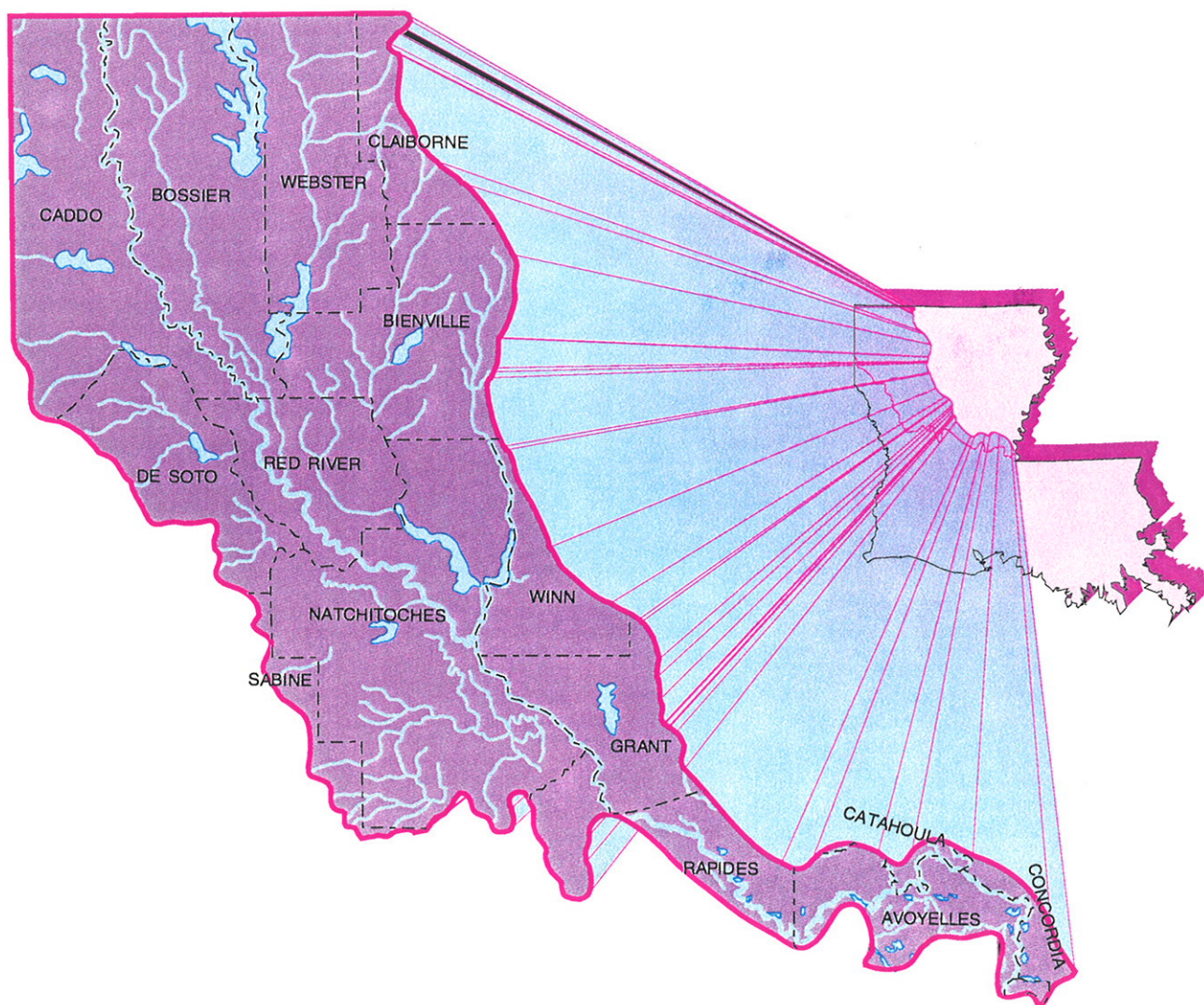


Statistical Summary of Surface-Water Quality in Louisiana--Red River Basin, 1943-94

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Water Resources Technical Report No. 55B



STATE OF LOUISIANA

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

PUBLIC WORKS AND FLOOD CONTROL DIRECTORATE

WATER RESOURCES SECTION

in cooperation with the

U.S. GEOLOGICAL SURVEY



1997



STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
PUBLIC WORKS AND FLOOD CONTROL DIRECTORATE
WATER RESOURCES SECTION

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U.S. DEPARTMENT OF THE INTERIOR
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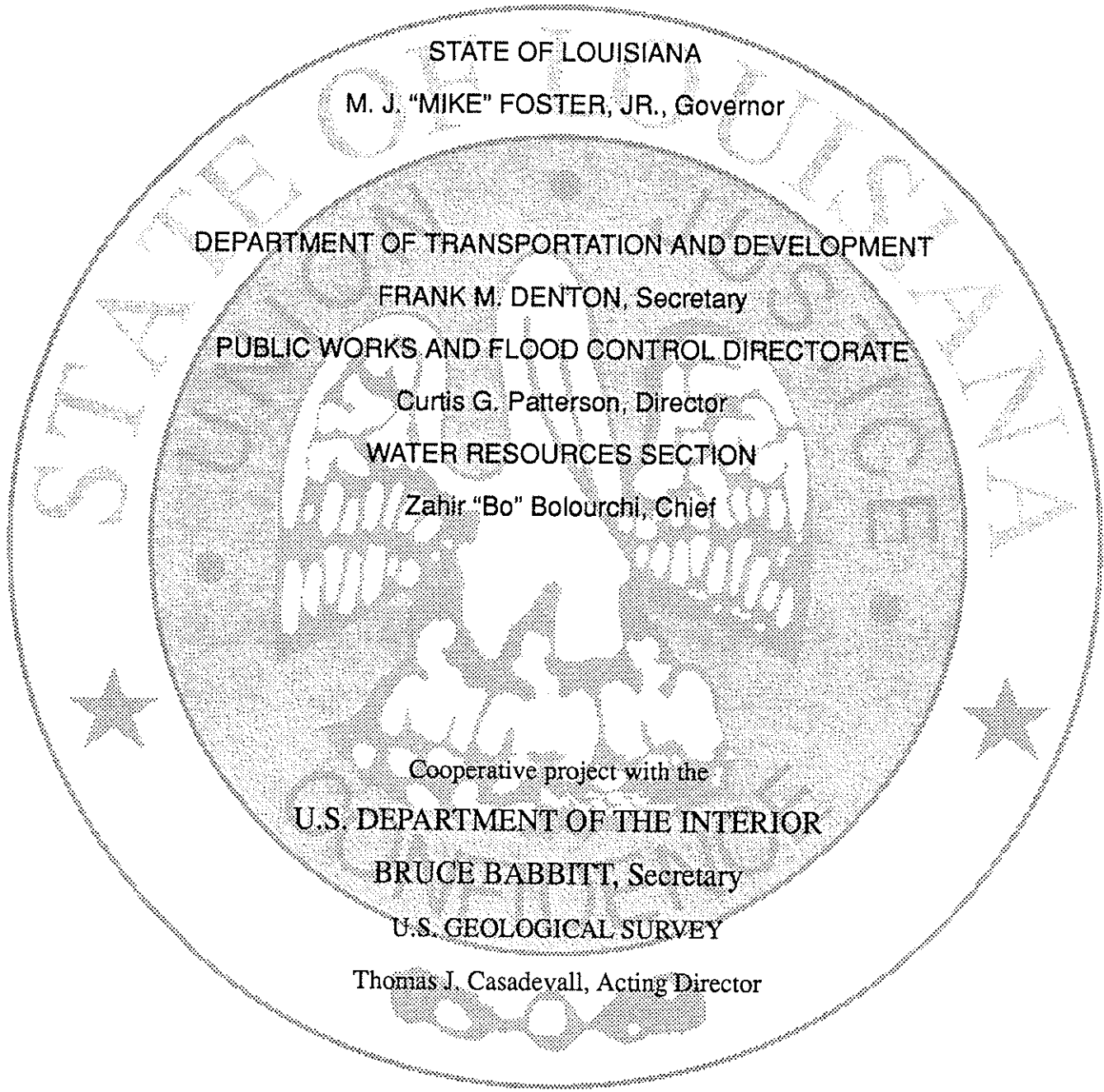
WATER RESOURCES
TECHNICAL REPORT NO. 55B

Statistical Summary of Surface-Water Quality in Louisiana--Red River Basin, 1943-94

By
Charles R. Garrison
U.S. GEOLOGICAL SURVEY

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STATE OF LOUISIANA

M. J. "MIKE" FOSTER, JR., Governor

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

FRANK M. DENTON, Secretary

PUBLIC WORKS AND FLOOD CONTROL DIRECTORATE

Curtis G. Patterson, Director

WATER RESOURCES SECTION

Zahir "Bo" Bolourchi, Chief

Cooperative project with the

U.S. DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

Thomas J. Casadevall, Acting Director

For additional information contact:

Zahir "Bo" Bolourchi, P.E.
Chief, Water Resources Section
Louisiana Department of
Transportation and Development
P.O. Box 94245
Baton Rouge, LA 70804-9245
E-mail: bbolourc@dotdmail.dotd.state.la.us
Telephone: (504) 379-1434
Fax: (504) 379-1523

Edward H. Martin
District Chief
U.S. Geological Survey
3535 S. Sherwood Forest Blvd., Suite 120
Baton Rouge, LA 70816
E-mail: dc_la@usgs.gov
Telephone: (504) 389-0281
Fax: (504) 389-0706

CONTENTS

Abstract	1
Acknowledgments	1
1.0 Introduction	2
1.1 Background.....	3
1.2 Purpose and scope	4
1.3 Methods of study	6
1.4 Hydrologic setting and land use in Louisiana	8
1.4.1 Climate.....	8
1.4.2 Physiography	10
1.5 Surface-water-quality properties and constituents.....	12
2.0 Red River basin in Louisiana	14
2.1 Overview	16
2.2 Surface-water quality.....	18
2.2.1 Physical properties--specific conductance, pH, water temperature, and dissolved oxygen.....	20
2.2.2 Relation between specific conductance and dissolved solids.....	22
2.2.3 Major inorganic cations--dissolved calcium, magnesium, sodium, and potassium	24
2.2.4 Major inorganic anions--total alkalinity as calcium carbonate, dissolved sulfate, and dissolved chloride.....	26
2.2.5 Relation between specific conductance and dissolved chloride.....	28
2.2.6 Trace metals--dissolved copper, iron, lead, and zinc.....	30
2.2.7 Nutrients--nitrogen and phosphorus constituents	32
2.2.8 Organic compounds--pesticides and PCB's	34
2.2.9 Biological constituents--fecal coliform and fecal streptococcus bacteria and phytoplankton	36
2.3 Summary and conclusions	38
3.0 Selected references	40

FIGURES

1.1-1. Map showing location of the major surface-water basins in Louisiana.....	3
1.2-1. Diagram showing files in the U.S. Geological Survey Water-Data Storage and Retrieval System	5
1.3-1. Diagram showing example and definition of boxplot.....	7
1.3-2. Graph showing example and definition of linear regression	7
1.4.1-1. Map showing mean annual precipitation in Louisiana, 1951-80.....	9
1.4.2-1. Map showing physiographic divisions and streams in Louisiana.....	11
2.0-1. Map showing location of surface-water-quality data-collection sites in the Red River basin, Louisiana, 1943-94	15
2.1-1. Surface-water withdrawals from the Red River basin, Louisiana, 1990.....	17
2.2-1. Photograph showing water-quality data-collection site at Loggy Bayou near Ninock, Louisiana	19
2.2.1-1. Map showing water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing specific conductance, pH, water temperature, and dissolved oxygen data for selected sites.....	21
2.2.2-1. Map showing water-quality data-collection sites in the Red River basin, Louisiana, and graphs showing relation between specific conductance and dissolved solids in water from selected sites	23
2.2.3-1. Map showing water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for dissolved calcium, magnesium, sodium, and potassium concentrations in water from selected sites.....	25

2.2.4-1.	Map showing water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for total alkalinity as calcium carbonate and dissolved sulfate and chloride concentrations in water from selected sites.....	27
2.2.5-1.	Map showing water-quality data-collection sites in the Red River basin, Louisiana, and graphs showing relation between specific conductance and dissolved chloride in water from selected sites.....	29
2.2.6-1.	Map showing water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for dissolved copper, iron, lead, and zinc concentrations in water from selected sites.....	31
2.2.7-1.	Map showing water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for concentrations of nutrients in water from selected sites.....	33
2.2.8-1.	Map showing water-quality data-collection sites in the Red River basin, Louisiana, and tables listing organic compounds detected in water from selected sites.....	35
2.2.9-1.	Map showing water-quality data-collection sites in the Red River basin, Louisiana, and boxplots and tables summarizing data for concentrations of fecal coliform and fecal streptococcus bacteria and phytoplankton in water from selected sites.....	37

TABLES

1.5-1.	Common sources of properties and constituents, their environmental significance, and Federal regulations and State criteria.....	13
2.0-1.	Surface-water-quality data-collection sites in the Red River basin, Louisiana, 1943-94.....	14
2.2-1.	Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94.....	41

CONVERSION FACTORS, VERTICAL DATUM, AND ABBREVIATED WATER-QUALITY UNITS

Multiply	By	To obtain
acre	0.4047	hectare
cubic foot per second (ft ³ /s)	0.0283	cubic meter per second
foot (ft)	0.3048	meter
inch (in.)	25.4	millimeter
mile (mi)	1.609	kilometer
million gallons per day (Mgal/d)	0.04381	cubic meter per second

Temperature in degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) as follows: °F = 1.8(°C) + 32.

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Sea Level Datum of 1929."

Abbreviated water-quality units:

cells per milliliter (cells/mL)

colonies per 100 milliliters (cols/100 mL)

microsiemens per centimeter at 25 degrees Celsius (µS/cm)

micrograms per liter (µg/L)

milligrams per liter (mg/L)

nanograms per liter (ng/L)

Statistical Summary of Surface-Water Quality in Louisiana--Red River Basin, 1943-94

By Charles R. Garrison

ABSTRACT

A statistical summary of surface-water quality in the Red River basin was completed using available data from the U.S. Geological Survey Water-Data Storage and Retrieval System (WATSTORE), a computerized data base. Data for 33 water-quality properties and constituents for 61 sites in the Red River basin within Louisiana were statistically analyzed for the water years 1943-94. Results are reported as boxplots, linear-regression plots, and tabulated data.

The data were summarized into seven categories: (1) physical properties--specific conductance, pH, water temperature, dissolved oxygen; and dissolved solids; (2) major inorganic cations--dissolved calcium, magnesium, sodium, and potassium; (3) major inorganic anions--total alkalinity as calcium carbonate, dissolved sulfate, and dissolved chloride; (4) trace metals--dissolved copper, iron, lead, and zinc; (5) nutrients--nitrogen and phosphorus constituents; (6) organic compounds--pesticides and PCB's; (7) biological constituents--fecal coliform and fecal streptococcus bacteria and phytoplankton.

The physical properties varied for surface waters in the Red River basin. The specific conductance values ranged from 15 to 21,300 microsiemens per centimeter at 25 degrees Celsius. Values for pH in water from the basin were occasionally less than 6.5, the lower limit of the U.S. Environmental Protection Agency's recommended range for freshwater aquatic life. Median values for water temperature ranged from 11.2 to 22.5 degrees Celsius.

The dissolved oxygen concentrations were greater than the State's minimum water-quality criterion of 5.0 mg/L (milligrams per liter) in more than 75 percent of the samples analyzed at most sites. However, the statistical data indicated that less than five percent of the samples collected at Red River at Alexandria, Louisiana, typically had dissolved oxygen concentrations of less than 5.0 mg/L.

An analysis of the data for major inorganic cations and anions indicated that concentrations of major ions were below recommended levels for drinking water, for which such levels have been established. However, there were periodic high concentrations of

sodium and chloride at Twelvemile Bayou near Dixie, Louisiana.

An analysis of the available data for trace metals indicated that dissolved copper, lead, and zinc were less than the maximum contaminant levels of the U.S. Environmental Protection Agency's primary and secondary drinking water regulations. The iron concentrations in water from the basin often exceeded the U.S. Environmental Protection Agency's secondary maximum contaminant level of 300 µg/L (micrograms per liter) for domestic water supplies at most of the sites and occasionally exceeded the recommended maximum level of 1,000 µg/L for freshwater aquatic life.

An analysis of the nutrient data indicated that the median concentrations of ammonia plus organic nitrogen as nitrogen at the sites ranged from 0.6 to 1.2 mg/L. However, the median concentrations at the Red River sites generally were less than the other sites.

An analysis of available data for selected organic chemical compounds indicated that concentrations of diazinon and 2, 4-D, occasionally exceeded their detection levels. However, low-level concentrations of other organic compounds occasionally were detected.

The median ratios of fecal coliform to fecal streptococcus bacteria were less than 0.7 for most of the sites within the Red River basin, indicating that sources of fecal coliform bacteria probably were predominantly livestock or poultry wastes. Additional study is needed to confirm these results. Phytoplankton concentrations ranged from 0 to 1,700,000 cells per milliliter due to seasonal influence.

ACKNOWLEDGMENTS

The author extends his appreciation to Zahir "Bo" Bolourchi, Chief, Water Resources Section, of the Louisiana Department of Transportation and Development, for guidance and assistance provided during the study and his substantial contribution to the completion of this report. The Report Preparation Section of the Louisiana District was especially helpful in the completion of this report at early stages of preparation and different stages of review. The final preparation and layout of the report was a team effort. The team members were Sebastian R. Brazelton, Dorothy L. Collier, Cheryl A. Johnson, William C. Martin, and Darlene M. Smothers.

1.0 INTRODUCTION

THIS REPORT IS ORGANIZED INTO THREE PARTS AND PRESENTED IN "STOP" FORMAT¹

A single topic is presented in text and pictures on facing pages.

This report, "**Statistical Summary of Surface-Water Quality in Louisiana--Red River Basin, 1943-94**," is one of a series of reports in which surface-water-quality data for the major river basins in Louisiana will be statistically summarized. This report is organized into three parts (excluding the "Abstract"); the "Introduction," the "Red River Basin in Louisiana," and "Selected References."

The "Introduction" provides background information about the study, describes the hydrologic setting and land use in Louisiana, and presents a brief description of selected water-quality properties and constituents.

The section titled "Red River Basin in Louisiana," presents statistical analyses of the surface-water-quality data at selected representative sites in the basin. This basin summary section contains the following:

- Maps and text giving an overview of the basin, including location, areal extent, drainage area, major drainage and surface-water bodies, land use, and water use.

- Boxplots and text describing statistical summaries of selected physical properties of surface waters at representative sampling sites.
- Graphs and text describing the relation between specific conductance and dissolved solids and specific conductance and dissolved chloride, at representative sampling sites.
- Boxplots, tables, and text describing statistical summaries of major inorganic chemical constituents; selected trace metals, nutrients, and organic chemical concentrations; and selected biological constituents, usually bacteria.
- Summary and conclusions, which pertain only to the basin summary.

The "Selected References" lists all references that pertain to the water quality in the basin.

¹This report is presented in "STOP" (Sequential Thematic Organization of Publications) format (Hobba, Jr., 1981, p. 1). In this format, topics are presented using text and illustrations on two facing pages. Generally, topics are presented on two facing pages in this report, but in a few places the information is continued on additional pages.

1.0 INTRODUCTION--continued

1.1 Background

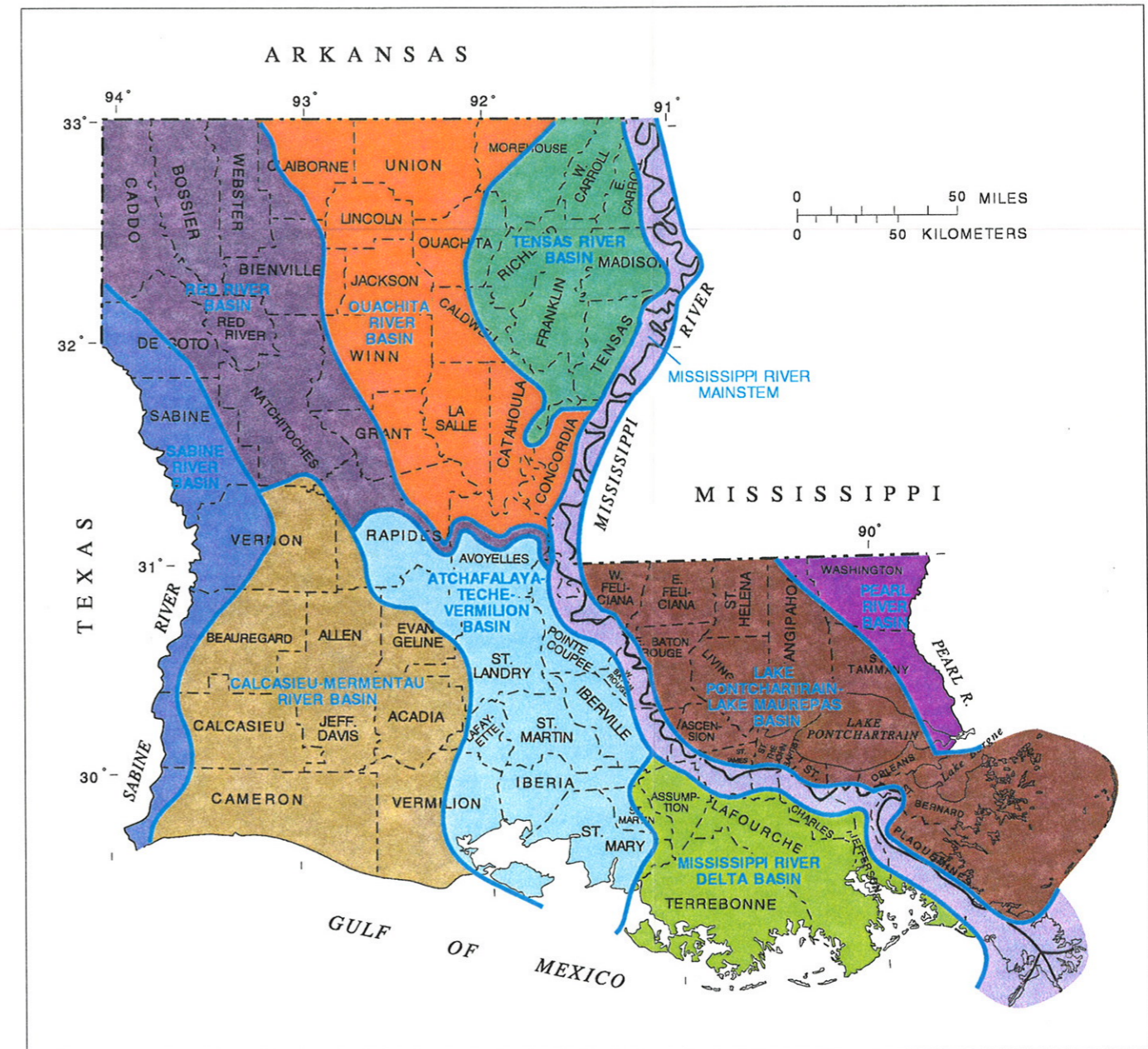
SURFACE-WATER QUALITY OF THE MAJOR DRAINAGE BASINS IN LOUISIANA

A large amount of water-quality data is available for streams, rivers, and lakes in Louisiana.

Water-quality samples from streams, rivers, and lakes in Louisiana have been collected and analyzed by the U.S. Geological Survey (USGS) since 1905, and the USGS, in cooperation with local, State, and other Federal agencies, systematically has operated water-quality sites on streams, rivers, and lakes in the State since 1943. Results of the analyses are stored in the USGS computerized water-quality files and often are used to answer data requests and provide a large source of information for the managers of Louisiana's surface-water resources. Even though these data have been published in the USGS series of annual reports entitled Water Resources Data for Louisiana (Dantin and others, 1994) and in many other reports that describe surface-water quality, descriptive statistics for these data are needed to make the data more useful for water managers, to allow more complete answers to be given for information requests from the public, to indicate the need for

additional water-quality data at existing or new sites, and to indicate problem areas where interpretive studies are needed.

In response to the above needs, the USGS, in cooperation with the Louisiana Department of Transportation and Development, began a study in October 1987 to statistically analyze and summarize water-quality data from about 300 surface-water-quality sites in Louisiana and to present the data in such a manner that trends, overall quality, and basin-wide changes in water quality could be evaluated. The study focused on the surface-water quality of the Mississippi River mainstem and the major drainage basins in Louisiana: the Lake Pontchartrain-Lake Maurepas basin; the Mississippi River Delta basin; the Atchafalaya-Teche-Vermilion basin; and the Calcasieu-Mermentau, Ouachita, Pearl, Red, Sabine, and Tensas River basins (fig. 1.1-1).



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Figure 1.1-1. Major surface-water basins in Louisiana.

1.0 INTRODUCTION--continued

1.2 Purpose and Scope

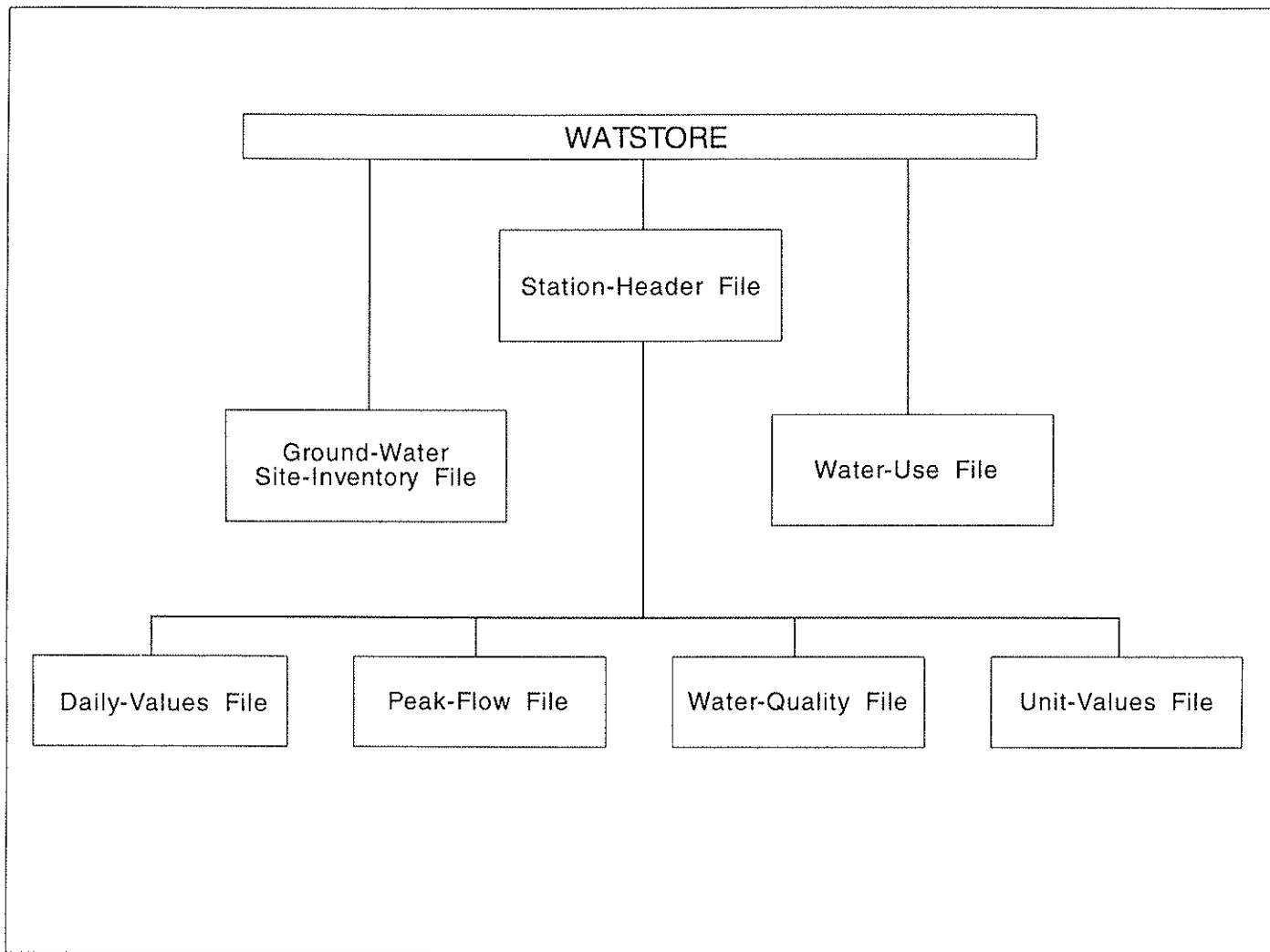
ANALYZE AND SUMMARIZE SURFACE-WATER-QUALITY DATA

Statistical analyses with illustrations describe water quality of the major drainage basins in Louisiana.

Statistical analyses of water-quality data and corresponding illustrations are presented for each major drainage basin in Louisiana. Nine of the 10 basins described in this study are those delineated by the Louisiana Department of Transportation and Development (1984). The mainstem of the Mississippi River is discussed separately from the Mississippi River Delta basin to preserve continuity of data for the Mississippi River.

Data for about 300 sites in Louisiana for water years 1905-95 were included in these statistical analyses. The number of water-quality sites varied from basin to basin, and the number and type of samples varied from site to site within a given basin. Pesticides, and occasionally, trace metals and nutrients are presented in

tables when there are more than 10 samples, and most, or all, of the concentrations are below the largest detection level for the analytical methods used. Daily sediment data were collected at Bayou Grand Cane near Stanley, Bayou Castor near Logansport, and Bayou San Patricio near Benson in the Sabine River basin, and Pearl River near Bogalusa in the Pearl River basin. This information is presented in tables in the Sabine River basin and the Pearl River basin reports. All water-quality data and streamflow data used for the statistical analyses are stored in the USGS Water-Data Storage and Retrieval System (WATSTORE), a computerized data base (fig. 1.2-1). Only WATSTORE data were used for the study.



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Figure 1.2-1. Files in the U.S. Geological Survey Water-Data Storage and Retrieval System (WATSTORE).

1.0 INTRODUCTION--continued

1.3 Methods of Study

BOXPLOTS AND GRAPHS ILLUSTRATE WATER QUALITY AT SIX REPRESENTATIVE SITES IN A BASIN

Tables list statistical information for selected water-quality properties and constituents.

Data from six representative sites within a basin are presented graphically. Data from all sites within a basin that were sampled 10 or more times are summarized in tables for each basin. These tables list the following information and summary statistics for selected properties and constituents for each site: number of analyses; detection level; maximum, minimum, and mean values or concentrations; and values or concentrations representing the 5th, 25th, 50th, 75th, and 95th percentiles of the total sample population. The data for selected sites were used to generate boxplots and linear regression equations and graphs for selected properties and constituents.

Boxplots illustrate a statistical summary of water-quality data at a site (D.R. Helsel, U.S. Geological Survey, written commun., 1989) (fig. 1.3-1). Boxplots of specific conductance, pH, water temperature, dissolved oxygen, major inorganic cations, major inorganic anions, trace metals, nutrients, bacteria, and phytoplankton (where data were available), were developed for selected sites in each basin.

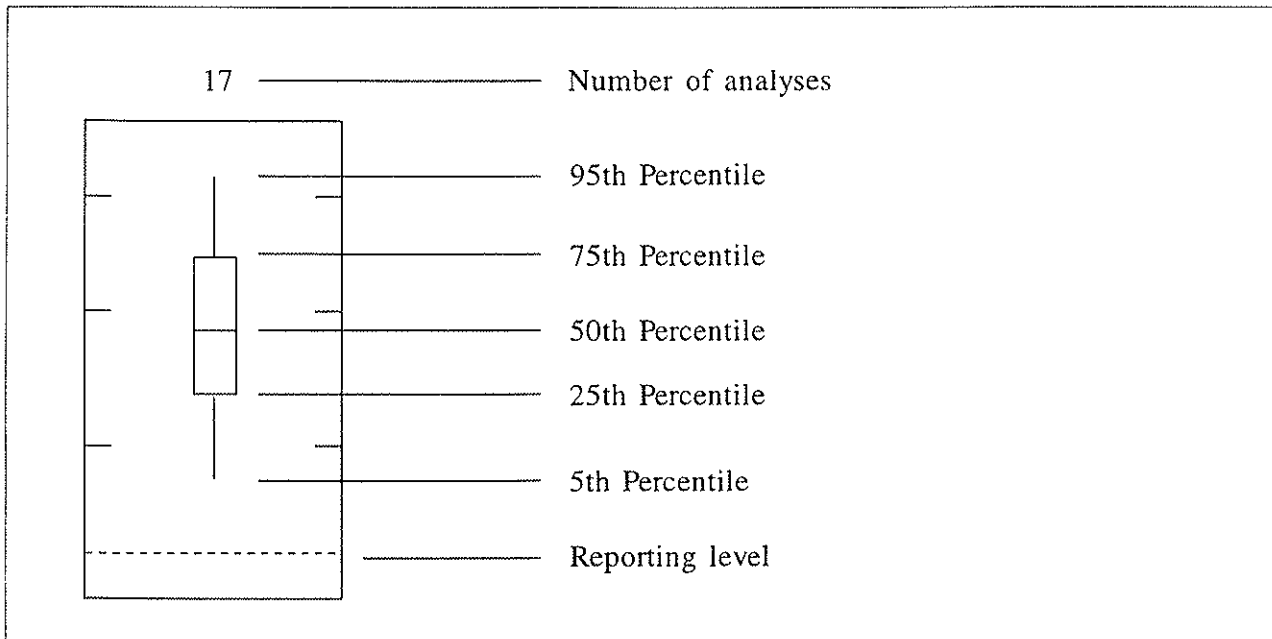
A boxplot summarizes a data set by displaying the values or concentrations representing the 5th, 25th, 50th, 75th, and 95th percentiles of the data. This format allows comparison among streams in the basin. The term percentile as used in this report refers to a distribution of values in the total data set. For example, the 25th percentile is the data value below which 25 percent of the data values occur (Sokal and Rohlf, 1969, p. 45). The 50th percentile is also the median of the data. The interquartile range is between the 25th and 75th percentiles. Fifty percent of the data are within this range.

