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# Estimated Loads and Yields of Suspended Solids and Water-Quality Constituents in Kentucky Streams

Water-Resources Investigations Report 01-4075

U.S. Department of the Interior
U.S. Geological Survey

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U.S. Department of the Interior
U.S. Geological Survey

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*By* Angela S. Crain

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Louisville, Kentucky
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**U.S. DEPARTMENT OF THE INTERIOR**
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**U.S. GEOLOGICAL SURVEY**
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## CONVERSION FACTORS AND ABBREVIATIONS

### CONVERSION FACTORS

| Multiply | By | To obtain |
|---|---|---|
| cubic foot per second ($ft^3/s$) | 0.02832 | cubic meter per second |
| mile | 1.606 | kilometers |
| square mile ($mi^2$) | 2.590 | square kilometer |
| ton | 907.2 | kilogram |
| ton per square mile ($ton/mi^2$) | 350.3 | kilogram per square kilometer |
| ton per year (ton/yr) | 907.2 | kilogram per year |
| ton per square mile per year ($ton/mi^2$)/yr | 350.3 | kilogram per square kilometer per year |

Degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) by use of the following equation:

$$°F = (9/5)(°C) + 32$$

## ABBREVIATIONS

**Abbreviated water-quality units used in this report:** Chemical concentrations and water temperature are given in metric units. Chemical concentration of constituents in solution or suspension is given in milligrams per liter (mg/L) or micrograms per liter (µg/L). Milligrams per liter is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit of volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Estimated loads and yields are expressed in tons per square mile (ton/mi$^2$). Bacteria densities are expressed as number of colonies per 100 milliliters of water (col/100 mL).

**Water year:** The 12-month period from October 1 through September 30. The water year is designated by the calendar year in which it ends.

# Estimated Loads and Yields of Suspended Solids and Water-Quality Constituents in Kentucky Streams

*By* Angela S. Crain

## Abstract

Loads and yields of suspended solids, nutrients, major ions, trace elements, organic carbon, fecal coliform, dissolved oxygen, and alkalinity were estimated for 22 streams in 11 major river basins in Kentucky. Mean daily discharge was estimated at ungaged stations or stations with incomplete discharge records using drainage-area ratio, regression analysis, or a combination of the two techniques. Streamflow was partitioned into total and base flow and used to estimate loads and yields for suspended solids and water-quality constituents by use of the ESTIMATOR and FLUX computer programs. The relative magnitude of constituent transport to streams from ground- and surface-water sources was determined for the 22 stations. Nutrient and suspended solids yields for drainage basins with relatively homogenous land use were used to estimate the total-flow and base-flow yields of nutrient and suspended solids for forested, agricultural, and urban land.

Yields of nutrients—nitrite plus nitrate, ammonia plus organic nitrogen, and total phosphorus—in forested drainage basins were generally less than 1 ton per square mile per year) ((ton/mi$^2$)/yr) and were generally less than 2 (ton/mi$^2$)/yr in agricultural drainage basins. The smallest total-flow yields for nitrogen (nitrite plus nitrate) was estimated at Levisa Fork at Paintsville in which 95 percent of the land is forested. This site also had one of the smallest total-flow yields for ammonia plus organic nitrogen. In general, nutrient yields from forested lands were lower than those from urban and agricultural land.

Some of the largest estimated total-flow yields of nutrients among agricultural basins were for streams in the Licking River Basin, the North Fork Licking River near Milford, and the South Fork Licking River at Cynthiana. Agricultural land constitutes greater than 75 percent of the drainage area in these two basins. Possible sources of nutrients discharging into the Licking River are farm and residential fertilizers. Estimated base-flow yields of suspended solids and nutrients at several basins in the larger Green River and Lower Cumberland River Basins were about half of their estimated total-flow yields. The karst terrain in these basins makes the ground water highly susceptible to contamination, especially if a confining unit is thin or absent.

## INTRODUCTION

According to the Kentucky Environmental Quality Commission (1992), nonpoint-source runoff from agriculture, logging, mining, and urban development results in about 62 percent of the water-pollution problems in Kentucky. This runoff results in increased levels of suspended solids, nutrients, and trace elements in streams, which can have detrimental effects on the environment. Therefore, reductions of these chemical-constituent or contaminant loads are vital to the health of the aquatic ecosystem.

In July 1996, the U.S. Geological Survey (USGS), in cooperation with the Kentucky Natural Resources and Environmental Protection

Cabinet—Division of Water, began a study to estimate the loads and yields of suspended solids and selected water-quality constituents for 44 Kentucky streamflow stations for total flow and periods of base flow. These streams constitute the Kentucky Ambient Surface-Water Monitoring Network. Estimated loads and yields for 20 of these stations were published in 1998 (Garcia and Crain, 1998) (phase I); results for these stations are included in the appendixes of this report. In continuing this study (phase II), the loads and yields were estimated for 22 of the remaining 24 stations. No loads or yields were estimated for two stations (Tradewater River at Olney and Mayfield Creek near Blandville) because of problems in estimating discharge as a result of backwater from the Ohio and Mississippi Rivers.

Both point sources and nonpoint sources of chemical constituents, or contaminants, contribute to the total load of a stream. Generally, the inflow of point-source contaminants to streams remains relatively constant, and can be considered a component of stream-water quality at base flow. By contrast, nonpoint-source contaminants are transported to streams primarily during storm runoff periods. Thus, information about the relative magnitude of suspended solids and water-quality constituent loads in streams at base flow, which largely originates from ground-water sources, and at total surface-water flow (storm-water runoff) will be helpful to those responsible for the planning and management of nonpoint-source pollution control programs.

## Purpose and Scope

This report describes the methods used to evaluate streamflow, suspended solids, and water-quality information for 44 stream stations in Kentucky (fig. 1). These stations (table 1) were selected from the Kentucky Ambient Surface-Water Monitoring Network to determine the relative magnitude of the loads and yields of suspended solids and selected water-quality constituents (table 2) transported in surface and ground water. Constituents for which estimated loads and yields are reported include suspended solids, nutrients, major ions, trace elements, organic carbon, and fecal coliform. It is not within the scope of this report to provide detailed analyses of the factors that affect the constituent concentrations measured in each of the selected streams.

## Selected Study Stations

The 24 stations included in phase II of this study are located in 11 major drainage basins (fig. 2). Stations from phase I also are located in these drainage basins (appendix 1).

| Drainage basin | Number of stations (phase I) | Number of stations (phase II) |
|---|---|---|
| Big Sandy River | 1 | 2 |
| Kentucky River | 10 | 1 |
| Salt River | 1 | 3 |
| Green River | 4 | 4 |
| Cumberland River | 3 | 4 |
| Tennessee River | 1 | 0 |
| Middle Ohio–Racoon River | 0 | 2 |
| Middle Ohio–Little Miami River | 0 | 1 |
| Lower Ohio River | 0 | 1 |
| Hatchie–Obion River | 0 | 2 |
| Licking River | 0 | 4 |

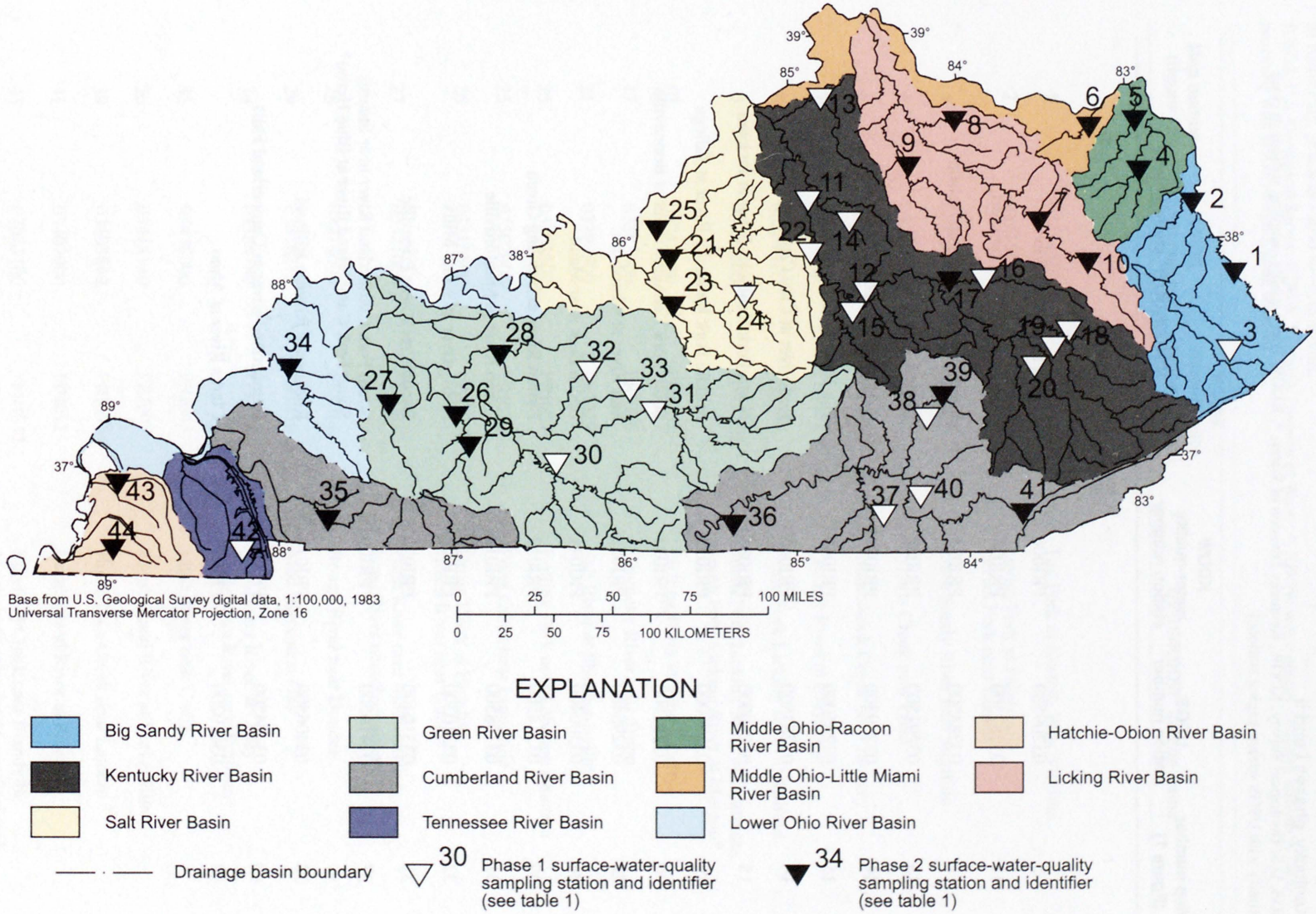


**Figure 1.** Major drainage basins and ambient surface-water monitoring network in Kentucky, phases I and II.

**Table 1.** Streamflow and water-quality stations in the ambient surface-water monitoring network in Kentucky, phases I and II

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; *, KDOW water-quality sampling stations in close proximity with USGS stream-gaging stations]

| Map number (figure 1) | USGS station number | KDOW water-quality station number | USGS/KDOW* station name |
|---|---|---|---|
| | | **Phase I** | |
| 3 | 03209500 | PRI006 | Levisa Fork near Pikeville |
| 11 | 03287500 | PRI024 | Kentucky River at Frankfort |
| 12 | 03284500 | PRI025 | Kentucky River at Camp Nelson |
| 13 | 03291500 | PRI022 | Eagle Creek at Glencoe |
| 14 | 03289300 | PRI034 | S. Elkhorn Creek near Midway |
| 15 | 03285000 | PRI045 | Dix River near Danville |
| 16 | 03283500 | PRI046 | Red River at Clay City |
| 18 | 03280000 | PRI031 | North Fork Kentucky River at Jackson |
| 19 | 03281000 | PRI032 | Middle Fork Kentucky River at Tallega |
| 20 | 03281500 | PRI033 | South Fork Kentucky River at Booneville |
| 22 | 03295400 | PRI052 | Salt River at Glensboro |
| 24 | 03300400 | PRI041 | Beech Fork near Maud |
| 30 | 03314500 | PRI017 | Barren River at Bowling Green |
| 31 | 03308500 | PRI018 | Green River at Munfordville |
| 32 | 03310300 | PRI021 | Nolin River at White Mills |
| 33 | 03310400 | PRI020 | Bacon Creek near Priceville |
| 37 | 03410500 | *PRI008 | South Fork Cumberland River near Stearns<br>South Fork Cumberland River at Blue Heron* |
| 38 | 03406500 | PRI010 | Rockcastle River at Billows |
| 40 | 03404500 | PRI009 | Cumberland River at Cumberland Falls |
| 42 | 03610200 | PRI038 | Clarks River at Almo |

**Table 1.** Streamflow and water-quality stations in the ambient surface-water monitoring network in Kentucky, phases I and II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; *, KDOW water-quality sampling stations in close proximity with USGS stream-gaging stations]

| Map number (figure 1) | USGS station number | KDOW water-quality station number | USGS/KDOW* station name |
|---|---|---|---|
| | | **Phase II** | |
| 1 | 03214500 | PRI002 | Tug Fork at Kermit, West Virginia |
| 2 | 03215000 | *PRI064 | Levisa Fork at Paintsville<br>Levisa Fork near Louisa* |
| 4 | 03216500 | PRI049 | Little Sandy River near Argillite |
| 5 | 03216800 | PRI048 | Tygarts Creek near Load |
| 6 | 03237250 | PRI063 | Kinniconick Creek near Tannery |
| 7 | 03249500 | PRI061 | Licking River at Claysville |
| 8 | 03251400 | PRI060 | North Fork Licking River at Milford |
| 9 | 03252500 | *PRI059 | South Fork Licking River at Cynthiana<br>South Fork Licking River at Morgan* |
| 10 | 03248640 | PRI062 | Licking River at West Liberty |
| 17 | 03282300 | PRI026 | Kentucky River near Trapp |
| 21 | 03298500 | PRI029 | Salt River at Shepherdsville |
| 23 | 03301500 | PRI057 | Rolling Fork near Lebanon Junction |
| 25 | 03302000 | PRI030 | Pond Creek near Louisville |
| 26 | 03316500 | *PRI055 | Green River at Paradise<br>Green River near Island* |
| 27 | 03321060 | *PRI012 | Pond River near Madisonville<br>Pond River near Sacramento* |
| 28 | 03319000 | PRI014 | Rough River near Dundee |
| 29 | 03316275 | PRI056 | Mud River near Gus |
| 34 | 03384180 | *PRI053 | Tradewater River at Olney<br>Tradewater River near Sullivan* |
| 35 | 03438000 | PRI043 | Little River near Cadiz |
| 36 | 03414110 | PRI007 | Cumberland River at Burkesville |
| 39 | 03405842 | PRI051 | Horse Lick Creek near Lamero |
| 41 | 03402900 | PRI011 | Cumberland River at Pineville |
| 43 | 07023100 | *PRI042 | Mayfield Creek near Blandville<br>Mayfield Creek near Magee Springs* |
| 44 | 07024000 | PRI037 | Bayou de Chien near Clinton |

**Table 2.** Selected constituents for suspended solids, water-quality analysis, and load estimation

| U.S. Environmental Protection Agency STORET Code | Constituents |
|---|---|
| | **Major ions, total (in milligrams per liter)** |
| 00916 | Calcium |
| 00940 | Chloride |
| 00927 | Magnesium |
| 00937 | Potassium |
| 00929 | Sodium |
| 00946 | Sulfate |
| | **Nutrients, total (in milligrams per liter)** |
| 00610 | Ammonia |
| 00625 | Ammonia plus organic nitrogen |
| 00630 | Nitrite plus nitrate |
| 00665 | Phosphorus, total |
| | **Trace elements, total (in micrograms per liter)** |
| 01105 | Aluminum |
| 01002 | Arsenic |
| 01007 | Barium |
| 01027 | Cadmium |
| 01034 | Chromium |
| 01042 | Copper |
| 01045 | Iron |
| 01051 | Lead |
| 71900 | Mercury |
| 01055 | Manganese |
| 01092 | Zinc |
| | **Suspended solids** |
| 00530 | Residue on evaporation at 105 degrees Celsius (nonfilterable) |
| | **Carbon (in milligrams per liter)** |
| 00680 | Total organic carbon |
| | **Bacteria (in colonies per 100 milliliters)** |
| 31616 | Fecal coliform |
| | **Additional constituents** |
| 00410 | Alkalinity |
| 00310 | Biological oxygen demand – 5 day |
| 00300 | Dissolved oxygen |

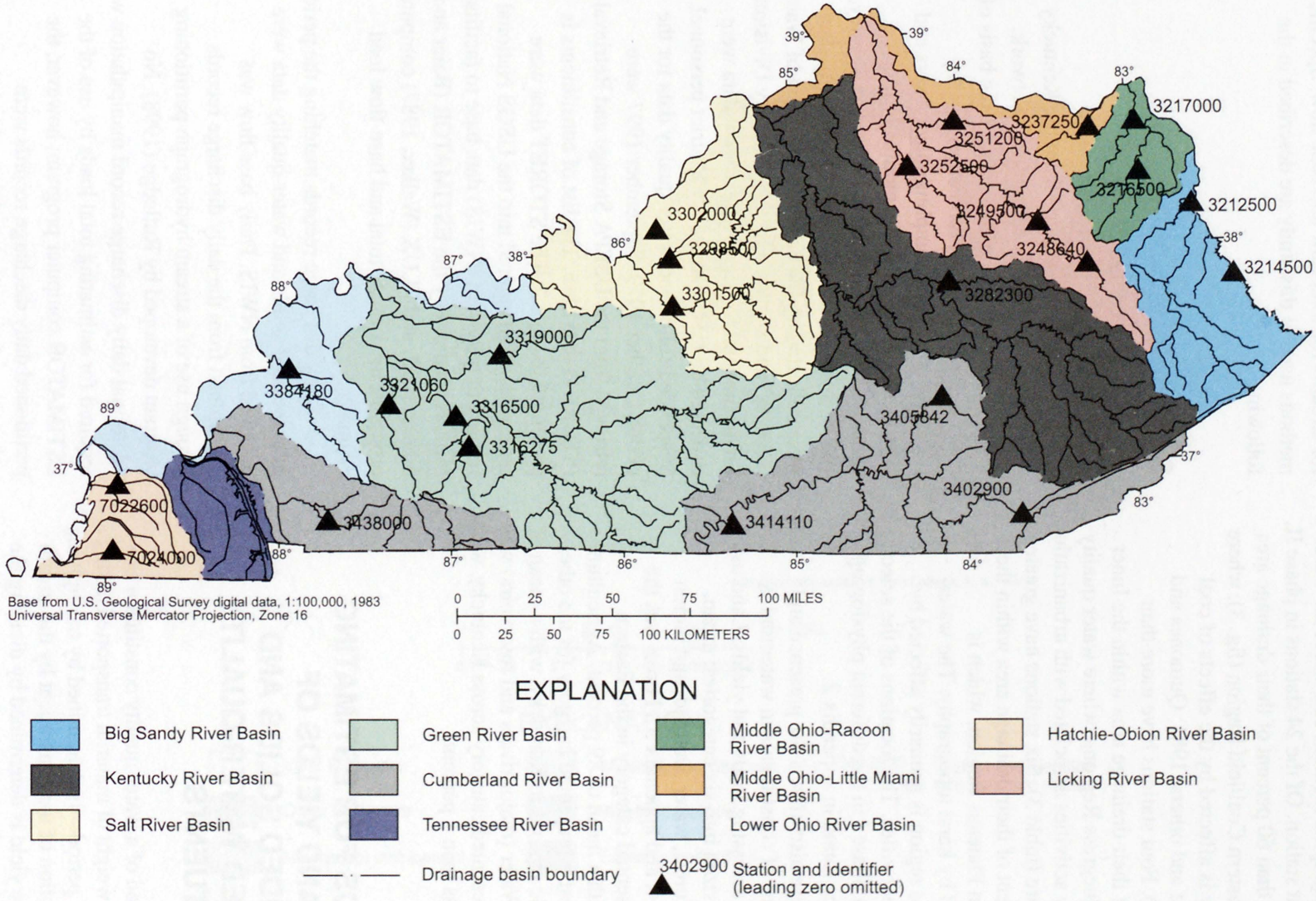


**Figure 2.** Major drainage basins in Kentucky and locations of selected study stations, phase II.

Because the morphology of each station is different, geographic location can affect the water-quality at that station. Of the 24 stations in phase II, 7 have more than 60 percent of their drainage area within the Eastern Coalfield Region (fig. 3), where water-quality is affected by the effects of coal mining (Leist and others, 1981; Quinones and others, 1981). Four stations have more than 50 percent of their drainage area within the Inner and Outer Bluegrass Regions, where water quality is affected by activities associated with urbanization and agriculture (table 3). Six stations have greater than 60 percent of their drainage area within the Mississippian Plateaus Region, which is characterized by karst topography. The water-quality in this region is primarily affected by agricultural activities. The locations of the selected stations from phase I in the different physiographic regions can be found in appendix 2.

Land use also affects the presence and concentrations of constituents in water and is important in assessing loads and yields. Land use was characterized into six categories: urban, agriculture, forest, water, wetland, and barren (table 3, fig. 4, and appendix 3). Forest was the largest represented category in the Eastern Coalfield, with a mean of 89 percent. Agriculture was the largest represented category for the other physiographic regions in Kentucky, with a mean of 52 percent. Water (major rivers and reservoirs) was the least represented category across Kentucky, with a mean of less than 1 percent.

# METHODS FOR ESTIMATING LOADS AND YIELDS OF SUSPENDED SOLIDS AND SELECTED WATER-QUALITY CONSTITUENTS

The load of a water-quality constituent in a stream—the weight of material transported during a specific time period—is determined by multiplying the concentration of the constituent by the stream discharge; the yield is determined by dividing the load by the drainage area of the basin. Water-quality, suspended solids, and stream-discharge data were used to estimate the annual loads and yields for streams for total flow and base flow. Specific methods used in this study are described in the following sections.

## Selection of Stations and Assembly of Data Sets

Stations were selected from the Kentucky Ambient Surface-Water Monitoring Network, which were originally established on the basis of the U.S. Environmental Protection Agency (USEPA) criteria for sampling major rivers and significant tributaries at the mouths of major streams (U.S. Environmental Protection Agency, 1977). Suspended solids and water-quality data were collected by the Kentucky Division of Water (KDOW) and analyzed by the Kentucky Division of Environmental Services. Streamflow data were collected by USGS Kentucky District personnel. Suspended solids and water-quality data for the period October 1979–September 1997 were retrieved from the USEPA Storage and Retrieval (STORET) data base. The list of constituents is presented in table 2. The STORET data were reformatted and entered into the USGS National Information System (NWIS) data base to facilitate formats required by the ESTIMATOR (Baier and others, 1992) and FLUX (Walker, 1987) computer programs to estimate total and base-flow load estimates.

Daily discharge records matching the period of suspended solids and water-quality data were retrieved from NWIS. Daily base flow was determined from the daily discharge records through use of a stream hydrograph partitioning program developed by Rutledge (1998). No additional daily discharge record manipulation was required for estimating total loads by use of the ESTIMATOR computer program; however, the partitioned daily discharge records were reformatted for use in determining loads by use of the FLUX computer program.

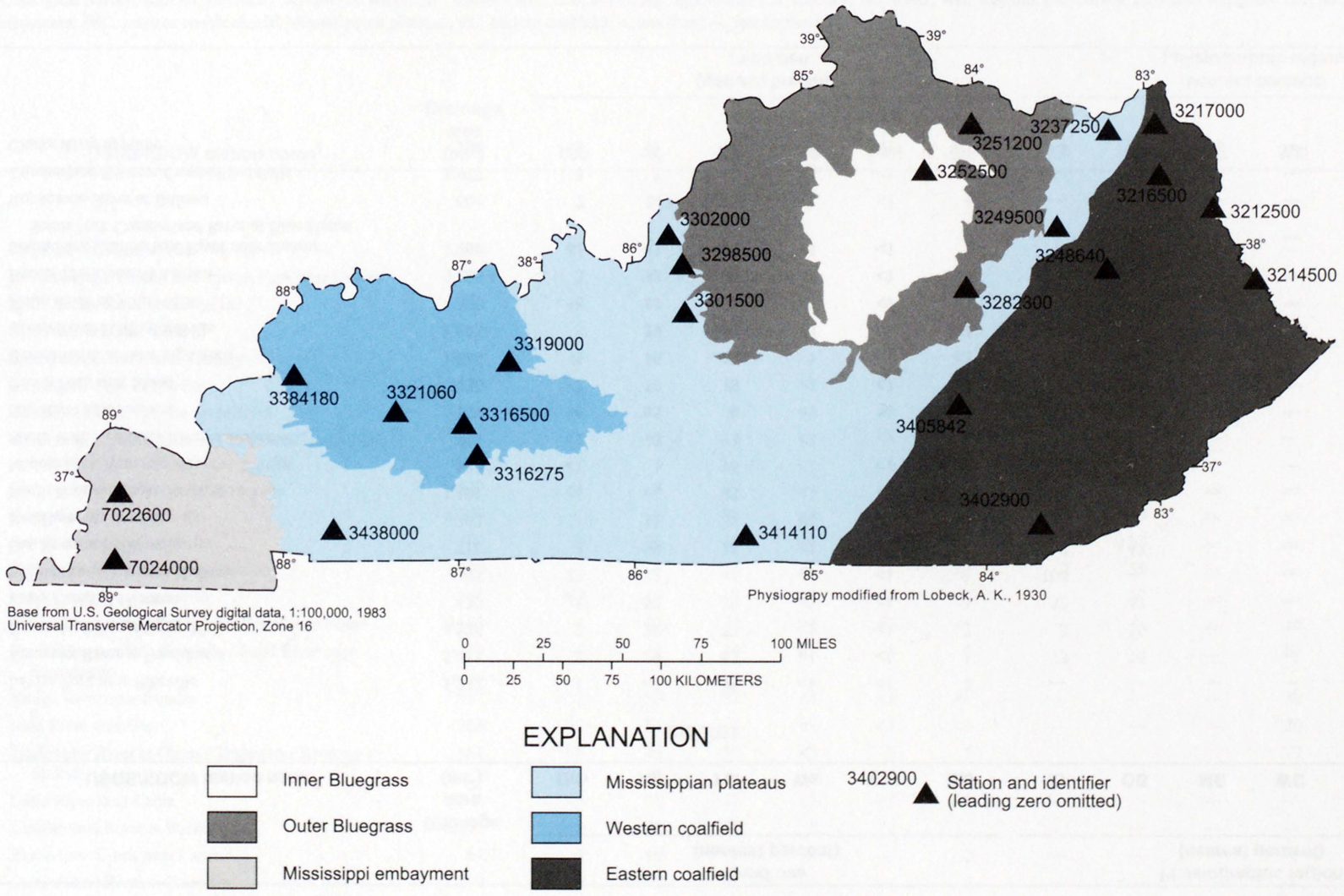


**Figure 3.** Physiographic regions of Kentucky and locations of selected study stations, phase II.

**Table 3.** Percent land use and physiographic region within drainage areas for selected ambient surface-water monitoring stations in Kentucky, phases I and II

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; $mi^2$, square miles; Urb, urban; Ag, agriculture; For, forestry; Wa, water; Wet, wetland; Bar, barren; IB, innter bluegrass; OB, outer bluegrass; ME, Mississippi embayment; WC, western coalfield; MP, Mississippian plateaus; EC, eastern coalfield; <, less than; ---, not applicable]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area ($mi^2$) | Land use (nearest percent) | | | | | | Physiographic region (nearest percent) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Urb | Ag | For | Wa | Wet | Bar | IB | OB | ME | WC | MP | EC |
| | | | | | | PHASE I | | | | | | | | |
| 3 | Levisa Fork near Pikeville | 1,232 | <1 | <1 | 98 | <1 | <1 | 2 | --- | --- | --- | --- | --- | 100 |
| 11 | Kentucky River at Frankfort | 5,411 | 2 | 29 | 67 | <1 | <1 | 1 | 13 | 16 | --- | --- | 10 | 61 |
| 12 | Kentucky River at Camp Nelson | 4,528 | 2 | 20 | 77 | <1 | <1 | 2 | 3 | 16 | --- | --- | 8 | 73 |
| 13 | Eagle Creek at Glencoe | 437 | 5 | 57 | 38 | <1 | <1 | <1 | 33 | 67 | --- | --- | --- | --- |
| 14 | S. Elkhorn Creek near Midway | 105 | 27 | 72 | <1 | <1 | <1 | 1 | 100 | --- | --- | --- | --- | --- |
| 15 | Dix River near Danville | 318 | 3 | 69 | 28 | <1 | <1 | <1 | 2 | 47 | --- | --- | 51 | --- |
| 16 | Red River at Clay City | 362 | 1 | 15 | 84 | <1 | <1 | <1 | --- | --- | --- | --- | 25 | 75 |
| 18 | North Fork Kentucky River at Jackson | 1,101 | <1 | <1 | 95 | <1 | <1 | 4 | --- | --- | --- | --- | --- | 100 |
| 19 | Middle Fork Kentucky River at Tallega | 537 | <1 | 1 | 96 | <1 | <1 | 3 | --- | --- | --- | --- | --- | 100 |
| 20 | South Fork Kentucky River at Booneville | 722 | <1 | 6 | 93 | <1 | <1 | 1 | --- | --- | --- | --- | --- | 100 |
| 22 | Salt River at Glensboro | 172 | 6 | 85 | 9 | <1 | <1 | <1 | 67 | 31 | --- | --- | 1 | --- |
| 24 | Beech Fork near Maud | 436 | 2 | 79 | 18 | <1 | <1 | <1 | 7 | 91 | --- | --- | 2 | --- |
| 30 | Barren River at Bowling Green | 1,849 | 5 | 76 | 18 | 1 | 1 | <1 | --- | --- | --- | --- | 100 | --- |
| 31 | Green River at Munfordville | 1,673 | 3 | 59 | 37 | <1 | <1 | <1 | --- | 1 | --- | --- | 99 | --- |
| 32 | Nolin River at White Mills | 357 | 8 | 84 | 8 | <1 | <1 | <1 | --- | --- | --- | --- | 100 | --- |
| 33 | Bacon Creek near Priceville | 85.4 | 3 | 52 | 45 | <1 | <1 | <1 | --- | --- | --- | --- | 100 | --- |
| 37 | South Fork Cumberland River near Stearns / South Fork Cumberland River at Blue Heron | 954 | <1 | <1 | 99 | <1 | <1 | 1 | --- | --- | --- | --- | --- | 100 |
| 38 | Rockcastle River at Billows | 604 | 2 | 24 | 70 | <1 | <1 | 4 | --- | --- | --- | --- | 23 | 77 |
| 40 | Cumberland River at Cumberland Falls | 1,977 | 3 | 7 | 86 | <1 | <1 | 5 | --- | --- | --- | --- | --- | 100 |
| 42 | Clarks River at Almo | 134 | 5 | 91 | 4 | <1 | <1 | <1 | --- | --- | 100 | --- | --- | --- |

**Table 3.** Percent land use and physiographic region within drainage areas for selected ambient surface-water monitoring stations in Kentucky, phases I and II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; $mi^2$, square miles; Urb, urban; Ag, agriculture; For, forestry; Wa, water; Wet, wetland; Bar, barren; IB, innter bluegrass; OB, outer bluegrass; ME, Mississippi embayment; WC, western coalfield; MP, Mississippian plateaus; EC, eastern coalfield; <, less than; ---, not applicable]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area ($mi^2$) | Land use (nearest percent) | | | | | | Physiographic region (nearest percent) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Urb | Ag | For | Wa | Wet | Bar | IB | OB | ME | WC | MP | EC |
| | | | | | | PHASE II | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | <1 | <1 | 96 | --- | --- | 3 | --- | --- | --- | --- | --- | 100 |
| 2 | Levisa Fork at Paintsville / Levisa Fork near Louisa | 3,897 | 1 | <1 | 95 | <1 | --- | 3 | --- | --- | --- | --- | --- | 100 |
| 4 | Little Sandy River near Argillite | 400 | <1 | 15 | 83 | <1 | --- | 1 | --- | --- | --- | --- | --- | 100 |
| 5 | Tygarts Creek near Load | 242 | 1 | 18 | 80 | <1 | --- | <1 | --- | --- | --- | --- | 33 | 67 |
| 6 | Kinniconick Creek near Tannery | 201 | <1 | 7 | 93 | --- | --- | <1 | --- | --- | --- | --- | 100 | --- |
| 7 | Licking River at Claysville | 827 | <1 | 15 | 82 | 2 | --- | 2 | --- | --- | --- | --- | 8 | 92 |
| 8 | North Fork Licking River at Milford | 226 | 1 | 77 | 22 | --- | --- | <1 | --- | 93 | --- | --- | 7 | --- |
| 9 | South Fork Licking River at Cynthiana / South Fork Licking River at Morgan | 621 | 4 | 94 | 2 | <1 | --- | <1 | 71 | 29 | --- | --- | --- | --- |
| 10 | Licking River at West Liberty | 327 | <1 | 8 | 89 | --- | --- | 3 | --- | --- | --- | --- | --- | 100 |
| 17 | Kentucky River near Trapp | 3,246 | 1 | 6 | 91 | <1 | --- | 2 | --- | 3 | --- | --- | 6 | 91 |
| 21 | Salt River at Shepherdsville | 1,197 | 8 | 76 | 16 | <1 | --- | <1 | 10 | 88 | --- | --- | 2 | --- |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 3 | 63 | 34 | <1 | <1 | <1 | 2 | 59 | --- | --- | 39 | --- |
| 25 | Pond Creek near Louisville | 64 | 62 | 19 | 17 | <1 | --- | <1 | --- | 37 | --- | --- | 63 | --- |
| 26 | Green River at Paradise / Green River near Island | 6,183 | 4 | 62 | 32 | 1 | <1 | <1 | --- | <1 | --- | 16 | 84 | --- |
| 27 | Pond River near Madisonville / Pond River near Sacramento | 469 | 5 | 39 | 44 | <1 | 5 | 6 | --- | --- | --- | 66 | 34 | --- |
| 28 | Rough River near Dundee | 757 | 2 | 59 | 37 | <1 | <1 | <1 | --- | --- | --- | 30 | 70 | --- |
| 29 | Mud River near Gus | 268 | 3 | 51 | 45 | <1 | <1 | <1 | --- | --- | --- | 20 | 80 | --- |
| 34 | Tradewater River at Olney / Tradewater River near Sullivan | 861 | 4 | 48 | 38 | <1 | 5 | 5 | --- | --- | --- | 77 | 23 | --- |
| 35 | Little River near Cadiz | 244 | 9 | 78 | 11 | <1 | <1 | <1 | --- | --- | --- | --- | 100 | --- |
| 36 | Cumberland River at Burkesville | 6,053 | 3 | 22 | 69 | 2 | <1 | 3 | --- | --- | --- | --- | 34 | 66 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 1 | 10 | 87 | --- | --- | 2 | --- | --- | --- | --- | 17 | 83 |
| 41 | Cumberland River at Pineville | 770 | 2 | 2 | 91 | <1 | --- | 5 | --- | --- | --- | --- | --- | 100 |
| 43 | Mayfield Creek near Blandville / Mayfield Creek near Magee Springs | 295 | 3 | 88 | 6 | <1 | 3 | <1 | --- | --- | 100 | --- | --- | --- |
| 44 | Bayou de Chien near Clinton | 68.7 | 1 | 87 | 8 | <1 | 3 | <1 | --- | --- | 100 | --- | --- | --- |

[1]If only one station name is listed, it is both the USGS and KDOW station name. If two station names are listed, the first is the USGS station name and the second is the KDOW station name.

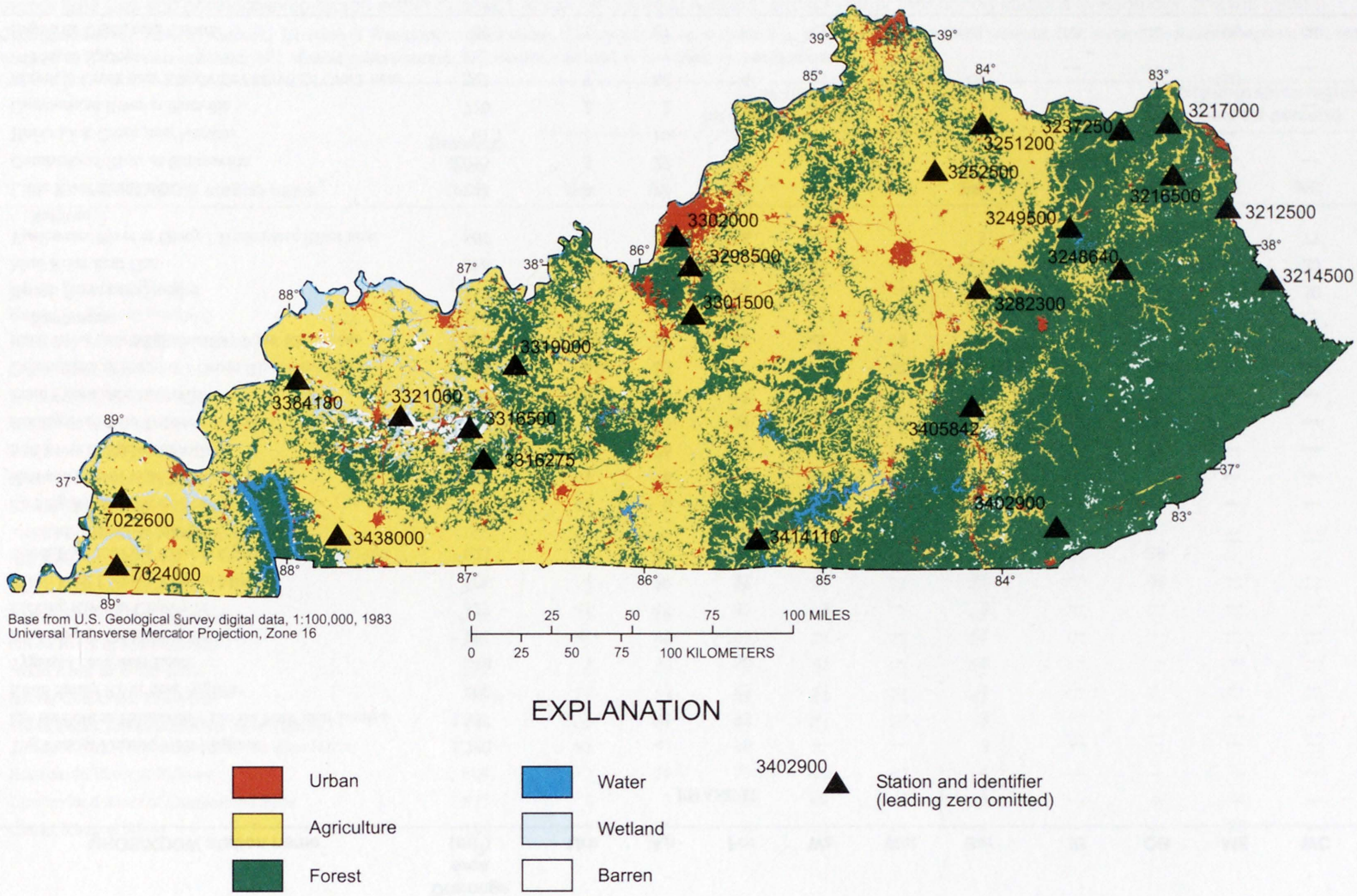


**Figure 4.** Land use in Kentucky and locations of selected study stations, phase II.

State boundary and hydrologic coverages were from USGS 1:100,000-scale digital line graphs (U.S. Geological Survey, unpub. digital data, 1983). Drainage-basin boundaries were from 1:24,000-scale 14-digit hydrologic unit boundary coverages (Forbes and others, 1997; Nelson and others, 1997a-e). The coverage for site location was generated in ARC/INFO from latitude and longitude coordinates.

The physiographic regions were modified from a coverage created from a hand-drawn map by Lobeck (1930). The procedure for generating the coverages and calculating the physiographic-region percentages in each drainage basin was similar to that used for land use.

Land-use coverage was obtained from USGS 1:250,000-scale digital land-use and land-cover data (U.S. Geological Survey, unpub. digital data, 1986). Land-use coverages for each drainage basin were created in ARC/INFO. Land-use percentages were determined by data generated by ARC/INFO to obtain the total percentage for each land-use category.

## Daily Discharge Synthesis

Daily mean discharge was estimated for three stations. Daily mean discharge at an ungaged station or a station with incomplete discharge records (missing data) was estimated using drainage-area ratio, multiple-regression analysis, or a combination of the two techniques. For stations on the same stream or in proximity to one another, a drainage-area ratio was used for determining daily mean discharge. Commonly, the equation for drainage-area ratio is expressed as

$$Qu = [Qb(DAu/DAb) + Qa(DAu/DAa)] / 2, \quad (1)$$

where

$Q$ is the daily mean discharge at a given station,

$DA$ is the drainage area for a given station,

$u$ is the station where discharge is unknown,

$b$ is the station downstream, and

$a$ is the station upstream.

Daily mean discharge for Cumberland River near Burkesville was determined by directly applying a ratio to the daily mean discharge from Cumberland River at Rowena. The drainage-area ratio between these two stations was 1.04.

Multiple-regression analysis was used to determine daily mean discharge for Horse Lick Creek near Lamero using the available daily mean discharge at Buck Creek near Shopville. The multiple-regression equation with logarithmic transformation was:

$$Ln\ (Q\ HLC) = 2.559\ (Q\ \ln\ BC_{2\text{day lag}}) - 2.035\ (Q\ \ln\ BC_{3\text{day lag}}) + 0.245\ (Q\ \ln\ BC_{7\text{day lag}}) - 0.117, \quad (2)$$

where

$ln$ is the natural logarithm function,

$Q$ is the daily mean discharge at a given station,

$HLC$ is the streamflow station at Horse Lick Creek near Lamero, and

$BC$ is the streamflow station at Buck Creek at Shopville.

The adjusted $R^2$ was 0.93 and the standard error of the estimate was equal to 0.284 for this equation.

Kentucky River near Trapp required synthesis of daily mean discharge. Daily mean discharge records from Kentucky River at Lock 10 and Red River at Clay City were used to synthesize the daily mean discharge at the Trapp station. The equation used by the KDOW was applied to estimate the discharge at Trapp (Giles Miller, Kentucky Division of Water, written commun., 1996). The equation used by the KDOW is:

$$Q_{\text{Trapp}} = Q_{\text{LD10}} - 1.13\ (Q_{\text{RRCC}}), \quad (3)$$

where

$Q$ is the daily mean discharge at a given station,

LD10 is the abbreviation for Kentucky River at Lock 10, and

RRCC is the abbreviation for Red River at Clay City.

## Hydrograph Separation

Nonpoint-source contaminants are generally transported to receiving waters during storm runoff periods (U.S. Environmental Protection Agency, 1996). Thus, the partitioning of constituent loading into surface-runoff and base-flow components can provide a means of measuring the effects nonpoint-source contaminants have on water quality and suspended solids. The partitioning of the base-flow data began with the retrieval of daily-mean discharge records to match the period of water-quality data. A computerized method was used to estimate base flow from the long-term daily-discharge record (Rutledge, 1998). Missing record was synthesized as needed by use of the techniques described previously.

Rutledge's (1998) program for determining periods of base streamflows is based on antecedent streamflow recessions, whereas antecedent rainfall conditions are specified in other methods. A one-dimensional array filled with daily mean streamflow record is evaluated for days fitting an antecedent recession requirement. On these days, base flow is equal to streamflow if it is not followed by a daily decline greater than 0.1 log cycle. The partitioning program continues searching the array and determines base flow for the remaining days by linear interpolation. Base flows that exceed antecedent streamflow can be generated, but these flows are corrected during the last step of the program.

Rutledge's (1998) program executes three times, once in which the time base of surface-runoff is the largest integer less than the result of the following empirical equation (Linsley and others, 1982):

$$(N=A^{0.2}), \qquad (4)$$

where

$N$ is number of days after the peak, and

$A$ is drainage area in $mi^2$.

A second-order polynomial expression is generated for base flow using the results in equation 2. Results are calculated with equation 4 based on the polynomial expression (Rutledge, 1998).

After the base flows were determined, the values were entered into the NWIS data base. An example of a hydrograph separation for Kinniconick Creek near Tannery (03237250) is presented in figure 5.

## Selection of Base-Flow Samples

A component of the study objective was to estimate the contribution of constituent transport during base flow. To accomplish this objective, suspended solids and water-quality records meeting a predetermined base-flow criterion were selected for specific days. The partitioned discharge data set provided the means for selected suspended solids and water-quality records determined to represent base-flow samples. Analytical results for those water samples were retained in the data set if base flow for the day in question was less than 0.9 times the total flow for the same day. The matching records were retrieved for use in estimating loads and yields for the base-flow component.

## Estimates of Loads

The computer programs, ESTIMATOR and FLUX (Baier and others, 1992; Walker, 1987), were used to estimate loads on the basis of mean daily discharge and water-quality data. Yields were determined by dividing the estimated load by the drainage area of the basin.

