STATE OF ARKANSAS

DEPARTMENT
OF
ENVIRONMENTAL QUALITY

WATER QUALITY INVENTORY REPORT
2000

Prepared pursuant to Section 305(b)
of the
Federal Water Pollution Control Act

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Special thanks are given to the Computer Services Branch of the Department of Environmental Quality for its assistance in extracting, organizing and displaying the various types of data which was from numerous sources. The assistance of Jerry Baker was especially helpful in the technical manipulation of the data from STORET and organization of data sets into forms easily displayed and compiled into the report. Numerous individuals from the Planning Section of the Water Division and the Environmental Preservation Division contributed to the report.

PART I: EXECUTIVE SUMMARY/OVERVIEW

Section 305(b) of the Clean Water Act requires the States to perform a comprehensive assessment of the quality of waters of the State; this is to be reported to Congress every two years. An attempt was made to change the reporting period to a 5-year cycle to allow more trend-type assessments and to allow an option of intensive regional or basin monitoring on a rotating basis which would provide full state coverage over a 5-year period. However, serious objections to the 5-year cycle and its apparent conflict with the Statutes resulted in maintaining the biennial report on even numbered years. This is to be supplemented in odd number years with an electronic update of data that has changed since the last report. In the interest in maintaining consistency, very few changes have been made since the 1996 guidance document. However, the reporting period of the 2000 report is January 1, 1995 through December 31, 1998. This change was initiated because of the litigation concerning differences in the 1996 and 1998 reports and the nonpoint source report which was developed from the 1996, 305(b) document. In order to resolve these differences, data covering most of the last two reports and the 1998 data was combined for this assessment.

The use of River Reach File 3 (RF3) by the EPA to tabulate and classify waterbodies significantly increases the tabulation of the total waters within the State. All waters or water courses that are apparent on the USGS 7.5 minute quadrangle maps were digitized by digital line graph traces and tabulated by different types of waterbody (e.g., perennial streams, intermittent streams, ditches, etc.). The number of stream miles tabulated for Arkansas increased from approximately 11,900 miles to almost 90,000 miles. However, the waters assessed remains relatively constant or with only a moderate increase in size. This results in major changes in the percentage of assessed waters and other categories of waterbody status if the new RF3 data base is used in the calculations.

Specific guidance was developed by the EPA for all states to use in making use determinations. This guidance is intended to provide national consistency in the assessment process rather than allowing states to establish its own assessment criteria. However it was necessary to modify this criteria based on the type and amount of data available from each State. A major additional request by EPA was to report aquatic life use support based on biological communities within a waterbody; however, the process is currently under revision and was not ready for use in this version.

The data bases from which to draw have improved in area coverage as well as parameters sampled. Additionally, the length of time which the data base has existed is now allowing valuable trend determinations, although these are not a required part of the report. The primary data base used for this assessment is the Arkansas Department of Environmental Quality's ambient water quality monitoring network which currently includes 141 stations monitored monthly for several key water quality parameters. In addition, 103 stations were added in 1994 and monitored through 1996 to assess previously unassessed waters or waters that have not been monitored in several years. These stations were sampled quarterly. Special projects within the last four years include the continued monitoring of 32 sites on the Buffalo River and its tributaries; an intensive watershed survey of 32 sites in the Illinois River basin; an intensive survey of the Piney Creek Basin and several TMDL investigations on small basins with point source impacts.

Additionally, numerous toxicity tests have been completed and reviewed during this reporting period including self monitoring test by the dischargers and compliance testing by the Department. The bacteria monitoring program was continued at selected regular monitoring stations which were sampled seasonally for fecal coliform bacteria, and all of the quarterly monitored stations included fecal coliform sampling.

The assessments in this "Water Quality Inventory Report" have been based on the rather extensive data base as described above as well as the use of personal, professional judgement from Department employees with substantial background in water quality assessments.

Generally, the monitoring data has been used to assess only the specific river reach on which it was generated. Other reaches within the segment, with no monitoring data available, were either evaluated by general knowledge of waterbody conditions or placed in a category labeled "unassessed".

The following is a summary of the assessment of Arkansas' waters:

Total miles of streams in RF1	11,935.9
Total miles of streams in RF3	87,617.4
Miles assessed for use attainment	8,112.0
miles monitored	5,264.4
miles evaluated	2,847.6
Miles meeting all assessed uses	6,934.7
Assessed miles not meeting fishable goal	802.4
Assessed miles not meeting swimmable goal	33.1

This data indicates that about 85 percent of the assessed waters are meeting all of the assessed designated uses. This percentage cannot be extrapolated to all waters of the State for the following reasons: (a) if any of the designated uses of a waterbody is not met, the waterbody is listed as "not meeting uses" even though all of its other uses are adequately met; (b) because a large number of the water quality monitoring stations are purposely located in areas known or suspected of having water quality contamination, this results in a higher percentage of problem areas being monitored, thereby skewing the results toward the use impaired areas; (c) much of the data from the Delta region of the State was listed as unassessed due to the difficulty of determining water quality impacts where severe physical alteration of the habitat has occurred. and (d) although fish consumption is not a statutory or a water quality standard designated use, EPA guideline requires this be evaluated and waters with restricted fish consumption advisories are assessed as impaired and therefore, do not meet all uses. However, a change in guidance resulted in a larger percentage of waters meeting all assessed uses. Previously overall use support was based on the full support of all designated uses; if one of those uses was not assessed, it was not counted as supporting all uses. New guidance requires tabulation of waters supporting all assessd uses; therefore, if one or more uses were not assessed, but all assessed uses were fully supported, the water is counted as “supporting all assessed uses.

Among the Department's numerous water quality management programs, the wetlands program is driven by the Section 404 process and the requirement for Section 401 (water quality) certification. Such certification is determined on the basis of protection of designated uses, specifically those associated with the fishery uses and the antidegradation requirement of the State's water quality standards.

There has been an increasing focus on ground water in the State within the last 5-7 years concerning both quality and quantity issues. In addition to the Department, several state agencies are involved in assessing impacts to ground water from various sources on an unprecedented level. The U of A Cooperative Extension Service analyzed over 4800 ground water samples for nitrates between 1989 and 1996. The State Plant Board, together with a committee comprised of several state agencies and private industry, produced the Agricultural Chemical Ground-Water Management Plan in 1992, which protects ground water from agricultural pesticide application. The Soil and Water Conservation Commission drafted legislation in 1991 (Act 342) to regulate the use of ground water in areas impacted by excessive withdrawal and recently declared the Sparta Aquifer in a five-county area in south-central Arkansas as "Critical Ground Water Areas." The Arkansas Department of Health has been assessing ground water under the direct influence of surface water since 1991 and recently has implemented a sampling and analyses program to detect microbial contamination from surface sources.

Confined source contamination continues to contribute to the degradation of ground water; however, areas of contamination resulting from these sources are localized and generally isolated within discrete boundaries. Such sources of contamination include underground storage tanks, landfills, surface impoundments and shallow injection wells and drains. Non-point source contamination is generally limited to fewer types of contaminants, although the area of contamination impacted by non-point sources is more regional rather than site specific. Contamination plumes are less easy to define and larger in scope than those from confined sources. Non-point sources of contamination include agricultural activities ranging from row-crop agriculture to confined animal operations. The primary contaminants from non-point source contributions are nitrates and pesticides.

Arkansas' point source discharge controls are managed through the NPDES program which has been delegated to the State from the EPA. This program is guided by the State's Water Quality Management Plan and the State's Surface Water Quality Standards. Enforcement activities are administered through the NPDES permitting system with monitoring data compiled through monthly discharge monitoring reports.

The initial Nonpoint Source Pollution Assessment for Arkansas was prepared using pre-1988 data. An assessment update was completed in 1990 and again in 1997, which indicated agricultural activities as the major source of waterbody impairment. Data from the current water quality assessment indicates little significant differences. The major efforts of nonpoint source management is oriented toward the waste management activities of the confined animal production areas such as northwest Arkansas, the Beaver Reservoir watershed and, more recently, in the Arkansas River Valley and in southwest Arkansas. Increased intensity of ground water and surface water monitoring and applied research on the fate of animal waste applied to pastures are attempting to address the nonpoint source impacts from confined animal activities. Expansion of the nonpoint source management program is underway. Program expansion is to include management plans for resource extraction, silviculture, road construction and maintenance and, possibly, urban activities.

The classification of the State's waters by ecoregions not only categorize them by physical, chemical and biological features, but separates the major pollution problems, most of which are land use related. A general summary of the water quality by ecoregion follows.

Water quality in the Delta Region is significantly influenced by nonpoint source runoff from its highly agriculturalized areas. The vast majority of the waterways within this region form a network of extensively channelized drainage ditches. Long-term government programs have been used to develop this highly productive agricultural land. In contrast, many of the practices utilized in making this land more productive actually impair the designated water quality uses. Recent work within this region indicates that in the majority of these waters, the best that can be expected in terms of a fishery is an altered fishery. Once a natural stream has been channelized, only those species of fish which do not require in-stream cover and can exist in highly turbid waters will survive. Within these systems the fishable goal of the CWA is being met, even though the fisheries communities have been substantially altered. Many of the waterways within the Delta Region of Arkansas do not consistently maintain the swimmable criteria set forth in the Arkansas water quality standards even though the contaminants are not from human fecal sources.. The current standard is based on the fecal coliform test which supposedly indicates the amount of fecal contamination within the water. However, this test also reads positive for numerous soil bacteria which bear no relationship to fecal contamination. Also, the highest incidence of measurable pesticide residue in the water occurs in this region.

The Gulf Coastal Region of southern Arkansas exhibits site-specific impacts due to resource extraction activities. These include extraction of petroleum products, brine, bromine, barite, gypsum, bauxite, gravel and others. Impacts occur from the extraction site, from storage and transmission of the product and from the processing facilities.

The Ouachita Mountains Region has characteristically been described as a recreational region which possesses exceptionally high quality water. The predominant land use throughout this region is silviculture, both in private timber companies and National Forest holdings. Some of the Ouachita Mountains have been plotted on a national scale map as areas potentially sensitive to acidification (acid rain). Data is currently inconclusive concerning any impact on the region due to acid precipitation. Additional concerns have been voiced by various groups and organizations dealing with potential erosion and siltation as a result of management practices used in timber harvest. Periodic water quality monitoring data has not indicated significant impairments to the streams within this region. Occasional above normal turbidity values have been observed during periods of significant rainfall events. Potential impairments to waters in this region include land clearing for pasture without protective riparian zones, in-stream gravel removal and increasing areas of confined animal production.

The Arkansas River Valley Region exhibits distinct seasonal characteristics of its surface waters with zero flows common during summer critical conditions. Peak runoff events from within this region tend to introduce contaminants from the predominantly agricultural land use, which is primarily pasture lands with increasing hog and poultry production. Fecal coliform bacteria is one parameter of concern due to its preclusion of the swimmable use as determined by the current test. Measurements during storm events routinely exceed the water quality standard, although the source is not from human fecal contamination. The current exploitation of natural gas deposits has resulted in some site-specific water quality degradation. Most recently, this area has experienced rapid expansion of confined animal activities. Soil types in much of this area are highly erosive and tend to easily go into colloidal suspension, thus causing high turbidity values.

The Boston Mountains Region, located in north central Arkansas, is a sparsely populated area; the dominant land use is silviculture and much of the region is located within the Ozark National Forest. It is a high-use recreational region with exceptionally high quality water. A large percentage of the streams from this region are designated as extraordinary resources. Major concerns about potential water quality degradation include: 1) conversion of hardwoods to improved pastures, 2) expansion of confined animal operations, 3) even-aged timber management, and 4) localized natural gas production. Current monitoring data from within this region continues to reflect high quality water. Periodic, elevated levels of turbidity are noted in some waters in this region. This is most likely caused by clearing of timberland adjacent to major streams for conversion to pastures. This accelerates stream channel and bank erosion. In addition, secondary and tertiary road construction and maintenance and in-stream gravel removal are aggravating the turbidity problems.

The Ozark Highlands Region, located in extreme north Arkansas, is noted for its mountainous terrain with steep gradients and fast-flowing, spring-fed streams. A large percentage of the streams from within this region are designated as extraordinary resource waters. The fractured limestone geology of the region allows a direct linkage from surface waters to ground waters. The water quality problems within this region are directly related to land use. Within this region are some of the highest animal production rates in the United States, specifically, chickens, swine and cattle. The waste generated from these animal production facilities is generally land applied and, therefore, has the potential for contaminating both surface and ground waters. The nitrate levels measured from this region are atypically high. Removal of gravel from the banks and beds of streams is very intense. This causes direct habitat destruction and greatly accelerates siltation problems within the streams.

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PART II: BACKGROUND

CHAPTER ONE: ATLAS OF ARKANSAS

There are approximately 34 million acres of land and water inside the States' boundaries. Of this, 15.1 million acres are in agriculture production; approximately 8.2 million acres in crop production and 6.9 million acres in pasture land and other agricultural uses. There are approximately 17 million acres of forests in the state; however, not all of these acres are managed for timber production. The remaining 1.9 million acres is in state parks and wildlife areas, waterways, highways, roads, urban areas and other non-agricultural lands. There are approximately one-half million acres of impounded surface waters in the State.

River Basins/Total River Miles

The State is divided by six major river basins: the Red River Basin, Ouachita River Basin, Arkansas River Basin, White River Basin, St. Francis River Basin and the Mississippi River Basin. Arkansas has 11,935.9 miles of rivers and streams digitized in the EPA River Reach File (RF1). The RF1 files were digitized from 1:500,000 scale maps and includes only the major water bodies. Recently the EPA has redigitized the State's water bodies from the 7.5 minute topographic maps, thus significantly increasing the detail and the number of water bodies. This includes the intermittent streams and ephemeral drainages that flow only during a rainfall event.

For comparison, the following data was developed from the EPA RF3/DLG database:

Total river and stream miles	87,617.4	
Perennial stream miles		28,408.2
Intermittent stream miles		53,465.2
Ditches and canal miles		5,250.6
Border stream miles		493.5
Total acres of lakes, reservoirs, ponds		514,245

Since most of the water bodies identified in the RF3 File are not assessed, the State has chosen to retain the RF1 database in its assessment process.

The six major river basins are subdivided into 38 water quality planning segments (Figure II-1) based on hydrological characteristics, human activities, geographic characteristics, etc. The planning segments are further broken down into 492 smaller watersheds, based on discrete hydrological boundaries as defined by the U.S. Natural Resources Conservation Service.

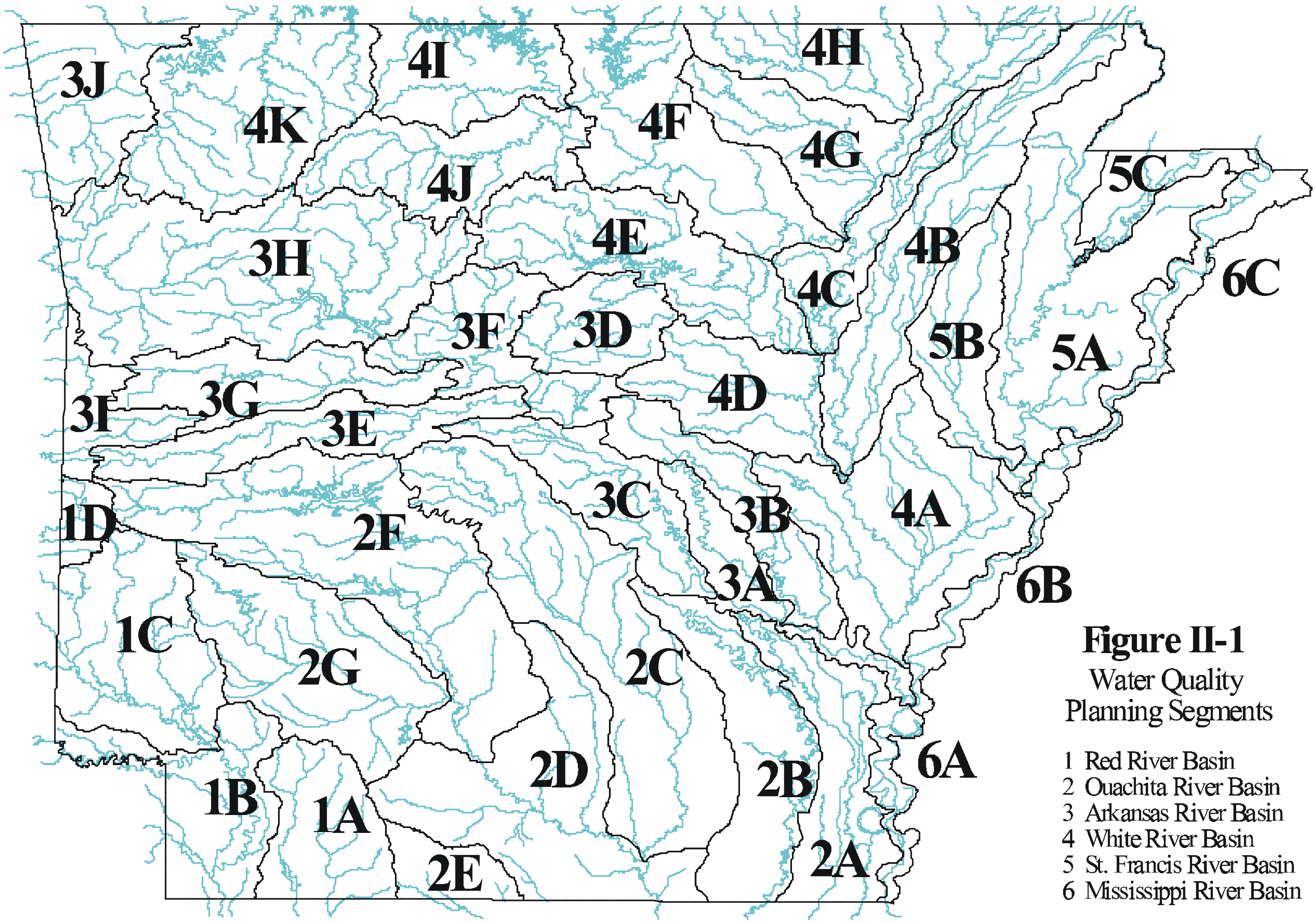

Figure II-1
Water Quality
Planning Segments

1 Red River Basin
2 Ouachita River Basin
3 Arkansas River Basin
4 White River Basin
5 St. Francis River Basin
6 Mississippi River Basin

Publicly-Owned Lakes/Reservoirs

A discussion of lakes and reservoirs is included in Part III, Chapter Five and includes a list of Arkansas' publicly-owned lakes and reservoirs and their trophic status. The State has a total of 356,254 acres of significant publicly-owned lakes. The EPA RF3/DLG calculation identifies a total of 514,245 acres of lakes, ponds and other impounded waters in the State.

Wetlands

The draft National Wetlands Priority Conservation Plan (NWPCP) identified Arkansas as one of nineteen states that experienced significant decreases in wetlands from 1954 to 1974. Most of the States' wetlands are located in the Delta which is dominated by row-crop agriculture and the primary threat to wetlands is conversion to cropland. Although the conversion rate appears to have peaked in the 1960's and is now decreasing, the total wetland base has declined substantially making smaller losses more critical. Without significant changes in wetlands protection strategies, it was predicted that the Arkansas' Delta Region would continue to lose wetlands at a rate of over 15,000 acres per year. Additional discussion about the States wetlands is located in Part III, Chapter Six.

Summary of Classified Uses

Essentially, all waters of the state are classified for specific designated uses. Approximately 1,833 miles (about 16%) of Arkansas' streams are classified as high quality, outstanding state or national resources. The designated uses assigned to various water bodies include:

- Extraordinary Resource Waters
- Ecologically Sensitive Water bodies
- Natural and Scenic Waterways
- Primary Contact Recreation ("swimmable")
- Secondary Contact Recreation
- Fisheries ("fishable")
  - Trout
  - Lake and Reservoir
  - Stream
    - Ozark Highlands
    - Boston Mountains
    - Arkansas River Valley
    - Ouachita Mountains
    - Typical Gulf Coastal
    - Spring water-influenced Gulf Coastal
    - Least-altered Delta
    - Channel-altered Delta
- Domestic Water Supply
- Industrial Water Supply
- Agricultural Water Supply

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CHAPTER TWO: WATER POLLUTION CONTROL PROGRAMS

Watershed Approach

The watershed approach for water quality management in Arkansas was initiated in the early to mid 1970's with the development of Water Quality Planning Segments. In accordance with Section 303(e) of the Clean Water Act, wasteload allocation studies to establish TMDLs (total maximum daily loads) for waters in each segment were performed. The water quality management plan has been continuously updated with new or expanded facilities, or in compliance with modifications of the water quality standards. Similarly, assessment of the State's water quality is based on individual stream reaches grouped by planning segments. The statewide monitoring program, as well as the NPDES permitting program is organized by these same planning segments. The planning segments are congruent with the hydrologic unit code (HUC) boundaries in EPA's River Reach File. This allows GIS capabilities to assist with designation, characterization, assessment and management.

Water Quality Standards

Arkansas' water quality standards are based on extensive data collection of the physical, chemical and biological characteristics of least-disturbed streams within ecoregions which were established by land surface forms, potential natural vegetation, soil types and land uses. All waters of the State have been designated to support multiple uses based on the potential attainability of the use in each waterbody.

Specific criteria to protect the designated uses of each waterbody were developed from the intensive ecoregion studies, an abundance of historical data, numerous additional scientific data and considerable public and other governmental agency input. These criteria include numeric values, narrative limitations and prohibitions on physical alterations of certain waters. The aquatic life uses are specifically defined to provide a measure for aquatic life use support which includes community structure as well as toxicity limitations.

Provisions are established in the water quality standards to allow modifications of the criteria and the designated uses of specific water bodies based on existing uses, the level of classification of the waterbody and the social and economic needs of the area of concern.

Point Source Control Program

In accordance with the federal Clean Water Act, Section 303(e), Arkansas maintains a "continuous planning process" in order to integrate the National Pollutant Discharge Elimination System (NPDES) permit program, state permit program and the state water quality standards with the Water Quality Management Plan (WQMP). The WQMP is the controlling document for determining all point source discharge limits statewide. As new information is developed, revisions to the WQMP are made in accordance with the public participation requirements of the Clean Water Act.

The state of Arkansas presently administers the state permit program, which has been in operation since 1949; as of November 1, 1986 the State also has been authorized by EPA to administer the NPDES program under the Clean Water Act.

The state program involves the issuance of permits for construction or physical modification to a waste treatment or disposal system. It requires (1) that a permit be obtained prior to construction or alteration of the treatment system; (2) submission of an acceptable application characterizing the waste; and (3) submission of plans and specifications concerning the treatment method to ensure that water quality standards will not be violated. Also, the State Permits Branch regulates the confined animal industry requiring swine, poultry and dairy farms with liquid animal waste handling and storage facilities to obtain a State Water Permit. Figure II-2 shows the distribution of all major and selected minor NPDES permits in Arkansas.

Arkansas currently operates a NPDES program patterned very closely after the EPA program, using the federally approved forms for permit applications as well as monitoring reports. In the administration of the program, the Department has adopted by reference, in Regulation No. 6, most of the federal regulations applicable to a wastewater discharge permitting program.

Storm Water Requirements

The Storm Water Section (SWS) of the NPDES Branch was created to help reduce the pollutant loadings on streams from storm runoff from industrial areas. The SWS has approximately 1650 general storm water runoff permits for industrial activity (ARR00A000) and approximately 780 general storm water runoff permits for construction activity (ARR10A000). Twelve (12) groups of industry have to monitor storm water runoff annually per the general permit (ARR00A000). Five hundred twenty-one (521) of the industrial permittees monitor their runoff annually.

The general storm water permits require facilities to develop a Storm Water Pollution Prevention Plan (SWPPP) using Best Management Practices (BMPs). These BMPs should address reduction in pollutants exposed to the storm water runoff and/or removal of the pollutants after the storm water has been contaminated. The SWPPP must include a list of personnel that will inspect the facility, a non-storm water certification, good housekeeping, spill prevention and response, and inventory of exposed material.

Point Source Impacts Monitoring

The impacts from major point source discharges of concern is monitored primarily through strategically located monitoring stations within the statewide ambient monitoring network. These stations not only document areas of concern needing enforcement or some other type of abatement activity, but they also demonstrate improved conditions resulting from pollution control activities. In addition, self-monitoring through monthly discharge monitoring reports is required in the NPDES permits of most dischargers (see enforcement).

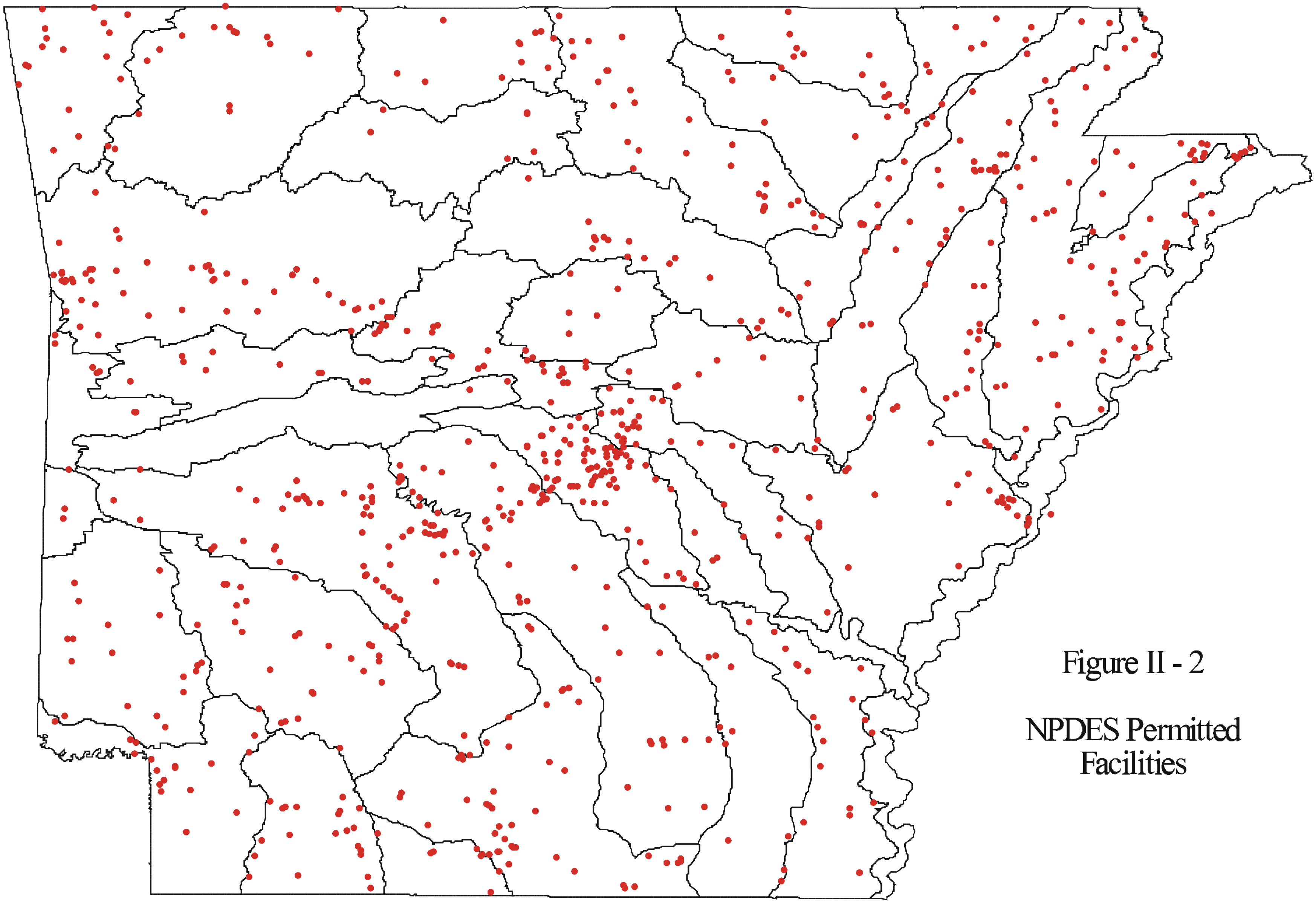

Figure II - 2

NPDES Permitted Facilities

Toxics Strategy

Since FY87, the Department has utilized toxicity testing as a monitoring tool to measure compliance with its narrative toxicity standard which states "Toxic materials shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life, or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota." The actual intent of the toxics strategy is that there shall be no discharge of any wastewater from any source which:

1. results in the endangerment of any drinking water supply

2. results in aquatic bioaccumulation which endangers human health

3. results in any in-stream acute or chronic aquatic toxicity or

4. violates any other applicable general or numerical state water quality standard.

The toxicity testing program consists of both self-monitoring conducted by the permittee and compliance monitoring conducted by the state. The state has been and will continue to implement the post-third round permit policy endorsed by EPA Region 6, with minor revisions. Whole effluent toxicity testing requirements are included in all major and selected minor permits. Biomonitoring requirements are placed in permits at renewal or, in some instances, prior to renewal if information indicates a significant probability of toxicity.

In 1991, the Commission on Pollution Control and Ecology adopted specific numeric criteria for 12 pollutants in terms of their acute and chronic toxicity (Section 2.508 of Reg. No. 2). On December 22, 1992, EPA promulgated numeric criteria for 10 heavy metals and cyanide into Arkansas water quality standards. These criteria were initially expressed as total recoverable metals. Later EPA modified these values by applying a conversion factor to the total recoverable values and expressed them as dissolved values. The promulgated standards for chromium(VI), mercury and cyanide are expressed as a function of the pollutant's water-effect ratio (WER), while standards for cadmium, chromium(III), copper, lead, nickel, silver, and zinc are expressed as a function of the pollutant's WER and as a function of hardness. In January 1998, the Commission adopted the National Toxic Rule Numbers previously promulgated by EPA as a part of the State's water quality standards.

When applications for NPDES permits are submitted, the in-stream waste concentrations (IWC) for all potential pollutants for which there is no adopted state standard are calculated and compared to values listed in the Quality Criteria For Water 1986 (Gold Book). If toxicity values published in the Gold Book are exceeded by the calculated IWC, whole effluent biomonitoring is required as a permit condition.

Self Monitoring for Toxicity

During this reporting period, biomonitoring was required in 80 major and significant minor industrial NPDES permits. Toxicity was indicated in 21% of 1500 toxicity tests submitted by these permittees. Eighty-five percent (85%) of these excursions were reported by sixteen dischargers who are performing, or have completed, Toxicity Identification/Reduction Evaluations (TI/RE's). Depending on the results of the TI/RE's, these facilities have discontinued or relocated discharges or improved treatment capabilities. The remaining failures were reported by 18 permittees and predominantly consist of chronic sublethal effects.

Sixty-seven municipal permittees reported results of approximately 1300 toxicity tests performed in this time span. Thirteen percent (13%) of these analyses exhibited toxicity. One hundred forty (140) excursions were sublethal effects reported by 38 facilities. The remaining toxic occurrences have been corrected by source control and/or plant upgrades.

When the general storm water runoff permit for industrial activity (ARR00A000) was first issued on October 1, 1992, acute toxicity testing was required for approximately 220 facilities. These facilities fell under the first three monitoring categories found in Part V.B of the general permit. After the first three years of the permit, these requirements were removed for those facilities that successfully passed the requirement (approximately 60 percent). The remaining facilities, approximately 90 facilities, were placed on quarterly testing. Biomonitoring requirements for these facilities would be removed once they passed two consecutive quarterly tests.

Quarterly testing was required from 1996 until the general permit was renewed on October 1, 1998. During this time, all but about 30 of the 90 facilities were able to pass the quarterly acute toxicity testing. When the general storm water runoff permit for industrial activity (ARR00A000) was renewed, the biomonitoring requirements were not continued. The facilities that were still having trouble passing the biomonitoring requirements (approximately 30) were placed back on annual testing until they passed two consecutive tests. The Department worked with the remaining facilities to determine the cause of failure (e.g., neighboring facilities, poor housekeeping, etc.). Several of these facilities were able to successfully pass two consecutive tests.

Certification of Monitoring Data

Pursuant to the provisions of Act 322 of the 79th General Assembly of 1993, the Arkansas Commission on Pollution Control and Ecology established mandatory certification for certain environmental testing laboratories. This Act clarifies the Department's existing power to refuse to accept invalid test results and expands the enforcement powers over environmental testing. Regulation No. 13 establishes the fee system for laboratory certification.

Enforcement

Enforcement responsibilities for the NPDES permits are divided between EPA Region 6 and the NPDES enforcement section. Those facilities subject to ongoing enforcement actions by EPA at the time of program authorization remain the responsibility of EPA until the facility is in compliance. The state has enforcement responsibility for the remainder. The primary basis for enforcement is the self-monitoring data submitted by permittees on monthly discharge monitoring reports (DMRs). All DMR data is entered into the Permit Compliance System (PCS) national data base. The state addresses all permit violations reported by permittees through an informal enforcement action, initially; an escalation of enforcement actions occur if the violation is not resolved. Other violations are judged on their severity and actions are taken as necessary.

Wastewater Licensing/Training

Wastewater treatment plant operator licensing and training continues to be a necessary and integral part of the overall scope of the point source pollution control program. The licensing and training verification program administered by the Wastewater Licensing Section, Customer Service Division of the Department operates within the authority of Arkansas Act 211 of 1971, as amended, and Act 1103 of 1991. Both of the above Acts set the requirements by law that requires a licensed operator at most wastewater treatment facilities in Arkansas. Act 211 has required licensed operators at POTW since 1971. There are approximately 2,800 licensed operators in Arkansas, which includes both municipal and industrial operators. Classification of wastewater treatment plants by population served and the unit processes determine the level of operator staffing and the licensing level of the plant operators.

Most training of wastewater treatment plant operators is accomplished by the Arkansas Environmental Academy, a branch of Southern Arkansas University located at Camden, Arkansas. Approximately 100 training sessions are accomplished annually with offerings in all phases of wastewater training at various state locations by the adjunct faculty. Other sources of training are provided by private contractors, formal organizations, and other institutes of higher learning.

Construction Assistance

The Revolving Loan Fund, as enacted under Title VI of the Clean Water Act, as amended in 1987, provides loans to communities for the same purpose as the grants. The Department offers communities an interest rate well below the market rate. This rate may change each year based on the Bond Market. The loans must be repaid within 20 years of project completion, and the debt may be serviced from a variety of repayment sources such as sales tax, sewer user charges, etc. As such, the fund provides an attractive source of financing to local communities. When necessary, assistance is offered in restructuring the existing debt.

A Water/Wastewater Advisory Committee (WWAC) has been created to determine eligibility for funding. The WWAC is designed to coordinate state and federal funds available for water and wastewater projects. The four state agencies represented on the committee include: the Arkansas

Industrial Development Commission, Arkansas Department of Environmental Quality, the Arkansas Soil and Water Conservation Commission and the Arkansas Department of Health. This accelerates the funding process and cities do not have to prepare several pre-applications.

Nonpoint Source Control Program

In 1988, the Department conducted a nonpoint source assessment and prepared a management plan pursuant to Section 319 of the Clean Water Act, as amended by the 1987 Water Quality Act. This assessment and portions of the original management program were approved by EPA Region 6 nonpoint source program personnel.

In 1996, the Arkansas Soil and Water Conservation Commission (ASWCC) was designated as the Nonpoint Source Program Management Agency and the lead agency for the Agriculture nonpoint source category; the Arkansas Forestry Commission assumed the responsibilities for the Silviculture category; and the Department has retained the responsibility of preparing and updating the Nonpoint Source Assessment report, watershed prioritization, and the responsibilities associated with the Construction, Resource Extraction (mining), Land Disposal, Recreation, Other, and Unknown categories. The Department and the Municipal League share responsibilities for the Urban Runoff category, and the Department and the ASWCC share responsibilities for the Hydrologic/Habitat Modification category.

Assessment

The initial Arkansas Nonpoint Source Pollution Assessment in 1988, assessed approximately 36 percent of the 11,300 stream miles in the state. Based on assessment criteria established in 1988, 58% of the assessed streams were not meeting all designated uses. Limited data for the 72 significant publicly-owned lakes indicated no use impairment by nonpoint sources. There was also inadequate data to identify specific areas of groundwater impairment. The 1988 assessment identified agriculture and mining as the primary categories of nonpoint source (NPS) pollution causing impairments to water bodies of the State.

The 1988 assessment was updated in June 1997, using updated assessment criteria. The 1997 report assessed 8700 stream miles and indicated that NPS pollution was impacting (but not necessarily impairing) over 4100 stream miles. Agricultural impacts were identified as the major cause of impacts on 3197 stream miles. Other major impacts were related to silviculture activities, road construction/maintenance activities and unknown sources. The unknown source was mercury contamination of fish tissue.

Management Program

The Arkansas Nonpoint Source Pollution Management Program was updated and fully approved in 1999. It provides for continued monitoring of water quality, research into the effectiveness of Best Management Practices (BMPs); and implementation strategies of BMPs. To obtain a copy of this management program, contact the Arkansas Soil and Water Conservation Commission.

Current Activities

In 1997, ASWCC initiated a Priority Watershed Program that targets NPS impacted watershed for BMP implementation. A multi-agency task force prioritizes watersheds using many parameters, including the degree of impairment, State importance, and public participation. Ten watersheds were selected in 1997 for either more intensive survey activities or BMP implementation activities. A copy of Arkansas Nonpoint Source Pollution Management Program, Priority Watershed Program can be obtained by contacting the Arkansas Soil and Water Conservation Commission.

A physical, chemical and biological water quality assessment was completed by ADEQ on the Piney Creek watershed in north-central Arkansas in 1999. Findings of the assessment indicated that all designated uses were currently being attained. Recommendations were made to implement BMPs to reduce in stream turbidity and bacteria concentrations, update agricultural management plans, and stabilize the unstable streambanks in the creek as identified in the report.

A physical, chemical and biological assessment of the Bayou Bartholomew watershed was initiated in 1999 to better define designated use attainment and to identify sources of nonpoint source pollution that may be causing designated use impairments. This survey should be completed by December 2001. The final assessment report will outline those segments not meeting current designated uses, the causes of the impairments, and their sources. It will also have a recommended watershed prioritization for BMP implementation and outline the percent reduction of the causes necessary to meet water quality standards and achieve designated use attainment.

In addition, the Environmental Preservation Division has been involved in research and BMP implementation projects concerning confined animal feeding operations. These projects help to determine the effectiveness of waste management plans at hog and dairy farm operations. Some aspects of these projects include: 1) determining the concentration of different chemical parameters in the holding ponds; 2) determining the concentration of different chemical parameters in the receiving stream; 3) determining the condition of the biological characteristics of the receiving stream; 4) determining the effects to ground water in and around the operation; 5) determining what effect BMPs and what BMPs are most effective at these operations.

CHAPTER THREE: SPECIAL STATE CONCERNS

Areas of special concern within the State's water quality management program include many of the national concerns and priorities as well as state or area-specific problems. These concerns extend from wide-range, philosophical concerns impacting long-range goals and objectives to area or issue-specific concerns which can be addressed within a short-term program cycle. Many of the these concerns are listed below simply as an exercise of compiling thoughts which are likely to shape future activities.

1. Currently, the major issue of concern in water quality management is the 303(d) TMDL process as required in the Clean Water Act vs. EPA policy decisions concerning the process as influenced by numerous lawsuits. The philosophy and intent of Section 303(d) is entirely proper. The intent was to identify waters which do not or will not meet water quality standards using technology based permit limits. It is clear that background and/or nonpoint sources must be considered and, where possible, controlled in the process, and that water-quality based permits must be issued. The process has mutated to a mass of often changing "guidance" (requirements) in an attempt to standardize and formalize the process to fit every occasion. This has, and in the future will, result in masses of plans, proposals, documents and more lawsuits; whereas, these efforts could better be used to implement corrective actions based on the site-specific conditions and needs. Recently proposed amendments to water quality management regulations concerning the TMDL process will result in the process changing from a water quality management tool to a regulatory process for both point and nonpoint source controls.

2. A logical and manageable solution is needed for the elimination of toxic, point source discharges. This would be accommodated by improved information for the assessment and interpretation of metals concentrations in fish tissue and sediment; acceptable and consistently used analyses techniques for the problematic form of metals contaminants in water; and improved equipment detection limits, specifically for the persistent and/or carcinogenic organics such as the pesticides, herbicides, their many metabolites, and the highly bioaccumulating compounds such as dioxin.

3. Protection of the existing, naturally occurring wetlands through a mechanism other than discharge permits for dredge and fill materials which are being extended into farmed fields and address only limited activities.

4. More effective methods are needed to identify NPS impacts and their causes. This will require the use of in stream biotic indicators rather than conventional water quality parameters. Emphasis must be placed on identifying and controlling NPS impacts within extraordinary resource watersheds and protecting rare, unique and/or endemic aquatic communities. Load allocation and GIS models must be utilized in establishing NPS loads.

5. An active program(s) to control excessive turbidity and silt loading to water bodies is needed. This should include procedures to control major sources such as stream bank erosion from riparian land clearing, road construction and maintenance, streambed gravel removal and runoff from urban construction sites.

6. Impacts of the expansion of confined animal production into different regions of the state.

7. Determinations of the need to expand ecoregion or watershed-specific standards to include nutrients. Emphasis should be on nutrient management and restriction of nutrient impacts to an acceptable level based on waterbody specific uses.

8. Incorporation of a multi-discipline approach to pollution control to include the interrelationships of air, water, solid waste, and impacts of the groundwater. This has recently been conceptualized as part of the watershed management approach.

9. Identification of initial impacts of silviculture activities on water quality and long-term impacts from forest conversions of hardwoods to pine.

10. Assessment of impacts to ground water from contamination sources not currently regulated under existing programs, including both point and nonpoint sources; and a ranking of these sources according to their potential to contaminate ground water and the mobility, persistence and toxicity of the contaminant.

11. Promulgation of ground water standards which reflect existing water quality in different aquifers and different regions of the state; similar to the ecoregion approach to the protection of surface waters.

12. Comprehensive, multi-discipline approach to ground water protection through total agency cooperation in both investigating and preventing ground water contamination.

13. Development of a statewide ground water quality data base and/or more effective data management to improve access across programs by other agencies and the private sector.

14. Development of lake management water quality control programs including water quality monitoring and watershed management.

15. Incorporation of rainfall quantity and quality data into the STORET system to allow cause and effect considerations of rainfall contributions.

16. Improvement and protection of Arkansas River water quality to provide it as an alternative source of domestic, agriculture and industrial water supply.

17. Developing information to expand our knowledge of quality vs. quantity in protecting designated uses. As increasing demands are exerted on water quantity, flow and/or volume of water must be considered in protecting specific designated uses.

18. Establishment of land use zoning and watershed management plans at local levels to facilitate the development/protection of the State's ground and surface water resources.

19. Identifying the magnitude, source and control of pesticides in surface and ground waters, particularly in the agriculture areas of the State.

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PART III: SURFACE WATER ASSESSMENT

CHAPTER ONE: SURFACE WATER MONITORING PROGRAM

The ambient river and stream monitoring program, which began in 1974, was an expansion and modification of an earlier interstate network. Some of the basic purposes of that monitoring network were to establish background levels and baseline water quality, including physical, chemical, and biological data, as well as seasonal and chronological variations. The monitoring program helps to establish cause and effect relationships between known point and nonpoint sources of pollution and the quality of the State's waters. The ambient monitoring program will always be vital in evaluating the effectiveness of the Department's pollution control program by assessing overall water quality before and after the implementation of pollution controls. This ultimately helps to update or redirect pollution control efforts.

In 1982, the Department evaluated the monitoring network and four goals were established for the new network to accomplish. The first was to better assess the effects of point source dischargers upon water quality; the second was to observe the impact of known nonpoint source problems over the long term. The third goal was to continue monitoring our major rivers due to their basic importance to the state. Finally, carefully selected, high quality (least-impaired) streams would be monitored to provide long-term chemical data by physiographic region for use in future water quality standards revisions. All of the work necessary to revise the previous network has been accomplished.

Each year some modifications in the network are made, but they are limited so that the integrity and the original objectives of the program can be met. Major additions to the program in 1992 included special projects designed to get a synoptic picture of a designated watershed over a limited period of time. These projects will normally add 40 to 100 stations to the network for one or two years. Each project has specific goals unique to the needs for management of the watershed.

In 1994, the major waters of the state, which had never been monitored or had not been monitored within the last 10 years, were identified. An extensive network of approximately 100 stations was established to monitor the water quality of these “unassessed” waters. Quarterly sampling began at these sites in May of 1994 and continued through October 1996. In October 1998, these stations were divided into four groups. Each group would be sampled for one year on a bi-monthly basis. Additional sites are added to each route to bring the total number of stations to near 40 for each sampling event.

Table III-1 lists the water quality monitoring stations that are sampled monthly. Table III-2 lists the quarterly sampled stations. Table III-3 list the special projects and their sample stations. Table III-4 lists the parameters analyzed.. Figure III-1 depicts the statewide distribution of the monthly and quarterly monitoring stations.

TABLE III-1: MONTHLY WATER QUALITY MONITORING STATIONS

RED RIVER BASIN

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
RED 27	1A	Bodcaw Creek south of Lewisville	W	*
RED 15A	1A	Dorcheat Bayou east of Taylor	W	*
RED 45	1B	Red River @ Hwy 82 nr Garland	W	
RED 46	1B	Red River @ Fulton RR crossing	W	
RED 04A	1B	Days Creek southeast of Texarkana	WK	*
RED 09	1B	Red River near Doddridge	W	*
RED 25	1B	Red River south of Foreman	W	*
RED 05	1B	Sulphur River south of Texarkana	W	*
RED 33	1C	Bear Creek below Process City	WK	
RED 22	1C	Cossatot River @ Hwy. 24 bridge	W	
RED 31	1C	Cossatot River near Wickes at Hwy. 4	W	
RED 34A	1C	Holly Creek above Dierks	WK	
RED 34B	1C	Holly Creek below Dierks	WK	
RED 02	1C	Little River near Horatio	W	*
RED 23A	1C	Rolling Fork R. @ County Rd N. of Hwy 24	W	
RED 30	1C	Rolling Fork R. above DeQueen Res.	W	
RED 32	1C	Saline River north of Dierks at Hwy. 4	W	
RED 21	1C	W. Saline River @ Hwy. 24 bridge	W	
RED 18B	1C	Mine Creek @ Hwy 355 S. of Nashville	W	
RED 48B	1C	Mine Creek @ Hwy 27 Bypass S. of Nashville	W	
RED 01	1D	Mountain Fork near Hatfield	W	*

OUACHITA RIVER BASIN

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
OUA 15A	2A	Boeuf River near AR-LA Line	W	
OUA 13	2B	Bayou Bartholomew near Jones, LA	W	*
OUA 33	2B	Bayou Bartholomew near Ladd	W	*
OUA 18	2C	Big Creek below Sheridan	WK	
OUA 43	2C	Big Creek at Hwy. 35	W	
OUA 31	2C	Hurricane Creek near Sardis	W	*
OUA 116	2C	Hurricane Creek @ Hwy. 270 bridge	W	
OUA 10A	2C	Saline River near Fountain Hill	W	*
OUA 26	2C	Saline River near Benton	WK	*
OUA 41	2C	Saline River below Benton (Shaw)	WK	*
OUA 42	2C	Saline River at Hwy. 167 (Sheridan	W	
OUA 117	2C	Saline River @ Ozment Bluff	W	
OUA 118	2C	Saline River @ Hwy. 79 bridge	W	
OUA 05	2D	Bayou L'Outre near Junction City	W	*
OUA 47	2D	Jug Creek below Fordyce	WK	
OUA 28	2D	Moro Creek east of Hampton	W	*
OUA 08B	2D	Ouachita River @ Felsenthal Dam	W	*
OUA 37	2D	Ouachita River below Camden	WK	*

OUACHITA RIVER BASIN (cont.)

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
OUA 124B	2D	Ouachita River @ Pigeon Hill	W	
OUA 27	2D	Smackover Creek near Smackover	W	*
OUA 02	2E	Cornie Bayou near Three Creeks	W	*
OUA 23	2F	Caddo River near Amity	W	*
OUA 44T	2F	N.L. Baroid trib to South Fork Caddo	W	
OUA 06A	2F	Ouachita River nr Malvern @ Grigsby Ford	W	*
OUA 21	2F	Ouachita River near Pencil Bluff	W	*
OUA 30	2F	Ouachita River near Donaldson	W	*
OUA 40	2F	Prairie Creek below Mena	WK	
OUA 44	2F	South Fork of Caddo River at Fancy Hill	W	
OUA 159	2F	Cove Cr. @ Hwy. 270 nr. Jones Mill		
OUA 22	2G	Little Missouri River near Langley	W	*
OUA 35	2G	Little Missouri River near Boughton	W	*
OUA 39B	2G	Little Missouri River below Murfreesboro	W	

ARKANSAS RIVER BASIN

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
ARK 20	3A	Arkansas River at Dam #2	W	*
ARK 60	3B	Bayou Meto at W Main St Bridge, Jacksonville	WK	
ARK 50	3B	Bayou Meto below Jacksonville at Hwy. 161	WK	
ARK 23	3B	Bayou Meto near Bayou Meto	W	
ARK 97	3B	Bayou Two Prairie S. of Carlisle	W	
ARK 46	3C	Arkansas River at Lock & Dam #6	WK	*
ARK 48	3C	Arkansas River below Pine Bluff, L&D #4	WK	*
ARK 49	3C	Arkansas River above Pine Bluff, L&D #5	WK	*
ARK 29	3C	Arkansas River at Murray Lock & Dam	WK	*
ARK 37	3E	Fourche LaFave River near Gravelly	W	*
ARK 52	3E	S. Fourche LaFave River above Hollis	W	*
ARK 30	3F	Arkansas River at Lock & Dam #8	W	*
ARK 51	3F	Stone Dam Creek below Conway	WK	
ARK 31	3F	Arkansas River at Lock & Dam #9	W	*
ARK 32	3F	Arkansas River near Dardanelle	W	*
ARK 67	3F	Whig Creek below Russellville	WK	
ARK 53	3F	White Oak Creek near Atkins	WK	
ARK 58	3G	Chickalah Creek at Chickalah	W	*
ARK 57	3G	Dutch Creek below Shark	W	*
ARK 34	3G	Petit Jean River above Booneville	WK	*
ARK 44	3H	Illinois Bayou northwest of Dover	W	*
ARK 33	3H	Arkansas River at Ozark Lock & Dam	W	*
ARK 38	3H	Arkansas River near Fort Smith, AR	W	*
ARK 43	3H	Big Piney Creek at Hwy. 164	W	*
ARK 42	3H	Mulberry River at I-40	W	*
ARK 14	3H	Poteau River near Fort Smith	W	
ARK 11B	3H	Short Mountain Creek below Paris	WK	

ARKANSAS RIVER BASIN (cont.)

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
ARK 15	3I	James Fork Near Hackett	W	*
ARK 54	3I	Poteau River above Waldron	WK	*
ARK 55	3I	Poteau River below Waldron	WK	*
ARK 07	3J	Barren Fork at Dutch Mills	W	*
ARK 10C	3J	Clear Creek below Fayetteville	WK	
ARK 04A	3J	Flint Creek near W. Siloam Springs	W	*
ARK 06	3J	Illinois River @ Hwy. 59	W	*
ARK 06A	3J	Illinois River near Siloam Springs	W	*
ARK 40	3J	Illinois River near Savoy, AR	W	*
ARK 56	3J	Town Branch below Bentonville	WK	
ARK 41	3J	Osage Creek near Elm Springs	W	*
ARK 05	3J	Sager Creek near Siloam Springs	WK	
ARK 03	3J	Spavinaw Creek north of Cherokee	W	*
ARK 141	3J	Cincinnati Cr. @ Hwy 244	W	

WHITE RIVER BASIN

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
WHI 74	4A	Boat Gunwale Slash at Hwy 146	W	
WHI 73	4A	Prairie Cypress Creek at Hwy 1	W	
WHI 36	4A	White River at St. Charles	W	*
WHI 26	4B	Bayou DeView west of Gibson	W	*
WHI 138	4C	White River @ Hwy 67 near Newport	W	
WHI 31	4D	White River at DeValls Bluff	W	*
WHI 72	4D	Wattensaw Bayou north of Hazen	W	*
WHI 59	4E	Little Red River below Searcy	WK	*
WHI 43	4E	Middle Fork Little Red River near Shirley	W	*
WHI 65	4F	Hicks Creek below Mountain Home	WK	
WHI 11	4F	South Sylamore Cr. below Lick Fork Cr.	W	
WHI 29	4F	White River at Oil Trough	W	
WHI 46	4F	White River near Norfork, AR	W	*
WHI 03	4G	Black River @ Hwy 63, E. Corning	W	
WHI 25	4G	Black River at Pocahontas	W	*
WHI 04	4G	Current River near Pocahontas	W	*
WHI 24	4G	Strawberry River south of Smithville	W	*
WHI 05B	4H	Eleven Point River near Pocahontas	W	*
WHI 89	4H	Mammoth Spring east bridge @ spillway	W	
WHI 23	4H	South Fork of Spring River near Saddle	W	*
WHI 06A	4H	Warm Fork Spring River near Thayer, MO	W	*
WHI 21	4H	Spring River south of Ravenden	W	*
WHI 22	4H	Spring River @ low water bridge nr Hardy	W	
WHI 88	4H	Spring River @ Town Bridge in Hardy	W	
WHI 48A	4I	Crooked Creek at Hwy 14 near Yellville	W	*
WHI 48B	4I	Crooked Creek S. of Flippin	W	
WHI 48C	4I	Crooked Creek at Hwy 101	W	
WHI 66	4I	Crooked Creek below Harrison	WK	

WHITE RIVER BASIN (cont)

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
WHI 67	4I	Crooked Creek above Harrison	WK	
WHI 49A	4J	Buffalo River at Hwy 65 near St. Joe	W	*
WHI 71	4K	Long Creek below Denver	W	
WHI 70	4K	Holman Creek below Huntsville	WK	
WHI 09A	4K	Kings River north of Berryville	W	*
WHI 123	4K	Kings River NE Alabam	W	
WHI 103	4K	Middle Fork White River W. Elkins	W	
WHI 68	4K	Osage Creek above Berryville	WK	
WHI 69	4K	Osage Creek below Berryville	WK	
WHI 116	4K	War Eagle Cr. @ Hwy 45, N. Hindsville	W	
WHI 51	4K	West Fork White River near Fayetteville	WK	
WHI 52	4K	White River near Goshen	WK	*
WHI 106	4K	White River @ Durham	W	

ST. FRANCIS RIVER BASIN

Station No.	Planning Segment	Station Description	Type*	Flow Gauge
FRA 13	5A	St. Francis River at Hwy. 50	W	*
FRA 08	5A	St. Francis River @ Hwy 18	W	
FRA 10	5B	L'Anguille River near Marianna	W	*
FRA 12	5B	Second Creek north of Palestine	W	*

TABLE III-2: QUARTERLY SAMPLED STATIONS

RED RIVER BASIN

Station No.	Planning Segment	Station Description
UWBCH01	1A	Beech Creek at Hwy 82 nr. Waldo
UWBDT01	1A	Bayou Dorcheat at Hwy 355
UWBDT02	1A	Bayou Dorcheat at Hwy 82, 6 mi. W. of Waldo
UWBIG01	1A	Big Creek at Hwy 132 at Magnolia
UWHHC01	1A	Horsehead Creek at Hwy 19, 2 mi. N. of Walkerville
UWBDK01	1B	Bois D'Arc Creek at Hwy 67 nr. Hope
UWBDK02	1B	Bois D'Arc Creek at Co. Rd. 7 mi. NW of Center Point

OUACHITA RIVER BASIN

Station No.	Planning Segment	Station Description
UWBFR01	2A	Boeuf River at Hwy 278, 4 mi. W. of Chicot
OUA 32	2A	Big Bayou at Hwy 144
UWBGB01	2A	Big Bayou at Hwy 278, 5 mi. E. of Portland
UWBYM01	2A	Bayou Macon at Hwy 65 nr. Eudora
UWBYM02	2A	Bayou Macon at Hwy 65, 5 mi. above McMillan Corner
UWBYB01	2B	Bayou Bartholomew at Hwy 82 nr. Thebes
UWBYB02	2B	Bayou Bartholomew at Hwy 4 nr. McGehee
UWBYB03	2B	Bayou Bartholomew at Hwy 54 at Garrett Bridge
UWCOC01	2B	Cut Off Creek at Co. Rd. N.E. of Boydell
UWCOC02	2B	Cut Off Creek at Hwy 4, 10 mi. E. of Monticello
UWLGC01	2C	L'Aigle Creek at Farmville Road, 2 mi. SE of Farmville
UWLGC02	2C	L'Aigle Creek at Co. Rd., 2.5 mi. West of Ingalls
UWCHC01	2D	Champagnolle Creek at Hwy 4 nr. Hampton
UWDPC01	2F	Deceiper Creek at Co. Rd., 8 mi. S.E. of Gurdon
UWFRE01	2F	Freeo Creek at Hwy 9, 5 mi. W. of Bearden
UWLEF01	2F	L'Eau Frais Creek at Hwy 128 nr. Joan
UWMZC01	2F	Mazarn Creek at Hwy 227 nr. Sunshine
UWOAR01	2F	Ouachita River at Co. Rd. off Hwy 88 nr. Boardcamp
UWSFM01	2F	Little Mazarn Cr. At Co. Rd., 1.5 mi. N. of Pettyview
UWSFO01	2F	S. Fork Ouachita River at Hwy 270 at Mt. Ida
UWATR01	2G	Antoine River at Hwy 26 at Antoine
UWCYC01	2G	Caney Creek at Hwy 24 nr. Bluff City
UWMFC01	2G	Muddy Fork at Co. Rd. off Hwy 27 nr. Murfreesboro
UWOZC01	2G	Ozan Creek at Hwy 24 nr. Blevins
UWTNR02	2G	Terre Noir Creek at Hwy 53 2 mi. S. of Hollywood
UWTNR01	2G	Terre Noir Creek at Hwy 51, 2.5 mi. E. of Red Springs
UWTRC01	2G	Terre Rouge Creek at Hwy 19, 5 mi. S. of Prescott

ARKANSAS RIVER BASIN

Station No.	Planning Segment	Station Description
UWWSB01	3A	Wabbaseka Bayou at Hwy 79 at Wabbaseka
UWBMO01	3B	Bayou Meto at Co. Rd. S.E. of Seaton Dump
UWBMO02	3B	Bayou Meto at Hwy 79, 2 mi S.W. of Stuttgart
UWPMB01	3C	Plum Bayou 1 mi. W. of Hwy 15 nr. Tucker
UWCCR01	3D	Cadron Creek at Co. Rd. 5 mi. W. of Wooster
UWCSC01	3D	Cypress Creek at Co. Rd. 2 mi S.E. of Hwy 92
UWEFC01	3D	East Fork Cadron Creek at Hwy. 287, 3 mi SE of Greenbrier
UWEFC02	3D	East Fork Cadron Creek at Hwy. 107 nr. Barney
UWNCC01	3D	Cadron Creek at Hwy 65
UWNCC02	3D	North Cadron Creek at Co. Rd. 0.75 mi. N. Hwy 124
UWBLF01	3E	Black Fork at TAR, 3.5 mi above Clear Fork Creek
UWCED01	3E	Big Cedar Creek at Hwy 28, 3 mi. E. of Cedat Creek
UWCLF01	3E	Clear Fork at TAR above Black. Fork, 8 mi. W. of Boyles
UWFLR01	3E	Fourche LaFave River at TAR nr. Boyles
UWGAF01	3E	Gafford Creek at Hwy 28 nr. Bluffton
UWEPR01	3F	East Fork Point Remove Creek at Hwy 95 nr. Hickory Hill
UWWPR01	3F	West Fork Point Remove Creek at Hwy 247 nr Atkins
UWPJR01	3G	Petit Jean River at Co. Rd. off Hwy 71 at Elm Park
UWPJR02	3G	Petit Jean River at Hwy 309 nr. Waveland
UWPJR03	3G	Petit Jean River at Hwy 10 at Danville
ARK 47	3H	Frog Bayou at Hwy 282
ARK 08	3H	Lee Creek at Hwy 59
UWLCK01	3H	Lee Creek at Hwy 220, 10 mi. N. of Cedarville

WHITE RIVER BASIN

Station No.	Planning Segment	Station Description
WHI 37	4A	Big Creek at Hwy 318
WHI 33	4A	Bayou DeView at Hwy 70
UWBGC02	4A	Big Creek at Hwy 49 nr. Poplar Grove
UWBGC03	4A	Big Creek at Hwy 79, 3 mi. W. of Moro
UWCPC01	4A	Big Cypress Creek at Hwy 1, 4 mi. N.E. of Crossroads
UWLGB01	4A	LaGrue Bayou at Hwy 33 at LaGrue
UWLGB02	4A	LaGrue Bayou at Hwy 17 at LaGrue Springs
UWLLB01	4A	Little LaGrue Bayou at Hwy 1 nr. DeWitt
UWBDV02	4B	Bayou DeView at Hwy 64, 4 mi. E. of McCrory
WHI 32	4B	Cache River at Hwy 70
UWCHR02	4B	Cache River at Hwy 64 at Patterson
UWCHR03	4B	Cache River at Hwy 18 nr. Gruggs
UWCHR04	4C	Cache River at Hwy 412, 6.5 mi. E. of Walnut Ridge
UWDTC01	4C	DePartee Creek at Co. Rd., 1 mi. E. of Bradford
UWGSC01	4C	Glaise Creek at Hwy 64, 4.5 mi. E. of Bald Knob
UWVGC01	4C	Village Creek ar Hwy 37, 3 mi. E. of Tuckerman
UWVGC02	4C	Village Creek at Hwy 228 at Miniturn
UWVGC03	4C	Village Creek at Hwy 224 nr. Newport
WHI 56	4D	Bayou Des Arc at Hwy 11
UWBDA01	4D	Bayou Des Arc at Co. Rd. above Cypress Bayou

WHITE RIVER BASIN (cont)