A boxplot is constructed so the top and bottom of the box are drawn at the 75th and 25th percentiles. A line across the box indicates the median. The 95th and 5th percentiles are indicated by a vertical line from the top of the box to the 95th percentile and from the bottom of the box to the 5th percentile.

A horizontal dashed line indicates the analytical detection level. Because of changes in analytical procedures the reporting level may have changed over time. When multiple reporting levels were used for some constituents, a dashed line was drawn across the boxplot at the largest reporting level used.

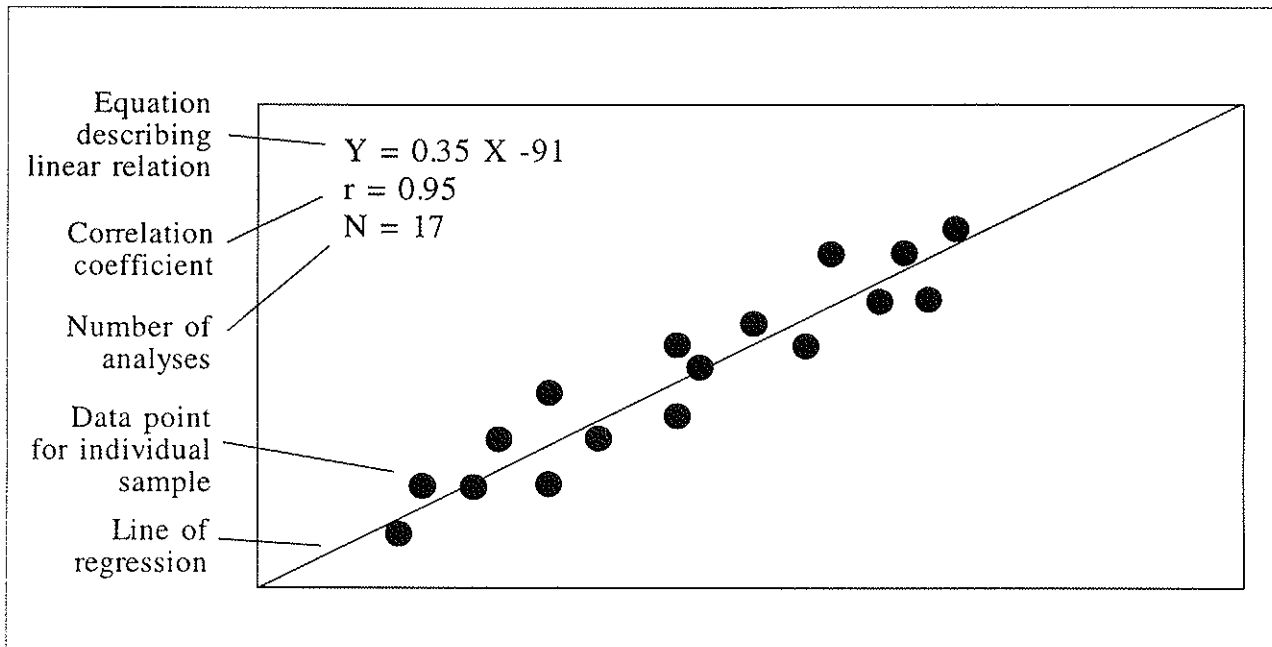
Another method used to evaluate water-quality data in this series of reports is linear regression (fig. 1.3-2). Linear regression equations were calculated in the form of $Y = aX + b$, where a is the slope of the regression line, b is the Y intercept, and Y and X are the dependent and independent variables (Sokal and Rohlf, 1969, p. 408). The number of data pairs, N , and the correlation coefficient, r , also are presented. The correlation coefficient indicates the degree of association between two variables. The closer the r value is to ± 1 , the better the association. Linear regression equations and graphs are presented for specific conductance and dissolved solids and for specific conductance and dissolved chloride. However, extrapolation of the equations beyond the data used to define the equation could result in incorrect values because the relation may not be linear in that range.

Water-quality samples were collected and analyzed using techniques and methods prescribed by the USGS. Collection procedures for chemical constituents are determined by the Office of Water Quality within the USGS. Methods for chemical analyses are presented in "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments" (Fishman and Friedman, 1989). Collection procedures and analytical methods for biological constituents are presented in "Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples" (Britton and Greeson, 1988). Collection procedures and analytical methods for organic constituents are presented in "Methods for the Determination of Organic Substances in Water and Fluvial Sediments" (Wershaw and others, 1983).



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Figure 1.3-1. Example and definition of boxplot.



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Figure 1.3-2. Example and definition of linear regression.

1.0 INTRODUCTION--continued

1.4 Hydrologic Setting and Land Use in Louisiana

CLIMATE AND PHYSIOGRAPHY INDIRECTLY AFFECT WATER QUALITY

Climate and physiography are the primary factors that affect land use in Louisiana, and "the quality of Louisiana's streams, rivers, and lakes depends in large part on the uses of the land they drain" (U.S. Geological Survey, 1993, p. 293).

1.4.1 Climate

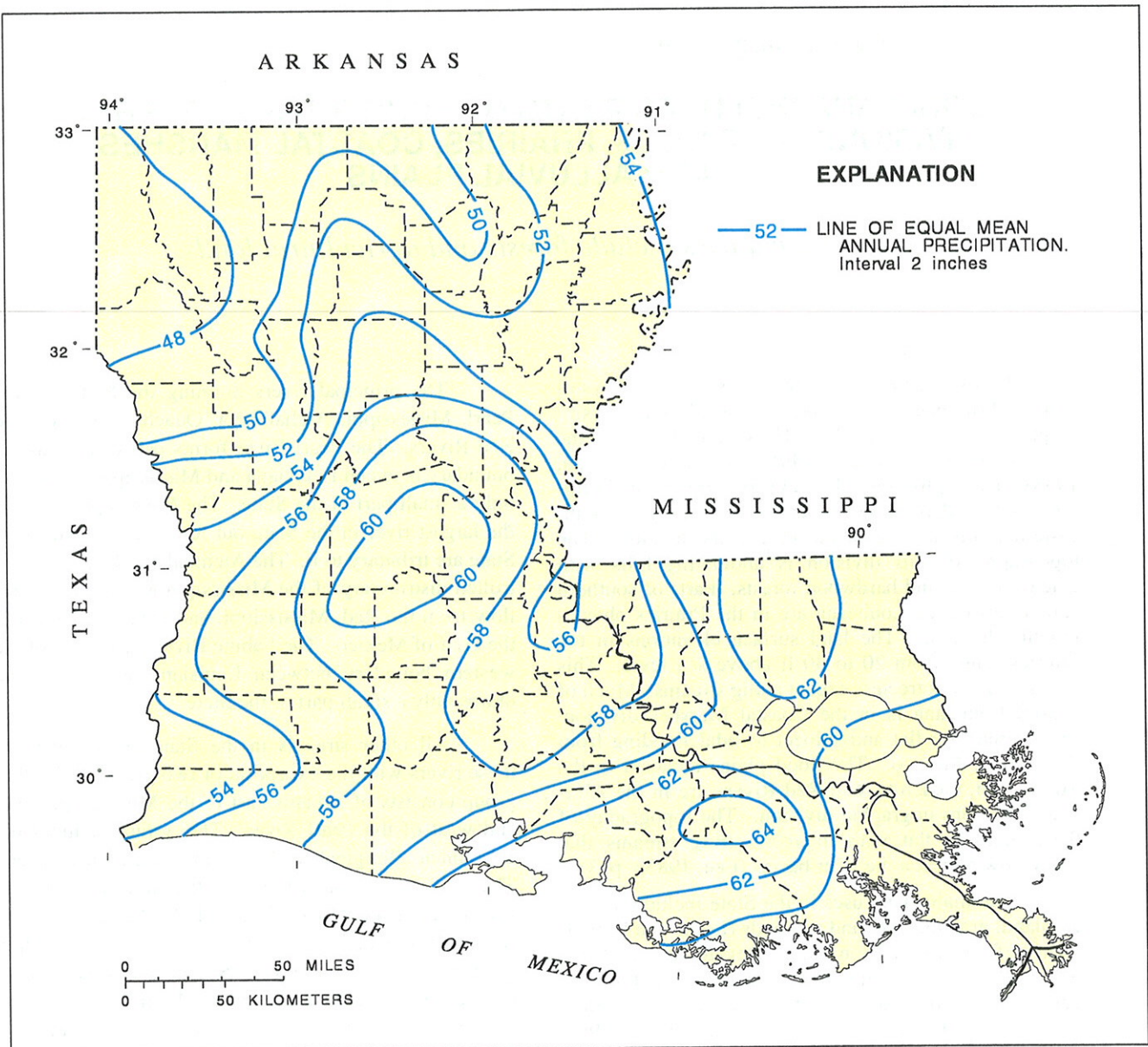
HUMID, SUBTROPICAL CLIMATE PREVAILS IN LOUISIANA

The mean annual precipitation ranges from about 48 inches in the northwestern part of the State to 64 inches in the southeastern part.

The relatively high annual rainfall and the year-round moderate air temperatures account for the humid, subtropical climate in Louisiana (Lee, 1985b, p. 2). Annual rainfall ranges from about 48 in. in the northwestern part of the State to about 64 in. in the southeastern part (fig. 1.4.1-1) (McWreath and Lowe, 1986; Muller and others, 1984). The most intense rainfall occurs during localized thunderstorms that produce large amounts of rainfall but move rapidly through an area.

Other sources of heavy rainfall are tropical storms and hurricanes. These storms intensify over the warm waters of the Gulf of Mexico and move slowly inland. During this inland movement, extremely heavy rainfall can occur over most of the State in a short period of time and can cause major flooding.

Mean annual air temperatures range from 19.0 °C in the northern part of the State to 20.5 °C in the southern part. The lowest temperatures usually occur during January and February and the highest temperatures occur during July and August (Lee, 1985b, p. 2).



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Figure 1.4.1-1. Mean annual precipitation in Louisiana, 1951-80. (Source: Muller and others, 1984)

1.0 INTRODUCTION--continued

1.4 Hydrologic Setting and Land Use in Louisiana--continued

1.4.2 Physiography

LOUISIANA INCLUDES PARTS OF FOUR PHYSIOGRAPHIC DIVISIONS--PINE HILLS, PRAIRIES, COASTAL MARSHES, AND ALLUVIAL PLAINS

Major land uses include forests and agricultural lands.

Louisiana lies within the Coastal Plain Physiographic Province, and includes parts of four physiographic divisions--the Pine Hills, the Prairies, the Coastal Marshes, and the Alluvial Plains (Fenneman, 1938). These physiographic divisions are shown in figure 1.4.2-1. Parts of north-central, western, and south-eastern Louisiana are in the Pine Hills division. The topography of this division is undulating hills with extensive pine and hardwood forests. Parts of southern and southwestern Louisiana are in the Prairies physiographic division. The land surface elevations in the Prairies range from 20 to 30 ft above sea level. This area generally is treeless except along streams. Much of coastal Louisiana is in the Coastal Marshes division. These areas are flat and subject to tidal flooding from the Gulf of Mexico. The flood plains adjacent to the Mississippi, Ouachita, and Red Rivers are in the Alluvial Plains physiographic division. The topography of these areas is flat with interconnecting streams that allow flow between the river basins (Lee, 1985b, p. 3).

The major land uses in the State include forests, cropland, grazing land, and wetlands (Louisiana Department of Transportation and Development, 1984, p. 24-28). Even though most land is well suited to agriculture, some areas support industry, oil and gas production, and aquaculture (U.S. Geological Survey, 1993, p. 293).

The principal rivers draining the State are the Pearl, Mississippi, Atchafalaya, Ouachita, Sabine, and Red Rivers. The Pearl River forms part of the eastern boundary between Louisiana and Mississippi and drains only a small part of the State. The Mississippi River is the largest river in the State but few streams within the State are tributary to it. The Atchafalaya River is a controlled distributary of the Mississippi River, and carries flow from the Red, Mississippi, and Ouachita Rivers to the Gulf of Mexico. The Sabine River forms part of the western boundary between Louisiana and Texas and drains only a small part of the State.

All other streams in the State are tributary to these rivers with the exception of two groups. The first group consists of streams east of the Mississippi River and west of the Pearl River. This group includes the Tchefuncte, Tangipahoa, Natalbany, and Amite Rivers. These rivers eventually flow into the Gulf of Mexico by way of Lake Pontchartrain and Lake Maurepas. The second group includes rivers west of the Mississippi River and east of the Sabine River. Major streams in this group are Bayou Teche and the Vermilion, Mermen-tau, and Calcasieu Rivers. These rivers flow into the Gulf of Mexico.



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Figure 1.4.2-1. Physiographic divisions and streams in Louisiana. (Source: Lee, 1985b, p. 4)

1.0 INTRODUCTION--continued

1.5 Surface-Water-Quality Properties and Constituents

TABLE INCLUDES COMMON SOURCES OF SELECTED PROPERTIES AND CONSTITUENTS

Federal regulations and State criteria have been established for selected properties and constituents analyzed.

Table 1.5-1 describes selected water-quality properties and constituents discussed in this report. The table lists common sources of the properties and constituents and their environmental significance, and where established, the Federal regulations and State criteria are presented.

In addition to the information presented in this table, it may be noted that values for fecal coliform and fecal streptococcus bacteria have a special importance when compared to each other. "When the ratio (fecal coliform bacteria to fecal streptococcus bacteria) is greater than or equal to 4, it may be taken as strong evidence that pollution derives from human wastes. When the ratio is less than or equal to 0.7, it may be taken as

strong evidence that pollution derives predominantly or entirely from livestock or poultry wastes. When the ratio lies between 2 and 4, it can indicate a predominance of human wastes in mixed pollution. When the ratio is between 0.7 and 1.0, it can indicate a predominance of livestock and poultry wastes in mixed pollution. When the ratio falls on values from 1 to 2, it represents a 'grey area' of uncertain interpretation" (Millipore Corporation, 1972, p. 36). This interpretation of ratios is most reliable when the two counts describe samples collected at the same site within 24 hours of flow downstream from the source of pollution. Because the source of contamination in most instances is unknown, the interpretation of these ratios presented in this report should be used with caution.

Table 1.5-1. Common sources of properties and constituents, their environmental significance, and Federal regulations and State criteria

[Source: U.S. Environmental Protection Agency (USEPA), 1976; 1986; 1994, 1996; Louisiana Department of Environmental Quality (DEQ), 1984; Hem, 1985; Tobin and Youst, 1977. NE, no established criteria; SMCL, secondary maximum contaminant level; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; MCL, maximum contaminant level; Proposed MCL, proposed maximum contaminant level; ng/L, nanograms per liter; cols/100 mL, colonies per 100 milliliters]

Property or constituent	Common source	Environmental significance	USEPA Federal water-quality regulations ¹	DEQ State water-quality criteria
Physical properties				
Specific conductance	Ions within the water.	Indicates the presence of precipitation, dilution, evaporation, and metabolic uptake and release of chemicals.	NE	NE
pH	Hydrogen-ion activity.	May indicate oxidation of some form of sulfur or iron.	SMCL is 6.5-8.5 and 6.5-9.0 is the recommended range for freshwater aquatic life. See U.S. Environmental Protection Agency (1976, p. 218).	6.0-9.0 and no effluent will cause pH to vary by more than 1.0.
Water temperature	Seasonal changes; daily variance outside discharges into waterbody.	Affects migration patterns and colonization characteristics; accelerates biodegradation; decreases maximum oxygen concentration.		Freshwater: (1) Maximum of 2.8 °C rise above ambient for streams. (2) Maximum of 1.7 °C rise above ambient for lakes. (3) Maximum temperature of 32.2 °C except where otherwise listed. Estuarine and coastal waters: (1) Maximum of 2.2 °C rise above ambient October through May. (2) Maximum of 0.83 °C rise during June through September. (3) Maximum temperature of 35.0 °C except when natural conditions elevate temperature above this level.
Dissolved oxygen	Transferred from the atmosphere; photosynthesis by aquatic plants.	Inadequate dissolved oxygen can have adverse effect on aquatic life.		For freshwater aquatic life and coastal marine water, 5.0 mg/L.
Total dissolved solids	Inorganic salts and some organic materials.	Excess can cause pipe corrosion or have detrimental effects on sensitive crops if used for irrigation.	SMCL is 500 mg/L. 250 mg/L for chlorides and sulfates in domestic water supplies (welfare).	State criteria vary from stream to stream.
Major inorganic cations				
Calcium, dissolved	Occurs in igneous-rock minerals, silicate minerals, and as carbonates in sedimentary rocks.	Important for animal and plant nutrition.	NE	NE
Magnesium, dissolved	Carbonate sedimentary rock forms such as limestone.	Important for animal and plant nutrition.	NE	NE
Sodium, dissolved	Occurs in igneous and sedimentary rocks, especially evaporites.	Excessive sodium in drinking or irrigation water can have detrimental effects on plants and consumers.	NE	NE
Potassium, dissolved	More abundant in sedimentary rocks than igneous rocks.	Essential plant nutrient.	NE	NE
Major inorganic anions				
Alkalinity as calcium carbonate	Caused by the presence of bicarbonates, carbonates, and hydroxides. Function of pH and temperature.	Buffers water against pH changes.		NE
Sulfate, dissolved	Can be dissolved from gypsum, sodium sulfate, and some types of shales. Mining activities, industrial waste, and organic matter.	Concentrations exceeding a natural, background level indicate contamination from human activity; in sufficient quantity, can cause water to be unsuitable for public supply; can harm aquatic organisms.	SMCL is 250 mg/L.	Maximum contaminant level is 250 mg/L.
Chloride, dissolved	Common in brine and a primary constituent in seawater; evaporite sediment.	Associated with sodium and, if present in excess, can be detrimental in water used for drinking or irrigation.	SMCL is 250 mg/L.	For instream concentration, 250 mg/L.
Trace metals				
Copper, dissolved	Malachite and cuprite. Oxides and sulfates are used in algicides, pesticides, and fungicides.	Important for the synthesis of chlorophyll.	SMCL is 1,000 µg/L.	NE
Iron, dissolved	Present in igneous-rock minerals and in sedimentary rocks.	Important for plant and animal nutrition.	SMCL is 300 µg/L.	NE
Lead, dissolved	Often result from mining, smelting, and other industrial operations. May occur naturally as lead sulfide.	Toxic, bioaccumulative. Has no nutritional value.	MCL is 15 µg/L at the tap. For sensitive freshwater resident species, 0.01 times the 96-hour LC ₅₀ value, using the receiving or comparable water as the diluent and soluble lead measurements (using an 0.45 micron filter).	NE
Zinc, dissolved	Used in the metallurgy, paint, rubber, and photo-engraving industries.	Important for animal metabolism. However, small quantities can be toxic to aquatic plants, animals, and bacteria.	SMCL is 5,000 µg/L.	NE
Nutrients				
Ammonia plus organic nitrogen, total	Sewerage or industrial contamination.	Ammonia reactions with chlorine can result in the formation of chloramine compounds. Organic nitrogen can be an indicator of organic pollution.	NE	NE
Nitrite plus nitrate, and nitrite as nitrogen, total	Fertilizers and animal and human wastes.	Plant nutrient that can be an indication of wastes.	MCL for nitrite plus nitrate is 10 mg/L, nitrate is 10 mg/L, and nitrite 1.0 mg/L.	NE
Phosphorus, total	Results from leaching of rocks and soil, decomposition of plants and animals, from fertilizers, sewerage, and industrial waste.	Although it is not toxic to man, it is bioaccumulative and toxic to certain forms of aquatic life. High concentrations promote undesirable plant growth causing eutrophication of lakes.	NE	NE
Pesticides and other organics				
DDT, total	Insecticides.	Bioaccumulative and toxic.		For freshwater, 1.1 µg/L. For public water supply, 0.24 µg/L.
PCB, total	Found in capacitors and transformers used in the electrical industry.	Bioaccumulative and toxic.		For freshwater, 2.0 µg/L. For public water supply, 0.79 µg/L.
Diazinon, total	Insecticides.	Bioaccumulative and toxic.	NE	NE
Lindane, total	Insecticides.	Bioaccumulative and toxic.	NE	NE
Chlordane, total	Insecticides.	Bioaccumulative and toxic.		For freshwater, 2.4 µg/L. For public water supply, 4.6 µg/L.
Malathion, total	Insecticides.	Bioaccumulative and toxic.		NE
Endrin, total	Insecticides.	Bioaccumulative and toxic.		For freshwater, 0.18 µg/L. For public water supply, 1.0 µg/L.
Parathion, total	Insecticides.	Bioaccumulative and toxic.		NE
Endosulfan, total	Insecticides.	Bioaccumulative and toxic.		NE
2,4-D, total	Herbicides.	Bioaccumulative and toxic.		For public water supply, 100 µg/L.
Biological constituents				
Fecal coliform	Human wastes.	Indicator of pathogens.		Based on a minimum of 5 samples collected over a 30-day period, the level should not exceed a log mean of 200 colis/100 mL, nor should more than 10 percent of the total samples collected during any 30-day period exceed 400 colis/100 mL.
Fecal streptococcus	Livestock and poultry wastes.	Indicator of pathogens.		NE
Suspended sediment				
Suspended sediment	Sand, silt, clay, and organic material which enter a stream either from hillslope erosion or directly from the streambed.	Long periods of high concentrations of sediment can interfere with photosynthesis, bury benthic organisms, inhibit respiration of gilled organisms, and ultimately alter the aquatic ecosystem.		NE

¹ Primary Drinking-Water Regulations maximum contaminant level (February 1996): Enforceable, health-based regulation that is to be set as close to the maximum contaminant level goal as is feasible. The definition of feasible means the use of best technology, treatment techniques, and other means that the Administrator of USEPA finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are generally available (taking cost into consideration).

Proposed maximum contaminant level: Not enforceable.

Secondary Drinking-Water Regulations secondary maximum contaminant level: Contaminants that affect the aesthetic quality of drinking water. At high concentrations or values, health implications as well as aesthetic degradation may also exist. SMCLs are not federally enforced, but are intended as guidelines for the states.

2.0 RED RIVER BASIN IN LOUISIANA

STATISTICAL SUMMARY OF SURFACE-WATER QUALITY IN THE RED RIVER BASIN

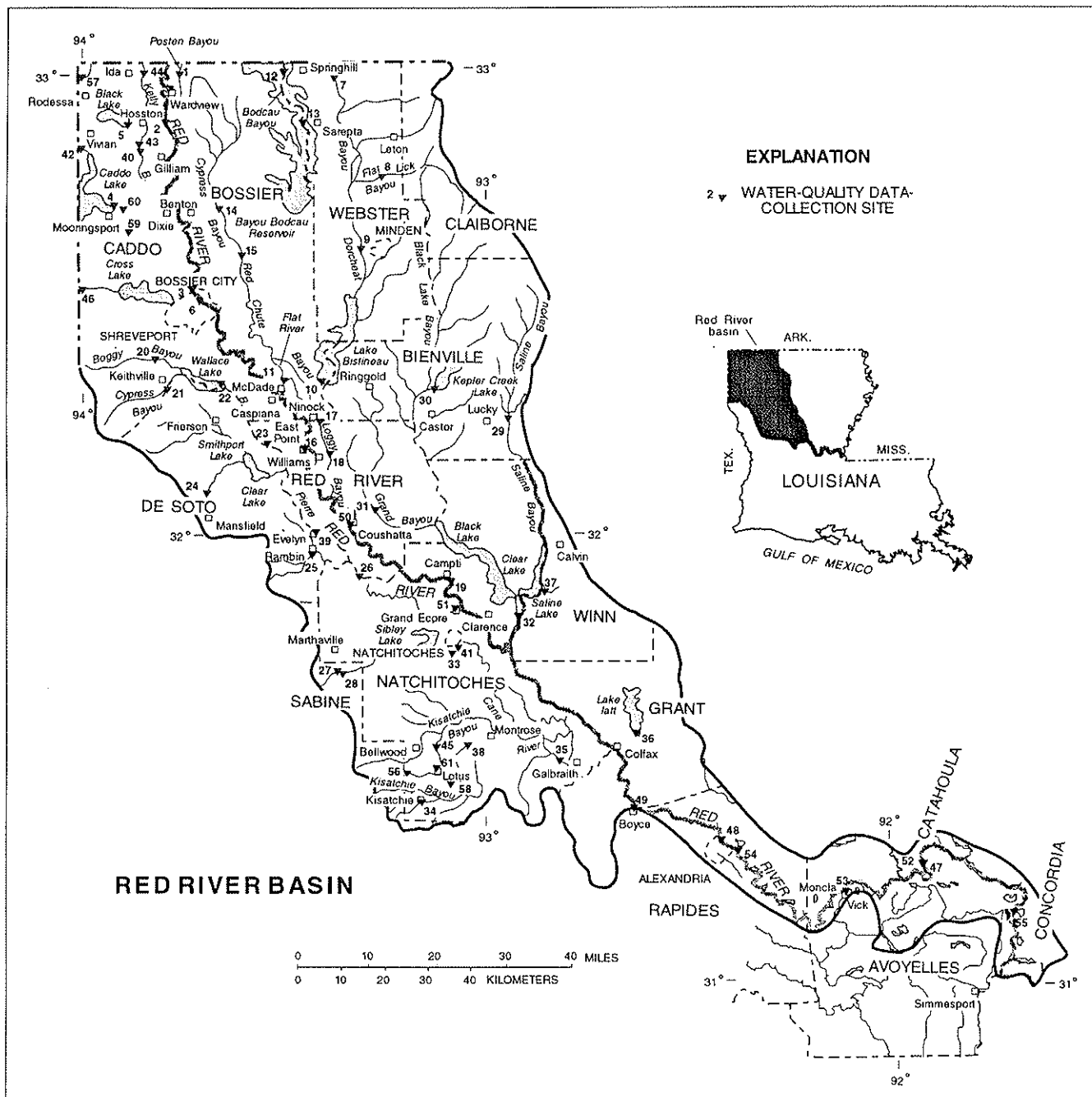
Data from 61 sites are presented.

Statistical analyses of surface-water-quality data for the Red River basin are presented in this part of the report. Text, maps, boxplots, graphs, and tables are used to describe the surface-water quality. Data are presented for 33 water-quality properties and constituents for analyses stored in the USGS WATSTORE files. The data

were collected from 61 sites (table 2.0-1 and fig. 2.0-1) in the basin during water years 1943-94. This information is useful to Federal, State, and local planners; hydrologists; engineers; scientists; and others who have water-resources management responsibilities for the Red River basin.

Table 2.0-1. Surface-water-quality data-collection sites in the Red River basin, Louisiana, 1943-94

Map no. (fig. 2.0-1)	Site name and location	Map no. (fig. 2.0-1)	Site name and location
1	Posten Bayou near Wardview	31	Grand Bayou near Coushatta
2	Red River near Hosston	32	Saline Bayou near Clarence
3	Red River above Shreveport	33	Youngs Bayou at Natchitoches
4	Caddo Lake above Caddo Lake Dam near Mooringsport	34	Little Sandy Creek at Kisatchie
5	Black Lake near Hosston	35	Cane River near Galbraith
6	Red River at Shreveport	36	Iatt Lake near Colfax
7	Bayou Dorcheat near Springhill	37	Range Branch near Calvin
8	Flat Lick Bayou near Leton	38	Bayou Luce near Montrose
9	Bayou Dorcheat near Minden	39	Bayou Pierre at Evelyn
10	Lake Bistineau near Ringgold	40	Black Bayou near Gilliam
11	Flat River near Elm Grove at McDade	41	Cane River Lake at Natchitoches
12	Bodcau Bayou near Springhill	42	James Bayou near Vivian
13	Bodcau Bayou near Sarepta	43	Kelly Bayou near Hosston
14	Cypress Bayou near Benton	44	Kelly Bayou near Ida
15	Red Chute Bayou near Shreveport	45	Laird Creek near Montrose
16	Red River at Williams	46	Paw Paw Bayou near Greenwood
17	Loggy Bayou near Ninock	47	Red River above Lock and Dam No. 1 near Vick
18	Loggy Bayou near East Point	48	Red River at Alexandria
19	Red River at Campti	49	Red River at Boyce
20	Boggy Bayou near Keithville	50	Red River at Coushatta
21	Cypress Bayou near Keithville	51	Red River at Grand Ecore
22	Wallace Lake near Frierson	52	Red River at Lock and Dam No. 1 near Vick
23	Bayou Pierre below Caspiana	53	Red River at Moncla
24	Bayou Na Bonchasse near Mansfield	54	Red River near Alexandria
25	West Branch Dolet Bayou at Rambin	55	Red River near Simmesport
26	Bayou Pierre near Lake End	56	Simmons Branch near Bellwood
27	Bayou Dupont near Marthaville	57	State Line Creek at Highway 1 near Rodessa
28	Bayou Dupont subwatershed no. 8 near Marthaville	58	Steep Hill Branch near Lotus
29	Saline Bayou near Lucky	59	Twelvemile Bayou near Dixie
30	Kepler Lake near Castor	60	Twelvemile Bayou near Mooringsport
		61	Kisatchie Bayou at Lotus



Louisiana Department of Transportation and Development-U.S. Geological Survey Water Resources Cooperative Program

Figure 2.0-1. Surface-water-quality data-collection sites in the Red River basin, Louisiana, 1943-94.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.1 Overview

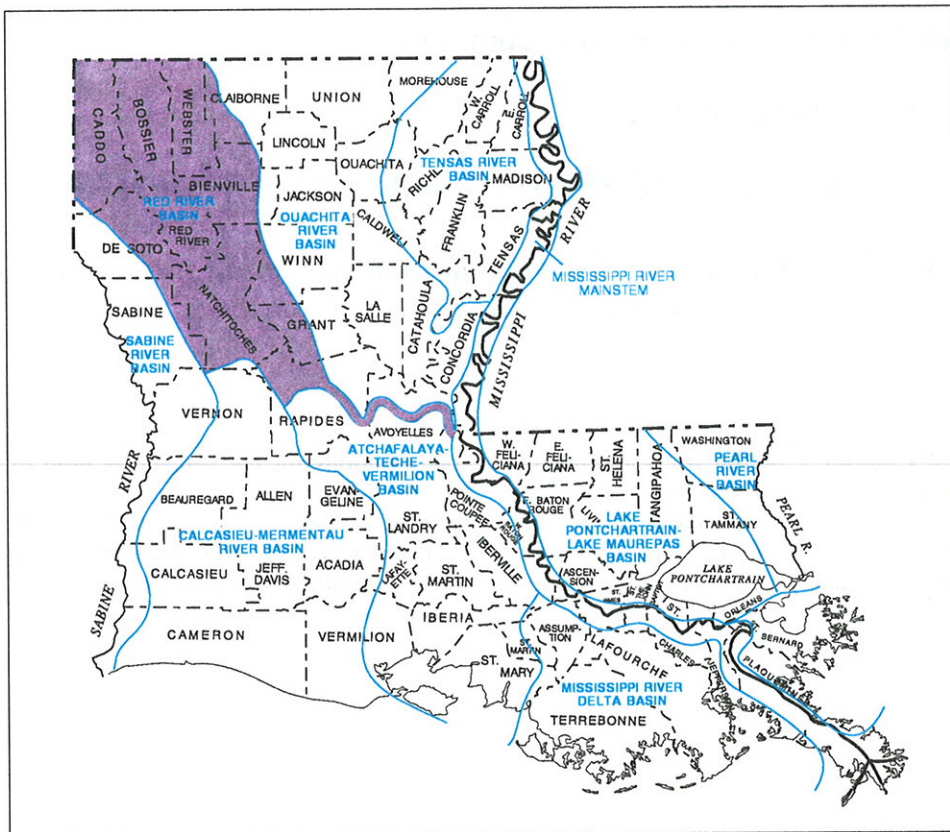
RED RIVER, TWELVEMILE BAYOU, LOGGY BAYOU, SALINE BAYOU, BAYOU PIERRE, CANE RIVER, AND CANE RIVER LAKE ARE PRINCIPAL SOURCES OF SURFACE WATER

Surface water within the Red River basin is used mainly for power generation.