ESTIMATOR is a statistical-regression model that is used to estimate loads on days that are not sampled. This model includes an adjusted maximum-likelihood estimator (AMLE), which allows the use of data sets containing censored values (Cohn, 1988, 1995). The AMLE provides a means to measure uncertainty in estimated loads.

ESTIMATOR has a maximum of seven independent parameters: an intercept, two discharge parameters, and four time parameters. Independent parameters in the model are both linear and nonlinear. A quadratic discharge parameter is included to account for the possibility of a nonlinear log relation between concentration and discharge.

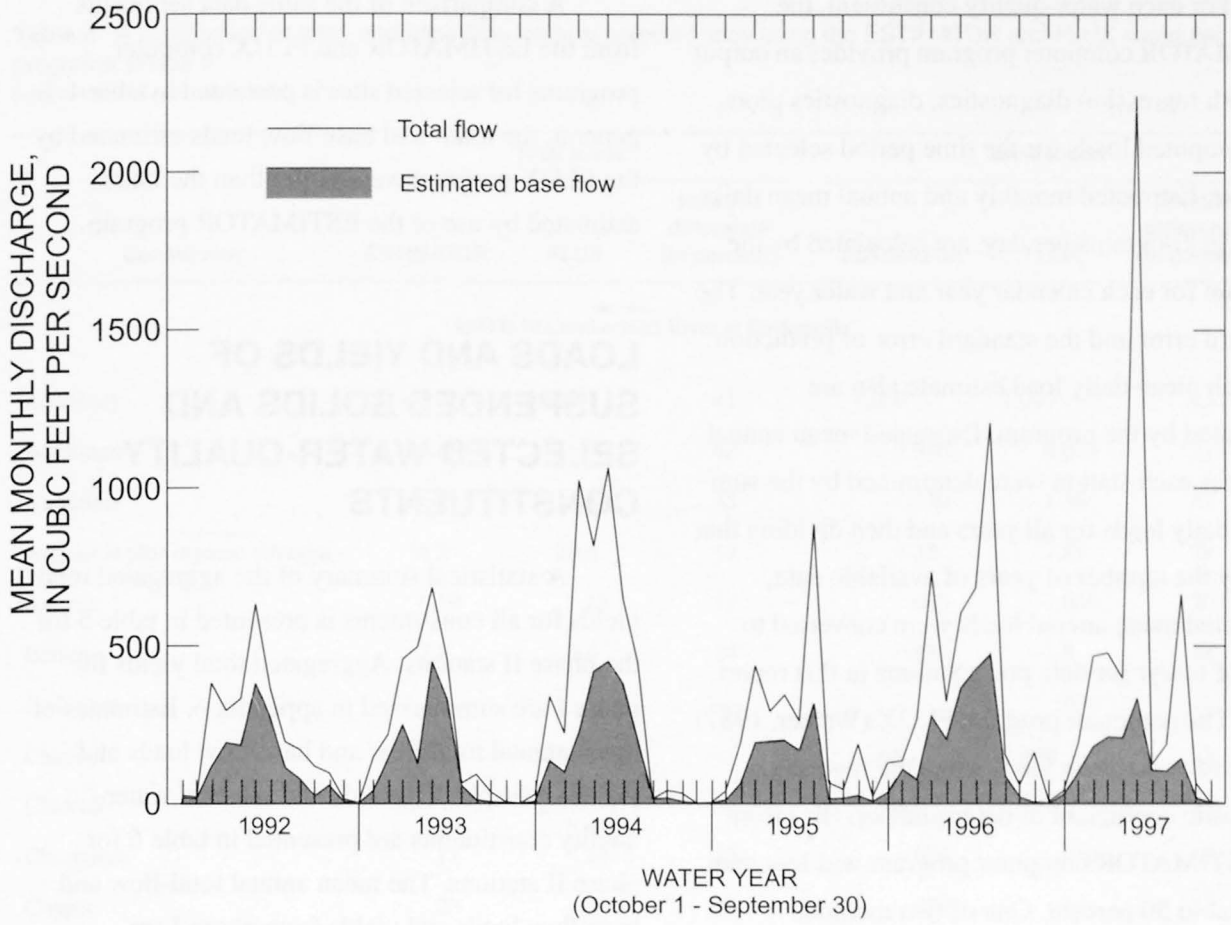


**Figure 5.** Separation of flow components at Kinniconick Creek (03237250) near Tannery, Kentucky, water years 1992–97.

Similarly, linear and quadratic time parameters are included to account for possible nonlinear trends in the long-term average concentration of a constituent. Cyclical variations in concentration often occur on a seasonal basis; thus, trigonometric functions are included to account for possible seasonal effects. The "centering" parameters—$\overline{Q}$ and $\overline{T}$—are defined to reduce covariance among the independent parameters and enhance estimate precision. In the ESTIMATOR computer program, daily streamflow data and water-quality data were used to calibrate a multiple-regression equation of the form:

$$ln(C) = \beta_0 + \beta_1 ln[Q/\overline{Q}] + \beta_2\{ln[Q/\overline{Q}]\}^2 + \beta_3[T-\overline{T}] + \beta_4[T-\overline{T}]^2 + \beta_5 \sin[2\pi T] + \beta_6 \cos[2\pi T] + \varepsilon, \quad (5)$$

where

$ln$ is the natural logarithm function;

$\beta_0$ is a constant;

$\beta_1 - \beta_6$ are the beta coefficients of the explanatory variables;

$C$ is the measured concentration (mg/L);

$Q$ is the mean daily discharge on the day the sample was taken ($ft^3/s$);

$\overline{Q}$ is the centered discharge ($ft^3/s$);

$T$ is time, converted to decimal form (yr);

$\overline{T}$ is centered time, converted to decimal form (yr); and

$\varepsilon$ is the combined independent random error, assumed to be normally distributed with zero mean and variance.

For each water-quality constituent, the ESTIMATOR computer program provides an output file with regression diagnostics, diagnostics plots, and computed loads for the time period selected by the user. Estimated monthly and annual mean daily loads, in kilograms per day, are calculated by the program for each calendar year and water year. The standard error and the standard error of prediction for each mean daily load estimate also are calculated by the program. Estimated mean annual loads for each station were determined by the sum of the daily loads for all years and then dividing that sum by the number of years of available data. Estimated mean annual loads were converted to units of ton/yr for data presentations in this report.

The computer program FLUX (Walker, 1987) was used to estimate loads when the regression diagnostic coefficient of determination ($R^2$) from the ESTIMATOR computer program was less than or equal to 50 percent. One of two methods (International Joint Commission or regression-1) available in FLUX was used to estimate the load for each constituent at each station that did not meet the $R^2$ criterion as described above. The International Joint Commission method applies a flow-weighted mean concentration to the mean flow with a bias adjustment factor for situations in which concentration varies with flow. The regression-1 method regresses the logarithm of concentration against the logarithm of mean daily discharge. The method with the lowest estimated coefficient of variation was used to obtain estimates of mean annual loads. The constituents by site for total and base flow that had loads run by use of the FLUX computer program are listed in appendix 4 (phase II stations) and appendix 5 (phase I stations).

A comparison of the same data set results from the ESTIMATOR and FLUX computer programs for selected sites is presented in table 4. In general, the total- and base-flow loads estimated by the FLUX program were larger than the loads estimated by use of the ESTIMATOR program.

## LOADS AND YIELDS OF SUSPENDED SOLIDS AND SELECTED WATER-QUALITY CONSTITUENTS

A statistical summary of the aggregated total yields for all constituents is presented in table 5 for the phase II stations. Aggregated total yields for phase I are summarized in appendix 6. Estimates of mean annual total-flow and base-flow loads and yields of suspended solids and selected water-quality constituents are presented in table 6 for phase II stations. The mean annual total-flow and base-flow loads and yields from phase I are presented in appendix 7. The discussions of constituent loads and yields that follow are all referenced to table 6 unless otherwise noted.

Descriptive statistics for selected ambient monitoring stations in Kentucky are presented in table 7 for phase II stations. Phase I descriptive statistics are presented in appendix 8. Where 5 percent of the observations reported were at concentrations less than the detection limit, summary statistics were generated from a combination of the observations above the detection limit with below-limit values extrapolated on the basis of a log-probability regression procedure (Helsel and Cohn, 1988; Helsel, 1990). The estimated distribution parameters (percentiles) are presented in table 7 (phase II stations) and appendix 7 (phase I stations).

**Table 4.** A comparison of total- and base-flow loads at selected sites using the ESTIMATOR and FLUX computer programs, phase II

[<, less than; ---, not applicable]

| Constituent | Total loads | | | Base loads | | |
|---|---|---|---|---|---|---|
| | ESTIMATOR | FLUX | Relative difference (in percent) | ESTIMATOR | FLUX | Relative difference (in percent) |
| **03414110 Cumberland River at Burkesville** | | | | | | |
| Alkalinity | 3,340 | 3,340 | <1 | 1,000 | 1,000 | <1 |
| Aluminum | 6.484 | 15.90 | 42 | 3.930 | 6.010 | 21 |
| Ammonia | 1.71 | 3.54 | 35 | .530 | 1.36 | 44 |
| Ammonia plus organic nitrogen | 14.2 | 20.4 | 18 | 4.33 | 7.89 | 29 |
| Arsenic | .10 | .13 | 12 | .033 | .050 | 20 |
| Barium | 2.1 | 3.4 | 24 | .63 | 1.8 | 48 |
| Cadmium | --- | .15 | --- | --- | .050 | --- |
| Calcium | 1,320 | 1,330 | <1 | 399 | 400 | <1 |
| Chloride | 296 | 391 | 14 | 88.0 | 147 | 25 |
| Chromium | .11 | .14 | 13 | .034 | .050 | 19 |
| Copper | .25 | .39 | 22 | .076 | .12 | 23 |
| Dissolved oxygen | 640 | 650 | 1 | 190 | 190 | <1 |
| Fecal coliform | 120 | 200 | 25 | 39 | 63 | 24 |
| Iron | 16.46 | 23.25 | 17 | 4.688 | 8.460 | 29 |
| Lead | .21 | .56 | 46 | .064 | .16 | 43 |
| Magnesium | 400 | 390 | 1 | 120 | 120 | <1 |
| Manganese | 2.6 | 2.9 | 5 | .75 | 1.0 | 14 |
| Mercury | .011 | .010 | 5 | <.010 | <.010 | <1 |
| Nitrite plus nitrate | 24.5 | 35.5 | 18 | 7.54 | 13.4 | 28 |
| Organic carbon | 130 | 130 | <1 | 41 | 42 | 1 |
| Potassium | 96.8 | 97.1 | <1 | 29.6 | 29.7 | <1 |
| Sodium | 321 | 322 | <1 | 102 | 102 | <1 |
| Sulfate | 2,110 | 2,110 | <1 | 646 | 648 | <1 |
| Suspended solids | 556 | 838 | 20 | 154 | 297 | 32 |
| Total phosphorus | .814 | 1.42 | 27 | .231 | .460 | 33 |
| Zinc | 1.2 | 2.1 | 27 | .39 | .85 | 37 |

**Table 4.** A comparison of total- and base-flow loads at selected sites using the ESTIMATOR and FLUX computer programs, phase II—*Continued*
[<, less than; ---, not applicable]

| Constituent | Total loads | | | Base loads | | |
|---|---|---|---|---|---|---|
| | ESTIMATOR | FLUX | Relative difference (in percent) | ESTIMATOR | FLUX | Relative difference (in percent) |
| | | | **03319000 Rough River at Dundee** | | | |
| Alkalinity | 742.00 | 743.00 | <1 | 395.00 | 396.00 | <1 |
| Aluminum | 17.93 | 21.28 | 9 | 10.17 | 9.790 | 2 |
| Ammonia | 1.79 | 1.86 | 2 | .864 | .860 | <1 |
| Ammonia plus organic nitrogen | 7.99 | 8.01 | <1 | 4.01 | 4.02 | <1 |
| Arsenic | .020 | .020 | 1 | .011 | .010 | 3 |
| Barium | .62 | .62 | <1 | .30 | .30 | <1 |
| Cadmium | <.010 | <.010 | --- | <.010 | <.010 | --- |
| Calcium | 298 | 298 | <1 | 168 | 168 | <1 |
| Chloride | 71.2 | 59.0 | 9 | 34.9 | 31.9 | 5 |
| Chromium | .040 | .040 | 1 | .017 | .020 | 9 |
| Copper | .069 | .070 | 1 | .037 | .040 | 4 |
| Dissolved oxygen | 120 | 120 | <1 | 62 | 63 | <1 |
| Fecal coliform | 124 | 49 | 43 | 11 | 20 | 30 |
| Iron | 26.06 | 31.01 | 9 | 13.63 | 15.39 | 6 |
| Lead | .20 | .13 | 22 | .049 | .050 | 1 |
| Magnesium | 45.8 | 45.9 | <1 | 24.0 | 24.1 | 1 |
| Manganese | 3.0 | 3.0 | <1 | 1.7 | 1.7 | <1 |
| Mercury | <.010 | <.010 | <1 | <.010 | <.010 | <1 |
| Nitrite plus nitrate | 8.11 | 8.13 | <1 | 4.35 | 4.36 | <1 |
| Organic carbon | 52 | 52 | <1 | 28 | 28 | <1 |
| Potassium | 27 | 27 | <1 | 14 | 14 | <1 |
| Sodium | 31.3 | 31.4 | <1 | 17.6 | 17.6 | <1 |
| Sulfate | 284 | 285 | <1 | 132 | 132 | <1 |
| Suspended solids | 1,048 | 941 | 5 | 472 | 488 | 2 |
| Total phosphorus | 1.22 | 1.04 | 8 | .510 | .540 | 3 |
| Zinc | .68 | .75 | 5 | .30 | .41 | 16 |

**Table 5.** Aggregate total yields summary statistics for sediment and water-quality constituents for 22 ambient monitoring stations in Kentucky, phase II

[Yields are in tons per square mile except for fecal coliform ($10^{15}$ colonies per square mile); N, number of stations at which yields were estimated; %, percent; chemical constituents are total analysis except chloride and sulfate, which are dissolved]

| Constituent | N | Mean | Maximum | 75% Quartile | Median | 25% Quartile | Minimum |
|---|---|---|---|---|---|---|---|
| Alkalinity, total | 22 | 95.3 | 212 | 138 | 90.1 | 46.7 | 16.4 |
| Aluminum | 22 | 3.640 | 13.02 | 4.670 | 2.790 | 1.190 | .2600 |
| Ammonia | 22 | .130 | 1.24 | .080 | .060 | .050 | .020 |
| Ammonia plus organic nitrogen | 22 | .960 | 3.16 | 1.21 | .640 | .460 | .200 |
| Arsenic | 22 | <.010 | <.010 | <.010 | <.010 | <.010 | <.010 |
| Barium | 22 | .070 | .15 | .080 | .060 | .050 | .020 |
| Cadmium | 22 | <.010 | <.010 | <.010 | <.010 | <.010 | <.010 |
| Calcium | 22 | 41.9 | 92.1 | 58.6 | 39.4 | 23.0 | 9.80 |
| Chloride | 22 | 9.33 | 35.3 | 9.20 | 7.38 | 5.75 | 2.69 |
| Chromium | 22 | <.010 | <.010 | <.010 | <.010 | <.010 | <.010 |
| Copper | 22 | .010 | .020 | <.010 | <.010 | <.010 | <.010 |
| Dissolved oxygen | 22 | 13 | 21 | 16 | 14 | 11 | 5.6 |
| Fecal coliform | 22 | .41 | 4.8 | .28 | .15 | .070 | .010 |
| Iron | 22 | 15.67 | 166.4 | 14.24 | 5.180 | 2.370 | .3300 |
| Lead | 22 | .010 | .020 | .020 | .010 | .010 | <.010 |
| Magnesium | 22 | 10.3 | 21.8 | 13.3 | 9.67 | 6.54 | 3.89 |
| Manganese | 22 | 1.000 | 12.81 | .5500 | .3500 | .2000 | <.0100 |
| Mercury | 22 | <.010 | <.010 | <.010 | <.010 | <.010 | <.010 |
| Nitrite plus nitrate | 22 | 1.24 | 4.30 | 1.69 | .790 | .530 | .280 |
| Organic carbon | 22 | 5.4 | 12 | 7.5 | 4.4 | 3.3 | 1.3 |
| Phosphorus | 22 | .370 | 1.31 | .650 | .120 | .0500 | .0100 |
| Potassium | 22 | 25.5 | 488 | 4.86 | 3.08 | 2.32 | 1.60 |
| Sodium | 22 | 9.19 | 34.8 | 9.11 | 5.75 | 4.51 | 1.50 |
| Sulfate | 22 | 69.1 | 354 | 82.2 | 45.0 | 33.9 | 16.1 |
| Suspended solids | 22 | 271 | 1,980 | 341 | 124 | 51.8 | 13.7 |
| Zinc | 22 | .040 | .200 | .050 | .030 | .020 | .010 |

## Suspended Solids

Suspended solids is that part of a sample retained on a glass-fiber filter after the water from the sample is drawn through the filter. The filter is then dried and weighed to determine the suspended solid concentration. Suspended solids may also be referred to as "nonfilterable residue" at 105°C. The effectiveness of suspended solids in sorbing and transporting some metals, pesticides, and other organic compounds can be detrimental to a stream's ecology (Kuwabara and others, 1989; Domagalski and Kuivila, 1993; Flegal and others, 1996). In addition, high concentrations of suspended solids are aesthetically unsatisfactory and can adversely affect the biological community within the streams (Luoma and others, 1985; Brown and Luoma, 1995; Luoma, 1996).

Samples analyzed for suspended solids were collected at 24 sites. Concentrations ranged from 0.5 mg/L at Cumberland River at Burkesville to 2,640 mg/L at Rolling Fork near Lebanon Junction (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 850 ton/yr at Horse Lick Creek near Lamero to 771,000 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 10 ton/yr at Horse Lick Creek near Lamero to 345,000 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 13.8 ton/mi$^2$ at Horse Lick Creek near Lamero to 1,980 ton/mi$^2$ at Tygarts Creek near Load (table 6). Mean annual base-flow yields ranged from 0.16 ton/mi$^2$ at Horse Lick Creek near Lamero to 144 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 272 and 125 ton/mi$^2$, respectively (table 5).

## Fecal-Coliform Bacteria

The presence of fecal-coliform bacteria in surface water indicates fecal contamination from warm-blooded animals and (or) humans and is an indicator that a potential health risk exists for individuals exposed to the water (Christensen and Pope, 1997). Kentucky's water-quality criteria for fecal-coliform bacteria densities are: 2,000 colonies per 100 milliliters of water (col/100 mL) for domestic water supply (pre-treatment), 1,000 col/100 mL for boating and fishing, and 200 col/100 mL for swimming (Kentucky Natural Resources and Environmental Protection Cabinet, 1990).

Samples analyzed for fecal coliform were collected at 24 sites. Concentrations ranged from 1.0 col/100 mL at several sites to 99,000 col/100 mL at Tug Fork at Kermit, West Virginia (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 4.47 col/100 mL at Pond River near Madisonville to 1,203 col/100 mL at Tug Fork at Kermit, West Virginia (table 6). Mean annual base-flow loads ranged from 0.01* $10^{15}$ colonies per 100 milliliters ($10^{15}$ col/100 mL) at Horse Lick Creek near Lamero to 990* $10^{15}$ col/100 mL at Tug Fork at Kermit, West Virginia (table 6). Mean annual total-flow yields ranged from 0.01* $10^{15}$ colonies per square mile ($10^{15}$ col/mi$^2$) at Pond River near Madisonville to 5* $10^{15}$ col/mi$^2$ at North Fork Licking River at Milford (table 6). Mean annual base-flow yields ranged from 0.01* $10^{15}$ colonies per 100 milliliters per square mile (($10^{15}$ col/100 mL)/mi$^2$) at several sites to 0.8* $10^{15}$ col/mi$^2$ at Tug Fork at Kermit, West Virginia (table 6). The mean and median aggregate total-flow yields were 0.4* and 0.2* $10^{15}$ col/mi$^2$, respectively (table 5).

## Major Ions

Water contains varying concentrations of dissolved ions. The major positively charged ions (cations) occurring in natural waters are calcium, magnesium, potassium, and sodium (Peters and others, 1998). Three dominant negatively charged ions (anions) are sulfate, chloride, and bicarbonate (Peters and others, 1998).

### Calcium and Magnesium

Calcium and magnesium are essential elements for plant and animal life (Britannica.com Inc., 2000). Calcium is the most common cation occurring in natural stream water. Both calcium and magnesium may be considered as having similar

effects in some aspects of water chemistry such as their contributions to water hardness (Hem, 1989, p. 93-97).

Samples analyzed for calcium were collected at 24 sites. Concentrations ranged from 0.1 mg/L at Horse Lick Creek near Lamero to 443 mg/L at Pond River near Madisonville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 8.2 ton/yr at Bayou de Chien near Clinton to 3,607 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 1 ton/yr at Horse Lick Creek near Lamero to 2,473 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 10 ton/mi$^2$ at Kinniconick Creek near Tannery to 92 ton/mi$^2$ at South Fork Licking River at Cynthiana (table 6). Mean annual base-flow yields ranged from 2 ton/mi$^2$ at Horse Lick Creek near Lamero to 41 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 42 and 39 ton/mi$^2$, respectively (table 5).

Samples analyzed for magnesium were collected at 24 sites. Concentrations ranged from 1 mg/L at Mayfield Creek near Blandville to 185 mg/L at Pond River near Madisonville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 3 ton/yr at Bayou de Chien near Clinton to 650 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 0.3 ton/yr at Horse Lick Creek near Lamero to 436.6 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 3.8 ton/mi$^2$ at Bayou de Chien near Clinton to 21.9 ton/mi$^2$ at Pond Creek near Louisville (table 6). Mean annual base-flow yields ranged from 0.5 ton/mi$^2$ at Horse Lick Creek near Lamero to 10.5 ton/mi$^2$ at Cumberland River at Pineville (table 6). Both the mean and median aggregate total-flow yields were 10 ton/mi$^2$ (table 5).

## Potassium and Sodium

Potassium and sodium have many similar chemical properties and are both from the alkali-metal group of the periodic table. Both elements are extremely reactive and therefore do not occur freely in nature (Britannica.com Inc., 2000).

Samples analyzed for potassium were collected at 24 sites. Concentrations ranged from 0.6 mg/L at Horse Lick Creek near Lamero to 94.3 mg/L at Horse Lick Creek near Lamero (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 1 ton/yr at Horse Lick Creek near Lamero to 176 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 0.1 ton/yr at Horse Lick Creek near Lamero to 59.1 ton/yr at Kinniconick Creek near Tannery (table 6). Mean annual total-flow yields ranged from 1.6 ton/mi$^2$ at Cumberland River at Pineville to 6.7 ton/mi$^2$ at Pond Creek near Louisville (table 6). Mean annual base-flow yields ranged from 0.1 ton/mi$^2$ at Horse Lick Creek near Lamero to 2.3 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 25 and 3 ton/mi$^2$, respectively (table 5).

Samples analyzed for sodium were collected at 24 sites. Concentrations ranged from 0.1 mg/L at Horse Lick Creek near Lamero to 637 mg/L at Tradewater River at Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 1 ton/yr at Horse Lick Creek near Lamero to 447 ton/yr at Tug Fork at Kermit, West Virginia (table 6). Mean annual base-flow loads ranged from 0.1 ton/yr at Horse Lick Creek near Lamero to 277 ton/yr at Tug Fork at Kermit, West Virginia (table 6). Mean annual total-flow yields ranged from 1.5 ton/mi$^2$ at Horse Lick Creek near Lamero to 35 ton/mi$^2$ at Tug Fork at Kermit, West Virginia (table 6). Mean annual base-flow yields ranged from 0.1 ton/mi$^2$ at Horse Lick Creek near Lamero to 22 ton/mi$^2$ at Tug Fork at Kermit, West Virginia (table 6). The mean and median aggregate total-flow yields were 9 and 6 ton/mi$^2$, respectively (table 5).

## Chloride

Chloride is present in all natural waters. Potential sources of chloride are from point sources and from the use of salt for deicing highways (Caudill and others, 2000). Public Drinking Water Standards require chloride levels not to exceed 250 mg/L. Criteria for protection of aquatic life require levels of less than 600 mg/L for chronic (long-term) exposure and 1,200 mg/L for short-term exposure (Caudill and others, 2000).

Samples analyzed for chloride were collected at 24 sites. Concentrations ranged from 0.1 mg/L at several sites to 141 mg/L at Horse Lick Creek near Lamero (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 2 ton/yr at Horse Lick Creek near Lamero to 495 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 0.5 ton/yr at Horse Lick Creek near Lamero to 337 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 3 ton/mi$^2$ at Horse Lick Creek near Lamero to 35 ton/mi$^2$ at Pond Creek near Louisville (table 6). Mean annual base-flow yields ranged from 1 ton/mi$^2$ at Horse Lick Creek near Lamero to 16 ton/mi$^2$ at Pond Creek near Louisville (table 6). The mean and median aggregate total-flow yields were 9 and 7 ton/mi$^2$, respectively (table 5).

### Sulfate

Sulfur is an essential plant nutrient. The most common form of sulfur in well-oxygenated water is sulfate (Caudill and others, 2000). Sulfate can occur naturally in stream water from the breakdown of leaves in streams or water flowing through rock or soil containing gypsum (Caudill and others, 2000). Point sources (wastewater-treatment plants and pulp mills) and nonpoint sources (agriculture and acid-mine drainage) also can contribute sulfate to water bodies. High concentrations of sulfates in water bodies can result in decreased pH (Caudill and others, 2000). This is because sulfates have the ability to form strong acids.

Samples analyzed for sulfate were collected at 24 sites. Concentrations ranged from 2 mg/L at Bayou de Chien near Clinton to 1,900 mg/L at Pond River near Madisonville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 13 ton/yr at Horse Lick Creek near Lamero to 3,505 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 3 ton/yr at Horse Lick Creek near Lamero to 2,262 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 18 ton/mi$^2$ at Bayou de Chien near Clinton to 355 ton/mi$^2$ at North Fork Licking River at Milford (table 6). Mean annual base-flow yields ranged from 4 ton/mi$^2$ at Bayou de Chien near Clinton to 72 ton/mi$^2$ at Pond River near Madisonville (table 6). The mean and median aggregate total-flow yields were 69 and 45 ton/mi$^2$, respectively (table 5).

### Alkalinity

The alkalinity of water may be defined as the capacity for solutes in water to react with and neutralize acid (Hem, 1989). Alkalinity is one of the best measures of the sensitivity of a stream to acid inputs (U.S. Environmental Protection Agency, 1999). The alkalinity of natural water is primarily caused by dissolved bicarbonate and carbonate (Hem, 1989), except for water with high pH or unusual chemical composition.

Samples analyzed for total alkalinity were collected at 24 sites. Concentrations ranged from 1.00 mg/L (milligrams per liter) at Pond River near Madisonville to 548 mg/L at Tradewater River near Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 23.1 ton/yr (tons per year) at Bayou de Chien near Clinton to 7,830 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 3.96 ton/yr at Horse Lick Creek near Lamero to 5,540 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 16.4 ton/mi$^2$ at Kinniconick Creek near Tannery to 212 ton/mi$^2$ at South Fork Licking River at Cynthiana (table 6). Mean annual base-flow yields ranged from 6.42 ton/mi$^2$ at Horse Lick Creek near Lamero to 96.3 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 95.4 and 90.2 ton/mi$^2$, respectively (table 5).

## Nutrients and Organics

Nutrients are typically defined as nitrogen and phosphorus species. Nitrogen and phosphorus are important elements necessary for the growth of plants and animals (Caudill and others, 2000). Concentrations of nitrogen and phosphorus compounds are highly dynamic because they may be utilized, stored, transformed, and excreted rapidly and repeatedly by various aquatic organisms (Wetzel and Likens, 1979). Forms of nitrogen in water include organic nitrogen, ammonia, nitrite,

and nitrate. Phosphorus occurs in a number of inorganic and organic compounds in both particulate and dissolved forms.

The USEPA drinking-water standard for nitrite is 1 mg/L and for nitrate is 10 mg/L. The Kentucky domestic water supply standard for nitrate is 10 mg/L; however, Kentucky does not have a nitrite standard. Both the USEPA and Kentucky do not have a drinking-water standard for nitrite plus nitrate.

## Nitrogen

Nitrogen in streams can originate from numerous point and nonpoint sources. The major entry routes of nitrogen into streams are wastewater-treatment plants, septic tanks, feed lot discharges, and fertilizers from agricultural and residential areas.

Samples analyzed for nitrite plus nitrate were collected at 24 sites. Concentrations ranged from 0.01 mg/L at several sites to 9.8 mg/L at Pond Creek near Louisville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.2 ton/yr at Horse Lick Creek near Lamero to 101 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 0.01 ton/yr at Horse Lick Creek near Lamero to 67 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.3 ton/mi$^2$ at Pond River near Madisonville to 4.3 ton/mi$^2$ at Little River near Cadiz (table 6). Mean annual base-flow yields ranged from 0.2 ton/mi$^2$ at Horse Lick Creek near Lamero to 2 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 1 and 0.8 ton/mi$^2$, respectively (table 5).

Samples analyzed for ammonia were collected at 24 sites. Concentrations ranged from 0.01 mg/L at Little River near Cadiz to 28 mg/L at Tradewater River at Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.04 ton/yr at Horse Lick Creek near Lamero to 4 ton/yr at Salt River at Shepherdsville (table 6). Mean annual base-flow loads ranged from less than 0.01 ton/yr at Horse Lick Creek near Lamero to 2 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.2 ton/mi$^2$ at Levisa Fork at Paintsville to 1 ton/mi$^2$ at Pond Creek near Louisville (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 0.1 ton/mi$^2$ at Rough River near Dundee (table 6). The mean and median aggregate total-flow yields were 0.1 and 0.6 ton/mi$^2$, respectively (table 5).

Samples analyzed for ammonia plus organic nitrogen were collected at 24 sites. Concentrations ranged from 0.02 mg/L at Cumberland River at Burkesville to 29 mg/L at Tradewater River at Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.3 ton/yr at Horse Lick Creek near Lamero to 62 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 30 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.2 ton/mi$^2$ at Levisa Fork at Paintsville to 2 ton/mi$^2$ at North Fork Licking River at Milford (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 0.7 ton/mi$^2$ at Pond Creek near Louisville (table 6). The mean and median aggregate total-flow yields were 1 and 0.6 ton/mi$^2$, respectively (table 5).

## Phosphorus

Phosphorus is a common element in igneous and sedimentary rocks; other sources of phosphorus include sewage effluent, detergents, and leachates from septic tanks (Caudill and others, 2000). Of the major nutrients, phosphorus is the most frequently limiting nutrient to aquatic organisms (Wetzel and Likens, 1979); however, no federal or state water-quality criteria have been established for phosphorus species.

Samples analyzed for total phosphorus were collected at 24 sites. Concentrations ranged from 0.003 mg/L at Cumberland River at Burkesville to 5 mg/L at Pond Creek near Louisville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 16 ton/yr at Salt River at Shepherdsville (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 1.3 ton/yr at Green River at Paradise (table 6).

Mean annual total-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 1.3 ton/mi$^2$ at Salt River at Shepherdsville (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 0.3 ton/mi$^2$ at Pond Creek near Louisville (table 6). The mean and median aggregate total-flow yields were 0.4 and 0.1 ton/mi$^2$, respectively (table 5).

### Organic Carbon

Total organic carbon enrichment of natural waters is often a result of effluent from wastewater-treatment plants or effluent from industrial waste (Caudill and others, 2000).

Samples analyzed for total organic carbon were collected at 24 sites. Concentrations ranged from 0.1 mg/L at Horse Lick Creek near Lamero and Salt River at Shepherdsville to 98 mg/L at Green River at Paradise (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 1 ton/yr at Horse Lick Creek near Lamero to 482 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from 0.1 ton/yr at Horse Lick Creek near Lamero to 185 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 1 ton/mi$^2$ at Levisa Fork at Paintsville to 12 ton/mi$^2$ at Pond Creek near Louisville (table 6). Mean annual base-flow yields ranged from 0.1 ton/mi$^2$ at Horse Lick Creek near Lamero to 4 ton/mi$^2$ at Pond Creek near Louisville (table 6). The mean and median aggregate total-flow yields were 5.5 and 4.5 ton/mi$^2$, respectively (table 5).

## Major Metals and Trace Elements

The major problems associated with excessive amounts of trace metals in the environment are that metals are nondegradable, tend to be persistent contaminants, and can potentially accumulate in plants and animals (Haag and others, 1995). In addition, each metal has a specific chemical form that can determine its solubility in water, and consequently its ability to incorporate into aquatic life (Hem, 1989).

Trace elements and metals are found throughout the Earth in rocks and soils (Hem, 1989). The processes of weathering and erosion can contribute low amounts of metals to streams and the atmosphere; however, many metal pollutants are primarily distributed in the air and water by the combustion of fossil fuels and domestic and industrial wastewater (Evaldi and others, 1993). The major metals and trace elements analyzed were aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, and zinc.

### Aluminum

Although aluminum is one of the most abundant elements in the Earth's crust, it rarely occurs in high concentrations in waters at near-neutral pH (Hem, 1989, p. 73). However, the exception is water bodies with a very low pH (pH <4). Water bodies containing high concentrations of aluminum can become toxic to aquatic life (U.S. Environmental Protection Agency, 1999).

Samples analyzed for aluminum were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Cumberland River at Burkesville to 49,000 µg/L at Green River at Paradise (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.2 ton/yr at Horse Lick Creek near Lamero to 243 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 80 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.3 ton/mi$^2$ at Cumberland River at Burkesville and Horse Lick Creek near Lamero to 13 ton/mi$^2$ at North Fork Licking River at Milford (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 3.1 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 4 and 3 ton/mi$^2$, respectively (table 5).

## Arsenic

Arsenic is a nonmetallic element and in low concentrations can be toxic to humans and other organisms. Recognized as a toxic element for centuries, arsenic today also is a human-health concern because it can contribute to skin, bladder, and other cancers (National Research Council, 1999). It occurs as a result of geological processes, manufacturing, smelting, and agriculture (U.S. Environmental Protection Agency, 1999). The USEPA maximum contaminant level (MCL) for arsenic in drinking water is 10 µg/L (U.S. Environmental Protection Agency, 2001). In this study, most of the measured total arsenic concentrations were below the detection limit of 1.0 µg/L (table 7). The mean annual total-flow yields for all stations were below 0.01 ton/mi$^2$.

Samples analyzed for arsenic were collected at 24 sites. Concentrations ranged from 0.1 µg/L at Tradewater River at Olney to 33 µg/L at Pond Creek near Louisville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at several sites to 0.1 ton/yr at Cumberland River at Pineville (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at several sites to 0.01 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). Mean annual base-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). The mean and median aggregate total-flow yields were <0.01 and <0.01 ton/mi$^2$, respectively (table 5).

## Barium

Barium is an alkaline-earth metal that can be found in igneous and carbonate sedimentary rocks (U.S. Environmental Protection Agency, 1999). Barium is present in low concentrations in natural waters and in treated drinking water (U.S. Environmental Protection Agency, 1999). The USEPA MCL for barium in drinking water is 200 µg/L. Kentucky criterion for barium in domestic water supplies is 1,000 µg/L.

Samples analyzed for barium were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Cumberland River at Burkesville to 480 µg/L at Tradewater River at Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.02 ton/yr at Horse Lick Creek near Lamero to 3.7 ton/yr at Green River at Paradise (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 2.1 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.02 ton/mi$^2$ at Pond River near Madisonville to 0.1 ton/mi$^2$ at North Fork Licking River at Milford (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 0.06 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 0.07 and 0.06 ton/mi$^2$, respectively (table 5).

## Cadmium

Cadmium is a natural element that is found in the Earth's crust (U.S. Environmental Protection Agency, 1999). It is usually found as a mineral combined with other elements such as oxygen, chlorine, or sulfur (Hem, 1989, p. 142). Cadmium is a widely distributed in the environment at low concentrations; however, high concentrations of cadmium are usually attributed to contamination from mining or industrial waste (U.S. Environmental Protection Agency, 1999). Cadmium can bioaccumulate in plant and animal tissue and is considered a potential carcinogen (U.S. Environmental Protection Agency, 1999). The USEPA drinking-water standard for cadmium is 5 µg/L. The standard of cadmium for Kentucky domestic water supply is <100 µg/L. This criterion established for cadmium was not exceeded by any of the 24 water-quality stations in this study.

Samples analyzed for cadmium were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Horse Lick Creek near Lamero to 82 µg/L at Tradewater River at Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at several sites to 0.1 ton/yr at Cumberland River at Burkesville (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 2.1 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). Mean annual base-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). The mean and median aggregate total-flow yields were <0.01 and <0.01 ton/mi$^2$, respectively (table 5).

## Chromium

Chromium is ubiquitous in the environment, occurring naturally in the atmosphere, water, and rocks (Hem, 1989, p. 138). It is used in metal plating, steel manufacturing, photography, and in the manufacturing of paints, ceramics, and explosives (U.S. Environmental Protection Agency, 1999). Acute toxicity can result from high exposure to certain forms of chromium, and there is high potential for accumulation in aquatic life (U.S. Environmental Protection Agency, 1999).

Samples analyzed for chromium were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Cumberland River at Burkesville to 121 µg/L at Tygarts Creek near Load (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at several sites to 3 ton/yr at Salt River at Shepherdsville (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at several sites to 0.1 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from <0.01 ton/mi$^2$ at 14 sites to 0.01 ton/mi$^2$ at 8 sites (table 6). Mean annual base-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). The mean and median aggregate total-flow yields were <0.01 and <0.01 ton/mi$^2$, respectively (table 5).

## Copper

Copper is an essential element for plant photosynthesis and for animal metabolism. The toxicity of copper to aquatic organisms is dependent on the alkalinity of the water. Copper is much more toxic to organisms found in waters with low alkalinity than in waters with high alkalinity (U.S. Environmental Protection Agency, 1976). The USEPA recommends that the concentration of copper not exceed 13 µg/L in water with a mean alkalinity of 100 mg $CaCO_3$/L for aquatic organisms and an action level of 1,300 µg/L for drinking water. The chronic aquatic-life standard in Kentucky is 12 µg/L, assuming a mean alkalinity of 100 mg $CaCO_3$/L. The Kentucky domestic water supply criteria is the same as USEPA's (1,300 µg/L) standard.

Samples analyzed for copper were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Cumberland River at Burkesville to 88 µg/L at Tradewater River at Olney (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at several sites to 0.9 ton/yr at Bayou de Chien near Clinton (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at several sites to 0.2 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from <0.01 ton/mi$^2$ at several sites to 0.02 ton/mi$^2$ at Salt River at Shepherdsville and Pond Creek near Louisville (table 6). Mean annual base-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). The mean and median aggregate total-flow yields were 0.01 and <0.01 ton/mi$^2$, respectively (table 5).

## Iron

Iron is an essential element to the metabolism of plants and animals. The solubility of iron in water depends strongly on the amount of oxygen present in the system as well as the pH (Hem, 1989, p. 76). If present in high concentrations, iron can cause taste or stain problems in domestic and industrial water supplies (Hem, 1989, p. 76). The chronic criterion of 1,000 µg/L of iron in streams has been established by the KDOW as a criterion for warmwater aquatic habitats in Kentucky.

Samples analyzed for iron were collected at 24 sites. Concentrations ranged from 2.3 µg/L at Mayfield Creek near Blandville to 49,000 µg/L at Green River at Paradise (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.2 ton/yr at Horse Lick Creek near Lamero to 334 ton/yr at Kinniconick Creek near Tannery (table 6). Mean annual base-flow loads ranged from 0.04 ton/yr at Horse Lick Creek near Lamero to 131 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.3 ton/mi$^2$ at Horse Lick Creek near Lamero to 166 ton/mi$^2$ at Kinniconick Creek near Tannery (table 6). Mean annual base-flow yields ranged from 0.1 ton/mi$^2$ at Horse Lick Creek near Lamero to 4 ton/mi$^2$ at Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 16 and 5 ton/mi$^2$, respectively (table 5).

## Lead

Lead is widely distributed throughout the environment. The toxicity of lead depends on its solubility, which in turn depends on pH (Hem, 1989, p. 143). Lead enters natural water from the atmosphere, runoff, or wastewater; little is transferred from natural ores. Lead may enter the environment during mining, refining use, recycling, and combustion of coal for fuel (U.S. Environmental Protection Agency, 1999). The USEPA drinking-water standard for lead is 15 µg/L; most of the sites had maximum concentration values greater than 15 µg/L (table 7).

Samples analyzed for lead were collected at 24 sites. Concentrations ranged from 0.3 µg/L at Levisa Fork at Paintsville to 4.5 µg/L at Rough River near Dundee (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at several stations to 1 ton/yr at Tygarts Creek near Load (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at several sites to 0.1 ton/yr at Green River at Paradise (table 6). Mean annual total-flow yields ranged from <0.01 ton/mi$^2$ at several sites to 0.2 ton/mi$^2$ at Salt River at Shepherdsville, Pond Creek near Louisville, Rough River near Dundee, and Cumberland River at Pineville (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at most sites to 0.01 ton/mi$^2$ at Salt River at Shepherdsville, Rough River near Dundee, and Little River near Cadiz (table 6). The mean and median aggregate total-flow yields were 0.01 and 0.01 ton/mi$^2$, respectively (table 5).

## Manganese

Water supply companies consider manganese an undesirable element because in high concentrations it can cause stains and objectionable tastes (Hem, 1989, p. 84); however, it is an important element in natural waters to plant and animal metabolism. Streams near coal mines usually have elevated concentrations of manganese because of acid-mine drainage (Handy, 1982).

Samples analyzed for manganese were collected at 24 sites. Concentrations ranged from 1.0 µg/L at Kinniconick Creek near Tannery, Cumberland River at Burkesville, Horse Lick Creek near Lamero, and Cumberland River at Pineville to 4.6 µg/L at Mayfield Creek at Blandville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 31 ton/yr at Tygarts Creek near Load (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero to 4.1 ton/yr Kinniconick Creek near Tannery (table 6). Mean annual total-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero to 13 ton/mi$^2$ at Tygarts Creek near Load (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at Horse Lick Creek near Lamero and Green River at Paradise to 0.2 ton/mi$^2$ at Rough River near Dundee and Bayou de Chien near Clinton (table 6). The mean and median aggregate total-flow yields were 1 and 0.3 ton/mi$^2$, respectively (table 5).

## Mercury

Mercury is ubiquitous in the environment and occurs in several different forms—from elemental to dissolved inorganic and organic species (U.S. Environmental Protection Agency, 1999). Industry and agriculture are ways that mercury can enter natural waters (U.S. Environmental Protection Agency, 1999). The USEPA drinking-water standard is 2 µg/L for inorganic mercury. Less than 20 percent of the 2,525 analyses among the 24 stations for total mercury exceeded 0.1 µg/L.

Samples analyzed for mercury were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Cumberland River at Burkesville to 8 µg/L at Salt River at Shepherdsville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from <0.01 ton/yr at most sites to 0.01 ton/yr at Cumberland River at Burkesville (table 6). Mean annual base-flow loads were <0.01 ton/yr at all sites (table 6). Mean annual total-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). Mean annual base-flow yields were <0.01 ton/mi$^2$ at all sites (table 6). The mean and median aggregate total-flow yields were <0.01 and <0.01 ton/mi$^2$, respectively (table 5).

## Zinc

Zinc is found in moderate abundance in sedimentary rocks (Hem, 1989, p. 142); however, modern industrial civilization has greatly enhanced the presence of zinc in natural waters. It is used extensively in metallurgy for galvanizing steel and in making paints and rubber products (Hem, 1989, p. 142). The Kentucky warmwater-aquatic habitat criterion for zinc is dependent on the hardness of the water. The recommended USEPA drinking-water standard is 5,000 µg/L.

Samples analyzed for zinc were collected at 24 sites. Concentrations ranged from 0.5 µg/L at Cumberland River at Burkesville to 1,650 µg/L at Mayfield Creek at Blandville (table 7). Loads were determined for 22 of the 24 sites. Mean annual total-flow loads ranged from 0.01 ton/yr at Horse Lick Creek near Lamero to 2.1 ton/yr at Cumberland River at Burkesville (table 6). Mean annual base-flow loads ranged from <0.01 ton/yr at Horse Lick Creek near Lamero, Bayou de Chien near Clinton, and Mud River near Gus to 0.5 ton/mi$^2$ at Green River at Paradise (table 6). Mean annual total-flow yields ranged from 0.01 ton/mi$^2$ at Mud River near Gus and Pond River near Madisonville to 0.1 ton/mi$^2$ at Rough River near Dundee (table 6). Mean annual base-flow yields ranged from <0.01 ton/mi$^2$ at most sites to 0.05 ton/mi$^2$ at Rough River near Dundee (table 6). The mean and median aggregate total-flow yields were 0.04 and 0.03 ton/mi$^2$, respectively (table 5).

