | | 12/92 | 70,296 | -- | -- | 2,407 | 884.73 |
| | | 01/93 | 70,724 | -- | -- | 13,830 | 884.87 |
| | | 02/93 | 70,204 | -- | -- | 3,669 | 884.70 |
| | | 03/93 | 70,204 | -- | -- | 10,250 | 884.70 |
| | | 04/93 | 82,058 | -- | -- | 4,778 | 888.35 |
| | | 05/93 | 78,952 | -- | -- | 2,139 | 887.43 |
| | | 06/93 | 80,054 | -- | -- | 2,582 | 887.76 |
| | | 07/93 | 79,052 | -- | -- | 8,310 | 887.46 |
| | | 08/93 | 87,650 | -- | -- | 403 | 889.95 |
| | | 09/93 | 76,381 | -- | -- | 509 | 886.65 |
| 60 | Deer Creek Lake | 04/92 | 21,880 | -- | -- | 12,634 | 810.66 |
| | | 05/92 | 22,363 | -- | -- | 7,727 | 811.03 |
| | | 06/92 | 21,750 | -- | -- | 12,703 | 810.56 |
| | | 07/92 | 21,582 | -- | -- | 20,948 | 810.43 |
| | | 08/92 | 21,401 | -- | -- | 5,318 | 810.29 |
| | | 09/92 | 21,582 | -- | -- | 1,596 | 810.43 |
| | | 10/92 | 14,032 | -- | 750 | 4,824 | 804.09 |
| | | 11/92 | 6,106 | -- | 7,685 | 11,692 | 796.51 |
| | | 12/92 | 6,721 | -- | 3,982 | 4,368 | 796.40 |
| | | 01/93 | 6,456 | -- | 20,734 | 21,229 | 796.05 |
| | | 02/93 | 6,668 | -- | 9,137 | 9,573 | 796.33 |
| | | 03/93 | 13,157 | -- | 23,730 | 20,797 | 803.28 |
| | | 04/93 | 23,655 | -- | 15,343 | 10,808 | 812.00 |
| | | 05/93 | 21,867 | -- | 6,390 | 6,527 | 810.65 |
| | | 06/93 | 21,789 | -- | 2,559 | 2,634 | 810.59 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Ohio—Continued | | | | |
| 60 | Deer Creek Lake—Continued | 07/93 | 21,530 | -- | 10,738 | 9,577 | 810.39 |
| | | 08/93 | 21,491 | -- | 756 | 498 | 810.36 |
| | | 09/93 | 21,067 | -- | 727 | 434 | 810.03 |
| 61 | Delaware Lake | 04/92 | 14,065 | -- | -- | 31,555 | 915.05 |
| | | 05/92 | 14,221 | -- | -- | 7,193 | 915.17 |
| | | 06/92 | 13,935 | -- | -- | 8,096 | 914.95 |
| | | 07/92 | 19,925 | -- | -- | 89,086 | 919.25 |
| | | 08/92 | 13,987 | -- | -- | 14,058 | 914.99 |
| | | 09/92 | 13,883 | -- | -- | 3,522 | 914.91 |
| | | 10/92 | 13,883 | -- | 2,796 | 2,502 | 914.91 |
| | | 11/92 | 9,080 | -- | 32,600 | 34,813 | 910.68 |
| | | 12/92 | 8,830 | -- | 7,432 | 6,694 | 910.43 |
| | | 01/93 | 8,850 | -- | 42,937 | 43,081 | 910.45 |
| | | 02/93 | 8,076 | -- | 8,600 | 8,640 | 909.64 |
| | | 03/93 | 8,410 | -- | 41,930 | 41,908 | 910.01 |
| | | 04/93 | 19,942 | -- | 26,397 | 23,098 | 919.26 |
| | | 05/93 | 14,306 | -- | 4,117 | 4,092 | 915.24 |
| | | 06/93 | 13,920 | -- | 8,412 | 8,020 | 914.94 |
| | | 07/93 | 13,880 | -- | 15,654 | 15,830 | 914.90 |
| | | 08/93 | 12,738 | -- | 704 | 842 | 914.03 |
| | | 09/93 | 12,565 | -- | 1,107 | 609 | 913.88 |
| 62 | Dillon Lake | 04/92 | 17,870 | -- | -- | 43,763 | 737.24 |
| | | 05/92 | 17,838 | -- | -- | 17,011 | 737.22 |
| | | 06/92 | 17,981 | -- | -- | 11,194 | 737.32 |
| | | 07/92 | 17,870 | -- | -- | 92,884 | 737.24 |
| | | 08/92 | 17,901 | -- | -- | 36,824 | 737.26 |
| | | 09/92 | 17,838 | -- | -- | 15,293 | 737.22 |
| | | 10/92 | 18,052 | -- | 3,981 | 3,875 | 737.26 |
| | | 11/92 | 14,216 | -- | 27,405 | 29,518 | 734.80 |
| | | 12/92 | 13,750 | -- | 16,813 | 15,975 | 734.46 |
| | | 01/93 | 14,106 | -- | 54,660 | 54,916 | 734.72 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Ohio—Continued | | | | |
| 62 | Dillon Lake—Continued | 02/93 | 13,463 | -- | 26,908 | 27,296 | 734.25 |
| | | 03/93 | 13,147 | -- | 93,167 | 92,600 | 734.02 |
| | | 04/93 | 27,661 | -- | 56,576 | 51,438 | 742.59 |
| | | 05/93 | 18,316 | -- | 16,003 | 19,063 | 737.52 |
| | | 06/93 | 18,300 | -- | 10,720 | 11,069 | 737.51 |
| | | 07/93 | 18,172 | -- | 30,148 | 29,340 | 737.43 |
| | | 08/93 | 17,917 | -- | 3,863 | 3,881 | 737.27 |
| | | 09/93 | 17,648 | -- | 3,939 | 4,120 | 737.10 |
| 63 | Hoover Reservoir | 04/92 | 53,723 | -- | -- | 7,831 | 887.59 |
| | | 05/92 | 51,670 | -- | -- | 9,357 | 886.80 |
| | | 06/92 | 49,693 | -- | -- | 8,684 | 886.03 |
| | | 07/92 | 72,090 | -- | -- | 12,974 | 894.06 |
| | | 08/92 | 68,417 | -- | -- | 8,708 | 892.92 |
| | | 09/92 | 65,358 | -- | -- | 8,179 | 891.89 |
| | | 10/92 | 58,542 | -- | -- | 4,530 | 889.41 |
| | | 11/92 | 71,789 | -- | -- | 6,586 | 893.97 |
| | | 12/92 | 71,175 | -- | -- | 3,361 | 893.78 |
| | | 01/93 | 71,757 | -- | -- | 20,251 | 893.96 |
| | | 02/93 | 71,886 | -- | -- | 4,602 | 894.00 |
| | | 03/93 | 71,886 | -- | -- | 20,174 | 894.00 |
| | | 04/93 | 71,886 | -- | -- | 14,152 | 894.00 |
| | | 05/93 | 64,067 | -- | -- | 3,945 | 892.43 |
| | | 06/93 | 64,600 | -- | -- | 3,535 | 892.62 |
| | | 07/93 | 65,301 | -- | -- | 9,375 | 892.87 |
| | | 08/93 | 58,703 | -- | -- | 4,196 | 889.47 |
| | | 09/93 | 51,157 | -- | -- | 3,368 | 886.60 |
| 64 | Milton Reservoir | 04/92 | 16,950 | -- | -- | 2,152 | 945.30 |
| | | 05/92 | 16,850 | -- | -- | 6,343 | 945.24 |
| | | 06/92 | 17,260 | -- | -- | 11,278 | 945.49 |
| | | 07/92 | 20,620 | -- | -- | 4,546 | 947.47 |
| | | 08/92 | 22,090 | -- | -- | 37,437 | 948.30 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Ohio—Continued | | | | |
| 64 | Milton Reservoir— | 09/92 | 21,620 | -- | -- | 31,390 | 948.04 |
| | Continued | 10/92 | 19,290 | -- | -- | 6,299 | 946.69 |
| | | 11/92 | 16,903 | -- | -- | 18,277 | 945.27 |
| | | 12/92 | 13,046 | -- | -- | 11,753 | 942.80 |
| | | 01/93 | 11,988 | -- | -- | 22,204 | 942.08 |
| | | 02/93 | 12,208 | -- | -- | 2,782 | 942.23 |
| | | 03/93 | 18,304 | -- | -- | 24,491 | 946.12 |
| | | 04/93 | 22,288 | -- | -- | 5,405 | 948.40 |
| | | 05/93 | 22,162 | -- | -- | 4,017 | 948.34 |
| | | 06/93 | 21,838 | -- | -- | 12,698 | 948.16 |
| | | 07/93 | 21,928 | -- | -- | 5,301 | 948.21 |
| | | 08/93 | 21,550 | -- | -- | 5,254 | 948.00 |
| | | 09/93 | 22,036 | -- | -- | 8,859 | 948.27 |
| 65 | O'Shaughnessy Reservoir | 04/92 | 17,659 | -- | -- | 69,442 | 848.60 |
| | | 05/92 | 17,421 | -- | -- | 17,008 | 848.36 |
| | | 06/92 | 17,028 | -- | -- | 29,126 | 847.96 |
| | | 07/92 | 18,015 | -- | -- | 223,338 | 848.96 |
| | | 08/92 | 17,848 | -- | -- | 43,528 | 848.79 |
| | | 09/92 | 17,907 | -- | -- | 8,179 | 848.85 |
| | | 10/92 | 17,184 | -- | -- | 4,195 | 848.06 |
| | | 11/92 | 17,550 | -- | -- | 72,623 | 848.49 |
| | | 12/92 | 17,253 | -- | -- | 14,511 | 848.19 |
| | | 01/93 | 17,788 | -- | -- | 86,700 | 848.73 |
| | | 02/93 | 17,283 | -- | -- | 21,950 | 848.22 |
| | | 03/93 | 18,055 | -- | -- | 107,050 | 849.00 |
| | | 04/93 | 18,055 | -- | -- | 56,221 | 849.00 |
| | | 05/93 | 17,738 | -- | -- | 10,214 | 848.68 |
| | | 06/93 | 17,847 | -- | -- | 15,796 | 848.79 |
| | | 07/93 | 17,540 | -- | -- | 65,036 | 848.48 |
| | | 08/93 | 16,145 | -- | -- | 3,531 | 847.00 |
| | | 09/93 | 15,990 | -- | -- | 1,515 | 846.82 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | **South Dakota** | | | | |
| 66 | Sand Lake | 03/92 | 16,500 | -- | -- | 192 | 1,287.25 |
| | | 04/92 | 19,100 | -- | -- | 83 | 1,287.71 |
| | | 05/92 | 19,200 | -- | -- | 62 | 1,287.72 |
| | | 06/92 | 19,800 | -- | -- | 143 | 1,287.81 |
| | | 07/92 | 18,200 | -- | -- | 1,100 | 1,287.56 |
| | | 08/92 | 16,300 | -- | -- | 631 | 1,287.23 |
| | | 09/92 | 16,900 | -- | -- | 1,630 | 1,287.34 |
| | | 10/92 | 14,400 | -- | -- | 2,570 | 1,286.83 |
| | | 11/92 | 12,900 | -- | -- | 1,760 | 1,286.57 |
| | | 12/92 | 12,500 | -- | -- | 579 | 1,286.48 |
| | | 01/93 | 12,000 | -- | -- | 250 | 1,286.39 |
| | | 02/93 | 11,600 | -- | -- | 241 | 1,286.30 |
| | | 03/93 | 14,900 | -- | -- | 750 | 1,286.93 |
| | | 04/93 | 18,400 | -- | -- | 12,570 | 1,287.58 |
| | | 05/93 | 16,600 | -- | -- | 7,640 | 1,287.31 |
| | | 06/93 | 18,700 | -- | -- | 5,700 | 1,287.63 |
| | | 07/93 | 26,700 | -- | -- | 22,190 | 1,288.83 |
| | | 08/93 | 33,900 | -- | -- | 58,390 | 1,289.90 |
| | | 09/93 | 29,300 | -- | -- | 64,500 | 1,289.25 |
| | | | **Wisconsin** | | | | |
| 67 | Chippewa Flowage | 03/92 | 2,250 | -- | -- | 565,754 | -- |
| | | 04/92 | 2,250 | -- | -- | 752,044 | -- |
| | | 05/92 | 2,250 | -- | -- | 328,051 | -- |
| | | 06/92 | 2,250 | -- | -- | 137,833 | -- |
| | | 07/92 | 2,250 | -- | -- | 310,640 | -- |
| | | 08/92 | 2,250 | -- | -- | 133,051 | -- |
| | | 09/92 | 2,250 | -- | -- | 194,980 | -- |
| | | 10/92 | 2,250 | -- | -- | 334,283 | -- |
| | | 11/92 | 2,250 | -- | -- | 339,655 | -- |
| | | 12/92 | 2,250 | -- | -- | 231,851 | -- |
| | | 01/93 | 2,250 | -- | -- | 173,572 | -- |
| | | 02/93 | 2,250 | -- | -- | 179,049 | -- |
| | | 03/93 | 2,250 | -- | -- | 277,553 | -- |
| | | 04/93 | 2,250 | -- | -- | 610,300 | -- |
| | | 05/93 | 2,250 | -- | -- | 573,600 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Wisconsin—Continued | | | | |
| 67 | Chippewa Flowage—Continued | 06/93 | 2,250 | -- | -- | 1,030,000 | -- |
| | | 07/93 | 2,250 | -- | -- | 316,400 | -- |
| | | 08/93 | 2,250 | -- | -- | 187,400 | -- |
| | | 09/93 | 2,250 | -- | -- | 178,400 | -- |
| 68 | Dairyland Reservoir | 03/92 | 44,000 | -- | -- | 163,000 | -- |
| | | 04/92 | 44,000 | -- | -- | 235,900 | -- |
| | | 05/92 | 44,000 | -- | -- | 139,300 | -- |
| | | 06/92 | 44,000 | -- | -- | 59,370 | -- |
| | | 07/92 | 44,000 | -- | -- | 122,600 | -- |
| | | 08/92 | 44,000 | -- | -- | 65,670 | -- |
| | | 09/92 | 44,000 | -- | -- | 78,670 | -- |
| | | 10/92 | 44,000 | -- | -- | 123,500 | -- |
| | | 11/92 | 44,000 | -- | -- | 104,100 | -- |
| | | 12/92 | 44,000 | -- | -- | 74,400 | -- |
| | | 01/93 | 44,000 | -- | -- | 65,340 | -- |
| | | 02/93 | 44,000 | -- | -- | 56,850 | -- |
| | | 03/93 | 44,000 | -- | -- | 76,290 | -- |
| | | 04/93 | 44,000 | -- | -- | 165,200 | -- |
| | | 05/93 | 44,000 | -- | -- | 185,200 | -- |
| | | 06/93 | 44,000 | -- | -- | 287,300 | -- |
| | | 07/93 | 44,000 | -- | -- | 117,800 | -- |
| | | 08/93 | 44,000 | -- | -- | 78,520 | -- |
| | | 09/93 | 44,000 | -- | -- | 68,610 | -- |
| 69 | Lake Mendota | 03/92 | 410,189 | -- | -- | -- | 9.68 |
| | | 04/92 | 412,955 | -- | -- | -- | 9.98 |
| | | 05/92 | 411,296 | -- | -- | -- | 9.80 |
| | | 06/92 | 409,452 | -- | -- | -- | 9.60 |
| | | 07/92 | 413,507 | -- | -- | -- | 10.04 |
| | | 08/92 | 412,862 | -- | -- | -- | 9.97 |
| | | 09/92 | 412,862 | -- | -- | -- | 9.97 |
| | | 10/92 | 406,411 | -- | -- | -- | 9.27 |
| | | 11/92 | 411,203 | -- | -- | -- | 9.79 |
| | | 12/92 | 410,466 | -- | -- | -- | 9.71 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Wisconsin—Continued | | | | |
| 69 | Lake Mendota—Continued | 01/93 | 407,241 | -- | -- | -- | 9.36 |
| | | 02/93 | 405,951 | -- | -- | -- | 9.22 |
| | | 03/93 | 424,382 | -- | -- | -- | 11.22 |
| | | 04/93 | 424,751 | -- | -- | -- | 11.26 |
| | | 05/93 | 413,876 | -- | -- | -- | 10.08 |
| | | 06/93 | 417,101 | -- | -- | -- | 10.43 |
| | | 07/93 | 429,911 | -- | -- | -- | 11.82 |
| | | 08/93 | 425,027 | -- | -- | -- | 11.29 |
| | | 09/93 | 418,668 | -- | -- | -- | 10.60 |
| 70 | Lake Menomin | 03/92 | 11,000 | -- | -- | 149,600 | -- |
| | | 04/92 | 11,000 | -- | -- | 153,400 | -- |
| | | 05/92 | 11,000 | -- | -- | 92,570 | -- |
| | | 06/92 | 11,000 | -- | -- | 66,480 | -- |
| | | 07/92 | 11,000 | -- | -- | 81,360 | -- |
| | | 08/92 | 11,000 | -- | -- | 53,540 | -- |
| | | 09/92 | 11,000 | -- | -- | 66,890 | -- |
| | | 10/92 | 11,000 | -- | -- | 73,820 | -- |
| | | 11/92 | 11,000 | -- | -- | 88,960 | -- |
| | | 12/92 | 11,000 | -- | -- | 66,720 | -- |
| | | 01/93 | 11,000 | -- | -- | 60,310 | -- |
| | | 02/93 | 11,000 | -- | -- | 54,670 | -- |
| | | 03/93 | 11,000 | -- | -- | 91,840 | -- |
| | | 04/93 | 11,000 | -- | -- | 137,200 | -- |
| | | 05/93 | 11,000 | -- | -- | 104,100 | -- |
| | | 06/93 | 11,000 | -- | -- | 176,100 | -- |
| | | 07/93 | 11,000 | -- | -- | 95,640 | -- |
| | | 08/93 | 11,000 | -- | -- | 84,890 | -- |
| | | 09/93 | 11,000 | -- | -- | 68,500 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Wisconsin—Continued | | | | |
| 71 | Lake Monona | 03/92 | 88,038 | -- | -- | -- | 4.38 |
| | | 04/92 | 89,759 | -- | -- | -- | 4.91 |
| | | 05/92 | 89,662 | -- | -- | -- | 4.88 |
| | | 06/92 | 88,948 | -- | -- | -- | 4.66 |
| | | 07/92 | 90,279 | -- | -- | -- | 5.07 |
| | | 08/92 | 90,799 | -- | -- | -- | 5.23 |
| | | 09/92 | 90,831 | -- | -- | -- | 5.24 |
| | | 10/92 | 87,584 | -- | -- | -- | 4.24 |
| | | 11/92 | 88,461 | -- | -- | -- | 4.51 |
| | | 12/92 | 88,883 | -- | -- | -- | 4.64 |
| | | 01/93 | 88,559 | -- | -- | -- | 4.54 |
| | | 02/93 | 87,389 | -- | -- | -- | 4.18 |
| | | 03/93 | 91,642 | -- | -- | -- | 5.49 |
| | | 04/93 | 93,656 | -- | -- | -- | 6.11 |
| | | 05/93 | 92,552 | -- | -- | -- | 5.77 |
| | | 06/93 | 92,649 | -- | -- | -- | 5.80 |
| | | 07/93 | 96,480 | -- | -- | -- | 6.98 |
| | | 08/93 | 94,500 | -- | -- | -- | 6.37 |
| | | 09/93 | 93,526 | -- | -- | -- | 6.07 |
| 72 | Lake Waubesa | 03/92 | 31,801 | -- | -- | 11,730 | 4.20 |
| | | 04/92 | 32,800 | -- | -- | 8,420 | 4.72 |
| | | 05/92 | 32,896 | -- | -- | 5,760 | 4.77 |
| | | 06/92 | 32,550 | -- | -- | 3,060 | 4.59 |
| | | 07/92 | 32,433 | -- | -- | 3,730 | 5.05 |
| | | 08/92 | 33,759 | -- | -- | 2,760 | 5.22 |
| | | 09/92 | 33,145 | -- | -- | 12,760 | 4.90 |
| | | 10/92 | 31,763 | -- | -- | 14,170 | 4.18 |
| | | 11/92 | 31,993 | -- | -- | 10,500 | 4.30 |
| | | 12/92 | 31,974 | -- | -- | 12,610 | 4.29 |
| | | 01/93 | 31,974 | -- | -- | 15,030 | 4.29 |
| | | 02/93 | 31,398 | -- | -- | 10,940 | 3.99 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor- ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Wisconsin—Continued | | | | |
| 73 | Lake Wausau | 03/92 | 13,900 | -- | -- | 374,000 | -- |
| | | 04/92 | 13,900 | -- | -- | 564,400 | -- |
| | | 05/92 | 13,900 | -- | -- | 269,000 | -- |
| | | 06/92 | 13,900 | -- | -- | 139,500 | -- |
| | | 07/92 | 13,900 | -- | -- | 132,700 | -- |
| | | 08/92 | 13,900 | -- | -- | 102,400 | -- |
| | | 09/92 | 13,900 | -- | -- | 240,200 | -- |
| | | 10/92 | 13,900 | -- | -- | 200,700 | -- |
| | | 11/92 | 13,900 | -- | -- | 330,800 | -- |
| | | 12/92 | 13,900 | -- | -- | 226,200 | -- |
| | | 01/93 | 13,900 | -- | -- | 166,400 | -- |
| | | 02/93 | 13,900 | -- | -- | 133,700 | -- |
| | | 03/93 | 13,900 | -- | -- | 230,200 | -- |
| | | 04/93 | 13,900 | -- | -- | 510,300 | -- |
| | | 05/93 | 13,900 | -- | -- | 465,400 | -- |
| | | 06/93 | 13,900 | -- | -- | 709,300 | -- |
| | | 07/93 | 13,900 | -- | -- | 215,600 | -- |
| | | 08/93 | 13,900 | -- | -- | 168,900 | -- |
| | | 09/93 | 13,900 | -- | -- | 239,300 | -- |
| 74 | Lake Wissota (5548) | 03/92 | 128,558 | -- | -- | 28,400 | 1,306.18 |
| | | 04/92 | 213,499 | -- | -- | 33,682 | 1,312.22 |
| | | 05/92 | 206,612 | -- | -- | 48,828 | 1,311.55 |
| | | 06/92 | 202,020 | -- | -- | 25,841 | 1,311.30 |
| | | 07/92 | 208,907 | -- | -- | 82,297 | 1,311.61 |
| | | 08/92 | 192,837 | -- | -- | 32,982 | 1,310.85 |
| | | 09/92 | 204,316 | -- | -- | 29,862 | 1,311.44 |
| | | 10/92 | 208,907 | -- | -- | 64,244 | 1,311.81 |
| | | 11/92 | 208,907 | -- | -- | 52,634 | 1,311.74 |
| | | 12/92 | 167,585 | -- | -- | 82,389 | 1,308.93 |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Wisconsin—Continued | | | | |
| 74 | Lake Wissota (5548)—Continued | 01/93 | 142,332 | -- | -- | 55,383 | 1,306.99 |
| | | 02/93 | 114,784 | -- | -- | 47,812 | 1,304.78 |
| | | 03/93 | 98,714 | -- | -- | 16,499 | 1,303.48 |
| | | 04/93 | -- | -- | -- | 33,680 | -- |
| | | 05/93 | -- | -- | -- | 48,830 | -- |
| | | 06/93 | -- | -- | -- | 25,840 | -- |
| | | 07/93 | -- | -- | -- | 82,300 | -- |
| | | 08/93 | -- | -- | -- | 32,980 | -- |
| | | 09/93 | -- | -- | -- | 29,860 | -- |
| 75 | Lake 7746 | 03/92 | 2,000 | -- | -- | 609,100 | -- |
| | | 04/92 | 2,000 | -- | -- | 1,028,000 | -- |
| | | 05/92 | 2,000 | -- | -- | 510,500 | -- |
| | | 06/92 | 2,000 | -- | -- | 253,100 | -- |
| | | 07/92 | 2,000 | -- | -- | 238,000 | -- |
| | | 08/92 | 2,000 | -- | -- | 180,100 | -- |
| | | 09/92 | 2,000 | -- | -- | 558,500 | -- |
| | | 10/92 | 2,000 | -- | -- | 372,500 | -- |
| | | 11/92 | 2,000 | -- | -- | 614,200 | -- |
| | | 12/92 | 2,000 | -- | -- | 521,400 | -- |
| | | 01/93 | 2,000 | -- | -- | 384,400 | -- |
| | | 02/93 | 2,000 | -- | -- | 312,200 | -- |
| | | 03/93 | 2,000 | -- | -- | 381,100 | -- |
| | | 04/93 | 2,000 | -- | -- | 1,186,000 | -- |
| | | 05/93 | 2,000 | -- | -- | 1,022,000 | -- |
| | | 06/93 | 2,000 | -- | -- | 1,612,000 | -- |
| | | 07/93 | 2,000 | -- | -- | 621,900 | -- |
| | | 08/93 | 2,000 | -- | -- | 381,200 | -- |
| | | 09/93 | 2,000 | -- | -- | 490,300 | -- |

**Table 4.** Reservoir volume, evaporation, discharge, and stage measurements, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ year) | Volume (acre-feet) | Evapor-ation (acre-feet) | Discharge | | Stage (feet above datum) |
|---|---|---|---|---|---|---|---|
| | | | | | Inflow (acre-feet) | Outflow (acre-feet) | |
| | | | Wisconsin—Continued | | | | |
| 76 | Spring Valley Lake | 03/92 | 2,068 | -- | 2,940 | 6,310 | 940.61 |
| | | 04/92 | 2,083 | -- | 5,970 | 5,980 | 940.73 |
| | | 05/92 | 2,114 | -- | 1,090 | 1,520 | 940.94 |
| | | 06/92 | 2,037 | -- | 914 | 1,440 | 940.36 |
| | | 07/92 | 2,052 | -- | 2,200 | 2,510 | 940.53 |
| | | 08/92 | 2,037 | -- | 672 | 1,080 | 940.39 |
| | | 09/92 | 2,022 | -- | 1,070 | 1,530 | 940.28 |
| | | 10/92 | 2,022 | -- | 918 | 1,360 | 940.29 |
| | | 11/92 | 2,022 | -- | 1,540 | 2,120 | 940.33 |
| | | 12/92 | 2,022 | -- | 700 | 1,220 | 940.26 |
| | | 01/93 | 2,007 | -- | 594 | 1,090 | 940.25 |
| | | 02/93 | 2,007 | -- | 461 | 926 | 940.22 |
| | | 03/93 | 1,976 | -- | 4,200 | 5,020 | 940.01 |
| | | 04/93 | 2,052 | -- | 3,850 | 4,970 | 940.52 |
| | | 05/93 | 2,114 | -- | 1,770 | 2,190 | 940.93 |
| | | 06/93 | 2,037 | -- | 5,120 | 5,560 | 940.44 |
| | | 07/93 | 2,037 | -- | 1,280 | 1,980 | 940.42 |
| | | 08/93 | 2,144 | -- | 4,440 | 4,510 | 941.10 |
| | | 09/93 | 2,068 | -- | 1,080 | 1,580 | 940.65 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993

[ESA, ethane sulfonic acid; DEA, deethylatrazine; DIA, deisopropylatrazine; µg/L, micrograms per liter; --, no data, <, less than. Sample type: BD, blind duplicate; LD, laboratory duplicate; S, sample. Prometryn and terbutryn were not detected]

