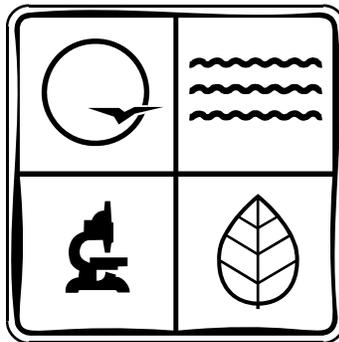


MISSOURI
WATER QUALITY REPORT
(SECTION 305(b) REPORT)

2006

MISSOURI DEPARTMENT OF NATURAL RESOURCES



WATER PROTECTION PROGRAM

P O Box 176
Jefferson City, Missouri 65102

April 1, 2007

TABLE OF CONTENTS

<u>Chapters</u>	<u>Page</u>
1 Executive Summary	1
Water Resources and Problems	1
Northern and Western Missouri	1
The Ozark Plateau	1
The Mississippi Embayment	2
Alluvial Aquifers	2
Water Pollution Control Activities	2
Point Source Controls	2
Nonpoint Source Controls	3
Costs and Benefits	3
State Concerns	4
2 Missouri and Its Waters	8
3 Surface Water Assessment	9
Description of Missouri’s Current Water Quality Monitoring Program	9
Purpose	9
Coordination with Other Monitoring Efforts in Missouri	9
Networks and Programs	9
Fixed Station Networks	9
Intensive Surveys	10
Toxics Monitoring Program	10
Biological Monitoring Program	10
Fish Tissue	11
Laboratory Analytical Support	11
Quality Assurance/Quality Control Program	11
Data Storage and Management	11
Training and Support of Volunteer Monitoring	12
Data Interpretation and Communication	12
Sharing Data with the Public	13
Monitoring Program Evaluations	13
Assessment Methodology	13
Water Quality Assessment	18
Additional Information on Missouri Lakes	19
Summary Statistics	19
Background	19
Trophic Status	19
Controlling Pollution in Lakes	24

<u>Chapters Continued</u>	<u>Page</u>
Status of Wetlands	25
4 Groundwater Assessment	27
Background	27
Well Construction and Groundwater Quality	27
Major Potable Aquifers	27
Glacial Till Aquifer	28
Alluvial Aquifer	28
Wilcox-McNairy Aquifer	28
Ozark-St. Francis Aquifer	28
Springfield Aquifer	29
Groundwater Quality Summary Tables	29
Summary of Groundwater Protection Programs	30

<u>List of Tables</u>	<u>Page</u>
1 Beneficial Use Support Status of Missouri Classified Waters	5
2 Individual Use Support Summary for Classified Waters	5
3 Major Water Pollution Sources in Missouri Classified Waters	6
4 Major Contaminants in Missouri Classified Waters	6
5 Missouri's Water Resources	8
6 Missouri Waters Protected for Various Uses	14
7 Methods for Assessing Compliance with Water Quality Standards	15
8 Summary of Monitored and Evaluated Waters	18
9 Trophic Status of Selected Missouri Lakes and Reservoirs	19
10 Definition of Trophic Classification	24
11 Major Sources of Groundwater Contamination	29
12 Groundwater Contamination Summary	31
13 Aquifer Monitoring Data	32
14 Summary of Groundwater Protection Programs	35
15 2006 Missouri Section 303(d) List, as Approved by the Missouri Clean Water Commission	38
16 Other Impaired Waters of Missouri	41
17 Potentially Impaired Classified Waters	45
18 Tentative Schedule for the Completion of Total Maximum Daily Load Studies	79

List of Appendices

1	Impaired or Potentially Impaired Waters of Missouri	38
	Table 15. 2006 Missouri Section 303(d) List, as Approved by the Missouri Clean Water Commission	38
	Table 16. Other Impaired Waters in Missouri	41
	Table 17. Potentially Impaired Classified Waters	45
2	Total Maximum Daily Load Completion Schedule	79
	Table 18. Tentative Schedule for the Completion of Total Maximum Daily Load Studies	79
3	Additional Information	CD
	Assessment Database 2007 (.zip)	
	Listing Methodology Document 2006 (.pdf)	
	Water Quality Data	
	Water Quality Data Files (.doc)	
	HUCS	
	Other Data	
	Water Quality Worksheets	

CHAPTER 1. EXECUTIVE SUMMARY

The Missouri Water Quality Report is published every two years. The report summarizes water quality issues and judges the degree of progress Missouri has made toward meeting Federal Clean Water Act goals. The water quality assessments made in this report will help direct future water quality management efforts to those waters most in need of restoration or protection.

WATER RESOURCES AND PROBLEMS

Missouri has an area of 69,000 square miles and a population of 5.6 million people, according to the 2000 census. About half of the population is concentrated on opposite sides of the state in the Kansas City and St. Louis metro areas, leaving most of the state and its waters rural in nature. Surface and groundwater in Missouri are quite varied in quantity and quality, corresponding closely with geology and land use.

Northern and Western Missouri

Northern and western Missouri, originally prairie land, are now used primarily for crop and livestock production and are underlain by bedrock containing several relatively impermeable shale and clay layers. Surface waters are more turbid and are greatly affected by high rates of sediment deposition. These deposits, caused by soil erosion, result in poor aquatic habitat due to the fine, unstable materials of stream bottoms. Up to 8,000 miles of classified streams may be affected by these processes or other types of degradation of aquatic habitat, such as flow modification or channelization.

Rivers and reservoirs used as drinking water supplies often contain herbicides. In the recent past, several reservoirs that served as public drinking reservoirs exceeded drinking water standards for atrazine or health advisory levels for cyanazine. Currently, however, there are no actively used drinking water reservoirs for which atrazine or cyanazine exceed these levels. This is due in part to local watershed management programs aimed at reducing herbicide runoff. Several other herbicides are occasionally found in drinking water reservoirs, also at concentrations below health advisory levels.

The quality of groundwater in northern and western Missouri is also influenced by the geology of the area. Public water supply sources include reservoirs and wells. The wells obtain water from glacial drift deposits primarily in portions of north-central and western Missouri. Wells in western Missouri, south of Kansas City, obtain water from limestone aquifers except for the extreme western limits of Missouri near the state border with Kansas. Private water supplies are obtained from glacial drift deposits and from underlying limestone bedrock in portions of northwestern, central, eastern and northeastern Missouri. However, deep bedrock wells in many north-central and northwestern Missouri locations tap water supplies too mineralized for drinking water purposes. About one-quarter of private wells in this portion of Missouri exceed the drinking water standard for nitrate and about two percent exceed drinking water standards for pesticides. This contamination is often caused by localized surface contamination of the wellhead and does not represent widespread contamination of the underground aquifer. Deeper aquifers are well protected from surface contamination by impermeable strata.

The Ozark Plateau

The Ozark Plateau, including the Springfield Plateau, is predominantly hilly topography. There are some very rugged portions as well as significant areas of gentle to almost flat landscape. The bedrock, consisting of limestone, dolomite and sandstone, yields groundwater of excellent quality generally requiring no treatment and adequate in supply for most urban, industrial and other needs. The soil or subsoil has developed by weathering from the bedrock formations and is generally 20 to 80 feet thick.

Some areas have extremely thin soils and other locations where weathering has been extensive have a thickness of 100 feet and more. The subsoil has moderate to high infiltration rates, which contribute to the recharge of groundwater supplies. Ozark streams are generally clear with baseflows well sustained by many seeps and springs. Some streams and reservoirs in the Ozarks are becoming nutrient and algae enriched due to increasing human population and domestic animal production in their watersheds.

Groundwater contamination risks are moderate to high due to the permeability of the soil and bedrock. Any number of surface activities, including agricultural and suburban-urban storm water and wastewater disposal, mining, storm water runoff, lawn care, improper well construction or closure, and individual on-site wastewater disposal practices, pose threats to surface water and groundwater quality. However, overall water quality remains good in large part due to the efforts of all parties to protect the aquifers.

Groundwater is relied upon heavily for drinking water supply in this part of Missouri. Most municipalities in the southern half of the state rely on groundwater for drinking water supply. The number of private drinking water wells statewide is not known, but is probably between 100,000 and 250,000, mostly south of the Missouri River. The major groundwater concern is the often rapid and unfiltered transmission of contaminated surface runoff or leachate from some septic tanks, underground storage tanks, landfills, dumps, and liquid waste storage ponds, and animal production or processing wastes through fractures or sinkholes directly into potable aquifers. Properly cased wells into deep aquifers rarely encounter water quality problems, but shallow or improperly cased wells are at risk.

In the Joplin area, the shallow bedrock aquifer has elevated levels of sulfate and several heavy metals due to mineralization of groundwater in flooded mines. Some private wells in this area exceed drinking water standards for lead or cadmium. Localized contamination of shallow private wells due to leaks, spills and improper disposal of industrial or commercial chemicals occurs in the larger metro areas of Springfield and Joplin.

The Mississippi Embayment

Missouri's southeastern corner is a large alluvial plain of the Mississippi River. Originally a vast system of wetlands, it has been drained and almost entirely converted to crop production. Almost all surface waters in the area are drainage ditches and may not attain beneficial uses because of degradation of aquatic habitat due to channelization. Channelization creates a homogenous, low quality aquatic habitat. Sloughing of the channel banks, which fills the channel bottoms, buries better habitat and leaves unstable substrate, is a problem.

Groundwater is abundant due to high infiltration rates on these flat fields. Public water supplies that tap deeper aquifers provide good quality water, but shallow private wells commonly have nitrates and low levels of pesticides. The frequency of exceedence of drinking water standards for nitrates and pesticides in private wells is similar to northern Missouri, about 18 percent and two percent, respectively.

Alluvial Aquifers

The remaining major aquifer is the alluvial aquifer system of the major rivers of the state. In northern Missouri, where surface and deep aquifer supplies are unreliable, many towns depend on the alluvial aquifer of a large nearby stream. Landfills and industrial land use in Kansas City and St. Louis have historically been located on river floodplains and have caused local contamination of the Mississippi, Missouri and Meramec river aquifers in St. Louis and the Missouri River aquifer in Kansas City. Some municipal water supplies have been affected.

WATER POLLUTION CONTROL ACTIVITIES

Authority for enforcement of the Missouri Clean Water Law and for state regulations concerning water pollution resides with the Department of Natural Resources' Water Protection Program. Authority for the regulation of pesticides rests with the Missouri Department of Agriculture.

Point Source Controls

The number of miles of classified streams judged to be impaired by point source wastewater discharges is similar to the estimate from 1984, when statewide data on stream quality first became available. In 1984, 105 miles of classified stream were judged to be impaired by domestic or industrial wastewater. Domestic and industrial discharges include wastewater from cities, subdivisions, apartment complexes, mobile home parks, businesses and industries. Stream miles impaired by point source discharges in more recent years were 91 miles in 1998, 93 miles in 2000, 104 miles in 2002, 101 miles in 2004, and 83 miles in 2006. The decrease in impaired mileage during the

current reporting cycle may be due in part to evolving data requirements and analytical methods, as prescribed by Missouri's 303(d) Listing Methodology.

Hog and poultry production in concentrated animal feeding operations (CAFOs) are now major industries in Missouri. The large amount of animal waste generated at these facilities requires proper management to prevent water pollution. CAFOs are incorporated into the point source permit program, consistent with federal requirements.

Concern over eutrophication of large, recreationally important reservoirs led to changes in the state regulations for discharges of wastewater. These regulations impose phosphorus concentration limits on most wastewater discharges in the Table Rock Reservoir and Lake Taneycomo watersheds.

Nonpoint Source Controls

In recent years, several different types of nonpoint sources of pollution have come under regulatory control through a permitting process. Regulations are in place to prevent leakage from underground storage tanks and for the secondary containment of bulk agricultural chemical storage sites. Large sand and gravel mining operations require a general permit for storm water and smaller operations have been provided with guidelines for best management practices (BMPs), in addition to the 404 permit required of all sand and gravel operations. Storm water runoff discharge permits are issued for construction sites and other areas with more than one acre of bared ground. About 50 percent of all permits now issued by the Water Pollution Control Branch are storm water permits on land disturbance activities. Active mining areas that discharge water must operate under permits, although many abandoned mine lands still rely on voluntary controls. Many cities and large towns must now obtain storm water permits in order to manage pollution due to urban runoff.

Control of many agricultural nonpoint sources, such as erosion from cropland and pasture, or runoff of fertilizer, pesticides and animal waste, are addressed by Missouri's voluntary nonpoint source management program. This program works with federal, state and local governments, universities, private groups, and individual landowners to implement watershed projects that employ nonpoint source control practices and often monitor water quality results. Local watershed projects have resulted in significant reductions of atrazine levels in targeted drinking water reservoirs, in certain cases bringing them into compliance with water quality standards.

Programs with dedicated funding sources have worked best. A tax on coal has funded reclamation of abandoned coal mined lands nationwide. Eighteen years of such reclamation in Missouri has reduced the number of stream miles impaired by acid mine drainage from about 100 to about eight miles. A state sales tax for soil erosion control started providing funds for watershed level soil erosion control programs in 1985. This program, coupled with federal soil conservation programs, is reducing soil erosion in Missouri, based on the findings of periodic USDA National Resource Inventories.

COSTS AND BENEFITS

The economic costs of wastewater treatment and nonpoint source management are extremely diffuse and difficult to calculate. The total operating costs of municipal, private, and industrial treatment plants are not readily available. Likewise, it is difficult to estimate total expenditures on nonpoint source management. The amounts that the State of Missouri spends on various aspects of water pollution control and prevention, however, may give some indication of the relative investments required.

The Missouri Department of Natural Resources annually spends about \$2 million on monitoring and analysis of ambient water and related media. Approximately \$2.3 million is spent on permit issuance annually and about \$5.1 million on other facets of water pollution control and administrative support. Another significant expense is grants aimed at the improvement of water quality. The Section 319 grant program distributes about \$2.6 million annually and the Special Area Land Treatment (SALT) Program about \$6.8 million.

The economic benefits of improved water quality are even harder to quantify. Of all the money spent on water-based recreation and fishing in Missouri, it is nearly impossible to tell how much is dependent upon improved water quality. The same is true for the expense of drinking water treatment. But however much the economic benefits may be, the true benefits of clean water are high-quality recreation experiences, healthy and confident use of water

resources and a robust aquatic biological community.

STATE CONCERNS

- It is believed that channelization may have caused aquatic habitat degradation in roughly 17 percent of Missouri's streams, mainly in the northern and western plains and the southeastern lowlands. Large channelization projects affecting many miles of streams are no longer occurring, but many short projects still occur and continue to reduce the number of miles of natural stream channels statewide. Streams that were channelized many years ago still provide poor aquatic habitat, and these streams still contribute to flooding, high water velocities and streambank erosion as they try to recreate their natural sinuosity.
- Eutrophication of large, recreationally important reservoirs continues to be a concern. Heavy residential development around portions of Lake of the Ozarks and Table Rock Lake threatens water quality in many small coves and shoreline areas. The large size of these lakes and rugged local topography make centralized collection and treatment systems for wastewater difficult. Increasing confined animal production in the watersheds of these lakes is aggravating nutrient problems from wastewater treatment plants and septic tanks. Recent imposition of phosphorus limits on most wastewater discharges to Table Rock Lake has resulted in improved conditions in the James River arm of the lake.
- Mercury levels in fish in Missouri appear to be generally stable in recent years. Re-evaluation of human health risk factors for mercury has led the Missouri Department of Health & Senior Services to issue an advisory regarding fish consumption among children 12 years of age and under, pregnant women and women who may become pregnant. These people are advised to limit consumption of all fish caught in Missouri to one meal per week, and consumption of bass over 12 inches in length to one meal per month. For other aspects of the advisory, please refer to www.dhss.mo.gov/NewsAndPublicNotices/07FishAdvisory.pdf.
- Abandoned lead-zinc mines and their tailings continue to impact waters decades after mining has ceased. Missouri's Superfund Program is addressing some of these concerns. But long-term impacts are expected to remain. Although new mineral extraction operations would be managed under state permits, areas of the state that are very sensitive to disruption are being investigated for mining potential.
- Additional groundwater protection measures are needed. Missouri now has in place programs that register and inspect underground storage tanks and oversee the cleanup of leaking underground tank sites, programs for wellhead protection, sealing of abandoned wells and closing of hazardous waste sites. A complete groundwater protection program would also include a groundwater monitoring network and educational programs for those involved in the application of farm chemicals, transporters of hazardous materials and the general public.
- There are 388 Class I concentrated animal feeding operations (CAFOs) located in Missouri. These are operations containing at least 1,000 beef cattle, 2,500 large swine, or 100,000 broiler chickens. These facilities generate large amounts of animal manure and have the potential to cause serious water pollution problems. The department is also concerned by cumulative impacts of numerous small animal production facilities. However, it is no longer issuing Letters of Approval for smaller facilities, meaning that they will be largely unregulated.
- Fish and invertebrates data indicate that many communities throughout the state are suffering from degraded quality of aquatic habitat. Physical alterations of the channel, alterations in stream flow patterns, degraded conditions in the riparian zone, and upland land use changes are all believed to be significant contributors to this problem.
- Throughout all urban areas of the state, continuing suburban development impacts streams by the direct loss of stream channels by shortening, culverting and removing riparian areas and by other impacts associated with development and increased storm water flows.

Table 1. Beneficial Use Support Status Of Missouri Classified Waters.*

STATUS		STREAM MILES	%	LAKE ACRES	%
Assessed	Unimpaired	13,383.5	60.2	272,133	92.6
	Impaired	1,062.7	4.8	19,522	6.6
Unassessed	Impairment Not Suspected	291.6	1.3	84	0.1
	Impairment Suspected	7,478.2	33.7	2,020	0.7

Numbers in Table 1 updated January 4, 2007.

Unimpaired: Water quality meets the needs of all uses that Missouri recognizes for a particular water body, such as protection of fish and other aquatic life (the water quality does not interfere with the ability of aquatic life to live, feed and reproduce), livestock and wildlife watering (the water will not cause disease or injury to livestock and wildlife using the water for drinking), drinking water supply (the water meets all state and federal standards as a drinking water supply source water), swimming (the water will not cause disease or injury to swimmers or others participating in water-based recreation who may accidentally swallow small amounts of water), irrigation (the water will not cause disease or injury to crops), industrial water supply (the water will not cause excessive problems with corrosivity or mineral deposits in industrial piping and boilers), fish consumption (fish are safe to eat) and boating and canoeing.

Impaired: Water quality is seriously affected to the point that at least one recognized use of the water body has been lost. These impairments are documented by data that meets the requirements of Missouri's 303(d) Listing Methodology.

Impairment Not Suspected: There is inadequate information to make a water quality assessment of these waters, and the department knows of no data or information that would indicate a possible impairment.

Impairment Suspected: These are waters for which some data or observations exist indicating that one or more designated uses may not be supported, but the data are not of sufficient quantity or quality to officially rate the water as impaired. The bulk of these waters are streams in the plains areas of the state, where nearly all streams have been affected or modified by agriculture.

* There are 22,216 miles of classified streams (permanently flowing streams or streams which maintain permanent pools during dry weather) and approximately 30,000 miles of unclassified streams (streams which are without water during dry weather). There are 293,759 surface acres of classified lakes. The number of surface acres of small unclassified lakes has not been estimated.

Table 2. Individual Use Support Summary For Classified Waters.

BENEFICIAL USE	SIZE ASSESSED	FULL SUPPORT	NON-SUPPORT	NOT ASSESSED	USE NOT APPLICABLE
STREAMS (MILES)					
AQUATIC LIFE	14,076.7	13,379.7	697.0	8,139.3	0
FISH CONSUMPTION	1,736.0	1,711.0	25.0	20,480.0	0
SWIMMING	5,925.6	5,591.6	334.0	15,370.0	920.4
DRINKING WATER	2,813.7	2,765.2	48.5	422.5	18,979.8

LAKES (ACRES)					
AQUATIC LIFE	292,213	291,330	883	1546	0
FISH CONSUMPTION	121,070	102,460	18,610	172,689	0
SWIMMING	260,873	260,873	0	32,886	0
DRINKING WATER	100,311	100,282	29	0	193,448

Table 3. Major Water Pollution Sources In Missouri Classified Waters.
(Stream Miles or Lake Acres Impaired)

Source	Stream Miles Impaired	Percent of Total Miles	Lake Acres Impaired	Percent of Total Acres
Unknown	724.6	3	--	--
Mining	171.6	1	--	--
Tailings	105.7	*	--	--
Other Mining Activities	65.9	*	--	--
Atmospheric Deposition	2.5	*	18,610	6
Municipal and other Domestic Point Sources	82.3	*	--	--
Urban Runoff and Construction	61.3	*	18	*
Agriculture	19.5	*	29	*
Crop Production	2.0	*	29	*
Hydromodification	15.0	*	865	*
Flow Regulation/Modific.	1.0	*	--	--
Streambank Mod./Destab.	14.0	*	--	--
Upstream Impoundment	--	--	865	*
Natural Sources	8.0	*	--	--
Industrial Point Sources	7.3	*	--	--
Recreational Activities	6.0	*	--	--

* Less than 1 percent

Table 4. Major Contaminants In Missouri Classified Waters.

Contaminant	Stream Miles Impaired	Percent of Total Miles	Lake Acres Impaired	Percent of Total Acres
Organic Enrichment /Low D.O.	418.6	2	865	*
Bacteria	345.0	1	--	--
Unknown	116.8	1	--	--
Metals	101.6	*	18,610	6
Mercury	--	--	18,610	6

Lead	92.7	*	--	--
Cadmium	69.5	*	--	--
Zinc	53.0	*	--	--
Nickel	3.4	*	--	--
Manganese	1.5	*	--	--
Sediment	73.7	*	--	--
Sulfate	65.5	*	--	--
Chloride	35.4	*	18	*
Ammonia	26.5	*	--	--
pH	23.3	*	--	--
Thermal Modification	14.9	*	--	--
Color	1.4	*	--	--
Gas Supersaturation	1.0	*	--	--
Chlorine	0.4	*	--	--
Pesticides	--	--	29	*

* Less than 1 percent

Note: Many stream miles in Missouri are affected by more than one pollution source or pollutant; therefore, total miles/acres in Tables 3 and 4 can exceed miles/acres in Table 1 and 2.

CHAPTER 2. MISSOURI AND ITS WATER RESOURCES

Missouri has an area of more than 69,000 square miles and a population of 5.6 million people. About half of the population is concentrated along the border areas on opposite sides of the state in the Kansas City and St. Louis metropolitan areas. Population as well as industrial and commercial activity in major urban areas has remained relatively stable for the past few decades. Patterns of rural land use have changed greatly in some areas, particularly residential development around the larger cities, recreational development adjoining Lake Taneycomo and the eastern ends of Lake of the Ozarks and Table Rock Lake and the increasing development of large concentrated animal feeding operations in north-central and southwestern Missouri.

Missouri has an extensive stream network that includes more than 22,000 miles of classified streams and more than 293,000 surface acres in its 457 classified lakes. Three distinct regions exist within the state's boundaries and the particular geology and land use of each affect water quality. These areas are a prairie region, which is rolling land predominantly used for row crops and pasture; the Ozarks, a hilly area that is mostly pasture and forest; and the Bootheel, a flat alluvial plain adjoining the Mississippi River in southeast Missouri, which is used mainly for row crop production.

Missouri's Water Quality Standards (10 CSR 20-7.031) provide the names and locations of all classified streams and lakes. This state regulation defines more than 3,600 individual stream and river segments and 457 lakes, lists which beneficial uses are assigned to each of these waters, and defines the level of water quality necessary to meet each of these uses.

The remaining waters of the state, such as those in the headwater areas that do not have permanently flowing or standing water, and a number of small lakes, are not listed in the Missouri Water Quality Standards and do not have beneficial uses assigned to them. These unclassified waters are protected by the general criteria in the Water Quality Standards. The general criteria say that these waters must be free from such aesthetic problems as demolition debris, trash, tires, odor, discoloration or the presence of objectionable floating or deposited material. The general criteria also say the waters must be free from conditions harmful to livestock or aquatic life.

Table 5. Missouri's Water Resources.

Missouri Population (2000 census)	5,595,211
Surface Area (square miles)	69,704
Number of Four-Digit HUCs*	12
Number of Eight-Digit HUCs*	66
Number of Twelve-Digit HUCs*	1,965**
Classified Stream Miles	22,216
Unclassified Stream Miles	82,126
Number of Classified Lakes	457
Total Classified Lake Surface Area (acres)	293,759
Freshwater Wetlands Area (acres)	Less than 480,000***

*HUC (Hydrological Unit of Classification): A hierarchical system of watershed delineation, developed by USGS.

The system describes scales ranging from major continental basins (two digits) to small local drainages (14 digits).

** The NRCS is now working on the 11th version of the 12-digit HUC delineation for the United States. This version is not yet completed and the final number of 12-digit HUCs could be slightly different.

*** Estimate from Epperson, J.E. 1992, "Missouri Wetlands: A Vanishing Resource", Missouri Dept. of Natural Resources, Division of Geology and Land Survey, Water Resources Report No.39.

CHAPTER 3. SURFACE WATER ASSESSMENT

DESCRIPTION OF MISSOURI'S CURRENT WATER QUALITY MONITORING PROGRAM

Purpose

The major purposes of the water quality monitoring program are (1) to characterize background or reference water quality conditions; (2) to better understand daily, flow event and seasonal water quality variations and their underlying processes; (3) to characterize aquatic biological communities and habitats and to distinguish between the impacts of water chemistry and habitat quality; (4) to assess time trends in water quality; (5) to characterize local and regional impacts of point and nonpoint source discharges on water quality; (6) to check for compliance with water quality standards or wastewater permit limits; (7) to aid in developing TMDLs to prescribe acceptable limits of pollutants to be discharged; and (8) to support development of strategies to return impaired waters to compliance with water quality standards. All of these objectives are statewide in scope.

Coordination with Other Monitoring Efforts in Missouri

The department cooperates with other agencies in performing special water quality studies. In 1998, a multi-agency task force including the Missouri Department of Natural Resources, Missouri Department of Conservation (MDC), U.S. Environmental Protection Agency (USEPA), the U.S. Geological Survey (USGS), U.S. Forest Service (USFS), USDA. Natural Resources Conservation Service (USDA NRCS), and University of Missouri convened to develop an outline of a statewide aquatic resources monitoring plan, define partnership roles in this monitoring plan and discuss the kind of research needed to further this new monitoring effort. The first major product of this work group was an agreement to initiate a cooperative statewide aquatic invertebrate and fish monitoring program by MDC and the Department of Natural Resources. In 2000, the Missouri Resource Assessment Monitoring (RAM) Program was created. The RAM Program is a biological monitoring program that monitors fish and invertebrate communities in wadeable streams throughout the state. It is designed to sample the entire state every five to six years. MDC has taken the lead, sampling more than 100 sites each year in various Ecological Drainage Units. Since it began, more than 700 fish samples and 400 invertebrate samples have been taken.

To maximize efficiency, the department routinely coordinates its monitoring activities to avoid overlap with other agencies and provide and receive interagency input on monitoring study design. Data from other sources is used for meeting the same objectives as department sponsored monitoring. The agencies most often involved are USGS, USEPA, MDC, the U.S. Army Corps of Engineers (COE), the USDA Agricultural Research Service (ARS) and the Missouri Department of Health & Senior Services (MDHSS). However, the department also tracks the monitoring efforts of the National Park Service (NPS), USFS, several of the state's larger cities, the states of Arkansas, Kansas, Iowa, and Illinois, and graduate level research conducted at universities within Missouri. The department also uses monitoring data acquired by wastewater dischargers as a condition of discharge permits issued by the department. The department began using data collected by volunteers that have passed Quality Assurance and Quality Control (QA/QC) tests in 1995.

Networks and Programs

1. Fixed Station Network

- A. Objective: To better characterize background or reference water quality conditions, to better understand daily, flow event and seasonal water quality variations and their underlying processes, to assess time trends and to check for compliance with water quality standards.
- B. Design Methodology: Sites are chosen based on one of the following criteria:
 - site is believed to have water quality representative of many neighboring streams of similar size due to similarity in watershed geology, hydrology and land use, and the absence of any impact from a local point or discrete nonpoint water pollution source.
 - site is downstream of a significant point source or localized nonpoint source area.

C. Number of Sites, Sampling Methods, Sampling Frequency, Parameters:

- USGS/DNR cooperative network: 59 sites statewide, horizontally and vertically integrated grab samples six to 12 times per year, analyzed for nutrients, temperature, pH, dissolved oxygen, percent saturation, specific conductance, flow, *E. coli*, fecal streptococci, and fecal coliform; trace metals, major ions and suspended solids two to 12 times annually at all sites; pesticides six times annually at four sites.
- DNR chemical monitoring of more than 90 sites two to four times per year for nutrients, major ions, flow, temperature, pH, dissolved oxygen and specific conductance.
- DNR raw water sampling of public drinking water reservoirs: grab samples at nine sites four times per year for 10 common agricultural herbicides.
- UMC/DNR lake monitoring network: about 100 lakes monitored spring through fall for nutrients, chlorophyll, turbidity and suspended solids.
- DNR routine monitoring of finished public drinking water supplies for bacteria and trace contaminants.
- Routine bacterial monitoring of swimming beaches at Missouri state parks during the recreational season by the department's Division of State Parks.
- Routine monitoring of sediment on 10 to 15 discretionary sites annually. All sites are monitored for several heavy metals and organic contaminants. A pore water sample is analyzed for ammonia and a Microtox toxicity test or similar toxicity screening test on the pore water or whole sediment sample is performed.