# COMPARISON OF SUSPENDED SOLIDS AND NUTRIENT YIELDS TO PREDOMINANT LAND USE

The major land-use categories in the basins studied were forest (12 basins), agriculture (9 basins), and urban (1 basin). The distribution of constituents in the water in most of these basins somewhat reflects the effect of multiple land uses. Except for six basins, all sites have at least 20 percent of their land use as forest, and six basins have more than 70 percent of their land use as agriculture (table 3). In general, the loads of nutrients and suspended solids in agricultural basins equal or exceed those in forested basins of similar size.

Annual total-flow and base-flow yields of nitrite plus nitrate, ammonia plus organic nitrogen, total phosphorus, and suspended solids for the period of record at each station are summarized in box plots (6, 7, 8, and 9). Stations are grouped according to their drainage basin size for comparisons of yields in basins of similar size and different land uses. The years of total-flow and base-flow yield estimates range from 3 to 18 years for the stations.

## Forested Drainage Basins

Twelve drainage basins were categorized/classified as being forested, with forests covering from 44 to 96 percent of the basin land area. Total-flow and base-flow yields of nutrients (ammonia plus organic nitrogen, nitrite plus nitrate, and total phosphorus) were generally less than 1 (ton/mi$^2$)/yr in forested drainage basins (figs. 6, 7, and 8). Typically, nutrient yields from undisturbed forested land are lower than those from urban and agricultural land. According to the U.S. Department of Agriculture (1992), forests can reduce the amount of nitrogen in surface-water runoff and shallow ground water by as much as 80 percent. The smallest total-flow yields for nitrite plus nitrate were estimated at Levisa Fork Basin, in which 95 percent of the land is forested. This basin also had one of the smallest total-flow yields of ammonia plus organic nitrogen and total phosphorus. Total-flow yields of suspended solids were generally lower in forested basins than agricultural and urban basins. Median annual total-flow yields of suspended solids were 65 and 177 (ton/mi$^2$)/yr within the forested land use basins and agricultural land use basins, respectively.

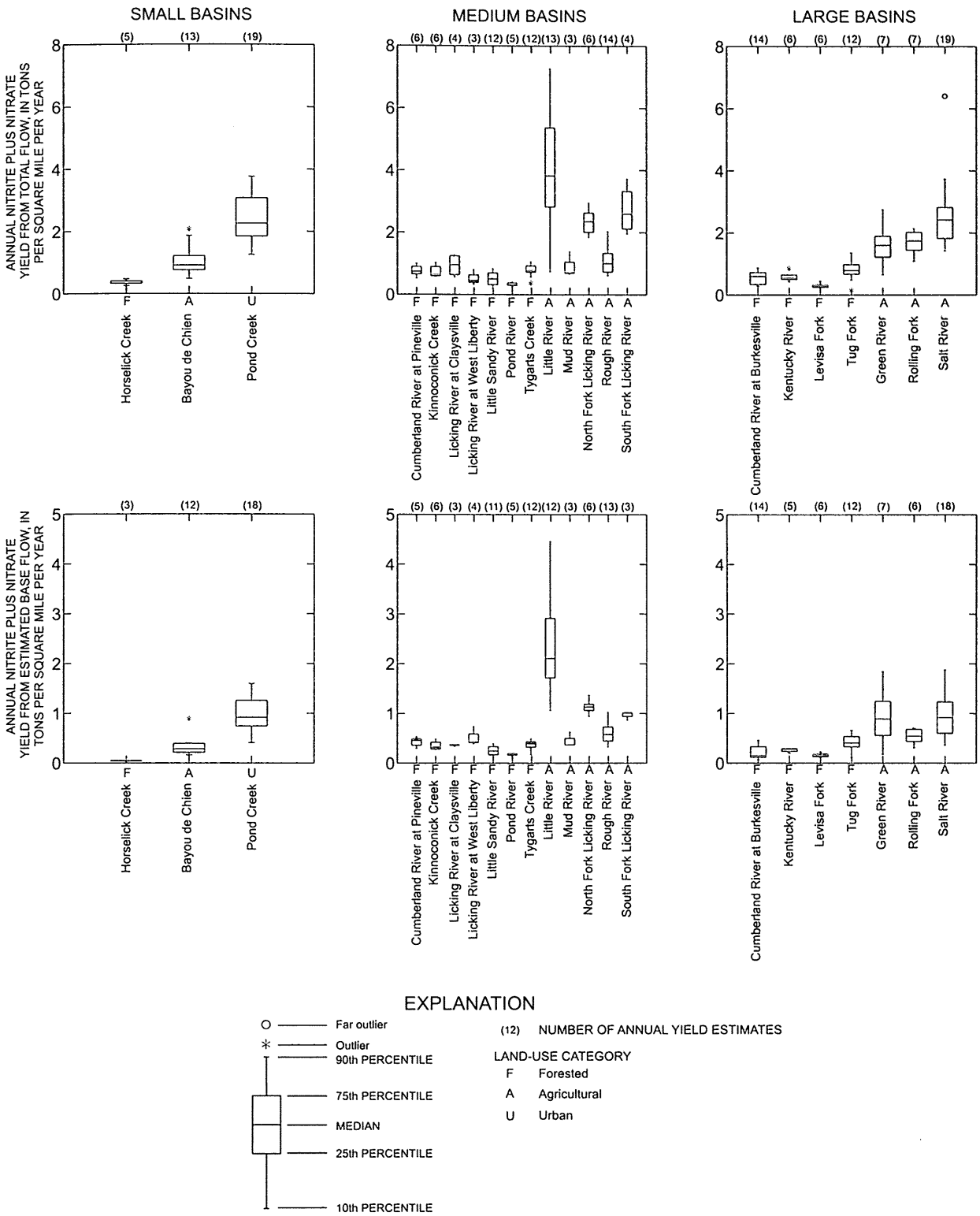


**Figure 6.** Distribution of estimated annual nitrite plus nitrate yields in small-, medium-, and large-size drainage basins in Kentucky, phase II.

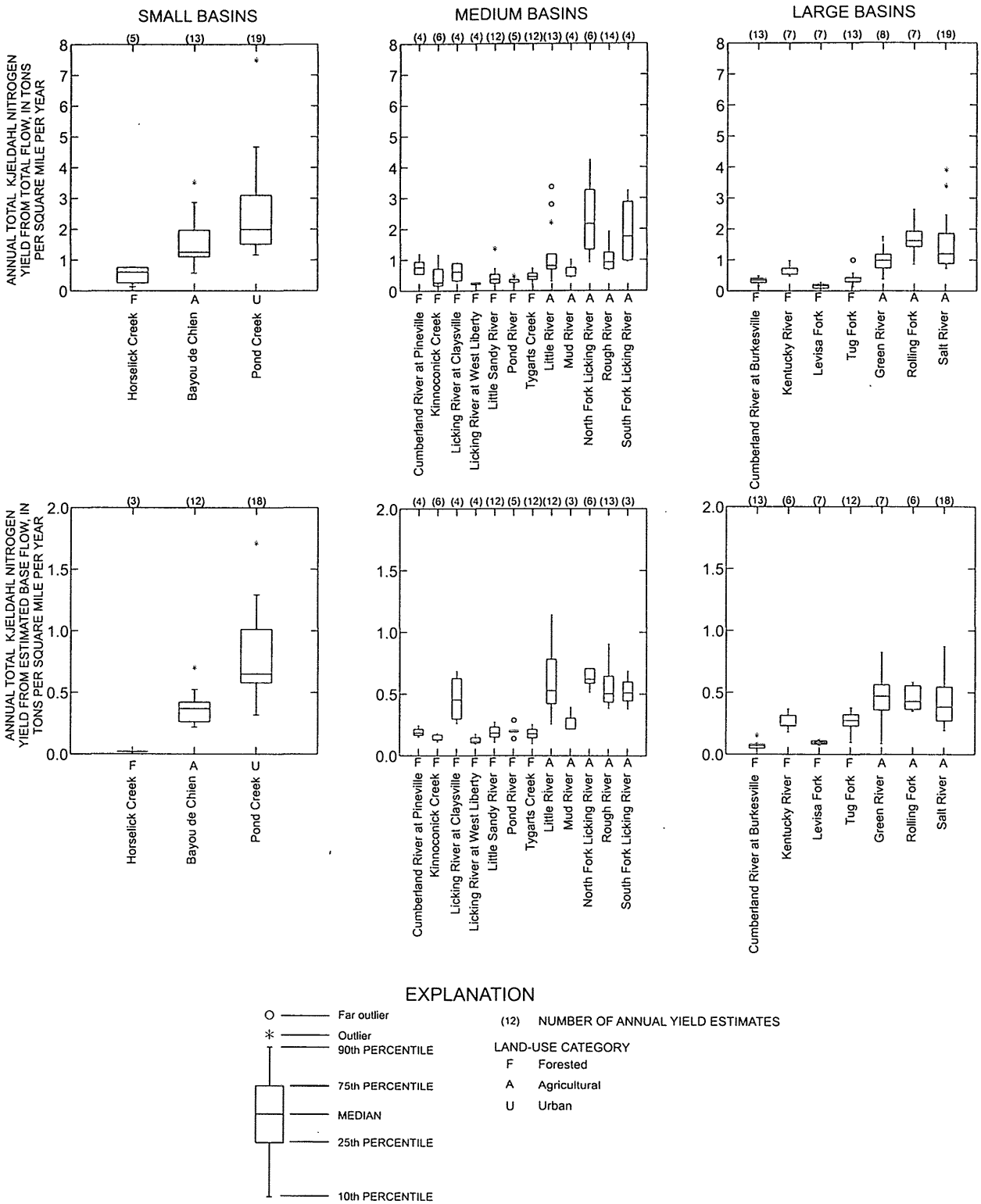


**Figure 7.** Distribution of estimated annual ammonia plus organic nitrogen yields in small-, medium-, and large-size drainage basins in Kentucky, phase II.

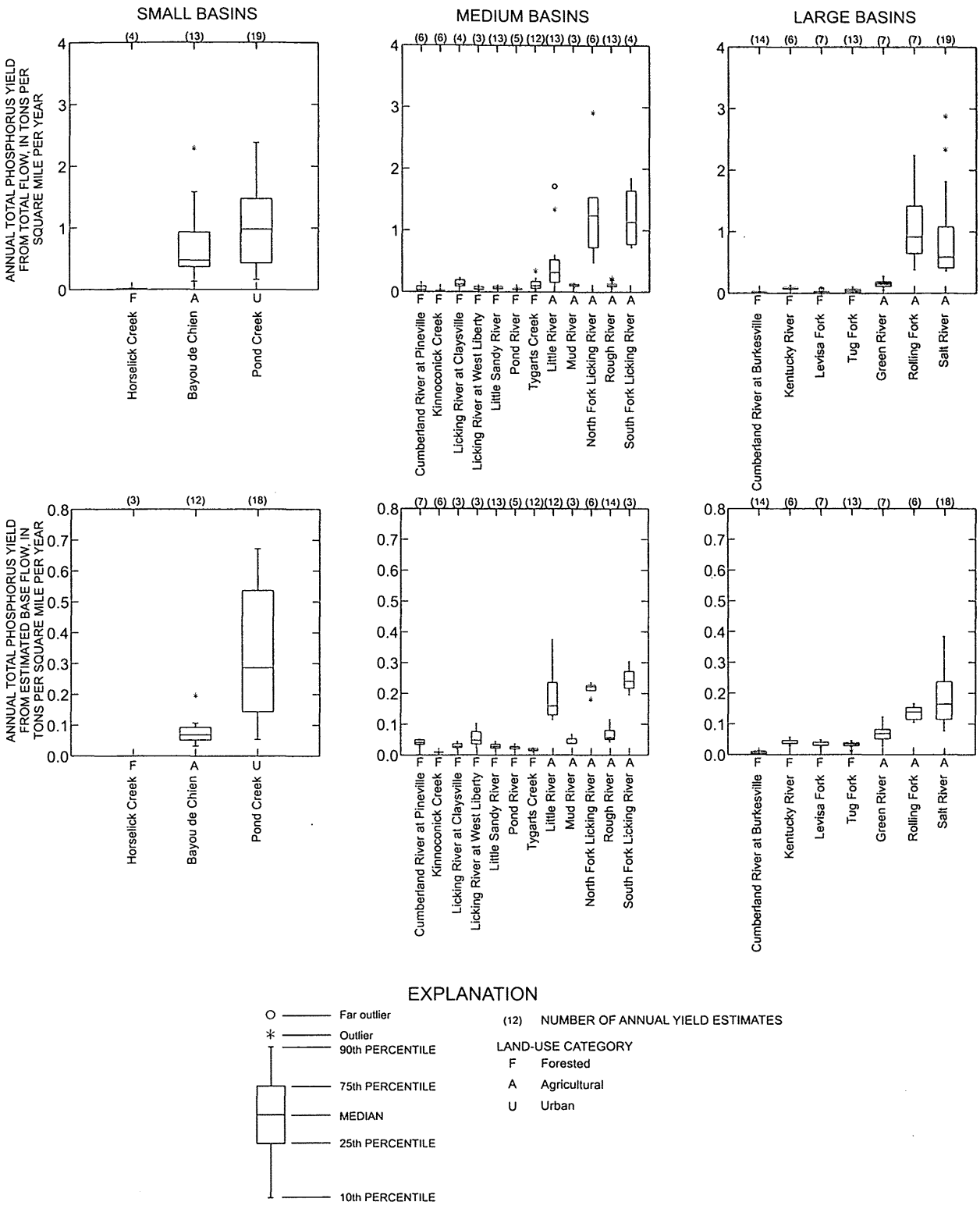


**Figure 8.** Distribution of estimated annual total phosphorus yields in small-, medium-, and large-size drainage basins in Kentucky, phase II.

## Agricultural Drainage Basins

In most of the basins, total-flow yields for nutrients (ammonia plus organic nitrogen, nitrite plus nitrate, and total phosphorus) were generally less than 2 (ton/mi$^2$)/yr. In general, nutrient base-flow yields of agricultural land followed a similar pattern as total-flow yields.

Some of the largest estimated total-flow yields of nutrients and suspended solids among agricultural basins were for streams in the Licking River Basin, the North Fork Licking River near Milford, and the South Fork Licking River at Cynthiana. Agriculturai land constitutes 77 and 94 percent of the drainage area in the North Fork and South Fork Licking River Basins, respectively. Possible sources of nutrients discharging into the Licking River are agricultural and residential fertilizers, and other sources.

Estimated base-flow yields of nutrients and suspended solids at Little River near Cadiz, Rough River near Dundee, Green River at Paradise, and Mud River near Gus were nearly half of their estimated total-flow yields (fig. 9). These four basins are located in karst terrain making the ground water much more susceptible to contamination from overlying land uses. The pipe-like-solutional openings (conduits) and fractures that make up the subsurface karst drainage system are a factor in the relatively rapid transport of nutrients and suspended solids by ground water to surface water.

## Urban Drainage Basins

Urban land constituted 62 percent of the drainage area of Pond Creek. This was the only site categorized as urban; all other sites had less than 10 percent urban land (table 3). In general, nutrient (ammonia plus organic nitrogen, nitrite plus nitrate, and total phosphorus) total-flow and base-flow yields were higher in this urban basin than in the forested or agricultural basins (figs. 6, 7, and 8). However, the total-flow and base-flow yields of suspended solids in the urban basin equaled or exceeded those in the agricultural basins of equal or greater size. Potential factors that affect the magnitude of suspended solids yields include point-source discharges and their magnitude as well as the percentage of industrial and residential sources located within the urban setting.

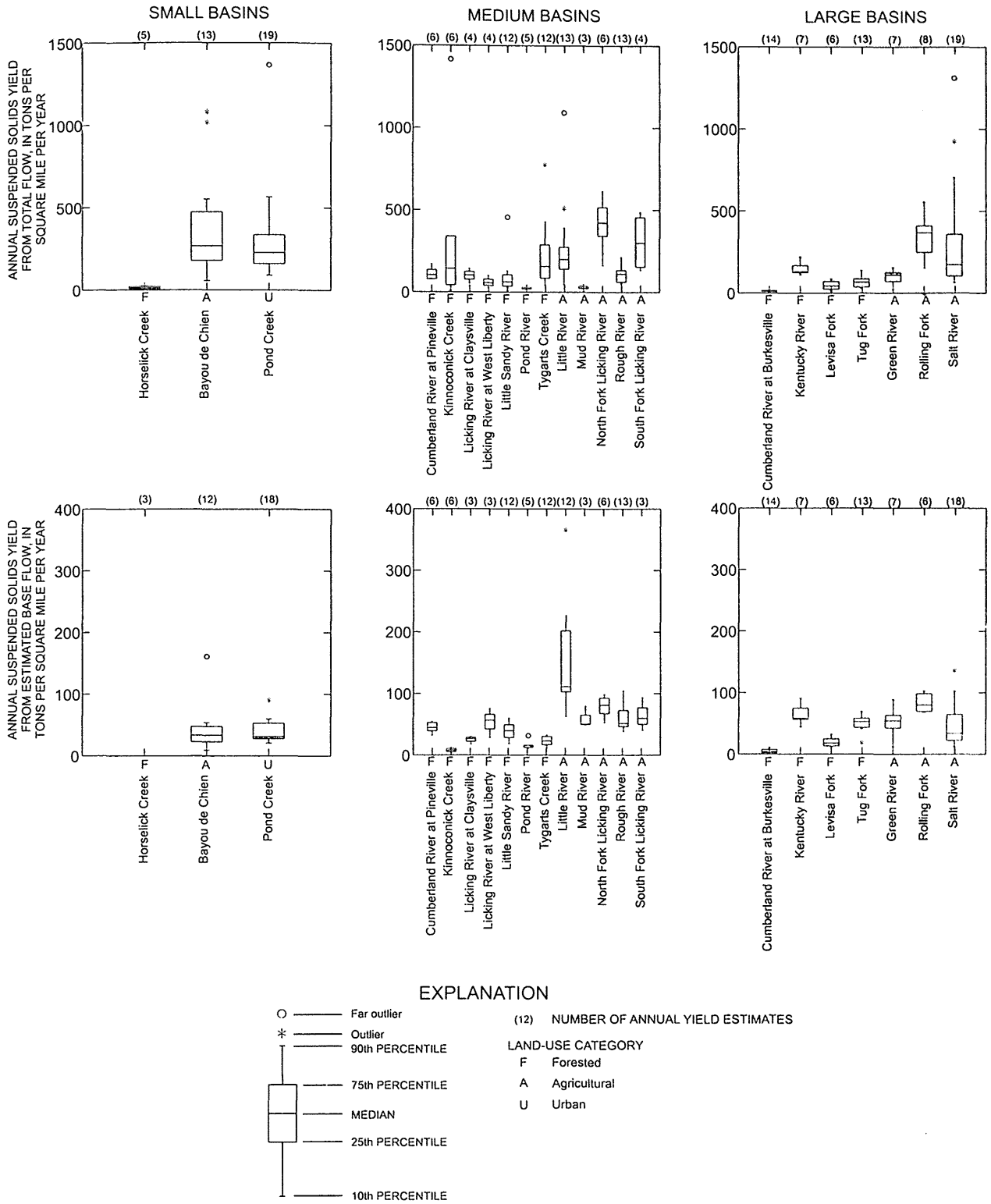


**Figure 9.** Distribution of estimated annual suspended solids yields in small-, medium-, and large-size drainage basins in Kentucky, phase II.

## SUMMARY

Loads and yields of suspended solids and selected water-quality constituents were estimated for 22 of the 44 stations in the Kentucky Ambient Surface-Water Monitoring Network to determine the relative methods of constituent transport as total flow or base flow. Suspended solids and water-quality data were retrieved from the U.S. Environmental Protection Agency's (USEPA) Storage and Retrieval (STORET) data base for samples collected by the Kentucky Division of Water, and daily discharge data were obtained from U.S. Geological Survey (USGS) streamflow records. Daily mean discharge for ungaged stations or for stations with incomplete records (missing data) were synthesized using drainage-area ratio, regression analysis, or a combination of the two techniques. Stream discharge was partitioned into base-flow and surface-runoff components by the use of USGS software, and loads were estimated by the use of ESTIMATOR and FLUX computer programs. Principal results of the analyses are as follows:

- *Suspended solids*—Mean annual total-flow loads for suspended solids ranged from 850 tons per year (ton/yr) at Horse Lick Creek near Lamero to 771,000 ton/yr at Green River at Paradise. Mean annual base-flow loads for suspended solids ranged from 10 ton/yr at Horse Lick Creek near Lamero to 345,000 ton/yr at Green River at Paradise.
- *Fecal-coliform bacteria*—Kentucky's primary- and secondary-contact recreation water criteria for fecal-coliform bacteria are 200 and 100 colonies per 100 milliliters (col/100 mL), respectively, as a geometric mean based on no less than five samples per month. Approximately 45 and 82 percent of the median fecal-coliform densities were above the primary and secondary recreational contact standards, respectively. Tug Fork at Kermit, West Virginia, had the highest median densities of fecal coliform (630 col/100 mL). Many sites had densities of less than 1 col/100 mL.
- *Major ions*—The major ions analyzed were calcium, magnesium, potassium, sodium, chloride, and sulfate. Bayou de Chien near Clinton had the smallest mean annual total-flow loads for calcium (8.2 ton/yr) and magnesium (3.0 ton/yr). The mean annual total-flow loads for the other major ions were smallest at Horse Lick Creek near Lamero. Green River at Paradise had the largest mean annual total-flow loads for all major ions, except sodium. Mean annual base-flow loads for all major ions were smallest at Horse Lick Creek near Lamero.
- *Nutrients*—Nutrients analyzed were ammonia, ammonia plus organic nitrogen, nitrite plus nitrate, and total phosphorus; total organic carbon also was analyzed. Horse Lick Creek near Lamero had the smallest mean annual total-flow and base-flow loads for those nutrients and total organic carbon. Mean annual total-flow loads for ammonia and total phosphorus were largest at Salt River at Shepherdsville. Green River at Paradise had the largest mean annual total-flow loads for nitrite plus nitrate, ammonia plus organic nitrogen, and total organic carbon. Mean annual base-flow loads for all nutrients and total organic carbon were smallest at Horse Lick Creek near Lamero and largest at Green River at Paradise.
- *Major metals and trace elements*—The major metals and trace elements analyzed were aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, and zinc. The median concentrations for total lead at Salt River at Shepherdsville and Pond Creek near Louisville exceeded the U.S. Environmental Protection Agency drinking water standard. Horse Lick Creek near Lamero had the smallest mean annual total-flow and base-flow loads for all major metals and trace elements. The mean annual total-flow and base-flow yields of most metals and trace elements at most sites were equally low.

The loads and yields nutrients and suspended solids in streams are related to land-use practices. As the intensity of the land use increases, so do the loads and yields of nutrients and suspended solids.

Major sources of nutrients include wastewater-treatment plant discharges, fertilizers from agricultural and residential areas, and faulty septic tanks. In Kentucky, the largest sources of suspended solids include construction sites, erosion from agricultural land, logging operations, and surface mining.

Estimated total-flow yields of nutrients (ammonia plus organic nitrogen, nitrite plus nitrate, and total phosphorus) were generally less than 1 ton per square mile per year ((ton/mi$^2$)/yr) in forested basins. In general, the total-flow yields for ammonia plus organic nitrogen and nitrite plus nitrate were generally smaller in forested basins. The median annual total-flow yields of suspended solids were smaller in forested basins (65 (ton/mi$^2$)/yr) than in agricultural basins (177 (ton/mi$^2$)/yr).

Fertilizers from agricultural nonpoint sources may contribute substantial nutrient inputs into some basins; however, this does not always result in large loads of nutrients in streams. Estimates of total-flow yields of nutrients (ammonia plus organic nitrogen, nitrite plus nitrate, and total phosphorus) were typically less than 2 (ton/mi$^2$)/yr. Some of the largest total-flow yields of nutrients and suspended solids were estimated in the Licking River Basin. Estimated base-flow yields of suspended solids at several basins located in the larger Green River and Lower Cumberland River Basins were about half of their estimated total-flow yields of suspended solids. The karst terrain in which these basins are located makes them much more susceptible to ground-water contamination, especially if a confining unit is thin or absent.

Of the 24 stations in phase II, only one station had greater than 50 percent urban land use. In general, the estimated nutrient yields in this urban basin were larger than in the forested or agricultural basins. Additional monitoring is needed to quantify nonpoint source nutrient yields from the various urban land uses, because nonpoint source information for urban basins is limited.