Station No.	Planning Segment	Station Description
UWBLB01	4D	Bull Creek at Hwy 367 nr. Beebe
UWCPB01	4D	Cypress Bayou at Hwy 13, 3 mi. S.E. of Beebe
UWAFK01	4E	Archey Fork Little Red River at Hwy 65 at Clinton
UWBCK01	4E	Big Creek off Hwy 110 nr. Hiram, 1 mi. above Little Red River
UWBCR01	4E	Big Creek at Hwy 16 nr. Letona
UWBHC01	4E	Beech Fork at Co. Rd., 2.5 mi. SE of Hwy 263 nr. Woodrow
UWMFK01	4E	Middle Fork Little Red River at Hwy 65 nr. Leslie
UWOFC01	4E	Overflow Creek at Co. Rd. 1.5 mi. S.E. of Judsonia
UWSRR01	4E	South Fork Little Red River at Hwy 95 nr. Scotland
UWSRR02	4E	South Fork Little Red River at Hwy 65 at Clinton
UWTMC01	4E	Ten Mile Creek at Hwy 157, 3 mi. N. of Providence
UWBKR01	4G	Black River above Strawberry River nr. Saffell
UWBKR02	4G	Black River at Hwy 37, 3 mi. S.E. of Cord
UWCAC01	4G	Curia Creek at Hwy 25, 2 mi. N. of Dowdy
UWNBC01	4G	North Big Creek at Co. Rd. off Hwy 354 S.E. of Center
UWRDC01	4G	Reeds Creek at Hwy 117 at Strawberry
UWSBR01	4G	Strawberry River at Co. Rd. off Hwy 354 nr. Wiseman
UWSBR02	4G	Strawberry River at Hwy 167 at Evening Shade
UWSBR03	4G	Strawberry River at Hwy 361 nr. Saffell
UWJNC01	4H	Janes Creek at Hwy 90 nr. Ravenden Springs
UWMTC01	4H	Martins Creek at Hwy 63 nr. Williford
UWCKC01	4I	Crooked Creek at Hwy 62 at Pyatt
UWCKC02	4I	Crooked Creek at Hwy 101, 2 mi. N. of Rea Valley
UWBRK01	4J	Bear Creek at Hwy 65, 4 mi. W. of Marshall

ST. FRANCIS RIVER BASIN

Station No.	Planning Segment	Station Description
UWLGR01	5B	L'Anguille River at Hwy 306, 3 mi. W. of Colt
UWLGR02	5B	L'Anguille River at Hwy 214, 3 mi. W. of Whitehall

TABLE III-3: SPECIAL PROJECTS

PINEY CREEK SURVEY

Station No.	Planning Segment	Station Description
ARK105	3H	Big Piney Creek at Ar. Hwy. 359
ARK107	3H	Wilson Creek N. of Piney
ARK108	3H	Unnamed Tributary S. of Ar. Hwy. 164
ARK109	3H	Unnamed Tributary E. of Twin Bridges on Ar. Hwy. 164
ARK110	3H	Mill Creek W. of Twin Bridges on Co. Rd
ARK 43	3H	Big Piney Creek at Twin Bridges, Ar. Hwy. 164
ARK111	3H	Dry Creek NW of Twin Bridges on Co. Rd.
ARK112	3H	Levi Branch NE of Twin Bridges on Ar. Hwy. 7
ARK113	3H	Big Piney Creek below Long Pool
ARK114	3H	Indian Creek at FAS Rd. 1808 bridge
ARK115	3H	Moccasin Creek at FAS Rd. 1805 bridge
ARK117	3H	Haw Creek at Ar. Hwy. 123 nr. Ft. Douglas
ARK118	3H	Big Piney Creek below Hurricane Creek nr. Ft. Douglas
ARK119	3H	Hurricane Creek N. of Ft. Douglas
ARK120	3H	Big Piney Creek at FAS Rd.1202 bridge
ARK121	3H	Cow Creek at FAS Rd.1202 low water crossing
ARK122	3H	Curtis Creek S. of Limestone
ARK123	3H	Home Creek W. of Limestone
ARK124	3H	Big Piney Creek at FAS Rd. 1458 bridge
ARK125	3H	Walnut Creek at FAS Rd. 1217 bridge
ARK104	3H	Little Piney Creek at Ar. Hwy. 359 bridge
ARK126	3H	Little Piney Creek at. Ar. Hwy. 123 bridge
ARK127	3H	Opossum Branch at Ar. Hwy. 359
ARK128	3H	Slover Creek at Hwy. 315 bridge
ARK129	3H	Minnow Creek at Co. Rd. 50 bridge

ILLINOIS RIVER SURVEY

Station No.	Planning Segment	Station Description
OSCO1A	3J	Osage Creek above Rogers WWTP Outfall
OSCO1E	3J	City of Rogers WWTP Ooutfall
OSCO2B	3J	Osage Creek at Ar. Hwy. 112, (ARK25C)
OSCO3	3J	Osage Creek off Ar. Hwy. 112 above Spring Creek
OSCO4	3J	Osage Creek below Spring Creek confluence (ARK68B)
LOS01	3J	Little Osage Creek at Ar. Hwy. 264 bridge
OSCO5	3J	Osage Creek below Little Osage Creek (ARK41)
OSCO6	3J	Osage Creek nr. Washington County Line
OSCO7	3J	Osage Creek at Logan Cave Rd. bridge (ARK82)
SPG01A	3J	Spring Creek Springdale WWTP Outfall (ARK26A)
SPG01E	3J	City of Springdale WWTP Outfall
SPG02B	3J	Spring Creek above Puppy Creek (ARK26B)
SPG03	3J	Spring Creek at Ar. Hwy. 112 (ARK68C)
MUD01E	3J	Fayetteville WWTP Outfall
MUD02B	3J	Mud Creek E. of U.S. Hwy. 71B

ILLINOIS RIVER SURVEY (cont)

Station No.	Planning Segment	Station Description
CLR01R	3J	Clear Creek above Mud Creek confluence
CLR03	3J	Clear Creek below Mud Creek confluence
CLR04	3J	Clear Creek N. of Wheeler
CLR05	3J	Clear Creek above confluence with Illinois River
MFI01A	3J	Muddy Fork River above Prairie Grove WWTP Outfall
MFI01E	3J	Prairie Grove WWTP Outfall
MFI02B	3J	Muddy Fork W. of Piney Grove
MFI03	3J	Muddy Fork N. of Viney Grove
MFI04	3J	Muddy Fork above confluence with Illinois River
I1101	3J	Illinois River above confluence of Muddy Fork
ILL02	3J	Illinois River at Ar. Hwy. 16 (ARK40) nr. Savoy
ILL03	3J	Illinois River below confluence of Clear Creek
ILL04	3J	Illinois River N. of Ar. Hwy. 112, above Osage Creek confluence
ILL05	3J	Illinois River S. of Ar. Hwy. 112, below Osage Creek confluence
ILL06	3J	Illinois River at Ar. Hwy. 16 (ARK06A) nr. Siloam Springs
ILL07	3J	Illinois River at Ar. Hwy. 59 bridge nr. Siloam Springs

BUFFALO RIVER PROJECT (Planning Segment 4J)

Station No.	Station Description	Station No.	Station Description
BUFR01	Buffalo River at Wilderness Boundary	BUFT10	Calf Creek
BUFR02	Buffalo River at Ponca	BUFT11	Mill Creek - Searcy County
BUFR03	Buffalo River at Pruitt	BUFT12	Bear Creek
BUFR04	Buffalo River at Hasty	BUFT13	Brush Creek
BUFR05	Buffalo River at Woolum	BUFT14	Tomahawk Creek
BUFR06	Buffalo River at Gilbert	BUFT15	Water Creek
BUFR07	Buffalo River at Ar. Hwy 14	BUFT16	Rush Creek
BUFR08	Buffalo River at Rush	BUFT17	Clabber Creek
BUFR09	Buffalo River at Mouth	BUFT18	Big Creek - Marion County
BUFT01	Beech Creek	BUFT19	Cedar Creek
BUFT02	Ponca Creek	BUFT23	Middle Creek
BUFT03	Cecil Creek	BUFT24	Leatherwood Creek
BUFT04	Mill Creek - Newton County	BUFT25	Little Buffalo River above Jasper
BUFT05	Little Buffalo River	BUFT26	Little Buffalo River below Jasper
BUFT06	Big Creek - Newton County	BUFS02	Luallen Spring
BUFT07	Davis Creek	BUFS33	Mitch Hill Spring
BUFT08	Cave Creek	BUFS41	Gilbert Spring
BUFT09	Richland Creek		

TABLE III-4

Parameters Sampled at Water Quality Monitoring Stations

Routinely Sampled

AIR TEMPERATURE	BORON
WATER TEMPERATURE	BERYLLIUM
PH	BARIUM
TURBIDITY	CADMIUM
DISSOLVED OXYGEN	CHROMIUM
5-DAY BIOCHEMICAL OXYGEN DEMAND	COPPER
FILTRABLE RESIDUE	CALCIUM
NON-FILTRABLE RESIDUE	LEAD
CHLORIDES	ZINC
SULFATES	IRON
AMMONIA NITROGEN	POTASSIUM
NITRITE + NITRATE NITROGEN	MAGNESIUM
TOTAL PHOSPHORUS	MANGANESE
ORTHO-PHOSPHORUS	SODIUM
TOTAL HARDNESS	NICKEL
	COBALT
	VANADIUM

Periodically Sampled

PROPACHLOR	METRIBUZIN	ENDOSULFAN I	HEPTACHLOR
P-P' DDE	METHYL PARATHION	ENDOSULFAN II	ALACHLOR
P-P' DDT	HEXAZINONE	DIELDRIN	ATRATON
P-P' DDD	METHOXYCHLOR	ENDRIN	PROPAZINE
METOLACHLOR	PROMETON	PENDIMETHALIN	DIMETHAZONE
SIMAZINE	BETA-BHC	DIAZINON	ATRAZINE
GAMMA-BHC	AMETRYN	PROMETRYN	TRIFLURALIN
DELTA-BHC	HEPTACHLOR	MALATHION	FONOFOS
TERBUTRYN	DIPROPETRYN	TERBUTHYLAZINE	HEPTACHLOR
EPOXIDE	CHLORPYRIFOS	CYPRAZINE	MOLINATE
CYANAZINE	ALPHA-BHC	ALDRIN	ATRATON

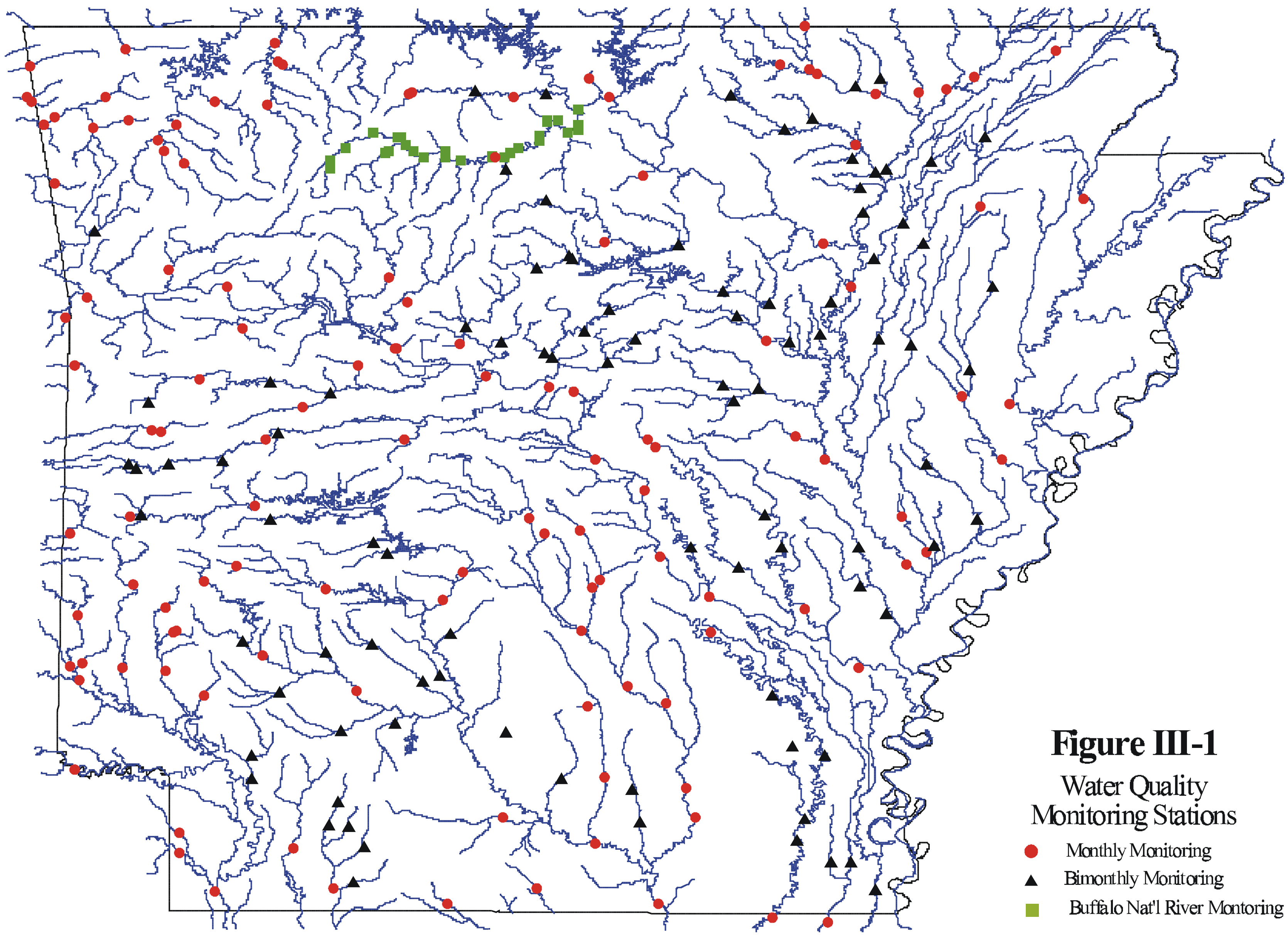

Figure III-1
Water Quality Monitoring Stations

Biomonitoring

The Arkansas Department of Environmental Quality (Department) maintains a monitoring system to evaluate the environmental impacts of pollutants on aquatic life and on human health. Monitoring programs include benthological assessments; fish community assessments; fish tissue analyses for contaminants which may be harmful for human consumption; and sediment testing for pesticides, toxic chemicals and heavy metals; in-lab toxicity testing; EPA toxicity testing (results available at www.epa.gov/earth1r6/6wq) and bacteriological analyses. These techniques are used either as stand alone methods or in conjunction with other biological or chemical analyses to monitor the biological health of waters throughout the state.

Benthological and Fish Community Assessment

One of the best ways to monitor the health of a stream or other waterbody is to examine its biological inhabitants. This is the primary reasoning behind surveys of the aquatic macroinvertebrate and fish communities. The Department has conducted biological community monitoring throughout the state since the 1970's. Early approaches were directed toward trend monitoring using artificial substrate samplers (quantitative) or qualitative sampling methods. These methods were time consuming and labor intensive. However, the rapid bioassessment technique (RBA) (Plafkin, Barbour, Porter, Gross and Hughes, 1989; Shackleford, 1988) has greatly increased the benthic assessment efficiency and effectiveness and has allowed more extensive use of this monitoring approach.

Bacteriological Program

The bacteriological monitoring network has been substantially modified during the past several years. Due to the incompatibility of current network monitoring strategies and bacteriological sample holding times, a separate sampling scheme was developed. Technicians performed the sampling and analyses in the field in order to comply with the holding time of the methodology. The quarterly and bimonthly monitoring of the unassessed waters includes bacteriological analyses at all sites. The monthly monitored sites were sampled for bacteria on a rotating basis, resulting in approximately 8 samples per site per year during the swimming season.

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CHAPTER TWO: PLAN FOR ACHIEVING COMPREHENSIVE ASSESSMENTS

Nationwide a major emphasis is being placed on providing a comprehensive assessment of waters of the nation. Each state is to provide a plan for assessment of the state's waters as part of the 305(b) report. Statewide assessments currently vary considerably; they range from very few monitoring stations which are infrequently sampled to an extensive monitoring network with frequently monitored stations. Many states have incorporated a variety of sampling schemes, techniques and parameters to meet their assessment needs. Due to the wide range of variability in state assessment programs, plans for comprehensive assessments may be equally as variable and the objective of these programs may also be quite different.

In Arkansas, the water quality monitoring network has been very progressive and is one of the more intensive programs in the Nation (see Part III Chapter l). It is however, primarily limited to chemical monitoring of the water quality using long term, fixed and specifically targeted stations. Objectives of the programs have shifted with changes in types of water quality impacts, but the program has maintained its long-term, historical integrity. The benefits of the program include features other than assessment of the impaired status of the waters. These data are used to monitor long-term trends in least-disturbed areas as well as in rapidly developing areas of the state. The data establishes background (historical) data for parameters that may not be used for assessments, but are necessary in other programmatic functions, e.g., background levels of heavy metals, ecoregion hardness values and suspended solids values for permit implementation procedures.

The current basic water quality network in Arkansas is statewide in scope with over 140 fixed stations which are sampled monthly for over 30 parameters. This network is facilitated by the use of regionally located field personnel who collect water samples monthly. To convert the program to an intensive rotating basin plan would not only destroy the integrity of the program, but would severely disrupt personnel schedules and work activities. For the reasons discussed above the basic design of the Arkansas monitoring network should not be changed.

Within the past few years, additions to the network have included over 100 stations on previously unassessed waters which are sampled quarterly by a central-office crew. Additionally, several synoptic, watershed-intensive surveys have been performed on waters with identified or suspected problem areas. These may be one or multi-year projects. They are normally base flow and storm flow oriented and also include biological and physical assessments.

The weakest part of Arkansas assessment program is the reliance on chemical water quality data to assess the status of in-stream aquatic life. While some chemical parameters may be more conclusive that others is determining the aquatic life use support, the direct measure of aquatic life communities is the most precise. The subtle impact of parameters such as minerals, turbidity and nutrients is difficult to assess from only the chemical concentrations.

At a minimum, a biological community sampling program is needed as a verification tool for assessment of aquatic life use support in waters where causes, sources and support/nonsupport cannot be definitely determined with chemical data.

Future modifications of the Arkansas monitoring and assessment program will include: (1) reinitiation of the unassessed waters project on a rotating basin, covering about one-fourth of the state each year and increasing the sampling frequency to bimonthly, and (2) designing the TMDL process to utilize biological assessments to verify aquatic life impairments listed on the 303(d) list of impaired waters.

CHAPTER THREE: ASSESSMENT METHODOLOGY

Data base

The primary data base for the year 2000 Water Quality Inventory Report was from ADEQ's physical/chemical water quality monitoring network which includes 141 permanent stations that are sampled monthly, 103 stations on previously unassessed waters that were sampled on a quarterly or bi-monthly schedule and 105 stations that were sampled as part of special study projects. The period of record from which this data was assimilated is from January 1, 1995, through December 31, 1998.

In addition, other agencies that routinely collect water quality data, e.g. USGS, USCOE, USFS, ASWCC, AWRC, were solicited for data which demonstrates impaired waterbodies.

The period of record from which other agency data was accepted was within the last five (5) years, and all data used must have been collected and analyzed under a quality-assurance/quality-control protocol equivalent to or more stringent than that of ADEQ or the USGS.

In order to make a monitored assessment of "not supporting" for a stream segment, the data must include at least eight quarterly or twelve monthly samples or be supplemented with additional data such as aquatic life community data. A routine sample event that found no water present will count as a sample event. For determination of "not-supporting" of primary contact use, eight or more samples were required during the primary contact season. The samples must have been taken no less than weekly, and the rebuttable presumption that the contamination was of human origin will be applicable as per "EPA Region 6 WQS Guidance" November 1997.

An evaluated assessment was made for adjacent stream segments or in similar watersheds to monitored waters where qualifying water quality data exist and there was reason to believe that the segments were similar with respect to the cause and magnitude of an impairment. For lakes and reservoirs, assessments were made from long-term trend data or seasonally distributed data.

Assessment

Numeric Criteria - ADEQ assessed all waters with qualifying data as either "supporting" or "not supporting" based on the assessment criteria for 305(b) - 2000 as described in the following ecoregion/waterbody specific criteria. Waters could be listed as "threatened" if qualifying water quality data indicates a definitive trend toward impairment that most likely will result in a "not supporting" status for the waterbody at the next listing of impaired waters.

Narrative Criteria - Waters could be assessed as "not supporting" when violation of any narrative water quality standard was verified by staff of ADEQ as not meeting the intent, as written, in the specific narrative water quality standards and if an associated numeric standard was violated in the specified waterbody. For example, production of objectionable algal densities or other nuisance aquatic vegetation must also result in diurnal D.O. fluctuations which violate the D.O. standard or result in violation of pH, dissolved metals or other numeric standards, or result in a significant alteration of the aquatic life community structure.

Designated Uses - A waterbody was assessed as “not supporting” if any of its designated uses were determined to be impaired by water quality parameters which periodically exceed the levels established in the water quality standards for that parameter or otherwise do not meet a descriptive, designated use.

The following parameters are most often associated with impacts on these designated uses:

Designated Uses	**Parameters**
Aquatic life use	D.O., pH, temp., turbidity/TSS, toxics, or any not toxic compound which alters the aquatic life community structure beyond that which is expected
Drinking water	Compounds which are not easily removed by drinking water treatment facilities; compounds with established secondary MCL’s, e.g., Cl, SO_4, TDS, NO_3
Primary and Secondary contact	fecal coliform
Agriculture or Industrial uses	Compounds which would interfere with industrial uses such as cooling water or the water used in certain manufacturing processes; or waters unsuitable for livestock watering or crop irrigation; most often includes Cl, SO_4, TDS

Antidegradation - In compliance with the antidegradation policy, a Tier 3 waterbody could be listed as “not supporting” if the water quality that existed at the time of designation has declined. For all other waters (Tier 1 and Tier 2), the listing requirements discussed above were applicable.

Fish Consumption - Waters were listed as “not supporting” for fish consumption if a primary segment of the fish community was recommended for non-consumption, such as, all predator species or all Largemouth bass. However, if a consumption restriction was recommended, e.g., no more than two meals per month or no consumption of fish over 15-inches, these waters will not be listed as “not supporting”

ASSESSMENT CRITERIA FOR OZARK HIGHLANDS ECOREGION STREAMS

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	29 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI^2	6	2				
10-100 MI^2	6	5				
> 100 MI^2	6	6				
TROUT WATERS	6	6				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	12.1 mg/L		≤1		>1	
CHRONIC	1.3 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	17/23/240[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	5.7	1.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	24.6	15.9	≤1	≤10%	>1	>10%
LEAD (Pb)	98.7	3.9	≤1	≤10%	>1	>10%
ZINC (Zn)	159.5	145.7	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	10 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	17 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR BOSTON MOUNTAINS ECOREGION STREAMS

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	31 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI^2	6	2				
> 10 MI^2	6	6				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	39.1 mg/L		≤1		>1	
CHRONIC	2.3 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	17/15/85 [2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	0.8	0.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	4.6	3.5	≤1	≤10%	>1	>10%
LEAD (Pb)	13.9	0.5	≤1	≤10%	>1	>10%
ZINC (Zn)	35.0	32.3	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	10 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	19 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR ARKANSAS RIVER VALLEY ECOREGION STREAMS

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	31 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI^2	5	2				
10-150 MI^2	5	3				
151-400 MI^2	5	4				
>400 MI^2	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	44.6 mg/L		≤1		>1	
CHRONIC	2.4 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	15/17/103[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	0.8	0.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	4.6	3.5	≤1	≤10%	>1	>10%
LEAD (Pb)	13.9	0.5	≤1	≤10%	>1	>10%
ZINC (Zn)	35.0	32.3	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	21 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	40 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR OUACHITA MOUNTAINS ECOREGION STREAMS

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	30 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI[2]	6	2				
>10 MI[2]	6	6				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	29.5 mg/L		≤1		>1	
CHRONIC	2.0 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	15/20/128[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	1.0	0.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	5.6	4.2	≤1	≤10%	>1	>10%
LEAD (Pb)	17.7	0.7	≤1	≤10%	>1	>10%
ZINC (Zn)	42.4	38.7	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	10 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	18 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR GULF COASTAL ECOREGION (typical streams)

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	30 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI^2	5	2				
10-500 MI^2	5	3				
>500 MI^2	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	42.0 mg/L		≤1		>1	
CHRONIC	2.3 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	19/41/123[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	1.0	0.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	5.6	4.2	≤1	≤10%	>1	>10%
LEAD (Pb)	17.7	0.7	≤1	≤10%	>1	>10%
ZINC (Zn)	42.4	38.7	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	21 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	32 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR DELTA ECOREGION (least altered)

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	30 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI^2	5	2				
10-100 MI^2	5	3				
>100 MI^2	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	19.9 mg/L		≤1		>1	
CHRONIC	1.6 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	48/37/390[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	2.9	0.9	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	14.0	9.5	≤1	≤10%	>1	>10%
LEAD (Pb)	51.3	2.0	≤1	≤10%	>1	>10%
ZINC (Zn)	95.7	87.4	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	45 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	84 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR GULF COASTAL ECOREGION (springwater influenced)

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	30 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
ALL WATERSHEDS	6	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	48.8 mg/L		≤1		>1	
CHRONIC	2.5 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	19/41/123[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	1.0	0.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	5.6	4.2	≤1	≤10%	>1	>10%
LEAD (Pb)	17.7	0.7	≤1	≤10%	>1	>10%
ZINC (Zn)	42.4	38.7	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	21 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	32 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR DELTA ECOREGION (channel-altered)

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	32 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
<10 MI^2	5	2				
10-100 MI^2	5	3				
>100 MI^2	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	19.9 mg/L		≤1		>1	
CHRONIC	1.61 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS (E.R.)	17/23/240[2]		≤50%		>50%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	2.9	0.9	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	14.0	9.5	≤1	≤10%	>1	>10%
LEAD (Pb)	51.3	2.0	≤1	≤10%	>1	>10%
ZINC (Zn)	95.7	87.4	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	75 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	100 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR WHITE RIVER(MAIN STEM)

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE			≤ 10%		>10%	
DAM #1 TO MOUTH	32 C					
OZARK HIGHLANDS	29 C					
TROUT WATERS	20 C					
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
DELTA	5	5				
OZARK HIGHLANDS	6	6				
TROUT WATERS	6	6				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
LOWER WHITE RIVER ACUTE	14.4 mg/L		≤1		>1	
CHRONIC	1.3 mg/L		≤25%		>25%	
TROUT WATERS (acute)	9.7 mg/l		≤1		>1	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS						
DAM #3 TO MO. LINE	20/20/180[2]		≤25%		>25%	
MO. LINE TO HEADWATERS	20/20/160[2]		≤25%		>25%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	4.3	1.2	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	19.6	12.9	≤1	≤10%	>1	>10%
LEAD (Pb)	75.9	3.0	≤1	≤10%	>1	>10%
ZINC (Zn)	129.8	118.5	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY DELTA	45 NTU (base flows)		≤ 25%		>25%	
	84 NTU (all flows)		≤ 15%		>15%	
OZARK HIGHLANDS	10 NTU (base flows)		≤ 25%		>25%	
	17 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR ST. FRANCIS RIVER

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	32 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
ALL WATERS[2]	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	19.9 mg/L		≤1		>1	
CHRONIC	1.6 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS						
MOUTH TO 36^0 N. LAT.	10/30/330[2]		≤25%		>25%	
36^0 N. LAT. TO 36^0 30'N LAT.	10/20/180[2]		≤25%		>25%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	3.8	1.1	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	17.5	11.6	≤1	≤10%	>1	>10%
LEAD (Pb)	66.7	2.6	≤1	≤10%	>1	>10%
ZINC (Zn)	117.3	107.2	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	75 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	100 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR THE ARKANSAS RIVER

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	32 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
ALL WATERS	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	26.2 mg/L		≤1		>1	
CHRONIC	1.9 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS						
MOUTH TO L&D #7	250/100/500[2]		≤25%		>25%	
L&D #7 TO L&D #10	250/100/500[2]		≤25%		>25%	
L&D #10 TO OK LINE	250/120/500[2]		≤25%		>25%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS.METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	4.7	1.2	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	21.0	13.7	≤1	≤10%	>1	>10%
LEAD (Pb)	82.3	3.2	≤1	≤10%	>1	>10%
ZINC (Zn)	138.3	126.3	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	50 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	52 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR THE OUACHITA RIVER BELOW LAKE CATHERINE

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE						
L. MISSOURI TO S.LINE	32 C		≤ 10%		>10%	
ABOVE L. MISSOURI	30 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
ALL WATERS[2]	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	36.1 mg/L		≤1		>1	
CHRONIC	2.2 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS						
LA LINE TO CAMDEN	160/40/350[2]		≤25%		>25%	
CAMDEN TO CARPENTER DAM	50/40/150[2]		≤25%		>25%	
CARPENTER DAM TO HEADWATERS	10/10/100		≤25%		>25%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	0.9	0.4	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	5.1	3.8	≤1	≤10%	>1	>10%
LEAD (Pb)	15.8	0.6	≤1	≤10%	>1	>10%
ZINC (Zn)	38.9	35.5	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	21 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	32 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR THE RED RIVER

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	32 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
ALL WATERS[2]	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	14.4 mg/L		≤1		>1	
CHRONIC	1.3 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L		≤10%		>10%	
CL/SO_4/TDS						
OK LINE TO CONFLUENCE WITH LITTLE RIVER	250/200/850[2]		≤25%		>25%	
LITTLE RIVER TO LA LINE	250/200/500[2]		≤25%		>25%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	8.3	1.8	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	34.4	21.5	≤1	≤10%	>1	>10%
LEAD (Pb)	144.1	5.6	≤1	≤10%	>1	>10%
ZINC (Zn)	215.5	196.7	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	75 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	75 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

ASSESSMENT CRITERIA FOR THE MISSISSIPPI RIVER

PARAMETER	ECOREGION STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE	32 C		≤ 10%		>10%	
DISSOLVED OXYGEN	Primary	Critical	≤10%		>10%	
ALL WATERS[2]	5	5				
pH	6 to 9 standard pH units		≤10%		>10%	
T. AMMONIA-N						
ACUTE	19.9 mg/L		≤1		>1	
CHRONIC	1.6 mg/L		≤25%		>25%	
NO_3-N (D.W.)	10 mg/L (drinking water)		≤10%		>10%	
CL/SO_4/TDS						
LA LINE TO AR RIVER	60/150/425[2]		≤25%		>25%	
AR RIVER TO MO LINE	60/175/450[2]		≤25%		>25%	
CL/SO_4/TDS (D.W.)	250/250/500		≤10%		>10%	
DISS. METALS[3] (ug/L)	Acute	Chronic	Acute[4]	Chronic	Acute[4]	Chronic
CADMIUM (Cd)	3.7	1.0	≤1	≤10%	>1	>10%
CHROMIUM (Cr)	16.0	11.0	≤1	≤10%	>1	>10%
COPPER (Cu)	17.0	11.4	≤1	≤10%	>1	>10%
LEAD (Pb)	64.6	2.5	≤1	≤10%	>1	>10%
ZINC (Zn)	114.4	104.5	≤1	≤10%	>1	>10%
FECAL COLIFORM						
PRIM.CONTACT	400 col/100 ml (apr-sept)		≤ 25%		>25%[1]	
SEC.CONTACT	2000 col/100 ml(anytime)		≤ 25%		>25%[1]	
TURBIDITY						
BASE FLOWS	50 NTU (base flows)		≤ 25%		>25%	
STORM FLOW[5]	50 NTU (all flows)		≤ 15%		>15%	
FISH CONSUMPTION			No restriction or limited consumption		No consumption for any user group	

Footnotes:

1 It is assumed that the contamination is of human origin. This may be a rebuttable assumption.
2 Except for site specific standards.
3 Based on ecoregion orstream specific hardness values.
4 Refers to number of data points instead of percentage (i.e. greater than one value exceeding criteria = not support).
5 Criteria based on 90th percentile of ecoregion values

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CHAPTER FOUR: RIVERS AND STREAMS WATER QUALITY ASSESSMENT

Chemical Parameters

The following tables summarize the assessments of all of the state's river and stream water bodies. A detailed listing of each segment specific water body, water quality data summary, use assessment and other segment specific data can be found in Appendix A.

DESIGNATED USE SUPPORT IN ARKANSAS
Type of Waterbody: Stream Miles

Degree of Use Support	Assessment Basis		Assessed Total
	Evaluated	Monitored	
Supporting all assessed uses	2808.9	4125.8	6934.7
Not supporting a use	38.7	1138.6	1177.3
Total Waters Assessed	2847.6	5264.4	8112.0

DESIGNATED USE SUPPORT OF ASSESSED WATERS BY USE TYPE
Type of Waterbody: Stream Miles

Use	Support	Not Support
Fish consumption	7739.1	372.9
Aquatic life	7309.6	802.4
Swimming	7595.8	33.1
Secondary contact	8112.0	0.0
Drinking supply	7782.3	77.7
Agri & industry	8112.0	0.0

TOTAL SIZES OF WATERS NOT SUPPORTING USES BY VARIOUS CAUSE CATEGORIES Type of Waterbody: Stream Miles		
Cause Categories	Major Impact	Moderate/Minor Impact
Priority organics	65.7	0.0
Metals	6.6	10.0
Ammonia	11.5	0.0
Minerals	24.0	85.0
Nutrients	42.2	3.0
Siltation/Turbidity	662.6	42.9
Organic Enrichment/DO	10.0	0.0
Pathogen indicators	12.7	20.4
Mercury	307.2	0.0
Dissolved Oxygen	34.8	0.0

TOTAL SIZES OF WATERS NOT SUPPORTING USES BY VARIOUS SOURCE CATEGORIES Type of Waterbody: Stream Miles		
Source Categories	Major Impact	Moderate/Minor Impact
Industrial point sources	80.8	25.1
Municipal point sources	91.3	6.6
Agriculture	629.2	76.3
Resource extraction	24.0	0.0
Unknown	307.2	11.0
Road Const/Maintenance	33.4	10.4

Biological Parameters

Aquatic life use support assessment is a tool used to better characterize the attainment of designated uses of water bodies based on macroinvertebrate and fish community structures. Short-term water quality impairments from point and/or nonpoint source inputs, or from short-term seasonal and/or storm events may not always be detected by water quality data from grab samples. Individual short-term events most likely do not have a significant effect on the biological communities within a stream; however, these communities may be affected by frequent short-term events that limit full recovery between episodes.

Portions of 106 stream segments from 17 planning segments were assessed for aquatic life use support using biological communities. These stream segments were either located above and below a point source discharge, or where parts of intensive water quality surveys. Objectives of the surveys were to determine the impacts of the discharge, evaluate the biological community in ecoregion reference streams, or determine the use attainment in previously listed water bodies of concern or those waters not currently meeting all designated uses.

The macroinvertebrate communities were collected and evaluated following EPA's Rapid Bioassessment Protocols, 1989. Habitat considerations were used in the evaluation of the macroinvertebrate communities through percent comparability evaluation techniques at all sites. An upstream-downstream comparison of the communities, and a comparison of the community to a least disturbed reference stream were also used to make the assessments. Fish communities were analyzed following EPA's "Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analysis", and direct comparisons were made with ecoregion fish community data outlined in the Department's "Physical, Chemical, and Biological Characteristics of Least-Disturbed Reference Streams in Arkansas' Ecoregions, 1987." In addition, an upstream-downstream comparison of the communities was made, and a comparison to a least-disturbed reference stream was conducted.

Table III-5 is a list of the stream segments where biological communities were collected for aquatic life use attainment determination or reference stream characterization.

TABLE III-5 AQUATIC LIFE DATA COLLECTIONS

Ecoregion Reference Stream

Stream Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macroinvertebrate Data Collected	Fish Community Data Collected
Friley Creek	11110201	-012	3H	Boston Mountains	X	X
Hurricane Creek	11110202	-022	3H	Boston Mountains	X	X
Indian Creek	11110202	-020	3H	Boston Mountains	X	X
Little Mulberry Creek	11110201	-012	3H	Boston Mountains	X	X
Wilburn Creek	11010014	-014t	4E	Boston Mountains	X	X
Salado Creek	11010004	-012	4F	Boston Mountains	X	X
Cave Creek	11010005	-023	4J	Boston Mountains	X	X
Bear Creek	11010005	-026	4J	Boston Mountains	X	X
Dials Creek	08020304	-014t	4A	Delta	X	X
Hurricane Creek	08020301	-015t	4D	Delta	X	X
Bear Creek	08020203	-001t	5A	Delta	X	X
Cypress Creek	08020205	-002t	5B	Delta	X	X
Brushy Creek	11140109	-020	1C	Ouachita Mountains	X	X
Big fork Creek	08040101	-036t	2F	Ouachita Mountains	X	X
Collier Creek	08040101	-020t	2F	Ouachita Mountains	X	X
Fiddlers Creek	08040101	-032	2F	Ouachita Mountains	X	X
Irons Fork Creek	08040101	-038	2F	Ouachita Mountains	X	X
Polk Creek	08040101	-022t	2F	Ouachita Mountains	X	X
South Fork Ouachita River	08040101	-043	2F	Ouachita Mountains	X	X
Piney Creek	11010004	-007	4F	Ozark Mountains	X	X
West Livingston Creek	11010004	-006t	4F	Ozark Mountains	X	X
Wideman Creek	11010004	-005t	4F	Ozark Mountains	X	X
Rock Creek	11010012	-007t	4G	Ozark Mountains	X	X
Strawberry River	11010012	-011	4G	Ozark Mountains	X	X
Diles Creek	11010011	-002t	4H	Ozark Mountains	X	X
Weldon Creek	11010010	-018t	4H	Ozark Mountains	X	X

Special Survey Projects

Stream Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macroinvertebrate Data Collected	Fish Community Data Collected
North Fork Saline River	08040203	-011	2C	Ouachita Mountains	X	X
Hurricane Creek	08040203	-006	2C	Ouachita Mountains	X	X
Holly Creek	08040203	-010t	2C	Ouachita Mountains	X	X
Alum Fork Saline River	08040203	-014	2C	Ouachita Mountains	X	X
Middle Fork Saline River	08040203	-019	2C	Ouachita Mountains	X	X
South Fork Saline River	08040203	-020	2C	Ouachita Mountains	X	X
Big Creek	08040203	-025t	2C	Ouachita Mountains	X	X
Illinois River	11110103	-022	3J	Ozark Highlands	X	X
Osage Creek	11110103	-033	3J	Ozark Highlands	X	X
Spring Creek	11110103	-034	3J	Ozark Highlands	X	X
Muddy Fork	11110103	-027	3J	Ozark Highlands	X	X
Clear Creek	11110103	-029	3J	Ozark Highlands	X	X
Mud Creek	11110103	-029t	3J	Ozark Highlands	X	X
Weddington Creek	11110103	-021t	3J	Ozark Highlands	X	X
Sager Creek	11110103	-032	3J	Ozark Highlands	X	X
Flint Creek	11110103	-031	3J	Ozark Highlands	X	X

Special Survey Projects (cont)

Stream Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macroinvertebrates Data Collected	Fish Community Data Collected
North Sylamore Creek	11010004	-009	4F	Ozark Highlands	X	
South Sylamore Creek	11010004	-010	4F	Ozark Highlands	X	X
Roasting Ear Creek	11010004	-010t	4F	Ozark Highlands	X	
Spring River	11010010	-003	4H	Ozark Highlands	X	
Janes Creek	11010010	-002	4H	Ozark Highlands	X	
Browns creek	11010010	-003t	4H	Ozark Highlands	X	
No Name Creek	11010010	-003t	4H	Ozark Highlands	X	
Martins Creek	11010010	-004	4H	Ozark Highlands	X	
Spring River	11010010	-005	4H	Ozark Highlands	X	
Sugar Creek	11010010	-005t	4H	Ozark Highlands	X	
Pierce Creek	11010010	-005t	4H	Ozark Highlands	X	
Spring River	11010010	-006	4H	Ozark Highlands	X	
Gut Creek	11010010	-006t	4H	Ozark Highlands	X	
Spring River	11010010	-008	4H	Ozark Highlands	X	
Field Creek	11010010	-008t	4H	Ozark Highlands	X	
Big Creek	11010010	-008t	4H	Ozark Highlands	X	
English Creek	11010010	-009	4H	Ozark Highlands	X	
Myatt Creek	11010010	-010	4H	Ozark Highlands	X	
Harding Creek	11010010	-018t	4H	Ozark Highlands	X	
Chaplin Creek	11010010	-018t	4H	Ozark Highlands	X	
Weldon Creek	11010010	-018t	4H	Ozark Highlands	X	
South Fork Spring River	11010010	-014	4H	Ozark Highlands	X	
Mill Pond Creek	11010010	-012t	4H	Ozark Highlands	X	
Camp Creek	11010010	-013	4H	Ozark Highlands	X	
Gravelly Branch	11010010	-014t	4H	Ozark Highlands	X	
Pine Hill Creek	11010010	-014t	4H	Ozark Highlands	X	
Town Creek	11010010	-014t	4H	Ozark Highlands	X	
Trace Creek	11010010	-014t	4H	Ozark Highlands	X	
Strawberry River	11010012	-009	4G	Ozark Highlands	X	
Little Strawberry River	11010012	-010	4G	Ozark Highlands	X	
Strawberry River	11010012	-011	4G	Ozark Highlands	X	
Greasy Creek	11010012	-011t	4G	Ozark Highlands	X	
Piney Creek	11110202	-018	3H	Boston Mountains	X	X
Unnamed Tributary	11110202	-018t	3H	Boston Mountains	X	
Mill Creek	11110202	018t	3H	Boston Mountains	X	X
Piney Creek	11110202	-019	3H	Boston Mountains	X	
Dry Creek	11110202	-019t	3H	Boston Mountains	X	
Indian Creek	11110202	020	3H	Boston Mountains	X	X
Moccasin Creek	11110202	-020t	3H	Boston Mountains	X	
Piney Creek	11110202	-021	3H	Boston Mountains	X	X
Haw Creek	11110202	-021t	3H	Boston Mountains	X	X
Hurricane Creek	11110202	-022	3H	Boston Mountains	X	X
Piney Creek	11110202	-023	3H	Boston Mountains	X	
Cow Creek	11110202	-023t	3H	Boston Mountains	X	
Walnut Creek	11110202	-023t	3H	Boston Mountains	X	
Little Piney Creek	11110202	-024	3H	Boston Mountains	X	X
Opossum Branch	11110202	-024t	3H	Boston Mountains	X	
Slover Creek	11110202	-024t	3H	Boston Mountains	X	
Little Piney Creek	11110202	-025	3H	Boston Mountains	X	X
Minnow Creek	11110202	-026	3H	Boston Mountains	X	X

TMDL Investigation - Point Source Oriented						
Stream Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macroinvertebrates Data Collected	Fish Community Data Collected
Jug Creek	08040201	901	2D	Gulf Coastal Plains	X	X
Cooks Creek	08040201	001t	2D	Gulf Coastal Plains	X	X
Whig Creek	11110203	931	3F	Arkansas River Valley	X	X
Stone Dam Creek	11110203	004	3F	Arkansas River Valley	X	X
Palarm Creek	11110203	001	3F	Arkansas River Valley	X	X
Big Creek Ditch	08020302	009t	4B	Delta	X	X
Lost Creek Ditch	08020302	009t	4B	Delta	X	X
Town Branch - McKissic Creek	11070208	003t	3J	Ozark Highlands	X	X
Little Sugar Creek	11070208	003	3J	Ozark Highlands	X	X
ELCC Tributary	08070208	606	2D	Gulf Coastal Plains	X	X
Flat Creek	08040201	706	2D	Gulf Coastal Plains	X	X
Salt Creek	08040201	806	2D	Gulf Coastal Plains	X	X
Mine Creek	11140109	033	1C	Gulf Coastal Plains	X	X
Rolling Fork River	11140109	028	1C	Ouachita Mountains	X	X

Surface Water Pesticide Analyses

Analyses for approximately 50 pesticides were completed from the 133 monthly monitored stations from one sampling event. All quarterly sample sites were sampled for these pesticides during the July 1995 sample event. After the initial screening, 33 sites located in the State's Delta ecoregion were selected for additional sampling. These sites were sampled on two additional occasions, October 1995 and October 1996. This provided a total of 285 analyses for the 50 pesticides targeted during this survey. Only 26 of these compounds were found in detectable levels. The three pesticides which had the highest incidence of occurrence above the detection level were atrazine, metolachlor and molinate (Ordram). The detection level of all three compounds was generally less than 0.009 ug/L. Atrazine was detected in about 68% of the samples and at 102 of the samples sites; metolachlor was detected in approximately 73% of the samples and at 82 sample sites; and molinate was detected in approximately 62% of the samples and at 62 samples sites. The highest values found were 1.09 ug/L for atrazine in DePartee Creek near Bradford, 6.87 ug/L for metolachlor in Bayou Bartholomew near McGehee, and 332.65 ug/L for molinate in Glaise Creek near Worden. Metribuzin, cyanazine and alachlor were also found quite frequently and at a number of sampling sites.

Table III-6 is a list of the sample sites that had the most numerous pesticide detections. Atrazine, molinate, and metolochlor were responsible for over 66% of the total pesticide detections listed in Table III-6. They were also detected at many sites during all three sampling events that occurred from the Delta ecoregion sites and from the one time sample event from all of the other sites. Additionally, metribuzin, cyanazine and alachlor were also detected quite frequently from a number of different sampling sites. These compounds are commonly used for either broad-leaf weed control or grassy weed control throughout the Delta ecoregion on a variety of crops. Most of these compounds are only slightly toxic to aquatic organisms and generally have short half-lives in the environment. Molinate is the only pesticide that may be quite toxic, but it has a very short half-life. Metolachlor is very persistent in the environment, but it is almost non-toxic to aquatic organisms.

Table III-6: Sample Sites With Numerous Pesticide Occurrences

Station	Segment	Location	No. of Detections[#]
BYM01	2A	Bayou Macon near Eudora	17(9)
BYM02	2A	Bayou Macon at Hwy. 65	16(7)
BGB01	2A	Big Bayou near Portland	13(7)
OUA 32	2A	Big Bayou at Hwy. 144	11(9)
BFR01	2A	Boeuf River at Hwy. 278	15(9)
OUA 15A*	2A	Boeuf River near the state line	9(3)
BYB01	2B	Bayou Bartholomew at Hwy. 82	11(7)
BYB02	2B	Bayou Bartholomew at Hwy. 4	16(7)
BYB03	2B	Bayou Bartholomew at Hwy. 54	13(7)
COC01	2B	Cut-Off Creek at Co. Rd. NE of Boydell	7(4)
COC02	2B	Cut-Off Creek at Hwy. 4	7(3)
WSB01	3A	Wabbaseka Bayou at Hwy. 79	16(8)
ARK 23*	3B	Bayou Meto near Bayou Meto	10(3)
BMO02	3B	Bayou Meto at Hwy. 79	6(5)
PMB01	3C	Plum Bayou near Tucker	10(8)
WHI37**	4A	Big Creek at Hwy. 318	10(4)
BGC02	4A	Big Creek at Hwy 49	6(4)
CPC01	4A	Big Cypress Creek at Hwy. 1	7(4)
LGB01	4A	LaGrue Bayou at Hwy 33	9(8)
LLB01	4A	Little LaGrue Bayou at Hwy. 1	8(7)
WHI33	4A	Bayou DeView at Hwy. 70	7(5)
BDV02	4B	Bayou DeView at Hwy. 64	9(8)
WHI32	4B	Cache River at Bradsbury, Ar	11(9)
CHR02	4B	Cache River at Hwy. 64	11(9)
CHR03	4B	Cache River at Hwy. 18	10(9)
CHR04	4C	Cache River at Hwy. 412	11(9)
VGC01	4C	Village Creek at Hwy. 37	11(9)
VGC02	4C	Village Creek at Hwy. 228	10(9)
VGC03	4C	Village Creek at Hwy. 224	11(9)
DTC01	4C	DePartee Creek near Bradford	9(8)
GSC01	4C	Glaise Creek at Hwy. 64	8(8)
WHI56**	4D	Bayou Des Arc at Hwy. 11	7(5)
BDA01	4D	Bayou Des Arc, County Road	6(5)
LGR02	5B	L'Anguille River at Hwy. 214	7(7)
LGR01	5B	L'Anguille River at Hwy. 306	7(7)
FRA 10*	5B	L'Anguille River near Marianna	10(3)
FRA 13*	5C	St. Francis River at Hwy. 50	9(3)

* Sampled one time only.
** Sampled on two sampling events only.
[#] (#) Number of detections of Molinate, Metalachlor and Atrazine.

The two sites located on Bayou Macon, BYM01 and BYM02, the lower Bayou Bartholomew site, BYB03, and the upper Boeuf River site (BFR01) had the highest number of pesticide detections. All four of these sites are located in the southeastern section of the state where there is extensive rice and soybean production. All sample sites located in planning segments 2A and 2B had numerous detections of pesticides, usually more than 11 per sample station. Atrazine, molinate, and metolochlor were responsible for approximately 53% of the detections.

The Bayou Meto site near Bayou Meto, ARK23, and L'Anguille River site near Marianna, FRA10, had the highest number of different pesticide detections (10) per single sampling event. Atrazine, molinate, and metolochlor were all detected from both of these stations and from each of the other stations located within the planning segments 3B and 5B. Both L'Anguille River quarterly sample sites, LGR01 and LGR02, had seven detections that consisted of these three pesticides, only.

Those sites located in the White River drainage basin had from seven to eleven pesticides detections each. Atrazine, molinate, and metolochlor were responsible for approximately 80% of those detections. The highest percentage of those detections came from sample sites located in the Cache River drainage basin. Of the 75 total pesticide detections from the seven sample sites in the Cache River and Village Creek basins, 63 (84%) were either atrazine, molinate, and/or metolochlor.

Even though many pesticides have established acute and chronic toxicity values, actual direct toxicity due to water column pesticide concentrations is very difficult to assess in the environment. In addition, many other variables can play a role in aquatic life degradation (i.e. nutrients, turbidity, channel maintenance, etc.) in the forms of reduced aquatic vegetation causing lower dissolved oxygen concentrations; less habitat for macroinvertebrate and fish communities; and loss of microscopic plant-life at the base of the food chain. However, there have been no aquatic life use impairments detected in the state water bodies attributed to water column pesticide concentrations.

Acute toxicity to aquatic life is much easier to detect, however it is still somewhat difficult to determine its source and overall impact to the waterbody. During the 1993-1995 reporting period, two fish kills related to pesticides occurred, neither of which were in the Delta ecoregion. An over application of chlorpyrifos, an insecticide, caused a fish kill in a neighborhood lake. In another incident, cypermethrin, an insecticide, was spilled into a waterbody severely damaging the aquatic life in the system. Both of these incidences had relatively short term effects, as is normal with most acute toxicity events; however, they are examples of what can occur in areas of pesticide usage.

CHAPTER FIVE: LAKES WATER QUALITY ASSESSMENT

Background

Various estimates have been made concerning the size of Arkansas' surface water resource. Most of these estimate three-fourths of one million acres of flowing and impounded waters. Streams and rivers compose approximately one-third of this total. The remaining one-half million acres are divided between the large Corps of Engineers multi-purpose reservoirs and the small, usually specific-purpose lakes (including private ponds).

The large Corps of Engineers constructed reservoirs are multi-use, but most were constructed primarily for hydropower and flood control; some were constructed primarily for navigation. A few are presently used for municipal water supply. All receive substantial recreational uses such as fishing, swimming, boating, camping, and related uses. The smaller lakes in the state were normally constructed for a single purpose such as municipal water supply, but others were built for general recreation use and some were designed and managed for the primary purpose of public fishing. In the latter group, other recreational uses are permitted, unless they conflict with fishing, e.g., water skiing. Multiple uses are allowed on very few of the municipal water supply lakes; however, numerous uses are allowed on the industrial water supply impoundments.

Water quality data from the majority of Arkansas' lakes is sparse, although selected lakes have intensive, long-term data collection. Some have only specific-purpose data, e.g., fecal coliform sampling from swimming areas. A few lakes have been investigated as a short-term project when a specific or potential problem was identified. Such studies were associated with the Clean Lakes Section of the Water Quality Act or municipal water supply reservoirs with treatment problems. In contrast, the Corps' lakes of the Little Rock District have a relatively large amount of multi-parameter and multi-site water quality data. Additionally, DeGray Reservoir probably has the most extensive water quality data base of any reservoir in this region of the country. The data extend from pre-impoundment to the current date.

Arkansas currently has identified seventy-nine (79) significant publicly-owned lakes ranging in size from 60 to over 45,000 acres and totaling 355,954 acres. The lakes are categorized into five groups by: (1) ecoregion; (2) the primary construction purpose; and (3) by lake type which includes certain morphometric features such as size and average depth.

Table III-7 lists the significant publicly-owned lakes and selected characteristics of each. Figure III-1 is a map depicting the locations of ADEQ water quality monitoring sites on each lake. The number corresponds to the lake number in Table III-7; duplicate numbers indicate multiple sample sites on the same lake..

Table III-7: Significant Publicly-Owned Lakes

No.	Lake	County	Acres	Avg Depth	Water-shed[1]	W/A[2]	Eco-region[3]	Purpose[4]	Type
1	WINONA	SALINE	1240	30.0	44.4	22.9	OM	W	A
2	DIERKS	HOWARD	1360	22.0	114.0	53.6	OM	F	A
3	GILLHAM	HOWARD	1370	21.0	271.0	126.6	OM	F	A
4	DEQUEEN	SEVIER	1680	21.0	169.0	64.4	OM	F	A
5	CATHERINE	HOT SPRING	1940	18.0	1516.0	500.1	OM	H	A
6	GREESON	PIKE	7200	38.7	237.0	21.1	OM	H	A
7	HAMILTON	GARLAND	7300	26.0	1441.0	126.3	OM	H	A
8	MAUMELLE	PULASKI	8900	23.0	137.0	9.9	OM	W	A
9	DEGRAY	CLARK	13200	48.8	453.0	22.0	OM	H	A
10	NORFORK	BAXTER	22000	57.0	1806.0	52.5	OH	H	A
11	BEAVER	BENTON	28200	58.0	1186.0	26.9	OH	H	A
12	GREERS FERRY	CLEBURNE	31500	60.0	1153.0	23.4	BM	H	A
13	OUACHITA	GARLAND	40100	51.0	1105.0	17.6	OM	H	A
14	BULL SHOALS	MARION	45440	67.0	6036.0	85.0	OH	H	A
15	CRYSTAL	BENTON	60	12.0	4.5	48.0	OH	A	B
16	SHORES	FRANKLIN	82	10.0	26.0	202.9	BM	R	B
17	SPRING	YELL	82	23.0	10.5	82.0	AV	R	B
18	HORSEHEAD	JOHNSON	100	16.0	17.3	110.7	BM	R	B
19	WEDDINGTON	WASHINGTON	102	16.0	3.0	18.8	OH	R	B
20	COVE	LOGAN	160	10.0	8.5	34.0	AV	R	B
21	ELMDALE	WASHINGTON	180	8.0	6.0	21.3	OH	A	B
22	FAYETTEVILLE	WASHINGTON	196	15.0	6.0	19.6	OH	R	B
23	BOBB KIDD	WASHINGTON	200	13.3	4.0	12.8	OH	A	B
24	WILHELMENA	POLK	200	10.0	13.5	43.2	OM	A	B
25	BARNETT	WHITE	245	27.0	37.5	98.0	AV	A	B
26	SUGARLOAF	SEBASTIAN	250	12.0	5.0	12.8	AV	A	B
27	WRIGHT	SEBASTIAN	350	9.0	3.1	5.7	AV	A	B
28	FT. SMITH	CRAWFORD	416	28.0	73.0	112.3	BM	W	B
29	SEQUOYAH	WASHINGTON	500	8.0	275.0	352.0	OH	R	B
30	SWEPCO	BENTON	531	17.0	14.0	16.9	OH	W	B
31	SHEPHERD SPGS.	CRAWFORD	552	31.0	68.0	78.8	BM	W	B
32	CHARLES	LAWRENCE	562	8.0	18.0	20.5	OH	A	B
33	LEE CREEK	CRAWFORD	634	11.0	465.0	469.4	BM	W	B
34	BEAVERFORK	FAULKNER	900	10.0	11.5	8.2	AV	R	B
35	HINKLE	SCOTT	965	15.0	27.5	18.2	AV	A	B
36	BREWER	CONWAY	1165	20.0	36.4	20.0	AV	W	B
37	JUNE	LAFAYETTE	60	5.0	4.0	42.7	GC	A	C
38	BAILEY	CONWAY	124	8.0	7.5	38.7	AV	R	C
39	TRICOUNTY	CALHOUN	280	7.0	11.5	26.3	GC	A	C
40	COX CREEK	GRANT	300	6.0	17.0	36.3	GC	A	C
41	FRIERSON	GREENE	335	7.5	7.3	13.9	DL	A	C
42	STORM CREEK	PHILLIPS	420	7.0	8.0	12.2	DL	R	C
43	CALION	UNION	510	6.0	6.7	8.4	GC	A	C
44	POINSETT	POINSETT	550	7.0	4.5	5.2	DL	A	C
45	BEAR CREEK	LEE	625	10.0	6.0	6.1	DL	R	C
46	UP WHITE OAK	OUACHITA	630	8.0	20.7	21.0	GC	A	C

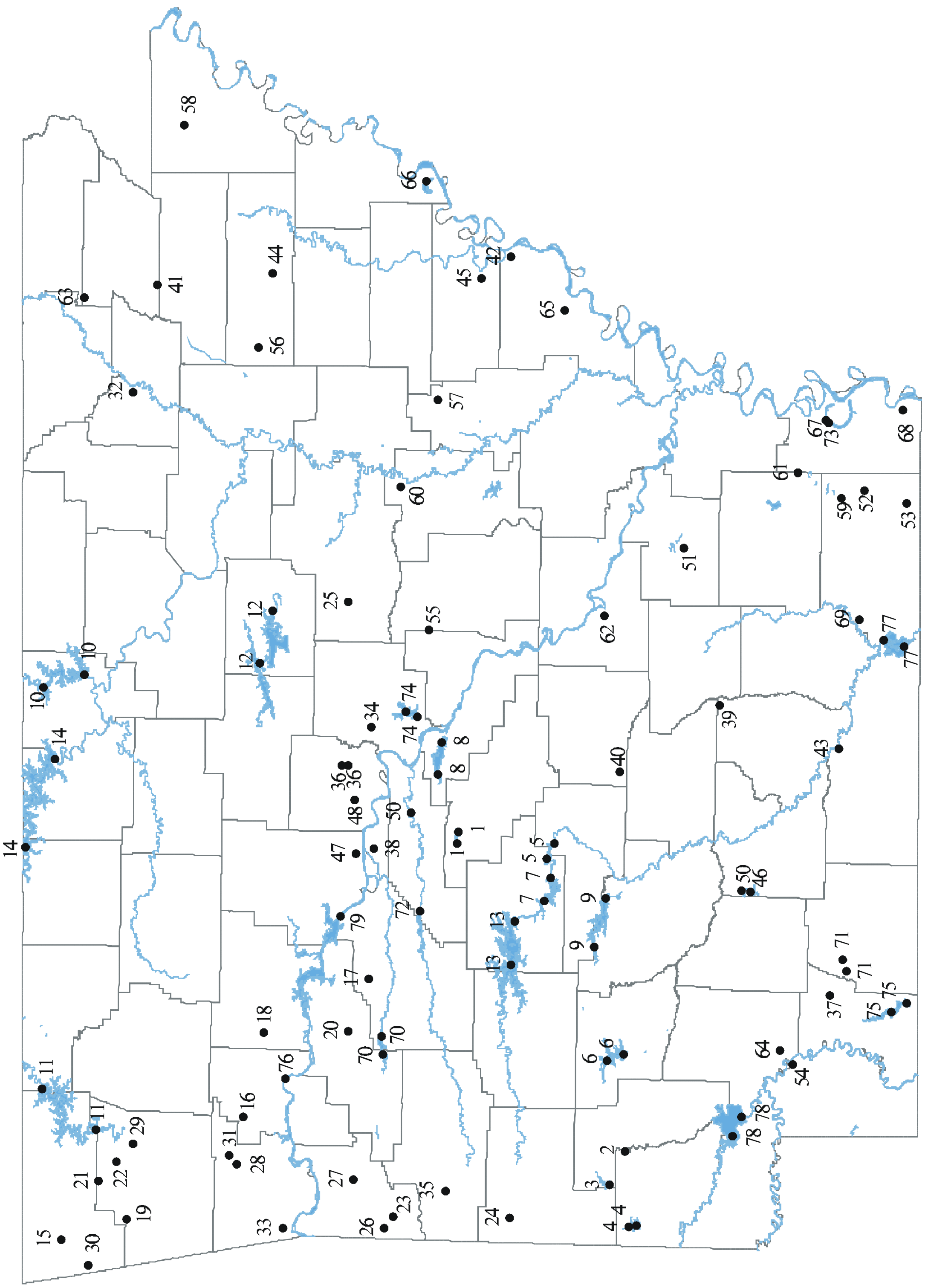
(continued)

Table III-7: Significant Publicly-Owned Lakes

No.	Lake	County	Acres	Avg Depth	Water-shed[1]	W/A[2]	Eco-region[3]	Purpose[4]	Type
(continued)									
47	ATKINS	POPE	750	5.5	10.2	8.7	AV	A	C
48	OVERCUP	CONWAY	1025	4.0	17.2	10.7	AV	A	C
49	LO WHITE OAK	OUACHITA	1080	8.0	42.5	25.2	GC	A	C
50	HARRIS BRAKE	PERRY	1300	6.0	11.2	5.5	AV	A	C
51	CANE CREEK	LINCOLN	1620	6.0	24.0	9.5	GC	A	C
52	WILSON	ASHLEY	150	5.0	1.0	4.3	DL	A	D
53	ENTERPRISE	ASHLEY	200	5.0	2.0	6.4	DL	A	D
54	1ST OLD RIVER	MILLER	200	4.0	2.0	6.4	GC	A	D
55	PICKTHORNE	LONOKE	207	5.0	13.2	40.8	DL	A	D
56	HOGUE	POINSETT	280	4.4	2.0	4.6	DL	A	D
57	GREENLEE	MONROE	300	6.0	0.5	1.1	DL	A	D
58	MALLARD	MISSISSIPPI	300	6.0	0.5	1.1	DL	A	D
59	GRAMPUS	ASHLEY	334	6.0	2.0	3.8	DL	A	D
60	DESARC	PRAIRIE	350	6.0	1.0	1.8	DL	A	D
61	WALLACE	DREW	362	5.2	1.0	1.8	DL	A	D
62	PINE BLUFF	JEFFERSON	500	6.0	4.0	5.1	DL	A	D
63	ASHBAUGH	GREENE	500	5.0	1.0	1.3	DL	A	D
64	BOIS D'ARC	HEMPSTEAD	750	4.0	4.0	3.4	GC	A	D
65	OLD TOWN	PHILLIPS	900	3.5	23.0	16.4	DL	R	D
66	HORSESHOE	CRITTENDEN	1200	10.0	13.5	7.2	DL	R	E
67	UPPER CHICOT	CHICOT	1270	15.0	14.0	7.1	DL	R	E
68	GRAND	CHICOT	1400	7.0	5.5	2.5	DL	A	E
69	GA. PACIFIC	ASHLEY	1700	4.0	4.0	1.5	GC	W	E
70	BLUE MT.	LOGAN	2900	8.6	488.0	107.7	AV	F	E
71	COLUMBIA	COLUMBIA	2950	11.0	48.0	10.4	GC	W	E
72	NIMROD	YELL	3600	8.2	680.0	120.9	AV	F	E
73	LOWER CHICOT	CHICOT	4030	15.4	350.0	55.6	DL	R	E
74	CONWAY	FAULKNER	6700	5.0	136.0	13.0	AV	A	E
75	ERLING	LAFAYETTE	7000	7.0	400.0	36.6	GC	W	E
76	OZARK	FRANKLIN	10600	14.0	151801.0	9165.3	AV	N	E
77	FELSENTHAL	BRADLEY	14000	7.0	10852.0	496.1	GC	R	E
78	MILLWOOD	LITTLE RIVER	29500	5.2	4144.0	89.9	GC	F	E
79	DARDANELLE	POPE	34300	14.2	153666.0	2867.2	AV	N	E
	TOTAL		355954						

1 — Watershed: square miles
2 — W/A: Watershed (acres)/Area of Lake
3 — Ecoregions: OM-Ouachita Mtns.; BM-Boston Mtns.; OH-Ozark Highlands; AV-Arkansas River Valley; GC-Gulf Coastal; DL-Delta
4 — Purpose: W-Water supply; F-Flood Control; H-Hydropower; A-Angling (public fishing); N-Navigation; R-Recreation

FIGURE III-2
Location of Arkansas' Significant Publicly-Owned Lakes



Lake Water Quality Assessments

Three lake water quality assessments have been completed on Arkansas significant publicly-owned lakes since 1989. The "Water Quality Assessment of Arkansas' Significant Publicly-Owned Lakes, Summer 1999" is the latest of these assessments and it outlines the current trophic status and water quality of each of the lakes. Water quality samples, metals, pesticides, dissolved oxygen and temperature profiles, and fecal coliform bacteria were collected from most of these lakes between mid-July and the end of August in 1989, 1994, and 1999. Sediment samples were collected in 1994, and plankton samples were collected in 1999. This is the only data that has been collected from most of the State's lakes, except for some of the Corps of Engineers lakes and some of the large municipal water supply lakes that are sampled annually.