2. Intensive Surveys

A. Objective: To characterize the water quality impacts from a specific pollutant source area.

B. Design Methodology: Determination of contaminants of concern based on previous water quality studies, effluent sampling and/or NPDES permit applications, use of multiple sampling stations downstream and upstream (if appropriate). If contaminants of concern have significant seasonal or daily variation, season of the year and time of day variation must be accounted for in sampling design. These studies would also require multiple samples per site over a relatively short time frame (e.g., 6 to 8 visits over a 2 to 3 day period or 10 to 15 visits over a 2 to 3 year period).

C. Number of Sites, Sampling Methods, Sampling Frequency, Parameters: The Missouri Department of Natural Resources conducts or contracts for 10 to 15 special studies annually. Each study has multiple sampling sites. Number of sites, sampling frequency and parameters vary greatly depending on the study.

3. Toxics Monitoring Program

Monitoring of toxics is not a separable part of the monitoring program. The fixed station network and many of our intensive studies monitor for toxic chemicals. In addition, major municipal and industrial dischargers must monitor for toxicity in their effluents as a condition of their NPDES permits.

4. Biological Monitoring Program

The Missouri Department of Natural Resources has developed a monitoring program for aquatic invertebrates that is proving very useful for characterizing the health of aquatic biological communities in Missouri. Forty-five reference streams were identified across the state during the 1990s and were used to develop criteria describing reference communities of macroinvertebrates for different ecological regions. More than 50 stream sites are sampled annually, generally chosen to support the formation of the 303(d) list and the creation of TMDLs. Sampling results and data analysis are available from a central database. A long-term objective of the program is to establish a fixed statewide network of biological monitoring stations in order to monitor large-scale trends. Fish sampling must also be a part of an effective long-term biological monitoring program.

The department contracted with the U.S. Geological Survey in 2001 to conduct a study of aquatic invertebrate communities on the Missouri River. The study, *Validation of Aquatic Macroinvertebrate Community Endpoints*

for Assessment of Biological Condition in the Lower Missouri River, was published in 2005. The department sees this work as the first of several steps by which it will promote a better understanding of fish and invertebrate communities of large rivers, and ultimately the development of biological criteria for the Missouri and Mississippi rivers.

5. Fish Tissue

- A. Objective: Fish tissue monitoring can address two separate objectives. These are 1) the assessment of ecological health or the health of aquatic biota, and 2) the assessment of human health risk based on the level of contamination of fish fillets.
- B. Design Methodology. Sites were chosen based on one of the following criteria:
- site is believed to have water and sediment quality representative of many neighboring streams of similar size due to similarity in geology, hydrology and land use, and the absence of any known impact from a local point source or discrete nonpoint water pollution source.
 - site is downstream of a significant point source or localized nonpoint source area.
- C. Number of Sites, Sampling Methods, Sampling Frequency, Parameters:
The department and USEPA have a cooperative fish tissue monitoring program that collects whole fish composite samples at approximately 13 fixed sites once every two years. The preferred species for these sites are either carp or redhorse sucker. About 45 discretionary sites are also sampled annually for two fish fillet composite samples. The Missouri Department of Conservation is a partner in this portion of the program. One sample is of a top carnivore fish such as largemouth bass, smallmouth bass, walleye or sauger. The other sample is for a species of a lower trophic order such as catfish, carp or sucker.

In addition, MDC samples approximately 20 sites annually through its Fish Contaminant Monitoring Program, which began in 1984. A wide variety of species are sampled. Both of these monitoring programs analyze for several chlorinated hydrocarbon insecticides, PCBs, lead, cadmium, mercury and fat content.

Laboratory Analytical Support

Laboratories Used:

- USGS/DNR Cooperative Fixed Station Network: USGS Lab, Denver, Colorado
- DNR Public Drinking Water Reservoir Network: Missouri Department of Natural Resources Environmental Lab
- Intensive Surveys: varies, many are done by Missouri Department of Natural Resources Environmental Lab
- Toxicity Testing of Effluents: many commercial labs
- Biological Criteria for Aquatic Invertebrates: Missouri Department of Natural Resources Environmental Lab and University of Missouri, Columbia
- Fish Tissue: USEPA Region VII Lab, Kansas City, Kansas and miscellaneous contract labs (Missouri Department of Conservation)
- NPDES self-monitoring: commercial labs
- DNR Public Drinking Water Monitoring: Missouri Department of Natural Resources and commercial labs

Quality Assurance/Quality Control Program (QA/QC)

Missouri and Region 7 EPA have completed a Total Quality Management Plan. All environmental data generated directly by the department or through contracts funded by the department or EPA will require a quality assurance project plan (QAPP) following EPA's Guidance for Quality Assurance Project Plans (QA/G-5).

Data Storage and Management

The department retrieves raw data from the USGS database, NWIS, and numerous state, federal and municipal sources. This data is imported into the Missouri state computer system for storage and statistical analysis. The

department maintains a good deal of water quality data in a number of ACCESS databases. Data in these files comes from the department's own monitoring efforts and a wide array of other public and private sources.

Beginning in 1999, the department began linking many separate databases pertaining to water quality, other environmental data and information on regulated facilities via ACCESS software and importing this data into a GIS (ArcView) environment. The majority of the work has been completed, but new data that enters this process is received on a regular basis.

The Missouri Department of Natural Resources has developed a database that provides access to the raw data and analysis of all quantitative invertebrate sampling it has performed. Within the next year, the Missouri Department of Conservation plans to have on-line access to its RAM database, as well as its fisheries and aquatic habitat database that contains community-level data. These databases are updated on an ongoing basis.

Training and Support of Volunteer Monitoring

Two volunteer monitoring programs are now generating water quality data in Missouri. The first is a cooperative program between the Department of Natural Resources, the University of Missouri, and volunteers who monitor approximately 40 lakes, including Lake Taneycomo, Table Rock Lake, and several lakes in the Kansas City and St. Louis area. In 2005, approximately 100 volunteers monitored 100 sites on 41 lakes throughout Missouri. Data from this program is used by the university as part of a long-term study on the limnology of Midwestern reservoirs.

The second program involves volunteers who monitor water quality of streams throughout Missouri. The Volunteer Water Quality Monitoring Program is a cooperative project of the Department of Natural Resources, the Department of Conservation, and the Conservation Federation of Missouri and is a subset of the Missouri Stream Team Program. In 2006, 268 new Stream Teams formed, and in April the number of Stream Teams reached 3,000. In 2006, 360 citizen volunteers had attended the introductory level workshop. After the introductory class, many proceeded on to at least one more class of higher level training; Levels 1, 2, 3, and 4. A new level of training, Cooperative Site Investigation (CSI) replaced Level 4 training in September 2006. Each level of training is a prerequisite for the next higher level, as is appropriate data submission. Levels 2, 3, and CSI represent increasingly higher quality assurance and quality control stringency. Of those completing an introductory course, 25 (about 7 percent) proceeded through Level 1 and successfully attained a ranking of Level 2. Data submitted by volunteers of Level 2 or above may be used by the department to establish baselines of water quality for particular streams, or to point out potential problems that are in need of further investigation.

In 2006, approximately 420 citizens were trained in at least one workshop. During that period of time, 174 individuals continued on in the training series and 25 of them attained a Level 2 certification. No Level 3 quality assurance and quality control audits were completed in Fiscal Year 2006 due to staffing changes. Wastewater and drinking water operators have also started attending in order to receive operator certification credits. To date, 24 operators have attended Stream Team training.

During Fiscal Year 2006, Level 2 and 3 monitors submitted 109 sets of macroinvertebrate data from 118 different stream sites. In that same time period, 321 sets of water chemistry data from 167 sites were submitted. Also, Level 4 volunteers participated in four biological monitoring events and 41 chemical monitoring events. Water chemistry data from these events was generated from on-site analysis, and the bacterial data was analyzed by the State Environmental Laboratory, providing even higher data credibility.

Data Interpretation and Communication

Missouri now uses an ACCESS database for tracking and reporting water body use attainment information. An EPA contractor, RTI, completed geo-referencing of Missouri's classified waters in 1998. The stream and lake network of the state, water quality standards information, the locations of permitted wastewater discharges and other potential pollutant sources and information describing them can now all be viewed within a GIS (ArcView) environment.

The department has a variety of water quality information available on its Web site (www.dnr.mo.gov). This information includes, or will include, TMDLs, the 305(b) Report and 303(d) List, a list of all classified waters of Missouri that includes monitoring and assessment information on each water, water quality information sheets for

303(d) candidate waters, and watershed information sheets from various watersheds around the state.

Sharing Data with the Public

Water quality data accessibility is easy. Contact the Water Protection Program for more information.

1. Requests for very general information on water quality may be made by calling 1-800-361-4827. They may be filled by the 305(b) Report, pamphlets or fact sheets. Much of this information, plus information on Missouri's 303(d) List and completed Total Maximum Daily Load (TMDL) studies, is also available on the Internet at:

<http://www.dnr.mo.gov/env/wpp/wp-index.html>

2. Some requests may be for information on a specific water body or for more detailed information on a specific topic that might include summaries of major studies or available data. These requests are usually filled by the Missouri Watershed Information Sheets, documents that describe Missouri's watersheds and provide information on land use, hydrogeology, stream flow and water quality issues and concerns in each.
3. More specific requests may require published reports or water quality data files. If the report or data was generated by the department, it can be sent to the requestor through electronic mail or regular mail (a hard copy for small reports and data files, or floppy or compact disks for larger data files). Alternatively, the requestor may visit the department office at 1101 Riverside Dr. in Jefferson City and view the files directly. If the report or data file did not originate with the department, the request is sent to the organization that published the report or data.

Requests for more specific water quality information, or requests to view water quality data files, should be sent to:

Missouri Department of Natural Resources
Water Protection Program
ATTN: John Ford
P.O. Box 176
Jefferson City, MO 65102-0176
Phone: (573) 751-7024 Fax: (573) 522-9920
Email: john.ford@dnr.mo.gov

Monitoring Program Evaluation

The water quality monitoring program within the department has traditionally focused on the chemical characterization of water quality in both those streams that are free of, and subject to, point source wastewater discharges. While the monitoring has been able to keep pace with our more critical point source assessment needs and has done a good job of characterizing regional water quality unimpaired by point source discharges, the size and scope of the department's monitoring has fallen far short of the state's information needs. The advent of large concentrated animal feeding operations (CAFOs) in Missouri, concern over eutrophication of our large recreational lakes and continuing urban sprawl, among other problems, have produced questions our present monitoring program is incapable of answering.

A water quality monitoring strategy for Missouri was completed in 2005. This proposal provides an overview of the current monitoring program and identifies additional needs.

ASSESSMENT METHODOLOGY

This section describes the procedures used by the Missouri Department of Natural Resources to rate the quality of Missouri's waters.

Water quality is judged by its conformance with Missouri's Water Quality Standards. These standards were first

implemented for all Missouri streams and a few large lakes in 1970 and are revised at least once every three years. These standards now list more than 22,000 miles of classified streams, 457 classified (significant public) lakes representing 293,759 surface acres of water, and the uses for which these waters are protected. These standards also list the maximum allowable concentrations of chemicals and bacteria in these waters.

The table below lists the various uses of Missouri's waters and the portions of state waters that are protected for each use.

Table 6. Missouri Waters Protected For Various Uses.

<u>Designated Use</u>	<u>Stream Miles</u>	<u>% of Total</u>	<u>Lake Acres</u>	<u>% of Total</u>
Protection of Aquatic Life and Fish Consumption	22,216.0	100	293,759	100
Subset: Warm-Water Fishery	19,493.4	88	283,029	96
Cool-Water Fishery*	2,369.5	11	0	0
Cold-Water Fishery**	353.1	2	10,730	4
Livestock and Wildlife Watering	22,216.0	100	293,759	100
Whole-Body-Contact Recreation	21,295.6	96	293,759	100
Boating	7,105.8	32	235,143	80
Drinking Water Supply	3,236.2	15	100,311	34
Industrial	1,252.0	6	7,003	2
Irrigation	3,935.0	18	0	0
Anti-degradation:				
Outstanding National Resource Waters	171.2			
Outstanding State Resource Waters	200.5***			
Total Classified Waters in Missouri	22,216.0		293,759	

* Smallmouth Bass, Rock Bass

** Trout

*** Outstanding State Resource Waters also include 270 acres of marsh wetlands in three locations.

Classified streams of Missouri are all permanently flowing streams or streams with permanent pools. All classified waters of the state, including significant public lakes, are classified for protection of aquatic life, livestock and wildlife watering, and fish consumption by humans. The Water Quality Standards for these uses set the maximum allowable concentrations for 110 chemicals in these waters. A subset of these waters classified for drinking water supply has maximum allowable concentrations for an additional 20 chemicals in the standards. Waters protected for whole body contact recreation such as swimming or water skiing also have a maximum allowable bacteria standard.

Missouri's Water Quality Standards also contain narrative criteria. These standards are not numbers but general statements about the expectations for waters of the state. These standards require waters to be free of objectionable odors, color, turbidity, trash, floating materials or bottom deposits, and of conditions harmful to aquatic life such as high water temperature, low dissolved oxygen or chemical toxicity. Importantly, these standards apply not just to the classified waters, but to all waters of the state including the small intermittent streams that only carry water during and shortly after rainfall or snow melt.

Table 7, below, shows how the chemical and bacterial standards and aquatic biological information are used to rate the quality of Missouri's waters for the 2006 305(b) report. The methods contained in Table 7 undergo revision every other year and will be revised before being used in the formulation of Missouri's 2008 303(d) List.

Table 7. Methods For Assessing Compliance With Water Quality Standards.

BENEFICIAL USES	DATA TYPE	DATA QUALITY CODE	COMPLIANCE WITH WATER QUALITY STANDARDS
Overall use protection (all beneficial uses)	No data--evaluated based on similar land use/ geology as stream with water quality data. ¹	na	Given same rating as monitored stream with same land use and geology.
Any beneficial uses.	No data available or where only effluent data is available. Results of dilution calculations or water quality modeling (see ALRR p.38). ¹	na	Where models or other dilution calculations indicate noncompliance with allowable pollutant levels and frequencies noted in this table, waters may be added to category 3B and considered high priority for water quality monitoring.
Overall use protection (all beneficial uses)	Narrative criteria for which quantifiable measurements can be made.	1	<p><u>Full</u>: Stream appearance typical of reference streams in this region of the state.</p> <p><u>Non-Attainment</u>: Presence of objectionable or unsightly color, odor, turbidity, bottom deposits, oil, scum, floating or suspended debris, or the presence of substances in sufficient amounts to prevent full maintenance of beneficial uses. For the purposes of 303(d) listing, a water body will be considered to be not in conformance with narrative water quality criteria if these quantifiable limits are exceeded. Acute criteria for aquatic life shall not be exceeded more than one time in three years.</p> <p>Color: Color as measured by the Platinum-Cobalt visual method (SM 2120 B) in a water is statistically significantly higher than in a control water.</p> <p>Objectionable Bottom Deposits: The affected stream segment must be at least 100 yards in length, and for all areas within this affected segment that have a flow velocity less than 0.5 feet/second at the time the stream is evaluated, greater than 10% of the stream bottom is covered by sewage sludge, trash or other materials reaching the water due to anthropogenic sources.</p>

BENEFICIAL USES	DATA TYPE	DATA QUALITY CODE	COMPLIANCE WITH WATER QUALITY STANDARDS
			<p>Note: Waters in mixing zones and unclassified waters which support aquatic life on an intermittent basis shall be subject to acute toxicity criteria for protection of aquatic life. Waters in the initial Zone of Dilution (ZID) shall not be subject to acute toxicity criteria.</p>
Protection of Aquatic Life	Toxic Chemicals	1-4	<p><u>Full</u>: No more than 1 acute toxic event in three years. No more than one exceedence of acute or chronic criterion in 3 years for all toxics other than ammonia; for ammonia, no more than one exceedence of acute criterion in 3 years and 10% or fewer of all samples exceed chronic criterion.^{2,3}</p> <p><u>Non-Attainment</u>: Requirements for full attainment not met (see CALM p.27, 30. ALRR p.39).</p>
Protection of Aquatic Life	Conventional (pH, temperature, dissolved oxygen, total dissolved gases, oil and grease, sulfate plus chloride)	1-4	<p><u>Full</u>: No more than 10% of all samples exceed criterion.²</p> <p><u>Non-Attainment</u>: Requirements for full attainment not met.</p>
Protection of Aquatic Life	Biological	3-4	<p><u>Full</u>: Fauna very similar to regional reference streams. If DNR wadeable streams macroinvertebrate sampling and evaluation protocols are followed, for seven or fewer samples, at least 75% of the stream condition index scores must be 16 or greater. For greater than seven samples or for other sampling and evaluation protocols, results must be statistically similar to representative reference or control streams.</p> <p><u>Non-Attainment</u>: If DNR wadeable streams macroinvertebrate sampling and evaluation protocols are followed, for seven or fewer samples, at least 75% of the stream condition index scores must be 14 or lower. For more than seven samples or for other sampling and evaluation protocols, results must be statistically dissimilar to representative reference or control streams.</p>

BENEFICIAL USES	DATA TYPE	DATA QUALITY CODE	COMPLIANCE WITH WATER QUALITY STANDARDS
Protection of Aquatic Life	Toxicity testing of streams or lakes using aquatic organisms.	2	<u>Full</u> : No more than one test result of statistically significant deviation from controls in acute or chronic test in a 3-year period. ³ <u>Non-Attainment</u> : Requirements for full attainment not met.
Fish Consumption	Chemicals (water)	1-4	<u>Full</u> : Water quality does not exceed water quality standard. ⁴ <u>Non-Attainment</u> : Requirements for full attainment not met.
Fish Consumption	Chemicals (tissue)	1-2	<u>Full</u> : Fish tissue levels in fillets do not exceed guidelines. ⁵ <u>Non-Attainment</u> : Requirements for full attainment not met.
Drinking Water Supply ⁶ - Raw Water	Chemical (toxics)	1-4	<u>Full</u> : Water Quality Standard not exceeded. ⁴ <u>Non-Attainment</u> : Requirements for full attainment not met.
Drinking Water Supply ⁶ - Raw Water	Chemical (Total Dissolved Solids)	1-4	<u>Full</u> : Water Quality Standard not exceeded. ⁴ <u>Non-Attainment</u> : Requirements for full attainment not met
Drinking Water Supply-Finished Water	Chemical (toxics)	1-4	<u>Full</u> : No MCL* violations based on Safe Drinking Water Act data evaluation procedures. <u>Non-Attainment</u> : Requirements for full attainment not met. NOTE: Finished water data will not be used for analytes where water quality problems may be caused by the drinking water treatment process such as the formation of Trihalomethanes (THMs), or problems that may be caused by the distribution system (bacteria, lead, copper).
Whole-Body-Contact Recreation and Secondary Contact Recreation	Fecal Coliform or E. coli count	1-4	<u>Full</u> : Water Quality Standards not exceeded as a geometric mean for samples collected during seasons and flow conditions for which bacteria criteria apply. ⁴ <u>Non-Attainment</u> : Requirements for full attainment not met.
Irrigation, Livestock and Wildlife Water	Chemical	1-4	<u>Full</u> : Water Quality Standard not exceeded. ⁴ <u>Non-Attainment</u> : Requirements for full attainment not met

¹ This data type is used only for wide-scale assessments of aquatic biota and aquatic habitat for 305(b) report purposes. This data type is not used in the development of the 303(d) list.

² The time period used to calculate the average will be the entire period that is judged to representative of present conditions. See Listing Methodology Document Data Age section.

³ The test result must be representative of water quality for the entire time period for which acute or chronic criteria apply. The department will review all appropriate data, including hydrographic data, to insure only representative data is used. Except on large rivers where stormwater flows may persist at relatively unvarying levels for several days, grab samples collected during stormwater flows will not be used for assessing chronic toxicity criteria.

⁴ See Listing Methodology section on Statistical Considerations and Table B-1.

⁵ Fish tissue threshold levels are Chlordane 0.1 mg/kg (Crellin, J.R. 1989, "New Trigger Levels for Chlordane in Fish-Revised Memo" Mo. Dept. of Health interoffice memorandum. June 16, 1989), Mercury 0.3 mg/kg (based on two documents: Mercury Levels in Commercial Fish and Shellfish- <http://www.cfsan.fda.gov/~frf/sea-mehg.html> and FDA and EPA Announce the Revised Consumer Advisory on Methylmercury in Fish- <http://www.fda.gov/bbs/topics/news/2004/NEW01038.html>), PCBs 2.0 mg/kg (USFDA Industries Activities Staff Booklet, August 2000. <http://vm.cfsan.fda.gov/~lrd/daact.html>), and Lead 0.3 mg/kg (World Health Organization 1972. "Evaluation of Certain Food Additives and the Contaminants Mercury, Lead and Cadmium". WHO Technical Report Series No. 505, Sixteenth Report on the Joint FAO/WHO Expert Committee on Food Additives. Geneva 33 pp.

⁶ Raw water samples used for compliance with source water criteria must be taken at a depth no deeper than the depth of the drinking water intake
 * Maximum Contaminant Level.

WATER QUALITY ASSESSMENT

Table 8. Summary of Monitored and Evaluated Waters.

Degree of Use Support	Evaluated Stream Miles	Monitored Stream Miles	Total Stream Miles Assessed	Evaluated Lake Acres	Monitored Lake Acres	Total Lake Acres Assessed
Fully Supporting All Assessed Uses	7,570.9	5,807.8	13,378.7	24,067	248,066	272,133
Impaired For One or More Uses	0.0	1,067.5	1,067.5	0	19,522	19,522
TOTAL ASSESSED	7,570.9	6,875.3	14,446.2	24,067	267,588	291,655
TOTAL UNASSESSED			7,769.8			2,104

Monitored waters are those waters where water quality data has been collected recently enough to be considered representative of present conditions. Approximately 31 percent of all classified stream miles and 91 percent of all classified lake acres are considered to be monitored. The department only considers monitored waters in the development of the state's Section 303(d) List.

Evaluated waters are those waters which have not been monitored in recent years but have geology and land use similar to nearby monitored waters and whose water quality assessment is assumed to be the same as those nearby monitored waters. Thirty-four percent of all classified stream miles and eight percent of all classified lake acres are considered to be evaluated.

Unassessed waters are those waters that are not monitored directly nor do they have nearby monitored waters with similar geology and land use. Thus, these represent the classified waters in the state for which we are unable to make an accurate assessment of their compliance with water quality standards and Clean Water Act goals. Three percent of classified stream miles fall into this category. Less than one percent of classified lake acres are considered to be unassessed.

ADDITIONAL INFORMATION ON MISSOURI LAKES

Summary Statistics

Information on beneficial use attainment in classified (significant public) lakes is given in Tables 1 and 2. The acreage of classified lakes not fully supporting beneficial uses by major source category are as follows:

Point Sources	0 acres
Nonpoint Sources	18,657 acres
Hydromodification	865 acres

Background

Missouri's definition of significant lakes corresponds to the Department of Natural Resources list of classified lakes and includes lakes that falls into one of the following three categories: (1) small public drinking water reservoirs; (2) large multi-purpose reservoirs; and (3) reservoirs or lakes with important recreational values.

It should be noted that Missouri has only a few naturally occurring lakes, these being primarily depressions or old oxbows on the Missouri or Mississippi River floodplain. Most classified lakes in the state are man-made reservoirs. In addition, high acidity is not a problem in Missouri lakes due to the high amounts of calcium carbonate found in the geology.

Trophic Status

Eutrophication is a natural process that occurs in lakes involving the gradual filling of the lake over time accompanied by increasing aquatic plant growth. This concept also encompasses the enrichment of lakes and reservoirs by addition of nitrogen and phosphorus from human activity. This additional nutrient load causes increased aquatic plant growth, predominantly of phytoplankton, which causes lake water to become greener and more turbid.

The trophic state of lakes typically refers to the amount of nitrogen and phosphorus entering the lake or the amount of algae or other aquatic plants present in the lake. Oligotrophic lakes are clear with few nutrients and very little aquatic plant growth. Mesotrophic, eutrophic and hypereutrophic are terms referring respectively to lakes with increasing levels of nutrients and aquatic plant growth. Trophic state is an important way to characterize lakes because it relates directly to such factors as lake clarity, which is greater in oligotrophic and mesotrophic lakes, and fish production, which tends to be greater in eutrophic lakes.

Summary results of studies conducted by the University of Missouri between 1989 and 2005 on trophic status of Missouri lakes follow.

Table 9. Trophic Status Of Selected Missouri Lakes And Reservoirs.

<u>LAKE</u>	<u>COUNTY</u>	<u>LOCATION</u>	<u>YEARS OF RECORD</u>	<u>SECCHI</u> ¹	<u>TP</u> ²	<u>TN</u> ³	<u>CHL-A</u> ⁴	<u>TROPHIC STATE</u> ⁵
<u>GLACIAL PLAINS</u>								
*Allaman Lake	Clinton	24, 56N, 30W	6	1.2	42	682	16	E
Baring C. Club Lake	Knox	26, 63N, 12W	9	1.3	28	938	20	E
Bean Lake	Platte	12/14, 54N, 37W	1	0.1	264	1,658	144	HE
Belcher Branch Lake	Buchanan	8/17, 55N, 34W	4	1.1	35	531	13	E
Bethany Lake #2	Harrison	27, 64N, 28W	11	1.3	33	713	11	E

<u>LAKE</u>	<u>COUNTY</u>	<u>LOCATION</u>	<u>YEARS OF RECORD</u>	<u>SECCHI</u> ¹	<u>TP</u> ²	<u>TN</u> ³	<u>CHL-A</u> ⁴	<u>TROPHIC STATE</u> ⁵
Big Lake	Holt	18/19, 61N, 39W	1	0.2	328	2,508	166	HE
Bilby Ranch Lake	Nodaway	13/24, 64N, 38W	7	1.1	54	1,055	43	E
Blind Pony Lake	Saline	SE18, 49N, 22W	11	0.7	86	1,279	47	E
Bowling Green Lake	Pike	29, 53N, 2W	18	1.9	25	534	9	M
Brookfield Lake	Linn	33, 58N, 19W	15	1.2	23	616	8	M
*Busch W.A. #37	St. Charles	27, 46N, 2E	2	1.1	33	540	8	E
Cameron Lake #3	Dekalb	9, 57N, 30W	1	0.5	86	1,125	21	E
Cameron Lake #4 (Grindstone)	Dekalb	5, 57N, 30W	1	0.4	196	1,753	22	HE
Charity Lake	Atchison	32, 66N, 41W	2	1.8	36	540	16	E
Lake Contrary	Buchanan	26, 57N, 36W	6	0.3	365	3,060	194	HE
Crystal Lake	Ray	32, 53N, 29W	2	0.6	82	918	34	E
*Daniel Boone Lake	Shelby	31/32, 58N, 12W	2	0.2	187	1,424	38	HE
*Dean Lake	Chariton	3, 54N, 21W	1	0.1	382	2,110	5	HE
Deer Ridge Lake	Lewis	18, 62N, 8W	17	1.1	44	780	16	E
Edina Reservoir	Knox	12, 62N, 12W	10	0.7	70	1,258	24	E
Ella Ewing Lake	Lewis	21, 64N, 10W	7	0.6	87	1,393	32	E
Forest Lake	Adair	14, 62N, 16W	17	1.4	23	411	5	M
Fox Valley Lake	Clark	27, 66N, 8W	6	2.4	18	608	8	M
Green City Lake	Sullivan	NE16, 63N, 18W	7	0.6	78	1,052	29	E
Hamilton Lake	Caldwell	15, 57N, 28W	11	0.8	61	968	14	E
Harrison County Lake	Harrison	17/30, 65N, 28W	7	0.9	54	1,079	44	E
Hazel Creek Lake	Adair	31, 64N, 15W	12	1.4	29	611	8	M
Henry Sever Lake	Knox	14, 60N, 10W	17	0.9	53	1,059	20	E
Higginsville Lake	Lafayette	9, 49N, 25W	17	0.7	100	1,235	24	E
Hunnell Lake	Shelby	25, 57N, 9W	17	0.9	46	813	22	E
Indian Creek Lake	Livingston	15/27, 59N, 25W	5	1.7	23	630	12	M
Jamesport Comm. Lake	Daviess	20, 60N, 26W	1	0.3	139	2,120	141	HE
*Jo Shelby Lake	Linn	36, 57N, 22W	2	0.9	70	546	37	E
King Lake	Dekalb	SW34, 61N, 32W	6	0.2	202	1,756	24	HE
Kraut Run Lake (Busch WA #33)	St. Charles	23, 46N, 2E	17	0.5	100	1,119	60	HE
La Belle #2 Lake	Lewis	NE16, 61N, 9W	5	0.8	66	1,430	51	E
Lancaster New Lake	Schuyler	23, 66N, 15W	4	0.7	74	966	36	E
La Plata New Lake	Macon	14, 60N, 14W	4	1.3	26	790	14	E
Lawson City Lake	Ray	31, 54N, 29W	2	0.8	38	975	33	E
Limpp Lake	Gentry	29, 61N, 32W	2	0.3	123	1,995	100	HE
Lincoln Lake	Lincoln	8, 49N, 1E	17	2.2	18	448	5	M
Little Dixie Lake	Callaway	26, 48N, 11W	18	0.7	67	806	21	E
Long Branch Lake	Macon	18, 57N, 14W	18	0.7	49	835	16	E
Macon Lake	Macon	17, 57N, 14W	12	0.8	53	899	29	E
Maple Leaf Lake	Lafayette	4, 48N, 26W	6	1.1	42	878	23	E
Marceline City Lake	Chariton	14, 56N, 19W	1	2.2	28	710	8	M
Marceline Res.	Linn	28, 57N, 18W	11	0.7	105	1,130	45	E
Lake Marie	Mercer	36, 66N, 24W	10	2.7	15	445	4	M
Mark Twain Res.	Ralls	26, 55N, 7W	18	1.1	66	1,293	17	E
Maysville Lake (NW)	Dekalb	33, 59N, 31W	11	0.6	194	1,331	47	HE