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**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Dissolved oxygen, in mg/L [00300]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 140 | 77 | 11 | 6.0 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 300 | 150 | 7.8 | 3.8 |
| 4 | Little Sandy River near Argillite | 400 | 58 | 29 | 15 | 7.3 |
| 5 | Tygarts Creek near Load | 242 | 38 | 17 | 16 | 7.2 |
| 6 | Kinniconick Creek near Tannery | 201 | 34 | 15 | 17 | 7.7 |
| 7 | Licking River at Claysville | 827 | 120 | 69 | 15 | 8.4 |
| 8 | North Fork Licking River at Milford | 226 | 28 | 10 | 13 | 4.6 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 95 | 25 | 15 | 4.1 |
| 10 | Licking River at West Liberty | 327 | 52 | 37 | 16 | 11 |
| 17 | Kentucky River near Trapp | 3,246 | 580 | 210 | 18 | 6.4 |
| 21 | Salt River at Shepherdsville | 1,197 | 160 | 66 | 14 | 5.5 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 78 | 58 | 6.0 | 4.5 |
| 25 | Pond Creek near Louisville | 64 | 8.3 | 2.7 | 13 | 4.2 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 680 | 32 | 11 | .51 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 26 | 14 | 5.6 | 3.0 |
| 28 | Rough River near Dundee | 757 | 120 | 63 | 16 | 8.3 |
| 29 | Mud River near Gus | 268 | 32 | 14 | 12 | 5.2 |
| 35 | Little River near Cadiz | 244 | 36 | 20 | 15 | 8.1 |
| 36 | Cumberland River at Burkesville | 6,053 | 650 | 200 | 11 | 3.2 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 8.0 | .8 | 13 | 1.3 |
| 41 | Cumberland River at Pineville | 770 | 160 | 27 | 21 | 3.5 |
| 44 | Bayou de Chien near Clinton | 68.7 | 6.9 | 2.6 | 10 | 3.8 |
| | **Fecal-coliform bacteria, colonies per 100 mL [31616]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 1,200 | 990 | .94 | .77 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 330 | 120 | .085 | .031 |
| 4 | Little Sandy River near Argillite | 400 | 62 | 19 | .15 | .049 |
| 5 | Tygarts Creek near Load | 242 | 61 | 11 | .25 | .047 |
| 6 | Kinniconick Creek near Tannery | 201 | 11 | 2 9 | .053 | .014 |
| 7 | Licking River at Claysville | 827 | 150 | 11 | .18 | .013 |
| 8 | North Fork Licking River at Milford | 226 | 1,100 | 67 | 4.79 | .30 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 190 | 66 | .31 | .107 |
| 10 | Licking River at West Liberty | 327 | 52 | 36 | .16 | .11 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load (Tons per year (x 100)) | | Yield (Tons per year per square mile) | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| 17 | Kentucky River near Trapp | 3,246 | 260 | 120 | 0.082 | 0.036 |
| 21 | Salt River at Shepherdsville | 1,197 | 350 | 82 | .29 | .069 |
| 23 | Rolling Fork near Lebanon Junction | 1299 | 570 | 120 | .44 | .096 |
| 25 | Pond Creek near Louisville | 64 | 38 | 7.4 | .59 | .12 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 140 | 84 | .023 | .014 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 4.5 | 2.6 | .010 | <.010 |
| 28 | Rough River near Dundee | 757 | 49 | 20 | .065 | .027 |
| 29 | Mud River near Gus | 268 | 6.3 | 2.9 | .023 | .011 |
| 35 | Little River near Cadiz | 244 | 44 | 4.2 | .18 | .017 |
| 36 | Cumberland River at Burkesville | 6,053 | 200 | 63 | .033 | .010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 5.9 | <.010 | .10 | <.010 |
| 41 | Cumberland River at Pineville | 770 | 69 | 29 | .090 | .037 |
| 44 | Bayou de Chien near Clinton | 68.7 | 6.1 | 3.3 | .089 | .048 |
| | **Alkalinity, total as $CaCO_3$ [00410]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 1,024 | 714 | 80.0 | 55.8 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 1,450 | 749 | 37.2 | 19.2 |
| 4 | Little Sandy River near Argillite | 400 | 131 | 72.5 | 32.8 | 18.1 |
| 5 | Tygarts Creek near Load | 242 | 198 | 95.6 | 81.6 | 39.5 |
| 6 | Kinniconick Creek near Tannery | 201 | 33.0 | 14.7 | 16.4 | 7.31 |
| 7 | Licking River at Claysville | 827 | 746 | 337 | 90.2 | 40.7 |
| 8 | North Fork Licking River at Milford | 226 | 323 | 114 | 143 | 50.7 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 1,320 | 350 | 212 | 56.4 |
| 10 | Licking River at West Liberty | 327 | 149 | 108 | 45.5 | 33.2 |
| 17 | Kentucky River near Trapp | 3,246 | 2,710 | 1,390 | 83.4 | 42.7 |
| 21 | Salt River at Shepherdsville | 1,197 | 2,090 | 841 | 174 | 70.2 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 2,290 | 744 | 177 | 57.2 |
| 25 | Pond Creek near Louisville | 64 | 92.2 | 39.3 | 144 | 61.4 |
| 26 | Green River at Paradise/Green River near Island | 6183 | 7,830 | 5,540 | 127 | 89.5 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 191 | 121 | 40.8 | 25.9 |
| 28 | Rough River near Dundee | 757 | 743 | 395 | 98.2 | 52.2 |
| 29 | Mud River near Gus | 268 | 277 | 141 | 103 | 52.5 |
| 35 | Little River near Cadiz | 244 | 415 | 235 | 170 | 96.3 |
| 36 | Cumberland River at Burkesville | 6,053 | 3,340 | 1,000 | 55.3 | 16.6 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 31.0 | 3.96 | 50.3 | 6.42 |
| 41 | Cumberland River at Pineville | 770 | 791 | 411 | 103 | 53.4 |
| 44 | Bayou de Chien near Clinton | 68.7 | 23.1 | 8.75 | 33.7 | 12.7 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Chloride, dissolved as Cl [00940]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 142 | 80.4 | 11.1 | 6.28 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 245 | 137 | 6.30 | 3.52 |
| 4 | Little Sandy River near Argillite | 400 | 45.3 | 20.1 | 11.3 | 5.02 |
| 5 | Tygarts Creek near Load | 242 | 17.9 | 7.23 | 7.38 | 2.99 |
| 6 | Kinniconick Creek near Tannery | 201 | 7.94 | 3.67 | 3.95 | 1.83 |
| 7 | Licking River at Claysville | 827 | 47.4 | 38.5 | 5.73 | 4.66 |
| 8 | North Fork Licking River at Milford | 226 | 12.1 | 4.02 | 5.36 | 1.78 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 58.0 | 16.0 | 9.33 | 2.57 |
| 10 | Licking River at West Liberty | 327 | 28.8 | 17.6 | 8.81 | 5.38 |
| 17 | Kentucky River near Trapp | 3,246 | 230.9 | 113 | 7.11 | 3.48 |
| 21 | Salt River at Shepherdsville | 1,197 | 147 | 55.1 | 12.3 | 4.60 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 88.0 | 32.8 | 6.78 | 2.52 |
| 25 | Pond Creek near Louisville | 64 | 22.6 | 10.1 | 35.3 | 15.8 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 495 | 337 | 8.00 | 5.44 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 18.3 | 10.4 | 3.90 | 2.22 |
| 28 | Rough River near Dundee | 757 | 59.0 | 31.9 | 7.80 | 4.22 |
| 29 | Mud River near Gus | 268 | 70.2 | 8.27 | 26.2 | 3.09 |
| 35 | Little River near Cadiz | 244 | 19.9 | 12.1 | 8.15 | 4.95 |
| 36 | Cumberland River at Burkesville | 6,053 | 392 | 147 | 6.47 | 2.44 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 1.66 | .51 | 2.69 | .828 |
| 41 | Cumberland River at Pineville | 770 | 44.7 | 27.7 | 5.80 | 3.60 |
| 44 | Bayou de Chien near Clinton | 68.7 | 3.67 | 1.39 | 5.35 | 2.02 |
| | **Sulfate, dissolved in mg/L as $SO_4$ [00946]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 1,340 | 905 | 105 | 70.7 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 2,690 | 1,410 | 69.0 | 36.1 |
| 4 | Little Sandy River near Argillite | 400 | 201 | 105 | 50.3 | 26.2 |
| 5 | Tygarts Creek near Load | 242 | 81.4 | 42.6 | 33.6 | 17.6 |
| 6 | Kinniconick Creek near Tannery | 201 | 63.2 | 28.6 | 31.4 | 14.2 |
| 7 | Licking River at Claysville | 827 | 348 | 253 | 42.1 | 30.6 |
| 8 | North Fork Licking River at Milford | 226 | 802 | 28.1 | 355 | 12.4 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 225 | 62.5 | 36.2 | 10.1 |
| 10 | Licking River at West Liberty | 327 | 238 | 162 | 72.6 | 49.4 |
| 17 | Kentucky River near Trapp | 3,246 | 2,860 | 1,490 | 88.3 | 45.8 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 439 | 164 | 36.6 | 13.7 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 586 | 185 | 45.1 | 14.2 |
| 25 | Pond Creek near Louisville | 64 | 54.7 | 22.0 | 85.4 | 34.3 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 3,510 | 2,260 | 56.7 | 36.6 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 607 | 337 | 129 | 71.7 |
| 28 | Rough River near Dundee | 757 | 285 | 132 | 37.6 | 17.5 |
| 29 | Mud River near Gus | 268 | 70.2 | 32.1 | 26.2 | 12.0 |
| 35 | Little River near Cadiz | 244 | 39.5 | 23.1 | 16.2 | 9.48 |
| 36 | Cumberland River at Burkesville | 6,053 | 2,110 | 648 | 34.9 | 10.7 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 12.7 | 3.0 | 20.6 | 4.81 |
| 41 | Cumberland River at Pineville | 770 | 1,020 | 645 | 132 | 83.7 |
| 44 | Bayou de Chien near Clinton | 68.7 | 12.5 | 3.1 | 18.2 | 4.49 |
| | **Residue, total nonfilterable [00530]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 910 | 651 | 71.1 | 50.8 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 1,770 | 729 | 45.4 | 18.7 |
| 4 | Little Sandy River near Argillite | 400 | 481 | 154 | 120 | 38.5 |
| 5 | Tygarts Creek near Load | 242 | 4,780 | 56.4 | 1,980 | 23.3 |
| 6 | Kinniconick Creek near Tannery | 201 | 703 | 16.8 | 350 | 8.35 |
| 7 | Licking River at Claysville | 827 | 833 | 155 | 101 | 18.8 |
| 8 | North Fork Licking River at Milford | 226 | 802 | 153 | 355 | 67.7 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 1,890 | 301 | 305 | 48.5 |
| 10 | Licking River at West Liberty | 327 | 148 | 132 | 45.1 | 40.4 |
| 17 | Kentucky River near Trapp | 3,246 | 4,810 | 2,100 | 148 | 64.7 |
| 21 | Salt River at Shepherdsville | 1,197 | 6,420 | 530 | 537 | 44.3 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 4,840 | 925 | 373 | 71.2 |
| 25 | Pond Creek near Louisville | 64 | 203 | 24.3 | 318 | 38.0 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 7,710 | 3,450 | 125 | 55.9 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 107 | 65.4 | 22.7 | 13.9 |
| 28 | Rough River near Dundee | 757 | 941 | 488 | 124 | 64.4 |
| 29 | Mud River near Gus | 268 | 87.3 | 40.4 | 32.6 | 15.1 |
| 35 | Little River near Cadiz | 244 | 602 | 350 | 247 | 144 |
| 36 | Cumberland River at Burkesville | 6,053 | 838 | 297 | 13.9 | 4.91 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 8.50 | .101 | 13.8 | .163 |
| 41 | Cumberland River at Pineville | 770 | 1,990 | 334 | 259 | 43.4 |
| 44 | Bayou de Chien near Clinton | 68.7 | 270 | 27.3 | 393 | 39.8 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Carbon, organic, total as C [00680]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 26 | 15 | 2.0 | 1.2 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 52 | 24 | 1.3 | .62 |
| 4 | Little Sandy River near Argillite | 400 | 15 | 6.2 | 3.7 | 1.5 |
| 5 | Tygarts Creek near Load | 242 | 11 | 3.5 | 4.5 | 1.5 |
| 6 | Kinniconick Creek near Tannery | 201 | 7.6 | 2.1 | 3.8 | 1.1 |
| 7 | Licking River at Claysville | 827 | 38 | 14 | 4.6 | 1.8 |
| 8 | North Fork Licking River at Milford | 226 | 13 | 4.7 | 5.8 | 2.1 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 52 | 11 | 8.3 | 1.8 |
| 10 | Licking River at West Liberty | 327 | 6.5 | 6.2 | 2.0 | 1.9 |
| 17 | Kentucky River near Trapp | 3,246 | 120 | 61 | 3.6 | 1.9 |
| 21 | Salt River at Shepherdsville | 1,197 | 130 | 32 | 11 | 2.6 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 150 | 27 | 11 | 2.1 |
| 25 | Pond Creek near Louisville | 64 | 7.7 | 2.4 | 12 | 3.8 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 480 | 180 | 7.8 | 3.0 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 15 | 8.3 | 3.2 | 1.8 |
| 28 | Rough River near Dundee | 757 | 52 | 28 | 6.8 | 3.7 |
| 29 | Mud River near Gus | 268 | 18 | 7.5 | 6.6 | 2.8 |
| 35 | Little River near Cadiz | 244 | 13 | 6.8 | 5.4 | 2.8 |
| 36 | Cumberland River at Burkesville | 6,053 | 130 | 42 | 2.2 | .69 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 1.1 | .069 | 1.8 | .11 |
| 41 | Cumberland River at Pineville | 770 | 28 | 12 | 3.7 | 1.5 |
| 44 | Bayou de Chien near Clinton | 68.7 | 6.4 | 2.0 | 9.3 | 2.8 |
| | **Calcium, recoverable, total as Ca [00916]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 418 | 266 | 32.7 | 20.8 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 818 | 417 | 21.0 | 10.7 |
| 4 | Little Sandy River near Argillite | 400 | 81.2 | 41.8 | 20.3 | 10.5 |
| 5 | Tygarts Creek near Load | 242 | 86.6 | 41.5 | 35.8 | 17.2 |
| 6 | Kinniconick Creek near Tannery | 201 | 19.7 | 8.9 | 9.80 | 4.45 |
| 7 | Licking River at Claysville | 827 | 348 | 150 | 42.1 | 18.1 |
| 8 | North Fork Licking River at Milford | 226 | 143 | 53.1 | 63.2 | 23.5 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 572 | 161 | 92.2 | 26.0 |
| 10 | Licking River at West Liberty | 327 | 87.2 | 64.0 | 26.7 | 19.6 |
| 17 | Kentucky River near Trapp | 3,246 | 1,160 | 578 | 35.6 | 17.8 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 801 | 334 | 66.9 | 27.9 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 930 | 289 | 71.6 | 22.2 |
| 25 | Pond Creek near Louisville | 64 | 37.6 | 15.8 | 58.7 | 24.7 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 3,610 | 2,470 | 58.3 | 40.0 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 175 | 92.5 | 37.2 | 19.7 |
| 28 | Rough River near Dundee | 757 | 298 | 168 | 39.4 | 22.2 |
| 29 | Mud River near Gus | 268 | 120 | 61.2 | 44.8 | 22.9 |
| 35 | Little River near Cadiz | 244 | 173 | 100 | 70.9 | 41.1 |
| 36 | Cumberland River at Burkesville | 6,053 | 1,330 | 400 | 21.9 | 6.61 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 13.5 | 1.2 | 21.8 | 2.00 |
| 41 | Cumberland River at Pineville | 770 | 305 | 186 | 39.6 | 24.2 |
| 44 | Bayou de Chien near Clinton | 68.7 | 8.2 | 2.6 | 12.0 | 3.73 |
| | **Magnesium, total as Mg [00927]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 180 | 110 | 14 | 8.8 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 380 | 190 | 9.7 | 4.8 |
| 4 | Little Sandy River near Argillite | 400 | 33 | 16 | 8.2 | 3.9 |
| 5 | Tygarts Creek near Load | 242 | 16 | 7.3 | 6.7 | 3.0 |
| 6 | Kinniconick Creek near Tannery | 201 | 9.9 | 4.2 | 4.9 | 2.1 |
| 7 | Licking River at Claysville | 827 | 82 | 60 | 9.9 | 7.3 |
| 8 | North Fork Licking River at Milford | 226 | 19 | 6.4 | 8.2 | 2.8 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 56 | 14 | 8.9 | 2.2 |
| 10 | Licking River at West Liberty | 327 | 44 | 32 | 14 | 9.9 |
| 17 | Kentucky River near Trapp | 3,246 | 611 | 300 | 19 | 9.1 |
| 21 | Salt River at Shepherdsville | 1,197 | 150 | 59 | 13 | 4.9 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 200 | 62 | 16 | 4.8 |
| 25 | Pond Creek near Louisville | 64 | 14 | 6.1 | 22 | 9.5 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 650 | 440 | 10 | 7.1 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 58 | 31 | 12 | 6.5 |
| 28 | Rough River near Dundee | 757 | 46 | 24 | 6.1 | 3.2 |
| 29 | Mud River near Gus | 268 | 12 | 5.8 | 4.4 | 2.2 |
| 35 | Little River near Cadiz | 244 | 17 | 9.3 | 6.9 | 3.8 |
| 36 | Cumberland River at Burkesville | 6,053 | 390 | 120 | 6.5 | 2.0 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 2.9 | .29 | 4.6 | .46 |
| 41 | Cumberland River at Pineville | 770 | 160 | 81 | 20 | 10 |
| 44 | Bayou de Chien near Clinton | 68.7 | 2.7 | .76 | 3.9 | 1.1 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Potassium, total as K [00937]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 39.4 | 23.5 | 3.08 | 1.83 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 74.4 | 36.9 | 1.91 | .946 |
| 4 | Little Sandy River near Argillite | 400 | 10.8 | 4.88 | 2.70 | 1.22 |
| 5 | Tygarts Creek near Load | 242 | 7.36 | 2.77 | 3.04 | 1.14 |
| 6 | Kinniconick Creek near Tannery | 201 | 5.60 | 2.03 | 2.79 | 1.01 |
| 7 | Licking River at Claysville | 827 | 26.9 | 14.5 | 3.25 | 1.75 |
| 8 | North Fork Licking River at Milford | 226 | 12.4 | 3.77 | 5.50 | 1.67 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 36.4 | 7.57 | 5.87 | 1.22 |
| 10 | Licking River at West Liberty | 327 | 6.80 | 6.52 | 2.08 | 1.99 |
| 17 | Kentucky River near Trapp | 3,246 | 123 | 59.1 | 3.78 | 1.82 |
| 21 | Salt River at Shepherdsville | 1,197 | 59.7 | 18.1 | 4.99 | 1.51 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 67.6 | 15.7 | 5.20 | 1.21 |
| 25 | Pond Creek near Louisville | 64 | 4.29 | 1.35 | 6.70 | 2.11 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 176 | 7.92 | 2.85 | .128 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 8.29 | 4.56 | 1.77 | .972 |
| 28 | Rough River near Dundee | 757 | 26.6 | 14.3 | 3.51 | 1.89 |
| 29 | Mud River near Gus | 268 | 5.88 | 3.62 | 2.19 | 1.35 |
| 35 | Little River near Cadiz | 244 | 10.9 | 5.55 | 4.48 | 2.27 |
| 36 | Cumberland River at Burkesville | 6,053 | 97.0 | 29.7 | 1.60 | .491 |
| 39 | Horse Lick Creek near Lamero | 61.7 | 1.04 | .06 | 1.68 | .099 |
| 41 | Cumberland River at Pineville | 770 | 32.1 | 15.9 | 4.17 | 2.07 |
| 44 | Bayou de Chien near Clinton | 68.7 | 335 | .789 | 4.88 | 1.15 |
| | **Sodium, recoverable, total as Na [00929]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 447 | 278 | 34.9 | 21.7 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 431 | 240 | 11.1 | 6.16 |
| 4 | Little Sandy River near Argillite | 400 | 30.1 | 15.5 | 7.54 | 3.88 |
| 5 | Tygarts Creek near Load | 242 | 11.4 | 5.29 | 4.70 | 2.18 |
| 6 | Kinniconick Creek near Tannery | 201 | 6.89 | 3.09 | 3.43 | 1.54 |
| 7 | Licking River at Claysville | 827 | 37.1 | 26.1 | 4.48 | 3.15 |
| 8 | North Fork Licking River at Milford | 226 | 6.73 | 2.44 | 2.98 | 1.08 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 35.7 | 8.71 | 5.75 | 1.40 |
| 10 | Licking River at West Liberty | 327 | 16.5 | 15.1 | 5.05 | 4.63 |
| 17 | Kentucky River near Trapp | 3,246 | 287 | 149 | 8.83 | 4.60 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 67.6 | 27.9 | 5.65 | 2.33 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 120 | 19.5 | 9.20 | 1.50 |
| 25 | Pond Creek near Louisville | 64 | 17.2 | 7.61 | 26.9 | 11.9 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 370 | 259 | 5.99 | 4.19 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 57.2 | 31.8 | 12.2 | 6.78 |
| 28 | Rough River near Dundee | 757 | 31.4 | 17.6 | 4.14 | 2.33 |
| 29 | Mud River near Gus | 268 | 10.5 | 5.42 | 3.93 | 2.02 |
| 35 | Little River near Cadiz | 244 | 14.7 | 8.45 | 6.01 | 3.46 |
| 36 | Cumberland River at Burkesville | 6,053 | 321 | 102 | 5.31 | 1.69 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .928 | .0834 | 1.50 | .135 |
| 41 | Cumberland River at Pineville | 770 | 215 | 129 | 28.0 | 16.7 |
| 44 | Bayou de Chien near Clinton | 68.7 | 3.16 | 1.62 | 4.60 | 2.36 |
| | **Ammonia, total as N [00610]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .496 | .322 | .0388 | .0252 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .757 | .369 | .0194 | <.0100 |
| 4 | Little Sandy River near Argillite | 400 | .202 | .100 | .0504 | .0250 |
| 5 | Tygarts Creek near Load | 242 | .105 | .0405 | .0434 | .0168 |
| 6 | Kinniconick Creek near Tannery | 201 | .0745 | .0318 | .0371 | .0158 |
| 7 | Licking River at Claysville | 827 | .426 | .287 | .0515 | .0347 |
| 8 | North Fork Licking River at Milford | 226 | .100 | .0759 | .0444 | .0336 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .491 | .143 | .0791 | .0229 |
| 10 | Licking River at West Liberty | 327 | .148 | .108 | .0453 | .0331 |
| 17 | Kentucky River near Trapp | 3,246 | 2.10 | .959 | .0647 | .0295 |
| 21 | Salt River at Shepherdsville | 1,197 | 3.99 | .646 | .333 | .0540 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 1.14 | .307 | .0875 | .0237 |
| 25 | Pond Creek near Louisville | 64 | .795 | .230 | 1.24 | .360 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 3.26 | 2.05 | .0528 | .0332 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | .216 | .122 | .0460 | .0260 |
| 28 | Rough River near Dundee | 757 | 1.86 | .860 | .246 | .114 |
| 29 | Mud River near Gus | 268 | .178 | .0668 | .0666 | .0249 |
| 35 | Little River near Cadiz | 244 | .187 | .109 | .0768 | .0446 |
| 36 | Cumberland River at Burkesville | 6,053 | 3.54 | 1.36 | .0584 | .0225 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .0403 | <.0100 | .0654 | <.0100 |
| 41 | Cumberland River at Pineville | 770 | .457 | .282 | .0594 | .0366 |
| 44 | Bayou de Chien near Clinton | 68.7 | .0791 | .0275 | .115 | .0401 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Nitrite plus nitrate, total as N [00630]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 9.38 | 4.94 | 0.733 | 0.386 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 12.2 | 6.18 | .312 | .159 |
| 4 | Little Sandy River near Argillite | 400 | 2.05 | 1.05 | .512 | .264 |
| 5 | Tygarts Creek near Load | 242 | 1.92 | .903 | .795 | .373 |
| 6 | Kinniconick Creek near Tannery | 201 | 1.47 | .706 | .730 | .351 |
| 7 | Licking River at Claysville | 827 | 7.78 | 2.26 | .940 | .274 |
| 8 | North Fork Licking River at Milford | 226 | 4.57 | 2.20 | 2.02 | .973 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 16.9 | 4.49 | 2.72 | .724 |
| 10 | Licking River at West Liberty | 327 | 1.30 | 1.28 | .397 | .390 |
| 17 | Kentucky River near Trapp | 3,246 | 16.4 | 5.76 | .506 | .177 |
| 21 | Salt River at Shepherdsville | 1,197 | 31.2 | 11.3 | 2.61 | .942 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 22.1 | 5.97 | 1.70 | .460 |
| 25 | Pond Creek near Louisville | 64 | 1.56 | .588 | 2.43 | .919 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 101 | 66.6 | 1.64 | 1.08 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 1.30 | .706 | .276 | .151 |
| 28 | Rough River near Dundee | 757 | 8.13 | 4.36 | 1.07 | .576 |
| 29 | Mud River near Gus | 268 | 2.33 | 1.03 | .868 | .385 |
| 35 | Little River near Cadiz | 244 | 1.5 | 5.33 | 4.30 | 2.18 |
| 36 | Cumberland River at Burkesville | 6,053 | 35.5 | 13.4 | .586 | .222 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .184 | .0142 | .299 | .023 |
| 41 | Cumberland River at Pineville | 770 | 5.85 | 2.74 | .760 | .356 |
| 44 | Bayou de Chien near Clinton | 68.7 | .723 | .212 | 1.05 | .308 |
| | **Ammonia and organic, total as N [00625]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 5.31 | 3.50 | .415 | .274 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 7.88 | 3.67 | .202 | .094 |
| 4 | Little Sandy River near Argillite | 400 | 1.98 | .766 | .495 | .192 |
| 5 | Tygarts Creek near Load | 242 | 1.10 | .431 | .456 | .178 |
| 6 | Kinniconick Creek near Tannery | 201 | 1.08 | .275 | .538 | .137 |
| 7 | Licking River at Claysville | 827 | 5.35 | 3.76 | .647 | .455 |
| 8 | North Fork Licking River at Milford | 226 | 4.55 | 1.21 | 2.01 | .536 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 12.0 | 2.45 | 1.93 | .394 |
| 10 | Licking River at West Liberty | 327 | .753 | .422 | .230 | .129 |
| 17 | Kentucky River near Trapp | 3,246 | 20.9 | 8.54 | .643 | .263 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*
[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 22.5 | 4.90 | 1.88 | 0.410 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 21.9 | 5.03 | 1.69 | .387 |
| 25 | Pond Creek near Louisville | 64 | 2.02 | .48 | 3.16 | .750 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 62.3 | 30.2 | 1.01 | .488 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 1.33 | .801 | .284 | .171 |
| 28 | Rough River near Dundee | 757 | 8.01 | 4.02 | 1.06 | .531 |
| 29 | Mud River near Gus | 268 | 1.71 | .744 | .640 | .277 |
| 35 | Little River near Cadiz | 244 | 2.97 | 1.38 | 1.22 | .566 |
| 36 | Cumberland River at Burkesville | 6,053 | 20.4 | 7.89 | .337 | .130 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .282 | <.0100 | .457 | .010 |
| 41 | Cumberland River at Pineville | 770 | 5.57 | 1.54 | .724 | .200 |
| 44 | Bayou de Chien near Clinton | 68.7 | .803 | .407 | 1.17 | .592 |
| | **Phosphorus, total as P [00665]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .670 | .430 | .0523 | .0336 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 1.20 | .559 | .0307 | .0144 |
| 4 | Little Sandy River near Argillite | 400 | .29 | .111 | .0713 | .0278 |
| 5 | Tygarts Creek near Load | 242 | .302 | .0436 | .125 | .0180 |
| 6 | Kinniconick Creek near Tannery | 201 | .0485 | .0179 | .0241 | <.0100 |
| 7 | Licking River at Claysville | 827 | 1.15 | .237 | .139 | .0287 |
| 8 | North Fork Licking River at Milford | 226 | 2.63 | .420 | 1.16 | .186 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 7.51 | 1.15 | 1.21 | .185 |
| 10 | Licking River at West Liberty | 327 | .157 | .143 | .0479 | .0439 |
| 17 | Kentucky River near Trapp | 3,246 | 2.84 | 1.34 | .0874 | .0414 |
| 21 | Salt River at Shepherdsville | 1,197 | 15.7 | 2.11 | 1.31 | .177 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 14.2 | 1.52 | 1.10 | .117 |
| 25 | Pond Creek near Louisville | 64 | .651 | .199 | 1.02 | .311 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 9.75 | 4.41 | .158 | .0713 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | .205 | .102 | .0438 | .0216 |
| 28 | Rough River near Dundee | 757 | 1.04 | .538 | .138 | .0711 |
| 29 | Mud River near Gus | 268 | .299 | .126 | .112 | .0470 |
| 35 | Little River near Cadiz | 244 | 1.06 | .419 | .436 | .172 |
| 36 | Cumberland River at Burkesville | 6,053 | 1.42 | .456 | .0234 | <.0100 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.0100 | <.0100 | .0114 | <.0100 |
| 41 | Cumberland River at Pineville | 770 | .960 | .300 | .125 | .0389 |
| 44 | Bayou de Chien near Clinton | 68.7 | .497 | .0509 | .724 | .0741 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load (Tons per year (x 100)) | | Yield (Tons per year per square mile) | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | **Aluminum, total, in µg/L as Al [01105]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 16.14 | 10.57 | 1.261 | 0.8254 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 32.88 | 13.79 | .8436 | .3539 |
| 4 | Little Sandy River near Argillite | 400 | 5.883 | 2.318 | 1.471 | .5796 |
| 5 | Tygarts Creek near Load | 242 | 8.179 | 1.213 | 3.380 | .5012 |
| 6 | Kinniconick Creek near Tannery | 201 | 2.350 | .3319 | 1.169 | .1651 |
| 7 | Licking River at Claysville | 827 | 23.06 | 4.450 | 2.789 | .5381 |
| 8 | North Fork Licking River at Milford | 226 | 29.43 | 5.227 | 13.020 | 2.313 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 50.57 | 9.295 | 8.144 | 1.497 |
| 10 | Licking River at West Liberty | 327 | 3.339 | 2.343 | 1.021 | .7165 |
| 17 | Kentucky River near Trapp | 3,246 | 115.5 | 13.36 | 3.560 | .4115 |
| 21 | Salt River at Shepherdsville | 1,197 | 65.24 | 15.27 | 5.451 | 1.276 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 117.4 | 19.83 | 9.037 | 1.527 |
| 25 | Pond Creek near Louisville | 64 | 3.075 | .4762 | 4.804 | .7441 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 242.9 | 80.09 | 3.928 | 1.295 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 4.819 | 2.690 | 1.028 | .5737 |
| 28 | Rough River near Dundee | 757 | 21.28 | 9.786 | 2.811 | 1.293 |
| 29 | Mud River near Gus | 268 | 4.560 | 1.994 | 1.701 | .7441 |
| 35 | Little River near Cadiz | 244 | 17.35 | 7.634 | 7.109 | 3.129 |
| 36 | Cumberland River at Burkesville | 6,053 | 15.90 | 6.005 | .2627 | .09922 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .1863 | <.01000 | .3020 | .01125 |
| 41 | Cumberland River at Pineville | 770 | 20.22 | 6.470 | 2.626 | .8403 |
| 44 | Bayou de Chien near Clinton | 68.7 | 2.932 | .9511 | 4.268 | 1.384 |
| | **Arsenic, total, in µg/L as As [01002]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .026 | .015 | <.010 | <.010 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .030 | .016 | <.010 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | <.010 | <.010 | <.010 | <.010 |
| 5 | Tygarts Creek near Load | 242 | <.010 | <.010 | <.010 | <.010 |
| 6 | Kinniconick Creek near Tannery | 201 | <.010 | <.010 | <.010 | <.010 |
| 7 | Licking River at Claysville | 827 | .020 | .011 | <.010 | <.010 |
| 8 | North Fork Licking River at Milford | 226 | <.010 | <.010 | <.010 | <.010 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .013 | <.010 | <.010 | <.010 |
| 10 | Licking River at West Liberty | 327 | <.010 | <.010 | <.010 | <.010 |
| 17 | Kentucky River near Trapp | 3,246 | .086 | .037 | <.010 | <.010 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 0.058 | 0.013 | <0.010 | <0.010 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .042 | .013 | <.010 | <.010 |
| 25 | Pond Creek near Louisville | 64 | <.010 | <.010 | <.010 | <.010 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | .17 | .082 | <.010 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | <.010 | <.010 | <.010 | <.010 |
| 28 | Rough River near Dundee | 757 | .020 | .013 | <.010 | <.010 |
| 29 | Mud River near Gus | 268 | <.010 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | <.010 | <.010 | <.010 | <.010 |
| 36 | Cumberland River at Burkesville | 6,053 | .13 | .050 | <.010 | <.010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | .028 | <.010 | <.010 | <.010 |
| 44 | Bayou de Chien near Clinton | 68.7 | <.010 | <.010 | <.010 | <.010 |
| | **Barium, total in µg/L as Ba [01007]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .82 | .50 | .064 | .039 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 1.4 | .64 | .035 | .016 |
| 4 | Little Sandy River near Argillite | 400 | .24 | .10 | .059 | .025 |
| 5 | Tygarts Creek near Load | 242 | .13 | .054 | .056 | .022 |
| 6 | Kinniconick Creek near Tannery | 201 | .10 | .026 | .052 | .013 |
| 7 | Licking River at Claysville | 827 | .35 | .14 | .042 | .017 |
| 8 | North Fork Licking River at Milford | 226 | .19 | .044 | .085 | .020 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .51 | .086 | .082 | .014 |
| 10 | Licking River at West Liberty | 327 | .25 | .20 | .077 | .060 |
| 17 | Kentucky River near Trapp | 3,246 | 2.6 | 1.1 | .081 | .032 |
| 21 | Salt River at Shepherdsville | 1,197 | .84 | .23 | .070 | .020 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .90 | .23 | .069 | .017 |
| 25 | Pond Creek near Louisville | 64 | .047 | .014 | .073 | .023 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 3.6 | 2.1 | .059 | .034 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | .085 | .049 | .018 | .010 |
| 28 | Rough River near Dundee | 757 | .62 | .30 | .082 | .040 |
| 29 | Mud River near Gus | 268 | .12 | .060 | .045 | .022 |
| 35 | Little River near Cadiz | 244 | .36 | .16 | .15 | .064 |
| 36 | Cumberland River at Burkesville | 6,053 | 3.4 | 1.8 | .056 | .029 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .016 | <.010 | .026 | .002 |
| 41 | Cumberland River at Pineville | 770 | .61 | .28 | .079 | .036 |
| 44 | Bayou de Chien near Clinton | 68.7 | .07 | .019 | .10 | .027 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Cadmium, total, in µg/L as Cd [01027]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | <0.010 | <0.010 | <0.010 | <0.010 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .018 | <.010 | <.010 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | <.010 | <.010 | <.010 | <.010 |
| 5 | Tygarts Creek near Load | 242 | <.010 | <.010 | <.010 | <.010 |
| 6 | Kinniconick Creek near Tannery | 201 | <.010 | <.010 | <.010 | <.010 |
| 7 | Licking River at Claysville | 827 | <.010 | <.010 | <.010 | <.010 |
| 8 | North Fork Licking River at Milford | 226 | <.010 | <.010 | <.010 | <.010 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | <.010 | <.010 | <.010 | <.010 |
| 10 | Licking River at West Liberty | 327 | <.010 | <.010 | <.010 | <.010 |
| 17 | Kentucky River near Trapp | 3,246 | .029 | .014 | <.010 | <.010 |
| 21 | Salt River at Shepherdsville | 1,197 | .010 | <.010 | <.010 | <.010 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .010 | <.010 | <.010 | <.010 |
| 25 | Pond Creek near Louisville | 64 | <.010 | <.010 | <.010 | <.010 |
| 26 | Green River at Paradise/Green River near Island | 6183 | .048 | .031 | <.010 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | <.010 | <.010 | <.010 | <.010 |
| 28 | Rough River near Dundee | 757 | .012 | <.010 | <.010 | <.010 |
| 29 | Mud River near Gus | 268 | <.010 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | <.010 | <.010 | <.010 | <.010 |
| 36 | Cumberland River at Burkesville | 6,053 | .15 | .047 | <.010 | <.010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | <.010 | <.010 | <.010 | <.010 |
| 44 | Bayou de Chien near Clinton | 68.7 | <.010 | <.010 | <.010 | <.010 |
| | **Chromium, total, in µg/L as Cr [01034]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .045 | .027 | <.010 | <.010 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .050 | .023 | <.010 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | .018 | <.010 | <.010 | <.010 |
| 5 | Tygarts Creek near Load | 242 | .019 | <.010 | <.010 | <.010 |
| 6 | Kinniconick Creek near Tannery | 201 | <.010 | <.010 | <.010 | <.010 |
| 7 | Licking River at Claysville | 827 | .029 | .020 | <.010 | <.010 |
| 8 | North Fork Licking River at Milford | 226 | .025 | <.010 | .011 | <.010 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .037 | <.010 | <.010 | <.010 |
| 10 | Licking River at West Liberty | 327 | <.010 | <.010 | <.010 | <.010 |
| 17 | Kentucky River near Trapp | 3,246 | .14 | .070 | <.010 | <.010 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 3.0 | 0.018 | <0.010 | <0.010 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .12 | .022 | <.010 | <.010 |
| 25 | Pond Creek near Louisville | 64 | <.010 | <.010 | <.010 | <.010 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | .29 | .13 | <.010 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | <.010 | <.010 | <.010 | <.010 |
| 28 | Rough River near Dundee | 757 | .040 | .019 | <.010 | <.010 |
| 29 | Mud River near Gus | 268 | <.010 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | .023 | .010 | .010 | <.010 |
| 36 | Cumberland River at Burkesville | 6,053 | .14 | .049 | <.010 | <.010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | .056 | .014 | .01 | <.010 |
| 44 | Bayou de Chien near Clinton | 68.7 | <.010 | <.010 | <.010 | <.010 |
| | **Copper, total in µg/L as Cu [01042]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .069 | .042 | <.010 | <.010 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .088 | .042 | <.010 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | .023 | <.010 | <.010 | <.010 |
| 5 | Tygarts Creek near Load | 242 | .012 | <.010 | <.010 | <.010 |
| 6 | Kinniconick Creek near Tannery | 201 | <.010 | <.010 | <.010 | <.010 |
| 7 | Licking River at Claysville | 827 | .036 | .018 | <.010 | <.010 |
| 8 | North Fork Licking River at Milford | 226 | <.010 | <.010 | <.010 | <.010 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .032 | <.010 | <.010 | <.010 |
| 10 | Licking River at West Liberty | 327 | <.010 | <.010 | <.010 | <.010 |
| 17 | Kentucky River near Trapp | 3,246 | .17 | .076 | <.010 | <.010 |
| 21 | Salt River at Shepherdsville | 1,197 | .20 | .031 | .017 | <.010 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .14 | .024 | .010 | <.010 |
| 25 | Pond Creek near Louisville | 64 | .010 | <.010 | .016 | <.010 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | .36 | .17 | <.010 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | <.010 | <.010 | <.010 | <.010 |
| 28 | Rough River near Dundee | 757 | .069 | .037 | <.010 | <.010 |
| 29 | Mud River near Gus | 268 | <.010 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | .028 | <.010 | .012 | <.010 |
| 36 | Cumberland River at Burkesville | 6,053 | .39 | .12 | <.010 | <.010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | .048 | .017 | <.010 | <.010 |
| 44 | Bayou de Chien near Clinton | 68.7 | .86 | <.010 | .013 | <.010 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| | **Iron, total, in µg/L as Fe [01045]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 34.26 | 22.97 | 2.677 | 1.794 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 88.31 | 36.05 | 2.266 | .9250 |
| 4 | Little Sandy River near Argillite | 400 | 16.72 | 6.312 | 4.179 | 1.578 |
| 5 | Tygarts Creek near Load | 242 | 98.16 | 2.392 | 40.56 | .9885 |
| 6 | Kinniconick Creek near Tannery | 201 | 334.5 | .8996 | 166.43 | .4476 |
| 7 | Licking River at Claysville | 827 | 38.50 | 6.802 | 4.656 | .8225 |
| 8 | North Fork Licking River at Milford | 226 | 41.11 | 7.358 | 18.19 | 3.256 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 74.79 | 12.46 | 12.04 | 2.006 |
| 10 | Licking River at West Liberty | 327 | 6.524 | 6.222 | 1.995 | 1.903 |
| 17 | Kentucky River near Trapp | 3,246 | 202.7 | 88.00 | 6.246 | 2.711 |
| 21 | Salt River at Shepherdsville | 1,197 | 191.8 | 20.15 | 16.02 | 1.683 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 194.5 | 31.78 | 14.98 | 2.447 |
| 25 | Pond Creek near Louisville | 64 | 4.852 | .5678 | 7.581 | .8871 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 320.0 | 131.4 | 5.175 | 2.125 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 6.999 | 4.067 | 1.492 | .8671 |
| 28 | Rough River near Dundee | 757 | 31.01 | 15.39 | 4.096 | 2.033 |
| 29 | Mud River near Gus | 268 | 5.530 | 2.477 | 2.064 | .9243 |
| 35 | Little River near Cadiz | 244 | 21.15 | 9.541 | 8.669 | 3.910 |
| 36 | Cumberland River at Burkesville | 6,053 | 23.25 | 8.464 | .3842 | .1398 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .2046 | .0366 | .3317 | .05936 |
| 41 | Cumberland River at Pineville | 770 | 59.50 | 18.59 | 7.727 | 2.414 |
| 44 | Bayou de Chien near Clinton | 68.7 | 11.72 | 1.033 | 17.06 | 1.504 |
| | **Lead, total, in µg/L as Pb [01051]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .069 | .043 | <.010 | <.010 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .16 | .078 | <.010 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | .016 | <.010 | <.010 | <.010 |
| 5 | Tygarts Creek near Load | 242 | .97 | .32 | <.010 | <.010 |
| 6 | Kinniconick Creek near Tannery | 201 | <.010 | <.010 | <.010 | <.010 |
| 7 | Licking River at Claysville | 827 | .025 | .014 | <.010 | <.010 |
| 8 | North Fork Licking River at Milford | 226 | <.01 | <.010 | <.010 | <.010 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .037 | .010 | <.010 | <.010 |
| 10 | Licking River at West Liberty | 327 | <.010 | <.010 | <.010 | <.010 |
| 17 | Kentucky River near Trapp | 3,246 | .16 | .067 | <.010 | <.010 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 0.22 | 0.078 | 0.018 | <0.010 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .16 | .052 | .012 | <.010 |
| 25 | Pond Creek near Louisville | 64 | .015 | <.010 | .023 | <.010 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | .34 | .12 | <.010 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | <.010 | <.010 | <.010 | <.010 |
| 28 | Rough River near Dundee | 757 | .13 | .049 | .018 | <.010 |
| 29 | Mud River near Gus | 268 | <.010 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | .027 | .014 | .011 | <.010 |
| 36 | Cumberland River at Burkesville | 6,053 | .56 | .16 | <.010 | <.010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | .12 | .017 | .016 | <.010 |
| 44 | Bayou de Chien near Clinton | 68.7 | <.010 | <.010 | <.010 | <.010 |
| | **Manganese, total, in µg/L as Mn [01055]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | 3.8 | 1.0 | .30 | .080 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | 4.2 | 1.8 | .11 | .047 |
| 4 | Little Sandy River near Argillite | 400 | 1.5 | .50 | .37 | .13 |
| 5 | Tygarts Creek near Load | 242 | 31 | .15 | 13 | .062 |
| 6 | Kinniconick Creek near Tannery | 201 | 3.8 | .043 | 1.9 | .021 |
| 7 | Licking River at Claysville | 827 | 1.6 | .37 | .19 | .045 |
| 8 | North Fork Licking River at Milford | 226 | 1.3 | .24 | .57 | .11 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | 3.6 | .47 | .58 | .076 |
| 10 | Licking River at West Liberty | 327 | .40 | .39 | .12 | .12 |
| 17 | Kentucky River near Trapp | 3,246 | 9.9 | 4.1 | .31 | .13 |
| 21 | Salt River at Shepherdsville | 1,197 | 7.8 | 1.3 | .65 | .11 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | 5.5 | 1.1 | .43 | .086 |
| 25 | Pond Creek near Louisville | 64 | .22 | .046 | .35 | .072 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 25 | <.010 | .41 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | 1.4 | .76 | .31 | .16 |
| 28 | Rough River near Dundee | 757 | 3.0 | 1.7 | .40 | .22 |
| 29 | Mud River near Gus | 268 | .21 | .12 | .08 | .045 |
| 35 | Little River near Cadiz | 244 | 3.5 | .52 | 1.4 | .21 |
| 36 | Cumberland River at Burkesville | 6,053 | 2.9 | 1.0 | .048 | .017 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | 1.7 | .67 | .22 | .087 |
| 44 | Bayou de Chien near Clinton | 68.7 | .35 | .14 | .51 | .21 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load (Tons per year (x 100)) | | Yield (Tons per year per square mile) | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | **Mercury, total, in µg/L as Hg [71900]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | <0.010 | <0.010 | <0.010 | <0.010 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | <.010 | <.010 | <.010 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | <.010 | <.010 | <.010 | <.010 |
| 5 | Tygarts Creek near Load | 242 | <.010 | <.010 | <.010 | <.010 |
| 6 | Kinniconick Creek near Tannery | 201 | <.010 | <.010 | <.010 | <.010 |
| 7 | Licking River at Claysville | 827 | <.010 | <.010 | <.010 | <.010 |
| 8 | North Fork Licking River at Milford | 226 | <.010 | <.010 | <.010 | <.010 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | <.010 | <.010 | <.010 | <.010 |
| 10 | Licking River at West Liberty | 327 | <.010 | <.010 | <.010 | <.010 |
| 17 | Kentucky River near Trapp | 3,246 | <.010 | <.010 | <.010 | <.010 |
| 21 | Salt River at Shepherdsville | 1,197 | <.010 | <.010 | <.010 | <.010 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | <.010 | <.010 | <.010 | <.010 |
| 25 | Pond Creek near Louisville | 64 | <.010 | <.010 | <.010 | <.010 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | <.010 | <.010 | <.010 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | <.010 | <.010 | <.010 | <.010 |
| 28 | Rough River near Dundee | 757 | <.010 | <.010 | <.010 | <.010 |
| 29 | Mud River near Gus | 268 | <.010 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | <.010 | <.010 | <.010 | <.010 |
| 36 | Cumberland River at Burkesville | 6,053 | .011 | <.010 | <.010 | <.010 |
| 39 | Horse Lick Creek near Lamero | 61.7 | <.010 | <.010 | <.010 | <.010 |
| 41 | Cumberland River at Pineville | 770 | <.010 | <.010 | <.010 | <.010 |
| 44 | Bayou de Chien near Clinton | 68.7 | <.010 | <.010 | <.010 | <.010 |
| | **Zinc, total, in µg/L as Zn 001092]** | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 1,280 | .35 | .23 | .027 | .018 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 3,897 | .43 | .21 | .011 | <.010 |
| 4 | Little Sandy River near Argillite | 400 | .19 | .069 | .048 | .017 |
| 5 | Tygarts Creek near Load | 242 | .11 | .049 | .047 | .020 |
| 6 | Kinniconick Creek near Tannery | 201 | .057 | .024 | .028 | .012 |
| 7 | Licking River at Claysville | 827 | .15 | .090 | .018 | .011 |
| 8 | North Fork Licking River at Milford | 226 | .090 | .030 | .040 | .013 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 621 | .12 | .030 | .019 | <.01 |
| 10 | Licking River at West Liberty | 327 | .084 | .062 | .026 | .019 |
| 17 | Kentucky River near Trapp | 3,246 | .85 | .36 | .026 | .011 |

**Table 6.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; mg/L, milligrams per liter; mL, milliliter; <, less than; µg/L, micrograms per liter]

| Map number (figure 1) | USGS/KDOW station name[1] | Drainage area (in square miles) | Mean annual load | | Yield | |
|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | |
| 21 | Salt River at Shepherdsville | 1,197 | 0.96 | 0.20 | 0.081 | 0.017 |
| 23 | Rolling Fork near Lebanon Junction | 1,299 | .72 | .10 | .055 | <.010 |
| 25 | Pond Creek near Louisville | 64 | .13 | .012 | .20 | .018 |
| 26 | Green River at Paradise/Green River near Island | 6,183 | 1.26 | .46 | .020 | <.010 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 469 | .056 | .035 | .012 | <.010 |
| 28 | Rough River near Dundee | 757 | .75 | .41 | .099 | .055 |
| 29 | Mud River near Gus | 268 | .018 | <.010 | <.010 | <.010 |
| 35 | Little River near Cadiz | 244 | .19 | .074 | .080 | .030 |
| 36 | Cumberland River at Burkesville | 6,053 | 2.09 | .85 | .035 | .014 |
| 39 | Horse Lick Creek near Lamero | 61.7 | .012 | <.010 | .019 | <.010 |
| 41 | Cumberland River at Pineville | 770 | .19 | .078 | .025 | .010 |
| 44 | Bayou de Chien near Clinton | 68.7 | .020 | <.010 | .029 | .011 |

[1]If only one station name is listed, it is both the USGS and KDOW station name. If two station names are listed, the first is the USGS station name and the second is the KDOW station name.