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Illinois | | | | | | | | | |
| 1 | Carlyle Lake | 04/30/92 | S | 0.28 | 0.56 | <0.05 | 5.0 | 0.49 | 0.40 | 1.0 | 0.54 | 0.10 | <0.50 | 1.4 | 0.07 | <0.05 | <0.05 | 1.2 |
| | | 06/24/92 | S | .05 | 1.0 | <.05 | 5.8 | .85 | .60 | 1.0 | -- | -- | -- | .84 | <.05 | <.05 | <.05 | 1.4 |
| | | 08/25/92 | S | <.05 | .69 | <.05 | 3.9 | .70 | .33 | .54 | .28 | .11 | <.50 | .18 | <.05 | <.05 | <.05 | .72 |
| | | 10/21/92 | S | <.05 | .89 | <.05 | 2.6 | .56 | .38 | .41 | .25 | .12 | <.50 | .10 | <.05 | <.05 | <.05 | .44 |
| | | 01/13/93 | S | <.05 | 1.0 | <.05 | .80 | .30 | .13 | .09 | -- | -- | -- | .15 | <.05 | <.05 | <.05 | <.05 |
| | | 03/30/93 | S | <.05 | .54 | <.05 | .29 | .11 | .08 | <.05 | <.05 | <.05 | <.50 | .10 | .07 | <.05 | <.05 | <.05 |
| | | 07/15/93 | S | .12 | .94 | <.05 | 4.3 | .77 | .67 | 1.1 | -- | -- | -- | .71 | <.05 | .05 | <.05 | .81 |
| | | 09/20/93 | S | <.05 | 2.2 | <.05 | 2.5 | .73 | .43 | .47 | .04 | <.05 | <.50 | .27 | <.05 | <.05 | <.05 | .39 |
| 2 | Crab Orchard Lake | 05/01/92 | S | <.05 | .13 | <.05 | .24 | .08 | .06 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/25/92 | S | <.05 | .34 | <.05 | .51 | .12 | .06 | .10 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/27/92 | S | <.05 | .11 | <.05 | .16 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | <.05 | .24 | <.05 | .49 | .14 | .06 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .05 | <.05 | <.05 |
| | | 01/15/93 | S | <.05 | .26 | <.05 | .29 | .09 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .05 | <.05 | <.05 |
| | | 03/26/93 | S | <.05 | .29 | <.05 | .17 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/93 | S | .06 | .28 | <.05 | .86 | .14 | .07 | .22 | .08 | <.05 | <.50 | .10 | <.05 | <.05 | <.05 | .05 |
| | | 09/21/93 | S | <.05 | .64 | <.05 | 1.5 | .28 | .11 | .28 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .06 |
| 3 | Devils Kitchen Lake | 05/01/92 | S | <.05 | <.10 | <.05 | .07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/25/92 | S | .08 | <.10 | <.05 | .27 | .08 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/27/92 | S | <.05 | .21 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/27/92 | LD | <.05 | -- | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | <.05 | <.10 | <.05 | .08 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/15/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/15/93 | LD | <.05 | -- | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/26/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/93 | S | <.05 | <.10 | <.05 | .40 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | .28 | <.05 | .39 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Illinois—Continued | | | | | | | | | |
| 4 | Lake Decatur | 04/30/92 | S | 0.06 | 0.33 | <0.05 | 0.58 | 0.08 | 0.07 | 0.19 | 0.07 | <0.05 | <0.50 | 0.95 | <0.05 | 0.09 | <0.05 | <0.05 |
| | | 07/07/92 | S | .12 | 1.2 | <.05 | 2.7 | .39 | .19 | .75 | .44 | .13 | <.50 | 1.1 | <.05 | .06 | <.05 | <.05 |
| | | 09/01/92 | S | <.05 | 1.9 | <.05 | .92 | .33 | .17 | .25 | .26 | <.05 | <.50 | .38 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/92 | LD | <.05 | 1.9 | <.05 | .91 | .33 | .14 | .15 | .30 | <.05 | <.50 | .39 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | BD | <.05 | 1.1 | <.05 | .69 | .26 | .13 | <.05 | .22 | .05 | <.50 | .22 | <.05 | .06 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | 1.0 | <.05 | .54 | .22 | <.05 | <.05 | .26 | .05 | <.50 | .17 | <.05 | <.05 | <.05 | <.05 |
| | | 01/14/93 | S | <.05 | 1.1 | <.05 | .36 | .16 | .06 | <.05 | -- | -- | -- | .30 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .80 | <.05 | .14 | .07 | .05 | <.05 | <.05 | <.05 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | BD | <.05 | .63 | <.05 | .15 | .08 | .05 | <.05 | <.05 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/93 | S | .59 | 4.9 | <.05 | 5.5 | 1.2 | 1.3 | 2.8 | 2.2 | .20 | .42 | 2.8 | <.05 | <.05 | <.05 | .05 |
| | | 09/09/93 | S | <.05 | 3.4 | <.05 | .68 | .34 | .26 | .12 | .31 | <.05 | <.50 | .33 | <.05 | .06 | <.05 | <.05 |
| 5 | Lake Shelbyville | 04/30/92 | S | <.05 | .45 | <.05 | 1.4 | .45 | .24 | .30 | .27 | <.05 | <.50 | .10 | <.05 | <.05 | <.05 | .28 |
| | | 07/07/92 | S | <.05 | .46 | <.05 | 1.7 | .43 | .26 | .41 | .31 | .16 | <.50 | .26 | <.05 | <.05 | <.05 | .32 |
| | | 08/25/92 | S | <.05 | 1.1 | <.05 | 1.8 | .49 | .27 | .46 | .42 | .13 | <.50 | .35 | <.05 | .06 | <.05 | .15 |
| | | 08/25/92 | BD | <.05 | -- | <.05 | 1.8 | .45 | .26 | .47 | .43 | .13 | <.50 | .34 | <.05 | .05 | <.05 | .14 |
| | | 10/20/92 | S | <.05 | .78 | <.05 | 1.6 | .48 | .26 | .43 | .60 | .15 | .36 | .28 | <.05 | .07 | <.05 | .09 |
| | | 01/14/93 | S | <.05 | 1.1 | <.05 | .50 | .27 | .13 | <.05 | -- | -- | -- | .19 | <.05 | <.05 | <.05 | <.05 |
| | | 03/26/93 | S | <.05 | .53 | <.05 | .18 | .10 | .08 | <.05 | <.05 | <.05 | <.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | .20 | .93 | <.05 | 1.9 | .32 | .21 | .67 | .12 | .09 | <.50 | 1.3 | <.05 | <.05 | <.05 | .13 |
| | | 07/12/93 | LD | .07 | -- | <.05 | 1.1 | .19 | .16 | .65 | -- | -- | -- | .62 | <.05 | <.05 | <.05 | .05 |
| | | 09/08/93 | S | .07 | 1.3 | <.05 | 2.1 | .56 | .38 | .66 | .13 | .10 | <.50 | .70 | <.05 | <.05 | <.05 | .11 |
| 6 | Lake Vermillion | 04/30/92 | S | .11 | .92 | <.05 | 1.8 | .17 | .22 | 1.3 | .10 | .09 | <.50 | .80 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | .25 | 2.9 | <.05 | 5.3 | 1.1 | .75 | 4.4 | 3.3 | .81 | 1.1 | .74 | <.05 | <.05 | .05 | <.05 |
| | | 07/07/92 | LD | .26 | -- | <.05 | 6.1 | .94 | .69 | 7.5 | 4.1 | .91 | <.50 | .63 | .09 | <.05 | .05 | <.05 |
| | | 07/07/92 | BD | .26 | 2.9 | <.05 | 5.2 | 1.1 | .81 | 4.3 | 2.8 | .71 | 1.0 | .75 | <.05 | <.05 | .69 | <.05 |
| | | 07/07/92 | LD | .23 | -- | <.05 | 5.7 | .85 | .61 | 5.1 | -- | -- | -- | .56 | .09 | <.05 | .05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Illinois—Continued | | | | | | | | | |
| 6 | Lake Vermillion—Continued | 08/28/92 | S | <0.05 | 1.9 | <0.05 | 1.4 | 0.43 | 0.36 | 0.44 | 1.3 | 0.12 | <0.50 | 0.18 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 10/21/92 | S | <.05 | .59 | <.05 | .70 | .31 | .32 | .32 | .72 | .09 | .33 | .10 | <.05 | .05 | <.05 | <.05 |
| | | 01/13/93 | S | <.05 | .73 | <.05 | .45 | .24 | .21 | .10 | -- | -- | -- | .12 | <.05 | <.05 | <.05 | <.05 |
| | | 03/17/93 | S | <.05 | .75 | <.05 | .35 | .17 | .23 | .14 | .15 | <.05 | <.50 | .56 | <.05 | <.05 | <.05 | <.05 |
| | | 07/06/93 | S | .15 | 2.9 | <.05 | 4.7 | 1.5 | 1.6 | 4.3 | 3.7 | .17 | <.50 | 1.3 | <.05 | <.05 | <.05 | <.05 |
| | | 07/06/93 | LD | .15 | 3.1 | <.05 | 5.1 | 1.5 | 1.6 | 4.4 | 4.0 | .18 | <.50 | 1.4 | <.05 | <.05 | .05 | <.05 |
| | | 09/02/93 | S | <.05 | 1.3 | <.05 | .95 | .42 | .55 | .28 | .54 | .07 | <.50 | .20 | <.05 | <.05 | <.05 | <.05 |
| 7 | Little Grassy Lake | 05/01/92 | S | <.05 | <.10 | <.05 | .09 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/25/92 | S | <.05 | <.10 | <.05 | .15 | .05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/27/92 | S | <.05 | <.10 | <.05 | .12 | .05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | <.05 | <.10 | <.05 | .12 | .06 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/15/93 | S | <.05 | <.10 | <.05 | .10 | .06 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/26/93 | S | <.05 | <.10 | <.05 | .07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/93 | S | <.05 | <.10 | <.05 | .14 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | .34 | <.05 | .39 | .06 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 8 | Rend Lake | 04/30/92 | S | <.05 | .30 | <.05 | .38 | .15 | .13 | .18 | .10 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/30/92 | LD | <.05 | .34 | <.05 | .37 | .14 | .12 | .17 | .10 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/24/92 | S | .13 | .71 | <.05 | 4.3 | .27 | .17 | .28 | -- | -- | -- | <.05 | <.05 | .15 | <.05 | .08 |
| | | 08/24/92 | S | <.05 | .56 | <.05 | 1.1 | .22 | .11 | .35 | .29 | .09 | <.50 | <.05 | <.05 | <.05 | <.05 | .09 |
| | | 10/21/92 | S | <.05 | .50 | <.05 | 1.0 | .26 | .16 | .34 | .23 | .12 | <.50 | <.05 | <.05 | <.05 | <.05 | .06 |
| | | 01/11/93 | S | <.05 | .36 | <.05 | .74 | .19 | .09 | .14 | .35 | .07 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .38 | <.05 | 1.3 | .13 | .08 | .19 | .14 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .06 |
| | | 07/07/93 | S | .05 | .38 | <.05 | .77 | .19 | .13 | .69 | <.05 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | .10 |
| | | 09/20/93 | S | <.05 | .87 | <.05 | 1.3 | .34 | .28 | .93 | .41 | .11 | <.50 | <.05 | <.05 | <.05 | <.05 | .17 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Indiana | | | | | | | | | |
| 9 | Brookville Lake | 05/07/92 | S | 0.09 | 0.81 | <0.05 | 1.6 | 0.49 | 0.40 | 0.62 | 0.19 | 0.12 | <0.50 | 0.20 | <0.05 | <0.05 | <0.05 | 0.08 |
| | | 05/07/92 | BD | .09 | .75 | <.05 | 1.6 | .50 | .40 | .63 | .20 | .18 | <.50 | .20 | <.05 | <.05 | <.05 | .86 |
| | | 07/13/92 | S | .09 | 1.1 | <.05 | 1.3 | .32 | .17 | .37 | .24 | .11 | <.50 | .17 | <.05 | <.05 | <.05 | .09 |
| | | 08/19/92 | S | <.05 | .80 | <.05 | .19 | .05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/23/92 | S | .13 | 1.1 | <.05 | 1.9 | .47 | .27 | .45 | .20 | .11 | <.50 | .28 | <.05 | <.05 | <.05 | .14 |
| | | 01/06/93 | S | .06 | 1.8 | <.05 | 1.4 | .48 | .22 | .27 | .24 | .11 | <.50 | .25 | <.05 | .05 | <.05 | .14 |
| | | 03/24/93 | S | <.05 | .79 | <.05 | .56 | .20 | .08 | .10 | <.05 | <.05 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/08/93 | S | .21 | 1.1 | <.05 | 1.5 | .31 | .14 | .29 | .14 | .09 | <.50 | .35 | <.05 | <.05 | <.05 | .08 |
| | | 09/07/93 | S | .60 | 3.1 | <.05 | 2.4 | .36 | .19 | .46 | .12 | <.05 | <.50 | .61 | <.05 | <.05 | <.05 | .11 |
| 10 | Cataract Lake | 05/04/92 | S | .05 | .56 | <.05 | 2.6 | .38 | .17 | .11 | <.05 | <.05 | <.50 | 1.4 | <.05 | <.05 | <.05 | .11 |
| | | 05/04/92 | LD | .05 | .59 | <.05 | 2.6 | .37 | .17 | .12 | <.05 | <.05 | <.50 | 1.4 | <.05 | <.05 | <.05 | .11 |
| | | 07/11/92 | S | .08 | .88 | <.05 | 3.0 | .42 | .32 | .37 | .21 | <.05 | <.50 | .99 | <.05 | <.05 | <.05 | .21 |
| | | 08/24/92 | S | <.05 | .91 | <.05 | 2.2 | .76 | .45 | .28 | .49 | <.05 | <.50 | .68 | <.05 | <.05 | <.05 | .21 |
| | | 10/21/92 | S | <.05 | .44 | <.05 | 1.8 | .63 | .26 | .26 | .30 | .08 | <.50 | .39 | <.05 | <.05 | <.05 | .15 |
| | | 01/14/93 | S | <.05 | .34 | <.05 | .23 | .19 | .09 | <.05 | -- | -- | -- | .17 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .45 | <.05 | .25 | .15 | .05 | <.05 | <.05 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/93 | S | .44 | 2.3 | <.05 | 11 | 2.6 | 1.6 | 3.8 | 1.8 | .29 | <.50 | 4.6 | .17 | <.05 | .15 | .48 |
| | | 09/02/93 | S | <.05 | .85 | <.05 | 2.2 | .76 | .40 | .57 | .27 | .08 | <.50 | .71 | <.05 | <.05 | <.05 | .18 |
| 11 | Eagle Creek Reservoir | 05/04/92 | S | .10 | 2.3 | <.05 | 2.8 | .43 | .27 | .63 | .15 | <.05 | <.50 | 2.3 | <.05 | <.05 | <.05 | .10 |
| | | 07/06/92 | S | .22 | 1.3 | <.05 | 3.5 | .64 | 1.0 | 1.1 | .30 | .12 | <.50 | 2.0 | .05 | .07 | <.05 | .36 |
| | | 08/27/92 | S | .11 | 1.8 | <.05 | 2.7 | .62 | .39 | .76 | .47 | .12 | <.50 | 1.4 | .05 | .15 | <.05 | .27 |
| | | 10/27/92 | S | .05 | 1.6 | <.05 | 1.5 | .52 | .32 | .28 | .17 | .08 | <.50 | .47 | <.05 | .14 | <.05 | <.05 |
| | | 01/07/93 | S | .07 | .57 | <.05 | .29 | .16 | .09 | <.05 | <.05 | <.05 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |
| | | 03/29/93 | S | .06 | .62 | <.05 | .21 | .13 | .07 | <.05 | <.05 | <.05 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |
| | | 07/08/93 | S | .10 | 1.3 | <.05 | 3.6 | .79 | .40 | 1.7 | .78 | .25 | <.50 | 2.3 | <.05 | .06 | <.05 | .26 |
| | | 07/08/93 | BD | .11 | 1.2 | <.05 | 3.5 | .78 | .41 | 1.6 | .77 | .21 | <.50 | 2.2 | <.05 | .06 | <.05 | .27 |
| | | 09/03/93 | S | <.05 | 2.3 | <.05 | 2.2 | .78 | .52 | .87 | .29 | .12 | <.50 | 1.1 | <.05 | .07 | <.05 | .22 |
| | | 09/03/93 | BD | <.05 | 2.5 | <.05 | 2.2 | .77 | .51 | .87 | .32 | <.05 | <.50 | 1.1 | <.05 | .07 | <.05 | .21 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethyl-cyanazine (µg/L) | Deethyl-cyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Indiana—Continued | | | | | | | | | |
| 12 | Huntington Lake | 05/05/92 | S | 0.22 | 4.8 | <0.05 | 1.1 | 0.30 | 0.21 | 0.42 | 0.15 | <0.05 | <0.50 | 0.67 | 0.08 | <0.05 | <0.05 | <0.05 |
| | | 07/14/92 | S | 1.1 | 15 | <.05 | 6.1 | 1.3 | .87 | 2.6 | 1.3 | <.05 | <.50 | 3.4 | .38 | .11 | .08 | .26 |
| | | 07/14/92 | LD | 1.3 | 13 | <.05 | 6.4 | 1.5 | .96 | 2.8 | 1.6 | .31 | <.50 | 3.5 | .42 | .11 | .08 | .28 |
| | | 08/26/92 | S | .05 | 5.8 | <.05 | 1.2 | .45 | .26 | .49 | 1.2 | .13 | <.50 | .43 | <.05 | .09 | <.05 | .05 |
| | | 08/26/92 | BD | .05 | 5.6 | <.05 | 1.2 | .48 | .30 | .59 | 1.2 | .11 | <.50 | .45 | <.05 | .09 | <.05 | .05 |
| | | 10/27/92 | S | .05 | 4.6 | <.05 | .42 | .35 | .15 | .17 | <.05 | <.05 | <.50 | .30 | <.05 | <.05 | <.05 | <.05 |
| | | 10/27/92 | LD | .06 | 4.4 | <.05 | .43 | .35 | .14 | .10 | .18 | .06 | <.50 | .31 | <.05 | <.05 | <.05 | <.05 |
| | | 01/11/93 | S | .06 | 2.5 | <.05 | .36 | .26 | .11 | <.05 | <.05 | <.05 | <.50 | .25 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | .05 | 1.3 | <.05 | .22 | .12 | .05 | <.05 | .10 | <.05 | <.50 | .35 | .07 | <.05 | <.05 | <.05 |
| | | 07/09/93 | S | 1.3 | 11 | <.05 | 7.7 | 2.5 | 2.0 | 3.7 | 3.6 | .33 | <.50 | 4.3 | .67 | <.05 | .10 | .19 |
| | | 09/16/93 | S | .12 | 5.9 | <.05 | 1.3 | .40 | .32 | .82 | .74 | <.05 | <.50 | .62 | <.05 | .12 | <.05 | .05 |
| 13 | Lake Shafer | 05/05/92 | S | .08 | 3.1 | <.05 | .35 | .09 | .06 | .12 | <.05 | <.05 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/92 | S | .18 | 5.4 | <.05 | 1.5 | .33 | .16 | .33 | .13 | <.05 | <.50 | .27 | <.05 | .05 | <.05 | .10 |
| | | 07/14/92 | BD | .23 | 4.6 | <.05 | 1.0 | .29 | .15 | .19 | .27 | .10 | <.50 | .31 | <.05 | .05 | <.05 | .09 |
| | | 08/26/92 | S | <.05 | 2.4 | <.05 | .19 | .06 | <.05 | <.05 | .12 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .05 |
| | | 10/26/92 | S | <.05 | 2.2 | <.05 | .17 | .10 | .06 | <.05 | .08 | <.05 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/12/93 | S | <.05 | <.10 | <.05 | .20 | .08 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | 2.5 | <.05 | .10 | .06 | <.05 | <.05 | <.05 | <.05 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | .11 | 3.6 | <.05 | 1.1 | .33 | .19 | .23 | -- | -- | -- | .19 | <.05 | <.05 | <.05 | .09 |
| | | 09/03/93 | S | .09 | 6.2 | <.05 | .43 | .22 | .12 | .16 | .09 | <.05 | <.50 | .44 | <.05 | <.05 | <.05 | <.05 |
| | | 09/03/93 | LD | .08 | 6.1 | <.05 | .45 | .23 | .12 | .16 | .10 | <.05 | <.50 | .45 | <.05 | <.05 | <.05 | <.05 |
| 14 | Mansfield Lake | 05/04/92 | S | .12 | 1.0 | <.05 | 1.6 | .29 | .20 | .21 | .05 | <.05 | <.50 | .65 | <.05 | <.05 | <.05 | .12 |
| | | 07/11/92 | S | .12 | .82 | <.05 | 2.3 | .30 | .16 | .21 | .12 | <.05 | <.50 | .62 | <.05 | <.05 | <.05 | .24 |
| | | 08/24/92 | S | .08 | 1.9 | <.05 | 1.8 | .53 | .31 | .19 | .26 | <.05 | <.50 | .57 | <.05 | <.05 | <.05 | .16 |
| | | 10/21/92 | S | <.05 | .68 | <.05 | 1.6 | .57 | .28 | .19 | .18 | .07 | <.50 | .34 | <.05 | <.05 | <.05 | .11 |
| | | 01/12/93 | S | <.05 | <.10 | <.05 | .41 | .20 | <.05 | <.05 | -- | -- | -- | .21 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Indiana—Continued | | | | | | | | | |
| 14 | Mansfield Lake— | 01/12/93 | BD | <0.05 | <0.10 | <0.05 | 0.42 | 0.20 | <0.05 | <0.05 | -- | -- | -- | 0.21 | <0.05 | <0.05 | <0.05 | <0.05 |
| | Continued | 01/12/93 | LD | <.05 | -- | <.05 | .43 | .21 | .05 | <.05 | -- | -- | -- | .22 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .64 | <.05 | .30 | .17 | .06 | <.05 | <0.05 | <0.05 | <0.50 | .19 | <.05 | <.05 | <.05 | <.05 |
| | | 07/10/93 | S | .17 | .95 | <.05 | 4.2 | .75 | .28 | .69 | .28 | <.05 | <.50 | 1.9 | <.05 | <.05 | <.05 | <.05 |
| | | 07/10/93 | LD | .17 | 1.0 | <.05 | 4.2 | .74 | .28 | .72 | .29 | <.05 | <.50 | 1.9 | <.05 | <.05 | <.05 | <.05 |
| | | 09/15/93 | S | .06 | 2.4 | <.05 | 3.4 | 1.1 | .68 | .56 | .48 | .08 | <.50 | .84 | <.05 | <.05 | <.05 | <.05 |
| 15 | Mississinewa Lake | 05/04/92 | S | .56 | 3.0 | <.05 | 3.9 | .42 | .30 | 1.7 | .25 | <.05 | <.50 | 2.1 | .54 | <.05 | <.05 | .88 |
| | | 07/14/92 | S | 2.7 | 8.4 | <.05 | 11 | 1.7 | 1.2 | 5.1 | 3.2 | .32 | <.50 | 4.9 | .67 | .05 | .13 | .80 |
| | | 08/26/92 | S | .35 | 6.1 | <.05 | 4.2 | 1.4 | .86 | 2.0 | 1.9 | .28 | <.50 | 1.8 | .12 | .05 | .05 | .24 |
| | | 08/26/92 | LD | .34 | 5.8 | <.05 | 4.1 | 1.3 | .76 | 1.7 | 1.2 | .18 | <.50 | 1.7 | .11 | .05 | <.05 | .22 |
| | | 10/26/92 | S | .05 | 2.2 | <.05 | .66 | .52 | .27 | .12 | .16 | <.05 | <.50 | .30 | <.05 | .05 | <.05 | <.05 |
| | | 01/11/93 | S | <.05 | 1.7 | <.05 | .23 | .17 | .10 | .06 | -- | -- | -- | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | .94 | <.05 | .25 | .32 | .07 | <.05 | .05 | <.05 | <.50 | .14 | .09 | <.05 | <.05 | <.05 |
| | | 07/09/93 | S | 1.5 | 9.4 | <.05 | 8.0 | 2.0 | 1.6 | 5.8 | 3.0 | .45 | <.50 | 4.0 | <.05 | <.05 | .09 | .65 |
| | | 09/15/93 | S | .24 | 12 | <.05 | 4.3 | 1.4 | 1.1 | 2.5 | 1.7 | .26 | <.50 | 1.4 | <.05 | .06 | <.05 | .25 |
| 16 | Monroe Lake | 05/06/92 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | <.05 | <.10 | <.05 | .09 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | .12 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | S | <.05 | <.10 | <.05 | .12 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | BD | <.05 | <.10 | <.05 | .12 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/13/93 | S | <.05 | <.10 | <.05 | .10 | .05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | S | <.05 | .15 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/08/93 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/93 | S | <.05 | .15 | <.05 | .23 | .05 | <.05 | <.05 | .06 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Indiana—Continued | | | | | | | | | |
| 17 | Morse Reservoir | 05/07/92 | S | 0.59 | 2.8 | <0.05 | 4.0 | 0.57 | 0.37 | 0.96 | 0.17 | <0.05 | <0.50 | 2.8 | 0.10 | <0.05 | <0.05 | <0.05 |
| | | 07/06/92 | S | 3.4 | 11 | <.05 | 12 | 1.5 | 1.2 | 1.2 | -- | -- | -- | 5.3 | .25 | .08 | .14 | .07 |
| | | 08/25/92 | S | .15 | 7.5 | <.05 | 2.1 | .68 | .36 | .28 | .18 | .06 | <.50 | .68 | <.05 | .07 | <.05 | <.05 |
| | | 08/25/92 | LD | .17 | 7.3 | <.05 | 2.3 | .73 | .36 | .33 | .20 | .08 | <.50 | .77 | <.05 | .07 | <.05 | <.05 |
| | | 10/27/92 | S | .14 | 3.1 | <.05 | 1.6 | .53 | .22 | .19 | .17 | .06 | <.50 | .41 | <.05 | .06 | <.05 | <.05 |
| | | 01/07/93 | S | .10 | 1.8 | <.05 | .25 | .15 | .06 | <.05 | -- | -- | -- | .27 | <.05 | <.05 | <.05 | <.05 |
| | | 03/29/93 | S | .06 | 1.3 | <.05 | .26 | .14 | <.05 | <.05 | <.05 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 03/29/93 | BD | .06 | -- | <.05 | .24 | .13 | <.05 | <.05 | <.05 | <.05 | <.50 | .20 | <.05 | <.05 | <.05 | <.05 |
| | | 03/29/93 | LD | .07 | 1.6 | <.05 | .27 | .15 | .05 | <.05 | <.05 | <.05 | <.50 | .22 | <.05 | <.05 | <.05 | <.05 |
| | | 07/09/93 | S | .57 | 6.2 | <.05 | 4.4 | 1.1 | .57 | .68 | .80 | .14 | <.50 | 2.1 | <.05 | .10 | <.05 | <.05 |
| | | 09/03/93 | S | .07 | 10 | <.05 | 2.7 | .95 | .50 | .30 | .25 | <.05 | <.50 | .98 | <.05 | .09 | <.05 | <.05 |
| 18 | Patoka Lake | 05/06/92 | S | <.05 | <.10 | <.05 | .11 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/06/92 | LD | <.05 | <.10 | <.05 | .11 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | <.05 | <.10 | <.05 | .13 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | LD | <.05 | <.10 | <.05 | .15 | .05 | <.05 | .05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | .12 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | <.05 | <.10 | <.05 | .09 | <.05 | <.05 | <.05 | .09 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/13/93 | S | <.05 | <.10 | <.05 | .08 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | S | <.05 | <.10 | <.05 | .07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | .05 | .11 | <.05 | .19 | <.05 | <.05 | .09 | -- | -- | -- | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/14/93 | S | <.05 | .29 | <.05 | .28 | .07 | .05 | .06 | <.05 | <.05 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| 19 | Salamonie Lake | 05/05/92 | S | .17 | 4.4 | <.05 | .95 | .23 | .14 | .30 | <.05 | <.05 | <.50 | 1.4 | .16 | <.05 | <.05 | .05 |
| | | 07/14/92 | S | 3.0 | 17 | <.05 | 9.4 | 1.6 | 1.0 | 4.4 | 2.0 | .40 | <.50 | 3.4 | .91 | <.05 | .11 | .22 |
| | | 08/26/92 | S | .70 | 11 | <.05 | 4.6 | 1.4 | .72 | 2.8 | 1.8 | .21 | <.50 | 2.2 | .26 | <.05 | .05 | .09 |
| | | 10/26/92 | S | .15 | 7.6 | <.05 | 2.2 | .89 | .48 | .61 | .44 | .10 | .37 | .59 | <.05 | <.05 | <.05 | .07 |
| | | 01/11/93 | S | .08 | 2.6 | <.05 | .31 | .20 | .09 | .10 | -- | -- | -- | .26 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Indiana—Continued | | | | | | | | | |
| 19 | Salamonie Lake—Continued | 01/11/93 | LD | 0.07 | -- | <0.05 | 0.31 | 0.19 | 0.09 | 0.08 | -- | -- | -- | 0.25 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 03/23/93 | S | .17 | 2.0 | <.05 | .68 | .55 | .23 | .09 | <0.05 | <0.05 | <0.50 | .75 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | 2.9 | 20 | <.05 | 9.8 | 1.9 | 1.9 | 4.7 | -- | -- | -- | 4.3 | 1.2 | .05 | .07 | .29 |
| | | 07/12/93 | LD | 2.9 | 19 | <.05 | 9.9 | 2.3 | 2.0 | 5.2 | -- | -- | -- | 4.4 | 1.3 | .05 | .08 | .29 |
| | | 09/16/93 | S | .63 | 18 | <.05 | 5.8 | 1.6 | 1.4 | 3.6 | 2.7 | .37 | <.50 | 1.8 | <.05 | .12 | .06 | .22 |
| | | 09/16/93 | LD | .69 | -- | <.05 | 5.7 | 1.6 | 1.5 | 3.5 | 2.7 | .37 | <.50 | 1.8 | .10 | <.05 | .06 | .22 |
| | | | | | | | | | Iowa | | | | | | | | | |
| 20 | Coralville Lake | 04/29/92 | S | .08 | 1.7 | <.05 | .25 | .13 | .09 | .15 | .10 | <.05 | <.50 | .40 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | S | <.05 | 1.9 | <.05 | .23 | .12 | .09 | .06 | .12 | <.05 | <.50 | .17 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | LD | <.05 | 1.9 | <.05 | .24 | .12 | .08 | .06 | .21 | .08 | <.50 | .17 | <.05 | <.05 | <.05 | <.05 |
| | | 08/24/92 | S | <.05 | 1.9 | <.05 | .37 | .19 | .10 | .08 | .22 | <.05 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 10/19/92 | S | <.05 | 1.0 | <.05 | .23 | .17 | .11 | .06 | .08 | .06 | <.50 | .11 | <.05 | <.05 | <.05 | <.05 |
| | | 01/20/93 | S | <.05 | 1.4 | <.05 | .09 | .08 | .05 | <.05 | .05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .58 | <.05 | .35 | .14 | .06 | .08 | <.05 | <.05 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| | | 07/16/93 | S | .44 | 4.7 | <.05 | 3.8 | .72 | .52 | 1.6 | -- | -- | -- | 1.5 | <.05 | <.05 | <.05 | .05 |
| | | 07/16/93 | LD | .36 | 4.6 | <.05 | 3.6 | .71 | .51 | 1.5 | -- | -- | -- | 1.4 | <.05 | <.05 | <.05 | .05 |
| | | 09/01/93 | S | <.05 | 3.7 | <.05 | .66 | .39 | .21 | .11 | .18 | <.05 | <.50 | .37 | <.05 | <.05 | <.05 | <.05 |
| 21 | Lake Panorama | 04/30/92 | S | .08 | .61 | <.05 | .16 | .06 | .06 | .12 | .05 | <.05 | <.50 | .47 | <.05 | <.05 | <.05 | <.05 |
| | | 04/30/92 | LD | .09 | .48 | <.05 | .16 | .06 | .06 | .12 | .05 | <.05 | <.50 | .47 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | S | <.05 | .34 | <.05 | .21 | .08 | .07 | .11 | .12 | .07 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | .95 | <.05 | .74 | .21 | .14 | .29 | .26 | .07 | <.50 | .46 | <.05 | <.05 | <.05 | <.05 |
| | | 10/16/92 | S | <.05 | .38 | <.05 | .36 | .18 | .16 | .11 | .16 | .06 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 10/16/92 | BD | <.05 | .92 | <.05 | .34 | .16 | .12 | .09 | .10 | .05 | <.50 | .13 | <.05 | <.05 | <.05 | <.05 |
| | | 10/16/92 | LD | <.05 | .85 | <.05 | .34 | .18 | .13 | .10 | .19 | .05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/22/93 | S | <.05 | .28 | <.05 | .05 | .05 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/22/93 | BD | <.05 | .34 | <.05 | .05 | .05 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/23/93 | LD | <.05 | .34 | <.05 | .07 | .06 | .06 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Iowa—Continued | | | | | | | | | | |
| 21 | Lake Panorama— | 03/22/93 | S | <0.05 | 0.89 | <0.05 | 0.44 | 0.12 | 0.09 | 0.11 | 0.07 | <0.05 | <0.50 | 0.24 | <0.05 | <0.05 | <0.05 | <0.05 |
| | Continued | 03/22/93 | BD | <.05 | .71 | <.05 | .40 | .10 | .07 | .09 | .08 | <.05 | <.50 | .22 | <.05 | <.05 | <.05 | <.05 |
| | | 07/27/93 | S | .10 | 1.6 | <.05 | 1.0 | .29 | .16 | .29 | -- | -- | -- | .42 | <.05 | <.05 | <.05 | <.05 |
| | | 08/31/93 | S | <.05 | 1.1 | <.05 | .35 | .20 | .18 | .10 | .12 | <.05 | <.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 08/31/93 | LD | <.05 | 1.1 | <.05 | .36 | .21 | .20 | .09 | .10 | <.05 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| 22 | Lake Red Rock | 04/30/92 | S | .17 | 1.2 | <.05 | .60 | .10 | .09 | .33 | .11 | <.05 | <.50 | .99 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/92 | S | .11 | .88 | <.05 | .34 | .08 | .12 | .12 | .16 | .11 | <.50 | .30 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | 1.6 | <.05 | .49 | .21 | .18 | .21 | .28 | .08 | <.50 | .22 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | BD | <.05 | 1.1 | <.05 | .53 | .18 | .15 | .17 | .12 | <.05 | <.50 | .20 | <.05 | <.05 | <.05 | <.05 |
| | | 10/13/92 | S | <.05 | <.10 | <.05 | .69 | .30 | .19 | .20 | .36 | .06 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| | | 01/21/93 | S | <.05 | .73 | <.05 | .11 | .08 | .09 | <.05 | .06 | <.05 | <.50 | .08 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | .86 | <.05 | .49 | .15 | .10 | <.05 | <.05 | <.05 | <.50 | .44 | <.05 | <.05 | <.05 | <.05 |
| | | 07/16/93 | S | .23 | 2.5 | <.05 | 2.8 | .47 | .37 | 1.4 | -- | -- | -- | 1.6 | <.05 | <.05 | <.05 | <.05 |
| | | 08/30/93 | S | <.05 | 2.3 | <.05 | .70 | .27 | .24 | .22 | .33 | <.05 | <.50 | .43 | <.05 | <.05 | <.05 | <.05 |
| 23 | Rathbun Lake | 04/30/92 | S | .05 | .55 | <.05 | 2.3 | .46 | .34 | 1.8 | 1.2 | .29 | <.50 | .26 | <.05 | <.05 | <.05 | <.05 |
| | | 04/30/92 | BD | <.05 | .52 | <.05 | 2.0 | .43 | .30 | 1.5 | 1.2 | .20 | <.50 | .22 | <.05 | <.05 | <.05 | <.05 |
| | | 07/02/92 | S | .05 | .55 | <.05 | 2.0 | .45 | .39 | 2.3 | .86 | .26 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 07/02/92 | BD | .05 | .54 | <.05 | 2.1 | .45 | .33 | 2.4 | .96 | .27 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 08/12/92 | S | .05 | .84 | <.05 | 2.3 | .47 | .40 | 2.0 | 1.9 | .44 | <.50 | .19 | <.05 | .05 | <.05 | <.05 |
| | | 10/14/92 | S | <.05 | .59 | <.05 | 1.5 | .57 | .38 | 1.4 | 1.4 | .18 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 01/21/93 | S | <.05 | .57 | <.05 | 1.0 | .34 | .21 | .41 | .50 | .12 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | .60 | <.05 | .98 | .37 | .23 | .64 | .67 | <.05 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 07/27/93 | S | .12 | 1.1 | <.05 | 2.6 | .46 | .39 | 2.6 | -- | -- | -- | .31 | <.05 | <.05 | <.05 | <.05 |
| | | 08/30/93 | S | .11 | 1.5 | <.05 | 3.5 | .92 | .75 | 4.1 | 2.2 | .24 | <.50 | .56 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **Iowa—Continued** | | | | | | | | | | |
| 24 | Saylorville Lake | 04/30/92 | S | 0.07 | 0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | 0.30 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 06/30/92 | S | .40 | 2.8 | <.05 | 1.1 | .15 | .15 | .37 | .24 | .09 | <.50 | 1.3 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | 1.4 | <.05 | .30 | .12 | .13 | .13 | .24 | <.05 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | LD | <.05 | .86 | <.05 | .31 | .16 | .10 | .10 | .32 | .06 | <.50 | .17 | <.05 | <.05 | <.05 | <.05 |
| | | 10/16/92 | S | <.05 | 1.4 | <.05 | .21 | .10 | .11 | .10 | .20 | .05 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 01/22/93 | S | <.05 | 1.2 | <.05 | .08 | <.05 | .07 | <.05 | .05 | <.05 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .85 | <.05 | .22 | .07 | .06 | <.05 | <.05 | <.05 | <.50 | .25 | <.05 | <.05 | <.05 | <.05 |
| | | 07/16/93 | S | .29 | 3.3 | <.05 | 2.4 | .32 | .24 | .86 | -- | -- | -- | 1.7 | <.05 | <.05 | <.05 | <.05 |
| | | 08/31/93 | S | <.05 | 3.7 | <.05 | .71 | .21 | .16 | .17 | .37 | <.05 | <.50 | .45 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | **Kansas** | | | | | | | | | | |
| 25 | Clinton Lake | 05/01/92 | S | <.05 | .22 | <.05 | 1.2 | .27 | .13 | .08 | <.05 | <.05 | <.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 06/26/92 | S | <.05 | .22 | <.05 | 1.5 | .30 | .12 | .05 | <.05 | <.05 | <.50 | .17 | <.05 | <.05 | <.05 | <.05 |
| | | 08/24/92 | S | <.05 | .55 | <.05 | 1.4 | .35 | .15 | <.05 | <.05 | <.05 | <.50 | .13 | <.05 | <.05 | <.05 | <.05 |
| | | 10/26/92 | S | <.05 | .59 | <.05 | 1.6 | .38 | .15 | <.05 | .08 | <.05 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 01/19/93 | S | <.05 | .38 | <.05 | 1.0 | .25 | .08 | <.05 | <.05 | <.05 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .46 | <.05 | .67 | .20 | .07 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | .17 | <.05 | 1.0 | .17 | <.05 | <.05 | -- | -- | -- | .30 | <.05 | <.05 | <.05 | <.05 |
| | | 08/30/93 | S | .05 | 1.7 | <.05 | 1.2 | .24 | .12 | <.05 | <.05 | <.05 | <.50 | .30 | <.05 | <.05 | <.05 | <.05 |
| 26 | Hillsdale Lake | 05/05/92 | S | .12 | 1.0 | <.05 | 2.6 | .73 | .49 | .09 | .05 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | .06 |
| | | 06/25/92 | S | .10 | 1.4 | <.05 | 3.0 | .60 | .33 | <.05 | <.05 | <.05 | <.50 | .76 | <.05 | <.05 | <.05 | <.05 |
| | | 08/28/92 | S | .05 | 1.1 | <.05 | 2.4 | .58 | .27 | <.05 | .09 | <.05 | <.50 | .13 | <.05 | <.05 | <.05 | .06 |
| | | 08/28/92 | LD | .05 | 1.0 | <.05 | 2.5 | .63 | .28 | <.05 | .09 | <.05 | <.50 | .13 | <.05 | <.05 | <.05 | .07 |
| | | 10/27/92 | S | <.05 | 1.5 | <.05 | 2.6 | .64 | .26 | <.05 | <.05 | <.05 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 01/11/93 | S | <.05 | 1.1 | <.05 | 1.6 | .39 | .15 | <.05 | <.05 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| | | 01/11/93 | LD | <.05 | 1.1 | <.05 | 1.8 | .47 | .20 | <.05 | <.05 | <.05 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | .53 | <.05 | 1.1 | .33 | .15 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/29/93 | S | .21 | 1.7 | <.05 | 2.6 | .49 | .21 | <.05 | -- | -- | -- | .24 | <.05 | <.05 | <.05 | .06 |
| | | 08/31/93 | S | .10 | 3.2 | <.05 | 2.0 | .41 | .18 | <.05 | <.05 | <.05 | <.50 | .15 | <.05 | <.05 | <.05 | .05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Kansas—Continued | | | | | | | | | |
| 27 | Kanopolis Lake | 05/07/92 | S | <.05 | <.10 | <.05 | .40 | .11 | .15 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .16 | <.05 | <.05 |
| | | 06/30/92 | S | <.05 | <.10 | <.05 | .75 | <.05 | .06 | .10 | <.05 | <.05 | <.50 | .16 | <.05 | .12 | <.05 | <.05 |
| | | 06/30/92 | LD | <.05 | <.10 | <.05 | .75 | .10 | .08 | .08 | <.05 | <.05 | <.50 | .16 | <.05 | .12 | <.05 | <.05 |
| | | 08/27/92 | S | <.05 | <.10 | <.05 | .94 | .17 | .12 | .05 | .07 | <.05 | <.50 | .08 | <.05 | .08 | <.05 | <.05 |
| | | 10/29/92 | S | <.05 | <.10 | <.05 | .74 | .12 | .07 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .06 | <.05 | <.05 |
| | | 01/15/93 | S | <.05 | <.10 | <.05 | .59 | .10 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .06 | <.05 | <.05 |
| | | 03/26/93 | S | <.05 | <.10 | <.05 | .16 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/08/93 | S | .06 | .10 | <.05 | 1.0 | .09 | <.05 | .06 | <.05 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 09/03/93 | S | <.05 | .18 | <.05 | .74 | .14 | .10 | <.05 | .05 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| 28 | Milford Lake | 05/05/92 | S | <.05 | .51 | <.05 | 4.0 | .81 | .36 | .17 | .12 | <.05 | <.50 | .28 | <.05 | <.05 | .06 | <.05 |
| | | 06/29/92 | S | <.05 | .49 | <.05 | 2.7 | .67 | .25 | .09 | .08 | <.05 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | .11 | .73 | <.05 | 1.8 | .75 | .38 | <.05 | .09 | <.05 | <.50 | .62 | <.05 | .07 | <.05 | <.05 |
| | | 08/25/92 | LD | -- | .73 | <.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 10/29/92 | S | .06 | .68 | <.05 | 1.9 | .67 | .35 | <.05 | .09 | <.05 | <.50 | .47 | <.05 | <.05 | <.05 | <.05 |
| | | 01/13/93 | S | <.05 | .55 | <.05 | 1.7 | .52 | .29 | <.05 | <.05 | <.05 | <.50 | .36 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .55 | <.05 | .79 | .23 | .08 | <.05 | <.05 | <.05 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 07/19/93 | S | .34 | 1.1 | <.05 | 3.7 | .64 | .31 | .13 | -- | -- | -- | 1.4 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/93 | S | .08 | 1.3 | <.05 | 2.2 | .61 | .33 | .06 | .07 | <.05 | <.50 | .81 | <.05 | <.05 | <.05 | <.05 |
| 29 | Perry Lake | 05/01/92 | S | .05 | .51 | <.05 | 1.9 | .39 | .18 | .08 | <.05 | .07 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |
| | | 06/26/92 | S | .15 | .95 | <.05 | 2.6 | .39 | .16 | .11 | .05 | <.05 | <.50 | .45 | <.05 | <.05 | <.05 | <.05 |
| | | 08/28/92 | S | .11 | 1.9 | <.05 | 2.9 | .56 | .27 | .07 | .11 | <.05 | <.50 | .62 | <.05 | <.05 | <.05 | <.05 |
| | | 10/26/92 | S | <.05 | 1.4 | <.05 | 2.4 | .46 | .20 | <.05 | <.05 | <.05 | <.50 | .40 | <.05 | <.05 | <.05 | <.05 |
| | | 10/26/92 | LD | .05 | 1.4 | <.05 | 2.7 | .50 | .20 | <.05 | .09 | <.05 | <.50 | .44 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Kansas—Continued | | | | | | | | | |
| 29 | Perry Lake—Continued | 01/19/93 | S | <0.05 | 0.63 | <0.05 | 0.95 | 0.23 | 0.10 | <0.05 | <0.05 | <0.05 | <0.50 | 0.17 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 03/22/93 | S | <.05 | .77 | <.05 | .68 | .19 | .08 | <.05 | <.05 | <.05 | <.50 | .15 | <.05 | <.05 | <.05 | <.05 |
| | | 07/25/93 | S | .72 | 2.5 | <.05 | 1.8 | .58 | .27 | <.05 | -- | -- | -- | 1.9 | .13 | <.05 | <.05 | <.05 |
| | | 08/30/93 | S | .28 | 3.3 | <.05 | 1.8 | .50 | .29 | <.05 | <.05 | <.05 | <.50 | 1.3 | <.05 | <.05 | <.05 | <.05 |
| 30 | Pomona Lake | 05/05/92 | S | <.05 | .14 | <.05 | 1.9 | .41 | .31 | <.05 | <.05 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 06/25/92 | S | <.05 | .32 | <.05 | 1.8 | .33 | .11 | <.05 | <.05 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 08/24/92 | S | <.05 | .41 | <.05 | 2.3 | .44 | .20 | <.05 | <.05 | <.05 | <.50 | .30 | <.05 | <.05 | <.05 | <.05 |
| | | 08/24/92 | LD | <.05 | .46 | <.05 | 2.5 | .49 | .23 | <.05 | <.05 | <.05 | <.50 | .32 | <.05 | <.05 | <.05 | <.05 |
| | | 10/27/92 | S | <.05 | .47 | <.05 | 2.5 | .47 | .18 | <.05 | <.05 | <.05 | <.50 | .24 | <.05 | <.05 | <.05 | <.05 |
| | | 01/11/93 | S | <.05 | .13 | <.05 | .94 | .24 | .10 | <.05 | <.05 | <.05 | <.50 | .12 | <.05 | .18 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | .24 | <.05 | 1.7 | .49 | .18 | <.05 | <.05 | <.05 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |
| | | 07/29/93 | S | .06 | .61 | <.05 | 2.1 | .45 | .21 | <.05 | -- | -- | -- | .70 | <.05 | <.05 | <.05 | <.05 |
| | | 07/29/93 | LD | .06 | .63 | <.05 | 2.2 | .49 | .22 | <.05 | -- | -- | -- | .75 | <.05 | <.05 | <.05 | <.05 |
| | | 08/31/93 | S | <.05 | 1.2 | <.05 | 2.2 | .43 | .22 | <.05 | <.05 | <.05 | <.50 | .55 | <.05 | <.05 | <.05 | <.05 |
| 31 | Tuttle Creek Lake | 05/05/92 | S | .27 | 2.1 | <.05 | 1.7 | .80 | .43 | .26 | .16 | <.05 | <.50 | .92 | <.05 | <.05 | <.05 | <.05 |
| | | 06/29/92 | S | .75 | 3.2 | <.05 | 4.2 | .92 | .47 | .36 | -- | -- | -- | 1.2 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | .20 | 2.7 | .06 | 2.0 | .82 | .47 | .06 | .11 | <.05 | <.50 | .64 | <.05 | <.05 | <.05 | .06 |
| | | 10/30/92 | S | .09 | 1.4 | <.05 | 1.6 | .54 | .31 | <.05 | .07 | <.05 | <.50 | .34 | <.05 | <.05 | <.05 | <.05 |
| | | 01/13/93 | S | <.05 | .89 | <.05 | .64 | .23 | .10 | <.05 | <.05 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | .08 | .91 | <.05 | .48 | .10 | .05 | <.05 | <.05 | <.05 | <.50 | .13 | <.05 | <.05 | <.05 | <.05 |
| | | 07/19/93 | S | 2.1 | 6.2 | <.05 | .96 | 1.4 | .70 | .16 | -- | -- | -- | 2.9 | .30 | <.05 | <.05 | <.05 |
| | | 09/01/93 | S | .41 | 4.7 | <.05 | 2.1 | .96 | .54 | .12 | .11 | <.05 | <.50 | 1.2 | <.05 | <.05 | <.05 | <.05 |
| 32 | Waconda Lake | 05/06/92 | S | <.05 | .15 | <.05 | 1.4 | .46 | .19 | .15 | .12 | <.05 | <.50 | <.05 | <.05 | <.05 | .19 | <.05 |
| | | 06/29/92 | S | <.05 | .18 | <.05 | 2.1 | .55 | .25 | .19 | -- | -- | -- | .33 | <.05 | <.05 | .18 | <.05 |
| | | 08/26/92 | S | <.05 | .24 | <.05 | 2.2 | .51 | .26 | .24 | .15 | .09 | <.50 | .25 | <.05 | <.05 | .17 | <.05 |
| | | 10/28/92 | S | <.05 | .30 | <.05 | 2.8 | .60 | .30 | .29 | .12 | .07 | <.50 | .21 | <.05 | <.05 | .14 | <.05 |
| | | 01/14/93 | S | <.05 | .19 | <.05 | 2.2 | .47 | .20 | .19 | .20 | .07 | <.50 | .16 | <.05 | <.05 | .10 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **Kansas—Continued** | | | | | | | | | | |
| 32 | Waconda Lake— | 03/25/93 | S | <0.05 | 0.29 | <0.05 | 1.9 | 0.47 | 0.19 | 0.21 | 0.08 | <0.05 | <0.50 | 0.11 | <0.05 | <0.05 | 0.07 | <0.05 |
| | Continued | 07/08/93 | S | .12 | .16 | <.05 | 1.4 | .17 | .07 | .15 | .05 | <.05 | <.50 | .62 | <.05 | <.05 | <.05 | <.05 |
| | | 09/02/93 | S | .05 | .47 | <.05 | 1.7 | .33 | .20 | .15 | .09 | <.05 | <.50 | .34 | <.05 | <.05 | <.05 | <.05 |
| 33 | Wilson Lake | 05/06/92 | S | <.05 | <.10 | <.05 | .20 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/06/92 | LD | <.05 | <.10 | <.05 | .22 | .08 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | S | <.05 | <.10 | <.05 | .20 | .09 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | S | <.05 | <.10 | <.05 | .24 | .09 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/28/92 | S | <.05 | <.10 | <.05 | .21 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/14/93 | S | <.05 | <.10 | <.05 | .21 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | S | <.05 | <.10 | <.05 | .14 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/08/93 | S | <.05 | <.10 | <.05 | .19 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/02/93 | S | <.05 | .12 | <.05 | .44 | .11 | .08 | <.05 | .06 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | **Minnesota** | | | | | | | | | | |
| 34 | Cross Lake | 05/05/92 | S | <.05 | .19 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/05/92 | LD | <.05 | .23 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/19/92 | S | <.05 | .11 | <.05 | .08 | <.05 | <.05 | <.05 | -- | -- | -- | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | S | <.05 | .14 | <.05 | .11 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | LD | <.05 | .12 | <.05 | .12 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 11/05/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/26/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | BD | <.05 | .12 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/21/93 | S | <.05 | .45 | <.05 | .36 | <.05 | <.05 | .09 | -- | -- | -- | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 09/07/93 | S | <.05 | .20 | <.05 | .13 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Minnesota—Continued | | | | | | | | | |