<u>LAKE</u>	<u>COUNTY</u>	<u>LOCATION</u>	<u>YEARS OF RECORD</u>	<u>SECCHI</u> ¹	<u>TP</u> ²	<u>TN</u> ³	<u>CHL-A</u> ⁴	<u>TROPHIC STATE</u> ⁵
Maysville Lake (Redmond)	Dekalb	3, 58N, 31W	1	0.9	68	852	26	E
Memphis #1 Lake	Scotland	14, 65N, 12W	11	0.6	80	1,257	48	E
Milan Lake (Elmwood)	Sullivan	26, 63N, 20W	10	0.8	58	789	20	E
Milan Lake (New)	Sullivan	35, 63N, 20W	10	1.1	41	691	13	E
Monroe City Lake B	Monroe	30, 56N, 7W	11	0.5	86	1,143	35	E
Mozingo Lake	Nodaway	19, 65N, 34W	7	1.4	29	832	22	E
Nehai Tonkayea Lake	Chariton	11, 55N, 18W	9	1.7	19	431	3	M
Nodaway Lake	Nodaway	20, 65N, 35W	7	0.8	42	965	22	E
Old Kings Lake	Lincoln	25,50N, 2E	1	0.3	278	1,573	80	HE
Lake Paho	Mercer	25, 65N, 25W	11	0.8	48	841	14	E
Pape Lake (Concordia)	Lafayette	20, 48N, 24W	11	0.6	82	1,085	28	E
Pony Express Lake	Dekalb	33, 58N, 31W	11	0.8	69	1,060	33	E
*Prairie Lake	St. Charles	39.708, -90.691	1	0.7	98	790	12	E
*Prairie Slough	Lincoln	2/12, 51N, 2E	1	0.2	231	2,495	72	HE
Ray Co. Lake	Ray	13, 52N, 28W	2	0.4	162	1,960	149	HE
Rocky Fork Lake	Boone	31, 50N, 12W	8	1.9	23	546	7	M
Rocky Hollow Lake (Williams)	Clay	33, 53N, 30W	9	1.4	55	784	21	E
*Rothwell Lake	Randolph	3, 53N, 14W	3	1.2	52	858	30	E
Lake St. Louis	St. Charles	SW26, 47N, 2E	9	0.5	86	1,171	29	E
Lake Ste. Louise	St. Charles	SW27, 47N, 2E	3	1.1	31	513	6	M
Savannah Lake	Andrew	7, 59N, 35W	2	1.2	44	755	22	E
Shelbina Lake	Shelby	20, 57N, 10W	11	0.6	97	1,054	37	E
Smithville Lake	Clay	13, 53N, 33W	18	1.0	33	810	17	E
Spring Lake	Adair	SW20, 61N, 16W	9	1.2	35	533	9	E
Sterling Price Lake	Chariton	17,53N, 17W	8	0.6	104	1490	76	HE
Sugar Creek Lake	Randolph	16, 54N, 14W	10	0.8	55	757	26	E
Sugar Lake	Buchanan	27, 55N, 37W	6	0.2	333	2,524	173	HE
*Swan Pond	Lincoln	39.101, -90.728	1	0.3	345	1,658	126	HE
Thomas Hill Res.	Randolph	24, 55N, 16W	11	0.7	50	769	15	E
Thunderhead Lake	Putnam	15, 66N, 19W	12	0.8	50	971	17	E
Unionville New Lake (Mahoney)	Putnam	27, 66N, 19W	13	0.6	95	1,207	39	E
Vandalia Lake	Pike	12, 53N, 5W	12	1.0	74	994	38	E
Lake Viking	Daviess	9, 59N, 28W	16	1.4	27	526	10	M
Wakonda Lake	Lewis	NE13, 60N, 6W	6	0.8	95	1,186	51	E
Watkins Mill Lake	Clay	22, 53N, 30W	17	0.9	41	635	18	E
Waukomis Lake	Platte	17, 51N, 33W	10	1.7	25	592	14	E
Weatherby Lake	Platte	15, 51N, 34W	3	2	20	403	5	M
Whiteside Lake	Lincoln	39.174, -91.011	2	2.5	20	630	6	M
Willow Brook Lake	Dekalb	4, 58N, 31W	5	0.7	82	1,161	50	E
Worth Co. Lake	Worth	29/32, 65N, 32W	2	0.6	77	1,435	60	E
<u>OSAGE PLAINS</u>								
Amarugia Highlands Lake	Cass	10, 43N, 32W	7	1.0	54	696	11	E
Atkinson Lake	St. Clair	6, 37N, 28W	17	0.5	77	1,019	39	E
Blue Springs Lake	Jackson	3, 48N, 31W	6	1.0	36	557	18	E
Bushwhacker Lake	Vernon	27, 34N, 32W	4	1.6	28	622	14	M
Butler Lake	Bates	14, 40N, 32W	5	0.7	67	941	33	E

<u>LAKE</u>	<u>COUNTY</u>	<u>LOCATION</u>	<u>YEARS OF RECORD</u>	<u>SECCHI</u> ¹	<u>TP</u> ²	<u>TN</u> ³	<u>CHL-A</u> ⁴	<u>TROPHIC STATE</u> ⁵
Catclaw Lake	Jackson	14, 47N, 31W	2	0.2	126	862	4	E
Coot Lake	Jackson	22, 47N, 31W	2	0.7	50	856	10	E
Cottontail Lake	Jackson	14, 47N, 31W	2	0.2	140	946	15	E
*Four Rivers CA Lake	Vernon	4, 37N, 31W	1	1.0	34	460	7	M
Gopher Lake	Jackson	23, 47N, 31W	2	0.4	94	776	17	E
Harmony Mission Lake	Bates	15, 38N, 32W	7	1.2	49	852	24	E
Lake Harrisonville	Cass	26, 46N, 31W	8	0.9	51	940	18	E
Hazel Hill Lake	Johnson	28, 47N, 26W	6	0.7	54	1,032	36	E
Holden City Lake	Johnson	7, 45N, 27W	6	0.8	48	990	16	E
Jackrabbit Lake	Jackson	15, 47N, 31W	2	0.2	168	783	14	HE
Lake Jacomo	Jackson	11, 48N, 31W	9	1.3	34	574	19	E
Lamar Lake	Barton	32, 32N, 30W	11	0.8	80	997	46	E
Lone Jack Lake	Jackson	14, 47N, 30W	2	2.0	26	600	15	M
Longview Lake	Jackson	20, 47N, 32W	9	0.8	36	746	12	E
Lotawana Lake	Jackson	29, 48N, 30W	9	1.4	33	680	19	E
Montrose Lake	Henry	33, 41N, 27W	9	0.3	187	1,283	64	HE
Nell Lake	Jackson	15, 47N, 31W	2	0.6	68	834	10	E
North Lake	Cass	28, 45N, 31W	17	0.7	96	1,010	42	E
Odessa Lake	Lafayette	15, 48N, 28W	3	1.4	39	852	22	E
Prairie Lee Lake	Jackson	27, 48N, 31W	9	0.8	56	903	26	E
Raintree Lake	Cass	6, 46N, 31W	17	0.6	59	930	15	E
Spring Fork Lake	Pettis	21, 44N, 21W	11	0.6	154	1,126	47	HE
Lake Tapawingo	Jackson	34, 49N, 31W	8	1.3	34	842	32	E
*Tebo Lake (Westmoreland)	Pettis	12, 44N, 22W	6	2.8	18	609	4	M
Winnebago Lake	Cass	9, 46N, 31W	10	0.9	50	842	20	E
<u>OZARK BORDER</u>								
*Ashland Lake	Boone	19, 46N, 11W	1	0.6	119	1,684		HE
*Bella Vista Lake	Cape Girardeau	2/11, 32N, 13E	7	1.4	24	542	11	M
Binder Lake	Cole	36, 45N, 13W	17	1.0	56	771	25	E
*Boutin Lake	Cape Girardeau	15, 32N, 14E	6	1.5	23	558	8	M
Creve Couer Lake	St. Louis	20, 46N, 5E	8	0.3	152	1,064	58	HE
*D.C. Rogers Lake	Howard	3, 50N, 16W	10	1.3	32	542	7	M
Eureka Lake	St. Louis	NE31, 44N, 4E	1	0.8	48	830	14	E
Fayette Lake #2	Howard	4, 50N, 16W	7	0.9	52	877	23	E
Lake Forest (Lake Ann)	St. Genevieve	36, 38N, 7E	10	1.3	43	649	22	E
Lake Girardeau	Cape Girardeau	9, 30N, 11E	7	0.9	66	945	45	E
Glover Spring Lake	Callaway	13, 47N, 9W	7	1.2	67	863	22	E
Goose Creek Lake	St. Francois	26, 38N, 6E	11	2.3	14	388	4	M
Manito Lake	Moniteau	8/9, 44N, 17W	6	0.7	90	948	14	E
Lake Northwoods	Gasconade	33, 43N, 5W	12	1.2	24	448	5	M
Perry Co. Lake	Perry	22, 35N, 10E	8	0.8	79	1,034	43	E
Pinewoods Lake	Carter	7, 26N, 3E	5	1.4	36	765	20	E
Pinnacle Lake	Montgomery	24, 47N, 5W	6	2.7	22	454	5	M
Simpson Park Lake	St. Louis	16, 44, 5E	1	0.7	111	987	32	HE
Timberline Lake	St. Francois	23, 38N, 4E	10	4.2	9	299	2	O
Lake Tishomingo	Jefferson	5, 41N, 4E	10	2	22	495	6	M

<u>LAKE</u>	<u>COUNTY</u>	<u>LOCATION</u>	<u>YEARS OF RECORD</u>	<u>SECCHI¹</u>	<u>TP²</u>	<u>TN³</u>	<u>CHL-A⁴</u>	<u>TROPHIC STATE⁵</u>
*Tri-City Comm. Lake	Boone	24, 51N, 12W	10	0.8	57	865	20	E
Tywappity Lake	Scott	8, 29N, 13E	6	0.9	50	1,005	36	E
Wanda Lee Lake	St. Genevieve	2, 37N, 7E	10	1.3	56	577	26	E
Lake Wappapello	Wayne	3, 26N, 3E	17	0.9	38	520	24	E
Lake Wauwanoka	Jefferson	1, 40N, 4E	10	2.8	14	613	3	M
<u>OZARK HIGHLANDS</u>								
Austin Lake	Texas	30, 29N, 11W	9	1.7	20	513	6	M
*Bismarck Lake	St. Francois	19, 35N, 4E	6	1.7	21	381	6	M
Bull Shoals Lake	Taney	21-23N, 15-20W	8	2.2	18	360	8	M
*Lake Capri	St. Francois	30, 37N, 4E	17	4.6	7	289	2	O
*Lake Carmel	St. Francois	18, 37N, 4E	12	2.8	10	311	3	O
Clearwater Lake	Reynolds	6, 28N, 3E	17	1.9	14	225	6	M
Council Bluff Lake	Iron	23, 35N, 1E	17	3.2	8	237	2	O
Crane Lake	Iron	33, 32N, 4E	7	1.2	14	252	4	M
Fellows Lake	Greene	22, 30N, 21W	17	2.7	14	359	5	M
Fourche Lake	Ripley	22, 23N, 1W	11	3.4	10	245	3	O
Fredericktown City Lake	Madison	6, 33N, 7E	9	0.7	66	764	33	E
H.S. Truman Lake	Benton	7, 40N, 23W	17	1.2	42	857	16	E
Indian Hills Lake	Crawford	23, 39N, 5W	12	1.0	36	640	18	E
Lake Killarney	Iron	1, 33N, 4E	7	0.8	64	627	30	E
*Lafitte Lake	St. Francois	28, 37N, 4E	1	4.4	6	320	2	O
*Little Prairie Lake	Phelps	21, 38N, 7W	17	1.0	29	491	9	M
Loggers Lake	Dent	10, 31N, 3W	6	3.1	10	237	4	M
Lower Taum Sauk	Reynolds	33, 33N, 2E	9	2.1	12	196	4	M
Macs Lake (Ziske)	Dent	NE17, 34N, 5W	7	1.6	24	598	20	E
*Lake Marseilles	St. Francois	29, 37N, 4E	9	3.7	10	352	2	O
McDaniel Lake	Greene	26, 30N, 22W	16	1.4	33	476	18	E
*Miller Lake	Carter	1, 27N, 1E	9	1.5	19	484	7	M
Monsanto Lake (St. Joe State Park)	St. Francois	20, 36N, 5E	10	2.2	10	378	2	O
Noblett Lake	Douglas	25, 26N, 11W	7	2.7	17	250	4	M
Norfork Lake	Ozark	21N, 12W	6	1.7	23	631	6	M
Lake of the Ozarks (Lower)	Miller	19, 40N, 15W	16	2.0	29	598	15	E
Peaceful Valley	Gasconade	25, 42N, 6W	11	1.4	37	850	30	E
Pomme de Terre Lake	Hickory	2, 36N, 22W	18	1.8	28	568	15	E
*Pomona Lake	Howell	26, 26N, 9W	1	--	50	605	10	E
Ripley Co. Lake	Ripley	10, 23N, 1E	7	1.5	32	787	26	E
Roby Lake	Texas	3, 32N, 11W	8	2.1	18	431	5	M
Shawnee Lake (Turner)	Dent	NW17, 34N, 5W	7	1.7	28	583	22	E
Lake Shayne	Washington	25, 37N, 3E	16	2.9	7	277	1	O
Sims Valley Lake	Texas	17, 27N, 8W	9	1.1	26	498	13	M
Lake Springfield	Greene	20, 61N, 16W	8	0.9	58	1,005	20	E
Stockton Lake	Cedar	15, 34N, 26W	18	2.8	14	460	7	M
Sunnen Lake	Washington	4, 37N, 1E	13	2.7	12	282	4	M
Table Rock Lake	Stone	22, 22N, 22W	16	3.3	11	388	5	M
Lake Taneycomo	Taney	8, 23N, 20W	7	3.3	23	787	3	M

<u>LAKE</u>	<u>COUNTY</u>	<u>LOCATION</u>	<u>YEARS OF RECORD</u>	<u>SECCHI</u> ¹	<u>TP</u> ²	<u>TN</u> ³	<u>CHL-A</u> ⁴	<u>TROPHIC STATE</u> ⁵
<u>SOUTHEASTERN LOWLANDS</u>								
Big Oak Tree S.P. Lake	Mississippi	14, 23N, 16E	2	0.6	44	530	12	E
Upper Big Lake	Mississippi	25, 27N, 16E	2	0.3	338	2,050	181	HE

¹Secchi depth (m)

²Total Phosphorus (µg/L)

³Total Nitrogen (µg/L)

⁴Chlorophyll A (µg/L)

⁵Trophic State: O=Oligotrophic, M=Mesotrophic, E=Eutrophic, HE=Hypereutrophic

*Unclassified Lake

Trophic status correlates strongly with physiographic regions of the state. In agricultural northern and western Missouri, most lakes of known trophic state are eutrophic, while in the Ozarks and Ozark border regions, trophic states are more equally divided between eutrophic and either mesotrophic or oligotrophic lakes. Most known hypereutrophic lakes are in glaciated northern Missouri, while nearly all oligotrophic lakes are in unglaciated, highly weathered Ozark terrain.

The method presently used by the state to determine trophic status was derived from the work by Wetzel, R.G., 1975; "Limnology," Table 14-11; and from Vollenweider, R.A. and J.J. Kerekes, 1980. EPA440/5-81-010; "Restoration of Lakes and Inland Waters." The criteria are shown in the table below.

Table 10. Definition Of Trophic Classification.

Trophic Class	Chlorophyll-A (ug/l)	Total phosphorus (ug/l)
Oligotrophic	<3	<10
Mesotrophic	3-10	10-30
Eutrophic	11-56	31-100
Hypereutrophic	>56	>100

Controlling Pollution in Lakes

In Missouri, agriculture is considered the primary source of nonpoint source pollution, although urban areas represent a very significant source, as do abandoned mine lands. The department works to implement effective and appropriate Best Management Practices in the watersheds of impaired lakes and reservoirs.

In-lake management techniques that were previously funded under Section 314 can now be funded under Section 319 in the context of an appropriate Nonpoint Source (NPS) project. Several in-lake management techniques are eligible for Section 319 funding, including water level drawdown, shading and sediment covers, biological controls such as fish or insects, and planting or harvesting of aquatic plants.

In addition, the department conducts and helps fund monitoring on lakes throughout Missouri. This includes statewide lake assessments and volunteer lake monitoring that is now funded through Section 319. For example, the University of Missouri-Columbia's Statewide Lake Assessment Program evaluates approximately 100 lakes each

year. The program began collecting annual samples in 1989, with some samples taken as far back as 1978.

The 319 Program supplies grants to improve lakes, such as projects that provide information and education. The department also works with several watershed groups on a regular basis. There are at least 76 watershed groups in Missouri. These groups work to educate and inform residents and landowners in their watershed about techniques they can use to minimize nonpoint source pollution.

The department's Soil and Water Conservation Program also helps Missouri's agricultural landowners conserve soil and water resources through several incentive programs, which are funded by a statewide sales tax. These programs include the Cost-Share Program, Loan Interest-Share Program and Agricultural Nonpoint Source Special Area Land Treatment Program (AgNPS SALT). Practices offered for cost-share reduce soil erosion by a variety of methods that may include increasing crop residue, improving vegetation, diversion or containment of water to facilitate slower release, protection of stream bank and forested areas from livestock, and reduction of wind erosion. Cost-share and other incentives are also available through the Natural Resources Conservation Service. AgNPS SALT projects focus on decreasing agricultural nonpoint source pollution and usually encompass watersheds averaging 50,000 acres in size. There are 68 active SALTS. Of the 13 that have been completed, five focused primarily on protecting lakes in the watershed. The Missouri Department of Conservation also has programs and information to help Missourians manage private lakes.

Total Maximum Daily Loads also help to reduce pollution in Missouri lakes and reservoirs. One hundred and five TMDL studies have been completed since the beginning of the program in 1999. Six of these were for lakes, and focused primarily on reducing nonpoint source pollution entering the lake. Appendix II shows the proposed schedule to complete needed TMDLs.

STATUS OF WETLANDS

Originally about 4.8 million acres (10.7 percent of the land surface of the state) in Missouri were wetlands. By 1992, it was estimated that less than 480,000 acres remained. Several state and federal programs have recognized the need to preserve and enhance our remaining wetlands.

The department's Water Resources Center administers the State Wetlands Conservation Plan, which encourages the protection and restoration of wetlands, and provides technical assistance to other agencies involved in wetland issues. With the help of state and federal agencies, the department has completed several projects, including studies assessing urban wetlands, identifying types of wetlands through image analysis, and determining the hydrology of Missouri riparian wetlands. Currently the department and its partners are working to assess specific wetland mitigation sites, locate small headwater wetlands in agricultural areas, and establish a dollar value for wetlands under past, present and future conditions.

The Missouri Department of Conservation currently has 12 large intensively managed wetlands composed of approximately 26,000 acres. From 1998 to 2003, MDC purchased 23,186 acres of wetlands and restored an additional 32,662 acres.

In 1994, the U.S. Fish and Wildlife Service began the process of acquiring land from willing sellers in the Missouri River floodplain for a national wildlife refuge called Big Muddy. The project authorizes the purchase of up to 60,000 acres in 25 to 30 units between Kansas City and St. Louis. The refuge currently consists of 10,400 acres of land in eight units. Although access is limited at some units, all are publicly accessible. The refuge focuses on restoring several kinds of riverine and floodplain habitat, allowing lands to interact naturally with the river and act as seasonal wetlands.

The Natural Resources Conservation Service Wetlands Reserve Program, begun in 1992, purchases easements of wetlands and provides funds for restoration of those wetlands. There are presently 790 easements covering 116,839 acres in place in Missouri.

Together MDC, USFWS and NRCS have protected more than 140,000 acres through easements or purchases, restored more than 43,000 acres, and enhanced more than 41,000 acres of wetlands in Missouri.

Three Web sites providing information on Missouri's wetlands and efforts to restore wetlands are given below:

<http://www.dnr.mo.gov/env/wrc/wetlands.htm>

<http://www.mdc.mo.gov/landown/wetland/wetmng>

<http://www.nrcs.usda.gov/programs/wrp/states/mo.html>

CHAPTER 4. GROUNDWATER ASSESSMENT

BACKGROUND

Less than half of Missourians rely on groundwater as the source of their drinking water. Groundwater is the major source of drinking water in the Ozarks and the Southeast Lowlands for both public and private supplies. The cities of St. Joseph, Independence, Columbia and St. Charles use groundwater adjacent to the Missouri River. In the plains region of the state, many small communities are able to obtain adequate water from shallow alluvial wells near rivers or large creeks, and many individual households still rely on the upland shallow aquifer even though it yields only very small amounts of water.

In the Ozarks, groundwater yields are usually large and of excellent quality, as witnessed by the fact that unlike cities in other areas of the state, many municipalities pump groundwater directly into their water supplies without treatment. However, the geologic character of the Ozarks that supplies it with such an abundance of groundwater, namely its ability to funnel large amounts of rainfall and surface runoff to the groundwater system, can present problems for groundwater quality. This is because much surface water flows directly to groundwater through cracks, fractures or solution cavities in the bedrock, with little or no filtration. Contaminants from leaking septic tanks or storage tanks, or surface waters affected by domestic wastewater, animal feedlots and other pollution sources can move directly into groundwater through these cavities in the bedrock.

As in the Ozarks, groundwater in the southeast lowlands is abundant and of good quality. Unlike the Ozarks, contaminants are filtered by thick deposits of sand, silt and clay as they move through the groundwater system. Thus, while shallow groundwater wells are subject to the same problems with elevated levels of nitrate or bacteria as are found locally in the Ozark aquifer and can also have low levels of pesticides, deep wells are generally unaffected by contaminants.

Shallow groundwater in the plains of northern and western Missouri tends to be somewhat more mineralized and to have taste and odor problems due to high levels of iron and manganese. Like shallow wells in the southeast lowlands, wells in this part of the state can be affected by nitrates, bacteria or pesticides.

In urban areas, alluvial aquifers of large rivers such as the Missouri and the Meramec that serve water supplies have occasionally been locally contaminated by spills or improper disposal of industrial or commercial chemicals.

WELL CONSTRUCTION AND GROUNDWATER QUALITY

Well water quality is greatly influenced by well construction. Public drinking water wells and many private wells are deep, and properly cased and grouted. These wells rarely become contaminated. However, many private wells are shallow or not properly cased. These wells can be easily contaminated by septic tanks, feedlots or chemical mixing sites near the well. Studies in Missouri have shown that two-thirds of wells contaminated by pesticides are less than 35 feet deep. The three most common problems in private wells are bacteria, nitrate and pesticides. Groundwater studies in Missouri indicate that about 30 percent of private wells occasionally exceed drinking water standards for bacteria, 30 percent for nitrate and about five percent for pesticides. State regulations include standards for construction and wellhead protection for all new wells.

MAJOR POTABLE AQUIFERS IN MISSOURI

The location of the major aquifers providing drinkable water in Missouri are described below. The unconfined aquifers are those under water table conditions (the pressure at the water table is the atmospheric pressure). These unconfined aquifers tend to yield greater amounts of water, but are also more easily contaminated by activities occurring at the land surface. In confined aquifers, the upper level of the saturated zone is restricted so that the pressure level is greater than exists at that level of saturation. Confined aquifers are generally recharged more slowly than unconfined aquifers but are better protected from surface contaminants.

Glacial Till Aquifer

This aquifer covers most of Missouri north of the Missouri River. Glacial till is an unsorted mixture of clay, sand and gravel, with occasional boulders and lenses of sand or gravel. Loess, fine wind-blown silt deposits four to eight feet in depth, cover the till on the uplands. In places, the till is underlain by sorted deposits of sand or gravel. Although this aquifer is unconfined, surface water infiltrates very slowly and groundwater yields are very small. In scattered areas the till has buried old river channels that remain as large sand or gravel deposits that contain much more groundwater than the till.

Some households still rely on this aquifer for drinking water, but it is generally inadequate as a source for municipal water supply.

Alluvial Aquifer

Alluvial aquifers are the unconfined aquifers on floodplains of rivers and are of Quaternary age. In Missouri, the largest of these aquifers lie along the Missouri and Mississippi rivers, reaching their widest extent in the southeast lowlands where they extend for as much as 50 miles west of the Mississippi River. Many small communities north of the Missouri River use the alluvial aquifers of nearby streams for their drinking water supply, and the Missouri River alluvium supplies the cities of St. Joseph, Independence and Columbia and sections of St. Charles County. In the southeast lowlands, most private water supplies and about 45 percent of people served by public water supplies use water from the alluvial aquifer. Agricultural irrigation consumes about five times more water in this area of Missouri than does domestic water use. All agricultural irrigation water is drawn from the alluvial aquifer.

Wilcox-McNairy Aquifer

These two aquifers lie beneath much of the alluvial aquifer of the southeast lowlands. They are in unconsolidated or loosely consolidated deposits of marine sands and clays of Tertiary and Cretaceous age. Except where the McNairy aquifer outcrops in the Benton Hills and along Crowley's Ridge, these aquifers are confined. They yield abundant amounts of good quality water, and they provide the water for 55 percent of people served by public supplies. In the southeastern part of this region, the deeper of these aquifers, the McNairy, becomes too mineralized to be used for drinking water supply. These two aquifers appear to be unaffected by contaminants of human origin.

Ozark-St. Francis Aquifer

This aquifer covers most of the southern and central two-thirds of Missouri. It is composed of dolomites and sandstones of Ordovician and Cambrian age. Most of the aquifer is unconfined. This aquifer is used for almost all public and private drinking water supplies in this area of Missouri. Exceptions would include supplies in the St. Francis Mountains, such as Fredericktown and Ironton, where the aquifer has been lost due to geologic uplift and erosion, and in Springfield, where demand is so heavy that groundwaters are supplemented with water from three large reservoirs and the James River.

Yields and water quality are typically very good, but in many areas, the bedrock is highly weathered, contains many solution cavities, and can transmit contaminated surface waters into the groundwater rapidly with little or no filtration. Where the confined portion of the aquifer is overlain only by the Mississippian limestones of the Springfield aquifer, the confined Ozark aquifer continues westward for 80 miles or more as a potable water supply, serving the communities of Pittsburg, Kansas and Miami, Oklahoma. However, where it is also overlain by less permeable Pennsylvanian bedrock, the confined Ozark becomes too mineralized for drinking within 20 to 40 miles.

The unconfined Ozark-St. Francis aquifer is susceptible to contamination from surface sources. Increasing urbanization and increasing numbers of livestock are threats to the integrity of portions of this valuable aquifer.

Springfield Aquifer

This aquifer covers a large portion of southwestern Missouri. It is composed of Mississippian limestones that are, particularly in the eastern portion of the aquifer, highly weathered. The aquifer is unconfined and surface water in many areas is readily transmitted to groundwater. Urbanization and livestock production affect this aquifer. Elevated nitrates and bacterial contamination are common problems in groundwaters of the Springfield aquifer.

GROUNDWATER QUALITY SUMMARY TABLES

Table 11 lists the major sources of groundwater contamination in Missouri, major contaminants, and reasons why these sources are the most important. Table 11 summarizes groundwater quality problems at hazardous waste sites. Tables 12 and 13 provide information on levels of nitrate, pesticides and other toxic organics in public drinking water wells and Table 14 gives the present status of Missouri’s groundwater protection strategy.

Table 11. Major Sources Of Groundwater Contamination.

Contaminant Source	10 Highest Priority Sources (X) ¹	Significant Risk Factors ²	Contaminants ³
Agricultural Activities			
Agricultural chemical facilities			
Animal feedlots			
Drainage wells			
Fertilizer applications	X	A,C,D,E	A
Irrigation practices			
Pesticide applications	X	A,B,C,D,E	B
Storage and Treatment Activities			
Land application	X	A,D,E	A,C
Material stockpiles			
Storage tanks (above ground)			
Storage tanks (underground)	X	A,B,C,D,E	D
Surface impoundments			
Waste piles			
Waste tailings			
Disposal Activities			
Deep injection wells			
Landfills			
Septic systems	X	A,D,E	A,C
Shallow injection wells			

Other			
Hazardous waste generators			
Hazardous waste sites	X	A,B,C,D	B,E,F,G
Industrial facilities	X	A,B,C,E	A,H,I,J
Material transfer operations			
Mining and mine drainage	X	A,E	F
Pipelines and sewer lines			
Salt storage and road salting			
Salt water intrusion	X	C	K
Spills	X	A,B,C,E	B,D,E,H
Transportation of materials			
Urban runoff			
Other sources (please specify)			
Other sources (please specify)			

1 Not in Priority Order

2 A. Human health or environmental toxicity risk

B. Size of population at risk

C. Location of sources relative to drinking water sources

D. Number and/or size of contaminant sources

E. Hydrogeologic sensitivity

3 A. Nitrate

B. Organic Pesticides

C. Pathogens (Bacteria, Protozoa, Viruses)

D. Petroleum Compounds

E. Halogenated Solvents

F. Metals

G. Radionuclides

H. Ammonia

I. Pentachlorophenol

J. Dioxin

K. Salinity/Brine

Table 12. Groundwater Contamination Summary.