Using lake morphology and ecoregion, all of the lakes were grouped in the following manner:

Type A - These are the larger lakes, usually of several thousand acres in size. They have average depths normally 30 to 60 feet and are located in the montane areas of the state in the Ozark Highlands, Ouachita Mountains and Boston Mountains. The watersheds of most are forest dominated, and the primary pupose of most of these lakes is hydropower and/or flood control. The watershed to lake area ratio (W/A) is relatively large for these impoundments, but the large reservoir volume lengthens the water residence time.

Type B - These are the smaller lakes of the uplands or steeper terrains of the mountainous regions and are probably the most heterogenous group of lakes. Most are 500 acres or less in size and are located in the Ozark Highlands, Ouachita Mountains and Boston Mountains. Several are located in the more mountainous areas of the Arkansas River Valley. Average depths range from 10 to 25 feet and watersheds are normally dominated by forest lands. The W/A ratios are normally high which results in a high flushing rate and low water retention time for these smaller lakes.

Type C - This group is composed of the smaller lakes of the lowlands or flat terrain areas. Sizes range from 300 to 1,000 acres with average depths of normally less than 10 feet. These lakes are located in the Arkansas River Valley, Gulf Coastal plains and Delta ecoregions. The Delta lakes of this group are generally associated with the Crowley's Ridge region. Watersheds of these lakes include timberlands of both lowland hardwoods and pines, but some are broken by pasture land and small farms. These lakes have relatively small storage volumes due to shallow average depths and those with higher W/A ratios have high flushing rates.

Type D - These are small impoundments of the Delta area of the state, but include two similar type lakes from the large river alluvium of the Gulf Coastal Ecoregion. These type lakes are generally 200 to 500 acres in size with average depths of around five feet. This group includes several natural, oxbow-cutoff lakes which have been modified by a water control structure to increase their isolation from the parent stream and maintain higher dry-season water levels. These lakes are only occasionally flooded by the parent stream and generally have very small direct runoff watersheds. The other lakes of this type are man-made, but they are almost totally isolated from their watershed by levees. Water levels are maintained through occasional pumping from adjacent waterways. Where watersheds exist that discharge directly to the oxbow lakes in this group, the runoff is primarily from row crop agriculture.

Type E - These are the large lowland lakes of the Delta, Gulf Coastal and the large alluvial areas of the Arkansas River Valley Ecoregion. They range from several thousand to over 30,000 acres in size, but average depth is usually less than 10 feet. This group also includes four large, oxbow-cutoff lakes which have been substantially modified by construction of drainage ditches, levees and other water control structures. Watershed types include mixtures of intensive row crop agriculture, small farms and pastures (with increasing amounts of confined animal production) and timberlands.

Lake Water Quality Trends

A comparison of trophic rankings for all lakes during the three surveys can be found in Table III-8. Old Town Lake had the highest trophic index of all lakes. It had a chlorophyll [a] concentration of 123.40 μg/L, which was twice that of the next highest lake. Grand Lake had the second highest trophic index in 1999, as it did in 1989; however it was about half that of Old Town Lake. Lake Frierson's third highest trophic ranking in 1999 and second highest in 1994 was probably influenced by the excessive turbidity from suspended silt particles during both surveys. This resulted in low secchi disk transparencies, but was not related to the trophic status of the lake. The upper Blue Mountain Lake transect had the fourth highest trophic index in 1999. This was also caused by low secchi disk transparency related to suspended silt particles rather than plankton production. This transect was not sampled during the previous two surveys. Lake Mallard had the fifth highest trophic index in 1999 and 1994 and the third highest in 1989. It had the second highest chlorophyll [a] concentration in 1999. In the past, this lake was fertilized routinely for fisheries enhancement, which perhaps is the main reason for its high trophic rankings. The lowest trophic indices were from Type A and B lakes. Ninety-three percent (93%) of the Type D lake stations and two-thirds of the Type E lake stations were in the upper one-third of all lake station trophic indices. Eight of the ten lakes with the highest trophic rankings are located in the Delta ecoregion, one in the Gulf Coastal Plains and one in the Arkansas River Valley. The highest trophic indices were almost always comprised of the same lakes each year of the survey.

A comparison of the in-lake water quality data to water quality standards must be made with some qualifications. The State's in-lake water quality standards have been modified from the State's stream standards and often do not reflect conditions in a stratified lake. The vast majority of the water quality data collected from all of the State's lakes as a whole fell within the water quality standards.

Table III-8: Comparison of Trophic Rankings Between the 1989, 1994, and 1999 Surveys

			1999		1994		1989	
NO	NAME	TYPE	Index	Rank	Index	Rank	Index	Rank
66	OLD TOWN	D	42.45	1	16.81	4	41.19	1
69	GRAND	E	24.86	2	11.35	6	26.32	2
42	FRIERSON	C	12.85	3	24.34	2	4.09	21
71	BLUE MT. (B)	E	12.01	4				
59	MALLARD	D	11.16	5	11.64	5	22.56	3
62	WALLACE	D	10.71	6	5.92	15	11.08	8
74	LOWER CHICOT	E	9.32	7	10.70	7	4.38	20
57	HOGUE	D	9.16	8	7.29	11	2.02	38
67	HORSESHOE	E	8.95	9	17.72	3	14.44	5
65	BOIS D' ARC	D	8.65	10				
71	BLUE MT. (A)	E	7.99	11	4.57	21	1.11	49
68	UPPER CHICOT	E	6.72	12	10.04	8	13.70	6
64	ASHBAUGH	D	6.70	13	2.63	29	3.15	24
37	JUNE	C	6.05	14	6.20	14	12.81	7
63	PINE BLUFF	D	5.61	15	6.43	13		
53	WILSON	D	5.37	16	3.92	24	3.14	25
55	1ST OLD RIVER	D	5.11	17	8.96	10	7.24	15
76	ERLING (B)	E	4.90	18	3.40	27	7.45	14
39	TRICOUNTY	C	4.74	19	4.78	20	6.39	16
56	PICKTHORNE	D	4.20	20	1.73	41		
54	ENTERPRISE	D	4.09	21	2.57	25	3.06	26
46	BEAR CREEK	C	3.48	22	9.28	9	10.81	9
32	CHARLES	B	3.46	23	4.99	19	2.90	29
22	FAYETTEVILLE	B	3.30	24	1.80	39	0.65	54
61	DESARC	D	3.23	25	5.63	17	2.94	28
75	CONWAY (B)	E	3.06	26	4.27	22	7.86	12
80	DARDANELLE	E	3.05	27				
48	ATKINS	C	3.01	28	2.57	30	1.78	41
79	MILLWOOD (A)	E	2.79	29	2.19	34	1.54	42
43	STORM CREEK	C	2.78	30	5.64	16	7.84	13
75	CONWAY (A)	E	2.64	31	6.52	12	8.89	11
47	UP. WHITE OAK	C	2.24	32	3.40	26	3.00	27
52	CANE CREEK	C	2.10	33	0.98	54	3.66	22
29	SEQUOYAH	B	1.96	34	1.79	40		
23	BOBB KIDD	B	1.87	35	1.34	49	1.19	47
21	ELMDALE	B	1.81	36	0.70	59	2.03	37
30	SWEPCO	B	1.78	37	0.31	73	0.22	78
60	GRAMPUS	D	1.71	38	2.35	33	3.53	23
11	BEAVER (B)	A	1.49	39	0.46	69	0.80	51
76	ERLING (A)	E	1.42	40	2.09	36	4.64	18
15	CRYSTAL	B	1.40	41	0.68	61	0.25	75
44	CALION	C	1.35	42	1.48	47	2.57	33
38	BAILEY	C	1.34	43	2.52	31	4.90	17
24	WILHELMINA	B	1.33	44	2.06	37	1.30	46
79	MILLWOOD (B)	E	1.20	45	2.19	34	1.54	42
33	LEE CREEK	B	1.14	46	0.22	81		
78	FELSENTHAL (B)	E	1.13	47	5.54	18	2.32	34
40	COX CREEK	C	1.12	48	2.50	32		
4	DEQUEEN (B)	A	1.10	49	0.42	71	0.39	69
14	BULL SHOALS (A)	A	1.02	50	0.11	94	0.08	93
16	SHORES	B	0.94	51	0.23	80	0.41	67
78	FELSENTHAL (A)	E	0.93	52	3.96	23	1.96	39
50	LO. WHITE OAK	C	0.87	53	1.56	45	1.41	44
27	NOLAN (Wright)	B	0.85	54	1.68	42		
51	HARRIS BRAKE	C	0.70	55	1.02	52	2.89	30
36	BREWER (A)	B	0.68	56	0.86	56	0.76	53
4	DEQUEEN (A)	A	0.65	57	0.39	72	0.32	72
45	POINSETT	C	0.57	58	1.60	44	0.47	62
25	BARNETT	B	0.56	59	0.26	77	2.29	35
26	SUGARLOAF	B	0.52	60	0.63	65	0.49	58
72	COLUMBIA (B)	E	0.46	61	1.80	38	2.62	31
70	GA. PACIFIC	E	0.46	62	1.66	43	2.25	36
5	CATHERINE (A)	A	0.44	63	0.70	60	1.33	45
72	COLUMBIA (A)	E	0.37	64	1.00	53	2.59	32
2	DIERKS	A	0.35	65	0.51	68	0.43	66
5	CATHERINE (B)	A	0.32	66	1.40	48	1.48	43
3	GILLHAM	A	0.31	67	0.74	58	0.41	68
19	WEDDINGTON	B	0.29	68	0.16	86	0.22	77
34	BEAVER FORK	B	0.27	69	1.27	50	0.45	64
31	SHEPHERD SPGS	B	0.27	70	0.15	89	0.44	65
20	COVE	B	0.26	71	0.26	75	0.27	74
35	HINKLE	B	0.25	72	0.60	66	0.45	63
28	FT. SMITH	B	0.24	73	0.15	88	0.23	76
9	DEGRAY (B)	A	0.24	74	2.18	35	0.49	59
6	GREESON (B)	A	0.23	75	0.65	63	0.50	57
14	BULL SHOALS (B)	A	0.23	76	0.11	96	0.11	87
12	GREERS FERRY (B)	A	0.20	77	0.10	97	0.11	88
7	HAMILTON (B)	A	0.20	78	0.97	55	0.60	55
18	HORSEHEAD	B	0.17	79	0.20	84	0.48	60
1	WINONA (B)	A	0.15	80				
7	HAMILTON (A)	A	0.15	81	0.18	85	0.57	56
8	MAUMELLE (B)	A	0.13	82	1.06	51	0.38	71
6	GREESON (A)	A	0.13	83	0.59	67	0.13	83
8	MAUMELLE (A)	A	0.12	84	0.15	87	0.29	73
17	SPRING	B	0.11	85	0.24	79	0.38	70
9	DEGRAY (A)	A	0.11	86	0.27	74	0.11	86
12	GREERS FERRY (A)	A	0.11	87	0.25	78	0.13	84
1	WINONA (A)	A	0.08	88	0.11	92	0.2	80
13	OUACHITA (C)	A	0.08	89	0.26	76	0.22	79
13	OUACHITA (A)	A	0.07	90	0.15	90	0.08	92
11	BEAVER (A)	A	0.05	91	0.22	82	0.09	90
10	NORFORK (A)	A	0.03	92	0.12	91	0.09	89
10	NORFORK (B)	A	0.03	93	0.10	98	0.11	85
58	GREENLEE	D			288.74	1	15.64	4
49	OVERCUP	C			3.27	28	4.63	19
73	NIMROD	E			1.52	46	0.88	50

* (A) - Lower Lake Station (B) - Upper Lake Station ** U.S. Army Corps of Engineers data used to calculate trophic index Note: Some lake stations were not sampled during certain years for various reasons.

The pH standard was only exceeded on a few occassions, mostly in the lakes with anoxic hypolimnions or in the more productive lakes of the Delta. Several lakes exceeded the temperature standard, but these violations were most likely due to the unusually hot ambient temperatures and dry conditions that existed during the 1999 survey. Lake Swepco's elevated surface temperature, as well as the elevated sulfates, is a result of the lakes primary purpose as a cooling water facility.

Several lakes had hypolimnetic turbidity values above the 25 NTU standard. Most of the elevated values were probably caused by settling of dead plankton organisms or the re-suspension of colloidal clay particles from inflows into the hypolimnion.   Blue Mountain Lake and Lake Frierson have a history of elevated turbidity values most likely due to in-lake processes of wind action on shallow waters, soil types susceptible to colloidal suspensions and/or disturbance in the watershed..

Lake Wilhelmina's fecal coliform count exceeded both the primary and secondary contact recreation criteria. This lake has a history of elevated bacteria counts, especially near the intensive fish culture facility located in the lake. However, the bacteria being detected in Lake Wilhelmina is most likely not a fecal coliform bacteria since the only evident source of fecal contamination is from the fish production facility. The fecal coliform indicator is reported to be from the gut of warm-blooded animals. Fish are poikilotherms ("cold-blooded"). Some other bacteria was detected by the fecal coliform test. The in-lake fish production facility is most likely the source of this unidentified bacteria. The upper Lake Millwood site and Lake Calion values exceeded the primary contact recreation standard during the 1999 survey. These exceedances are probably short-term, event specific occurrences. Overall, fecal coliform concentrations were noticeably lower during the 1999 survey compared to the previous surveys.

An atypically high dissolved copper value was found in the hypolimnion of lower Lake Felsenthal in 1999. Both the acute and chronic standard were exceeded. The source is unknown.
In general, there are only minimal and sporadic standard violations in the lakes surveyed, and many of these exceedences may be cyclic and related to local weather conditions.

Restoration Efforts

The Natural Resources Conservation Service (NRCS) initiated a Millwood Lake Watershed Demonstration Project in 1990 to encourage accelerated adoption of best management practices (BMP) and technologies that cost effectively reduce impacts from confined animal manure disposal and associated activities on ground and surface water that result in documented water quality benefits. This watershed was adopted as a priority watershed by the NRCS for BMP implementation. In addition, this watershed was listed as a priority watershed by the State Unified Watershed Assessment group in 1999 enabling additional nonpoint source funds to be utilized in the watershed.

In 1999, a group of concerned citizens formed the Beaver Lake Watershed Partnership. This group of citizens, along with the help of local, state, and federal governments, and private and academic entities, has begun an initiative to preserve and enhance the water quality in Beaver Lake. The main goals of this group are to educate the local citizens and watershed land owners about the effects of pollution on the lake; to develop a watershed management plan; and to solicit the membership of those businesses and citizens within the watershed.

In addition to these efforts, many federal, state and local agencies are involved in either in-lake or watershed restoration/enhancement/education activities across the state. The Arkansas Game and Fish Commission has implemented restoration and enhancement techniques on several lakes throughout the State; the U.S. Army Corps of Engineers has initiated rehabilitation techniques on a couple of its lakes in the State; the Arkansas Water Education Team (AWET) educates junior high and high school students from across the state with a hands-on, in-stream learning/monitoring curriculum; and the Arkansas Soil and Water Conservation Commission continually initiates demonstration projects for the control of nonpoint source pollution.

Impaired Uses of Lakes

None of the designated uses, i.e., public, agriculture or industrial water supply; propagation of fish and wildlife; primary and secondary contact uses; and navigation, have been eliminated or are impaired in any of the lakes. Similarly, the fishable/swimmable goals of the Clean Water Act have been attained in all lakes. However, fish consumption was not supported in some lakes due to fish consumption advisories which have been issued for waters where fish tissue contamination due to mercury have exceeded the Federal Drug Administration's action levels (See Part III, Chapter Seven).

The fish consumption use is not supported in lakes, Felsenthal and Columbia. These lakes total 16,950 acres (Table III-9). Eleven additional publicly-owned lakes and several privately-owned lakes have health advisories limiting the consumption of certain size classes of certain species of fishes. See Part III Chapter Seven, Table III-10, for additional details of the current health advisories on Arkansas publicly-owned lakes.

Table III-9 Lakes Use Support

Degree of Use Support	Assessment Category		Total Assessed (acres)
	Evaluated	Monitored	
Size Fully Supporting		339,004	339,004
Size Not Supporting*		16,950	16,950
Total Assessed (acres)		355,954	355,954

CHAPTER SIX: WETLANDS

When the first settlers arrived in Arkansas, the wetland resources comprised approximately 8.5 million acres over the State's six ecoregions. Most of these wetlands were in the Mississippi Alluvial Plain (Delta). Today, approximately 10 percent, or 800,000 acres, remain (Arkansas Department of Parks and Tourism, 1985).

The Delta is bordered by the Mississippi River on the east and extends to its most westward point at the base of the Ouachita Mountains near Little Rock. From there the Delta extends northeast along the "Fall Line" and Ozark Mountains' foothills into Missouri and southeast from Little Rock along the edge of the Gulf Coastal Plains to Louisiana. This area comprises approximately 15,625 square miles and all or part of 27 of the State's 75 counties.

The Delta's major streams north of the Arkansas River flow through channels carved by the Mississippi River. The Mississippi River once flowed west of Crowley's Ridge and carved portions of the channels that now form the Black, White, and Cache Rivers and Bayou DeView. After the Mississippi River moved east of Crowley's Ridge, it carved a channel that is now the St. Francis River. Over the millenniums, the Mississippi River deposited silt and organic material over the Delta during floods that developed one of the nation's most fertile land areas. The flat slopes of the Delta and the frequent flooding events produced extensive water-tolerant hardwood trees and allowed the formation of numerous "swamps" or wetlands.

Those first settlers found vast acres of bottom land hardwoods in the swamps upon their arrival in Arkansas. For 200 years they cleared the timber to farm the rich, fertile soil. The process was slow and labor intensive with only occasional help from the federal government. After WWII, mechanization allowed the clearing of wetland acreage faster than ever before. A dozer could clear more land in one day than some families could clear in a year only a generation earlier. Ninety percent (90%) of wetland acreage cleared in the last 35 to 40 years has been due to the expansion of soybean production (Holder 1969).

In 1849-50, Congress passed the Swamp Land Acts, which transferred more than 7,686,000 acres of public domain land to the State of Arkansas. Funds collected from the sale of these lands were used for flood control structures in the Delta. But, major floods occurred in 1858, 1862, 1865, 1871, 1874, 1882, 1883, and 1884 justifying the Mississippi River Commission. The Mississippi River Commission was a cooperative effort of the federal government and local interests, formed to address the problems associated with these recurring floods in 1879. Levee boards and drainage districts were formed resulting in swamp drainage and clearing and ditch and levee construction for flood control. The passage of the Flood Control Act of 1928 removed the requirement for the local interests to pay half the cost of levee construction on the Mississippi River. Passage of these various flood control acts resulted in the conversion of thousands of acres of wetlands into productive agricultural lands.

The term marsh appears in the state law under the Arkansas Water and Air Pollution Control Act, Act 472 of 1949, as amended. Subdivision 9(a): "waters of the State, means all streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or borders upon this state or any portion thereof."

Although the state does not have delegated 404 permitting authority, the state has used its Antidegradation Policy to protect wetland resources affected by projects requiring Section 404 dredge and fill permits. The State will deny water quality certification for such projects when, in the opinion of the state, the designated use will no longer be maintained and protected.

Currently, the state does not have a formal policy for Section 401 water quality certifications. Section 401 decisions made by the state are based on its Regulation No. 2, Regulation Establishing Water Quality Standard for Surface Water of the State of Arkansas.

In 1985, the Arkansas Department of Parks and Tourism (ADPT) prepared a Statewide Comprehensive Outdoor Recreation Plan (SCORP) to investigate wetland losses and propose a policy to abate these losses. The 1992 SCORP makes this Wetlands Issue Statement: "Arkansas must define and adopt a statewide no-net-loss wetland policy and take a proactive role to preserve, protect and restore our wetlands."

Several state agencies are working independently to preserve wetlands within the State. The Arkansas Game and Fish Commission (AGFC), the State's chief wildlife and fisheries agency, has a long standing commitment to protecting wetlands within the Delta because of its outstanding wildlife importance, particularly to migratory water fowl. The AGFC has acquired 12 areas within the Delta comprising more than 125,000 acres. The Arkansas Natural Heritage Commission (ANHC), an agency of the Department of Arkansas Heritage, focuses on the protection of rare plant and animal species and natural communities. This agency has made a comparable commitment of acquiring legal interest (fee title or conservation easement) in 57 areas of the state. Of these areas, 37 protect approximately 7,425 acres of wetlands and 29 miles of riparian corridor. The agency is also working cooperatively with landowners to manage wetlands along 16 miles of Bayou Dorcheat and its tributaries in Columbia and Lafayette Counties involving approximately 11,000 acres of bottom land forest and wetlands.

The AGFC and ANHC have committed to additional investments in the Delta and have begun developing comprehensive plans for the Cache/Lower White River Joint Venture Project under the North American Waterfowl Management Plan, and the the White River/Lower Arkansas Megasite Plan. The AGFC and ANHC have agreed to jointly purchase 3,750 ac of bottomland forest and cypress-tupelo swamp in Seven Devils Swamp located in southeast Arkansas. The Ramsar Convention, an international agreement providing the framework for international cooperation for conservation of wetland habitats, proclaimed the five state-and-federally-owned areas as "Wetlands of International Importance." The designation of the Cache/Lower White

River is only the eighth wetland area in the United States to be recognized as a wetland of international importance under the Ramsar Convention.

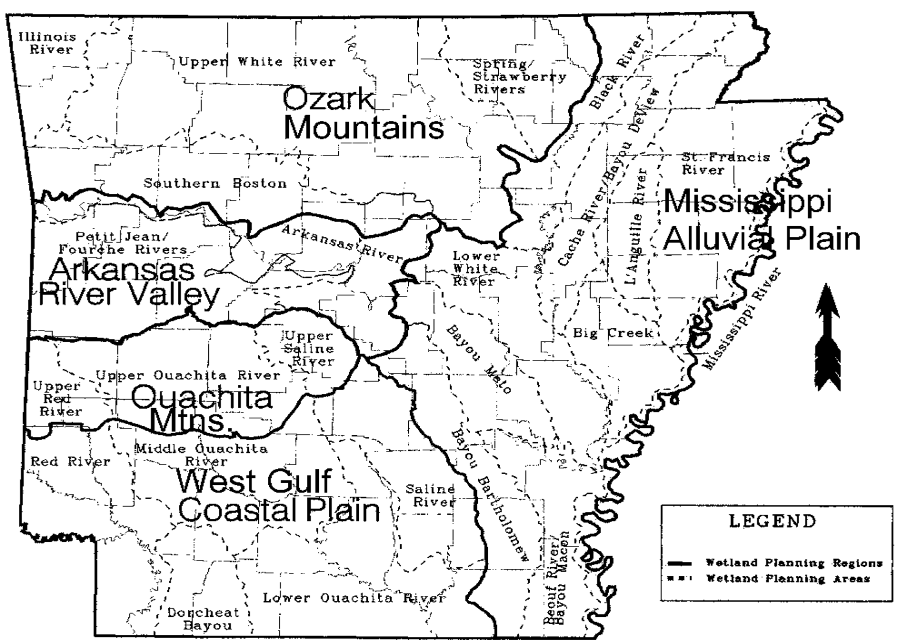
During 1992, the State of Arkansas developed its first comprehensive strategy for protecting wetlands within the state. Four state agencies - AGFC, ASWCC, ANHC, and the Department joined to discuss wetland protection efforts within the state. The group has since expanded to include the University of Arkansas Cooperative Extension Service, the Arkansas Forestry Commission (AFC), ADPT and the Arkansas Highway and Transportation Department .

The group became organized as the Multi-Agency Wetlands Planning Team (MAWPT) in 1995. The MAWPT continues to use 104(b) grants to enhance the Arkansas Wetland Conservation Plan.

The Arkansas Wetlands Conservation Plan consists of two basic elements:

1. Statewide strategies for wetland protection and restoration.
2. Watershed wetland conservation strategies based on GIS inventories and analysis requiring local partnership and decision sharing.

   Through this effort the MAWPT also designated Wetland Planning Areas:



Wetland planning areas of Arkansas (created by the Multi-Agency Wetlands Planning Team, MAWPT 1996).

Wetland Strategy", a document containing policy, program, and legislative recommendations for the implementation of the Arkansas Wetland Conservation Plan. The MAWPT has just recently released the "Arkansas Bottomland Hardwood Notes", A guide for the management of Bottomland Hardwoods in Arkansas. The MAWPT has also undertaken the development of the Hydrogeomorphic method of wetland classification specific for Arkansas.
Mawpt also produces a newsletter available to all interested parties, and now has a website (www.mawpt.org) that contains more detailed information on current and ongoing projects.

In 1995, Acts 561 and 562, were signed into legislation. The purpose of these acts was to provide tax incentives and monetary aid to property owners who engage in the conservation, development or restoration of wetlands and riparian areas. Act 562 makes provisions for the ASWCC to develop a "mitigation bank", "a publicly owned and managed wetland site, created or restored in accordance with Act 562 to compensate for unavoidable adverse impacts due to activities that otherwise complies with the requirements of the Federal Water Pollution Control Act." The ASWCC has recently promulgated regulations implementing these Acts". For details on these acts visit the MAWPT homepage (www.MAWPT.org) .

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CHAPTER SEVEN: PUBLIC HEALTH/AQUATIC LIFE CONCERNS

Background

The 1994 Water Quality Inventory report contained an in-depth look at bioaccumulative compounds and trace metals in Arkansas' lakes and streams. It was the culmination of a cooperative effort with the Arkansas Game and Fish Commission (AGFC) to collect, analyze and evaluate data on compounds that could affect public health or aquatic life. The report contained data collected from numerous streams, rivers, and lakes. Overall, data collection and/or analysis during the 1994 reporting period was much more extensive than usual. Since that report, the collection and analysis of data has been concentrated on evaluating the mercury problems discussed in the 1994 report.

During the 1996 reporting period, the Department's monitoring program concentrated on mercury and its effects on public health. Edible fish tissue (fillets), usually from predator fishes, was analyzed for metals and pesticides from 32 lakes and numerous stream segments . These results are documented in the "1996 Water Quality Inventory Report".

The fish tissue sampling program has been scaled back from the intensive sampling of the previous years. Since the 1996 reporting period, fish tissue has only been collected from those areas of the state with the greatest risk and highest concentrations of mercury and/or other fish tissue contaminants. During 1999-2000, fish tissue analyses will be confined primarily to waters in Arkansas which were selected as a part of the "National Study of Chemical Residues in Lake Fish Tissue".

Public Health and Aquatic Life Impacts

Fish Consumption Advisories

Table III-10 lists the current fish consumption advisories for the State. The most significant health advisory changes in the State over the last four years has been the reduction in the total number of stream miles with dioxin advisories.

The Arkansas Department of Health is responsible for issuing fish consumption advisories.   Few waters have been added to the fish consumption advisory list since the 1996 report. Some advisories concerning the consumption of fish tissue with mercury contamination have been better defined and some dioxin advisories have been removed and/or scaled back. It is important to contact the Department, the Arkansas Department of Health, or the Arkansas Game and Fish Commission for the latest advisories.

Table III-10: Fish Consumption Advisories in Place as of January, 2000

Name of Waterbody and Reach No.	Waterbody Type	Size Affected	Type of Fish Consumption Restriction: No Consumption – General population	No Consumption – High risk groups	Limited Consumption – General population	Limited Consumption – High risk groups	Pollutant of Concern
Bayou Bartholomew **08040205 - 002** **08040205 - 012**	**River**	**~48 miles**		×	×		**Mercury**
	1. High risk groups should not consume flathead catfish, gar, bowfin or pickerel, and blue catfish over 20", largemouth bass over 12", or buffalo over 18" in length. **2. The general public should not consume more than 2 meals per month of flathead catfish, gar, pickerel, bowfin, or blue catfish over 20" in length, largemouth bass over 12" in length, or buffalo over 18" in length.**						
Bayou Meto **08020402-007**	**Stream**	**~48 miles**	×	×			**Dioxin**
	3. Consumption of fish from this area is not recommended due to dioxin contamination. This applies to all risk groups.						
Tributary of Big Creek **11140203 - XXX**	**Stream**	**~2 miles**	×	×			**PCBs**
	4. This stream is closed to fishing due to polychlorinated biphenyl contamination.						
Big Johnson Lake[1] **(Calhoun County)**	**Lake**	**80 acres**		×	×		**Mercury**
	5. High risk groups have no restrictions on consumption of crappie or buffalo. They should not consume all other predators and non-predators. **6. The general public has no restrictions on the consumption of crappie or buffalo. They should not consume more than two (2) meals per month of all other predators. There is no restriction on consumption of non-predator fish.**						
Champagnolle Creek **08040201 - 003** **Little Champagnolle Creek** **08040201 - XXX**	**Stream**	**~20 miles**			×	×	**Mercury**
	7. High risk groups should not consume predator or non-predator species over 13". **8. The general public should not consume more than 2 meals per month of the predator species over 13". There are no restrictions on non-predator species.**						
Columbia Lake	**Lake**	**2,950 acres**		×	×		**Mercury**
	9. High risk groups do not have any restrictions on the consumption of crappie, channel or blue catfish. They should not consume all other predators and non-predators. **10. The general public has no restrictions on the consumption of largemouth bass less than 16 inches in length, or crappie, channel and blue catfish. They should not consume morel than 2 meals per month of all other predators. There are no restrictions on non-predator fish.**						
Cove Creek Lake **(Perry County)**	**Lake**	**46 acres**			×	×	**Mercury**
	11. High risk groups should not consume largemouth bass 12" or longer. There are no restrictions on all other predator or non-predator species. **12. The general public should not consume more than 2 meals per months of largemouth bass 12-16" in length. They should not consume largemouth bass greater than 16" in length. There are no restrictions on all other predator or non-predator species.**						
Cut-Off Creek **08040205 - 007**	**Stream**	**16.8 miles**		×	×		**Mercury**
	13. High risk groups should not consume predator or non-predator species. **14. The general public should consume no more than 2 meals per month of the predator species. They should d not consume the non-predator species.**						

(Continued)

Name of Waterbody and Reach No.	Waterbody Type	Size Affected	Type of Fish Consumption Restriction				Pollutant of Concern
			No Consumption		Limited Consumption		
			General population	High risk groups	General population	High risk groups	
Dorcheat Bayou **11140203 - 020** **11140203 - 022** **11140203 - 024** **11140203 - 026**	**Stream**	**50.6 miles**		×	×		**Mercury**
	15. High risk groups should not consume predator or non-predator species. **16. The general public should not consume largemouth bass >16" in length or consume more than 2 meals per month of all other predator species.**						
Dry Fork Lake **(Perry County)**	**Lake**	**104 acres**			×	×	**Mercury**
	17. High risk groups should not consume largemouth bass 16" or longer. **18. The general public should not consume more than 2 meals per month of largemouth bass 16" in length.** **19. There are no restrictions on all other predator and non-predator species.**						
Dupree Lake	**Lake**	**<10 acres**	×	×			**Dioxin**
	20. Consumption of fish from this area is not recommended due to dioxin contamination. This applies to all risk groups.						
Felsenthal Lake	**Lake**	**14,000 acres**		×	×		**Mercury**
	21. High risk groups have no restrictions on the consumption of crappie and channel catfish 19" in length or less. They should not consume all other predators. There are no restrictions on the consumption of bluegill, but high risk groups should not consume all other non-predators. **22. The general public should not consume more than 2 meals per month of blue catfish 18" in length or less. There are no restrictions on the consumption of crappie or channel catfish 19" in length or less. They should not consume all other predators. There are no restrictions on the consumption of bluegill, but the general public should not consume more than 2 meals a month of all other non-predator fish.**						
Fourche La Fave River **11110206 - 002**	**River**	**8.7 miles**			×	×	**Mercury**
	23. High risk groups should not consume largemouth bass 16" or longer. There are no restrictions on all other predator and non-predator species. **24. The general public should not consume more than 2 meals per month of largemouth bass 16" or longer. There are no restrictions on all other predator and non-predator species.**						
Grays Lake **(Cleveland County)**	**Lake**	**22 acres**		×	×		**Mercury**
	25. High risk groups should not consume largemouth bass over 16" in length, flathead catfish over 26" in length, or any gar, bowfin or pickerel. **26. The general public should not consume more than two meals per month of gar, bowfin, pickerel, flathead catfish over 26" in length, or largemouth bass 13" to 16" in length.** **27. The general public should not consume any largemouth bass over 16" in length.**						
Johnson Hole **(Van Buren County)**	**Lake**	**~50 acres**			×	×	**Mercury**
	28. High risk groups should not consume largemouth bass over 16" in length. **29. The general public should not consume largemouth bass over 16" in length.**						

(continued)

<table>
<tr><th rowspan="3">Name of Waterbody and Reach No.</th><th rowspan="3">Waterbody Type</th><th rowspan="3">Size Affected</th><th colspan="4">Type of Fish Consumption Restriction</th><th rowspan="3">Pollutant of Concern</th></tr>
<tr><th colspan="2">No Consumption</th><th colspan="2">Limited Consumption</th></tr>
<tr><th>General population</th><th>High risk groups</th><th>General population</th><th>High risk groups</th></tr>
<tr><td rowspan="2">Moro Creek
08040201 - 001</td><td>Stream</td><td>~12 miles</td><td>×</td><td>×</td><td></td><td></td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">30. High risk groups should not consume predator or non-predator species.
31. The general public should not consume the predator species. They should not consume more than 2 meals per month of the non-predator species.</td></tr>
<tr><td rowspan="2">Nimrod Lake</td><td>Lake</td><td>3,600 acres</td><td></td><td></td><td>×</td><td>×</td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">32. High risk groups should not consume largemouth bass 16" in length or greater.
33. The general public should consume no more than 2 meals per month of largemouth bass 16" or longer.
34. There are no restrictions on all other predators.</td></tr>
<tr><td rowspan="2">Ouachita River
08040201 - 002
08040201 - 004
08040202 - 002
08040202 - 003
08040202 - 004</td><td>River</td><td>66.3 miles</td><td>×</td><td>×</td><td></td><td></td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">35. High risk groups should not consume predator or non-predator species.
36. The general public should not consume the predator species. They should not consume more than 2 meals per month of the non-predator species.</td></tr>
<tr><td rowspan="2">Saline River
08040204 - 001
08040204 - 002</td><td>River</td><td>55.8</td><td>×</td><td>×</td><td></td><td></td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">37. High risk groups should not consume predator or non-predator species.
38. The general public should not consume the predator species. There are no restrictions on the non-predator species.</td></tr>
<tr><td rowspan="2">Saline River
08040204 - 004
08040204 - 006</td><td></td><td>33.9 miles</td><td></td><td>×</td><td>×</td><td></td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">39. High risk groups should not consume predator or non-predator species.
40. The general public should not consume more than 2 meals per month of the predator or non-predator species.</td></tr>
<tr><td rowspan="2">Shepherd Springs Lake
(Crawford County)</td><td>Lake</td><td>552 acres</td><td></td><td></td><td>×</td><td>×</td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">41. High risk groups should not consume black bass 16" or longer. There are no restrictions on all other predator or non-predator species.
42. The general public should not consume more than 2 meals per month of black bass 16" to 20" long. No black bass over 20" should be consumed. There are no restrictions on all other predator or non-predator species.</td></tr>
<tr><td rowspan="2">South Fork Little Red River
11010014 - 036</td><td>River</td><td>2.0 miles</td><td></td><td></td><td>×</td><td>×</td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">43. High risk groups should not consume largemouth bass over 16" in length.
44. The general public should not consume more than 2 meals per month of largemouth bass 16" long or greater.
45. There are no restrictions for all other predators.</td></tr>
<tr><td rowspan="2">Lake Sylvia
(Perry County)</td><td>Lake</td><td>14 acres</td><td></td><td></td><td>×</td><td>×</td><td rowspan="2">Mercury</td></tr>
<tr><td colspan="6">46. High risk groups should not consume largemouth bass 16" or longer.
47. The general public should not consume more than 2 meals per month of largemouth bass 16" in length.
48. There are no restrictions on all other predator or non-predator species.</td></tr>
</table>

(continued)

Name of Waterbody and Reach No.	Waterbody Type	Size Affected	Type of Fish Consumption Restriction				Pollutant of Concern
			No Consumption		Limited Consumption		
			General population	High risk groups	General population	High risk groups	
Lake Monticello (Drew County)	Lake	1,240 acres			×	×	Mercury
	49. High risk groups should not consume black bass, flathead or blue catfish, 12" or larger, or channel catfish 18" or larger. 50. The general public should not consume more than 2 meals per month of black bass 12" to 15" in length, or channel catfish 18" or larger. 51. The general public should not consume flathead catfish, blue catfish, or black bass over 15" in length.						
Lake Winona (Saline County)	Lake	1,240 acres			×	×	Mercury
	52. High risk groups should not consume black bass 16" or larger. 53. The general public should not consume more than two meals per month of black bass 16" or larger.						
[1] These oxbow lakes are listed specifically as advisory areas. There is an advisory on all oxbow lakes, backwaters, overflow lakes and bar ditches formed by the Ouachita River below Camden. This includes waters inside the Felsenthal National Wildlife Refuge.	All types	Total Area not known	×	×			Mercury
	54. High risk groups should not consume predator or non-predator species not listed below. 55. The general public should not consume predator species not listed below. They should not consume more than 2 meals per month of all non-predator species not listed below. 56. There are no restrictions on the consumption of buffalo or crappie.						

Fish Kills

Twenty-four fish kills, known or suspected to be pollution related, were recorded during the reporting period (Table III-11). Approximately 100,000 fish were estimated to be killed in approximately 40 stream miles and/or 35 lake acres. Eight fish kills were due to pesticides used in agricultural and urban areas. Anoxic waters, diesel fuels spills, and brine solution releases were responsible for two fish kills apiece. There were seven fish kills were no discernable cause could be determined. Sources for most of the fill kills included either storm water run off from industrial and/or agricultural areas, or accidental discharges from point source discharges. The most severe fish kill was caused by an accidental release of sodium hydrosulfide from a tank farm in southeast Arkansas.

Public Water Supply/Drinking Water Use

During 1995, water quality analyses included a comprehensive list of pesticides (See Table III-4) from at least one sampling event. These results indicated dectable levels of pesticides at some of the stations; however, none of the pesticide concentrations exceeded the Safe Drinking Water Act Maximum Contaminant Level (MCL) for that parameter.

Table III-11: Pollution Related Fish Kills (1995-1998)

Waterbody county or reach number	Waterbody Type	Size Affected	Pollutant of Concern	Pollutant Source	Number of fish killed
Grassy Flat Creek - 11110207-xxx	Stream	5.4 miles	Chlorpyrifos	Pest control	18,000
DeLoutre Bayou - relief area - 8040202-007	Stream	0.15 miles	Brine solution	Pipeline rupture	~ 100
Unnamed tributary of Rock Creek - 11110207-xxx	Stream	0.75 mile	Raw sewage	Manhole overflow	> 20
Unnamed tributary of Town Branch (Fayetteville) 11010001-xxx	Stream	1.0 mile	Chlorpyrifos	Pest control	<100
Unnamed Tributary to Horsehead Creek - 11140203-xxx	Stream	0.75 mile	Brine solution	Pipeline rupture	~ 125
Unnamed creek @ the Univ. of Arkansas - Washington Co. 11010001-xxx	Stream	0.25 mile	unknown	Urban runoff	~ 50
Mill Creek - 11110201-014	Stream	6.5 miles	Diesel Fuel	Fuel Tank	2,665
S. F. Saline River Trib - 08040202	Stream	1.0 mile	Cypermethrin	Urban	200
Coffee Creek - 08040202-xxx	Stream	0.25 miles	Anoxia	Industrial	200
Mud Creek Trib - 11110103-xxx	Stream	1.0 mile	Unknown	Runoff	300
Gin Creek - 11010014-xxx	Stream	3 miles	Unknown	Industrial	470
Arkansas River Trib - 11110203-xxx	Stream	<0.1 mile	Diesel Fuel	Unknown	30
Oakwood Bayou - 08050001-xxx	Stream	>0.1 mile	Unknown	Unknown	100
Chicot Bayou - 08050002-xxx	Stream	18 miles	Sodium Hydrosulfide	Tank Farm	40,348
Private Pond - Lee Co.	Pond	1.0 acre	unknown pesticide	Agricultural applications	> 600
Private Pond - Nevada Co.	Pond	1.0 acre	Guthion	Agricultural applications	> 600
Lake Dardanelle - Pope Co.	Lake	0.25 acre	Sodium Hypochlorite	Permit discharge	~ 875
Commercial fish pond - Monroe Co.	pond	26.0 acres	Methyl parathion	Agricultural applications	25,000
Bob Linn Lake - Faulkner Co.	Lake	5.0 acres	Chlorpyrifos	Pest control	2000
Lake Chicot - Chicot Co.	Lake	0.5 acres	Unknown	Unknown	30
Pleasure Lake Saline Co.	Lake	0.5 acres	Chlorpyrifos	Urban	>500
Hills Lake	Lake	Unknown	Unknown	Agricultural	250
Atkins Lake - Jefferson Co.	Lake	Unknown	Anoxic water	Storm runoff	~ 500
Murphy Park Lake - Washington Co.	Lake	1.0 acre	Unknown	Unknown	~300

A non-point source assessment completed in 1996 also provided valuable information regarding the Drinking Water Use designation of Arkansas' waters. Between 1994 and 1996, 103 sample stations were established across Arkansas and sampled quarterly. Analyses included nutrients, minerals, and both dissolved and total metals. All stations were also sampled for those pesticides in Table III-4 during a July 1995 sampling event. After this initial screening of the sample sites, 33 sites in the Delta ecoregion were selected for continued pesticide analyses. Samples were collected and analyzed from these sites in October 1995 and October 1996. This generated a total of 285 pesticide analyses. The three pesticides that had the highest incidence of occurrence above the detection level were atrazine, metolachlor, and molinate. As with the analyses performed on the 133 ambient stations previously discussed, none of the detections exceeded the listed MCLs.

The ambient monitoring network provided monthly data from all stations for nitrate and minerals (chlorides, sulfates, total dissolved solids) which were compared against the drinking water standards to assess the protection of the drinking water use. Of the more than 8,500 miles assessed for these parameters for drinking water use support, 77.7 miles were not meeting the use. Many of the exceedences were from nitrate values greater than 10 mg/L. In addition, several miles of streams have had the drinking water designation use removed through site specific amendments to the water quality standards. These waters are shown in Figure III-3.

Source Water Protection Program - Arkansas Department of Health

Arkansas' source Water Protection Program (SWAP) establishes a methodology to perform vulnerability assessments in an effort to provide information/data to water systems, customers, and government agencies. The Arkansas Department of Health (ADH) is responsible for the development of the SWAP and for conducting the vulnerability assessments. The vulnerability assessments are multi-step processes consisting of source location, delineation of source water assessment areas, potential contaminant identification, and a susceptibility analysis. The information / data obtained from the vulnerability assessments will be useful for the development of drinking water source protection programs. Source protection programs can help to assure a continued safe drinking water supply, provide for monitoring flexibility, and limit capital expenditures for treatment.

Preparation of the SWAP was required by the 1996 amendments to the Safe Drinking Water Act. Arkansas' SWAP was approved by the environmental Protection Agency, Region 6, in November, 1999 and it is scheduled to be completed by May 2003. After assessments are completed, the ADH will be providing technical assistance for the development of source water protection plans.

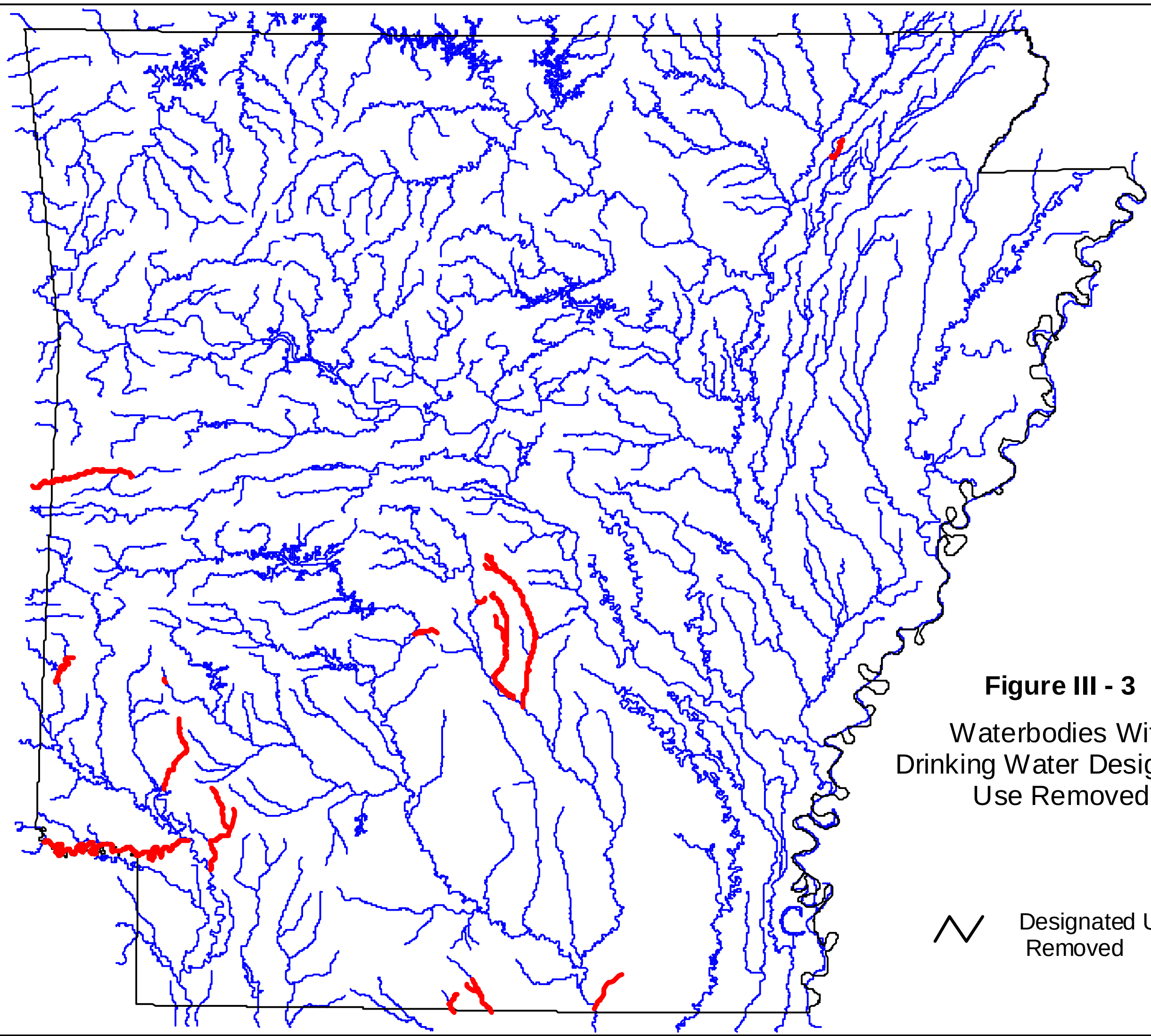


Figure III - 3

Waterbodies With Drinking Water Designated Use Removed

PART IV: GROUND WATER ASSESSMENT

Introduction

Section 106(e) of the Clean Water Act specifies that each State monitor the quality of its ground-water resources and report the results to Congress on a biennial basis in its State 305(b) report. The 1996 guidance for preparation of the 305(b) report contained many changes from the original broad-based approach, which was evidenced by the changes in the 1996 report for Arkansas. These changes included two tables: one, a summary of State ground-water protection programs and, two, a listing of the major sources of contamination in the State. The table format was designed by the EPA primarily for uniformity in reporting by the States.

The 1998 and 2000 guidance varied little from the changes documented in the 1996 guidance. EPA continues to encourage states to 1) work toward assessing all ground waters of the state from the various aquifers, 2) use prescribed table formats for consistency among all states of the nation, and 3) describe major changes in ground-water protection programs including legislative amendments and policy directives. EPA also strongly re-emphasized the goal of reporting ground-water quality for specific aquifers or hydrologic setting by the year 2006.

Because the 305(b) report is comprehensive in nature and summarizing the assessment of the entire State's ground-water resources is such a monumental and burdensome task, the EPA has recommended reporting only on changes since the last hard-copy report. As such, the following is a summary of changes since the last publication of the 1996 Arkansas Water Quality Inventory Report and predominantly includes activities and data for FY98 and FY99 (October, 1997 through September, 1999). However, because the Department conducts its ambient ground-water monitoring on a three-year rotational basis and realizes the importance of documenting ground-water quality throughout the state, the present report contains ground-water data collected during FY97, FY98 and FY99. The 1996 report should be referred to for specific information including tables and figures which describe in detail the geology, subsurface hydrology, and general ground-water quality for various portions of the State.

Overview

Ground water remains one of the most important natural resources within the State of Arkansas. Availability problems and ground-water quality problems around the nation have received intense and constant media attention; thus elevating the awareness of the national and state-wide community as a whole to the importance of high-quality water for drinking and other uses. This awareness has led to more stringent legislation and increased program development on both a national and state-wide scale for the protection of ground-water resources.

Since as early as 1990, changes in Arkansas' ground-water protection programs have included the start-up of the Wellhead Protection Program (WHPP), which involves actions at the local level for protection of source water; the designation of Critical Ground Water Areas (Act 154 of 1991), which addresses over-pumping of ground water; and initiation of the Farm*A*Syst Program, which educates farmers on methods for protecting their ground water. These programs act in unison to prevent ground-water contamination and protect future use. They reflect a philosophical change from ground-water contamination response and remediation to ground-water contamination prevention. In addition to these programs, increased awareness of nonpoint sources of pollution resulted increased funding to the federal 319 Nonpoint Source Program. The increase in funding at the state level has promoted aggressive assessment of nonpoint sources of pollution and creation and/or modification of best-management practices (BMPs), which has lessened impacts from agricultural activities.

Ground Water Protection Programs

There are two main components of ground-water protection, which include ensuring the available quantity necessary for the various uses and protecting existing ground-water quality. Because of the large scope of both activities, the protection mechanisms commonly are addressed by multi-agency, multi-discipline approaches.

This was especially true in the last decade, which witnessed an increase in joint ventures by both federal and state agencies in the monitoring and protection of Arkansas' ground-water resources. Current ground-water protection activities frequently involve joint efforts by two or more agencies, including state and federal agencies and universities. This approach also is manifested in the Comprehensive State Ground-Water Protection Program, which provides a forum for these institutions to meet and discuss ground-water issues on a regular basis.

Ground-Water Availability and Use

Each year approximately 5456 million gallons per day (mgd) of ground water is pumped from the State's aquifers. The greatest volume (5062 mgd) is pumped from the alluvial aquifer, primarily for irrigation purposes, and the next greatest is from the Sparta-Memphis Sand aquifer (approximately 284 mgd), used for municipal and industrial purposes (Holland, 1999).

The increased demand on ground water has resulted in water-level declines and water-quality degradation in many areas of the State. This situation resulted in the passage of Act 154 of 1991, which acts to identify critical ground-water areas in the State and regulate the usage, where necessary. Classification of critical ground-water areas are made when certain criteria are met including water levels below the top of a given formation (confined aquifer), saturated thickness of the formation less than 50% of the total formation thickness (unconfined), water-level declines of more than 1 foot per year over a 5 year period, and trends indicating degradation of water quality (ASWCC, 1997).

In 1995, the Sparta aquifer was designated as a critical ground-water area by the Arkansas Soil and Water Conservation Commission (ASWCC) in south Arkansas in a five-county area (Ouachita, Calhoun, Bradley, Columbia, and Union). During FY97, the ASWCC proposed an area encompassing Jefferson, Arkansas, Prairie, Lonoke and parts of Pulaski and White be designated as a critical ground-water area for the Alluvial and Sparta aquifers. Priority study areas for present and future analyses include the Alluvial and Sparta aquifers in parts of northeastern and southeastern Arkansas.

Information used to evaluate water usage from the various aquifers are based on water level measurement network maintained under cooperative agreements between the ASWCC, the U.S. Geological Survey (USGS), the Arkansas Geological Commission (AGC), and the Natural Resources Conservation Service (NRCS). Through these cooperative agreements, over 1000 measurements are collected annually. Trends in water level changes are monitored by ASWCC for use in evaluating potential critical-use areas within the State.

Ground-Water Quality Protection

There are many ground-water protection programs within the State that include both regulatory and voluntary ground-water contamination prevention activities. These programs include prevention of contamination from both point sources and nonpoint sources. Virtually all of the point-source prevention programs are regulatory programs and are administered by the Department (indicated by ADEQ next to the headings which follow), while the majority of nonpoint sources are related to agriculture and other land-use activities and commonly include joint efforts by several agencies.

Regulated Storage Tank Division (ADEQ)

Several changes were implemented in the Regulated Storage Tank program during FY96 and FY97, including the passage of Act 642 of 1997 which affected both the delegation of the Trust Fund and environmental policies. This act was self-implementing, which meant that adoption and implementation by the RST Division could be accomplished without amending Arkansas Pollution Control and Ecology Commission Regulation #12, Storage Tank Regulations.

One of the legislative changes involved the extension of Petroleum Storage Tank Trust Fund coverage on aboveground storage tanks 1,320 gallons up to 40,000 gallons capacity (instead of the previous 30,000 gallon limit); under the same conditions as underground storage tanks. This change was important from the standpoint that the RST Division also became responsible for oversight of monitoring and remediation of impacts as a result of leaking aboveground tanks. Previously, the Water Division provided oversight on contaminant response at sites with aboveground tanks. Although the increase in the coverage capacity on aboveground tanks has brought a number of new tanks into the program, the RST Division estimates an approximate net loss of 3,000 tanks as a result of tank closures around the State.

New policies within the RST Division directly addressing contaminant monitoring and cleanup at RST sites include the utilization of the ASTM Risk-Based Corrective Action (RBCA) protocol. RBCA provides a uniform means of assessing risk to various receptors from available transport pathways and calculates cleanup levels based on the determined values of risk. In addition, MTBE was added to the chemicals of concern for monitoring at RST sites. Previous to this addition, the important chemicals of concern included only BTEX and TPH. Future policy considerations include addition of ecologic risk receptors into current environmental decision-making.

Solid Waste Management Division (ADEQ)

In 1995, the Solid Waste Management Division (SWMD) amended Regulation 22 to incorporate 40 CFR Part 258, RCRA Subtitle D criteria into the body of the regulation to establish more stringent guidelines for design and operation of landfills, particularly those disposing of municipal solid waste (primarily Class 1 landfills). Time frames were set-up to bring existing municipal solid waste (MSW) landfills as well and other classes of landfills into compliance with RCRA Subtitle D requirements with the ultimate goal of eliminating waste disposal into landfills which were unlined and not protective of human health and the environment. Subtitle D criterea set forth in Regulation 22, included in part the implementation of liner-construction requirements at MSW landfills. Liner-construction requirements now include placement of a 24" compacted clay liner at the base of the landfill; placement of synthetic-liner component (60 mil HDPE) on top of the compacted clay; and design and placement of a leachate-collection system on top of the liner system to maintain less than one foot of hydrostatic pressure from accumulated leachate above the liner. The leachate is removed from the liner system periodically and usually is transported to a waste-water treatment facility for disposal.

QA/QC protocols for landfill-liner construction also are required by Regulation 22. In addition, Subtitle D also requires each municipal solid waste facility to design and operate a ground-water monitoring system specifically tailored to the individual site conditions. Ground-water samples periodically are sampled and analyzed to determine if landfill leakage has occurred at specific facilities. In areas of the state where the potential impact from solid-waste disposal activities on local ground-water supplies is greatest, such as in karst regions, even more stringent liner-construction criteria are required under Regulation 22. Where the Boone Limestone and St. Joe Limestone Formations cropout in the northern part of the State (Springfield Plateau Aquifer), additional composite liner and leak-detection design plans are required for new MSW landfills. All of these Subtitle D requirements were implemented by the SWMD to provide an increased level of protection for both human health and the environment in the vicinity of existing landfills statewide.

Since the Subtitle D requirements were incorporated into Regulation 22 in 1995, over 90% of the MSW landfills have closed their pre-Subtitle D units and are now disposing on cells which now have composite liners in place. There are currently three existing MSW facilities in the state which are disposing waste in landfill cells not meeting Subtitle D regulations. Each of the facilities have compacted clay liners in the active disposal areas, but not a composite liner of clay and HDPE plastic. Ground-water monitoring wells are in place at each of these MSW facilities. The SWMD currently is reviewing design plans and specifications from each of these landfill operators for closing the substandard clay-lined disposal cells and placing waste in or onto Regulation 22 compliant-lined cells at their facilities.

In addition to meeting the new composite-liner requirements, all MSW facilities must review the viability of their onsite ground-water monitoring system. Ground-water monitoring systems at all facilities must be certified by a Registered Professional Geologist that each monitoring well is properly sited, both up gradient and down gradient, and properly constructed and screened in the appropriate aquifer. All MSW landfills statewide have had their ground-water monitoring systems certified or are in the process of having their certification reviewed and approved by the SWMD. These ground-water monitoring systems are designed to detect the presence of almost 70 constituents which include 17 inorganic compounds (metals), 46 organic compounds (VOC's) and 6 indicator parameters. Ground-water monitoring for non-hazardous industrial landfills began in May of 1998, and is similar to that required for MSW landfills.

The SWMD, prior to the incorporation of Subtitle D regulations into Regulation 22 in 1995, had already begun a program of evaluating the water quality of the uppermost aquifer (the geologic formation required to be monitored according to Regulation 22) located beneath each landfill facility. Today the SWMD continues to evaluate ground-water sample results from the uppermost aquifer(s) in and around all MSW facilities statewide. In order to facilitate consistent analytical results and accurate reporting on ground-water sample analysis from all MSW operators, a list of general reporting requirements were developed. The following is a list of some of those requirements:

! The analysis of any constituent must utilize a Department-approved method with a corresponding method detection limit (MDL) no higher than those achieveable as reported in EPA's SW-846.

! All verifiable, positive detections above the constituent MDL must be reported.

! Any constituent detection (e.g., of man-made chemicals) that has historically not been detected and triggers a statistically significant increase (SSI) in concentration over the previously-recorded background level for that constituent, will require documentation and a detailed explanation by the operator. If it is determined a SSI has occurred, the operator may re-sample to verify the increase. If additional sampling confirms leakage from a landfill unit, the operator may be required to initiate corrective action measures to address the contamination.

! All constituent detections which are assumed to be a result of spatial, seasonal or temporal variations within the uppermost aquifer or ground-water monitoring system will require a detailed explanation from the operator.

As a result of implementing Subtitle D requirements for all MSW facilities in the state, the SWMD has been able to eliminate the leakage and leachate problems associated with waste disposal on unlined cells. The majority of all unlined facilities have been closed, or the waste stream has been redirected to lined cells. Procedures for collecting, evaluating and reporting on ground-water sample data have been standardized and have facilitated additional assessment and corrective action initiates at selected MSW facilities across the state. Based on improved landfill siting considerations, liner-construction standards, and improved ground-water monitoring and sampling requirements, ground-water aquifers beneath existing MSW landfills have a level of protection which is more protective of human health and more protective to the environment.

Hazardous Waste Division (ADEQ)

The Hazardous Waste Division currently is developing a *Brownfields* Program to address cleanup of properties with either real or perceived hazardous substance contamination. Individuals, companies or real estate developers who did not contribute to the contamination and who wish to purchase an abandoned Brownfield property may enter into an agreement with the Department for the cleanup. The Department hopes to encourage the development of Brownfields as a sustainable land-use policy and to discourage the development of *Greenfields* or pristine properties in Arkansas. Encouraging private-sector funding of cleanups in Arkansas will enable the protection of the ecosystem and human health.

In 1995, the Arkansas Brownfields Law (Act 125) was enacted with a great deal of support by both political parties in the Arkansas Legislature. The Department began receiving federal funds from EPA to begin program development soon thereafter. In 1996 external and internal work groups were formed to develop cleanup standards, guidance and policy. In 1997 several amendments to the Brownfields Law were adopted by the Arkansas Legislature, again with overwhelming, bipartisan support. The amendments, which became effective in August 1997, expand the types of properties which qualify for the program, further limit financial liability for purchasers of Brownfields properties, and provide for a low-interest loan program to be established for participants in the program. Field work on the first Brownfields pilot project began in the summer of 1997.

The ADEQ Brownfields program has adopted the EPA Region 6 Human Health Media Specific Screening Levels (HHMSSLs). These screening levels take into consideration ingestion, inhalation and dermal contact exposures. The HHMSSLs address multiple media pathways including drinking water, ambient air, soil exposure and consumption of fish. In addition, screening levels are provided for contaminant transfer to air and ground water.

Since its inception, numerous projects have entered the Arkansas Brownfields program. There are currently approximately 25 Brownfields projects underway, with several pilot applications for EPA assessment grants in the works. It is expected that the guidance document for the program will be finalized in 2000. Also in 2000, a low interest revolving loan fund will be established to further encourage and enhance Brownfields property redevelopment in Arkansas.