| 35 | Gull Lake Reservoir | 05/13/92 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 06/30/92 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | .14 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/18/92 | S | <.05 | <.10 | <.05 | .07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 11/03/92 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/05/93 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/15/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 36 | Lac Qui Parle Reservoir | 05/06/92 | S | <.05 | .54 | <.05 | <.05 | <.05 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/18/92 | S | .35 | .49 | <.05 | 1.6 | .23 | .40 | 6.7 | 1.6 | .31 | <.50 | 1.2 | <.05 | <.05 | <.05 | <.05 |
| | | 06/18/92 | LD | .37 | .56 | <.05 | 1.6 | .23 | .47 | 6.9 | 1.7 | .33 | <.50 | 1.2 | <.05 | <.05 | <.05 | <.05 |
| | | 08/20/92 | S | <.05 | .92 | <.05 | .35 | .09 | .10 | .39 | .54 | .12 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 11/04/92 | S | <.05 | .84 | <.05 | .09 | <.05 | <.05 | .12 | .30 | .08 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/20/93 | S | <.05 | .65 | <.05 | .08 | <.05 | <.05 | <.05 | .18 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/20/93 | LD | <.05 | .63 | <.05 | .08 | <.05 | <.05 | <.05 | .14 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .62 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/22/93 | S | .06 | 1.3 | <.05 | 1.1 | .24 | .27 | 1.0 | -- | -- | -- | .16 | <.05 | <.05 | <.05 | <.05 |
| | | 09/09/93 | S | <.05 | 1.8 | <.05 | .21 | .09 | .16 | .16 | .34 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 37 | Leech Lake Reservoir | 05/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/92 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 11/02/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Minnesota—Continued | | | | | | | | | |
| 37 | Leech Lake Reservoir—Continued | 01/06/93 | LD | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | -- | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 03/16/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <0.05 | <0.05 | <0.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/22/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 38 | Pine River Reservoir | 05/13/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | .12 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/18/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 11/03/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/05/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/15/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 39 | Sandy Lake Reservoir | 05/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/02/92 | S | <.05 | <.10 | <.05 | .09 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/20/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 11/04/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/17/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/23/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 40 | Winnibigoshish Reservoir | 05/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/14/92 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/92 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/92 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Minnesota—Continued | | | | | | | | | |
| 40 | Winnibigoshish | 11/02/92 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | Reservoir—Continued | 11/02/92 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/16/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/93 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/22/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | | Missouri | | | | | | | | | |
| 41 | Harrisonville Lake | 04/28/92 | BD | -- | .10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 04/28/92 | S | <.05 | .13 | <.05 | 3.6 | .76 | .21 | <.05 | <.05 | <.05 | <.50 | .98 | <.05 | <.05 | <.05 | <.05 |
| | | 04/30/92 | S | <.05 | .14 | <.05 | 3.8 | .33 | .22 | <.05 | <.05 | <.05 | <.50 | .94 | <.05 | <.05 | <.05 | <.05 |
| | | 04/30/92 | LD | -- | .20 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 07/09/92 | S | <.05 | .10 | .05 | 3.5 | .78 | .29 | <.05 | <.05 | <.05 | <.50 | .47 | <.05 | <.05 | .05 | <.05 |
| | | 08/13/92 | S | <.05 | .11 | .06 | 3.4 | .87 | .32 | <.05 | <.05 | <.05 | <.50 | .35 | <.05 | <.05 | .05 | <.05 |
| | | 10/22/92 | S | <.05 | <.10 | .07 | 3.2 | .90 | .29 | <.05 | <.05 | <.05 | <.50 | .24 | <.05 | <.05 | <.05 | <.05 |
| | | 01/27/93 | S | <.05 | <.10 | <.05 | 1.2 | .38 | .10 | <.05 | <.05 | <.05 | <.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 01/27/93 | BD | <.05 | <.10 | <.05 | 1.2 | .39 | .09 | <.05 | <.05 | <.05 | <.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 02/12/93 | S | <.05 | <.10 | <.05 | 1.2 | .13 | .10 | <.05 | <.05 | <.05 | <.50 | .11 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .11 | <.05 | 1.1 | .36 | .08 | <.05 | <.05 | <.05 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | <.05 | <.10 | <.05 | 3.7 | .65 | .25 | <.05 | <.05 | <.05 | <.50 | 2.0 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | BD | <.05 | <.10 | <.05 | 4.0 | .63 | .23 | <.05 | <.05 | <.05 | <.50 | 1.9 | .10 | <.05 | <.05 | <.05 |
| | | 09/30/93 | S | <.05 | .15 | <.05 | 2.0 | .41 | .14 | <.05 | <.05 | <.05 | <.50 | .74 | <.05 | <.05 | <.05 | <.05 |
| 42 | Harry S Truman | 05/05/92 | S | .05 | .45 | <.05 | 1.3 | .22 | .08 | <.05 | <.05 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | <.05 |
| | Reservoir | 07/09/92 | S | .10 | .81 | <.05 | 2.7 | .30 | .13 | .05 | <.05 | <.05 | <.50 | .24 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | .05 | .70 | <.05 | 1.2 | .28 | .06 | <.05 | <.05 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | <.05 |
| | | 10/14/92 | S | <.05 | .53 | <.05 | 1.1 | .22 | .08 | <.05 | .08 | <.05 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 01/12/93 | S | <.05 | .12 | <.05 | .23 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Missouri—Continued | | | | | | | | | |
| 42 | Harry S Truman | 01/12/93 | LD | -- | 0.12 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Reservoir—Continued | 03/10/93 | S | <0.05 | .11 | <0.05 | 0.24 | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 06/16/93 | S | .14 | .31 | <.05 | 1.5 | .13 | <.05 | <.05 | <.05 | <.05 | <.50 | .32 | <.05 | <.05 | <.05 | <.05 |
| | | 09/17/93 | S | .06 | 1.4 | <.05 | 1.8 | .32 | .13 | <.05 | <.05 | <.05 | <.50 | .30 | <.05 | <.05 | <.05 | <.05 |
| 43 | Long Branch Lake | 05/05/92 | S | .05 | 1.0 | <.05 | 1.1 | .20 | .11 | .57 | .25 | <.05 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/05/92 | LD | .06 | 1.0 | <.05 | 1.2 | .22 | .20 | .64 | .24 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/92 | S | .05 | .97 | <.05 | 1.5 | .24 | .16 | .86 | .34 | .11 | <.50 | .05 | <.05 | <.05 | <.05 | .08 |
| | | 08/24/92 | S | .07 | .99 | <.05 | 2.1 | .43 | .11 | .52 | .53 | .14 | <.50 | .07 | <.05 | <.05 | <.05 | .07 |
| | | 10/21/92 | S | .05 | 1.5 | <.05 | 2.5 | .54 | .29 | .83 | .38 | .12 | <.50 | .08 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | BD | .05 | 1.7 | <.05 | 2.3 | .48 | .27 | .70 | .35 | .11 | <.50 | .07 | <.05 | <.05 | <.05 | .08 |
| | | 10/21/92 | LD | .06 | 1.7 | <.05 | 2.6 | .55 | .28 | .85 | .37 | .12 | <.50 | .08 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | S | <.05 | 1.6 | <.05 | 1.7 | .37 | .17 | .42 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .90 | <.05 | .61 | .20 | .09 | .20 | .16 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | LD | <.05 | .99 | <.05 | .59 | .18 | .08 | .17 | .17 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/93 | S | .11 | .83 | <.05 | 1.2 | .17 | .08 | .95 | .32 | .07 | <.50 | .11 | <.05 | <.05 | <.05 | <.05 |
| | | 09/23/93 | S | .07 | 2.0 | <.05 | 1.3 | .40 | .30 | .85 | .84 | .09 | <.50 | .12 | <.05 | <.05 | <.05 | <.05 |
| | | 09/23/93 | BD | .06 | 2.0 | <.05 | 1.2 | .37 | .28 | .83 | .91 | .09 | <.50 | .11 | <.05 | <.05 | <.05 | <.05 |
| 44 | Mark Twain Lake | 05/06/92 | S | <.05 | 1.0 | <.05 | 1.6 | .30 | .19 | .42 | .21 | <.05 | <.50 | .19 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/92 | S | .05 | .82 | <.05 | 2.1 | .33 | .17 | .42 | .21 | <.05 | <.50 | .26 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/92 | BD | .06 | .84 | <.05 | 1.9 | .34 | .17 | .41 | .30 | .07 | <.50 | .26 | <.05 | <.05 | <.05 | <.05 |
| | | 08/24/92 | S | <.05 | .70 | <.05 | 2.0 | .35 | .15 | .36 | .24 | .08 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 08/24/92 | BD | <.05 | .68 | <.05 | 2.0 | .34 | .16 | .42 | .22 | .06 | <.50 | .23 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | .05 | .51 | <.05 | 2.2 | .38 | .20 | .38 | .17 | .08 | <.50 | .24 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | S | <.05 | 1.2 | <.05 | 2.2 | .39 | .17 | .30 | .13 | .06 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | LD | <.05 | 1.3 | <.05 | 1.7 | .30 | .13 | .20 | -- | -- | -- | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .51 | <.05 | .86 | .25 | .13 | .11 | .05 | <.05 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 06/23/93 | S | .09 | .66 | <.05 | 1.6 | .25 | .12 | .40 | .15 | <.05 | <.50 | .36 | <.05 | <.05 | <.05 | <.05 |
| | | 09/15/93 | S | .09 | 2.1 | <.05 | 2.5 | .67 | .32 | .70 | .47 | .07 | <.50 | .48 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Missouri—Continued | | | | | | | | | | |
| 45 | Pomme de Terre Lake | 05/06/92 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/08/92 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/14/92 | S | <.05 | <.10 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/12/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/10/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/10/93 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/16/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/17/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/17/93 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 46 | Smithville Lake | 05/05/92 | S | <.05 | .54 | <.05 | 2.2 | .61 | .24 | .69 | .45 | <.05 | <.50 | .18 | <.05 | <.05 | <.05 | .17 |
| | | 05/05/92 | BD | -- | .68 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 07/07/92 | S | <.05 | .53 | <.05 | 2.9 | .50 | .27 | .44 | .63 | .13 | <.50 | .33 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | BD | <.05 | .52 | <.05 | 2.9 | .49 | .27 | .46 | .48 | .11 | <.50 | .34 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | LD | <.05 | .43 | <.05 | 3.1 | .57 | .30 | .59 | .66 | .13 | <.50 | .39 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | S | <.05 | .50 | <.05 | 3.1 | .56 | .23 | .52 | .43 | .12 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | LD | <.05 | .45 | <.05 | 3.6 | .68 | .24 | .87 | .55 | .14 | <.50 | .35 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | S | <.05 | .53 | <.05 | 2.9 | .71 | .25 | .52 | .42 | .11 | <.50 | .26 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | .54 | <.05 | 2.5 | .49 | .20 | .39 | .31 | .11 | <.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | S | <.05 | .43 | <.05 | 1.5 | .43 | .19 | .32 | .24 | <.05 | <.50 | .11 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | BD | <.05 | .45 | <.05 | 1.4 | .41 | .19 | .31 | .25 | .07 | <.50 | .11 | .08 | <.05 | <.05 | <.05 |
| | | 06/25/93 | S | .08 | .38 | <.05 | 1.7 | .28 | .11 | .82 | .30 | .07 | <.50 | .35 | <.05 | <.05 | <.05 | <.05 |
| | | 09/29/93 | S | <.05 | .76 | <.05 | 2.3 | .46 | .28 | .77 | .47 | .08 | <.50 | .48 | <.05 | <.05 | <.05 | <.05 |
| | | 09/29/93 | LD | <.05 | .99 | <.05 | 2.1 | .47 | .27 | .78 | -- | -- | -- | .49 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Missouri—Continued | | | | | | | | | | |
| 47 | Stockton Lake | 05/06/92 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/08/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/12/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/10/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/16/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/17/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | Nebraska | | | | | | | | | | |
| 48 | Branched Oak Lake | 05/07/92 | S | <.05 | .72 | <.05 | 2.5 | .72 | .54 | .31 | .14 | .10 | <.50 | .08 | <.05 | <.05 | <.05 | <.05 |
| | | 05/07/92 | BD | <.05 | 1.4 | <.05 | 2.7 | .67 | .28 | .24 | .18 | <.05 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/92 | S | .12 | 1.2 | <.05 | 3.0 | .69 | .26 | .24 | .19 | .09 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 07/01/92 | LD | .12 | .92 | <.05 | 3.2 | .73 | .31 | .24 | .21 | .12 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 09/11/92 | S | <.05 | 1.5 | <.05 | 2.7 | .54 | .18 | <.05 | .27 | .15 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/11/92 | LD | <.05 | -- | <.05 | 2.9 | .87 | .30 | .16 | -- | -- | -- | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/27/92 | S | <.05 | 1.8 | <.05 | 2.6 | .66 | .27 | .23 | .14 | <.05 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | 1.5 | <.05 | 2.4 | .57 | .18 | .16 | .12 | .10 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | 1.2 | <.05 | 1.8 | .55 | .19 | .16 | .09 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | .26 | 1.4 | <.05 | 2.6 | .60 | .25 | .36 | -- | -- | -- | .08 | <.05 | <.05 | <.05 | <.05 |
| | | 09/14/93 | S | .08 | 3.2 | <.05 | 2.3 | .66 | .35 | .28 | .23 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| 49 | Calamus Reservoir | 05/08/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/09/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .08 |
| | | 07/09/92 | BD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .08 |
| | | 08/27/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Nebraska—Continued | | | | | | | | | |
| 49 | Calamus Reservoir— | 12/16/92 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | Continued | 12/16/92 | BD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/04/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | 1.2 |
| | | 09/17/93 | S | <.05 | .16 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 50 | Cunningham Lake | 05/06/92 | S | <.05 | .42 | <.05 | .88 | .24 | .25 | 1.3 | 1.3 | .32 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | S | <.05 | .36 | <.05 | .73 | .19 | .22 | 1.6 | .97 | .28 | .86 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/27/92 | S | <.05 | .54 | <.05 | .72 | .22 | .17 | 1.1 | 1.2 | .30 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/26/92 | S | <.05 | .44 | <.05 | .49 | .18 | .13 | .56 | .60 | .18 | .31 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/04/93 | S | <.05 | .33 | <.05 | .40 | .15 | .09 | .50 | .91 | .20 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/04/93 | BD | -- | <.10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 03/24/93 | S | <.05 | .39 | <.05 | .35 | .10 | .08 | .43 | .80 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | .07 | .31 | <.05 | 1.2 | .20 | .26 | 2.8 | -- | -- | -- | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/13/93 | S | <.05 | .45 | <.05 | .93 | .22 | .32 | 1.5 | .67 | .21 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 51 | Enders Reservoir | 05/07/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/07/92 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | <.05 | <.10 | <.05 | .09 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | <.10 | <.05 | .10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | LD | -- | <.10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 12/15/92 | S | <.05 | <.10 | <.05 | .33 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/03/93 | S | <.05 | <.10 | <.05 | .08 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | <.10 | <.05 | .11 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | LD | <.05 | <.10 | <.05 | .11 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Nebraska—Continued | | | | | | | | | |
| 52 | Harlan County Lake | 05/05/92 | S | <0.05 | <0.10 | <0.05 | 0.54 | 0.19 | 0.07 | 0.07 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/08/92 | S | <.05 | .34 | <.05 | 1.3 | .40 | .14 | .13 | .08 | .08 | <.50 | .09 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | S | <.05 | .25 | <.05 | 1.3 | .30 | .08 | .12 | .14 | <.05 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | S | <.05 | .23 | <.05 | 1.4 | .37 | .14 | .10 | .10 | .07 | <.50 | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 12/14/92 | S | <.05 | .17 | <.05 | 1.2 | .33 | .09 | <.05 | .11 | <.05 | <.50 | .05 | <.05 | .05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | .22 | <.05 | 1.4 | .39 | .15 | .09 | .08 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | BD | <.05 | .27 | <.05 | 1.3 | .35 | .18 | .08 | .06 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/22/93 | S | <.05 | .19 | <.05 | .96 | .27 | .09 | <.05 | -- | -- | -- | .11 | <.05 | <.05 | <.05 | <.05 |
| | | 09/20/93 | S | <.05 | .51 | <.05 | 1.2 | .35 | .15 | .17 | .08 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | <.05 |
| 53 | Harry Strunk Lake | 05/06/92 | S | <.05 | <.10 | <.05 | .15 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/08/92 | S | <.05 | <.10 | <.05 | .21 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | S | <.05 | <.10 | <.05 | .30 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | S | <.05 | <.10 | <.05 | .32 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | LD | <.05 | -- | <.05 | .34 | .09 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 12/14/92 | S | <.05 | <.10 | <.05 | .27 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 12/14/92 | LD | <.05 | <.10 | <.05 | .29 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | <.10 | <.05 | .47 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/03/93 | S | .09 | .37 | <.05 | 1.4 | .32 | .18 | .18 | -- | -- | -- | .21 | <.05 | <.05 | <.05 | <.05 |
| | | 09/20/93 | S | <.05 | .58 | <.05 | 1.2 | .32 | .21 | .25 | .13 | <.05 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| 54 | Hugh Butler Lake | 05/06/92 | S | <.05 | <.10 | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | <.05 | <.10 | <.05 | .28 | .09 | .05 | .09 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | S | <.05 | <.10 | <.05 | .41 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/19/92 | S | <.05 | <.10 | <.05 | .13 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .06 |
| | | 12/15/92 | S | <.05 | <.10 | <.05 | .40 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | <.10 | <.05 | .41 | .06 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/03/93 | S | <.05 | <.10 | <.05 | .70 | .16 | .08 | <.05 | -- | -- | -- | .07 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | <.10 | <.05 | .53 | .11 | .07 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Nebraska—Continued | | | | | | | | | |
| 55 | Pawnee Lake | 05/07/92 | S | <0.05 | 0.67 | <0.05 | 1.5 | 0.44 | 0.24 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | 0.08 | <0.05 | <0.05 |
| | | 07/01/92 | S | .19 | 1.1 | <.05 | 2.1 | .47 | .19 | .06 | .09 | .07 | <.50 | .08 | <.05 | .07 | <.05 | <.05 |
| | | 08/27/92 | S | .05 | 1.4 | <.05 | 2.0 | .48 | .19 | <.05 | <.05 | <.05 | <.50 | .06 | <.05 | .07 | <.05 | <.05 |
| | | 10/27/92 | S | <.05 | 1.6 | <.05 | 1.8 | .49 | .19 | <.05 | .09 | .06 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | 1.4 | <.05 | 1.5 | .48 | .15 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | .51 | <.05 | 1.7 | .49 | .15 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | .64 | 3.3 | <.05 | 3.3 | .60 | .24 | .10 | -- | -- | -- | .26 | <.05 | <.05 | <.05 | <.05 |
| | | 09/14/93 | S | .06 | 4.1 | <.05 | 1.8 | .45 | .28 | <.05 | <.05 | <.05 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| 56 | Swanson Lake | 05/06/92 | S | <.05 | <.10 | <.05 | .07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | <.05 | <.10 | <.05 | .23 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | .13 | .05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | <.10 | <.05 | .24 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 12/15/92 | S | <.05 | <.10 | <.05 | .24 | .08 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | S | <.05 | <.10 | <.05 | .16 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/23/93 | LD | <.05 | <.10 | <.05 | .20 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/03/93 | S | <.05 | .13 | <.05 | .24 | .07 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/03/93 | LD | <.05 | .10 | <.05 | .21 | .06 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/21/93 | S | <.05 | .14 | <.05 | .29 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 57 | Willow Creek Reservoir | 05/07/92 | S | <.05 | .25 | <.05 | .23 | .09 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/30/92 | S | .18 | .48 | <.05 | 2.6 | .33 | .19 | .30 | .23 | .08 | <.50 | .85 | <.05 | <.05 | <.05 | <.05 |
| | | 08/26/92 | S | .05 | .81 | <.05 | 1.7 | .36 | .20 | .25 | .22 | .08 | <.50 | .31 | <.05 | <.05 | <.05 | <.05 |
| | | 10/26/92 | S | <.05 | .36 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/05/93 | S | <.05 | .54 | <.05 | .20 | .06 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | .62 | <.05 | .23 | .06 | .05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | .20 | 1.5 | <.05 | 1.3 | .37 | .35 | .38 | -- | -- | -- | .60 | <.05 | <.05 | <.05 | <.05 |
| | | 09/13/93 | S | <.05 | 1.8 | <.05 | .59 | .22 | .24 | .10 | .11 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | .07 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **North Dakota** | | | | | | | | | | |
| 58 | Pipestem Reservoir | 05/07/92 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <.0.05 | <.0.05 | <0.05 |
| | | 05/07/92 | BD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/25/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/25/92 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/25/92 | S | <.05 | <.10 | <.05 | .10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/26/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/21/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/04/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/09/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/09/93 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | **Ohio** | | | | | | | | | | |
| 59 | Alum Creek Lake | 05/05/92 | S | <.05 | 2.4 | <.05 | .98 | .35 | .20 | .33 | .19 | <.05 | <.50 | .29 | <.05 | <.05 | <.05 | .07 |
| | | 07/20/92 | S | .06 | 2.4 | <.05 | 1.1 | .36 | .19 | .24 | .25 | .09 | <.50 | .27 | <.05 | <.05 | <.05 | .08 |
| | | 07/20/92 | LD | .07 | 1.8 | <.05 | 1.0 | .36 | .18 | .25 | .14 | <.05 | <.50 | .27 | <.05 | <.05 | <.05 | .08 |
| | | 09/08/92 | S | .09 | 3.3 | <.05 | 1.9 | .65 | .33 | .48 | .38 | .09 | <.50 | .49 | <.05 | <.05 | <.05 | .14 |
| | | 11/04/92 | S | .05 | 2.7 | <.05 | 1.7 | .68 | .36 | .26 | .29 | .08 | <.50 | .34 | <.05 | <.05 | <.05 | .12 |
| | | 01/20/93 | S | <.05 | 3.7 | <.05 | 1.0 | .39 | .19 | .12 | .40 | .08 | <.50 | .23 | <.05 | <.05 | <.05 | <.05 |
| | | 03/25/93 | S | <.05 | 2.5 | <.05 | .89 | .40 | .17 | .14 | .16 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | .07 |
| | | 03/25/93 | LD | <.05 | 2.4 | <.05 | .91 | .41 | .17 | .14 | .14 | <.05 | <.50 | .21 | <.05 | <.05 | <.05 | .07 |
| | | 07/01/93 | S | .06 | 1.4 | <.05 | .70 | .27 | .12 | .17 | .07 | .05 | <.50 | .19 | <.05 | <.05 | <.05 | .06 |
| | | 09/27/93 | S | .07 | 3.4 | <.05 | 1.2 | .41 | .23 | .40 | .31 | <.05 | <.50 | .36 | <.05 | <.05 | <.05 | .13 |
| 60 | Deer Creek Lake | 05/04/92 | S | .34 | 2.9 | <.05 | 2.4 | .29 | .21 | .54 | .23 | <.05 | <.50 | 1.2 | .09 | <.05 | <.05 | .41 |
| | | 07/30/92 | S | .18 | 7.4 | <.05 | 2.7 | .48 | .48 | .36 | 1.5 | .16 | <.50 | .94 | <.05 | <.05 | <.05 | .08 |
| | | 09/09/92 | S | <.05 | 2.4 | <.05 | 1.6 | .52 | .30 | .46 | .54 | .11 | <.50 | .27 | <.05 | <.05 | <.05 | .07 |
| | | 09/09/92 | LD | <.05 | 1.9 | <.05 | 1.8 | .59 | .33 | .48 | .45 | .20 | <.50 | .32 | <.05 | <.05 | <.05 | .09 |
| | | 10/14/92 | S | <.05 | 2.0 | <.05 | 1.6 | .63 | .37 | .38 | .62 | .12 | .31 | .20 | <.05 | <.05 | <.05 | .07 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ohio—Continued | | | | | | | | | |
| 60 | Deer Creek Lake—Continued | 10/14/92 | LD | <0.05 | 2.4 | <0.05 | 1.5 | 0.62 | 0.34 | 0.38 | 0.57 | 0.11 | 0.25 | 0.20 | <0.05 | <0.05 | <0.05 | 0.07 |
| | | 01/12/93 | S | .08 | 1.5 | <.05 | .44 | .29 | .17 | .13 | -- | -- | -- | .25 | <.05 | <.05 | <.05 | <.05 |
| | | 03/26/93 | S | <.05 | .73 | <.05 | .30 | .16 | .08 | <.05 | <.05 | <.05 | <.50 | .15 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | .30 | 3.6 | <.05 | 4.1 | .99 | .67 | 2.6 | 1.8 | .26 | <.50 | 2.4 | <.05 | <.05 | <.05 | .12 |
| | | 09/29/93 | S | <.05 | 3.9 | <.05 | 2.5 | .81 | .53 | 1.3 | .81 | .17 | <.50 | .58 | <.05 | <.05 | <.05 | .08 |
| | | 09/29/93 | LD | <.05 | 2.5 | <.05 | 2.7 | .82 | .52 | 1.2 | 1.0 | .18 | <.50 | .59 | <.05 | <.05 | <.05 | .08 |
| 61 | Delaware Lake | 05/05/92 | S | .23 | 4.7 | <.05 | .91 | .25 | .11 | .08 | .04 | <.05 | <.50 | .60 | .08 | 1.4 | <.05 | .05 |
| | | 06/30/92 | S | .96 | 9.1 | <.05 | 4.3 | .98 | .50 | .86 | -- | -- | -- | 2.7 | .22 | .79 | <.05 | .18 |
| | | 08/12/92 | S | .13 | 8.1 | <.05 | 2.2 | .77 | .37 | .17 | .36 | <.05 | .56 | 1.1 | <.05 | .10 | <.05 | .06 |
| | | 10/07/92 | S | .05 | 4.7 | <.05 | 1.5 | .54 | .24 | .12 | .29 | .06 | <.50 | .45 | <.05 | <.05 | <.05 | .05 |
| | | 12/30/92 | S | <.05 | 2.0 | <.05 | .22 | .15 | .05 | <.05 | <.05 | <.05 | <.50 | .13 | <.05 | <.05 | <.05 | <.05 |
| | | 03/24/93 | S | <.05 | 1.1 | <.05 | .20 | .11 | <.05 | <.05 | <.05 | <.05 | <.50 | .14 | .06 | <.05 | <.05 | <.05 |
| | | 07/06/93 | S | .97 | 13 | <.05 | 5.9 | 1.8 | .92 | 1.3 | 1.1 | .09 | <.50 | 3.1 | .19 | .10 | .05 | .26 |
| | | 09/27/93 | S | <.05 | 12 | <.05 | 3.7 | 1.3 | .66 | .85 | .91 | .13 | <.50 | .68 | <.05 | .14 | <.05 | .14 |
| 62 | Dillon Lake | 04/30/92 | S | .27 | 1.5 | <.05 | 1.2 | .18 | .09 | .08 | <.05 | <.05 | <.50 | .68 | .09 | <.05 | <.05 | .36 |
| | | 07/07/92 | S | .07 | .95 | <.05 | 1.8 | .35 | .27 | .40 | .40 | .10 | <.50 | .41 | <.05 | <.05 | <.05 | .32 |
| | | 09/10/92 | S | <.05 | 1.1 | <.05 | .62 | .31 | .13 | .05 | .14 | <.05 | <.50 | .24 | <.05 | <.05 | <.05 | .18 |
| | | 10/14/92 | S | <.05 | .95 | <.05 | .30 | .16 | .09 | <.05 | .12 | <.05 | <.50 | .08 | <.05 | <.05 | <.05 | .09 |
| | | 01/12/93 | S | <.05 | .74 | <.05 | .19 | .15 | .08 | <.05 | -- | -- | -- | .09 | <.05 | <.05 | <.05 | .05 |
| | | 03/24/93 | S | <.05 | .60 | <.05 | .11 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/09/93 | S | .17 | 4.1 | <.05 | 4.9 | 1.7 | 1.2 | 1.4 | 1.4 | .16 | <.50 | 2.7 | .12 | <.05 | <.05 | .99 |
| | | 09/28/93 | S | <.05 | 1.0 | <.05 | .75 | .25 | .18 | .08 | .11 | <.05 | <.50 | .12 | <.05 | <.05 | <.05 | .15 |
| 63 | Hoover Reservoir | 05/06/92 | S | .06 | 2.0 | <.05 | 1.2 | .29 | .17 | .19 | .13 | <.05 | <.50 | .51 | <.05 | <.05 | <.05 | .12 |
| | | 07/20/92 | S | .08 | 3.3 | <.05 | 1.4 | .33 | .19 | .20 | .22 | <.05 | <.50 | .43 | <.05 | <.05 | <.05 | .19 |
| | | 09/08/92 | S | .08 | 3.8 | <.05 | 2.4 | .71 | .32 | .23 | .27 | <.05 | <.50 | .71 | <.05 | <.05 | <.05 | .21 |
| | | 11/04/92 | S | <.05 | 3.9 | <.05 | 2.1 | .85 | .40 | .26 | .18 | .07 | <.50 | .39 | <.05 | <.05 | <.05 | .18 |
| | | 01/20/93 | S | <.05 | 3.0 | <.05 | 1.1 | .45 | .19 | .08 | -- | -- | -- | .21 | <.05 | <.05 | <.05 | .09 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **Ohio—Continued** | | | | | | | | | | |
| 63 | Hoover Reservoir—Continued | 03/25/93 | S | <0.05 | 1.6 | <0.05 | 0.50 | 0.27 | 0.11 | <0.05 | -- | -- | -- | 0.13 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 03/25/93 | LD | -- | 1.6 | <.05 | -- | -- | -- | -- | <0.05 | <0.05 | <0.50 | -- | -- | -- | -- | -- |
| | | 07/01/93 | S | .10 | 1.1 | <.05 | .82 | .19 | .07 | .07 | <.05 | <.05 | <.50 | .31 | <.05 | <.05 | <.05 | .20 |
| | | 09/24/93 | S | .11 | 5.8 | <.05 | 4.1 | 1.1 | .62 | .73 | .60 | .07 | <.50 | 1.1 | <.05 | <.05 | <.05 | .53 |
| 64 | Milton Reservoir | 05/11/92 | S | <.05 | .35 | <.05 | .21 | .09 | <.05 | <.05 | <.05 | <.05 | <.50 | .05 ~~<.50~~ | <.05 | <.05 | <.05 | <.05 |
| | | 07/07/92 | S | <.05 | .57 | <.05 | .22 | .10 | .06 | <.05 | .07 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | .05 |
| | | 08/17/92 | S | .06 | 1.4 | <.05 | 1.2 | .32 | .18 | .16 | .26 | <.05 | <.50 | .36 | <.05 | <.05 | <.05 | .11 |
| | | 10/21/92 | S | <.05 | 1.1 | <.05 | 1.4 | .46 | .17 | .23 | .22 | .06 | <.50 | .31 | <.05 | <.05 | <.05 | .11 |
| | | 10/21/92 | LD | <.05 | 1.0 | <.05 | 1.5 | .50 | .17 | .18 | .24 | .06 | <.50 | .31 | <.05 | <.05 | <.05 | .12 |
| | | 01/13/93 | S | <.05 | .92 | <.05 | .46 | .19 | .09 | .05 | -- | -- | -- | .12 | <.05 | <.05 | <.05 | .05 |
| | | 04/20/93 | S | <.05 | .63 | <.05 | .15 | .07 | <.05 | <.05 | -- | -- | -- | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/20/93 | S | .20 | 1.2 | <.05 | 1.6 | .28 | .12 | .38 | -- | -- | -- | .50 | <.05 | <.05 | <.05 | .14 |
| | | 09/21/93 | S | <.05 | 1.7 | <.05 | 1.9 | .45 | .25 | .53 | .25 | <.05 | <.50 | .40 | <.05 | <.05 | <.05 | .15 |
| 65 | O'Shaughnessy Reservoir | 05/05/92 | S | .14 | 6.1 | <.05 | 1.1 | .28 | .17 | .18 | .11 | <.05 | <.50 | 1.1 | .08 | <.05 | <.05 | .20 |
| | | 06/30/92 | S | 2.2 | 13 | <.05 | 12 | 2.5 | 1.1 | 1.8 | 2.9 | .34 | 1.5 | 6.1 | .40 | .49 | .14 | .84 |
| | | 08/12/92 | S | .08 | 5.8 | <.05 | 1.6 | .45 | .29 | .14 | .38 | <.05 | <.50 | .88 | .07 | <.05 | <.05 | .10 |
| | | 10/07/92 | S | <.05 | 2.7 | <.05 | .77 | .27 | .16 | .11 | .21 | .06 | <.50 | .32 | <.05 | .09 | <.05 | .05 |
| | | 12/30/92 | S | <.05 | 2.0 | <.05 | .20 | .13 | .06 | <.05 | <.05 | <.05 | <.50 | .15 | <.05 | <.05 | <.05 | <.05 |
| | | 03/22/93 | S | <.05 | 1.1 | <.05 | .20 | .11 | <.05 | <.05 | <.05 | <.05 | <.50 | .15 | <.05 | <.05 | <.05 | <.05 |
| | | 06/29/93 | S | .96 | 8.8 | <.05 | 6.3 | 1.4 | .81 | 2.5 | 1.6 | .23 | <.50 | 3.8 | .20 | .06 | .06 | .34 |
| | | 06/29/93 | LD | 1.3 | 10 | <.05 | 7.1 | 1.6 | .92 | 2.7 | 1.4 | .19 | <.50 | 4.2 | .24 | .07 | .07 | .40 |
| | | 09/28/93 | S | <.05 | 5.8 | <.05 | 1.5 | .55 | .36 | .27 | .28 | <.05 | <.50 | .46 | <.05 | .12 | <.05 | .12 |
| | | | | | | | | **South Dakota** | | | | | | | | | | |
| 66 | Sand Lake | 05/06/92 | S | <.05 | .14 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 06/24/92 | S | <.05 | <.10 | <.05 | .07 | <.05 | <.05 | .11 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/31/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/22/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | South Dakota—Continued | | | | | | | | | |
| 66 | Sand Lake—Continued | 03/24/93 | S | <0.05 | <0.10 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/01/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/08/93 | S | .08 | .10 | <.05 | .08 | <.05 | <.05 | <.05 | .08 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | | Wisconsin | | | | | | | | | |
| 67 | Chippewa Flowage | 05/06/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/92 | S | <.05 | .20 | <.05 | .25 | .06 | <.05 | <.05 | .10 | .08 | <.50 | .08 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/92 | LD | <.05 | .21 | <.05 | .30 | .07 | <.05 | <.05 | .11 | .05 | <.50 | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 08/18/92 | S | <.05 | .25 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | .10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | LD | -- | <.10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 04/20/93 | S | <.05 | .18 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | .26 | <.05 | .14 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/07/93 | S | <.05 | .33 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 68 | Dairyland Reservoir | 05/06/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 05/06/92 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/21/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/21/93 | LD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/08/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 69 | Lake Mendota | 05/08/92 | S | <.05 | .75 | <.05 | .32 | .23 | .10 | .12 | .11 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/21/92 | S | <.05 | 1.0 | <.05 | .28 | .17 | .06 | .10 | .14 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/21/92 | S | <.05 | .87 | <.05 | .35 | .23 | .10 | .12 | .10 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/23/92 | S | <.05 | .91 | <.05 | .28 | .21 | .09 | .09 | .10 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/05/93 | S | <.05 | .55 | <.05 | .31 | .20 | .07 | .11 | .06 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Wisconsin—Continued | | | | | | | | | |
| 69 | Lake Mendota—Continued | 04/19/93 | S | <0.05 | 0.99 | <0.05 | 0.24 | 0.15 | 0.06 | 0.08 | -- | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/12/93 | S | .07 | .67 | <.05 | .28 | .20 | .14 | .21 | -- | -- | -- | .12 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/93 | S | .06 | 2.2 | <.05 | .25 | .21 | .13 | .41 | 0.13 | <0.05 | <0.50 | .14 | <.05 | <.05 | <.05 | <.05 |
| 70 | Lake Menomin | 05/06/92 | S | <.05 | .23 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/15/92 | S | .05 | .45 | <.05 | .43 | .17 | .07 | <.05 | .10 | .09 | <.50 | .15 | <.05 | <.05 | <.05 | <.05 |
| | | 08/18/92 | S | <.05 | .34 | <.05 | .07 | .05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | .24 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | .25 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/20/93 | S | <.05 | .28 | <.05 | .05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | <.05 | .43 | <.05 | .34 | .09 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/07/93 | S | <.05 | .70 | <.05 | .06 | .05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 71 | Lake Monona | 05/08/92 | S | <.05 | .60 | <.05 | .31 | .17 | <.05 | .13 | .09 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/21/92 | S | <.05 | .71 | <.05 | .31 | .18 | .08 | .09 | .12 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/21/92 | S | <.05 | .65 | <.05 | .29 | .17 | .07 | .09 | .10 | .07 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/23/92 | S | <.05 | .73 | <.05 | .27 | .18 | .07 | .09 | -- | -- | -- | <.05 | <.05 | .05 | <.05 | <.05 |
| | | 01/05/93 | S | <.05 | .72 | <.05 | .27 | .16 | .06 | .08 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/19/93 | S | <.05 | .80 | <.05 | .22 | .13 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/12/93 | S | .05 | .89 | <.05 | .25 | .13 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/93 | S | .06 | 1.2 | <.05 | .22 | .16 | .06 | .24 | .08 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/93 | LD | .05 | 1.2 | <.05 | .25 | .16 | .10 | .23 | .11 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| 72 | Lake Waubesa | 05/08/92 | S | <.05 | .57 | <.05 | .21 | .16 | <.05 | .10 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/21/92 | S | <.05 | .85 | <.05 | .23 | .16 | .05 | .06 | .11 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/21/92 | S | <.05 | .65 | <.05 | .25 | .18 | .06 | .10 | .08 | .06 | <.50 | <.05 | <.05 | .07 | <.05 | <.05 |
| | | 10/23/92 | S | <.05 | .67 | <.05 | .20 | .15 | .05 | .06 | .12 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/05/93 | S | <.05 | <.10 | <.05 | .19 | .11 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Wisconsin—Continued | | | | | | | | | | |
| 72 | Lake Waubesa—Continued | 04/19/93 | S | <0.05 | 0.87 | <0.05 | 0.21 | 0.13 | 0.05 | <0.05 | -- | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/12/93 | S | .05 | .94 | <.05 | .21 | .16 | .08 | .25 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/93 | S | <.05 | 1.1 | <.05 | .22 | .15 | .08 | .19 | 0.09 | <0.05 | <0.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 73 | Lake Wausau | 05/07/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/16/92 | S | <.05 | .15 | <.05 | .20 | .05 | <.05 | <.05 | .10 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/20/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/20/92 | LD | <.05 | -- | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | LD | <.05 | -- | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/21/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/21/93 | BD | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/93 | S | <.05 | .10 | <.05 | .17 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/93 | LD | <.05 | <.10 | <.05 | .16 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/08/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 74 | Lake Wissota (5548) | 05/05/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/19/92 | LD | <.05 | -- | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/21/92 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/07/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/21/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/14/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/07/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 5.** Analytical results for selected herbicides and six metabolites in samples collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Wisconsin—Continued | | | | | | | | | |
| 75 | Lake 7746 | 05/07/92 | S | <0.05 | 0.19 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 07/16/92 | S | .06 | .25 | <.05 | .36 | .07 | .07 | .12 | .11 | <.05 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/20/92 | S | <.05 | .21 | <.05 | .32 | .07 | <.05 | .08 | .08 | .05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 10/22/92 | S | <.05 | .23 | <.05 | .11 | .07 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 01/08/93 | S | <.05 | <.10 | <.05 | <.05 | <.05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/20/93 | S | <.05 | .37 | <.05 | .10 | .05 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | .08 | .68 | <.05 | .69 | .18 | .05 | .11 | -- | -- | -- | .10 | <.05 | <.05 | <.05 | <.05 |
| | | 09/07/93 | S | <.05 | .70 | <.05 | .30 | .09 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 76 | Spring Valley Lake | 05/06/92 | S | <.05 | .15 | <.05 | .13 | .13 | .06 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .10 |
| | | 07/15/92 | S | .10 | .78 | <.05 | 2.0 | .49 | .22 | .27 | .42 | .13 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 08/18/92 | S | <.05 | .30 | <.05 | .83 | .22 | .08 | .10 | .08 | <.05 | <.50 | <.05 | <.05 | .06 | <.05 | <.05 |
| | | 10/20/92 | S | <.05 | <.10 | <.05 | .18 | .16 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .07 | <.05 | <.05 |
| | | 10/20/92 | LD | <.05 | <.10 | <.05 | .17 | .16 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | .06 | <.05 | <.05 |
| | | 01/06/93 | S | <.05 | <.10 | <.05 | .07 | .08 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 04/20/93 | S | <.05 | .20 | <.05 | .18 | .15 | <.05 | <.05 | -- | -- | -- | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/13/93 | S | .07 | .98 | <.05 | 1.8 | .49 | .19 | .68 | -- | -- | -- | <.05 | <.05 | .05 | <.05 | .06 |
| | | 09/07/93 | S | <.05 | .39 | <.05 | .48 | .27 | .09 | .08 | .13 | <.05 | <.50 | <.05 | <.05 | .05 | <.05 | <.05 |