Hydrogeologic Setting: All Aquifers

Data Reporting Period: 2004-2005

Source Type	Number of sites	Number of sites that are listed and/or have confirmed releases	Number with confirmed groundwater contamination	Contaminants*	Number of site investigations (optional)	Number of sites that have been stabilized or have had the source removed (optional)	Number of sites with corrective action plans (optional)	Number of sites with active remediation (optional)	Number of sites with cleanup completed (optional)
NPL	26	26	26	1	26	--	--	--	--
CERCLIS (non-NPL)	452	452	38	1	38	--	--	--	--
DOD/DOE	117	34	32	2	33	2	11	10	31
LUST	3,757	295	87	3	61	286	--	1,589	286
RCRA Corrective Action	96	92	52	1,2,3,4	51	41	30	25	20
Underground Injection									
State Sites	325	325	126	1,2,3,4	325	134	134	42	134
Nonpoint Sources ⁽⁵⁾									
Other (specify)									

NPL - National Priority List , DOE- Department of Energy ; DOD- Department of Defense; CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Information System; LUST - Leaking Underground Storage Tanks; RCRA - Resource Conservation and Recovery Act.

* Contaminants

1 - VOAs, SVOAs, Solvents, PCBs, Dioxin, PAHs, Herbicides, Pesticides, Metals, Explosives

2 - VOA, PCB, Pesticides, Dioxin, Metals, Radionuclides, SVOCs, etc.

3 - BTEX, TPH, MTBE, PAHs, Metals, SVOA

4 - Creosote, Pentachlorophenol, Organic Solvents, Chlorinated Solvents, Petroleum, Asbestos

Table 13. Aquifer Monitoring Data.

Hydrogeologic Setting: Alluvial Aquifers and Glacial Deposits of Northern Missouri
 Data Reporting Period: January 2003 to December 2006

System	Range mg/l Nitrite+Nitrate as N	SOCs	VOCs	Compound and Range of Contaminant Levels
Albany	0.10 - 0.21	ND	ND	
Barnard	0.06 - 1.17	ND	ND	
Bolckow	ND	ND	ND	
Bosworth	5.30 - 6.30	ND	ND	
Braymer	0.07 - 0.10	ND	ND	
Brunswick - Mo. American	ND - 0.13	ND	ND	
Burlington Junction	ND	ND	ND	
Caldwell Co. PWSD #1	ND	ND	ND	
Canton	0.07 - 0.14	ND	ND	
Carrollton	ND - 0.05	ND		Dichloromethane 1.08 ug/l
Chillicothe	ND	ND	ND	
Clark Co. PWSD #1	1.79 - 2.37	ND	ND	
Clay Co. PWSD #3	ND - 0.08	ND	ND	
Clay Co. PWSD #8	ND	ND	ND	
Clearmont	4.21 - 4.55	ND		Xylenes ND - 1.44 ug/l
Conception Junction	ND - 0.31	ND	ND	
Craig	ND	ND	ND	
Elsberry	ND	ND		1,1-Dichloroethylene ND- 1.23 ug/l; 1,2-Dichloroethane ND - 0.58 ug/l; Trichloroethylene ND - 1.20 ug/l; Xylenes ND - 3.94 ug/l; Ethylbenzene ND - 0.78 ug/l
Excelsior Springs	ND - 0.06	ND	ND	
Fairfax	ND - 0.12	ND	ND	
Gallatin	ND - 0.40	-	-	
Gladstone	ND	ND	ND	
Glasgow	ND - 3.45		ND	Atrazine ND - 4.01 ug/l; Di(2-Ethylhexyl)-Phthalate 1.61 ug/l
Graham	1.83 - 2.87	ND	ND	
Harrison Co. PWSD #2	ND - 0.23	ND	ND	
	Range mg/l			

System	Nitrite+Nitrate as N	SOCs	VOCs	Compound and Range of Contaminant Levels
Hopkins	-	ND	ND	
Howard Co. PWSD #1	ND	ND	ND	
Kahoka	ND	ND	ND	
Keytesville	ND - 0.09	ND	ND	
Kingston	ND	ND	ND	
Liberty	0.06 - 0.10	ND	ND	
Linn Co. PWSD #1	ND	ND	ND	
Linn-Livingston Co. PWSD #3	ND - 0.10	ND		Xylenes ND - 67.60 ug/l; Ethylbenzene ND - 21.20 ug/l
Livingston Co. PWSD #2	ND	ND	ND	
Livingston Co. PWSD #4	ND	ND		Carbon Tetrachloride 1.14 ug/l
Maitland	5.55 - 10.40	ND	ND	
Mound City	ND	ND	ND	
North Kansas City	0.06 - 0.09	ND	ND	
New Franklin	ND	ND	ND	
Norborne	ND	ND		Xylenes 2.01 ug/l; Ethylbenzene 0.50 ug/l
Ofallon	ND - 0.23	ND	ND	
Oregon	ND	ND	ND	
Osborn	4.76 - 4.91	ND	ND	
Palmyra	ND	ND		Dichloromethane ND - 0.59 ug/l
Parkville - Mo. American	ND	ND	ND	
Pattonsburg	ND	ND	ND	
Polo	ND - 0.08	ND		1,2,4-Trichlorobenzene 1.22 ug/l
Portage Des Sioux	0.11 - 0.56	ND	ND	
Ravenwood	ND	ND	ND	
Rock Port	ND	ND	ND	
Rosendale	ND	ND	ND	
Salisbury	ND	ND	ND	
Sheridan	ND	ND	ND	
Skidmore	ND	ND	ND	
St. Joseph - Mo. American	ND	ND	ND	
Sumner	ND	ND		Xylenes 2.74 ug/l; Ethylbenzene 0.50 ug/l
	Range mg/l			

System	Nitrite+Nitrate as N	SOCs	VOCs	Compound and Range of Contaminant Levels
Tarkio Board of Public Works	ND	ND		Xylenes 5.20 ug/l; Ethylbenzene 2.93 ug/l; Toluene 0.91 ug/l
Weston	ND	ND	ND	

SOC = synthetic organic compound

VOC = volatile organic compound

ND = not detected

Table 14. Summary Of Groundwater Protection Programs.

Program or Activities	Check (X)	Implementation Status	Responsible State Agency
Active SARA Title III Program	X	Fully Established	MDPS/SEMA
Ambient Groundwater Monitoring System		NA	
Groundwater Monitoring at Sanitary Landfills	X	Fully Established	DNR
Groundwater-Level Observation Network	X	Fully Established	DNR
Aquifer Vulnerability Assessment		NA	
Aquifer Mapping and Characterization	X	Continuing Effort	DNR
Comprehensive Data Management System		NA	
EPA-endorsed Core Comprehensive State Groundwater Protection Program (CSGWPP)		NA	
Groundwater Discharge Permits	X	Fully Established	DNR
Groundwater Best Management Practices (BMPs)	X	Continuing Effort	DNR
Groundwater Legislation	X	Developed	DNR
Groundwater Classification		NA	
Groundwater Quality Standards	X	Fully Established	DNR
Interagency Coordination for Groundwater Protection Initiatives	X	Fully Established	DNR
Nonpoint source controls	X	Continuing Effort	DNR
Pesticide State Management Plan	X	Developed	MDA
Pollution Prevention Program	X	Continuing Effort	DNR
Resource Conservation and Recovery Act (RCRA) Primacy	X	Fully Established	DNR
State Superfund	X	Fully established	DNR
State RCRA Program Incorporating More Stringent Requirements than RCRA Primacy	X	Fully Established	DNR
State Septic System Regulations	X	Fully Established	MDHSS
Underground Storage Tank Installation Requirements	X	Fully Established	DNR
Underground Storage Tank Remediation Fund		NA	
Underground Storage Tank Permit Program		NA	
Underground Injection Control Program	X	Fully Established	DNR
Vulnerability Assessment for Drinking Water/Wellhead Protection	X	Fully Established	DNR
Well Abandonment Regulations	X	Fully Established	DNR
Wellhead Protection Program (EPA-approved)	X	Fully Established	DNR
Well Installation Regulations	X	Fully Established	DNR

MDPS/SEMA = Missouri Department of Public Safety, State Emergency Management Agency

MDA = Missouri Department of Agriculture

MDHSS = Missouri Department of Health & Senior Services

Notes:

Active SARA Title III Program: This program is administered by the Missouri Department of Public Safety, State Emergency Management Agency.

Ambient Groundwater Monitoring System: There is no system per se. The state has participated in several opportunities to monitor ambient groundwater, such as impact analyses following the floods of 1993.

Groundwater Monitoring at Sanitary Landfills: The department's Solid Waste Management Program oversees monitoring at sanitary landfills.

Groundwater-Level Well Observation Network: Established in 1951, this network is operated by the department's Water Resources Center and currently consists of 75 wells.

Aquifer Vulnerability Assessment: The department does not have a specific program in place, but the department's Water Resources Center collects groundwater supply data and performs resource assessments.

Aquifer Mapping and Characterization: The Water Resources Center participates in aquifer mapping. No present systematic activity is done, although these activities may be conducted in concert with hazardous substance release investigations. The department's Public Drinking Water Branch is currently working with the Water Resources Center to perform aquifer monitoring and characterization to delineate which aquifer zones are responsible for the highest concentration of radionuclides. In addition, the U.S. Geological Survey has done considerable work on aquifer characteristics.

Comprehensive Data Management System: None.

EPA-endorsed Core Comprehensive State Groundwater Protection Program: No formal program has been established.

Groundwater Discharge Permits: Underground Injection Control permits are issued jointly by the department's Division of Geology and Land Survey and Water Protection Program.

Groundwater Best Management Practices: Some BMPs are established as part of the Nonpoint Source Management Plan. The Soil and Water Conservation Program also provides cost-share to help agricultural landowners install BMPs on their land.

Groundwater Legislation: The Cave Resources Act and Clean Water Law deal directly with groundwater. Other laws, such as the Dead Animal Disposal Statute, prescribe protections for groundwater. There is no comprehensive groundwater protection statute per se.

Groundwater Classification: There is no classification system at this time, although it has been proposed in the past.

Groundwater Quality Standards: Standards have been established as part of state water quality standards.

Interagency Coordination for Groundwater Protection Initiatives: Opportunities for monthly coordination are provided through the Water Quality Coordinating Committee.

Nonpoint Source Controls: The nonpoint source management program provides guidance for voluntary controls. In addition, the department's Soil and Water Conservation Program provides cost-share for soil and water conservation.

Pesticide State Management Program: A general pesticide and water quality management plan was prepared by the Missouri Department of Agriculture in conjunction with the Missouri Department of Natural Resources. The plan addresses both groundwater and surface water, and has been concurred with by EPA.

Pollution Prevention Program: The department uses outreach and assistance to educate Missourians on pollution prevention.

Resource Conservation and Recovery Act (RCRA) Primacy: RCRA is administered by the department's Hazardous Waste Program.

State Superfund: This program is administered by the department's Hazardous Waste Program, and provides for a state registry of confirmed abandoned hazardous waste disposal sites.

State RCRA Program Incorporating More Stringent Requirements than RCRA Primacy: Requirements are administered by the department's Hazardous Waste Program.

State Septic System Regulations: Regulations are administered by the Department of Health & Senior Services.

Underground Storage Tank Installation Requirements: Requirements are administered by the department's Hazardous Waste Program.

Underground Storage Tank Remediation Fund: The department does not have an underground storage tank remediation fund, but does have a similar fund called the Petroleum Storage Tank Insurance Fund. It was initially established to provide underground storage tank owners and operators with assistance in meeting state and federal financial responsibility requirements. It has since been amended, broadening eligibility and expanding benefits.

Underground Storage Tank Permit Program: Tanks are required to be registered but not permitted.

Underground Injection Control Program: The program is administered by the department's Division of Geology and Land Survey.

Vulnerability Assessment for Drinking Water/Wellhead Protection: Assessments are administered by the department's Water Protection Program. A vulnerability assessment of Missouri drinking water to chemical contamination was conducted and implemented in 1991.

Well Abandonment Regulations: Regulations are administered by the department's Division of Geology and Land Survey.

Wellhead Protection Program (EPA-approved): This program is administered by the department's Water Protection Program.

Well Installation Regulations: Regulations are administered by the department's Water Protection Program.

For more information, call the Department of Natural Resources at (573) 751-1300.

Appendix I
Impaired or Potentially Impaired Waters of Missouri

Table 15. 2006 Missouri Section 303(d) List,
As Approved by the Missouri Clean Water Commission

Waterbody Name	WBID	First Year on 303(d)	Length/Area of Impaired Segment	Pollutant	Source	Impaired Uses*	Other Designated Uses*	Upstream End of Impaired Segment		Downstream End of Impaired Segment		Primary County
								Latitude	Longitude	Latitude	Longitude	
Bee Fork	2760	2006	1.0 mi.	Lead	Fletcher Mine	AQL	FC, LWW, WBC	37.4410	-91.0960	37.4431	-91.0792	Reynolds
Big Bottom Creek	1746	1998	1.8 mi.	Low D.O.	Lake Forest Subdivision	AQL	FC, LWW	37.9540	-90.2066	37.9745	-90.1997	Ste. Genevieve
Big Creek	444	2006	6.0 mi.	Ammonia, Low D.O.	Bethany WWTP	AQL	FC, LWW, WBC, DWS	40.2542	-94.0636	40.2038	-94.0756	Harrison
Big River	2080	1994	19.0 mi.	Cadmium, Lead, Zinc, Inorganic Sediment	Old Lead Belt AML	AQL	FC, LWW, WBC, IND	37.8721	-90.5885	37.9329	-90.5123	St. Francois
		1994	16.0 mi.	Cadmium, Lead, Inorganic Sediment				37.9329	-90.5123	38.0078	-90.6282	
		1994	3.0 mi.	Lead, Inorganic Sediment				38.0078	-90.6282	38.0364	-90.6196	
		1994	17.0 mi.					AQL, FC	LWW, WBC, IND	38.0364	-90.6196	38.1569
Blue River	417	2006	4.0 mi.	Bacteria	Urban Runoff	WBC	FC, AQL, LWW, IND	39.0694	-94.5071	39.1228	-94.4658	Jackson
Blue River	418	2006	9.0 mi.	Bacteria	Urban Runoff	WBC	FC, AQL, LWW, SCR, IND	39.0156	-94.5208	39.0694	-94.5071	Jackson
Blue River	419	2006	9.0 mi.	Bacteria	Urban Runoff	WBC	FC, AQL, LWW, SCR	38.9526	-94.5633	39.0156	-94.5208	Jackson
Bobs Creek	35	2006	1.0 mi.	Low D.O.	Lincoln Co. PWSD #1 WWTP	AQL	FC, LWW, WBC	38.9860	-90.8701	38.9799	-90.8541	Lincoln

Waterbody Name	WBID	First Year on 303(d)	Length/Area of Impaired Segment	Pollutant	Source	Impaired Uses*	Other Designated Uses*	Upstream End of Impaired Segment		Downstream End of Impaired Segment		Primary County
								Latitude	Longitude	Latitude	Longitude	
Brush Creek	1371	2002	4.0 mi.	Low D.O.	Humansville WWTP	AQL	FC, LWW, WBC	37.7913	-93.5901	37.8316	-93.6277	Polk
Buffalo Ditch	3118	1994	3.0 mi.	Ammonia, Low D.O.	Kennett WWTP	AQL	FC, LWW, WBC	36.2001	-90.0614	36.1609	-90.0826	Dunklin
Capps Cr.	3234	2006	4.0 mi.	Bacteria	Rural NPS	WBC	AL, LWW, IR, SCR	36.88319	-94.02616	36.88843	-94.09365	Newton
Cave Spring Br.	3245U	1998	0.2 mi.	Nutrients	Simmons Ind.	GC**		36.5468	-94.6094	36.5475	-94.6178	McDonald
Center Creek	3203	1994	12.8 mi.	Cadmium, Lead	Tri-State AML	AQL	FC, LWW, WBC, SCR, IRR, IND	37.1754	-94.4550	37.1510	-94.6170	Jasper
Chariton River	640	2006	20.0 mi.	Bacteria	Rural NPS	WBC	FC, AQL, LWW, SCR, IRR	39.6819	-92.6928	39.4428	-92.8784	Chariton
Clear Creek	3239	2006	3.0 mi.	Low D.O.	Monett WWTP	AQL	FC, LWW, WBC	36.9174	-93.9470	36.9423	-94.0002	Lawrence
Courtois Creek	1943	2006	3.0 mi.	Lead, Zinc	Viburnum Mine Tailings	AQL	FC, LWW, WBC, SCR	37.7648	-91.0718	37.7989	-91.0589	Washington
Crooked Creek	1928	2006	3.5 mi.	Cadmium, Lead	Casteel Mine	AQL	FC, LWW, WBC	37.6929	-91.1593	37.7133	-91.2048	Crawford
Dardenne Creek	221	2006	1.0 mi.	Inorganic Sediment	Suburban and Rural NPS	AQL	FC, LWW, WBC, SCR	38.7361	-90.7854	38.7366	-90.7699	St. Charles
Dardenne Creek	222	2006	3.4 mi.	Inorganic Sediment	Suburban and Rural NPS	AQL	FC, LWW, WBC, SCR	38.7388	-90.8301	38.7361	-90.7854	St. Charles
Douger Branch	3168	2006	2.5 mi.	Cadmium, Lead	Aurora AML	AQL	FC, LWW, WBC	36.9751	-93.7139	36.9775	-93.7798	Lawrence
Dousinbury Creek	1180	2006	3.5 mi.	Bacteria	Rural NPS	WBC	AQL, FC, LWW	37.5731	-92.9276	37.5952	-92.9801	Dallas
Dry Auglaize Creek	1145	2002	3.0 mi.	Unknown	Unknown	AQL	FC, LWW, WBC	37.7049	-92.6505	37.7408	-92.6220	Laclede
Dutro Carter Creek	3569	2006	0.6 mi.	Low D.O.	Rolla Southeast WWTP	AQL	FC, LWW, WBC	37.9320	-91.7262	37.9317	-91.7169	Phelps
			0.1 mi.	Ammonia				37.9320	-91.7262	37.9318	-91.7245	

Waterbody Name	WBID	First Year on 303(d)	Length/Area of Impaired Segment	Pollutant	Source	Impaired Uses*	Other Designated Uses*	Upstream End of Impaired Segment		Downstream End of Impaired Segment		Primary County
								Latitude	Longitude	Latitude	Longitude	
East Fork Chariton River	682	2006	48.5 mi.	Sulfate	Multiple AMLs	AQL	FC, LWW, WBC, DWS, IRR	39.7509	-92.5158	39.3403	-92.8445	Randolph
East Fork Grand River	457	2006	25.0 mi.	Bacteria	Rural NPS	WBC	FC, AQL, LWW, DWS, IRR	40.4943	-94.3123	40.1977	-94.3620	Gentry
E. Fk. Locust Creek	608	2006	2.5 mi.	Low D.O.	Milan WWTP	AQL	FC, LWW	40.1936	-93.1139	40.1664	-93.1190	Sullivan
E. Fk. Tebo Creek	1282	2006	1.0 mi.	Low D.O.	Windsor Southwest Lagoon	AQL	FC, LWW, WBC	38.5142	-93.5346	38.5005	-93.5297	Henry
Eaton Branch	2166	2006	0.9 mi.	Cadmium, Lead, Zinc	Leadwood Tailings Pile	AQL	FC, LWW, WBC	37.8675	-90.6057	37.8721	-90.5885	St. Francois
Fellows Lake	7237	2006	820 ac.	Nutrients	Suburban and Rural NPS	GC**	AQL, LWW, WBC, SCR, DWS	37.3097	-93.1790	37.3155	-93.2294	Greene
Flat Creek	865	2006	15.5 mi.	Unknown	Unknown	AQL	FC, LWW, WBC, SCR	38.5436	-93.4116	38.6588	-93.2537	Pettis
Flat River Creek	2168	1994	1.0 mi.	Cadmium, Lead, Zinc, Inorganic Sediment	Old Lead Belt AML	AQL	FC, LWW, WBC	37.8372	-90.5301	37.8481	-90.5175	St. Francois
			4.0 mi.			AQL, FC	LWW, WBC	37.8481	-90.5175	37.8918	-90.4999	
Gabriel Creek	883	2006	0.8 mi.	Ammonia, Low D.O.	Stover WWTPs	AQL	FC, LWW	38.4377	-93.0000	38.4477	-93.0041	Morgan
		1994	1.2 mi.	Low D.O.								
Grand River	593	2006	60.0 mi.	Bacteria	Rural NPS	WBC	AQL, FC, LWW, SCR, DWS, IRR	39.7410	-93.5352	39.3844	-93.1071	Chariton
Gravois Creek	1712	2006	2.0 mi.	Bacteria	Urban Runoff	WBC	AQL, FC, LWW	38.5407	-90.2985	38.5595	-90.2829	St. Louis
Gravois Creek	1713	2006	4.0 mi.	Bacteria	Urban Runoff	AQL, WBC	FC, LWW	38.5467	-90.3480	38.5407	-90.2985	St. Louis
Grindstone Creek	1009	2006	1.5 mi.	Bacteria	Unknown	WBC	AQL, FC, LWW	38.9224	-92.3034	38.9278	-92.3218	Boone
Hickory Cr.	3226	2006	1.0 mi.	Bacteria	Unknown	WBC	LWW, AQL	36.88135	-94.36867	36.89394	-94.3708	Newton

Waterbody Name	WBID	First Year on 303(d)	Length/Area of Impaired Segment	Pollutant	Source	Impaired Uses*	Other Designated Uses*	Upstream End of Impaired Segment		Downstream End of Impaired Segment		Primary County
								Latitude	Longitude	Latitude	Longitude	
Hinkson Creek	1007	1998	6.0 mi.	Unknown	Urban Runoff	AQL	FC, LWW, WBC, SCR	38.9278	-92.3375	38.9217	-92.4135	Boone
Hinkson Creek	1008	1998	6.3 mi.	Unknown	Urban Runoff	AQL	FC, LWW, WBC	38.9629	-92.2961	38.9278	-92.3375	Boone
Indian Creek	420	2002	3.0 mi.	Bacteria	WWTP in Kansas, Urban Runoff	WBC	AQL, FC, LWW, IND	38.9384	-94.6085	38.9526	-94.5633	Jackson
Indian Creek	1946	2002	1.5 mi.	Lead, Zinc	Viburnum Mine Tailings	AQL	FC, LWW, WBC	37.7413	-91.0847	37.7648	-91.0718	Washington
Indian Creek, Tributary to	3663	2006	0.5 mi.	Lead, Zinc	Viburnum Mine Tailings	AQL	FC, LWW, WBC	37.7559	-91.0946	37.7596	-91.0748	Washington
Indian Creek	3256	2006	5.0 mi.	Bacteria	Rural NPS	WBC	AL, LWW, IR, SCR	36.7944	-94.2326	36.76246	-94.2729	McDonald
Lake Taneycomo	7314	1994	865.0 ac.	Low D.O.	Table Rock Dam	AQL	FC, LWW, WBC, SCR, DWS	36.5957	-93.3091	36.6592	-93.1244	Taney
Lamine River	847	2006	54.0 mi.	Bacteria	Rural NPS	WBC	AQL, FC, LWW, SCR, IRR	38.6683	-92.953	38.9802	-92.8508	Cooper
Lewistown Lake	7020	2002	29.0 ac.	Atrazine	Crop Production	DWS	AQL, FC, LWW, WBC, SCR	40.0978	-91.8269	40.0978	-91.8190	Lewis
Little Dry Fork	1863	2006	1.0 mi.	Low D.O.	Rolla Southeast WWTP	AQL	FC, LWW, WBC	37.9318	-91.7170	37.9393	-91.7060	Phelps
Little Muddy Creek, Tributary to	3490	1998	0.4 mi.	Color, Chloride	Tyson Foods	AQL, GC**	FC, LWW, WBC	38.7680	-93.3021	38.7731	-93.2912	Pettis
Long Branch Creek	696	2006	2.0 mi.	Low D.O.	Atlanta WWTP	AQL	FC, LWW, WBC	39.8979	-92.4934	39.8744	-92.4908	Macon
Lost Creek	3278	2006	8.5	Bacteria	Rural NPS	WBC	AL, LWW, SCR	36.88931	-94.49823	36.84035	-94.61853	Newton
Main Ditch	2814	2006	1.0 mi.	Temperature	Stream Modification	AQL	LWW, FC, WBC, IRR	36.7348	-90.4131	36.7295	-90.3984	Butler
			6.0 mi.	pH, Ammonia, Temperature	Poplar Bluff WWTP, Stream Modification			36.7295	-90.3984	36.6163	-90.4031	
			7.0 mi.	Temperature	Stream Modification			36.6163	-90.4031	36.5558	-90.4485	

Waterbody Name	WBID	First Year on 303(d)	Length/Area of Impaired Segment	Pollutant	Source	Impaired Uses*	Other Designated Uses*	Upstream End of Impaired Segment		Downstream End of Impaired Segment		Primary County
								Latitude	Longitude	Latitude	Longitude	
McKenzie Creek	2786	2002	2.5 mi.	Low D.O.	Piedmont WWTP	AQL	FC, LWW, WBC	37.1389	-90.7070	37.1058	-90.7180	Wayne
Middle Fork Grand River	468	2006	25.0 mi.	Bacteria	Rural NPS	WBC	AQL, FC, LWW, SCR, IRR	40.5418	-94.3513	40.2186	-94.3944	Gentry
Mound Br.	1300	1998	1.0 mi.	Low D.O.	Butler WWTP	AQL	LWW, WBC	38.2262	-94.3444	38.217	-94.351	Bates
Muddy Creek	853	2006	1.0 mi.	Color	Tyson Foods	GC**	AQL, FC, LWW, WBC	38.7718	-93.2748	38.7675	-93.2582	Pettis
North Fork Spring River	3188	2006	29.9	Unknown	Unknown	AQL	FC, LWW, WBC	37.3172	-94.0258	37.4825	-94.2927	Barton
			1.0 mi.	Low D.O., Ammonia	Lamar WWTP			37.4825	-94.2927	37.4790	-94.2786	
			3.1 mi.	Low D.O.	Lamar WWTP			37.4790	-94.2786	37.4566	-94.2819	
			11.5 mi.	Unknown	Unknown			37.4566	-94.2819	37.3406	-94.3312	
Niangua River	1170	2006	2.0 mi.	Bacteria	Unknown	WBC	AQL, FC, LWW, SCR	37.6865	-92.9374	37.6929	-92.9236	Dallas
No Creek	550	2006	22.5 mi.	Bacteria	Rural NPS	WBC	AQL, FC, LWW	40.1706	-93.4500	39.8891	-93.5716	Grundy
Pearson Creek	2373	2006	1.5 mi.	Bacteria	Unknown	WBC	AQL, FC, LWW	37.1821	-93.1991	37.1637	-93.1965	Greene
Pickle Creek	1755	2006	7.0 mi.	pH	Natural	AQL	FC, LWW, WBC	37.8146	-90.2552	37.8369	-90.2036	Ste. Genevieve
Piper Creek (Town Branch)	1444	2006	0.5 mi.	Unknown	Unknown	AQL	FC, LWW, WBC	37.6113	-93.3953	37.6169	-93.3900	Polk
		1998	2.0 mi.	Organic Sediment	Bolivar WWTP, unknown			37.6169	-93.3900	37.6387	-93.3829	
Saline Creek, Trib. to	2859U	2006	1.0 mi.	Nickel	Madison Mine	GC**		37.5516	-90.2729	37.5594	-90.2756	Madison
Shaw Branch	2170	1994	2.0 mi.	Cadmium, Lead	Federal AML	AQL	FC, LWW, WBC	37.8332	-90.5173	37.8481	-90.5175	St. Francois
South Blackbird Creek	655	2006	4.0 mi.	Ammonia	Unknown	AQL	FC, LWW, WBC	40.4246	-92.9602	40.4139	-92.9050	Putnam

Waterbody Name	WBID	First Year on 303(d)	Length/Area of Impaired Segment	Pollutant	Source	Impaired Uses*	Other Designated Uses*	Upstream End of Impaired Segment		Downstream End of Impaired Segment		Primary County
								Latitude	Longitude	Latitude	Longitude	
Spring River	3160	2006	3.0 mi.	Bacteria	Urb/Rural Pt/NPS	WBC	AL, LWW, IR, SCR	37.1864	-94.31279	37.19051	-94.35594	Jasper
Strother Creek	2751U	2006	1.0 mi.	Zinc	Buick Mine	GC**		37.5881	-91.0602	37.5948	-91.0471	Reynolds
Table Rock Lake	7313	2002	43100 ac.	Nutrients	Pt/NP Sources	GC**	LWW, AQL, WBC, SCR	36.4984	-93.754	36.5961	-93.3138	Stone
Turkey Creek	3216	2002	7.0 mi.	Cadmium	Multiple AMLs	AQL	FC, LWW, WBC	37.1058	-94.5025	37.1248	-94.6180	Jasper
Turkey Creek	3282	2006	0.8 mi.	Cadmium, Zinc, Lead	Mine Tailings	AQL	FC, LWW, WBC	37.9233	-90.5486	37.9331	-90.5523	St. Francois
			1.2 mi.	Lead				37.9331	-90.5523	37.9490	-90.5592	
Village Creek	2863	2006	1.5 mi.	Inorganic Sediment, Manganese, Lead	Mine La Motte AML	AQL	FC, LWW, WBC	37.5988	-90.2541	37.5656	-90.3092	Madison
Warm Fork Spring River	2579	2006	9.0 mi.	Bacteria	Unknown	WBC	AQL, FC, LWW, SCR, IRR	36.6003	-91.5482	36.4991	-91.5273	Oregon
Watkins Creek	1708	2006	3.5 mi.	Bacteria	Urban Runoff	AQL, WBC	FC, LWW	38.7696	-90.2213	38.7734	-90.1754	St. Louis
West Fork Medicine Creek	623	2006	40.0 mi.	Unknown	Unknown	AQL	FC, LWW, WBC	40.5794	-93.4292	40.1058	-93.3760	Mercer
Willow Fork, Tributary to	956	2006	0.5 mi.	Low D.O.	Tipton WWTP	AQL	FC, LWW	38.6321	-92.7698	38.6274	-92.7644	Moniteau

*Designated Use Codes: AQL-Protection of Aquatic Life (Warm, Cool, or Cold Water); FC-Fish Consumption; WBC-Whole Body Contact Recreation; SCR-Secondary Contact Recreation; DWS-Drinking Water Supply; IRR-Irrigation; LWW-Livestock & Wildlife Watering; IND-Industrial

**General Criteria: Although no specific designated uses have been impaired, the general water quality criteria which apply to all waters of the state [10 CSR 20-7.031 (3)] have been violated, so the water is considered impaired and eligible for the 303(d) list. In the case of unclassified waters, this includes acute toxicity.