The Red River basin in Louisiana (fig. 2.0-1) is about 110 mi long and 65 mi wide at its widest point. Although the Red River is the primary source of surface water in the basin, most of the water used for power generation (Louisiana Department of Transportation and Development, 1984), which is the largest surface-water use category in the basin, comes from Caddo Lake, CLECO Lake, and an unnamed private lake. Public supply is the only other major category of surface water withdrawals in this basin (fig. 2.1-1) (Lovelace, 1991, p. 112).

The principal sources of fresh surface water in the basin are the Red River, Twelvemile Bayou, Loggy Bayou, Saline Bayou, Bayou Pierre, Cane River, and Cane River Lake. The minimum average discharge for sites where data were available within the basin is

3.06 ft³/s at Bayou Dupont subwatershed No. 8 near Marthaville for the period 1959-68 (U.S. Geological Survey, 1971); and the maximum average discharge is 30,940 ft³/s at Red River at Alexandria for the period 1929-83 (Carlson and others, 1984). The lakes have surface areas of 12,910 acres at Black Lake, 32,640 acres at Caddo Lake, 1,925 acres at Kepler Lake, and 17,220 acres at Lake Bistineau (Louisiana Department of Transportation and Development, 1984). Other bodies of fresh surface water in the basin include Bayous Dorcheat, Luce, and Na Bonchasse; Castor, Laird, Little Sandy, and State Line Creeks; Iatt Lake; Bodcau, Boggy, Cypress, James, Kelly, Kisatchie, Grand, Flat Lick, Paw Paw, Posten, Red Chute, West Branch Dolet, and Youngs Bayous; Flat River; and Range, Simmons, and Steep Hill Branches.



Louisiana Department of Transportation and Development-U.S. Geological Survey Water Resources Cooperative Program

Withdrawals by Category

Category	Amount (Mgal/d)
Public supply	50.31
Industry	9.57
Power generation	350.71
Rural domestic	.00
Livestock	.73
Rice irrigation	.28
General irrigation	.58
Aquaculture	2.42
TOTAL	414.60

Withdrawals by Parish

Parish	Amount (Mgal/d)
Bienville	0.22
Bossier	7.57
Caddo	82.13
Natchitoches	16.64
Rapides	307.19
Red River	.29
Webster	.55

Withdrawals by Major Water Body

Water Body	Amount (Mgal/d)
Black Lake	1.01
Caddo Lake	45.24
Red River	15.03

Figure 2.1-1. Surface-water withdrawals (in million gallons per day) from the Red River basin, Louisiana, 1990. (Source: Lovelace, 1991, p. 112)

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality

SELECTED PROPERTIES AND CONSTITUENTS

Physical, chemical, and biological data describe the surface-water quality of the Red River basin.

Figure 2.2-1 shows 1 of the 61 water-quality data-collection sites in the Red River basin. The data for this and other water-quality sites in the basin are presented in table 2.2-1 at the back of this report. The table includes selected water-quality properties and constituents, number of analyses, reporting levels, and values or

concentrations for the percentiles used to generate the boxplots shown for 6 of the 61 sites in the Red River basin. The format of the data in these tables allows easy comparison among sites within the basin. Results of analyses used for statistical computations are in the files of the USGS.



Figure 2.2-1. Water-quality data-collection site at Loggy Bayou near Ninock, Louisiana. (Photograph by Dennis K. Demcheck, U.S. Geological Survey.)

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.1 Physical Properties--Specific Conductance, pH, Water Temperature, and Dissolved Oxygen

VALUES FOR pH AT SEVERAL SITES IN THE BASIN FALL OUTSIDE OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S SECONDARY MAXIMUM CONTAMINANT LEVEL RANGE OF 5.0 TO 9.0

Values for pH ranged from 3.7 to 9.0 at sites within the basin.

Statistical summaries of water-quality data at 61 sites in the basin are presented in table 2.2-1 in the back of the report, and boxplots summarizing the specific conductance, pH, water temperature, and dissolved oxygen concentration data are presented in figure 2.2.1-1 for six of the sites. Specific conductance values for all sites in the Red River basin ranged from 15 $\mu\text{S}/\text{cm}$ at Laird Creek near Montrose to 21,300 $\mu\text{S}/\text{cm}$ at Twelvemile Bayou near Dixie (table 2.2-1). The median values for specific conductance ranged from 21 to 3,250 $\mu\text{S}/\text{cm}$ for all sites. Interquartile ranges for specific conductance were 329 to 831 $\mu\text{S}/\text{cm}$ at Red River at Alexandria and 107 to 167 $\mu\text{S}/\text{cm}$ at Grand Bayou near Coushatta.

Values for pH in water from all sites in the basin ranged from 3.7 at Flat Lick Bayou near Leton to 9.0 at Wallace Lake near Frierson. Several sites within the basin occasionally exceeded the secondary maximum contaminant level (SMCL) range of 5.0 to 9.0 for domestic water supply (U.S. Environmental Protection Agency, 1976; 1986). Median pH values in the Red River basin ranged from 4.8 to 7.8. The boxplots indicate that pH occasionally was less than 6.5, the lower limit of the U.S. Environmental Protection Agency's recommended range for freshwater aquatic life (U.S. Environmental Protection Agency, 1976; 1986). For example, fewer than 25 percent of the measured values were less than 6.5 at Bayou Pierre near Lake End. At Loggy Bayou near Ninock, between 25 percent and 50 percent of the pH values were less than 6.5. Interquartile ranges for pH were 7.4 to 7.8 at Red River at Alexandria and 6.5 to 7.3 at Twelvemile Bayou near Dixie.

Values for water temperatures at all sites in the basin ranged from 1.0 $^{\circ}\text{C}$ at Bodcau Bayou near Springhill and Red River near Simmesport to 37.0 $^{\circ}\text{C}$ at Cane River near Galbraith and Little Sandy Creek at Kisatchie. Median values ranged from 11.2 to 22.5 $^{\circ}\text{C}$. Maximum water temperatures at Bayou Pierre, Caddo Lake, Cane River Lake, Cane River, Cypress Bayou, Iatt Lake, Little Sandy Creek, Loggy Bayou, Red River, Twelvemile Bayou, and Wallace Lake exceeded the State's criterion of 32.2 $^{\circ}\text{C}$. These temperatures probably occurred during extreme low flow or on very hot days (Louisiana Department of Environmental Quality, 1984, p. 12). Interquartile ranges for water temperature were 13.8 to 27.0 $^{\circ}\text{C}$ at Loggy Bayou near Ninock and 13.8 to 28.0 $^{\circ}\text{C}$ at Red River at Alexandria.

Dissolved-oxygen concentrations in water from the basin ranged from 0.6 mg/L at Grand Bayou near Coushatta to 17.0 mg/L at Kelly Bayou near Ida. The median concentrations for dissolved oxygen ranged from 4.6 to 9.2 mg/L. Dissolved-oxygen concentrations exceeded the State's minimum water-quality criteria of 5.0 mg/L in more than 75 percent of the samples analyzed at most sites. The U.S. Environmental Protection Agency's criterion for dissolved oxygen is 5.0 mg/L for freshwater aquatic life (U.S. Environmental Protection Agency, 1976; 1986). The boxplots for dissolved oxygen concentrations in figure 2.2.1-1 indicate that less than five percent of the values measured at Red River at Alexandria were less than 5.0 mg/L. Interquartile ranges for dissolved oxygen concentrations were 7.8 to 10.2 mg/L at Twelvemile Bayou near Dixie and 5.5 to 8.5 mg/L at Loggy Bayou near Ninock.

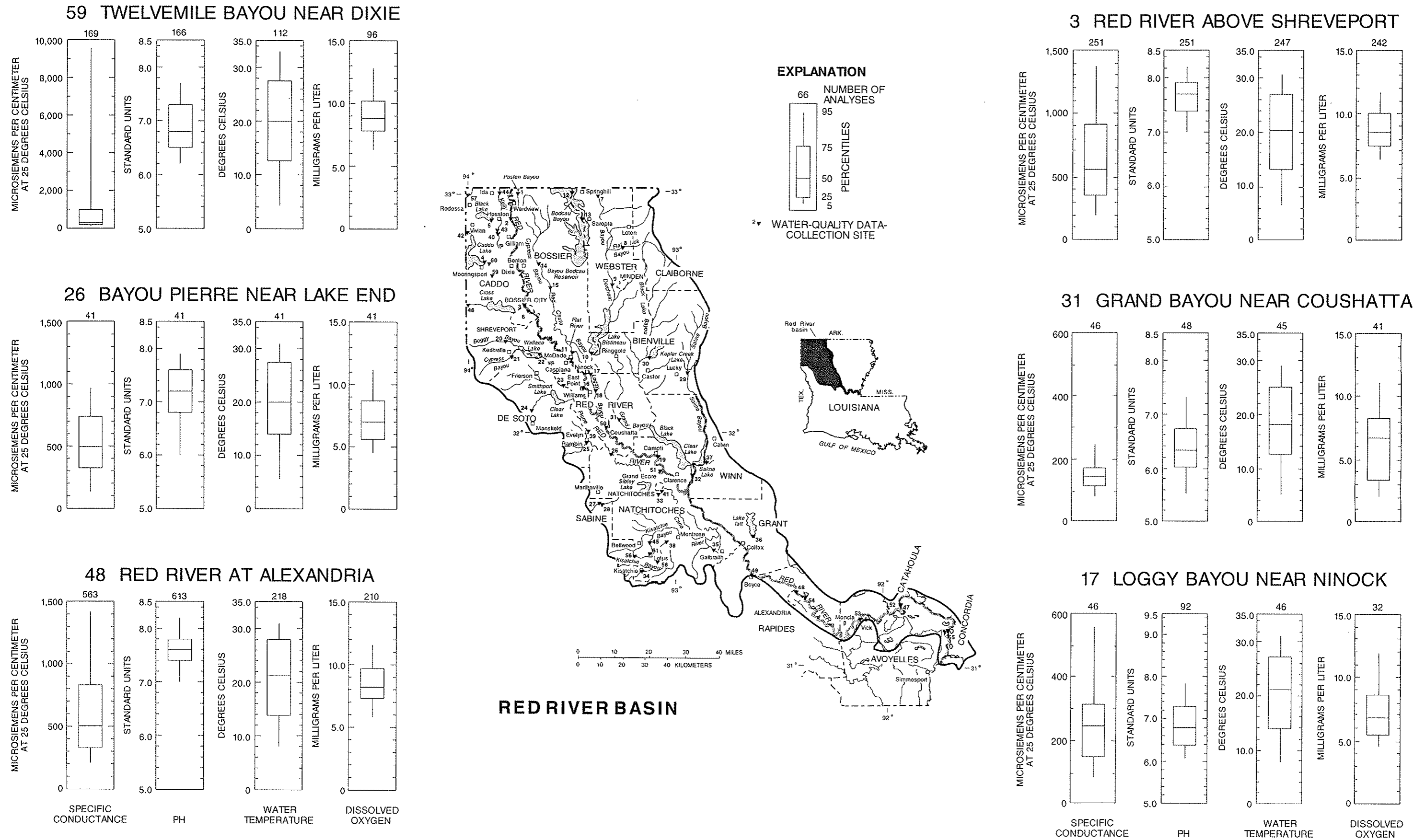


Figure 2.2.1-1. Water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing specific conductance, pH, water temperature, and dissolved-oxygen data for selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.2 Relation Between Specific Conductance and Dissolved Solids

DISSOLVED SOLIDS CONCENTRATIONS CAN BE ESTIMATED FROM SPECIFIC CONDUCTANCE VALUES

Dissolved solids concentrations in water from the Red River basin met the U.S. Environmental Protection Agency's regulations for dissolved solids in irrigation water.

Linear regression equations relating dissolved solids concentrations to specific conductance were calculated for six sites in the Red River basin (fig. 2.2.2-1). The correlation coefficient values, r , ranged from 0.92 at Grand Bayou near Coushatta to 1.00 at Twelvemile Bayou near Dixie and Red River at Alexandria. The relatively strong correlation between specific conductance and dissolved solids concentrations indicates that dissolved solids concentrations can be estimated from specific conductance values with a reasonable degree of accuracy.

The regression equation for Red River at Alexandria which was based on 214 chemical analyses indi-

cates that dissolved solids concentrations at that site can exceed 500 mg/L when specific conductance values exceed 871 $\mu\text{S}/\text{cm}$. The boxplot for specific conductance for Red River at Alexandria (fig. 2.2.1-1) indicates that 871 $\mu\text{S}/\text{cm}$ was exceeded in less than 25 percent of the samples analyzed. Although no State criteria for irrigation water quality are established for these streams or for the other streams for which regression equations were developed, the regression equations indicated that the streams in the basin generally met the U.S. Environmental Protection Agency's (1976) criterion for dissolved solids in irrigation water (500 mg/L).

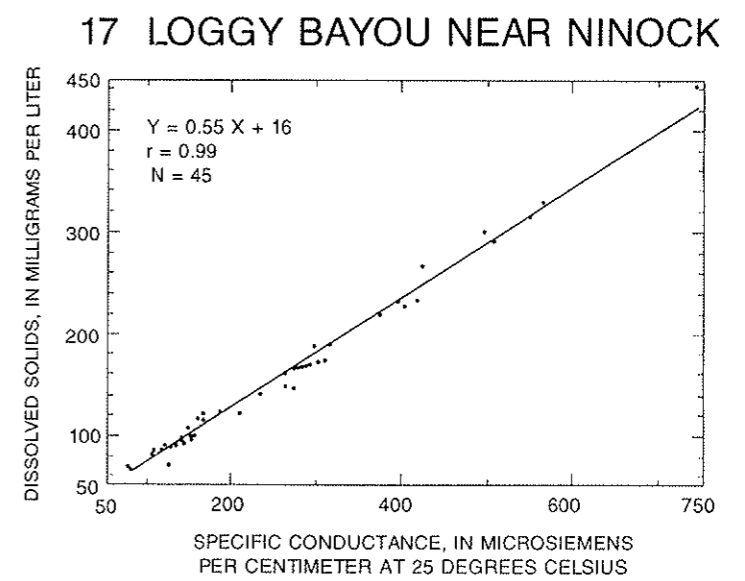
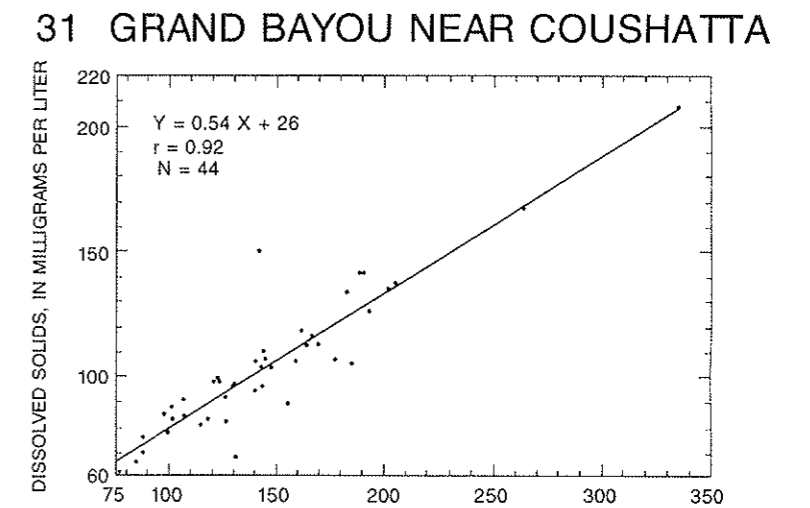
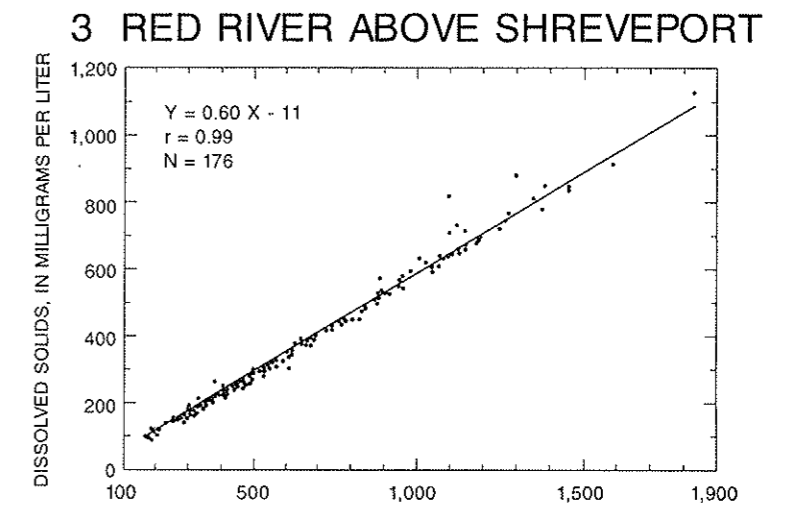
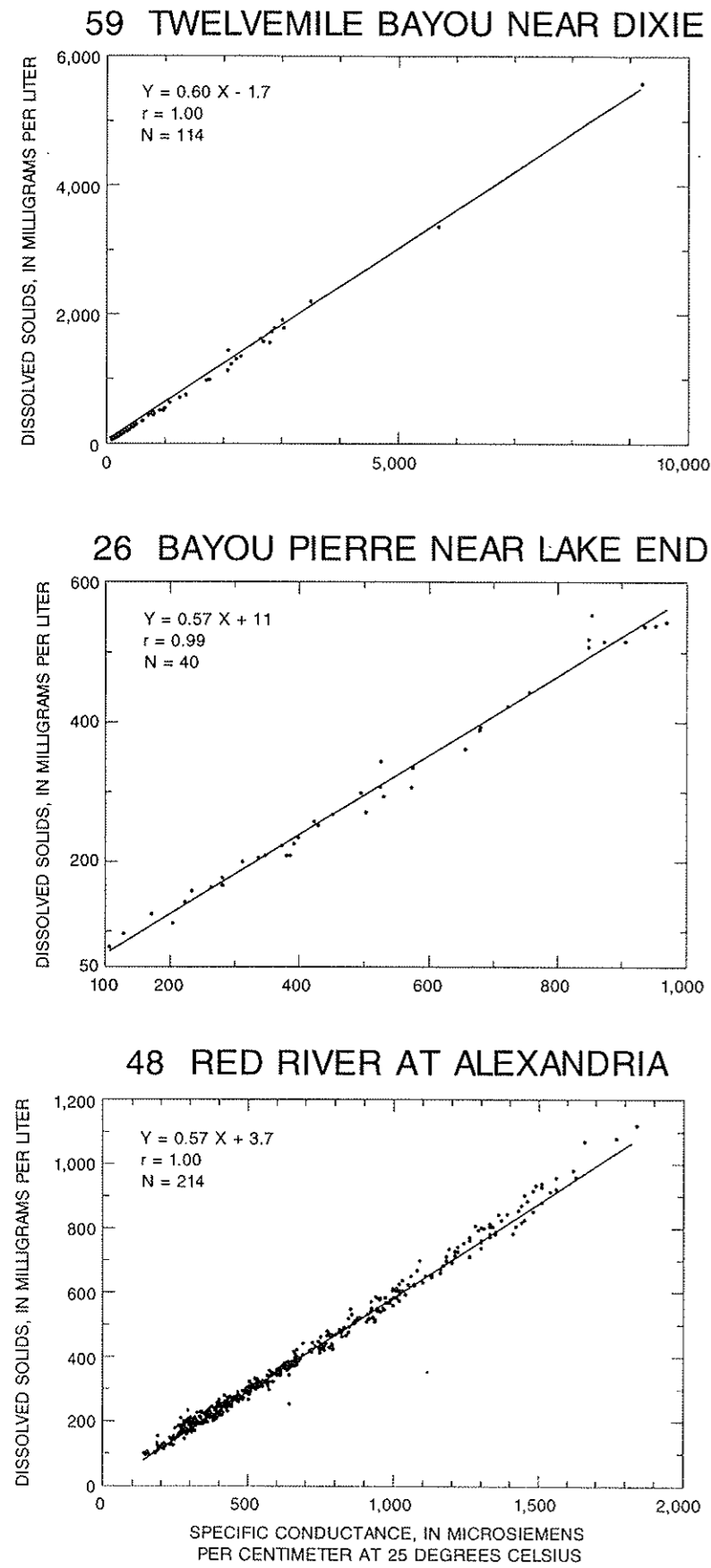


Figure 2.2.2-1. Water-quality data-collection sites in the Red River basin, Louisiana, and graphs showing relation between specific conductance and dissolved solids in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.3 Major Inorganic Cations--Dissolved Calcium, Magnesium, Sodium, and Potassium

HIGHEST CONCENTRATIONS OF DISSOLVED CALCIUM, SODIUM, AND POTASSIUM IN THE BASIN OCCURRED AT FLAT LICK BAYOU NEAR LETON

Sodium concentration of 3,800 mg/L occurred at Flat Lick Bayou near Leton.

The data for major inorganic cations in water from the basin indicated that concentrations of major ions were usually below recommended levels for drinking water, for which such levels have been established. Calcium concentrations at all sites in the Red River basin ranged from 0.1 mg/L at Red River at Moncla to 440 mg/L at Flat Lick Bayou near Leton. Boxplots for six representative sites in the basin (fig. 2.2.3-1) show that the median value for calcium on the Red River was slightly higher than at most other sites. The median values for calcium at the Red River sites were approximately 40 mg/L. However, the median values at Grand Bayou near Coushatta, Loggy Bayou near Ninock, and Twelvemile Bayou near Dixie were approximately 10 mg/L.

Magnesium concentrations in the basin ranged from less than 0.01 mg/L at Bayou Dorcheat near Springhill to 360 mg/L at Red River near Hosston. Boxplots from six representative sites (fig. 2.2.3-1) show that at least 75 percent of the magnesium values in the samples collected at these sites were less than 30 mg/L. The median values for magnesium ranged from 0.65 to 18 mg/L for all sites.

There were periodic high concentrations of sodium at Twelvemile Bayou near Dixie. The highest sodium concentration in water from the basin was at Flat Lick Bayou near Leton (3,800 mg/L). The minimum sodium concentration (1.1 mg/L) occurred at Paw Paw Bayou near Greenwood. Boxplots for six representative sites shown in fig. 2.2.3-1 show that at least 75 percent of the samples collected at Bayou Pierre near Lake End, Grand Bayou near Coushatta, and Loggy Bayou near Ninock had sodium concentrations less than 50 mg/L. The median concentration at Red River above Shreveport (50 mg/L) was slightly higher than the median at Red River at Alexandria (40 mg/L).

Concentrations of potassium in water from the basin ranged from 0.40 mg/L at Bayou Dorcheat near Springhill and Red River at Alexandria to 82 mg/L at Boggy Bayou near Keithville. The maximum median concentration (6.4 mg/L) occurred at Flat Lick Bayou near Leton. Boxplots for six representative sites (fig. 2.2.3-1) show that at least 95 percent of values for potassium were less than 6.0 mg/L at all of these sites.

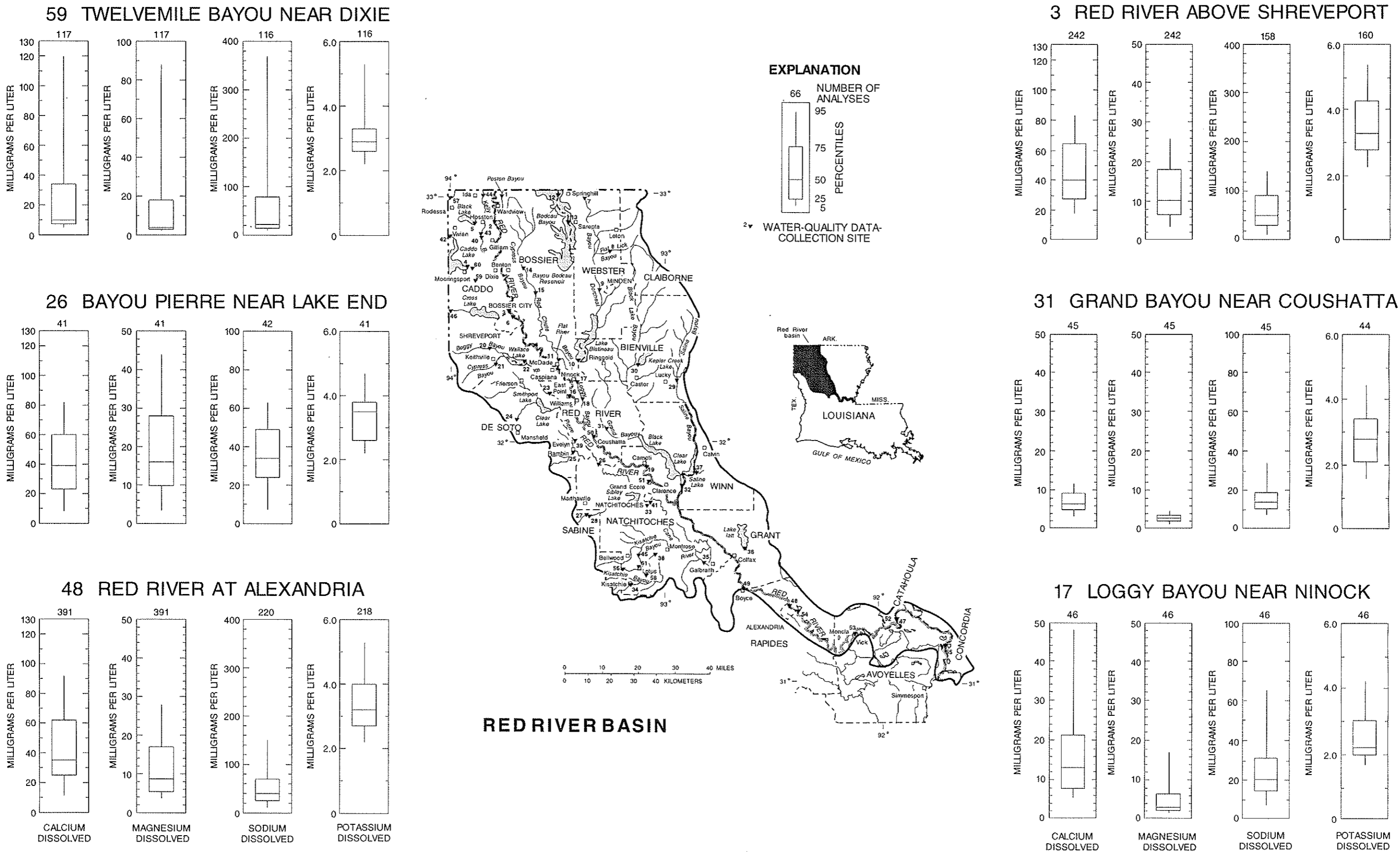


Figure 2.2.3-1. Water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for dissolved calcium, magnesium, sodium, and potassium concentrations in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.4 Major Inorganic Anions--Total Alkalinity as Calcium Carbonate, Dissolved Sulfate, and Dissolved Chloride

TOTAL ALKALINITY IS LOW AT BAYOU LUCE NEAR MONTROSE

The median total alkalinity at Bayou Luce near Montrose is less than 1 mg/L.

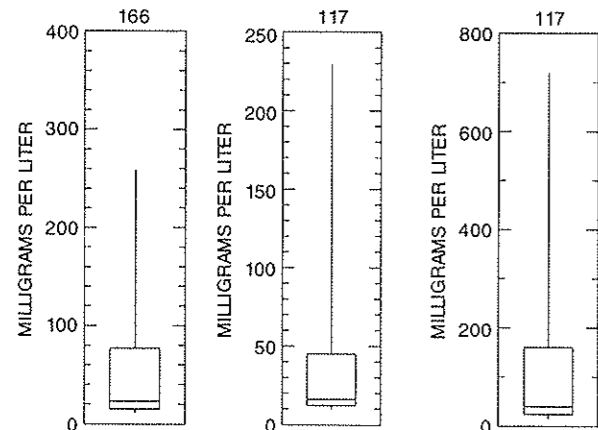
The data for major inorganic anions in water from the basin indicated that concentrations of major ions were below recommended levels for drinking water, for which such levels have been established. Alkalinity as calcium carbonate in water from the Red River basin ranged from less than 1 mg/L at Bayou Luce near Montrose and Steep Hill Branch near Lotus to 383 mg/L at Bayou Pierre near Lake End. The lowest median concentration (less than 1 mg/L) occurred at Bayou Luce near Montrose. The maximum median alkalinity in the basin was 179 mg/L, which occurred at Flat River near Elm Grove at McDade. The boxplots for six representative sites (fig. 2.2.4-1) show that alkalinity values in 75 percent of the samples analyzed were generally 20 mg/L or greater, with the exceptions of Grand Bayou near Coushatta and Twelvemile Bayou near Dixie. The U.S. Environmental Protection Agency's minimum alkalinity criterion for freshwater aquatic life is 20 mg/L except where alkalinities for natural waters commonly are less (U.S. Environmental Protection Agency, 1976). The alkalinity values at Bayou Pierre were generally higher than most values in the basin.

Concentrations of sulfate in water from the basin ranged from less than 0.1 mg/L at Cypress Bayou near

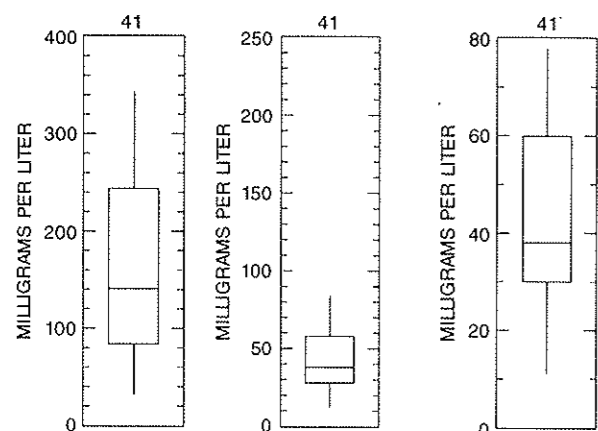
Benton, Grand Bayou near Coushatta, and Lake Bistineau near Ringgold, to 380 mg/L at Twelvemile Bayou near Dixie. The SMCL for drinking water is 250 mg/L (U.S. Environmental Protection Agency, 1986; Louisiana Department of Environmental Quality, 1984). The boxplots for six representative sites (fig. 2.2.4-1) show that the sulfate concentrations on the Red River were approximately 10 times greater than the sulfate concentrations at Grand Bayou near Coushatta.

Chloride concentrations in water from the basin ranged from less than 0.1 mg/L at Red River at Lock and Dam No. 1 near Vick to 13,000 mg/L at Flat Lick Bayou near Leton. There were periodic high concentrations of chloride at Twelvemile Bayou near Dixie. The SMCL for drinking water is 250 mg/L (U.S. Environmental Protection Agency, 1986; Louisiana Department of Environmental Quality, 1984). Median concentrations ranged from 3.8 mg/L at Iatt Lake near Colfax to 1,200 mg/L at Flat Lick Bayou near Leton. The boxplots summarizing the data for six representative sites in the basin (fig. 2.2.4-1) show that chloride concentrations at Grand Bayou near Coushatta were significantly lower than at the other sites.