**Table 6.** Analytical results for selected herbicides and six metabolites in samples collected from top and bottom of 17 reservoirs in the Midwestern United States, April 1992 through September 1993

[ESA, ethane sulfonic acid; DEA, deethylatrazine; DIA, deisopropylatrazine; µg/L, micrograms per liter; --, no data; <, less than. Prometryn and terbutryn were not detected]

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **Illinois** | | | | | | | | | | |
| 1 | Carlyle Lake | 08/25/92 | top | <0.05 | -- | <0.05 | 3.8 | 0.63 | 0.32 | 0.53 | 0.28 | 0.10 | <0.50 | 0.20 | <0.05 | <0.05 | <0.05 | 0.66 |
| | | 08/25/92 | bottom | <.05 | -- | .05 | 4.1 | .72 | .33 | .56 | .34 | .15 | <.50 | .20 | <.05 | <.05 | <.05 | .74 |
| 4 | Lake Decatur | 09/01/92 | top | <.05 | 2.5 | <.05 | 1.0 | .38 | .20 | .20 | .35 | <.05 | <.50 | .43 | <.05 | <.05 | <.05 | <.05 |
| | | 09/01/92 | bottom | <.05 | 2.4 | <.05 | .98 | .35 | .19 | .18 | .40 | .05 | <.50 | .40 | <.05 | <.05 | <.05 | <.05 |
| 5 | Lake Shelbyville | 08/25/92 | top | <.05 | -- | <.05 | 1.7 | .45 | .26 | .50 | .33 | .15 | <.50 | .27 | <.05 | .05 | <.05 | .14 |
| | | 08/25/92 | bottom | <.05 | .93 | <.05 | 1.7 | .44 | .24 | .52 | .37 | .13 | <.50 | .34 | <.05 | .05 | <.05 | .22 |
| 6 | Lake Vermillion | 08/28/92 | top | <.05 | 2.0 | <.05 | 1.6 | .54 | .45 | .57 | 1.5 | .10 | <.50 | .24 | <.05 | <.05 | <.05 | <.05 |
| | | 08/28/92 | bottom | <.05 | 1.9 | <.05 | 1.5 | .52 | .46 | .59 | 1.4 | .12 | <.50 | .24 | <.05 | <.05 | <.05 | <.05 |
| 8 | Rend Lake | 08/24/92 | top | <.05 | .56 | <.05 | 1.2 | .24 | .12 | .30 | .27 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | .10 |
| | | 08/24/92 | bottom | <.05 | -- | <.05 | 1.1 | .23 | .12 | .38 | .24 | .07 | <.50 | <.05 | <.05 | <.05 | <.05 | .09 |
| | | | | | | | | **Indiana** | | | | | | | | | | |
| 15 | Mississinewa Lake | 08/17/92 | top | .37 | 7.0 | <.05 | 4.2 | 1.1 | .81 | 2.1 | .46 | .21 | <.50 | 1.9 | .10 | <.05 | .05 | .24 |
| | | 08/17/92 | bottom | .27 | 4.6 | <.05 | 3.3 | .87 | .78 | 1.0 | 1.1 | .20 | <.50 | 1.5 | <.05 | <.05 | <.05 | .13 |
| 19 | Salamonie Lake | 08/18/92 | top | .51 | 12 | <.05 | 5.5 | 1.3 | .84 | 2.1 | .53 | .25 | <.50 | 1.7 | .13 | <.05 | .06 | .11 |
| | | 08/18/92 | bottom | .61 | 12 | <.05 | 5.2 | 1.3 | .82 | 2.2 | .64 | .26 | <.50 | 2.0 | .16 | <.05 | .06 | .10 |
| | | | | | | | | **Iowa** | | | | | | | | | | |
| 23 | Rathbun Lake | 08/12/92 | top | .05 | 1.0 | <.05 | 2.1 | .50 | .42 | 2.0 | 1.3 | .33 | <.50 | .18 | <.05 | <.05 | <.05 | <.05 |
| | | 08/12/92 | bottom | <.05 | 1.0 | <.05 | 2.0 | .53 | .43 | 1.9 | 1.8 | .28 | <.50 | .16 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | **Kansas** | | | | | | | | | | |
| 30 | Pomona Lake | 08/27/92 | top | <.05 | .46 | <.05 | 2.3 | .46 | .21 | <.05 | <.05 | <.05 | <.50 | .29 | <.05 | <.05 | <.05 | <.05 |
| | | 08/27/92 | bottom | <.05 | .46 | <.05 | 2.2 | .50 | .20 | <.05 | <.05 | <.05 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |

**Table 6.** Analytical results for selected herbicides and six metabolites in samples collected from top and bottom of 17 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Sample type | Alachlor (µg/L) | Alachlor ESA (µg/L) | Ametryn (µg/L) | Atrazine (µg/L) | DEA (µg/L) | DIA (µg/L) | Cyanazine (µg/L) | Cyanazine amide (µg/L) | Deethylcyanazine (µg/L) | Deethylcyanazine amide (µg/L) | Metolachlor (µg/L) | Metribuzin (µg/L) | Prometon (µg/L) | Propazine (µg/L) | Simazine (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **Minnesota** | | | | | | | | | | |
| 34 | Cross Lake | 08/19/92 | top | <0.05 | <0.10 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | -- | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | | 08/19/92 | bottom | <.05 | .14 | <.05 | .08 | <.05 | <.05 | <.05 | <0.05 | <0.05 | 0.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 36 | Lac Qui Parle | 08/20/92 | top | <.05 | 1.1 | <.05 | .39 | .12 | .27 | .48 | .64 | .13 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | Reservoir | 08/20/92 | bottom | <.05 | .99 | <.05 | .35 | .09 | .09 | .45 | .27 | .10 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| 40 | Winnibigoshish | 08/17/92 | top | <.05 | -- | <.05 | .06 | <.05 | <.05 | <.05 | .09 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | Reservoir | 08/17/92 | bottom | <.05 | -- | <.05 | .06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | **Nebraska** | | | | | | | | | | |
| 48 | Branched Oak Lake | 09/11/92 | top | <.05 | .60 | <.05 | 2.6 | .62 | .23 | .22 | .19 | .08 | <.50 | .05 | <.05 | <.05 | <.05 | <.05 |
| | | 09/11/92 | bottom | .05 | .74 | <.05 | 2.7 | .69 | .27 | .30 | .19 | <.05 | <.50 | .06 | <.05 | <.05 | <.05 | <.05 |
| 57 | Willow Creek | 08/26/92 | top | .05 | .77 | <.05 | 1.6 | .34 | .18 | .14 | .24 | .12 | <.50 | .29 | <.05 | <.05 | <.05 | <.05 |
| | Reservoir | 08/26/92 | bottom | <.05 | .83 | <.05 | 1.6 | .33 | .17 | .17 | .24 | <.05 | <.50 | .28 | <.05 | <.05 | <.05 | <.05 |
| | | | | | | | | **Ohio** | | | | | | | | | | |
| 59 | Alum Creek Lake | 08/06/92 | top | .11 | 4.2 | <.05 | 1.6 | .54 | .75 | .31 | .50 | .15 | <.50 | .46 | <.05 | <.05 | <.05 | .13 |
| | | 08/06/92 | bottom | <.05 | 4.5 | <.05 | 2.0 | .88 | .49 | .30 | .42 | .22 | <.50 | .66 | <.05 | <.05 | <.05 | .17 |
| 62 | Dillon Lake | 09/15/92 | top | <.05 | .49 | <.05 | .50 | .25 | .10 | <.05 | <.05 | <.05 | <.50 | .16 | <.05 | <.05 | <.05 | .15 |
| | | 09/15/92 | bottom | <.05 | .91 | <.05 | .40 | .18 | .09 | <.05 | <.05 | <.05 | <.50 | .11 | <.05 | <.05 | <.05 | .14 |
| | | | | | | | | **Wisconsin** | | | | | | | | | | |
| 69 | Lake Mendota | 07/23/92 | top | <.05 | .73 | <.05 | .30 | .21 | .09 | .11 | <.05 | <.05 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |
| | | 07/23/92 | bottom | <.05 | .99 | <.05 | .33 | .24 | .09 | .09 | .16 | .10 | <.50 | <.05 | <.05 | <.05 | <.05 | <.05 |

**Table 7.** Herbicide compounds analyzed and percentage of detections in 76 reservoirs for eight sampling periods during April 1992 through September 1993

[ESA, ethane sulfonic acid; µg/L, micrograms per liter; N, number of samples analyzed; %, percent. Prometryn and terburtyn were not detected]

| Compound | Reporting limit (µg/L) | Period 1 preapplication 1992 (%) | Period 2 post-application 1992 (%) | Period 3 late summer 1992 (%) | Period 4 fall low flow 1992 (%) | Period 5 early winter 1993 (%) | Period 6 pre-application 1993 (%) | Period 7 post-application 1993 (%) | Period 8 post-flood fall 1993 (%) |
|---|---|---|---|---|---|---|---|---|---|
| **Herbicide** | | | | | | | | | |
| Alachlor | 0.05 | 36 | 47 | 26 | 16 | 8 | 7 | 66 | 33 |
| Ametryn | .05 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 |
| Atrazine | .05 | 74 | 92 | 86 | 80 | 79 | 76 | 86 | 84 |
| Cyanazine | .20 | 51 | 65 | 53 | 45 | 25 | 21 | 61 | 58 |
| Metolachlor | .05 | 47 | 62 | 51 | 51 | 43 | 42 | 68 | 61 |
| Metribuzin | .05 | 12 | 9 | 5 | 0 | 0 | 5 | 11 | 0 |
| Prometon | .05 | 5 | 15 | 16 | 15 | 8 | 0 | 9 | 12 |
| Propazine | .05 | 3 | 11 | 7 | 1 | 1 | 1 | 8 | 1 |
| Simazine | .05 | 22 | 28 | 25 | 20 | 5 | 3 | 30 | 25 |
| **Alachlor metabolites** | | | | | | | | | |
| Alachlor ESA | .10 | 68 | 71 | 71 | 65 | 59 | 70 | 75 | 83 |
| **Atrazine metabolites** | | | | | | | | | |
| Deethylatrazine | .05 | 65 | 78 | 74 | 70 | 70 | 66 | 74 | 78 |
| Deisopropylatrazine | .05 | 59 | 70 | 63 | 62 | 55 | 50 | 65 | 71 |
| **Cyanazine metabolites** | | | | | | | | | |
| Cyanazine amide | .05 | 43 | 68 | 59 | 55 | 32 | 21 | 63 | 61 |
| Deethylcyanazine | .05 | 9 | 40 | 33 | 40 | 19 | 0 | 50 | 21 |
| Deethylcyanazine amide | .50 | 0 | 5 | 1 | 7 | 0 | 0 | 3 | 0 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; mg/L, milligrams per liter; <, less than; --, no data]