Table 16. Other Impaired Waters of Missouri.

The following list includes all other classified waters in Missouri found to be impaired by applying the Methodology for the Development of the 2006 Section 303(d) List in Missouri. Included in this list are waters with approved TMDLs, waters where sufficient pollution control measures are in place, waters which are not impaired by discrete pollutants, and other waters which were not approved for 303(d) listing by the Clean Water Commission.

Name	WBID	Length/Area (miles/acres)	County	Pollutant	Source
Big Otter Creek	1224	1.0	Henry	pH	Otter Creek AML
Big Otter Creek, Tributary to	1225	1.0	Henry	pH	Otter Creek AML
		1.0		Low Dissolved Oxygen	Unknown
Brushy Creek	1592	3.0	Texas	Low Dissolved Oxygen	Houston WWTP
Buffalo Ditch	3118	15.0	Dunklin	Low Dissolved Oxygen	Unknown
Burgher Branch	1865	0.6	Phelps	Ammonia, Low Dissolved Oxygen	Rolla SE WWTP
		1.4		Low Dissolved Oxygen	Unknown
Cedar Creek	0737	4.0	Boone	Low Dissolved Oxygen	Unknown
Cedar Creek, Tributary to	0743	1.5	Callaway	Low Dissolved Oxygen	Unknown
Center Creek	3203	12.8	Jasper	Zinc	Tri-State AML
Clear Creek	1333	28.0	St. Clair	Low Dissolved Oxygen	Unknown
Clear Creek	1336	18.0	Vernon	Low Dissolved Oxygen	Unknown
Coldwater Creek	1706	5.5	St. Louis	Chloride	Urban Runoff
		5.5		Low Dissolved Oxygen	Unknown
Creve Coeur Creek	1703	2.0	St. Louis	Chloride	Urban Runoff
		2.0		Low Dissolved Oxygen	Unknown
Dark Creek	0690	8.0	Randolph	Sulfate	Crutchfield AML
		1.0		Low Dissolved Oxygen	Unknown
Davis Creek	0912	3.3	Lafayette	Ammonia, Low Dissolved Oxygen	Odessa SE WWTP
		2.4		Low Dissolved Oxygen	Unknown
Ditch #36	3109	7.0	Dunklin	Low Dissolved Oxygen	Unknown
Ditch to Buffalo Ditch	3120	12.0	Dunklin	Low Dissolved Oxygen	Unknown

Name	WBID	Length/Area (miles/acres)	County	Pollutant	Source
Dry Auglaize Creek	1145	1.0	Laclede	Low Dissolved Oxygen	Unknown
East Brush Creek	0811	2.5	Moniteau	Ammonia, Low Dissolved Oxygen	California N WWTP
Elkhorn Creek	0189	2.0	Montgomery	Low Dissolved Oxygen	Montgomery City NE WWTP
Fassnight Creek	3370	4.0	Greene	Low Dissolved Oxygen	Unknown
Fishpot Creek	2186	2.0	St. Louis	Bacteria	Urban Runoff
		2.0		Low Dissolved Oxygen	Unknown
Fowler Creek	0747	6.0	Boone	Low Dissolved Oxygen	Unknown
Grand Glaize Creek	2184	4.0	St. Louis	Chloride	Urban Runoff
Gravois Creek	1713	4.0	St. Louis	Chloride	Urban Runoff
Horseshoe Creek	3413	2.9	Jackson	Ammonia, Low Dissolved Oxygen	Oak Grove WWTPs
Howell Creek	2582	0.3	Howell	Chlorine	West Plains WWTP
Jacks Fork	2681	6.0	Shannon	Bacteria	Recreation
Joachim Creek	1719	2.4	Jefferson	Nickel, Lead	Herculaneum Smelter
Joyce Creek	3233	5.0	Barry	Bacteria	Unknown
Lateral #2 to Main Ditch	3105	11.5	Stoddard	Low Dissolved Oxygen	Unknown
Little Beaver Creek	1529	3.3	Phelps	Low Dissolved Oxygen	Unknown
Little Dry Fork	1864	0.5	Phelps	Low Dissolved Oxygen	Unknown
Little Drywood Creek	1325	17.0	Vernon	Low Dissolved Oxygen	Unknown
Little Lindley Creek	1438	3.0	Dallas	Low Dissolved Oxygen	Unknown
Little Niangua River	1189	15.0	Webster	Low Dissolved Oxygen	Unknown
Little Osage River	3652	8.0	Vernon	Low Dissolved Oxygen	Unknown
Little Sac River	1381	4.0	Greene	Low Dissolved Oxygen	Springfield NW WWTP
		20.0	Polk		Unknown
Main Ditch	2814	14.0	Butler	Low Dissolved Oxygen	Stream Modification
Manacle Creek	0742	2.0	Callaway	pH, Chloride	Cedar Creek AML
		2.0		Sediment	Crop Production
McKenzie Creek	2786	0.1	Wayne	Low Dissolved Oxygen	Unknown

Name	WBID	Length/Area (miles/acres)	County	Pollutant	Source
McKenzie Creek	2787	2.0	Wayne	pH	Atmospheric Deposition
Miami Creek	1299	18.0	Bates	Low Dissolved Oxygen	Unknown
Middle Fork Tebo Creek	1284	5.5	Henry	Sulfate	Multiple AMLs
Middle Fork Tebo Creek, Tributary	1288	3.5	Henry	Sulfate, pH	Newcastle Tipple AML
North Fork Cuivre River	0170	8.0	Pike	Low Dissolved Oxygen	Unknown
North River	0081	0.2	Shelby	Sediment	Central Stone Quarry
Osage River	1031	5.0	Miller	Low Dissolved Oxygen	Flow Modification
Osage River	1293	24.0	St. Clair	Low Dissolved Oxygen	Unknown
Panther Creek	1373	8.0	St. Clair	Low Dissolved Oxygen	Unknown
Piney Creek	2614	0.1	Oregon	Chlorine	Alton WWTP
Pogue Creek	3232	2.5	Barry	Bacteria	Unknown
Red Oak Creek	2038	1.5	Gasconade	Low Dissolved Oxygen	Owensville WWTP
		0.5		Low Dissolved Oxygen, Temperature	Natural
Red Oak Creek, Tributary to	3360	0.5	Gasconade	Low Dissolved Oxygen	Unknown
Red Oak Creek, Tributary to	3361	1.5	Gasconade	Low Dissolved Oxygen	Unknown
River Des Peres	1711	1.0	St. Louis	Chloride	Urban Runoff
Rock Creek	1714	2.0	Jefferson	Ammonia, Low Dissolved Oxygen	Multiple WWTPs
Rocky Branch	3326	2.2	Clay	Ammonia, Low Dissolved Oxygen	Kansas City-Rocky Branch WWTP
Sadler Branch	3577	0.8	Polk	Low Dissolved Oxygen	Unknown
Saline Creek	2859	1.0	Madison	Nickel	Madison Mine
Second Nicolson Creek	1319	8.0	Barton	Chloride	Multiple AMLs
Shoal Creek	3230	10.0	Barry	Bacteria	Unknown
Shoal Creek	3231	4.0	Barry	Low Dissolved Oxygen, Bacteria	Unknown
Sni-a-Bar Creek	0399	32.0	Jackson	Low Dissolved Oxygen	Unknown
South Fork Salt River	0142	8.0	Audrain	Low Dissolved Oxygen	Unknown

Name	WBID	Length/Area (miles/acres)	County	Pollutant	Source
Spring Branch	1870	5.1	Dent	Low Dissolved Oxygen	Unknown
Stevenson Bayou	3135	2.0	Mississippi	Low Dissolved Oxygen	Unknown
St. Francis River	2835	2.0	St. Francois	Low Dissolved Oxygen	Farmington W WWTP
		8.0		Unknown	
Stinson Creek	0710	2.0	Callaway	Low Dissolved Oxygen	Unknown
Stockton Branch	1361	1.0	Cedar	Low Dissolved Oxygen	Stockton WWTP
Straight Fork	0959	6.0	Morgan	Chloride	Versailles WWTP
		2.5		Low Dissolved Oxygen	Unknown
Sugar Creek	0686	1.3	Randolph	pH	Multiple AMLs
		5.0		Low Dissolved Oxygen	Unknown
Trace Creek	2850	0.5	Madison	pH	Atmospheric Deposition
Troublesome Creek	0073	3.5	Marion	Low Dissolved Oxygen	Unknown
Turkey Creek	3216	7.0	Jasper	Zinc	Multiple AMLs
Turkey Creek	3282	2.0	St. Francois	Low Dissolved Oxygen	Unknown
Walnut Creek	1339	0.1	Cedar	Low Dissolved Oxygen	Unknown
Watkins Creek	1708	3.5	St. Louis	Chloride	Urban Runoff
West Fork Drywood Creek	1317	5.5	Vernon	Low Dissolved Oxygen	Unknown
West Fork Niangua River	1175	2.0	Webster	Low Dissolved Oxygen	Unknown
West Fork Sni-a-Bar Creek	0400	3.0	Jackson	Low Dissolved Oxygen	Lake Lotawana WWTP
		3.0		Unknown	
Whetstone Creek	1504	3.0	Wright	Low Dissolved Oxygen	Unknown
Whetstone Creek	1505	3.5	Wright	Low Dissolved Oxygen	Mountain Grove WWTP
Wilkerson Creek	0319	1.0	Clay	Low Dissolved Oxygen	Kansas City-Rocky Branch WWTP
Willow Fork	0955	6.5	Moniteau	Low Dissolved Oxygen	Unknown
Wilson Creek	2375	1.0	Greene	Low Dissolved Oxygen	Unknown
Wolf Creek	2879	3.0	St. Francois	Low Dissolved Oxygen	Unknown

Name	WBID	Length/Area (miles/acres)	County	Pollutant	Source
Wolf Creek, Tributary to	3589	1.5	St. Francois	Low Dissolved Oxygen	Unknown
Knob Noster S.P. Lake	7196	10.0	Johnson	Mercury	Atmospheric Deposition
Mark Twain Lake	7033	18,600.0	Macon	Mercury	Atmospheric Deposition
Walt Disney Lake	7137	18.0	Linn	Chloride	Hutchison Salt-BNSF Railyard

Table 17. Potentially Impaired Classified Waters.

The following waters are those for which there is some indication that an impairment to some designated use may exist, but the current data or information indicating the impairment do not meet the data requirements set out by Missouri's Section 303(d) Listing Methodology. The department will make an effort to conduct further monitoring on these waters in order to determine defensibly whether or not these impairments actually exist.

A large number of these potential impairments are ascribed to rural nonpoint sources. However, it should be noted that some of these problems, particularly low dissolved oxygen levels, may be due to natural conditions of the waters that are incompletely understood at this time. The department is currently studying baseline dissolved oxygen levels in small streams in regions of concern, which will help in the future to better distinguish natural stream conditions from anthropogenic impairments.

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Ackerman Ditch	2809	Butler	Habitat Degradation	Rural NPS
Agee Creek	0334	Andrew	Habitat Degradation	Rural NPS
Anderson Branch	0874	Pettis	Habitat Degradation	Rural NPS
Arapahoe Creek	0282	Andrew	Habitat Degradation	Rural NPS
Ash Ditch	3141	New Madrid	Habitat Degradation	Rural NPS
Ash Ditch	3142	Mississippi	Habitat Degradation	Rural NPS
Ash Slough Ditch	3042	New Madrid	Habitat Degradation	Rural NPS
Asher Creek	1383	Greene	Low Dissolved Oxygen	Rural NPS
Bagby Branch	0684	Randolph	Habitat Degradation	Rural NPS
Baker Branch	1294	St. Clair	Habitat Degradation	Rural NPS
Barber Creek	0622	Putnam	Habitat Degradation	Rural NPS
Barkers Creek	1209	Henry	Temperature, pH	Rural NPS, Acid Mine Drainage
Barkers Creek, Tributary	1211	Henry	pH	Acid Mine Drainage
Basin Fork	0867	Pettis	Habitat Degradation	Rural NPS
Basin Fork, Tributary	3522	Pettis	Habitat Degradation	Rural NPS
Bay De Charles, Tributary	0006	Marion	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Bean Branch	0148	Audrain	Habitat Degradation	Rural NPS
Bear Creek	0008	Marion	Habitat Degradation	Urban, Rural NPS
Bear Creek	0009	Marion	Habitat Degradation	Rural NPS
Bear Creek	0057	Scotland	Habitat Degradation	Rural NPS
Bear Creek	0115	Macon	Habitat Degradation	Rural NPS
Bear Creek	0193	Montgomery	Habitat Degradation	Rural NPS
Bear Creek	0272	Platte	Habitat Degradation	Rural NPS
Bear Creek	0416	Saline	Habitat Degradation	Rural NPS
Bear Creek	0601	Linn	Habitat Degradation	Rural NPS
Bear Creek	0933	Johnson	Habitat Degradation	Rural NPS
Bear Creek	1220	Henry	Habitat Degradation	Rural NPS
Bear Creek	1253	Johnson	Habitat Degradation	Rural NPS
Beaver Dam Creek	0145	Audrain	Habitat Degradation	Rural NPS
Beaver Dam Creek	2621	Ripley	Habitat Degradation	Rural NPS
Beaver Dam Creek	3548	Pettis	Habitat Degradation	Rural NPS
Beaver Dam Creek, Tributary	3550	Pettis	Habitat Degradation	Rural NPS
Beaver Dam Creek, Tributary	3549	Pettis	Habitat Degradation	Rural NPS
Bee Branch	0667	Chariton	Habitat Degradation	Rural NPS
Bee Branch	3545	Pettis	Habitat Degradation	Rural NPS
Bee Branch	3645	Vernon	Habitat Degradation	Rural NPS
Bee Branch	3501	Pettis	Habitat Degradation	Rural NPS
Bee Creek	0137	Monroe	Habitat Degradation	Rural NPS
Bee Creek	0273	Platte	Habitat Degradation	Rural NPS
Bee Creek, Tributary	0274	Platte	Habitat Degradation	Rural NPS
Bee Tree Lake	7309	St. Louis	Mercury	Atmospheric Deposition
Beecham Creek	3642	Vernon	Habitat Degradation	Rural NPS
Belcher Branch Lake	7365	Buchanan	Mercury	Atmospheric Deposition
Bell Fountain Ditch	3012	Pemiscot	Habitat Degradation	Rural NPS
Ben Branch Lake	7186	Osage	Mercury	Atmospheric Deposition
Bethany Reservoir	7109	Harrison	Mercury	Atmospheric Deposition
Big Creek	0207	Lincoln	Habitat Degradation	Rural NPS
Big Creek	0634	Carroll	Habitat Degradation	Rural NPS
Big Creek	0638	Carroll	Habitat Degradation	Rural NPS
Big Creek	1257	Cass	Habitat Degradation	Rural NPS
Big Creek	2916	Iron	Lead	Glover Smelter
Big Deer Creek	1276	Bates	Habitat Degradation	Rural NPS
Big Lead Creek	0180	Lincoln	Habitat Degradation	Rural NPS
Big Muddy Creek	0441	Daviess	Habitat Degradation	Rural NPS
Big Muddy Creek	0461	Gentry	Habitat Degradation	Rural NPS
Big Muddy Creek	0462	Harrison	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Big No Creek	0553	Grundy	Habitat Degradation	Rural NPS
Big River	2074	Jefferson	Lead, Cadmium	Multiple Abandoned Lead Mines
Big Rock Creek	0464	Worth	Habitat Degradation	Rural NPS
Big Rock Creek	0465	Worth	Habitat Degradation	Rural NPS
Billy Creek	0659	Adair	Habitat Degradation	Rural NPS
Billy's Branch	0124	Macon	Habitat Degradation	Rural NPS
Bitterroot Creek	1312	Vernon	Habitat Degradation	Rural NPS
Black Creek	0111	Shelby	Habitat Degradation	Rural NPS
Black Creek	0112	Shelby	Habitat Degradation	Rural NPS
Black Creek	3309	Cass	Habitat Degradation	Rural NPS
Black Jack Creek	0917	Johnson	Habitat Degradation	Rural NPS
Black River	2769	Butler	Mercury	Atmospheric Deposition
Black River Ditch	2807	Butler	Habitat Degradation	Rural NPS
Black River, Ditch to	2776	Butler	Habitat Degradation	Rural NPS
Black River, Ditch to	2777	Butler	Habitat Degradation	Rural NPS
Black River, Ditch to	2770	Butler	Habitat Degradation	Rural NPS
Blackberry Creek	3184	Jasper	Chloride	Asbury Power Plant, Abandoned Coal Mines
Blackwater River	0891	Saline	Sediment	Limestone Quarry
Blackwater River, Tributary	3537	Saline	Habitat Degradation	Rural NPS
Blackwater River, Tributary	3541	Pettis	Habitat Degradation	Rural NPS
Blackwater River, Tributary	3543	Pettis	Habitat Degradation	Rural NPS
Blackwater River, Tributary	3544	Pettis	Habitat Degradation	Rural NPS
Blue Ditch	3146	Scott	Habitat Degradation	Rural NPS
Blue Ditch	3147	Scott	Habitat Degradation	Rural NPS
Blue Spring Slough	2775	Butler	Habitat Degradation	Rural NPS
Blue Springs Creek	1852	Crawford	Iron	Abandoned Iron Pyrite Mine
Bluestem Lake	7370	Jackson	Mercury	Atmospheric Deposition
Bois Brule Ditch	1782	Perry	Habitat Degradation	Rural NPS
Bois Brule Ditch, Tributary	1783	Perry	Habitat Degradation	Rural NPS
Bois Brule Ditch, Tributary	1784	Perry	Habitat Degradation	Rural NPS
Bois Brule Ditch, Tributary	1785	Perry	Habitat Degradation	Rural NPS
Bones Branch	1301	Bates	Habitat Degradation	Rural NPS
Bonhomme Creek	1701	St. Louis	Chloride	Urban Runoff
Bourbeuse River	2034	Franklin	Mercury	Atmospheric Deposition
Bradley Creek	0931	Johnson	Habitat Degradation	Rural NPS
Brawley Creek	3424	Johnson	Habitat Degradation	Rural NPS
Brewer Lake Ditch	3153	Mississippi	Habitat Degradation	Rural NPS
Bridge Creek	0066	Scotland	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Bridge Creek	0070	Knox	Habitat Degradation	Rural NPS
Bridge Creek	0635	Carroll	Habitat Degradation	Rural NPS
Brush Creek	0069	Schuyler	Habitat Degradation	Rural NPS
Brush Creek	0106	Monroe	Habitat Degradation	Rural NPS
Brush Creek	0107	Monroe	Habitat Degradation	Rural NPS
Brush Creek	0276	Platte	Habitat Degradation	Rural NPS
Brush Creek	0408	Lafayette	Habitat Degradation	Rural NPS
Brush Creek	0563	Mercer	Habitat Degradation	Rural NPS
Brush Creek	0574	Harrison	Habitat Degradation	Rural NPS
Brush Creek	0672	Macon	Habitat Degradation	Rural NPS
Brush Creek	1207	Benton	Habitat Degradation	Rural NPS
Brush Creek	1238	St. Clair	Habitat Degradation	Rural NPS
Brush Creek	1370	St. Clair	Habitat Degradation	Rural NPS
Brush Creek	1372	Polk	Low Dissolved Oxygen	Unknown
Brush Creek	3298	Benton	Habitat Degradation	Rural NPS
Brush Creek, Tributary	1208	Benton	Habitat Degradation	Rural NPS
Brushy Creek	0336	Nodaway	Habitat Degradation	Rural NPS
Brushy Creek	0377	Ray	Habitat Degradation	Rural NPS
Brushy Creek	0395	Clay	Habitat Degradation	Rural NPS
Brushy Creek	0438	Daviess	Habitat Degradation	Rural NPS
Brushy Creek	0531	Caldwell	Habitat Degradation	Rural NPS
Brushy Creek	1593	Texas	Low Dissolved Oxygen	Unknown
Brushy Creek	3500	Pettis	Habitat Degradation	Rural NPS
Bryants Creek	0022	Lincoln	Habitat Degradation	Rural NPS
Buck Branch	3187	Jasper	Habitat Degradation	Rural NPS
Buffalo Creek	3539	Pettis	Habitat Degradation	Rural NPS
Buffalo Ditch	3119	Dunklin	Habitat Degradation	Urban, Rural NPS
Buncomb Branch	3542	Pettis	Habitat Degradation	Rural NPS
Burr Oak Creek	0363	Carroll	Habitat Degradation	Rural NPS
Busch CA Lake #35	7057	St. Charles	Mercury	Atmospheric Deposition
Bynum Creek	0709	Callaway	Sediment	Limestone Quarry
Cache River Ditch	3009	Butler	Habitat Degradation	Rural NPS
Cameron Lake #4 (Grindstone Reservoir)	7384	Dekalb	Mercury	Atmospheric Deposition
Camp Branch	1258	Cass	Habitat Degradation	Rural NPS
Camp Branch	1296	Bates	Habitat Degradation	Rural NPS
Camp Branch	3324	Clay	Habitat Degradation	Rural NPS
Camp Branch, Tributary	3518	Pettis	Habitat Degradation	Rural NPS
Camp Branch, Tributary	3519	Pettis	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Camp Branch, Tributary	3520	Pettis	Habitat Degradation	Rural NPS
Camp Creek	0866	Pettis	Habitat Degradation	Rural NPS
Camp Creek	0894	Saline	Habitat Degradation	Rural NPS
Campbell Creek	0491	Gentry	Habitat Degradation	Rural NPS
Campbell Creek	0629	Livingston	Habitat Degradation	Rural NPS
Cane Creek	2833	Butler	Habitat Degradation	Rural NPS
Cane Creek Ditch	2820	Butler	Habitat Degradation	Rural NPS
Caney Creek	3051	Scott	Habitat Degradation	Rural NPS
Castile Creek	0322	Clinton	Habitat Degradation	Rural NPS
Castile Creek, Tributary	0323	Clinton	Habitat Degradation	Rural NPS
Castor River Diversion Channel	2273	Bollinger	Habitat Degradation	Rural NPS
Cato Slough	3081	Stoddard	Habitat Degradation	Rural NPS
Cato Slough	3082	Bollinger	Habitat Degradation	Rural NPS
Cave Spring Creek	1272	Cass	Habitat Degradation	Rural NPS
Cedar Creek	0861	Pettis	Habitat Degradation	Rural NPS
Cedar Creek	1344	Cedar	Low Dissolved Oxygen	Unknown
Chapman Branch	0476	Gentry	Habitat Degradation	Rural NPS
Chariton River, Old Channel	0649	Putnam	Habitat Degradation	Rural NPS
Chariton River, Old Channel	0665	Chariton	Habitat Degradation	Rural NPS
Chariton River, Old Channel	0694	Chariton	Habitat Degradation	Rural NPS
Chariton River, Old Channel	0695	Chariton	Habitat Degradation	Rural NPS
Chariton River, Tributary	0648	Putnam	Habitat Degradation	Rural NPS
Cheese Creek	3301	Pettis	Habitat Degradation	Rural NPS
Chesapeake Creek	1421	Lawrence	Sediment	Quarry
Cinque Hommes Creek	1781	Perry	Habitat Degradation	Rural NPS
Clammer Branch	1235	St. Clair	Habitat Degradation	Rural NPS
Clark Branch	0676	Chariton	Habitat Degradation	Rural NPS
Clear Creek	0007	Marion	Habitat Degradation	Rural NPS
Clear Creek	0117	Monroe	Habitat Degradation	Rural NPS
Clear Creek	0292	Nodaway	Habitat Degradation	Rural NPS
Clear Creek	0388	Clay	Altered Aquatic Community	Rural NPS
Clear Creek	0390	Clinton	Altered Aquatic Community	Rural NPS
Clear Creek	0433	Daviess	Habitat Degradation	Rural NPS
Clear Creek	0889	Cooper	Habitat Degradation	Rural NPS
Clear Creek	1206	Benton	Habitat Degradation	Rural NPS
Clear Creek	1259	Cass	Habitat Degradation	Rural NPS
Clear Creek, Tributary	3297	Benton	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Clear Creek, Tributary	0393	Clinton	Habitat Degradation	Rural NPS
Clear Creek, Tributary	3633	Vernon	Habitat Degradation	Rural NPS
Clear Fork	0935	Johnson	Low Dissolved Oxygen	Wastewater discharges, Rural NPS
Clear Fork	0936	Johnson	Habitat Degradation	Rural NPS
Clear Fork, Tributary	3431	Johnson	Habitat Degradation	Rural NPS
Clear Fork, Tributary	3432	Johnson	Habitat Degradation	Rural NPS
Clear Fork, Tributary	3433	Johnson	Habitat Degradation	Rural NPS
Coal Creek	0572	Harrison	Habitat Degradation	Rural NPS
Coal Creek	1214	Henry	Habitat Degradation	Rural NPS, wastewater discharge
Coldwater Creek	1271	Cass	Habitat Degradation	Rural NPS
Cole Creek	0225	St. Charles	Habitat Degradation	Rural NPS
Comstock Creek	1322	Vernon	Habitat Degradation	Rural NPS
Comstock Creek	1323	Barton	Habitat Degradation	Rural NPS
Contrary Creek	0269	Buchanan	Habitat Degradation	Rural NPS
Contrary Creek	1458	Osage	Habitat Degradation	Rural NPS
Contrary Creek	1459	Osage	Habitat Degradation	Rural NPS
Cooley Lake	7090	Clay	Mercury	Atmospheric Deposition
Coon Creek	0132	Randolph	Low Dissolved Oxygen	Rural NPS, wastewater discharge
Coon Creek	0187	Montgomery	Habitat Degradation	Rural NPS
Coon Creek	0208	Lincoln	Habitat Degradation	Rural NPS
Coon Creek	3191	Jasper	Habitat Degradation	Rural NPS
Coon Creek	3194	Dade	Habitat Degradation	Rural NPS
Coon Creek	3496	Pettis	Habitat Degradation	Rural NPS
Coon Creek, Tributary	0133	Randolph	Low Dissolved Oxygen	Wastewater discharge
Coon Creek, Tributary	3497	Lamine	Habitat Degradation	Rural NPS
Coon Creek, Tributary	3498	Lamine	Habitat Degradation	Rural NPS
Coopers Creek	1222	Henry	Habitat Degradation	Rural NPS
Coopers Creek, Tributary	1223	St. Clair	Habitat Degradation	Rural NPS
Cotton Wood Creek	0671	Chariton	Habitat Degradation	Rural NPS
Cottonwood Creek	0410	Lafayette	Habitat Degradation	Rural NPS
Cottonwood Creek	0527	Caldwell	Habitat Degradation	Rural NPS
Cottonwood Creek	0548	Livingston	Habitat Degradation	Rural NPS
Cottonwood Creek	3651	Vernon	Habitat Degradation	Rural NPS
Cow Branch	0247	Atchison	Habitat Degradation	Rural NPS
Cow Creek	0895	Saline	Habitat Degradation	Rural NPS
Crabapple Creek	0365	Ray	Habitat Degradation	Rural NPS
Crabapple Creek	0536	Caldwell	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Craven Ditch	2816	Butler	Habitat Degradation	Rural NPS
Crawford Creek	1254	Cass	Habitat Degradation	Rural NPS
Crooked Creek	0116	Macon	Habitat Degradation	Rural NPS
Crooked Creek	0188	Montgomery	Habitat Degradation	Rural NPS
Crooked Creek	0330	Dekalb	Habitat Degradation	Rural NPS
Crooked Creek	0333	Andrew	Habitat Degradation	Rural NPS
Crooked Creek	0551	Livingston	Habitat Degradation	Rural NPS
Crooked Creek	3307	Cass	Habitat Degradation	Rural NPS
Crooked Creek	3434	Pettis	Habitat Degradation	Rural NPS
Crooked River	0371	Ray	Habitat Degradation	Rural NPS
Crooked River	0376	Caldwell	Habitat Degradation	Rural NPS
Crowder State Park Lake	7135	Grundy	Mercury	Atmospheric Deposition
Current River	2636	Shannon	Mercury	Atmospheric Deposition
Cypress Creek	0443	Daviess	Habitat Degradation	Rural NPS
Cypress Ditch #1	2616	Ripley	Habitat Degradation	Rural NPS
Cypress Ditch Lateral	2981	Stoddard	Habitat Degradation	Rural NPS
Cypress Ditch Lateral	2982	Stoddard	Habitat Degradation	Rural NPS
Dan River	2808	Butler	Habitat Degradation	Rural NPS
Davis Creek	0144	Audrain	Habitat Degradation	Urban, Rural NPS
Davis Creek	0255	Holt	Habitat Degradation	Rural NPS
Davis Creek	0907	Lafayette	Habitat Degradation	Rural NPS
Davis Creek Ditch	0253	Holt	Habitat Degradation	Rural NPS
Davis Creek, Tributary	0254	Holt	Habitat Degradation	Rural NPS
Dead Oak Creek	0539	Caldwell	Habitat Degradation	Rural NPS
Deepwater Creek	1215	Henry	Dissolved Oxygen	Upstream Impoundment
Deepwater Creek	1217	Henry	Habitat Degradation	Rural NPS
Deer Creek	1213	Henry	Habitat Degradation	Rural NPS
Deer Ridge Community Lake	7015	Lewis	Mercury	Atmospheric Deposition
Des Moines River	0036	Clark	Habitat Degradation	Rural NPS
Dicks Creek	0320	Platte	Habitat Degradation	Rural NPS
Dicks Fork	3197	Barton	Habitat Degradation	Rural NPS
Dillon Creek	0268	Andrew	Sediment	Limestone Quarry
Ditch #1	2974	Dunklin	Habitat Degradation	Rural NPS
Ditch #1	2987	Stoddard	Habitat Degradation	Rural NPS
Ditch #1	2988	Bollinger	Habitat Degradation	Rural NPS
Ditch #1	3028	Dunklin	Habitat Degradation	Rural NPS
Ditch #1	3045	Scott	Habitat Degradation	Rural NPS
Ditch #1	3048	Scott	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Ditch #1	3050	Stoddard	Mercury	Atmospheric Deposition
Ditch #1	3052	Scott	Habitat Degradation	Rural NPS
Ditch #1	3116	Dunklin	Habitat Degradation	Rural NPS
Ditch #1	3117	Dunklin	Habitat Degradation	Rural NPS
Ditch #1, Ditch to	2975	Dunklin	Habitat Degradation	Rural NPS
Ditch #1, Ditch to	3054	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #1, Ditch to	3055	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #1, Ditch to	3056	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #2	2617	Ripley	Habitat Degradation	Rural NPS
Ditch #2	2618	Ripley	Habitat Degradation	Rural NPS
Ditch #2	2991	Stoddard	Habitat Degradation	Rural NPS
Ditch #2	3018	Pemiscot	Habitat Degradation	Rural NPS
Ditch #2	3104	New Madrid	Habitat Degradation	Rural NPS
Ditch #2, Ditch to	2619	Ripley	Habitat Degradation	Rural NPS
Ditch #3	2972	Dunklin	Habitat Degradation	Rural NPS
Ditch #3	2973	Dunklin	Habitat Degradation	Rural NPS
Ditch #3	2994	Stoddard	Habitat Degradation	Rural NPS
Ditch #3	3019	Pemiscot	Habitat Degradation	Rural NPS
Ditch #3	3100	New Madrid	Habitat Degradation	Rural NPS
Ditch #3, Ditch to	3021	Pemiscot	Habitat Degradation	Rural NPS
Ditch #4	2995	Stoddard	Habitat Degradation	Rural NPS
Ditch #4	3020	Pemiscot	Habitat Degradation	Rural NPS
Ditch #4	3046	Scott	Habitat Degradation	Rural NPS
Ditch #4	3047	Scott	Habitat Degradation	Rural NPS
Ditch #4	3099	New Madrid	Habitat Degradation	Rural NPS
Ditch #5	2996	Stoddard	Habitat Degradation	Rural NPS
Ditch #5	3015	Pemiscot	Habitat Degradation	Rural NPS
Ditch #5, Ditch to	3014	Pemiscot	Habitat Degradation	Rural NPS
Ditch #6	2997	Stoddard	Habitat Degradation	Rural NPS
Ditch #6	3022	Pemiscot	Habitat Degradation	Rural NPS
Ditch #6	3024	Pemiscot	Habitat Degradation	Rural NPS
Ditch #6	3096	New Madrid	Habitat Degradation	Rural NPS
Ditch #6	3097	Stoddard	Habitat Degradation	Rural NPS
Ditch #6, Ditch to	3023	Pemiscot	Habitat Degradation	Rural NPS
Ditch #7	3013	Pemiscot	Habitat Degradation	Rural NPS
Ditch #7	3095	New Madrid	Habitat Degradation	Rural NPS
Ditch #8	3094	New Madrid	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Ditch #9	3092	New Madrid	Habitat Degradation	Rural NPS
Ditch #9	3093	New Madrid	Habitat Degradation	Rural NPS
Ditch #10	2998	Stoddard	Habitat Degradation	Rural NPS
Ditch #10	2999	Wayne	Habitat Degradation	Rural NPS
Ditch #10	3139	New Madrid	Habitat Degradation	Rural NPS
Ditch #11	2986	Stoddard	Habitat Degradation	Rural NPS
Ditch #17	3078	Stoddard	Habitat Degradation	Rural NPS
Ditch #22	2772	Butler	Habitat Degradation	Rural NPS
Ditch #23	2773	Butler	Habitat Degradation	Rural NPS
Ditch #24	3062	Stoddard	Habitat Degradation	Rural NPS
Ditch #24	3074	Stoddard	Habitat Degradation	Rural NPS
Ditch #25	3068	Stoddard	Habitat Degradation	Rural NPS
Ditch #25	3072	Stoddard	Habitat Degradation	Rural NPS
Ditch #26	3070	Stoddard	Habitat Degradation	Rural NPS
Ditch #26	3071	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #27	3069	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #30	3075	Stoddard	Habitat Degradation	Rural NPS
Ditch #33	3065	Stoddard	Habitat Degradation	Rural NPS
Ditch #33	3066	Stoddard	Habitat Degradation	Rural NPS
Ditch #34	3061	Stoddard	Habitat Degradation	Rural NPS
Ditch #34	3064	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #35	3063	Stoddard	Habitat Degradation	Rural NPS
Ditch #36	3110	Dunklin	Habitat Degradation	Rural NPS
Ditch #41	3090	New Madrid	Habitat Degradation	Rural NPS
Ditch #42	3091	Stoddard	Habitat Degradation	Rural NPS
Ditch #66	3036	Pemiscot	Habitat Degradation	Rural NPS
Ditch #66	3049	Pemiscot	Habitat Degradation	Rural NPS
Ditch #79	3035	Dunklin	Habitat Degradation	Rural NPS
Ditch #80	3029	Dunklin	Habitat Degradation	Rural NPS
Ditch #81	3102	Dunklin	Habitat Degradation	Rural NPS
Ditch #84	3103	Pemiscot	Habitat Degradation	Rural NPS
Ditch #101	3083	Bollinger	Habitat Degradation	Rural NPS
Ditch #101, Ditch to	3084	Bollinger	Habitat Degradation	Rural NPS
Ditch #104	3043	New Madrid	Habitat Degradation	Rural NPS
Ditch #110	3073	Cape Girardeau	Habitat Degradation	Rural NPS
Ditch #258	3039	Pemiscot	Habitat Degradation	Rural NPS
Ditch #258	3040	New Madrid	Habitat Degradation	Rural NPS

Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Ditch #259	3011	Dunklin	Habitat Degradation	Rural NPS
Ditch #287	3067	Stoddard	Habitat Degradation	Rural NPS
Ditch #290	3088	New Madrid	Habitat Degradation	Rural NPS
Ditch #290	3089	New Madrid	Habitat Degradation	Rural NPS
Ditch #293	3098	Pemiscot	Habitat Degradation	Rural NPS
Ditler Branch	3296	Benton	Habitat Degradation	Rural NPS
Dog Creek	0510	Daviess	Sediment	Limestone Quarry
Double Branch	1298	Bates	Habitat Degradation	Rural NPS
Douglas Branch	3648	Vernon	Habitat Degradation	Rural NPS
Doxies Creek	0679	Howard	Habitat Degradation	Rural NPS
Dry Auglaize Creek	1144	Camden	Bacteria	Wastewater Discharge
Dry Branch	1406	Greene	Ammonia, Low Dissolved Oxygen	Rural NPS
Dry Branch	3189	Jasper	Habitat Degradation	Rural NPS
Dry Creek	0940	Saline	Habitat Degradation	Rural NPS
Drywood Creek	1314	Vernon	Habitat Degradation	Rural NPS
Duck Creek	0689	Macon	Habitat Degradation	Rural NPS
Duck Creek	1210	Benton	Habitat Degradation	Rural NPS
Dudley Main Ditch	2977	Stoddard	Habitat Degradation	Rural NPS
Dudley Main Ditch	2978	Stoddard	Habitat Degradation	Rural NPS
Duncan Creek	1311	Vernon	Habitat Degradation	Rural NPS
Dutchtown Ditch	2193	Cape Girardeau	Habitat Degradation	Rural NPS
Duval Creek	3199	Jasper	Habitat Degradation	Rural NPS
Dyer Rock Creek	3438	Lafayette	Habitat Degradation	Rural NPS
East Bear Creek	0934	Johnson	Habitat Degradation	Rural NPS
East Branch	1264	Cass	Habitat Degradation	Rural NPS
East Branch Crawford Creek	1255	Cass	Habitat Degradation	Rural NPS
East Branch Elkhorn Creek	0288	Nodaway	Habitat Degradation	Rural NPS
East Branch Squaw Creek	0257	Holt	Habitat Degradation	Rural NPS
East Cow Creek	0896	Saline	Habitat Degradation	Rural NPS
East Creek	1265	Cass	Habitat Degradation	Rural NPS
East Creek, Tributary	1266	Cass	Habitat Degradation	Rural NPS
East Ditch #1	3107	New Madrid	Habitat Degradation	Rural NPS
East Ditch #1	3108	New Madrid	Habitat Degradation	Rural NPS
East Fork Bee Branch	3644	Vernon	Habitat Degradation	Rural NPS
East Fork Big Creek	0446	Harrison	Habitat Degradation	Rural NPS
East Fork Big Creek	0447	Harrison	Habitat Degradation	Rural NPS
East Fork Big Muddy Creek	0463	Harrison	Habitat Degradation	Rural NPS

East Fork Chariton River	0697	Macon	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
East Fork Crooked River	0373	Ray	Habitat Degradation	Rural NPS
East Fork Crooked River, Tributary	0374	Ray	Habitat Degradation	Rural NPS
East Fork Drywood Creek	1320	Barton	Low Dissolved Oxygen	Rural NPS
East Fork Fishing River	0386	Clay	Altered Aquatic Community	Urban, Rural NPS
East Fork Grand River	0467	Worth	Habitat Degradation	Rural NPS
East Fork Honey Creek	0555	Mercer	Habitat Degradation	Rural NPS
East Fork Little Tarkio Creek	0249	Atchison	Habitat Degradation	Rural NPS
East Fork Lost Creek	0497	Dekalb	Habitat Degradation	Rural NPS
East Fork Postoak Creek	0932	Johnson	Habitat Degradation	Rural NPS
East Fork Postoak Creek, Tributary	3429	Johnson	Habitat Degradation	Rural NPS
East Fork Postoak Creek, Tributary	3428	Johnson	Habitat Degradation	Rural NPS
East Fork Salt Pond Creek	0909	Saline	Habitat Degradation	Rural NPS
East Fork Shoal Creek	0398	Clay	Habitat Degradation	Rural NPS
East Fork Sni-A-Bar Creek	0402	Lafayette	Habitat Degradation	Rural NPS
East Fork Sni-A-Bar Creek	3440	Lafayette	Habitat Degradation	Rural NPS
East Fork Sni-A-Bar Creek, Tributary	3441	Lafayette	Habitat Degradation	Rural NPS
East Fork Sni-A-Bar Creek, Tributary	3442	Lafayette	Habitat Degradation	Rural NPS
East Fork Walnut Creek	0688	Randolph	Habitat Degradation	Rural NPS
East Yellow Creek	0597	Linn	Habitat Degradation	Rural NPS
Edmondson Creek	0414	Saline	Habitat Degradation	Rural NPS
Edmondson Creek, Tributary	0415	Saline	Habitat Degradation	Rural NPS
Eight Mile Creek	1262	Cass	Habitat Degradation	Rural NPS
Eleven Point River	2593	Oregon	Mercury	Atmospheric Deposition
Eleven Point River	2597	Oregon	Mercury	Atmospheric Deposition
Eleven Point River	2601	Oregon	Mercury	Atmospheric Deposition
Elk Branch	3493	Pettis	Habitat Degradation	Rural NPS
Elk Chute Ditch	3030	Dunklin	Habitat Degradation	Rural NPS
Elk Creek	0603	Chariton	Habitat Degradation	Rural NPS
Elk Creek	0604	Chariton	Habitat Degradation	Rural NPS
Elk Creek	3546	Petis	Habitat Degradation	Rural NPS
Elk Fork	0858	Pettis	Habitat Degradation	Rural NPS
Elk Fork	1278	Bates	Habitat Degradation	Rural NPS
Elk Fork Salt River	0130	Monroe	Habitat Degradation	Rural NPS

Elk Fork Salt River	0131	Monroe	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Elk Fork, Tributary	3503	Pettis	Habitat Degradation	Rural NPS
Elkhorn Creek	0287	Nodaway	Habitat Degradation	Rural NPS
Elm Branch	1283	Henry	Habitat Degradation	Rural NPS
Elm Creek	0620	Putnam	Habitat Degradation	Rural NPS
Elm Creek	0645	Schuyler	Habitat Degradation	Rural NPS
Elm Grove Branch	0331	Gentry	Habitat Degradation	Rural NPS
Fassnight Creek	3427	Greene	Habitat Degradation	Rural NPS
Fellows Lake	7237	Greene	Mercury	Atmospheric Deposition
Femme Osage Creek	1605	St. Charles	Mercury	Atmospheric Deposition
Finney Creek	0902	Saline	Habitat Degradation	Rural NPS
Finney Creek	0903	Saline	Habitat Degradation	Rural NPS
Fire Branch	0375	Ray	Habitat Degradation	Rural NPS
Fire Prairie Creek	3412	Jackson	Habitat Degradation	Rural NPS
First Creek	0318	Clay	Habitat Degradation	Rural NPS
Fish Branch	0143	Audrain	Habitat Degradation	Rural NPS
Fish Lake Ditch	3131	Mississippi	Habitat Degradation	Rural NPS
Fish Trap Slough	3006	Butler	Habitat Degradation	Rural NPS
Fishing River	0383	Clay	Altered Aquatic Community	Rural NPS
Flagstaff Creek	0915	Johnson	Habitat Degradation	Rural NPS
Flat Creek	0129	Monroe	Habitat Degradation	Rural NPS
Flat Creek	0864	Pettis	Mercury	Atmospheric Deposition
Flat Creek	0892	Saline	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3508	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3509	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3511	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3516	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3517	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3523	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3524	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3528	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3529	Pettis	Habitat Degradation	Rural NPS
Flat Creek, Tributary	3530	Pettis	Habitat Degradation	Rural NPS
Fletchall Creek	0471	Worth	Habitat Degradation	Rural NPS
Florida Creek	0289	Nodaway	Habitat Degradation	Rural NPS
Floyd Creek	0114	Adair	Habitat Degradation	Rural NPS

Fly Creek	3636	Vernon	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Fountain Farm Branch	3657	Washington	Habitat Degradation	Rural NPS
Fox Creek	0583	Harrison	Habitat Degradation	Rural NPS
Fox River	0037	Clark	Atrazine	Rural NPS
Fox River	0038	Clark	Habitat Degradation	Rural NPS
Foxboro Lake	7382	Franklin	Mercury	Atmospheric Deposition
Galbreath Creek	0135	Randolph	Habitat Degradation	Rural NPS
Gallinipper Creek	1226	St. Clair	Habitat Degradation	Rural NPS
Gallinipper Creek	1227	St. Clair	Habitat Degradation	Rural NPS
Garrison Fork	0407	Lafayette	Habitat Degradation	Rural NPS
Gasconade River	1455	Pulaski	Low Dissolved Oxygen, Fish Kill	Rural NPS
Gees Creek	0590	Grundy	Habitat Degradation	Rural NPS
Gillum Creek	1307	Bates	Habitat Degradation	Rural NPS
Glendale Fork	3202	Barton	Habitat Degradation	Rural NPS
Goose Creek	0456	Daviess	Habitat Degradation	Rural NPS
Goose Creek	0532	Caldwell	Habitat Degradation	Rural NPS
Goose Creek	2860	Wayne	Nickel, Cobalt	Abandoned Metal Mine
Goose Pond Ditch	3086	Stoddard	Habitat Degradation	Rural NPS
Goose Pond Ditch, Tributary	3087	Stoddard	Habitat Degradation	Rural NPS
Grand River	0430	Daviess	Habitat Degradation	Channelization
Grand River, Old Channel	0512	Daviess	Habitat Degradation	Rural NPS
Grand River, Old Channel	0513	Daviess	Habitat Degradation	Rural NPS
Grand River, Old Channel	0517	Livingston	Habitat Degradation	Rural NPS
Grand River, Old Channel	0625	Livingston	Habitat Degradation	Rural NPS
Grand River, Old Channel	0628	Livingston	Habitat Degradation	Rural NPS
Grand River, Old Channel	0630	Livingston	Habitat Degradation	Rural NPS
Granddaddy's Creek	1216	Henry	Habitat Degradation	Rural NPS
Grantham Creek	0478	Gentry	Habitat Degradation	Rural NPS
Grassy Creek	0072	Lewis	Habitat Degradation	Rural NPS
Grassy Creek	3538	Saline	Habitat Degradation	Rural NPS
Greer Branch	0850	Pettis	Habitat Degradation	Rural NPS
Greer Creek	1176	Webster	Low Dissolved Oxygen	Rural NPS
Greys Lake	0233	Atchison	Habitat Degradation	Rural NPS
Grindstone Creek	0493	Daviess	Habitat Degradation	Rural NPS
Grindstone Creek	0502	Dekalb	Habitat Degradation	Rural NPS
Grindstone Creek, Tributary	0504	Dekalb	Habitat Degradation	Rural NPS
Grove Creek	0321	Platte	Habitat Degradation	Rural NPS

Guinns Creek	0023	Pike	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Hackberry Branch	3650	Vernon	Habitat Degradation	Rural NPS
Half Moon Bayou	3017	Pemiscot	Habitat Degradation	Rural NPS
Harding Creek	1273	Cass	Habitat Degradation	Rural NPS
Harless Creek	1270	Cass	Habitat Degradation	Rural NPS
Harviell Ditch (#3)	2615	Butler	Habitat Degradation	Rural NPS
Hayzlett Branch	0285	Nodaway	Habitat Degradation	Rural NPS
Hazel Creek	0642	Adair	Habitat Degradation	Rural NPS
Headwater Diversion Channel	2196	Cape Girardeau	Habitat Degradation	Rural NPS
Heaths Creek, Tributary	3532	Pettis	Habitat Degradation	Rural NPS
Heaths Creek, Tributary	3533	Pettis	Habitat Degradation	Rural NPS
Heaths Creek, Tributary	3534	Pettis	Habitat Degradation	Rural NPS
Heaths Creek, Tributary	3535	Pettis	Habitat Degradation	Rural NPS
Heath's Creek, Tributary to Tributary	3536	Pettis	Habitat Degradation	Rural NPS
Henry Creek	0870	Pettis	Habitat Degradation	Rural NPS
Henry Creek	3525	Pettis	Habitat Degradation	Rural NPS
Hickory Branch	0596	Chariton	Habitat Degradation	Rural NPS
Hickory Creek	0186	Audrain	Habitat Degradation	Rural NPS
Hickory Creek	0308	Holt	Habitat Degradation	Rural NPS
Hickory Creek	0335	Andrew	Habitat Degradation	Rural NPS
Hickory Creek	0442	Daviess	Habitat Degradation	Rural NPS
Hickory Creek	0490	Gentry	Habitat Degradation	Rural NPS
Hickory Creek	0588	Grundy	Habitat Degradation	Rural NPS
Hickory Creek, Tributary	0589	Grundy	Habitat Degradation	Rural NPS
High Creek	0229	Atchison	Habitat Degradation	Rural NPS
High Creek Ditch	0228	Atchison	Habitat Degradation	Rural NPS
High Creek, Tributary	0232	Atchison	Habitat Degradation	Rural NPS
Highly Creek	0307	Holt	Habitat Degradation	Rural NPS
Hightower Creek	3646	Vernon	Habitat Degradation	Rural NPS
Hog Creek	0660	Adair	Habitat Degradation	Rural NPS
Hogan's Fork	3425	Johnson	Habitat Degradation	Rural NPS
Hogan's Fork, Tributary	3426	Johnson	Habitat Degradation	Rural NPS
Holland Branch	0350	Platte	Habitat Degradation	Rural NPS
Holtzclaw Creek	0351	Clay	Habitat Degradation	Rural NPS
Honey Creek	0042	Clark	Habitat Degradation	Rural NPS
Honey Creek	0338	Nodaway	Habitat Degradation	Rural NPS

Honey Creek	0509	Daviess	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Honey Creek	0554	Grundy	Habitat Degradation	Rural NPS
Honey Creek	0888	Cooper	Habitat Degradation	Rural NPS
Honey Creek	0919	Johnson	Habitat Degradation	Rural NPS
Honey Creek	1251	Henry	Low Dissolved Oxygen	Rural NPS
Honey Cypress Ditch	3121	Dunklin	Habitat Degradation	Rural NPS
Hoover Creek	0127	Macon	Habitat Degradation	Rural NPS
Horse Creek	1348	Cedar	Low Dissolved Oxygen	Rural NPS
Horse Fork	0354	Clinton	Habitat Degradation	Rural NPS
Hough Park Lake	7388	Cole	Mercury	Atmospheric Deposition
Hubble Creek, Old Channel	3053	Cape Girardeau	Habitat Degradation	Rural NPS
Huff Creek	0306	Nodaway	Habitat Degradation	Rural NPS
Huffstetter Lateral	3101	Stoddard	Habitat Degradation	Rural NPS
Hunnewell Lake	7029	Shelby	Mercury	Atmospheric Deposition
Hurricane Branch	0435	Daviess	Habitat Degradation	Rural NPS
Hurricane Creek	0632	Carroll	Habitat Degradation	Rural NPS
Indian Branch	0432	Livingston	Habitat Degradation	Rural NPS
Indian Creek	0062	Scotland	Habitat Degradation	Rural NPS
Indian Creek	0104	Monroe	Habitat Degradation	Rural NPS
Indian Creek	0171	Pike	Habitat Degradation	Rural NPS
Indian Creek	0477	Gentry	Habitat Degradation	Rural NPS
Indian Creek	0573	Harrison	Habitat Degradation	Rural NPS
Indian Creek Lake	7389	Livingston	Mercury	Atmospheric Deposition
Indian Hills Lake	7288	Crawford	Mercury	Atmospheric Deposition
Iowa Ditch	0234	Atchison	Habitat Degradation	Rural NPS
Irvins Branch	0494	Dekalb	Habitat Degradation	Rural NPS
Irwin Creek	0558	Mercer	Habitat Degradation	Rural NPS
Ishmael Branch	1964	Washington	Habitat Degradation	Abandoned Barite Mined Lands, Urban NPS
Island Creek	0485	Gentry	Habitat Degradation	Rural NPS
Jacobs Branch	3223	Newton	Zinc	Abandoned Lead –Zinc Mines
James Bayou	3128	Mississippi	Habitat Degradation	Rural NPS
James Bayou	3129	Mississippi	Habitat Degradation	Rural NPS
Jamesport Community Lake	7105	Daviess	Mercury	Atmospheric Deposition
Jenkins Creek	0286	Nodaway	Habitat Degradation	Rural NPS
Johns Branch	0184	Pike	Habitat Degradation	Rural NPS

Jordan Branch	0275	Platte	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Jordan Creek	0329	Dekalb	Habitat Degradation	Rural NPS
Jordan Creek	0911	Saline	Habitat Degradation	Rural NPS
Jowler Creek	3571	Platte	Habitat Degradation	Rural NPS
Keeney Creek	0384	Ray	Habitat Degradation	Rural NPS
Kettle Creek	0516	Daviess	Habitat Degradation	Rural NPS
Kimsey Creek	0262	Holt	Habitat Degradation	Rural NPS
Kimsey Creek	0263	Holt	Habitat Degradation	Rural NPS
Kimsey Creek	0264	Holt	Habitat Degradation	Rural NPS
Kinnemore Ditch	3122	Dunklin	Habitat Degradation	Rural NPS
Kitten Creek	1334	Vernon	Habitat Degradation	Rural NPS
Knob Creek	1303	Bates	Habitat Degradation	Rural NPS
Kyle Creek	3195	Dade	Habitat Degradation	Rural NPS
Labelle Lake #2	7023	Lewis	Mercury	Atmospheric Deposition
Ladies Branch	1332	Vernon	Habitat Degradation	Rural NPS
Lake Creek	0359	Chariton	Habitat Degradation	Rural NPS
Lake Creek	0431	Livingston	Habitat Degradation	Rural NPS
Lake Creek	0875	Pettis	Habitat Degradation	Rural NPS
Lake Creek	3527	Pettis	Habitat Degradation	Rural NPS
Lake Creek, Tributary	0876	Pettis	Habitat Degradation	Rural NPS
Lake Creek, Tributary	3514	Pettis	Habitat Degradation	Rural NPS
Lake of the Ozarks	7205	Camden	pH	Discharge from Truman Dam
Lake of the Woods	7436	Boone	Mercury	Atmospheric Deposition
Lake Slough	2774	Butler	Habitat Degradation	Rural NPS
Lake Ste. Louise	7055	St. Charles	Bacteria	Urban NPS
Lake Winnebago	7212	Cass	Mercury	Atmospheric Deposition
Landon Branch	1329	Vernon	Habitat Degradation	Rural NPS
Larry Creek	0507	Daviess	Habitat Degradation	Rural NPS
Lateral #2	3025	Pemiscot	Habitat Degradation	Rural NPS
Lateral #2 to Main Ditch	3106	Stoddard	Habitat Degradation	Rural NPS
Lateral #27	3027	Dunklin	Habitat Degradation	Rural NPS
Lateral #27	3033	Pemiscot	Habitat Degradation	Rural NPS
Lateral #4	3149	Scott	Habitat Degradation	Rural NPS
Lateral Ditch	3008	Butler	Habitat Degradation	Rural NPS
Lateral Ditch	3010	Butler	Habitat Degradation	Rural NPS
Lateral Ditch #1	3114	Dunklin	Habitat Degradation	Rural NPS
Lateral Ditch #2	3113	Dunklin	Habitat Degradation	Rural NPS

Lateral Ditch #37	3007	Butler	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Lead Creek	0178	Lincoln	Altered Fish Community	Rural NPS
Lead Creek	0179	Lincoln	Altered Fish Community	Rural NPS
Lee Rowe Ditch	3137	Mississippi	Habitat Degradation	Rural NPS
Leeper Creek	0624	Livingston	Habitat Degradation	Rural NPS
Lewis Slough	0235	Atchison	Habitat Degradation	Rural NPS
Lick Creek	0150	Ralls	Habitat Degradation	Rural NPS
Lick Creek	0256	Cass	Habitat Degradation	Rural NPS
Lick Creek Ditch	2980	Stoddard	Habitat Degradation	Rural NPS
Lick Fork	0514	Daviess	Habitat Degradation	Rural NPS
Lick Fork	0515	Daviess	Habitat Degradation	Rural NPS
Lick Fork	1024	Boone	Sediment	Mining
Lick Fork	3439	Lafayette	Habitat Degradation	Rural NPS
Lincoln Creek	0280	Andrew	Habitat Degradation	Rural NPS
Lincoln Creek, Tributary	0281	Andrew	Habitat Degradation	Rural NPS
Linn Creek	0041	Clark	Habitat Degradation	Rural NPS
Little Blackwater Creek	0922	Johnson	Habitat Degradation	Rural NPS
Little Blue River	0423	Jackson	Mercury	Atmospheric Deposition
Little Blue River	0424	Jackson	Habitat Degradation	Rural NPS
Little Brush Creek	0673	Macon	Habitat Degradation	Rural NPS
Little Chariton River	0678	Chariton	Habitat Degradation	Rural NPS
Little Clear Creek	1340	St. Clair	Habitat Degradation	Rural NPS
Little Clear Creek, Tributary	1341	St. Clair	Habitat Degradation	Rural NPS
Little Coon Creek	3192	Barton	Habitat Degradation	Rural NPS
Little Creek	0452	Harrison	Habitat Degradation	Rural NPS
Little Creek	0923	Johnson	Habitat Degradation	Rural NPS
Little Crooked Creek	0118	Shelby	Habitat Degradation	Rural NPS
Little Deer Creek	1277	Bates	Habitat Degradation	Rural NPS
Little Drywood Creek	1326	Barton	Low Dissolved Oxygen, pH	Rural NPS, Abandoned Coal Mined Lands
Little Drywood Creek, Tributary	3649	Vernon	Habitat Degradation	Rural NPS
Little East Fork Locust Creek	0609	Sullivan	Habitat Degradation	Rural NPS
Little Fabius River	0079	Knox	Habitat Degradation	Rural NPS
Little Fox River	0039	Clark	Habitat Degradation	Rural NPS
Little Fox River	0040	Scotland	Habitat Degradation	Rural NPS
Little Horseshoe Creek	3690	Lafayette	Habitat Degradation	Rural NPS