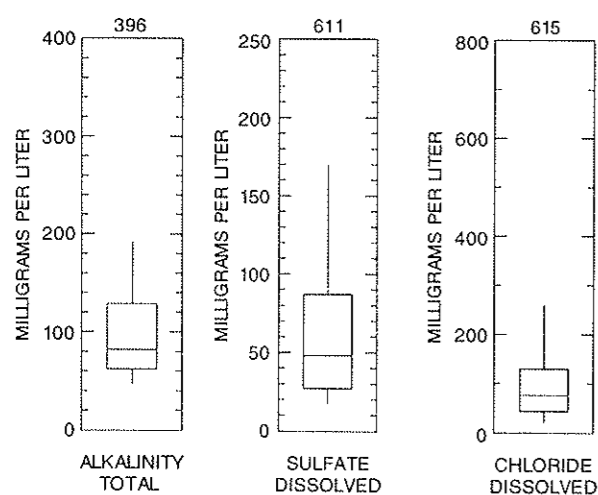
59 TWELVEMILE BAYOU NEAR DIXIE



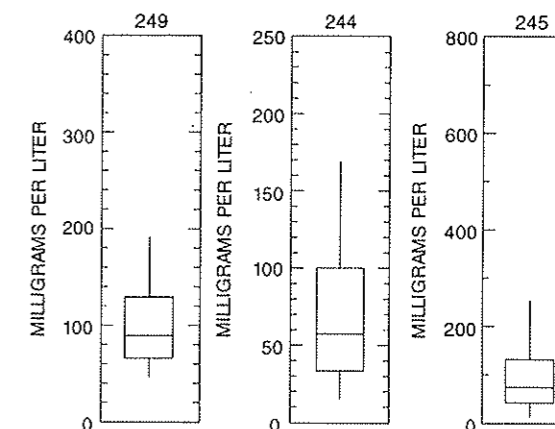
26 BAYOU PIERRE NEAR LAKE END



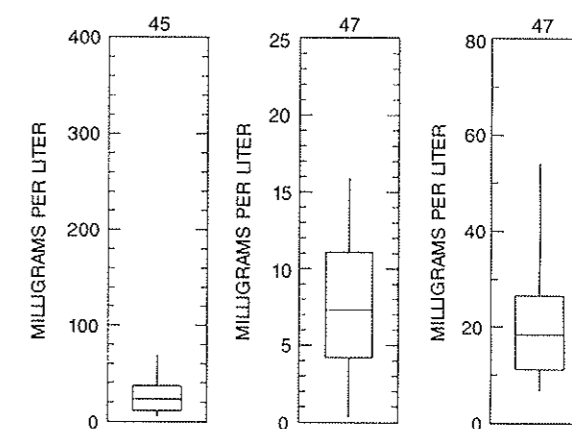
48 RED RIVER AT ALEXANDRIA



3 RED RIVER ABOVE SHREVEPORT



31 GRAND BAYOU NEAR COUSHATTA



17 LOGGY BAYOU NEAR NINOCK

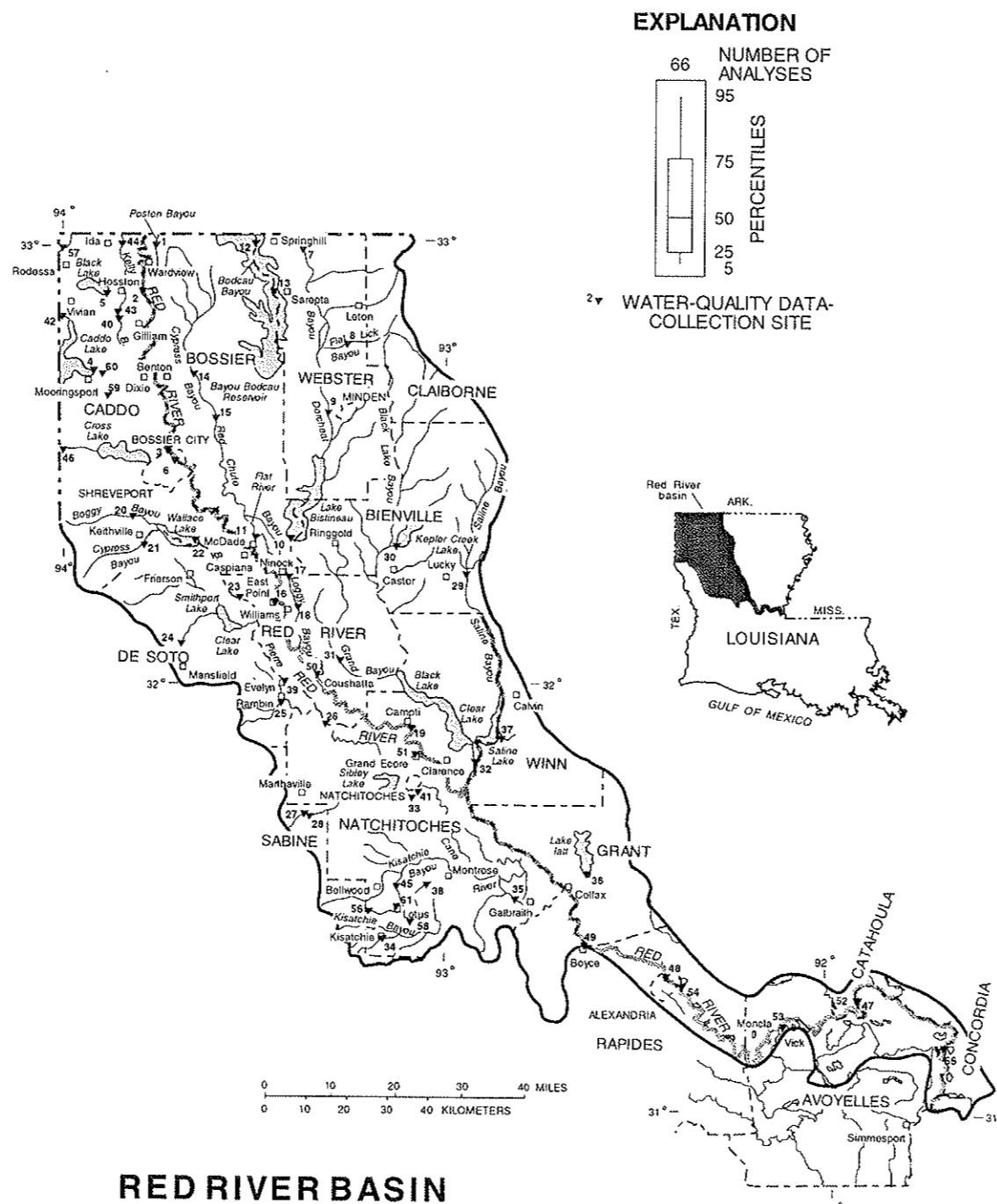
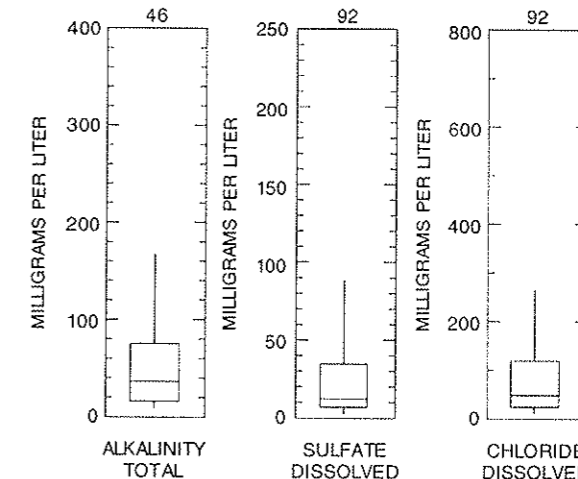


Figure 2.2.4-1. Water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for total alkalkality as calcium carbonate and dissolved sulfate and chloride concentrations in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.5 Relation between Specific Conductance and Dissolved Chloride

A DIRECT RELATION EXISTS BETWEEN SPECIFIC CONDUCTANCE AND DISSOLVED CHLORIDE

Linear regression equations indicate that dissolved chloride can be estimated from specific conductance for selected streams in the Red River basin.

Regression equations relating chloride concentrations to specific conductance values were calculated for six sites in the Red River basin (fig. 2.2.5-1). The correlation coefficient values, r , ranged from 0.77 at Loggy Bayou near Ninock to 0.99 at Twelvemile Bayou near Dixie. These equations can be used to estimate chloride concentrations from specific conductance for water uses such as irrigation of chloride sensitive crops.

The regression equations indicate that chloride constitutes a greater percentage of the dissolved solids in water from Grand Bayou than in water from the other five sites. For example, application of the regression equations to specific conductance of 200 $\mu\text{S}/\text{cm}$ yields an estimated chloride concentration of 36 mg/L for Grand Bayou near Coushatta but 16 mg/L for Red River at Alexandria.

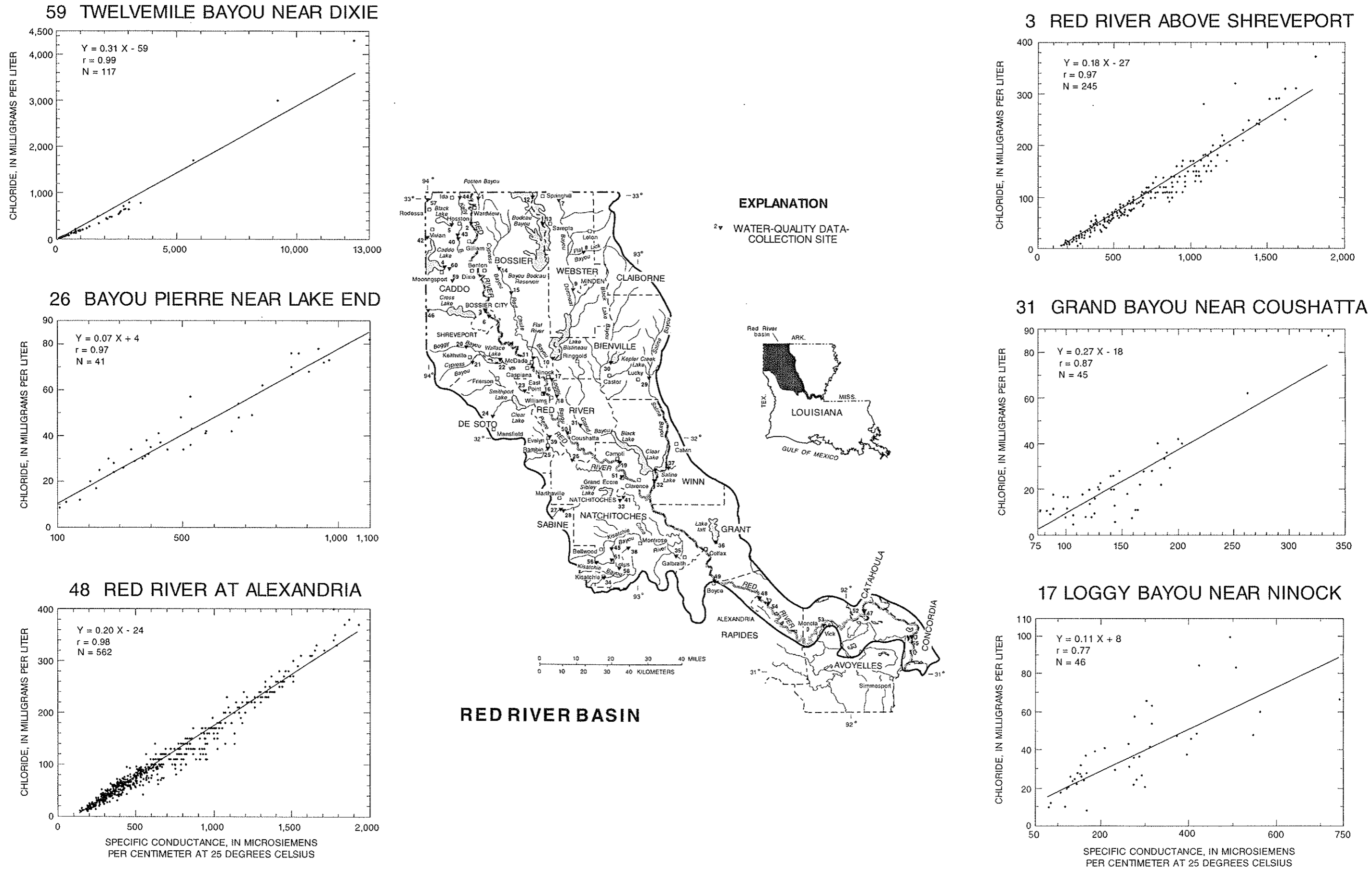


Figure 2.2.5-1. Water-quality data-collection sites in the Red River basin, Louisiana, and graphs showing relation between specific conductance and dissolved chloride in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.6 Trace Metals²--Dissolved Copper, Iron, Lead, and Zinc

CONCENTRATIONS OF SELECTED DISSOLVED TRACE METALS WERE WITHIN THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S RECOMMENDED LEVELS

Median concentrations of dissolved iron ranged from 10 to 500 µg/L.

The available data for trace metals indicated that dissolved copper and zinc were less than the maximum contaminant levels of the U.S. Environmental Protection Agency's primary and secondary drinking water regulations (1976; 1986; 1994; 1996). Additional data are needed to determine whether the U.S. Environmental Protection Agency's maximum contaminant level for lead is being exceeded. Iron concentrations in water from the basin often exceeded 300 µg/L (micrograms per liter), which is the criterion for domestic water supplies. However, iron concentrations occasionally exceeded the agency's criterion of 1,000 µg/L for freshwater aquatic life.

Concentrations of copper in water samples collected in the Red River basin ranged from less than 1 µg/L at Bayou Pierre near Lake End and Loggy Bayou near Ninock, to 60 µg/L at Red River near Simmesport. The median copper concentrations ranged from less than the detection level to 6 at the 11 sites for which 10 or more samples were analyzed. Copper concentrations for six representative sites are summarized using boxplots in figure 2.2.6-1. The boxplots (fig. 2.2.6-1) illustrate that at the sites, at least 95 percent of the samples analyzed had copper concentrations of less than 20 µg/L.

Iron concentrations ranged from less than 3 µg/L at Bayou Pierre below Caspiana to 4,300 µg/L at Red River at Alexandria. Median iron concentrations in the basin ranged from 10 to 500 µg/L. Boxplots and tables (fig. 2.2.6-1) summarizing data for six representative

sites within the basin show that 95 percent of iron concentrations were approximately less than 50 µg/L.

Concentrations of lead in water from the basin were generally low at all sites. The concentrations ranged from less than 1 µg/L at Bayou Pierre below Caspiana, Loggy Bayou near East Point, Loggy Bayou near Ninock, and West Branch Dolet Bayou at Ramin, to 25 µg/L at Red River at Boyce. The median concentrations were less than 5 µg/L at the 12 sites for which 10 or more samples were analyzed, except at Caddo Lake at Caddo Lake Dam near Mooringsport and Twelvemile Bayou near Dixie, which had median values of less than 50 µg/L. Boxplots for six representative sites (fig. 2.2.6-1) show that at least 95 percent of the samples analyzed had lead concentrations of less than or equal to 10 µg/L, except at Twelvemile Bayou near Dixie which had a detection level of 50 µg/L.

Zinc concentrations in water from the Red River basin generally were low at all sites. However, the maximum zinc concentration at Red River at Hosston was 230 µg/L. Zinc concentrations in the basin ranged from less than 4 µg/L at Bayou Pierre below Caspiana, Bayou Pierre near Lake End, and Loggy Bayou near East Point to 230 µg/L at Red River near Hosston. Median zinc concentrations were less than 20 µg/L at the 12 sites for which 10 or more samples were analyzed. Boxplots for six representative sites (fig. 2.2.6-1) show that less than 25 percent of the zinc concentrations were greater than the detection levels in most of the samples analyzed except at Bayou Pierre near Lake End.

²Traditionally, dissolved trace-element concentrations have been reported at the micrograms per liter level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Present data above the micrograms per liter level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols after the period of record associated with this report."

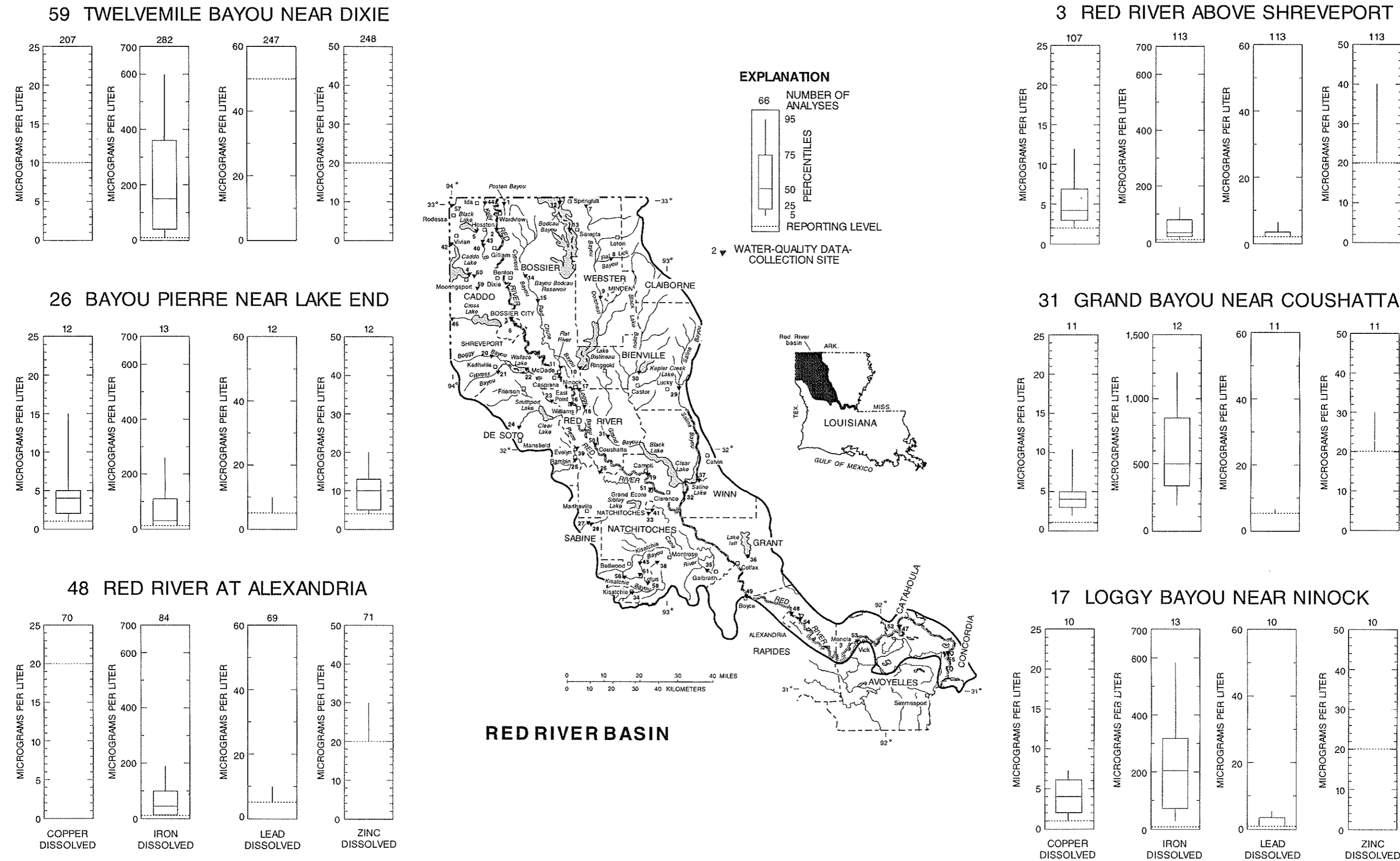


Figure 2.2.6-1. Water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for dissolved copper, iron, lead, and zinc concentrations in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.7 Nutrients--Nitrogen and Phosphorus Constituents

LOW VARIANCE IN CONCENTRATIONS OF NUTRIENTS IN BASIN

Median concentrations of ammonia plus organic nitrogen ranged from 0.6 to 1.2 mg/L, and median phosphorus concentrations were less than or equal to 0.21 mg/L.

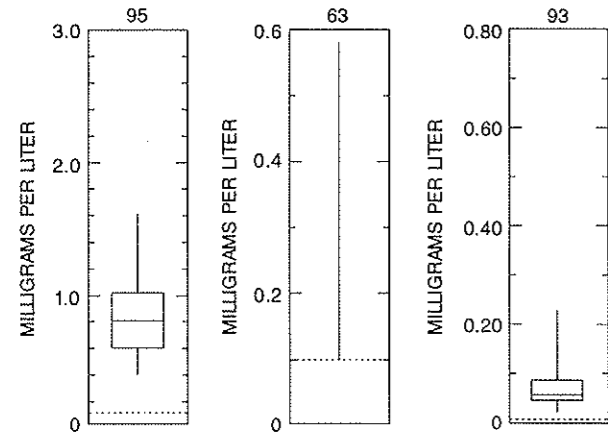
Concentrations of ammonia plus organic nitrogen in water from the basin ranged from 0.03 mg/L at Red River at Moncla and Red River at Alexandria to 5.6 mg/L at Red River at Alexandria. Median concentrations ranged from 0.6 to 1.2 mg/L. However, median concentrations of ammonia plus organic nitrogen as nitrogen at the Red River sites were generally less than the other sites. Concentrations of ammonia plus organic nitrogen in water from the six representative sites for which boxplots are shown generally were less than 3.0 mg/L (fig. 2.2.7-1).

Concentrations of nitrite plus nitrate as nitrogen in the Red River basin ranged from less than 0.01 mg/L at Cane River near Galbraith and Loggy Bayou near Ninock to 2.3 mg/L at Twelvemile Bayou near Dixie.

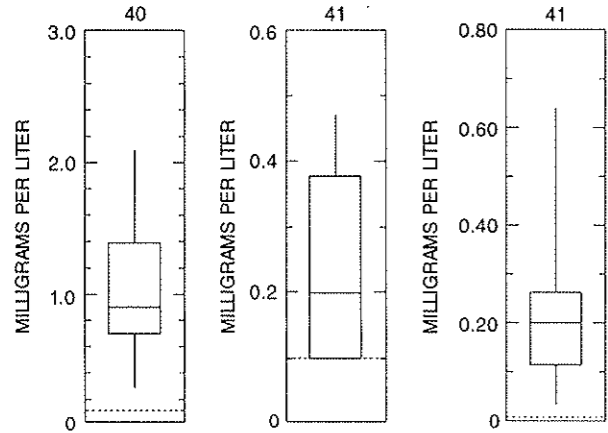
Median nitrite plus nitrate nitrogen concentrations ranged from less than the reporting level to 0.24 mg/L. Boxplots at six representative sites show that concentrations in 75 percent of all samples analyzed were less than or equal to 0.4 mg/L (fig. 2.2.7-1).

Concentrations of total phosphorus in water in the Red River basin ranged from less than 0.01 mg/L at Bayou Dorcheat near Minden, Kepler Lake near Castor, and Twelvemile Bayou near Dixie to 1.7 mg/L at Bayou Dorcheat near Springhill. Median concentrations ranged from 0.05 to 0.21 mg/L. Boxplots for six representative sites show that phosphorus concentrations in 75 percent of all samples analyzed were less than 0.30 mg/L (fig. 2.2.7-1).

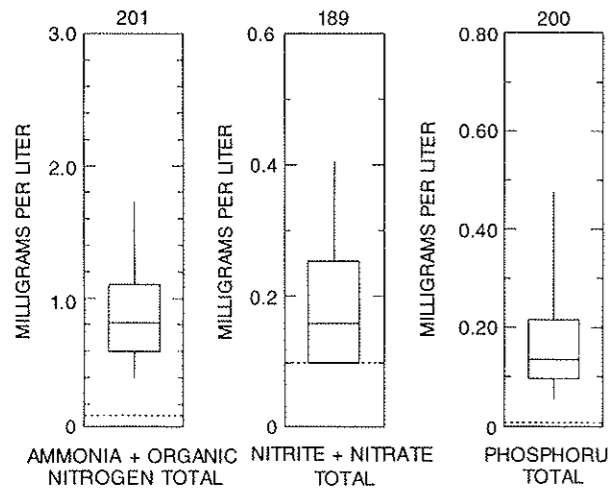
59 TWELVEMILE BAYOU NEAR DIXIE



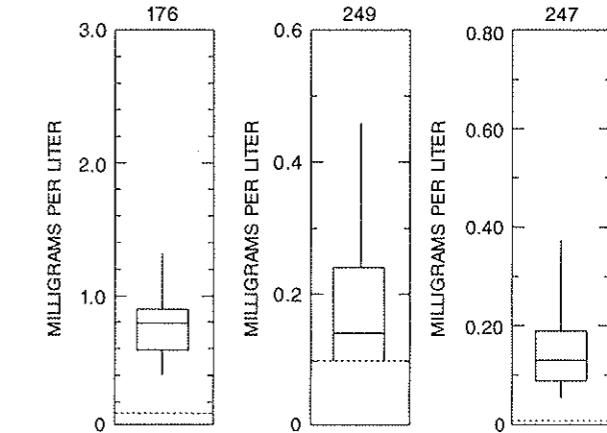
26 BAYOU PIERRE NEAR LAKE END



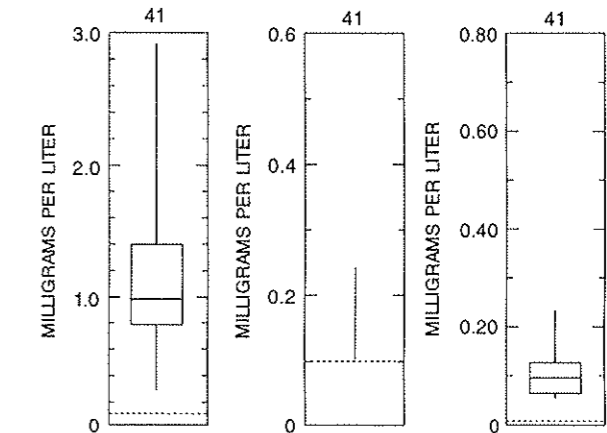
48 RED RIVER AT ALEXANDRIA



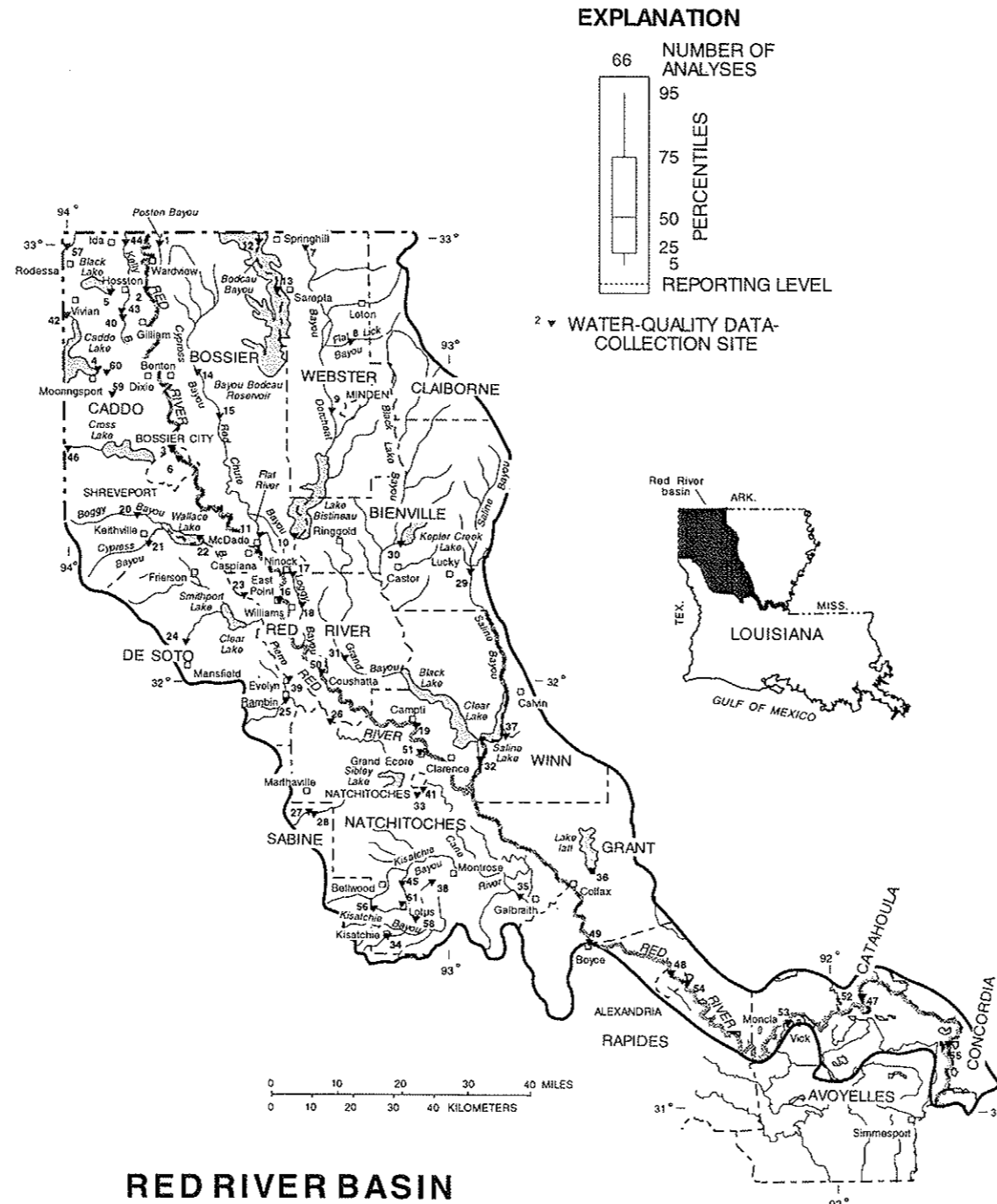
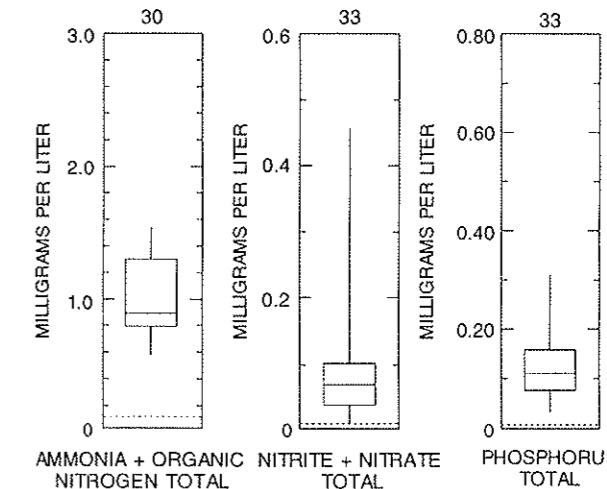
3 RED RIVER ABOVE SHREVEPORT



31 GRAND BAYOU NEAR COUSHATTA



17 LOGGY BAYOU NEAR NINOCK



RED RIVER BASIN

Figure 2.2.7-1. Water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for concentrations of nutrients in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.8 Organic Compounds--Pesticides and PCB's

ORGANIC COMPOUNDS DETECTED IN SURFACE WATERS IN THE BASIN

The most commonly occurring organic compounds in the Red River basin were diazinon and 2,4-D.

Diazinon and 2,4-D, were detected at more sites and with greater frequency than any of the other organic compounds that were analyzed. The highest diazinon concentration was 0.42 µg/L in a sample collected at Red River at Boyce. Diazinon was detected at least once at 25 of the 27 sites for which water samples were analyzed for the compound. Tables rather than boxplots are used to summarize occurrences of diazinon at six representative sites in figure 2.2.8-1, because the total number of samples analyzed for each site was less than 10 or the number of samples that contained organic compounds in concentrations greater than the reporting level was equal to or less than 10. Of these six sites,

diazinon was detected at every site for which it was analyzed.

The herbicide 2,4-D was detected at least once at 20 of the 28 sites for which water samples were analyzed for the compound. The maximum concentration of 2,4-D in water from the basin was 9.5 µg/L, at Bayou Pierre below Caspiana. The tables listing the number of samples in which organic compounds were detected for six representative sites in the basin indicate that 2,4-D was detected in 100 percent of the samples collected at Bayou Pierre near Lake End (fig. 2.2.8-1).

Low-level concentrations of the other organic compounds were occasionally detected at other sites.