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Illinois | | | | | | |
| 1 | Carlyle Lake | 04/30/92 | 1030 | 420 | 13.5 | 7.7 | 0.35 | 0.02 | 0.17 | 0.07 | 2.3 |
| | | 06/24/92 | 1415 | 466 | 24.0 | 7.5 | .11 | .07 | .17 | .15 | 3.4 |
| | | 08/25/92 | 1000 | 491 | 25.0 | 7.8 | <.05 | .01 | .14 | .17 | 2.5 |
| | | 10/21/92 | 1450 | 495 | 15.5 | 7.9 | <.05 | <.01 | .02 | .09 | .8 |
| | | 01/13/93 | 1400 | 396 | 2.0 | 7.6 | 2.3 | .03 | .11 | .11 | 5.2 |
| | | 03/30/93 | 1210 | 387 | 10.0 | 8.3 | 3.7 | .03 | .03 | .06 | 5.7 |
| | | 07/15/93 | 1230 | 417 | 28.0 | 7.8 | .47 | .01 | .12 | .19 | 4.6 |
| | | 09/20/93 | 0930 | 358 | 21.5 | 7.4 | .38 | <.01 | .04 | .18 | 3.4 |
| 2 | Crab Orchard Lake | 05/01/92 | 0945 | 268 | 16.0 | 7.9 | .05 | <.01 | .03 | .01 | .5 |
| | | 06/25/92 | 1145 | 333 | 25.5 | 7.5 | .34 | .09 | .36 | .04 | 2.1 |
| | | 08/27/92 | 1140 | 418 | 23.5 | 7.6 | .11 | .01 | .02 | .01 | 4.6 |
| | | 10/22/92 | 1030 | 327 | 17.0 | 8.2 | <.05 | <.01 | .01 | <.01 | .6 |
| | | 01/15/93 | 1130 | 308 | 4.0 | 7.6 | .11 | .01 | .07 | <.01 | 2.9 |
| | | 03/26/93 | 1510 | 270 | 7.0 | 7.5 | .05 | .01 | <.01 | .01 | .1 |
| | | 07/07/93 | 1000 | 269 | 28.5 | 7.7 | <.05 | <.01 | .06 | <.01 | 1.7 |
| | | 09/21/93 | 0900 | 287 | 20.0 | 8.4 | .26 | .02 | .20 | .01 | 7.9 |
| 3 | Devils Kitchen Lake | 05/01/92 | 1100 | 107 | 18.0 | 7.9 | .05 | .01 | .02 | .01 | 4.1 |
| | | 06/25/92 | 1245 | 164 | 22.0 | 7.0 | .07 | .01 | .79 | .01 | 7.8 |
| | | 08/27/92 | 1410 | 211 | 22.5 | 7.6 | .08 | .01 | .04 | .01 | 2.0 |
| | | 10/22/92 | 1250 | 134 | 17.0 | 7.5 | <.05 | <.01 | .03 | .01 | 3.6 |
| | | 01/15/93 | 1515 | 131 | 4.5 | 8.2 | .06 | .01 | .09 | <.01 | 4.4 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Illinois—Continued | | | | | | |
| 3 | Devils Kitchen Lake—Continued | 03/26/93 | 1300 | 112 | 5.5 | 6.9 | 0.11 | 0.01 | 0.01 | 0.01 | 4.4 |
| | | 07/07/93 | 1420 | 100 | 30.0 | 6.8 | .07 | <.01 | .05 | <.01 | 3.1 |
| | | 09/21/93 | 1130 | 90 | 23.0 | 8.0 | <.05 | <.01 | .02 | <.01 | 1.7 |
| 4 | Lake Decatur | 04/30/92 | 0900 | 790 | 14.5 | 7.5 | 6.2 | .08 | .09 | .02 | 24 |
| | | 07/07/92 | 1200 | 543 | 24.0 | 8.0 | 5.1 | .07 | .03 | .02 | 1.6 |
| | | 09/01/92 | 1015 | 589 | 22.5 | 7.8 | 2.9 | .05 | .02 | .03 | 11 |
| | | 10/20/92 | 1000 | 482 | 12.5 | 8.1 | .42 | .02 | .06 | .06 | .4 |
| | | 01/14/93 | 1045 | 490 | .5 | 8.0 | 6.9 | .03 | .05 | .13 | 8.3 |
| | | 03/24/93 | 1045 | 565 | 5.0 | 8.1 | 8.5 | .02 | .01 | .04 | 7.5 |
| | | 07/07/93 | 1215 | 348 | 25.5 | 7.8 | 5.5 | .05 | .05 | .14 | 9.5 |
| | | 09/09/93 | 1700 | 512 | 24.0 | 8.1 | 3.3 | .03 | .04 | .11 | 11 |
| 5 | Lake Shelbyville | 04/30/92 | 1040 | 475 | 14.0 | 8.0 | 1.2 | .02 | .02 | <.01 | .2 |
| | | 07/07/92 | 1255 | 497 | 20.5 | 7.8 | 1.6 | .03 | .24 | <.01 | 1.0 |
| | | 08/25/92 | 1500 | 479 | 24.0 | 7.3 | 2.9 | .21 | .15 | <.01 | 2.3 |
| | | 10/20/92 | 1115 | 430 | 14.0 | 7.7 | 2.1 | .07 | .02 | <.01 | .2 |
| | | 01/14/93 | 1315 | 492 | 2.0 | 7.8 | 6.2 | .05 | .10 | .14 | 8.7 |
| | | 03/26/93 | 1445 | 531 | 7.0 | 8.5 | 8.2 | .03 | .02 | .04 | 6.2 |
| | | 07/12/93 | 1100 | 449 | 23.0 | 7.8 | 4.9 | .12 | .14 | <.01 | 1.4 |
| | | 09/08/93 | 0915 | 395 | 22.0 | 7.9 | 2.5 | .07 | .16 | <.01 | 1.2 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Illinois—Continued | | | | | | |
| 6 | Lake Vermillion | 04/30/92 | 1515 | 617 | 14.5 | 8.2 | 14.0 | 0.07 | 0.01 | 0.02 | 5.7 |
| | | 07/07/92 | 1200 | 578 | 24.0 | 8.1 | 9.3 | .05 | .01 | <.01 | 6.3 |
| | | 08/28/92 | 1345 | 538 | 23.5 | 8.1 | 4.9 | .06 | .02 | <.01 | 8.5 |
| | | 10/21/92 | 0830 | 562 | 13.5 | 7.7 | 1.1 | .03 | .04 | <.01 | 4.1 |
| | | 01/13/93 | 1050 | 428 | 1.5 | 8.0 | 5.0 | .02 | .07 | .10 | 7.1 |
| | | 03/17/93 | 0930 | 499 | 2.5 | 7.9 | 7.0 | .01 | .06 | .07 | 7.3 |
| | | 07/06/93 | 1200 | 319 | 25.5 | 7.8 | 4.7 | .07 | .08 | .13 | 9.0 |
| | | 09/02/93 | 1045 | 407 | 27.0 | 8.0 | 1.2 | .03 | .06 | .02 | -- |
| 7 | Little Grassy Lake | 05/01/92 | 1145 | 91 | 18.0 | 8.1 | .05 | .01 | .19 | .01 | 1.0 |
| | | 06/25/92 | 1345 | 93 | 26.5 | 7.4 | .05 | .01 | .02 | .01 | .3 |
| | | 08/27/92 | 1535 | 106 | 24.0 | 7.8 | .05 | .01 | .02 | .01 | .9 |
| | | 10/22/92 | 1400 | 116 | 21.0 | 7.4 | <.05 | <.01 | .05 | .01 | 1.9 |
| | | 01/15/93 | 1330 | 130 | 5.5 | 7.0 | .11 | .01 | .05 | <.01 | <.1 |
| | | 03/26/93 | 1130 | 106 | 7.0 | 6.9 | .12 | .01 | .02 | .01 | .1 |
| | | 07/07/93 | 1150 | 83 | 29.5 | 7.8 | .05 | .01 | .02 | .01 | 1.0 |
| | | 09/21/93 | 1230 | 95 | 23.0 | 7.3 | <.05 | <.01 | .02 | <.01 | 3.7 |
| 8 | Rend Lake | 04/30/92 | 0800 | 389 | 14.5 | 7.3 | .05 | <.01 | .03 | .01 | .6 |
| | | 06/24/92 | 1000 | 365 | 22.0 | 7.1 | .41 | .02 | .14 | .12 | 3.0 |
| | | 08/24/92 | 1230 | 470 | 24.5 | 6.9 | .62 | .06 | .33 | .18 | 4.2 |
| | | 10/21/92 | 1120 | 590 | 13.0 | 7.3 | .53 | .02 | .04 | .12 | 1.9 |
| | | 01/11/93 | 1440 | 469 | 3.0 | 7.5 | .09 | <.01 | .02 | .01 | .8 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Illinois—Continued** | | | | | | |
| 8 | Rend Lake—Continued | 03/24/93 | 1230 | 381 | 5.0 | 7.0 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 |
| | | 07/07/93 | 1645 | 363 | 28.0 | 7.1 | .10 | <.01 | .06 | .04 | 2.8 |
| | | 09/20/93 | 1330 | 386 | 21.0 | 7.0 | .39 | .03 | .17 | .06 | 3.5 |
| | | | | | **Indiana** | | | | | | |
| 9 | Brookville Lake | 05/07/92 | 0830 | 516 | 13.5 | 8.4 | 1.1 | <.01 | .01 | <.01 | .8 |
| | | 07/13/92 | 0730 | 530 | 13.5 | 8.0 | .88 | .02 | .06 | <.01 | 2.9 |
| | | 08/19/92 | 1330 | 528 | 14.0 | 7.6 | .14 | .01 | .08 | .01 | 7.0 |
| | | 10/23/92 | 1300 | 519 | 13.0 | 7.6 | .22 | .01 | 1.3 | .07 | 2.9 |
| | | 01/06/93 | 1315 | 488 | 5.5 | 8.3 | 1.5 | .02 | .04 | <.01 | 1.9 |
| | | 03/24/93 | 1215 | 511 | 7.0 | 7.4 | 1.2 | .01 | .04 | <.01 | 4.2 |
| | | 07/08/93 | 1515 | 499 | 12.5 | 7.5 | 2.0 | .05 | .14 | <.01 | 2.7 |
| | | 09/07/93 | 1015 | 540 | 16.0 | 7.5 | 1.4 | .12 | .29 | <.01 | 2.9 |
| 10 | Cataract Lake | 05/04/92 | 1730 | 390 | 15.0 | 7.9 | 3.3 | .05 | .09 | .04 | 4.8 |
| | | 07/11/92 | 2015 | 406 | 21.5 | 7.6 | 1.4 | .08 | .40 | <.01 | 3.8 |
| | | 08/24/92 | 1540 | 313 | 25.0 | 7.8 | 1.4 | .05 | .13 | <.01 | 4.8 |
| | | 10/21/92 | 1300 | 365 | 16.0 | 8.0 | .61 | .05 | .15 | <.01 | 4.6 |
| | | 01/14/93 | 1115 | 388 | 3.0 | 8.1 | 2.7 | .03 | .13 | .05 | 2.7 |
| | | 03/22/93 | 1200 | 386 | 3.0 | 8.2 | 3.5 | .01 | .11 | .03 | 7.1 |
| | | 07/07/93 | 1330 | 381 | 22.5 | 7.4 | 2.6 | .11 | .42 | <.01 | 6.1 |
| | | 09/02/93 | 0900 | 382 | 24.0 | 7.6 | .42 | .05 | .16 | .07 | 3.8 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/ year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Indiana—Continued | | | | | | |
| 11 | Eagle Creek Reservoir | 05/04/92 | 0915 | 528 | 14.5 | 8.6 | 6.5 | 0.07 | 0.06 | 0.01 | 3.7 |
| | | 07/06/92 | 1300 | 462 | 24.5 | 7.2 | 3.8 | .14 | .17 | <.01 | .7 |
| | | 08/27/92 | 1120 | 465 | 22.0 | 7.5 | 1.6 | .15 | 1.1 | .02 | 4.3 |
| | | 10/27/92 | 1445 | 439 | 14.5 | 8.0 | 1.8 | .07 | .04 | <.01 | 2.9 |
| | | 01/07/93 | 1300 | 464 | 5.0 | 8.0 | 2.5 | .03 | .10 | .08 | 5.8 |
| | | 03/29/93 | 1045 | 459 | 7.0 | 8.1 | 3.7 | .03 | .02 | <.01 | 4.2 |
| | | 07/08/93 | 0930 | 455 | 22.0 | 7.8 | 2.1 | .12 | .03 | <.01 | 2.2 |
| | | 09/03/93 | 0900 | 397 | 25.5 | 7.6 | <.05 | .01 | .26 | <.01 | 3.4 |
| 12 | Huntington Lake | 05/05/92 | 1730 | 572 | 14.5 | 8.1 | 9.1 | .13 | .11 | .14 | 8.0 |
| | | 07/14/92 | 1300 | 435 | 23.5 | 7.5 | 8.0 | .28 | .18 | .09 | -- |
| | | 08/26/92 | 1730 | 552 | 22.5 | 7.6 | .41 | .06 | .80 | .12 | 5.3 |
| | | 10/27/92 | 0915 | 610 | 11.5 | 7.9 | 2.9 | .05 | .19 | .06 | 7.5 |
| | | 01/11/93 | 1230 | 458 | 2.0 | 7.5 | 4.3 | .06 | .22 | .28 | 6.9 |
| | | 03/23/93 | 1545 | 545 | 4.5 | 8.3 | 3.7 | .03 | .20 | .06 | 5.1 |
| | | 07/09/93 | 1715 | 310 | 24.0 | 7.4 | 6.6 | .32 | .16 | .18 | 5.6 |
| | | 09/16/93 | 1130 | 520 | 20.5 | 7.5 | .43 | .03 | .26 | .04 | .8 |
| 13 | Lake Shafer | 05/05/92 | 1030 | 628 | 15.5 | 8.0 | 3.5 | .03 | .02 | <.01 | 4.3 |
| | | 07/14/92 | 1315 | 574 | 24.5 | 7.8 | 3.6 | .06 | .15 | .05 | 11 |
| | | 08/26/92 | 1000 | 578 | 24.0 | 7.8 | .35 | .02 | .10 | <.01 | 7.5 |
| | | 10/26/92 | 1230 | 564 | 12.0 | 8.0 | 2.4 | .02 | .02 | .02 | 9.9 |
| | | 01/12/93 | 1130 | 560 | .5 | 7.4 | 4.0 | .03 | .07 | .04 | 8.1 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/ year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Indiana—Continued | | | | | | |
| 13 | Lake Shafer—Continued | 03/23/93 | 0930 | 539 | 4.5 | 8.1 | 4.1 | 0.02 | 0.07 | 0.02 | 6.1 |
| | | 07/12/93 | 1300 | 575 | 27.0 | 8.2 | 2.2 | .03 | .05 | .01 | 9.0 |
| | | 09/03/93 | 1515 | 573 | 23.0 | 7.8 | 1.1 | .03 | .19 | .06 | 7.1 |
| 14 | Mansfield Lake | 05/04/92 | 1730 | 529 | 12.5 | 8.2 | 4.6 | .05 | .17 | <.01 | 2.5 |
| | | 07/11/92 | 1700 | 545 | 14.5 | 7.8 | 3.6 | .10 | .61 | <.01 | 3.8 |
| | | 08/24/92 | 1150 | 467 | 21.0 | 7.4 | 2.6 | .04 | .49 | <.01 | 6.2 |
| | | 10/21/92 | 1000 | 421 | 15.0 | 8.0 | 2.2 | .19 | .09 | <.01 | 3.6 |
| | | 01/12/93 | 1530 | 448 | 4.0 | 7.7 | 2.6 | .04 | .19 | .04 | 6.9 |
| | | 03/22/93 | 1445 | 444 | 3.0 | 8.5 | 4.3 | .02 | .20 | .04 | 6.2 |
| | | 07/10/93 | 1500 | 451 | 19.0 | 7.7 | 1.9 | .03 | .42 | <.01 | 3.6 |
| | | 09/15/93 | 1200 | 373 | 22.0 | 7.3 | .47 | .04 | .79 | .01 | 3.2 |
| 15 | Mississinewa Lake | 05/04/92 | 1730 | 444 | 13.5 | 7.9 | 5.6 | .08 | .18 | .10 | 5.2 |
| | | 07/14/92 | 1700 | 422 | 21.5 | 7.5 | 5.5 | .12 | .06 | .07 | 3.8 |
| | | 08/26/92 | 1400 | 335 | 23.5 | 7.9 | 1.4 | .04 | .08 | <.01 | 3.6 |
| | | 10/26/92 | 1615 | 505 | 11.5 | 7.9 | 2.5 | .05 | .27 | .06 | 7.8 |
| | | 01/11/93 | 1730 | 430 | 2.0 | 7.4 | 2.1 | .04 | .15 | .10 | 7.9 |
| | | 03/23/93 | 1215 | 396 | 2.5 | 8.1 | 3.3 | .02 | .15 | .10 | 6.1 |
| | | 07/09/93 | 1430 | 443 | 22.0 | 7.4 | 4.4 | .08 | .04 | .05 | 5.3 |
| | | 09/15/93 | 1700 | 417 | 22.0 | 7.5 | 1.2 | .16 | .07 | .02 | 2.8 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Indiana—Continued | | | | | | |
| 16 | Monroe Lake | 05/06/92 | 1200 | 190 | 14.5 | 7.5 | 0.06 | <0.01 | 0.03 | <0.01 | 1.5 |
| | | 07/07/92 | 1115 | 193 | 23.0 | 7.0 | <.05 | <.01 | .04 | <.01 | 1.9 |
| | | 08/25/92 | 0800 | 196 | 24.5 | 7.0 | <.05 | <.01 | .09 | <.01 | 3.6 |
| | | 10/21/92 | 1600 | 205 | 16.0 | 7.5 | .07 | <.01 | .10 | <.01 | 3.8 |
| | | 01/13/93 | 1615 | 186 | 3.5 | 7.0 | .11 | <.01 | .02 | <.01 | 1.5 |
| | | 03/25/93 | 1045 | 190 | 4.0 | 7.8 | .25 | <.01 | .02 | <.01 | 3.3 |
| | | 07/08/93 | 1900 | 186 | 24.0 | 7.0 | <.05 | <.01 | .13 | <.01 | 3.2 |
| | | 09/01/93 | 1200 | 186 | 25.5 | 7.2 | <.05 | .03 | .21 | .02 | 4.3 |
| 17 | Morse Reservoir | 05/07/92 | 1230 | 484 | 16.0 | 8.8 | 8.7 | .06 | <.01 | .01 | 4.0 |
| | | 07/06/92 | 1540 | 328 | 25.0 | 7.6 | 5.3 | .17 | .02 | .01 | 2.5 |
| | | 08/25/92 | 1715 | 419 | 23.5 | 7.8 | 3.0 | .06 | .07 | <.01 | 4.9 |
| | | 10/27/92 | 1230 | 446 | 14.0 | 8.4 | 2.8 | .11 | .03 | <.01 | 1.5 |
| | | 01/07/93 | 1105 | 447 | 4.0 | 8.2 | 4.8 | .04 | .08 | .07 | 6.3 |
| | | 03/29/93 | 1530 | 446 | 9.0 | 8.1 | 6.3 | .03 | .05 | .03 | 5.4 |
| | | 07/09/93 | 1000 | 446 | 27.0 | 8.2 | 2.6 | .06 | .04 | .01 | 2.0 |
| | | 09/03/93 | 1200 | 400 | 25.5 | 8.0 | 1.7 | .03 | .08 | <.01 | .9 |
| 18 | Patoka Lake | 05/06/92 | 1520 | 226 | 14.5 | 8.0 | .26 | <.01 | .04 | <.01 | .9 |
| | | 07/07/92 | 1500 | 220 | 25.5 | 8.2 | <.05 | <.01 | .03 | <.01 | .4 |
| | | 08/25/92 | 1145 | 226 | 26.0 | 8.2 | <.05 | <.01 | .04 | <.01 | 1.2 |
| | | 10/22/92 | 1000 | 228 | 15.5 | 7.6 | <.05 | <.01 | .26 | <.01 | 1.8 |
| | | 01/13/93 | 1415 | 200 | 4.0 | 7.4 | .14 | .02 | .09 | <.01 | 8.7 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/ year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Indiana—Continued | | | | | | |
| 18 | Patoka Lake—Continued | 03/25/93 | 0800 | 203 | 4.0 | 8.2 | 0.22 | <0.01 | 0.04 | <0.01 | 1.6 |
| | | 07/13/93 | 1145 | 150 | 23.5 | 7.4 | .13 | <.01 | .15 | <.01 | 1.5 |
| | | 09/14/93 | 1200 | 233 | 23.0 | 7.3 | <.05 | <.01 | .06 | <.01 | 1.5 |
| 19 | Salamonie Lake | 05/05/92 | 1530 | 465 | 12.5 | 8.1 | 5.4 | .06 | .15 | .07 | 4.4 |
| | | 07/14/92 | 1600 | 422 | 20.0 | 7.6 | 5.4 | .36 | .33 | .05 | 4.4 |
| | | 08/26/92 | 1550 | 413 | 23.0 | 7.9 | 2.5 | .12 | .29 | .03 | 5.4 |
| | | 10/26/92 | 1730 | 452 | 12.0 | 7.9 | 1.6 | .04 | .12 | .03 | 4.5 |
| | | 01/11/93 | 1600 | 403 | 2.5 | 7.5 | 2.4 | .04 | .29 | .06 | 7.2 |
| | | 03/23/93 | 1415 | 427 | 2.0 | 8.2 | 2.9 | .02 | .19 | .13 | 5.6 |
| | | 07/12/93 | 1630 | 389 | 22.5 | 7.6 | 5.2 | .23 | .12 | .09 | 5.0 |
| | | 09/16/93 | 0930 | 356 | 21.5 | 7.5 | 1.2 | <.01 | .03 | .02 | 4.3 |
| | | | | | Iowa | | | | | | |
| 20 | Coralville Lake | 04/29/92 | 1330 | 548 | 12.0 | 8.0 | 9.9 | .04 | .04 | .12 | 14 |
| | | 06/30/92 | 1230 | 562 | 23.5 | 8.4 | 6.0 | .15 | .18 | .09 | 12 |
| | | 08/24/92 | 1745 | 590 | 23.5 | 8.2 | 5.5 | .08 | .20 | .13 | 10 |
| | | 10/19/92 | 1200 | 505 | 10.5 | 8.3 | 3.0 | .27 | .13 | .05 | 4.9 |
| | | 01/20/93 | 1000 | 660 | .5 | 8.1 | 7.8 | .04 | .16 | .09 | 16 |
| | | 03/24/93 | 1045 | 347 | 1.0 | 7.7 | 2.7 | .04 | .71 | .29 | 9.8 |
| | | 07/16/93 | 1552 | 394 | 23.0 | 7.6 | 4.5 | .19 | .05 | .13 | 13 |
| | | 09/01/93 | 1300 | 377 | 24.5 | 8.2 | 3.4 | .22 | .04 | .12 | 14 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Iowa—Continued | | | | | | |
| 21 | Lake Panorama | 04/30/92 | 1740 | 612 | 11.5 | 8.2 | 10 | 0.05 | 0.08 | 0.08 | -- |
| | | 06/30/92 | 1800 | 548 | 26.5 | 8.5 | 8.2 | .13 | .10 | .02 | 1.6 |
| | | 08/25/92 | 0930 | 547 | 23.0 | 8.2 | 5.6 | .11 | .39 | .01 | 19 |
| | | 10/16/92 | 0745 | 574 | 8.5 | 8.6 | 5.1 | .08 | .07 | .03 | 3.0 |
| | | 01/22/93 | 0900 | 735 | .5 | 8.1 | 10 | .04 | .08 | .10 | 20 |
| | | 03/22/93 | 1615 | 290 | 2.0 | 7.7 | 1.9 | .03 | .24 | .73 | 9.0 |
| | | 07/27/93 | 1715 | 568 | 23.0 | 8.0 | 7.6 | .07 | .04 | .13 | 19 |
| | | 08/31/93 | 0810 | 508 | 22.0 | 8.2 | 5.9 | .10 | .10 | .12 | 17 |
| 22 | Lake Red Rock | 04/30/92 | 1200 | 540 | 10.0 | 8.2 | 8.3 | .04 | .09 | .09 | 1.4 |
| | | 07/01/92 | 1100 | 600 | 22.5 | 8.5 | 7.8 | .48 | .06 | .13 | 10 |
| | | 08/25/92 | 1615 | 598 | 23.5 | 8.2 | 6.3 | .21 | .07 | .06 | 11 |
| | | 10/13/92 | 1445 | 434 | 18.0 | 8.2 | 2.3 | .05 | .03 | .09 | 12 |
| | | 01/21/93 | 1500 | 756 | 1.0 | 8.0 | 9.0 | .03 | .07 | .11 | 20 |
| | | 03/23/93 | 0935 | 445 | 1.5 | 7.8 | 3.3 | .04 | .49 | .34 | 12 |
| | | 07/16/93 | 1305 | 425 | 23.0 | 7.7 | 4.5 | .16 | .03 | .13 | 14 |
| | | 08/30/93 | 1700 | 509 | 25.0 | 8.5 | 4.8 | .11 | .03 | .12 | 19 |
| 23 | Rathbun Lake | 04/30/92 | 1700 | 247 | 10.5 | 7.9 | .61 | .01 | .11 | .02 | 1.6 |
| | | 07/02/92 | 0900 | 251 | 23.0 | 8.0 | .70 | .01 | .06 | .07 | 2.1 |
| | | 08/12/92 | 1530 | 250 | 24.0 | 7.9 | .32 | .02 | .03 | .01 | .9 |
| | | 10/14/92 | 0720 | 169 | 17.0 | 8.2 | .47 | .01 | .02 | .04 | 3.8 |
| | | 01/21/93 | 1215 | 178 | 2.0 | 7.7 | .55 | .03 | .03 | .12 | 5.7 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/ year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Iowa—Continued** | | | | | | |
| 23 | Rathbun Lake— | 03/23/93 | 1300 | 188 | 3.0 | 8.5 | 0.52 | <0.01 | 0.02 | 0.04 | 6.6 |
| | Continued | 07/27/93 | 1200 | 189 | 23.0 | 7.3 | .74 | <.01 | .03 | .03 | 5.0 |
| | | 08/30/93 | 1210 | 183 | 25.0 | 7.6 | .58 | <.01 | .04 | .04 | 5.4 |
| 24 | Saylorville Lake | 04/30/92 | 1515 | 666 | 10.0 | 8.2 | 12 | .03 | .02 | .09 | 19 |
| | | 06/30/92 | 2000 | 628 | 23.5 | 8.3 | 11 | .10 | .12 | .09 | 21 |
| | | 08/25/92 | 1115 | 680 | 23.5 | 8.4 | 5.9 | .06 | .13 | .02 | 8.5 |
| | | 10/16/92 | 1120 | 703 | 7.5 | 8.6 | 2.4 | .19 | .43 | .04 | 15 |
| | | 01/22/93 | 1100 | 892 | 1.5 | 8.2 | 9.8 | .04 | .09 | .04 | 23 |
| | | 03/22/93 | 1325 | 558 | 1.5 | 8.3 | 4.3 | .06 | .52 | .38 | 16 |
| | | 07/16/93 | 1000 | 460 | 22.0 | 7.7 | 4.9 | .09 | .04 | .16 | 18 |
| | | 08/31/93 | 1010 | 552 | 23.5 | 8.5 | 7.7 | .08 | .05 | .12 | 22 |
| | | | | | **Kansas** | | | | | | |
| 25 | Clinton Lake | 05/01/92 | 0930 | 326 | 16.0 | 8.3 | .37 | .01 | .12 | .02 | 8.1 |
| | | 06/26/92 | 0830 | 320 | 21.5 | 7.9 | .22 | .02 | .06 | <.01 | 1.4 |
| | | 08/24/92 | 1040 | 295 | 25.5 | 8.2 | <.05 | <.01 | .03 | <.01 | .7 |
| | | 10/26/92 | 1030 | 315 | 15.5 | 8.9 | <.05 | .01 | .02 | <.01 | .7 |
| | | 01/19/93 | 1310 | 290 | 3.0 | 8.8 | .37 | .02 | .10 | .03 | 3.6 |
| | | 03/22/93 | 1200 | 330 | 5.5 | 8.0 | .48 | .01 | .02 | <.01 | 4.5 |
| | | 07/13/93 | 1005 | 302 | 26.0 | 8.1 | .25 | <.01 | .03 | <.01 | 3.8 |
| | | 08/30/93 | 1105 | 251 | 27.5 | 8.0 | <.05 | .01 | .13 | <.01 | 3.1 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Kansas—Continued | | | | | | |
| 26 | Hillsdale Lake | 05/05/92 | 1100 | 336 | 18.0 | 8.3 | 0.24 | 0.01 | 0.06 | <0.01 | 0.8 |
| | | 06/25/92 | 1100 | 321 | 22.0 | 7.8 | .53 | .02 | .06 | .02 | 2.2 |
| | | 08/28/92 | 1130 | 310 | 22.5 | 7.8 | .10 | <.01 | .08 | .01 | 1.6 |
| | | 10/27/92 | 1100 | 326 | 15.5 | 7.9 | <.05 | <.01 | .01 | .03 | .9 |
| | | 01/11/93 | 1145 | 254 | 2.0 | 8.0 | .44 | .02 | .11 | .07 | 3.9 |
| | | 03/23/93 | 1145 | 276 | 5.0 | 8.5 | .67 | .01 | .06 | .04 | 4.9 |
| | | 07/29/93 | 1615 | 270 | 26.5 | 7.7 | .41 | <.01 | .05 | .01 | 2.4 |
| | | 08/31/93 | 1340 | 245 | 25.5 | 7.3 | .07 | .01 | .46 | .02 | 4.0 |
| 27 | Kanopolis Lake | 05/07/92 | 1015 | 1,250 | 16.0 | 8.3 | .05 | <.01 | .05 | .01 | 1.1 |
| | | 06/30/92 | 1230 | 974 | 23.0 | 7.9 | .32 | .10 | .06 | .03 | 5.7 |
| | | 08/27/92 | 0830 | 672 | 22.5 | 8.1 | .49 | <.01 | .02 | .11 | 11 |
| | | 10/29/92 | 0900 | 890 | 13.0 | 8.0 | .59 | .02 | .05 | .06 | 12 |
| | | 01/15/93 | 0950 | 1,050 | 2.0 | 8.2 | .80 | .02 | .05 | .05 | 11 |
| | | 03/26/93 | 0820 | 789 | 6.5 | 8.2 | 1.0 | .03 | .13 | .09 | 13 |
| | | 07/08/93 | 1600 | 935 | 25.5 | 8.0 | .51 | .01 | .06 | .05 | 9.5 |
| | | 09/03/93 | 0930 | 656 | 24.5 | 7.9 | .10 | .03 | .12 | .09 | 17 |
| 28 | Milford Lake | 05/05/92 | 1530 | 617 | 15.0 | 8.2 | .08 | <.01 | .10 | .03 | 1.5 |
| | | 06/29/92 | 1200 | 660 | 23.0 | 7.8 | .21 | .01 | .12 | .12 | 10 |
| | | 08/25/92 | 1345 | 514 | 24.5 | 7.9 | .62 | <.01 | .03 | .15 | 9.9 |
| | | 10/29/92 | 1400 | 478 | 14.0 | 8.3 | .83 | <.01 | .01 | .16 | 9.3 |
| | | 01/13/93 | 1310 | 535 | 1.5 | 8.7 | 1.1 | .01 | .06 | .17 | 13 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Kansas—Continued | | | | | | |
| 28 | Milford Lake—Continued | 03/24/93 | 1600 | 479 | 5.0 | 8.2 | 1.2 | 0.02 | 0.24 | 0.17 | 12 |
| | | 07/19/93 | 1605 | 472 | 27.0 | 8.0 | 1.0 | <.01 | .04 | .17 | 12 |
| | | 09/01/93 | 1705 | 366 | 25.5 | 7.8 | .50 | <.01 | .04 | .22 | 16 |
| 29 | Perry Lake | 05/01/92 | 1250 | 350 | 14.0 | 8.0 | .82 | .02 | .14 | .03 | 2.8 |
| | | 06/26/92 | 1100 | 361 | 19.0 | 7.8 | .77 | .02 | .12 | <.01 | 7.4 |
| | | 08/28/92 | 0900 | 298 | 23.5 | 8.0 | .52 | .02 | .07 | .04 | 6.2 |
| | | 10/26/92 | 1230 | 294 | 17.5 | 8.6 | .51 | <.01 | .02 | .05 | 7.2 |
| | | 01/19/93 | 0955 | 365 | 2.0 | 7.6 | .99 | .02 | .14 | .07 | 11 |
| | | 03/22/93 | 1510 | 348 | 4.5 | 8.2 | .94 | .02 | .07 | .06 | 10 |
| | | 07/25/93 | 2030 | 260 | 25.0 | 7.8 | 1.3 | <.01 | .03 | .09 | 10 |
| | | 08/30/93 | 1330 | 249 | 26.0 | 7.6 | .37 | .02 | .14 | .09 | 10 |
| 30 | Pomona Lake | 05/05/92 | 0830 | 296 | 17.0 | 8.0 | .96 | .04 | .09 | .04 | 5.2 |
| | | 06/25/92 | 0830 | 394 | 21.0 | 7.8 | .77 | .01 | .03 | .02 | 5.7 |
| | | 08/24/92 | 1400 | 330 | 24.0 | 7.9 | .32 | <.01 | .04 | .01 | 3.4 |
| | | 10/27/92 | 0900 | 332 | 14.0 | 8.5 | .29 | <.01 | .03 | .03 | 3.3 |
| | | 01/11/93 | 1600 | 316 | 2.5 | 7.9 | .58 | .02 | .09 | .07 | 8.1 |
| | | 03/23/93 | 1500 | 335 | 7.5 | 8.3 | .72 | .01 | .05 | .05 | 7.9 |
| | | 07/29/93 | 1210 | 191 | 23.5 | 7.3 | .50 | <.01 | .03 | .07 | 9.7 |
| | | 08/31/93 | 1030 | 242 | 26.5 | 7.9 | .06 | <.01 | .07 | .01 | 2.8 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Kansas—Continued | | | | | | |
| 31 | Tuttle Creek Lake | 05/05/92 | 1200 | 419 | 15.5 | 8.6 | 0.79 | 0.01 | 0.04 | 0.09 | 7.8 |
| | | 06/29/92 | 1000 | 517 | 21.5 | 8.0 | 1.2 | .02 | .04 | .13 | 7.7 |
| | | 08/25/92 | 1115 | 270 | 24.5 | 7.8 | .86 | <.01 | .01 | .20 | 12 |
| | | 10/30/92 | 0830 | 360 | 13.5 | 8.0 | 1.1 | <.01 | <.01 | .19 | 12 |
| | | 01/13/93 | 1145 | 562 | 1.5 | 8.4 | 1.6 | .03 | .09 | .17 | 17 |
| | | 03/24/93 | 1150 | 180 | 4.0 | 7.8 | .95 | .05 | .62 | .16 | 7.8 |
| | | 07/19/93 | 1220 | 262 | 24.0 | 7.6 | 2.0 | <.01 | .03 | .15 | 11 |
| | | 09/01/93 | 1150 | 221 | 25.5 | 7.4 | .86 | <.01 | .05 | .21 | 14 |
| 32 | Waconda Lake | 05/06/92 | 1000 | 870 | 14.5 | 8.3 | .07 | <.01 | .04 | <.01 | .9 |
| | | 06/29/92 | 1630 | 907 | 25.5 | 7.8 | .33 | .04 | .19 | .04 | 4.2 |
| | | 08/26/92 | 0915 | 703 | 22.0 | 8.1 | .15 | .01 | .06 | .03 | 5.9 |
| | | 10/28/92 | 1200 | 715 | 14.0 | 8.3 | .28 | .02 | .03 | .04 | 6.2 |
| | | 01/14/93 | 0915 | 773 | 1.5 | 8.3 | .51 | .02 | .08 | .02 | 7.0 |
| | | 03/25/93 | 1145 | 780 | 4.0 | 7.9 | .75 | .02 | .21 | .06 | 9.3 |
| | | 07/08/93 | 0845 | 808 | 24.0 | 7.8 | .65 | .12 | .05 | .03 | 3.2 |
| | | 09/02/93 | 0920 | 574 | 25.0 | 7.9 | .28 | .03 | .06 | .13 | 14 |
| 33 | Wilson Lake | 05/06/92 | 1250 | 4,100 | 15.5 | 8.2 | <.05 | <.01 | .01 | <.01 | 7.5 |
| | | 06/30/92 | 1000 | 3,760 | 21.0 | 8.0 | .11 | .02 | .07 | <.01 | 7.8 |
| | | 08/26/92 | 1300 | 3,980 | 23.0 | 8.2 | <.05 | <.01 | .05 | <.01 | 8.7 |
| | | 10/28/92 | 1400 | 3,890 | 16.0 | 8.4 | .07 | .01 | .03 | .01 | 7.9 |
| | | 01/14/93 | 1430 | 3,710 | 2.5 | 8.4 | .10 | .01 | .06 | <.01 | 9.4 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Kansas—Continued** | | | | | | |
| 33 | Wilson Lake— | 03/25/93 | 1605 | 3,290 | 5.0 | 8.2 | 0.20 | <0.01 | 0.02 | <0.01 | 9.7 |
| | Continued | 07/08/93 | 1230 | 2,590 | 25.0 | 8.1 | .25 | .02 | .07 | <.01 | 9.9 |
| | | 09/02/93 | 1420 | 1,690 | 24.5 | 7.7 | .07 | .02 | .15 | .04 | 15 |
| | | | | | **Minnesota** | | | | | | |
| 34 | Cross Lake | 05/05/92 | 1230 | 143 | 17.0 | 7.7 | .05 | <.01 | .02 | <.01 | 5.5 |
| | | 06/19/92 | 1130 | 215 | 18.0 | 8.4 | .06 | <.01 | .14 | .03 | 4.7 |
| | | 08/19/92 | 1300 | 214 | 23.5 | 8.6 | <.05 | <.01 | .02 | <.01 | 6.6 |
| | | 11/05/92 | 0915 | 244 | 4.5 | 7.6 | .10 | <.01 | .03 | <.01 | 6.4 |
| | | 01/26/93 | 0930 | 287 | 1.0 | 8.8 | .45 | .03 | .16 | .01 | 14 |
| | | 03/25/93 | 0910 | 335 | 1.0 | 7.1 | .56 | .01 | .11 | <.01 | 16 |
| | | 07/21/93 | 1040 | 169 | 23.5 | 7.3 | .10 | <.01 | .05 | .05 | 9.6 |
| | | 09/07/93 | 1510 | 172 | 20.0 | 8.4 | .14 | .01 | .05 | .06 | 12 |
| 35 | Gull Lake Reservoir | 05/13/92 | 1045 | 238 | 11.0 | 8.3 | .06 | <.01 | .03 | <.01 | 2.1 |
| | | 06/30/92 | 0930 | 210 | 20.0 | 8.5 | <.05 | <.01 | .03 | <.01 | 2.8 |
| | | 08/18/92 | 1030 | 208 | 20.5 | 8.1 | <.05 | <.01 | <.01 | <.01 | 3.3 |
| | | 11/03/92 | | 230 | 3.0 | 8.2 | <.05 | <.01 | <.01 | <.01 | -- |
| | | 01/05/93 | 1120 | 250 | -- | 8.0 | .06 | .03 | .06 | <.01 | 2.1 |
| | | 03/15/93 | 0915 | 260 | -- | 7.9 | .08 | <.01 | .01 | <.01 | 2.1 |
| | | 07/13/93 | 1130 | 230 | 19.5 | 8.4 | <.05 | <.01 | .03 | <.01 | 2.3 |
| | | 09/21/93 | 1000 | 233 | 14.5 | 8.0 | <.05 | <.01 | .05 | <.01 | 5.3 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Minnesota—Continued | | | | | | |
| 36 | Lac Qui Parle Reservoir | 05/06/92 | 1030 | 904 | 14.0 | 8.4 | 0.80 | 0.02 | 0.01 | <0.01 | 2.7 |
| | | 06/18/92 | 1330 | 384 | 20.5 | 7.5 | 2.1 | .06 | .15 | .14 | 10 |
| | | 08/20/92 | 1230 | 930 | 23.0 | 8.2 | .14 | .02 | .16 | .05 | 25 |
| | | 11/04/92 | 1100 | 957 | 1.5 | 8.6 | .49 | .01 | .07 | .06 | 20 |
| | | 01/20/93 | 1200 | 1,140 | 1.0 | 8.7 | .72 | .03 | .27 | .11 | 23 |
| | | 03/24/93 | 0930 | 1,320 | 3.0 | 7.8 | .55 | .01 | .29 | .08 | 25 |
| | | 07/22/93 | 1010 | 894 | 22.0 | 7.7 | .81 | .02 | .09 | .11 | 22 |
| | | 09/09/93 | 1210 | 881 | 18.5 | 8.2 | 1.2 | .02 | .06 | .10 | 21 |
| 37 | Leech Lake Reservoir | 05/14/92 | 0930 | 168 | 15.0 | 8.1 | <.05 | <.01 | .03 | <.01 | 5.7 |
| | | 07/01/92 | 0900 | 260 | 16.5 | 8.1 | <.05 | <.01 | .05 | <.01 | 7.4 |
| | | 08/19/92 | 1000 | 260 | 20.5 | 7.9 | <.05 | <.01 | <.01 | <.01 | 8.4 |
| | | 11/02/92 | 1245 | 272 | 3.0 | 8.2 | <.05 | <.01 | <.01 | <.01 | 9.6 |
| | | 01/06/93 | 0930 | 290 | 0 | 8.1 | <.05 | .02 | .03 | <.01 | 9.8 |
| | | 03/16/93 | 0945 | 310 | 0 | 8.1 | <.05 | <.01 | .01 | <.01 | 10 |
| | | 07/14/93 | 0830 | 279 | 19.0 | 8.1 | <.05 | <.01 | .02 | <.01 | 7.5 |
| | | 09/22/93 | 0930 | 258 | 12.5 | 8.3 | <.05 | <.01 | .02 | <.01 | 10 |
| 38 | Pine River Reservoir | 05/13/92 | 1330 | 240 | 12.0 | 8.4 | <.05 | <.01 | .03 | <.01 | 7.7 |
| | | 06/30/92 | 1015 | 228 | 19.0 | 8.5 | <.05 | <.01 | .02 | <.01 | 5.2 |
| | | 08/18/92 | 1200 | 202 | 22.0 | 8.7 | <.05 | <.01 | <.01 | <.01 | 5.5 |
| | | 11/03/92 | 1230 | 212 | 3.0 | 8.1 | <.05 | .01 | .02 | <.01 | 7.9 |