Underground Injection Control Program (ADEQ)

The Department's Underground Injection Control (UIC) program regulates the placement of wastes into shallow and deep subsurface geologic units. The UIC program is authorized under Part C of the Safe Drinking Water Act. The UIC program is charged with the responsibility of protecting the State's ground water from any and all types of contamination. The Department regulates Class I hazardous and non-hazardous injection wells and all types of Class V shallow injection wells. Protection of ground-water resources is accomplished through injection-well permitting, monitoring, reporting, well inspection, well testing and enforcement of existing UIC regulations promulgated in 40 CFR Parts 124 and 144 through 148. The UIC program is 75% funded by a U.S. EPA Ground-Water Protection Grant.

FY 99 UIC program highlights included the implementation of a Risk-Based Data Management System (RBDMS) for all injection-well classes. This sophisticated data-base tracking system will allow the Department to better monitor and analyze potential impacts of deep injection-well operations; provide a record of artificial penetrations around specific injection wells; and provide an enhanced, integrated data-tracking system for the state's injection well program.

The Department is developing a program for Class V shallow injection wells. These shallow injection wells, which will be inventoried across the state, include certain types of septic systems, shallow industrial disposal wells, motor-vehicle waste disposal, and/or any well or system which places fluids below the ground surface and has the potential to contaminate local ground-water supplies. Regulations governing permitting, operation and closure of two types of Class V wells will become effective April 5, 2000, and EPA is considering regulations for some other types.

Ground-Water Contamination Prevention Programs

Although the objectives of all ground-water protection programs in the State are to protect and preserve ground-water quality, early legislation was primarily based on contaminant response and existing problems. However, throughout the last decade, there has been an increasing amount of effort and funds expended in voluntary programs which strive to protect existing quality through outreach and assistance programs.

Arkansas Wellhead Protection Program

The Wellhead Protection (WHP) Program is administered by the Arkansas Department of Health (ADH), which was designated by the Governor to be the lead agency in carrying out the program. The program is designed to reduce the risk of contamination of public water-supply wells by implementing three main program elements: 1) delineating a WHP area for each well; 2) identifying all potential man-made sources of contaminants injurious to public health within each WHP area; and 3) establishing management activities including constructing WHP road signs, adopting emergency plans and WHP ordinances, and developing outreach activities in order to increase public awareness.

During FY98 and FY99, the program expanded steadily with public-supply system delineations increasing to 251 and the number of wellhead delineations increasing to 673. Active support by the citizenry resulted in WHP ordinances/resolutions increasing to more than 100, and systems using WHP road signs increasing steadily. The program's success is also reflected in the readiness of the citizenry to learn about their water resources, the willingness of local governments to set aside valuable money for WHP signs and outreach materials, and the steady increase in the number of organizations and citizens' groups involved in ground-water protection activities (Cordova, 2000).

Water Well Construction Commission

Act 641 of 1969 created the Arkansas Water Well Construction Commission (AWWCC), which provides for the proper development of ground water in an orderly, sanitary and safe manner. Standards ensure proper well-construction and pump-installation procedures. AWWCC staff is provided by ASWCC and includes full-time field inspectors and various management and technical support personnel. The following activities were completed during FY96 and FY97:

1) Approximately 7,530 new well construction reports were filed with the AWWCC.
2) Approximately 80 complaints were recorded by the AWWCC in which it was determined that an investigation was required, some type of arbitration was required, or that a violation had occurred as a result of non-compliance.
3) Twenty-two (22) of these cases required civil penalties to be assessed.
4) Five (5) administrative hearings were conducted regarding contractors.
5) Eighty-eight (88) new applications to become a licensed pump installer or certified driller were received.

Several part-time employees have also assisted in data entry into a data base, which includes information on well construction. The data base is designed to access and correlate information such as well-construction details, depth to static water level and water-producing formations, well yield, pump-setting information, and the geologic setting of each well.

Arkansas Farm*A*Syst Program

The Arkansas Farm*A*Syst Program was initiated in 1992 and is administered by the Arkansas Cooperative Extension Service (CES). The program involves outreach and training activities designed to assist farmers in protecting their ground-water resources. Some of the past actions taken through cooperative efforts with participants were the closing of abandoned wells, sampling and analyses of well water, backflow devices installation, relocation of pesticide mixing and loading activities, calibration of litter-application devices, and septic tank-servicing.

Farm*A*Syst is now available to county agents statewide. It has been expanded from a focus on the farmstead to a focus on activities that are a part of every aspect of farm operation, from crop and livestock management to influences on wildlife management. Agents statewide have received general training in the program's use. County agents in a five-county area of south-central

Arkansas (Union, Dallas, Columbia, Ouachita, and Bradley counties) are involved in intensive use of Farm*A*Syst in the development of water conservation and source-water protection efforts for this area. EQIP, the conservation cost-share program of the NRCS, now recognizes Farm*A*Syst as an important management tool in helping farmers to complete conservation practices funded by the program. Farmers completing the Farm*A*Syst program get points that help them in the competitive EQIP bid process.

Urban Home*A*Syst was developed and piloted in northwest Arkansas in 1999. This educational program was adapted from materials produced by the national Farm*A*Syst/Home*A*Syst program. A workbook of self-assessment information was developed for urban homeowner use in helping them to protect surface and ground water from polluting activities around the household.

Ground-Water Quality Monitoring

Ground-water quality monitoring is performed on many levels including ongoing ambient monitoring, short-term, research-oriented monitoring, and mandated monitoring at regulated sites. The availability of the resulting data is thus dependent on the monitoring goals and ranges from hard-copy format in the forms of reports and/or journal articles to publicly-accessible, computer-storage formats such as EPA's STORET data base. Table IV-1 lists the various sources of ground-water quality data and availability of the data. Comparison of data from the various sources is difficult because of the differences in parameter lists, laboratory instrumentation and methods, and reporting criteria.

Ambient Monitoring

Ongoing ambient monitoring is performed primarily by three organizations: the ADH, the Department and the United States Geological Survey (USGS). Ongoing monitoring also takes places at numerous regulated facilities within the State; however, because the purpose of the monitoring is to evaluate anthropogenic impacts, the data may be questionable for use as natural or background quality information and the parameter list often includes a limited set of constituents. In the absence of other data, monitoring results from regulated sites can be a valuable source of information.

Arkansas Department of Health

The ADH, as primacy agency for the SDWA, monitors public-water supply wells every three years (±920). The Total Coliform Rule requires monthly sampling with the number of samples dependent on population size. Nitrate monitoring is conducted annually unless a sample greater than or equal to 50% of the MCL triggers the need for increased sampling. Raw-water sampling has been implemented in order to detect microbial contaminants for selected ground-water wells determined to be at risk from contaminated surface water (Surface Water Treatment Rule). This sampling (microscopic particulate analysis) is performed in conjunction with weekly, raw-water bacteriological testing, turbidity, temperature and pH determinations.

Table IV-1: Ground Water Quality Data Availability		
Agency	Number of wells/springs	Computer
Department of Environmental Quality	±670 (RCRA) 225/12 (Water) 19 (Mining) ±260 (CERCLA) ±300 (Solid Waste) * (RST)	Paper Only (Storet) IBM Paper Only IBM Paper Only
Health Department	±920 (Community) ±500 (Non-Community)	Wang
USGS	4,100 (Research Wells) 25 (Master Wells)	(WATSTORE)
UA - Extension	>2,900 (Wells) <100 (Springs)	IBM
US DOE (NURE)	1,369 (Wells)	IBM
UA & AR Tech	±455 (Wells) ±85 (Springs)	IBM

* See section on Regulated Storage Tank Division under " Ground Water Protection Programs".

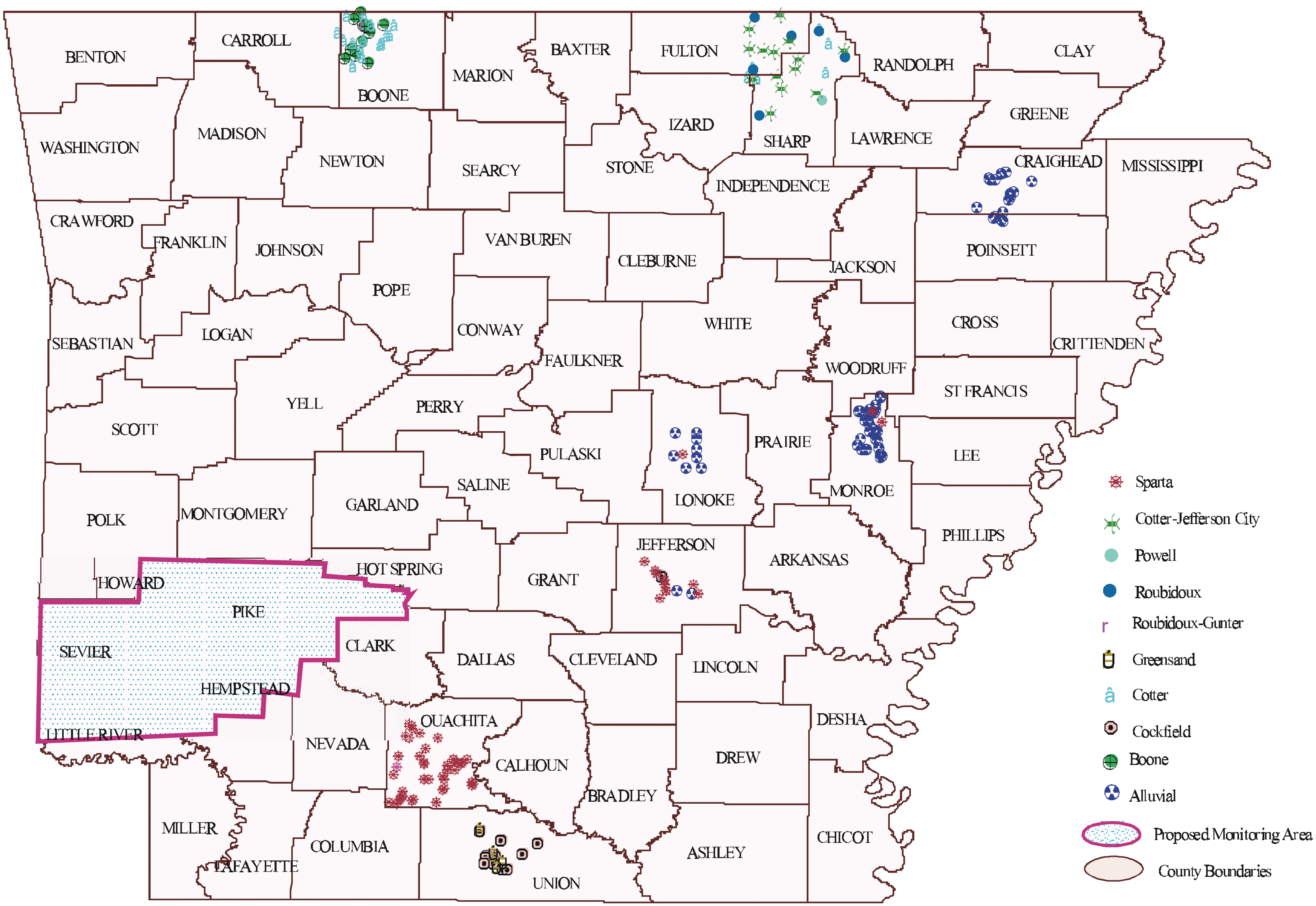
United States Geological Survey

The USGS has 25 master wells scattered throughout the State, and these wells are sampled regularly every five years. The other wells utilized by the USGS are sampled for special investigations and do not provide long-term data for trend analyses. Most of the data derived from water-quality investigations is located in reports, which are easily obtainable at the local or national level. Data are also entered into the USGS WATSTORE data-base system.

Arkansas Department of Environmental Quality

The Arkansas Ambient Ground-Water Monitoring Program (Program) was begun in 1986 by the Department to monitor overall ground-water quality in the State of Arkansas. The program, which was originally called the Arkansas Prototype Monitoring Program, was renamed to better describe the program activities. The program currently consists of nine monitoring areas with one additional area to be implemented FY00 (Figure IV-1). The monitoring areas were selected to gather water-quality data from various aquifers and to evaluate potential impacts from multiple land uses. The monitoring areas are sampled on an approximate three-year basis.

Figure IV-1. Arkansas Groundwater Monitoring Wells



All of the monitoring areas are potentially affected by agricultural or industrial practices or a combination of the two. Potential impacts from anthropogenic sources include organic and inorganic compounds. In addition, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA - Superfund) facilities, Resource Conservation and Recovery Act (RCRA) facilities, landfills, and underground storage tank (UST) sites potentially threaten or have impacted ground water in the monitoring areas.

All of the monitoring areas include field analysis of pH, conductivity and temperature, and laboratory analysis of nutrients and major and minor inorganic compounds. Ground-water samples obtained from areas potentially impacted by industry are analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Ground-water samples obtained from areas potentially impacted by agriculture are analyzed for pesticides. The current and proposed monitoring areas are listed below. For a listing of reports related to the monitoring areas, visit our web site at *www.adeq.state.ar.us*.

Athens Plateau Monitoring Area

The Athens Plateau Monitoring Area is proposed for southwest Arkansas in the zone of Cretaceous-aged rocks associated with the Athens Plateau of the Gulf Coastal Plain physiographic province. The monitoring area tentatively includes portions of Hempstead, Howard, Little River, Pike, and Sevier counties and is scheduled to be first sampled in FY00. A well-log inventory and mapping exercise has demonstrated numerous available wells for potential monitoring sites.

Brinkley Monitoring Area

The Brinkley Monitoring Area encompasses the town of Brinkley and surrounding areas in northern Monroe County. It is in the Mississippi Embayment physiographic province. The Mississippi Valley alluvial aquifer and the Sparta aquifer provide 100 percent of community water needs. The primary uses are for drinking water and crop irrigation. Because of elevated chloride levels and potential impacts from pesticides to the alluvial aquifer, ground water monitoring in this area was initiated during FY89. A total of 27 ground-water wells were sampled during the most recent sampling event in FY98.

Chloride levels ranged from 4.3 to 458.0 mg/L; however, only two of the 27 wells exceeded the 250 mg/L secondary maximum contaminant level (SMCL). The SMCLs are unenforceable federal guidelines regarding taste, odor, color and other non-aesthetic effects of drinking water. Iron was elevated in all samples, and iron and manganese both exceeded the SMCL of 0.3 mg/L and 0.05 mg/L, respectively. Pesticide analyses were performed on 12 of the irrigation-well samples. Of these 12 samples, bentazon was detected in three of the samples and was the only pesticide detected in the pesticide scan. Information related to the wells and a summary of analyses for all wells are located in Tables 1B and 2B in Appendix B.

Chicot Monitoring Area

The Chicot Monitoring Area is located west and south of the town of Lake Village in Chicot County and is also in the Mississippi Embayment physiographic province. The alluvial aquifer is the only actively-used water source and is used for crop irrigation, fish farming and municipal drinking water. In addition to potential impacts from pesticides, a zone of high chloride exists in western Chicot County. Although the high chloride water appears to benefit fish farming, it is detrimental to crops. Ground-water monitoring in the Chicot monitoring area began during the third quarter of FY90 and originally consisted of ten wells. This monitoring area was most recently sampled during the fourth quarter of FY97.

The number of sampled wells was increased during this sampling event to 26 to better evaluate general water quality and the zone of elevated chloride concentrations. The sampled wells were primarily located within and around the approximate perimeter of the high chloride zone. A summary of the sampling sites and their locations is in Table 3B in Appendix B of this report. Chloride was detected in 21 of 26 wells at concentrations at or above the recommended SMCL of 250 mg/L. Iron was detected in 24 of 26 wells above the recommended SMCL of 0.3 mg/L. Measured TDS was above the recommended SMCL of 500 mg/L in all wells. Manganese was detected in 24 of 26 wells above the recommended SMCL of 0.05 mg/L. Selected descriptive statistics are listed in Table 4B in Appendix B of this report. In addition to the routine analyses, pesticide analysis was conducted on samples selected that were adjacent to active crop-growing areas. Bentazon and p-p'-DDT were detected in two different wells at levels below their HALs. These data are summarized in Table 19B in Appendix B of this report. The Department is planning an investigation into the source and transport mechanism for the elevated chlorides, which includes the drilling of five deep wells into the Cockfield Formation in FY00.

El Dorado Monitoring Area

The El Dorado Monitoring Area includes the town of El Dorado and surrounding areas in central Union County and is located in the Gulf Coastal Plain physiographic province. Three aquifers, the Cockfield, Upper Sparta (Greensand) and Lower Sparta (El Dorado), were sampled in this area. The Cockfield aquifer is used primarily as a domestic drinking-water supply. The Greensand aquifer is used for domestic and industrial purposes. The El Dorado aquifer is used for industrial and municipal purposes. The El Dorado area is highly industrialized; primarily oil and gas production and bromide production. Several national and international corporations have production and refining plants in the area. Potential threats to ground water, particularly the shallow Cockfield aquifer, are numerous. Ground-water monitoring in the El Dorado Monitoring Area began in the first quarter of FY87 with the most recent sampling event conducted during the last quarter of FY97.

Ground-water samples were obtained from ten wells in the El Dorado aquifer, six wells in the Greensand aquifer and eight wells in the Cockfield aquifer. In addition to the routine parameters, the samples obtained from the Cockfield aquifer were analyzed for VOCs and SVOCs. A summary of the sampling sites and their locations is in Table 5B in Appendix B of this report. Overall ground-water quality of all three aquifers was good. Iron was detected in 4 of 24 wells above the recommended SMCL of 0.3 mg/L and manganese was detected in 3 of 24 wells above the recommended SMCL of 0.05 mg/L. Selected descriptive statistics are listed in Table 6B in Appendix B of this report. A ground-water sample from one Cockfield well had two VOC detections. Bromodichloromethane was detected at a concentration of 1.0047 μg/L and chloroform was detected at a concentration of 10.021 μg/L. These concentrations are substantially lower than the recommended MCLs and HALs. Ground-water samples from several Cockfield wells had detections of several SVOC constituents. Most of the SVOC constituents were at extremely low levels and below MCLs and HALs; however, several of the detected constituents did not have recommended MCLs or HALs. These data are summarized in Table 19B in Appendix B of this report. Results of the sampling have been forwarded to the Hazardous Waste Division of the Department.

Hardy Monitoring Area

The Hardy Monitoring Area is located in northeast Arkansas in Sharp and Fulton counties. The area was first sampled in May, 1998, and includes 28 wells ranging in depth from 120 to 1200 feet. Table 7B in Appendix B contains locations and well depths for all wells. The area was originally chosen because of the lack of water-quality data from the Lower Ordivician-aged rocks along the eastern end of the Ozark Plateaus physiographic province. The wells penetrate and receive water from various formations including the Cotter and Jefferson City Dolomites, the Roubidoux Formation, and the Gunter Sandstone Member of the Gasconade Formation.

The water type from all wells is a calcium plus magnesium bicarbonate water, in which equivalent concentrations of magnesium were approximately equal to equivalent concentrations of calcium in virtually every well-water sample. Sodium was less than 5 mg/L in all but three samples. TDS concentrations were below 500 mg/L in all wells including four wells exceeding 1000 feet in depth, and averaged 324 mg/L. However, the four deep wells had lower average nitrate-nitrogen concentrations (~ 0.2 mg/L) than the overall average for all wells (1.3 mg/L). Average TDS, nitrate, and other parameters compared closely with the Ozark Aquifer samples from the Omaha Monitoring Area. A summary of the data from the 1998 sampling event is located in Table 8B in Appendix B.

Jonesboro Monitoring Area

The Jonesboro Monitoring Area includes the town of Jonesboro and surrounding areas in central Craighead County and northern Poinsett County and is located in the Mississippi Embayment physiographic province. The alluvial aquifer and the Memphis (northern extension of the Sparta) aquifer are the primary ground-water sources in this area. The monitoring area was selected because of the large population using ground water, the exposed condition of the municipal wells, and the extensive drawdown in the alluvial aquifer coincided with drawdown in the underlying Memphis aquifer, indicating minimal or no confining units between the two aquifers. In addition, many potential contaminant sources exist in the area including pesticides, industrial solvents, landfill leachate, and septic systems. This area was originally sampled during the third quarter of FY89 and was last sampled in July, 1998. Information related to the wells sampled for the Jonesboro Monitoring Area is located in Table 9B of Appendix B.

The water ranged from a calcium-bicarbonate to a strongly sodium-bicarbonate water type, with an intermediate mixed-water type containing approximate equal portions of calcium, sodium and magnesium. Two of the six Memphis aquifer samples were strongly sodium bicarbonate, containing sodium concentrations that comprised over 85 % of the total cations. These two wells were greater than 800 feet in depth. Nine of the fourteen alluvial aquifer water samples had calcium concentrations which comprised over 50 % of the total cations (calcium-bicarbonate water type), and the rest of the wells were a mixed-water type. This strongly suggests a gradual chemical evolution from a calcium-dominated water type in the shallow alluvial aquifer to a sodium-dominated water at depth within the Memphis aquifer. Overall water quality is suitable for most all uses, with TDS concentrations ranging from 74 to 605 mg/L. The highest nitrate-nitrogen concentration (3.0 mg/L) was in an alluvial water sample, and four of the five nitrate-nitrogen concentrations greater than 1.0 mg/L were in alluvial samples. All of the samples extracted from the Memphis aquifer, except for one sample, had nitrate-nitrogen concentrations of less than 1.0 mg/L. A summary of the water analyses is in Table 10B of Appendix B.

Lonoke Monitoring Area

The Lonoke Monitoring Area includes the town of Lonoke and surrounding areas in central Lonoke County and is located in the Mississippi Embayment physiographic province. Ground water is withdrawn from the alluvial and Sparta aquifers for agricultural, domestic and municipal use. This monitoring area was selected because it represents a rural, agricultural community that relies entirely on ground water for all of its water needs. Pesticides are the primary potential contaminants in the area. Ground-water monitoring in the Lonoke Monitoring Area began in 1988 with the most recent sampling event occurring in the fourth quarter of FY97.

Ground-water samples were obtained from nine wells in the Alluvial aquifer and one well in the Sparta aquifer. A summary of the sampling sites and their locations is in Table 11B in Appendix B of this report. Ground-water quality was generally good. Iron was detected in all ten wells above the recommended SMCL of 0.3 mg/L. Manganese also was detected in all ten wells above the recommended SMCL of 0.05 mg/L. Measured TDS was above the recommended SMCL of 500 mg/L in one of the wells. Selected descriptive statistics are listed in Table 12B in Appendix B of this report. In addition, the pesticide bentazon was detected in one well at a concentration of 0.10057 μg/L and the pesticide metolachlor was detected in a second well at a concentration of 0.0031 μg/L. These concentrations are below their respective HALs. These data are summarized in Table 19B in Appendix B of this report.

Omaha Monitoring Area

The Omaha Monitoring Area encompasses the northwest quarter of Boone County and is located in the Ozark Plateaus physiographic province. Ground water is obtained from the Springfield Plateau and Ozark aquifers, which are in limestone and dolostone formations, respectively. Ground-water monitoring was initiated to evaluate potential impacts in an area of karst topography. Potential contaminant sources include abundant livestock farms and USTs. In addition, ground-water contamination was documented at a former wood treatment plant; a listed Superfund site. Ground-water samples are obtained from a combination of wells and springs. Ground-water monitoring began during the first and second quarters of FY89 with the most recent sampling event occurring during the second quarter of FY99.

Ground-water samples were obtained from twelve springs and fifteen wells. With one exception, all of the springs discharge from the Springfield Plateau aquifer. Similarly, all but one of the wells penetrated the Ozark aquifer. A summary of the sampling sites and their locations is in Table 13B in Appendix B of this report. Ground-water quality in both aquifers was good. Iron exceeded the SMCL of 0.3 mg/L in one of the 27 samples. Manganese exceeded its SMCL of 0.05 mg/L in one of the 27 samples. Selected descriptive statistics are listed in Table 14B in Appendix B of this report. One of the ground-water samples, from a spring located downgradient of the Superfund site, was analyzed for SVOC constituents. Several SVOC constituents, including pentachlorophenol at 707 μg/L, were detected in the sample. These data are summarized in Table 19B in Appendix B of this report. This well was cited in the 1998 305b Report as being impacted by a wood preservative site and was reported to the Hazardous Waste Division. The spring water currently is being captured and treated at a plant constructed next to the spring. Current levels of SVOCs analyzed from a sample at the spring orifice, listed in Table 19B, demonstrate that SVOC concentrations are decreasing from original values listed in the 1998 report.

Ouachita Monitoring Area

The Ouachita Monitoring Area is located in western Ouachita County and includes the city of Camden. This monitoring area is located in the Gulf Coastal Plain physiographic province within the recharge area of the Sparta aquifer; one of the most heavily-used aquifers in the state. In addition, a portion of the Cockfield aquifer recharge area is located in the southwestern portion of this monitoring area. Ground water is the primary water source used for domestic, municipal and industrial purposes. Ground-water monitoring began during the first quarter of FY86 and has continued on a three-year interval. The most recent sampling event occurred during the third quarter of FY99.

Ground-water samples were obtained from 17 shallow to moderate depth wells. Most of the wells penetrated the Sparta aquifer; however, several wells potentially penetrate the underlying Cane River Formation. This formation is considered the lower confining unit of the Sparta; however, some minor water-bearing zones exist which are used for domestic water supplies. A summary of the sampling sites and their locations is in Table 15B in Appendix B of this report. Water quality in this monitoring area is also good, with TDS concentrations ranging from 32 to 247 mg/L. Water type is variable and generally ranges from a calcium-bicarbonate water type at shallow depths to a sodium-bicarbonate water type in the deeper portions of the aquifer. Iron was detected in 5 of 17 wells above the recommended SMCL of 0.3 ppm. Manganese was detected in 4 of 17 wells above the recommended SMCL of 0.05 ppm. Selected descriptive statistics are listed in Table 16B in Appendix B of this report.

Pine Bluff Monitoring Area

The Pine Bluff Monitoring Area includes the town of Pine Bluff and surrounding areas in central Jefferson County. The monitoring area straddles the boundary between the Gulf Coastal Plain and Mississippi Embayment physiographic provinces. Ground water in the area is withdrawn from the alluvial, Cockfield and Sparta aquifers, which are the only sources of water to the community. The alluvial and Cockfield aquifers are used primarily for irrigation and domestic purposes, while the Sparta is used for municipal and industrial purposes. The Pine Bluff monitoring area was originally sampled during the first quarter of FY87. The most recent sampling event occurred during the last quarter of FY97.

One well penetrating the Cockfield aquifer, three wells penetrating the alluvial aquifer, and seven wells penetrating the Sparta aquifer were sampled during the 1997 event. A summary of the sampling sites and their locations is in Table 17B in Appendix B of this report. The ground-water quality was generally good. The alluvial aquifer produces a calcium-bicarbonate water type; whereas, the Cockfield and Sparta aquifers produce a sodium-bicarbonate water type. Iron was detected in all wells above the recommended SMCL of 0.3 mg/L. Manganese was detected in 10 of 11 wells above the recommended SMCL of 0.05 mg/L. Selected descriptive statistics are listed in Table 18B in Appendix B of this report. VOC analysis was conducted on one Cockfield sample and three alluvial samples with no detectable concentrations.

Short-Term Investigations

An extensive ground-water quality data base has been developed as a result of numerous investigations, primarily by the U of A at Fayetteville, the Department and the USGS. However, most of this information is available by hard-copy only in the form of reports. A search of the list of publications for all organizations will reveal numerous ground-water investigative reports for different areas of the State.

United States Geological Survey

During FY98 and FY99, the USGS was involved in several projects related to the assessment of ground-water quantity and quality issues. Many of the projects involve cooperative efforts with other State agencies and are described below. Other projects involved cooperation on a national level as part of the National Water Quality Assessment Program (NAQWA). Two main areas of the State have been intensely studied in association with the Ozark NAQWA and the Mississippi Embayment NAQWA study. Other ground-water projects include digital ground-water flow modeling, aquifer tests, source-water assessment, water-level monitoring, and water use.

The Ozark NAQWA study documented water quality in the Ozark regions of Arkansas, Kansas, Missouri, and Oklahoma from 1993-95. A full suite of parameters was analyzed for over 200 wells and springs including major and minor inorganic parameters and pesticides. In ground water, nutrient concentrations were higher in areas with greater agricultural land use, higher in springs than wells, and higher in the Springfield Plateau aquifer than the Ozark aquifer. Median nitrate and phosphorus concentrations were 1.6 and less than 0.01 milligrams per liter, respectively. Pesticides were detected in ground water more often in agricultural areas than in forested areas. Pesticides were detected in 35 percent of the ground-water sites. The most commonly-detected pesticides in water were the herbicides atrazine, desethylatrazine, tebuthiuron, metolachlor, simazine, and prometon. Concentrations generally were low with maximum concentrations in ground water of 1.0 micrograms per liter. Most of the activities related to the Ozark study have been finalized and results can be found in Adamski (1996) and Petersen et al. (1998).

The Mississippi Embayment NAWQA study covers 48,200 square miles in the Mississippi Alluvial Plain of Arkansas and parts of six other states. In 1996, a three-year phase of intensive data collection on ground and surface water began. Ground-water activities in 1996 included the collection of water-quality samples from 30 municipal wells in the study area, 12 of which were in Arkansas. In 1997, samples were collected from 32 wells installed for an urban-use study in Memphis, Tennessee. In 1998, 54 alluvial aquifer wells were sampled; 26 of which were in Arkansas. Activities in 1999 mainly involved ground-water quality data analyses and report writing. Three reports are currently in review.

The Mississippi River Valley alluvial aquifer, located in eastern Arkansas and parts of Missouri, Kentucky, Tennessee, Mississippi, and Louisiana, supplies an average of 4.4 billion gallons of water per day (1994 data). Withdrawals from the aquifer have caused considerable drawdown in the water-table surface. A digital ground-water flow model of the Alluvial Aquifer, first developed and calibrated in the early 1990s, will be updated to provide a valuable tool for testing water-use/water-management pumping strategies. The existing model will be adapted to an improved software platform and re-verified, and the effects of projected ground-water withdrawals will be simulated for a period of 30 years into the future in five predictive scenarios.

The Sparta aquifer is a major source of water supply in much of central and southern Arkansas and northern Louisiana. Approximately 284 Mgal/d were withdrawn from the aquifer in Arkansas in 1995 (an increase of about 60 Mgal/d from 1990). Heavy pumpage from the Sparta Aquifer has resulted in substantial drawdown of its potentiometric surface in some areas. In east-central Arkansas, a large cone of depression is centered around the city of Pine Bluff and extends to the east over the Grand Prairie area. Significant drawdown also has occurred around Magnolia and El Dorado in southern Arkansas resulting in a five-county critical ground-water area designation. To evaluate the regional effects of aquifer development on water-level declines, a digital ground-water flow model is being transferred to a Visual ModFlow environment and recalibrated and refined, so that analysts are better able to reliably address the plausibility of various local water-use scenarios. A number of predictive scenarios will be run with the calibrated model. The project will include the study area in both Arkansas and Louisiana.

In previous studies, the Mississippi River Valley Alluvial Aquifer in Arkansas has been modeled with ModFlow at a one square mile cell size. A new project is focusing on developing an optimization model of the Alluvial Aquifer for the area north of the Arkansas River and west of Crowley's Ridge using the same grid size and orientation as the existing flow model. The USGS National Research Program is working with Arkansas staff to develop a customized version of MODMAN that will handle constraints on, and optimization of, surface-water use as well as ground water.

Three aquifer tests were conducted in the Sparta aquifer and two in the Alluvial Aquifer to provide additional aquifer characteristic data for the flow models and USGS database. These tests were conducted in Pine Bluff, El Dorado, and Magnolia in the Sparta aquifer, and near Cabot for the alluvial aquifer. Pressure transducers were used in the observation wells to monitor and log water-level data and a non-invasive flow meter to measure discharge. Transmissivity, specific yield, and hydraulic conductivity were calculated using aquifer test software and manual curve-matching methods. Additional aquifer tests are expected in the future. A continuous water-level recorder also was installed in an existing monitoring well near Cabot to determine temporal ground-water level trends.

The 1996 Amendments to the Safe Drinking-Water Act require that each State prepare a source-water assessment for all public water supplies. States are required to determine the sources of drinking water, the potential sources of contamination (PSOCs), and the intrinsic susceptibility of the water supplies to these contaminants. Public drinking-water sources in Arkansas include wells, rivers, reservoirs, and springs. The objective of the source-water assessment project is to determine the potential susceptibility of all 1,500 Arkansas public drinking-water supplies to contamination. Approximately 1,350 of these supplies are ground-water sources. This will be accomplished by performing four broad work elements: data-base development, delineation of source-water protection areas, PSOC inventories, and susceptibility assessments. This 4-year project began in 1998 in cooperation with the ADH and funded with the Drinking Water State Revolving Fund. Various activities are being outsourced to the Center for Advanced Spatial Technology and the Department of Geology at the University of Arkansas.

Ground-water level monitoring in Arkansas continued to be dynamic in 1998-99. Approximately 656 water levels from wells in the alluvial aquifer (Joseph, 1999), 321 water levels in the Sparta aquifer (Joseph, 2000), and 104 water levels in the Tokio and Nacatoch aquifers (Schrader, 1999) have been measured. Long-term hydrographs and potentiometric maps have been published in reports. Continuing ground-water programs include: a cooperative program to monitor the ground-water levels of Arkansas' eight major aquifers on a rotating basis, the master wells ground-water quality program, maintenance of six continuous recording ground-water level stations, geophysical logging of wells and conducting one aquifer test on a yearly basis. Additional water-quality data were collected in the two major aquifers of the State, the Sparta and alluvial aquifers, for specific conductance and chloride.

The USGS has worked cooperatively with the ASWCC to collect water-use data for Arkansas since 1985. The objectives of the project are as follows: (1) provide overall management of water-use data collection; (2) assist in the collection and entry of data for public supply, industrial, commercial, power-generation, mining, agriculture, and irrigation into an Informix data base (Water Use Data Base System or WUDBS); (3) maintain and support county level data bases and supporting software in 29 County Conservation Districts (including training personnel in the use of this software); and (4) create a water-use area on the District's web page that will contain current county tables of reported agricultural and irrigation data and statistics, with plans to expand the area to include tables for all water-use categories; and (5) assist in the integration, interpretation, and dissemination of water-use data with other hydrologic investigations.

Pesticide Investigations

Pesticides were monitored during FY98 and FY99 dominantly by three organizations: the Department, the USGS, and the AWRC. Monitoring by the AWRC is funded under EPAs FIFRA program, which is delegated by the Arkansas State Plant Board (ASPB). The AWRC provides pesticide monitoring and analysis services to the ASPB on a yearly basis with an average of about 40 sampling sites per year. The Department monitors pesticides as part of the Ambient Monitoring Program in areas where pesticide use is prevalent, and also conducts special pesticide monitoring as the responsible agency for assessing Waters of the State under the 319 Nonpoint Assessment Program. During FY98 and FY99, the USGS performed pesticide analyses in conjunction with the National Water Quality Assessment Program.

Arkansas Plant Board

The Arkansas Plant Board regulates pesticide storage and use in the State and is responsible for formulating the State Management Plan (SMP) for pesticide use in Arkansas. The SMP specifies that pesticide monitoring be conducted to evaluate the impact of pesticides on ground water. This monitoring is performed under contract with the AWRC. During the past two years, the AWRC sampled approximately 80 wells for analysis of pesticides and nitrate. Wells with first-time detections for 1997-1999 are listed in Table IV-2. About 20% of the wells sampled in 1997-98 had nitrate-nitrogen concentrations of 5.0 mg/L or more.

Table IV-2: Wells with first time detections by AWRC 1997-1999. * denotes that the concentration is qualitative.

Well Number and County	Collection Date	Pesticide Detected	Pesticide Concentration ug/L
Clay #2	7/29/97	Bromacil	1.66
Clay #7	7/29/97	Acifluorfen	1.70
Clay #9	7/29/97	Dacthal	36.90
Clay #9	8/13/98	Acifluorfen	1.70
Desha #12	6/11/99	Molinate	1.42
Greene #6	3/2/98	Aldicarb	0.55
Jefferson #2	2/26/99	Bentazon	0.92*
Jefferson #5	6/11/99	Molinate	0.29*
St. Francis #1	5/12/99	Bentazon	7.97

Arkansas Department of Environmental Quality

As part of the 319 Nonpoint Source Program, the Department is responsible for assessing the water quality of both surface and subsurface waters in regard to nonpoint sources of pollution. The 1998 305(b) report detailed results from the FY96 sampling event, in which the Department sampled 77 wells in areas in and around Jefferson, Desha and Phillips counties. A total of 38 pesticides were detected in 24 of the 77 wells. Bentazon was the most frequently-detected pesticide and accounted for approximately 37% of the pesticide detections. A detailed discussion of the findings from the 1996 sampling event is found in Water Quality Report WQ97-10-1 (Kresse, et al., 1997).

The second phase of intensive pesticide monitoring was designed for the Bayou Bartholomew watershed in southeastern Arkansas. The Department currently has plans for the collection of 100 well-water samples from parts of Jefferson, Lincoln, Drew, Desha, Chicot, and Ashley counties. The investigation began in the summer of 1999, in which 33 wells were sampled in most of the above-referenced counties. Results of the analyses are listed in Table IV-3.

Table IV-3. List of 1999 Sample Locations with Positive Pesticide Detections

Sample Location	Bentazon μg/L	Atraton μg/L	Prometon μg/L	Prometryn μg/L	Terbutryn μg/L	Pendemethalin μg/L	p-p'-DDE μg/L	Malathion μg/L
Ashley15							0.0091	
Lincoln01	0.0251							
Ashley04	0.0240							
Drew05	0.2476							0.0646
Ashley07	0.0236							
Ashley17	0.0940							
Ashley18	0.0138				0.1272			
Drew01		0.0214	0.017					
Ashley09				0.4402				0.0112
Ashley10				0.0496				
Ashley11				0.0111				
Drew03						0.0135		
Ashley01								0.0407
Ashley02								0.0094
Ashley04								0.0622
Drew06								0.0476
Ashley05								0.0527
Ahsley12								0.0509
Ashley13								0.0981

Locations are identified by name of the county followed by the number the well in sequential order of the sampling within the county. Similar to past results, bentazon was the most frequently-detected pesticide, and accounted for approximately 40% of the total detections. However, this total does not include malathion, although the table depicts nine total detections of malathion in the sample results. The detection of malathion is strongly believed to be the direct result of airborne contamination from the intensive boll-weevil eradication project that was taking place in the summer of 1999.

Although intense monitoring by all three organizations has resulted in the sampling of approximately 500 well sites, no information is available concerning the source and transport pathways for the pesticides. Because of this situation, the Department initiated a site-specific investigation at a domestic-well site in Augusta, Arkansas, where bentazon had been detected in elevated concentrations. Results indicated that previous mixing/loading activities near the well had resulted in migration of bentazon through the soil profile and to the water table (Kresse et al., 1996a). Monitoring has continued at this site to the present date by both the Department and the AWRC. Future plans on the part of the Department include conducting more site-specific studies to determine the dominant sources of pesticide contamination. Known sources in other parts of the country include back-siphonage, faulty well construction, mixing/loading sites, storage areas, and infiltration of pesticides through normal application practices.

Ground Water/Surface Water Interactions

The interaction of ground and surface water, manifested in the form of losing and gaining streams, impacts regulatory programs, ground-water pollution-prevention programs, and ground-water research programs. This problem has plagued the Department in both policy and regulatory development and in regulation and cleanup at contaminated sites. For example, standards used for remediation of ground-water contamination associated with an industrial site may adhere to ground-water uses; however, these same concentrations may violate stream standards for various uses where the ground water discharges into a given stream. In addition, over-pumping of ground water, which previously provided base flow to a stream, may reduce the stream storage during dry periods resulting in an impact to the use of the stream.

In the Coastal Plain area of the State, such reversal of a gaining stream to a losing stream has been documented in Ackerman (1996). Water-quality relationships between ground water and surface water in the Coastal Plain is not well understood at the present time. Although both water sources are intensely sampled for general water quality and pesticides, the influence of one source as a contaminant transport pathway to the other source has not been identified. Analysis of pesticide data indicates some differences in the types and amounts of pesticides detected in surface water versus those pesticides detected in ground water (Kresse et al., 1997).

In northwest Arkansas, both hydrologic budget analyses and contaminant transport have been studied to a greater degree in terms of surface-water/ground-water interactions than in any other portion of the State. During the last decade, numerous investigations coupled with ongoing monitoring efforts have been performed by dominantly multi-agency coalitions including the Department, the University of Arkansas at Fayetteville, the USGS, the ASWCC and the National Park Service. Some of the studies have concentrated on nutrient budgets in addition to hydrologic budgets, while others focus on water-quality monitoring coupled with implementation of Best Management Practices (BMP). All studies, however, contain components of surface-water/ground-water interaction.

Animal Holding/Management Areas Ground Water Program

The program, a cooperative effort of the ASWCC, the USGS, the AWRC, and the U of A, was funded through the EPA 319 Nonpoint Source Program and was developed in order to evaluate the effectiveness of karstic BMPs in preventing nonpoint-source contamination of ground water. This was accomplished through ground-water quality monitoring at five demonstration sites in northwestern Arkansas. Springs monitored at each of the sites are located down-gradient from areas that receive regular applications of poultry waste. Program activities were completed in September, 1998.

Specific springs at each of the sites were selected to represent an integration of water quality from the entire recharge zone including potential impacts from anthropogenic sources. While a direct link can be made between a spring sample to a specific BMP applied to a specific field, correlations should be observed between changes in water quality at the spring and positive and/or negative activities within the recharge area of the spring. The five springs also represented three different hydrogeologic settings; 1) areas of intense karstification with fractured and solutioned limestone at or near the surface, 2) areas of fractured, solutioned limestone with significant overlying regolith, and 3) areas formed in non-carbonate rocks where ground-water flow is underdrained by karst rocks although the dominant flow within these areas is slow-moving, intergranular and perched.

Findings demonstrated that the Boone Formation springs have a significant component of surface water that enters the ground-water system via solutionally-enlarged fractures and sinkholes. It is postulated that this more open mode of recharge associated with the Boone Formation springs allows more organic matter and suspended material to enter the system. This organic matter may provide the substrate necessary for increased rates of denitrification to occur. Water passing through the sandy regolith overlying the Batesville Sandstone has lower total organic carbon and lower bacteria concentrations due to more efficient filtration in the sandy regolith. Bacteria concentrations from the limestone formation springs ranged from near zero at low flow conditions to over 49,000 CFU/100 ml during storm events. At the spring issuing from sandstone, the bacteria concentrations ranged from near zero to about 2,000 CFU/100 ml.

Observations of stage, precipitation, nutrients and bacteria revealed several relationships. In general, the springs respond to the smallest precipitation event and response is on the order of 6 to 8 hours. Patterns and concentrations of nitrate were similar for the Boone Formation springs, which showed an inverse relationship of nitrate-N concentrations with increasing stage; whereas, other formations showed increasing nitrate-N concentration with increasing stage. The typical response of bacterial loading included a pulse of bacteria preceding the peak in spring state.

The project has provided invaluable data for defining flow systems of the complex karst aquifers in northwest Arkansas and for describing surface-water/ground-water interactions by demonstrating impacts from land use on both surface and ground water. The data also provides the background needed to begin to perform complex analytical and numeric modeling of the surface-water/ground-water system in karst aquifers, including flow and contaminant transport modeling (Davis et al., 1997).

New objectives for the program were to determine if 17-â Estradiol is present in shallow aquifers of northwest Arkansas, and compare the movement of 17-â Estradiol with other indicators of animal waste to these aquifers. The results indicated that 17-â Estradiol was present in all five springs at concentrations ranging from 6 to 67 ng/L. The highest concentrations observed at each spring coincided with the stage peak. The presence of 17-â Estradiol in the ground water of northwest Arkansas provides one more component that indicates impact to ground water from animal waste.

In conclusion, all five springs were impacted by animal waste. There is insufficient data to determine the benefits of BMPs at this time, but analytical models have been developed for each spring, which may be used to assess BMP effectiveness in the future.

Savoy Experimental Watershed Project

The Savoy Project is a joint effort of the U of A at Fayetteville Departments of Animal Science and Geology, the Department, the Agricultural Research Service of the USDA, and the USGS. The study is unique in that it is truly an experimental watershed with heavily-forested areas and limited grazing on small, pastured sections. Future plans include the construction of a confined-swine operation and the application of swine and poultry waste to pasture areas. Because extensive background water-quality analyses will have been performed prior to construction, researchers will have with the opportunity to document resulting changes in land use and potential degradation of ground-water quality at the site.

The study was initiated and designed around the problem that interaction of surface water and shallow ground water is highly variable in Northwest Arkansas, ranging from almost nil (including water-tight lakes) to highly interrelated (including streams that lose their flow into swallow holes). Ground-water flow conditions and water quality are equally variable, with a high degree of interaction reflecting rapid flow and generally poorer water quality. Numerous land uses have significantly impacted shallow ground-water quality in the past, and a rapid population growth and expanding economy will further stress the system in the future.

As such, University, State and Federal researchers from organizations listed above collaborated on a preliminary study to define hydrologic and nutrient-flux budgets from recharge at the land surface, through the soil, regolith, epikarst, shallow and deep aquifers, to discharge at two springs that ultimately discharge into the Illinois River and its tributaries. The scope of the study includes, 1) precisely defining the ground-water part of the hydrologic budget, 2) precisely defining the ground-water part of the hydrochemical budget for selected parameters, and 3) determining ground-water flow paths and times of travel under variable-flow conditions (Brahana, 1996).

During the last two years, two additional deep wells (each about 300 feet deep) were completed, as were 19 shallow wells (from 8 to22 feet deep) to the epikarst zone at the regolith-bedrock contact. This brings the total number of deep wells on the site to 10, and the shallow wells to more than 50. Coupled with the spring and seep inventorying and sampling program, this site has nearly 100 data collection points with which to evaluate the impact of land use (primarily animal production) on water quality.

Sampling of water from springs, wells, seeps, ephemeral streams, and the Illinois River was actively pursued during 1998-1999, with sampling based on flow conditions rather than time-specified collection times. Results indicate that unexpected nitrate-N concentrations occur at Copperhead Spring, probably as a result of litter spreading and cattle production on private land near the spring on the south side of SEW. Slightly higher (2 to 3 times background) chloride and nitrate concentrations also were documented in basin 2, particularly around the upland fields that have animal activity. This gives us confidence that recurring sampling is a valuable tool to assess the impacts of specific land-use practices, and that by knowing the detailed attributes and ranges of selected water-quality parameters at specific sites, we can extrapolate and effectively identify activities, timing, and concentrations that warrant focused attention.

Involvement of the U.S. Geological Survey, the U.S. Department of Agriculture, Agricultural Research Service, and the University of Arkansas Departments of Geosciences, Animal Sciences, and Engineering also contributed significantly to hydrogeologic understanding at SEW. Tom Sauer of the USDA/ARS and his team conducted transects of infiltration studies that provided documentation of high recharge (and thus high ground-water contributions) for a variety of soils types. Van Brahana of the U of A and his team conducted ongoing assessment of defining recharge areas to specific springs and wells, and sampled selected sites for pharmaceuticals as part of a larger USGS effort. Three student theses shed light on results from continuous monitoring, weekly sampling, and long-term sampling, as well as documenting detailed water-budget components of Basins 1, 2, and 6, and dominant controls on the flow, velocity, stream piracy, and water quality in these basins. Precipitation was measured continuously at the full weather station on site, and basin-scale variations were documented with two additional rain gages on the SEW. Specifics about details of research may be accessed at the following web site: http://www.uark.edu/depts/savoyres/

Buffalo River Watershed Liquid Waste Management System Demonstration Project

The Buffalo River Swine Project, conceived and implemented by the Department, is performed in cooperation with the U of A at Fayetteville, the ASWCC, the NRCS, the Arkansas Pork Producers Association, and the CES. Begun in FY95, the project evaluated BMPs and potential surface and subsurface water-quality impacts at six swine farm sites and also implemented BMPs and monitored water-quality changes associated with completed BMPs.

Ground-water quality was monitored at four of the confined swine facilities in Newton County. The sites are located on the upper reaches of two tributaries of the Buffalo River. Because the geology of the sites consisted dominantly of shale with sections of sandstone, the soils were dominantly composed of thick, weathered shale and clay sediments. Results of ground-water analyses revealed mostly non-detectable levels of nitrate-N in wells situated next to waste ponds. These results are believed to be the direct result of the thick weathered shale, which underlies the sites and acts as a natural liner system (Kresse et al., 1996b).

There is evidence at one of the sites that pond overflow infiltrates into the upper (2-3 feet) loamy soil section and that the associated interflow results in waste delivered to the streams within hours or days past a given runoff event during storms. Waste percolating into the section of the stream where a weir and automatic sampler is located, migrated to the bottom of the ponded section under density differences, resulting in erroneous earlier calculations of nutrient loading. This finding demonstrates the importance of shallow interflow in terms of surface-water/ground- water interactions and delayed transport of contaminants. In addition to monitoring wells, shallow (2-3 feet), perched interflow water was collected at one site to disprove pond leakage as the source of pooled waste at the surface, which proved to be line leakage from the spray-irrigation system. Ground-water monitoring of all wells continued through FY99 with similar results as described above. A final project completion report is planned for FY00.

Buffalo River Watershed Dairy Dry-Waste Management System Demonstration Project

Designed and implemented by the Department, the dairy project is a nonpoint source project funded by EPA’s 319 Program, and is performed in cooperation with the ASWCC, the NRCS, the CES, and the U of A at Fayetteville. The dairy demonstration Project, similar to the swine demonstration project, will monitor potential impacts to both surface and ground water, define the effectiveness of current BMPs, and develop new BMPs or modify existing BMPs with the objective of documenting changes in water quality as a result of improved waste management.

A series of borings at six sites demonstrated the lack of a perched-water zone by which to monitor shallow ground water. Because of this situation and the difficulty of encountering a major fracture system in bedrock drilling, ground-impacts have been evaluated largely through the use of spring-water quality monitoring coupled with ground-water basin delineation.

Preliminary results to date include signing contracts with all potential cooperating farmers; completion of geologic mapping and 40 borings at six potential study sites; water-quality analyses of numerous seeps, springs, and runoff water during a storm event at one site to determine optimum sampling locations; four dye trace studies; analysis of dairy waste; analysis of soils from eight borings at one site; continuous monitoring of field parameters over a year and a half period at two springs; and numerous spring grab-sample analyses. The project currently is designed as a three- to four-year study.

Buffalo National River Water Quality Monitoring Program

Nine river sites, twenty tributaries, and three springs are routinely sampled as part of Buffalo National River's Water Quality Monitoring Program. Of the monitored springs, Gilbert Spring has the highest average fecal coliform counts and nitrate-N concentrations and showed a positive trend for fecal coliform concentrations over ten years of monitoring. Storm-flow sampling revealed fecal coliform counts as high as 17,700 colonies/100mL from this spring. Highest nitrate concentrations are observed during base-flow. Higher and increasing concentrations of bacteria at Gilbert Spring may be related to septic leachate from the town of Gilbert migrating into the spring's karstic recharge area, and from cattle and dairy operations in the Dry Creek drainage which is pirated by Gilbert Spring.

In cooperation with the Arkansas Department of Environmental Quality, the National Park Service has funded a integrated surface and karst ground-water study which is intended to 1) conduct ground-water and septic-leachate tracing studies, 2) quantify the impacts of Gilbert's septic fields on the water quality of Gilbert Spring and the Buffalo River, 3) assess biotic communities within Gilbert Spring and compare them to a reference spring and previous work, and 4) determine the need and feasibility of converting from on-site septic systems to a sewage treatment plant. The residents of Gilbert have been very cooperative and deserve a high degree of credit for wanting to insure that their activities are not impacting the Buffalo River.

Mill Creek is a major tributary to the Buffalo National River that has been shown to contribute 96 percent of the nitrate/nitrite-nitrogen load to the Buffalo River below their confluence. A synoptic survey of Mill Creek revealed nitrate and orthophosphate concentrations increase upstream to peak at two springs near its head. Subsequent dye-tracing showed that the recharge area for these springs extended far beyond their surface watershed and into the adjacent Crooked Creek basin. Geologic mapping indicates that these springs discharge from the base of the Boone Formation, a 120-meter thick karst aquifer, and are localized near the corner of a fault-bounded block that extends beneath both watersheds.

Flow and water-quality measurements taken in 1998 and 1999 from both streams and springs in the adjoining Crooked Creek and Mill Creek basins help define and characterize the interbasin recharge . Stream discharge/watershed area ratios employed early in the study raised initial suspicions of interbasin transfer; later they verified the accuracy of the dye-trace delineated basins.

Water-quality analyses showed that springs in the Mill Creek basin that receive interbasin recharge have similar water quality to both streams and springs in the Crooked Creek basin and reflect the more intense agricultural land use occurring in the Crooked Creek basin.

Major Sources of Contamination

There are numerous potential and actual sources of ground-water contamination in the State. Most of the sources are common to all states and include anthropogenic as well as natural sources of contamination. It is difficult to define which sources have the greatest impact on ground-water quality, because each source varies in the areal extent of resulting contamination and in the impact to water quality. For example, a hazardous waste site may result in a severe impact to ground water with numerous organic contaminants exceeding drinking-water standards. However, the areal extent of the contaminant plume may be very limited with no known receptors at risk. Conversely, contamination from agricultural activities may be areally extensive with little or no impacts to use of the water for drinking and/or other purposes.

Potential point sources of contamination from disposal sites, underground storage tanks, mining operations and other activities are regulated under various programs within the Department. Agriculture and other land-use activities commonly are addressed by voluntary BMPs, which strive to protect ground water by educating farmers and others on management strategies. These programs are described in some detail in the section titled "Ground-Water Protection Programs."

Several investigations have documented nitrate problems in northwest Arkansas and ongoing monitoring programs in the Coastal Plain area of the State have revealed numerous detections of pesticides in conjunction with row-crop agriculture. Saltwater intrusion is a localized but very serious problem related to heavy drawdown, irrigation practices, or the area hydrogeology. Brine contamination is also a localized problem related to improperly lined surface impoundments, corroded casing of injection wells, or from earlier improper disposal to the land surface or streams. The Surface Water Treatment Rule (SWTR) has focused attention on microbial contamination in our public water systems. Recent documented waterborne disease outbreaks have been a cause of national concern. The intent of the Department's on-going ambient water quality monitoring program is to document changes in the quality of ground water over time, to determine if known areas of contamination are expanding (i.e. areas of saltwater intrusion), and to assist in water-quality planning.

In addition to anthropogenic sources of contamination, water-quality degradation has been documented from natural sources including saline water and naturally-occurring radioactivity. These contaminants are unique to the stratigraphy of the aquifer and are related to environments in which the strata were deposited. Also, it is important to differentiate sources of water quality data when evaluating ground-water contamination. Contaminants documented in a water-supply system, domestic or municipal, may be related to problems in the distribution line or plumbing. As such, these problems may reflect contamination within the system, but not related to actual ground-water quality. Table IV-4 lists the major potential sources of contamination.

Table IV-4: Major Sources of Ground Water Contamination

Contaminant Source	Ten Highest Priority Sources (√)	Factors Considered	Contaminants
Agricultural Activities			
Agricultural Chemical Facil.			
Animal Feedlots	√	D,E,A	E
Drainage Wells			
Fertilizer Applications	√	D,E,A	E
Irrigation Practices			
Pesticide Applications	√	D,E,A	A,B
Storage & Treatment Activities			
Land Application			
Material Stockpiles			
Storage Tanks Above Ground			
Storage Tanks Underground	√	D,E,A,B	C,D
Surface Impoundments	√	D,E,A	G,H,E
Waste Piles			
Waste Tailings			
Disposal Activities			
Deep Injection Wells			
Landfills	√	D,E,A,C	C,D,J,L,H
Septic Systems	√	D,E,A,B,C	E,J,K,L
Shallow Injection Wells			
Other			
Hazardous Waste Generators			
Hazardous Waste Sites	√	A,E,B,C	C,D,H
Industrial Facilities			
Material Transfer Operations			
Mining and Mine Drainage			
Pipelines and Sewer Lines			
Salt Storage and Road Salting			
Salt Water Intrusion	√	E,C,A	G
Spills	√	A,E,C	C,D
Transportation of Materials			
Urban Runoff			

The EPA 1996 and 1998 305(b) guidelines encourage each state to list the ten highest priority sources of ground-water contamination. The factors considered when selecting these priority sources of ground-water contamination in Table IV-4 are listed in order of importance next to each source. However, the contaminant sources are not ranked. The following factors are listed below:

1) Human health and/or environmental risk (toxicity)
2) Size of the population at risk
3) Location of the sources relative to drinking water sources
4) Number and/or size of contaminant sources
5) Hydrogeologic sensitivity
5) State findings, other findings
6) Other criteria

The following contaminants are considered to be associated with each of the sources that were checked:

A) Inorganic pesticides
B) Organic pesticides
C) Halogenated solvents
D) Petroleum compounds
E) Nitrate
F) Fluoride
G) Salinity/brine
H) Metals
I) Radionuclides
J) Bacteria
K) Protozoa
L) Viruses
M) Other

Table IV-5 lists the present status of the State Ground Water Protection Programs. As can be seen, most of the programs are fully established or are in the process of implementation. One progressive step that the Department's Water Division has taken toward early detection at facilities with potential sources of ground-water contamination is to include ground-water monitoring requirements for certain facilities within NPDES and State Programs (no discharge) permits. This procedure assists in assessing the impact from sludge application, manure spreading, earthen lagoons, and other sources of potential ground-water contamination. Currently, the State Programs Branch has begun the permitting of commercial soil treatment facilities for treatment of petroleum contaminated soils. Ground-Water Protection Program personnel are active in reviewing these permits in order to insure that ground water will be protected beneath these facilities.

In addition to these steps, the Comprehensive State Ground-Water Protection Plan (CSGWPP) Technical Advisory Committee, which was formed in 1993, continues to meet on a regular basis. The Committee primarily provides a forum through which members can communicate on related ground-water protection activities and provide input on problems related to ground-water protection and management.

Table IV-5. Summary of State Ground Water Protection Programs

Programs or Activities	Check (√)	Implementation Status	Responsible State Agency
Act. SARA Title III Program	√	Fully Established	ADPC&E
Ambient GW Monitoring	√	Fully Established	ADPC&E
Aquifer Vulnerability Assess.	√	Continuing Efforts	AS&WCC
Aquifer Mapping	√	Continuing Efforts	Multi-Agency
Aquifer Characterization	√	Continuing Efforts	Multi-Agency
Comp. Data Mgmt. System	√	Under Development	AS&WCC
EPA Endorsed CSGWPP	√	Pending	AS&WCC
Ground Water Discharge Pmt.	NA	NA	ADPC&E
Ground Water - BMP's	√	Continuing Efforts	Multi-Agency
Ground Water Legislation			
Ground Water Classification	√	Continuing Efforts	ADPC&E,AS&WCC
Ground Water Quality Stds.	√	Under Development	ADPC&E
Interagency Coord. - GW	√	Continuing Efforts	AS&WCC
Nonpoint Source Controls	√	Continuing Efforts	AS&WCC,ADPC&E
Pesticide State Mgmt. Plan	√	Fully Established	SPB
Pollution Prevention Program	√	Continuing Efforts	ADPC&E,AS&WCC,ADH, SPB,CES,NRCS
RCRA Primacy	√	Fully Established	ADPC&E
State Superfund	√	Fully Established	ADPC&E
State RCRA Program - More Strict Than RCRA Primacy	NA	NA	ADPC&E
State Septic Tank Regulations	√	Fully Established	ADH
UST Installation Requirements	√	Fully Established	ADPC&E
UST Remediation Fund	√	Fully Established	ADPC&E
UST Permit Program	√	Fully Established	ADPC&E
UIC Program	√	Fully Established	ADPC&E
Vulnerability Assessment For Drinking Water/Wellhead Protection	√	Continuing Efforts	ADH
Well Abandonment Regs.	√	Fully Established	AWWCC
EPA-Approved WHPP	√	Fully Established	ADH
Well Installation Regulations	√	Fully Established	ADH

ADPC&E: Arkansas Department of Pollution Control and Ecology; AS&WCC: Arkansas Soil and Water Conservation Commission; ADH: Arkansas Department of Health; SPB: Arkansas State Plant Board; NRCS: Natural Resources Conservation Service; CES: University of Arkansas Cooperative Extension Service; AWWCC: Arkansas Water Well Construction Commission - (Under authority of AS&WCC).

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APPENDIX A

WATERBODY SPECIFIC INFORMATION BY PLANNING SEGMENT

A segment-specific analysis has been conducted for each of the 38 planning segments as a part of Appendix A. The assessment of water quality within the individual planning segments utilized the ambient monitoring network stations and other available data as described earlier in this document. The support or nonsupport of a designated use was assessed by reviewing monitoring data for specific criteria appropriate for those uses. Some professional judgment has been used in areas where inadequate or outdated data exists.

The surface waters being evaluated in this review are those currently listed within the EPA River Reach File (RF-1).

Data included for each planning segment includes:

1. A description of the segment location and its major waters.
2. A narrative summary of the water quality within the segment.
3. A planning segment map with river reaches identified by hydrologic unit code and reach numbers.
4. An assessment of use support by river reach.
5. A map of NPDES permitted discharges within the segment.
6. A listing of permitted discharges within the segment.
7. A summary of water quality data for each monthly monitored station within the segment from January 1, 1995, through December 31, 1998.