59 TWELVEMILE BAYOU NEAR DIXIE

ORGANIC COMPOUND TOTAL	TOTAL NUMBER OF ANALYSES	REPORTING LEVEL (µg/L)	NUMBER OF ANALYSES AT OR ABOVE REPORTING LEVEL
LINDANE	3	0.03	0
CHLORDANE	3	0.1	0
ENDRIN	3	0.06	0
DIELDRIN	3	0.02	0

26 BAYOU PIERRE NEAR LAKE END

ORGANIC COMPOUND TOTAL	TOTAL NUMBER OF ANALYSES	REPORTING LEVEL (µg/L)	NUMBER OF ANALYSES AT OR ABOVE REPORTING LEVEL
DDT	10	0.01	0
PCB	10	0.1	0
DIAZINON	10	0.01	6
LINDANE	10	0.01	0
CHLORDANE	10	0.1	0
MALATHION	10	0.01	3
ENDRIN	10	0.01	0
PARATHION	10	0.01	0
DIELDRIN	9	0.01	1
ENDOSULFAN	10	0.01	0
2,4-D	9	0.01	9

48 RED RIVER AT ALEXANDRIA

ORGANIC COMPOUND TOTAL	TOTAL NUMBER OF ANALYSES	REPORTING LEVEL (µg/L)	NUMBER OF ANALYSES AT OR ABOVE REPORTING LEVEL
DDT	47	0.01	0
PCB	45	0.1	0
DIAZINON	47	0.01	3
LINDANE	47	0.01	0
CHLORDANE	47	0.1	0
MALATHION	47	0.01	0
ENDRIN	47	0.01	0
PARATHION	47	0.01	0
DIELDRIN	47	0.01	0
ENDOSULFAN	43	0.01	0
2,4-D	42	0.5	0

3 RED RIVER ABOVE SHREVEPORT

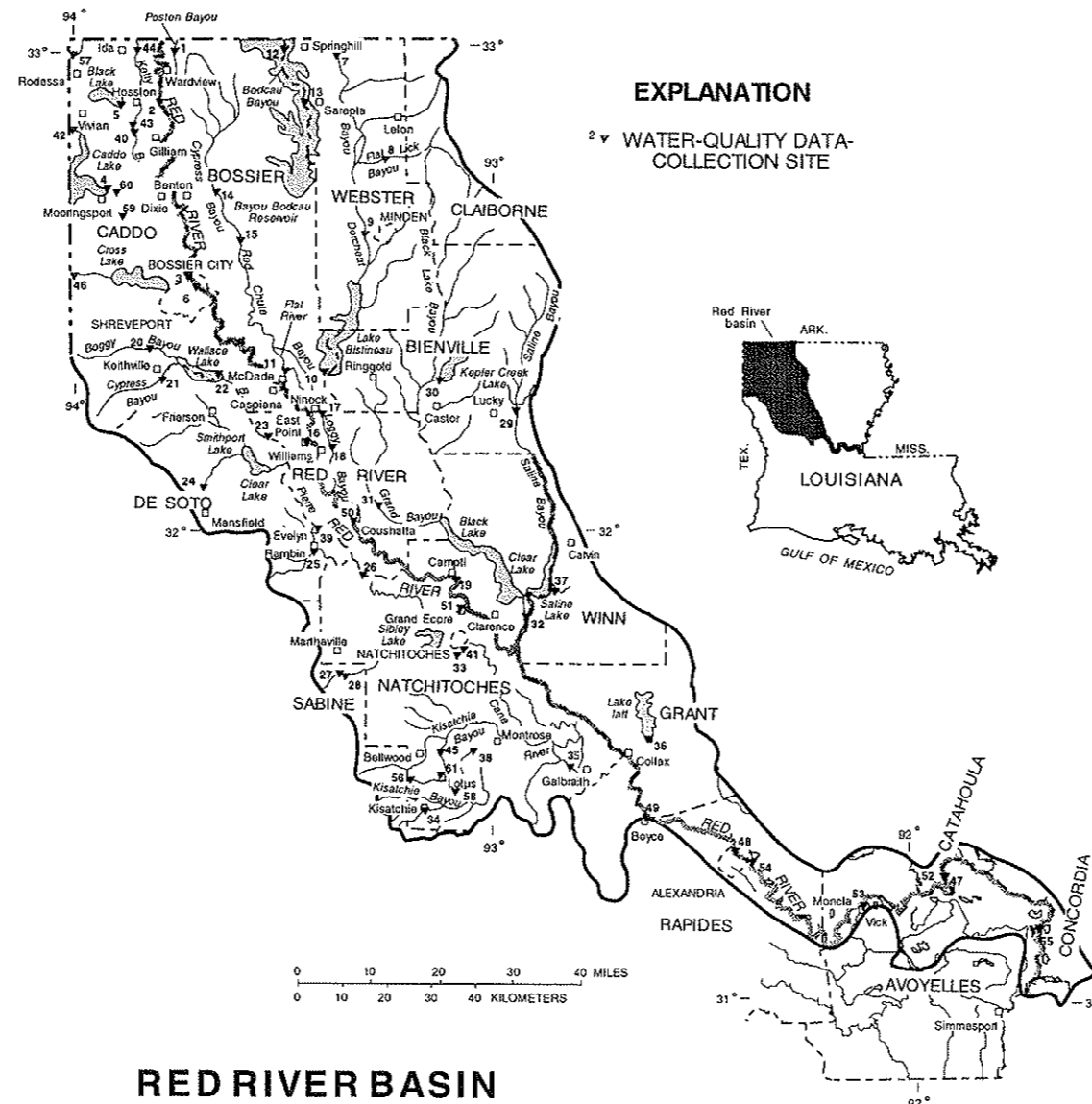
ORGANIC COMPOUND TOTAL	TOTAL NUMBER OF ANALYSES	REPORTING LEVEL (µg/L)	NUMBER OF ANALYSES AT OR ABOVE REPORTING LEVEL
DDT	163	0.01	3
PCB	162	0.1	0
DIAZINON	163	0.01	52
LINDANE	163	0.01	1
CHLORDANE	163	0.1	0
MALATHION	163	0.01	2
ENDRIN	163	0.01	0
PARATHION	163	0.01	4
DIELDRIN	163	0.01	1
ENDOSULFAN	126	0.01	1
2,4-D	159	0.5	2

31 GRAND BAYOU NEAR COUSHATTA

ORGANIC COMPOUND TOTAL	TOTAL NUMBER OF ANALYSES	REPORTING LEVEL (µg/L)	NUMBER OF ANALYSES AT OR ABOVE REPORTING LEVEL
DDT	10	0.01	1
PCB	10	0.1	0
DIAZINON	10	0.01	1
LINDANE	10	0.01	0
CHLORDANE	10	0.1	0
MALATHION	10	0.01	0
ENDRIN	10	0.01	0
PARATHION	10	0.01	0
DIELDRIN	10	0.01	0
ENDOSULFAN	10	0.01	0
2,4-D	10	0.01	3

17 LOGGY BAYOU NEAR NINOCK

ORGANIC COMPOUND TOTAL	TOTAL NUMBER OF ANALYSES	REPORTING LEVEL (µg/L)	NUMBER OF ANALYSES AT OR ABOVE REPORTING LEVEL
DDT	7	0.001	1
PCB	7	0.1	0
DIAZINON	7	0.01	4
LINDANE	7	0.001	0
CHLORDANE	7	0.1	0
MALATHION	7	0.01	0
ENDRIN	7	0.001	0
PARATHION	7	0.01	0
DIELDRIN	7	0.001	3
ENDOSULFAN	6	0.001	0
2,4-D	7	0.01	2



RED RIVER BASIN

Figure 2.2.8-1. Water-quality data-collection sites in the Red River basin, Louisiana, and tables listing organic compounds detected in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.2 Surface-Water Quality--continued

2.2.9 Biological Constituents--Fecal Coliform, Fecal Streptococcus Bacteria, and Phytoplankton

FECAL COLIFORM AND FECAL STREPTOCOCCUS BACTERIA CONCENTRATIONS VARIED GREATLY THROUGHOUT THE BASIN

Median fecal coliform concentrations ranged from 23 to 190 cols/100 mL.

Concentrations of fecal coliform bacteria varied greatly at the 27 sites in the Red River basin for which data are available. Concentrations ranged from less than 2 cols/100 mL at Red River at Lock and Dam No. 1 near Vick to 38,000 cols/100 mL at Bayou Pierre below Caspiana. Median concentrations ranged from 23 to 190 cols/100 mL. Although fecal coliform concentrations exceeded 200 cols/100 mL some of the time at most of the sites, additional data are needed to determine if the U.S. Environmental Protection Agency's (1976; 1986; 1996) maximum contaminant level is being exceeded. Boxplots of fecal coliform, fecal streptococcus bacteria, and phytoplankton concentrations at six representative sites in the basin show that the samples collected at Red River at Alexandria generally had higher fecal coliform concentrations than at the other sites (fig. 2.2.9-1).

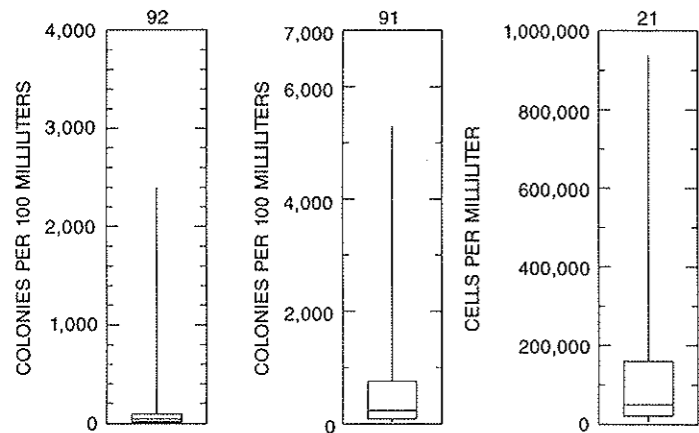
Concentrations of fecal streptococcus bacteria also varied greatly at sites in the basin. Concentrations ranged from 1 col/100 mL at Red River at Boyce to 110,000 cols/100 mL at Red River at Alexandria. Median fecal streptococcus concentrations, which ranged from 39 to 660 cols/100 mL, generally were

higher than the median fecal coliform concentrations. Boxplots of fecal streptococcus concentrations at six representative sites show that the samples collected at Bayou Pierre near Lake End generally had higher fecal streptococcus concentrations than at the other sites (fig. 2.2.9-1).

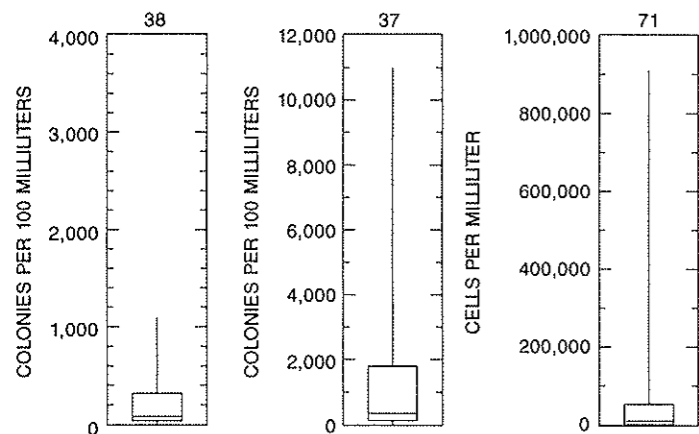
The median ratio of fecal coliform to fecal streptococcus bacteria was less than 0.7 at most of the sites sampled for analysis of bacteria concentrations within the Red River basin, indicating that sources of fecal coliform bacteria probably were predominantly livestock or poultry wastes (Millipore Corporation, 1972, p. 36). Additional study is needed to confirm these results.

Concentrations of phytoplankton varied greatly at sites in the basin due to the seasonal influence. Concentrations ranged from 0 cells/mL at Red River at Alexandria to 1,700,000 cells/mL at the same site. Median concentrations ranged from 9,600 to 49,000 cells/mL. Boxplots of phytoplankton concentrations at three representative sites show that 75 percent of the samples analyzed had concentrations less than 200,000 cells/mL.

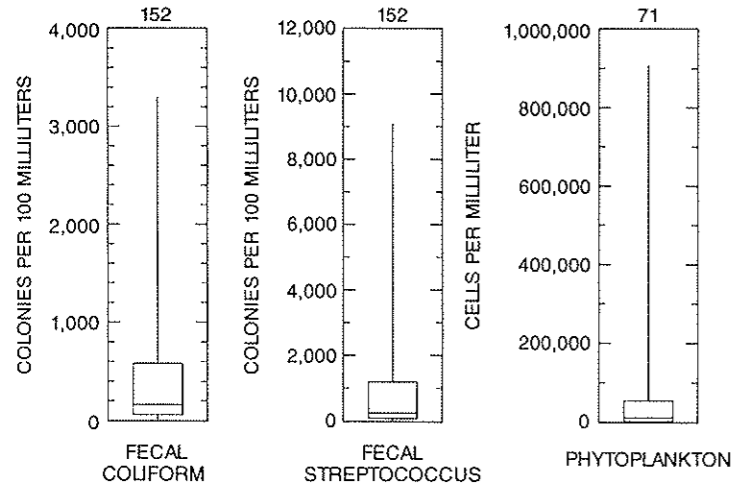
59 TWELVEMILE BAYOU NEAR DIXIE



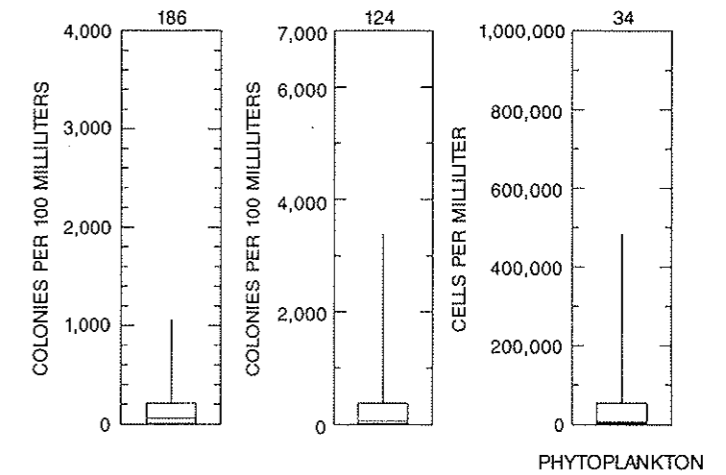
26 BAYOU PIERRE NEAR LAKE END



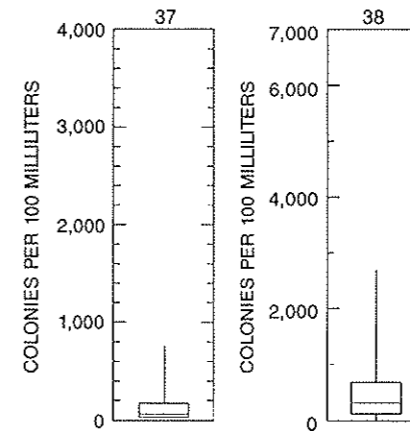
48 RED RIVER AT ALEXANDRIA



3 RED RIVER ABOVE SHREVEPORT



31 GRAND BAYOU NEAR COUSHATTA



17 LOGGY BAYOU NEAR NINOCK

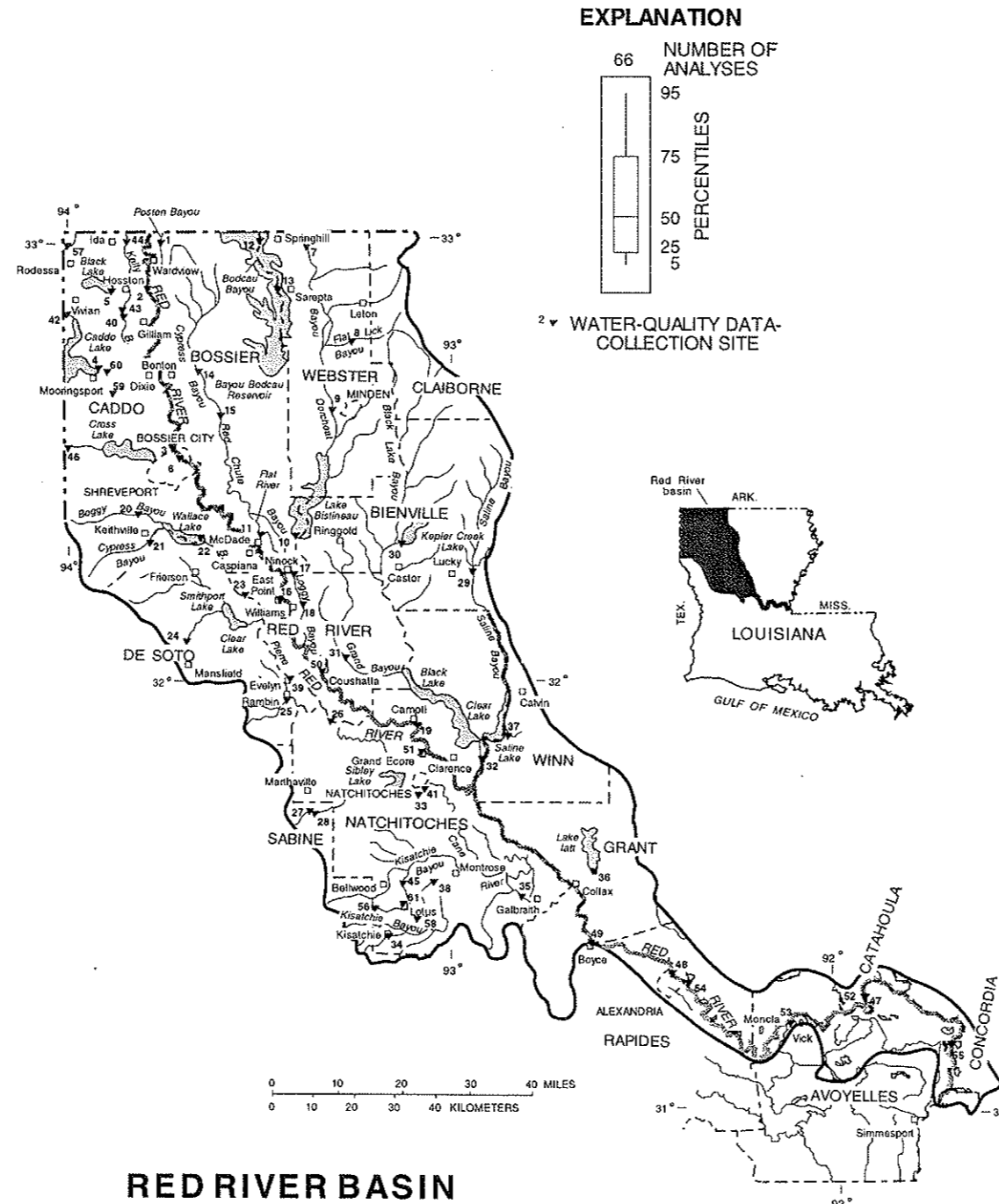
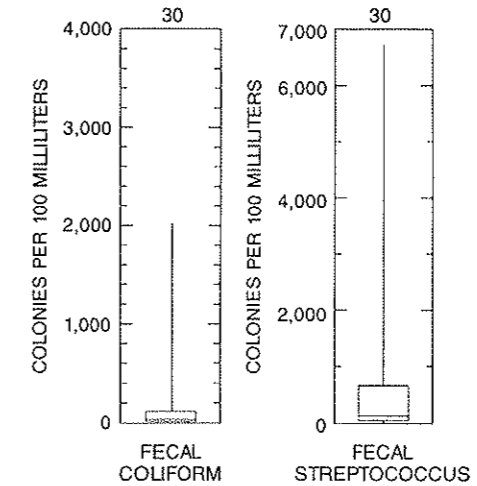


Figure 2.2.9-1. Water-quality data-collection sites in the Red River basin, Louisiana, and boxplots summarizing data for concentrations of fecal coliform and fecal streptococcus bacteria and phytoplankton in water from selected sites.

2.0 RED RIVER BASIN IN LOUISIANA--continued

2.3 Summary and Conclusions

VALUES FOR pH OCCASIONALLY LESS THAN LOWER LIMIT OF RECOMMENDED RANGE FOR FRESHWATER AQUATIC LIFE

Values for pH were occasionally less than 6.5, the lower limit of the U.S. Environmental Protection Agency's recommended range for freshwater aquatic life

The Red River basin in Louisiana is about 110 miles long and 65 miles wide at its widest point. Surface waters in the basin are primarily used for power generation. The principal sources of fresh surface water in the basin are the Red River, Twelvemile Bayou, Loggy Bayou Saline Bayou, Bayou Pierre, Cane River, and Cane River Lake.

Water quality in the Red River basin in Louisiana was investigated as part of a statewide investigation to evaluate water-quality conditions in the major surface-water drainage basins in Louisiana. The water-quality conditions in the Red River basin were evaluated using data collected from 61 sites during the water years 1943-94. Data for 33 water-quality properties and constituents for analyses stored in the U.S. Geological Survey Water-Data Storage and Retrieval System (WATSTORE), a computerized data base, were used for the evaluation. Results are reported as boxplots, linear-regression plots, and tabulated data.

The data were statistically analyzed and summarized for seven categories of water-quality properties and constituents: (1) physical properties--specific conductance, pH, water temperature, and dissolved oxygen; (2) major inorganic cations--dissolved calcium, magnesium, sodium, and potassium; (3) major inorganic anions--total alkalinity as calcium carbonate, dissolved sulfate, and dissolved chloride; (4) trace metals--dissolved copper, iron, lead, and zinc; (5) nutrients--nitrogen and phosphorus constituents; (6) organic compounds--pesticides and PCB's; (7) biological constituents--fecal coliform and fecal streptococcus bacteria and phytoplankton.

The physical properties varied for surface waters in the basin. The specific conductance values ranged from 15 to 21,300 $\mu\text{S}/\text{cm}$ (microsiemens per centimeter at 25 degrees Celsius). The median values for specific conductance ranged from 21 to 3,250 $\mu\text{S}/\text{cm}$.

Values for pH in water from the basin were occasionally less than 6.5, the lower limit of the U.S. Environmental Protection Agency's recommended range for freshwater aquatic life. Median values for water temperature ranged from 11.2 to 22.5 $^{\circ}\text{C}$ (degrees Celsius).

Dissolved-oxygen concentrations were greater than the State's minimum water quality criterion of 5.0 mg/L (milligrams per liter) in more than 75 percent of the samples analyzed at most sites. However, the statistical data indicated that less than five percent of the samples collected at Red River at Alexandria, Louisiana, typically had dissolved oxygen concentrations of less than 5.0 mg/L.

The data for major inorganic cations and anions in water from the basin indicated that concentrations of major ions were below recommended levels for drinking water, for which such levels have been established. However, there were periodic high concentrations of sodium and chloride at Twelvemile Bayou near Dixie, Louisiana.

The available data for trace metals indicated that dissolved copper, lead, and zinc were less than the maximum contaminant levels of the U.S. Environmental Protection Agency's primary and secondary drinking water regulations. Iron concentrations in water from the basin often exceeded 300 $\mu\text{g}/\text{L}$ (micrograms per liter), which is the criterion for domestic water supplies. However, iron concentrations occasionally exceeded the agency's criterion of 1,000 $\mu\text{g}/\text{L}$ for freshwater aquatic life.

Median concentrations of ammonia plus organic nitrogen as nitrogen ranged from 0.6 to 1.2 mg/L. However, the median concentrations at the Red River sites generally were less than the other sites. Median concentrations of total phosphorus at the rivers and bayous ranged from less than 0.05 to 0.21 mg/L.

The available data for selected organic chemical compounds indicated concentrations of pesticides, except diazinon and 2,4-D, only occasionally exceeded their detection levels. Diazinon and 2,4-D were detected at more sites and with greater frequency than any of the other organic compounds that were analyzed. However, low-level concentrations of other organic compounds were occasionally detected at other sites. Diazinon was detected at least once at 25 of the 27 sites for which water samples were analyzed for the compound, and 2,4-D was detected at least once at 20 of the 28 sites for which water samples were analyzed for the compound.

The median ratios of fecal coliform to fecal streptococcus bacteria were less than 0.7 for most of the sites within the Red River basin, indicating that sources of fecal bacteria probably were predominantly livestock or poultry wastes. However, additional samples closer

to the potential source of contamination need to be collected and analyzed to confirm these results. Phytoplankton varied greatly at sites in the basin due to the seasonal influence. Phytoplankton concentrations ranged from 0 to 1,700,000 cells per milliliter.

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TABLE 2.2-1. STATISTICAL SUMMARY OF WATER-QUALITY DATA
FOR THE RED RIVER BASIN IN LOUISIANA, 1943-94

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94

[Number in parentheses with the site name is the map number shown in fig. 2.0-1. Water temperature is in degrees Celsius, specific conductance is in microsiemens per centimeter at 25 degrees Celsius, and other units are given; <, less than]

Bayou Dorcheat near Minden, Louisiana (9)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	72	(a)	(a)	1,100	91	416	123	276	382	473	941
pH (standard units)	72	(a)	(a)	7.8	5.5	6.6	5.7	6.2	6.6	6.9	7.3
Water temperature	64	(a)	(a)	30.0	2.5	18.4	4.1	12.2	19.0	24.9	29.0
Dissolved oxygen (milligrams per liter)	57	(a)	(a)	11.0	4.1	7.3	4.2	6.0	6.7	8.7	11.0
Dissolved solids (milligrams per liter)	58	(a)	(a)	680	96	273	99	183	246	325	577
Major cations (milligrams per liter)											
Calcium, dissolved	59	0.01	59	41	4.4	16	6.6	9.3	14	18	38
Magnesium, dissolved	59	.01	59	8.5	0.70	3.8	1.2	2.4	3.7	4.4	7.9
Sodium, dissolved	59	.01	59	160	10	58	13	35	51	67	140
Potassium, dissolved	59	.01	59	6.4	1.0	2.8	1.4	2.1	2.5	3.2	5.3
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	48	1	48	44	5	17	5	9	15	23	37
Sulfate, dissolved	59	.1	59	16	.6	6.6	2.2	4.6	6.0	8.6	13
Chloride, dissolved	59	.1	59	340	20	110	24	66	97	140	310
Nutrients (milligrams per liter)											
Phosphorus, total	10	0.01	9	0.31	<0.01	(c)	<0.01	0.03	0.05	0.11	0.31
Trace metals (micrograms per liter)											
Iron, dissolved	1	1	1	110	(d)	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Dorchheat near Springhill, Louisiana (7)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Physical properties														
Specific conductance	86	(a)	(a)	4,230	75	673	109	258	448	752	2,830			
pH (standard units)	84	(a)	(a)	7.7	5.1	6.4	5.5	6.0	6.3	6.7	7.2			
Water temperature	75	(a)	(a)	31.0	4.0	17.6	5.4	12.0	18.0	23.5	27.6			
Dissolved oxygen (milligrams per liter)	24	(a)	(a)	11.0	2.5	6.6	2.9	5.0	6.4	7.4	11.0			
Dissolved solids (milligrams per liter)	59	(a)	(a)	2,470	79	343	89	217	279	380	683			
Major cations (milligrams per liter)														
Calcium, dissolved	72	0.01	72	140	3.1	24	5.9	13	18	26	86			
Magnesium, dissolved	72	.01	71	33	<.01	(c)	1.1	2.7	4.2	6.4	25			
Sodium, dissolved	68	.01	68	710	8.8	110	14	43	68	110	530			
Potassium, dissolved	68	.01	68	12	0.40	3.3	1.0	2.0	2.8	4.0	8.6			
Major anions (milligrams per liter)														
Alkalinity, total as CaCO ₃	74	1	74	118	3	24	4	8	12	26	95			
Sulfate, dissolved	74	.1	74	34	.4	8.2	.8	4.6	7.2	10	19			
Chloride, dissolved	83	.1	83	1,300	15	190	26	63	110	190	830			
Nutrients (milligrams per liter)														
Nitrogen, ammonia plus organic, total as nitrogen	9	0.01	9	2.3	0.40	(b)	(b)	(b)	(b)	(b)	(b)			
Nitrogen, nitrite plus nitrate, total as nitrogen	9	.10	7	.65	<.10	(b,c)	(b)	(b)	(b)	(b)	(b)			
Phosphorus, total as phosphorus	15	.01	15	1.7	.05	.29	.05	.07	.11	.29	1.7			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Dorcheat near Springhill, Louisiana (7)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Biological constituents--bacteria (colonies per 100 milliliters)										
Fecal coliform	7	1	7	200	22	(b)	(b)	(b)	(b)	(b)
Fecal streptococcus	8	1	8	660	54	(b)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)										
Copper, dissolved	2	1	2	4	2	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	2	10	2	580	140	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	2	5	0	<5	<5	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	2	10	2	20	10	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	2	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	1	.24	<.01	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endosulfan, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	1	.13	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Dupont near Marthaville, Louisiana (27)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	12	(a)	(a)	149	67	126	67	98	149	149
pH (standard units)	12	(a)	(a)	7.6	6.3	7.0	6.3	7.0	7.0	7.6
Dissolved solids (milligrams per liter)	1	(a)	(a)	87	(d)	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)										
Calcium, dissolved	8	0.01	8	6.7	6.0	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	8	.01	8	3.5	2.5	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	1	.01	1	8.7	(d)	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	1	.01	1	1.9	(d)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	5	1	5	28	8	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	8	.1	8	26	24	(b)	(b)	(b)	(b)	(b)
Chloride, dissolved	12	.1	12	16	4.0	13	4.0	10	16	16

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Dupont subwatershed no. 8 near Marthaville, Louisiana (28)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	26	(a)	(a)	217	65	122	66	82	110	162	211
pH (standard units)	26	(a)	(a)	7.2	5.7	6.5	5.7	6.3	6.4	6.9	7.2
Water temperature	2	(a)	(a)	29.0	20.0	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	15	(a)	(a)	119	29	68	29	48	71	83	119
Major cations (milligrams per liter)											
Calcium, dissolved	26	0.01	26	11	2.9	6.0	2.9	4.7	5.9	6.9	11
Magnesium, dissolved	26	.01	26	5.4	0.70	2.9	.88	1.6	3.0	4.0	5.3
Sodium, dissolved	26	.01	26	23	1.8	11	2.6	7.8	10	14	21
Potassium, dissolved	26	.01	26	4.6	.80	2.1	.90	1.6	2.2	2.4	4.0
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	23	1	23	47	8	20	8	14	18	24	45
Sulfate, dissolved	26	.1	26	28	1.8	13	2.0	6.8	10	20	28
Chloride, dissolved	26	.1	26	26	1.2	13	2.9	8.4	12	18	26
Trace metals (micrograms per liter)											
Iron, dissolved	1	10	1	480	(d)	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Luce near Montrose, Louisiana (38)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	25	(a)	(a)	92	36	66	38	56	68	78	89
pH (standard units)	26	(a)	(a)	6.8	4.2	4.9	4.2	4.6	4.8	5.1	6.5
Water temperature	26	(a)	(a)	25.5	7.0	18.7	8.4	14.2	20.2	23.5	25.3
Dissolved oxygen (milligrams per liter)	25	(a)	(a)	11.4	6.7	8.5	6.7	7.0	8.0	10.4	11.3
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	24	1	11	3	<1	(c)	<1	<1	<1	2	3

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Na Bonchasse near Mansfield, Louisiana (24)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	22	(a)	(a)	1,030	146	475	154	341	448	609	991
pH (standard units)	22	(a)	(a)	7.7	6.0	6.8	6.0	6.6	6.8	7.0	7.6
Water temperature	6	(a)	(a)	26.5	9.5	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	9	(a)	(a)	661	141	(b)	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)											
Calcium, dissolved	22	0.01	22	27	6.8	17	6.9	13	17	22	27
Magnesium, dissolved	22	.01	22	14	2.5	7.7	2.6	5.4	7.6	10	14
Sodium, dissolved	22	.01	22	190	4.5	64	5.5	35	50	96	180
Potassium, dissolved	21	.01	21	26	1.6	5.3	1.6	2.7	3.7	6.2	24
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	22	1	22	230	14	96	18	52	65	151	227
Sulfate, dissolved	22	.1	22	73	18	43	18	24	43	61	73
Chloride, dissolved	23	.1	23	100	14	50	15	34	53	67	100

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Pierre at Evelyn, Louisiana (39)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	25	(a)	(a)	1,110	99	470	100	171	333	842	1,100
pH (standard units)	25	(a)	(a)	8.0	6.3	7.0	6.3	6.6	6.8	7.2	7.9
Water temperature	24	(a)	(a)	31.5	4.5	19.5	4.6	10.9	19.8	28.4	31.5
Dissolved oxygen (milligrams per liter)	25	(a)	(a)	11.8	3.3	7.2	3.4	5.0	7.0	9.1	11.7
Dissolved solids (milligrams per liter)	25	(a)	(a)	637	80	286	80	108	204	496	637
Major cations (milligrams per liter)											
Calcium, dissolved	24	0.1	24	87	7.7	39	7.7	10	24	74	87
Magnesium, dissolved	24	.1	24	46	2.1	18	2.3	4.1	9.2	32	46
Sodium, dissolved	25	.1	25	75	5.9	34	6.2	14	27	57	75
Potassium, dissolved	24	.1	24	5.5	2.3	3.5	2.3	2.7	3.4	4.2	5.4
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	25	1	25	378	21	142	21	32	80	269	374
Sulfate, dissolved	24	.1	24	92	11	43	11	21	30	69	90
Chloride, dissolved	24	.1	24	91	8.0	41	8.2	16	34	65	90
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	24	0.01	24	1.5	0.41	1.0	0.44	0.80	1.0	1.2	1.5
Nitrogen, nitrite plus nitrate, total as nitrogen	24	.10	23	.61	<.10	(c)	<.10	.10	.16	.23	.54
Phosphorus, total as phosphorus	24	.01	24	.54	.01	.22	.03	.12	.21	.28	.50

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Pierre at Evelyn, Louisiana (39)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	23	20	21	4,200	<20	(c)	<20	30	130	840	1,800
Fecal streptococcus	23	1	23	18,000	10	1,900	20	130	260	1,200	16,000
Trace metals (micrograms per liter)											
Copper, dissolved	9	2	7	12	<2	(b,c)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	10	10	8	340	<10	(c)	<10	10	10	230	340
Lead, dissolved	9	2	3	5	<2	(b,c)	(b)	(b)	(b)	(b)	(b)
Zinc, dissolved	9	1	9	20	4	(b)	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)											
DDT, total	5	0.001	2	0.041	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	5	.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	5	.01	2	.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Lindane, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	5	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	5	.001	3	.021	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	5	.01	5	.18	.05	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Pierre below Caspiana, Louisiana (23)

Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
			Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties										
59	(a)	(a)	1,020	94	489	109	233	394	753	990
pH (standard units)	(a)	(a)	7.9	6.1	7.1	6.2	6.7	7.1	7.3	7.8
Water temperature	(a)	(a)	33.0	4.5	20.3	7.0	14.5	20.0	28.0	32.0
Dissolved oxygen (milligrams per liter)	(a)	(a)	11.8	3.5	7.6	4.3	6.2	7.6	9.2	11.2
Dissolved solids (milligrams per liter)	(a)	(a)	607	74	288	84	141	230	447	595
Major cations (milligrams per liter)										
Calcium, dissolved	0.01	59	88	7.2	39	8.1	17	31	61	84
Magnesium, dissolved	.01	59	44	2.6	17	3.0	6.2	13	29	40
Sodium, dissolved	.01	59	80	5.3	36	7.1	17	35	56	69
Potassium, dissolved	.01	59	7.5	2.5	3.7	2.6	3.0	3.4	4.3	5.1
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	1	59	347	21	145	26	52	110	232	344
Sulfate, dissolved	.1	59	96	11	44	12	23	39	67	87
Chloride, dissolved	.1	59	87	6.8	41	8.1	21	39	59	76
Nutrients (milligrams per liter)										
Nitrogen, ammonia plus organic, total as nitrogen	0.01	58	3.7	0.05	1.2	0.36	0.82	1.2	1.4	2.3
Nitrogen, nitrite plus nitrate, total as nitrogen	.10	39	1.1	<.10	(c)	<.10	<.10	.15	.30	.80
Phosphorus, total as phosphorus	.01	58	.70	.02	.25	.08	.13	.21	.32	.54

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Pierre below Caspiana, Louisiana (23)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	55	1	55	38,000	2	1,600	14	40	80	480	7,700
Fecal streptococcus	55	1	55	50,000	30	3,400	38	140	390	2,300	26,000
Trace metals (micrograms per liter)											
Copper, dissolved	16	2	14	9	<2	(c)	<2	3	3	7	9
Iron, dissolved	18	3	16	400	<3	(c)	<3	10	30	90	400
Lead, dissolved	16	1	12	6	<1	(c)	<1	<1	1	3	6
Zinc, dissolved	16	4	13	60	<4	(c)	<4	5	8	13	60
Organic compounds (micrograms per liter)											
DDT, total	8	0.001	2	0.280	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	8	.1	1	.3	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	8	.01	7	.12	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Lindane, total	8	.001	1	.310	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	8	.01	3	3.4	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	8	.001	1	.003	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	8	.001	6	.290	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	8	.01	8	9.5	.04	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Pierre near Lake End, Louisiana (26)

Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
			Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties										
41	(a)	(a)	1,100	106	528	131	324	495	739	968
41	(a)	(a)	8.0	6.0	7.2	6.0	6.8	7.2	7.6	7.9
41	(a)	(a)	31.5	3.5	19.6	5.6	14.0	20.0	27.5	31.0
41	(a)	(a)	12.0	4.0	7.2	4.5	5.6	7.0	8.7	11.2
40	(a)	(a)	554	78	303	98	202	270	416	544
Major cations (milligrams per liter)										
41	0.01	41	87	6.5	42	8.1	23	39	60	82
41	.01	41	47	3.1	19	3.3	9.8	16	28	44
42	.01	42	70	6.6	36	7.2	24	34	49	63
41	.01	41	4.7	2.2	3.4	2.2	2.6	3.5	3.8	4.7
Major anions (milligrams per liter)										
41	1	41	383	25	162	32	84	141	244	344
41	.1	41	92	11	43	12	28	38	58	84
41	.1	41	82	8.5	43	11	30	38	60	78
Nutrients (milligrams per liter)										
40	0.1	40	2.7	0.1	1.1	0.3	0.7	0.9	1.4	2.1
41	.10	32	1.0	<.10	(c)	<.10	.10	.20	.38	.47
41	.01	41	.74	.04	.22	.04	.12	.21	.27	.64

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bayou Pierre near Lake End, Louisiana (26)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	38	1	38	1,200	4	250	5	38	80	320	1,100
Fecal streptococcus	37	1	37	26,000	16	2,000	21	120	350	1,800	11,000
Trace metals (micrograms per liter)											
Copper, dissolved	12	1	11	15	<1	(c)	<1	2	4	5	15
Iron, dissolved	13	10	9	260	<10	(c)	<10	10	30	110	260
Lead, dissolved	12	5	10	10	<5	(c)	<5	<5	<5	<5	10
Zinc, dissolved	12	4	11	20	<4	(c)	4	5	10	13	20
Organic compounds (micrograms per liter)											
DDT, total	10	0.01	0	<0.01	<0.01	(c)	<0.01	<0.01	<0.01	<0.01	<0.01
PCB, total	10	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Diazinon, total	10	.01	6	.16	<.01	(c)	<.01	<.01	.03	.05	.16
Lindane, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Chlordane, total	10	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Malathion, total	10	.01	3	.02	<.01	(c)	<.01	<.01	<.01	.01	.02
Endrin, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Parathion, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Dieldrin, total	9	.01	1	.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
2,4-D, total	9	.01	9	.32	.01	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued

Black Bayou near Gilliam, Louisiana (40)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	24	(a)	(a)	9,810	151	921	154	236	356	924	7,800
pH (standard units)	24	(a)	(a)	8.2	6.5	7.1	6.5	6.7	7.0	7.6	8.1
Water temperature	24	(a)	(a)	30.0	4.0	17.4	5.2	11.2	16.5	24.0	29.6
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	10.0	5.2	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	23	(a)	(a)	5,910	106	534	108	147	210	546	4,890
Major cations (milligrams per liter)											
Calcium, dissolved	24	0.01	24	120	8.0	38	8.5	15	20	68	120
Magnesium, dissolved	24	.01	24	73	1.0	18	1.3	4.4	7.4	36	67
Sodium, dissolved	23	.01	23	2,000	11	150	12	24	42	82	1,600
Potassium, dissolved	24	.01	24	15	1.4	3.3	1.4	1.8	2.6	3.6	13
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	23	1	23	381	15	114	15	23	52	251	375
Sulfate, dissolved	25	.1	25	61	3.7	15	4.0	6.8	8.2	23	53
Chloride, dissolved	25	.1	25	3,300	18	230	20	46	78	120	2,400
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	1	0.1	1	0.32	(d)	(b)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	3	.01	3	.24	.01	(b)	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	4	.01	4	.17	.04	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Black Bayou near Gilliam (40)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Trace metals (micrograms per liter)										
Copper, dissolved	4	2	2	12	<2	(b,c)	(b)	(b)	(b)	(b)
Iron, dissolved	5	10	3	260	<10	(b,c)	(b)	(b)	(b)	(b)
Lead, dissolved	4	5	2	8	<5	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	4	20	2	60	<20	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	1	0.01	0	<0.01	(d)	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	1	.02	<.01	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	1	.08	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Black Lake near Hosston, Louisiana (5)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	16	(a)	(a)	4,120	165	762	165	238	292	366	4,120
pH (standard units)	16	(a)	(a)	6.7	6.0	6.3	6.0	6.2	6.3	6.5	6.7
Water temperature	12	(a)	(a)	32.0	5.0	18.2	5.0	10.5	16.5	27.0	32.0
Dissolved solids (milligrams per liter)	14	(a)	(a)	232	107	181	107	156	184	210	232
Major cations (milligrams per liter)											
Calcium, dissolved	16	0.01	16	100	7.6	23	7.6	10	13	14	100
Magnesium, dissolved	16	.01	16	23	1.2	4.6	1.2	1.8	2.2	2.7	23
Sodium, dissolved	16	.01	16	720	19	120	19	31	36	49	720
Potassium, dissolved	14	.01	14	3.4	1.4	2.4	1.4	1.8	2.6	2.9	3.4
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	16	1	16	20	5	12	5	8	12	16	20
Sulfate, dissolved	16	.1	16	7.0	.4	3.6	.4	2.3	3.7	4.8	7.0
Chloride, dissolved	16	.1	16	1,400	37	230	37	64	72	93	1,400

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Bodcau Bayou near Sarepta, Louisiana (13)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	33	(a)	(a)	2,180	92	544	95	152	369	874	1,930
pH (standard units)	33	(a)	(a)	7.7	6.2	6.8	6.2	6.5	6.6	7.0	7.6
Water temperature	18	(a)	(a)	31.0	8.0	19.8	8.0	13.5	18.8	27.1	31.0
Dissolved oxygen (milligrams per liter)	12	(a)	(a)	7.8	4.0	6.0	4.0	4.8	6.1	7.0	7.8
Dissolved solids (milligrams per liter)	15	(a)	(a)	1,040	70	289	70	98	189	261	1,040
Major cations (milligrams per liter)											
Calcium, dissolved	31	0.01	31	82	4.0	20	4.2	7.9	13	28	70
Magnesium, dissolved	31	.01	31	22	.80	4.9	1.0	1.9	3.3	5.8	17
Sodium, dissolved	15	.01	15	310	10	54	10	13	25	50	310
Potassium, dissolved	17	.01	17	11	1.1	3.5	1.1	1.7	2.7	4.0	11
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	33	1	33	261	10	53	10	16	22	62	208
Sulfate, dissolved	32	1.0	32	38	1.8	13	1.9	3.2	7.8	24	36
Chloride, dissolved	32	.1	32	660	18	130	18	29	62	210	510
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	1	0.1	1	0.64	(d)	(b)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	4	.01	4	.39	.04	(b)	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	4	.01	4	.30	.04	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Bodcau Bayou near Sarepta, Louisiana (13)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Trace metals (micrograms per liter)										
Copper, dissolved	5	3	4	11	<3	(b,c)	(b)	(b)	(b)	(b)
Iron, dissolved	6	10	6	380	43	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	6	5	1	10	<5	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	6	20	2	50	<20	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	3	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)
PCB, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	3	.01	2	.02	<.01	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Bodcau Bayou near Springhill, Louisiana (12)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	45	(a)	(a)	373	56	155	59	113	146	199	258
pH (standard units)	45	(a)	(a)	7.4	5.6	6.4	5.9	6.2	6.3	6.5	7.0
Water temperature	31	(a)	(a)	31.0	1.0	19.0	3.4	14.0	22.0	26.0	29.8
Dissolved solids (milligrams per liter)	31	(a)	(a)	160	52	109	60	77	102	141	159
Major cations (milligrams per liter)											
Calcium, dissolved	44	0.01	44	26	3.3	8.0	4.1	5.8	7.4	9.4	12
Magnesium, dissolved	44	.01	44	7.1	.60	2.2	.82	1.4	2.1	2.7	4.8
Sodium, dissolved	41	.01	41	37	3.7	17	4.1	10	16	24	32
Potassium, dissolved	41	.01	41	4.7	.90	2.0	1.0	1.4	1.7	2.4	4.2
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	45	1	45	88	5	18	7	11	16	21	34
Sulfate, dissolved	44	.1	44	11	.2	4.6	.2	3.2	4.2	6.4	10
Chloride, dissolved	45	.1	45	69	.2	30	3.1	20	27	43	55

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Boggy Bayou near Keithville, Louisiana (20)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	9	(a)	(a)	1,330	138	(b)	(b)	(b)	(b)	(b)
pH (standard units)	18	(a)	(a)	7.4	5.7	6.8	5.7	6.4	6.8	7.3
Water temperature	9	(a)	(a)	29.0	7.0	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	9	(a)	(a)	859	84	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)										
Calcium, dissolved	9	0.01	9	20	5.0	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	9	.1	9	6.7	1.8	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	9	.01	9	200	14	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	9	.01	9	82	1.2	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	9	1	9	66	7	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	18	.1	18	340	4.2	36	4.2	9.7	14	26
Chloride, dissolved	19	.1	19	110	4.8	31	4.8	15	25	44

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Caddo Lake above Caddo Lake Dam near Mooringsport, Louisiana (4)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	16	(a)	(a)	806	87	156	87	98	106	136	806
pH (standard units)	17	(a)	(a)	7.4	6.0	6.7	6.0	6.4	6.7	7.0	7.4
Water temperature	15	(a)	(a)	35.0	8.0	20.0	8.0	12.0	16.0	30.0	35.0
Dissolved oxygen (milligrams per liter)	12	(a)	(a)	11.7	6.7	9.2	6.7	7.9	9.2	10.4	11.7
Dissolved solids (milligrams per liter)	15	(a)	(a)	104	63	74	63	66	70	73	104
Major cations (milligrams per liter)											
Calcium, dissolved	15	0.01	15	9.0	3.7	5.4	3.7	4.3	5.1	5.9	9.0
Magnesium, dissolved	15	.01	15	2.5	1.8	2.2	1.8	2.0	2.2	2.4	2.5
Sodium, dissolved	15	.01	15	17	7.5	10	7.5	8.6	9.4	11	17
Potassium, dissolved	15	.01	15	3.4	1.8	2.7	1.8	2.4	2.7	2.9	3.4
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	16	1	16	25	9	15	9	10	16	19	25
Sulfate, dissolved	15	.1	15	18	7.0	12	7.0	9.1	11	15	18
Chloride, dissolved	17	.1	17	220	11	39	11	12	13	23	220
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	11	0.1	11	1.2	0.3	0.7	0.3	0.4	0.6	1.1	1.2
Nitrogen, nitrite plus nitrate, total as nitrogen	12	.02	6	.18	<.02	.04	<.02	<.02	.02	.04	.18
Phosphorus, total as phosphorus	10	.02	9	.12	<.02	.06	.02	.04	.05	.08	.12

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Caddo Lake above Caddo Lake Dam near Mooringsport, Louisiana (4)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	10	1	10	240	5	43	5	12	23	35	240
Fecal streptococcus	12	1	12	140	4	47	4	26	39	67	140
Trace metals (micrograms per liter)											
Copper, dissolved	12	10	0	<10	<10	(c)	<10	<10	<10	<10	<10
Iron, dissolved	12	10	12	870	10	200	10	20	130	270	870
Lead, dissolved	12	50	0	<50	<50	(c)	<50	<50	<50	<50	<50
Zinc, dissolved	12	10	2	10	<10	(c)	<10	<10	<10	<10	10
Organic compounds (micrograms per liter)											
Lindane, total	3	0.03	0	<0.03	<0.03	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	3	.06	0	<.06	<.06	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	3	.02	0	<.02	<.02	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Cane River Lake at Natchitoches, Louisiana (41)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	8	(a)	(a)	565	171	(b)	(b)	(b)	(b)	(b)
pH (standard units)	14	(a)	(a)	8.1	5.2	7.1	5.2	6.8	7.1	7.4
Water temperature	8	(a)	(a)	32.5	6.0	(b)	(b)	(b)	(b)	(b)
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	11.0	1.7	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	14	(a)	(a)	2,320	128	392	128	220	257	288
Major cations (milligrams per liter)										
Calcium, dissolved	8	0.01	8	54	17	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	8	.01	8	22	4.9	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	8	.01	8	51	8.2	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	8	.01	8	5.5	2.9	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	8	1	8	210	46	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	14	.1	14	38	8.0	18	8.0	12	14	24
Chloride, dissolved	14	.1	14	66	11	42	11	32	42	55
Nutrients (milligrams per liter)										
Nitrogen, ammonia plus organic, total as nitrogen	8	0.1	7	3.3	<0.1	(b,c)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	7	.01	7	.17	.01	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	8	.01	8	.41	.11	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Cane River Lake at Natchitoches, Louisiana (41)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)										
Fecal coliform	7	1	7	23,000	(b)	(b)	(b)	(b)	(b)	(b)
Fecal streptococcus	8	1	8	11,000	(b)	(b)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)										
Copper, dissolved	2	1	2	4	3	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	2	10	2	160	150	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	2	2	0	<2	<2	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	2	1	2	100	8	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	2	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	2	.03	.02	(b)	(b)	(b)	(b)	(b)
Lindane, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endosulfan, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	1	.09	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Cane River near Galbraith, Louisiana (35)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	8	(a)	(a)	514	77	(b)	(b)	(b)	(b)	(b)
pH (standard units)	18	(a)	(a)	8.1	5.9	6.7	5.9	6.2	6.6	7.0
Water temperature	8	(a)	(a)	37.0	7.0	(b)	(b)	(b)	(b)	(b)
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	11.9	4.0	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	18	(a)	(a)	432	48	145	48	77	100	184
Major cations (milligrams per liter)										
Calcium, dissolved	8	0.01	8	49	5.8	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	8	.01	8	21	2.1	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	8	.01	8	28	4.6	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	8	.01	8	3.6	1.7	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	8	1	8	220	16	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	18	.1	18	31	3.0	14	3.0	8.2	12	23
Chloride, dissolved	18	.1	18	42	3.6	12	3.6	5.3	6.3	16
Nutrients (milligrams per liter)										
Nitrogen, ammonia plus organic, total as nitrogen	8	0.1	8	3.9	0.7	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	8	.01	7	.54	<.01	(b,c)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	8	.01	8	.25	.08	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Cane River near Galbraith, Louisiana (35)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Biological constituents--bacteria (colonies per 100 milliliters)										
Fecal coliform	7	1	7	6,600	40	(b)	(b)	(b)	(b)	(b)
Fecal streptococcus	8	1	7	7,000	110	(b)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)										
Copper, dissolved	2	1	2	4	4	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	2	10	1	200	<10	(b,c)	(b)	(b)	(b)	(b)
Lead, dissolved	2	2	1	2	<2	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	2	1	2	20	9	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	2	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	1	.02	<.01	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endosulfan, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	1	.04	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Cypress Bayou near Benton, Louisiana (14)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	2	(a)	(a)	157	100	(b)	(b)	(b)	(b)	(b)	(b)
pH (standard units)	25	(a)	(a)	6.8	5.3	6.1	5.3	5.8	6.1	6.4	6.8
Water temperature	21	(a)	(a)	29.0	4.0	15.7	4.2	10.2	14.5	20.2	28.8
Dissolved solids (milligrams per liter)	6	(a)	(a)	113	45	(b)	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)											
Calcium, dissolved	2	0.01	2	9.3	5.0	(b)	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	2	.01	2	2.3	1.9	(b)	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	2	.01	2	16	9.7	(b)	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	2	.01	2	2.9	2.0	(b)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	2	1	2	30	26	(b)	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	25	.1	24	29	<.1	(c)	.2	2.7	4.0	6.0	25
Chloride, dissolved	25	.1	25	290	2.2	32	2.4	7.2	12	23	230

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Cypress Bayou near Keithville, Louisiana (21)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	3	(a)	(a)	622	284	(b)	(b)	(b)	(b)	(b)
pH (standard units)	10	(a)	(a)	7.5	6.1	6.9	6.1	6.4	7.0	7.2
Water temperature	12	(a)	(a)	34.0	6.5	16.5	6.5	7.0	16.0	23.9
Dissolved solids (milligrams per liter)	2	(a)	(a)	222	171	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)										
Calcium, dissolved	3	0.01	3	42	15	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	3	.01	3	16	6.5	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	3	.01	3	64	27	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	3	.01	3	3.6	2.3	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	3	1	3	167	43	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	10	.1	10	38	3.7	18	3.7	4.4	16	30
Chloride, dissolved	12	.1	12	96	5.2	41	5.2	13	38	57

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Flat Lick Bayou near Leton, Louisiana (8)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	11	(a)	(a)	19,200	282	5,250	282	1,780	3,250	6,930	19,200
pH (standard units)	28	(a)	(a)	7.0	3.7	5.2	3.7	4.5	5.2	5.7	6.9
Water temperature	19	(a)	(a)	29.0	4.0	15.1	4.0	8.0	14.5	21.0	29.0
Dissolved solids (milligrams per liter)	24	(a)	(a)	16,900	177	3,340	197	1,070	1,760	3,630	15,700
Major cations (milligrams per liter)											
Calcium, dissolved	11	0.01	11	440	6.6	120	6.6	35	64	160	440
Magnesium, dissolved	11	.01	11	120	2.1	31	2.1	3.3	18	59	120
Sodium, dissolved	11	.01	11	3,800	45	950	45	290	550	1,200	3,800
Potassium, dissolved	11	.01	11	28	3.4	8.5	3.4	3.6	6.4	12	28
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	5	1	5	21	1	(b)	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	28	.1	28	150	3.0	24	3.6	7.2	10	22	130
Chloride, dissolved	28	.1	28	13,000	59	2,500	86	620	1,200	3,000	12,000

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Flat River near Elm Grove at McDade, Louisiana (11)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	10	(a)	(a)	1,720	108	1,010	108	556	1,070	1,480	1,720
pH (standard units)	14	(a)	(a)	8.5	6.4	7.3	6.4	7.0	7.2	7.6	8.5
Water temperature	10	(a)	(a)	32.0	7.0	17.8	7.0	9.2	16.5	26.0	32.0
Dissolved solids (milligrams per liter)	12	(a)	(a)	3,430	221	865	221	371	606	936	3,430
Major cations (milligrams per liter)											
Calcium, dissolved	10	0.01	10	140	8.8	56	8.8	23	49	82	140
Magnesium, dissolved	10	.01	10	34	.80	15	.80	4.3	9.2	28	34
Sodium, dissolved	10	.01	10	200	7.7	130	7.7	74	140	190	200
Potassium, dissolved	10	.01	10	5.9	2.1	4.6	2.1	3.8	4.8	5.8	5.9
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	10	1	10	359	28	190	28	62	179	322	359
Sulfate, dissolved	14	.1	14	79	5.2	40	5.2	10	42	69	79
Chloride, dissolved	14	.1	14	1,700	11	310	11	92	200	320	1,700

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Grand Bayou near Coushatta, Louisiana (31)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Physical properties														
Specific conductance	46	(a)	(a)	334	17	142	79	107	140	167	242			
pH (standard units)	48	(a)	(a)	7.4	5.3	6.3	5.5	6.0	6.3	6.7	7.3			
Water temperature	45	(a)	(a)	31.0	3.0	18.1	5.0	12.5	18.0	25.2	28.8			
Dissolved oxygen (milligrams per liter)	41	(a)	(a)	12.2	.6	6.2	2.0	3.4	6.7	8.3	11.1			
Dissolved solids (milligrams per liter)	44	(a)	(a)	206	62	104	66	84	98	115	163			
Major cations (milligrams per liter)														
Calcium, dissolved	45	0.01	45	13	3.1	7.0	3.6	5.0	6.5	9.2	11.7			
Magnesium, dissolved	45	.01	45	6.4	1.4	2.9	1.4	2.2	2.8	3.4	4.5			
Sodium, dissolved	45	.01	45	50	6.4	15.2	7.3	10	13	18	33			
Potassium, dissolved	44	.01	44	6.0	1.5	2.8	1.6	2.1	2.8	3.4	4.4			
Major anions (milligrams per liter)														
Alkalinity, total as CaCO ₃	45	1	45	83	5	27	6	11	23	36	66			
Sulfate, dissolved	47	.1	46	17	<.1	(c)	.4	4.0	7.4	11	16			
Chloride, dissolved	47	.1	47	87	5.0	21	6.4	11	18	26	54			
Nutrients (milligrams per liter)														
Nitrogen, ammonia plus organic, total as nitrogen	41	0.1	41	4.0	0.3	1.2	0.3	0.8	1.0	1.4	2.9			
Nitrogen, nitrite plus nitrate, total as nitrogen	41	.10	13	.30	<.10	(c)	<.10	<.10	<.10	.10	.24			
Phosphorus, total as phosphorus	41	.01	41	.27	.05	.10	.05	.06	.09	.12	.22			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Grand Bayou near Coushatta, Louisiana (31)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles									
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th		
Biological constituents--bacteria (colonies per 100 milliliters)													
Fecal coliform	37	1	37	1,300	10	160	10	41	60	150	710		
Fecal streptococcus	38	1	38	4,300	20	550	20	99	270	670	2,600		
Trace metals (micrograms per liter)													
Copper, dissolved	11	1	11	10	2	4	2	3	4	5	10		
Iron, dissolved	12	10	12	1,200	190	580	190	340	500	860	1,200		
Lead, dissolved	11	5	3	6	<5	(c)	<5	<5	<5	5	6		
Zinc, dissolved	11	20	4	30	<20	(c)	<20	<20	<20	20	30		
Organic compounds (micrograms per liter)													
DDT, total	10	0.01	1	0.15	<0.01	(c)	<0.01	<0.01	<0.01	<0.01	0.15		
PCB, total	10	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1		
Diazinon, total	10	.01	1	.04	<.01	(c)	<.01	<.01	<.01	<.01	.04		
Lindane, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01		
Chlordane, total	10	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1		
Malathion, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01		
Endrin, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01		
Parathion, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01		
Dieldrin, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01		
Endosulfan, total	10	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01		
2,4-D, total	10	.01	3	.05	<.01	(c)	<.01	<.01	<.01	<.01	.05		

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Iatt Lake near Colfax, Louisiana (36)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	9	(a)	(a)	75	48	(b)	(b)	(b)	(b)	(b)
pH (standard units)	13	(a)	(a)	7.9	6.1	6.4	6.1	6.2	6.3	7.9
Water temperature	7	(a)	(a)	33.5	5.0	(b)	(b)	(b)	(b)	(b)
Dissolved oxygen (milligrams per liter)	4	(a)	(a)	11.0	6.4	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	11	(a)	(a)	58	35	46	35	42	46	58
Major cations (milligrams per liter)										
Calcium, dissolved	9	0.01	9	6.1	2.2	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	9	.01	9	1.6	.60	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	9	.01	9	5.6	2.6	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	9	.01	9	1.9	.90	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	9	1	9	18	7	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	13	.1	13	11	.40	5.5	.40	4.0	5.2	11
Chloride, dissolved	13	.1	13	7.5	1.0	4.1	1.0	3.0	3.8	7.5
Nutrients (milligrams per liter)										
Nitrogen, ammonia plus organic, total as nitrogen	1	0.10	1	0.62	(d)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	3	.01	3	.04	.02	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	3	.01	3	.05	.01	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Iatt Lake near Colfax, Louisiana (36)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Biological constituents--bacteria (colonies per 100 milliliters)										
Fecal coliform	4	5	2	1,100	<5	(b,c)	(b)	(b)	(b)	(b)
Fecal streptococcus	2	5	1	90	<5	(b,c)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)										
Copper, dissolved	1	1	1	7	(d)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	1	10	1	50	(d)	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	1	10	0	<10	(d)	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	1	20	0	<20	(d)	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	1	0.01	0	<0.01	(d)	(b,c)	(b)	(b)	(b)	(b)
PCB, total	1	.1	0	<.1	(d)	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	1	.1	0	<.1	(d)	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
James Bayou near Vivian, Louisiana (42)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Physical properties										
Specific conductance	8	(a)	(a)	170	88	(b)	(b)	(b)	(b)	(b)
pH (standard units)	10	(a)	(a)	6.8	6.1	6.5	6.1	6.3	6.4	6.6
Water temperature	8	(a)	(a)	32.0	11.0	(b)	(b)	(b)	(b)	(b)
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	9.2	3.8	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	8	(a)	(a)	122	68	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)										
Calcium, dissolved	7	0.01	7	9.2	3.4	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	7	.01	7	2.3	.40	(b)	(b)	(b)	(b)	(b)
Sodium, dissolved	6	.01	6	20	9.7	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	8	.01	8	3.2	1.2	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)										
Alkalinity, total as CaCO ₃	8	1	8	16	7	(b)	(b)	(b)	(b)	(b)
Sulfate, dissolved	10	.1	10	25	2.0	5.9	2.0	3.4	4.0	4.5
Chloride, dissolved	10	.1	10	2,100	18	400	18	20	30	450
Nutrients (milligrams per liter)										
Nitrogen, ammonia plus organic, total as nitrogen	1	0.10	1	0.46	(d)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	3	.10	1	.22	<.10	(b,c)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	4	.01	4	.10	.03	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
James Bayou near Vivian, Louisiana (42)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Trace metals (micrograms per liter)										
Copper, dissolved	4	1	4	40	3	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	4	10	4	540	160	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	4	2	2	10	<2	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	4	60	4	60	20	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	2	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	2	.01	.01	(b)	(b)	(b)	(b)	(b)
Lindane, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Kelly Bayou near Hosston, Louisiana (43)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	17	(a)	(a)	893	79	422	79	215	365	733	893
pH (standard units)	30	(a)	(a)	8.3	6.4	7.2	6.6	6.9	7.2	7.5	8.2
Water temperature	17	(a)	(a)	29.0	5.0	17.6	5.0	12.5	17.0	22.2	29.0
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	9.7	4.7	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	26	(a)	(a)	956	91	353	94	165	270	504	859
Major cations (milligrams per liter)											
Calcium, dissolved	16	0.01	16	94	5.8	34	5.8	16	28	43	94
Magnesium, dissolved	16	.01	16	51	1.8	17	1.8	5.1	12	32	51
Sodium, dissolved	15	.01	15	64	3.6	28	3.6	13	22	50	64
Potassium, dissolved	16	.01	16	7.5	1.3	3.3	1.3	1.8	2.8	4.0	7.5
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	17	1	17	336	23	135	23	44	116	226	336
Sulfate, dissolved	30	.1	30	52	3.6	21	4.3	11	16	30	50
Chloride, dissolved	31	.1	31	370	7.4	89	7.6	30	53	140	310
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	1	0.10	1	0.44	(d)	(b)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	4	.01	4	.19	.04	(b)	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	4	.01	4	.27	.07	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Kelly Bayou near Hosston, Louisiana (43)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Trace metals (micrograms per liter)										
Copper, dissolved	4	1	4	14	3	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	5	10	2	270	<10	(b,c)	(b)	(b)	(b)	(b)
Lead, dissolved	4	3	2	7	<3	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	4	20	1	50	<20	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	1	0.01	0	<0.01	(d)	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	2	.02	.01	(b)	(b)	(b)	(b)	(b)
Lindane, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	1	.14	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Kelly Bayou near Ida, Louisiana (44)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	18	(a)	(a)	286	38	99	38	75	86	105	286
pH (standard units)	13	(a)	(a)	7.5	6.3	6.8	6.3	6.5	6.7	7.0	7.5
Water temperature	18	(a)	(a)	27.0	5.0	16.0	5.0	11.5	15.0	20.2	27.0
Dissolved oxygen (milligrams per liter)	13	(a)	(a)	17.0	3.8	7.7	3.8	5.4	7.1	9.0	17.0
Major cations (milligrams per liter)											
Calcium, dissolved	4	0.01	4	13	4.0	(b)	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	4	.01	4	6.0	2.0	(b)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	13	1	13	61	5	20	5	10	13	26	61
Sulfate, dissolved	6	1	5	7.0	<1.0	(b,c)	(b)	(b)	(b)	(b)	(b)
Chloride, dissolved	18	.1	18	25	2.4	15	2.4	12	16	17	25
Nutrients (milligrams per liter)											
Phosphorus, total as phosphorus	6	0.01	6	0.24	0.02	(b)	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)											
DDT, total	2	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	2	.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	2	.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Kepler Lake near Castor, Louisiana (30)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	11	(a)	(a)	63	33	42	33	39	41	43	63
pH (standard units)	16	(a)	(a)	6.7	5.5	6.2	5.5	5.7	6.4	6.6	6.7
Water temperature	14	(a)	(a)	28.0	8.0	20.3	8.0	13.0	22.5	27.0	28.0
Dissolved oxygen (milligrams per liter)	9	(a)	(a)	9.8	2.1	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	16	(a)	(a)	48	22	34	22	29	34	39	48
Major cations (milligrams per liter)											
Calcium, dissolved	11	0.01	11	5.7	1.6	2.8	1.6	2.0	2.3	3.0	5.7
Magnesium, dissolved	11	.01	11	1.3	.50	.80	.50	.60	.70	1.0	1.3
Sodium, dissolved	11	.01	11	3.3	2.3	2.9	2.3	3.0	3.0	3.1	3.3
Potassium, dissolved	11	.01	11	1.9	1.0	1.4	1.0	1.2	1.4	1.5	1.9
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	11	1	11	16	3	7	3	5	7	10	16
Sulfate, dissolved	16	.1	16	6	.8	3.2	.8	1.8	3.4	4.2	6.0
Chloride, dissolved	16	.1	16	6.8	2.4	4.4	2.4	3.3	4.3	5.4	6.8
Nutrients (milligrams per liter)											
Phosphorus, total as phosphorus	3	.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)											
Copper, dissolved	6	20	1	23	<20	(b,c)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	6	10	6	800	30	(b)	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	6	3	6	29	18	(b)	(b)	(b)	(b)	(b)	(b)
Zinc, dissolved	6	20	6	100	20	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Kisatchie Bayou at Lotus, Louisiana (61)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	25	(a)	(a)	59	19	45	22	42	46	52	58
pH (standard units)	31	(a)	(a)	6.9	5.4	6.3	5.5	6.1	6.4	6.6	6.8
Water temperature	25	(a)	(a)	28.0	8.0	20.8	8.9	14.8	22.5	26.8	27.8
Dissolved oxygen (milligrams per liter)	24	(a)	(a)	11.4	6.1	8.2	6.1	6.6	7.8	9.6	11.4
Dissolved solids (milligrams per liter)	5	(a)	(a)	86	65	(b)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	26	1	26	12	2	8	2	6	8	10	12
Sulfate, dissolved	5	.1	5	11	.8	(b)	(b)	(b)	(b)	(b)	(b)
Chloride, dissolved	5	.1	5	8.6	3.1	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Laird Creek near Montrose, Louisiana (45)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	23	(a)	(a)	40	15	23	15	17	21	28	39
pH (standard units)	25	(a)	(a)	7.4	5.3	6.3	5.3	6.0	6.5	6.7	7.3
Water temperature	25	(a)	(a)	25.0	8.0	18.4	8.9	13.8	18.5	22.8	25.0
Dissolved oxygen (milligrams per liter)	23	(a)	(a)	11.2	7.8	9.2	7.8	8.3	8.9	10.6	11.2
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	25	1	25	7	1	3	1	2	2	4	6