| | | 01/05/93 | 1240 | 235 | 0 | 8.0 | .07 | .02 | .04 | <.01 | 7.3 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Minnesota—Continued | | | | | | |
| 38 | Pine River Reservoir—Continued | 03/15/93 | 1045 | 265 | 0 | 8.0 | 0.06 | <0.01 | <0.01 | <0.01 | 8.4 |
| | | 07/13/93 | 1300 | 225 | 20.0 | 8.4 | <.05 | <.01 | .02 | <.01 | 6.4 |
| | | 09/21/93 | 1145 | 222 | 14.5 | 8.2 | <.05 | <.01 | .02 | <.01 | 7.6 |
| 39 | Sandy Lake Reservoir | 05/14/92 | 0930 | 112 | 14.0 | 7.8 | .09 | <.01 | .05 | <.01 | 6.9 |
| | | 07/02/92 | 0840 | 110 | 16.5 | 7.9 | <.05 | <.01 | .04 | <.01 | 3.8 |
| | | 08/20/92 | 0815 | 120 | 20.0 | 7.4 | <.05 | <.01 | <.01 | <.01 | 3.8 |
| | | 11/04/92 | 0900 | 120 | 4.0 | 7.7 | .05 | .01 | .09 | <.01 | 1.6 |
| | | 01/07/93 | 0915 | 130 | 0 | 7.5 | .12 | .02 | .12 | .02 | 3.4 |
| | | 03/17/93 | 0845 | 178 | 0 | 7.2 | .26 | <.01 | .02 | .01 | 4.4 |
| | | 07/15/93 | 0815 | 117 | 19.5 | 7.6 | <.05 | <.01 | .03 | <.01 | 2.4 |
| | | 09/23/93 | 0815 | 117 | 13.0 | 7.7 | <.05 | <.01 | .02 | <.01 | 2.6 |
| 40 | Winnibigoshish Reservoir | 05/14/92 | 1200 | 310 | 15.0 | 8.4 | <.05 | <.01 | .03 | <.01 | 1.9 |
| | | 07/01/92 | 1000 | 280 | 17.5 | 8.5 | <.05 | <.01 | .03 | <.01 | 2.1 |
| | | 08/19/92 | 1115 | 273 | 20.5 | 8.5 | <.05 | <.01 | <.01 | <.01 | 5.6 |
| | | 11/02/92 | 1015 | 278 | 4.5 | 8.4 | <.05 | <.01 | <.01 | <.01 | 3.3 |
| | | 01/06/93 | 1040 | 310 | 0 | 8.2 | <.05 | .02 | .03 | <.01 | 4.3 |
| | | 03/16/93 | 0835 | 335 | 0 | 8.1 | <.05 | <.01 | .01 | <.01 | 4.9 |
| | | 07/14/93 | 1000 | 290 | 19.0 | 8.4 | <.05 | <.01 | .02 | <.01 | 5.4 |
| | | 09/22/93 | 1045 | 275 | 12.5 | 8.5 | <.05 | <.01 | .01 | <.01 | 3.2 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Missouri | | | | | | |
| 41 | Harrisonville Lake | 04/30/92 | 1030 | 308 | 16.5 | 8.5 | 0.79 | 0.02 | <0.01 | <0.01 | -- |
| | | 07/09/92 | 1000 | 294 | 27.0 | 8.2 | <.05 | <.01 | .02 | <.01 | 1.5 |
| | | 08/13/92 | 1030 | -- | -- | -- | <.05 | <.01 | <.01 | <.01 | 1.4 |
| | | 10/22/92 | 1030 | 287 | 16.0 | -- | <.05 | .01 | .04 | <.01 | 1.7 |
| | | 01/27/93 | 1135 | 262 | 2.0 | 7.8 | .98 | .03 | .16 | .10 | 4.8 |
| | | 02/12/93 | 1100 | -- | -- | -- | .06 | <.01 | .01 | <.01 | -- |
| | | 03/24/93 | 1400 | 260 | 6.0 | 7.2 | .25 | .03 | .16 | .04 | 5.5 |
| | | 07/12/93 | 1230 | 191 | 24.5 | 6.6 | .76 | .09 | .08 | .06 | 4.8 |
| | | 09/30/93 | 1035 | 210 | 19.0 | 7.8 | .25 | .03 | .16 | .04 | 3.9 |
| 42 | Harry S Truman Reservoir | 05/05/92 | 1040 | 347 | 17.0 | 8.2 | .46 | .02 | .03 | <.01 | 2.0 |
| | | 07/09/92 | 1430 | 327 | 26.0 | 8.2 | .49 | .01 | .02 | <.01 | 2.8 |
| | | 08/25/92 | 1100 | 255 | 29.0 | 7.6 | <.05 | <.01 | .02 | .01 | 4.2 |
| | | 10/14/92 | 1300 | 277 | 20.0 | 7.8 | .16 | <.01 | .03 | <.01 | 2.3 |
| | | 03/10/93 | 1630 | 323 | 5.5 | 7.8 | .56 | <.01 | .04 | .02 | -- |
| | | 06/16/93 | 0945 | -- | -- | -- | .42 | .01 | .04 | .06 | 5.5 |
| | | 09/17/93 | 1130 | 232 | 22.3 | 7.2 | .09 | .05 | .15 | .05 | -- |
| 43 | Long Branch Lake | 05/05/92 | 1500 | 212 | 16.5 | 8.0 | .27 | .01 | .03 | <.01 | .1 |
| | | 07/15/92 | 1700 | 220 | 25.0 | 7.6 | .54 | .02 | .07 | <.01 | 1.9 |
| | | 08/24/92 | 1700 | 211 | 24.0 | 7.7 | .06 | <.01 | .09 | .01 | 1.6 |
| | | 10/21/92 | 1415 | -- | 15.0 | 8.0 | .12 | .01 | .03 | <.01 | <.1 |
| | | 01/07/93 | 1450 | 174 | .5 | 7.3 | .31 | .01 | .15 | .03 | 3.9 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Missouri—Continued | | | | | | |
| 43 | Long Branch Lake—Continued | 03/22/93 | 1310 | 175 | 6.0 | 7.2 | 0.43 | <0.01 | 0.13 | 0.02 | 6.4 |
| | | 07/01/93 | 0830 | 171 | 24.5 | 7.1 | .55 | .01 | .04 | .01 | 1.4 |
| | | 09/23/93 | 0900 | 134 | 19.0 | 8.0 | .32 | <.01 | .05 | .02 | 3.3 |
| 44 | Mark Twain Lake | 05/06/92 | 1300 | 430 | 14.5 | 8.0 | 1.0 | .01 | .03 | .03 | 3.6 |
| | | 07/15/92 | 1300 | 267 | 28.0 | 7.5 | <.05 | <.01 | .05 | <.01 | 1.0 |
| | | 08/24/92 | 1420 | 262 | 25.5 | 7.7 | .23 | .02 | .09 | .02 | 2.6 |
| | | 10/22/92 | 0750 | -- | 15.0 | 8.0 | .12 | .01 | .06 | <.01 | 1.9 |
| | | 01/07/93 | 0845 | 232 | 1.5 | 7.5 | .61 | .01 | .02 | .05 | 5.1 |
| | | 03/22/93 | 1115 | 194 | 6.5 | 7.3 | .88 | <.01 | .02 | .09 | 7.9 |
| | | 06/23/93 | 1500 | 198 | -- | 7.6 | 1.0 | .02 | .04 | .07 | 6.0 |
| | | 09/15/93 | 1330 | -- | -- | -- | .26 | <.01 | .05 | .05 | 5.6 |
| 45 | Pomme de Terre Lake | 05/06/92 | 1240 | 283 | 12.0 | 7.6 | .55 | <.01 | .05 | <.01 | .7 |
| | | 07/08/92 | 1400 | 313 | 14.0 | 7.8 | .12 | .02 | .35 | .02 | 2.0 |
| | | 08/25/92 | 1345 | 285 | 27.0 | 7.8 | <.05 | <.01 | .02 | <.01 | 1.1 |
| | | 10/14/92 | 1500 | 298 | 20.5 | 8.0 | <.05 | .01 | .08 | <.01 | 1.8 |
| | | 03/10/93 | 1500 | 232 | 5.0 | 7.9 | .59 | <.01 | .02 | .06 | -- |
| | | 06/16/93 | 0800 | -- | -- | -- | .20 | .01 | .28 | .08 | 2.5 |
| | | 09/17/93 | 1000 | 302 | 17.0 | 7.2 | .20 | .02 | .55 | .06 | -- |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Missouri—Continued | | | | | | |
| 46 | Smithville Lake | 05/05/92 | 0915 | 268 | 14.0 | 8.2 | 0.38 | 0.02 | 0.07 | 0.01 | 1.1 |
| | | 07/07/92 | 1400 | 274 | 26.0 | 8.1 | <.05 | <.01 | .07 | <.01 | .6 |
| | | 08/26/92 | 0935 | 252 | 23.0 | -- | <.05 | <.01 | .04 | .02 | 1.6 |
| | | 10/21/92 | 0930 | 256 | 14.0 | 8.1 | .11 | .02 | .04 | <.01 | .5 |
| | | 01/06/93 | 1130 | 205 | -- | 7.6 | .27 | .01 | .04 | <.01 | .5 |
| | | 03/25/93 | 1245 | -- | -- | -- | .45 | .04 | .05 | <.01 | 3.0 |
| | | 06/25/93 | 1030 | 244 | 18.0 | 6.4 | .68 | <.01 | .16 | .02 | 2.9 |
| | | 09/29/93 | 1000 | 242 | 17.0 | 7.5 | .38 | <.01 | .10 | .04 | 3.8 |
| 47 | Stockton Lake | 05/06/92 | 1500 | 268 | 15.5 | 8.1 | .34 | <.01 | .04 | <.01 | .6 |
| | | 07/08/92 | 1615 | 237 | 28.0 | 8.2 | <.05 | <.01 | .02 | <.01 | .4 |
| | | 08/25/92 | 1645 | 251 | 27.0 | 7.7 | <.05 | <.01 | <.01 | .01 | 1.9 |
| | | 10/14/92 | 0800 | 268 | 19.5 | 8.1 | <.05 | <.01 | .06 | <.01 | 2.7 |
| | | 03/10/93 | 1200 | 277 | 8.0 | 7.8 | .40 | <.01 | <.01 | <.01 | -- |
| | | 06/16/93 | 1400 | 273 | 26.0 | 8.0 | .22 | <.01 | .03 | .04 | 1.5 |
| | | 09/17/93 | 0740 | 269 | 22.0 | 7.7 | <.05 | <.01 | .05 | <.01 | -- |
| | | | | | Nebraska | | | | | | |
| 48 | Branched Oak Lake | 05/07/92 | 0915 | 444 | 16.5 | 8.5 | <.05 | <.01 | .03 | <.01 | .3 |
| | | 07/01/92 | 0830 | 391 | 24.0 | 8.5 | <.05 | <.01 | .04 | .01 | 1.2 |
| | | 09/11/92 | 1200 | 409 | 21.0 | 8.6 | <.05 | <.01 | .03 | <.01 | 1.3 |
| | | 10/27/92 | 0930 | 413 | 12.5 | 8.3 | <.05 | <.01 | .02 | .02 | 1.6 |
| | | 01/06/93 | 0930 | 400 | 0 | 8.5 | <.05 | .02 | .02 | <.01 | 2.4 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nebraska—Continued | | | | | | |
| 48 | Branched Oak Lake—Continued | 03/23/93 | 0945 | 365 | 4.0 | 8.6 | 0.08 | 0.01 | 0.13 | 0.03 | 4.7 |
| | | 07/13/93 | 0945 | 417 | 25.0 | 8.4 | .06 | .02 | .10 | .01 | 1.0 |
| | | 09/14/93 | 0825 | 369 | 17.5 | 8.3 | .63 | .05 | .08 | .04 | 1.3 |
| 49 | Calamus Reservoir | 05/08/92 | 1530 | 167 | 13.0 | 7.7 | .10 | <.01 | .04 | .06 | 29 |
| | | 07/09/92 | 0930 | 148 | 19.5 | 8.3 | .07 | <.01 | .17 | .06 | 11 |
| | | 08/27/92 | 1230 | 140 | 21.0 | 9.1 | .05 | <.01 | .03 | <.01 | 27 |
| | | 10/22/92 | 0900 | 168 | 11.0 | 8.0 | .14 | <.01 | .01 | .02 | 13 |
| | | 12/16/92 | 1303 | 145 | 2.0 | 8.3 | .19 | <.01 | .04 | .03 | 16 |
| | | 03/24/93 | 0930 | 174 | 5.0 | 7.8 | .55 | .01 | .24 | .13 | 43 |
| | | 08/04/93 | 0935 | 143 | 22.5 | 8.8 | <.05 | <.01 | .03 | .02 | 6.6 |
| | | 09/17/93 | 1400 | 134 | 17.5 | 8.4 | .06 | <.01 | <.01 | .01 | <.1 |
| 50 | Cunningham Lake | 05/06/92 | 0930 | 479 | 17.0 | 8.4 | .87 | .03 | .05 | <.01 | 2.2 |
| | | 06/30/92 | 0930 | 389 | 25.0 | 8.5 | .06 | .01 | .05 | <.01 | <.1 |
| | | 08/27/92 | 1130 | 405 | 22.0 | 8.5 | <.05 | <.01 | .17 | <.01 | 2.2 |
| | | 10/26/92 | 0915 | 406 | 11.0 | 8.3 | <.05 | <.01 | .02 | .01 | 2.7 |
| | | 01/04/93 | 1130 | 483 | 0 | 8.4 | .22 | .02 | .03 | <.01 | 41 |
| | | 03/24/93 | 1345 | 455 | 4.0 | 7.4 | .85 | .02 | .15 | <.01 | 5.4 |
| | | 07/12/93 | 1700 | 428 | 25.5 | 8.4 | .73 | .10 | .23 | <.01 | .8 |
| | | 09/13/93 | 1345 | 398 | 20.0 | 8.5 | .55 | .07 | .11 | <.01 | .2 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nebraska—Continued | | | | | | |
| 51 | Enders Reservoir | 05/07/92 | 1045 | 409 | 15.0 | 7.9 | 0.17 | <0.01 | 0.04 | <0.01 | 55 |
| | | 07/07/92 | 1130 | 382 | 22.5 | 8.2 | <.05 | <.01 | .05 | <.01 | 24 |
| | | 08/25/92 | 1500 | 405 | 17.0 | 7.7 | .46 | <.01 | .03 | <.01 | 35 |
| | | 10/20/92 | 1030 | 363 | 12.5 | 7.7 | .07 | <.01 | .07 | <.01 | 29 |
| | | 12/15/92 | 1500 | 402 | 1.5 | 8.3 | .26 | .02 | .02 | <.01 | 30 |
| | | 03/23/93 | 1730 | 390 | 8.5 | 8.6 | .49 | .01 | .04 | <.01 | 36 |
| | | 08/03/93 | 0700 | 370 | 22.5 | 8.3 | .14 | .02 | .05 | <.01 | 35 |
| | | 09/21/93 | 1130 | 328 | 18.0 | 7.9 | <.05 | <.01 | .03 | <.01 | 31 |
| 52 | Harlan County Lake | 05/05/92 | 1415 | 818 | 22.0 | 8.2 | <.05 | <.01 | .04 | <.01 | 25 |
| | | 07/08/92 | 1400 | 677 | 23.0 | 8.2 | .09 | .02 | .17 | .05 | 2.4 |
| | | 08/26/92 | 1700 | 632 | 22.5 | 8.7 | .22 | <.01 | .06 | .05 | 26 |
| | | 10/21/92 | 1300 | 630 | 13.5 | 8.3 | .19 | .03 | .04 | .03 | .3 |
| | | 12/14/92 | 1130 | -- | 1.0 | 8.0 | .28 | .02 | .07 | .03 | 1.6 |
| | | 03/22/93 | 1630 | 642 | 6.0 | 8.2 | .40 | .01 | .23 | .13 | 5.8 |
| | | 07/22/93 | 1325 | -- | -- | -- | <.05 | <.01 | .03 | .06 | 2.2 |
| | | 09/20/93 | 1100 | 505 | 20.0 | 8.0 | .35 | .01 | .03 | .17 | 8.0 |
| 53 | Harry Strunk Lake | 05/06/92 | 0930 | 501 | 15.5 | 8.1 | <.05 | <.01 | .06 | .04 | 37 |
| | | 07/08/92 | 1030 | 388 | 22.0 | 8.2 | .29 | .01 | .03 | .01 | 21 |
| | | 08/26/92 | 1200 | 366 | 18.0 | 8.4 | <.05 | <.01 | .04 | .01 | 11 |
| | | 10/21/92 | 1000 | 374 | 12.5 | 7.9 | .24 | <.01 | .04 | .02 | 28 |
| | | 12/14/92 | 1530 | 394 | 1.5 | 8.4 | .27 | <.01 | .03 | <.01 | 29 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nebraska—Continued | | | | | | |
| 53 | Harry Strunk Lake—Continued | 03/22/93 | 1200 | 390 | 4.5 | 8.2 | 0.69 | 0.01 | 0.10 | 0.08 | 32 |
| | | 08/03/93 | 1700 | 328 | 22.0 | 8.4 | .22 | .01 | .05 | .11 | 14 |
| | | 09/20/93 | 1400 | 306 | 20.0 | 7.6 | .77 | <.01 | .04 | .12 | <.1 |
| 54 | Hugh Butler Lake | 05/06/92 | 1400 | 566 | 15.0 | 8.2 | .35 | .02 | .09 | .06 | 53 |
| | | 07/07/92 | 1600 | 470 | 24.0 | 7.9 | <.05 | <.01 | .04 | <.01 | 11 |
| | | 08/26/92 | 1000 | 439 | 19.5 | 8.5 | .24 | .02 | .07 | .03 | 29 |
| | | 10/19/92 | 1400 | 560 | 9.5 | 8.1 | .31 | .01 | .03 | .03 | 52 |
| | | 12/15/92 | 0900 | 531 | 4.0 | 7.5 | .09 | <.01 | .07 | .02 | 32 |
| | | 03/23/93 | 1430 | 540 | 6.0 | 7.8 | .17 | <.01 | .10 | .03 | 36 |
| | | 08/03/93 | 1800 | 422 | 23.5 | 8.3 | .08 | <.01 | .07 | .05 | 18 |
| | | 09/21/93 | 1530 | 417 | 19.0 | 7.3 | .14 | <.01 | .05 | .03 | 24 |
| 55 | Pawnee Lake | 05/07/92 | 1040 | 437 | 16.5 | 8.5 | <.05 | <.01 | .03 | <.01 | .9 |
| | | 07/01/92 | 0935 | 389 | 24.5 | 8.4 | <.05 | <.01 | .04 | .01 | 2.4 |
| | | 08/27/92 | 1400 | 406 | 23.0 | 8.6 | <.05 | <.01 | .02 | <.01 | .8 |
| | | 10/27/92 | 1045 | 402 | 13.5 | 8.4 | <.05 | <.01 | .02 | <.01 | 1.4 |
| | | 01/06/93 | 1040 | 394 | 0 | 8.4 | .05 | .02 | .04 | <.01 | 2.9 |
| | | 03/23/93 | 1115 | 394 | 4.0 | 8.1 | <.05 | <.01 | .03 | .02 | 3.7 |
| | | 07/13/93 | 1045 | 401 | 25.0 | 8.2 | .13 | .02 | .39 | .02 | 6.1 |
| | | 09/14/93 | 0920 | 329 | 17.0 | 8.1 | .61 | .02 | .05 | .05 | 4.5 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Nebraska—Continued** | | | | | | |
| 56 | Swanson Lake | 05/06/92 | 1630 | 771 | 23.5 | 8.5 | 0.29 | 0.03 | 0.05 | <0.01 | 27 |
| | | 07/07/92 | 1400 | 630 | 23.0 | 8.5 | <.05 | <.01 | .12 | <.01 | 17 |
| | | 08/25/92 | 1800 | 722 | 24.0 | 8.5 | .63 | .04 | .09 | <.01 | 18 |
| | | 10/20/92 | 0900 | 595 | 11.0 | 8.1 | <.05 | <.01 | .05 | <.01 | .3 |
| | | 12/15/92 | 1230 | 659 | 1.0 | 8.9 | .11 | .01 | .01 | <.01 | 3.2 |
| | | 03/23/93 | 1600 | 508 | 7.0 | 8.8 | .12 | <.01 | .02 | <.01 | 6.4 |
| | | 08/03/93 | 1000 | 639 | 23.5 | 8.4 | <.05 | <.01 | .02 | <.01 | 4.3 |
| | | 09/21/93 | 0900 | 572 | 19.5 | 8.0 | .06 | <.01 | .08 | <.01 | 4.2 |
| 57 | Willow Creek Reservoir | 05/07/92 | 1315 | 247 | 17.5 | 8.5 | .31 | .02 | .14 | <.01 | .4 |
| | | 06/30/92 | 1240 | 252 | 23.0 | 8.4 | 1.4 | .08 | .20 | .02 | 5.9 |
| | | 08/26/92 | 1120 | 244 | 20.0 | 8.4 | <.05 | <.01 | .16 | .01 | 1.1 |
| | | 10/26/92 | 1330 | 502 | 14.0 | 7.8 | <.05 | <.01 | .17 | .14 | 49 |
| | | 01/05/93 | 1130 | 459 | 0 | 7.9 | .26 | .02 | .13 | .10 | 3.1 |
| | | 03/24/93 | 1000 | 249 | 5.0 | 7.1 | .88 | .11 | .43 | .18 | 16 |
| | | 07/12/93 | 1300 | 347 | 23.5 | 8.2 | .14 | .02 | .07 | .06 | 11 |
| | | 09/13/93 | 1030 | 399 | 17.0 | 8.3 | .18 | .01 | .08 | .09 | 26 |
| | | | | | **North Dakota** | | | | | | |
| 58 | Pipestem Reservoir | 05/07/92 | 1500 | 700 | 16.0 | 8.0 | <.05 | <.01 | .05 | .02 | .3 |
| | | 06/25/92 | 1030 | 710 | 20.0 | 8.5 | <.05 | <.01 | .05 | <.01 | .5 |
| | | 08/25/92 | 1130 | 740 | 19.0 | 8.3 | .07 | .02 | .30 | .04 | 7.3 |
| | | 10/26/92 | 1155 | 725 | 7.5 | 8.7 | <.05 | <.01 | .03 | .02 | <.1 |
| | | 01/21/93 | 1020 | 865 | .5 | 7.6 | .11 | .02 | .91 | .33 | 3.9 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/ year) | Collec-tion time (24-hour) | Specific conduct-ance (µS/cm) | Water tempera-ture (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammo-nium as nitrogen (mg/L) | Ortho-phosphate as phos-phorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | North Dakota—Continued | | | | | | |
| 58 | Pipestem Reservoir— | 05/04/93 | 0815 | 496 | 9.0 | 8.3 | 0.11 | 0.01 | 0.19 | 0.23 | 6.9 |
| | Continued | 07/13/93 | 0830 | 550 | 17.5 | 8.2 | .36 | .05 | .27 | .10 | 13 |
| | | | | | Ohio | | | | | | |
| 59 | Alum Creek Lake | 05/05/92 | 1430 | 493 | 13.5 | 7.4 | 2.2 | .01 | .02 | <.01 | 1.3 |
| | | 07/20/92 | 1100 | 501 | 24.0 | 7.7 | 1.9 | .04 | .04 | <.01 | 2.0 |
| | | 09/08/92 | 1340 | 445 | 23.5 | 7.6 | 1.4 | .04 | .08 | .01 | 3.7 |
| | | 11/04/92 | 0915 | 464 | 12.0 | 8.2 | 1.1 | .02 | .05 | <.01 | 4.2 |
| | | 01/20/93 | 1530 | 453 | 1.5 | 8.4 | 1.3 | .02 | .03 | <.01 | 3.9 |
| | | 03/25/93 | 1130 | 368 | 3.5 | 8.1 | 1.6 | .03 | .03 | <.01 | 4.0 |
| | | 07/01/93 | 0945 | 402 | 20.0 | 7.6 | 1.5 | .02 | .03 | <.01 | 1.2 |
| | | 09/27/93 | 1230 | 419 | 15.0 | 7.1 | .19 | .02 | .49 | <.01 | 3.8 |
| 60 | Deer Creek Lake | 05/04/92 | 1230 | 553 | 15.5 | 8.7 | 7.1 | .05 | .01 | <.01 | 3.3 |
| | | 07/30/92 | 1000 | 498 | 23.5 | 7.9 | 4.5 | .16 | .15 | .01 | 7.3 |
| | | 09/09/92 | 1000 | 492 | 22.5 | 7.9 | 2.1 | .09 | .06 | <.01 | 2.5 |
| | | 10/14/92 | 1200 | 477 | 16.5 | 7.8 | 1.4 | .07 | .02 | <.01 | .9 |
| | | 01/12/93 | 1345 | 515 | 3.0 | 8.1 | 5.7 | .03 | .09 | .07 | 7.3 |
| | | 03/26/93 | 1010 | 533 | 6.0 | 7.6 | 4.7 | .03 | .04 | <.01 | 6.0 |
| | | 07/12/93 | 0930 | 470 | 25.5 | 7.5 | 3.6 | .13 | .27 | .01 | 7.3 |
| | | 09/29/93 | 1100 | 498 | 17.0 | 7.8 | 1.1 | .01 | .02 | .02 | 2.6 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ohio—Continued | | | | | | |
| 61 | Delaware Lake | 05/05/92 | 1230 | 502 | 14.0 | 7.5 | 7.1 | 0.07 | 0.13 | 0.04 | 8.1 |
| | | 06/30/92 | 1230 | 521 | 21.5 | 7.3 | 3.3 | .25 | .50 | .01 | -- |
| | | 08/12/92 | 1200 | 423 | 21.5 | 7.9 | 1.7 | .07 | .13 | .01 | 9.7 |
| | | 10/07/92 | 1300 | 517 | 17.5 | 7.9 | .23 | .03 | .06 | <.01 | .5 |
| | | 12/30/92 | 0920 | 570 | 1.5 | 8.1 | 3.0 | .04 | .12 | .03 | 7.1 |
| | | 03/24/93 | 1500 | 440 | 5.5 | 8.7 | 3.3 | .04 | .14 | <.01 | 5.7 |
| | | 07/06/93 | 1130 | 295 | 22.5 | 7.4 | 5.9 | .17 | .28 | .06 | 5.5 |
| | | 09/27/93 | 1030 | 454 | 18.0 | 8.0 | .63 | .03 | .07 | .02 | 2.5 |
| 62 | Dillon Lake | 04/30/92 | 1115 | 510 | 14.0 | 7.2 | .73 | <.01 | .02 | <.01 | 2.8 |
| | | 07/07/92 | 1330 | 599 | 23.5 | 7.6 | .54 | .09 | .27 | <.01 | 2.7 |
| | | 09/10/92 | 0900 | 432 | 21.5 | 8.3 | .85 | .06 | .21 | .05 | 6.4 |
| | | 10/14/92 | 0900 | 570 | 15.0 | 8.6 | .62 | .03 | .07 | .02 | 4.4 |
| | | 01/12/93 | 0930 | 439 | 4.0 | 8.2 | 2.6 | .04 | .10 | .04 | 7.5 |
| | | 03/24/93 | 1000 | 412 | 7.5 | 8.6 | 2.0 | .04 | .07 | <.01 | 6.0 |
| | | 07/09/93 | 1200 | 390 | 27.0 | 7.9 | 4.4 | .10 | .19 | <.01 | 4.4 |
| | | 09/28/93 | 1400 | 593 | 18.5 | 7.8 | .43 | .05 | .34 | .03 | 6.7 |
| 63 | Hoover Reservoir | 05/06/92 | 1000 | 484 | 12.0 | 8.8 | 3.2 | .02 | .02 | <.01 | <.1 |
| | | 07/20/92 | 0900 | 500 | 19.5 | 7.9 | 2.2 | .05 | .08 | .01 | 1.6 |
| | | 09/08/92 | 1130 | 432 | 21.5 | 7.4 | 1.3 | .08 | .16 | <.01 | 4.5 |
| | | 11/04/92 | 1100 | 410 | 12.0 | 8.1 | .98 | .01 | .03 | <.01 | 3.5 |
| | | 01/20/93 | 1130 | 405 | 1.0 | 8.7 | 1.4 | .03 | .03 | .01 | 3.7 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ohio—Continued | | | | | | |
| 63 | Hoover Reservoir—Continued | 03/25/93 | 1000 | 314 | 3.0 | 8.2 | 2.0 | 0.03 | 0.05 | 0.01 | 4.9 |
| | | 07/01/93 | 1130 | 344 | 17.0 | 7.8 | 1.3 | .02 | .04 | <.01 | 2.5 |
| | | 09/24/93 | 1030 | 333 | 20.0 | 7.7 | .78 | .04 | .11 | .02 | 3.3 |
| 64 | Milton Reservoir | 05/11/92 | 1100 | 604 | 14.5 | 6.9 | .75 | .01 | .10 | <.01 | .5 |
| | | 07/07/92 | 0900 | 621 | 19.5 | 6.8 | .71 | .09 | .37 | <.01 | 1.8 |
| | | 08/17/92 | 1120 | 510 | 22.0 | 8.4 | 1.1 | .08 | .08 | <.01 | 2.9 |
| | | 10/21/92 | 1100 | 443 | 11.5 | 8.2 | .56 | .05 | .09 | <.01 | 2.8 |
| | | 01/13/93 | 1145 | 404 | 2.0 | 8.3 | 1.0 | .02 | .03 | <.01 | 3.4 |
| | | 04/20/93 | 1045 | 399 | 11.5 | 8.0 | 1.2 | .02 | .04 | <.01 | 2.1 |
| | | 07/20/93 | 1100 | 388 | 22.5 | 7.0 | .17 | .03 | .66 | <.01 | 4.0 |
| | | 09/21/93 | 0800 | 407 | 19.0 | 7.4 | .08 | .02 | .13 | .01 | 2.1 |
| 65 | O'Shaughnessy Reservoir | 05/05/92 | 0845 | 724 | 11.5 | 7.7 | 9.8 | .06 | .03 | .04 | 7.4 |
| | | 06/30/92 | 1000 | 606 | 20.5 | 7.4 | 11 | .09 | .05 | .02 | 5.4 |
| | | 08/12/92 | 0930 | 547 | 20.5 | 8.7 | 2.2 | <.01 | .03 | .08 | 7.6 |
| | | 10/07/92 | 1100 | 771 | 14.0 | 8.2 | .87 | .01 | .02 | .02 | .9 |
| | | 12/30/92 | 1155 | 720 | 3.0 | 7.4 | 4.0 | .06 | .10 | .08 | 7.4 |
| | | 03/22/93 | 1015 | 581 | 3.0 | 8.6 | 4.3 | .04 | .10 | .04 | 6.5 |
| | | 06/29/93 | 1500 | 558 | 23.5 | 8.1 | 5.2 | .09 | .12 | .01 | 4.4 |
| | | 09/28/93 | 1000 | 713 | 14.0 | 7.4 | .73 | <.01 | .04 | .05 | 4.3 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | South Dakota | | | | | | |
| 66 | Sand Lake | 05/06/92 | 1245 | 1,330 | 15.5 | 8.3 | <0.05 | <0.01 | 0.02 | 0.09 | 19 |
| | | 06/24/92 | 1030 | 1,320 | 22.0 | 8.4 | <.05 | <.01 | .02 | .13 | 21 |
| | | 08/31/92 | 1030 | 1,380 | 16.0 | 8.6 | <.05 | <.01 | .03 | .14 | 35 |
| | | 10/14/92 | 0930 | 1,440 | 5.0 | 8.5 | .10 | .02 | .28 | .09 | 31 |
| | | 01/22/93 | 1500 | 2,000 | .5 | 7.6 | <.05 | .02 | .43 | .19 | 40 |
| | | 03/24/93 | 1015 | 1,920 | 2.0 | 8.3 | <.05 | <.01 | .14 | .17 | 18 |
| | | 07/01/93 | 0800 | 830 | 19.5 | 8.2 | <.05 | .01 | .11 | .12 | 17 |
| | | 09/08/93 | 0830 | 680 | 16.5 | 8.1 | <.05 | <.01 | .04 | .32 | 33 |
| | | | | | Wisconsin | | | | | | |
| 67 | Chippewa Flowage | 05/06/92 | 1350 | 70 | 12.5 | 7.6 | .14 | <.01 | .04 | <.01 | 5.9 |
| | | 07/15/92 | 1210 | 114 | 21.5 | 7.7 | .29 | .01 | .36 | .04 | 6.7 |
| | | 08/18/92 | 1415 | 134 | 21.5 | 8.0 | .49 | .02 | .60 | .05 | 6.9 |
| | | 10/20/92 | 1430 | 114 | 9.0 | 7.7 | .41 | .02 | .11 | .04 | 9.6 |
| | | 01/06/93 | 1320 | 131 | 1.0 | 7.2 | .89 | .02 | .45 | .09 | 12 |
| | | 04/20/93 | 1615 | 99 | 5.5 | 7.9 | .55 | .01 | .29 | .07 | 8.7 |
| | | 07/13/93 | 1320 | 88 | 21.5 | 7.3 | .38 | .01 | .24 | .04 | 7.6 |
| | | 09/07/93 | 1430 | 129 | 20.5 | 7.9 | .64 | .02 | .38 | .07 | 9.2 |
| 68 | Dairyland Reservoir | 05/06/92 | 0900 | 95 | 11.0 | 7.0 | .09 | <.01 | .04 | <.01 | 6.5 |
| | | 07/14/92 | 1245 | 97 | 20.0 | 7.1 | .09 | <.01 | .05 | .01 | 5.9 |
| | | 08/19/92 | 0915 | 106 | 20.5 | 7.2 | <.05 | <.01 | .03 | <.01 | 5.7 |
| | | 10/20/92 | 1700 | 87 | 8.5 | 7.9 | .10 | <.01 | .09 | .01 | 9.5 |
| | | 01/06/93 | 1550 | 113 | 1.0 | 7.3 | .20 | .03 | .07 | .01 | 11 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Wisconsin—Continued | | | | | | |
| 68 | Dairyland Reservoir—Continued | 04/21/93 | 0800 | 73 | 4.0 | 6.7 | 0.13 | <0.01 | 0.05 | <0.01 | 8.3 |
| | | 07/13/93 | 1700 | 78 | 21.5 | 8.2 | .08 | <.01 | .07 | .01 | 6.2 |
| | | 09/08/93 | 0655 | 118 | 20.0 | 7.0 | <.05 | <.01 | .06 | .01 | 6.4 |
| 69 | Lake Mendota | 05/08/92 | 1130 | 450 | 12.5 | 8.6 | .31 | .02 | .06 | .05 | .3 |
| | | 07/21/92 | 1130 | 408 | 23.5 | 8.5 | <.05 | <.01 | .05 | <.01 | .4 |
| | | 08/21/92 | 0920 | 416 | 22.5 | 8.5 | <.05 | <.01 | .03 | <.01 | 1.0 |
| | | 10/23/92 | 1050 | 423 | 13.5 | 8.6 | <.05 | <.01 | .17 | .07 | <.1 |
| | | 01/05/93 | 1130 | 443 | 1.0 | 8.3 | .16 | .02 | .46 | .09 | .8 |
| | | 04/19/93 | 1200 | 455 | 5.5 | 8.3 | .45 | .02 | .38 | .11 | 1.5 |
| | | 07/12/93 | 1130 | 421 | 24.0 | 8.8 | .12 | .03 | .03 | .03 | 1.3 |
| | | 09/01/93 | 1145 | 408 | 24.0 | 8.9 | <.05 | <.01 | .02 | .02 | 2.7 |
| 70 | Lake Menomin | 05/06/92 | 0900 | 171 | 14.0 | 7.4 | .75 | .01 | .02 | .01 | 9.2 |
| | | 07/15/92 | 0815 | 218 | 22.5 | 7.2 | .72 | .03 | .15 | .06 | 12 |
| | | 08/18/92 | 1050 | 232 | 21.5 | 7.8 | .45 | .02 | .04 | .02 | 12 |
| | | 10/20/92 | 1040 | 215 | 7.5 | 8.8 | .42 | .01 | .02 | <.01 | 9.6 |
| | | 01/06/93 | 0950 | 244 | 1.0 | 7.2 | 2.0 | .03 | .07 | .04 | 16 |
| | | 04/20/93 | 1215 | 165 | 7.0 | 7.4 | 1.0 | .01 | .03 | .04 | 11 |
| | | 07/13/93 | 1110 | 188 | 21.5 | 7.3 | .73 | .01 | .06 | .05 | 10 |
| | | 09/07/93 | 1220 | 229 | 20.0 | 7.8 | .54 | .01 | .03 | .04 | 13 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Wisconsin—Continued | | | | | | |
| 71 | Lake Monona | 05/08/92 | 0950 | 479 | 14.0 | 8.6 | 0.05 | 0.01 | 0.04 | <0.01 | 0.3 |
| | | 07/21/92 | 1015 | 455 | 23.5 | 8.5 | <.05 | .01 | .05 | <.01 | 1.2 |
| | | 08/21/92 | 0815 | 453 | 22.0 | 8.9 | <.05 | <.01 | .02 | <.01 | 1.2 |
| | | 10/23/92 | 0945 | 460 | 12.5 | 7.6 | <.05 | .01 | .24 | .04 | .4 |
| | | 01/05/93 | 1030 | 477 | 1.0 | 8.0 | .15 | .02 | .46 | .07 | .5 |
| | | 04/19/93 | 1115 | 493 | 7.0 | 7.5 | .32 | .02 | .08 | <.01 | .7 |
| | | 07/12/93 | 1015 | 448 | 23.0 | 8.1 | <.05 | <.01 | .05 | .02 | 1.9 |
| | | 09/01/93 | 1025 | 419 | 24.0 | 7.9 | <.05 | <.01 | .03 | <.01 | 2.9 |
| 72 | Lake Waubesa | 05/08/92 | 1050 | 503 | 15.0 | 8.7 | .19 | .02 | .07 | <.01 | .2 |
| | | 07/21/92 | 1100 | 465 | 23.5 | 8.4 | <.05 | .01 | .04 | <.01 | 3.0 |
| | | 08/21/92 | 0850 | 482 | 22.0 | 8.6 | <.05 | <.01 | .02 | <.01 | 3.2 |
| | | 10/23/92 | 1015 | 475 | 11.5 | 8.4 | .08 | <.01 | .22 | .01 | 2.8 |
| | | 01/05/93 | 1100 | 501 | 2.0 | 8.3 | .46 | .03 | .26 | .03 | .3 |
| | | 04/19/93 | 1140 | 476 | 5.5 | 8.5 | .47 | .02 | .15 | <.01 | 2.5 |
| | | 07/12/93 | 1030 | 453 | 24.5 | 8.6 | <.05 | <.01 | .03 | .03 | 5.6 |
| | | 09/01/93 | 1050 | 440 | 24.5 | 8.6 | <.05 | <.01 | .06 | <.01 | 6.1 |
| 73 | Lake Wausau | 05/07/92 | 0930 | 105 | 12.5 | 7.0 | .23 | .01 | .06 | <.01 | 6.5 |
| | | 07/16/92 | 1130 | 142 | 22.0 | 7.6 | .25 | <.01 | .03 | .02 | 5.1 |
| | | 08/20/92 | 0850 | 174 | 21.5 | 7.6 | <.05 | <.01 | .02 | <.01 | 1.7 |
| | | 10/21/92 | 1300 | 125 | 5.5 | 8.0 | .35 | <.01 | .08 | .02 | 10 |
| | | 01/07/93 | 1330 | 133 | .5 | 7.2 | .54 | .03 | .11 | .03 | 13 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Wisconsin—Continued | | | | | | |
| 73 | Lake Wausau—Continued | 04/21/93 | 1340 | 81 | 5.0 | 8.4 | 0.40 | 0.01 | 0.06 | 0.02 | 6.7 |
| | | 07/14/93 | 1215 | 112 | 22.0 | 8.0 | .27 | <.01 | .06 | .02 | 7.4 |
| | | 09/08/93 | 1045 | 136 | 18.0 | 7.7 | .07 | <.01 | .03 | .01 | 4.8 |
| 74 | Lake Wissota (5548) | 05/05/92 | 1550 | 49 | 12.5 | 6.5 | .07 | <.01 | .06 | <.01 | 6.7 |
| | | 07/14/92 | 1430 | 66 | 21.5 | 7.2 | <.05 | <.01 | .06 | <.01 | 6.2 |
| | | 08/19/92 | 1050 | 78 | 21.5 | 7.3 | <.05 | <.01 | <.01 | <.01 | 5.8 |
| | | 10/21/92 | 0915 | 72 | 6.5 | 8.0 | <.05 | <.01 | .07 | <.01 | 4.9 |
| | | 01/07/93 | 0850 | 82 | 1.0 | 7.4 | .15 | .03 | .07 | .01 | 11 |
| | | 04/21/93 | 1010 | 53 | 5.0 | 7.2 | .07 | <.01 | .06 | <.01 | 8.2 |
| | | 07/14/93 | 0850 | 61 | 21.5 | 7.7 | .08 | <.01 | .05 | <.01 | 6.9 |
| | | 09/07/93 | 1720 | 86 | 19.5 | 7.4 | <.05 | <.01 | .03 | <.01 | 6.1 |
| 75 | Lake 7746 | 05/07/92 | 1415 | 154 | 14.5 | 7.6 | .43 | .01 | .05 | <.01 | 3.0 |
| | | 07/16/92 | 1400 | 169 | 23.5 | 7.9 | .05 | <.01 | .03 | <.01 | 3.9 |
| | | 08/20/92 | 1120 | 189 | 22.5 | 7.7 | .13 | .01 | .17 | <.01 | 4.3 |
| | | 10/22/92 | 1230 | 200 | 9.0 | 7.7 | .46 | .02 | .11 | .02 | 2.6 |
| | | 01/08/93 | 1230 | 248 | .5 | 7.5 | .94 | .02 | .15 | .04 | 9.4 |
| | | 04/20/93 | 0845 | 133 | 4.0 | 8.2 | .60 | .01 | .11 | .03 | 7.5 |
| | | 07/13/93 | 0745 | 112 | 23.5 | 8.0 | .45 | .02 | .08 | .05 | 4.7 |
| | | 09/07/93 | 0915 | 178 | 20.0 | 7.6 | .25 | .01 | .03 | <.01 | 1.1 |