The stream reach assessment tables utilize the following abbreviations:

E	=	evaluated assessment	MP	=	municipal point source
M	=	monitored assessment	SI	=	siltation/turbidity
U	=	unassessed (unknown)	NU	=	nutrients
S	=	use supported	PA	=	pathogen indicators (bacteria)
N	=	use not supported	PO	=	priority organics
R	=	use removed	MN	=	minerals (chlorides/sulfates/TDS)
			DO	=	dissolved oxygen
AG	=	agriculture	ME	=	metals
RE	=	resource extraction	OE	=	organic enrichment
SV	=	silviculture	AM	=	ammonia
UR	=	urban runoff	HG	=	mercury
RC	=	road constructon/maint.	HP	=	hydropower
IP	=	industrial point source	UN	=	unknown

FC = fish consumption
AL = aquatic life use
SW = swimmable use (primary contact)
SC = secondary contact
DW = drinking water use
AI = agriculture and industrial use

MJS = major source of impairment
MNS = minor source of impairment
MJC = major cause of impairment
MNC = minor cause of impairment

RED RIVER BASIN

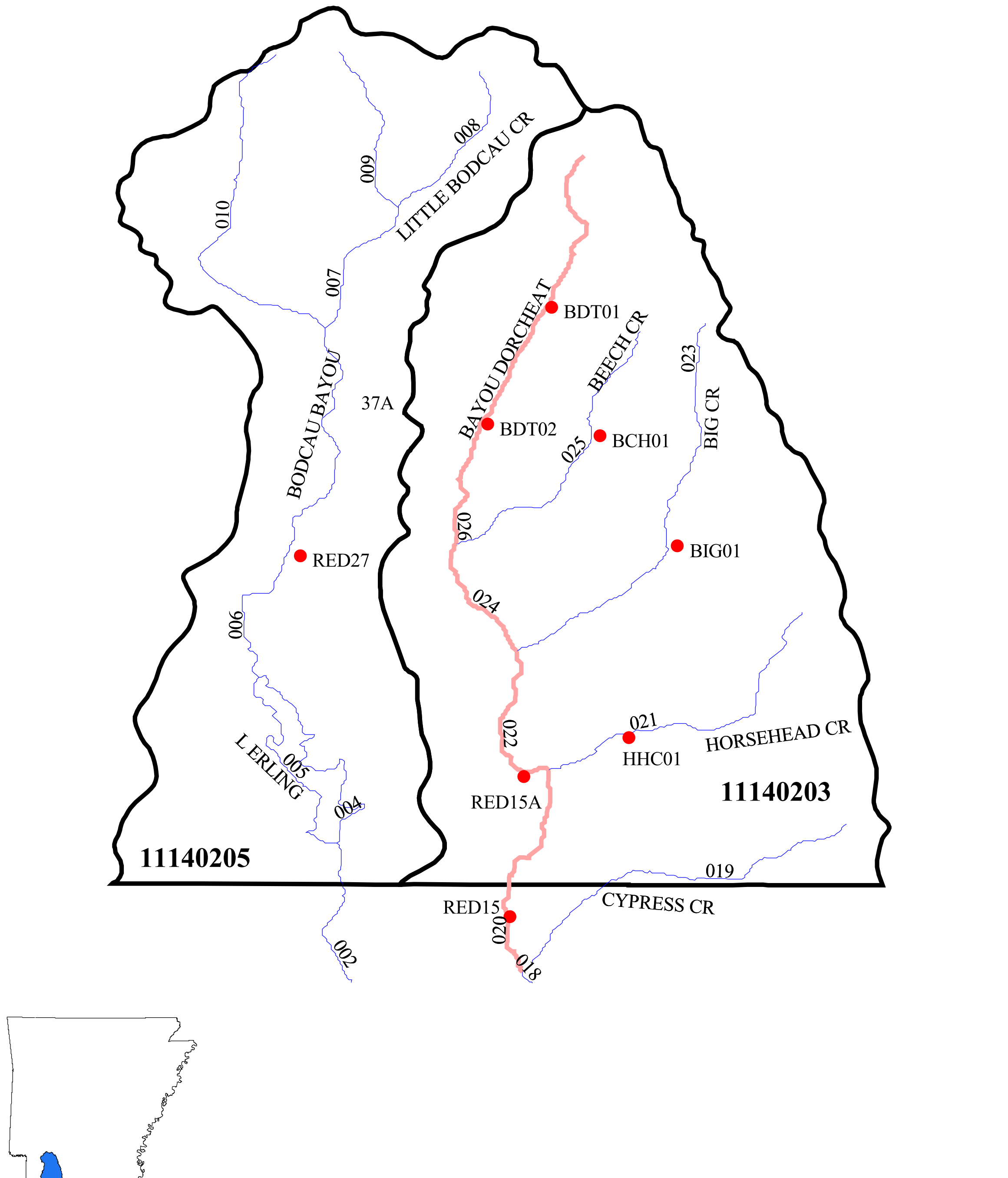
SEGMENT 1A - DORCHEAT BAYOU AND BODCAU BAYOU

This segment is located in the southwest corner of the State and includes most of Columbia County as well as parts of Nevada, Hempstead and Lafayette Counties. The drainage is generally southward into Louisiana and the major streams are Dorcheat Bayou and Bodcau Bayou. Lake Erling is a major impoundment on Badcau Bayou

SUMMARY OF WATER QUALITY CONDITIONS

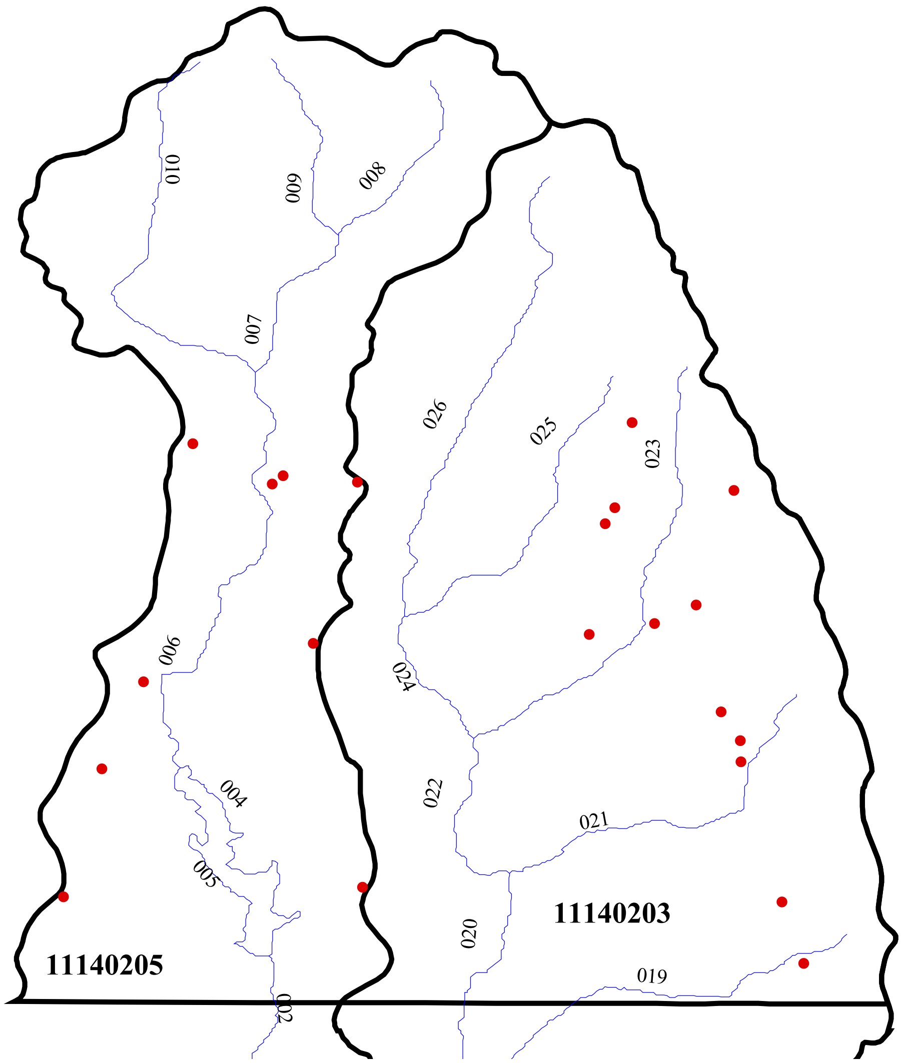
The waters within this segment have been designated as suitable for the propagation of fish and wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. Monitored data were used as the basis of assessing 111.9 miles of stream within this segment. An additional 67.3 miles were evaluated. Mercury contamination was the cause for 50.6 miles of Dorcheat Bayou being listed as not supporting its fish consumption use. All other stream segments in this basin support all designated uses.

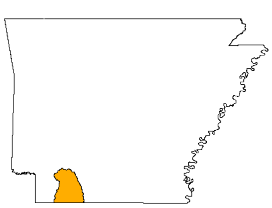
Planning Segment 1A - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-1A																		
Dorcheat Bayou	11140203	-026	23.3	BDT01,02	M	N	S	S	S	S	S	UN		HG		FISH CONSUMPTION	128.6	50.6
Dorcheat Bayou	11140203	-024	7		E	N	S	S	S	S	S	UN		HG		AQUATIC LIFE	179.2	0
Dorcheat Bayou	11140203	-022	8.4	RED15A	M	N	S	S	S	S	S	UN		HG		SWIMMING	179.2	0
Dorcheat Bayou	11140203	-020	11.9		E	N	S	S	S	S	S	UN		HG		SECONDARY CONTACT	179.2	0
Cypress Creek	11140203	-019	18.5		U											DRINKING SUPPLY	179.2	0
Horsehead Creek	11140203	-021	16.8	HHC01	M	S	S	S	S	S	S					AGRI & INDUSTRY	179.2	0
Big Creek	11140203	-023	21.8	BIG01	M	S	S	S	S	S	S							
Beech Creek	11140203	-025	15.7	BCH01	M	S	S	S	S	S	S							
Bodcau Creek	11140205	-010	19.5		E	S	S	S	S	S	S							
Bodcau Creek	11140205	-009	9.5		E	S	S	S	S	S	S							
Bodcau Creek	11140205	-008	9.1		E	S	S	S	S	S	S							
Bodcau Creek	11140205	-007	7.8		E	S	S	S	S	S	S							
Bodcau Creek	11140205	-006	22.4	RED27	M	S	S	S	S	S	S							
Bodcau Creek	11140205	-002	6		E	S	S	S	S	S	S							
TOTAL MILES	197.7																	
MILES UNASSESSED	18.5																	
MILES EVALUATED	70.8																	
MILES MONITORED	108.4																	

Planning Segment 1A - NPDES Permitted Facilities





Permit Number	Facility Name	Receiving Waters	USGS H.U.C.	Planning Segment
AR0000434	AMERICAN FUEL CELL & COATED FA	TRIB,BIG CK,DORCHEAT BU,RED RV	11140203	1A
AR0000493	ENTERGY AR, INC-HARVEY COUCH	LK JUNE TRIB,BODCAW CK	11140205	1A
AR0020044	TAYLOR, CITY OF	LTL CROOKED CK	11140205	1A
AR0020621	BRADLEY, CITY OF	DIT,TRIB,WHEELER CK	11140205	1A
AR0021555	MCNEIL, CITY OF	O'REAR CK,BIG CK	11140203	1A
AR0021920	STAMPS, CITY OF	BODCAU CK,RED RV	11140205	1A
AR0035696	LEWISVILLE, CITY OF	STEEL CK,BODCAU BU	11140205	1A
AR0038857	ALBEMARLE CORP-MAGNOLIA	HORSEHEAD CK,DORCHEAT BU	11140203	1A
AR0039594	EMERSON, CITY OF	LTL CYPRESS CK,DORCHEAT BU	11140203	1A
AR0043508	WALDO, CITY OF	BIG CK TRIB,BIG CK	11140203	1A
AR0043613	MAGNOLIA, CITY OF	BIG CK,DORCHEAT BU,RED RB	11140203	1A
AR0043923	WILLAMETTE INDUSTRIES-EMERSON	S CYPRESS CK,DORCHEAT BU,L BISTINEA	11140203	1A
AR0045535	CAMP CANFIELD	MILL CK TRIB	11140205	1A
AR0046418	LONGVIEW GAS CO	TRIB,CROOKED C,WALKER C,BU DORCHEAT	11140205	1A
AR0046973	MAGNOLIA COUNTRY CLUB	TRIB,HORSEHEAD CK,DORCHEAT BU,RED R	11140203	1A
AR0047511	SOUTH AR WILDERNESS CAMP	TRIB/LK ERLING	11140205	1A
AR0047627	SMI STEEL - ARKANSAS	DIT,HURRICANE CK,BU DORCHEAT,RED RB	11140203	1A
AR0047635	ALBEMARLE CORP-WEST PLANT	DISMUKES BR,BIG CK,BU DORCHEAT	11140203	1A
AR0047953	DELTIC FARM & TIMBER-WALDO MIL	TRIB,BEECH CK,LK COLUMBIA,1A-RED RB	11140203	1A
AR0048054	QUAD HARDWOOD PRODUCTS	TRIB,BIG CK,DORCHEAT CK	11140203	1A
AR0048305	STAMPS, CITY OF-SOUTH WTF	DIT,BODCAU CK,1A-RED RB	11140205	1A

RED27
BODCAU CREEK NEAR LEWISVILLE, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	5.95	41	8.20	2.70	1.35
BOD 5 Day mg/l	2.03	44	7.40	0.70	1.25
pH	6.99	40	8.56	5.21	0.71
TSS mg/l	10.78	38	41.00	2.00	9.96
NO2+NO3-N mg/l	0.14	30	0.36	0.01	0.09
Tot. Phos. mg/l	0.15	41	0.34	0.02	0.08
Tot. Org. C mg/l	14.62	42	23.40	7.70	3.51
T.Hardness mg/l	18.42	32	27.00	7.00	5.23
Chloride mg/l	18.98	41	43.00	6.00	9.14
Sulfate mg/l	10.62	41	21.00	1.00	4.77
TDS mg/l	99.47	44	152.00	62.00	21.30
Turbidity NTU	16.81	44	60.00	3.40	14.23

RED15A
DORCHEAT BAYOU EAST OF TAYLOR, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.22	36	8.60	3.20	1.21
BOD 5 Day mg/l	1.73	39	5.90	0.70	0.91
pH	6.98	35	8.39	6.03	0.56
TSS mg/l	7.93	35	28.00	2.00	6.53
NO2+NO3-N mg/l	0.24	34	1.05	0.01	0.22
Tot. Phos. mg/l	0.12	36	0.29	0.04	0.06
Tot. Org. C mg/l	13.32	37	21.00	4.50	2.91
T.Hardness mg/l	23.76	28	35.00	11.00	7.43
Chloride mg/l	26.56	36	48.00	11.00	10.64
Sulfate mg/l	22.58	36	105.00	2.00	23.01
TDS mg/l	129.26	39	320.00	72.00	51.27
Turbidity NTU	10.94	39	35.00	2.60	6.25

SEGMENT 1B - RED RIVER, SULPHUR RIVER, AND MCKINNEY BAYOU (RED RIVER BASIN)

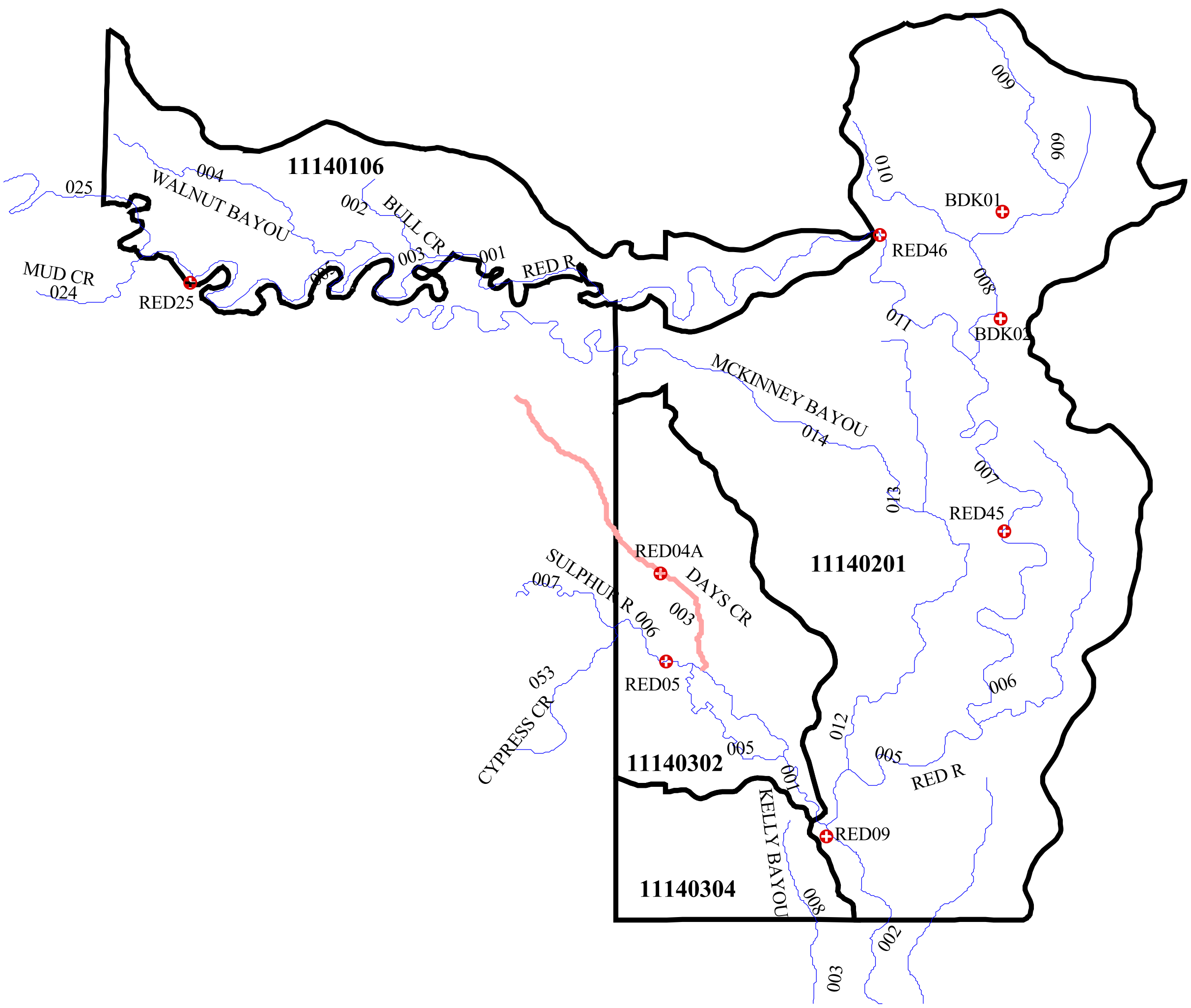
Segment 1B is located in the southwest corner of the State. It includes all of Miller County and parts of Little River, Hempstead, and Lafayette Counties. Major streams within this segment are the Red River from its point of entrance into Arkansas to the Louisiana state line, the Sulphur River and McKinney Bayou.

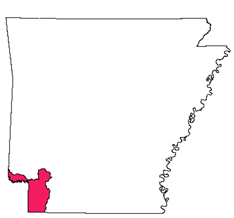
SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish and wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. Monitored data were used as the basis of assessing 87.6 miles of stream within the segment. An additional 257.3 miles of stream were evaluated bringing the total miles of assessed streams within this segment to 344.9. Monitored data on the upper Red River clearly indicate that the criteria protective of the public water supply use is not being maintained. However, the drinking water designated use has been removed from the Red River from its point of entrance into the state to its confluence with the Little River.

Data trend for of Days Creek reveals major water quality improvements in the creek as a result of the City of Texarkana's improvement of its WWTF. Unfortunately, the creek is not meeting the drinking water designated use due to high nitrate levels.

Planning Segment 1B - Monitoring Stations

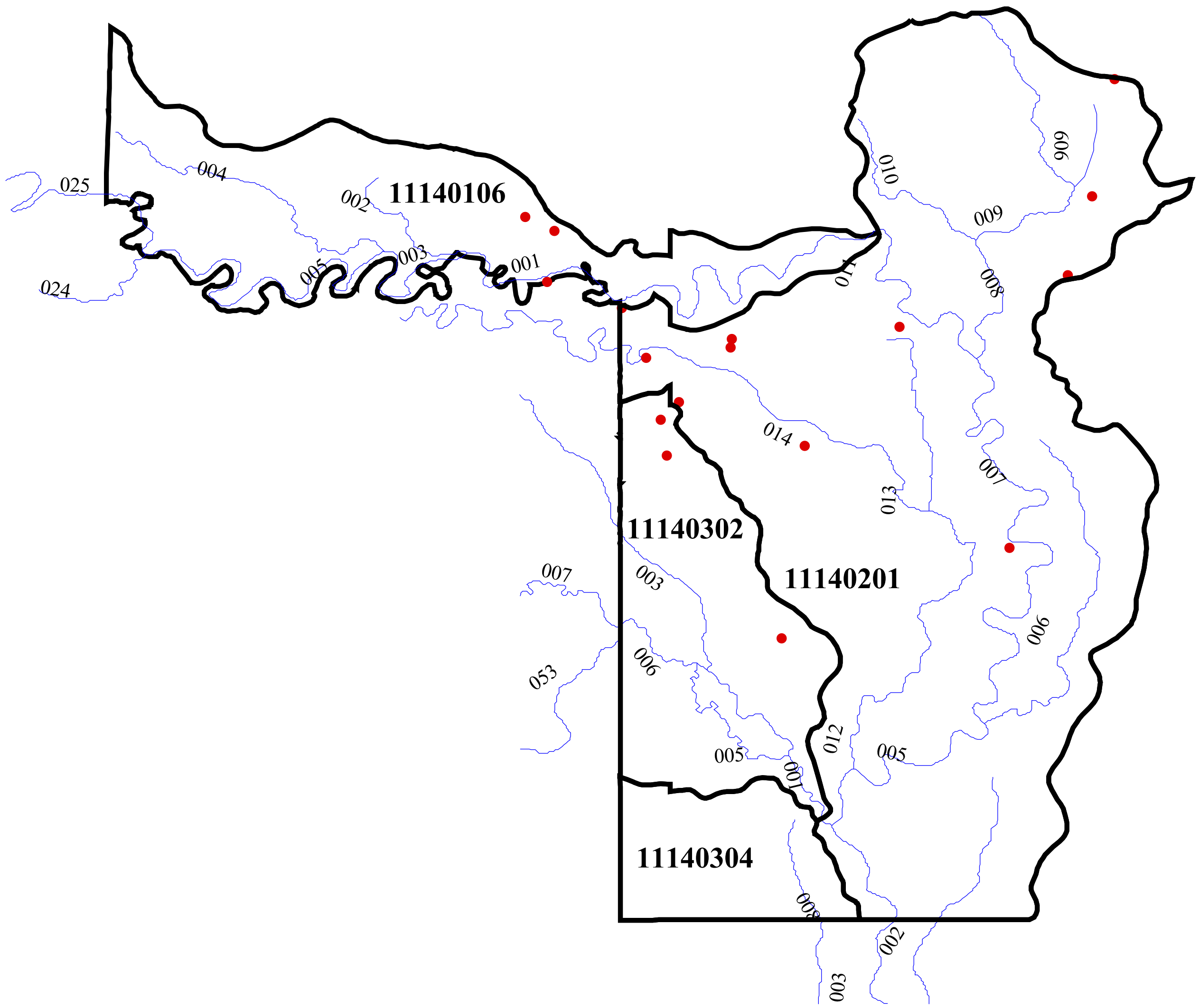


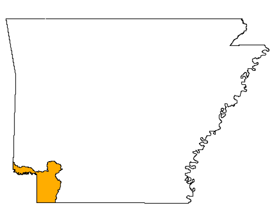


Use Not Supported

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-1B																		
Red River	11140201	-011	15.2	RED46	E	S	S	S	S	S	S					FISH CONSUMPTION	344.9	0
Red River	11140201	-007	40.1	RED45	E	S	S	S	S	S	S					AQUATIC LIFE	344.9	0
Red River	11140201	-005	12		E	S	S	S	S	S	S					SWIMMING	344.9	0
Red River	11140201	-004	4		E	S	S	S	S	S	S					SECONDARY CONTACT	344.9	0
Red River	11140201	-003	15.5	RED09	M	S	S	S	S	S	S					DRINKING SUPPLY	226.7	11
Posten Bayou	11140201	-002	18.7		E	S	S	S	S	S	S					AGRI & INDUSTRY	344.9	0
Maniece Bayou	11140201	-006	24.2		E	S	S	S	S	S	S							
Bois D'Arc Cr.	11140201	-008	8.9	BDK02	M	S	S	S	S	R	S							
Bois D'Arc Cr.	11140201	-009	20.4	BDK01	M	S	S	S	S	R	S							
Bridge Creek	11140201	-010	12.1		E	S	S	S	S	S	S							
McKinney Bayou	11140201	-012	23.1		U													
McKinney Bayou	11140201	-014	21.6		U													
Red Chute Creek	11140201	-013	12.5		E	S	S	S	S	S	S							
Sulphur River	11140302	-001	6.3		E	S	S	S	S	S	S							
Sulphur River	11140302	-002	8.5		E	S	S	S	S	S	S							
Sulphur River	11140302	-004	0.7		E	S	S	S	S	S	S							
Sulphur River	11140302	-006	6.5	RED05	M	S	S	S	S	S	S							
Sulphur River	11140302	-008	0.8		E	S	S	S	S	S	S							
Days Creek	11140302	-003	11	RED04A	M	S	S	S	S	N	S	MP		NU				
Mercer Bayou	11140302	-005	12.8		E	S	S	S	S	S	S							
Red River	11140106	-001	34.8		E	S	S	S	S	R	S							
Red River	11140106	-003	9.8		E	S	S	S	S	R	S							
Red River	11140106	-005	25.3	RED25	M	S	S	S	S	R	S							
Red River	11140106	-025	8		E	S	S	S	S	R	S							
Bull Creek	11140106	-002	9.3		E	S	S	S	S	S	S							
Walnut Bayou	11140106	-004	20.3		E	S	S	S	S	S	S							
Kelley Bayou	11140304	-006	7.2		E	S	S	S	S	S	S							
TOTAL MILES	389.6																	
MILES UNASSESSED	44.7																	
MILES EVALUATED	257.3																	
MILES MONITORED	87.6																	

Planning Segment 1B - NPDES Permitted Facilities





(Segment 1B)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C.	Planning Segment
AR0002968	GEORGIA PACIFIC-ASHDOWN	RED RV	11140106	1B
AR0021326	HUDSON FOODS INC-HOPE	DIT,CANEY CK,BOIS D'ARC CK	11140201	1B
AR0038466	HOPE, CITY OF-BOIS D'ARC WWTP	BLACK BR,BOIS D'ARC CK,RED RV	11140201	1B
AR0038822	COOPER TIRE & RUBBER CO-TEXARK	DIT,NIX CK,DAYS CK	11140302	1B
AR0041181	GARLAND, CITY OF	RED RV	11140201	1B
AR0041548	FOUKE, CITY OF	TRIB,CHICKEN CK,BOGGY CK,1B-RED RB	11140302	1B
AR0042897	TEXARKANA KOA	BOIS D'ARC TRIB,FINN BU	11140201	1B
AR0042951	ASHDOWN, CITY OF	G.P. CANAL,RED RV	11140106	1B
AR0043346	AR HWY DEPT-RED RV TOURIST CTR	RED RV	11140106	1B
AR0044709	FLYING J TRAVEL PLAZA #5021	TRIB,BOIS D'ARC BU,RED RV	11140201	1B
AR0046345	SPRING HILL SCHOOL	TRIB,FLAT BOIS D'ARC C,LT BODCAW C	11140201	1B
AR0046671	CELOTEX CORP-TEXARKANA	TRIB;OAK,NIX,DAYS CKS;SULFUR,RED RV	11140302	1B
AR0046795	PINES COUNTRY CLUB	TRIB,MCKINNEY BU	11140201	1B
AR0048348	TEXARKANA TIMBER CO	TRIB,MILL CK,MCKINNEY BU,RED RV,1B	11140201	1B
AR0048356	RVAF - TEXARKANA	RED RV,1B-RED RB	11140201	1B
AR0048411	GEORGIA PACIFIC-WOODLANDS WET	TRIB,HUDSON CK,LITTLE RV,1C-REB RB	11140106	1B
AR0048691	TEXARKANA, CITY OF - NORTH WWTP	MCKINNEY BU, RED RV	11140302	1B

RED45

RED RIVER AT HWY 82 BRIDGE NR. GARLAND AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.54	28	10.00	3.80	1.49
BOD 5 Day mg/l	1.81	29	3.50	0.70	0.76
pH	7.67	27	8.68	6.22	0.57
TSS mg/l	142.70	27	417.00	16.00	121.93
NO2+NO3-N mg/l	0.24	24	0.51	0.01	0.14
Tot. Phos. mg/l	0.16	28	0.31	0.06	0.08
Tot. Org. C mg/l	7.35	28	13.20	5.30	1.62
T.Hardness mg/l	253.20	5	454.00	132.00	134.17
Chloride mg/l	126.36	26	274.00	12.00	67.31
Sulfate mg/l	144.78	27	304.00	18.00	78.96
TDS mg/l	519.48	29	960.00	114.00	253.66
Turbidity NTU	81.13	29	260.00	8.70	73.42

RED46

RED RIVER AT FULTON AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.43	28	9.60	3.60	1.48
BOD 5 Day mg/l	1.74	29	3.70	0.70	0.79
pH	7.88	27	9.38	6.98	0.53
TSS mg/l	146.57	28	554.00	15.00	132.36
NO2+NO3-N mg/l	0.26	26	0.52	0.02	0.13
Tot. Phos. mg/l	0.17	28	0.42	0.05	0.10
Tot. Org. C mg/l	7.04	29	9.50	4.60	1.18
T.Hardness mg/l	207.00	6	374.00	112.00	113.86
Chloride mg/l	105.96	25	224.00	12.00	59.84
Sulfate mg/l	127.71	28	309.00	19.00	76.28
TDS mg/l	459.43	30	874.00	116.00	239.57
Turbidity NTU	88.11	30	300.00	4.20	74.17

RED04A

DAYS CREEK SE OF TEXARKANA, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.71	42	9.30	3.60	1.25
BOD 5 Day mg/l	1.84	45	7.70	0.50	1.50
pH	7.35	41	8.75	6.63	0.53
TSS mg/l	32.42	37	616.00	1.00	102.01
NO2+NO3-N mg/l	5.59	45	14.20	0.47	3.91
Tot. Phos. mg/l	0.21	42	0.62	0.05	0.11
Tot. Org. C mg/l	9.04	43	13.50	6.60	1.64
T.Hardness mg/l	67.73	32	209.00	30.00	34.33
Chloride mg/l	43.24	42	85.00	7.00	22.07
Sulfate mg/l	31.67	42	56.00	10.00	13.36
TDS mg/l	216.58	45	384.00	93.00	78.26
Turbidity NTU	32.62	45	520.00	1.90	80.26

RED09

RED RIVER NEAR SPRING BANK, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.17	42	9.80	3.70	1.45
BOD 5 Day mg/l	2.04	45	6.10	0.70	1.07
pH	7.51	41	8.51	6.64	0.44
TSS mg/l	122.42	42	490.00	22.00	107.85
NO2+NO3-N mg/l	0.23	39	0.70	0.01	0.14
Tot. Phos. mg/l	0.17	42	0.42	0.08	0.09
Tot. Org. C mg/l	8.31	43	20.60	5.90	2.63
T.Hardness mg/l	206.93	30	404.00	62.00	90.43
Chloride mg/l	103.25	42	265.00	14.00	65.05
Sulfate mg/l	108.12	41	259.00	21.00	63.89
TDS mg/l	455.89	45	924.00	115.00	229.59
Turbidity NTU	76.06	45	300.00	8.60	64.67

RED25

RED RIVER SOUTH OF FOREMAN, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.10	40	10.60	3.80	1.64
BOD 5 Day mg/l	1.73	45	4.60	0.50	0.87
pH	7.67	42	8.36	4.48	0.64
TSS mg/l	120.79	43	414.00	12.00	101.67
NO2+NO3-N mg/l	0.24	35	0.51	0.02	0.13
Tot. Phos. mg/l	0.15	41	0.39	0.05	0.07
Tot. Org. C mg/l	6.99	42	12.00	4.50	1.63
T.Hardness mg/l	266.28	31	424.00	67.00	97.91
Chloride mg/l	158.65	41	331.00	10.00	77.16
Sulfate mg/l	167.19	42	304.00	17.00	75.38
TDS mg/l	633.46	45	1146.00	109.00	264.35
Turbidity NTU	74.89	45	300.00	6.80	66.14

RED05

SULPHUR R S TEXARKANA ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.91	42	9.30	4.20	1.33
BOD 5 Day mg/l	2.52	45	5.60	0.80	1.04
pH	7.53	41	8.78	6.63	0.53
TSS mg/l	35.05	42	78.00	5.00	21.47
NO2+NO3-N mg/l	0.14	43	0.59	0.01	0.11
Tot. Phos. mg/l	0.14	42	0.38	0.05	0.05
Tot. Org. C mg/l	10.56	43	26.40	7.50	3.38
T.Hardness mg/l	78.88	32	123.00	50.00	18.17
Chloride mg/l	18.23	42	92.00	6.00	16.46
Sulfate mg/l	32.88	42	192.00	12.00	30.62
TDS mg/l	180.80	45	664.00	102.00	95.41
Turbidity NTU	26.94	45	60.00	3.10	12.65

SEGMENT 1C - LITTLE RIVER AND TRIBUTARIES
(RED RIVER BASIN)

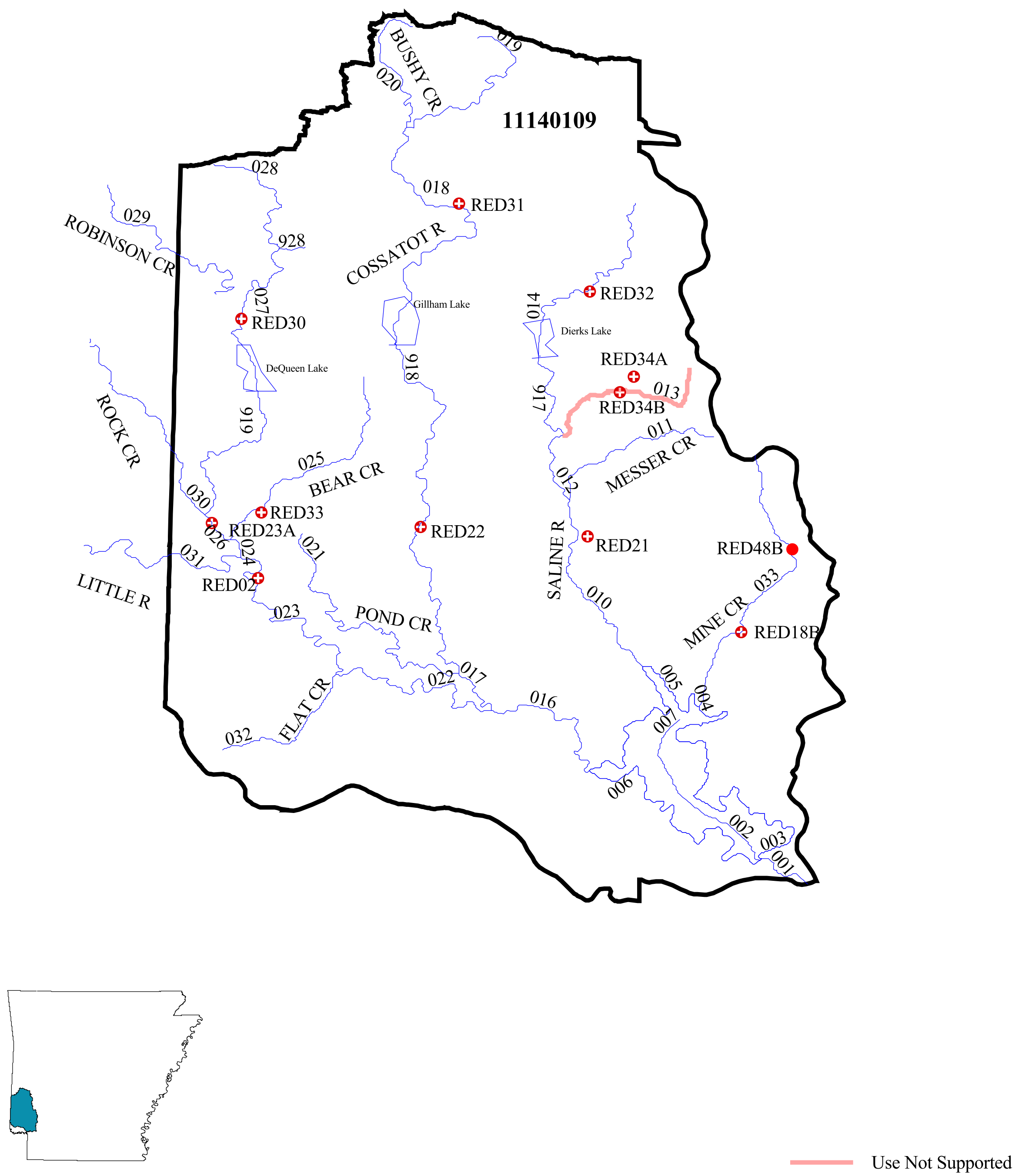
Segment 1C is located in southwest Arkansas north of Texarkana and includes all of Sevier County and parts of Polk, Howard, Hempstead and Little River Counties. This includes the entire reach of the Little River in Arkansas from its point of entrance into the State to its confluence with the Red River. The major tributaries include Rolling Fork, Cossatot River, Saline River and Mine Creek. The major reservoirs located in this segment include DeQueen, Gillham and Dierks Reservoirs, all of which drain into Millwood Reservoir.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation, public, industrial and agricultural water supplies and contains ecologically sensitive waterbodies. Overall water quality is fair in the basin with the exception of several long-term problem areas. Holly Creek below Dierks is impacted by pathogen contamination originating from the city WWTF and/or Weyerhaeuser, Inc. discharges. Additionally, upstream from these discharges very high turbidity values have occurred on rare occasions. The source is unknown, but it appears to be from a major overflow, e.g., sedimentation pond. Bear Creek has shown major improvements over the last several years, but is still impacted by discharges from the City of DeQueen. The concern is elevated nutrients. Similarly, Mine Creek has elevated nutrients discharged from the Tyson, Inc., plant at Nashville and the City of Nashville's discharge.

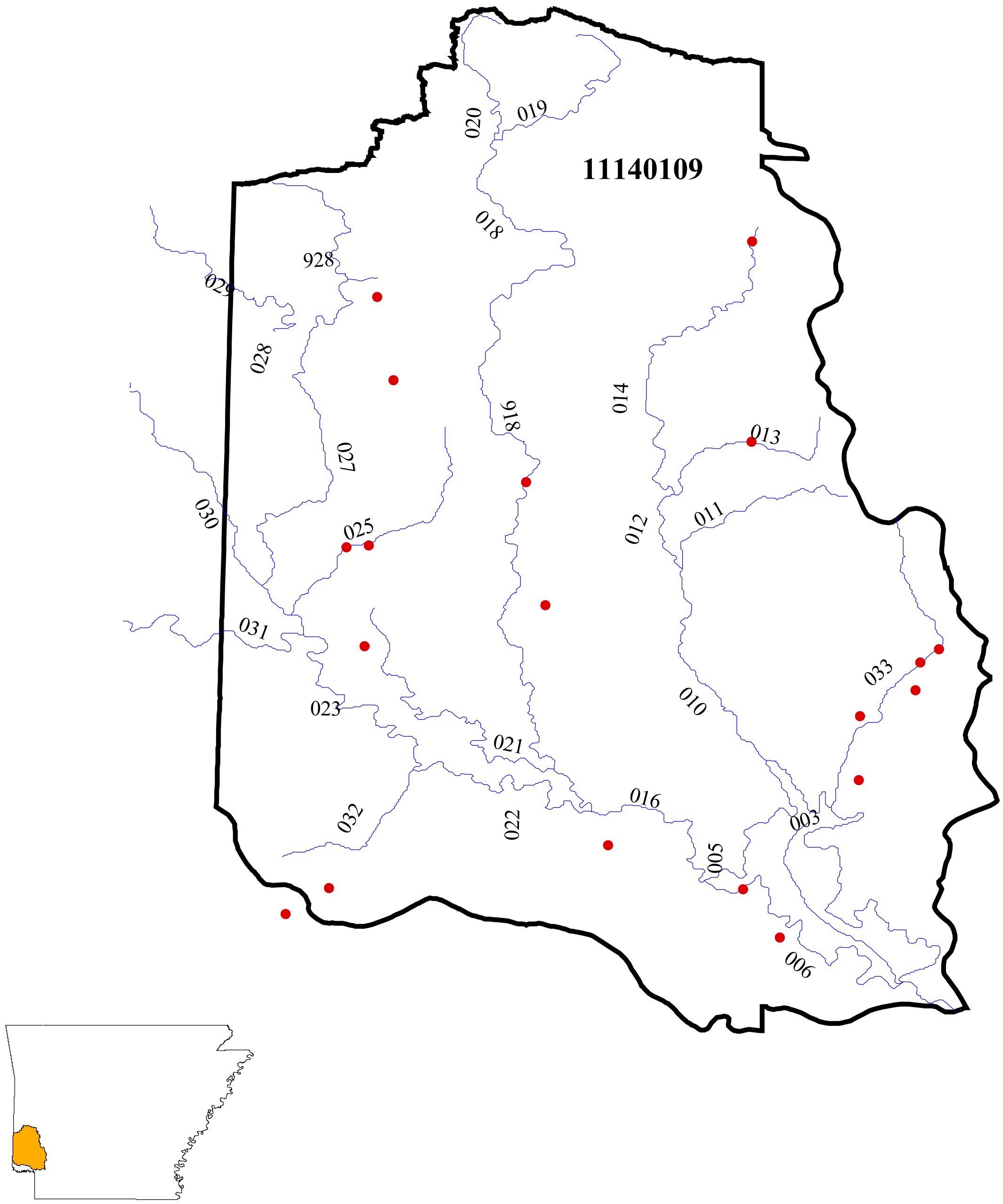
The Rolling Fork River above DeQueen Reservoir has periodically elevated nutrient concentrations. This is also, primarily, from point source contributions.

Planning Segment 1C - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-1C																		
Saline River	11140109	-001	4.0		U											FISH CONSUMPTION	307.8	0
Saline River	11140109	-002	10.5		U											AQUATIC LIFE	307.8	0
Saline River	11140109	-007	3.0		U											SWIMMING	295.1	12.7
Saline River	11140109	-009	4.3		U											SECONDARY CONTACT	307.8	0
Saline River	11140109	-010	15.2	RED21	M	S	S	S	S	S	S					DRINKING SUPPLY	307.8	0
Saline River	11140109	-012	6.1		E	S	S	S	S	S	S					AGRI & INDUSTRY	307.8	0
Messer Creek	11140109	-011	12.6		E	S	S	S	S	S	S							
Holly Creek	11140109	-013	12.7	RED34A&B	M	S	S	N	S	S	S	MP	IP	PA				
Saline River	11140109	-014	15.3	RED32	M	S	S	S	S	S	S							
Saline River	11140109	-917	10.0		U													
Little River	11140109	-015	4.2		U													
Little River	11140109	-016	11.7		E	S	S	S	S	S	S							
Cossatot R.	11140109	-017	4.6		E	S	S	S	S	S	S							
Cossatot R.	11140109	-018	19.0	RED31	M	S	S	S	S	S	S							
Cossatot R.	11140109	-918	37.2	RED22	M	S	S	S	S	S	S							
Cossatot R.	11140109	-019	14.2		E	S	S	S	S	S	S							
Bushy Creek	11140109	-020	11.6		E	S	S	S	S	S	S							
Pond Creek	11140109	-021	23.5		E	S	S	S	S	S	S							
Little River	11140109	-022	15.8		E	S	S	S	S	S	S							
Little River	11140109	-023	17.8	RED02	M	S	S	S	S	S	S							
Rolling Fork	11140109	-024	1.7		E	S	S	S	S	S	S							
Bear Creek	11140109	-025	17.3	RED33	M	S	S	S	S	S	S							
Rolling Fork	11140109	-026	2.7	RED23A	M	S	S	S	S	S	S							
Rolling Fork	11140109	-027	8.0		E	S	S	S	S	S	S							
Rolling Fork	11140109	-919	10.0		E	S	S	S	S	S	S							
Rolling Fork	11140109	-028	20.7	RED30	M	S	S	S	S	S	S							
Robinson Creek	11140109	-029	11.0		U													
Rock Creek	11140109	-030	10.0		U													
Little River	11140109	-031	8.0		E	S	S	S	S	S	S							
Flat Creek	11140109	-032	10.7		U													
Mine Creek	11140109	-033	22.1	RED48B+	M	S	S	S	S	S	S							
TOTAL MILES	375.5																	
MILES UNASSESSED	67.7																	
MILES EVALUATED	127.8																	
MILES MONITORED	180																	

Planning Segment 1C - NPDES Permitted Facilities



Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C.	Planning Segment
AR0002909	WEYERHAEUSER CO-DEQUEEN	BEAR CK,ROLLING FORK RV	11140109	1C
AR0002917	WEYERHAEUSER CO-DIERKS	HOLLY CK	11140109	1C
AR0003018	TYSON FOODS INC-GRANNIS	TRIB-ROLLING FORK RV,1C-RED RV BAS	11140109	1C
AR0021261	MINERAL SPRINGS, CITY OF	MINE CK,LITTLE RV	11140109	1C
AR0021377	LOCKESBURG, CITY OF	LTL COSSATOT RV TRIB	11140109	1C
AR0021709	DIERKS, CITY OF	HOLLY CK,1C-RED RB	11140109	1C
AR0021733	DEQUEEN, CITY OF	BIG BEAR CK	11140109	1C
AR0021776	NASHVILLE, CITY OF	MINE CK,MILLWOOD LK,LITTLE RV,RED R	11140109	1C
AR0023817	FOREMAN, CITY OF	E FLAT CK	11140109	1C
AR0035785	HORATIO, CITY OF	TRIB,POND CK,LITTLE RV	11140109	1C
AR0037079	AR PARKS & TOURISM-MILLWOOD	DIT,BUSTER CK	11140109	1C
AR0040886	WILTON, CITY OF	LICK CK	11140109	1C
AR0041246	MILLWOOD WATER CORP	TRIB (MILLWOOD LK), LITTLE RV, RED RV	11140109	1C
AR0041734	TYSON FOODS INC-NASHVILLE	MINE CK, MILLWOOD LK, 1C-RED RB	11140109	1C
AR0041769	DALTON MHP	MINE CK TRIB	11140109	1C
AR0042846	ASH GROVE CEMENT CO-FOREMAN	FRENCH CK,WALNUT BU,RED RV	11140109	1C
AR0045144	TOLLETTE, CITY OF	MINE CK,LITTLE RV	11140109	1C
AR0047996	GILLHAM REGIONAL WW DIST	BELLAH CK,LK DEQUEEN	11140109	1C
AR0048593	BRUCE KENNEDY SAND & GRAVEL	MILL SLU BR,COSSATOT RV	11140109	1C
AR0049034	J. T. ‘S DOZER, INC - THE JUNCTION	SLU, HAIL CK, COSSATOT RV	11140109	1C

RED33
BEAR CREEK BELOW PROCESS CITY ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.28	39	12.30	2.90	2.06
BOD 5 Day mg/l	1.84	40	7.60	0.20	1.72
pH	7.10	39	8.00	6.34	0.33
TSS mg/l	21.72	43	576.00	1.00	86.86
NO2+NO3-N mg/l	1.23	41	6.12	0.03	1.39
Tot. Phos. mg/l	0.17	36	0.69	0.03	0.17
Tot. Org. C mg/l	6.35	41	12.00	2.80	2.48
T.Hardness mg/l	48.76	29	141.00	20.00	39.84
Chloride mg/l	13.44	40	67.00	2.00	18.17
Sulfate mg/l	21.55	41	102.00	2.00	28.13
TDS mg/l	115.42	43	373.00	31.00	98.10
Turbidity NTU	32.73	43	500.00	1.40	77.94

RED22
COSSATOT RIV. WEST OF LOCKESBURG

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.88	41	13.60	4.40	1.82
BOD 5 Day mg/l	0.97	43	5.60	0.20	0.83
pH	7.09	41	7.72	6.40	0.29
TSS mg/l	6.59	43	41.00	1.00	7.46
NO2+NO3-N mg/l	0.21	41	0.64	0.02	0.15
Tot. Phos. mg/l	0.06	32	0.14	0.03	0.03
Tot. Org. C mg/l	4.93	43	13.30	2.30	2.20
T.Hardness mg/l	15.65	31	42.00	8.00	7.77
Chloride mg/l	2.93	42	5.00	2.00	0.80
Sulfate mg/l	5.91	42	25.00	1.00	4.22
TDS mg/l	44.27	45	85.00	26.00	12.74
Turbidity NTU	10.82	45	53.00	1.40	9.55

RED31
COSSATOT RIVER AT HWY 4 E OF WICKES ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.07	38	12.60	5.20	1.82
BOD 5 Day mg/l	0.45	44	2.10	0.00	0.39
pH	7.55	42	8.33	6.88	0.36
TSS mg/l	1.84	16	5.00	0.00	1.23
NO2+NO3-N mg/l	0.05	33	0.16	0.01	0.04
Tot. Phos. mg/l	0.04	19	0.09	0.02	0.02
Tot. Org. C mg/l	2.24	42	6.90	1.00	1.01
T.Hardness mg/l	23.42	32	100.00	6.00	20.61
Chloride mg/l	2.12	41	3.00	1.00	0.47
Sulfate mg/l	6.22	40	25.00	1.00	4.40
TDS mg/l	42.41	44	182.00	24.00	27.15
Turbidity NTU	3.53	44	21.00	0.60	3.55

RED34A
HOLLY CREEK ABOVE DIERKS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.36	40	12.40	2.90	2.19
BOD 5 Day mg/l	1.58	41	4.90	0.10	1.15
pH	6.98	40	8.20	6.20	0.44
TSS mg/l	73.00	41	1240.00	0.00	257.30
NO2+NO3-N mg/l	0.24	40	0.69	0.03	0.15
Tot. Phos. mg/l	0.08	34	0.42	0.03	0.09
Tot. Org. C mg/l	6.72	42	11.90	2.90	2.21
T.Hardness mg/l	17.45	31	53.00	8.00	10.22
Chloride mg/l	4.21	41	12.00	2.00	2.06
Sulfate mg/l	6.38	42	23.00	1.00	4.74
TDS mg/l	59.98	43	201.00	36.00	31.34
Turbidity NTU	100.07	44	1260.00	2.60	308.44

RED34B

HOLLY CREEK BELOW DIERKS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.01	40	12.30	2.40	2.16
BOD 5 Day mg/l	2.25	39	7.60	0.20	1.96
pH	7.07	40	7.78	6.25	0.29
TSS mg/l	13.31	43	200.00	1.00	31.88
NO2+NO3-N mg/l	0.68	40	7.99	0.03	1.27
Tot. Phos. mg/l	0.14	38	0.43	0.03	0.11
Tot. Org. C mg/l	8.60	42	15.90	2.80	3.10
T.Hardness mg/l	25.58	31	41.00	8.00	9.66
Chloride mg/l	7.58	42	23.00	3.00	4.83
Sulfate mg/l	6.31	42	14.00	1.00	3.01
TDS mg/l	78.77	44	152.00	37.00	25.65
Turbidity NTU	22.88	44	150.00	3.20	24.84

RED02

LITTLE RIVER NEAR HORATIO ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.85	40	12.00	4.10	1.70
BOD 5 Day mg/l	1.28	42	6.20	0.10	1.21
pH	7.23	40	7.90	6.52	0.30
TSS mg/l	9.77	44	65.00	1.00	12.72
NO2+NO3-N mg/l	0.19	41	0.69	0.02	0.14
Tot. Phos. mg/l	0.06	34	0.18	0.02	0.03
Tot. Org. C mg/l	5.62	42	35.00	2.40	4.85
T.Hardness mg/l	20.38	31	67.00	9.00	11.61
Chloride mg/l	6.04	41	13.00	2.00	3.33
Sulfate mg/l	8.80	40	53.00	1.00	9.15
TDS mg/l	53.91	44	113.00	22.00	16.04
Turbidity NTU	11.58	44	62.00	0.80	12.42

RED23A

ROLLING FORK RIVER AT COUNTY ROAD BRIDGE

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.60	39	11.90	4.70	1.60
BOD 5 Day mg/l	1.25	40	4.60	0.30	1.03
pH	7.08	39	7.70	6.36	0.33
TSS mg/l	8.82	39	106.00	1.00	16.83
NO2+NO3-N mg/l	0.26	41	1.57	0.02	0.27
Tot. Phos. mg/l	0.09	36	0.86	0.03	0.14
Tot. Org. C mg/l	5.57	41	13.70	3.50	2.20
T.Hardness mg/l	17.34	29	57.00	10.00	9.74
Chloride mg/l	6.30	40	20.00	2.00	4.00
Sulfate mg/l	7.70	41	32.00	2.00	6.56
TDS mg/l	56.14	43	140.00	36.00	24.40
Turbidity NTU	11.42	43	74.00	2.20	12.72

RED30

ROLLING FORK CREEK WEST OF GILLHAM ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.28	21	10.60	4.50	1.70
BOD 5 Day mg/l	1.07	27	3.60	0.20	0.93
pH	7.40	27	8.23	6.99	0.31
TSS mg/l	8.41	28	92.00	1.00	16.85
NO2+NO3-N mg/l	0.49	23	2.52	0.02	0.56
Tot. Phos. mg/l	0.43	22	2.05	0.03	0.58
Tot. Org. C mg/l	5.08	26	10.80	1.60	2.48
T.Hardness mg/l	18.32	22	39.00	7.00	7.68
Chloride mg/l	5.04	25	19.00	2.00	4.76
Sulfate mg/l	8.66	26	26.00	2.00	5.77
TDS mg/l	62.18	28	137.00	25.00	28.75
Turbidity NTU	12.26	28	71.00	2.10	14.73

RED32
SALINE RIVER NEAR BURG, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.30	40	13.00	3.90	2.09
BOD 5 Day mg/l	0.98	42	4.00	0.20	0.69
pH	7.19	40	8.00	6.51	0.31
TSS mg/l	3.24	41	11.00	0.50	2.30
NO2+NO3-N mg/l	0.47	39	1.56	0.02	0.43
Tot. Phos. mg/l	0.06	34	0.09	0.03	0.02
Tot. Org. C mg/l	4.23	42	8.90	2.00	1.44
T.Hardness mg/l	18.37	31	197.00	10.00	33.19
Chloride mg/l	2.90	42	4.00	2.00	0.53
Sulfate mg/l	3.70	39	9.00	1.00	1.99
TDS mg/l	41.66	44	67.00	27.00	7.78
Turbidity NTU	7.91	44	33.00	2.60	6.39

RED21
SALINE RIVER NR LOCKESBURG

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.81	39	11.60	4.00	1.73
BOD 5 Day mg/l	1.34	41	13.00	0.20	1.99
pH	7.03	39	8.30	5.79	0.43
TSS mg/l	7.17	42	30.00	2.00	7.14
NO2+NO3-N mg/l	0.22	40	0.70	0.02	0.14
Tot. Phos. mg/l	0.07	34	0.19	0.03	0.04
Tot. Org. C mg/l	5.22	41	9.20	2.20	1.83
T.Hardness mg/l	19.09	32	75.00	8.00	12.10
Chloride mg/l	3.26	40	7.00	2.00	1.12
Sulfate mg/l	7.66	41	53.00	2.00	7.98
TDS mg/l	50.07	43	152.00	25.00	19.36
Turbidity NTU	12.40	43	70.00	1.50	12.53

RED18B
MINE CREEK BELOW NASHVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.38	12	10.90	3.80	1.95
BOD 5 Day mg/l	1.45	11	2.50	0.60	0.57
pH	7.00	12	7.48	6.78	0.26
TSS mg/l	7.14	11	16.00	2.00	4.14
NO2+NO3-N mg/l	1.13	12	2.30	0.49	0.73
Tot. Phos. mg/l	1.15	12	6.71	0.08	1.85
Tot. Org. C mg/l	5.21	12	8.60	2.90	1.87
T.Hardness mg/l	25.29	7	35.00	19.00	5.15
Chloride mg/l	18.60	11	48.00	4.00	13.75
Sulfate mg/l	19.93	12	48.00	7.00	11.93
TDS mg/l	138.58	12	318.00	59.00	80.77
Turbidity NTU	13.06	12	26.00	4.40	7.20

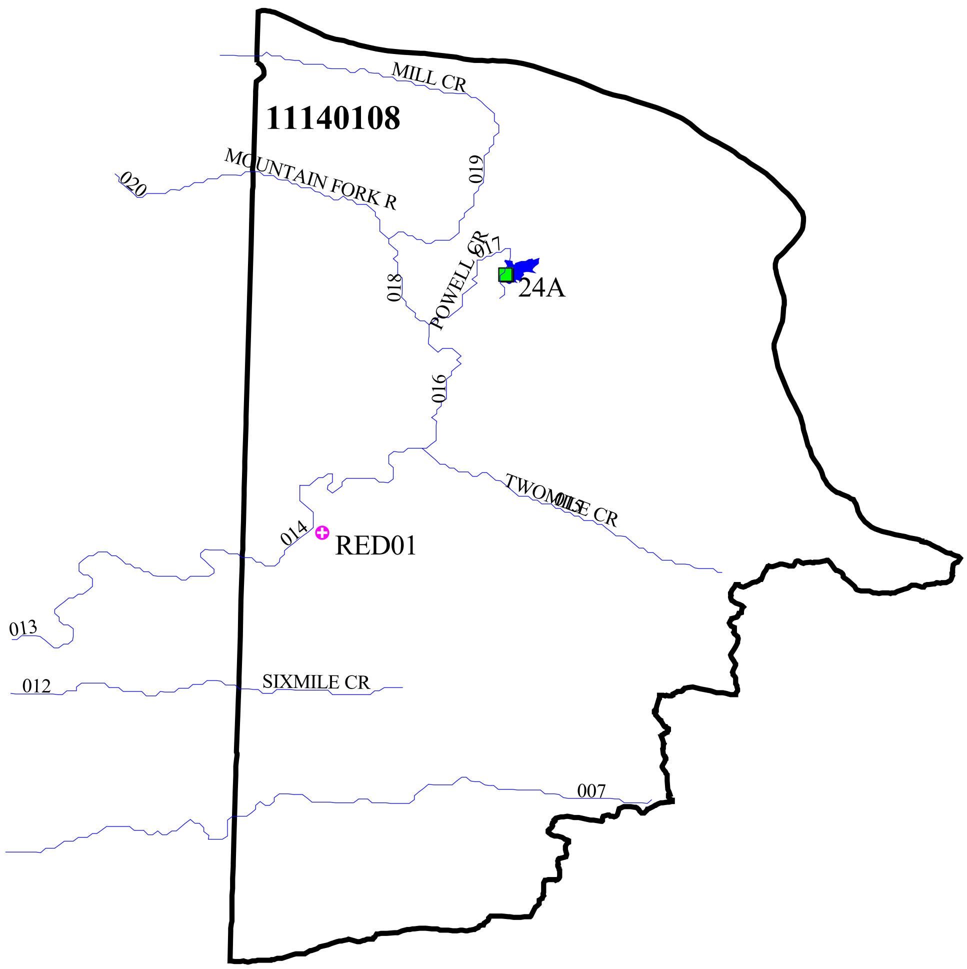
SEGMENT 1D - MOUNTAIN FORK AND TRIBUTARIES (RED RIVER BASIN)

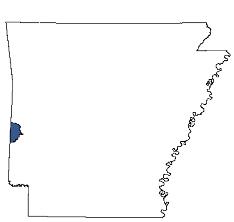
This segment is located on the western edge of Arkansas and covers a portion of Polk County. Basin Segment 1D encompasses a 20-mile reach of the Mountain Fork of Little River from its headwaters to the Arkansas-Oklahoma line.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. Also the Mountain Fork River is designated as an extraordinary resource and an ecologically sensitive waterbody due to the occurrence of the leopard darter in this basin. Monitored data were used for assessing 11 miles of stream within this segment. An 11.0 mile reach of the Mountain Fork was assessed as meeting designated uses. Other waters were unassessed.