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Lake Bistineau near Ringgold, Louisiana (10)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	12	(a)	(a)	274	135	190	135	142	168	246	274
pH (standard units)	19	(a)	(a)	7.1	5.6	6.3	5.6	6.1	6.4	6.5	7.1
Water temperature	10	(a)	(a)	30.0	4.0	19.1	4.0	11.0	19.5	29.0	30.0
Dissolved solids (milligrams per liter)	17	(a)	(a)	402	81	161	81	106	146	168	402
Major cations (milligrams per liter)											
Calcium, dissolved	12	0.01	12	12	5.3	8.9	5.3	7.6	9.0	9.9	12
Magnesium, dissolved	12	.01	12	2.2	.80	1.4	.80	.92	1.4	1.9	2.2
Sodium, dissolved	12	.01	12	35	15	23	15	16	20	31	35
Potassium, dissolved	12	.01	12	3.2	1.5	2.2	1.5	1.9	2.2	2.4	3.2
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	12	1	12	25	7	14	7	10	13	18	25
Sulfate, dissolved	19	.1	19	10	<.1	(c)	<.1	3.4	5.4	6.0	10
Chloride, dissolved	19	.1	19	200	26	66	26	33	53	85	200

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Little Sandy Creek at Kisatchie, Louisiana (34)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	10	(a)	(a)	63	36	48	36	40	45	30	63
pH (standard units)	12	(a)	(a)	6.6	5.7	6.4	5.7	6.3	6.5	6.5	6.6
Water temperature	8	(a)	(a)	37.0	7.0	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	12	(a)	(a)	98	67	86	67	76	88	96	98
Major cations (milligrams per liter)											
Calcium, dissolved	10	0.01	10	3.4	1.0	2.3	1.0	1.8	2.4	3.0	3.4
Magnesium, dissolved	10	.01	10	1.3	.10	.69	.10	.48	.65	.92	1.3
Sodium, dissolved	10	.01	10	8.0	4.0	5.5	4.0	4.6	5.0	6.4	8.0
Potassium, dissolved	10	.01	10	4.3	.70	1.5	.70	.70	1.2	1.7	4.3
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	10	.1	10	14	5	9	5	7	8	11	14
Sulfate, dissolved	12	.1	12	8.4	1.4	5.9	1.4	4.7	5.9	7.4	8.4
Chloride, dissolved	12	.1	12	6.6	2.9	4.4	2.9	3.1	4.1	5.7	6.6

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Loggy Bayou near East Point, Louisiana (18)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Physical properties														
Specific conductance	15	(a)	(a)	528	107	334	107	251	319	416	528			
pH (standard units)	15	(a)	(a)	7.8	6.3	6.9	6.3	6.7	6.9	7.1	7.8			
Water temperature	15	(a)	(a)	36.0	6.5	20.4	6.5	13.5	18.5	28.5	36.0			
Dissolved oxygen (milligrams per liter)	15	(a)	(a)	12.2	4.2	7.7	4.2	6.1	7.5	8.3	12.2			
Dissolved solids (milligrams per liter)	15	(a)	(a)	303	78	194	78	149	188	222	303			
Major cations (milligrams per liter)														
Calcium, dissolved	15	0.01	15	40	6.9	22.3	6.9	12	19	30	40			
Magnesium, dissolved	15	.01	15	16	2.3	7.8	2.3	4.8	6.9	10	16			
Sodium, dissolved	15	.01	15	47	9.2	29	9.2	23	29	37	47			
Potassium, dissolved	15	.01	15	4.0	1.5	2.4	1.5	2.1	2.3	2.9	4.0			
Major anions (milligrams per liter)														
Alkalinity, total as CaCO ₃	15	1	15	139	14	65	14	29	66	92	139			
Sulfate, dissolved	15	.1	15	46	7.0	18	7.0	10	14	22	46			
Chloride, dissolved	15	.1	15	72	17	47	17	40	48	55	72			
Nutrients (milligrams per liter)														
Nitrogen, ammonia plus organic, total as nitrogen	15	<0.1	14	3.2	<0.1	(c)	0.3	0.4	0.7	1.0	3.2			
Nitrogen, nitrite plus nitrate, total as nitrogen	15	.10	5	.41	<.10	(c)	<.10	<.10	<.10	.30	.41			
Phosphorus, total as phosphorus	15	.01	15	.26	.05	.10	.05	.07	.09	.10	.26			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Loggy Bayou near East Point, Louisiana (18)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	14	1	14	1,600	10	200	10	15	31	180	1,600
Fecal streptococcus	14	1	14	34,000	22	3,600	22	88	490	2,200	34,000
Trace metals (micrograms per liter)											
Copper, dissolved	4	1	4	8	3	(b)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	4	10	4	170	10	(b)	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	4	1	2	4	<1	(b,c)	(b)	(b)	(b)	(b)	(b)
Zinc, dissolved	4	4	3	14	<4	(b,c)	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)											
DDT, total	3	0.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	3	.01	3	.05	.03	(b)	(b)	(b)	(b)	(b)	(b)
Lindane, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	3	.01	1	.02	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	3	.01	3	.32	.01	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Loggy Bayou near Ninock, Louisiana (17)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	46	(a)	(a)	741	79	260	91	147	247	314	556
pH (standard units)	92	(a)	(a)	8.0	6.0	6.9	6.1	6.4	6.8	7.3	7.8
Water temperature	46	(a)	(a)	31.5	6.0	20.1	8.0	13.8	21.2	27.0	30.8
Dissolved oxygen (milligrams per liter)	32	(a)	(a)	12.3	4.1	7.3	4.6	5.5	6.8	8.5	11.8
Dissolved solids (milligrams per liter)	59	(a)	(a)	817	65	214	72	105	167	256	650
Major cations (milligrams per liter)											
Calcium, dissolved	46	0.01	46	74	5.0	17	5.6	7.9	13	21	48
Magnesium, dissolved	46	.01	46	23	1.5	5.3	1.7	2.2	3.2	6.6	17
Sodium, dissolved	46	.01	46	72	5.3	24	7.1	14	20	31	65
Potassium, dissolved	46	.01	46	5.0	1.7	2.5	1.7	2.0	2.2	3.0	4.2
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	46	1	46	242	8	51	11	18	36	74	167
Sulfate, dissolved	92	.1	92	110	1.8	25	3.0	7.9	13	34	87
Chloride, dissolved	92	.1	92	380	7.8	87	16	28	54	120	260
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	30	0.1	30	1.6	0.5	1.0	0.6	0.8	0.9	1.3	1.5
Nitrogen, nitrite plus nitrate, total as nitrogen	33	.01	30	.65	<.01	(c)	<.01	.04	.07	.10	.45
Phosphorus, total as phosphorus	33	.01	33	.37	.01	.13	.04	.08	.11	.16	.30

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Loggy Bayou near Ninock, Louisiana (170--continued)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	30	1	30	3,200	20	250	20	32	65	120	2,000
Fecal streptococcus	30	1	30	8,000	10	960	10	94	180	670	6,700
Trace metals (micrograms per liter)											
Copper, dissolved	10	1	9	7	<1	(c)	<1	2	4	6	7
Iron, dissolved	13	10	13	580	30	220	30	70	200	310	580
Lead, dissolved	10	1	5	5	<1	(c)	<1	<1	<1	3	5
Zinc, dissolved	10	20	10	20	<20	(c)	<20	<20	<20	20	20
Organic compounds (micrograms per liter)											
DDT, total	7	0.001	1	0.004	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	7	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	7	.01	4	.04	<.01	(b)	(b)	(b)	(b)	(b)	(b)
Lindane, total	7	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	7	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	7	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	7	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	7	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	7	.001	3	.006	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	6	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	7	.01	2	.03	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Paw Paw Bayou near Greenwood, Louisiana (46)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	12	(a)	(a)	1,450	127	651	127	416	500	983	1,450
pH (standard units)	13	(a)	(a)	7.3	6.2	6.8	6.2	6.6	6.9	7.2	7.3
Water temperature	13	(a)	(a)	24.5	4.5	16.1	4.5	12.0	15.5	22.8	24.5
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	10.3	5.3	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	13	(a)	(a)	743	89	360	89	174	302	576	743
Major cations (milligrams per liter)											
Calcium, dissolved	11	0.01	11	34	4.8	20	4.8	15	19	28	34
Magnesium, dissolved	11	.01	11	18	1.5	10	1.5	7.5	11	14	18
Sodium, dissolved	12	.01	12	220	1.1	84	1.1	22	58	150	220
Potassium, dissolved	13	.01	13	7.5	1.3	3.5	1.3	2.4	3.5	4.2	7.5
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	13	1	13	60	10	34	10	22	34	49	60
Sulfate, dissolved	14	.1	14	64	6.2	30	6.2	14	26	44	64
Chloride, dissolved	14	.1	14	400	22	150	22	66	105	230	400
Nutrients (milligrams per liter)											
Nitrogen, nitrite plus nitrate, total as nitrogen	2	0.01	2	0.08	0.01	(b)	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	3	.01	3	.11	.04	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Paw Paw Bayou near Greenwood, Louisiana (46)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Trace metals (micrograms per liter)										
Copper, dissolved	4	1	4	32	3	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	4	10	4	220	60	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	4	2	1	7	<2	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	4	20	1	40	<20	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	2	0.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)
PCB, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	2	.01	1	.02	<.01	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	2	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	2	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Posten Bayou near Wardview, Louisiana (1)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	17	(a)	(a)	468	70	227	70	124	169	354	468
pH (standard units)	17	(a)	(a)	8.1	6.9	7.5	6.9	7.2	7.5	7.8	8.1
Water temperature	17	(a)	(a)	29.0	5.0	16.9	5.0	11.5	16.0	22.0	29.0
Dissolved oxygen (milligrams per liter)	17	(a)	(a)	10.2	3.3	6.0	3.3	4.6	5.6	7.6	10.2
Major cations (milligrams per liter)											
Calcium, dissolved	3	0.01	3	20	14	(b)	(b)	(b)	(b)	(b)	(b)
Magnesium, dissolved	4	.01	4	20	2.0	(b)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	17	1	17	182	24	80	24	47	56	114	182
Sulfate, dissolved	7	.1	7	24	7.2	(b)	(b)	(b)	(b)	(b)	(b)
Chloride, dissolved	17	.1	17	61	6.0	21	6.0	8.2	15	30	61
Nutrients (milligrams per liter)											
Phosphorus, total as phosphorus	6	.01	6	0.55	0.20	(b)	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)											
DDT, total	3	0.03	0	<0.03	<0.03	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	3	.03	0	<.03	<.03	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Range Branch near Calvin, Louisiana (37)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	25	(a)	(a)	178	40	105	49	83	99	129	170
pH (standard units)	26	(a)	(a)	7.2	5.8	6.7	5.9	6.6	6.8	7.0	7.2
Water temperature	26	(a)	(a)	25.0	10.0	18.7	10.4	14.6	19.8	23.1	25.0
Dissolved oxygen (milligrams per liter)	24	(a)	(a)	10.0	4.2	6.6	4.2	5.0	6.1	7.8	9.9
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	26	1	26	57	6	34	7	27	34	41	55

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red Chute Bayou near Shreveport, Louisiana (15)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	32	(a)	(a)	1,740	90	341	96	136	219	461	1,230
pH (standard units)	32	(a)	(a)	7.8	6.2	6.9	6.2	6.6	6.8	7.2	7.8
Water temperature	31	(a)	(a)	31.0	6.0	18.0	7.2	11.5	18.0	26.0	29.8
Dissolved oxygen (milligrams per liter)	8	(a)	(a)	7.2	2.7	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	30	(a)	(a)	560	65	187	68	92	136	267	548
Major cations (milligrams per liter)											
Calcium, dissolved	31	0.01	31	66	4.6	16	5.0	8.0	11	21	46
Magnesium, dissolved	30	.01	30	8.1	1.3	3.2	1.4	2.1	2.5	3.7	7.1
Sodium, dissolved	30	.01	30	280	9.0	48	9.4	16	20	66	210
Potassium, dissolved	32	.01	32	11	1.4	3.1	1.5	1.9	2.3	3.0	9.0
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	32	1	32	181	16	50	17	22	32	71	134
Sulfate, dissolved	32	.1	32	32	1.4	12	2.6	5.9	9.0	20	30
Chloride, dissolved	32	.1	32	420	13	65	14	22	29	93	280
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	1	<0.1	1	0.6	(d)	(b)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	4	.10	0	<.10	<.10	(b,c)	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	4	.01	4	.12	.08	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red Chute Bayou near Shreveport, Louisiana (15)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Trace metals (micrograms per liter)										
Copper, dissolved	4	20	0	<20	<20	(b,c)	(b)	(b)	(b)	(b)
Iron, dissolved	2	10	2	310	120	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	4	2	1	10	<2	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	4	20	3	40	<20	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	3	0.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)
PCB, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	3	.01	2	.03	<.01	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	3	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Red River above Shreveport, Louisiana (3)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Physical properties														
Specific conductance	251	(a)	(a)	1,820	159	657	198	349	557	919	1,370			
pH (standard units)	251	(a)	(a)	8.5	6.7	7.6	7.0	7.4	7.7	7.9	8.2			
Water temperature	247	(a)	(a)	33.0	2.5	19.7	6.5	13.0	20.5	27.0	30.5			
Dissolved oxygen (milligrams per liter)	242	(a)	(a)	13.0	5.0	8.9	6.4	7.6	8.7	10.1	11.8			
Dissolved solids (milligrams per liter)	176	(a)	(a)	1,120	98	388	128	214	326	559	777			
Major cations (milligrams per liter)														
Calcium, dissolved	242	0.01	242	110	16	46	19	28	40	64	83			
Magnesium, dissolved	242	.01	242	56	2.7	13	3.4	6.4	10	18	26			
Sodium, dissolved	158	.01	158	240	9.8	63	14	30	50	90	140			
Potassium, dissolved	160	.01	160	6.5	1.9	3.6	2.3	2.8	3.3	4.3	5.4			
Major anions (milligrams per liter)														
Alkalinity, total as CaCO ₃	249	1	249	253	41	104	48	66	91	130	193			
Sulfate, dissolved	244	.1	244	240	6.5	72	16	34	58	99	170			
Chloride, dissolved	245	.1	245	370	8.5	94	16	39	75	130	247			
Nutrients (milligrams per liter)														
Nitrogen, ammonia plus organic, total as nitrogen	176	0.1	176	3.3	0.2	0.8	0.4	0.6	0.8	0.9	1.3			
Nitrogen, nitrite plus nitrate, total as nitrogen	249	.10	142	.62	<.10	(c)	<.10	<.10	.14	.24	.45			
Phosphorus, total as phosphorus	247	.01	247	.97	.02	.16	.06	.09	.13	.19	.37			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River above Shreveport, Louisiana (3)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents											
Fecal coliform bacteria (colonies per 100 milliliters)	186	1	186	5,400	2	300	5	32	100	230	1,100
Fecal streptococcus bacteria (colonies per 100 milliliters)	124	1	124	10,000	4	640	10	40	110	420	3,400
Phytoplankton (cells per milliliter)	34	0	34	510,000	440	77,000	580	2,400	10,400	61,000	480,000
Trace metals (micrograms per liter)											
Copper, dissolved	107	2	97	13	<2	(c)	<2	3	4	7	12
Iron, dissolved	113	10	94	250	<10	(c)	<10	20	40	80	120
Lead, dissolved	113	2	52	20	<2	(c)	<2	<2	<2	3	6
Zinc, dissolved	113	20	25	90	<20	(c)	<20	<20	<20	<20	40
Organic compounds (micrograms per liter)											
DDT, total	163	0.01	3	0.02	<0.01	(c)	<0.01	<0.01	<0.01	<0.01	<0.01
PCB, total	162	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Diazinon, total	163	.01	52	.35	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Lindane, total	163	.1	1	.2	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Chlordane, total	163	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Malathion, total	163	.01	2	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Endrin, total	163	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Parathion, total	163	.01	4	.08	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Dieldrin, total	163	.01	1	.02	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Endosulfan, total	126	.01	1	.06	<.01	(c)	<.01	<.01	<.01	<.01	<.01
2,4-D, total	159	.5	2	1.0	<.5	(c)	<.5	<.5	<.5	<.5	<.5

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River above Lock and Dam No. 1 near Vick, Louisiana (47)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Physical properties														
Specific conductance	84	(a)	(a)	1,260	151	510	197	292	437	720	1080			
pH (standard units)	84	(a)	(a)	8.2	6.8	7.6	6.9	7.4	7.6	7.8	8.1			
Water temperature	82	(a)	(a)	33.0	4.0	20.9	9.1	14.8	21.0	27.1	31.8			
Dissolved oxygen (milligrams per liter)	83	(a)	(a)	11.7	5.2	8.2	5.5	6.9	8.1	9.6	11.2			
Dissolved solids (milligrams per liter)	84	(a)	(a)	745	96	293	117	176	254	412	625			
Major cations (milligrams per liter)														
Calcium, dissolved	83	0.01	83	83	15	38	16	24	35	48	74			
Magnesium, dissolved	83	.01	83	27	2.8	11	3.5	5.5	9.0	15	25			
Sodium, dissolved	83	.01	83	140	7.8	45	13	23	37	63	110			
Potassium, dissolved	84	.01	84	5.5	2.0	3.3	2.1	2.6	3.1	3.9	5.1			
Major anions (milligrams per liter)														
Alkalinity, total as CaCO ₃	83	1	83	271	37	96	46	59	80	120	197			
Sulfate, dissolved	83	.1	83	160	7.4	56	16	28	44	77	140			
Chloride, dissolved	84	.1	84	180	8.3	62	17	32	54	86	140			
Nutrients (milligrams per liter)														
Nitrogen, ammonia plus organic, total as nitrogen	84	0.1	84	1.4	0.2	0.7	0.4	0.5	0.7	0.8	1.2			
Nitrogen, nitrite plus nitrate, total as nitrogen	84	.02	73	.46	<.02	(c)	<.02	.08	.17	.24	.34			
Phosphorus, total as phosphorus	83	.01	83	.84	.02	.17	.04	.08	.14	.22	.39			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River above Lock and Dam No. 1 near Vick, Louisiana (47)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Maximum	Minimum	Mean	Percentiles				
							5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	77	4	68	1,300	<4	(c)	<4	13	56	160	680
Fecal streptococcus	81	10	73	7,200	<10	(c)	<10	32	93	240	800

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Red River at Alexandria, Louisiana (48)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	563	(a)	(a)	1,930	140	627	208	329	504	831	1,420
pH (standard units)	613	(a)	(a)	8.6	5.9	7.6	7.0	7.4	7.6	7.8	8.2
Water temperature	218	(a)	(a)	33.5	3.0	20.7	8.0	13.8	21.2	28.0	31.0
Dissolved oxygen (milligrams per liter)	210	(a)	(a)	14.2	1.0	8.4	5.8	7.3	8.2	9.7	11.6
Dissolved solids (milligrams per liter)	526	(a)	(a)	1,120	96	380	130	214	312	496	826
Major cations (milligrams per liter)											
Calcium, dissolved	391	0.01	391	120	12	45	18	25	35	62	92
Magnesium, dissolved	391	.01	391	38	2.4	12	3.7	5.4	8.7	17	28
Sodium, dissolved	220	.01	220	240	7.1	52	11	25	40	70	150
Potassium, dissolved	218	.01	218	7.0	.40	3.4	2.2	2.7	3.2	4.0	5.3
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	396	1	396	259	9	98	47	62	82	129	192
Sulfate, dissolved	611	.1	611	250	6.6	64	15	27	48	87	170
Chloride, dissolved	615	.1	615	400	9.0	101	20	43	76	130	260
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	201	0.1	201	5.0	0.2	0.9	0.4	0.6	0.8	1.1	1.7
Nitrogen, nitrite plus nitrate, total as nitrogen	189	.10	102	1.0	<.10	(c)	<.10	<.10	.16	.25	.40
Phosphorus, total as phosphorus	200	.01	200	1.1	.02	.18	.06	.10	.14	.22	.47

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Alexandria, Louisiana--continued (48)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents											
Fecal coliform bacteria (colonies per 100 milliliters)	152	1	152	33,000	4	980	8	57	160	580	3,300
Fecal streptococcus bacteria (colonies per 100 milliliters)	152	1	152	110,000	4	2,300	13	75	240	1,200	9,100
Phytoplankton (cells per milliliter)	71	0	71	1,700,000	0	1,300,000	36	1,800	11,000	54,000	910,000
Trace metals (micrograms per liter)											
Copper, dissolved	70	20	1	26	<20	(c)	<20	<20	<20	<20	<20
Iron, dissolved	84	10	68	4,300	<10	(c)	<10	13	44	99	190
Lead, dissolved	69	<5	9	19	<5	(c)	<5	<5	<5	<5	10
Zinc, dissolved	71	20	13	50	<20	(c)	<20	<20	<20	<20	30
Organic compounds (micrograms per liter)											
DDT, total	47	0.01	0	<0.01	<0.01	(c)	<0.01	<0.01	<0.01	<0.01	<0.01
PCB, total	45	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Diazinon, total	47	.01	3	.01	<.01	(c)	<.01	<.01	<.01	<.01	.01
Lindane, total	47	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Chlordane, total	47	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Malathion, total	47	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Endrin, total	47	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Parathion, total	47	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Dieldrin, total	47	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Endosulfan, total	43	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
2,4-D, total	42	.5	0	<.5	<.5	(c)	<.5	<.5	<.5	<.5	<.5

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Red River at Boyce, Louisiana (49)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	330	(a)	(a)	1,860	141	521	189	287	414	676	1,180
pH (standard units)	323	(a)	(a)	8.8	6.2	7.5	6.7	7.2	7.5	7.7	8.1
Water temperature	329	(a)	(a)	34.5	3.5	19.9	8.0	13.0	20.5	26.8	31.0
Dissolved oxygen (milligrams per liter)	327	(a)	(a)	13.8	4.7	8.5	6.1	7.2	8.3	9.7	11.7
Dissolved solids (milligrams per liter)	203	(a)	(a)	783	94	303	119	176	246	394	650
Major cations (milligrams per liter)											
Calcium, dissolved	298	0.01	298	99	12	38	16	24	32	50	77
Magnesium, dissolved	297	.01	297	32	2.5	10.4	3.4	5.2	7.6	14	24
Sodium, dissolved	173	.01	173	160	10	47	13	24	37	62	110
Potassium, dissolved	176	.01	176	6.0	1.5	3.2	2.2	2.5	3.1	3.7	5.2
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	330	1	330	299	16	91	44	59	75	114	190
Sulfate, dissolved	324	.1	324	240	2.6	53	15	25	42	69	140
Chloride, dissolved	326	.1	326	370	11	73	16	33	55	94	190
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	121	0.1	121	2.6	0.2	0.8	0.5	0.7	0.8	1.0	1.3
Nitrogen, nitrite plus nitrate, total as nitrogen	238	.10	146	.78	<.10	(c)	<.10	<.10	.15	.24	.40
Phosphorus, total as phosphorus	245	.01	245	1.1	.02	.19	.07	.12	.16	.21	.41

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Boyce, Louisiana (49)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Biological constituents--Bacteria (colonies per 100 milliliters)														
Fecal coliform	187	10	168	8,000	<10	(c)	<10	30	<20	130	540	2,000		
Fecal streptococcus	115	1	115	5,000	1	410	10	48	120	310	2,000			
Trace metals (micrograms per liter)														
Copper, dissolved	92	20	0	<20	<20	(c)	<20	<20	<20	<20	<20	<20		
Iron, dissolved	197	10	165	780	<10	(c)	<10	20	50	100	180			
Lead, dissolved	199	5	38	25	<5	(c)	<5	<5	<5	<5	12			
Zinc, dissolved	199	20	48	140	<20	(c)	<20	<20	<20	<20	30			
Organic compounds (micrograms per liter)														
DDT, total	198	0.002	32	0.040	<0.002	(c)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		
PCB, total	197	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1	<.1		
Diazinon, total	199	.01	113	.42	<.01	(c)	<.01	<.01	<.01	<.01	.01	.01		
Lindane, total	198	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01		
Chlordane, total	198	.1	1	.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1	<.1		
Malathion, total	199	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01		
Endrin, total	198	.01	1	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01		
Parathion, total	199	.01	2	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01		
Dieldrin, total	198	.01	0	.02	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01		
Endosulfan, total	81	.001	0	<.001	<.001	(c)	<.001	<.001	<.001	<.001	<.001	<.001		
2,4-D, total	199	.01	127	.23	<.01	(c)	<.01	<.01	.02	.04	.08			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Campiti, Louisiana (19)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	36	(a)	(a)	1,460	176	728	189	391	624	1,080	1,350
pH (standard units)	36	(a)	(a)	8.2	7.3	7.7	7.3	7.5	7.7	8.0	8.2
Water temperature	36	(a)	(a)	31.0	4.0	20.1	6.6	12.4	21.2	27.2	31.0
Dissolved oxygen (milligrams per liter)	35	(a)	(a)	11.6	6.6	8.6	6.8	7.4	8.4	9.6	11.0
Dissolved solids (milligrams per liter)	36	(a)	(a)	872	112	427	114	218	357	654	841
Major cations (milligrams per liter)											
Calcium, dissolved	36	0.01	36	82	9.0	48	14	30	42	72	79
Magnesium, dissolved	36	.01	36	26	3.2	14	3.2	7.0	12	22	26
Sodium, dissolved	24	.01	24	180	13	73	14	35	66	110	170
Potassium, dissolved	24	.01	24	6.0	2.4	4.0	2.4	3.2	3.9	4.8	5.9
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	36	1	36	231	43	111	44	70	86	153	212
Sulfate, dissolved	33	.1	33	170	14	79	15	38	64	120	170
Chloride, dissolved	33	.1	33	290	14	110	18	48	96	160	280
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	36	0.01	36	3.4	0.05	1.0	0.3	0.8	0.9	1.2	2.4
Nitrogen, nitrite plus nitrate, total as nitrogen	36	.10	22	.60	<.10	(c)	<.10	<.10	.20	.28	.35
Phosphorus, total as phosphorus	36	.01	36	.92	.05	.21	.07	.13	.18	.22	.84

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Campiti, Louisiana (19)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Maximum	Minimum	Mean	Percentiles				
							5th	25th	50th (median)	75th	95th
Biological constituents--Bacteria (colonies per 100 milliliters)											
Fecal coliform	32	5	28	2,800	<5	(c)	<5	22	100	200	1,600
Fecal streptococcus	34	1	34	11,000	4	840	8	50	180	510	5,700
Organic compounds (micrograms per liter)											
DDT, total	8	0.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	8	.01	7	.04	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Lindane, total	8	.001	1	.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	8	.001	1	.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	8	.01	8	.07	.01	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Red River at Coushatta, Louisiana (50)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	190	(a)	(a)	1,470	153	532	201	310	448	731	1,150
pH (standard units)	180	(a)	(a)	8.4	6.6	7.6	7.1	7.4	7.6	7.9	8.1
Water temperature	188	(a)	(a)	32.5	3.5	20.1	8.0	14.0	21.0	27.0	30.0
Dissolved oxygen (milligrams per liter)	189	(a)	(a)	13.0	5.4	8.7	6.4	7.4	8.6	9.8	11.3
Dissolved solids (milligrams per liter)	173	(a)	(a)	877	96	308	120	185	257	412	640
Major cations (milligrams per liter)											
Calcium, dissolved	131	0.01	131	82	15	40	19	25	34	51	78
Magnesium, dissolved	132	.01	132	35	1.4	11	3.4	5.5	8.2	14	26
Sodium, dissolved	134	.01	134	160	8.2	50	12	27	38	67	120
Potassium, dissolved	134	.01	134	6.5	1.3	3.4	2.2	2.7	3.2	4.1	5.4
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	149	1	149	267	40	101	48	62	85	130	200
Sulfate, dissolved	136	.1	136	220	8.8	55	15	26	46	78	120
Chloride, dissolved	138	.1	138	230	10	72	15	39	56	96	170
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	119	0.1	119	2.3	0.2	0.8	0.5	0.7	0.8	0.9	1.2
Nitrogen, nitrite plus nitrate, total as nitrogen	126	.10	74	.47	<.10	(c)	<.10	<.10	.12	.19	.34
Phosphorus, total as phosphorus	136	.01	136	.87	.04	.18	.06	.11	.15	.20	.36

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Coushatta, Louisiana (50)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--Bacteria (colonies per 100 milliliters)											
Fecal coliform	75	1	75	2,600	2	280	9	68	150	330	940
Fecal streptococcus	81	1	81	4,400	3	410	20	60	120	410	2,200
Trace metals (micrograms per liter)											
Copper, dissolved	3	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	10	10	7	70	<10	(c)	<10	<10	30	40	70
Lead, dissolved	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Zinc, dissolved	3	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Red River at Grand Ecore, Louisiana (51)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	84	(a)	(a)	1,390	162	549	186	318	454	776	1,140
pH (standard units)	84	(a)	(a)	8.3	6.9	7.6	7.1	7.4	7.6	7.9	8.2
Water temperature	81	(a)	(a)	32.0	4.0	19.9	8.0	13.2	20.0	26.5	31.0
Dissolved oxygen (milligrams per liter)	82	(a)	(a)	12.4	4.8	8.7	6.4	7.4	8.6	9.9	11.8
Dissolved solids (milligrams per liter)	84	(a)	(a)	829	97	323	112	190	264	462	653
Major cations (milligrams per liter)											
Calcium, dissolved	83	0.01	83	85	14	41	16	24	33	53	80
Magnesium, dissolved	84	.01	84	33	3.1	12	3.5	6.1	9.4	18	28
Sodium, dissolved	84	.01	84	160	8.9	50	10	26	39	72	120
Potassium, dissolved	84	.01	84	5.8	2.0	3.5	2.3	2.8	3.2	4.1	5.5
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	83	1	83	279	41	105	45	63	84	150	207
Sulfate, dissolved	83	.1	83	200	9.2	63	14	34	52	91	140
Chloride, dissolved	84	.1	84	210	12	68	13	34	55	98	160
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	84	0.1	84	1.9	0.2	0.9	0.5	0.7	0.9	1.0	1.3
Nitrogen, nitrite plus nitrate, total as nitrogen	84	.02	63	.52	<.02	(c)	<.02	<.02	.16	.21	.34
Phosphorus, total as phosphorus	84	.01	84	.66	.06	.20	.07	.13	.17	.25	.40

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Grand Ecure, Louisiana (51)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--Bacteria (colonies per 100 milliliters)											
Fecal coliform	76	1	76	3,600	2	220	4	42	100	220	730
Fecal streptococcus	81	1	81	4,300	10	360	16	50	100	310	1,400

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Lock and Dam No. 1 near Vick, Louisiana (52)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	36	(a)	(a)	1,370	192	691	206	438	578	994	1,210
pH (standard units)	36	(a)	(a)	8.2	7.1	7.7	7.1	7.5	7.7	7.9	8.2
Water temperature	36	(a)	(a)	32.0	4.5	20.8	6.2	13.9	22.5	27.4	31.2
Dissolved oxygen (milligrams per liter)	35	(a)	(a)	12.2	5.0	8.1	5.8	7.1	8.1	8.8	10.9
Dissolved solids (milligrams per liter)	36	(a)	(a)	766	107	394	117	236	334	587	712
Major cations (milligrams per liter)											
Calcium, dissolved	36	0.01	36	80	15	46	17	30	39	68	77
Magnesium, dissolved	36	.01	36	24	3.5	14	3.7	7.4	12	22	24
Sodium, dissolved	24	.01	24	160	13	72	14	40	62	110	150
Potassium, dissolved	24	.01	24	5.6	2.3	3.8	2.3	2.9	3.6	4.8	5.6
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	36	1	36	240	41	110	46	67	89	162	235
Sulfate, dissolved	33	.1	33	160	13	76	19	44	66	120	150
Chloride, dissolved	33	.1	32	260	<.1	(c)	9.8	58	88	150	210
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	36	0.01	36	2.8	0.07	1.0	0.33	0.70	0.86	1.2	2.5
Nitrogen, nitrite plus nitrate, total as nitrogen	36	.10	22	.45	<.10	(c)	<.10	<.10	.13	.24	.40
Phosphorus, total as phosphorus	35	.01	35	1.1	.05	.22	.05	.12	.16	.25	.71