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | **Dissolved oxygen, in mg/L [00300]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 132 | 16 | 3.4 | 13 | 11 | 9.4 | 7.7 | 5.5 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 70 | 16 | 6.2 | 13 | 12 | 9.8 | 8.0 | 6.8 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 142 | 16 | 4.4 | 13 | 12 | 10 | 8.2 | 7.1 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 142 | 22 | 4.8 | 14 | 12 | 9.8 | 7.4 | 5.6 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 70 | 15 | 5.5 | 14 | 13 | 10.4 | 7.8 | 6.2 |
| 7 | Licking River at Claysville | 1/91-9/94 | 40 | 12 | 6.5 | 12 | 10 | 9.0 | 7.8 | 6.9 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 58 | 14 | 2.3 | 12 | 10 | 7.8 | 6.5 | 4.9 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 40 | 13 | 5.9 | 12 | 11 | 9.1 | 7.9 | 6.6 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 21 | 13 | 6.8 | 13 | 12 | 9.0 | 8.0 | 7.2 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 80 | 14 | 6.0 | 13 | 12 | 9.8 | 8.0 | 6.5 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 193 | 15 | 4.3 | 13 | 11 | 10 | 7.2 | 5.5 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | 13 | 4.1 | 12 | 11 | 7.8 | 6.4 | 5.5 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 198 | 17 | .40 | 12 | 11 | 7.9 | 6.1 | 4.2 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 73 | 12 | 3.7 | 12 | 8.9 | 7.4 | 6.2 | 4.4 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 71 | 13 | 4.4 | 12 | 9.9 | 7.6 | 6.1 | 5.1 |
| 28 | Rough River near Dundee | 9/79-9/92 | 154 | 17 | 4.4 | 13 | 11 | 8.5 | 6.9 | 5.3 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 14 | 3.8 | 13 | 10 | 7.0 | 5.4 | 4.2 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 78 | 14 | 3.5 | 12 | 10 | 6.8 | 5.3 | 3.9 |
| 35 | Little River near Cadiz | 10/85-9/97 | 143 | 14 | 5.7 | 12 | 11 | 8.7 | 7.4 | 6.4 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 154 | 14 | 5.8 | 12 | 11 | 10 | 8.8 | 7.2 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 139 | 17 | 4.9 | 13 | 11 | 10 | 8.2 | 6.3 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 111 | 15 | 5.6 | 13 | 11 | 9.4 | 8.0 | 6.6 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 138 | 15 | 2.8 | 12 | 9.4 | 6.8 | 5.4 | 3.9 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 14 | 3.3 | 13 | 11 | 8.4 | 6.9 | 5.6 |
| | | **Biological oxygen demand, 5-day at 20 degrees Celsius, in mg/L [00310]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 20 | 1.8 | .1 | 1.6 | 1.2 | .8 | .5 | .2 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | -- | -- | -- | -- | -- | -- | -- | -- |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 14 | 3.4 | .2 | 2.4 | 1.7 | 1.0 | .6 | .3 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 15 | 2.7 | 0.5 | 2.1 | 1.5 | 1.2 | 0.8 | 0.6 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | -- | -- | -- | -- | -- | -- | -- | -- |
| 7 | Licking River at Claysville | 1/91-9/94 | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10 | Licking River at West Liberty | 1/91-9/92 | -- | -- | -- | -- | -- | -- | -- | -- |
| 17 | Kentucky River near Trapp | 1/91-9/97 | -- | -- | -- | -- | -- | -- | -- | -- |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 73 | 5.7 | .0 | 4.3 | 2.5 | 1.9 | 1.2 | .2 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | -- | -- | -- | -- | -- | -- | -- | -- |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 80 | 8.3 | .4 | 6.7 | 4.2 | 2.6 | 1.9 | 1.1 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 1 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 1 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 28 | Rough River near Dundee | 9/79-9/92 | 77 | 6.1 | .1 | 3.2 | 1.6 | 1.1 | .7 | .2 |
| 29 | Mud River near Gus | 3/91-9/97 | 3 | 6.8 | 3.3 | 6.5 | 5.2 | 3.6 | 3.5 | 3.3 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 2 | 12 | 4.0 | 12 | 9.9 | 8.0 | 6.0 | 4.4 |
| 35 | Little River near Cadiz | 10/85-9/97 | 17 | 5.5 | .5 | 2.8 | 1.7 | 1.3 | .8 | .6 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 85 | 2.7 | .0 | 2.0 | 1.0 | .6 | .3 | .1 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 16 | 8.2 | .4 | 3.5 | 1.2 | 1.1 | .8 | .4 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 9 | 1.8 | .4 | 1.7 | 1.3 | 1.0 | .8 | .5 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 17 | 3.7 | .8 | 2.8 | 2.0 | 1.6 | 1.1 | .8 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 32 | 8.5 | .1 | 4.8 | 2.0 | 1.1 | .6 | .2 |
| | **Alkalinity, total as $CACO_3$, in mg/L [00410]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 142 | 224 | 10.1 | 208 | 163.5 | 112 | 79.3 | 51.1 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 181 | 7.90 | 103 | 91.3 | 77.2 | 56.5 | 35.2 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 139 | 118 | 9.47 | 54.1 | 44.9 | 35.7 | 24.5 | 16.0 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 139 | 173 | 15.4 | 111 | 94.9 | 80.3 | 65.2 | 50.4 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 69 | 36.9 | 8.10 | 35.9 | 26.8 | 17.9 | 11.0 | 8.53 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 112 | 37.9 | 106 | 72.4 | 63.2 | 51.7 | 45.1 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 219 | 66.7 | 206 | 185 | 160 | 140 | 97.8 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 226 | 99.1 | 211 | 180 | 160 | 142 | 124 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 20 | 97.2 | 24.6 | 86.5 | 71.7 | 54.5 | 35.9 | 27.5 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 76 | 120 | 20.2 | 92.6 | 76.0 | 57.3 | 44.3 | 31.0 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 203 | 370 | 42.9 | 200 | 165 | 147 | 128 | 97.4 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 208 | 33.7 | 191 | 169 | 155 | 124 | 94.9 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 208 | 357 | 8.40 | 194 | 167 | 151 | 125 | 79.4 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 73 | 140 | 27.3 | 133 | 114 | 103 | 93.2 | 70.1 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 284 | 1.00 | 224 | 138 | 92.4 | 51.9 | 34.9 |
| 28 | Rough River near Dundee | 9/79-9/92 | 146 | 194 | 12.4 | 118 | 94.9 | 81.1 | 61.7 | 38.6 |
| 29 | Mud River near Gus | 3/91-9/97 | 75 | 175 | 42.9 | 163 | 138 | 123 | 95.0 | 63.1 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 75 | 548 | 21.0 | 244 | 126 | 68.9 | 43.8 | 28.4 |
| 35 | Little River near Cadiz | 10/85-9/97 | 139 | 321 | 19.8 | 202 | 182 | 165 | 145 | 80.7 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 151 | 363 | 29.5 | 65.5 | 51.8 | 46.4 | 42.2 | 36.5 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 112 | 6.70 | 98.4 | 76.3 | 54.0 | 36.5 | 20.9 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 212 | 23.4 | 158 | 112 | 73.9 | 53.2 | 36.2 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 137 | 110 | 17.2 | 61.1 | 49.0 | 39.2 | 29.9 | 20.7 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 154 | 69.3 | 15.3 | 36.5 | 32.6 | 29.1 | 26.0 | 21.5 |
| | **Residue, total nonfilterable, in mg/L [00530]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 146 | 1,370 | 1.00 | 167 | 42.8 | 17.0 | 8.00 | 2.00 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 75 | 188 | 2.00 | 114 | 47.0 | 20.0 | 14.5 | 7.00 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 564 | 1.00 | 137 | 39.7 | 15.9 | 6.62 | 1.84 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 372 | 1.00 | 53.0 | 15.0 | 8.00 | 4.00 | 1.00 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 69 | 223 | 1.00 | 29.5 | 11.8 | 6.03 | 3.15 | 1.23 |
| 7 | Licking River at Claysville | 1/91-9/94 | 44 | 388 | 1.00 | 202 | 49.3 | 23.5 | 13.8 | 4.30 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 75 | 848 | 1.00 | 160 | 48.8 | 20.3 | 8.78 | 2.57 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 44 | 448 | 1.00 | 165 | 61.5 | 16.0 | 7.75 | 1.15 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 21 | 74.0 | 1.00 | 29.5 | 11.8 | 6.03 | 3.15 | 1.23 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 80 | 270 | 1.00 | 108 | 35.3 | 15.5 | 7.03 | 2.22 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 204 | 698 | 1.00 | 136 | 43.3 | 22.0 | 12.8 | 5.15 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 80 | 2,640 | 7.00 | 301 | 96.5 | 51.0 | 26.8 | 11.0 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 209 | 662 | 3.00 | 176 | 71.0 | 40.0 | 21.0 | 9.40 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 834 | 6.00 | 147 | 39.8 | 18.0 | 15.0 | 9.65 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 74 | 171 | 1.00 | 125 | 55.5 | 30.7 | 17.3 | 7.53 |
| 28 | Rough River near Dundee | 9/79-9/92 | 148 | 1,190 | 4.00 | 169 | 61.8 | 40.0 | 25.0 | 8.70 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 173 | 1.00 | 66.8 | 43.0 | 28.0 | 16.0 | 5.00 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 78 | 664 | 2.00 | 140 | 69.5 | 46.0 | 24.0 | 5.70 |
| 35 | Little River near Cadiz | 10/85-9/97 | 142 | 1,730 | 1.00 | 209 | 34.8 | 22.0 | 12.3 | 4.00 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 152 | 141 | .500 | 26.3 | 11.0 | 5.85 | 3.17 | 1.30 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 137 | 58.0 | 1.00 | 21.5 | 9.32 | 5.06 | 2.80 | 1.19 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 278 | 1.00 | 144 | 26.0 | 10.0 | 5.00 | 1.00 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 155 | 1.00 | 109 | 47.2 | 25.6 | 14.1 | 5.98 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 1,330 | 1.00 | 96.8 | 26.5 | 11.0 | 7.00 | 3.00 |
| | | **Ammonia, total in mg/L as N [00610]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 146 | .50 | .020 | .33 | .19 | .13 | .084 | .047 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | .080 | .050 | .08 | .08 | .07 | .072 | .067 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | .35 | .050 | .18 | .13 | .10 | .074 | .051 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | .12 | .050 | .11 | .09 | .08 | .067 | .056 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 69 | .16 | .030 | .15 | .12 | .10 | .081 | .063 |
| 7 | Licking River at Claysville | 1/91-9/94 | 42 | .18 | .050 | .15 | .11 | .09 | .072 | .054 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | .85 | .030 | .38 | .21 | .14 | .096 | .054 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 42 | .11 | .020 | .11 | .09 | .08 | .066 | .054 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 20 | .10 | .050 | .10 | .10 | .10 | .10 | .100 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 77 | .22 | .050 | .17 | .13 | .10 | .083 | .061 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 204 | 1.15 | .050 | .41 | .22 | .15 | .095 | .052 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | .17 | .040 | .14 | .10 | .08 | .067 | .050 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 207 | 5.50 | .050 | 2.29 | .83 | .39 | .19 | .067 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | .15 | .030 | .14 | .11 | .09 | .075 | .059 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | .49 | .020 | .31 | .18 | .12 | .084 | .049 |
| 28 | Rough River near Dundee | 9/79-9/92 | 141 | 1.64 | .050 | .42 | .20 | .12 | .080 | .050 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | .25 | .010 | .16 | .13 | .10 | .077 | .057 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 76 | 28 | .015 | 2.11 | .65 | .27 | .12 | .035 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 1.43 | .010 | .30 | .18 | .12 | .087 | .052 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 149 | 1.35 | .020 | .25 | .14 | .09 | .059 | .032 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 134 | .09 | .050 | .08 | .08 | .07 | .072 | .067 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 110 | .50 | .050 | .11 | .09 | .08 | .073 | .061 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 139 | 0.51 | 0.020 | 13 | 3.98 | 1.9 | 1.2 | 0.69 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 157 | 2.1 | .020 | .31 | .18 | .12 | .079 | .044 |
| | **Ammonia and organic, total in mg/L as N [00625]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 145 | 1.7 | .040 | .84 | .42 | .26 | .16 | .079 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 75 | 1.5 | .050 | .71 | .39 | .26 | .17 | .094 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 139 | 1.2 | .050 | .75 | .42 | .27 | .18 | .10 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 1.1 | .050 | .59 | .36 | .25 | .18 | .11 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 1.2 | .050 | .56 | .32 | .21 | .14 | .081 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 1.2 | .050 | .91 | .50 | .32 | .21 | .12 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 1.6 | .050 | 1.36 | .76 | .50 | .33 | .18 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 42 | 1.9 | .050 | 1.13 | .72 | .52 | .32 | .18 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 20 | .53 | .050 | .46 | .29 | .21 | .15 | .095 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 78 | .83 | .050 | .7 | .39 | .26 | .18 | .10 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 202 | 7.0 | .050 | 1.6 | .96 | .66 | .46 | .28 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 5.5 | .050 | 1.6 | .83 | .53 | .34 | .18 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 206 | 13 | .050 | 3.7 | 2.0 | 1.3 | .81 | .43 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 75 | 8.6 | .050 | 1.2 | .62 | .39 | .24 | .13 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 73 | 3.7 | .050 | 1.2 | .74 | .51 | .36 | .22 |
| 28 | Rough River near Dundee | 9/79-9/92 | 142 | 2.1 | .17 | 1.4 | .75 | .57 | .43 | .28 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | 2.1 | .050 | 1.3 | .89 | .44 | .29 | .15 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 76 | 29 | .050 | 2.8 | 1.3 | .70 | .40 | .18 |
| 35 | Little River near Cadiz | 10/85-9/97 | 140 | 2.7 | .040 | 1.1 | .53 | .32 | .19 | .095 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 148 | 4.5 | .020 | .66 | .32 | .19 | .11 | .052 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 139 | .81 | .050 | .42 | .25 | .17 | .12 | .072 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 112 | .80 | .050 | .48 | .28 | .19 | .13 | .078 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 139 | 2.4 | .070 | 1.3 | .78 | .55 | .38 | .26 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 157 | 4.3 | .050 | 1.3 | .63 | .38 | .23 | .11 |
| | **Nitrite plus nitrate, total in mg/L as N [00630]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 144 | 1.22 | .090 | .926 | .690 | .545 | .430 | .152 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 75 | .760 | .110 | .613 | .515 | .430 | .350 | .258 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 1.35 | 0.120 | 0.984 | 0.570 | 0.420 | 0.320 | 0.200 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 2.37 | .0200 | .980 | .600 | .420 | .220 | .070 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 72 | 1.98 | .0500 | .788 | .530 | .365 | .220 | .076 |
| 7 | Licking River at Claysville | 1/91-9/94 | 42 | 1.07 | .0200 | .954 | .645 | .420 | .285 | .141 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 72 | 3.16 | .0100 | 2.74 | 1.35 | .760 | .265 | .036 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 41 | 3.98 | .020 | 3.22 | 1.89 | 1.07 | .650 | .130 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 20 | .680 | .150 | .547 | .385 | .330 | .275 | .217 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 77 | .570 | .0100 | .480 | .370 | .280 | .220 | .112 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 202 | 5.40 | .0100 | 2.75 | 1.55 | 1.000 | .603 | .240 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | 1.90 | .120 | 1.48 | 1.01 | .710 | .470 | .170 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 206 | 9.80 | .0500 | 4.50 | 2.75 | 2.11 | 1.450 | .793 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 75 | 1.58 | .290 | 1.53 | 1.23 | .990 | .700 | .384 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 69 | 1.09 | .0100 | .760 | .410 | .270 | .110 | .030 |
| 28 | Rough River near Dundee | 9/79-9/92 | 142 | 2.30 | .0900 | 1.34 | .810 | .610 | .450 | .220 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | 1.36 | .0100 | 1.14 | .943 | .680 | .388 | .058 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 2.56 | .0300 | 1.92 | .590 | .370 | .250 | .114 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 6.00 | .0200 | 4.10 | 3.59 | 2.92 | 2.330 | 1.580 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 149 | .600 | .170 | .520 | .440 | .400 | .350 | .244 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 135 | 1.56 | .0100 | .390 | .230 | .160 | .110 | .040 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 1.10 | .0600 | .562 | .420 | .340 | .250 | .118 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 137 | 3.63 | .0100 | 1.06 | .590 | .290 | .120 | .020 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 157 | 3.88 | .0100 | 1.25 | .700 | .320 | .080 | .030 |
| | | **Phosphorus, total in mg/L as P [00665]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 146 | .470 | .005 | .098 | .036 | .021 | .012 | .005 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 76 | .171 | .005 | .090 | .038 | .024 | .009 | .005 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 142 | .820 | .005 | .154 | .046 | .022 | .013 | .005 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 142 | .644 | .004 | .074 | .023 | .014 | .005 | .005 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 72 | .090 | .005 | .035 | .015 | .005 | .005 | .005 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | .634 | .005 | .235 | .086 | .056 | .024 | .007 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 75 | 1.04 | .005 | .426 | .146 | .100 | .062 | .019 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 1.12 | .005 | .475 | .363 | .250 | .191 | .120 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 80 | 0.096 | 0.005 | 0.073 | 0.030 | 0.017 | 0.007 | 0.005 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 78 | .125 | .005 | .087 | .028 | .013 | .007 | .005 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 203 | 1.82 | .014 | .655 | .318 | .216 | .165 | .100 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | 1.89 | .005 | .494 | .244 | .137 | .092 | .066 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 206 | 5.36 | .066 | 2.45 | 1.500 | .654 | .281 | .115 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 1.44 | .007 | .161 | .055 | .041 | .027 | .013 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 74 | .218 | .005 | .116 | .072 | .047 | .028 | .006 |
| 28 | Rough River near Dundee | 9/79-9/92 | 142 | .530 | .005 | .154 | .073 | .046 | .027 | .012 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | .229 | .005 | .123 | .072 | .055 | .035 | .013 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 76 | .520 | .005 | .227 | .093 | .063 | .041 | .011 |
| 35 | Little River near Cadiz | 10/85-9/97 | 140 | 1.30 | .005 | .369 | .199 | .127 | .075 | .032 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 145 | .177 | .004 | .040 | .014 | .009 | .006 | .005 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 137 | .042 | .003 | .029 | .014 | .007 | .005 | .005 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 112 | .234 | .005 | .090 | .028 | .014 | .005 | .005 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 138 | .895 | .014 | .257 | .160 | .120 | .087 | .045 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 1.05 | .005 | .320 | .103 | .064 | .044 | .026 |
| | **Carbon organic, total in mg/L as C [00680]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 143 | 11 | .40 | 4.3 | 2.5 | 1.9 | 1.4 | .90 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 73 | 3.9 | .70 | 3.3 | 2.3 | 1.9 | 1.5 | 1.2 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 138 | 8.7 | .80 | 4.6 | 3.0 | 2.4 | 1.9 | 1.3 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 139 | 13 | .10 | 4.8 | 3.2 | 2.3 | 1.7 | 1.1 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 69 | 5.1 | .80 | 3.5 | 2.6 | 1.8 | 1.4 | .90 |
| 7 | Licking River at Claysville | 1/91-9/94 | 41 | 11 | 1.7 | 5.9 | 3.2 | 2.7 | 2.5 | 2.0 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 73 | 9.3 | .60 | 8.4 | 6.2 | 4.5 | 3.0 | 1.6 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 42 | 8.8 | 2.1 | 7.0 | 4.8 | 4.5 | 3.4 | 2.5 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 20 | 4.6 | .80 | 4.5 | 2.7 | 2.4 | 1.6 | 1.1 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 76 | 26 | .60 | 4.1 | 2.4 | 2.0 | 1.3 | .70 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 164 | 34 | .10 | 8.5 | 5.4 | 4.6 | 3.8 | 2.8 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | 20 | 1.3 | 8.7 | 5.0 | 3.8 | 2.8 | 2.0 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 162 | 49 | 2.3 | 11 | 7.6 | 6.0 | 4.6 | 3.4 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 98 | .40 | 4.8 | 3.1 | 2.5 | 2.0 | 1.6 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 17 | 2.5 | 7.9 | 6.0 | 4.9 | 4.1 | 3.0 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 28 | Rough River near Dundee | 9/79-9/92 | 105 | 11 | 1.3 | 7.0 | 4.7 | 3.8 | 3.2 | 2.3 |
| 29 | Mud River near Gus | 3/91-9/97 | 74 | 11 | 1.6 | 7.2 | 5.5 | 4.1 | 2.8 | 2.0 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 75 | 15 | 1.6 | 9.6 | 7.1 | 5.7 | 4.2 | 2.7 |
| 35 | Little River near Cadiz | 10/85-9/97 | 138 | 10 | .10 | 5.5 | 2.9 | 2.0 | 1.5 | 1.0 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 105 | 9.9 | .20 | 3.9 | 2.0 | 1.8 | 1.6 | 1.2 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 135 | 18 | .10 | 3.2 | 2.0 | 1.4 | .90 | .60 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 26 | .30 | 3.8 | 2.5 | 1.8 | 1.3 | .8 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 137 | 24 | .30 | 9.4 | 6.4 | 4.7 | 3.1 | 2.3 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 154 | 17 | .20 | 8.0 | 3.8 | 2.7 | 2.2 | 1.5 |
| | **Calcium, recoverable, total in mg/L as Ca [00916]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 142 | 64.2 | 18.9 | 54.4 | 45.3 | 39.0 | 32.8 | 23.9 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 58.1 | 19.9 | 50.2 | 45.2 | 37.8 | 29.9 | 24.0 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 48.0 | 5.30 | 26.3 | 23.0 | 19.4 | 15.9 | 10.7 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 51.8 | 12.2 | 43.1 | 37.3 | 33.4 | 29.3 | 23.0 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 17.3 | 5.25 | 14.5 | 10.2 | 8.38 | 6.79 | 5.61 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 295 | 17.8 | 43.2 | 30.3 | 26.9 | 24.6 | 19.5 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 72 | 121 | 21.8 | 86.1 | 72.0 | 62.6 | 52.3 | 40.3 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 42 | 98.7 | 47.2 | 84.2 | 72.8 | 63.1 | 56.4 | 49.3 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 59.0 | 11.9 | 50.7 | 32.4 | 25.3 | 21.2 | 13.1 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 61.4 | 17.0 | 55.6 | 40.2 | 28.4 | 23.3 | 18.9 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 161 | 90.7 | 17.4 | 72.3 | 61.6 | 55.0 | 48.3 | 38.6 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | 73.9 | 28.7 | 65.8 | 59.0 | 54.3 | 47.4 | 38.0 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 162 | 84.7 | 14.6 | 73.4 | 64.1 | 56.9 | 51.4 | 35.7 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 73 | 68.3 | 28.6 | 64.7 | 51.3 | 45.7 | 39.7 | 31.9 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 70 | 443 | 28.0 | 234.1 | 133.8 | 78.6 | 51.0 | 34.7 |
| 28 | Rough River near Dundee | 9/79-9/92 | 103 | 50.1 | 8.70 | 42.4 | 39.2 | 34.4 | 25.3 | 15.4 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | 74.0 | 21.9 | 66.9 | 58.8 | 51.2 | 42.2 | 28.7 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 236 | 16.8 | 203 | 85.8 | 62.0 | 44.3 | 25.9 |
| 35 | Little River near Cadiz | 10/85-9/97 | 137 | 88.4 | 12.9 | 79.4 | 71.8 | 64.3 | 54.1 | 38.6 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 105 | 34.6 | 3.10 | 26.2 | 22.9 | 20.9 | 18.7 | 15.3 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 134 | 43.4 | .100 | 39.7 | 32.1 | 22.5 | 16.8 | 9.90 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 65.0 | 11.4 | 42.5 | 34.3 | 28.7 | 23.1 | 15.8 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 138 | 18.0 | 2.90 | 13.3 | 10.6 | 8.76 | 7.24 | 5.23 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 154 | 18.6 | 2.50 | 12.2 | 9.29 | 7.92 | 6.12 | 4.62 |
| | **Magnesium, total in mg/L as Mg [00927]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 142 | 32 | 6.8 | 25 | 21 | 17 | 14 | 9.7 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 27 | 9.2 | 22 | 19 | 17 | 14 | 11 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 11 | 3.1 | 9.6 | 8.4 | 7.4 | 6.5 | 5.4 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 13 | 3.2 | 6.8 | 6.0 | 5.4 | 4.8 | 4.1 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 7.9 | 2.5 | 6.0 | 4.5 | 3.6 | 3.3 | 2.8 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 9.6 | 5.1 | 8.6 | 7.4 | 6.7 | 6.1 | 5.6 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 13 | 4.9 | 12 | 9.9 | 8.3 | 7.0 | 5.3 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 9.2 | 4.8 | 7.9 | 7.1 | 6.1 | 5.7 | 4.9 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 28 | 4.9 | 21 | 14 | 12 | 10 | 5.7 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 38 | 5.2 | 31 | 18 | 13 | 10 | 7.9 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 165 | 25 | 5.1 | 15 | 12 | 10 | 8.2 | 6.6 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 20 | 5.9 | 17 | 14 | 12 | 10 | 8.2 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 163 | 44 | 7.1 | 28 | 24 | 21 | 18 | 13 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 23 | 3.8 | 16 | 10 | 8.5 | 7.3 | 5.9 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 180 | 7.7 | 110 | 68 | 35 | 18 | 9.5 |
| 28 | Rough River near Dundee | 9/79-9/92 | 105 | 9.4 | 1.6 | 6.2 | 4.9 | 4.4 | 3.7 | 2.5 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 8.4 | 2.5 | 6.2 | 5.2 | 4.7 | 3.8 | 2.9 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 140 | 5.1 | 100 | 44 | 27 | 19 | 9.2 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 8.8 | 2.9 | 7.2 | 6.4 | 5.3 | 4.7 | 3.8 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 106 | 13 | 2.2 | 7.9 | 6.7 | 6.3 | 5.9 | 4.7 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 135 | 9.2 | 1.2 | 6.5 | 4.9 | 3.6 | 2.8 | 2.0 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 32 | 7.2 | 21 | 17 | 14 | 11 | 8.3 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 139 | 5.1 | 1.0 | 3.3 | 2.6 | 2.3 | 2.0 | 1.6 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 5.7 | 1.1 | 3.6 | 2.6 | 2.3 | 2.0 | 1.7 |
| | **Sodium, recoverable, total in mg/L as Na [00929]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 143 | 192 | 9.50 | 132 | 86.4 | 46.9 | 27.8 | 15.8 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 50.00 | 7.36 | 44.2 | 34.2 | 23.6 | 16.8 | 9.55 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 52.5 | 2.00 | 35.1 | 15.8 | 9.33 | 5.21 | 3.00 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 30.3 | 1.60 | 8.30 | 5.55 | 4.39 | 3.50 | 2.50 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 6.70 | 1.55 | 4.50 | 3.46 | 2.81 | 2.34 | 1.80 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 5.84 | 1.89 | 5.30 | 4.40 | 3.52 | 3.07 | 2.24 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 6.20 | 1.39 | 5.17 | 4.65 | 3.92 | 2.99 | 1.92 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 35.0 | 1.78 | 14.5 | 7.27 | 5.34 | 3.60 | 2.73 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 17.80 | 2.64 | 11.9 | 8.52 | 6.69 | 5.45 | 4.04 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 28.1 | 3.16 | 19.8 | 12.3 | 7.63 | 5.48 | 3.81 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 166 | 68.2 | 1.40 | 16.8 | 8.55 | 5.95 | 4.27 | 2.96 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 18.9 | 1.37 | 12.3 | 6.54 | 4.38 | 3.39 | 2.32 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 164 | 181 | 5.30 | 74.4 | 42.2 | 29.3 | 22.0 | 12.8 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 13.9 | 1.91 | 12.2 | 6.75 | 4.86 | 4.11 | 3.05 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 406 | 4.68 | 242 | 82.3 | 44.5 | 16.0 | 7.23 |
| 28 | Rough River near Dundee | 9/79-9/92 | 106 | 42.5 | .300 | 9.53 | 4.22 | 3.32 | 2.40 | 1.20 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 18.7 | 1.92 | 16.5 | 7.26 | 4.83 | 3.62 | 2.36 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 637 | 4.05 | 277 | 80.1 | 34.2 | 19.2 | 8.10 |
| 35 | Little River near Cadiz | 10/85-9/97 | 142 | 23.7 | 1.82 | 13.8 | 8.12 | 5.62 | 4.27 | 2.96 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 106 | 14.8 | 1.80 | 8.63 | 5.90 | 5.04 | 4.20 | 2.90 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 74.6 | .100 | 4.98 | 2.66 | 1.69 | 1.08 | .57 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 130 | .990 | 73 | 39.7 | 25.5 | 16.5 | 8.98 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 27.1 | 1.47 | 24.2 | 15.2 | 7.50 | 5.59 | 3.10 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 12.2 | .540 | 7.01 | 5.95 | 5.45 | 4.89 | 3.47 |
| | | **Potassium, total, in mg/L as K [00937]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 143 | 7.4 | 1.8 | 5.7 | 4.5 | 3.3 | 2.6 | 2.0 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 5.5 | 1.9 | 4.5 | 3.7 | 3.0 | 2.4 | 2.1 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 5.8 | 1.2 | 3.5 | 2.7 | 2.3 | 1.9 | 1.5 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 6.2 | 1.2 | 3.7 | 2.9 | 2.2 | 1.7 | 1.4 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 4.1 | 1.2 | 3.4 | 2.5 | 2.0 | 1.5 | 1.3 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 4.8 | 1.5 | 3.3 | 2.8 | 2.3 | 1.9 | 1.6 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 6.5 | 1.3 | 5.8 | 4.7 | 3.4 | 2.4 | 1.9 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 7.0 | 1.2 | 6.1 | 4.3 | 3.7 | 2.1 | 1.7 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 5.7 | 1.3 | 4.9 | 3.0 | 2.1 | 1.9 | 1.4 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 5.7 | 1.3 | 4.4 | 3.4 | 2.3 | 1.8 | 1.6 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 165 | 9.8 | 1.8 | 5.8 | 4.1 | 3.2 | 2.5 | 2.0 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 5.9 | 1.5 | 5.0 | 4.0 | 3.1 | 2.3 | 1.7 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 163 | 11 | 2.0 | 7.8 | 5.9 | 4.5 | 3.5 | 2.6 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 5.6 | 1.3 | 3.5 | 2.8 | 2.4 | 1.8 | 1.5 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 10 | 1.7 | 9.0 | 5.5 | 3.5 | 2.9 | 2.0 |
| 28 | Rough River near Dundee | 9/79-9/92 | 105 | 5.3 | 1.3 | 3.7 | 2.9 | 2.5 | 2.1 | 1.6 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 6.7 | 1.3 | 5.4 | 4.0 | 2.8 | 1.9 | 1.5 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 15 | 1.8 | 9.5 | 5.5 | 3.6 | 2.6 | 2.0 |
| 35 | Little River near Cadiz | 10/85-9/97 | 142 | 9.3 | 1.1 | 4.2 | 2.9 | 2.2 | 1.6 | 1.3 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 106 | 3.3 | 1.1 | 1.8 | 1.6 | 1.5 | 1.3 | 1.2 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 133 | 94 | .63 | 2.7 | 1.7 | 1.2 | 1.0 | .81 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 5.7 | 1.4 | 4.6 | 3.3 | 2.5 | 2.0 | 1.7 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 14.2 | 1.0 | 5.8 | 4.5 | 3.5 | 2.8 | 1.6 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 8.1 | .60 | 4.6 | 2.5 | 1.7 | 1.2 | .89 |
| | **Chloride, dissolved, in mg/L as Cl [00940]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 146 | 61.8 | .100 | 39.5 | 24.0 | 13.3 | 7.83 | 5.12 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 76 | 30.2 | 1.00 | 26.3 | 18.9 | 14.1 | 8.98 | 4.15 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 142 | 64.9 | .100 | 52.4 | 24.0 | 13.6 | 7.84 | 3.53 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 142 | 47.7 | .100 | 12.7 | 8.7 | 6.50 | 4.60 | 2.22 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 11.0 | .100 | 7.4 | 4.7 | 3.39 | 2.46 | 1.55 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 11.5 | .100 | 8.6 | 5.7 | 4.24 | 3.17 | 2.09 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 75 | 15.8 | 1.00 | 11.9 | 8.1 | 6.08 | 4.60 | 3.10 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 44 | 26.4 | .100 | 17.3 | 10.5 | 7.29 | 5.11 | 3.07 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 21 | 29.6 | .100 | 22.4 | 14.0 | 9.97 | 7.14 | 4.43 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 80 | 25.8 | .300 | 16.5 | 9.0 | 5.85 | 3.83 | 2.08 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 206 | 44.9 | .100 | 26.1 | 14.3 | 10.3 | 7.40 | 4.80 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 80 | 25.4 | .100 | 17.9 | 10.4 | 7.02 | 4.78 | 2.76 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 211 | 135 | 3.58 | 72.7 | 50.8 | 39.4 | 27.0 | 13.6 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 75 | 18.9 | 1.00 | 14.6 | 9.5 | 6.97 | 5.14 | 3.32 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 74 | 29.8 | 1.00 | 21.9 | 13.1 | 9.45 | 5.78 | 3.60 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 28 | Rough River near Dundee | 9/79-9/92 | 148 | 68.6 | 0.100 | 13.1 | 6.1 | 5.05 | 3.88 | 2.04 |
| 29 | Mud River near Gus | 3/91-9/97 | 78 | 28.0 | .100 | 21.8 | 15.3 | 7.79 | 5.10 | 2.78 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 78 | 134 | .100 | 2.1 | .7 | .27 | .12 | .04 |
| 35 | Little River near Cadiz | 10/85-9/97 | 143 | 23.5 | .500 | 15.6 | 11.0 | 8.20 | 6.65 | 3.53 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 151 | 76.8 | .050 | 7.1 | 4.8 | 3.70 | 3.00 | 1.65 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 140 | 141 | .000 | 8.3 | 3.8 | 2.60 | 1.60 | .10 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 110 | 17.3 | .100 | 13.8 | 7.3 | 4.60 | 2.93 | 1.54 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 141 | 99.9 | .100 | 12.5 | 9.0 | 6.85 | 4.40 | 2.30 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 158 | 16.6 | .050 | 7.7 | 5.9 | 4.20 | 3.10 | 1.00 |
| | **Sulfate, dissolved, in mg/L as $SO_4$ [00946]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 144 | 396 | 11.0 | 241 | 185 | 129 | 103 | 64.7 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 75 | 210 | 19.5 | 180 | 159 | 127 | 101 | 66.9 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 1,720 | 9.80 | 61.4 | 47.4 | 40.7 | 35.3 | 27.2 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 137 | 9.50 | 46.9 | 27.9 | 23.3 | 20.1 | 14.4 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 70 | 129 | 5.00 | 46.4 | 26.4 | 21.5 | 18.9 | 12.1 |
| 7 | Licking River at Claysville | 1/91-9/94 | 42 | 58.2 | 5.00 | 49.0 | 34.4 | 30.6 | 26.7 | 16.7 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 73 | 63.1 | 5.00 | 57.0 | 42.8 | 32.4 | 26.2 | 15.4 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 41 | 123 | 5.00 | 54.6 | 37.4 | 30.8 | 23.8 | 14.2 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 21 | 178 | 21.2 | 90.6 | 67.6 | 59.2 | 47.1 | 36.4 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 78 | 221 | 11.6 | 188 | 113 | 79.9 | 57.6 | 33.9 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 202 | 91.5 | 3.50 | 59.3 | 40.8 | 31.2 | 25.1 | 16.0 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | 105 | 10.4 | 60.4 | 39.7 | 30.4 | 24.7 | 16.4 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 207 | 286 | 4.69 | 145 | 99.6 | 82.4 | 69.9 | 39.8 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 72 | 492 | 5.00 | 122 | 62.1 | 44.0 | 32.9 | 21.2 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 66 | 1,900 | 45.6 | 1,298 | 556 | 281 | 153 | 78.8 |
| 28 | Rough River near Dundee | 9/79-9/92 | 147 | 858 | 3.54 | 47.6 | 22.7 | 17.5 | 13.7 | 9.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 74 | 78.3 | 5.00 | 45.4 | 28.1 | 19.1 | 14.0 | 8.23 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 74 | 1,690 | 13.9 | 1,110 | 300 | 206 | 124 | 41.1 |
| 35 | Little River near Cadiz | 10/85-9/97 | 139 | 66.7 | 3.40 | 25.3 | 15.4 | 11.8 | 9.63 | 5.94 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 153 | 97.3 | 13.8 | 39.8 | 35.5 | 32.0 | 28.8 | 22.1 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 101 | 4.92 | 44.5 | 20.9 | 15.8 | 13.0 | 10.5 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 432 | 23.2 | 186 | 133 | 97.1 | 71.4 | 46.6 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 138 | 67.7 | 3.40 | 24.3 | 13.4 | 9.9 | 6.89 | 5.00 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 154 | 1,420 | 2.00 | 31.2 | 9.66 | 7.31 | 5.20 | 3.35 |
| | **Arsenic, total, in µg/L as As [01002]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 139 | 11 | 1.0 | 9.5 | 6.1 | 4.5 | 3.3 | 2.1 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 7.0 | 1.0 | 8.3 | 6.4 | 5.3 | 4.4 | 3.4 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 138 | 11 | 1.0 | 9.5 | 6.2 | 4.5 | 3.3 | 2.1 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 137 | 11 | 1.0 | 8.4 | 5.9 | 4.6 | 3.6 | 2.6 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 9.0 | 1.0 | 7.7 | 5.7 | 4.6 | 3.7 | 2.7 |
| 7 | Licking River at Claysville | 1/91-9/94 | 41 | 6.0 | 1.0 | 5.8 | 4.5 | 3.8 | 3.2 | 2.5 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 4.0 | 1.6 | 3.8 | 3.1 | 2.7 | 2.3 | 1.9 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 42 | 5.0 | 1.0 | 4.8 | 4.0 | 3.5 | 3.0 | 2.5 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 18 | 14 | 1.0 | 10 | 7.0 | 5.3 | 4.0 | 2.7 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 78 | 4.0 | 1.0 | 3.8 | 3.4 | 3.1 | 2.9 | 2.6 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 193 | 20 | 1.0 | 9.5 | 6.6 | 5.0 | 3.9 | 2.7 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 21 | 1.0 | 7.5 | 4.9 | 3.5 | 2.6 | 1.7 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 199 | 33 | 1.0 | 11 | 7.0 | 5.0 | 3.6 | 2.3 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 16 | 1.0 | 14 | 8.9 | 6.4 | 4.6 | 2.9 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 3.0 | 1.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 28 | Rough River near Dundee | 9/79-9/92 | 132 | 11 | 1.0 | 4.4 | 2.0 | 1.5 | 1.0 | 1.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 8.0 | 1.0 | 6.3 | 5.3 | 3.9 | 3.2 | 2.4 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 8.0 | .1 | 2.8 | 1.3 | .7 | .4 | .2 |
| 35 | Little River near Cadiz | 10/85-9/97 | 139 | 13 | 1.0 | 9.4 | 5.9 | 4.2 | 3.0 | 1.9 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 141 | 17 | .5 | 7.2 | 3.6 | 2.2 | 1.4 | .7 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 12 | 1.0 | 9.9 | 6.7 | 5.0 | 3.8 | 2.6 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 10 | 1.0 | 7.7 | 5.7 | 4.5 | 3.7 | 2.7 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 137 | 21 | 1.0 | 7.6 | 5.0 | 3.8 | 2.8 | 1.9 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 152 | 14 | 1.0 | 8.5 | 3.7 | 2.3 | 1.3 | .8 |
| | **Barium, total, in µg/L as Ba [01007]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 141 | 342 | 2.0 | 105 | 70 | 50 | 41 | 30 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 73 | 85 | 7.0 | 68 | 60 | 52 | 42 | 33 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 296 | 1.0 | 91 | 55 | 39 | 27 | 17 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 290 | 2.0 | 80 | 46 | 31 | 21 | 12 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 49 | 2.0 | 36 | 25 | 20 | 17 | 12 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 60 | 13 | 50 | 34 | 26 | 22 | 13 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 84 | 2.0 | 49 | 31 | 27 | 24 | 18 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 72 | 12 | 51 | 31 | 26 | 23 | 15 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 417 | 35 | 115 | 60 | 43 | 40 | 36 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 472 | 2.0 | 67 | 47 | 39 | 30 | 22 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 177 | 351 | 1.0 | 91 | 47 | 29 | 19 | 9.5 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | 243 | 13 | 76 | 43 | 35 | 27 | 19 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 176 | 154 | 1.0 | 110 | 67 | 47 | 33 | 20 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 286 | 18 | 55 | 39 | 33 | 29 | 23 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 79 | 14 | 57 | 43 | 36 | 29 | 18 |
| 28 | Rough River near Dundee | 9/79-9/92 | 116 | 196 | 6.0 | 110 | 55 | 42 | 35 | 19 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | 91 | 13 | 76 | 58 | 47 | 35 | 29 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 480 | 6.0 | 83 | 69 | 46 | 34 | 22 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 303 | 5.0 | 106 | 61 | 51 | 45 | 24 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 117 | 396 | .5 | 74 | 39 | 24 | 15 | 7.9 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 103 | 1.0 | 51 | 30 | 20 | 14 | 8.1 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 181 | 2.0 | 74 | 51 | 40 | 33 | 19 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 274 | 1.0 | 102 | 61 | 42 | 29 | 18 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 416 | 1.0 | 89 | 40 | 25 | 14 | 8.8 |
| | **Cadmium, total, in µg/L as Cd [01027]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 141 | 3.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 6.0 | 1.0 | 6.4 | 4.3 | 3.2 | 2.4 | 1.6 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 193 | 20 | 1.0 | 19 | 11 | 6.9 | 4.5 | 2.4 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 198 | 27 | 1.0 | 18 | 8.8 | 5.4 | 3.3 | 1.6 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 73 | 3.0 | 1.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 28 | Rough River near Dundee | 9/79-9/92 | 138 | 11.0 | 1.0 | 3.2 | 1.0 | 1.0 | 1.0 | 1.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 82 | 1.0 | 46 | 21 | 12 | 6.6 | 2.9 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 2.0 | 1.0 | 1.2 | 1.1 | 1.0 | .9 | .9 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 140 | 23 | .50 | 15 | 7.5 | 4.6 | 2.9 | 1.5 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 135 | 3.0 | 1.0 | 3.1 | 2.6 | 2.3 | 2.0 | 1.7 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 5.0 | 1.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 139 | 5.0 | 1.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 2.0 | 1.0 | 3.1 | 2.1 | 1.7 | 1.3 | 1.1 |
| | | **Chromium, total, in µg/L as Cr [01034]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 140 | 29 | 1.0 | 3.6 | 3.0 | 2.6 | 2.3 | 1.9 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 8.0 | 1.0 | 6.1 | 4.1 | 3.1 | 2.4 | 1.6 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 139 | 15 | 1.0 | 6.9 | 4.2 | 3.0 | 2.1 | 1.3 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 139 | 121 | 1.0 | 8.9 | 5.2 | 3.5 | 2.4 | 1.4 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 8.0 | 1.0 | 6.3 | 4.2 | 3.1 | 2.3 | 1.5 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 9.0 | 1.0 | 6.6 | 4.6 | 3.6 | 2.7 | 1.9 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 15 | 1.0 | 8.8 | 5.2 | 3.6 | 2.5 | 1.4 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 10 | 1.0 | 7.2 | 4.6 | 3.3 | 2.4 | 1.6 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 10 | 1.0 | 7.9 | 4.9 | 3.5 | 2.5 | 1.6 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 7.0 | 1.0 | 5.9 | 4.1 | 3.1 | 2.3 | 1.6 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 201 | 12 | 1.0 | 9.2 | 5.5 | 3.8 | 2.6 | 1.6 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | 34 | 1.0 | 10 | 5.3 | 3.3 | 2.1 | 1.1 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 206 | 27 | 1.0 | 9.4 | 5.7 | 3.9 | 2.8 | 1.6 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 28 | 1.0 | 11 | 6.0 | 3.8 | 2.5 | 1.3 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 73 | 9.0 | 1.0 | 6.0 | 3.9 | 2.9 | 2.1 | 1.4 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 28 | Rough River near Dundee | 9/79-9/92 | 140 | 19 | 1.0 | 7.0 | 4.0 | 2.0 | 1.0 | 1.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 9.0 | 1.0 | 5.9 | 4.6 | 2.9 | 2.2 | 1.4 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 19 | 1.0 | 5.4 | 4.2 | 3.6 | 3.0 | 2.3 |
| 35 | Little River near Cadiz | 10/85-9/97 | 140 | 39 | 1.0 | 9.1 | 5.2 | 3.4 | 2.3 | 1.3 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 147 | 10 | .5 | 4.6 | 2.7 | 1.9 | 1.3 | .8 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 9.0 | 1.0 | 5.3 | 3.7 | 2.8 | 2.2 | 1.5 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 12 | 1.0 | 6.9 | 4.5 | 3.4 | 2.5 | 1.7 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 138 | 12 | 1.0 | 6.1 | 4.2 | 3.3 | 2.5 | 1.7 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 13 | 1.0 | 6.6 | 3.1 | 2.1 | 1.2 | .8 |
| | | **Copper, total, in µg/L as Cu [01042]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 143 | 40 | 1.0 | 9.1 | 5.0 | 3.2 | 2.1 | 1.2 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 10 | 1.0 | 6.9 | 4.5 | 3.3 | 2.4 | 1.6 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 55 | 1.0 | 9.8 | 5.3 | 3.3 | 2.2 | 1.1 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 25 | 1.0 | 10 | 5.7 | 3.7 | 2.5 | 1.4 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 14 | 1.0 | 8.1 | 4.7 | 3.2 | 2.2 | 1.2 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 59 | 1.0 | 14 | 7.4 | 4.7 | 3.0 | 1.6 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 17 | 1.0 | 8.9 | 5.1 | 3.4 | 2.3 | 1.3 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 11 | 1.0 | 7.3 | 4.8 | 3.5 | 2.6 | 1.7 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 26 | 1.0 | 9.1 | 4.9 | 3.2 | 2.1 | 1.1 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 9.0 | 1.0 | 6.5 | 4.2 | 3.0 | 2.2 | 1.4 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 202 | 53 | 1.0 | 18 | 9.6 | 6.1 | 3.9 | 2.0 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | 45 | 1.0 | 10 | 4.8 | 2.7 | 1.6 | .74 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 207 | 33 | 1.0 | 16 | 9.4 | 6.3 | 4.3 | 2.4 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 30 | 1.0 | 8.9 | 5.1 | 3.4 | 2.3 | 1.3 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 73 | 12 | 1.0 | 6.0 | 3.9 | 2.9 | 2.1 | 1.3 |
| 28 | Rough River near Dundee | 9/79-9/92 | 141 | 53 | 1.0 | 14 | 5.0 | 3.0 | 2.0 | 1.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 35 | 1.0 | 7.8 | 5.6 | 3.0 | 2.1 | 1.2 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 88 | 1.0 | 16 | 3.0 | 2.0 | 2.0 | 1.0 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 57 | 1.0 | 12 | 6.1 | 3.8 | 2.4 | 1.2 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 147 | 52 | .50 | 16 | 6.5 | 3.4 | 1.8 | .71 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 135 | 17 | 1.0 | 6.6 | 4.1 | 2.9 | 2.1 | 1.3 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 23 | 1.0 | 9.2 | 5.5 | 3.8 | 2.6 | 1.5 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 139 | 46 | 1.0 | 10 | 5.7 | 3.7 | 2.4 | 1.3 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 31 | 1.0 | 9.5 | 3.8 | 2.3 | 1.2 | .7 |
| | **Iron, total, in µg/L as Fe [01045]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 140 | 11,800 | 3.000 | 4,647 | 1,568 | 731.0 | 467.3 | 209.0 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 7,660 | 309.0 | 5,203 | 1,880 | 992.5 | 610.0 | 398.7 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 139 | 17,700 | 276.0 | 6,445 | 1,960 | 950.5 | 649.5 | 418.0 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 9,950 | 147.0 | 2,353 | 979 | 659.5 | 539.5 | 390.0 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 6,910 | 185.0 | 2,180 | 748 | 479.0 | 321.5 | 216.5 |
| 7 | Licking River at Claysville | 1/91-9/94 | 42 | 17,000 | 56.00 | 9,892 | 2,053 | 1,120 | 719.0 | 312.7 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 31,400 | 107.0 | 8,850 | 2,020 | 888.0 | 413.5 | 135.9 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 19,000 | 11.00 | 7,609 | 2,170 | 770.5 | 485.5 | 118.3 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 4,020 | 616.0 | 2,283 | 1,635 | 1,190 | 882.5 | 663.7 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 12,100 | 55.00 | 5,567 | 1,670 | 723.0 | 431.0 | 145.6 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 191 | 24,900 | 80.00 | 4,775 | 1,420 | 760.0 | 363.0 | 170.0 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 77,500 | 367.0 | 13,555 | 3,480 | 1,985 | 1,340 | 740.8 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 196 | 17,800 | 30.00 | 4,445 | 1,913 | 1,228 | 640.0 | 297.5 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 49,000 | 84.00 | 4,925 | 1,265 | 776 | 530.5 | 314.9 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 8,860 | 299.0 | 4,786 | 2,384 | 1,700 | 1,155 | 662.3 |
| 28 | Rough River near Dundee | 9/79-9/92 | 136 | 10,300 | 10.00 | 5,198 | 1,858 | 1,100 | 655.0 | 315.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 8,820 | 238.0 | 2,694 | 1,570 | 1,150 | 779.0 | 412.4 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 23,700 | 254.0 | 4,660 | 2,880 | 2,000 | 1,180 | 524.6 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 37,400 | 90.00 | 5,550 | 940.0 | 533.0 | 343.0 | 170.0 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 138 | 2,040 | 10.00 | 712.2 | 263.0 | 129.0 | 80.25 | 20.00 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 133 | 1,980 | 10.00 | 878.1 | 453.5 | 280.7 | 175.9 | 89.73 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 10,100 | 35.00 | 5,661 | 1,263 | 501.0 | 320.0 | 181.7 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 138 | 5,750 | 2.330 | 4,843 | 3,133 | 2,435 | 1,860 | 1,203 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 154 | 25,060 | 500.0 | 6,548 | 1,820 | 1,265 | 984.8 | 746.5 |
| | **Lead, total, in µg/L as Pb [01051]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 1,42 | 41 | 1.0 | 10 | 5.5 | 3.5 | 2.2 | 1.2 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 23 | .30 | 14 | 7.6 | 4.9 | 3.2 | 1.7 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 21 | 1.0 | 12 | 7.2 | 5.0 | 3.4 | 2.0 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 46 | 1.0 | 15 | 8.9 | 6.0 | 4.0 | 2.3 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 8.0 | 1.0 | 7.5 | 5.6 | 4.5 | 3.6 | 2.7 |
| 7 | Licking River at Claysville | 1/91-9/94 | 42 | 10 | 1.0 | 8.1 | 5.9 | 4.7 | 3.7 | 2.7 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 20 | 1.0 | 12 | 7.4 | 5.3 | 3.9 | 2.5 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 18 | 1.0 | 13 | 8.1 | 5.8 | 4.2 | 2.6 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 13 | 1.0 | 7.3 | 5.4 | 4.4 | 3.6 | 2.6 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 13 | 1.0 | 8.5 | 5.9 | 4.5 | 3.5 | 2.4 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 201 | 410 | 1.0 | 130 | 39 | 16 | 7.1 | 2.1 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 79 | 58 | 1.0 | 12 | 6.7 | 4.3 | 2.7 | 1.5 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 208 | 340 | 1.0 | 73 | 25 | 11 | 5.1 | 1.7 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 49 | 1.0 | 17 | 8.3 | 4.9 | 2.9 | 1.4 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 4.0 | 1.0 | 4.2 | 3.5 | 3.1 | 2.8 | 2.3 |
| 28 | Rough River near Dundee | 9/79-9/92 | 140 | 450 | 1.0 | 31 | 8.5 | 2.0 | 2.0 | 1.0 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 19 | 1.0 | 11 | 8.3 | 5.1 | 3.7 | 2.4 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 25 | 1.0 | 13 | 7.8 | 5.4 | 3.7 | 2.2 |
| 35 | Little River near Cadiz | 10/85-9/97 | 140 | 140 | 1.0 | 9.1 | 2.0 | 2.0 | 2.0 | 1.0 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 145 | 280 | .50 | 45 | 14 | 6.3 | 2.9 | .90 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 134 | 87 | 1.0 | 16 | 8.8 | 5.7 | 3.7 | 2.0 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 110 | 20 | 1.0 | 12 | 7.8 | 5.8 | 4.3 | 2.9 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 139 | 32 | 1.0 | 9.6 | 6.2 | 4.5 | 3.3 | 2.1 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 156 | 29 | 1.0 | 13 | 5.5 | 3.5 | 2.0 | 1.2 |
| | | **Manganese, total, in µg/L as Mn [01055]** | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 142 | 1,450.000 | 8.000 | 240.000 | 110.000 | 80.000 | 60.000 | 40.000 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 634.000 | 11.000 | 257.150 | 106.250 | 73.500 | 60.250 | 33.900 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 1,070.000 | 22.000 | 732.000 | 400.500 | 239.500 | 156.000 | 77.000 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 590.000 | 14.000 | 340.000 | 160.000 | 90.900 | 60.000 | 39.000 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 280.000 | 1.000 | 191.000 | 72.000 | 28.000 | 18.000 | 10.500 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 544.000 | 25.000 | 383.400 | 140.500 | 84.000 | 56.500 | 33.000 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 848.000 | 18.000 | 349.450 | 124.500 | 72.000 | 41.250 | 27.650 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 693.000 | 3.000 | 367.052 | 125.564 | 57.036 | 26.752 | 8.863 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 290.000 | 80.000 | 281.000 | 217.500 | 150.000 | 109.000 | 87.110 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 386.000 | 18.000 | 264.100 | 130.000 | 93.000 | 64.500 | 33.700 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 192 | 2,810.000 | 17.000 | 406.150 | 160.500 | 110.000 | 72.500 | 40.000 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 2,440.000 | 37.000 | 371.200 | 180.000 | 122.000 | 74.000 | 46.700 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 197 | 1,280.000 | 22.000 | 300.400 | 181.000 | 140.000 | 100.000 | 50.000 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 4,130.000 | 18.000 | 502.150 | 152.750 | 109.000 | 79.000 | 44.650 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 3,740.000 | 79.000 | 1,662.500 | 833.250 | 546.500 | 310.250 | 126.550 |
| 28 | Rough River near Dundee | 9/79-9/92 | 137 | 1,720.000 | 48.000 | 866.000 | 410.000 | 250.000 | 170.000 | 119.400 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 385.000 | 9.000 | 304.200 | 186.000 | 128.000 | 65.000 | 19.800 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 2,010.000 | 75.000 | 1,492.000 | 1,090.000 | 690.000 | 408.000 | 120.200 |
| 35 | Little River near Cadiz | 10/85-9/97 | 142 | 2,540.000 | 20.000 | 352.800 | 90.000 | 68.000 | 50.000 | 27.150 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 139 | 180.000 | 1.000 | 102.848 | 51.807 | 31.484 | 19.383 | 9.638 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 136 | 253.000 | 1.000 | 89.899 | 29.052 | 12.635 | 5.695 | 1.776 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 500.000 | 1.000 | 170.600 | 84.000 | 60.000 | 37.000 | 21.400 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 4,630.000 | 30.000 | 1,380.000 | 818.000 | 445.000 | 230.000 | 77.600 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 4,400.000 | 9.500 | 586.900 | 380.000 | 280.000 | 190.000 | 99.700 |
| | **Zinc, total, in µg/L as Zn [01092]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 143 | 310 | 1.0 | 55 | 22 | 13 | 8.0 | 2.0 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 63 | 1.0 | 35 | 18 | 11 | 7.2 | 3.7 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 141 | 350 | 1.0 | 93 | 36 | 18 | 9.0 | 3.3 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 141 | 390 | 1.0 | 76 | 30 | 15 | 7.9 | 3.0 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 130 | 1.0 | 72 | 26 | 13 | 6.3 | 2.3 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 310 | 1.0 | 57 | 24 | 12 | 6.6 | 2.6 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 180 | 1.0 | 38 | 17 | 9.1 | 5.1 | 2.2 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 160 | 1.0 | 38 | 16 | 8.2 | 4.4 | 1.8 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 230 | 1.0 | 120 | 46 | 23 | 12 | 4.6 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 77 | 1.0 | 36 | 16 | 8.7 | 4.9 | 2.1 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 190 | 370 | 1.0 | 87 | 32 | 15 | 7.6 | 2.7 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | 190 | 1.0 | 51 | 19 | 10 | 4.9 | 1.8 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 197 | 360 | 1.0 | 123 | 49 | 25 | 13 | 5.1 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 190 | 1.0 | 31 | 15 | 8.5 | 5.0 | 2.3 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 71 | 170 | 1.0 | 51 | 26 | 16 | 10 | 5.1 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 28 | Rough River near Dundee | 9/79-9/92 | 137 | 300 | 1.0 | 93 | 33 | 14 | 8.0 | 3.8 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | 120 | 1.0 | 32 | 19 | 7.1 | 3.9 | 1.6 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 100 | 1.0 | 41 | 21 | 13 | 7.8 | 3.9 |
| 35 | Little River near Cadiz | 10/85-9/97 | 141 | 360 | 1.0 | 61 | 24 | 12 | 6.1 | 2.3 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 138 | 290 | .50 | 63 | 23 | 11 | 5.1 | 1.8 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 135 | 300 | 1.0 | 41 | 14 | 7.0 | 4.0 | 1.0 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 109 | 290 | 1.0 | 52 | 21 | 11 | 6.0 | 2.4 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 1,600 | 1.0 | 68 | 27 | 13 | 6.9 | 2.7 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 320 | 1.0 | 51 | 16 | 8.2 | 3.7 | 1.8 |
| | **Aluminum, total, in µg/L as Al [01105]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 141 | 16,400 | 9.000 | 2,760 | 725.0 | 328.0 | 153.0 | 70.00 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 74 | 2,640 | 50.00 | 2,238 | 923.8 | 306.0 | 186.8 | 97.25 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 140 | 4,900 | 1.000 | 2,323 | 651.9 | 254.4 | 103.9 | 27.87 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 140 | 3,620 | 1.000 | 1,238 | 406.3 | 178.8 | 81.48 | 25.83 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | 3,520 | 6.000 | 635.1 | 236.5 | 114.6 | 57.02 | 20.66 |
| 7 | Licking River at Claysville | 1/91-9/94 | 43 | 11,800 | 28.00 | 4,349 | 1,440 | 653.0 | 286.5 | 125.20 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 74 | 23,300 | 25.00 | 5,051 | 1,568 | 552.5 | 229.8 | 47.85 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 43 | 12,800 | 24.00 | 7,670 | 1,570 | 457.5 | 263.5 | 52.10 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 19 | 3,710 | 23.00 | 1,544 | 687.7 | 381.3 | 215.3 | 94.19 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 79 | 6,250 | 37.00 | 3,354 | 802 | 326.0 | 128.0 | 46.90 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 166 | 12,200 | 2.000 | 2,960 | 1,028 | 497.0 | 255.5 | 122.0 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 78 | 41,000 | 125.00 | 5,876 | 2,058 | 1,100 | 581.3 | 210.6 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 163 | 17,700 | 7.000 | 3,195 | 1,186 | 715.0 | 402.5 | 187.4 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | 49,000 | 56.00 | 3,142 | 1,040 | 467.0 | 352.8 | 175.7 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 72 | 5,060 | 85.00 | 2,989 | 1,468 | 1,045 | 530.8 | 149.65 |
| 28 | Rough River near Dundee | 9/79-9/92 | 105 | 5,340 | 20.00 | 3,550 | 1,270 | 630.0 | 344.0 | 97.8 |
| 29 | Mud River near Gus | 3/91-9/97 | 77 | 7,440 | 84.00 | 2,022 | 1,230 | 895.0 | 494.0 | 150.4 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 77 | 16,800 | 45.00 | 3,202 | 1,900 | 1,190 | 705.0 | 187.8 |
| 35 | Little River near Cadiz | 10/85-9/97 | 139 | 22,100 | 6.000 | 3,860 | 948.5 | 450.0 | 233.0 | 76.00 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 107 | 1,420 | .500 | 631.6 | 203.4 | 88.24 | 39.68 | 12.33 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 133 | 874.0 | 1.000 | 523.6 | 182.0 | 83.71 | 39.71 | 13.38 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 108 | 10,600 | 19.00 | 2,797 | 593.0 | 184.5 | 73.25 | 34.10 |