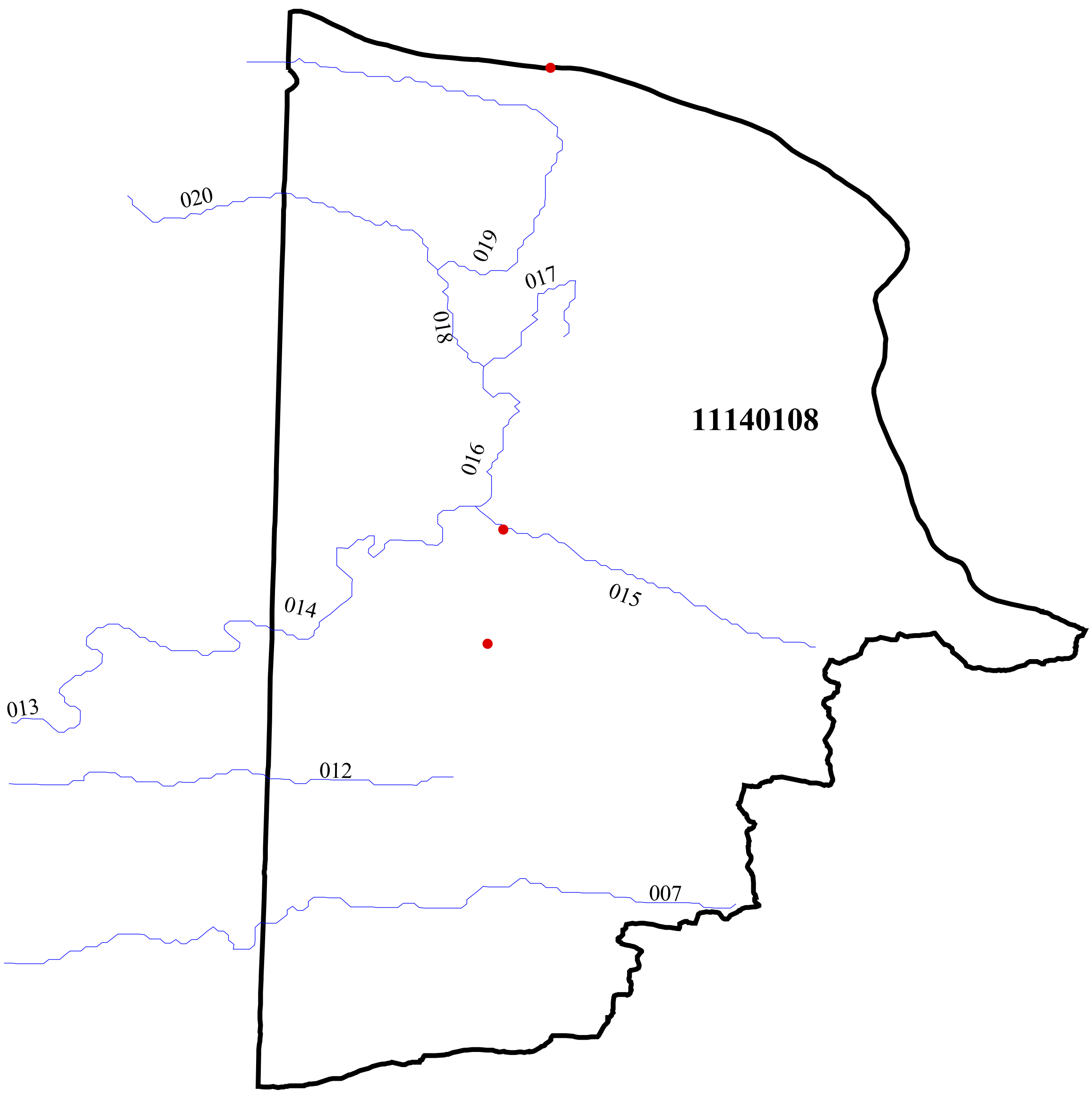
Planning Segment 1D - Monitoring Stations

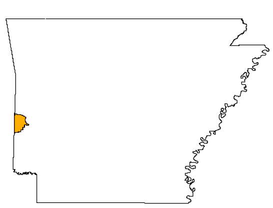




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-1D																		
Buffalo Creek	11140108	-007	9.5		U											FISH CONSUMPTION	11	0
Sixmile Creek	11140108	-012	4.1		U											AQUATIC LIFE	11	0
Mountain Fork	11140108	-014	11	RED01	M	S	S	S	S	S	S					SWIMMING	11	0
Twomile Creek	11140108	-015	8.1		U											SECONDARY CONTACT	11	0
Mountain Fork	11140108	-016	4.5		U											DRINKING SUPPLY	11	0
Mountain Fork	11140108	-018	2.8		U											AGRI & INDUSTRY	11	0
Powell Creek	11140108	-017	4.7		U													
Mill Creek	11140108	-019	12.2		U													
Mountain Fork	11140108	-020	4		U													
TOTAL MILES	60.9																	
MILES UNASSESSED	49.9																	
MILES EVALUATED	0																	
MILES MONITORED	11																	

Planning Segment 1D - NPDES Permitted Facilities





(Segment 1D)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0035483	HATFIELD, CITY OF	JOSHLING CK	11140108	1D
AR0037605	AR PARKS & TOURISM-QUEEN WILHE	MILL CK TRIB,MTN FORK CK	11140108	1D
AR0046787	BOY SCOUTS OF AMERICA-CADDO	2-MI CK,MTN FORK RV,,LITTLE RV,...	11140108	1D

RED01
MT FORK NEAR HATFIELD ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.38	38	10.40	5.20	1.61
BOD 5 Day mg/l	1.11	44	7.60	0.20	1.29
pH	7.39	42	8.06	6.58	0.33
TSS mg/l	8.40	43	187.00	1.00	28.08
NO2+NO3-N mg/l	0.23	37	1.48	0.01	0.26
Tot. Phos. mg/l	0.08	25	0.49	0.03	0.09
Tot. Org. C mg/l	4.45	42	12.40	2.00	2.16
T.Hardness mg/l	12.51	32	60.00	7.00	10.81
Chloride mg/l	3.32	41	35.00	2.00	5.05
Sulfate mg/l	5.80	40	56.00	1.00	8.85
TDS mg/l	43.84	44	213.00	26.00	28.12
Turbidity NTU	14.54	44	165.00	2.50	25.06

OUACHITA RIVER BASIN

Segment 2A - Boeuf River and Tributaries

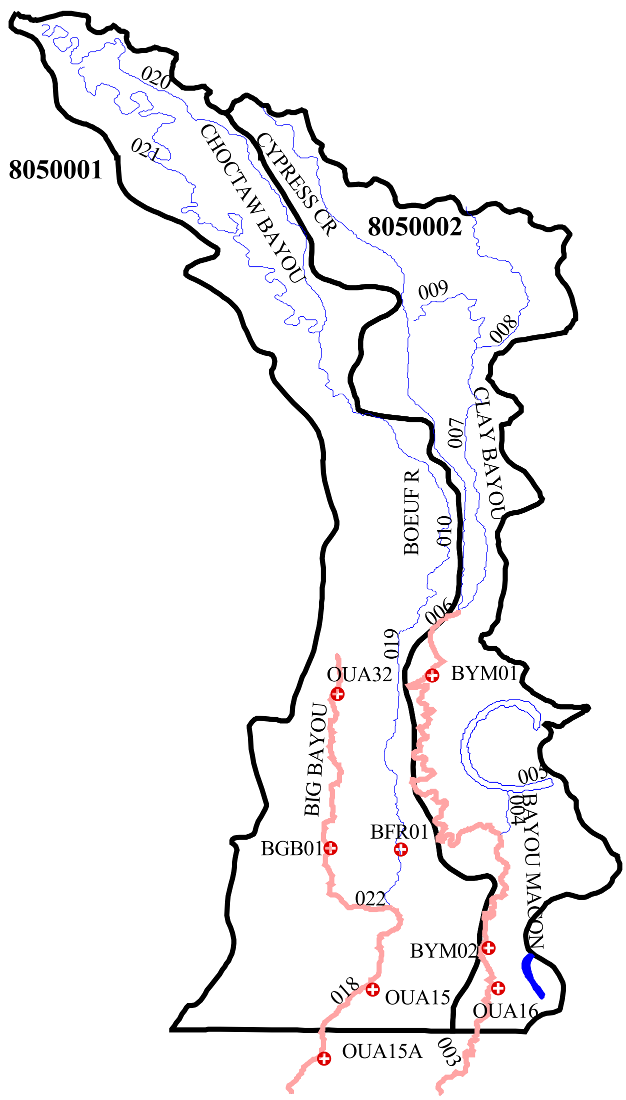
This segment is located in the extreme southeastern corner of Arkansas. It includes most of Chicot and Desha Counties, the northeastern part of Lincoln County, and small areas of Drew, Ashley and Jefferson Counties. Major streams within this segment include the Boeuf River and its tributaries - Macon Bayou, Cypress Creek, Big Bayou, Oakwood Bayou and others. The flows are generally southward into Louisiana.

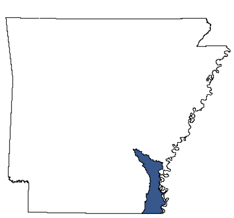
SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation, and public, industrial and agricultural water supplies. Monitored data were used as the basis of assessing 253.7 miles of stream within this segment. Data assessed from those monitored reaches provided some indication that the aquatic life use may be impaired due to frequent and very high turbidity and suspended solids values. Bayou Macon, Big Bayou, and lower Boeuf River were assessed as not meeting the aquatic life use. It is clear that these conditions are caused by the runoff from intensive row crop agriculture which is the dominant land use within this segment. Elevated chlorides occur in lower Boeuf River and in Big Bayou; this is probably from discharges of irrigation water taken from deep aquifers.

All stations monitored within this segment exhibited multiple occurrences of pesticides (several pesticides and/or more than one occurrence of the same pesticide) which were above the analytical detection level. This was the highest rate of occurrence of pesticides within any segment of the State, although no water quality standard or drinking water maximum contaminant level were exceeded.

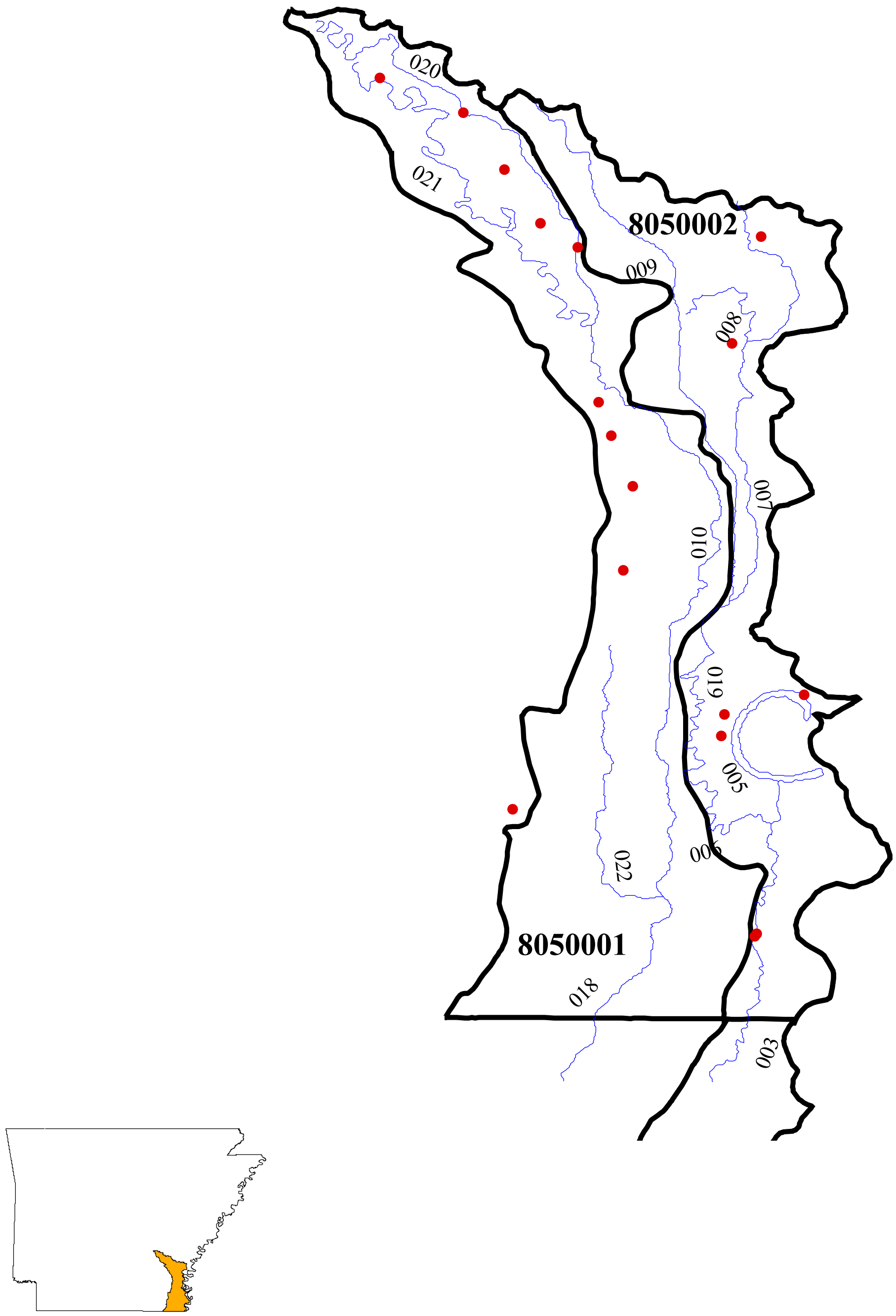
Planning Segment 2A - Monitoring Stations





STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-2A																		
Boeuf River	8050001	-018	49.4	OUA15A	M	S	N	S	S	S	S	AG		SI	MN	FISH CONSUMPTION	253.7	0
Boeuf River	8050001	-019	58.1	BFR01	M	S	S	S	S	S	S					AQUATIC LIFE	58.1	195.6
Big Bayou	8050001	-022	27.1	BGB01,+	M	S	N	S	S	S	S	AG		SI	MN	SWIMMING	253.7	0
Cypress Creed	8050001	-020	47.5		U											SECONDARY CONTACT	253.7	0
Choctaw Bayou	8050001	-021	58.9		U											DRINKING SUPPLY	253.7	0
Macon Bayou	8050002	-003	80.5	BYM02	M	S	N	S	S	S	S	AG		SI		AGRI & INDUSTRY	253.7	0
Ditch Bayou	8050002	-004	4		U													
Macon Bayou	8050002	-006	38.6	BYM01	M	S	N	S	S	S	S	AG		SI				
Clay Ditch	8050002	-007	24.3		U													
Boggy Creek	8050002	-009	12		U													
Oak Log Creek	8050002	-010	48.4		U													
Red Fork Creek	8050002	-008	17		U													
TOTAL MILES	465.8																	
MILES UNASSESSED	212.1																	
MILES EVALUATED	0																	
MILES MONITORED	253.7																	

Planning Segment 2A - NPDES Permitted Facilities



Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021610	WATSON, CITY OF	001-CAN #67 & 002-REB BU FORK	8050002	2A
AR0021679	GOULD, CITY OF	TRIB,KERCH CAN,CYPRESS CK	8050001	2A
AR0021849	LAKE VILLAGE, CITY OF	LTL LAKE BU,BU MACON,BOEUF RV	8050002	2A
AR0022071	MCGEHEE, CITY OF	BU BARTHOLOMEW	8050001	2A
AR0022250	DERMOTT, CITY OF-SOUTH POND	BU BARTHOLOMEW,OUACHITA RV	8050001	2A
AR0033707	TILLAR, CITY OF	CAN #18,BU MACON,BOEUFF RV	8050001	2A
AR0033839	EUDORA, CITY OF	DIT,BU MACON	8050002	2A
AR0033987	DUMAS, CITY OF	CAN #19,BU MACON	8050001	2A
AR0034371	PORTLAND, CITY OF	TRIB, BU BARTHOLOMEW, OUACHITA RV	8050001	2A
AR0037125	MITCHELLVILLE, CITY OF	CAN #19,CYPRESS CK,AMOS BU,BOGGY BU	8050002	2A
AR0038130	AR PARKS & TOURISM-LK CHICOT	LK CHICOT,DITCH BU,MACON BU	8050002	2A
AR0039039	DELTA SPECIAL SCHOOL DIST	DIT,BOGGY BU,CLAY BU	8050002	2A
AR0039381	GRADY, CITY OF	CAN #19,BU MACON	8050001	2A
AR0040827	AR DEPT OF CORRECTION-CUMMINS	CAN #19	8050002	2A
AR0042838	FARMLAND IND, INC-SOUTHERN	BU MACON	8050001	2A
AR0046507	AR HWY DEPT-MCGEHEE HQ	DIT,CAN#18,MACON BU,MACON L,CANEYBU	8050001	2A
AR0047716	LAKE VILLAGE WOOD YARD	TRIB,LITTLE LK,MACON BU RV,TENSAS R	8050002	2A

OUA15A
BOEUF RIVER NR ARK-LA LINE

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.38	36	12.50	4.70	1.88
BOD 5 Day mg/l	3.47	42	6.90	0.50	1.33
pH	7.23	39	8.46	6.24	0.47
TSS mg/l	99.13	41	1056.00	7.00	177.92
NO2+NO3-N mg/l	0.51	35	1.65	0.06	0.39
Tot. Phos. mg/l	0.33	38	1.03	0.11	0.21
Tot. Org. C mg/l	8.49	38	14.00	5.60	1.82
T.Hardness mg/l	159.15	31	402.00	18.00	114.89
Chloride mg/l	60.49	37	183.00	6.00	49.34
Sulfate mg/l	27.97	39	99.00	4.00	21.27
TDS mg/l	325.29	42	676.00	142.00	140.31
Turbidity NTU	141.79	41	810.00	6.30	183.65

SEGMENT 2B - BAYOU BARTHOLOMEW AND TRIBUTARIES
(OUACHITA RIVER BASIN)

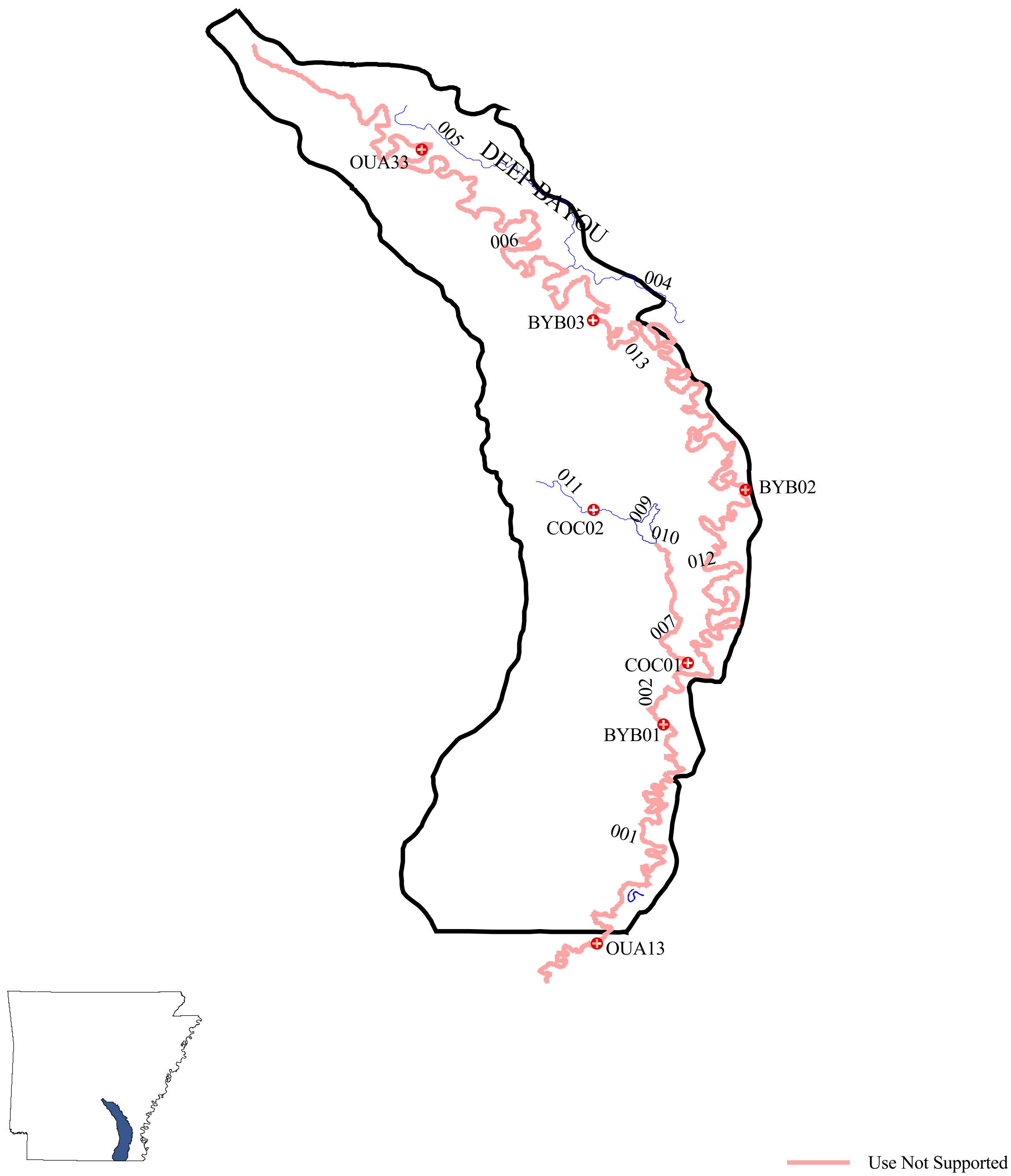
Segment 2B, located in the southeastern part of Arkansas, covers parts of Jefferson, Lincoln, Drew and Ashley Counties. The major streams in this segment are Bayou Bartholomew, Ables Creek, Cutoff Creek and their tributaries.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation, and public, industrial and agricultural water supplies. This segment contains a total of 359.4 stream miles, of which 330.5 are being assessed using monitoring data. Water quality is impacted in much of this segment by nonpoint pollution generated by row crop agriculture. Silt loads and turbidity are consistently very high, thus causing degradation to the aquatic life contained in many of these streams. Bayou Bartholomew also recorded the highest level of the pesticide metolachlor of any station sampled during the reporting period. The entire stretch of Bayou Bartholomew has been assessed as not meeting the aquatic life uses due to siltation and turbidity.

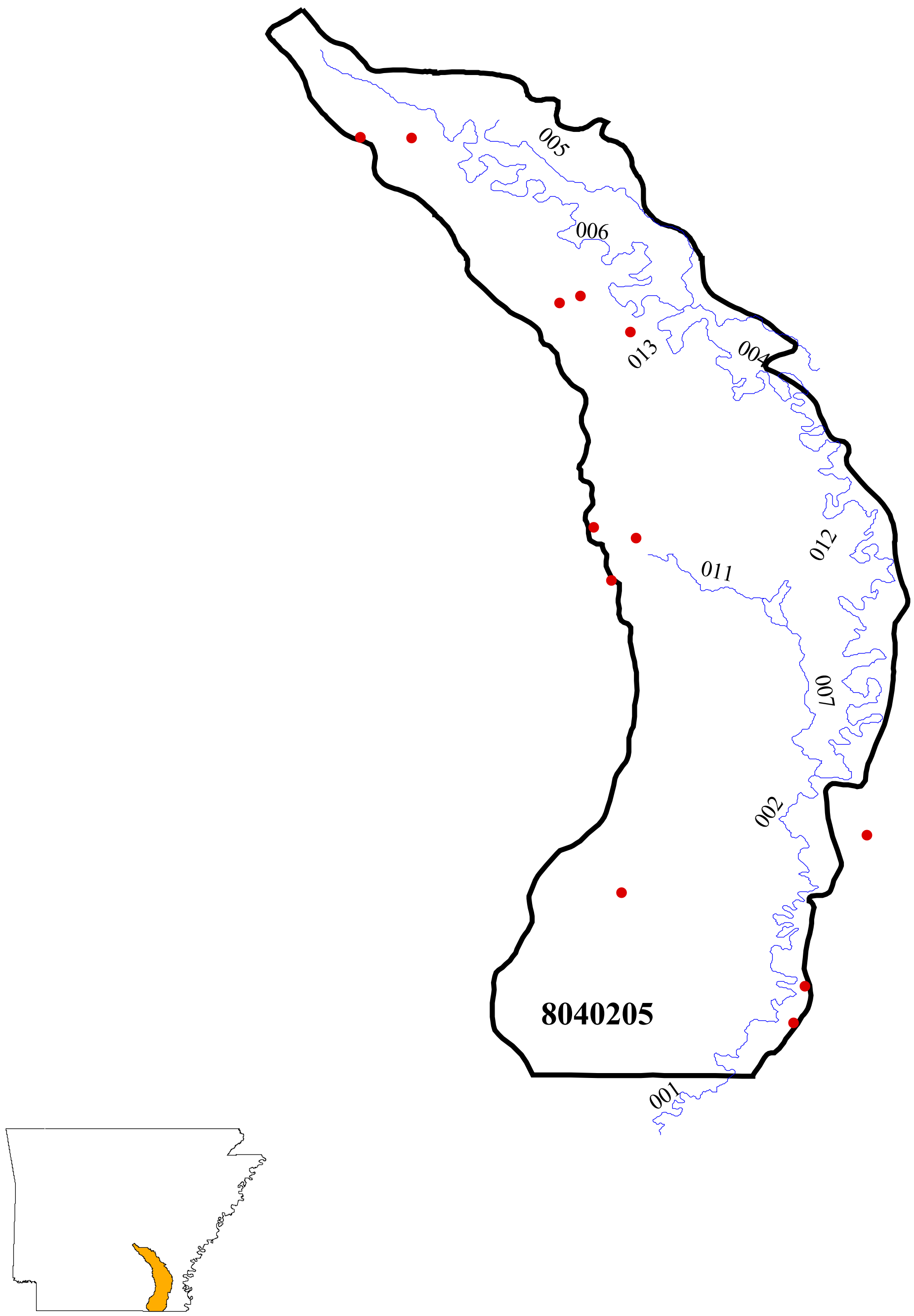
Mercury contamination of fish tissue in 42.9 miles of Bayou Bartholomew and 16.8 miles of Cutoff Creek is limiting fish consumption in this basin. The source of the mercury contamination is unknown.

Planning Segment 2B - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-2B																		
B. Bartholomew	8040205	-001	60.1	OUA13	M	S	N	S	S	S	S	AG		SI		FISH CONSUMPTION	299.7	59.7
B. Bartholomew	8040205	-002	17.9	BYB01	M	N	N	S	S	S	S	UN	AG	HG	SI	AQUATIC LIFE	57.5	301.9
B. Bartholomew	8040205	-006	82.3	OUA33	M	S	N	S	S	S	S	AG		SI		SWIMMING	359.4	0
Deep Bayou	8040205	-005	28.9		E	S	S	S	S	S	S					SECONDARY CONTACT	359.4	0
B. Bartholomew	8040205	-012U	82.7	BYB02	M	S	N	S	S	S	S	AG		SI		DRINKING SUPPLY	359.4	0
B. Bartholomew	8040205	-012	25		M	N	N	S	S	S	S	UN	AG	HG	SI	AGRI & INDUSTRY	359.4	0
B. Bartholomew	8040205	-013	33.9	BYB03	M	S	N	S	S	S	S	AG		SI				
Cutoff Creek	8040205	-007	16.8	COC01	M	N	S	S	S	S	S	UN		HG				
Cutoff Creek	8040205	-011	11.8	COC02	M	S	S	S	S	S	S							
TOTAL MILES	359.4																	
MILES UNASSESSED	0																	
MILES EVALUATED	28.9																	
MILES MONITORED	330.5																	

Planning Segment 2B - NPDES Permitted Facilities



(Segment 2B)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021831	MONTICELLO, CITY OF-EAST PLANT	GODFREY CK/SEG 2B-OUACHITA RV BASIN	8040205	2B
AR0022144	WILMOT, CITY OF	BU BARTHOLOMEW	8040205	2B
AR0034029	HAMBURG, CITY OF	CHEMIN-A-HAUT CK	8040205	2B
AR0037141	PARKDALE, CITY OF	BU BARTHOLOMEW	8040205	2B
AR0037885	BOGGY BAYOU SID	BOGGY BU,BU BARTHOLOMEW	8040205	2B
AR0039144	PINEWOOD SID #1	TRIB,NEVINS CK	8040205	2B
AR0041297	MONTROSE, CITY OF	2A-WARDS BU & 2B-BU BARTHOLOMEW	8040205	2B
AR0041602	SUBURBIA SID #1	NEVIN CK,BU BARTHOLOMEW	8040205	2B
AR0045888	AR PARKS & TOURISM-CANE CREEK	CANE CK	8040205	2B
AR0046477	STAR CITY MUNICIPAL WASTEWATER	CANE CK,BU BARTHOLOMEW	8040205	2B
AR0047350	PINE HAVEN MOBILE LODGE	GODFREY CK TRIB,CUTOFF CK,BU BARTHO	8040205	2B
AR0047732	J. P. PRICE LUMBER CO	TRIB, CLEAR CK, SALINE RV		
AR0047872	ROBERT FLOYD SAWMILL, INC	TRIB,CANE CK,BU BARTHOLOMEW	8040205	2B

OUA13
BAYOU BARTHOLOMEW NR JONES LA

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.34	38	8.90	4.80	1.00
BOD 5 Day mg/l	1.48	44	2.90	0.50	0.56
pH	6.97	41	7.81	5.96	0.42
TSS mg/l	31.59	43	205.00	4.00	35.18
NO2+NO3-N mg/l	0.26	42	1.11	0.02	0.20
Tot. Phos. mg/l	0.23	40	0.41	0.05	0.08
Tot. Org. C mg/l	9.07	41	14.40	4.70	2.36
T.Hardness mg/l	53.59	33	127.00	12.00	36.98
Chloride mg/l	11.60	38	37.00	2.00	8.79
Sulfate mg/l	11.05	40	60.00	5.00	8.51
TDS mg/l	134.65	43	207.00	75.00	36.64
Turbidity NTU	55.71	43	265.00	7.60	45.46

OUA33
BAYOU BARTHOLOMEW NR LADD,ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	5.99	41	10.30	0.20	2.05
BOD 5 Day mg/l	1.99	42	5.20	0.70	0.90
pH	6.43	41	7.14	5.88	0.37
TSS mg/l	31.45	39	422.00	1.00	67.32
NO2+NO3-N mg/l	0.19	41	0.88	0.01	0.20
Tot. Phos. mg/l	0.23	38	0.89	0.08	0.16
Tot. Org. C mg/l	10.27	42	15.30	5.60	2.45
T.Hardness mg/l	45.35	31	122.00	12.00	34.69
Chloride mg/l	8.02	39	21.00	3.00	4.18
Sulfate mg/l	9.86	40	26.00	1.00	4.93
TDS mg/l	130.63	40	276.00	77.00	44.75
Turbidity NTU	65.58	43	620.00	4.50	103.37

SEGMENT 2C - SALINE RIVER AND TRIBUTARIES (OUACHITA RIVER BASIN)

Segment 2C is located in south central Arkansas and covers parts of Saline, Garland, Hot Spring, Grant, Jefferson, Cleveland, Lincoln, Drew, Bradley and Ashley Counties. This segment contains the Saline River drainage system from its headwaters in the Ouachita Mountains to its confluence with the Ouachita River. The principal tributaries are Hurricane Creek, Hudgins Creek and Derrieusseaux Creek.

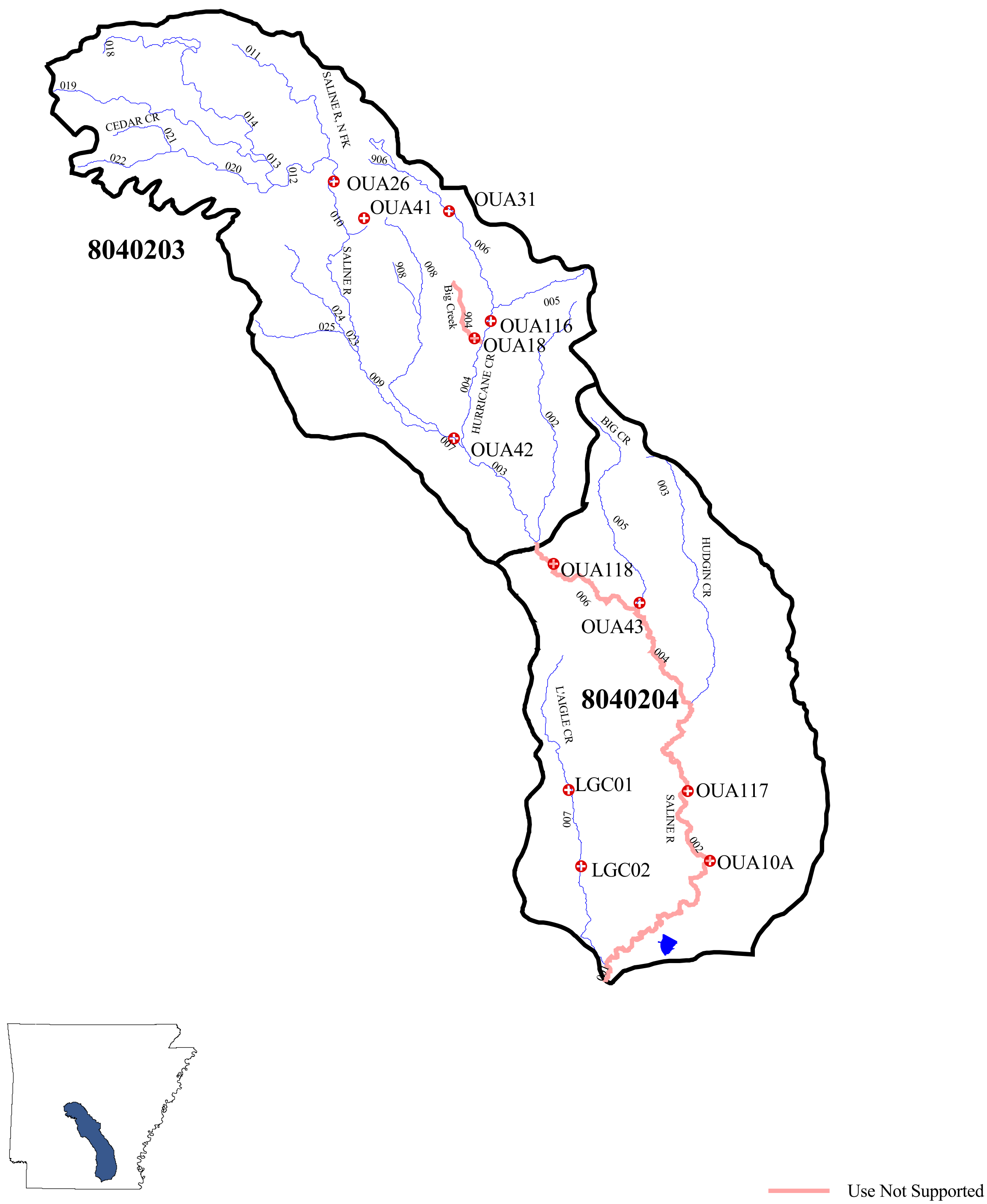
SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation, and public, industrial and agricultural water supplies. Slightly over one-half of the total stream miles within this segment are designated as extraordinary resource waters. This includes the Saline River and its primary headwater tributaries. Monitored data were used to assess 256.7 miles of stream and another 293.7 miles were evaluated. Total stream miles within the segment are 576.3 of which 550.4 were assessed within this process. Monitoring data indicate that 83.8 miles of stream are not meeting the public water supply use due to excessive mineral content; however, the domestic water supply use has been removed from these waters. Mineral content (chlorides, sulfates, other dissolved minerals) originates in this basin from open pit bauxite mines.

Big Creek below the City of Sheridan discharge has improved somewhat, but still displays dissolved oxygen violations and elevated BOD and TOC. This stream is classified as a seasonal fishery and the critical season D.O. standard is 2 mg/L to prevent nuisance conditions. Many small seasonal streams in this ecoregion have D.O. levels below 2 mg/L during the critical season.

A fish consumption advisory has been placed on 89.9 miles of the Saline River because of mercury contamination. The source is unknown.

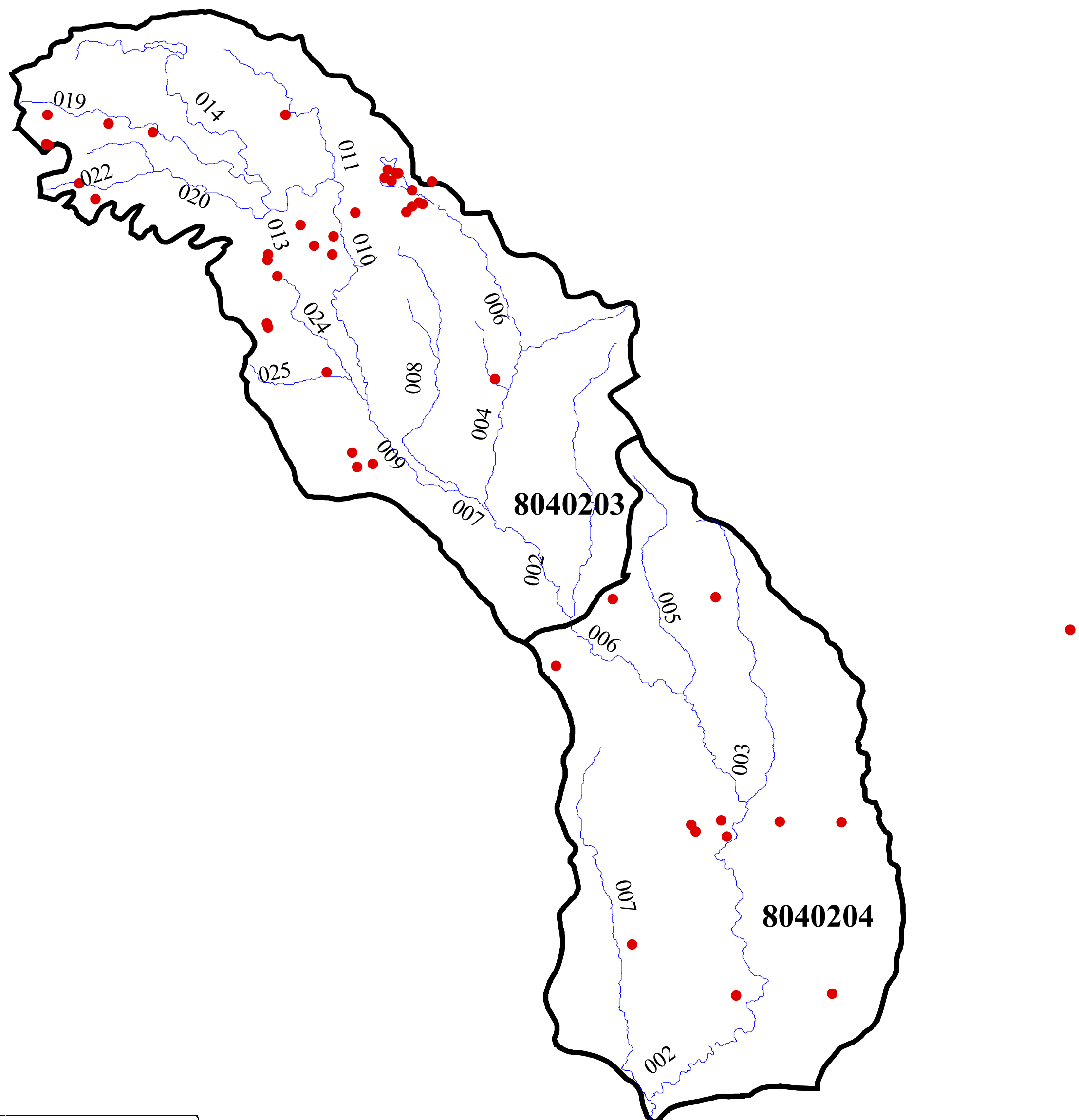
Planning Segment 2C - Monitoring Stations

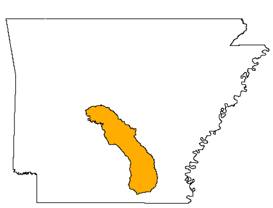


STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC
SEG-2C															
Saline River	8040203	-001	0.2		E	N	S	S	S	S	S	UN		HG	
Derrieusseaux	8040203	-002	34.3		E	S	S	S	S	S	S				
Saline River	8040203	-003	17.2		E	S	S	S	S	S	S				
Hurricane Cr.	8040203	-004	19.5	OUA116	M	S	S	S	S	R	S				
Simpson Creek	8040203	-005	12.3		E	S	S	S	S	S	S				
Hurricane Cr.	8040203	-006	30.8	OUA31	M	S	S	S	S	R	S				
Saline River	8040203	-007	3.8	OUA42	M	S	S	S	S	S	S				
Lost Creek	8040203	-008	33.5		E	S	S	S	S	R	S				
Saline River	8040203	-009	15.6		E	S	S	S	S	S	S				
Saline River	8040203	-010	29.8	OUA26&41	M	S	S	S	S	S	S				
N.Fork Saline	8040203	-011	23.2		E	S	S	S	S	S	S				
Saline River	8040203	-012	10.2		E	S	S	S	S	S	S				
Saline River	8040203	-013	4		E	S	S	S	S	S	S				
Alum Fork	8040203	-014	24.6		E	S	S	S	S	S	S				
Alum Fork	8040203	-015	3.2		E	S	S	S	S	S	S				
Alum Fork	8040203	-018	10		E	S	S	S	S	S	S				
M.Fork Saline	8040203	-019	30.9		E	S	S	S	S	S	S				
S.Fork Saline	8040203	-020	14.9		E	S	S	S	S	S	S				
Cedar Creek	8040203	-021	9.1		E	S	S	S	S	S	S				
S.Fork Saline	8040203	-022	10.9		E	S	S	S	S	S	S				
Francois Cr.	8040203	-023	2.9		E	S	S	S	S	S	S				
Francois Cr.	8040203	-024	14.9		U										
Huskey Creek	8040203	-025	11		U										
Big Creek	8040203	-904	10	OUA18	M	S	N	S	S	S	S	MP		OE	
Saline River	8040204	-001	2.8		M	N	S	S	S	S	S	UN		HG	
Saline River	8040204	-002	53	OUA10A	M	N	S	S	S	S	S	UN		HG	
Saline River	8040204	-004	16.4		M	N	S	S	S	S	S	UN		HG	
Saline River	8040204	-006	17.5	OUA118	M	N	S	S	S	S	S	UN		HG	
Hudgins Creek	8040204	-003	36.7		E	S	S	S	S	S	S				
Big Creek	8040204	-005	28.9	OUA43	M	S	S	S	S	S	S				
L'Aigle Creek	8040204	-007	44.2	LGC01&02	M	S	S	S	S	S	S				
TOTAL MILES	576.3														
MILES UNASSESSED	25.9														
MILES EVALUATED	293.7														
MILES MONITORED	256.7														

USE	SUPPORT	NOT SUPPORT
FISH CONSUMPTION	460.5	89.9
AQUATIC LIFE	540.4	10
SWIMMING	550.4	0
SECONDARY CONTACT	550.4	0
DRINKING SUPPLY	466.6	0
AGRI & INDUSTRY	550.4	0

Planning Segment 2C - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000582	ALCOA CO-BAUXITE	HURRICANE CK,HOLLY CK,DRY LOST CK	8040203	2C
AR0000876	POTLATCH CORP-BRADLEY UNIT	TRIB,SALINE RV (1,2) & BRUSHY FK(3)	8040204	2C
AR0000914	POTLATCH CORP-SOUTHERN UNIT	FRANKLIN CK,SALINE RV,OUACHITA RV	8040204	2C
AR0001112	REYNOLDS METALS CO-HURRICANE	TRIB,HURRICANE CK	8040203	2C
AR0001236	BORDEN CHEMICAL, INC	BIG CK, FRANCIS CK, SALINE RV	8040203	2C
AR0021695	RISON, CITY OF	DIT,HARRISON CK,SALINE RV	8040204	2C
AR0021822	MONTICELLO, CITY OF-WEST PLANT	TEN MILE CK,SALINE RV,OUACHITA RV	8040204	2C
AR0034002	BRYANT, CITY OF	TRIB,HURRICANE CK,SALINE RV,OUACHIT	8040203	2C
AR0034291	HOT SPRINGS VILLAGE POA	MILL CK, MIDDLE FK, ALUM FK, SALINE RV	8040203	2C
AR0034347	SHERIDAN, CITY OF-SOUTH WWTP	BIG CK,HURRICNE CK,SALINE RV	8040203	2C
AR0035955	BRYANT PUB SCHOOL-SALEM ELEM	TRIB,HURRICANE CK	8040203	2C
AR0036358	WABASH ALLOYS	DODSON CK TRIB	8040203	2C
AR0036498	BENTON, CITY OF	TRIB,DEPOT CK,SALINE RV	8040203	2C
AR0037559	CEDAR HILL INVESTMENTS, LLC	HURRICANE CK TRIB,2C-OUACHITA RB	8040203	2C
AR0038989	HERMITAGE, TOWN OF	BIG TOWN CK,L'AIGLE CK,SALINE RV	8040204	2C
AR0039284	HOT SPRINGS VILLAGE-CEDAR CK	CEDAR CK, SOUTH FORK, SALINE RV	8040203	2C
AR0040096	WILMAR, CITY OF	FLAT BRANCH CK,TEN MILE CK	8040204	2C
AR0041416	TIMBER RIDGE NEUROREHAB CENTER	HENDERSON CK,N FK/SALINE RV	8040203	2C
AR0042129	A.C.PAXTON-COLLEGEVILLE HEIGHT		8040203	2C
AR0042277	PAWNEE VILLAGE POA	TRACE CK TRIB,SALINE RV	8040203	2C
AR0042421	FOUNTAIN HILL, CITY OF	FLAT CK TRIB,SALINE RV	8040204	2C
AR0042889	JJ'S TRUCK STOP, INC	BRUSHY CK TRIB,FRANCOIS CK,SALINE R	8040203	2C
AR0043257	FARM FRESH CATFISH CO	TRIB,SALINE RV	8040203	2C
AR0043427	WARREN, CITY OF-WTR & SWR COMM	SALINE RV	8040204	2C
AR0043672	KINGSLAND, CITY OF	PANTHER CK,SALINE RV,OUACHITA RV	8040204	2C
AR0044075	FOUNTAIN LAKE SCHOOL DIST 18	TRIB, SOUTH FORK, SALINE RV	8040203	2C
AR0044105	WILLAMETTE INDUSTRIES-MALVERN	TRIB,BIG CK	8040203	2C
AR0044156	ALCOA ROAD MHP	TRIB,HURRICANE CK	8040203	2C
AR0044423	JESSIEVILLE PUBLIC SCHOOL	TRIB,COLEMAN CK,SALINE RV	8040203	2C
AR0044482	BRANCH HOLLOW MHP	HURRICANE CK	8040203	2C
AR0044547	HASKELL, CITY OF	TRACE CK,SALINE RV	8040203	2C

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0044652	HURRICANE LAKE MHP	HWY5 DIT,HURRICANE CK,SALINE RV	8040203	2C
AR0045047	VILLAGE SQUARE SHOPPING CTR	TRIB, MILL CK, SALINE RV	8040203	2C
AR0046141	MOUNTAIN VALLEY RETREAT CENTER	TRIB, SOUTH FORK, SALINE RV	8040203	2C
AR0046698	INTERNATIONAL PAPER CO-LEOLA	TRIB,SALINE RV	8040203	2C
AR0046817	GLEN ROSE SCHOOL DIST	TRIB,TEN MILE CK	8040203	2C
AR0047210	SALEM SID #10	TRIB,HURRICANE CK,SALINE RV	8040203	2C
AR0047431	PATHWAY CAMPGROUND-AR CHURCH	TRIB,BRUSHY CK,SALINE RV	8040203	2C
AR0047830	JOHNSVILLE SAND & GRAVEL CO	HUNT BR,SALINE RV	8040204	2C
AR0047902	H.G.TOLER & SON LUMBER CO, INC	TRIB,SALINE RV	8040203	2C
AR0048003	ALUMINA & CERAMICS LAB-MALAKOF	DIT,SALINE RV	8040203	2C
AR0048135	BAUXITE SCHOOL DIST 14-PLANT 1	TRIB,HOLLY CK,SALINE RV	8040203	2C
AR0048194	N GARLAND CO YOUTH CTR	TRIB,COLEMAN CK,MID FK SALINE RV	8040203	2C
AR0048259	BAUXITE SCHOOL DIST 14-PLANT 2	HURRICANE CK TRIB,SALINE RV	8040203	2C
AR0048445	POYEN, CITY OF-WWTP	TRIB, BIG CK, FRANCOIS CK, SALINE RV	8040203	2C
AR0048569	WOODLAWN SCHOOL DISTRICT #6	TRIB,HUDGIN CK,SALINE RV	8040204	2C
AR0047767	ROBBINS HARDWOOD FLOORING, INC	TRIB,SALINE RV	8040204	2C

OUA18
BIG CREEK BELOW SHERIDAN ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	5.93	28	9.80	1.10	2.97
BOD 5 Day mg/l	3.13	27	7.80	1.30	1.55
pH	6.24	28	6.88	5.33	0.36
TSS mg/l	17.44	27	107.00	3.00	21.86
NO2+NO3-N mg/l	0.21	28	1.15	0.05	0.20
Tot. Phos. mg/l	0.32	26	0.93	0.08	0.21
Tot. Org. C mg/l	9.87	30	23.00	3.70	3.61
T.Hardness mg/l	27.50	22	92.00	8.00	16.55
Chloride mg/l	8.64	27	39.00	3.00	6.50
Sulfate mg/l	15.57	29	50.00	5.00	8.27
TDS mg/l	98.32	28	290.00	59.00	42.57
Turbidity NTU	28.68	30	67.00	2.50	15.42

OUA43
BIG CREEK AT HWY 35 NR PANSY ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.66	35	12.10	2.10	2.47
BOD 5 Day mg/l	1.85	34	4.40	0.60	0.98
pH	6.05	35	6.54	5.53	0.25
TSS mg/l	18.99	33	224.00	1.00	38.71
NO2+NO3-N mg/l	0.14	28	0.62	0.02	0.13
Tot. Phos. mg/l	0.10	32	0.39	0.03	0.07
Tot. Org. C mg/l	11.15	36	17.80	4.80	3.17
T.Hardness mg/l	29.63	27	75.00	15.00	13.87
Chloride mg/l	5.73	34	15.00	4.00	2.31
Sulfate mg/l	25.57	36	81.00	7.00	17.58
TDS mg/l	98.43	34	173.00	65.00	21.82
Turbidity NTU	23.22	37	82.00	7.20	13.52

OUA31

HURRICANE CREEK NR SARDIS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.58	41	13.40	5.10	1.95
BOD 5 Day mg/l	0.92	42	2.80	0.10	0.60
pH	6.49	41	7.54	5.61	0.46
TSS mg/l	15.43	30	200.00	1.00	37.56
NO2+NO3-N mg/l	0.31	42	0.82	0.05	0.19
Tot. Phos. mg/l	0.07	28	0.20	0.03	0.04
Tot. Org. C mg/l	5.58	41	10.50	2.20	1.94
T.Hardness mg/l	103.57	30	266.00	48.00	58.07
Chloride mg/l	7.82	39	15.00	4.00	2.59
Sulfate mg/l	214.05	40	708.00	34.00	172.61
TDS mg/l	401.34	41	1111.00	114.00	250.85
Turbidity NTU	22.83	42	230.00	0.30	46.82

OUA116

HURRICANE CREEK-HWY 270 BRIDGE NEAR SHERIDAN

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.20	39	11.80	3.20	2.24
BOD 5 Day mg/l	0.88	40	2.60	0.30	0.49
pH	6.44	39	7.09	5.70	0.36
TSS mg/l	6.29	36	28.00	1.00	6.53
NO2+NO3-N mg/l	0.17	37	0.50	0.02	0.11
Tot. Phos. mg/l	0.05	22	0.10	0.03	0.02
Tot. Org. C mg/l	6.86	39	11.90	3.80	1.95
T.Hardness mg/l	80.04	29	187.00	27.00	50.42
Chloride mg/l	6.58	37	13.00	4.00	2.56
Sulfate mg/l	158.99	39	536.00	20.00	144.62
TDS mg/l	289.01	38	882.00	80.00	207.85
Turbidity NTU	14.95	41	190.00	1.10	29.25

OUA10A
SALINE RIVER NR FOUNTAIN HILL, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.35	37	10.00	6.00	0.79
BOD 5 Day mg/l	1.38	43	3.40	0.50	0.62
pH	6.97	40	8.16	6.28	0.42
TSS mg/l	10.69	42	37.00	3.00	6.96
NO2+NO3-N mg/l	0.11	40	0.40	0.01	0.09
Tot. Phos. mg/l	0.07	36	0.11	0.04	0.02
Tot. Org. C mg/l	7.61	40	16.00	3.50	3.02
T.Hardness mg/l	33.53	31	68.00	16.00	11.36
Chloride mg/l	4.36	38	7.00	2.00	1.21
Sulfate mg/l	26.11	40	100.00	10.00	15.91
TDS mg/l	100.94	43	232.00	57.00	30.48
Turbidity NTU	12.80	42	29.00	3.80	5.80

OUA26
SALINE RIVER NR BENTON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.34	42	14.30	5.60	2.03
BOD 5 Day mg/l	0.83	41	6.00	0.05	0.99
pH	6.96	42	8.01	6.29	0.44
TSS mg/l	12.82	38	106.00	1.00	27.19
NO2+NO3-N mg/l	0.10	36	0.37	0.02	0.07
Tot. Phos. mg/l	0.07	23	0.27	0.03	0.06
Tot. Org. C mg/l	3.49	39	11.20	1.80	1.87
T.Hardness mg/l	52.62	31	64.00	23.00	8.87
Chloride mg/l	2.98	41	7.00	2.00	0.92
Sulfate mg/l	8.39	41	14.00	4.00	2.41
TDS mg/l	71.88	42	89.00	54.00	9.06
Turbidity NTU	11.56	43	78.00	1.10	19.21

OUA41
SALINE RIVER NEAR SHAW, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.90	39	14.20	5.90	1.97
BOD 5 Day mg/l	0.82	39	2.30	0.10	0.46
pH	6.98	39	7.75	6.04	0.36
TSS mg/l	5.07	38	14.00	1.00	3.02
NO2+NO3-N mg/l	0.28	39	1.01	0.05	0.20
Tot. Phos. mg/l	0.08	30	0.23	0.03	0.04
Tot. Org. C mg/l	3.47	35	6.40	2.30	0.93
T.Hardness mg/l	52.58	28	63.00	42.00	6.43
Chloride mg/l	5.77	37	32.00	3.00	4.81
Sulfate mg/l	42.78	37	109.00	6.00	29.33
TDS mg/l	139.29	38	254.00	55.00	54.43
Turbidity NTU	6.25	39	18.00	2.50	3.47

OUA42
SALINE RIVER NEAR SHERIDAN, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.91	41	11.30	5.60	1.59
BOD 5 Day mg/l	0.90	43	4.60	0.30	0.71
pH	6.52	42	7.42	5.68	0.44
TSS mg/l	13.66	40	77.00	2.00	15.17
NO2+NO3-N mg/l	0.25	39	4.54	0.01	0.71
Tot. Phos. mg/l	0.06	34	0.11	0.03	0.02
Tot. Org. C mg/l	5.95	41	11.20	3.80	2.02
T.Hardness mg/l	38.62	31	53.00	2.00	10.88
Chloride mg/l	4.42	39	9.00	2.00	1.33
Sulfate mg/l	30.33	42	87.00	0.05	21.20
TDS mg/l	109.53	41	227.00	4.00	44.30
Turbidity NTU	15.70	44	63.00	0.20	13.08

OUA117
SALINE RIVER AT HWY 172

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.25	37	9.80	5.30	0.86
BOD 5 Day mg/l	1.27	41	3.30	0.30	0.76
pH	6.97	40	7.71	6.20	0.34
TSS mg/l	9.49	42	41.00	2.00	7.22
NO2+NO3-N mg/l	0.12	39	0.45	0.01	0.10
Tot. Phos. mg/l	0.07	36	0.14	0.04	0.02
Tot. Org. C mg/l	7.75	40	16.50	3.60	3.14
T.Hardness mg/l	33.40	32	75.00	15.00	12.02
Chloride mg/l	4.58	38	7.00	2.00	1.34
Sulfate mg/l	27.90	40	90.00	9.00	15.35
TDS mg/l	104.37	43	217.00	58.00	28.90
Turbidity NTU	13.02	42	33.00	3.10	7.11

OUA118
SALINE RIVER AT HWY 79

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.91	42	13.90	5.50	1.76
BOD 5 Day mg/l	0.87	43	2.10	0.20	0.44
pH	6.58	42	7.47	5.74	0.38
TSS mg/l	9.89	40	47.00	2.00	9.99
NO2+NO3-N mg/l	0.14	37	0.39	0.02	0.09
Tot. Phos. mg/l	0.06	38	0.10	0.03	0.02
Tot. Org. C mg/l	6.63	42	16.70	3.70	2.61
T.Hardness mg/l	39.29	31	73.00	19.00	10.93
Chloride mg/l	4.55	40	7.00	3.00	1.08
Sulfate mg/l	33.46	42	90.00	9.00	19.76
TDS mg/l	116.24	41	224.00	70.00	37.68
Turbidity NTU	15.09	44	69.00	4.50	12.73

SEGMENT 2D - LOWER OUACHITA RIVER AND TRIBUTARIES (OUACHITA RIVER BASIN)

Segment 2D occupies the south central part of Arkansas, covering all of Calhoun County, large portions of Bradley, Dallas, Ouachita and Union Counties and smaller areas of Ashley, Cleveland, Columbia and Nevada Counties. Segment 2D encompasses the lower Ouachita River and its tributaries from the confluence of the Little Missouri and Ouachita Rivers to the Louisiana state line. The major tributaries are Moro Creek, Lapile Creek, Champagnolle Creek and Smackover Creek.

SUMMARY OF WATER QUALITY CONDITIONS

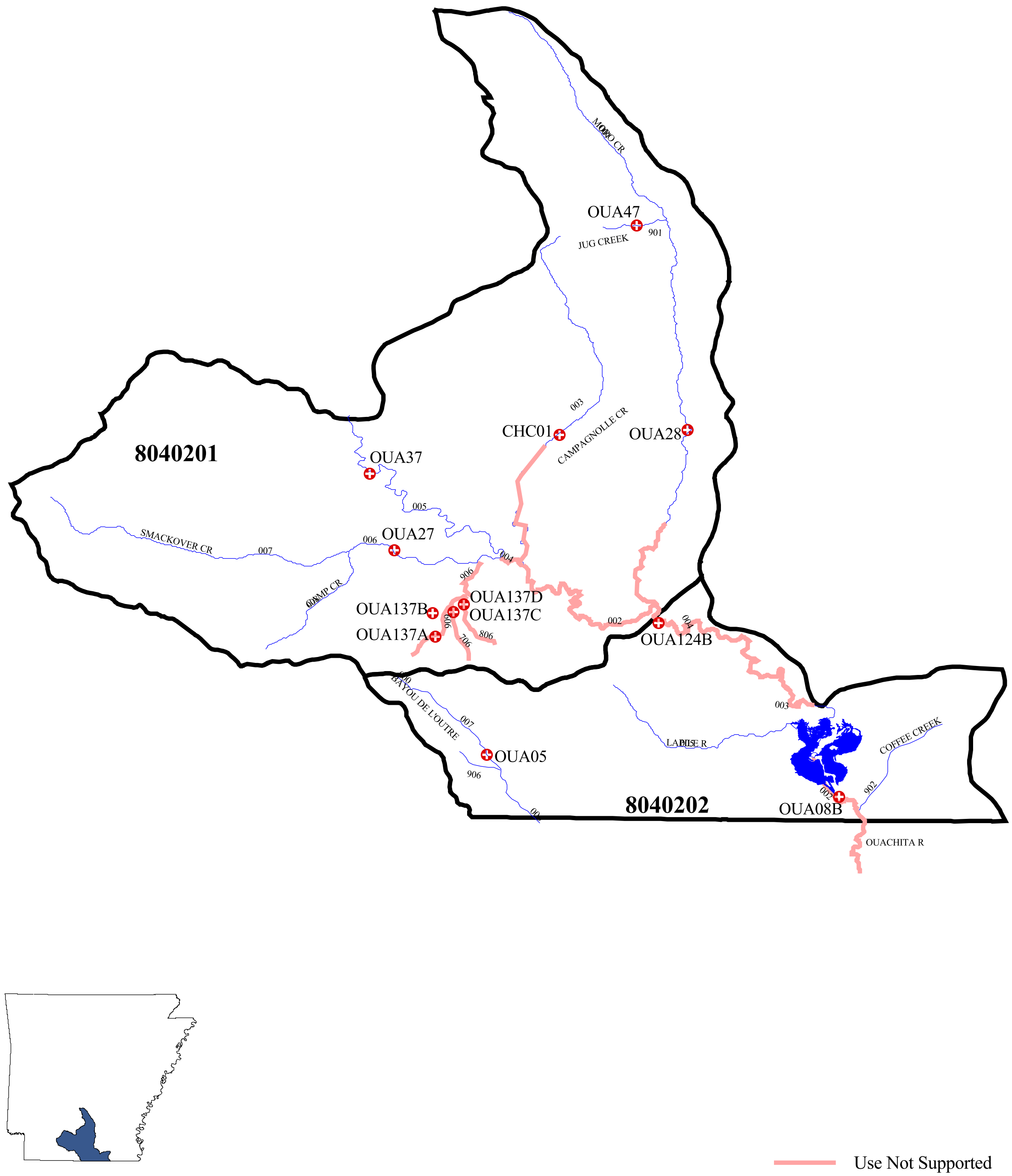
The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation, and public, industrial and agricultural water supplies. Topping the list of water quality problems in this basin is the fish consumption advisory on the Ouachita River. The Ouachita River in this segment has fish consumption advisories due to mercury contamination. In addition, Champagnolle and Moro Creeks have similar advisories. A consumption advisory has been placed on 66.3 miles of the Ouachita River, 20.0 miles of Champagnolle Creek and 12 miles of Moro Creek. The source is unknown. Although still supporting its designated uses, Jug Creek below the City of Fordyce has elevated levels of nutrients and minerals.

There has been significant improvement over the last five to ten years in the level of chlorides and total dissolved solids in Smackover Creek. Figure A-2D-1 demonstrates the decline in chlorides and total dissolved solids during the last four years which is a continuation of the decline over the last 8 to 10 years. With one exception, both chlorides and total dissolved solids have been well below the water quality standard for these constituents in Smackover Creek since 1995.

The oil, brine and bromine extraction industry has contributed point and nonpoint source contamination to waters in this segment for many years. Recent water quality improvements are likely a result of clean up of the extraction sites; improved storage, such as phasing out open pits; and better maintenance of transmission lines, e.g.,repair and replacement of broken and leaking pipelines.

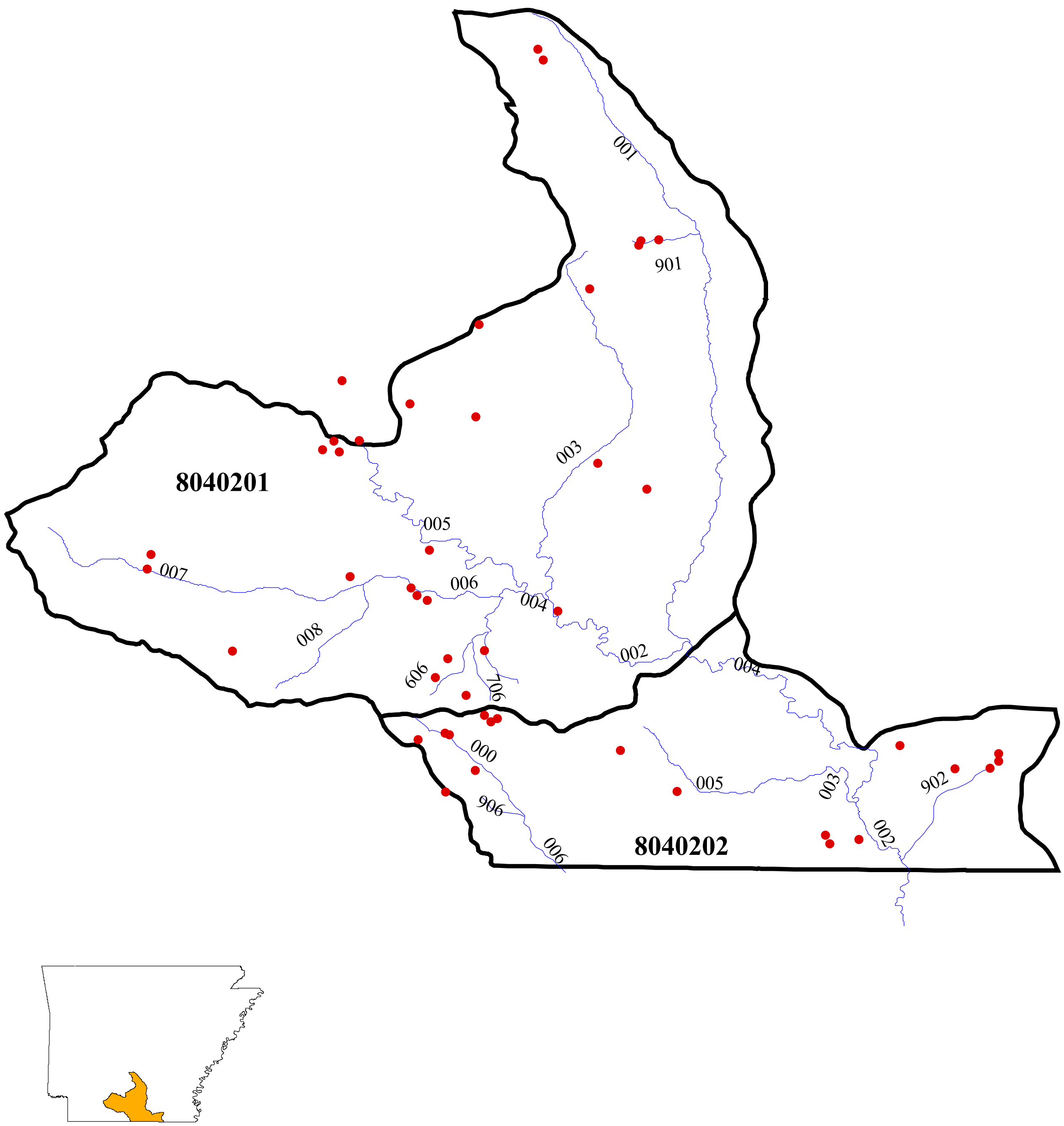
Some of the most severe water quality problems exist in the unnamed tributary from ElDorado Chemical Company (ELCC), in Flat Creek and in Salt Creek. ELCC tributary contains toxic ammonia levels, very high nitrates and very high minerals (SO_4/ TDS); the source is from the ElDorado Chemical Company discharge. Flat Creek and Salt Creek have very high minerals(CL/ SO_4/TDS). The exact source is unknown, but these drainage basins are from the northern edge of ElDorado where numerous oil and brine processing and storage facilities exist along with numerous abandoned pumping facilities. These flows enter Smackover Creek below the ambient monitoring station on Smackover Creek.