Table 2.2-1-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Lock and Dam No. 1 near Vick, Louisiana (52)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--Bacteria (colonies per 100 milliliters)											
Fecal coliform	33	2	31	940	<2	(c)	<2	10	50	110	640
Fecal streptococcus	34	1	34	22,000	4	1,700	4	72	220	680	11,000
Organic compounds (micrograms per liter)											
DDT, total	8	0.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	8	.01	3	.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Lindane, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	8	.001	1	.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	8	.01	7	.09	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Moncla, Louisiana (53)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	329	(a)	(a)	1,660	142	509	196	276	413	659	1,130
pH (standard units)	325	(a)	(a)	8.5	6.0	7.5	6.8	7.3	7.5	7.8	8.1
Water temperature	335	(a)	(a)	33.0	4.0	20.1	8.0	13.5	20.5	27.0	31.0
Dissolved oxygen (milligrams per liter)	331	(a)	(a)	13.5	4.1	8.4	6.1	7.3	8.2	9.4	11.3
Dissolved solids (milligrams per liter)	199	(a)	(a)	759	90	291	118	171	246	374	609
Major cations (milligrams per liter)											
Calcium, dissolved	291	0.01	291	98	0.1	38	16	23	32	48	76
Magnesium, dissolved	292	.01	292	32	.1	10	3.5	5.0	7.8	14	24
Sodium, dissolved	173	.01	173	160	7.9	45	13	22	34	62	110
Potassium, dissolved	175	.01	175	8.0	1.8	3.3	2.1	2.6	3.1	3.9	5.1
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	328	1	328	249	33	90	44	59	74	110	181
Sulfate, dissolved	322	.1	322	210	8.0	52	15	24	40	67	130
Chloride, dissolved	320	.1	320	310	5.4	71	16	30	53	94	180
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	125	0.01	125	4.9	0.03	0.82	0.36	0.58	0.74	0.90	1.5
Nitrogen, nitrite plus nitrate, total as nitrogen	239	.10	150	.91	<.10	(c)	<.10	<.10	.16	.25	.44
Phosphorus, total as phosphorus	243	.01	243	.92	.01	.19	.06	.11	.16	.23	.46

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Moncla, Louisiana (53)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--Bacteria (colonies per 100 milliliters)											
Fecal coliform	186	1	186	3,000	2	320	5	32	120	420	1,300
Fecal streptococcus	115	1	115	8,100	2	490	7	30	100	320	2,700
Trace metals (micrograms per liter)											
Copper, dissolved	91	20	1	40	<20	(c)	<20	<20	<20	<20	<20
Iron, dissolved	194	10	158	220	<10	(c)	<10	20	50	90	160
Lead, dissolved	193	5	32	18	<5	(c)	<5	<5	<5	<5	8
Zinc, dissolved	194	20	70	90	<20	(c)	<20	<20	<20	20	40
Organic compounds (micrograms per liter)											
DDT, total	198	0.001	38	0.060	<0.001	(c)	<0.001	<0.001	<0.001	<0.001	0.020
PCB, total	198	.1	2	.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Diazinon, total	198	.01	117	.20	<.01	(c)	<.01	<.01	.01	.02	.06
Lindane, total	198	.001	1	.001	<.001	(c)	<.001	<.001	<.001	<.001	<.001
Chlordane, total	198	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1
Malathion, total	197	.01	1	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Endrin, total	198	.01	1	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Parathion, total	193	.01	2	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Dieldrin, total	194	.01	10	.03	<.01	(c)	<.01	<.01	<.01	<.01	<.01
Endosulfan, total	80	.01	1	.02	<.01	(c)	<.01	<.01	<.01	<.01	<.01
2,4-D, total	195	.01	130	.20	<.01	(c)	<.01	<.01	.02	.04	.09

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Shreveport, Louisiana (6)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	132	(a)	(a)	2,010	203	704	230	349	536	838	1,760
pH (standard units)	130	(a)	(a)	8.4	7.2	7.8	7.4	7.6	7.8	7.9	8.2
Water temperature	7	(a)	(a)	30.0	11.0	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved oxygen (milligrams per liter)	7	(a)	(a)	11.0	6.1	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	36	(a)	(a)	607	154	277	159	188	272	347	462
Major cations (milligrams per liter)											
Calcium, dissolved	130	0.01	130	130	22	53	26	31	43	64	100
Magnesium, dissolved	130	.01	130	34	1.0	11	1.1	4.9	7.6	14	31
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	128	1	128	213	47	94	50	72	82	107	171
Sulfate, dissolved	129	.1	129	280	14	81	18	31	53	98	240
Chloride, dissolved	130	.1	130	410	13	120	18	50	76	140	340

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Williams, Louisiana (16)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	37	(a)	(a)	1,440	180	759	181	400	828	1,080	1,410
pH (standard units)	37	(a)	(a)	8.5	7.2	7.8	7.2	7.6	7.7	8.0	8.5
Water temperature	36	(a)	(a)	31.5	4.0	20.0	5.7	12.4	21.2	27.4	30.6
Dissolved oxygen (milligrams per liter)	35	(a)	(a)	12.9	6.7	8.9	6.9	7.4	9.1	10.1	12.0
Dissolved solids (milligrams per liter)	36	(a)	(a)	796	101	432	104	223	422	631	789
Major cations (milligrams per liter)											
Calcium, dissolved	36	0.01	36	86	15	49	15	30	44	71	82
Magnesium, dissolved	36	.01	36	26	2.9	14	3.0	7.0	14	22	26
Sodium, dissolved	24	.01	24	170	13	77	13	42	72	120	160
Potassium, dissolved	24	.01	24	5.9	1.9	3.9	2.0	3.0	4.1	4.6	5.8
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	37	1	37	244	40	108	43	69	91	140	220
Sulfate, dissolved	33	.1	33	170	14	84	15	39	79	120	170
Chloride, dissolved	33	.1	33	310	14	120	15	50	120	160	280
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	36	0.01	36	4.0	0.05	1.1	0.43	0.70	0.94	1.4	2.8
Nitrogen, nitrite plus nitrate, total as nitrogen	36	.10	22	.60	<.10	(c)	<.10	<.10	.19	.30	.50
Phosphorus, total as phosphorus	36	.01	36	.60	.07	.19	.07	.12	.15	.23	.44

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River at Williams, Louisiana (16)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--Bacteria (colonies per 100 milliliters)											
Fecal coliform	33	1	33	5,000	5	460	10	42	190	480	2,700
Fecal streptococcus	35	1	35	5,700	18	790	23	80	200	520	5,700
Organic compounds (micrograms per liter)											
DDT, total	8	0.001	0	<0.001	<0.001	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	8	.01	5	.02	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Lindane, total	8	.001	2	.002	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	8	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	8	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	8	.001	2	.003	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	8	.001	0	<.001	<.001	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	8	.01	6	.09	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River near Alexandria, Louisiana (54)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles											
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th				
Physical properties															
Specific conductance	36	(a)	(a)	1,400	182	670	191	350	600	1,000	1,290				
pH (standard units)	36	(a)	(a)	8.3	7.2	7.7	7.3	7.5	7.7	7.9	8.2				
Water temperature	36	(a)	(a)	31.5	4.5	20.9	6.2	14.1	11.2	28.0	31.5				
Dissolved oxygen (milligrams per liter)	36	(a)	(a)	12.5	5.1	8.3	5.9	7.3	8.4	9.0	11.2				
Dissolved solids (milligrams per liter)	36	(a)	(a)	798	101	389	110	214	332	584	778				
Major cations (milligrams per liter)															
Calcium, dissolved	36	0.01	36	78	14	45	16	27	41	68	77				
Magnesium, dissolved	36	.01	36	26	3.3	13	3.3	7.0	12	21	25				
Sodium, dissolved	24	.01	24	160	12	68	13	38	58	100	150				
Potassium, dissolved	24	.01	24	5.6	2.2	3.7	2.2	3.0	3.4	4.6	5.6				
Major anions (milligrams per liter)															
Alkalinity, total as CaCO ₃	35	1	35	243	37	107	42	67	87	155	218				
Sulfate, dissolved	33	.1	33	150	13	73	15	36	71	100	140				
Chloride, dissolved	33	.1	33	240	12	100	19	52	91	160	230				
Nutrients (milligrams per liter)															
Nitrogen, ammonia plus organic, total as nitrogen	36	0.01	36	5.6	0.03	1.1	0.22	0.72	0.92	1.3	2.5				
Nitrogen, nitrite plus nitrate, total as nitrogen	36	.10	23	.4	<.10	(c)	<.10	<.10	.19	.25	.40				
Phosphorus, total as phosphorus	36	.01	36	1.0	.08	.23	.08	.14	.18	.25	.54				

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River near Alexandria, Louisiana (54)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles									
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th		
Biological constituents--Bacteria (colonies per 100 milliliters)													
Fecal coliform	34	1	34	8,200	4	500	5	30	100	320	4,500		
Fecal streptococcus	34	1	34	8,000	10	1,400	14	56	210	2,000	7,000		
Organic compounds (micrograms per liter)													
DDT, total	13	0.01	1	0.02	<0.01	(c)	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	
PCB, total	13	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1	<.1	
Diazinon, total	13	.01	9	.02	<.01	(c)	<.01	<.01	.01	.02	.02	.02	
Lindane, total	13	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01	
Chlordane, total	13	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1	<.1	<.1	
Malathion, total	13	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01	
Endrin, total	13	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01	
Parathion, total	13	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01	
Dieldrin, total	13	.01	1	.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	.01	
Endosulfan, total	13	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01	<.01	<.01	
2,4-D, total	13	.1	1	.3	<.1	(c)	<.1	<.1	<.1	<.1	<.1	.3	

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River near Hosston, Louisiana (2)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	840	(a)	(a)	1,850	158	697	229	371	604	930	1,470
pH (standard units)	837	(a)	(a)	8.4	6.4	7.5	6.9	7.3	7.5	7.7	7.9
Water temperature	136	(a)	(a)	32.0	2.5	18.6	6.4	12.0	19.0	26.0	30.5
Dissolved oxygen (milligrams per liter)	94	(a)	(a)	12.6	5.8	8.6	6.4	7.3	8.5	9.7	12.0
Dissolved solids (milligrams per liter)	776	(a)	(a)	1,190	94	431	157	234	367	572	914
Major cations (milligrams per liter)											
Calcium, dissolved	805	0.01	805	140	17	51	25	34	47	64	93
Magnesium, dissolved	805	.01	805	360	.41	14	3.1	6.0	9.8	17	29
Sodium, dissolved	680	.01	680	250	4.4	79	15	35	66	110	180
Potassium, dissolved	665	.01	665	12	.80	3.4	2.0	2.6	3.2	3.8	5.6
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	812	1	812	220	38	97	57	71	90	117	157
Sulfate, dissolved	832	.1	832	260	9.4	75	17	34	61	100	180
Chloride, dissolved	838	.1	838	390	4.6	110	19	48	91	160	280
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	3	0.1	3	1.7	0.6	(b)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	39	.01	39	.47	.01	.17	.01	.04	.16	.22	.46
Phosphorus, total as phosphorus	22	.01	22	.82	.04	.17	.04	.09	.14	.20	.75

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River near Hosston, Louisiana (2)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Biological constituents--Bacteria (colonies per 100 milliliters)										
Fecal coliform	4	5	3	190	<5	(b,c)	(b)	(b)	(b)	(b)
Fecal streptococcus	2	1	2	86	33	(b)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)										
Copper, dissolved	7	1	0	30	4	(b)	(h)	(b)	(b)	(b)
Iron, dissolved	86	10	71	450	<10	(c)	<10	20	50	80
Lead, dissolved	92	5	18	18	<5	(c)	<5	<5	<5	11
Zinc, dissolved	91	20	38	230	<20	(c)	<20	<20	<20	50
Organic compounds (micrograms per liter)										
DDT, total	85	0.01	8	0.02	<0.01	(c)	<0.01	<0.01	<0.01	0.02
PCB, total	84	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1
Diazinon, total	85	.01	45	.23	<.01	(c)	<.01	<.01	.01	.07
Lindane, total	85	.01	1	.01	<.01	(c)	<.01	<.01	<.01	<.01
Chlordane, total	85	.1	0	<.1	<.1	(c)	<.1	<.1	<.1	<.1
Malathion, total	85	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01
Endrin, total	85	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01
Parathion, total	83	.01	0	<.01	<.01	(c)	<.01	<.01	<.01	<.01
Dieldrin, total	85	.01	5	.01	<.01	(c)	<.01	<.01	<.01	.01
2,4-D, total	86	.01	48	.21	<.01	(c)	<.01	<.01	.02	.03

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River near Simmesport, Louisiana (55)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	79	(a)	(a)	1,350	117	433	132	191	328	576	1,170
pH (standard units)	79	(a)	(a)	8.1	5.9	7.1	6.4	6.8	7.1	7.5	7.8
Water temperature	77	(a)	(a)	34.0	1.0	20.2	8.0	13.0	20.5	27.5	32.1
Dissolved oxygen (milligrams per liter)	78	(a)	(a)	13.2	3.4	7.7	4.6	6.5	7.5	8.9	11.2
Dissolved solids (milligrams per liter)	77	(a)	(a)	1,330	78	257	91	121	187	309	735
Major cations (milligrams per liter)											
Calcium, dissolved	76	0.01	76	72	8.1	27	9.3	14	21	36	68
Magnesium, dissolved	76	.01	76	25	2.0	7.2	2.5	3.4	5.5	9.8	19
Sodium, dissolved	76	.01	76	150	9.3	43	11	15	33	60	130
Potassium, dissolved	77	.01	77	5.5	1.8	3.1	1.9	2.4	2.9	3.7	5.0
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	76	1	76	191	20	68	24	36	53	90	158
Sulfate, dissolved	78	.1	78	160	8.8	37	11	16	28	48	100
Chloride, dissolved	78	.1	78	250	12	67	16	24	50	92	210
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	73	0.1	71	2.7	<0.1	(c)	0.5	0.8	1.0	1.2	2.1
Nitrogen, nitrite plus nitrate, total as nitrogen	75	.01	75	1.4	.03	.29	.09	.17	.24	.34	.69
Phosphorus, total as phosphorus	76	.01	76	.54	.01	.16	.06	.11	.14	.18	.33

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Red River near Simmesport, Louisiana (55)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents											
Fecal coliform bacteria (colonies per 100 milliliters)	75	1	75	3,900	3	240	5	20	60	260	1,000
Fecal streptococcus bacteria (colonies per 100 milliliters)	75	1	75	52,000	5	2,500	19	120	540	2,000	11,000
Phytoplankton (cells per milliliter)	26	0	26	740,000	190	96,000	230	3,100	9,600	120,000	640,000
Trace metals (micrograms per liter)											
Copper, dissolved	31	1	31	60	2	8	3	4	6	8	30
Iron, dissolved	35	10	33	630	<10	(c)	<10	20	80	180	330
Lead, dissolved	32	2	2	5	<2	(c)	<2	<2	<2	2	5
Zinc, dissolved	34	20	12	40	<20	(c)	<20	<20	<20	20	30

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Saline Bayou near Clarence, Louisiana (32)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	104	(a)	(a)	5,520	55	560	64	89	152	367	3,760
pH (standard units)	104	(a)	(a)	7.9	5.7	6.9	6.1	6.4	7.0	7.2	7.6
Water temperature	42	(a)	(a)	30.0	5.5	20.0	8.2	14.0	19.8	27.0	30.0
Dissolved oxygen (milligrams per liter)	4	(a)	(a)	12.6	3.6	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	52	(a)	(a)	3,020	51	320	60	81	94	246	2,500
Major cations (milligrams per liter)											
Calcium, dissolved	104	0.01	104	94	2.6	13	3.0	4.0	5.4	9.9	68
Magnesium, dissolved	104	.01	104	43	.60	5.2	.92	1.5	2.1	4.4	24
Sodium, dissolved	57	.01	57	1,000	4.6	130	7.4	14	21	81	920
Potassium, dissolved	57	.01	57	16	.60	2.6	.70	1.5	1.9	2.3	6.9
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	93	1	93	303	7	33	8	11	16	30	144
Sulfate, dissolved	104	.1	104	91	.8	7.1	1.9	3.7	5.8	7.4	17
Chloride, dissolved	104	.1	104	1,700	6.9	150	9.0	14	30	84	1,100
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	4	0.01	4	3.0	0.47	(b)	(b)	(b)	(b)	(b)	(b)
Nitrogen, nitrite plus nitrate, total as nitrogen	4	.01	4	.40	.05	(b)	(b)	(b)	(b)	(b)	(b)
Phosphorus, total as phosphorus	4	.01	4	.90	.03	(b)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Saline Bayou near Clarence, Louisiana (32)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Biological constituents--Bacteria (colonies per 100 milliliters)										
Fecal coliform	4	5	3	520	<5	(b,c)	(b)	(b)	(b)	(b)
Fecal streptococcus	4	1	4	1,700	60	(b)	(b)	(b)	(b)	(b)
Trace metals (micrograms per liter)										
Copper, dissolved	1	1	1	2	(d)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	2	10	2	1,700	50	(b,c)	(b)	(b)	(b)	(b)
Lead, dissolved	1	10	0	<10	(d)	(b,c)	(b)	(b)	(b)	(b)
Zinc, dissolved	1	10	0	<10	(d)	(b,c)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)										
DDT, total	1	0.01	0	<0.01	(d)	(b,c)	(b)	(b)	(b)	(b)
PCB, total	1	.1	0	<.1	(d)	(b,c)	(b)	(b)	(b)	(b)
Diazinon, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Lindane, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	1	.1	0	<.1	(d)	(b,c)	(b)	(b)	(b)	(b)
Malathion, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Parathion, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	1	.01	0	<.01	(d)	(b,c)	(b)	(b)	(b)	(b)
2,4-D, total	1	.01	1	.04	(d)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Saline Bayou near Lucky, Louisiana (29)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	29	(a)	(a)	322	26	82	28	35	45	101	284
pH (standard units)	29	(a)	(a)	7.9	5.1	6.1	5.1	5.8	6.1	6.2	7.2
Water temperature	4	(a)	(a)	23.0	12.0	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	4	(a)	(a)	203	126	(b)	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)											
Calcium, dissolved	28	0.01	28	8.7	0.90	2.5	0.94	1.6	2.0	2.5	7.5
Magnesium, dissolved	28	.01	28	1.8	.20	.82	.24	.42	.75	1.1	1.8
Sodium, dissolved	21	.01	21	51	1.5	9.7	1.5	3.0	4.1	5.0	50
Potassium, dissolved	21	.01	21	2.2	.90	1.2	.90	1.0	1.2	1.2	2.1
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	29	1	29	17	3	7	3	5	7	10	14
Sulfate, dissolved	28	.1	28	6.4	.6	2.2	.6	1.2	1.6	3.2	6.0
Chloride, dissolved	29	.1	29	86	2.0	18	2.2	4.5	7.0	22	76

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Simmons Branch near Bellwood, Louisiana (56)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	25	(a)	(a)	43	23	36	24	33	37	40	43
pH (standard units)	26	(a)	(a)	7.4	5.3	6.4	5.4	6.0	6.4	6.7	7.3
Water temperature	26	(a)	(a)	28.0	10.0	19.9	10.5	14.0	20.8	24.4	27.8
Dissolved oxygen (milligrams per liter)	24	(a)	(a)	11.8	7.6	8.9	7.6	7.9	8.4	10.1	11.6
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	26	1	26	7	2	4	2	3	4	5	7

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 State Line Creek at Highway 1 near Rodessa, Louisiana (57)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles										
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th			
Physical properties														
Specific conductance	20	(a)	(a)	1,340	30	200	32	98	106	160	1,300			
pH (standard units)	15	(a)	(a)	7.5	5.1	6.4	5.1	6.2	6.5	6.7	7.5			
Water temperature	18	(a)	(a)	26.0	5.0	15.7	5.0	11.2	15.0	20.2	26.0			
Dissolved oxygen (milligrams per liter)	13	(a)	(a)	10.2	1.4	6.1	1.4	5.0	6.2	7.4	10.2			
Major cations (milligrams per liter)														
Calcium, dissolved	5	0.01	5	64	4.0	(b)	(b)	(b)	(b)	(b)	(b)			
Magnesium, dissolved	5	.01	5	12	2.0	(b)	(b)	(b)	(b)	(b)	(b)			
Sodium, dissolved	1	.01	1	180	(d)	(b)	(b)	(b)	(b)	(b)	(b)			
Major anions (milligrams per liter)														
Alkalinity, total as CaCO ₃	15	1	15	35	2	12	2	5	9	13	35			
Sulfate, dissolved	7	.1	6	21	<1.0	(b,c)	(b)	(b)	(b)	(b)	(b)			
Chloride, dissolved	20	.1	20	400	6.5	52	6.9	20	26	38	390			
Nutrients (milligrams per liter)														
Phosphorus, total as phosphorus	6	.01	6	.12	.02	(b)	(b)	(b)	(b)	(b)	(b)			
Organic compounds (micrograms per liter)														
DDT, total	2	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)			
Endrin, total	2	.01	0	<0.1	<0.1	(b,c)	(b)	(b)	(b)	(b)	(b)			
Dieldrin, total	2	.01	0	<0.1	<0.1	(b,c)	(b)	(b)	(b)	(b)	(b)			
Endosulfan, total	2	.01	0	<0.1	<0.1	(b,c)	(b)	(b)	(b)	(b)	(b)			

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Steep Hill Branch near Lotus, Louisiana (58)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	25	(a)	(a)	34	18	26	19	24	25	28	33
pH (standard units)	26	(a)	(a)	6.3	4.6	5.5	4.7	5.3	5.5	5.7	6.2
Water temperature	26	(a)	(a)	26.0	8.0	18.8	9.0	13.8	20.8	23.2	25.3
Dissolved oxygen (milligrams per liter)	24	(a)	(a)	11.2	5.5	8.1	5.6	6.6	7.6	9.8	11.1
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	25	1	20	3	<1	(c)	<1	1	1	2	3

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Twelvemile Bayou near Dixie, Louisiana (59)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	169	(a)	(a)	21,300	78	1,490	102	170	285	970	9,560
pH (standard units)	166	(a)	(a)	8.6	5.8	6.9	6.2	6.5	6.8	7.3	7.7
Water temperature	112	(a)	(a)	34.0	1.5	19.8	4.3	12.6	20.0	27.5	33.0
Dissolved oxygen (milligrams per liter)	96	(a)	(a)	13.4	5.9	9.0	6.3	7.8	8.8	10.2	12.8
Dissolved solids (milligrams per liter)	114	(a)	(a)	5,590	53	426	66	93	127	436	1,790
Major cations (milligrams per liter)											
Calcium, dissolved	117	0.01	117	170	3.7	30	4.9	7.2	9.8	34	120
Magnesium, dissolved	117	.01	117	120	1.5	18	2.1	2.8	3.7	18	88
Sodium, dissolved	116	.01	116	1,700	6.6	92	9.2	14	22	79	370
Potassium, dissolved	116	.01	116	14	.70	3.2	2.2	2.6	2.9	3.3	5.3
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	166	1	166	305	8	61	11	15	23	77	259
Sulfate, dissolved	117	.1	117	380	7.0	50	9.6	12	16	45	230
Chloride, dissolved	117	.1	117	4,300	9.7	200	14	23	39	160	720
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	95	0.1	95	3.8	0.3	0.9	0.4	0.6	0.8	1.0	1.6
Nitrogen, nitrite plus nitrate, total as nitrogen	63	.10	17	2.3	<.10	(c)	<.10	<.10	<.10	.10	.58
Phosphorus, total as phosphorus	93	.01	92	.31	<.01	(c)	.03	.05	.06	.09	.23

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Twelvemile Bayou near Dixie, Louisiana (59)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents											
Fecal coliform bacteria (colonies per 100 milliliters)	92	1	92	5,000	3	290	4	12	40	94	2,400
Fecal streptococcus bacteria (colonies per 100 milliliters)	91	1	91	9,700	12	910	23	80	230	760	5,300
Phytoplankton (cells per milliliter)	21	0	21	970,000	6,000	150,000	6,100	20,000	49,000	160,000	940,000
Trace metals (micrograms per liter)											
Copper, dissolved	62	10	2	33	<10	(c)	<10	<10	<10	<10	10
Iron, dissolved	71	10	63	820	<10	(c)	<10	40	150	360	600
Lead, dissolved	62	50	0	<50	<50	(c)	<50	<50	<50	<50	<50
Zinc, dissolved	62	20	9	43	<20	(c)	<20	<20	<20	<20	20
Organic compounds (micrograms per liter)											
Lindane, total	3	0.03	0	<0.03	<0.03	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	3	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	3	.06	0	<.06	<.06	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	3	.02	0	<.02	<.02	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
 Twelvemile Bayou near Mooringsport, Louisiana (60)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	12	(a)	(a)	273	97	162	97	123	143	194	273
pH (standard units)	12	(a)	(a)	7.3	6.6	6.9	6.6	6.8	7.0	7.1	7.3
Water temperature	12	(a)	(a)	30.5	8.0	20.5	8.0	12.0	21.5	29.5	30.5
Dissolved oxygen (milligrams per liter)	12	(a)	(a)	11.6	6.5	8.7	6.5	7.3	9.0	9.8	11.6
Dissolved solids (milligrams per liter)	12	(a)	(a)	150	70	100	70	81	86	122	150
Major cations (milligrams per liter)											
Calcium, dissolved	12	0.01	12	14	4.4	8.3	4.4	6.0	7.4	11	14
Magnesium, dissolved	12	.01	12	6.6	2.1	3.7	2.1	2.6	3.0	4.7	6.6
Sodium, dissolved	12	.01	12	24	8.6	15	8.6	11	12	18	24
Potassium, dissolved	12	.01	12	3.9	2.5	2.9	2.5	2.6	2.8	3.1	3.9
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	12	1	12	51	13	26	13	15	25	34	51
Sulfate, dissolved	12	.1	12	15	6.4	11	6.4	10	12	13	15
Chloride, dissolved	12	.1	12	42	13	24	13	18	21	30	42
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	12	0.01	12	1.3	0.45	0.75	0.45	0.56	0.72	0.86	1.3
Nitrogen, nitrite plus nitrate, total as nitrogen	12	.02	10	.14	<.02	(c)	<.02	.02	.04	.07	.14
Phosphorus, total as phosphorus	11	.01	11	.27	.02	.08	.02	.06	.07	.09	.27

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Twelvemile Bayou near Mooringsport, Louisiana (60)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles						
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th
Biological constituents--bacteria (colonies per 100 milliliters)										
Fecal coliform	9	1	9	140	18	(b)	(b)	(b)	(b)	(b)
Fecal streptococcus	12	1	12	1,100	38	270	38	55	140	390
Trace metals (micrograms per liter)										
Copper, dissolved	12	10	0	<10	<10	(c)	<10	<10	<10	<10
Iron, dissolved	12	10	12	400	20	190	20	40	190	340
Lead, dissolved	12	50	0	<50	<50	(c)	<50	<50	<50	<50
Zinc, dissolved	12	10	2	10	<10	(c)	<10	<10	<10	<10
Organic compounds (micrograms per liter)										
Lindane, total	2	0.03	0	<0.03	<0.03	(b,c)	(b)	(b)	(b)	(b)
Chlordane, total	2	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)
Endrin, total	2	.06	0	<.06	<.06	(b,c)	(b)	(b)	(b)	(b)
Dieldrin, total	2	.02	0	<.02	<.02	(b,c)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Wallace Lake near Frierson, Louisiana (22)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	11	(a)	(a)	664	87	215	87	116	192	214	664
pH (standard units)	11	(a)	(a)	9.0	6.1	7.1	6.1	6.5	7.1	7.3	9.0
Water temperature	3	(a)	(a)	34.0	10.0	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	4	(a)	(a)	398	91	(b)	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)											
Calcium, dissolved	11	0.01	11	36	5.6	12	5.6	6.0	12	13	36
Magnesium, dissolved	11	.01	11	13	2.4	5.1	2.4	2.9	4.9	5.9	13
Sodium, dissolved	7	.01	7	86	5.4	(b)	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	7	.01	7	6.5	2.4	(b)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	11	1	11	171	19	53	19	25	48	57	171
Sulfate, dissolved	11	.1	11	64	3.5	17	3.5	6.9	14	16	64
Chloride, dissolved	11	.1	11	66	7.5	22	7.5	12	19	26	66

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
West Branch Dolet Bayou at Ramin, Louisiana (25)

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	20	(a)	(a)	553	99	194	99	146	174	202	539
pH (standard units)	20	(a)	(a)	7.0	4.8	6.0	4.8	5.5	6.0	6.6	7.0
Water temperature	20	(a)	(a)	28.5	2.5	14.9	2.6	7.1	16.0	19.5	28.4
Dissolved oxygen (milligrams per liter)	19	(a)	(a)	10.8	2.0	5.8	2.0	3.7	4.6	9.6	10.8
Dissolved solids (milligrams per liter)	20	(a)	(a)	366	77	139	77	98	123	157	358
Major cations (milligrams per liter)											
Calcium, dissolved	20	0.01	20	28	4.1	8.7	4.1	5.4	6.2	11	27
Magnesium, dissolved	20	.01	20	19	2.4	5.4	2.4	3.5	4.0	6.8	18
Sodium, dissolved	20	.01	20	47	7.9	19	7.9	13	18	22	46
Potassium, dissolved	20	.01	20	4.2	.90	2.3	.94	1.7	2.0	2.8	4.2
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	20	1	20	74	1	20	1	6	16	28	73
Sulfate, dissolved	20	.1	20	160	1.3	26	1.5	11	14	25	160
Chloride, dissolved	20	.1	20	61	10	28	10	18	28	35	60
Nutrients (milligrams per liter)											
Nitrogen, ammonia plus organic, total as nitrogen	20	0.1	20	3.0	0.3	1.2	0.3	0.6	0.9	1.9	3.0
Nitrogen, nitrite plus nitrate, total as nitrogen	20	.10	1	.10	<.10	(c)	<.10	<.10	<.10	<.10	<.10
Phosphorus, total as phosphorus	20	.01	20	.70	.01	.19	.01	.09	.15	.25	.68

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
West Branch Dolet Bayou at Rambin, Louisiana (25)--continued

Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Biological constituents--bacteria (colonies per 100 milliliters)											
Fecal coliform	19	1	19	420	24	170	24	96	160	240	420
Fecal streptococcus	20	1	20	4,900	10	1,200	12	130	660	2,000	4,800
Trace metals (micrograms per liter)											
Copper, dissolved	5	1	5	8	2	(b)	(b)	(b)	(b)	(b)	(b)
Iron, dissolved	5	10	5	2,100	440	(b)	(b)	(b)	(b)	(b)	(b)
Lead, dissolved	5	1	4	4	<1	(b,c)	(b)	(b)	(b)	(b)	(b)
Zinc, dissolved	5	10	5	50	10	(b)	(b)	(b)	(b)	(b)	(b)
Organic compounds (micrograms per liter)											
DDT, total	5	0.01	0	<0.01	<0.01	(b,c)	(b)	(b)	(b)	(b)	(b)
PCB, total	5	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Diazinon, total	5	.01	1	.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Lindane, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Chlordane, total	5	.1	0	<.1	<.1	(b,c)	(b)	(b)	(b)	(b)	(b)
Malathion, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endrin, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Parathion, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Dieldrin, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
Endosulfan, total	5	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)
2,4-D, total	4	.01	0	<.01	<.01	(b,c)	(b)	(b)	(b)	(b)	(b)

Table 2.2-1. Statistical summary of water-quality data for the Red River basin in Louisiana, 1943-94--Continued
Youngs Bayou at Natchitoches, Louisiana (33)

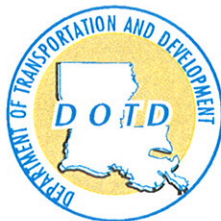
Water-quality property or constituent	Number of analyses	Reporting level	Number of analyses greater than or equal to reporting level	Percentiles							
				Maximum	Minimum	Mean	5th	25th	50th (median)	75th	95th
Physical properties											
Specific conductance	12	(a)	(a)	466	75	187	75	140	156	220	466
pH (standard units)	12	(a)	(a)	7.1	5.7	6.2	5.7	5.7	6.0	6.4	7.1
Water temperature	2	(a)	(a)	14.0	13.0	(b)	(b)	(b)	(b)	(b)	(b)
Dissolved solids (milligrams per liter)	2	(a)	(a)	264	75	(b)	(b)	(b)	(b)	(b)	(b)
Major cations (milligrams per liter)											
Calcium, dissolved	12	0.01	12	33	2.7	11	2.7	7.4	8.6	12	33
Magnesium, dissolved	12	.01	12	10	1.5	4.8	1.5	2.3	4.6	6.6	10
Sodium, dissolved	8	.01	8	34	5.2	(b)	(b)	(b)	(b)	(b)	(b)
Potassium, dissolved	8	.01	8	6.3	1.1	(b)	(b)	(b)	(b)	(b)	(b)
Major anions (milligrams per liter)											
Alkalinity, total as CaCO ₃	12	1	12	92	7	33	7	9	20	56	92
Sulfate, dissolved	12	.1	12	58	1.2	24	1.2	12	22	34	58
Chloride, dissolved	12	.1	12	43	5.2	17	5.2	14	16	20	43

a Not applicable.

b Not calculated because sample size was less than 10.

c Not calculated because data base contained remarked values.

d Only one sample in data base.



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Water Resources Cooperative Program

The Louisiana Department of Transportation and Development-U.S. Geological Survey (DOTD-USGS) Water Resources Cooperative Program is comprehensive and responsive to the needs and concerns of Louisiana-- providing hydrologic information to aid in the management, development, and protection of the State's water resources and transportation system.

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