**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 140 | 5,500 | 19.00 | 3,461 | 1,643 | 929.0 | 438.0 | 135.5 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 11,700 | 6.000 | 3,613 | 672.0 | 274.0 | 156.0 | 74.50 |
| | **Fecal-coliform bacteria, colonies per 100 mL [31616]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 122 | 99,000 | 1.0 | 7,100 | 1,760 | 630 | 240 | 56 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 51 | 7,000 | 10 | 4,600 | 950 | 300 | 98 | 19 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 114 | 5,800 | 3.0 | 2,500 | 510 | 190 | 82 | 19 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 114 | 4,300 | 1.0 | 1,700 | 390 | 120 | 70 | 17 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 48 | 960 | 2.0 | 440 | 230 | 92 | 47 | 11 |
| 7 | Licking River at Claysville | 1/91-9/94 | 44 | 12,000 | 10 | 3,700 | 610 | 160 | 45 | 6.9 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 51 | 16,000 | 10 | 8,100 | 1,500 | 420 | 130 | 22 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 44 | 16,000 | 10 | 4,100 | 820 | 250 | 81 | 15 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 21 | 1,800 | 20 | 1,400 | 800 | 300 | 250 | 25 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 57 | 2,300 | 4.0 | 1,200 | 340 | 130 | 53 | 14 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 175 | 19,000 | 2.0 | 4,900 | 900 | 250 | 77 | 13 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 57 | 16,000 | 10 | 5,400 | 1,100 | 320 | 100 | 19 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 182 | 20,000 | 2.0 | 13,000 | 2,000 | 480 | 130 | 18 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 52 | 800 | 3 | 740 | 320 | 176 | 98 | 42 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 51 | 600 | 20 | 360 | 170 | 100 | 60 | 28 |
| 28 | Rough River near Dundee | 9/79-9/92 | 106 | 5,340 | 1.0 | 3,500 | 1,250 | 620 | 340 | 93 |
| 29 | Mud River near Gus | 3/91-9/97 | 55 | 670 | 18 | 450 | 290 | 123 | 73 | 34 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 55 | 800 | 30 | 430 | 210 | 120 | 75 | 36 |
| 35 | Little River near Cadiz | 10/85-9/97 | 118 | 12,600 | 1.0 | 490 | 190 | 100 | 52 | 20 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 133 | 6,600 | 1.0 | 910 | 180 | 53 | 17 | 3 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 125 | 1,750 | 4 | 350 | 120 | 53 | 25 | 8 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 98 | 3,000 | 1.0 | 1,600 | 510 | 220 | 96 | 29 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 119 | 2,500 | 1.0 | 500 | 190 | 92 | 46 | 17 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 134 | 8,000 | 10 | 800 | 260 | 140 | 64 | 32 |
| | **Mercury, total, in µg/L as Hg [71900]** | | | | | | | | | |
| 1 | Tug Fork at Kermit, West Virginia | 2/85-9/97 | 143 | .9 | .05 | .7 | .5 | .3 | .2 | .1 |
| 2 | Levisa Fork at Paintsville/Levisa Fork near Louisa | 6/91-9/97 | 75 | 1.0 | .05 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

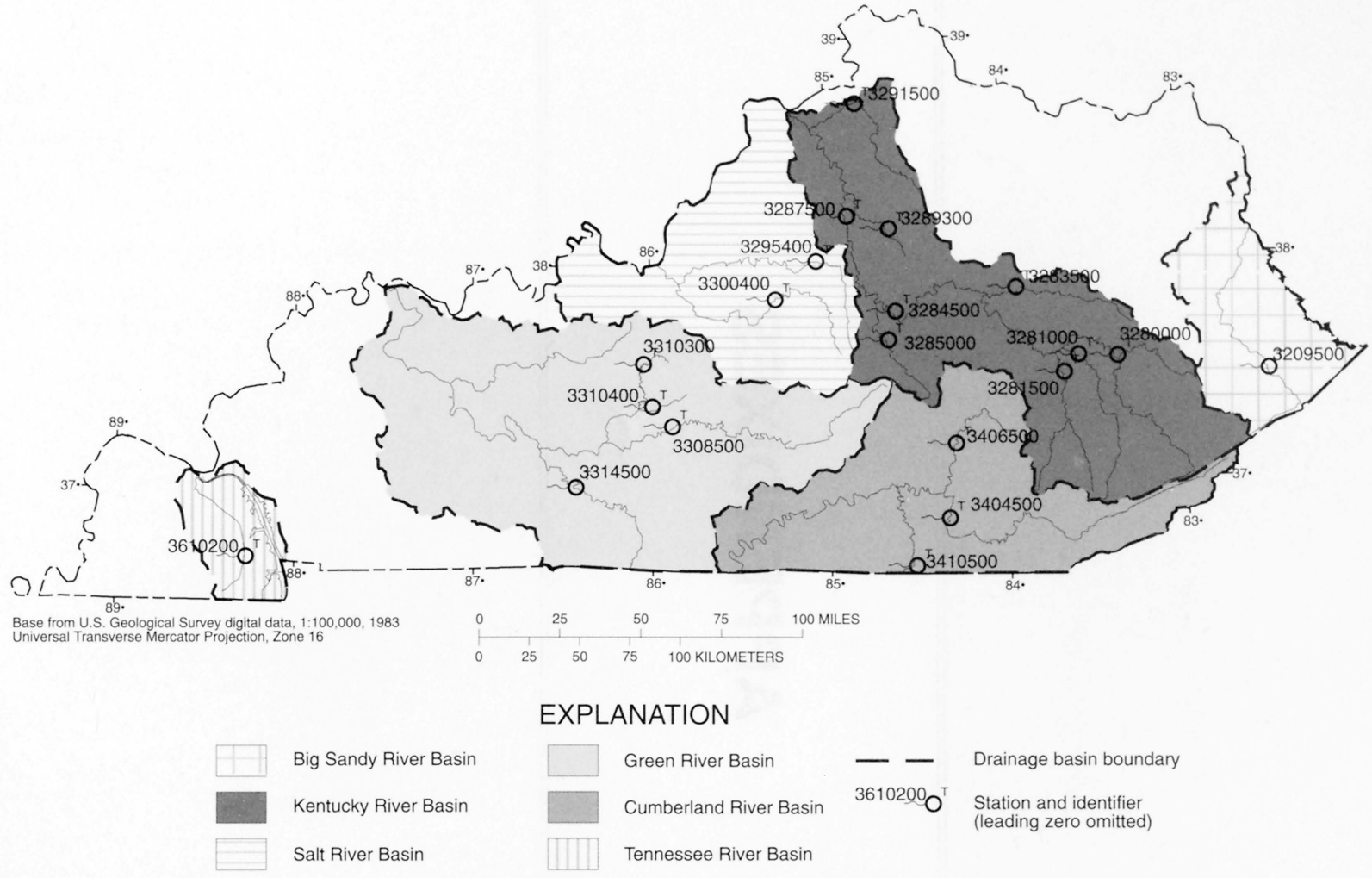
**Table 7.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase II—*Continued*

[USGS, U.S. Geological Survey; KDOW, Kentucky Division of Water; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; mg/L, micrograms per liter; mL, milliliter]

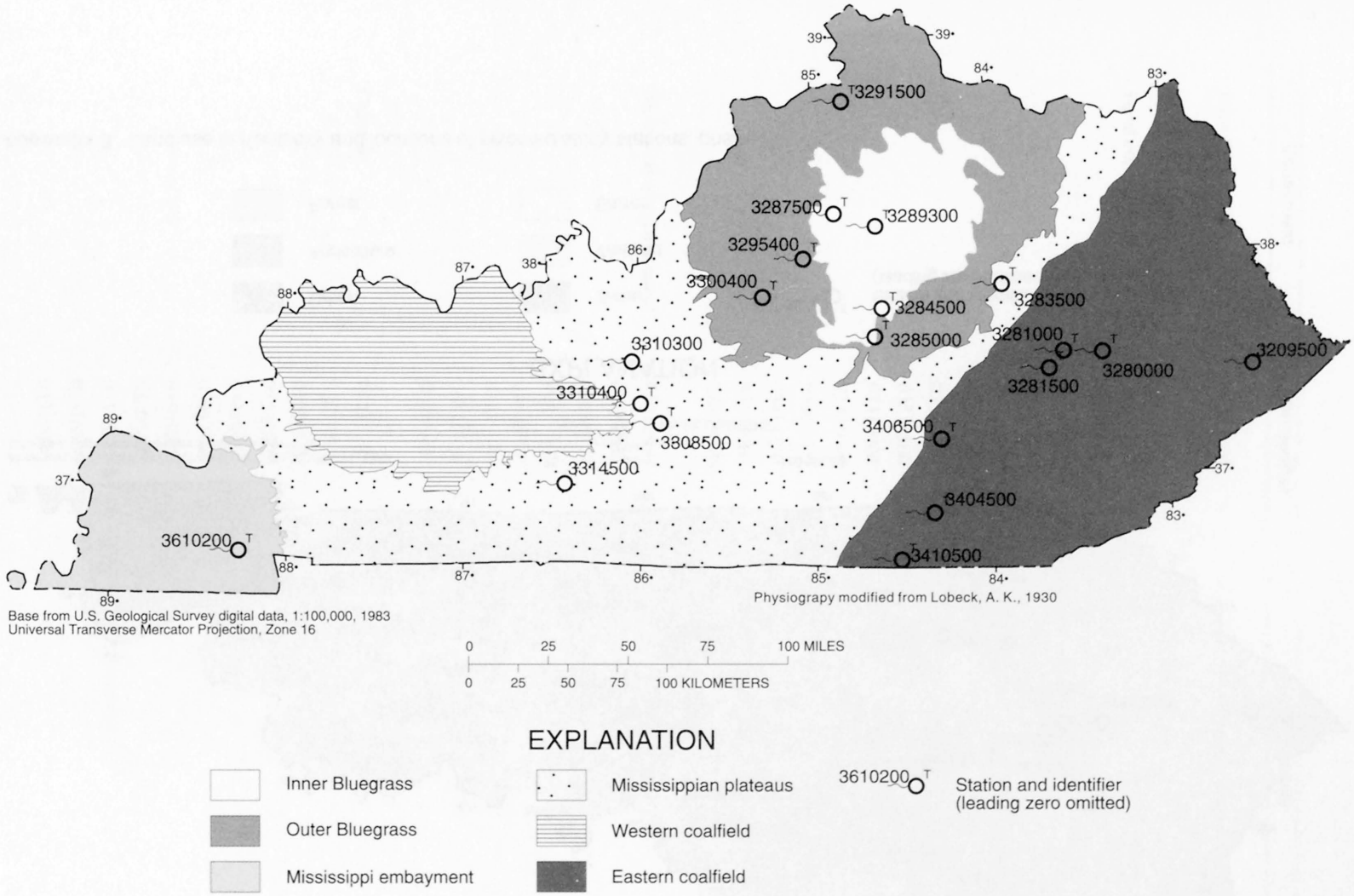
| Map number (figure 1) | USGS/KDOW station name[1] | Period of record | N | Maximum | Minimum | Percent of samples in which values were less than or equal to those shown | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 4 | Little Sandy River near Argillite | 11/85-9/97 | 136 | 1.4 | 0.05 | 1.0 | 0.6 | 0.4 | 0.3 | 0.1 |
| 5 | Tygarts Creek near Load | 11/85-9/97 | 135 | .3 | .05 | .3 | .2 | .2 | .2 | .2 |
| 6 | Kinniconick Creek near Tannery | 10/91-9/97 | 71 | .1 | .05 | .1 | .1 | .1 | .1 | .05 |
| 7 | Licking River at Claysville | 1/91-9/94 | 42 | .1 | .1 | .1 | .1 | .1 | .1 | .1 |
| 8 | North Fork Licking River at Milford | 6/91-9/97 | 73 | .5 | .05 | .5 | .5 | .5 | .5 | .5 |
| 9 | South Fork Licking River at Cynthiana/South Fork Licking River at Morgan | 1/91-9/94 | 42 | .7 | .10 | .6 | .5 | .4 | .3 | .3 |
| 10 | Licking River at West Liberty | 1/91-9/92 | 18 | .1 | .1 | .1 | .1 | .1 | .1 | .1 |
| 17 | Kentucky River near Trapp | 1/91-9/97 | 77 | .2 | .05 | .2 | .2 | .2 | .2 | .2 |
| 21 | Salt River at Shepherdsville | 11/79-8/97 | 196 | 8.3 | .05 | 2.9 | 1.2 | .7 | .4 | .1 |
| 23 | Rolling Fork near Lebanon Junction | 1/91-9/97 | 77 | .1 | .05 | .1 | .1 | .1 | .1 | .05 |
| 25 | Pond Creek near Louisville | 11/79-9/97 | 200 | 5.0 | .05 | 2.4 | 1.1 | .6 | .3 | .1 |
| 26 | Green River at Paradise/Green River near Island | 6/91-9/97 | 74 | .2 | .05 | .2 | .2 | .2 | .2 | .2 |
| 27 | Pond River near Madisonville/Pond River near Sacramento | 7/91-9/97 | 73 | .1 | .05 | .1 | .1 | .1 | .1 | .05 |
| 28 | Rough River near Dundee | 9/79-9/92 | 135 | 4.5 | .05 | 3.0 | .7 | .2 | .2 | .09 |
| 29 | Mud River near Gus | 3/91-9/97 | 76 | .1 | .05 | .1 | .1 | .1 | .1 | .1 |
| 34 | Tradewater River at Olney/Tradewater River near Sullivan | 3/91-9/97 | 76 | .2 | .2 | .2 | .2 | .2 | .2 | .2 |
| 35 | Little River near Cadiz | 10/85-9/97 | 135 | 3.3 | .05 | 2.0 | 1.0 | .6 | .4 | .2 |
| 36 | Cumberland River at Burkesville | 10/79-9/97 | 141 | 7.2 | .05 | 1.8 | .7 | .3 | .2 | .1 |
| 39 | Horse Lick Creek near Lamero | 11/85-9/97 | 132 | 1.0 | .05 | .8 | .5 | .4 | .3 | .2 |
| 41 | Cumberland River at Pineville | 2/88-9/97 | 107 | 2.8 | .05 | 4.1 | 1.9 | 1.1 | .6 | .3 |
| 43 | Mayfield Creek near Blandville/Mayfield Creek near Magee Springs | 10/85-9/97 | 136 | 1.2 | .05 | .7 | .4 | .3 | .2 | .1 |
| 44 | Bayou de Chien near Clinton | 4/84-9/97 | 155 | 1 | .05 | .7 | .4 | .3 | .2 | .1 |

[1]If only one station name is listed, it is both the USGS and KDOW station name. If two station names are listed, the first is the USGS station name and the second is the KDOW station name.

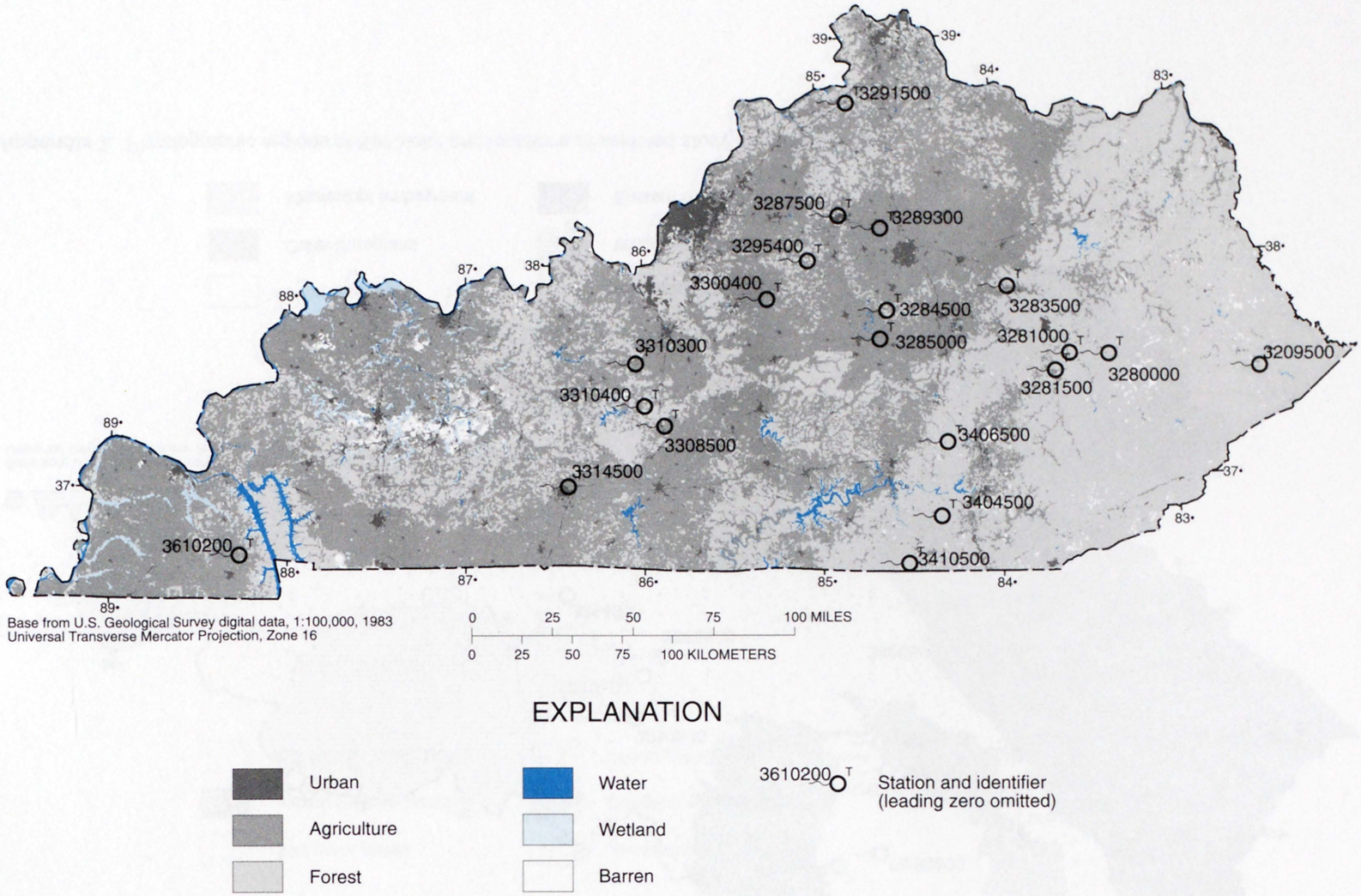
# APPENDIXES




**Appendix 1.** Major drainage basins in Kentucky and locations of selected study stations, phase I.




**Appendix 2.** Physiographic regions of Kentucky and locations of selected study stations, phase I.




**Appendix 3.** Land use in Kentucky and locations of selected study stations, phase I.

**Appendix 4.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase II

| Constituent | Station number |
|---|---|
| Dissolved oxygen | 03316275 |
| | 03316500 |
| Fecal coliform | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03251200 |
| | 03298500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03321060 |
| | 03402900 |
| | 03414110 |
| | 03438000 |
| | 07024000 |
| Biological oxygen demand | 03214500 |
| | 03217000 |
| | 03298500 |
| | 03319000 |
| | 03402900 |
| | 03438000 |
| | 03414110 |
| | 07024000 |
| Chloride | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03248620 |
| | 03249500 |
| | 03282300 |
| | 03301500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |

| Constituent | Station number |
|---|---|
| Chloride—*Continued* | |
| | 03402900 |
| | 03414110 |
| | 07024000 |
| Sulfate | 03248620 |
| | 03316275 |
| | 03316500 |
| | 03402900 |
| Residue | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03282300 |
| | 03319000 |
| | 03316275 |
| | 03316500 |
| | 03402900 |
| | 03414110 |
| Carbon | 03282300 |
| | 03316275 |
| | 03316500 |
| | 07024000 |
| Calcium | 03316275 |
| | 03316500 |
| | 03402900 |
| Magnesium | 03302000 |
| | 03248620 |
| | 03249500 |
| | 03316275 |
| | 03316500 |
| Potassium | 03282300 |
| | 03316275 |
| | 03316500 |

**Appendix 4.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase II—*Continued*

| Constituent | Station number |
|---|---|
| Sodium | 03214500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03402900 |
| | 07024000 |
| Ammonia | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03217000 |
| | 03237250 |
| | 03248620 |
| | 03249500 |
| | 03251200 |
| | 03252500 |
| | 03282300 |
| | 03301500 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03321060 |
| | 03402900 |
| | 03414110 |
| | 03438000 |
| | 07024000 |
| Nitrite plus nitrate | 03316275 |
| | 03316500 |
| | 03414110 |
| Ammonia and organic nitrogen | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03237250 |
| | 03282300 |
| | 03248620 |
| | 03249500 |
| | 03316275 |
| Ammonia and organic nitrogen—*Continued* | 03316500 |
| | 03402900 |
| | 03414110 |
| | 07024000 |
| Phosphorus | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03282300 |
| | 03237250 |
| | 03316275 |
| | 03316500 |
| | 03402900 |
| | 03414110 |
| | 07024000 |
| Aluminum | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03237250 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03414110 |
| | 07024000 |
| Arsenic | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03217000 |
| | 03237250 |
| | 03248620 |
| | 03249500 |
| | 03251200 |
| | 03252500 |
| | 03282300 |
| | 03301500 |
| | 03302000 |

**Appendix 4.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase II—*Continued*

| Constituent | Station number |
|---|---|
| Arsenic—*Continued* | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03321060 |
| | 03414110 |
| | 03438000 |
| | 07024000 |
| Barium | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03402900 |
| | 03414110 |
| | 03248620 |
| | 07024000 |
| Cadmium | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03217000 |
| | 03237250 |
| | 03248620 |
| | 03249500 |
| | 03251200 |
| | 03252500 |
| | 03282300 |
| | 03298500 |
| | 03301500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03321060 |
| | 03402900 |
| | 03414110 |
| | 03438000 |
| | 07024000 |
| Chromium | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03237250 |
| | 03248620 |
| | 03249500 |
| | 03252500 |
| | 03282300 |
| | 03298500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03321060 |
| | 03402900 |
| | 03414110 |
| | 07024000 |
| Copper | 03212500 |
| | 03216500 |
| | 03248620 |
| | 03249500 |
| | 03251200 |
| | 03252500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03414110 |
| | 07024000 |
| Iron | 03214500 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03402900 |
| | 03414110 |
| | 07024000 |

**Appendix 4.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase II—*Continued*

| Constituent | Station number |
|---|---|
| Lead | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03237250 |
| | 03248620 |
| | 03249500 |
| | 03251200 |
| | 03252500 |
| | 03282300 |
| | 03298500 |
| | 03301500 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03321060 |
| | 03402900 |
| | 03414110 |
| | 07024000 |
| Manganese | 03216500 |
| | 03282300 |
| | 03302000 |
| | 03316275 |
| | 03316500 |
| | 03414110 |
| | 07024000 |
| Mercury | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03217000 |
| | 03237250 |
| Mercury—*Continued* | 03248620 |
| | 03249500 |
| | 03251200 |
| | 03252500 |
| | 03282300 |
| | 03302000 |
| | 03301500 |
| | 03316275 |
| | 03316500 |
| | 03321060 |
| | 03402900 |
| | 03438000 |
| Zinc | 03212500 |
| | 03214500 |
| | 03216500 |
| | 03248620 |
| | 03249500 |
| | 03252500 |
| | 03282300 |
| | 03298500 |
| | 03316275 |
| | 03316500 |
| | 03319000 |
| | 03402900 |
| | 03414110 |
| | 07024000 |
| Alkalinity | 03316275 |
| | 03316500 |
| | 03282300 |
| | 03248620 |

**Appendix 5.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase I

| Constituent | Station number |
|---|---|
| Dissolved oxygen | 03291500 |
| Fecal coliform | 03280000 |
| | 03284500 |
| | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Biological oxygen demand | 03281000 |
| | 03281500 |
| | 03283500 |
| | 03284500 |
| | 03287500 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03308500 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Chloride | 03280000 |
| | 03281500 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03308500 |
| | 03310300 |
| | 03310400 |
| | 03404500 |
| | 03209500 |
| Sulfate | 03289300 |
| | 03291500 |
| Residue | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Carbon | 03291500 |
| Calcium | 03291500 |
| Magnesium | 03291500 |
| | 03610200 |
| Potassium | 03280000 |
| | 03291500 |
| Sodium | 03289300 |
| | 03291500 |
| | 03310300 |
| Ammonia | 03281000 |
| | 03284500 |
| | 03285000 |
| | 03287500 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |

**Appendix 5.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase I—*Continued*

| Constituent | Station number |
|---|---|
| Nitrite plus nitrate | 03285000 |
| | 03291500 |
| | 03295400 |
| | 03610200 |
| Ammonia and organic nitrogen | 03284500 |
| | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03404500 |
| | 03209500 |
| Phosphorus | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Aluminum | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Arsenic | 03280000 |
| | 03281000 |
| | 03285000 |
| | 03287500 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| Arsenic—*Continued* | 03300400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Barium | 03285000 |
| | 03291500 |
| | 03295400 |
| | 03314500 |
| Cadmium | 03284500 |
| | 03287500 |
| | 03300400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Chromium | 03285000 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Copper | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03310300 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |

**Appendix 5.** Constituents for which total and base-flow loads were determined by use of the FLUX program for selected stations in Kentucky, phase I—*Continued*

| Constituent | Station number |
|---|---|
| Iron | 03284500 |
| | 03287500 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03310300 |
| | 03310400 |
| | 03314500 |
| | 03610200 |
| | 03209500 |
| Lead | 03284500 |
| | 03285000 |
| | 03287500 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |
| Manganese | 03285000 |
| | 03291500 |
| | 03295400 |
| | 03404500 |
| | 03209500 |
| Mercury | 03280000 |
| | 03281500 |
| | 03283500 |
| | 03285000 |
| | 03287500 |
| | 03289300 |
| | 03310300 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03610200 |
| Zinc | 03281000 |
| | 03281500 |
| | 03284500 |
| | 03285000 |
| | 03289300 |
| | 03291500 |
| | 03295400 |
| | 03300400 |
| | 03308500 |
| | 03310300 |
| | 03310400 |
| | 03314500 |
| | 03404500 |
| | 03209500 |

**Appendix 6.** Aggregate total yields summary statistics for sediment and water-quality constituents for 20 ambient monitoring stations in Kentucky, phase I

[Yields are in tons per square mile except for fecal coliform ($10^{15}$ colonies per square mile); N, number of stations at which yields were estimated; %, percent; chemical constituents are total analysis except chloride and sulfate, which are dissolved]

| Constituent | N | Mean | Maximum | 75% Quartile | Median | 25% Quartile | Minimum |
|---|---|---|---|---|---|---|---|
| Dissolved oxygen | 19 | 14.821 | 18.353 | 16.389 | 14.733 | 14.020 | 7.057 |
| Fecal coliform | 20 | .287 | 1.739 | .326 | .159 | .090 | .008 |
| Alkalinity, total | 20 | 97.664 | 218.885 | 140.739 | 70.795 | 60.355 | 6.209 |
| Biological oxygen demand | 20 | 1.448 | 5.946 | 1.722 | 1.075 | .617 | .050 |
| Chloride | 20 | 10.470 | 42.949 | 12.031 | 8.444 | 6.387 | 3.296 |
| Sulfate | 20 | 51.203 | 150.460 | 60.592 | 46.797 | 25.798 | 1.162 |
| Residue | 20 | 138.816 | 364.600 | 156.855 | 113.088 | 71.457 | .350 |
| Carbon | 20 | 213.625 | 4175.080 | 6.069 | 4.351 | 3.371 | 2.345 |
| Calcium | 20 | 53.206 | 217.935 | 60.112 | 43.644 | 27.884 | 8.434 |
| Magnesium | 20 | 10.662 | 24.510 | 13.036 | 9.926 | 7.647 | 1.504 |
| Potassium | 19 | 3.226 | 5.507 | 3.410 | 3.085 | 2.617 | 1.891 |
| Sodium | 20 | 8.708 | 28.358 | 10.051 | 6.898 | 4.727 | 1.839 |
| Ammonia | 20 | .526 | 7.492 | .118 | .093 | .055 | .004 |
| Nitrite plus nitrate | 20 | 2.412 | 11.767 | 2.774 | 1.337 | .938 | .419 |
| Ammonia and organic nitrogen | 20 | 16.360 | 206.475 | .893 | .573 | .375 | .172 |
| Phosphorus | 20 | .410 | 3.418 | .198 | .120 | .072 | .036 |
| Aluminum | 20 | 2.906 | 5.921 | 3.638 | 3.192 | 1.637 | .832 |
| Arsenic | 20 | .003 | .012 | .003 | .003 | .002 | .002 |
| Barium | 20 | .081 | .414 | .076 | .063 | .053 | .037 |
| Cadmium | 20 | .004 | .039 | .002 | .002 | .001 | .001 |
| Chromium | 20 | .005 | .009 | .006 | .005 | .004 | .000 |
| Copper | 20 | .008 | .017 | .009 | .007 | .006 | .003 |
| Iron | 20 | 3.964 | 10.529 | 5.687 | 2.871 | 1.811 | .013 |
| Lead | 20 | .019 | .040 | .028 | .021 | .006 | .004 |
| Manganese | 20 | .212 | .515 | .225 | .200 | .156 | .087 |
| Mercury | 20 | .008 | .161 | .000 | .000 | .000 | .000 |
| Zinc | 19 | .051 | .106 | .061 | .046 | .037 | .017 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I