Planning Segment 2D - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-2D																		
Ouachita River	8040202	-002	4	OUA08B	M	N	S	S	S	S	S	UN		HG		FISH CONSUMPTION	247.3	98.3
Ouachita River	8040202	-003	8.4		M	N	S	S	S	S	S	UN		HG		AQUATIC LIFE	313.1	32.5
Ouachita River	8040202	-004	28.9	OUA124B	M	N	S	S	S	S	S	UN		HG		SWIMMING	345.6	0.0
Lapile Creek	8040202	-005	25.3		U											SECONDARY CONTACT	345.6	0.0
B. De L'Outre	8040202	-006	32.4	OUA05	M	S	S	S	S	R	S					DRINKING SUPPLY	280.7	32.5
B. De L'Outre	8040202	-007	6.9		E	S	S	S	S	S	S					AGRI & INDUSTRY	345.6	0.0
B. De L'Outre	8040202	-008	10.6		E	S	S	S	S	S	S							
Moro Creek	8040201	-001	57.9	OUA28	M	S	S	S	S	S	S							
Moro Creek	8040201	-001	12		M	N	S	S	S	S	S	UN		HG				
Ouachita River	8040201	-002	22.5		M	N	S	S	S	S	S	UN		HG				
Ouachita River	8040201	-004	2.5		M	N	S	S	S	S	S	UN		HG				
Ouachita River	8040201	-005	34.2	OUA37	M	S	S	S	S	S	S							
Champagnolle	8040201	-003	20.9		E	S	S	S	S	S	S							
Champagnolle	8040201	-003	20	CHC01	M	N	S	S	S	S	S	UN		HG				
Smackover Cr.	8040201	-006	14.8	OUA27	M	S	S	S	S	S	S							
Smackover Cr.	8040201	-007	29.1		E	S	S	S	S	S	S							
Camp Creek	8040201	-008	13.3		U													
Elcc Trib.	8040201	-606	8.5	OUA137A+	M	S	N	S	S	N	S	IP		AM	MN			
Flat Cr.	8040201	-706	16	OUA137C	M	S	N	S	S	N	S	RE		MN				
Salt Cr.	8040201	-806	8	OUA137D	M	S	N	S	S	N	S	RE		MN				
Haynes Cr.	8040201	-906	10		U													
Jug Creek	8040201	-901	8	OUA47	M	S	S	S	S	S	S							
TOTAL MILES	394.2																	
MILES UNASSESSED	48.6																	
MILES EVALUATED	67.5																	
MILES MONITORED	278.1																	

Planning Segment 2D - NPDES Permitted Facilities



(Segment 2D)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000558	INTERNATIONAL PAPER CO-CAMDEN	OUACHITA RV (001) & W TWO BU (002)	8040201	2D
AR0000574	COOPER TIRE & RUBBER CO-EL DOR	DIT,BOGGY CK,BU DE LOUTRE	8040202	2D
AR0000591	CROSS OIL REFINING & MARKETING	SMACKOVER CK (1-3) & HOLMES CK (4)	8040201	2D
AR0000647	LION OIL CO-EL DORADO REFINERY	LOUTRE CK,BU DELOUTRE,OUACHITA RV	8040202	2D
AR0000663	BERRY PETROLEUM CO-STEPHENS	TRIB,SMACKOVER CK,OUACHITA RV	8040201	2D
AR0000680	GREAT LAKES CHEMICAL CORP-SOUT	GUM CK-2D (1) & WALKER CK-2E (2,3)	8040201	2D
AR0000752	EL DORADO CHEMICAL CO, INC	TRIB,FLAT CK,HAYNES CK,OUACHITA RV	8040202	2D
AR0000841	ARKANSAS ELECTRIC COOP-MCCLELL	QUACHITA RV	8040201	2D
AR0001171	GREAT LAKES CHEMICAL CORP-CENT	BU DE LOUTRE (1,2,4) & LT CORNIE BU	8040202	2D
AR0001210	GEORGIA PACIFIC-CROSSETT	COFFEE CK,OUACHITA RV	8040202	2D
AR0020168	STEPHENS, CITY OF	SMACKOVER CK	8040201	2D
AR0021440	SMACKOVER, CITY OF	SMACKOVER CK,OUACHITA RV	8040201	2D
AR0021474	BEARDEN, CITY OF	E TWO BU	8040201	2D
AR0021687	STRONG, CITY OF	LAPILE CK,OUACHITA RV	8040202	2D
AR0021873	HAMPTON, CITY OF	CHAMPAGNOLLE CK	8040201	2D
AR0022268	HUTTIG, CITY OF	OUACHITA RV	8040202	2D
AR0022365	CAMDEN, CITY OF	W TWO BU (1) & OUACHITA RV (2)	8040201	2D
AR0033715	CARTHAGE, CITY OF	TRIB,MORO CK	8040201	2D
AR0033723	EL DORADO, CITY OF-SOUTH WWTP	BU DE LOUTRE	8040202	2D
AR0033758	FORDYCE, CITY OF-NORTH POND	JUG CK,MORO CK,OUACHITA RV	8040201	2D
AR0033812	N CROSSETT UTILITIES	TRIB,BRUSHY CK,OUACHITA RV	8040202	2D
AR0033936	EL DORADO, CITY OF-NORTH WWTP	MILL CK,HAYNES CK,SMACKOVER CK,OUAC	8040201	2D
AR0034363	SHUMAKER PUBLIC SERVICE CORP	TWO BU CK	8040201	2D
AR0035653	NORPHLET, CITY OF	TRIB,FLAT CK,HAYNES CK,SMACKOVER CK	8040201	2D
AR0035661	THORNTON, CITY OF	TURNERS CK,CHAMPAGNOLLE CK,OUACHITA	8040201	2D
AR0036064	GEORGIA PACIFIC-FORDYCE	JUG CK,MORO CK	8040201	2D
AR0036072	GEORGIA PACIFIC-EL DORADO SAWM	TRIB,BU DE LOUTRE	8040202	2D
AR0037761	LIBERTY BAPT ASSN-DBA BEECH	TRIB,OUACHITA RV	8040201	2D
AR0037800	ENSCO, INC (ENERGY SYSTEMS CO)	BOGGY CK	8040202	2D
AR0038211	CALION, CITY OF	CHAPELLE SLU,OUACHITA RV & RB	8040201	2D
AR0039659	FELSENTHAL, TOWN OF	WOLF SLOUGH	8040202	2D

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0040517	LOUANN, CITY OF	BRUSHY CK,SMACKOVER CK,OUACHITA RV	8040201	2D
AR0042315	CROSSETT HARBOR PORT AUTHORITY	OUACHITA RV	8040202	2D
AR0042609	HARRELL, CITY OF	SPRING BR,BLANN CK,LLOYD CK,MORO CK	8040201	2D
AR0044431	JORDAN TOWN MHP	TRIB,BELL BRANCH	8040202	2D
AR0044733	WILDWOOD TRAILER PARK	TRIB,FLAT CK,HAYNES CK,SMACKOVER CK	8040201	2D
AR0045233	LOCKHEED MARTIN VOUGHT SYS COR	TRIB,LOCUST BU,QUACHITA RV	8040201	2D
AR0045659	WELSCO, INC	DIT,HOLMES CK	8040201	2D
AR0045926	INTERNATIONAL PAPER CO-CULLEND	TRIB,TWO BAYOU	8040201	2D
AR0046116	PLUM CREEK MANUFACTURING, L.P.	DOLLAR SLU,GRAND MARIAS LK,OUACHITA	8040202	2D
AR0046451	ANTHONY TIMBERLANDS INC-FORDYC	DIT,JUG CK	8040201	2D
AR0047368	COLUMBIAN CHEMICALS CO	TRIB,BOGGY CK	8040201	2D
AR0047384	ANTHONY FOREST PRODUCTS CO	CATTAIL MARSH,N LAPILE CK	8040202	2D
AR0047503	IDAHO TIMBER CORP OF CARTHAGE	TRIB,MORO CK,OUACHITA RV	8040201	2D
AR0048046	ROGERS LUMBER CO OF CAMDEN	TRIB,QUACHITA RV	8040201	2D
AR0048097	GEORGIA PACIFIC-NORTH LOG YARD	TRIB,LTL BRUSHY CK,BIG BRUSHY CK	8040202	2D
AR0048381	WATSON TIE MILL & LOGGING, INC	BEECH CK,SMACKOVER CK,OUACHITA RV	8040201	2D

OUA05
BAYOU DELOUTRE NEAR EL DORADO, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	5.89	38	8.40	2.60	1.26
BOD 5 Day mg/l	1.72	43	3.80	0.60	0.84
pH	6.87	41	7.87	5.94	0.42
TSS mg/l	7.66	43	25.00	2.00	4.67
NO2+NO3-N mg/l	1.22	43	3.99	0.14	0.99
Tot. Phos. mg/l	0.13	39	0.28	0.04	0.06
Tot. Org. C mg/l	13.47	41	29.00	6.10	4.35
T.Hardness mg/l	53.98	32	120.00	18.00	22.01
Chloride mg/l	113.93	39	213.00	27.00	38.30
Sulfate mg/l	93.85	41	239.00	10.00	65.26
TDS mg/l	441.46	44	743.00	127.00	172.40
Turbidity NTU	10.49	43	26.00	4.20	5.30

OUA47
JUG CREEK BELOW FORDYCE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.18	40	11.20	2.90	2.04
BOD 5 Day mg/l	4.46	36	23.10	0.90	3.83
pH	6.65	40	7.34	5.87	0.39
TSS mg/l	18.50	38	177.00	2.00	29.91
NO2+NO3-N mg/l	3.46	42	13.80	0.07	3.59
Tot. Phos. mg/l	1.24	37	3.12	0.21	0.88
Tot. Org. C mg/l	14.72	40	30.80	5.80	4.22
T.Hardness mg/l	62.87	31	91.00	16.00	19.38
Chloride mg/l	42.98	38	82.00	3.00	19.19
Sulfate mg/l	24.43	40	51.00	5.00	8.65
TDS mg/l	268.58	39	409.00	85.00	78.44
Turbidity NTU	22.85	42	82.00	1.60	18.11

OUA28
MORO CREEK NEAR BANKS, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	5.85	33	8.10	3.40	1.27
BOD 5 Day mg/l	1.58	38	3.40	0.60	0.70
pH	6.73	36	7.35	5.98	0.33
TSS mg/l	8.85	37	62.00	0.50	10.05
NO2+NO3-N mg/l	0.15	31	1.06	0.02	0.19
Tot. Phos. mg/l	0.08	34	0.17	0.03	0.03
Tot. Org. C mg/l	13.05	37	26.50	3.60	3.88
T.Hardness mg/l	14.80	28	27.00	7.00	5.02
Chloride mg/l	5.08	35	11.00	2.00	1.92
Sulfate mg/l	8.92	37	26.00	3.00	4.67
TDS mg/l	77.63	39	99.00	55.00	11.32
Turbidity NTU	17.63	38	42.00	5.60	9.36

OUA08B
OUACHITA RIVER BELOW FELSENTHAL L & D

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.16	25	8.60	4.70	0.85
BOD 5 Day mg/l	1.28	28	2.50	0.60	0.47
pH	6.84	28	7.63	6.28	0.37
TSS mg/l	8.52	29	43.00	2.00	7.88
NO2+NO3-N mg/l	0.19	29	0.50	0.03	0.13
Tot. Phos. mg/l	0.06	26	0.15	0.03	0.03
Tot. Org. C mg/l	7.80	26	11.60	3.90	2.46
T.Hardness mg/l	22.91	18	32.00	16.00	4.82
Chloride mg/l	15.58	25	43.00	6.00	9.57
Sulfate mg/l	13.28	27	27.00	5.00	4.79
TDS mg/l	85.38	29	132.00	59.00	17.16
Turbidity NTU	12.27	28	32.00	0.90	6.87

OUA37

OUACHITA RIVER BELOW CAMDEN, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.58	38	10.10	5.90	0.88
BOD 5 Day mg/l	1.01	43	2.40	0.20	0.45
pH	6.82	41	7.61	5.69	0.38
TSS mg/l	16.78	43	174.00	3.00	25.80
NO2+NO3-N mg/l	0.17	44	0.42	0.04	0.08
Tot. Phos. mg/l	0.07	38	0.19	0.03	0.03
Tot. Org. C mg/l	5.82	41	11.00	3.70	1.90
T.Hardness mg/l	20.59	32	25.00	16.00	2.55
Chloride mg/l	5.46	40	41.00	2.00	5.93
Sulfate mg/l	11.59	41	21.00	5.00	3.75
TDS mg/l	63.10	44	124.00	44.00	14.03
Turbidity NTU	18.32	43	82.00	6.50	15.44

OUA124B

OUACHITA R. BELOW GAME & FISH PIGEON HILL ACCESS

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.50	38	8.90	6.10	0.71
BOD 5 Day mg/l	1.01	43	2.20	0.30	0.51
pH	6.85	41	7.41	6.20	0.27
TSS mg/l	10.22	43	33.00	2.00	7.12
NO2+NO3-N mg/l	0.24	43	1.12	0.03	0.21
Tot. Phos. mg/l	0.06	38	0.10	0.03	0.02
Tot. Org. C mg/l	6.84	41	12.50	3.50	2.43
T.Hardness mg/l	25.49	32	49.00	17.00	8.12
Chloride mg/l	22.71	39	90.00	5.00	23.34
Sulfate mg/l	11.51	41	19.00	4.00	3.76
TDS mg/l	91.80	44	204.00	51.00	39.09
Turbidity NTU	14.71	43	49.00	6.60	9.06

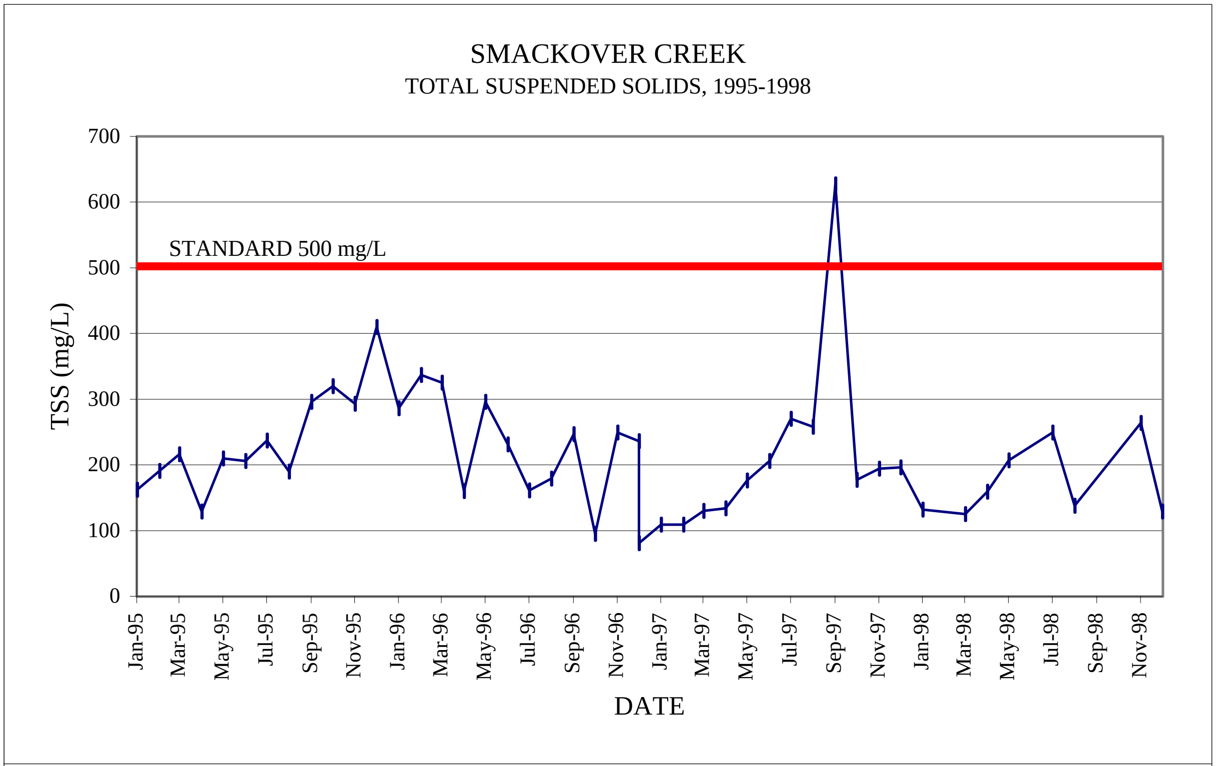
OUA27
SMACKOVER CREEK N OF SMACKOVER ARK

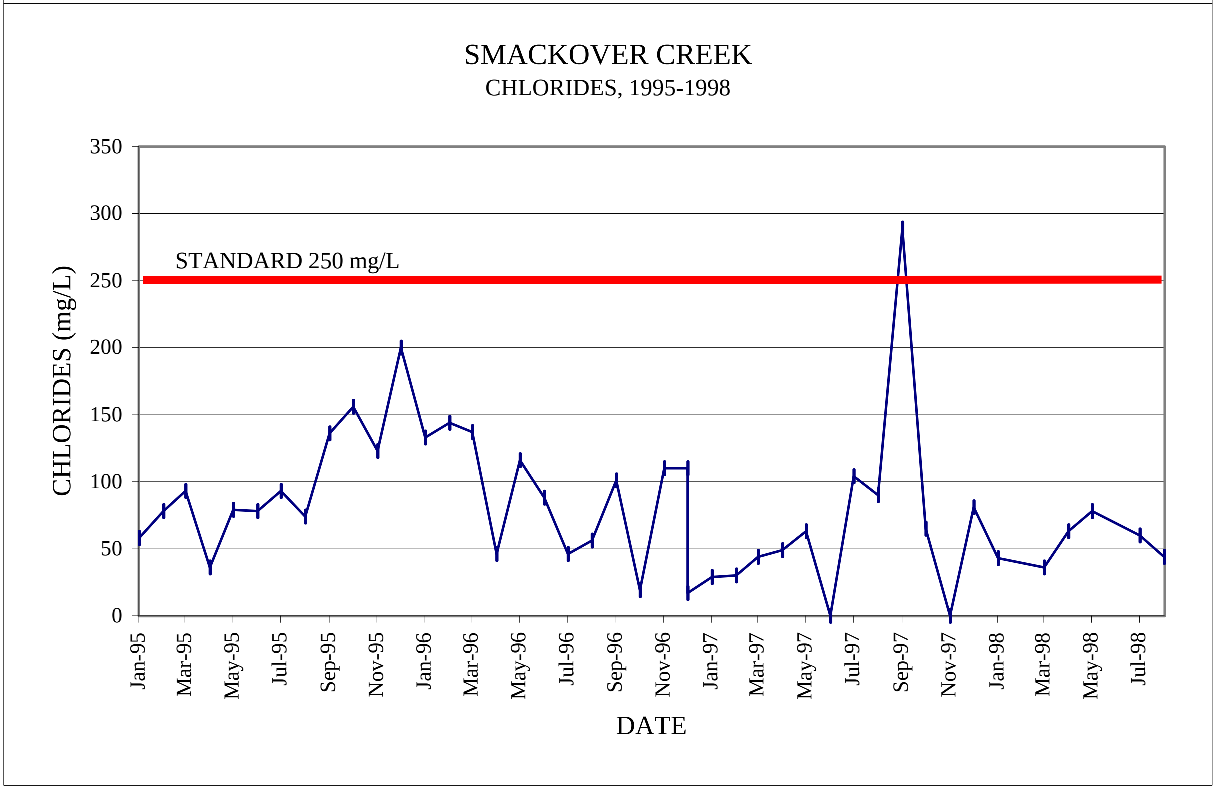
PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.25	39	9.30	3.00	1.45
BOD 5 Day mg/l	1.33	44	3.30	0.30	0.64
pH	6.62	42	7.91	5.88	0.36
TSS mg/l	11.00	44	32.00	1.00	5.87
NO2+NO3-N mg/l	0.13	42	0.42	0.02	0.11
Tot. Phos. mg/l	0.07	39	0.15	0.03	0.03
Tot. Org. C mg/l	10.76	43	22.40	4.90	3.54
T.Hardness mg/l	46.12	32	169.00	17.00	28.56
Chloride mg/l	85.24	41	289.00	17.00	52.07
Sulfate mg/l	8.91	42	16.00	2.00	3.18
TDS mg/l	216.26	45	627.00	81.00	95.86
Turbidity NTU	15.45	44	29.00	4.50	5.94

FIGURE A-2D-1

SMACKOVER CREEK

TOTAL SUSPENDED SOLIDS AND CHLORIDES, 1995-1998





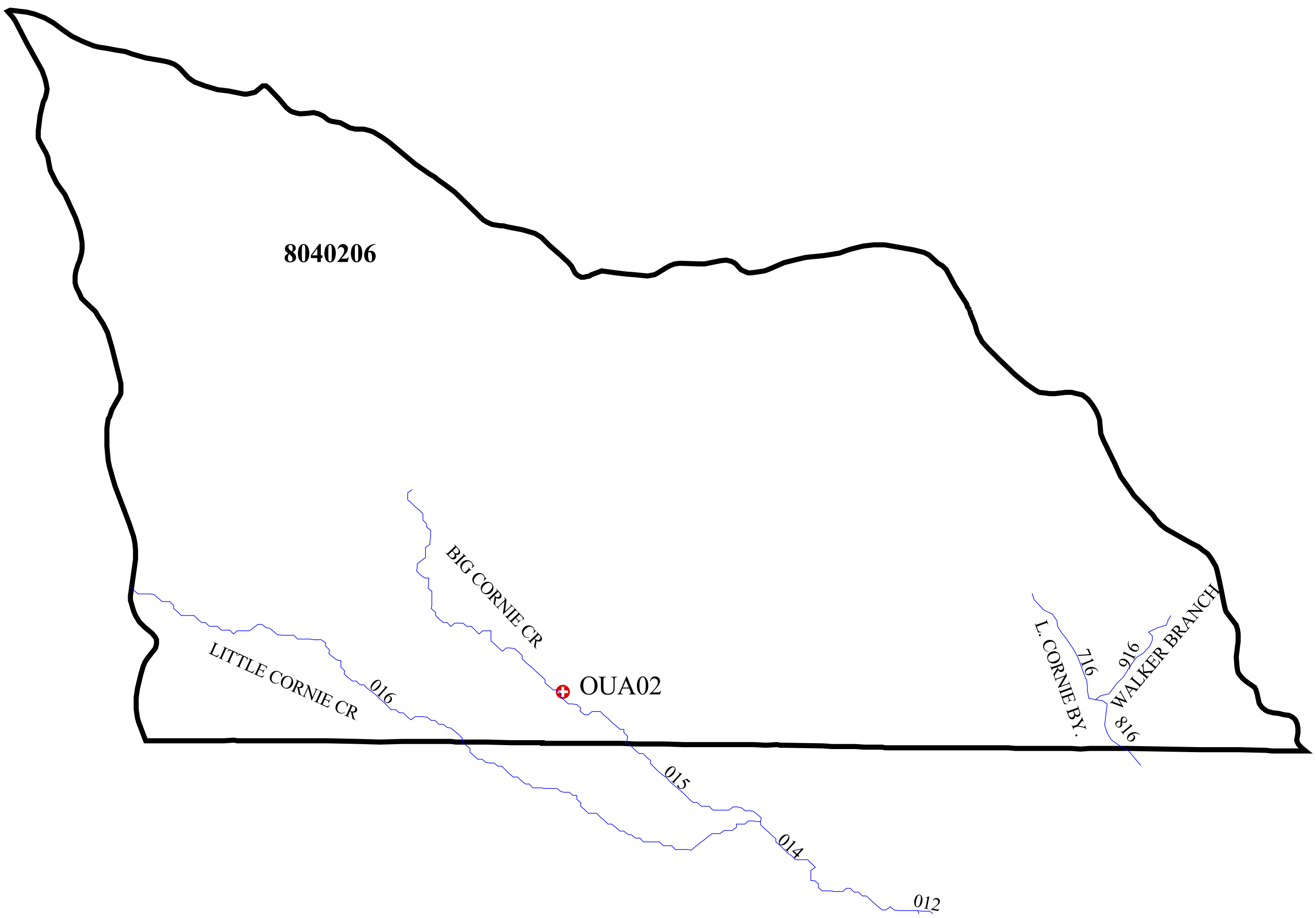
SEGMENT 2E - UPPER CORNIE BAYOU AND TRIBUTARIES (OUACHITA RIVER BASIN)

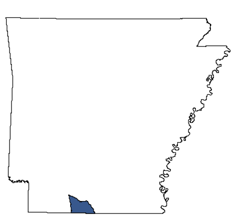
Segment 2E is located in southcentral Arkansas and covers parts of Columbia and Union Counties. This segment includes the upper portions of Cornie Bayou and Little Cornie Bayou, which eventually flow into the Ouachita River in northern Louisiana. The two major tributaries are Beech Creek and Three Creeks.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. From a total of 33.0 miles of stream within this segment, 15.0 miles were assessed using monitored data. In general, water quality within this basin has been improving. The oil industry has ceased discharging salt water almost entirely in this basin and chloride values have declined noticably within the last several years. There were, however, elevated levels of copper and zinc at the monitoring station on Big Corney Bayou. The levels recorded exceeded the acute toxicity values using mean ecoregion hardness although the hardness recorded at the station was generally higher than the ecoregion mean.

Planning Segment 2E - Monitoring Stations



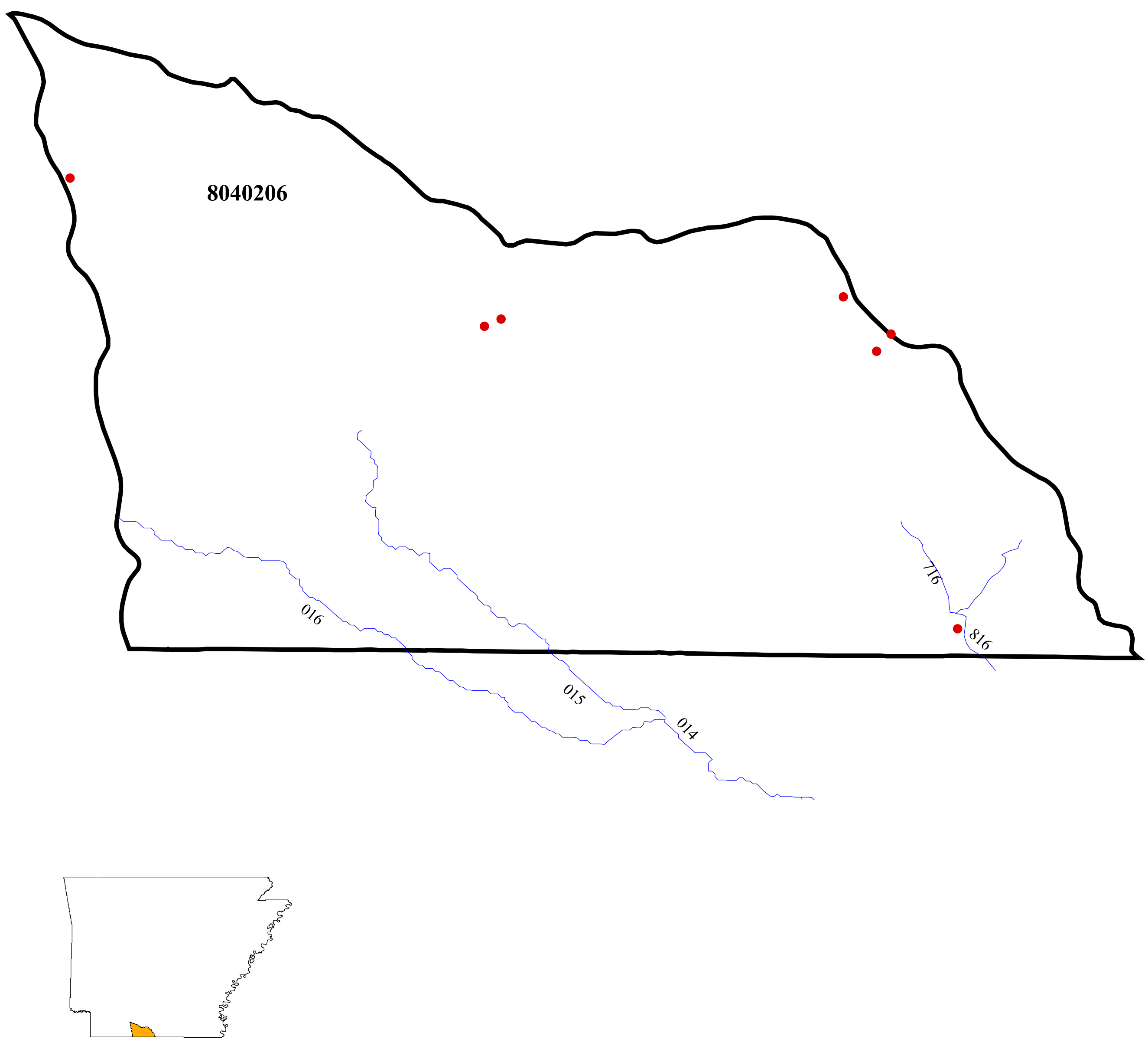


(Segment 2E)

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC
SEG-2E															
Big Cornie Cr.	8040206	-015	15	OUA02	M	S	S	S	S	S	S				
Little Cornie Cr.	8040206	-016	18		E	S	S	S	S	S	S				
Little Cornie Bayou	8040206	-716	5		E	S	S	S	S	S	S				
Little Cornie Bayou	8040206	-816	3		E	S	S	S	S	R	S				
Walker Branch	8040206	-916	3		E	S	S	S	S	R	S				
TOTAL MILES	44														
MILES UNASSESSED	0														
MILES EVALUATED	29														
MILES MONITORED	15														

USE	SUPPORT	NOT SUPPORT
FISH CONSUMPTION	44	0
AQUATIC LIFE	44	0
SWIMMING	44	0
SECONDARY CONTACT	44	0
DRINKING SUPPLY	38	0
AGRI & INDUSTRY	44	0

Planning Segment 2E - NPDES Permitted Facilities



Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000981	GREAT LAKES CHEMICAL CORP-NEWE	TRIB,LTL CORNIE BU	8040206	2E
AR0022179	JUNCTION CITY, CITY OF	LTL CORNIE BU	8040206	2E
AR0043516	GREAT LAKES CHEMICAL CORP-WEST	SEWELL CK	8040206	2E
AR0047813	OAK MANOR WATER & WASTEWATER P	JAY DISON SPRING BR, CORNIE BU	8040206	2E
AR0047945	GUNNELS MILL, INC	TRIB, CORNEY CK, OUACHITA RV	8040206	2E
AR0048461	DEL-TIN FIBER L. L. C.	TRIB, CORNIE CK, OUACHITA RV	8040206	2E
AR0049000	ALBEMARLE CORP-EAST PLANT	SEWELL CK, THREE CKS, OUACHITA RV	8040206	2E

OUA02
CORNIE BAYOU NR THREE CREEKS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.01	38	8.60	3.40	1.58
BOD 5 Day mg/l	1.57	42	5.00	0.70	0.92
pH	6.68	41	7.61	5.87	0.36
TSS mg/l	9.80	43	30.00	1.00	5.69
NO2+NO3-N mg/l	0.12	37	0.39	0.01	0.10
Tot. Phos. mg/l	0.09	37	0.41	0.03	0.07
Tot. Org. C mg/l	12.45	42	19.00	6.70	2.68
T.Hardness mg/l	37.58	32	83.00	12.00	14.08
Chloride mg/l	47.03	40	98.00	7.00	23.76
Sulfate mg/l	9.19	41	20.00	1.00	4.07
TDS mg/l	159.51	44	322.00	84.00	48.27
Turbidity NTU	13.95	43	31.00	3.70	6.19

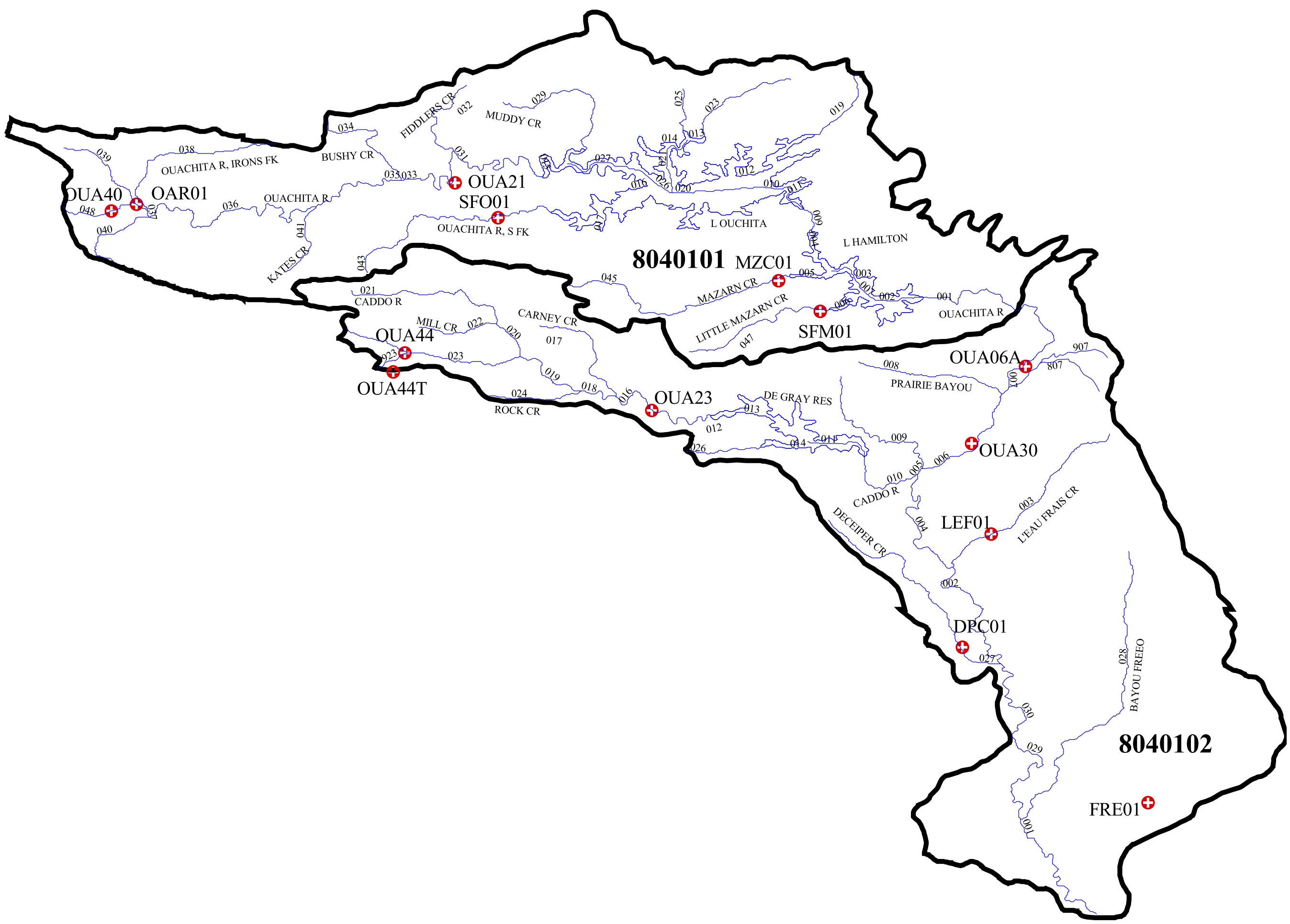
SEGMENT 2F - OUACHITA RIVER AND TRIBUTARIES: HEADWATERS TO ITS CONFLUENCE WITH THE LITTLE MISSOURI RIVER (OUACHITA RIVER BASIN)

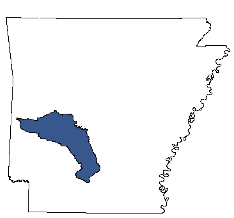
Segment 2F, located in west central Arkansas, covers most of Hot Spring, Garland and Montgomery Counties, portions of Clark, Dallas, Pike, Polk and Yell Counties, and very small areas of Scott and Perry Counties. This segment consists of a 220-mile reach of the Ouachita River and a 70-mile reach of the Caddo River. Principal tributaries include the South Fork of the Ouachita River, Mazarn Creek, L'Eau Frais Creek and Irons Fork Creek. Segment 2F contains three major impoundments of the Ouachita River: Lake Ouachita, Lake Hamilton and Lake Catherine. DeGray Reservoir, an impoundment of the Caddo River, is also located in Segment 2F.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. Approximately 36 percent of the waters within this segment are designated as extraordinary resource waters. Water quality in basin 2F is generally good and trends seem to indicate it is improving. Major rivers in the basin, such as the Caddo, South Fork of the Caddo, and the Ouachita above the lake are all improving or holding steady. All waters assessed in this segment were meeting all designated uses. However, in Prarie Creek below the City of Mena sewage treatment plant, elevated nutrients and occasionally high turbidity values were seen.

Planning Segment 2F - Monitoring Stations

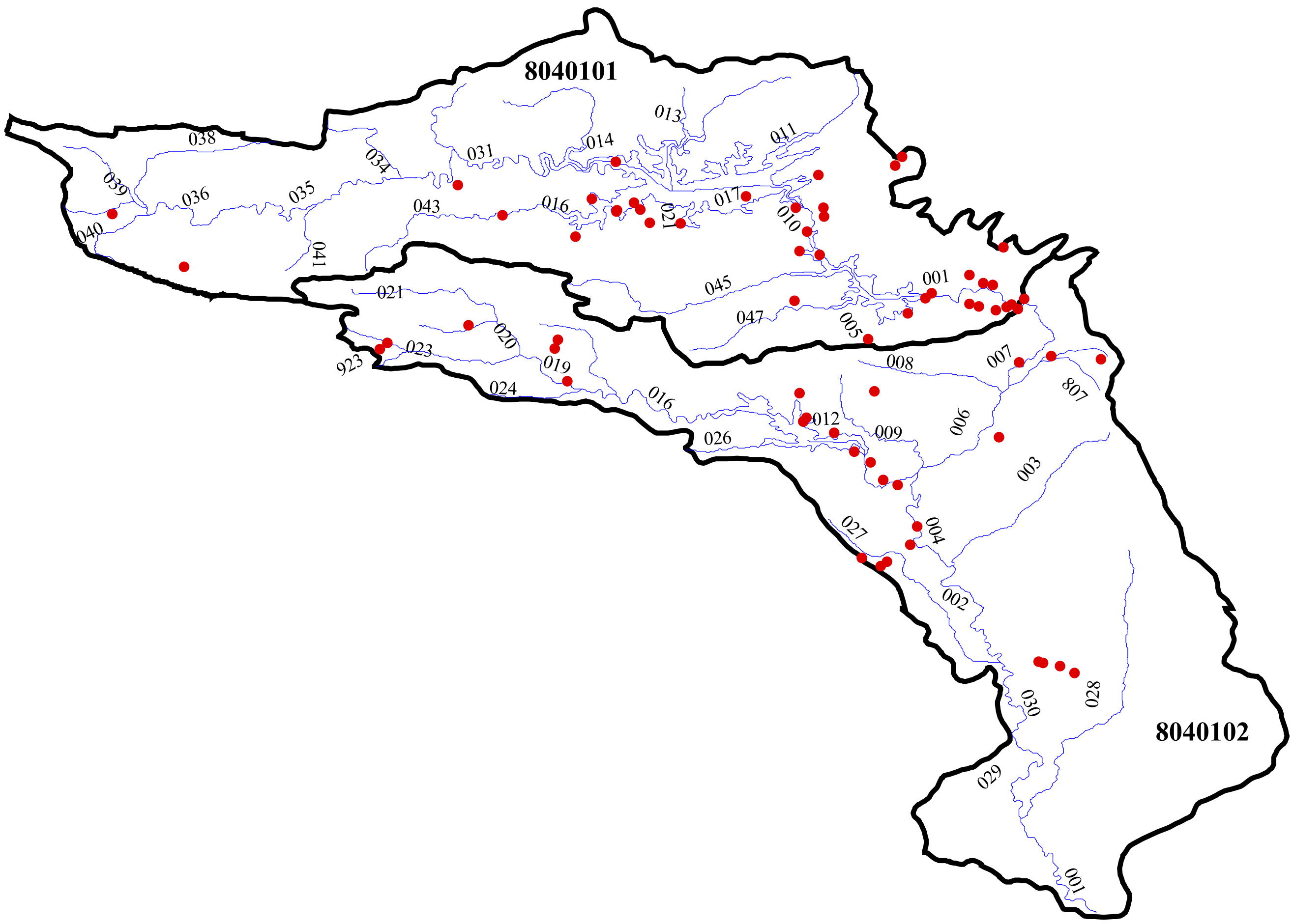


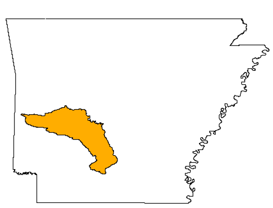


(Segment 2F)

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-2F																		
Ouachita River	8040102	-001	15.6		E	S	S	S	S	S	S					FISH CONSUMPTION	532.3	0
Ouachita River	8040102	-002	16.9		E	S	S	S	S	S	S					AQUATIC LIFE	532.3	0
L'Eau Frais C.	8040102	-003	21.5	LEF01	M	S	S	S	S	S	S					SWIMMING	532.3	0
Ouachita River	8040102	-004	15.8		E	S	S	S	S	S	S					SECONDARY CONTACT	532.3	0
Ouachita River	8040102	-005	0.6		E	S	S	S	S	S	S					DRINKING SUPPLY	532.3	0
Ouachita River	8040102	-006	12.1	OUA30	M	S	S	S	S	S	S					AGRI & INDUSTRY	532.3	0
Ouachita River	8040102	-007	14.5	OUA06A	M	S	S	S	S	S	S							
Prairie Bayou	8040102	-008	13.5		E	S	S	S	S	S	S							
DeRoche Cr.	8040102	-009	16.5		U													
Caddo River	8040102	-010	8.1		E	S	S	S	S	S	S							
Caddo River	8040102	-016	13.5	OUA23	M	S	S	S	S	S	S							
Cornie Creek	8040102	-017	12.5		E	S	S	S	S	S	S							
Caddo River	8040102	-018	4.1		E	S	S	S	S	S	S							
Caddo River	8040102	-019	7.7		E	S	S	S	S	S	S							
Caddo River	8040102	-020	4.1		E	S	S	S	S	S	S							
Caddo River	8040102	-021	15.9		E	S	S	S	S	S	S							
Mill Creek	8040102	-022	7.3		E	S	S	S	S	S	S							
S. Fork Caddo	8040102	-023	16.6	OUA44	M	S	S	S	S	S	S							
D.C. Creek	8040102	-923	5	OUA44T	M	S	S	S	S	S	S							
Rock Creek	8040102	-024	8.1		E	S	S	S	S	S	S							
Brushy Creek	8040102	-026	6.9		U													
Deceiper Cr.	8040102	-027	24.4	DPC01	M	S	S	S	S	S	S							
Bayou Freeo	8040102	-028	33.9	FRE01	M	S	S	S	S	S	S							
Ouachita River	8040102	-029	13.3		E	S	S	S	S	S	S							
Ouachita River	8040102	-030	12		E	S	S	S	S	S	S							
Ouachita River	8040101	-001	10.4		E	S	S	S	S	S	S							
Ouachita River	8040101	-009	2.7		E	S	S	S	S	S	S							
Blakely Creek	8040101	-019	8.3		E	S	S	S	S	S	S							
N.ForkOuachita	8040101	-023	10.9		E	S	S	S	S	S	S							
Irons Fork	8040101	-025	4.8		E	S	S	S	S	S	S							
Muddy Creek	8040101	-029	15.3		E	S	S	S	S	S	S							
Ouachita River	8040101	-031	14.4		E	S	S	S	S	S	S							
Fiddlers Cr.	8040101	-032	10.6		E	S	S	S	S	S	S							
Ouachita River	8040101	-033	11.9	OUA21	M	S	S	S	S	S	S							
Ouachita River	8040101	-035	10.2		E	S	S	S	S	S	S							
Ouachita River	8040101	-036	24.1		E	S	S	S	S	S	S							
Bushy Creek	8040101	-034	12.1		E	S	S	S	S	S	S							
Ouachita River	8040101	-037	0.7		E	S	S	S	S	S	S							
Ouachita River	8040101	-039	11	OAR01	M	S	S	S	S	S	S							
Iron Fork	8040101	-038	17.3		E	S	S	S	S	S	S							
Carters Creek	8040101	-040	9		U													
Kates Creek	8040101	-041	8.2		U													
S.Fork Ouachita	8040101	-043	22.5	SFO01	M	S	S	S	S	S	S							
Mazarn Creek	8040101	-045	23.3	MZC01	M	S	S	S	S	S	S							
Little Mazarn	8040101	-047	14.8	SFM01	M	S	S	S	S	S	S							
Prairie Creek	8040101	-048	10	OUA40	M	S	S	S	S	S	S							
TOTAL MILES	572.9																	
MILES UNASSESSED	40.6																	
MILES EVALUATED	297.3																	
MILES MONITORED	235																	

Planning Segment 2F - NPDES Permitted Facilities





(Segment 2F)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000523	US VANADIUM CORP-STRATCOR	LK CATHERINE (1,2,3)/WILSON CK (5)	8040101	2F
AR0000531	REYNOLDS METALS CO-GUM SPRINGS	OUACHITA RV	8040102	2F
AR0000698	ALUMINTEC, INC	LAKE CATHERINE TRIB, OUACHITA RV	8040101	2F
AR0000833	WEYERHAEUSER CO-MOUNTAIN PINE	GLAZYPEAU CK	8040101	2F
AR0000850	MOUNTAIN VALLEY SPRING CO	TRIB,GLAZYPEAU CK,OUACHITA RV	8040101	2F
AR0000868	HOT SPRING CO-JONES MILL WWTF	COVE CK	8040102	2F
AR0001147	ENTERGY AR, INC-LK CATHERINE	LK CATHERINE,OUACHITA RV	8040101	2F
AR0001201	BICC GENERAL CABLE IND, INC	TRIB, COVE CK, OUACHITA RV	8040102	2F
AR0020109	USDAFS-OUACHITA CCC	OUACHITA RV	8040101	2F
AR0020222	USA-COE IRON MTN REC AREA-DEGRAY	DEGRAY LK	8040102	2F
AR0020231	USA-COE SHOUSE FORD REC AREA	DEGRAY LK	8040102	2F
AR0020605	ARKADELPHIA, CITY OF	OUACHITA RV	8040102	2F
AR0021539	MOUNTAIN PINE, CITY OF	GLAZYPEAU CK,OUACHITA RV	8040101	2F
AR0022781	USA-COE SPILLWAY REC AREA-OUAC	LK OUACHITA	8040101	2F
AR0022799	USA-COE LITTLE FIR REC AREA-	LK OUACHITA	8040101	2F
AR0022802	USA-COE BRADY MTN REC AREA-OUA	LK OUACHITA	8040101	2F
AR0033855	MOUNT IDA, CITY OF	S FORK OUACHITA RV	8040101	2F
AR0033880	HOT SPRINGS, CITY OF (HOT SPGS	LK CATHERINE	8040101	2F
AR0034126	MALVERN, CITY OF	OUACHITA RV	8040102	2F
AR0035394	USA-COE DENBY POINT REC AREA	LK OUACHITA	8040101	2F
AR0035408	USA-COE TOMPKINS BEND REC AREA	LK OUACHITA	8040101	2F
AR0035416	USA-COE CRYSTAL SPRINGS REC AR	LK OUACHITA	8040101	2F
AR0035424	USA-COE JOPLIN RECREATION AREA	LK OUACHITA	8040101	2F
AR0035432	USA-COE CADDO DRIVE REC AREA-	DEGRAY LK	8040102	2F
AR0035459	USA-COE ALPINE RIDGE REC AREA-	DEGRAY LK,CADDO RV	8040102	2F
AR0035645	GLENWOOD, CITY OF	CADDO RV	8040102	2F
AR0035939	SPARKMAN, CITY OF	TRIB,CYPRESS CK,OUACHITA RV	8040102	2F
AR0036013	USA-COE ARLIE MOORE REC AREA-	DEGRAY LK,CADDO RV,OUACHITA RV	8040102	2F
AR0036021	USA-COE SPILLWAY REC AREA-DEGR	DEGRAY LK	8040102	2F
AR0036609	TREMONT CORP - FORMERLY NL IND	BLACK VALLEY CK,S FK CADDO RV	8040102	2F
AR0036692	MENA, CITY OF	TRIB,PRAIRIE CK,QUACHITA RV	8040101	2F
AR0036749	ARKADELPHIA HUMAN DEV CTR	CADDO RV TRIB	8040102	2F
AR0037061	AR PARKS & TOURISM-LK DEGRAY	DEGRAY LK	8040102	2F

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0036811	AR PARKS & TOURISM-LK OUACHITA	LK OUACHITA	8040101	2F
AR0038121	AR PARKS & TOURISM-LK CATHERIN	LK CATHERINE,OUACHITA RV	8040101	2F
AR0038270	BAKER-HUGHES INTEQ	SOUTH FORK CADDO RV	8040102	2F
AR0039403	HARBOR EAST POA	DIT,LK OUACHITA	8040101	2F
AR0040801	SHANGRI-LA RESORT	LK OUACHITA	8040101	2F
AR0041050	CHURCH OF NAZARENE-HEATH VALLE	MACKS CK	8040101	2F
AR0041271	FARR SHORES HORIZONTAL PROPERT	DIT,LK HAMILTON	8040101	2F
AR0041319	MILL POND VILLAGE-GARLAND CO	SORRELLS CK,LK HAMILTON	8040101	2F
AR0042293	HARBOR SOUTH DEVELOPMENT POA	LK OUACHITA TRIB	8040101	2F
AR0043125	NORMAN, CITY OF	CADDO RV	8040102	2F
AR0043354	ACME BRICK CO-PERLA	TOWN CK,OUACHITA RV	8040102	2F
AR0044172	WESTWOOD VILLAGE POA	TRIB,LK HAMILTON	8040101	2F
AR0044814	GS ROOFING PRODUCTS CO-SLATE	FIVE MILE CK	8040102	2F
AR0045128	MCCLARD SHOPPING CTR	TRIB,LOST CK,LK HAMILTON	8040102	2F
AR0045411	CADDO VALLEY, CITY OF	CADDO RV	8040102	2F
AR0045501	AR HWY DEPT-SOCIAL HILL REST A	TRIB,OUACHITA RV,2F-OUACHITA RB	8040102	2F
AR0045438	RIVIERA UTILITIES OF AR, INC	OUACHITA RV	8040101	2F
AR0045594	MOUNT IDA RETIREMENT CTR	TRIB,TWIN CK,LK OUACHITA	8040101	2F
AR0045624	LAKE HAMILTON SCHOOL DIST #5	LOST CK TRIB	8040101	2F
AR0045829	O'BRIEN'S PIZZA PUB	GLAZYPEAU CK TRIB	8040101	2F
AR0046612	BRAZEALE LUMBER CO	TRIB,BRUSHY CK,OUACHITA RV	8040102	2F
AR0047139	RAY WHITE LUMBER CO	TRIB,CYPRUS CK,OUACHITA RV	8040102	2F
AR0047228	MALVERN MINERALS-HOT SPRINGS	TRIB,E GULPHA CK,LK CATHERINE	8040101	2F
AR0047821	GS ROOFING PRODUCTS CO-FINE	TRIB,FIVE MILE CK,CADDO RV	8040101	2F
AR0047856	DAILY LUMBER CO, INC	TRIB,OUACHITA RV	8040102	2F
AR0047881	DEATON'S GUM SPRINGS CITGO	TRIB,DECEIPER CK	8040102	2F
AR0048020	DONALDSON, TOWN OF	OUACHITA RV,2F-OUACHITA RB	8040102	2F
AR0048241	MAHAN'S LK CTR GROCERY & VIDEO	BIG HILL CK,DEGRAY LK	8040102	2F
AR0048496	WILKCO, INC-GUM SPRINGS CITGO	DIT,DECEIPHER CK,OUACHITA RV	8040102	2F
AR0048275	CAMP OZARK	TRIB/OUACHITA RV	8040101	2F
AR0048615	DIAMONDHEAD RESORT-RIVIERA UTI	TRIB,LK CATHERINE	8040101	2F
AR0048755	ENTERGY AR, INC-CARPENTER DAM	OUACHITA RV	8040101	2F
AR0048763	ENTERGY AR, INC-REMMEL DAM	OUACHITA RV	8040101	2F
AR0048941	AIRBORNE NACELLE SERVICES, INC	TRIB, LK OUACHITA	8040101	2F
AR0048950	UMETCO MINERALS CORP-WILSON MI	WILSON CK, LK CATH	8040101	2F

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0049026	GARLAND GASTON LUMBER CO	BRUSHY CK, OUACHITA RV	8040102	2F

OUA23
CADDO RIVER NR AMITY ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
Dissolved Oxygen mg/l	9.33	38	11.10	7.00	0.96
BOD 5 Day mg/l	0.77	43	3.90	0.03	0.74
pH	7.53	40	8.49	6.82	0.34
TSS mg/l	7.64	40	100.00	1.00	16.27
NO2+NO3-N mg/l	0.21	39	0.81	0.01	0.15
Tot. Phos. mg/l	0.07	27	0.32	0.03	0.07
Tot. Org. C mg/l	3.20	41	10.00	1.60	1.66
T.Hardness mg/l	29.91	31	54.00	13.00	11.87
Chloride mg/l	2.46	41	4.00	2.00	0.61
Sulfate mg/l	6.22	41	17.00	1.00	3.19
TDS mg/l	54.50	42	75.00	35.00	11.77
Turbidity NTU	9.16	43	85.00	1.70	14.59

OUA44T
UNNAMED TRIB OF S. FORK CADDO R. NR FANCY HILL

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
Dissolved Oxygen mg/l	9.24	38	10.90	7.10	0.81
BOD 5 Day mg/l	0.38	42	1.10	0.00	0.26
pH	7.03	40	7.90	6.11	0.38
TSS mg/l	19.74	31	127.00	1.00	35.36
NO2+NO3-N mg/l	0.09	38	0.43	0.01	0.09
Tot. Phos. mg/l	0.05	20	0.10	0.02	0.02
Tot. Org. C mg/l	1.91	41	4.60	1.00	0.79
T.Hardness mg/l	35.62	32	210.00	8.00	39.85
Chloride mg/l	2.05	40	4.00	1.00	0.47
Sulfate mg/l	20.63	39	178.00	1.00	32.85
TDS mg/l	57.45	42	210.00	30.00	28.59
Turbidity NTU	18.33	42	130.00	1.10	29.40

OUA06A
OUACHITA RIVER NEAR MALVERN AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.08	30	11.20	7.20	0.90
BOD 5 Day mg/l	0.85	36	3.30	0.10	0.62
pH	7.14	33	7.56	6.72	0.18
TSS mg/l	4.49	34	10.00	1.00	2.26
NO2+NO3-N mg/l	0.20	36	0.43	0.03	0.08
Tot. Phos. mg/l	0.06	22	0.29	0.02	0.05
Tot. Org. C mg/l	4.03	36	5.80	2.60	0.68
T.Hardness mg/l	20.46	25	24.00	11.00	2.86
Chloride mg/l	2.80	34	5.00	2.00	0.65
Sulfate mg/l	9.28	32	19.00	3.00	3.47
TDS mg/l	45.82	34	59.00	34.00	6.09
Turbidity NTU	5.14	36	14.00	1.40	3.14

OUA21
OUACHITA RIVER NR MOUNT IDA, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.51	39	10.90	6.10	1.25
BOD 5 Day mg/l	1.01	43	5.90	0.10	1.02
pH	7.31	41	7.67	6.95	0.20
TSS mg/l	4.71	38	33.00	1.00	5.53
NO2+NO3-N mg/l	0.15	41	0.52	0.02	0.12
Tot. Phos. mg/l	0.04	26	0.07	0.03	0.01
Tot. Org. C mg/l	3.83	43	9.10	1.80	1.52
T.Hardness mg/l	22.39	32	46.00	16.00	5.53
Chloride mg/l	2.50	41	5.00	1.00	0.67
Sulfate mg/l	6.61	38	19.00	1.00	3.39
TDS mg/l	44.51	43	64.00	32.00	7.77
Turbidity NTU	7.68	44	46.00	1.70	9.27

OUA30
OUACHITA RIVER NR DONALDSON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.74	36	11.60	6.70	1.05
BOD 5 Day mg/l	1.00	42	4.80	0.20	0.79
pH	7.27	40	8.77	5.55	0.45
TSS mg/l	8.13	41	128.00	1.00	19.34
NO2+NO3-N mg/l	0.23	43	0.69	0.03	0.13
Tot. Phos. mg/l	0.04	27	0.09	0.03	0.01
Tot. Org. C mg/l	4.24	41	6.70	2.40	0.82
T.Hardness mg/l	21.36	30	32.00	16.00	2.99
Chloride mg/l	3.09	40	7.00	2.00	1.01
Sulfate mg/l	9.98	39	19.00	1.00	4.40
TDS mg/l	48.24	41	74.00	32.00	8.69
Turbidity NTU	7.63	42	89.00	1.60	13.39

OUA40
PRAIRIE CREEK BELOW MENA ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.06	38	10.80	3.60	1.83
BOD 5 Day mg/l	1.86	44	7.30	0.40	1.52
pH	7.10	41	7.70	6.51	0.26
TSS mg/l	7.41	40	50.00	1.00	8.75
NO2+NO3-N mg/l	0.40	42	2.35	0.02	0.44
Tot. Phos. mg/l	0.27	32	4.34	0.02	0.75
Tot. Org. C mg/l	6.81	42	34.50	1.40	5.57
T.Hardness mg/l	27.63	32	107.00	10.00	20.25
Chloride mg/l	9.77	41	52.00	2.00	12.24
Sulfate mg/l	15.95	42	77.00	1.00	18.50
TDS mg/l	80.93	44	273.00	27.00	59.00
Turbidity NTU	12.88	44	74.00	0.80	13.51

OUA44

SOUTH FORK OF CADDO RIVER AT FANCY HILL ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.69	39	11.20	6.50	1.06
BOD 5 Day mg/l	0.40	43	1.60	0.05	0.33
pH	7.28	40	8.26	6.59	0.34
TSS mg/l	2.76	19	8.00	0.00	2.22
NO2+NO3-N mg/l	0.08	40	0.20	0.01	0.05
Tot. Phos. mg/l	0.05	18	0.29	0.02	0.06
Tot. Org. C mg/l	1.89	42	4.60	1.00	0.80
T.Hardness mg/l	21.99	32	45.00	9.00	6.83
Chloride mg/l	1.86	42	3.00	1.00	0.40
Sulfate mg/l	14.66	41	25.00	6.00	4.46
TDS mg/l	47.37	43	111.00	35.00	11.85
Turbidity NTU	4.27	44	27.00	0.70	4.69

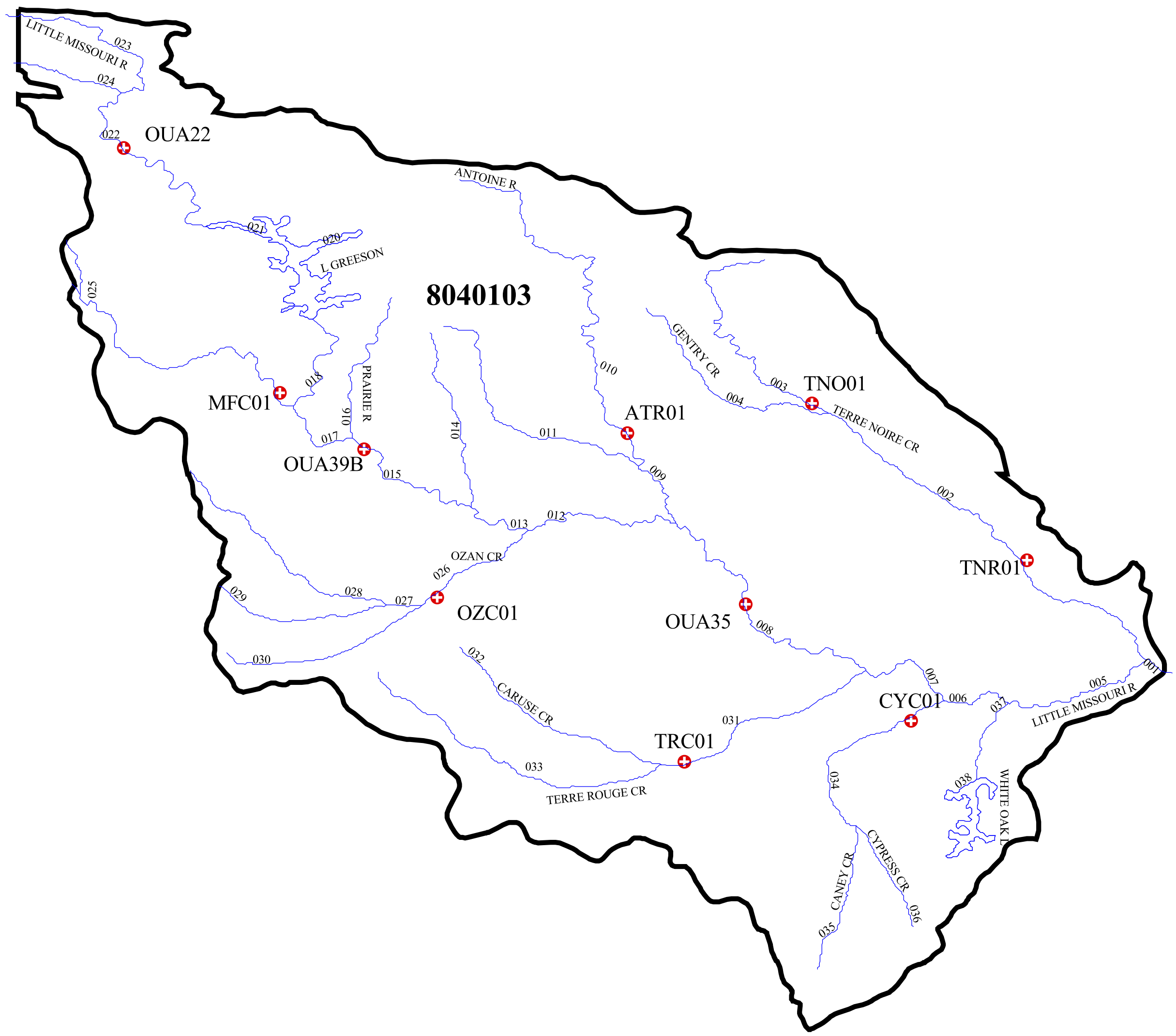
SEGMENT 2G - LITTLE MISSOURI RIVER AND ANTOINE RIVER (OUACHITA RIVER BASIN)

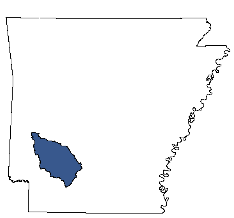
Segment 2G, located in the southwestern part of the State, covers most of Nevada and Pike Counties, large areas of Clark and Hempstead Counties, and small portions of Ouachita, Howard, Polk and Montgomery Counties. This segment encompasses the entire drainage area of the Little Missouri River with its tributaries. Major tributaries include the Antoine River, Muddy Fork, Caney Creek, Terre Noire Creek and Terre Rouge Creek. There are two large impoundments in the segment, Lake Greeson and White Oak Lake.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. Approximately 17 percent of the waters within this segment are designated as extraordinary resource waters. This segment contains a total of 427.5 stream miles, of which 321.6 are being assessed. Monitoring data were used to assess 193.6 miles of stream and the remaining 128.0 miles are evaluated. All assessed stream reaches in the basin are meeting all designated uses and water quality criteria.