**Table 8.** Physical properties and analytical results for nutrients collected from 76 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/day/year) | Collection time (24-hour) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite as nitrogen (mg/L) | Ammonium as nitrogen (mg/L) | Orthophosphate as phosphorus (mg/L) | Silica as $SiO_2$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Wisconsin—Continued | | | | | | |
| 76 | Spring Valley Lake | 05/06/92 | 1050 | 275 | 14.0 | 8.5 | 0.64 | 0.02 | 0.02 | <0.01 | 4.6 |
| | | 07/15/92 | 1010 | 241 | 21.5 | 8.4 | .74 | .03 | .04 | .07 | 4.1 |
| | | 08/18/92 | 1220 | 281 | 21.5 | 8.7 | .06 | .02 | <.01 | <.01 | 4.8 |
| | | 10/20/92 | 1220 | 342 | 7.5 | 8.5 | .63 | .02 | .07 | <.01 | 6.3 |
| | | 01/06/93 | 1115 | 400 | 1.0 | 7.7 | 1.8 | .03 | .10 | .01 | 11 |
| | | 04/20/93 | 1415 | 234 | 6.0 | 7.9 | .72 | .01 | .05 | .03 | 7.1 |
| | | 07/13/93 | 1215 | 281 | 20.5 | 8.1 | .49 | .03 | .05 | .01 | 2.6 |
| | | 09/07/93 | 1320 | 318 | 19.5 | 8.2 | .25 | .02 | .06 | <.01 | 8.0 |