[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| | | **Dissolved oxygen, in mg/L [00300]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 137.06 | 66.37 | 11.07 | 5.36 | 5.71 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 153.82 | 73.92 | 13.97 | 6.71 | 7.26 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 86.60 | 45.42 | 16.13 | 8.46 | 7.67 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 116.23 | 48.34 | 16.10 | 6.70 | 9.40 |
| 16 | 03283500 | Red River at Clay City | 61.49 | 26.29 | 16.99 | 7.26 | 9.72 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 618.27 | --- | 13.97 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 52.60 | 17.44 | 16.54 | 5.49 | 11.05 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 766.48 | --- | 14.17 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 15.47 | 9.33 | 14.73 | 8.89 | 5.84 |
| 13 | 03291500 | Eagle Creek at Glencoe | 73.46 | 6.01 | 16.81 | 1.38 | 15.43 |
| 22 | 03295400 | Salt River at Glensboro | 23.04 | 8.19 | 13.40 | 4.76 | 8.63 |
| 24 | 03300400 | Beech Fork at Maud | 63.78 | 16.28 | 14.63 | 3.73 | 10.90 |
| 31 | 03308500 | Green River at Munfordville | 289.58 | 171.33 | 17.31 | 10.24 | 7.07 |
| 32 | 03310300 | Nolin River at White Mills | 50.22 | 31.53 | 14.07 | 8.83 | 5.24 |
| 33 | 03310400 | Bacon Creek near Priceville | 6.00 | 3.61 | 7.06 | 4.22 | 2.83 |
| 30 | 03314500 | Barren River at Bowling Green | 264.85 | 176.59 | 14.32 | 9.55 | 4.77 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 311.32 | 337.02 | 15.75 | 17.05 | -1.30 |
| 38 | 03406500 | Rockcastle River at Billows | 98.08 | 43.35 | 16.24 | 7.18 | 9.06 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 175.08 | 83.82 | 18.35 | 8.79 | 9.57 |
| 42 | 03610200 | Clarks River at Almo | --- | --- | --- | --- | --- |
| | | **Fecal-coliform bacteria, colonies per 100 mL [31616]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 191.66 | 151.00 | .15 | .12 | .03 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 399.70 | 207.64 | .36 | .19 | .17 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 37.40 | 20.27 | .07 | .04 | .03 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 86.95 | 25.58 | .12 | .04 | .09 |
| 16 | 03283500 | Red River at Clay City | 42.29 | 18.55 | .12 | .05 | .07 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 724.73 | 557.78 | .16 | .13 | .04 |
| 15 | 03285000 | Dix River near Danville | 100.81 | 87.56 | .32 | .28 | .04 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 524.00 | --- | .10 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 48.36 | 3.85 | .46 | .04 | .42 |
| 13 | 03291500 | Eagle Creek at Glencoe | 140.65 | 90.16 | .32 | .21 | .12 |
| 22 | 03295400 | Salt River at Glensboro | 52.95 | --- | .31 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 24 | 03300400 | Beech Fork at Maud | 148.35 | --- | 0.34 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | 324.58 | 248.70 | .19 | 0.15 | 0.05 |
| 32 | 03310300 | Nolin River at White Mills | 265.98 | 90.53 | .75 | .25 | .49 |
| 33 | 03310400 | Bacon Creek near Priceville | 148.54 | 17.04 | 1.74 | .20 | 1.54 |
| 30 | 03314500 | Barren River at Bowling Green | 46.16 | --- | .02 | --- | --- |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 268.70 | 114.65 | .14 | .06 | .08 |
| 38 | 03406500 | Rockcastle River at Billows | 15.76 | 6.54 | .03 | .01 | .02 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 31.20 | 14.40 | .03 | .02 | .02 |
| 42 | 03610200 | Clarks River at Almo | 1.01 | .15 | .01 | <.01 | <.01 |
| | | **Alkalinity, total as $CaCO_3$ [00410]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 740.52 | 395.05 | 59.82 | 31.91 | 27.91 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 765.10 | 404.17 | 69.49 | 36.71 | 32.78 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 232.37 | 119.45 | 43.27 | 22.24 | 21.03 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 247.72 | 123.43 | 34.31 | 17.10 | 17.21 |
| 16 | 03283500 | Red River at Clay City | 228.24 | 100.54 | 63.05 | 27.77 | 35.28 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 3163.70 | --- | 71.50 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 505.64 | .45 | 159.01 | .14 | 158.87 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 5034.54 | --- | 93.04 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 229.83 | 134.69 | 218.89 | 128.28 | 90.61 |
| 13 | 03291500 | Eagle Creek at Glencoe | 306.31 | 73.96 | 70.09 | 16.92 | 53.17 |
| 22 | 03295400 | Salt River at Glensboro | 337.47 | 122.22 | 196.20 | 71.06 | 125.14 |
| 24 | 03300400 | Beech Fork at Maud | 834.50 | 216.24 | 191.40 | 49.60 | 141.80 |
| 31 | 03308500 | Green River at Munfordville | 2168.07 | 1343.22 | 129.59 | 80.29 | 49.30 |
| 32 | 03310300 | Nolin River at White Mills | 576.62 | 344.25 | 161.52 | 96.43 | 65.09 |
| 33 | 03310400 | Bacon Creek near Priceville | 82.00 | 48.03 | 96.47 | 56.24 | 40.23 |
| 30 | 03314500 | Barren River at Bowling Green | 2489.67 | 1674.14 | 134.65 | 90.54 | 44.11 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1196.77 | 675.77 | 60.53 | 34.18 | 26.35 |
| 38 | 03406500 | Rockcastle River at Billows | 409.40 | 188.23 | 67.78 | 31.16 | 36.62 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 252.35 | 130.43 | 26.45 | 13.67 | 12.78 |
| 42 | 03610200 | Clarks River at Almo | 8.32 | 3.20 | 6.21 | 2.39 | 3.82 |
| | | **Biological oxygen demand, 5-day [00310]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 10.64 | 11.51 | .86 | .93 | -.07 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 6.72 | 2.22 | .61 | .20 | .41 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4.45 | --- | 0.83 | --- | --- |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4.47 | --- | .62 | --- | --- |
| 16 | 03283500 | Red River at Clay City | .18 | --- | .05 | --- | --- |
| 12 | 03284500 | Kentucky River at Camp Nelson | 39.76 | --- | .90 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .17 | --- | .05 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 61.12 | 66.31 | 1.13 | 1.23 | -0.10 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 3.30 | 2.65 | 3.15 | 2.52 | .63 |
| 13 | 03291500 | Eagle Creek at Glencoe | 9.24 | --- | 2.11 | --- | --- |
| 22 | 03295400 | Salt River at Glensboro | 10.23 | 9.02 | 5.95 | 5.24 | .70 |
| 24 | 03300400 | Beech Fork at Maud | 4.45 | 4.79 | 1.02 | 1.10 | -.08 |
| 31 | 03308500 | Green River at Munfordville | 24.51 | 25.40 | 1.47 | 1.52 | -.05 |
| 32 | 03310300 | Nolin River at White Mills | 5.97 | 3.98 | 1.67 | 1.12 | .56 |
| 33 | 03310400 | Bacon Creek near Priceville | .44 | --- | .52 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | 46.97 | 33.25 | 2.54 | 1.80 | .74 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 33.04 | 31.58 | 1.67 | 1.60 | .07 |
| 38 | 03406500 | Rockcastle River at Billows | 10.99 | 5.54 | 1.82 | .92 | .90 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 16.12 | 9.30 | 1.69 | .97 | .71 |
| 42 | 03610200 | Clarks River at Almo | .41 | .05 | .30 | .03 | .27 |
| | | **Chloride, dissolved as Cl [00940]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 126.68 | 136.59 | 10.23 | 11.03 | -.80 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 71.23 | --- | 6.47 | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 32.97 | 20.50 | 6.14 | 3.82 | 2.32 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 52.38 | --- | 7.25 | --- | --- |
| 16 | 03283500 | Red River at Clay City | 43.20 | 21.51 | 11.93 | 5.94 | 5.99 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 554.96 | --- | 12.54 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 20.69 | 7.49 | 6.51 | 2.36 | 4.15 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 666.82 | --- | 12.32 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 45.10 | --- | 42.95 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | 39.65 | 25.60 | 9.07 | 5.86 | 3.22 |
| 22 | 03295400 | Salt River at Glensboro | 19.70 | 19.90 | 11.45 | 11.57 | -.12 |
| 24 | 03300400 | Beech Fork at Maud | 34.08 | 7.45 | 7.82 | 1.71 | 6.11 |
| 31 | 03308500 | Green River at Munfordville | 256.06 | 253.73 | 15.31 | 15.17 | .14 |
| 32 | 03310300 | Nolin River at White Mills | 50.50 | 13.51 | 14.15 | 3.79 | 10.36 |
| 33 | 03310400 | Bacon Creek near Priceville | 2.80 | 2.68 | 3.30 | 3.14 | .16 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 30 | 03314500 | Barren River at Bowling Green | 194.75 | 114.91 | 10.53 | 6.21 | 4.32 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 117.20 | --- | 5.93 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | 32.65 | 18.78 | 5.41 | 3.11 | 2.30 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 63.46 | 34.66 | 6.65 | 3.63 | 3.02 |
| 42 | 03610200 | Clarks River at Almo | 4.61 | 1.02 | 3.44 | .76 | 2.67 |
| | | **Sulfate, dissolved in mg/L as $SO_4$ [00946]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 1424.56 | 759.07 | 115.07 | 61.31 | 53.76 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 1656.57 | 864.02 | 150.46 | 78.48 | 71.98 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 400.17 | 214.46 | 74.52 | 39.94 | 34.58 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 418.97 | 207.15 | 58.03 | 28.69 | 29.34 |
| 16 | 03283500 | Red River at Clay City | 95.16 | 39.38 | 26.29 | 10.88 | 15.41 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 2622.43 | --- | 59.26 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 100.98 | 35.13 | 31.75 | 11.05 | 20.71 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 2889.07 | --- | 53.39 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 63.09 | 67.79 | 60.08 | 64.57 | -4.48 |
| 13 | 03291500 | Eagle Creek at Glencoe | 271.47 | .06 | 62.12 | .01 | 62.11 |
| 22 | 03295400 | Salt River at Glensboro | 64.92 | 27.02 | 37.74 | 15.71 | 22.04 |
| 24 | 03300400 | Beech Fork at Maud | 193.53 | 54.11 | 44.39 | 12.41 | 31.98 |
| 31 | 03308500 | Green River at Munfordville | 407.02 | 227.51 | 24.33 | 13.60 | 10.73 |
| 32 | 03310300 | Nolin River at White Mills | 49.50 | 34.57 | 13.87 | 9.68 | 4.18 |
| 33 | 03310400 | Bacon Creek near Priceville | 5.02 | 2.61 | 5.91 | 3.05 | 2.86 |
| 30 | 03314500 | Barren River at Bowling Green | 442.43 | 295.06 | 23.93 | 15.96 | 7.97 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1875.86 | 1024.17 | 94.88 | 51.80 | 43.08 |
| 38 | 03406500 | Rockcastle River at Billows | 227.45 | 110.39 | 37.66 | 18.28 | 19.38 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 469.43 | 253.90 | 49.21 | 26.61 | 22.59 |
| 42 | 03610200 | Clarks River at Almo | 1.56 | .30 | 1.16 | .22 | .94 |
| | | **Residue, total nonfilterable [00530]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 1091.42 | 1148.99 | 88.16 | 92.81 | -4.65 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 3757.19 | 927.72 | 341.25 | 84.26 | 256.99 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 714.37 | 454.51 | 133.03 | 84.64 | 48.39 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 520.03 | 167.23 | 72.03 | 23.16 | 48.86 |
| 16 | 03283500 | Red River at Clay City | 554.51 | 196.70 | 153.18 | 54.34 | 98.84 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 7428.96 | --- | 167.89 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 178.31 | --- | 56.07 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 7490.07 | --- | 138.42 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 47.32 | --- | 45.07 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | 1593.30 | 1232.94 | 364.60 | 282.14 | 82.46 |
| 22 | 03295400 | Salt River at Glensboro | 182.78 | --- | 106.27 | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | 522.81 | --- | 119.91 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | 2116.63 | 1371.63 | 126.52 | 81.99 | 44.53 |
| 32 | 03310300 | Nolin River at White Mills | 605.29 | 343.70 | 169.55 | 96.28 | 73.27 |
| 33 | 03310400 | Bacon Creek near Priceville | 78.42 | 63.61 | 92.26 | 74.49 | 17.78 |
| 30 | 03314500 | Barren River at Bowling Green | 1289.69 | --- | 69.75 | --- | --- |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 7117.63 | 4354.63 | 360.02 | 220.26 | 139.76 |
| 38 | 03406500 | Rockcastle River at Billows | 408.26 | 189.73 | 67.59 | 31.41 | 36.18 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 996.09 | 417.99 | 104.41 | 43.81 | 60.60 |
| 42 | 03610200 | Clarks River at Almo | .47 | .15 | .35 | .11 | .24 |
| | | **Carbon, organic, total as C [00680]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 32.57 | 15.41 | 2.63 | 1.24 | 1.39 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 32.67 | 20.58 | 2.97 | 1.87 | 1.10 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 17.49 | 9.26 | 3.26 | 1.72 | 1.53 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 16.93 | 9.24 | 2.34 | 1.28 | 1.06 |
| 16 | 03283500 | Red River at Clay City | 18.94 | 8.74 | 5.23 | 2.41 | 2.82 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 186.23 | --- | 4.21 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 15.84 | 6.01 | 4.98 | 1.89 | 3.09 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 233.06 | --- | 4.31 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 7.62 | 5.51 | 7.26 | 5.25 | 2.01 |
| 13 | 03291500 | Eagle Creek at Glencoe | 62.30 | 4.41 | 14.26 | 1.01 | 13.25 |
| 22 | 03295400 | Salt River at Glensboro | 14.85 | 5.24 | 8.63 | 3.05 | 5.59 |
| 24 | 03300400 | Beech Fork at Maud | 38.76 | 10.11 | 8.89 | 2.32 | 6.57 |
| 31 | 03308500 | Green River at Munfordville | 94.92 | 55.23 | 5.67 | 3.30 | 2.37 |
| 32 | 03310300 | Nolin River at White Mills | 15.69 | .01 | 4.39 | <.01 | 4.39 |
| 33 | 03310400 | Bacon Creek near Priceville | 2.11 | 1.95 | 2.48 | 2.28 | .20 |
| 30 | 03314500 | Barren River at Bowling Green | 85.26 | 58.15 | 4.61 | 3.15 | 1.47 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 74.98 | 65.76 | 3.79 | 3.33 | .47 |
| 38 | 03406500 | Rockcastle River at Billows | 24.76 | 10.21 | 4.10 | 1.69 | 2.41 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 32.52 | 16.98 | 3.41 | 1.78 | 1.63 |
| 42 | 03610200 | Clarks River at Almo | 5594.61 | 497.71 | 4175.08 | 371.43 | 3803.65 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| | | **Calcium, recoverable, total as Ca [00916]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 466.50 | 240.80 | 37.68 | 19.45 | 18.23 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 518.21 | 275.73 | 47.07 | 25.04 | 22.02 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 137.14 | 71.21 | 25.54 | 13.26 | 12.28 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 149.73 | 73.23 | 20.74 | 10.14 | 10.60 |
| 16 | 03283500 | Red River at Clay City | 96.61 | 43.19 | 26.69 | 11.93 | 14.76 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1820.97 | --- | 41.15 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 190.25 | 61.80 | 59.83 | 19.43 | 40.39 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 2496.39 | --- | 46.14 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 109.14 | 67.02 | 103.94 | 63.83 | 40.11 |
| 13 | 03291500 | Eagle Creek at Glencoe | 36.85 | 30.37 | 8.43 | 6.95 | 1.48 |
| 22 | 03295400 | Salt River at Glensboro | 147.92 | 50.76 | 86.00 | 29.51 | 56.49 |
| 24 | 03300400 | Beech Fork at Maud | 314.29 | 85.19 | 72.08 | 19.54 | 52.55 |
| 31 | 03308500 | Green River at Munfordville | 833.72 | 513.53 | 49.83 | 30.70 | 19.14 |
| 32 | 03310300 | Nolin River at White Mills | 217.66 | 137.23 | 60.97 | 38.44 | 22.53 |
| 33 | 03310400 | Bacon Creek near Priceville | 29.58 | 18.70 | 34.80 | 21.90 | 12.90 |
| 30 | 03314500 | Barren River at Bowling Green | 918.79 | 579.23 | 49.69 | 31.33 | 18.36 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 603.59 | 383.00 | 30.53 | 19.37 | 11.16 |
| 38 | 03406500 | Rockcastle River at Billows | 170.83 | 74.19 | 28.28 | 12.28 | 16.00 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 160.26 | 80.59 | 16.80 | 8.45 | 8.35 |
| 42 | 03610200 | Clarks River at Almo | 292.03 | 32.42 | 217.93 | 24.19 | 193.74 |
| | | **Magnesium, total as Mg [00927]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 204.04 | 103.24 | 16.48 | 8.34 | 8.14 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 269.85 | 139.53 | 24.51 | 12.67 | 11.84 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 63.56 | 32.87 | 11.84 | 6.12 | 5.72 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 73.20 | 34.75 | 10.14 | 4.81 | 5.33 |
| 16 | 03283500 | Red River at Clay City | 19.62 | 8.76 | 5.42 | 2.42 | 3.00 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 589.68 | 12.30 | 13.33 | .28 | 13.05 |
| 15 | 03285000 | Dix River near Danville | 47.86 | 15.83 | 15.05 | 4.98 | 10.08 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 652.46 | --- | 12.06 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 10.20 | 6.52 | 9.71 | 6.21 | 3.50 |
| 13 | 03291500 | Eagle Creek at Glencoe | 56.54 | 4.65 | 12.94 | 1.06 | 11.87 |
| 22 | 03295400 | Salt River at Glensboro | 13.49 | 5.17 | 7.84 | 3.01 | 4.84 |
| 24 | 03300400 | Beech Fork at Maud | 53.71 | 15.14 | 12.32 | 3.47 | 8.85 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 31 | 03308500 | Green River at Munfordville | 162.21 | 106.27 | 9.70 | 6.35 | 3.34 |
| 32 | 03310300 | Nolin River at White Mills | 23.70 | 15.45 | 6.64 | 4.33 | 2.31 |
| 33 | 03310400 | Bacon Creek near Priceville | 2.04 | 1.26 | 2.40 | 1.48 | .92 |
| 30 | 03314500 | Barren River at Bowling Green | 177.56 | 112.35 | 9.60 | 6.08 | 3.53 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 328.19 | 204.31 | 16.60 | 10.33 | 6.27 |
| 38 | 03406500 | Rockcastle River at Billows | 46.57 | 20.55 | 7.71 | 3.40 | 4.31 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 71.12 | 37.46 | 7.46 | 3.93 | 3.53 |
| 42 | 03610200 | Clarks River at Almo | 2.02 | .02 | 1.50 | .01 | 1.49 |
| | | **Potassium, total as K [00937]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 33.73 | 16.99 | 2.72 | 1.37 | 1.35 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 38.76 | --- | 3.52 | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 15.71 | 8.18 | 2.93 | 1.52 | 1.40 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 17.10 | 8.49 | 2.37 | 1.18 | 1.19 |
| 16 | 03283500 | Red River at Clay City | 9.08 | 3.94 | 2.51 | 1.09 | 1.42 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 143.27 | --- | 3.24 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 10.49 | 3.58 | 3.30 | 1.13 | 2.17 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 168.79 | --- | 3.12 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 5.58 | 3.68 | 5.32 | 3.51 | 1.81 |
| 13 | 03291500 | Eagle Creek at Glencoe | 24.06 | 1.74 | 5.51 | .40 | 5.11 |
| 22 | 03295400 | Salt River at Glensboro | 6.30 | 1.99 | 3.66 | 1.16 | 2.51 |
| 24 | 03300400 | Beech Fork at Maud | 17.25 | 4.50 | 3.96 | 1.03 | 2.92 |
| 31 | 03308500 | Green River at Munfordville | 51.30 | 29.80 | 3.07 | 1.78 | 1.28 |
| 32 | 03310300 | Nolin River at White Mills | 11.01 | 8.34 | 3.09 | 2.34 | .75 |
| 33 | 03310400 | Bacon Creek near Priceville | 1.61 | 1.30 | 1.89 | 1.52 | .37 |
| 30 | 03314500 | Barren River at Bowling Green | 56.62 | 41.13 | 3.06 | 2.22 | .84 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 64.97 | 42.71 | 3.29 | 2.16 | 1.13 |
| 38 | 03406500 | Rockcastle River at Billows | 15.14 | 6.86 | 2.51 | 1.14 | 1.37 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 21.50 | 11.41 | 2.25 | 1.20 | 1.06 |
| 42 | 03610200 | Clarks River at Almo | --- | --- | --- | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| | | **Sodium, recoverable, total as Na [00929]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 255.50 | 138.97 | 20.64 | 11.23 | 9.41 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 120.97 | 70.56 | 10.99 | 6.41 | 4.58 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 42.56 | 21.47 | 7.93 | 4.00 | 3.93 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 55.15 | 29.98 | 7.64 | 4.15 | 3.49 |
| 16 | 03283500 | Red River at Clay City | 22.29 | 10.75 | 6.16 | 2.97 | 3.19 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 467.04 | --- | 10.55 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 12.14 | 4.71 | 3.82 | 1.48 | 2.34 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 534.79 | --- | 9.88 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 29.78 | 4.79 | 28.36 | 4.56 | 23.80 |
| 13 | 03291500 | Eagle Creek at Glencoe | 23.91 | 2.13 | 5.47 | .49 | 4.98 |
| 22 | 03295400 | Salt River at Glensboro | 9.64 | 3.71 | 5.61 | 2.16 | 3.45 |
| 24 | 03300400 | Beech Fork at Maud | 18.21 | 5.18 | 4.18 | 1.19 | 2.99 |
| 31 | 03308500 | Green River at Munfordville | 129.30 | 83.13 | 7.73 | 4.97 | 2.76 |
| 32 | 03310300 | Nolin River at White Mills | 33.53 | --- | 9.39 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | 1.56 | 1.06 | 1.84 | 1.24 | .60 |
| 30 | 03314500 | Barren River at Bowling Green | 88.60 | 54.60 | 4.79 | 2.95 | 1.84 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 303.96 | 167.22 | 15.37 | 8.46 | 6.92 |
| 38 | 03406500 | Rockcastle River at Billows | 23.69 | 10.56 | 3.92 | 1.75 | 2.17 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 51.21 | 28.79 | 5.37 | 3.02 | 2.35 |
| 42 | 03610200 | Clarks River at Almo | 6.07 | 1.31 | 4.53 | .98 | 3.56 |
| | | **Ammonia, total as N [00610]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .66 | --- | .05 | --- | --- |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .04 | --- | <.01 | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .22 | .22 | .04 | .04 | <.01 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .28 | .28 | .04 | .04 | <.01 |
| 16 | 03283500 | Red River at Clay City | .20 | .21 | .06 | .06 | <.01 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 5.74 | 6.93 | .15 | .16 | -.01 |
| 15 | 03285000 | Dix River near Danville | .30 | .26 | .09 | .08 | .01 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3.71 | --- | .07 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 1.58 | --- | 1.50 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .48 | .29 | .11 | .07 | .04 |
| 22 | 03295400 | Salt River at Glensboro | .19 | --- | .11 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 24 | 03300400 | Beech Fork at Maud | 0.39 | 0.41 | 0.09 | 0.09 | -0.01 |
| 31 | 03308500 | Green River at Munfordville | 1.50 | 1.54 | .09 | .09 | <.01 |
| 32 | 03310300 | Nolin River at White Mills | .41 | --- | .11 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | .04 | --- | .04 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | 2.06 | 2.12 | .11 | .11 | <.01 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1.85 | 1.96 | .09 | .10 | -.01 |
| 38 | 03406500 | Rockcastle River at Billows | .86 | .85 | .14 | .14 | <.01 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 1.25 | .63 | .13 | .07 | .06 |
| 42 | 03610200 | Clarks River at Almo | 10.04 | 10.71 | 7.49 | 7.99 | -.50 |
| | | **Nitrite plus Nitrate, total as N [00630]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 7.52 | 3.25 | .61 | .26 | .34 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 11.08 | 3.52 | 1.01 | .32 | .69 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 2.25 | 1.12 | .42 | .21 | .21 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 6.88 | 1.63 | .95 | .23 | .73 |
| 16 | 03283500 | Red River at Clay City | 2.19 | .80 | .60 | .22 | .38 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 39.47 | --- | .89 | --- | --- |
| 15 | 03285000 | Dix River near Danville | 21.86 | 6.22 | 6.87 | 1.96 | 4.92 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 94.35 | --- | 1.74 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 12.35 | --- | 11.77 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | 4.65 | 3.76 | 1.06 | .86 | .20 |
| 22 | 03295400 | Salt River at Glensboro | 8.02 | 4.10 | 4.66 | 2.39 | 2.28 |
| 24 | 03300400 | Beech Fork at Maud | 15.64 | 1.89 | 3.59 | .43 | 3.15 |
| 31 | 03308500 | Green River at Munfordville | 28.09 | 16.38 | 1.68 | .98 | .70 |
| 32 | 03310300 | Nolin River at White Mills | 13.42 | 7.21 | 3.76 | 2.02 | 1.74 |
| 33 | 03310400 | Bacon Creek near Priceville | 1.31 | .56 | 1.54 | .66 | .88 |
| 30 | 03314500 | Barren River at Bowling Green | 35.55 | 26.79 | 1.92 | 1.45 | .47 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 19.16 | --- | .97 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | 6.86 | 2.30 | 1.14 | .38 | .75 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 5.17 | 1.68 | .54 | .18 | .37 |
| 42 | 03610200 | Clarks River at Almo | 3.35 | 3.66 | 2.50 | 2.73 | -.23 |
| | | **Ammonia and organic, total as N [00625]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3.95 | --- | .32 | --- | --- |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 1.89 | --- | .17 | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 1.69 | 1.80 | .31 | .34 | -.02 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 2.83 | --- | 0.39 | --- | --- |
| 16 | 03283500 | Red River at Clay City | 1.87 | --- | .52 | --- | --- |
| 12 | 03284500 | Kentucky River at Camp Nelson | 30.72 | 6.93 | .78 | 0.16 | 0.62 |
| 15 | 03285000 | Dix River near Danville | 3.95 | .26 | 1.24 | .08 | 1.16 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 17.63 | --- | .33 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | .62 | --- | .59 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | 7.24 | .29 | 1.66 | .07 | 1.59 |
| 22 | 03295400 | Salt River at Glensboro | 355.14 | .21 | 206.47 | .12 | 206.35 |
| 24 | 03300400 | Beech Fork at Maud | 435.80 | .41 | 99.95 | .09 | 99.86 |
| 31 | 03308500 | Green River at Munfordville | 12.07 | --- | .72 | --- | --- |
| 32 | 03310300 | Nolin River at White Mills | 2.75 | --- | .77 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | .20 | .05 | .24 | .05 | .18 |
| 30 | 03314500 | Barren River at Bowling Green | 10.31 | 2.12 | .56 | .11 | .44 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 14.07 | 1.96 | .71 | .10 | .61 |
| 38 | 03406500 | Rockcastle River at Billows | 3.13 | 3.16 | .52 | .52 | -.01 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 4.80 | --- | .50 | --- | --- |
| 42 | 03610200 | Clarks River at Almo | 14.00 | 10.71 | 10.45 | 7.99 | 2.45 |
| | | **Phosphorus, total as P [00665]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .86 | .89 | .07 | .07 | <.01 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .81 | .36 | .07 | .03 | .04 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .31 | .21 | .06 | .04 | .02 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .26 | .15 | .04 | .02 | .02 |
| 16 | 03283500 | Red River at Clay City | .27 | .12 | .08 | .03 | .04 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 7.26 | --- | .16 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .56 | --- | .18 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 10.90 | --- | .20 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | 1.94 | --- | 1.85 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .26 | --- | .06 | --- | --- |
| 22 | 03295400 | Salt River at Glensboro | 1.22 | .38 | .71 | .22 | .49 |
| 24 | 03300400 | Beech Fork at Maud | 2.07 | .55 | .48 | .13 | .35 |
| 31 | 03308500 | Green River at Munfordville | 1.86 | 1.30 | .11 | .08 | .03 |
| 32 | 03310300 | Nolin River at White Mills | .70 | .58 | .20 | .16 | .04 |
| 33 | 03310400 | Bacon Creek near Priceville | .11 | .08 | .13 | .09 | .04 |
| 30 | 03314500 | Barren River at Bowling Green | 1.57 | --- | .09 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 3.16 | 2.75 | 0.16 | 0.14 | 0.02 |
| 38 | 03406500 | Rockcastle River at Billows | .41 | .19 | .07 | .03 | .04 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .79 | .29 | .08 | .03 | .05 |
| 42 | 03610200 | Clarks River at Almo | 4.58 | 1.03 | 3.42 | .77 | 2.65 |
| | | **Aluminum, total, in µg/L as Al [01105]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 16.74 | 13.32 | 1.35 | 1.08 | .28 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 65.19 | 9.41 | 5.92 | .85 | 5.07 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 18.71 | 4.89 | 3.48 | .91 | 2.57 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 12.76 | 3.69 | 1.77 | .51 | 1.25 |
| 16 | 03283500 | Red River at Clay City | 12.16 | --- | 3.36 | --- | --- |
| 12 | 03284500 | Kentucky River at Camp Nelson | 181.39 | 12.32 | 4.10 | .28 | 3.82 |
| 15 | 03285000 | Dix River near Danville | 5.51 | 2.11 | 1.73 | .66 | 1.07 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 182.32 | 38.36 | 3.37 | .71 | 2.66 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 1.28 | --- | 1.22 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | 14.82 | 3.56 | 3.39 | .81 | 2.58 |
| 22 | 03295400 | Salt River at Glensboro | 5.25 | --- | 3.05 | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | 13.41 | 6.28 | 3.08 | 1.44 | 1.64 |
| 31 | 03308500 | Green River at Munfordville | 30.19 | 1.26 | 1.80 | .08 | 1.73 |
| 32 | 03310300 | Nolin River at White Mills | 11.81 | --- | 3.31 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | 4.43 | --- | 5.19 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | 15.38 | 2.49 | .83 | .13 | .70 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 86.57 | 3.80 | 4.38 | .19 | 4.19 |
| 38 | 03406500 | Rockcastle River at Billows | 7.50 | .69 | 1.24 | .11 | 1.13 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 9.12 | --- | .96 | --- | --- |
| 42 | 03610200 | Clarks River at Almo | 6.14 | --- | 4.58 | --- | --- |
| | | **Arsenic, total, in µg/L as As [01002]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .03 | --- | <.01 | --- | --- |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .03 | --- | <.01 | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .01 | .01 | <.01 | <.01 | <.01 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .02 | .01 | <.01 | <.01 | <.01 |
| 16 | 03283500 | Red River at Clay City | .01 | <.01 | <.01 | <.01 | <.01 |
| 12 | 03284500 | Kentucky River at Camp Nelson | .11 | --- | <.01 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .01 | --- | <.01 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | .15 | --- | <.01 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 14 | 03289300 | South Elkhorn Creek near Midway | <0.01 | --- | <0.01 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .05 | 0.01 | .01 | <0.01 | <0.01 |
| 22 | 03295400 | Salt River at Glensboro | .01 | <.01 | <.01 | <.01 | <.01 |
| 24 | 03300400 | Beech Fork at Maud | .01 | --- | <.01 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | .05 | .03 | <.01 | <.01 | <.01 |
| 32 | 03310300 | Nolin River at White Mills | .01 | .01 | <.01 | <.01 | <.01 |
| 33 | 03310400 | Bacon Creek near Priceville | <.01 | <.01 | <.01 | <.01 | <.01 |
| 30 | 03314500 | Barren River at Bowling Green | .05 | .06 | <.01 | <.01 | <.01 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | .09 | --- | <.01 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | .02 | .01 | <.01 | <.01 | <.01 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .03 | .02 | <.01 | <.01 | <.01 |
| 42 | 03610200 | Clarks River at Almo | .01 | <.01 | .01 | <.01 | <.01 |
| | | **Barium, total, in µg/L as Ba [01007]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .71 | .36 | .06 | .03 | .03 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .73 | .36 | .07 | .03 | .03 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .34 | .19 | .06 | .04 | .03 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .41 | .19 | .06 | .03 | .03 |
| 16 | 03283500 | Red River at Clay City | .26 | .13 | .07 | .03 | .04 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 4.14 | --- | .09 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .16 | --- | .05 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 4.45 | --- | .08 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | .05 | .03 | .05 | .03 | .02 |
| 13 | 03291500 | Eagle Creek at Glencoe | .35 | .24 | .08 | .05 | .03 |
| 22 | 03295400 | Salt River at Glensboro | .08 | --- | .05 | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | .22 | .06 | .05 | .01 | .04 |
| 31 | 03308500 | Green River at Munfordville | 1.01 | .65 | .06 | .04 | .02 |
| 32 | 03310300 | Nolin River at White Mills | .27 | .19 | .08 | .05 | .02 |
| 33 | 03310400 | Bacon Creek near Priceville | .03 | .02 | .04 | .03 | .01 |
| 30 | 03314500 | Barren River at Bowling Green | 1.13 | --- | .06 | --- | --- |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1.52 | 1.36 | .08 | .07 | .01 |
| 38 | 03406500 | Rockcastle River at Billows | .32 | .12 | .05 | .02 | .03 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .62 | .30 | .06 | .03 | .03 |
| 42 | 03610200 | Clarks River at Almo | .56 | .09 | .41 | .07 | .35 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| | | **Cadmium, total, in µg/L as Cd [01027]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 0.03 | 0.02 | <0.01 | <0.01 | <0.01 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .01 | --- | <.01 | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | <.01 | <.01 | <.01 | <.01 | <.01 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .01 | .01 | <.01 | <.01 | <.01 |
| 16 | 03283500 | Red River at Clay City | <.01 | <.01 | <.01 | <.01 | <.01 |
| 12 | 03284500 | Kentucky River at Camp Nelson | .11 | .06 | <.01 | <.01 | <.01 |
| 15 | 03285000 | Dix River near Danville | <.01 | <.01 | <.01 | <.01 | <.01 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | .21 | --- | <.01 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | <.01 | --- | <.01 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .01 | <.01 | <.01 | <.01 | <.01 |
| 22 | 03295400 | Salt River at Glensboro | <.01 | <.01 | <.01 | <.01 | <.01 |
| 24 | 03300400 | Beech Fork at Maud | <.01 | <.01 | <.01 | <.01 | <.01 |
| 31 | 03308500 | Green River at Munfordville | .03 | .01 | <.01 | <.01 | <.01 |
| 32 | 03310300 | Nolin River at White Mills | .01 | <.01 | <.01 | <.01 | <.01 |
| 33 | 03310400 | Bacon Creek near Priceville | <.01 | --- | <.01 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | .06 | .03 | <.01 | <.01 | <.01 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | .04 | .04 | <.01 | <.01 | <.01 |
| 38 | 03406500 | Rockcastle River at Billows | .01 | .01 | <.01 | <.01 | <.01 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .02 | .01 | <.01 | <.01 | <.01 |
| 42 | 03610200 | Clarks River at Almo | .05 | .01 | .04 | .01 | .03 |
| | | **Chromium, total, in µg/L as Cr [01034]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .04 | --- | <.01 | --- | --- |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .07 | .03 | .01 | <.01 | <.01 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .02 | .01 | <.01 | <.01 | <.01 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .03 | --- | <.01 | --- | --- |
| 16 | 03283500 | Red River at Clay City | .02 | .01 | .01 | <.01 | <.01 |
| 12 | 03284500 | Kentucky River at Camp Nelson | .22 | --- | .01 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .02 | --- | .01 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | .34 | --- | .01 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | <.01 | <.01 | <.01 | <.01 | <.01 |
| 13 | 03291500 | Eagle Creek at Glencoe | .04 | .04 | .01 | .01 | <.01 |
| 22 | 03295400 | Salt River at Glensboro | .01 | --- | .01 | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | .03 | --- | .01 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 31 | 03308500 | Green River at Munfordville | 0.08 | 0.05 | <0.01 | <0.01 | <0.01 |
| 32 | 03310300 | Nolin River at White Mills | .02 | .02 | .01 | <.01 | <.01 |
| 33 | 03310400 | Bacon Creek near Priceville | <.01 | <.01 | <.01 | <.01 | <.01 |
| 30 | 03314500 | Barren River at Bowling Green | .08 | .08 | <.01 | <.01 | <.01 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | .12 | --- | .01 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | .02 | .01 | <.01 | <.01 | <.01 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .04 | .02 | <.01 | <.01 | <.01 |
| 42 | 03610200 | Clarks River at Almo | --- | --- | --- | --- | --- |
| | | **Copper, total, in µg/L as Cu [01042]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .08 | .09 | .01 | .01 | <.01 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .07 | .04 | .01 | <.01 | <.01 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .03 | .02 | .01 | <.01 | <.01 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .03 | .01 | <.01 | <.01 | <.01 |
| 16 | 03283500 | Red River at Clay City | .02 | .01 | .01 | <.01 | <.01 |
| 12 | 03284500 | Kentucky River at Camp Nelson | .35 | --- | .01 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .01 | --- | <.01 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | .63 | --- | .01 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | .01 | --- | .01 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .04 | .04 | .01 | .01 | <.01 |
| 22 | 03295400 | Salt River at Glensboro | .01 | <.01 | <.01 | <.01 | <.01 |
| 24 | 03300400 | Beech Fork at Maud | .03 | --- | .01 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | .11 | .06 | .01 | <.01 | <.01 |
| 32 | 03310300 | Nolin River at White Mills | .02 | --- | .01 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | <.01 | <.01 | <.01 | <.01 | <.01 |
| 30 | 03314500 | Barren River at Bowling Green | .31 | .19 | .02 | .01 | .01 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | .22 | --- | .01 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | .05 | .02 | .01 | <.01 | <.01 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .09 | .04 | .01 | <.01 | <.01 |
| 42 | 03610200 | Clarks River at Almo | .02 | <.01 | .02 | <.01 | .01 |
| | | **Iron, total, in µg/L as Fe [01045]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 27.79 | 29.93 | 2.24 | 2.42 | -.17 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 88.34 | 29.23 | 8.02 | 2.65 | 5.37 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 22.05 | 11.50 | 4.11 | 2.14 | 1.97 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 21.64 | 7.66 | 3.00 | 1.06 | 1.94 |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 16 | 03283500 | Red River at Clay City | 16.97 | 6.81 | 4.69 | 1.88 | 2.81 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 343.64 | 303.84 | 7.77 | 6.87 | .90 |
| 15 | 03285000 | Dix River near Danville | 8.73 | --- | 2.74 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 303.30 | 292.01 | 5.61 | 5.40 | .21 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 1.35 | --- | 1.29 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | 46.01 | --- | 10.53 | --- | --- |
| 22 | 03295400 | Salt River at Glensboro | 7.67 | --- | 4.46 | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | 25.86 | --- | 5.93 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | 38.55 | 25.60 | 2.30 | 1.53 | .77 |
| 32 | 03310300 | Nolin River at White Mills | 8.53 | --- | 2.39 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | .97 | --- | 1.14 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | 20.09 | --- | 1.09 | --- | --- |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 166.71 | --- | 8.43 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | 10.14 | 4.14 | 1.68 | .69 | .99 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 17.70 | 7.93 | 1.86 | .83 | 1.02 |
| 42 | 03610200 | Clarks River at Almo | .02 | --- | .01 | --- | --- |
| | | **Lead, total, in µg/L as Pb [01051]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .32 | --- | .03 | --- | --- |
| 18 | 03280000 | North Fork Kentucky River at Jackson | .08 | .03 | .01 | <.01 | <.01 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .03 | .01 | .01 | <.01 | <.01 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .03 | .01 | <.01 | <.01 | <.01 |
| 16 | 03283500 | Red River at Clay City | .01 | .01 | <.01 | <.01 | <.01 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1.13 | .71 | .03 | .02 | .01 |
| 15 | 03285000 | Dix River near Danville | .03 | .03 | .01 | .01 | <.01 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 1.72 | --- | .03 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | .01 | --- | .01 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .16 | .02 | .04 | .01 | .03 |
| 22 | 03295400 | Salt River at Glensboro | .01 | .01 | <.01 | <.01 | <.01 |
| 24 | 03300400 | Beech Fork at Maud | .02 | --- | <.01 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | .61 | .15 | .04 | .01 | .03 |
| 32 | 03310300 | Nolin River at White Mills | .08 | .04 | .02 | .01 | .01 |
| 33 | 03310400 | Bacon Creek near Priceville | .02 | .01 | .02 | .01 | .01 |
| 30 | 03314500 | Barren River at Bowling Green | .74 | --- | .04 | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*
[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 0.51 | 0.54 | 0.03 | 0.03 | <0.01 |
| 38 | 03406500 | Rockcastle River at Billows | .21 | .09 | .03 | .02 | .02 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .26 | .10 | .03 | .01 | .02 |
| 42 | 03610200 | Clarks River at Almo | .01 | <.01 | .01 | <.01 | .01 |
| | | **Manganese, total, in µg/L as Mn [01055]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 2.18 | .25 | .18 | .02 | .16 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 3.48 | 1.55 | .32 | .14 | .18 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 1.10 | .57 | .21 | .11 | .10 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 1.41 | .58 | .19 | .08 | .12 |
| 16 | 03283500 | Red River at Clay City | .57 | .26 | .16 | .07 | .09 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 10.56 | --- | .24 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .28 | --- | .09 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 11.35 | --- | .21 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | .24 | .16 | .22 | .15 | .07 |
| 13 | 03291500 | Eagle Creek at Glencoe | 1.92 | 1.61 | .44 | .37 | .07 |
| 22 | 03295400 | Salt River at Glensboro | .17 | --- | .10 | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | .69 | .23 | .16 | .05 | .11 |
| 31 | 03308500 | Green River at Munfordville | 2.51 | 1.59 | .15 | .09 | .06 |
| 32 | 03310300 | Nolin River at White Mills | .59 | .43 | .17 | .12 | .04 |
| 33 | 03310400 | Bacon Creek near Priceville | .08 | .06 | .10 | .07 | .03 |
| 30 | 03314500 | Barren River at Bowling Green | 4.20 | 3.11 | .23 | .17 | .06 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 10.18 | 8.66 | .51 | .44 | .08 |
| 38 | 03406500 | Rockcastle River at Billows | 1.35 | .59 | .22 | .10 | .13 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 2.10 | 1.08 | .22 | .11 | .11 |
| 42 | 03610200 | Clarks River at Almo | .19 | .05 | .14 | .04 | .10 |
| | | **Mercury, total, in µg/L as Hg [71900]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | <.01 | <.01 | --- | --- | --- |
| 18 | 03280000 | North Fork Kentucky River at Jackson | <.01 | <.01 | --- | --- | --- |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | <.01 | --- | --- | --- | --- |
| 20 | 03281500 | South Fork Kentucky River at Booneville | <.01 | <.01 | --- | --- | --- |
| 16 | 03283500 | Red River at Clay City | <.01 | --- | --- | --- | --- |
| 12 | 03284500 | Kentucky River at Camp Nelson | .01 | --- | --- | --- | --- |
| 15 | 03285000 | Dix River near Danville | --- | --- | --- | --- | --- |

**Appendix 7.** Constituent mean annual load and yield at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; ---, not applicable; <, less than]

| Map number (figure 1) | USGS station number | USGS station name | Mean annual load[1] | | Yield[1] | | |
|---|---|---|---|---|---|---|---|
| | | | Total flow | Base flow | Total flow | Base flow | Overland runoff |
| | | | (Tons per year (x 100)) | | (Tons per year per square mile) | | |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 0.02 | 0.07 | --- | <0.01 | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | --- | --- | --- | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | <.01 | <.01 | <0.01 | --- | --- |
| 22 | 03295400 | Salt River at Glensboro | --- | --- | --- | --- | --- |
| 24 | 03300400 | Beech Fork at Maud | <.01 | --- | --- | --- | --- |
| 31 | 03308500 | Green River at Munfordville | .01 | <.01 | <.01 | --- | --- |
| 32 | 03310300 | Nolin River at White Mills | <.01 | <.01 | <.01 | --- | --- |
| 33 | 03310400 | Bacon Creek near Priceville | <.01 | <.01 | <.01 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | .01 | .01 | <.01 | --- | --- |
| 40 | 03404500 | Cumberland River at Cumberland Falls | .01 | .01 | <.01 | <.01 | --- |
| 38 | 03406500 | Rockcastle River at Billows | <.01 | <.01 | --- | --- | --- |
| 37 | 03410500 | South Fork Cumberland River near Stearns | <.01 | <.01 | --- | --- | --- |
| 42 | 03610200 | Clarks River at Almo | .22 | .18 | .16 | .13 | 0.03 |
| | | **Zinc, total, in µg/L as Zn [01092]** | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | .43 | .42 | .04 | .03 | <.01 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 1.12 | .38 | .10 | .03 | .07 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | .25 | .17 | .05 | .03 | .02 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | .26 | --- | .04 | --- | --- |
| 16 | 03283500 | Red River at Clay City | .14 | .04 | .04 | .01 | .03 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 4.70 | --- | .11 | --- | --- |
| 15 | 03285000 | Dix River near Danville | .18 | --- | .06 | --- | --- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 4.08 | --- | .08 | --- | --- |
| 14 | 03289300 | South Elkhorn Creek near Midway | .04 | --- | .04 | --- | --- |
| 13 | 03291500 | Eagle Creek at Glencoe | .23 | .24 | .05 | .05 | <.01 |
| 22 | 03295400 | Salt River at Glensboro | .05 | .04 | .03 | .02 | <.01 |
| 24 | 03300400 | Beech Fork at Maud | .28 | --- | .06 | --- | --- |
| 31 | 03308500 | Green River at Munfordville | .79 | .87 | .05 | .05 | <.01 |
| 32 | 03310300 | Nolin River at White Mills | .12 | .13 | .03 | .04 | <.01 |
| 33 | 03310400 | Bacon Creek near Priceville | .01 | --- | .02 | --- | --- |
| 30 | 03314500 | Barren River at Bowling Green | .85 | .57 | .05 | .03 | .01 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1.40 | --- | .07 | --- | --- |
| 38 | 03406500 | Rockcastle River at Billows | .25 | .10 | .04 | .02 | .02 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | .38 | .15 | .04 | .02 | .02 |
| 42 | 03610200 | Clarks River at Almo | --- | --- | --- | --- | --- |

[1]Alternate rounding technique used in phase I analyses.