Little Hurricane Creek	0633	Carroll	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Little Lead Creek	0181	Lincoln	Altered Fish Community	Rural NPS
Little Maries River	1085	Maries	Habitat Degradation, Low Dissolved Oxygen	Rural NPS
Little Monegaw Creek	1232	St. Clair	Habitat Degradation	Rural NPS
Little Muddy Creek	0440	Daviess	Habitat Degradation	Rural NPS
Little Muddy Creek	0559	Mercer	Habitat Degradation	Rural NPS
Little Muddy Creek	0856	Pettis	Color	Industrial Discharge
Little Muddy Creek, Tributary	3491	Pettis	Habitat Degradation	Rural NPS
Little Muddy Creek, Tributary	3489	Pettis	Habitat Degradation	Rural NPS
Little Mussel Creek	0675	Adair	Habitat Degradation	Rural NPS
Little No Creek	0552	Grundy	Habitat Degradation	Rural NPS
Little North Fork Spring River	3200	Jasper	Habitat Degradation	Rural NPS
Little North Fork Spring River, Tributary	3201	Barton	Habitat Degradation	Rural NPS
Little Osage River	1310	Vernon	Habitat Degradation	Rural NPS
Little Osage River	3674	Vernon	Habitat Degradation	Rural NPS
Little Otter Creek	0120	Monroe	Habitat Degradation	Rural NPS
Little Otter Creek	0526	Caldwell	Habitat Degradation	Rural NPS
Little Platte River	0315	Platte	Habitat Degradation	Rural NPS
Little Platte River	0352	Clinton	Habitat Degradation	Rural NPS
Little River	0562	Mercer	Habitat Degradation	Rural NPS
Little River, Old Channel	3041	New Madrid	Habitat Degradation	Rural NPS
Little Shaver Creek	0863	Pettis	Habitat Degradation	Rural NPS
Little Shoal Creek	0651	Putnam	Habitat Degradation	Rural NPS
Little Shoal Creek	3325	Clay	Habitat Degradation	Rural NPS
Little Sni-A-Bar Creek	0403	Lafayette	Habitat Degradation	Rural NPS
Little Sni-A-Bar Creek	0404	Lafayette	Habitat Degradation	Rural NPS
Little Tabo Creek	0409	Lafayette	Habitat Degradation	Rural NPS
Little Tarkio Creek	0248	Holt	Habitat Degradation	Rural NPS
Little Tarkio Creek	0250	Atchison	Habitat Degradation	Rural NPS
Little Tarkio Creek, Old Channel	0260	Holt	Habitat Degradation	Rural NPS
Little Tarkio Creek, Old Channel	0261	Holt	Habitat Degradation	Rural NPS
Little Tarkio Ditch	0251	Holt	Habitat Degradation	Rural NPS
Little Tavern Creek	1076	Maries	Bacteria	Rural NPS
Little Tebo Creek	1205	Benton	Habitat Degradation	Rural NPS

Little Tebo Creek, Tributary	3295	Benton	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Little Tebo Creek, Tributary	3304	Benton	Habitat Degradation	Rural NPS
Little Third Fork Platte River	0328	Dekalb	Habitat Degradation	Rural NPS
Little Walnut Creek	0662	Macon	Habitat Degradation	Rural NPS
Little Walnut Creek	0938	Johnson	Habitat Degradation	Rural NPS
Little Wyaconda River	0052	Clark	Habitat Degradation	Rural NPS
Little Wyaconda River	0053	Clark	Habitat Degradation	Rural NPS
Littleby Creek	0147	Audrain	Habitat Degradation	Rural NPS
Log Creek	0533	Caldwell	Habitat Degradation	Rural NPS
Logan Creek	2763	Reynolds	Mercury	Atmospheric Deposition
Long Branch	0139	Monroe	Habitat Degradation	Rural NPS
Long Branch	0243	Atchison	Habitat Degradation	Rural NPS
Long Branch	0340	Nodaway	Habitat Degradation	Rural NPS
Long Branch	0488	Gentry	Habitat Degradation	Rural NPS
Long Branch	0602	Linn	Habitat Degradation	Rural NPS
Long Branch	0677	Chariton	Habitat Degradation	Rural NPS
Long Branch	0857	Johnson	Habitat Degradation	Rural NPS
Long Branch	1843	Pettis	Habitat Degradation	Rural NPS
Long Branch	3430	Johnson	Habitat Degradation	Rural NPS
Long Branch Lake	7171	Macon	Mercury	Atmospheric Deposition
Long Branch, Tributary	3502	Pettis	Habitat Degradation	Rural NPS
Long Creek	0535	Caldwell	Habitat Degradation	Rural NPS
Long Creek	0669	Chariton	Habitat Degradation	Rural NPS
Long Grove Branch	0851	Pettis	Habitat Degradation	Rural NPS
Long Grove Branch	3531	Pettis	Habitat Degradation	Rural NPS
Lost Creek	0495	Dekalb	Habitat Degradation	Rural NPS
Lost Creek	0643	Schuyler	Habitat Degradation	Rural NPS
Lotts Creek	0466	Worth	Habitat Degradation	Rural NPS
Lumpkin Creek	0425	Jackson	Habitat Degradation	Rural NPS
Mace Creek	0267	Andrew	Habitat Degradation	Rural NPS
Main Ditch	3026	Pemiscot	Habitat Degradation	Rural NPS
Main Ditch	3112	Dunklin	Habitat Degradation	Rural NPS
Main Ditch	3115	Stoddard	Habitat Degradation	Rural NPS
Main Ditch #8	3031	Pemiscot	Habitat Degradation	Rural NPS
Main Ditch #8	3032	Pemiscot	Habitat Degradation	Rural NPS
Malaruni Creek	0010	Ralls	Habitat Degradation	Rural NPS
Malone Creek	2277	Bollinger	Habitat Degradation	Rural NPS

Maple Slough	3140	Mississippi	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Marais Des Cygnes River	1297	Bates	Habitat Degradation	Rural NPS
Marlin Creek	0852	Pettis	Habitat Degradation	Rural NPS
Marlin Creek	3485	Pettis	Habitat Degradation	Rural NPS
Marlowe Creek	0474	Worth	Habitat Degradation	Rural NPS
Marlowe Creek	0475	Worth	Habitat Degradation	Rural NPS
Marmaton River	1308	Vernon	Low Dissolved Oxygen	Rural NPS
Marrowbone Creek	0508	Daviess	Habitat Degradation	Rural NPS
Marrowbone Creek	0511	Daviess	Habitat Degradation	Rural NPS
Marshalls Creek	1221	Henry	Habitat Degradation	Rural NPS
Martin Creek	0570	Gentry	Habitat Degradation	Rural NPS
Mass Creek	0302	Nodaway	Habitat Degradation	Rural NPS
Massey Creek	1267	Cass	Habitat Degradation	Rural NPS
Massey Creek, Tributary	1268	Cass	Habitat Degradation	Rural NPS
May Branch	3540	Pettis	Habitat Degradation	Rural NPS
McCarty Creek	1338	Vernon	pH	Unknown
McElroy Creek	0231	Atchison	Habitat Degradation	Rural NPS
McGee Branch	3510	Pettis	Habitat Degradation	Rural NPS
McGuire Branch	0324	Clinton	Habitat Degradation	Rural NPS
McKenzie Creek	3643	Wayne	Habitat Degradation	Rural NPS
McKill Creek	1321	Vernon	pH	Abandoned Coal Mined Lands
McKill Creek	1324	Vernon	Habitat Degradation	Rural NPS
McLean Creek	0031	Lincoln	Habitat Degradation	Rural NPS
Medicine Creek	0616	Livingston	Habitat Degradation	Rural NPS
Melton Creek	3637	Vernon	Habitat Degradation	Rural NPS
Meramec River	1841	Franklin	Mercury	Atmospheric Deposition
Meramec River	1846	Crawford	Mercury	Atmospheric Deposition
Meramec River	2183	St. Louis	Mercury	Atmospheric Deposition
Meramec River	2185	St. Louis	Lead	Abandoned Lead Mines
Merrills Branch	0084	Marion	Habitat Degradation	Rural NPS
Miami Creek	1302	Bates	Habitat Degradation	Rural NPS
Middle Branch Squaw Creek	0258	Holt	Habitat Degradation	Rural NPS
Middle Creek	0567	Grundy	Habitat Degradation	Rural NPS
Middle Fabius River	0063	Lewis	Habitat Degradation, Atrazine	Rural NPS
Middle Fork Black River	2744	Reynolds	Lead	Active Lead Mines
Middle Fork Chariton River	0691	Chariton	Habitat Degradation	Rural NPS

Middle Fork Chariton River	0698	Macon	Habitat Degradation	Rural NPS
Waterbody	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Middle Fork Grand River	0472	Worth	Habitat Degradation	Rural NPS
Middle Fork Grand River, Tributary	0473	Worth	Habitat Degradation	Rural NPS
Middle Fork Lost Creek	0496	Dekalb	Habitat Degradation	Rural NPS
Middle Fork Salt River	0123	Macon	Habitat Degradation	Rural NPS
Middle Fork Salt River, Tributary	0125	Macon	Habitat Degradation	Rural NPS
Middle Fork Tebo Creek, Tributary	1289	Henry	Habitat Degradation	Rural NPS
Middle Fork Tebo Creek, Tributary	1286	Henry	Habitat Degradation	Rural NPS
Middle Fork Tebo Creek, Tributary	1287	Henry	Habitat Degradation	Rural NPS
Middle Fork Tebo Creek, Tributary	1285	Henry	Habitat Degradation	Rural NPS
Middle Tarkio Creek	0245	Atchison	Habitat Degradation	Rural NPS
Mill Creek	0159	Lincoln	Habitat Degradation	Rural NPS
Mill Creek	0265	Holt	Habitat Degradation	Rural NPS
Mill Creek	0266	Holt	Habitat Degradation	Rural NPS
Mill Creek	0301	Nodaway	Habitat Degradation	Rural NPS
Mill Creek	0529	Caldwell	Habitat Degradation	Rural NPS
Mill Creek	2124	Washington	Habitat Degradation	Wastewater Discharge
Mill Creek	3311	Cass	Habitat Degradation	Rural NPS
Mill Creek, Tributary	0303	Nodaway	Habitat Degradation	Rural NPS
Milligan Creek	0134	Monroe	Habitat Degradation	Rural NPS
Mineral Creek	3422	Johnson	Habitat Degradation	Rural NPS
Mineral Creek, Tributary	3423	Johnson	Habitat Degradation	Rural NPS
Mingo Ditch	2983	Stoddard	Habitat Degradation	Rural NPS
Missouri River	0226	Holt	Habitat Degradation	Channelization
Missouri River	0356	Carroll	Habitat Degradation	Channelization
Missouri River	0701	Callaway	Habitat Degradation	Channelization
Missouri River	1604	St. Charles	Habitat Degradation	Channelization
Missouri River, Tributary	0411	Saline	Habitat Degradation	Rural NPS
Moccasin Creek	0483	Gentry	Habitat Degradation	Rural NPS
Monegaw Creek	1233	St. Clair	Habitat Degradation	Rural NPS
Monegaw Creek	1234	St. Clair	Low Dissolved Oxygen, Sulfate	Rural NPS, Abandoned Coal Mined Lands
Moore Branch	1328	Vernon	Habitat Degradation	Rural NPS
Moore Branch	1315	Vernon	Habitat Degradation	Rural NPS

Moores Branch	1316	Vernon	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Mormon Fork	1275	Bates	Habitat Degradation	Rural NPS
Moss Creek	0369	Carroll	Habitat Degradation	Rural NPS
Moss Creek, Tributary	0370	Carroll	Habitat Degradation	Rural NPS
Mound Creek	0626	Livingston	Habitat Degradation	Rural NPS
Mouse Creek	0426	Jackson	Habitat Degradation	Rural NPS
Mozingo Creek	0343	Nodaway	Habitat Degradation	Rural NPS
Mozingo Lake	7402	Nodaway	Mercury	Atmospheric Deposition
Mud Creek	0128	Randolph	Habitat Degradation	Rural NPS
Mud Creek	0538	Caldwell	Habitat Degradation	Rural NPS
Mud Creek	0541	Ray	Habitat Degradation	Rural NPS
Mud Creek Ditch	0537	Livingston	Habitat Degradation	Rural NPS
Mud Creek, Old Channel	0547	Livingston	Habitat Degradation	Rural NPS
Mud Creek, Tributary	0546	Caldwell	Habitat Degradation	Rural NPS
Mud Creek, Tributary	0545	Caldwell	Habitat Degradation	Rural NPS
Mud Creek, Tributary	0544	Caldwell	Habitat Degradation	Rural NPS
Mud Ditch	3124	New Madrid	Habitat Degradation	Rural NPS
Muddy Creek	0291	Nodaway	Habitat Degradation	Rural NPS
Muddy Creek	0434	Daviess	Habitat Degradation	Rural NPS
Muddy Creek	0492	Daviess	Habitat Degradation	Rural NPS
Muddy Creek	0557	Mercer	Habitat Degradation	Rural NPS
Muddy Creek	0607	Linn	Habitat Degradation	Rural NPS
Muddy Creek	0617	Livingston	Habitat Degradation	Rural NPS
Muddy Creek	0898	Saline	Habitat Degradation	Rural NPS
Muddy Creek	1309	Vernon	Habitat Degradation	Rural NPS
Muddy Creek	3308	Cass	Habitat Degradation	Rural NPS
Muddy Creek, Tributary	0618	Grundy	Habitat Degradation	Rural NPS
Muddy Creek, Tributary	3488	Petis	Habitat Degradation	Rural NPS
Muddy Creek, Tributary	3492	Pettis	Habitat Degradation	Rural NPS
Muddy Creek, Tributary	3494	Pettis	Habitat Degradation	Rural NPS
Muddy Creek, Tributary	3495	Pettis	Habitat Degradation	Rural NPS
Muddy Creek, Tributary	3499	Pettis	Habitat Degradation	Rural NPS
Muddy Fork	0391	Clay	Altered Aquatic Community	Rural NPS
Mulberry Creek	3635	Vernon	Habitat Degradation	Rural NPS
Mulkey Creek	0916	Johnson	Habitat Degradation	Rural NPS
Muncas Creek	0692	Chariton	Habitat Degradation	Rural NPS

Muncas Creek	0693	Randolph	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Narrows Creek	0126	Macon	Habitat Degradation	Rural NPS
Naylor Creek	0277	Platte	Habitat Degradation	Rural NPS
Neals Creek	2752	Iron	Lead, Nickel in Stream Sediments	Abandoned Lead-Zinc Mine
New #7 Chute	3157	Mississippi	Habitat Degradation	Rural NPS
New Franklin Ditch	3016	Pemiscot	Habitat Degradation	Rural NPS
New Hope Cr.	0392	Clay	Habitat Degradation	Rural NPS
Nichols Creek	0309	Holt	Habitat Degradation	Rural NPS
Nichols Creek, Tributary	0310	Holt	Habitat Degradation	Rural NPS
Nishnabotna River	0227	Atchison	Habitat Degradation	Rural NPS
Nishnabotna River, Old Channel	0238	Atchison	Habitat Degradation	Rural NPS
Nishnabotna River, Old Channel	0240	Atchison	Habitat Degradation	Rural NPS
Noblett Lake	7316	Douglas	Mercury	Atmospheric Deposition
Nodaway River	0279	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0284	Holt	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0297	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0300	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0305	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0311	Holt	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0296	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0299	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0304	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0294	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0295	Nodaway	Habitat Degradation	Rural NPS
Nodaway River, Old Channel	0298	Nodaway	Habitat Degradation	Rural NPS
Norris Creek	1252	Henry	Habitat Degradation	Rural NPS
North Cut Ditch	3143	Scott	Habitat Degradation	Rural NPS
North Cut Ditch	3145	Scott	Habitat Degradation	Rural NPS
North Cut Ditch, Tributary	3144	Scott	Habitat Degradation	Rural NPS
North Cut Ditch, Tributary	3148	Scott	Habitat Degradation	Rural NPS
North Deepwater Creek	1218	Henry	Habitat Degradation	Rural NPS
North Dry Sac River	1392	Polk	Low Dissolved Oxygen	Rural NPS
North Fabius River	0056	Lewis	Habitat Degradation, Atrazine	Rural NPS
North Fabius River	0059	Schuyler	Habitat Degradation	Rural NPS

North Fork Batts Creek	0681	Howard	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
North Fork Blackwater River	0920	Johnson	Habitat Degradation	Rural NPS
North Fork Finney Creek	0904	Saline	Habitat Degradation	Rural NPS
North Fork Middle Fabius River	0065	Scotland	Habitat Degradation	Rural NPS
North Fork North Fabius River	0058	Scotland	Habitat Degradation	Rural NPS
North Fork Salt River	0110	Shelby	Habitat Degradation	Rural NPS
North Fork Salt River	0113	Adair	Habitat Degradation	Rural NPS
North Fork South Fabius River	0075	Knox	Habitat Degradation	Rural NPS
North Fork Spring River, Tributary	3196	Barton	Habitat Degradation	Rural NPS
North Mud Creek	0540	Caldwell	Habitat Degradation	Rural NPS
North River	0080	Marion	Habitat Degradation	Rural NPS
North River	0083	Shelby	Habitat Degradation	Rural NPS
North Wyaconda R.iver	0049	Scotland	Habitat Degradation	Rural NPS
North Wyaconda River	0048	Scotland	Habitat Degradation	Rural NPS
Norvey Creek	0344	Nodaway	Habitat Degradation	Rural NPS
Number 13 Elk Chute	3034	Pemiscot	Habitat Degradation	Rural NPS
Old Channel Nishnabotna River, Tributary	0239	Atchison	Habitat Degradation	Rural NPS
Old Channel Nishnabotna River, Tributary	0241	Atchison	Habitat Degradation	Rural NPS
Old Mines Creek, Tributary	2114	Washington	Sediment Deposition	Abandoned Barite Mined Lands
Old Mines Creek, Tributary	2113	Washington	Sediment Deposition	Abandoned Barite Mined Lands
Old Town Branch	1331	Vernon	Habitat Degradation	Rural NPS
Old Town Branch, Tributary	3647	Vernon	Habitat Degradation	Rural NPS
Olive Branch	3504	Pettis	Habitat Degradation	Rural NPS
One Hundred and Two River	0342	Nodaway	Habitat Degradation, Atrazine	Rural NPS
Opossum Creek	3190	Jasper	Habitat Degradation	Rural NPS
Osage Fork	1472	Laclede	Bacteria	Unknown
Otter Creek	0119	Monroe	Habitat Degradation	Rural NPS
Otter Creek	0525	Caldwell	Habitat Degradation	Rural NPS
Otter Creek	0887	Cooper	Habitat Degradation	Rural NPS
Otter Slough	3044	New Madrid	Habitat Degradation	Rural NPS
Otter Slough Ditch	2976	Stoddard	Habitat Degradation	Rural NPS
Owens Creek	1274	Cass	Habitat Degradation	Rural NPS

Owl Creek	3572	Platte	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Painter Creek	3486	Pettis	Habitat Degradation	Rural NPS
Palmer Creek	0357	Chariton	Habitat Degradation	Rural NPS
Palmer Creek	0358	Chariton	Habitat Degradation	Rural NPS
Panther Creek	0460	Gentry	Habitat Degradation	Rural NPS
Panther Creek	0521	Caldwell	Habitat Degradation	Rural NPS
Panther Creek	0575	Harrison	Habitat Degradation	Rural NPS
Panther Creek	0576	Harrison	Habitat Degradation	Rural NPS
Panther Creek	1260	Johnson	Habitat Degradation	Rural NPS
Panther Creek	1295	Bates	Habitat Degradation	Rural NPS
Panther Creek, Tributary	0522	Caldwell	Habitat Degradation	Rural NPS
Parker Branch	1304	Bates	Habitat Degradation	Rural NPS
Parson Creek	0614	Linn	Habitat Degradation	Rural NPS
Parson Creek	0615	Linn	Habitat Degradation	Rural NPS
Pass Branch	0900	Saline	Habitat Degradation	Rural NPS
Peavine Creek	0914	Johnson	Habitat Degradation	Rural NPS
Peddler Creek	0469	Gentry	Habitat Degradation	Rural NPS
Peddler Creek	0470	Gentry	Habitat Degradation	Rural NPS
Pedlar Creek	0283	Andrew	Habitat Degradation	Rural NPS
Peno Creek	0099	Pike	Low Dissolved Oxygen	Rural NPS
Pepper Creek	0868	Pettis	Habitat Degradation	Rural NPS
Perche Creek	1005	Boone	Habitat Degradation	Rural NPS
Petite Saline Creek	0785	Cooper	Low Dissolved Oxygen	Rural NPS
Pettis Creek	3193	Barton	Habitat Degradation	Rural NPS
Pigeon Creek	0349	Buchanan	Habitat Degradation	Rural NPS
Pigeon Roost Creek	0109	Monroe	Habitat Degradation	Rural NPS
Pike Creek Ditch	2813	Butler	Habitat Degradation	Rural NPS
Pike Creek, Ditch to	2819	Butler	Habitat Degradation	Rural NPS
Pike Slough	2817	Butler	Habitat Degradation	Rural NPS
Pilot Grove Creek	0439	Daviess	Habitat Degradation	Rural NPS
Pin Oak Creek	0926	Johnson	Habitat Degradation	Rural NPS
Platte River	0312	Platte	Habitat Degradation, Atrazine	Rural NPS
Platte River, Old Channel	0325	Buchanan	Habitat Degradation	Rural NPS
Platte River, Old Channel	0332	Buchanan	Habitat Degradation	Rural NPS
Platte River, Old Channel	0341	Buchanan	Habitat Degradation	Rural NPS

Platte River, Old Channel	0326	Buchanan	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Platte River, Old Channel	0348	Buchanan	Habitat Degradation	Rural NPS
Plattin Creek	1728	Jefferson	Dissolved Oxygen	Wastewater Discharge
Pleasant Run Creek	1327	Vernon	Habitat Degradation	Rural NPS
Pointers Creek	1460	Osage	Habitat Degradation	Rural NPS
Polecat Creek	0445	Harrison	Habitat Degradation	Rural NPS
Pond Creek, Tributary	2128	Washington	Sediment	Abandoned Barite Mined Lands
Poney Creek	3312	Cass	Habitat Degradation	Rural NPS
Poney Creek	3313	Cass	Habitat Degradation	Rural NPS
Postoak Creek	0928	Johnson	Habitat Degradation	Rural NPS
Prairie Creek	0313	Platte	Habitat Degradation	Rural NPS
Prairie Creek, Tributary	0314	Platte	Habitat Degradation	Rural NPS
Pryor Creek	3655	Vernon	Habitat Degradation	Rural NPS
Puzzle Creek	0666	Chariton	Habitat Degradation	Rural NPS
Raccoon Creek	0586	Grundy	Habitat Degradation	Rural NPS
Racoon Creek, Tributary	0587	Grundy	Habitat Degradation	Rural NPS
Ramsey Branch	2194	Cape Girardeau	Habitat Degradation	Rural NPS
Ramsey Creek	0020	Pike	Habitat Degradation	Rural NPS
Ramsey Creek Diversion Channel	2343	Scott	Habitat Degradation	Rural NPS
Rattlesnake Creek	0520	Livingston	Habitat Degradation	Rural NPS
Reed Creek	3654	Vernon	Habitat Degradation	Rural NPS
Reese Fork	0136	Monroe	Habitat Degradation	Rural NPS
Reid Creek	1236	St. Clair	Habitat Degradation	Rural NPS
Ricky Creek	1237	St. Clair	Habitat Degradation	Rural NPS
Riggin Branch	0347	Andrew	Habitat Degradation	Rural NPS
Rinquelin Trail Lake	7204	Maries	Mercury	Atmospheric Deposition
Roach Lake	0627	Livingston	Habitat Degradation	Rural NPS
Roberts Branch	0355	Clinton	Habitat Degradation	Rural NPS
Robinson Branch	3638	Vernon	Habitat Degradation	Rural NPS
Robinson Creek	3558	Phelps	Habitat Degradation	Wastewater Discharge
Rock Creek	0078	Knox	Habitat Degradation	Rural NPS
Rock Creek	0236	Atchison	Habitat Degradation	Rural NPS
Rock Creek	0237	Atchison	Habitat Degradation	Rural NPS
Rock Creek	3323	Clay	Habitat Degradation	Rural NPS

Rocky Fork	0378	Ray	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Rocky Fork	1014	Boone	Sediment	Abandoned Mine Lands
Rocky Hollow	3639	Vernon	Habitat Degradation	Rural NPS
Rollins Creek	0382	Ray	Habitat Degradation	Rural NPS
Roubidoux Creek	1512	Pulaski	Low Dissolved Oxygen	Unknown
Rush Creek	3322	Clay	Habitat Degradation	Rural NPS
Sac River	1398	Greene	Bacteria	Unknown
Sals Creek	2345	Scott	Habitat Degradation	Rural NPS
Sals Creek Diversion Channel	2344	Scott	Habitat Degradation	Rural NPS
Salt Branch	0413	Saline	Habitat Degradation	Rural NPS
Salt Branch	0901	Saline	Habitat Degradation	Rural NPS
Salt Creek	0594	Chariton	Habitat Degradation	Rural NPS
Salt Creek	1228	St. Clair	Habitat Degradation	Rural NPS
Salt Creek, Tributary	1229	St. Clair	Habitat Degradation	Rural NPS
Salt Fork	0893	Saline	Habitat Degradation	Rural NPS
Salt Fork	0899	Saline	Habitat Degradation	Rural NPS
Salt Pond Creek	0908	Saline	Habitat Degradation	Rural NPS
Salt Pond Creek	0910	Saline	Habitat Degradation	Rural NPS
Sampson Creek	0453	Daviess	Habitat Degradation	Rural NPS
Sampson Creek	0455	Gentry	Habitat Degradation	Rural NPS
Sand Creek	0290	Nodaway	Habitat Degradation	Rural NPS
Sand Creek	0644	Schuyler	Habitat Degradation	Rural NPS
Sand Creek	1290	Henry	Habitat Degradation	Rural NPS
Sandy Creek	0029	Lincoln	Habitat Degradation	Rural NPS
Sandy Creek	0183	Pike	Habitat Degradation	Rural NPS
Sandy Creek	0571	Mercer	Habitat Degradation	Rural NPS
Schuman Park Lake	7280	Phelps	Mercury	Atmospheric Deposition
Second Creek	0317	Platte	Habitat Degradation	Rural NPS
Sees Creek	0088	Marion	Habitat Degradation	Rural NPS
Sees Creek	0089	Marion	Habitat Degradation	Rural NPS
Shackelford Branch	0385	Ray	Habitat Degradation	Rural NPS
Shain Creek	0450	Harrison	Habitat Degradation	Rural NPS
Shankton Creek	0621	Putnam	Habitat Degradation	Rural NPS
Sharpsburg Branch	0087	Marion	Habitat Degradation	Rural NPS

Shaver Creek	0862	Pettis	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Shaver Creek, Tributary	3505	Pettis	Habitat Degradation	Rural NPS
Shaver Creek, Tributary	3506	Pettis	Habitat Degradation	Rural NPS
Shaver Creek, Tributary	3507	Pettis	Habitat Degradation	Rural NPS
Sheep Creek	0530	Caldwell	Habitat Degradation	Rural NPS
Shell Branch	0105	Monroe	Habitat Degradation	Rural NPS
Shibboleth Creek	2120	Washington	Sediment Deposition	Abandoned Barite Mined Lands
Shipley Slough	2971	Dunklin	Habitat Degradation	Rural NPS
Shoal Creek	0396	Clay	Habitat Degradation	Rural NPS
Shoal Creek	0397	Clay	Habitat Degradation	Rural NPS
Shoal Creek	0518	Caldwell	Habitat Degradation	Rural NPS
Shoal Creek	0528	Caldwell	Habitat Degradation	Rural NPS
Shoal Creek Ditch	0519	Livingston	Habitat Degradation	Rural NPS
Shootman Creek	0639	Carroll	Habitat Degradation	Rural NPS
Shuteye Creek	0656	Adair	Habitat Degradation	Rural NPS
Silver Creek	0683	Randolph	Habitat Degradation	Rural NPS
Simms Creek	1342	St. Clair	Habitat Degradation	Rural NPS
Skull Creek	0890	Cooper	Habitat Degradation	Rural NPS
Smith Fork	0353	Clinton	Habitat Degradation	Rural NPS
Smithville Lake	7077	Clay	Mercury	Atmospheric Deposition
Sni-A-Bar Creek	0401	Jackson	Habitat Degradation	Rural NPS
South Big Creek	0506	Daviess	Habitat Degradation	Rural NPS
South Brush Creek	0108	Monroe	Habitat Degradation	Rural NPS
South Davis Creek	0913	Lafayette	Habitat Degradation	Rural NPS
South Deepwater Creek	1219	Bates	Habitat Degradation	Rural NPS
South Fabius River	0071	Marion	Habitat Degradation	Rural NPS
South Flat Creek	0869	Pettis	Habitat Degradation	Rural NPS
South Flat Creek	3299	Benton	Habitat Degradation	Rural NPS
South Flat Creek, Tributary	3526	Pettis	Habitat Degradation	Rural NPS
South Flat Creek, Tributary	3300	Benton	Habitat Degradation	Rural NPS
South Fork	0939	Pettis	Habitat Degradation	Rural NPS
South Fork Blackwater River	0921	Johnson	Habitat Degradation	Rural NPS
South Fork Blackwater River	0924	Johnson	Habitat Degradation	Rural NPS
South Fork Blackwater River, Tributary	0925	Johnson	Habitat Degradation	Rural NPS