**Table 9.** Physical properties and analytical results for nutrients collected from top and bottom of 17 reservoirs in the Midwestern United States, April 1992 through September 1993

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; mg/L, milligrams per liter; <, less than; --, no data]

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ day/year) | Sam-ple type | Depth of sample (feet) | Specific conduct-ance (µS/cm) | Water temper-ature (°C) | pH (stand-ard units) | Am-monium (mg/L) | Dis-solved oxygen (mg/L) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite (mg/L) | Ortho-phos-phate (mg/L) | Silica (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Illinois** | | | | | | | |
| 1 | Carlyle Lake | 08/25/92 | top | 0.5 | 484 | 25.5 | 8.1 | 0.06 | 8.0 | 0.05 | 0.01 | 0.16 | 1.6 |
| | | 08/25/92 | bottom | 7 | 500 | 24.0 | 7.4 | .24 | 2.2 | .05 | .02 | .20 | 3.3 |
| 4 | Lake Decatur | 09/01/92 | top | 1 | 527 | 23.0 | 8.0 | .11 | 6.5 | 3.7 | .06 | .07 | 10 |
| | | 09/01/92 | bottom | 15 | 528 | 22.5 | 7.9 | .11 | 5.8 | 3.7 | .06 | .07 | 10 |
| 5 | Lake Shelbyville | 08/25/92 | top | .5 | 478 | 25.0 | 7.5 | .02 | 4.3 | 2.9 | .22 | .01 | 1.3 |
| | | 08/25/92 | bottom | 20 | 547 | 17.5 | 6.9 | 1.4 | .20 | .78 | .04 | .02 | 3.3 |
| 6 | Lake Vermillion | 08/28/92 | top | 2 | 523 | 24.0 | 7.9 | .04 | 6.0 | 5.0 | .10 | .01 | 8.4 |
| | | 08/28/92 | bottom | 19 | 568 | 23.0 | 7.2 | .06 | .50 | 4.6 | .13 | .01 | 8.6 |
| 8 | Rend Lake | 08/24/92 | top | .5 | 403 | 25.5 | 8.3 | .02 | 10.5 | .05 | .01 | .02 | 2.7 |
| | | 08/24/92 | bottom | 10 | 408 | 23.5 | 7.3 | .19 | 2.4 | .05 | .02 | .05 | 3.7 |
| | | | | | | **Indiana** | | | | | | | |
| 15 | Mississinewa Lake | 08/17/92 | top | .5 | 319 | 24.0 | 8.4 | .03 | 9.2 | 1.5 | .04 | .03 | 2.4 |
| | | 08/17/92 | bottom | 70 | 359 | 21.5 | 7.0 | .10 | .40 | 1.5 | .05 | .05 | 3.9 |
| 19 | Salamonie Lake | 08/18/92 | top | .5 | 416 | 21.0 | 7.4 | .26 | .40 | 3.2 | .11 | .03 | 3.9 |
| | | 08/18/92 | bottom | 60 | 370 | 24.0 | 9.1 | .03 | 12.5 | 3.9 | .10 | .02 | 1.7 |
| | | | | | | **Iowa** | | | | | | | |
| 23 | Rathbun Lake | 08/12/92 | top | .5 | 253 | 25.0 | 8.8 | .07 | 8.8 | .36 | .02 | <.01 | 1.8 |
| | | 08/12/92 | bottom | 44 | 262 | 22.0 | 7.4 | .02 | .10 | .24 | .02 | <.01 | .4 |
| | | | | | | **Kansas** | | | | | | | |
| 30 | Pomona Lake | 08/27/92 | top | 1 | 327 | 23.5 | 6.3 | .01 | -- | .25 | <.01 | <.01 | 2.5 |
| | | 08/27/92 | bottom | 36 | 328 | 23.5 | 7.8 | .02 | -- | .25 | <.01 | <.01 | 2.7 |

**Table 9.** Physical properties and analytical results for nutrients collected from top and bottom of 17 reservoirs in the Midwestern United States, April 1992 through September 1993—Continued

| Map no. (fig. 1) | Reservoir name | Date of collection (month/ day/year) | Sample type | Depth of sample (feet) | Specific conductance (µS/cm) | Water temperature (°C) | pH (standard units) | Ammonium (mg/L) | Dissolved oxygen (mg/L) | Nitrite plus nitrate as nitrogen (mg/L) | Nitrite (mg/L) | Orthophosphate (mg/L) | Silica (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Minnesota** | | | | | | | |
| 34 | Cross Lake | 08/19/92 | top | 1.5 | 247 | 21.0 | 8.2 | 0.04 | -- | <0.05 | <0.01 | <0.01 | 7.1 |
| | | 08/19/92 | bottom | 25 | 308 | 18.0 | 7.4 | .73 | -- | <.05 | <.01 | <.01 | 9.2 |
| 36 | Lac Qui Parle | 08/20/92 | top | 1.5 | 864 | 21.5 | 8.1 | .43 | -- | .08 | .01 | .12 | 29 |
| | Reservoir | 08/20/92 | bottom | 11 | 868 | 21.5 | 8.1 | .41 | -- | .08 | .01 | .12 | 29 |
| 40 | Winnibigoshish | 08/17/92 | top | 3 | 281 | 20.0 | 8.2 | <.01 | -- | <.05 | <.01 | <.01 | 7.3 |
| | Reservoir | 08/17/92 | bottom | 55 | 282 | 20.0 | 8.2 | .02 | -- | <.05 | <.01 | <.01 | 7.9 |
| | | | | | | **Nebraska** | | | | | | | |
| 48 | Branched Oak Lake | 09/11/92 | top | 1 | 407 | 21.0 | 8.5 | .04 | 7.2 | <.05 | <.01 | <.01 | 1.2 |
| | | 09/11/92 | bottom | 25 | 409 | 21.0 | 8.4 | .06 | 6.8 | <.05 | <.01 | <.01 | 1.2 |
| 57 | Willow Creek | 08/26/92 | top | 1 | 244 | 20.0 | 8.4 | .18 | 6.5 | <.05 | <.01 | <.01 | 1.3 |
| | Reservoir | 08/26/92 | bottom | 19 | 243 | 19.0 | 8.4 | .18 | 6.1 | <.05 | <.01 | .01 | 1.1 |
| | | | | | | **Ohio** | | | | | | | |
| 59 | Alum Creek Lake | 08/06/92 | top | 3.3 | 454 | 24.0 | 8.4 | .02 | 8.4 | 2.0 | .05 | <.01 | 3.4 |
| | | 08/06/92 | bottom | 36 | 458 | 20.0 | 8.1 | .06 | .40 | 1.9 | .05 | <.01 | 4.3 |
| 62 | Dillon Lake | 09/15/92 | top | 3.3 | 468 | 22.5 | 8.1 | .26 | 5.4 | .53 | .03 | .02 | 5.3 |
| | | 09/15/92 | bottom | 30 | 570 | 21.5 | 7.8 | .60 | 1.4 | .40 | .03 | .04 | 5.6 |
| | | | | | | **Wisconsin** | | | | | | | |
| 69 | Lake Mendota | 07/23/92 | top | 1.5 | 425 | 20.5 | 8.6 | .08 | 7.6 | <.05 | <.01 | <.01 | 1.1 |
| | | 07/23/92 | bottom | 51 | 477 | 10.0 | 7.6 | .83 | .20 | .14 | .04 | .29 | 2.5 |

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