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | | Dissolved oxygen, in mg/L [00300] | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 163 | 15.500 | 4.500 | 12.600 | 10.200 | 8.800 | 7.200 | 5.840 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 14.200 | 5.600 | 13.140 | 11.300 | 9.100 | 7.600 | 6.615 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 119 | 14.400 | 5.400 | 12.800 | 11.200 | 8.800 | 7.200 | 6.200 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | 14.400 | 4.800 | 12.990 | 11.000 | 9.000 | 7.050 | 6.010 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 14.400 | 4.800 | 13.250 | 11.375 | 9.100 | 7.125 | 6.100 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 167 | 19.000 | 5.500 | 13.640 | 11.900 | 9.800 | 8.100 | 6.840 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 16.000 | 5.700 | 13.940 | 11.300 | 9.800 | 7.600 | 6.200 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 178 | 15.700 | 4.200 | 13.105 | 11.600 | 10.000 | 7.975 | 6.500 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 119 | 16.200 | 2.400 | 11.900 | 10.300 | 8.100 | 6.000 | 3.100 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 181 | 18.000 | 3.400 | 14.580 | 12.200 | 9.300 | 7.700 | 6.310 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 75 | 16.100 | 4.200 | 13.060 | 11.100 | 9.200 | 7.100 | 5.580 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 120 | 16.500 | 3.100 | 13.100 | 10.700 | 8.400 | 6.325 | 4.900 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 179 | 14.000 | 5.500 | 12.800 | 11.000 | 9.400 | 8.200 | 6.800 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 178 | 16.000 | 5.800 | 12.200 | 10.800 | 9.000 | 7.875 | 6.495 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 164 | 13.600 | 6.100 | 12.875 | 11.175 | 9.600 | 8.000 | 7.200 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 169 | 14.200 | 3.400 | 11.850 | 10.000 | 8.900 | 8.150 | 6.500 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 180 | 15.800 | 3.500 | 12.800 | 10.600 | 9.000 | 8.000 | 6.205 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 175 | 14.900 | 4.600 | 12.620 | 10.100 | 8.800 | 7.500 | 6.000 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 179 | 15.200 | 4.800 | 13.200 | 10.500 | 9.000 | 7.700 | 6.100 |
| | | | | Biological oxygen demand, 5-day at 20 degrees Celsius, in mg/L [00310] | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 80 | 3.800 | .100 | 2.295 | 1.200 | .700 | .425 | .100 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 29 | 2.000 | .100 | 1.950 | 1.150 | .800 | .600 | .150 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 29 | 2.300 | -- | *1.900 | *.950 | *.700 | *.400 | *.118 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 29 | 3.200 | .100 | 2.500 | 1.100 | .800 | .400 | .100 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 13 | 1.100 | .400 | 1.100 | 1.000 | .700 | .550 | .400 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 78 | 3.700 | .000 | 2.610 | 1.500 | 1.050 | .575 | .100 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 13 | 2.600 | .500 | 2.600 | 1.400 | .900 | .700 | .500 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 84 | 5.900 | .000 | 3.375 | 1.575 | 1.050 | .600 | .100 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 68 | 8.600 | .100 | 7.455 | 2.375 | 1.550 | 1.025 | .490 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 91 | 3.200 | .000 | 2.720 | 1.800 | 1.200 | .700 | .200 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 16 | 6.600 | 0.500 | 6.600 | 4.475 | 2.050 | 0.925 | 0.500 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 29 | 3.500 | .100 | 3.250 | 1.500 | 1.200 | .400 | .100 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 85 | 2.800 | -- | *2.470 | *1.300 | *.700 | *.400 | *.125 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 82 | 3.400 | .100 | 2.185 | 1.300 | .800 | .400 | .200 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 71 | 2.900 | -- | *1.820 | *1.000 | *.700 | *.400 | *.100 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 83 | 6.000 | .100 | 4.240 | 1.800 | 1.100 | .700 | .220 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 83 | 6.200 | .100 | 2.100 | 1.100 | .700 | .400 | .100 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 86 | 3.100 | .100 | 2.200 | 1.100 | .750 | .400 | .135 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 84 | 2.800 | -- | *2.175 | *1.000 | *.600 | *.300 | *.094 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 121 | 1.100 | -- | *.490 | *.100 | *.058 | *.027 | *.009 |
| | | **Alkalinity, total as $CACO_3$, in mg/L [00410]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 182 | 136.000 | 8.000 | 104.850 | 84.250 | 68.000 | 51.000 | 35.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 165.000 | 35.000 | 128.850 | 100.250 | 77.000 | 56.000 | 43.000 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 122 | 83.000 | 15.000 | 68.850 | 54.250 | 38.500 | 28.000 | 17.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 123 | 91.000 | 13.000 | 69.600 | 50.000 | 37.000 | 23.000 | 16.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 103 | 88.000 | 8.000 | 82.800 | 70.000 | 56.000 | 45.000 | 27.600 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 170 | 124.000 | 7.000 | 96.000 | 80.000 | 69.000 | 54.000 | 41.100 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 310.000 | 23.000 | 171.650 | 138.000 | 125.000 | 103.000 | 72.800 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 178 | 172.000 | 8.000 | 111.050 | 91.000 | 78.000 | 66.000 | 50.800 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 124 | 373.000 | 35.000 | 191.750 | 166.000 | 150.500 | 130.250 | 95.500 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 181 | 387.000 | 27.000 | 213.400 | 168.000 | 142.000 | 121.000 | 80.100 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 225.000 | 50.000 | 217.650 | 187.500 | 170.500 | 146.500 | 83.700 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 363.000 | 43.000 | 216.200 | 184.000 | 158.000 | 132.000 | 84.600 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 175 | 179.000 | 42.000 | 130.400 | 114.000 | 94.000 | 76.000 | 54.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 171 | 315.000 | 46.000 | 189.400 | 172.000 | 154.000 | 130.000 | 83.200 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 159 | 800.000 | 70.000 | 190.000 | 180.000 | 170.000 | 158.000 | 107.000 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 173 | 224.000 | 47.000 | 140.300 | 121.500 | 103.000 | 88.000 | 70.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 177 | 150.000 | 14.000 | 109.000 | 76.000 | 56.000 | 38.000 | 25.800 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 169 | 123.000 | 27.000 | 90.500 | 71.500 | 55.000 | 42.000 | 32.000 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 177 | 83.000 | 7.000 | 37.000 | 25.000 | 18.000 | 13.000 | 9.000 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 120 | 41.000 | 2.000 | 36.950 | 21.000 | 12.000 | 8.000 | 4.050 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| **Residue, total nonfilterable, in mg/L [00530]** | | | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 185 | 705.000 | 1.000 | 130.800 | 38.000 | 19.000 | 8.000 | 3.300 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 121 | 883.000 | 1.000 | 238.600 | 57.500 | 22.000 | 10.000 | 2.100 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 320.000 | .000 | 102.500 | 32.500 | 12.000 | 6.000 | 1.100 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 122 | 344.000 | .000 | 62.100 | 18.000 | 8.000 | 4.000 | 1.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 101 | 276.000 | 1.000 | 145.000 | 35.500 | 12.000 | 7.000 | 2.000 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 172 | 478.000 | 1.000 | 230.400 | 40.750 | 14.500 | 6.000 | 2.000 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 681.000 | .000 | 74.000 | 15.000 | 8.000 | 4.000 | 1.000 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 179 | 410.000 | 1.000 | 207.000 | 49.000 | 16.000 | 8.000 | 3.000 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 121 | 286.000 | .000 | 43.400 | 14.500 | 9.000 | 6.000 | 1.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 184 | 1180.000 | 1.000 | 296.500 | 40.500 | 18.000 | 9.000 | 2.000 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 85 | 525.000 | 1.000 | 243.100 | 39.500 | 14.000 | 7.000 | 1.000 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 870.000 | 2.000 | 192.800 | 30.000 | 17.000 | 9.000 | 3.000 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 175 | 380.000 | 1.000 | 134.600 | 38.000 | 22.000 | 12.000 | 3.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 171 | 334.000 | 1.000 | 141.000 | 33.000 | 18.000 | 10.000 | 3.000 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 158 | 294.000 | 1.000 | 100.200 | 33.000 | 19.000 | 8.000 | 2.000 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 175 | 907.000 | 1.000 | 99.800 | 31.000 | 20.000 | 13.000 | 4.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 173 | 694.000 | 1.000 | 267.200 | 54.000 | 17.000 | 6.000 | 1.000 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 174 | 291.000 | -- | *73.250 | *12.000 | *5.000 | *2.000 | *.541 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 173 | 317.000 | -- | *108.400 | *12.000 | *5.000 | *2.000 | *.409 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 120 | 2.000 | .000 | 2.000 | 1.000 | 1.000 | .000 | .000 |
| **Ammonia, total in mg/L as N [00610]** | | | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 181 | 1.240 | -- | *.172 | *.060 | *.028 | *.013 | *.004 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | .164 | -- | *.093 | *.046 | *.030 | *.019 | *.010 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 123 | .299 | -- | *.059 | *.013 | *.004 | *.002 | *.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 123 | .091 | -- | *.060 | *.035 | *.025 | *.018 | *.011 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | .170 | -- | *.097 | *.038 | *.021 | *.012 | *.005 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 172 | 17.000 | -- | *.257 | *.080 | *.027 | *.009 | *.002 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | .644 | -- | *.091 | *.031 | *.013 | *.005 | *.001 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 181 | 1.760 | -- | *.230 | *.084 | *.037 | *.017 | *.005 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 126 | 15.800 | -- | *9.933 | *2.460 | *.105 | *.030 | *.002 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 182 | .670 | -- | *.219 | *.079 | *.034 | *.015 | *.005 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 85 | 0.422 | -- | *0.158 | *0.054 | *0.028 | *0.015 | *0.006 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 125 | .282 | -- | *.088 | *.042 | *.023 | *.013 | *.006 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 174 | .300 | -- | *.147 | *.051 | *.028 | *.014 | *.005 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 171 | .440 | -- | *.204 | *.074 | *.044 | *.024 | *.010 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 156 | .309 | -- | *.180 | *.056 | *.035 | *.019 | *.008 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 168 | .461 | -- | *.243 | *.093 | *.039 | *.018 | *.006 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 175 | .290 | -- | *.160 | *.059 | *.035 | *.019 | *.008 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 174 | 1.520 | -- | *.197 | *.052 | *.026 | *.012 | *.003 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 172 | .240 | -- | *.124 | *.046 | *.023 | *.012 | *.004 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 119 | 14.800 | 1.300 | 8.000 | 4.600 | 3.800 | 3.200 | 2.300 |
| | | **Ammonia and organic, total in mg/L as N [00625]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 179 | 1.500 | -- | *.630 | *.390 | *.230 | *.130 | *.059 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 123 | 1.400 | -- | *.592 | *.350 | *.230 | *.150 | *.063 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 123 | .890 | -- | *.394 | *.240 | *.160 | *.110 | *.058 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 122 | .880 | -- | *.443 | *.262 | *.150 | *.070 | *.030 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | .940 | -- | *.650 | *.330 | *.240 | *.120 | *.058 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 172 | 2.200 | .030 | 1.200 | .557 | .370 | .240 | .063 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 104 | 2.500 | .030 | .837 | .547 | .360 | .220 | .050 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 180 | 1.800 | .050 | 1.000 | .588 | .415 | .272 | .150 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 124 | 28.000 | -- | *12.000 | *2.500 | *.850 | *.373 | *.070 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 182 | 4.500 | .050 | 1.485 | .763 | .610 | .450 | .213 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 84 | 2.500 | .050 | 1.925 | .870 | .570 | .402 | .127 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 124 | 9.400 | .050 | 1.275 | .755 | .535 | .380 | .147 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 172 | 1.500 | .050 | .690 | .428 | .310 | .220 | .087 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 169 | 1.500 | -- | *1.050 | *.520 | *.340 | *.190 | *.062 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 154 | 1.300 | -- | *.970 | *.382 | *.240 | *.108 | *.043 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 163 | 1.500 | .050 | 1.080 | .530 | .370 | .230 | .070 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 175 | 2.200 | -- | *.870 | *.420 | *.260 | *.160 | *.070 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 175 | 1.500 | -- | *.770 | *.330 | *.210 | *.120 | *.053 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 173 | 1.600 | -- | *.650 | *.300 | *.180 | *.080 | *.038. |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 118 | 31.000 | .500 | 16.050 | 13.250 | 12.000 | 10.000 | 7.990 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | **Nitrite plus nitrate, total in mg/L as N [00630]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 182 | 1.120 | 0.025 | 0.629 | 0.449 | 0.329 | 0.224 | 0.126 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 121 | 1.020 | .035 | .664 | .558 | .440 | .308 | .097 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | .490 | .015 | .388 | .278 | .202 | .139 | .053 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | .650 | .005 | .523 | .393 | .251 | .136 | .035 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 103 | .835 | .005 | .627 | .367 | .268 | .179 | .070 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 171 | 3.000 | .055 | 1.236 | .660 | .500 | .369 | .189 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 104 | 3.200 | .010 | 2.508 | 1.585 | .979 | .615 | .038 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 178 | 3.100 | .005 | 1.390 | .882 | .661 | .404 | .093 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 121 | 13.300 | .005 | 10.880 | 6.255 | 5.010 | 3.775 | 1.205 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 181 | 1.660 | .005 | 1.340 | .701 | .438 | .040 | .010 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 82 | 4.820 | .011 | 3.819 | 1.963 | 1.270 | .686 | .073 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 122 | 2.300 | .005 | 1.942 | 1.070 | .521 | .125 | .022 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 171 | 1.900 | .120 | 1.344 | 1.010 | .730 | .550 | .303 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 168 | 14.700 | .267 | 3.822 | 3.150 | 2.650 | 2.105 | 1.239 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 155 | 2.150 | .040 | 1.952 | 1.450 | 1.080 | .700 | .318 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 165 | 5.440 | .158 | 1.928 | 1.465 | 1.080 | .590 | .253 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 173 | 1.300 | .005 | .569 | .410 | .325 | .201 | .029 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 171 | .840 | .009 | .681 | .490 | .340 | .200 | .056 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 171 | .694 | .005 | .307 | .210 | .135 | .066 | .020 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 32 | 6.700 | .100 | 6.440 | 2.875 | 1.955 | 1.200 | .165 |
| | | **Phosphorus, total in mg/L as P [00665]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 181 | .660 | -- | *.105 | *.040 | *.021 | *.010 | *.004 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | .236 | -- | *.123 | *.039 | *.022 | *.013 | *.004 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 124 | .222 | -- | *.069 | *.027 | *.015 | *.008 | *.003 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 124 | .220 | -- | *.060 | *.019 | *.012 | *.005 | *.002 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 105 | .164 | -- | *.087 | *.049 | *.027 | *.016 | *.007 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 172 | .840 | .005 | .311 | .113 | .065 | .040 | .019 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | .960 | .005 | .249 | .115 | .067 | .043 | .013 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 181 | 1.030 | .008 | .261 | .128 | .083 | .057 | .030 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 126 | 4.800 | .021 | 3.553 | 1.878 | 1.165 | .773 | .455 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 183 | 1.780 | .005 | .533 | .159 | .089 | .053 | .021 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 85 | 1.780 | 0.061 | 1.230 | 0.474 | 0.351 | 0.238 | 0.152 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 124 | 1.620 | .007 | .682 | .235 | .160 | .109 | .062 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 171 | 1.330 | .004 | .154 | .069 | .048 | .033 | .013 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 168 | .566 | .005 | .379 | .181 | .110 | .069 | .024 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 153 | 6.750 | -- | *.171 | *.045 | *.028 | *.015 | *.004 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 166 | .670 | .005 | .105 | .050 | .034 | .024 | .009 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 174 | .278 | -- | *.167 | *.059 | *.029 | *.014 | *.005 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 173 | .260 | -- | *.084 | *.031 | *.015 | *.008 | *.002 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 173 | .235 | -- | *.078 | *.031 | *.013 | *.005 | *.002 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 119 | 6.090 | 1.210 | 3.430 | 2.990 | 2.690 | 2.440 | 1.880 |
| | | **Carbon organic, total in mg/L as C [00680]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 135 | 26.000 | .300 | 4.360 | 2.300 | 1.900 | 1.600 | 1.200 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 120 | 34.000 | .300 | 5.960 | 3.000 | 2.250 | 1.600 | 1.105 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 21.000 | .600 | 4.590 | 2.500 | 2.000 | 1.450 | 1.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | 18.000 | .400 | 4.530 | 2.600 | 1.600 | 1.100 | .710 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 101 | 25.000 | .760 | 9.460 | 3.850 | 2.400 | 1.550 | 1.110 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 129 | 25.000 | .500 | 6.650 | 3.500 | 2.800 | 1.950 | 1.300 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 33.000 | 1.500 | 8.200 | 5.250 | 3.800 | 2.350 | 1.600 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 129 | 8.700 | 1.300 | 5.700 | 3.750 | 3.000 | 2.100 | 1.500 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 118 | 42.000 | .600 | 18.100 | 7.025 | 4.700 | 2.800 | 1.800 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 128 | 27.000 | .100 | 13.100 | 8.075 | 6.350 | 4.600 | 3.145 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 77 | 17.000 | 1.500 | 12.000 | 6.900 | 5.300 | 3.600 | 2.080 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 121 | 41.000 | 2.100 | 11.900 | 6.450 | 5.500 | 3.800 | 2.400 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 129 | 20.000 | 1.100 | 6.050 | 3.300 | 2.500 | 2.100 | 1.600 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 128 | 15.000 | .800 | 6.390 | 3.400 | 2.400 | 1.800 | 1.245 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 126 | 9.400 | .100 | 5.495 | 2.500 | 1.800 | 1.300 | .935 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 130 | 11.000 | 1.000 | 4.900 | 3.125 | 2.400 | 1.900 | 1.400 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 124 | 11.000 | .100 | 5.175 | 3.100 | 2.350 | 1.525 | 1.100 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 123 | 9.800 | .010 | 5.920 | 3.000 | 2.000 | 1.400 | .900 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 122 | 6.800 | .600 | 4.185 | 2.525 | 1.800 | 1.375 | .800 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 119 | 13000.000 | 6.000 | 2400.000 | 820.000 | 450.000 | 300.000 | 140.000 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | **Calcium, recoverable, total in mg/L as Ca [00916]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 133 | 79.000 | 12.000 | 57.300 | 47.000 | 40.000 | 34.500 | 24.700 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 120 | 120.000 | 18.000 | 84.950 | 65.000 | 49.500 | 37.250 | 28.000 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 119 | 45.000 | 5.800 | 33.000 | 27.000 | 22.000 | 16.000 | 11.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 119 | 45.000 | 6.500 | 35.000 | 25.000 | 19.000 | 15.000 | 10.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 50.000 | 2.800 | 34.000 | 28.000 | 23.500 | 19.000 | 12.000 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 128 | 63.000 | 17.000 | 56.000 | 43.000 | 34.000 | 28.000 | 21.450 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 98.000 | 17.000 | 53.000 | 46.000 | 41.000 | 36.000 | 27.300 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 128 | 65.000 | 17.000 | 54.550 | 43.750 | 37.000 | 32.000 | 22.900 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 119 | 100.000 | 17.000 | 91.000 | 80.000 | 73.000 | 65.000 | 50.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 126 | 95.000 | 17.000 | 81.000 | 69.000 | 56.000 | 46.000 | 33.000 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 62 | 120.000 | 22.000 | 97.550 | 79.250 | 70.500 | 62.500 | 37.600 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 118 | 130.000 | 16.000 | 83.050 | 70.000 | 57.000 | 47.000 | 32.000 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 129 | 64.000 | 13.000 | 50.500 | 44.000 | 37.000 | 29.000 | 23.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 126 | 94.000 | 20.000 | 77.000 | 69.000 | 61.500 | 51.000 | 33.050 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 123 | 94.000 | 27.000 | 75.000 | 68.000 | 65.000 | 52.000 | 36.200 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 127 | 61.000 | 10.000 | 55.000 | 47.000 | 41.000 | 34.000 | 27.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 125 | 70.000 | 6.700 | 42.000 | 32.000 | 27.000 | 21.000 | 14.300 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 124 | 44.000 | 9.400 | 39.000 | 31.000 | 24.000 | 20.000 | 13.000 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 124 | 43.000 | 4.800 | 24.000 | 16.000 | 12.000 | 9.225 | 6.000 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 120 | 400.000 | 1.000 | 167.500 | 79.750 | 61.500 | 42.000 | 16.000 |
| | | | **Magnesium, total in mg/L as Mg [00927]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 134 | 29.000 | 4.300 | 25.250 | 20.000 | 18.000 | 15.000 | 11.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 121 | 67.000 | 11.000 | 46.000 | 33.500 | 25.000 | 20.000 | 15.000 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 51.000 | 4.300 | 14.000 | 11.000 | 9.800 | 7.650 | 5.530 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 119 | 20.000 | 3.800 | 16.000 | 12.000 | 8.700 | 7.200 | 5.200 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 7.100 | 2.500 | 5.800 | 5.000 | 4.250 | 3.425 | 2.925 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 129 | 25.000 | 5.900 | 19.000 | 15.000 | 11.000 | 9.200 | 7.750 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 17.000 | 6.000 | 15.000 | 13.000 | 11.000 | 9.600 | 7.800 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 129 | 20.000 | 4.500 | 16.000 | 12.000 | 9.900 | 8.550 | 7.250 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 121 | 16.000 | 3.700 | 13.000 | 9.700 | 7.500 | 5.800 | 4.210 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 128 | 23.000 | 3.600 | 16.550 | 11.000 | 8.950 | 7.300 | 4.980 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 12.000 | 4.200 | 11.000 | 8.525 | 7.300 | 6.175 | 4.705 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 122 | 24.000 | 2.800 | 15.850 | 12.000 | 9.100 | 7.600 | 5.160 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 130 | 55.000 | 2.700 | 8.590 | 7.325 | 6.300 | 5.275 | 4.100 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 129 | 10.000 | 2.500 | 9.450 | 7.900 | 6.600 | 5.450 | 3.850 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 128 | 7.700 | 2.000 | 5.755 | 5.100 | 4.500 | 3.625 | 2.800 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 128 | 13.000 | 2.800 | 9.800 | 8.500 | 7.500 | 6.300 | 4.800 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 126 | 24.000 | 5.300 | 21.000 | 17.000 | 13.500 | 10.000 | 8.800 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 125 | 14.000 | 2.800 | 10.000 | 7.900 | 6.200 | 5.050 | 3.630 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 125 | 12.000 | 1.900 | 9.240 | 6.200 | 4.900 | 3.850 | 2.700 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 120 | 77.000 | -- | *1.000 | *.075 | *.012 | *.002 | *.000 |
| | | **Sodium, recoverable, total in mg/L as Na [00929]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 135 | 56.000 | 9.000 | 50.000 | 40.000 | 29.000 | 20.000 | 12.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 46.000 | 4.600 | 33.850 | 21.000 | 14.000 | 9.650 | 5.960 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 122 | 69.000 | 2.200 | 16.000 | 9.925 | 6.450 | 4.775 | 2.530 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 122 | 69.000 | 1.600 | 37.000 | 15.000 | 8.450 | 5.875 | 3.115 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 105 | 35.000 | 1.600 | 15.000 | 7.850 | 5.000 | 3.450 | 2.330 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 130 | 76.000 | 1.800 | 40.250 | 13.250 | 9.350 | 5.500 | 3.355 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 107 | 20.000 | .600 | 14.400 | 5.300 | 4.100 | 3.100 | 2.340 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 130 | 45.000 | 2.200 | 25.450 | 12.000 | 7.650 | 4.800 | 3.355 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 122 | 77.000 | 4.000 | 67.550 | 42.250 | 26.000 | 16.000 | 7.690 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 129 | 15.000 | 1.200 | 8.600 | 5.950 | 4.800 | 3.400 | 2.250 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 67 | 42.000 | 1.300 | 31.400 | 14.000 | 7.000 | 4.600 | 2.840 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 7.300 | 1.300 | 6.080 | 4.400 | 3.200 | 2.700 | 1.700 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 131 | 55.000 | 1.400 | 25.000 | 13.000 | 6.200 | 3.600 | 2.360 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 130 | 72.000 | 1.300 | 45.450 | 20.250 | 10.500 | 5.825 | 3.085 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 128 | 14.000 | .600 | 4.375 | 2.900 | 2.200 | 1.800 | 1.100 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 129 | 12.000 | 1.000 | 7.900 | 4.800 | 3.500 | 2.800 | 2.050 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 127 | 63.000 | 3.800 | 47.600 | 24.000 | 16.000 | 11.000 | 5.920 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 126 | 27.000 | 1.100 | 8.825 | 5.200 | 3.500 | 2.600 | 1.535 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 126 | 19.000 | .300 | 16.000 | 7.800 | 4.400 | 2.800 | 1.400 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 118 | 14.000 | -- | *8.000 | *3.000 | *2.000 | *.835 | *.351 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | **Potassium, total, in mg/L as K [00937]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 134 | 4.200 | 1.500 | 3.900 | 3.300 | 2.850 | 2.400 | 1.900 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 121 | 7.900 | 1.800 | 5.980 | 4.800 | 3.400 | 2.600 | 2.100 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 6.900 | .700 | 3.190 | 2.500 | 2.000 | 1.600 | 1.300 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 119 | 5.300 | 1.000 | 4.400 | 2.700 | 2.000 | 1.500 | 1.100 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 102 | 3.800 | .900 | 3.185 | 2.425 | 1.850 | 1.300 | 1.100 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 129 | 5.100 | 1.300 | 4.500 | 3.400 | 2.600 | 1.950 | 1.500 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 8.600 | 1.000 | 6.465 | 4.600 | 2.500 | 1.700 | 1.335 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 129 | 5.000 | 1.300 | 4.050 | 3.000 | 2.500 | 2.000 | 1.500 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 121 | 12.000 | 1.400 | 9.980 | 6.850 | 4.500 | 2.850 | 2.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 128 | 9.100 | 1.400 | 5.255 | 3.800 | 3.000 | 2.225 | 1.645 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 67 | 7.600 | 1.400 | 6.240 | 5.100 | 2.900 | 2.200 | 1.500 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 122 | 8.300 | 1.300 | 5.970 | 4.325 | 3.050 | 2.300 | 1.615 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 130 | 5.900 | 1.000 | 3.300 | 2.300 | 1.900 | 1.500 | 1.200 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 129 | 7.400 | 1.100 | 4.000 | 2.900 | 2.100 | 1.500 | 1.200 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 124 | 6.200 | .700 | 3.700 | 1.975 | 1.350 | 1.025 | .800 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 127 | 10.000 | 1.000 | 4.120 | 2.500 | 2.000 | 1.600 | 1.200 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 125 | 5.100 | 1.400 | 4.400 | 3.200 | 2.400 | 1.900 | 1.500 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 124 | 4.100 | .900 | 3.400 | 2.600 | 1.750 | 1.400 | 1.100 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 122 | 3.300 | .700 | 2.500 | 1.900 | 1.350 | 1.100 | .900 |
| | | | **Chloride, dissolved, in mg/L as Cl [00940]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 185 | 40.000 | 1.000 | 29.700 | 18.000 | 11.000 | 7.500 | 4.130 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 123 | 100.000 | .100 | 17.000 | 10.000 | 6.700 | 4.500 | 2.320 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 123 | 35.000 | .100 | 9.900 | 6.700 | 4.900 | 3.100 | 1.320 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 123 | 120.000 | .100 | 85.600 | 16.000 | 7.800 | 4.400 | 2.020 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 76.000 | .100 | 34.500 | 15.750 | 7.400 | 4.800 | 2.450 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 173 | 170.000 | .100 | 66.300 | 21.500 | 11.000 | 6.200 | 2.670 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 108 | 53.000 | 1.000 | 23.550 | 8.600 | 6.100 | 4.550 | 2.300 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 181 | 71.000 | .200 | 38.900 | 17.000 | 9.700 | 6.450 | 3.100 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 124 | 490.000 | 4.000 | 94.250 | 51.750 | 34.000 | 23.500 | 6.700 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 182 | 63.000 | .100 | 14.000 | 8.500 | 6.400 | 4.675 | 2.230 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 68 | 45.000 | .100 | 34.400 | 13.750 | 9.450 | 6.600 | 4.300 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 125 | 39.000 | -- | *8.970 | *6.550 | *5.000 | *3.800 | *1.583 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 180 | 75.000 | 0.100 | 42.900 | 21.000 | 12.000 | 7.000 | 3.710 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 174 | 98.000 | 1.000 | 66.250 | 27.000 | 13.000 | 8.400 | 4.450 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 160 | 18.000 | .100 | 10.950 | 6.250 | 4.750 | 3.725 | 1.705 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 174 | 98.000 | .100 | 14.000 | 9.150 | 7.300 | 5.900 | 3.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 176 | 52.000 | .100 | 15.000 | 6.675 | 4.800 | 3.300 | .778 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 172 | 21.000 | .100 | 9.805 | 5.200 | 3.800 | 2.925 | .662 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 176 | 150.000 | .050 | 13.000 | 6.075 | 3.700 | 2.500 | .785 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 121 | 5.100 | .150 | 3.790 | 2.850 | 2.200 | 1.600 | .501 |
| | | **Sulfate, dissolved, in mg/L as $SO_4$ [00946]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 184 | 450.000 | 13.000 | 197.500 | 150.000 | 125.000 | 100.000 | 56.750 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 470.000 | 46.000 | 308.500 | 200.000 | 150.000 | 120.000 | 85.600 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 280.000 | 22.000 | 89.900 | 70.000 | 56.000 | 48.000 | 36.100 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 123 | 160.000 | 20.000 | 110.000 | 74.000 | 55.000 | 44.000 | 30.400 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 101 | 120.000 | 5.000 | 37.600 | 18.000 | 15.000 | 13.000 | 9.540 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 172 | 150.000 | 11.000 | 110.000 | 77.000 | 55.500 | 44.000 | 31.300 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 104 | 70.000 | 9.700 | 37.750 | 27.000 | 23.000 | 19.000 | 15.000 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 180 | 130.000 | 20.000 | 87.950 | 59.750 | 46.000 | 37.000 | 28.000 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 123 | 130.000 | 6.600 | 98.400 | 66.000 | 49.000 | 36.000 | 24.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 181 | 180.000 | 17.000 | 86.900 | 55.500 | 40.000 | 30.500 | 21.100 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 82.000 | 9.100 | 68.600 | 51.000 | 39.000 | 28.000 | 15.750 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 290.000 | 6.700 | 61.000 | 40.000 | 29.000 | 20.000 | 14.200 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 179 | 110.000 | 5.000 | 27.000 | 18.000 | 15.000 | 13.000 | 9.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 175 | 71.000 | 2.200 | 25.000 | 16.000 | 11.000 | 8.100 | 4.800 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 161 | 46.000 | -- | *15.900 | *7.500 | *5.400 | *3.521 | *1.501 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 175 | 53.000 | 5.000 | 29.200 | 21.000 | 17.000 | 13.000 | 8.180 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 175 | 170.000 | 10.000 | 140.000 | 100.000 | 77.000 | 59.000 | 35.800 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 173 | 130.000 | 7.600 | 63.000 | 38.000 | 29.000 | 23.000 | 16.000 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 174 | 100.000 | 6.700 | 84.500 | 48.250 | 36.000 | 29.000 | 17.000 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 121 | 2.200 | .120 | 1.300 | .805 | .620 | .470 | .252 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | **Arsenic, total, in µg/L as As [01002]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 175 | 55.000 | -- | *6.000 | *2.000 | *1.000 | *0.388 | *0.130 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 120 | 13.000 | -- | *4.950 | *2.000 | *.780 | *.372 | *.130 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 120 | 13.000 | -- | *5.950 | *1.000 | *.366 | *.128 | *.030 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 119 | 21.000 | -- | *5.000 | *1.383 | *.519 | *.189 | *.046 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 13.000 | -- | *6.000 | *2.000 | *.962 | *.401 | *.140 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 162 | 12.000 | -- | *4.850 | *2.000 | *1.000 | *.614 | *.281 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 104 | 18.000 | -- | *8.000 | *2.000 | *.700 | *.280 | *.079 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 169 | 19.000 | -- | *6.500 | *2.000 | *1.000 | *.634 | *.254 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 118 | 11.000 | -- | *6.050 | *2.000 | *.996 | *.425 | *.147 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 173 | 65.000 | -- | *6.000 | *2.000 | *1.000 | *.526 | *.187 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 63 | 10.000 | -- | *6.800 | *2.000 | *.925 | *.448 | *.154 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 119 | 11.000 | -- | *8.000 | *2.000 | *.688 | *.279 | *.071 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 164 | 29.000 | -- | *6.000 | *2.000 | *.999 | *.372 | *.127 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 161 | 13.000 | -- | *6.000 | *1.406 | *.875 | *.365 | *.128 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 147 | 11.000 | -- | *4.600 | *1.512 | *.838 | *.374 | *.135 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 158 | 14.000 | -- | *6.050 | *2.000 | *1.000 | *.542 | *.208 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 170 | 43.000 | -- | *8.900 | *2.000 | *1.000 | *.375 | *.106 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 166 | 14.000 | -- | *7.000 | *2.000 | *.982 | *.349 | *.108 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 168 | 39.000 | -- | *7.550 | *1.183 | *1.000 | *.295 | *.085 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 120 | 280.000 | -- | *14.900 | *3.750 | *2.000 | *.518 | *.128 |
| | | | **Barium, total, in µg/L as Ba [01007]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 143 | 200.000 | 8.000 | 100.000 | 70.000 | 50.000 | 40.000 | 12.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 500.000 | 1.000 | 90.000 | 60.000 | 40.000 | 30.000 | 11.500 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 122 | 200.000 | 1.000 | 80.000 | 50.000 | 40.000 | 30.000 | 20.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | 300.000 | 2.000 | 90.000 | 50.000 | 40.000 | 20.000 | 10.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 400.000 | 10.000 | 175.000 | 70.000 | 40.000 | 30.000 | 20.000 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 140 | 300.000 | 1.000 | 100.000 | 70.000 | 50.000 | 30.000 | 10.500 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 300.000 | 1.000 | 60.000 | 40.000 | 30.000 | 20.000 | 8.000 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 141 | 500.000 | 1.000 | 100.000 | 60.000 | 40.000 | 30.000 | 20.000 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 122 | 300.000 | 1.000 | 78.500 | 30.000 | 20.000 | 20.000 | 6.150 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 141 | 400.000 | 1.000 | 80.000 | 30.000 | 20.000 | 20.000 | 4.000 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 400.000 | 3.000 | 76.500 | 40.000 | 30.000 | 20.000 | 10.000 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 400.000 | 1.000 | 70.000 | 30.000 | 20.000 | 20.000 | 3.600 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 142 | 100.000 | 4.000 | 60.000 | 42.500 | 30.000 | 20.000 | 10.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 141 | 200.000 | 9.000 | 100.000 | 80.000 | 50.000 | 40.000 | 20.000 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 135 | 200.000 | 4.000 | 90.000 | 50.000 | 40.000 | 30.000 | 10.000 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 138 | 200.000 | 1.000 | 90.500 | 42.500 | 30.000 | 30.000 | 9.950 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 136 | 500.000 | 1.000 | 100.000 | 50.000 | 40.000 | 30.000 | 8.850 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 135 | 100.000 | 1.000 | 60.000 | 30.000 | 20.000 | 20.000 | 3.800 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 135 | 100.000 | 4.000 | 80.000 | 40.000 | 30.000 | 20.000 | 8.000 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 119 | 900.000 | .000 | 400.000 | 300.000 | 200.000 | 200.000 | 100.000 |
| | | **Cadmium, total, in µg/L as Cd [01027]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 162 | 25.000 | -- | *4.700 | *.365 | *.081 | *.018 | *.002 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 1.000 | -- | *1.000 | *1.000 | *1.000 | *1.000 | *1.000 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 1.000 | -- | *1.000 | *1.000 | *1.000 | *1.000 | *1.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 122 | 1.000 | -- | *1.000 | *1.000 | *1.000 | *1.000 | *1.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | -- | -- | -- | -- | -- | -- | -- |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 161 | 32.000 | -- | *6.900 | *.436 | *.078 | *.014 | *.001 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | -- | -- | -- | -- | -- | -- | -- |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 163 | 32.000 | -- | *8.200 | *.377 | *.062 | *.010 | *.001 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 122 | 1.000 | -- | *1.000 | *1.000 | *1.000 | *1.000 | *1.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 162 | 52.000 | -- | *5.700 | *.387 | *.073 | *.013 | *.001 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 65 | -- | -- | -- | -- | -- | -- | -- |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | -- | -- | -- | -- | -- | -- | -- |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 164 | 18.000 | -- | *2.750 | *.378 | *.109 | *.030 | *.005 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 163 | 15.000 | -- | *5.000 | *.555 | *.151 | *.041 | *.006 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 149 | 22.000 | -- | *4.000 | *.213 | *.037 | *.006 | *.001 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 161 | 71.000 | -- | *5.000 | *.545 | *.128 | *.029 | *.004 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 155 | 20.000 | -- | *4.000 | *.436 | *.121 | *.033 | *.005 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 156 | 17.000 | -- | *4.150 | *.460 | *.118 | *.030 | *.004 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 157 | 20.000 | -- | *6.000 | *.318 | *.061 | *.012 | *.001 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 118 | 330.000 | -- | *57.400 | *21.250 | *15.000 | *8.000 | *2.095 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | | | **Chromium, total, in µg/L as Cr [01034]** | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 181 | 26.000 | -- | *6.000 | *3.000 | *1.135 | *0.716 | *0.284 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 121 | 13.000 | -- | *7.900 | *3.000 | *2.000 | *.880 | *.371 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 16.000 | -- | *5.900 | *3.000 | *1.000 | *.773 | *.333 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 120 | 12.000 | -- | *5.000 | *3.000 | *1.000 | *.640 | *.264 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 9.000 | -- | *5.750 | *3.000 | *1.571 | *.822 | *.351 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 169 | 12.000 | -- | *8.000 | *3.500 | *2.000 | *1.000 | *.380 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 63.000 | -- | *8.000 | *3.000 | *1.000 | *.556 | *.170 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 177 | 20.000 | -- | *8.000 | *4.000 | *2.000 | *1.000 | *.449 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 119 | 9.000 | -- | *7.000 | *4.000 | *2.000 | *1.000 | *.453 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 180 | 20.000 | -- | *10.000 | *4.000 | *2.000 | *1.000 | *.326 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 63 | 14.000 | -- | *7.600 | *3.000 | *1.000 | *.502 | *.172 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 122 | 19.000 | -- | *9.000 | *3.250 | *2.000 | *.740 | *.271 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 171 | 10.000 | -- | *6.000 | *3.000 | *2.000 | *.932 | *.367 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 169 | 31.000 | -- | *8.000 | *4.000 | *2.000 | *1.000 | *.328 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 155 | 21.000 | -- | *7.200 | *3.000 | *1.000 | *.725 | *.281 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 164 | 26.000 | -- | *6.000 | *3.000 | *2.000 | *1.000 | *.422 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 174 | 18.000 | -- | *8.000 | *4.000 | *2.000 | *1.000 | *.316 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 174 | 10.000 | -- | *5.000 | *2.000 | *1.000 | *.787 | *.377 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 174 | 13.000 | -- | *6.000 | *2.000 | *1.014 | *.738 | *.311 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 118 | -- | -- | -- | -- | -- | -- | -- |
| | | | | | **Copper, total, in µg/L as Cu [01042]** | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 182 | 40.000 | -- | *16.850 | *6.000 | *3.000 | *1.000 | *.464 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 41.000 | -- | *13.850 | *4.000 | *3.000 | *2.000 | *.585 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 19.000 | -- | *8.000 | *4.000 | *2.000 | *1.000 | *.465 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | 21.000 | -- | *11.900 | *3.000 | *2.000 | *1.000 | *.303 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 23.000 | -- | *10.000 | *3.750 | *2.000 | *1.000 | *.359 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 170 | 29.000 | -- | *13.450 | *6.000 | *4.000 | *2.000 | *.726 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 28.000 | -- | *11.300 | *4.000 | *2.000 | *1.000 | *.410 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 178 | 210.000 | -- | *25.250 | *7.000 | *3.000 | *2.000 | *.547 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 122 | 26.000 | -- | *10.850 | *5.000 | *3.000 | *2.000 | *.778 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 181 | 39.000 | -- | *17.800 | *6.000 | *4.000 | *2.000 | *.810 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 65 | 25.000 | -- | *16.000 | *3.000 | *2.000 | *1.000 | *0.464 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 23.000 | -- | *11.000 | *4.000 | *2.000 | *1.000 | *.397 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 171 | 24.000 | -- | *13.200 | *4.000 | *2.000 | *1.000 | *.476 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 170 | 170.000 | -- | *16.450 | *4.000 | *2.000 | *1.000 | *.383 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 156 | 47.000 | -- | *11.300 | *4.000 | *2.000 | *1.000 | *.330 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 165 | 260.000 | -- | *38.500 | *9.500 | *4.000 | *2.000 | *.639 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 175 | 60.000 | -- | *21.200 | *6.000 | *4.000 | *2.000 | *.869 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 175 | 230.000 | -- | *23.000 | *6.000 | *3.000 | *2.000 | *.508 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 174 | 98.000 | -- | *15.250 | *5.000 | *2.000 | *1.000 | *.455 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 108 | 36.000 | 2.000 | 34.100 | 28.000 | 21.000 | 11.250 | 4.450 |
| | | **Iron, total, in µg/L as Fe [01045]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 161 | 7700.000 | 20.000 | 3659.998 | 1150.000 | 610.000 | 335.000 | 201.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 119 | 43000.000 | 60.000 | 6100.000 | 1700.000 | 750.000 | 420.000 | 240.000 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 120 | 49000.000 | 70.000 | 4564.998 | 1400.000 | 720.000 | 382.500 | 180.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 119 | 49000.000 | 2.000 | 2400.000 | 830.000 | 410.000 | 300.000 | 130.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 37000.000 | 220.000 | 5825.000 | 1800.000 | 870.000 | 635.000 | 385.000 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 160 | 17000.000 | 1.000 | 8995.002 | 1900.000 | 585.000 | 230.000 | 70.000 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 15000.000 | 10.000 | 2294.998 | 630.000 | 310.000 | 180.000 | 60.000 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 161 | 13000.000 | 10.000 | 8479.986 | 1850.000 | 530.000 | 205.000 | 80.000 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 118 | 9800.000 | 90.000 | 1415.001 | 480.000 | 330.000 | 250.000 | 159.500 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 160 | 30000.000 | 5.000 | 9000.000 | 1900.000 | 775.000 | 342.500 | 120.500 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 65 | 17000.000 | 20.000 | 6269.997 | 1300.000 | 600.000 | 305.000 | 105.000 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 121 | 25000.000 | 90.000 | 9839.996 | 1500.000 | 760.000 | 400.000 | 212.000 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 161 | 8200.000 | 40.000 | 2490.000 | 940.000 | 460.000 | 220.000 | 130.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 161 | 11000.000 | 10.000 | 4489.999 | 760.000 | 420.000 | 250.000 | 130.000 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 147 | 7700.000 | 40.000 | 2840.012 | 730.000 | 450.000 | 280.000 | 134.000 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 160 | 7300.000 | 60.000 | 1995.001 | 637.500 | 390.000 | 240.000 | 110.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 154 | 28000.000 | 10.000 | 4775.000 | 1625.000 | 580.000 | 220.000 | 57.500 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 154 | 6800.000 | 10.000 | 2575.000 | 312.500 | 180.000 | 110.000 | 47.500 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 155 | 11000.000 | 20.000 | 2420.001 | 710.000 | 440.000 | 290.000 | 168.000 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 121 | 30.000 | 2.000 | 30.000 | 20.000 | 20.000 | 9.000 | 3.000 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | | | **Lead, total, in µg/L as Pb [01051]** | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 181 | 410.000 | -- | *117.800 | *8.500 | *3.000 | *0.780 | *0.109 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 72.000 | -- | *9.850 | *3.000 | *1.325 | *.564 | *.164 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 122 | 48.000 | -- | *6.850 | *3.000 | *1.032 | *.541 | *.184 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | 18.000 | -- | *8.900 | *2.000 | *.822 | *.325 | *.088 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 18.000 | -- | *5.000 | *2.000 | *.990 | *.444 | *.162 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 170 | 470.000 | -- | *150.000 | *10.000 | *4.000 | *1.047 | *.202 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 78.000 | -- | *11.100 | *2.000 | *.661 | *.182 | *.036 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 178 | 390.000 | -- | *102.000 | *10.000 | *2.000 | *.729 | *.092 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 122 | 18.000 | -- | *9.850 | *3.250 | *2.000 | *1.000 | *.399 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 181 | 310.000 | -- | *149.000 | *12.000 | *2.000 | *.386 | *.038 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 65 | 24.000 | -- | *13.600 | *2.000 | *.540 | *.178 | *.037 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 24.000 | -- | *6.600 | *2.000 | *1.000 | *.482 | *.168 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 171 | 360.000 | -- | *53.600 | *6.000 | *1.237 | *.311 | *.041 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 170 | 150.000 | -- | *55.900 | *7.250 | *2.000 | *.381 | *.055 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 155 | 430.000 | -- | *55.000 | *4.000 | *1.000 | *.239 | *.029 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 165 | 1500.000 | -- | *130.000 | *12.000 | *4.000 | *1.145 | *.207 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 176 | 170.000 | -- | *101.500 | *8.000 | *3.000 | *1.000 | *.134 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 174 | 240.000 | -- | *72.000 | *10.000 | *4.000 | *1.000 | *.199 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 175 | 270.000 | -- | *120.000 | *8.000 | *2.000 | *.441 | *.056 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 120 | 8.000 | 6.000 | 8.000 | 7.000 | 7.000 | 7.000 | 6.000 |
| | | | | | **Manganese, total, in µg/L as Mn [01055]** | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 162 | 990.000 | 1.000 | 247.000 | 140.000 | 100.000 | 72.250 | 43.300 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 121 | 820.000 | 16.000 | 449.000 | 165.000 | 110.000 | 82.500 | 40.600 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 121 | 470.000 | 11.000 | 190.000 | 130.000 | 92.000 | 61.000 | 46.300 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 120 | 420.000 | 4.000 | 229.500 | 137.500 | 96.000 | 61.250 | 37.050 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 105 | 270.000 | 26.000 | 197.000 | 120.000 | 83.000 | 60.000 | 35.300 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 161 | 790.000 | 15.000 | 347.000 | 130.000 | 80.000 | 56.500 | 30.200 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 107 | 880.000 | 5.000 | 118.000 | 50.000 | 30.000 | 15.000 | 8.800 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 162 | 790.000 | 10.000 | 444.000 | 95.500 | 60.000 | 40.000 | 20.150 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 121 | 1200.000 | 10.000 | 378.000 | 150.000 | 100.000 | 54.000 | 28.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 164 | 1300.000 | 10.000 | 465.000 | 110.000 | 62.000 | 40.000 | 18.500 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 700.000 | 6.000 | 182.500 | 62.750 | 40.000 | 20.000 | 10.000 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 122 | 1600.000 | 20.000 | 331.000 | 120.000 | 80.000 | 40.000 | 25.150 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 163 | 300.000 | 10.000 | 150.000 | 86.000 | 51.000 | 36.000 | 18.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 162 | 520.000 | 10.000 | 160.000 | 88.500 | 60.000 | 40.000 | 18.300 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 147 | 360.000 | 2.000 | 202.000 | 110.000 | 80.000 | 57.000 | 25.600 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 161 | 2200.000 | 22.000 | 290.000 | 170.000 | 110.000 | 83.000 | 50.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 155 | 890.000 | 10.000 | 394.001 | 190.000 | 110.000 | 60.000 | 20.800 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 156 | 510.000 | 1.000 | 193.000 | 90.000 | 60.000 | 40.000 | 21.700 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 156 | 410.000 | 15.000 | 230.000 | 130.000 | 100.000 | 70.000 | 34.850 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 122 | 360.000 | 52.000 | 250.000 | 202.500 | 170.000 | 137.500 | 101.500 |
| | | | Zinc, total, in µg/L as Zn [01092] | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 162 | 310.000 | 1.000 | 60.000 | 20.000 | 10.000 | 7.000 | 2.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 119 | 390.000 | -- | *100.000 | *30.000 | *10.000 | *6.000 | *1.703 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 119 | 320.000 | -- | *80.000 | *20.000 | *10.000 | *5.000 | *1.445 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 118 | 320.000 | -- | *50.500 | *20.000 | *8.500 | *4.000 | *.947 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 100 | 270.000 | -- | *60.000 | *20.000 | *10.000 | *5.000 | *1.427 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 159 | 1500.000 | -- | *110.000 | *30.000 | *20.000 | *8.000 | *1.827 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 105 | 390.000 | -- | *114.000 | *20.000 | *9.000 | *4.000 | *.848 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 160 | 450.000 | -- | *89.500 | *30.000 | *20.000 | *6.250 | *1.707 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 119 | 290.000 | 1.000 | 70.000 | 30.000 | 20.000 | 10.000 | 4.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 160 | 460.000 | -- | *70.000 | *20.000 | *10.000 | *7.000 | *1.474 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 63 | 100.000 | -- | *48.000 | *20.000 | *6.000 | *3.000 | *.705 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 122 | 350.000 | -- | *148.000 | *20.000 | *9.500 | *4.000 | *.906 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 164 | 760.000 | -- | *77.500 | *20.000 | *10.000 | *5.000 | *1.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 162 | 320.000 | -- | *50.000 | *20.000 | *10.000 | *5.000 | *1.455 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 147 | 320.000 | -- | *70.000 | *20.000 | *6.000 | *3.000 | *.842 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 159 | 520.000 | -- | *60.000 | *20.000 | *10.000 | *8.000 | *2.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 153 | 12000.000 | -- | *83.000 | *20.000 | *10.000 | *8.000 | *1.724 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 155 | 310.000 | -- | *60.000 | *20.000 | *10.000 | *5.000 | *1.343 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 155 | 930.000 | -- | *62.000 | *20.000 | *10.000 | *6.000 | *1.531 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 63 | .000 | -- | -- | -- | -- | -- | -- |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| | | | **Aluminum, total, in µg/L as Al [01105]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 135 | 3100.000 | 5.000 | 2020.001 | 500.000 | 270.000 | 130.000 | 50.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 122 | 20000.000 | 2.000 | 3495.004 | 920.000 | 345.000 | 145.000 | 53.000 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 122 | 12000.000 | 1.000 | 3865.005 | 635.000 | 245.000 | 120.000 | 21.500 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 121 | 16000.000 | 1.000 | 1535.996 | 350.000 | 150.000 | 80.000 | 30.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 104 | 9700.000 | 2.000 | 2675.000 | 797.500 | 275.000 | 110.000 | 45.000 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 130 | 8300.000 | 1.000 | 5189.999 | 952.500 | 330.000 | 137.500 | 40.000 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 6300.000 | 3.000 | 1429.999 | 505.000 | 205.000 | 90.000 | 30.000 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 130 | 7700.000 | 1.000 | 4769.998 | 962.500 | 290.000 | 130.000 | 30.000 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 121 | 9200.000 | 6.000 | 1290.000 | 380.000 | 230.000 | 120.000 | 40.000 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 130 | 19000.000 | 1.000 | 7369.998 | 1325.000 | 590.000 | 277.500 | 60.000 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 11000.000 | 30.000 | 3890.001 | 897.500 | 355.000 | 177.500 | 53.500 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 123 | 14000.000 | 5.000 | 3500.000 | 890.000 | 500.000 | 230.000 | 70.000 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 131 | 5800.000 | 1.000 | 2079.996 | 620.000 | 320.000 | 140.000 | 60.000 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 130 | 9800.000 | 2.000 | 3369.998 | 602.500 | 330.000 | 177.500 | 70.000 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 129 | 7200.000 | 3.000 | 3300.000 | 595.000 | 310.000 | 120.000 | 20.000 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 129 | 7600.000 | 4.000 | 1650.000 | 565.000 | 330.000 | 185.000 | 105.000 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 126 | 13000.000 | 9.000 | 2724.997 | 720.000 | 195.000 | 70.000 | 23.500 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 127 | 3800.000 | 1.000 | 1300.000 | 190.000 | 90.000 | 50.000 | 10.000 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 126 | 2400.000 | 6.000 | 1165.000 | 230.000 | 130.000 | 90.000 | 30.000 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 118 | 16000.000 | 1.000 | 2510.000 | 1100.000 | 820.000 | 660.000 | 508.500 |
| | | | **Fecal-coliform bacteria, colonies per 100 mL [31616]** | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 169 | 30000.000 | 5.000 | 3800.000 | 760.000 | 420.000 | 230.000 | 50.000 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 126 | 12000.000 | 8.000 | 5400.000 | 1400.000 | 625.000 | 287.500 | 43.500 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 126 | 3000.000 | 2.000 | 786.000 | 240.000 | 100.000 | 39.000 | 10.000 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 126 | 6000.000 | 2.000 | 1365.000 | 180.000 | 75.000 | 30.000 | 6.000 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 107 | 10000.000 | 2.000 | 1860.000 | 410.000 | 160.000 | 60.000 | 10.000 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 171 | 9700.000 | -- | *2064.996 | *215.000 | *41.000 | *10.000 | *2.000 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 106 | 6400.000 | 2.000 | 3084.995 | 350.000 | 125.000 | 40.000 | 6.700 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 169 | 4000.000 | 3.000 | 1150.000 | 225.000 | 70.000 | 17.000 | 6.000 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 122 | 17000.000 | 10.000 | 4000.000 | 572.500 | 205.000 | 60.000 | 15.150 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 174 | 33000.000 | -- | *2370.001 | *315.000 | *77.000 | *25.000 | *1.579 |

**Appendix 8.** Descriptive statistics at selected ambient monitoring stations in Kentucky, phase I—*Continued*

[USGS, U.S. Geological Survey; N, number of observations; mg/L, milligrams per liter; --, insufficient data to make determination; *, value is estimated by using a log-probability regression to simulate the values of data below detection limit; mg/L, micrograms per liter; mL, milliliters]

| Map number (figure 1) | USGS station number | USGS station name | Period of record | N | Maximum[1] | Minimum[1] | Percent of samples in which values were less than or equal to those shown[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 95 | 75 | 50 (median) | 25 | 5 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 66 | 13000.000 | 10.000 | 8550.010 | 602.500 | 225.000 | 70.000 | 19.600 |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 126 | 16000.000 | 2.000 | 3824.997 | 447.500 | 130.000 | 57.500 | 10.000 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 158 | 16000.000 | 2.000 | 4200.000 | 292.500 | 120.000 | 43.750 | 9.950 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 157 | 14000.000 | 4.000 | 4930.008 | 465.000 | 190.000 | 78.000 | 36.300 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 156 | 12000.000 | 2.000 | 5544.998 | 280.000 | 135.000 | 65.750 | 15.100 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 141 | 4800.000 | .000 | 788.999 | 140.000 | 59.000 | 24.500 | 4.100 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 166 | 2300.000 | -- | *889.500 | *215.000 | *47.000 | *10.000 | *1.791 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 165 | 2300.000 | -- | *322.001 | *60.000 | *24.000 | *10.000 | *1.968 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 167 | 7700.000 | -- | *304.000 | *44.000 | *16.000 | *4.185 | *.790 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 121 | 530.000 | 1.000 | 56.200 | 23.000 | 14.000 | 8.500 | 4.000 |
| | | **Mercury, total, in µg/L as Hg [71900]** | | | | | | | | | |
| 3 | 03209500 | Levisa Fork at Pikeville | 3/79 - 9/95 | 178 | 15.000 | -- | *1.500 | *.300 | *.064 | *.016 | *.002 |
| 18 | 03280000 | North Fork Kentucky River at Jackson | 4/84 - 9/94 | 119 | 4.700 | -- | *.400 | *.100 | *.025 | *.007 | *.001 |
| 19 | 03281000 | Middle Fork Kentucky River at Tallega | 4/84 - 9/94 | 117 | .600 | -- | *.300 | *.100 | *.035 | *.016 | *.005 |
| 20 | 03281500 | South Fork Kentucky River at Booneville | 4/84 - 9/94 | 118 | 6.000 | -- | *.300 | *.100 | *.020 | *.006 | *.001 |
| 16 | 03283500 | Red River at Clay City | 10/85 - 9/94 | 102 | 3.600 | -- | *.285 | *.100 | *.029 | *.011 | *.003 |
| 12 | 03284500 | Kentucky River at Camp Nelson | 1/80 - 9/94 | 166 | 6.700 | -- | *1.300 | *.225 | *.065 | *.018 | *.003 |
| 15 | 03285000 | Dix River near Danville | 10/85 - 9/94 | 102 | .300 | -- | *.200 | *.100 | *.051 | *.030 | *.014 |
| 11 | 03287500 | Kentucky River at Lock 4 at Frankfort | 3/79 - 9/94 | 173 | 110.000 | -- | *1.860 | *.300 | *.100 | *.018 | *.002 |
| 14 | 03289300 | South Elkhorn Creek near Midway | 4/84 - 9/94 | 116 | 3.900 | -- | *.300 | *.100 | *.037 | *.013 | *.003 |
| 13 | 03291500 | Eagle Creek at Glencoe | 3/79 - 9/94 | 173 | 6.000 | -- | *2.380 | *.350 | *.100 | *.023 | *.003 |
| 22 | 03295400 | Salt River at Glensboro | 2/89 - 9/94 | 63 | -- | -- | -- | -- | -- | -- | -- |
| 24 | 03300400 | Beech Fork at Maud | 4/84 - 9/94 | 118 | 5.100 | -- | *.300 | *.100 | *.030 | *.011 | *.003 |
| 31 | 03308500 | Green River at Munfordville | 8/79 - 9/94 | 166 | 31.000 | -- | *1.900 | *.225 | *.059 | *.013 | *.001 |
| 32 | 03310300 | Nolin River at White Mills | 8/79 - 9/94 | 162 | 5.400 | -- | *1.485 | *.200 | *.100 | *.019 | *.003 |
| 33 | 03310400 | Bacon Creek near Priceville | 7/79 - 9/94 | 147 | 7.400 | -- | *2.140 | *.200 | *.044 | *.010 | *.001 |
| 30 | 03314500 | Barren River at Bowling Green | 6/79 - 9/94 | 161 | 7.000 | -- | *2.090 | *.200 | *.054 | *.013 | *.002 |
| 40 | 03404500 | Cumberland River at Cumberland Falls | 1/79 - 9/94 | 169 | 4.600 | -- | *2.000 | *.300 | *.100 | *.028 | *.005 |
| 38 | 03406500 | Rockcastle River at Billows | 3/79 - 9/94 | 163 | 4.400 | -- | *2.500 | *.400 | *.089 | *.026 | *.004 |
| 37 | 03410500 | South Fork Cumberland River near Stearns | 3/79 - 9/94 | 168 | 32.000 | -- | *1.710 | *.375 | *.100 | *.023 | *.004 |
| 42 | 03610200 | Clarks River at Almo | 4/84 - 9/94 | 16 | 250.000 | 62.000 | 250.000 | 167.500 | 145.000 | 132.500 | 62.000 |

[1]Alternate rounding technique used in phase I analyses.

Angela S. Crain—ESTIMATED LOADS AND YIELDS OF SUSPENDED SOLIDS AND WATER-QUALITY CONSTITUENTS IN KENTUCKY STREAMS—U.S. Geological Survey Water-Resources Investigations Report 01-4075

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