South Fork Clear Creek	0293	Nodaway	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
South Fork Gees Creek	0591	Livingston	Habitat Degradation	Rural NPS
South Fork Middle Fabius River	0067	Scotland	Habitat Degradation	Rural NPS
South Fork Middle Fabius River	0068	Schuyler	Habitat Degradation	Rural NPS
South Fork North Fabius River	0060	Schuyler	Habitat Degradation	Rural NPS
South Fork North Fabius River, Tributary	0061	Schuyler	Habitat Degradation	Rural NPS
South Fork North River	0085	Marion	Habitat Degradation	Rural NPS
South Fork North River	0086	Marion	Habitat Degradation	Rural NPS
South Fork Salt River	0141	Monroe	Habitat Degradation, Low Dissolved Oxygen	Rural NPS, Wastewater Discharge
South Fork Salt River, Tributary	0146	Audrain	Habitat Degradation	Rural NPS
South Fork South Fabius River	0076	Knox	Habitat Degradation	Rural NPS
South Fork South Fabius River	0077	Knox	Habitat Degradation	Rural NPS
South Fork South Grand River	1269	Cass	Habitat Degradation	Rural NPS
South Fork, Tributary	3547	Pettis	Habitat Degradation	Rural NPS
South Grand River	1249	Cass	Habitat Degradation	Rural NPS
South Mud Creek	0542	Ray	Habitat Degradation	Rural NPS
South River	0003	Marion	Habitat Degradation	Rural NPS
South Wyaconda River	0050	Clark	Atrazine	Rural NPS
Sparrow Foot Creek	1212	Henry	Habitat Degradation	Rural NPS
Spencer Creek	0224	St. Charles	Habitat Degradation	Rural NPS
Spillway Ditch	3134	New Madrid	Habitat Degradation	Rural NPS
Spring Creek	0657	Adair	Habitat Degradation	Rural NPS
Spring Creek	2979	Stoddard	Habitat Degradation	Rural NPS
Spring Fork	0871	Pettis	Habitat Degradation	Rural NPS
Spring Fork	3513	Pettis	Habitat Degradation	Rural NPS
Spring Fork, Tributary	0872	Pettis	Habitat Degradation	Rural NPS
Spring Fork, Tributary	3515	Pettis	Habitat Degradation	Rural NPS
Squaw Creek	0252	Holt	Habitat Degradation	Rural NPS
St. Francis River	2968	Dunklin	Habitat Degradation	Rural NPS
St. James Bayou	3132	Mississippi	Habitat Degradation	Rural NPS
St. James Ditch	3133	New Madrid	Habitat Degradation	Rural NPS
St. John's Bayou	3123	New Madrid	Habitat Degradation	Rural NPS

St. John's Ditch	3138	New Madrid	Mercury	Atmospheric Deposition
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
St. John's Ditch	3150	Scott	Habitat Degradation	Rural NPS
St. John's Diversion Ditch	3125	New Madrid	Habitat Degradation	Rural NPS
St. John's Diversion Ditch	3127	Mississippi	Habitat Degradation	Rural NPS
Stanley Creek	3001	Wayne	Habitat Degradation	Rural NPS
Sterett Creek	1204	Benton	Habitat Degradation	Rural NPS
Stillcamp Ditch	2810	Butler	Habitat Degradation	Rural NPS
Stillhouse Branch	0489	Gentry	Habitat Degradation	Rural NPS
Stinking Creek	0700	Macon	Habitat Degradation	Rural NPS
Strother Creek	2751	Iron	Lead, Zinc	Active Lead-Zinc Mine
Sugar Creek	0043	Clark	Habitat Degradation	Rural NPS
Sugar Creek	0044	Clark	Habitat Degradation	Rural NPS
Sugar Creek	0054	Lewis	Habitat Degradation	Rural NPS
Sugar Creek	0156	Lincoln	Habitat Degradation	Rural NPS
Sugar Creek	0270	Platte	Habitat Degradation	Rural NPS
Sugar Creek	0271	Buchanan	Habitat Degradation	Rural NPS
Sugar Creek	0581	Grundy	Habitat Degradation	Rural NPS
Sugar Creek	0582	Harrison	Habitat Degradation	Rural NPS
Sugar Creek	0641	Adair	Habitat Degradation	Rural NPS
Sugar Creek	1261	Cass	Habitat Degradation	Rural NPS
Sweet Spring Creek	0685	Randolph	Habitat Degradation	Rural NPS
Sweezer Creek	0699	Macon	Habitat Degradation	Rural NPS
Swift Ditch	3151	New Madrid	Mercury	Atmospheric Deposition
Tabo Creek	0405	Lafayette	Habitat Degradation	Rural NPS
Tabo Creek	0406	Lafayette	Habitat Degradation	Rural NPS
Tarkio River	0242	Atchison	Habitat Degradation	Rural NPS
Tater Hill Creek	0636	Carroll	Habitat Degradation	Rural NPS
Tater Hill Creek, Tributary	0637	Carroll	Habitat Degradation	Rural NPS
Tebo Creek	1280	Henry	Low Dissolved Oxygen	Rural NPS
Tebo Creek	1281	Henry	Habitat Degradation	Rural NPS
Teeter Creek	2551	Douglas	Habitat Degradation	Rural NPS
Tenmile Pond	3130	Mississippi	Habitat Degradation	Rural NPS
Tennessee Creek	1263	Cass	Habitat Degradation	Rural NPS
Thief Creek	0646	Schuyler	Habitat Degradation	Rural NPS
Third Fork Platte River	0327	Dekalb	Habitat Degradation	Rural NPS

Thompson Branch	0458	Gentry	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Thompson Creek	0437	Daviess	Habitat Degradation	Rural NPS
Thompson River, Old Channel	0568	Grundy	Habitat Degradation	Rural NPS
Thompson River, Old Channel	0569	Grundy	Habitat Degradation	Rural NPS
Thompson River, Old Channel	0579	Grundy	Habitat Degradation	Rural NPS
Thompson River, Old Channel	0580	Grundy	Habitat Degradation	Rural NPS
Thompson River, Old Channel	0592	Livingston	Habitat Degradation	Rural NPS
Tiger Fork	0082	Shelby	Habitat Degradation	Rural NPS
Tobin Creek	0064	Scotland	Habitat Degradation	Rural NPS
Todd Creek	0316	Platte	Habitat Degradation	Rural NPS
Tombstone Creek	0584	Harrison	Habitat Degradation	Rural NPS
Tombstone Creek	0585	Harrison	Habitat Degradation	Rural NPS
Townsend Slough	3675	Vernon	Habitat Degradation	Rural NPS
Towstring Creek	0631	Livingston	Habitat Degradation	Rural NPS
Trail Creek	0577	Harrison	Habitat Degradation	Rural NPS
Trail Creek	0578	Harrison	Habitat Degradation	Rural NPS
Troublesome Cr.	0074	Lewis	Habitat Degradation	Rural NPS
Tub Creek	0534	Caldwell	Habitat Degradation	Rural NPS
Turkey Creek	0138	Monroe	Habitat Degradation	Rural NPS
Turkey Creek	0361	Carroll	Habitat Degradation	Rural NPS
Turkey Creek	0362	Carroll	Habitat Degradation	Rural NPS
Turkey Creek	0486	Gentry	Habitat Degradation	Rural NPS
Turkey Creek	0523	Caldwell	Habitat Degradation	Rural NPS
Turkey Creek	0605	Linn	Habitat Degradation	Rural NPS
Turkey Creek	0647	Putnam	Habitat Degradation	Rural NPS
Turkey Creek	0663	Macon	Habitat Degradation	Rural NPS
Turkey Creek	0854	Pettis	Habitat Degradation	Rural NPS
Turkey Creek	3217	Jasper	Lead, Zinc, Cadmium in sediments	Abandoned Lead-Zinc Mined Lands
Turkey Creek, Tributary	3487	Pettis	Habitat Degradation	Rural NPS
Turkey Creek, Tributary	0524	Caldwell	Habitat Degradation	Rural NPS
Turkey Creek, Tributary	0664	Macon	Habitat Degradation	Rural NPS
Twomile Creek	1313	Vernon	Habitat Degradation	Rural NPS
Van Meter Ditch	0412	Saline	Habitat Degradation	Rural NPS

Varney River Ditch	2969	Dunklin	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Varney River Ditch	2970	Dunklin	Habitat Degradation	Rural NPS
Village Creek	2864	Madison	Lead, Zinc in sediments	Abandoned Lead-Zinc Mined Lands
Wades Creek	1291	Henry	Habitat Degradation	Rural NPS
Wakenda Creek	0360	Carroll	Habitat Degradation	Rural NPS
Wakenda Creek	0364	Carroll	Habitat Degradation	Rural NPS
Wakenda Creek, Old Channel	0368	Carroll	Habitat Degradation	Rural NPS
Wakonda Lake	7002	Lewis	Lead (in fish)	Unknown
Walnut Creek	0661	Adair	Habitat Degradation	Rural NPS
Walnut Creek	0687	Randolph	Habitat Degradation	Rural NPS
Walnut Creek	0873	Pettis	Habitat Degradation	Rural NPS
Walnut Creek	0918	Johnson	Habitat Degradation	Rural NPS
Walnut Creek	0937	Johnson	Habitat Degradation	Rural NPS
Walnut Creek	1306	Bates	Habitat Degradation	Rural NPS
Walnut Creek	3512	Pettis	Habitat Degradation	Rural NPS
Walnut Creek	3521	Pettis	Habitat Degradation	Rural NPS
Walnut Creek	3634	Vernon	Habitat Degradation	Rural NPS
Walnut Fork	0487	Gentry	Habitat Degradation	Rural NPS
Wamsley Creek	0505	Dekalb	Habitat Degradation	Rural NPS
Weatherby Lake	7071	Platte	Mercury	Atmospheric Deposition
Weldon Branch	0459	Gentry	Habitat Degradation	Rural NPS
Weldon River, Old Channel	0561	Grundy	Habitat Degradation	Rural NPS
Wellson Slough	3573	Platte	Habitat Degradation	Rural NPS
Wellson Slough	3574	Platte	Habitat Degradation	Rural NPS
West Branch	1318	Barton	Habitat Degradation	Rural NPS
West Branch Crawford Creek	1256	Jackson	Habitat Degradation	Rural NPS
West Cow Creek	0897	Saline	Habitat Degradation	Rural NPS
West Ditch	3111	Dunklin	Habitat Degradation	Rural NPS
West Fork	3198	Barton	Habitat Degradation	Rural NPS
West Fork Bee Branch	0668	Chariton	Habitat Degradation	Rural NPS
West Fork Big Creek	0451	Harrison	Habitat Degradation	Rural NPS
West Fork Clear Creek	1335	Vernon	Habitat Degradation	Rural NPS
West Fork Clear Creek, Tributary	3641	Vernon	Habitat Degradation	Rural NPS
West Fork Crooked River	0379	Ray	Habitat Degradation	Rural NPS
West Fork Crooked River	0380	Ray	Habitat Degradation	Rural NPS

West Fork Cuiivre River	0185	Audrain	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
West Fork East Creek	3310	Cass	Habitat Degradation	Rural NPS
West Fork Finney Creek	0905	Saline	Habitat Degradation	Rural NPS
West Fork Finney Creek, Tributary	0906	Saline	Habitat Degradation	Rural NPS
West Fork Honey Creek	0556	Mercer	Habitat Degradation	Rural NPS
West Fork Locust Creek	0613	Sullivan	Altered Aquatic Community	Rural NPS
West Fork Lost Creek	0499	Dekalb	Habitat Degradation	Rural NPS
West Fork Lost Creek, Tributary	0501	Dekalb	Habitat Degradation	Rural NPS
West Fork Lost Creek, Tributary	0500	Dekalb	Habitat Degradation	Rural NPS
West Fork Postoak Creek	0929	Johnson	Habitat Degradation	Rural NPS
West Fork Postoak Creek, Tributary	0930	Johnson	Habitat Degradation	Rural NPS
West Fork Wakenda Creek	0366	Carroll	Habitat Degradation	Rural NPS
West Fork Wakenda Creek	0367	Ray	Habitat Degradation	Rural NPS
West High Creek	0230	Atchison	Habitat Degradation	Rural NPS
West Lick Creek	0149	Monroe	Habitat Degradation	Rural NPS
West Locust Creek	0611	Putnam	Habitat Degradation	Rural NPS
West Muddy Creek	0564	Grundy	Habitat Degradation	Rural NPS
West Muddy Creek	0566	Mercer	Habitat Degradation	Rural NPS
West Muddy Creek, Tributary	0565	Mercer	Habitat Degradation	Rural NPS
West Tarkio Creek	0244	Atchison	Habitat Degradation	Rural NPS
West Tarkio Creek	0246	Atchison	Habitat Degradation	Rural NPS
West Yellow Creek	0599	Linn	Habitat Degradation	Rural NPS
West Yellow Creek	0600	Sullivan	Habitat Degradation	Rural NPS
Wheeler Creek	0503	Dekalb	Habitat Degradation	Rural NPS
White Branch	1330	Vernon	Habitat Degradation	Rural NPS
White Cloud Creek	0345	Nodaway	Habitat Degradation	Rural NPS
White Cloud Creek	0346	Nodaway	Habitat Degradation	Rural NPS
White Oak Creek	0454	Harrison	Habitat Degradation	Rural NPS
White Oak Creek	1279	Henry	Habitat Degradation	Rural NPS
Wildcat Creek	0259	Holt	Habitat Degradation	Rural NPS
Wildcat Creek	0480	Gentry	Habitat Degradation	Rural NPS
Wildcat Creek	0482	Gentry	Habitat Degradation	Rural NPS
Wildcat Creek, Tributary	0481	Gentry	Habitat Degradation	Rural NPS
Wildcat Creek, Tributary	0484	Nodaway	Habitat Degradation	Rural NPS

Wilkerson Ditch	3126	Mississippi	Habitat Degradation	Rural NPS
Name	WBID	Primary County	Potential Pollutant or Condition	Potential Source
Williams Creek	0387	Clay	Altered Aquatic Community	Rural NPS
Willow Creek	0381	Ray	Habitat Degradation	Rural NPS
Willow Creek	0498	Gentry	Habitat Degradation	Rural NPS
Willow Creek	0543	Caldwell	Habitat Degradation	Rural NPS
Willow Creek	3653	Vernon	Habitat Degradation	Rural NPS
Wilson Branch	3640	Vernon	Habitat Degradation	Rural NPS
Winnegan Creek	0598	Linn	Habitat Degradation	Rural NPS
Winn's Creek	0122	Macon	Habitat Degradation	Rural NPS
Wolf Hole Lateral	3136	Mississippi	Habitat Degradation	Rural NPS
Wyaconda River	0047	Lewis	Habitat Degradation	Rural NPS
Yellow Creek	0595	Chariton	Habitat Degradation	Rural NPS
Yellow Creek	1230	St. Clair	Habitat Degradation	Rural NPS
Yellow Creek, Tributary	1231	St. Clair	Habitat Degradation	Rural NPS
Youngs Creek	0140	Audrain	Habitat Degradation	Rural NPS
Zadie Creek	0448	Harrison	Habitat Degradation	Rural NPS
Zounds Branch	0479	Gentry	Habitat Degradation	Rural NPS

Appendix II
Total Maximum Daily Load Completion Schedule

Table 18. Tentative Schedule for the Completion of Total Maximum Daily Load Studies.

WBID	Name	TMDL Goal Year	Pollutant¹	Source²	Downstream County	Upstream County	Downstream Legal Description	Upstream Legal Description
2074*	Big River	2007	Lead	Old Lead Belt AML	Jefferson		NW18,43N,4E	3166,40N,3E
2080*	Big River	2007	Lead, NVSS	Old Lead Belt AML	Jefferson	St. Francois	3166,40N,3E	33,37N,4E
1371	Brush Creek	2007	BOD, VSS	Humansville WWTP	Polk		SW16,35N,24W	SW16,35N,24W
0709	Bynum Creek	2007	NVSS	Auxvasse Stone Quarry	Callaway		S34,49N,9W	S34,49N,9W
3239	Clear Creek	2007	Nutrients	Monett WWTP	Barry			
0510*	Dog Creek	2007	NVSS	Traeger Quarry	Daviess		NW13,58N,28W	NW13,58N,28W
7237	Fellows Lake	2007	Nutrients	Agricultural/Suburban NPS	Greene		NE22,30N,21W	
2168*	Flat River Creek	2007	Lead, NVSS	Old Lead Belt AML	St. Francois		Sur.83,37,5E	NW18,36,5E
2168*	Flat River Creek	2007	Zinc	Elvins tailings pile	St. Francois		Sur.83,37,5E	NW18,36,5E
0037	Fox River	2007	Manganese	Natural	Clark		6,63N,5W	SE6,64N,6W
0883*	Gabriel Creek	2007	BOD, NFR	2 Stover lagoons	Morgan		SE34,43N,19W	NE3,42N,19W
1007	Hinkson Creek	2007	Unknown		Boone		mouth	W24,48N,13W
1008	Hinkson Creek	2007	Unknown		Boone		W24,48N,13W	SW8,48N,12W
7207	HS Truman Lake	2007	Manganese	Natural	Henry		7,40N,23W	
0420	Indian Creek	2007	Fecal coliform	WWTP in Kansas	Jackson		mouth	state line
1438	Little Lindley Creek	2007	BOD, VSS	Buffalo WWTP	Dallas		NE16,34N,20W	W15,34N,20W
7023	LaBelle No.2 Lake	2007	Atrazine, Cyana	Corn/Sorghum Production	Lewis		NE16,61N,9W	
7314	Lake Taneycomo	2007	Low DO	Table Rock Dam	Taney		NE8,23N,20W	
0063	Middle Fabius River	2007	Manganese	Natural	Lewis		NE29,60N,6W	22,64N,12W
2786	McKenzie Creek	2007	BOD	Piedmont WWTP	Wayne		mouth	SE34,29N,3E
1707	Mississippi River	2007	Lead, Zinc	Herculaneum Smelter	Jefferson		Selma,Mo.	Herculaneum
7031	Monroe City Rte.J Lake	2007	Atrazine, Cyana	Corn/Sorghum Production	Ralls		NE34,56N,7W	
0056	North Fabius River	2007	Manganese	AgNPS	Marion	Schuyler	24,59N,6W	26,67N,14W
1444*	Piper Creek	2007	VSS	Bolivar WWTP	Polk		6,33N,22W	6,33N,22W
2128	Pond Creek, Tributary	2007	NVSS	Barite Tailings Pond	Washington		SW35,38N,3E	E3,37N,3E
0050	South Wyaconda River	2007	Manganese	Natural	Clark	Scotland	26,65N,9.W	4,65N,10W

WBID	Waterbody	TMDL Goal Year	Pollutant ¹	Source ²	Downstream County	Upstream County	Downstream Legal Description	Upstream Legal Description
0091	Salt River	2007	Manganese	Cannon Dam	Ralls		SE23,55N,3W	NE9,55N,6W
0103	Salt River	2007	Manganese,Iron	Cannon Dam	Ralls		NE9,55N,6W	NE26,55N,7W
2120	Shibboleth Creek	2007	NVSS	Barite Tailings Pond	Washington		NW22,38N,3E	NE21,38N,3E
0073	Troublesome Creek	2007	Manganese	Natural	Marion		NE24,59N,7W	15,59N,7W
7032	Vandalia City Reservoir	2007	Atrazine	Corn/Sorghum Production	Pike		SE12,53N,5W	
0046	Wyaconda River	2007	Manganese	Natural	Lewis		mouth	15,61N,6W
3118*	Buffalo Ditch	2008	BOD	Kennett WWTP	Dunklin		NE26,18N,9E	C14,18N,9E
9002	Cave Spring Branch	2008	Nutrients	Simmons Industries, Livestock	McDonald		W21,21N,34W	W21,21N,34W
1145*	Dry Auglaize Creek	2008	Unknown	Lebanon WWTP	Laclede		SE36,35N,16W	E2,34N,16W
7026	Edina Reservoir	2008	Atrazine, Cyana	Corn/Sorghum Production	Knox		NE12,62N,12W	
0212	Indian Camp Creek	2008	NVSS, NH3	JZ Landfill	Warren		10,47N,1W	10,47N,1W
1946	Indian Creek	2008	Zinc		Washington		mouth	18,35N,1W
7205	Lake of the Ozarks	2008	Fish Trauma	Truman Dam	Benton		NE7,40N,22W	
7205	Lake of the Ozarks	2008	Gas supersaturation	Truman Dam	Benton		NE7,40N,22W	
7205	Lake of the Ozarks	2008	Low DO	Truman Dam	Benton		NE7,40N,22W	
7055	Lake Ste. Louise	2008	Fecal Coliform	Urban Runoff	St. Charles		28,47N,2E	
1300*	Mound Branch	2008	BOD, NH3N	Butler WWTP	Bates		N5,39N,31W	C34,40N,31W
1870*	Spring Branch	2008	BOD, VSS	Salem WWTP	Dent		SW12,34N,6W	SE12,34N,6W
0710*	Stinson Creek	2008	BOD, VSS	Fulton WWTP	Callaway		NE21,47N,9W	NE21,47N,9W
2755	West Fork Black River	2008	Nutrients	Doe Run West Fork Mine	Reynolds		SE1,32N,2W	SE1,32N,2W
1746	Big Bottom Creek	2009	BOD, VSS	Lake Forest Subdivision	Ste. Genevieve		NE36,38N,7E	SE36,38N,7E
0912	Davis Creek	2009	Nutrients	Odessa SE WWTP	Lafayette		SE10,48N,27W	N9,48N,27W
0189	Elkhorn Creek	2009	Sediment	Agricultural NPS	Montgomery		23,50N,4W	3,48N,5W
3652	Little Osage River	2009	Low DO		Vernon		18,37N,31W	18,37N,33W
0875	Lake Creek	2009	Sediment	Agricultural NPS	Pettis		SW25,45N,20W	NE12,44N,20W
3105	Lateral.#2 Main Ditch	2009	Sediment	Agricultural NPS	Stoddard		24,23N,10E	25,25N,10E
1308	Marmaton River	2009	Low DO		Vernon		19,38N,29W	W6,35N,33W
0159	Mill Creek	2009	Sediment	Agricultural NPS	Lincoln		7,50N,1W	1710,51N,1W
2373*	Pearson Creek	2009	Unknown toxicity	Urban NPS	Greene		SE35,29N,21W	C26,29N,21W
0218	Peruque Creek	2009	NVSS	Urban/Rural NPS	St. Charles		SE25,47,1E	SE23,47,1W
0612	West Fork Locust Creek	2009	Unknown		Linn	Sullivan	2,59N,21W	36,62N,21W

WBID	Waterbody	TMDL Goal Year	Pollutant ¹	Source ²	Downstream County	Upstream County	Downstream Legal Description	Upstream Legal Description
0613	West Fork Locust Creek	2009	Unknown		Sullivan		36,62N,21W	33,64N,21W
7313	Table Rock Lake	2010	Nutrients	Point/Nonpoint Sources	Stone	Barry	NW22,22N,22W	
7453	Wallace SP Lake	2010	Fecal Coliform	Unknown	Clinton		NE24,56N,30W	
7087	Watkins Mill Lake	2010	Fecal Coliform	Unknown	Clay		NW22,53N,30W	
0442	Hickory Creek	2011	Unknown		Daviess		mouth	11,60N,28W
0588	Hickory Creek	2011	Unknown		Grundy		mouth	9,60N,25W
0589	Hickory Creek, Tributary	2011	Unknown		Grundy		15,60N,25W	9,60N,25W
0857	Long Branch	2011	Unknown		Pettis	Johnson	6,45N,23W	9,45N,24W
0602	Long Branch	2011	Unknown		Linn		mouth	11,59N,20W
9004	Sewer Branch	2011	Low DO	Unknown	Pettis			
0557	Muddy Creek	2012	Unknown		Grundy	Mercer	mouth	22,66N,23W
0652	Sandy Creek	2012	Unknown		Putnam		mouth	19,66N,17W
9005	Willow Branch	2012	Unknown		Putnam			
7186	Ben Branch Lake	2015	Mercury	Atmospheric Deposition	Osage		14,44N,8W	
7109	Bethany Reservoir	2015	Mercury	Atmospheric Deposition	Harrison		SE27,64N,28W	
2769	Black River	2015	Mercury	Atmospheric Deposition	Butler	Wayne	State Line	16,25N,6E
7370	Bluestem Lake	2015	Mercury	Atmospheric Deposition	Jackson		22,47N,31W	
2034	Bourbeuse River	2015	Mercury	Atmospheric Deposition	Franklin	Phelps	mouth	4,39N,6W
7326	Clearwater Lake	2015	Mercury	Atmospheric Deposition	Reynolds		NE6,28N,3E	
7090	Cooley Lake	2015	Mercury	Atmospheric Deposition	Clay		SE2,51N,30W	
7135	Crowder SP Lake	2015	Mercury	Atmospheric Deposition	Grundy		12,61N,25W	
7015	Deer Ridge Community Lake	2015	Mercury	Atmospheric Deposition	Lewis		18,62N,8W	
3050	Ditch #1	2015	Mercury	Atmospheric Deposition	Scott		State Line	27,29,12E
2593	Eleven Point River	2015	Mercury	Atmospheric Deposition	Oregon		State Line	18,24N,2W
7237	Fellows Lake	2015	Mercury	Atmospheric Deposition	Greene		NE22,30N,21W	
1605	Femme Osage Slough	2015	Mercury	Atmospheric Deposition	St. Charles		mouth	29,45N,2E
7382	Foxboro Lake	2015	Mercury	Atmospheric Deposition	Franklin		14,42N,4W	
2184	Grand Glaize Creek	2015	Mercury	Atmospheric Deposition	St. Louis		mouth	9,42N,5E
7384	Grindstone Reservoir	2015	Mercury	Atmospheric Deposition	DeKalb		NW8,57N,30W	
7388	Hough Park Lake	2015	Mercury	Atmospheric Deposition	Cole		19,44N,11W	
7029	Hunnewell Lake	2015	Mercury	Atmospheric Deposition	Shelby		SW25,57N,9W	
7288	Indian Hills Lake	2015	Mercury	Atmospheric Deposition	Crawford		22,39N,5W	

WBID	Waterbody	TMDL Goal Year	Pollutant ¹	Source ²	Downstream County	Upstream County	Downstream Legal Description	Upstream Legal Description
2347	James River	2015	Mercury	Atmospheric Deposition	Stone		10,24N,24W	8,26N,22W
2362	James River	2015	Mercury	Atmospheric Deposition	Stone	Greene	8,26N,22W	Lake Spfd.
7105	Jamesport City Lake	2015	Mercury	Atmospheric Deposition	Daviess		NE20,60,26	
7196	Knob Noster SP Lakes	2015	Mercury	Atmospheric Deposition	Johnson		29,46N,28W	
0423	Little Blue River	2015	Mercury	Atmospheric Deposition	Jackson		21,49,31	Longview Dam
7023	Labelle Lake #2	2015	Mercury	Atmospheric Deposition	Lewis		NE16,61N,9W	
7436	Lake of the Woods	2015	Mercury	Atmospheric Deposition	Boone		NE2,48N,12W	
0847	Lamine River	2015	Mercury	Atmospheric Deposition	Cooper	Pettis	mouth	13,45N,19W
7171	Long Branch Lake	2015	Mercury	Atmospheric Deposition	Macon		NW18,57N,14W	
7033	Mark Twain Lake	2015	Mercury	Atmospheric Deposition	Ralls	Monroe	26,55N,7W	
1846	Meramec River	2015	Mercury	Atmospheric Deposition	Franklin	Crawford	Meramec SP	22,38N,5W
7316	Noblett Lake	2015	Mercury	Atmospheric Deposition	Douglass		25,26N,11W	
1031	Osage River	2015	Mercury	Atmospheric Deposition	Osage	Miller	mouth	Bagnell Dam
091	Salt River	2015	Mercury	Atmospheric Deposition	Ralls		SE23,55N,3W	NE9,55N,6W
7280	Schuman Park Lake	2015	Mercury	Atmospheric Deposition	Phelps		2,37N,8W	
7077	Smithville Lake	2015	Mercury	Atmospheric Deposition	Clay	Clinton	SW13,53N,33W	
3151	Swift Ditch	2015	Mercury	Atmospheric Deposition	New Madrid		26,23N,14E	2,23N,14E
7071	Weatherby Lake	2015	Mercury	Atmospheric Deposition	Platte		SE15,51,34	
7212	Winnebago Lake	2015	Mercury	Atmospheric Deposition	Cass		9,46N,31W	
9001	Bear Creek	2016	Unknown	Unknown	Adair		22,62N,15W	26,62N,15W
0221	Dardenne Creek	2016	Unknown	Urban/Rural NPS	St. Charles		I-70	Hwy 40
1031*	Osage River	2018	Habitat Loss	Instream Gravel Dredging	Cole		NE29,43N,11W	
1031*	Osage River	2018	Habitat Loss	Instream Gravel Dredging	Miller		28,40N,15W	
9003	River des Peres	2018	Low DO	Urban NPS	St. Louis			

*Waterbodies on Memorandum of Understanding between MDNR and EPA.

- 1 NVSS: Non-Volatile Suspended Solids; BOD: Biological Oxygen Demand; VSS: Volatile Suspended Solids; NFR: Nonfilterable Residue; DO: Dissolved Oxygen
- 2 AML: Abandoned Mine Land; WWTP: Wastewater Treatment Plant; NPS: Nonpoint Source