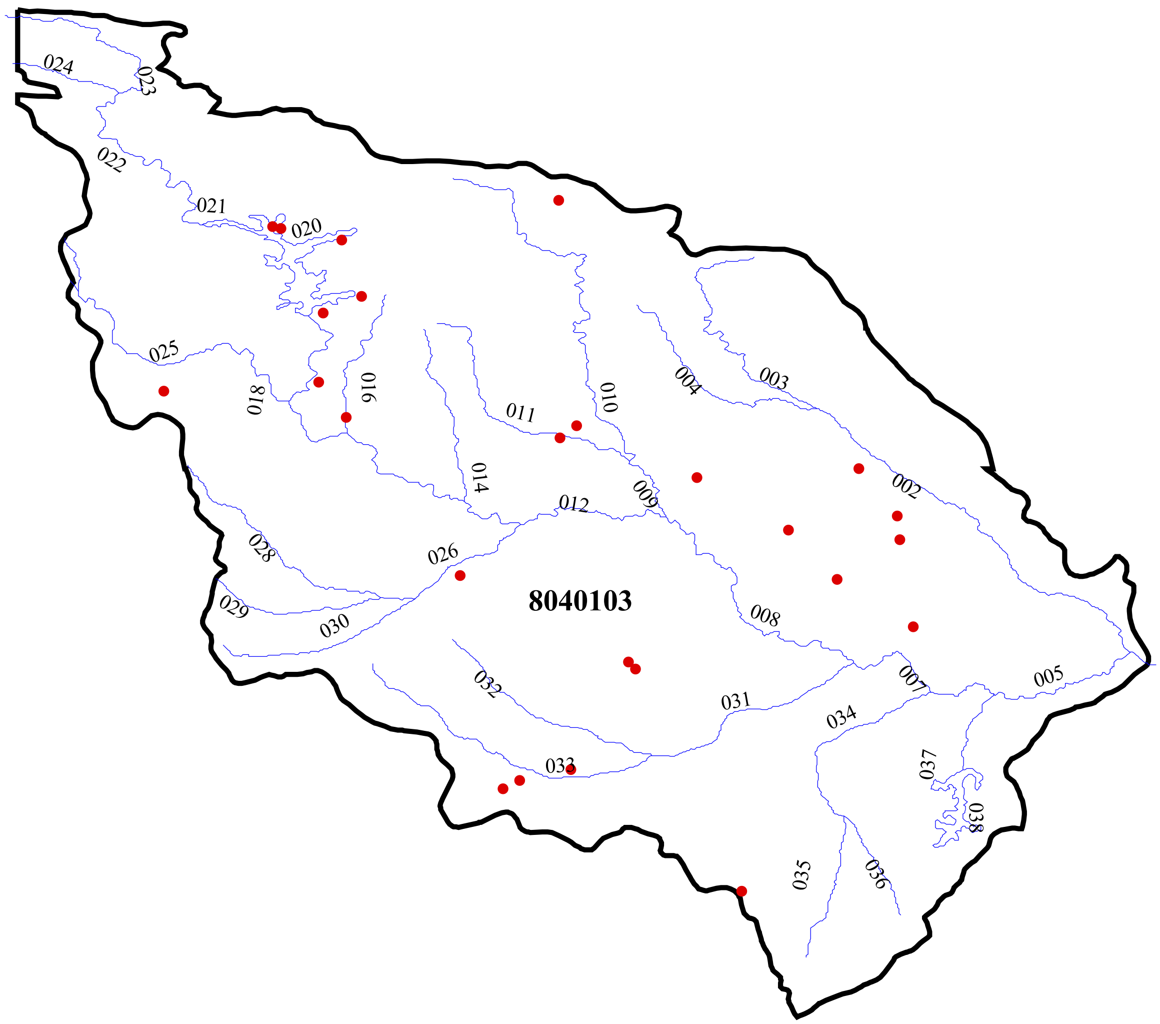
Planning Segment 2G - Monitoring Stations

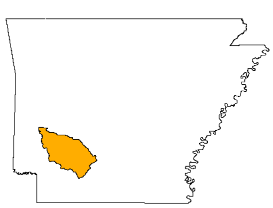




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-2G																		
L. Missouri R.	8040103	-001	1.8		E	S	S	S	S	S	S					FISH CONSUMPTION	321.6	0
L. Missouri R.	8040103	-005	10.4		E	S	S	S	S	S	S					AQUATIC LIFE	321.6	0
L. Missouri R.	8040103	-006	4.6		E	S	S	S	S	S	S					SWIMMING	321.6	0
L. Missouri R.	8040103	-007	7		E	S	S	S	S	S	S					SECONDARY CONTACT	321.6	0
L. Missouri R.	8040103	-008	19.6	OUA35	M	S	S	S	S	S	S					DRINKING SUPPLY	321.6	0
Terre Noire Cr.	8040103	-002	27.4	TNR01	M	S	S	S	S	S	S					AGRI & INDUSTRY	321.6	0
Terre Noire Cr.	8040103	-003	19.6	TNR02	M	S	S	S	S	S	S							
Gentry Creek	8040103	-004	15.4		U													
Antoine River	8040103	-009	5.4		E	S	S	S	S	S	S							
Antoine River	8040103	-010	31.6	ATR01	M	S	S	S	S	S	S							
Wolf Creek	8040103	-011	18		E	S	S	S	S	S	S							
L. Missouri R.	8040103	-012	10.8		E	S	S	S	S	S	S							
L. Missouri R.	8040103	-013	5		E	S	S	S	S	S	S							
L. Missouri R.	8040103	-015	10.5	OUA39B	M	S	S	S	S	S	S							
L. Missouri R.	8040103	-017	5.5		E	S	S	S	S	S	S							
L. Missouri R.	8040103	-018	8.9		E	S	S	S	S	S	S							
L. Missouri R.	8040103	-022	17.6	OUA22	M	S	S	S	S	S	S							
L. Missouri R.	8040103	-023	13.6		E	S	S	S	S	S	S							
Saline Creek	8040103	-014	13.1		E	S	S	S	S	S	S							
Prairie Creek	8040103	-016	11.2		E	S	S	S	S	S	S							
Long Creek	8040103	-024	6.8		E	S	S	S	S	S	S							
Muddy Fork	8040103	-025	24.4	MFC01	M	S	S	S	S	S	S							
Ozan Creek	8040103	-026	8.6	OZC01	M	S	S	S	S	S	S							
Ozan Creek	8040103	-027	2		U													
N. Fork Ozan	8040103	-028	16.4		U													
M. Fork Ozan	8040103	-029	10.9		U													
S. Fork Ozan	8040103	-030	13		U													
Terre Rouge	8040103	-031	14.5	TRC01	U													
Caruse Creek	8040103	-032	15.2		U													
Terre Rouge	8040103	-033	20.7		M	S	S	S	S	S	S							
Caney Creek	8040103	-034	13.6	CYC01	M	S	S	S	S	S	S							
Caney Creek	8040103	-035	10.6		U													
Cypress Creek	8040103	-036	7.9		U													
White Oak Creek	8040103	-037	5.9		E	S	S	S	S	S	S							
TOTAL MILES	427.5																	
MILES UNASSESSED	105.9																	
MILES EVALUATED	128																	
MILES MONITORED	193.6																	

Planning Segment 2G - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000612	FIRESTONE BUILDING PRODUCTS CO	GARLAND CK & PINE CK	8040103	2G
AR0000906	POTLATCH CORP-OZAN UNIT	MILL CK,TERRE ROUGE CK,LTL MISSOURI	8040103	2G
AR0020729	JAMES HARDIE GYPSUM, INC	BLUFF CK,MUDDY FORK CK-LTL MISSOURI	8040103	2G
AR0021521	AMITY, CITY OF	LTL ANTOINE CK-RV,LTL MISSOURI RV	8040103	2G
AR0022551	GURDON, CITY OF	CANEY CK,TERRE NOIR CK,LTL MO RV	8040103	2G
AR0022764	USA-COE KIRBY LANDING REC AREA	LK GREESON	8040103	2G
AR0022772	USA-COE SELF CK REC AREA-GREES	LK GREESON	8040103	2G
AR0033481	PRESCOTT, CITY OF	TRB/SEWER CK,TERRE ROUGE CK,LT MO R	8040103	2G
AR0036030	USA-COE NARROWS DAM REC AREA-	LK GREESON	8040103	2G
AR0036048	USA-COE COWHIDE COVE REC AREA-	LK GREESON	8040103	2G
AR0037796	INTERNATIONAL PAPER CO-GURDON	DIT-HWY 67N,CANEY CK,TERRE NOIRE CK	8040103	2G
AR0038113	AR PARKS & TOURISM-DAISY	LK GREESON,LTL MISSOURI RV	8040103	2G
AR0038458	HOPE, CITY OF-PATE CREEK WWTP	PATE CK,TERRE ROUGE CK,LTL MO RV	8040103	2G
AR0040339	INTERNATIONAL PAPER CO-WHELEN	DIT,TRIB,W FK BEECH CK	8040103	2G
AR0041432	DELIGHT, CITY OF	WOLF CK	8040103	2G
AR0041688	BLEVINS, CITY OF	TRIB,OZAN CK,LTL MISSOURI RV	8040103	2G
AR0041815	EMMET, CITY OF	TERRE ROUGE CK,LTL MO RV,OUACHITA R	8040103	2G
AR0042439	NEVADA SCHOOL DIST #1	TRIB,MID CANEY CK,LTL MISSOURI RV	8040103	2G
AR0043281	MURFREESBORO, CITY OF	LTL MISSOURI RV	8040103	2G
AR0043818	HANSON AGGREGATES WEST, INC	WOLF CK,ANTOINE CK,LTL MISSOURI RV	8040103	2G
AR0044270	AR HWY DEPT-GURDON REST AREA	TRIB,BOGGY CK	8040103	2G
AR0045551	SOUTHFORK TRUCK STOP	TERRE NOIR CK TRIB	8040103	2G
AR0047155	R.D. PLANT CONTRACTING CO	LTL MISSOURI RV	8040103	2G
AR0047180	PERRYTOWN, CITY OF	PATE CK,TERRE ROUCH CK,LTL MO RV	8040103	2G
AR0047546	ANTHONY TIMBERLANDS, INC	MCNEELEY CK,LTL MISSOURI RV	8040103	2G
AR0048551	OKOLONA, CITY OF-WWTP	LTL MISSOURI RV TRIB	8040103	2G

OUA22
LITTLE MISSOURI RIVER NR LANGLEY, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.70	39	11.20	6.00	1.18
BOD 5 Day mg/l	0.44	41	1.20	0.00	0.27
pH	7.30	41	7.92	6.48	0.29
TSS mg/l	2.22	18	8.00	0.00	1.66
NO2+NO3-N mg/l	0.09	40	0.44	0.01	0.08
Tot. Phos. mg/l	0.07	19	0.61	0.02	0.13
Tot. Org. C mg/l	1.88	41	3.60	1.10	0.69
T.Hardness mg/l	21.58	31	213.00	6.00	35.99
Chloride mg/l	1.85	41	3.00	1.00	0.34
Sulfate mg/l	7.99	39	144.00	1.00	22.45
TDS mg/l	33.40	42	51.00	23.00	5.83
Turbidity NTU	3.34	42	11.00	0.70	2.74

OUA35
LITTLE MISSOURI RIV NR BOUGHTON

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.59	40	9.60	4.40	1.28
BOD 5 Day mg/l	0.90	43	3.40	0.20	0.60
pH	7.24	40	8.68	5.81	0.55
TSS mg/l	25.87	42	520.00	3.00	81.41
NO2+NO3-N mg/l	0.16	40	0.61	0.01	0.11
Tot. Phos. mg/l	0.06	35	0.28	0.03	0.04
Tot. Org. C mg/l	4.96	42	10.10	2.60	1.80
T.Hardness mg/l	24.33	31	45.00	12.00	8.62
Chloride mg/l	3.58	39	5.00	2.00	0.69
Sulfate mg/l	11.31	41	27.00	6.00	4.73
TDS mg/l	60.77	43	128.00	35.00	17.81
Turbidity NTU	25.22	43	390.00	3.00	59.37

OUA39B
LITTLE MISSOURI RIVER BELOW MURFREESBORO ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.67	40	11.10	4.50	1.32
BOD 5 Day mg/l	1.17	41	6.50	0.20	1.32
pH	7.09	38	9.90	6.65	0.51
TSS mg/l	9.32	38	168.00	1.00	26.70
NO2+NO3-N mg/l	0.17	42	0.31	0.02	0.06
Tot. Phos. mg/l	0.06	26	0.31	0.03	0.05
Tot. Org. C mg/l	4.40	42	12.20	2.70	1.98
T.Hardness mg/l	26.58	31	74.00	9.00	16.79
Chloride mg/l	3.03	41	6.00	2.00	0.88
Sulfate mg/l	13.32	40	56.00	1.00	12.30
TDS mg/l	53.10	42	150.00	29.00	24.46
Turbidity NTU	11.25	43	120.00	2.80	19.35

ARKANSAS RIVER BASIN

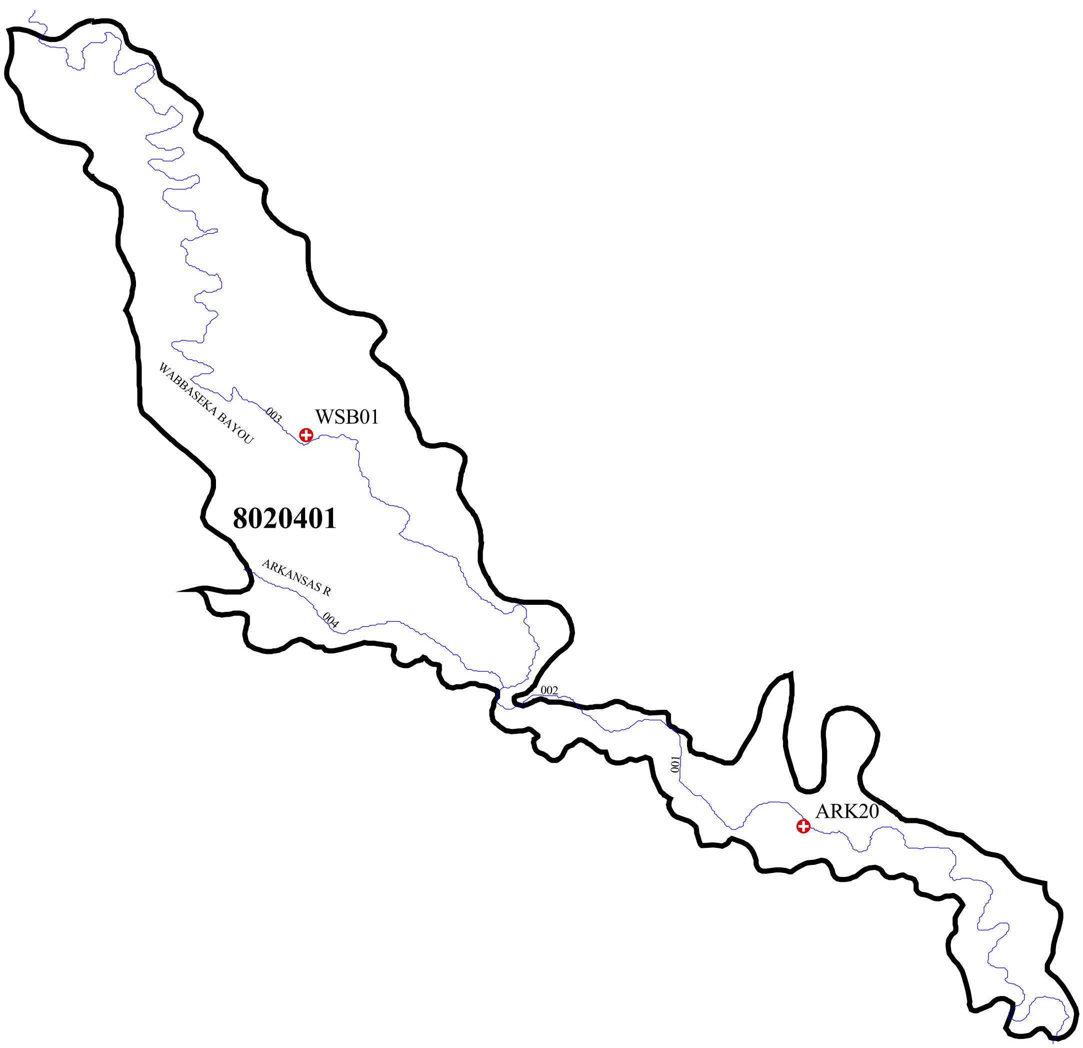
SEGMENT 3A - LOWER ARKANSAS RIVER

Segment 3A, located in the southeastern part of the State, includes small portions of Desha, Lincoln, Jefferson and Arkansas Counties. The water quality in this last 52-mile segment of the main stem of the Arkansas River is a result of contributions from upstream segments rather than discharges within the segment.

SUMMARY OF WATER QUALITY CONDITIONS

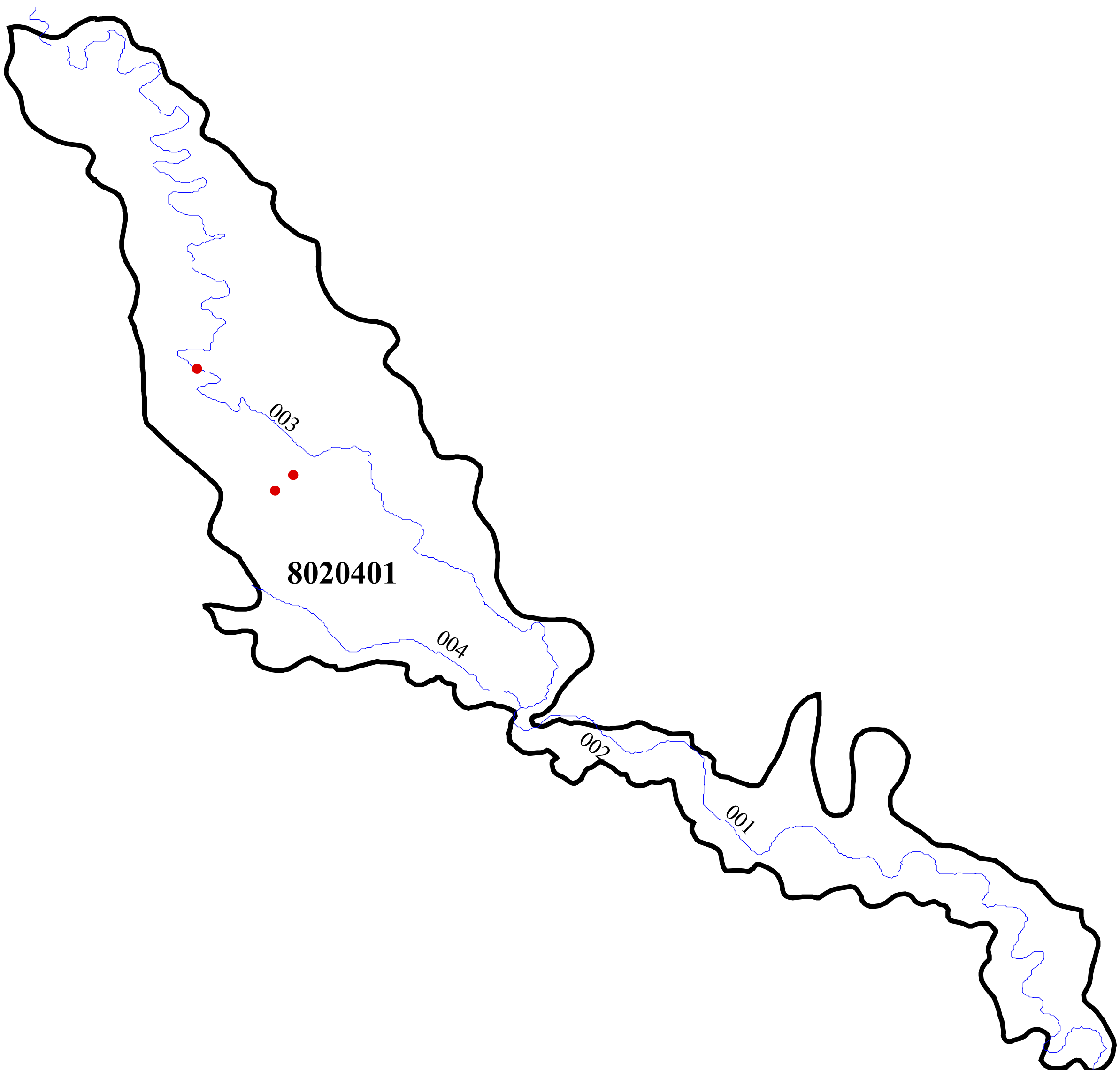
The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. Monitoring data was used to assess 52.2 stream miles of the Arkansas River within this segment and 101.7 miles of Wabbaseka Bayou. The remaining 32.7 stream miles were evaluated. The data indicate that all designated uses are being maintained, although there was some concern for elevated bacteria found in Wabbaseka Bayou. The source is unknown.

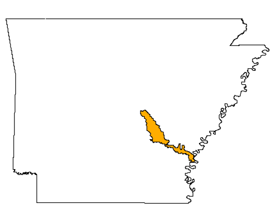
Planning Segment 3A - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3A																		
Arkansas River	8020401	-001	52.2	ARK20	M	S	S	S	S	S	S					FISH CONSUMPTION	186.6	0
Arkansas River	8020401	-002	13.3		E	S	S	S	S	S	S					AQUATIC LIFE	186.6	0
Wabbaseka B.	8020401	-003	101.7	WSB01	M	S	S	S	S	S	S					SWIMMING	186.6	0
Arkansas River	8020401	-004	19.4		E	S	S	S	S	S	S					SECONDARY CONTACT	186.6	0
TOTAL MILES	186.6															DRINKING SUPPLY	186.6	0
MILES UNASSESSED	0															AGRI & INDUSTRY	186.6	0
MILES EVALUATED	32.7																	
MILES MONITORED	153.9																	

Planning Segment 3A - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0034771	ALTHEIMER, CITY OF	ARKANSAS RV	8020401	0.125
AR0035980	AR DEPT OF CORRECTION-TUCKER	LAGOON/WABBASEKA BU/ARK RV/3B-AR RB	8020401	3A
AR0039896	WABBASEKA, CITY OF	TRIB,BRADLEY SLOUGH,3B-AR RB	8020401	3A

ARK20

ARKANSAS RIVER AT DAM NO. 2

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.38	39	17.40	5.60	1.96
BOD 5 Day mg/l	1.12	43	2.50	0.20	0.51
pH	7.62	41	8.34	6.70	0.36
TSS mg/l	17.44	42	216.00	1.00	34.85
NO2+NO3-N mg/l	0.44	40	0.95	0.06	0.20
Tot. Phos. mg/l	0.11	42	0.31	0.05	0.05
Tot. Org. C mg/l	5.69	42	8.20	4.40	0.81
T.Hardness mg/l	124.61	31	209.00	69.00	34.44
Chloride mg/l	83.98	40	207.00	29.00	40.06
Sulfate mg/l	51.54	42	146.00	20.00	23.88
TDS mg/l	322.45	42	563.00	157.00	102.07
Turbidity NTU	24.94	43	240.00	2.10	38.85

SEGMENT 3B - BAYOU METO AND TRIBUTARIES
(ARKANSAS RIVER BASIN)

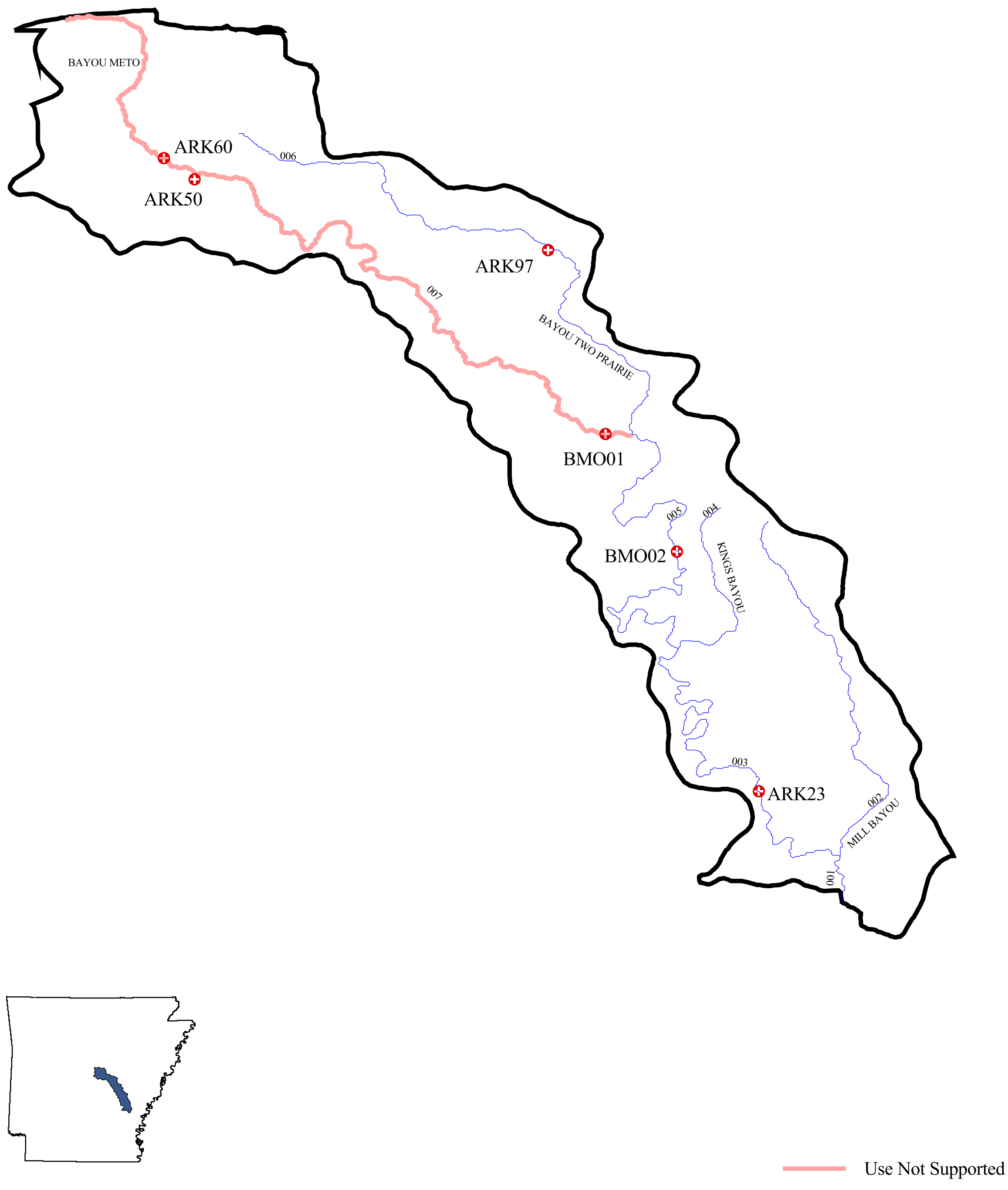
Segment 3B is located in the east central portion of Arkansas and includes a major portion of Lonoke County, as well as parts of Arkansas, Jefferson, Faulkner, Pulaski and Prairie Counties. Bayou Meto and its tributaries comprise the major surface water resource in the segment. Major tributaries include Bayou Two Prairie, Mill Bayou, and Kings Bayou.

SUMMARY OF WATER QUALITY CONDITIONS IN SEGMENT 3B

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. This segment contains a total of 242.3 stream miles, of which the majority are being assessed. This report uses monitoring data from four monthly and one quarterly stations to assess 196 miles of stream. The monitoring data from these stations was also used to evaluate an additional 4.3 miles of streams. The remaining 46.3 miles of stream were unassessed.

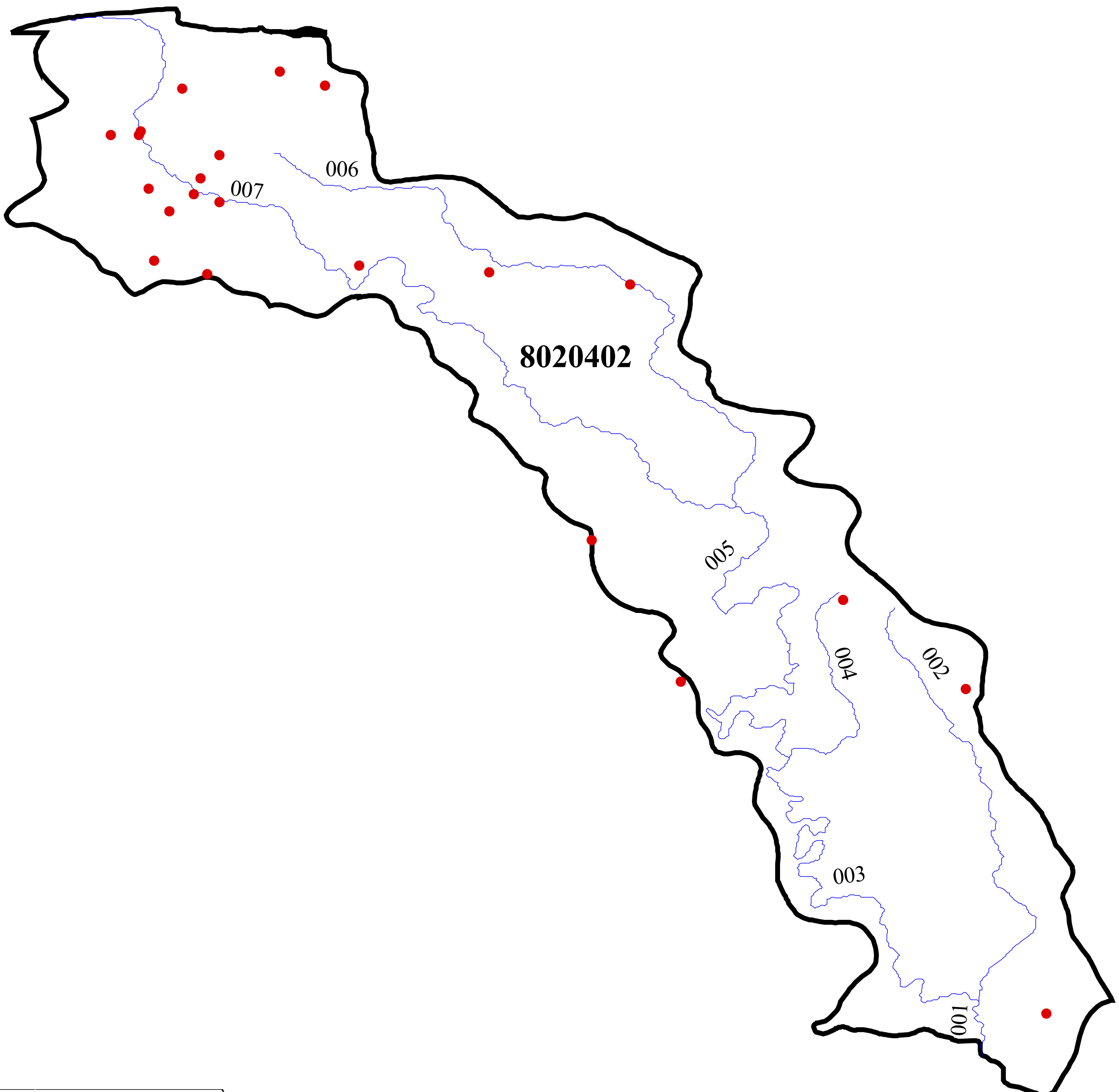
The upper reach of Bayou Meto is under a fish consumption advisory due to the presence of dioxin in fish tissue. The source has been eliminated and the contamination is being addressed through natural attenuation. One of the most common complaints concerning this stream is that pumping water from the Bayou for irrigation purposes is severely impairing the stream uses.

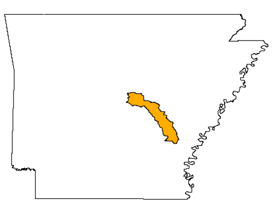
Planning Segment 3B - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3B																		
Bayou Meto	8020402	-001	4.3		E	S	S	S	S	S	S					FISH CONSUMPTION	130.3	65.7
Bayou Meto	8020402	-003	39.8	ARK23	M	S	S	S	S	S	S					AQUATIC LIFE	196	0
Bayou Meto	8020402	-005	41.5	BMO02	M	S	S	S	S	S	S					SWIMMING	196	0
Bayou Meto	8020402	-007	65.7	ARK60,50	M	N	S	S	S	S	S	IP		PO		SECONDARY CONTACT	196	0
Mill Bayou	8020402	-002	31		U											DRINKING SUPPLY	196	0
Kings Bayou	8020402	-004	15.3		U											AGRI & INDUSTRY	196	0
B.Two Prairie	8020402	-006	44.7	ARK97	M	S	S	S	S	S	S							
TOTAL MILES	242.3																	
MILES UNASSESSED	46.3																	
MILES EVALUATED	4.3																	
MILES MONITORED	191.7																	

Planning Segment 3B - NPDES Permitted Facilities





(Segment 3B)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000949	USAF-LITTLE ROCK AFB-JACKSONVI	CYPRUS BRANCH/JACK BAYOU/ARK. RIVER	8020402	3B
AR0001163	REMINGTON ARMS CO-LONOKE	BU METO,AR RV,3B-AR RB	8020402	3B
AR0021661	CABOT, CITY OF	BU TWO PRAIRIE TRIB,BU METO	8020402	3B
AR0022284	HUMPHREY, CITY OF	LATERAL #5 DT,BEAR BU,SALT BU,AR RB	8020402	3B
AR0022390	GILLETT, CITY OF	FLAG LK SLU, FLAG LK	8020402	3B
AR0033464	JACKSONVILLE, CITY OF (WEST ST	3A	8020402	3B
AR0033642	GRAVEL RIDGE SID #213	KELLOGG CK TRIB,BU METO	8020402	3B
AR0033740	CARLISLE, CITY OF	BU TWO PRAIRIE/BU METO/ARK RV-RB	8020402	3B
AR0034380	STUTTGART, CITY OF	KING BU,BU METO,AR RV,3B-AR RB	8020402	3B
AR0034746	LONOKE, CITY OF	BAYOU TWO PRAIRIE/BAYOU META/ARK RB	8020402	3B
AR0037176	SHERWOOD, CITY OF	KELLOGG CK TRIB,BU METO,3B-AR RB	8020402	3B
AR0038075	RUNYAN SID #211	TRIB,KELLOGG CK,BU METO,AR RV	8020402	3B
AR0040126	MACON P0A, INC	TRIB-CYPRESS BAYOU/SEG 3B-ARK RV BS	8020402	3B
AR0041335	JACKSONVILLE SEWER COMMISSION	BU METO, ARKANSAS RV	8020402	3B
AR0041696	COSMAIR COSMETICS CORP	INK BU TRIB, AR RV	8020402	3B
AR0043761	ALMYRA, CITY OF	MILL BAYOU, BIG BU METO, AR RV	8020402	3B
AR0044318	SKEETER HOLE, LLC	INK BU	8020402	3B
AR0044598	PCSSD - BAYOU METO ELEMENTARY	BU METO	8020402	3B
AR0046311	FRESHOUR CONSTRUCTION CO, INC	TRIB, WHITE OAK BR	8020402	3B
AR0046540	STONE VALLEY MHP	BU METO	8020402	3B
AR0047309	ARKANSAS PRECAST CORP	TRIB, BU METO, AR RV	8020402	3B
AR0048313	H. A. C. T. WW IMPROVEMENT DIST	CROOKED CK, BU METO, AR RV	8020402	3B

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0041149	AR MILITARY DEPT-CAMP ROBINSON	5-MI CK,AR RV,3C-AR RB	8020402	3B
AR0041335	JACKSONVILLE SEWER COMMISSION	BAYO METO THEN ARKANSAS RIVER	8020402	3B
AR0041696	MAYBELLINE, INC	INK BU TRIB,ARKANSAS RV	8020402	3B
AR0042315	CROSSETT HARBOR PORT AUTHORITY	OUACHITA RV	8020402	3B
AR0043761	ALMYRA, CITY OF	MILL BAYOU,BIG BU METO,AR RV	8020402	3B
AR0044318	SKEETER HOLE, LLC	INK BU	8020402	3B
AR0044598	PCSSD-BAYOU METO ELEM SCH	BAYOU METO,3B-AR RB	8020402	3B
AR0046311	FRESHOUR CONSTRUCTION CO, INC	WHITE OAK BRANCH TRIB	8020402	3B
AR0046540	STONE VALLEY MHP	BU METO/AR RV/SEG 3B OF ARKANSAS RB	8020402	3B
AR0047309	ARKANSAS PRECAST CORP	TRIB/BAYOU METO/ARK RV/3B-ARK RB	8020402	3B

ARK60

BAYOU METO AT W MAIN ST BRIDGE,JACKSONVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	5.79	42	12.10	2.00	3.06
BOD 5 Day mg/l	1.74	42	4.70	0.30	1.00
pH	6.69	42	7.57	6.05	0.39
TSS mg/l	12.05	41	79.00	2.00	12.98
NO2+NO3-N mg/l	0.11	39	0.28	0.01	0.08
Tot. Phos. mg/l	0.09	39	0.19	0.03	0.04
Tot. Org. C mg/l	6.45	38	15.30	2.80	2.90
T.Hardness mg/l	18.98	31	34.00	10.00	7.63
Chloride mg/l	4.63	41	11.00	2.00	1.64
Sulfate mg/l	8.06	40	20.00	2.00	3.30
TDS mg/l	56.67	42	93.00	38.00	12.63
Turbidity NTU	19.82	43	65.00	5.00	11.01

ARK50

BAYOU METO AT HWY 161 NEAR JACKSONVILLE, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.55	44	12.00	2.20	2.60
BOD 5 Day mg/l	2.75	42	6.90	0.90	1.37
pH	6.79	44	7.78	6.11	0.38
TSS mg/l	27.38	43	192.00	4.00	35.00
NO2+NO3-N mg/l	0.67	45	2.61	0.13	0.67
Tot. Phos. mg/l	0.52	41	2.32	0.07	0.49
Tot. Org. C mg/l	8.15	39	16.20	3.60	3.24
T.Hardness mg/l	27.77	33	63.00	11.00	13.03
Chloride mg/l	14.78	43	53.00	3.00	12.34
Sulfate mg/l	12.28	43	25.00	6.00	5.10
TDS mg/l	103.41	44	248.00	45.00	49.98
Turbidity NTU	28.61	45	170.00	8.10	25.96

ARK23

BAYOU METO NEAR BAYOU METO, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.09	39	16.30	3.90	2.26
BOD 5 Day mg/l	2.40	42	6.20	0.20	1.17
pH	7.38	41	8.61	6.21	0.51
TSS mg/l	26.33	45	164.00	5.00	28.31
NO2+NO3-N mg/l	0.20	37	0.48	0.03	0.14
Tot. Phos. mg/l	0.19	42	0.36	0.05	0.07
Tot. Org. C mg/l	9.38	42	14.80	0.70	2.34
T.Hardness mg/l	80.39	31	209.00	28.00	54.70
Chloride mg/l	19.79	40	107.00	4.00	19.69
Sulfate mg/l	15.34	42	53.00	5.00	7.78
TDS mg/l	178.98	42	369.00	93.00	73.03
Turbidity NTU	43.38	43	160.00	5.20	30.61

ARK97

BAYOU TWO PRAIRIE @ HWY 13 S. OF CARLISLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.73	42	12.00	3.20	2.33
BOD 5 Day mg/l	2.89	40	7.20	1.10	1.45
pH	6.93	43	7.96	5.29	0.47
TSS mg/l	23.49	42	64.00	3.00	15.05
NO2+NO3-N mg/l	0.35	42	1.12	0.05	0.23
Tot. Phos. mg/l	0.44	41	1.69	0.13	0.36
Tot. Org. C mg/l	10.98	39	17.50	6.50	2.69
T.Hardness mg/l	67.49	31	168.00	12.00	37.49
Chloride mg/l	20.99	42	53.00	4.00	13.04
Sulfate mg/l	12.32	42	22.00	5.00	3.80
TDS mg/l	157.84	43	279.00	65.00	55.00
Turbidity NTU	34.39	44	94.00	11.00	18.95

SEGMENT 3C - ARKANSAS RIVER AND TRIBUTARIES: LOCK AND DAM NO. 4 TO LOCK AND DAM NO. 7 (ARKANSAS RIVER BASIN)

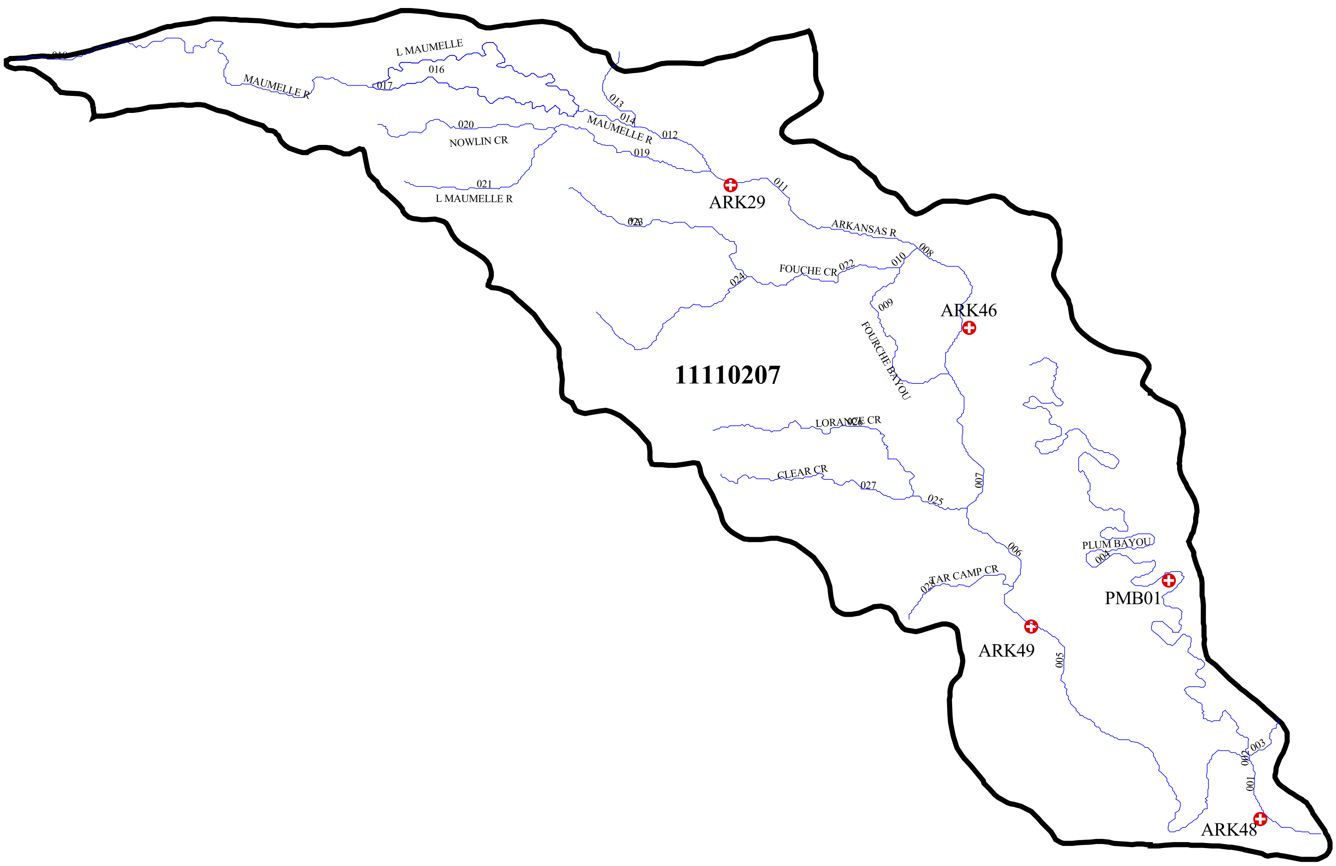
Segment 3C is located in central Arkansas and covers large portions of Pulaski and Jefferson Counties as well as small areas of Grant, Saline and Lonoke Counties. The Arkansas River, with its tributaries, is the major surface water resource in this segment. The principal tributaries within this segment are Plum Bayou, Maumelle River and Fouche Creek. Lake Pine Bluff and Lake Maumelle are located in this segment.

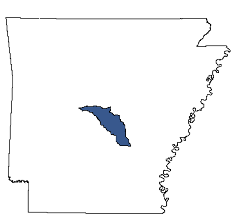
SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. This planning segment contains a total of 291.8 stream miles, and 194.2 miles are being assessed. Four monitoring stations are located on the main stem of the Arkansas River which provides monitored data for 52.2 miles of the river. An additional 15.4 miles of the Arkansas River were evaluated. Data from USGS studies on the Maumelle River was used to assess this stream. Quarterly monitoring was conducted at one station on Plum Bayou. The remaining 87.4 miles within this planning segment were unassessed.

Although occasional high turbidity values occur in the Arkansas River within this planning segment, the value and frequency of occurrence are relatively low. This may be due to lower magnitudes and frequency of storm events during the past years. As a result,the Arkansas River was assessed as supporting all designated uses. All other assessed waters in this segment were meeting all designated uses.

Planning Segment 3C - Monitoring Stations

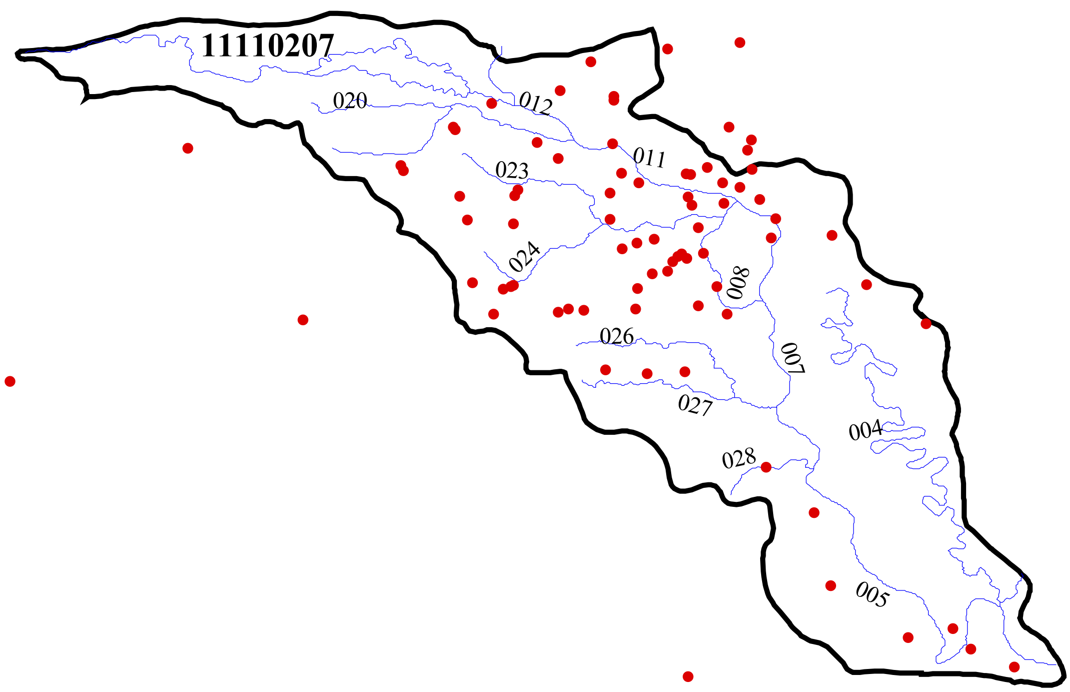


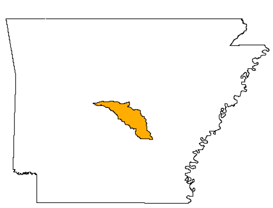


(Segment 3C)

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3C																		
Arkansas River	11110207	-001	6.7	ARK48	M	S	S	S	S	S	S					FISH CONSUMPTION	194.2	0
Plum Bayou	11110207	-002	0.3		M	S	S	S	S	S	S					AQUATIC LIFE	194.2	0
Indian Bayou	11110207	-003	3.2		U											SWIMMING	194.2	0
Plum Bayou	11110207	-004	68.4	PMB01	M	S	S	S	S	S	S					SECONDARY CONTACT	194.2	0
Arkansas River	11110207	-005	28	ARK49	M	S	S	S	S	S	S					DRINKING SUPPLY	194.2	0
Arkansas River	11110207	-006	6.2		E	S	S	S	S	S	S					AGRI & INDUSTRY	194.2	0
Arkansas River	11110207	-007	9.2		E	S	S	S	S	S	S							
Arkansas River	11110207	-008	9.8	ARK46	M	S	S	S	S	S	S							
Fourche Bayou	11110207	-009	11		U													
Fourche Bayou	11110207	-010	1.6		U													
Arkansas River	11110207	-011	7.7	ARK29	M	S	S	S	S	S	S							
Arkansas River	11110207	-012	5.1		M	S	S	S	S	S	S							
Arkansas River	11110207	-013	5.7		E	S	S	S	S	S	S							
Maumelle River	11110207	-014	3.3		E	S	S	S	S	S	S							
Maumelle River	11110207	-018	24.2	USGS	M	S	S	S	S	S	S							
Little Maumelle	11110207	-019	9.5		E	S	S	S	S	S	S							
Little Maumelle	11110207	-021	10.1		E	S	S	S	S	S	S							
Nowlin Creek	11110207	-020	10.5		U													
Fourche Creek	11110207	-022	9.2		U													
Fourche Creek	11110207	-023	13		U													
Fourche Creek	11110207	-024	11.2		U													
Clear Creek	11110207	-025	3.2		U													
Lorance Creek	11110207	-026	15.2		U													
Clear Creek	11110207	-027	11.9		U													
Tar Camp Creek	11110207	-028	7.6		U													
TOTAL MILES	291.8																	
MILES UNASSESSED	97.6																	
MILES EVALUATED	44																	
MILES MONITORED	150.2																	

Planning Segment 3C - NPDES Permitted Facilities





(Segment 3C)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0001376	ENTERGY AR, INC-LYNCH	ARKANSAS RV/SEG 3C-ARKANSAS RV BASN	11110207	3C
AR0001414	MINNESOTA MINING & MFG-ARCH ST	TRIB,FOURCHE CK,AR RV,3C-AR RB	11110207	3C
AR0001449	LUCENT TECHNOLOGIES, INC	TRIB/LITTLE FOURCHE CK/ARK RV BASIN	11110207	3C
AR0001503	AP GREEN INDUSTRIES, INC	TRIB-LITTLE FOURCH CK/SEG 3C-ARK RB	11110207	3C
AR0001601	GAYLORD CONTAINER CORP	ARK. RV-SEG. 3C OF ARKANSAS RV BAS.	11110207	3C
AR0001635	SMITH FIBERGLASS PRODUCTS, INC	TRIB,FOURCHE CK,AR RV	11110207	3C
AR0001643	GEORGIA PACIFIC-NLR	ARKANSAS RIVER/SEG 3C OF ARK RV BAS	11110207	3C
AR0001678	USA-PINE BLUFF ARSENAL-PINE BL	TRIB/PHILLIPS CK & AR RV,3C-AR RB	11110207	3C
AR0001686	MINNESOTA MINING & MFG-COLLEGE	TRIB,FOURCHE CK,AR RV	11110207	3C
AR0001775	UNION PACIFIC RAILROAD CO	E.& W.BRNCH DARK HOLLOW CANAL,3C-AR	11110207	3C
AR0001848	POROCEL CORP	DIT/WILLOW SPR BR/FOURCHE CK/ARK RB	11110207	3C
AR0001970	INTERNATIONAL PAPER CO-PINE B	AR RIVER-SEG 3C OF AR RVR. BASIN	11110207	3C
AR0002542	ALLEN GRANITE INDUSTRIES, INC	TRIB/INK BU,3C AR RB	11110207	3C
AR0020303	N LITTLE ROCK, CITY OF-FAULKNE	ARKANSAS RV	11110207	3C
AR0020320	N LITTLE ROCK WW UTILITY-5 MIL	AR RV,3C-AR RB	11110207	3C
AR0021806	LITTLE ROCK, CITY OF-ADAMS FIE	ARKANSAS RV,3C-AR RB	11110207	3C
AR0022128	ENGLAND, CITY OF	WABBASEKA BU/PLUM BU/ARK RV/ARK RB	11110207	3C
AR0033316	PINE BLUFF WW UTILITY-BOYD PT	ARKANSAS RIVER/SEG 3C-ARKANSAS RB	11110207	3C
AR0033626	MAUMELLE SUBURBAN IMPROVEMENT	ARKANSAS RV	11110207	3C
AR0035963	PCSSD-ROBINSON ELEM SCH	TRIB,LTL.MAUMELLE RV,3D-AR RB	11110207	3C
AR0036331	ENTERGY AR, INC-WHITE BLUFF PL	ARKANSAS RV,3C-AR RB	11110207	3C
AR0036421	FERNCLIFF CAMP & CONF CTR	TRIB,LTL MAUMELLE RV,AR RV	11110207	3C
AR0036447	GEO SPECIALTY CHEMICALS-WINROC	FISH CK/ARK RV/SEG 3C-ARK RIVER BAS	11110207	3C
AR0037338	BAKER APTS-CHASE PROPERTIES	PANTHER BR,BRODIE CK,FOURCHE CK,3C	11110207	3C
AR0037613	KEO, CITY OF	TRIB, NORTH BU, PLUM BU	11110207	3C
AR0037745	LITTLE ROCK ZOOLOGICAL GARDENS	COLEMAN CK,2C-AR RB	11110207	3C
AR0038181	CENTURY TUBE CORP	LK LANHOFER,AR RV,3C-AR RB	11110207	3C
AR0038288	N LITTLE ROCK WW UTILITY-WHITE	ARKANSAS RV	11110207	3C
AR0038571	AR PARKS & TOURISM-PINNACLE MT	DIT,BIG MAUMELLE RV,3D-AR RB	11110207	3C
AR0039250	AR 4-H EDUCATION CENTER-FERNDA	FERNDALE CK,LT MAUMELLE RV,3D-AR RB	11110207	3C

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0039357	REDFIELD, CITY OF	ARKANSAS RV/SEG 3C OF ARK. RV BASIN	11110207	3C
AR0039543	MCALMONT CHURCH OF CHRIST-NLR	STARK BEND/FAULKNER LK/SEG 3C-AR RB	11110207	3C
AR0040177	LITTLE ROCK, CITY OF-FOURCHE C	AR RV,3C-AR RB	11110207	3C
AR0040266	ONE-FORTY-FIFTH ST WTR&SID#345	001:FISH CK;002:CANE CK,3C-AR RB	11110207	3C
AR0040380	AR PARKS & TOURISM-TOLTEC MDS	TRIB/TERRE NOIR CK/SEG. 3B-ARK. RB	11110207	3C
AR0040746	KOCH MATERIALS CO-LITTLE ROCK	TRIB/FISH CK,3C-AR RB	11110207	3C
AR0040860	MAPLE CREEK POA-SID #1	MAPLE CK/PENNINGTON BAYOU/SEG 3C-AR	11110207	3C
AR0041149	AR MILITARY DEPT-CAMP ROBINSON	5-MILE CK, ARKANSAS RV	11110207	3C
AR0041424	PLEASANT OAKS POA	TRIB/OTTER CK/FOURCHE CK/3C-ARK RB	11110207	3C
AR0042544	CRILANCO OIL, INC	TRIB,FISH CK,BIG LK,PENNINGTON BU	11110207	3C
AR0042587	TIMEX PRODUCTS, INC	CITY STRM SWR,AR RV	11110207	3C
AR0042862	SHERIDAN SCHOOL DIST-EAST END	TRIB,MCCRIGHT BR,LORRANCE CK,BIG LK	11110207	3C
AR0042901	ZENECA AG PRODUCTS-NLR	WEST BRANCH-DARK HOLLOW CANAL,AR RV	11110207	3C
AR0042927	PCSSD-AUXILIARY SERVICE FAC	FOURCHE BU,ARKANSAS RV	11110207	3C
AR0043079	STERLING PAINT, INC	6TH ST STRM SWR,AR RV	11110207	3C
AR0043826	NORTHWEST HARDWOODS	TRIB,FOURCHE CK,AR RV,3C-AR RB	11110207	3C
AR0043893	PCSSD-ROBINSON HIGH SCH	DIT,LT MAUMELLE RV,3D-AR RB	11110207	3C
AR0043931	J & M PROPERTIES-DIXON MANOR	TRIB,FISH CK,3C-AR RB	11110207	3C
AR0044393	SUNSET ACRES SUBDIVISION	TRB,LT FOURCHE CK,FOURCHE CK/AR RVB	11110207	3C
AR0044601	PCSSD-FULLER ELEM SCH	TRIB/FISH CK/SEG 3C-ARKANSAS RV BAS	11110207	3C
AR0044610	PCSSD-LANDMARK ELEM SCH	TRIB,TREADWAY BR,LORANCE CK,3C-AR R	11110207	3C
AR0044628	PCSSD-LAWSON ELEM SCH	DITCH/TRIB/FOUCHE CK/ARKANSAS RV-RB	11110207	3C
AR0044750	PCSSD-OAK GROVE HIGH SCH	DIT,NEWTON CK,3D-AR RB	11110207	3C
AR0044881	SALINE CO WW & SANITARY SWR	CROOKED CR,FOURCHE CR,AR RV,3C-AR	11110207	3C
AR0045471	YOUTH HOME INC-GENESIS CAMPUS	MCHENRY CK,FOURCHE CK,3C-AR RB	11110207	3C
AR0045560	OASIS RENEWAL CENTER	BRODIE CK TRIB	11110207	3C
AR0045608	CENTRAL ARKANSAS SEWER SYSTEMS	WOODRUFF CK,3C-AR RB	11110207	3C
AR0046051	OWEN CREEK SUBDIVISION	OWEN CK,FOURCHE CK,3C-AR RB	11110207	3C
AR0046060	PULASKI COUNTY SID #221	FOURCHE BU TRIB,ARKANSAS RV	11110207	3C
AR0046086	BLEMS, INC	TRIB,NEWTON CK	11110207	3C
AR0046299	MAVERICK TRANSPORTATION CO-NLR	DIT,STARK BEND TRIB,FAULKNER LK	11110207	3C

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0046302	K MOBILE HOME PK	FOURCHE CK TRIB,AR RV	11110207	3C
AR0046370	WRIGHTSVILLE, CITY OF	FOURCHE BU @ ARKANSAS RV	11110207	3C
AR0046591	BEAZER EAST, INC-KOPPERS INDUS	DIT,REDWOOD TUNNEL	11110207	3C
AR0046710	GRANITE MTN QUARRIES	TRIBS OF FOURCHE CK/AR RV/3C-AR RB	11110207	3C
AR0047236	B & M MHP	TRIB/CROOKED&FOUCHE CKS/3C-ARK RB	11110207	3C
AR0046728	COULSON OIL-SHELL SUPERSTOP 38	TRIB, CROOKED CK, FOURCHE CK	11110207	3C
AR0046868	E. C. ROWLETT QUARRY & ASPHALT	WHITE OAK BU, AR RV	11110207	3C
AR0047261	KRESTWOOD ESTATES SUBDIVISION	TRIB, LTL FOURCHE CK/ARK. RV-RB	11110207	3C
AR0047449	PCSSD-SCOTT SCHOOL TRT SYSTEM	ASHLEY BU/HORSESHOE/SCOTT BU/ARK RB	11110207	3C
AR0047848	SAFETY-KLEEN CORP	DIT,WILLOW SPRINGS BR,LT.FOURCHE CK	11110207	3C
AR0047929	LITTLE ROCK, CITY OF-OZARK PT	DIT,AR RV,3C-AR RB	11110207	3C
AR0047937	LITTLE ROCK, CITY OF-WILSON	TRIB,GRASSYFLAT,ROCK,FOURCHE CKS,AR	11110207	3C
AR0048160	COLEMAN DAIRY DIVISION-AMPI	LR STORM SEWER SYSTEM/COLEMAN CK/AR	11110207	3C
AR0048399	MAPLE CREEK FARMS TRACT C H	TRIB, MAPLE CK, PENNINGTON BU	11110207	3C
AR0048470	FARMLAND IND,INC-NLR	TRIB,AR RV,3C-AR RB	11110207	3C
AR0048542	N LITTLE ROCK ELECTRIC-MURRAY	ARKANSAS RV	11110207	3C
AR0048968	CEDAR HEIGHTS BAPTIST CHURCH	WHITE OAK BU TRIB	11110207	3C
AR0049051	HUMANE SOCIETY OF PULASKI CO	TRIB, MCHENRY CK, FOURCHE CK	11110207	3C

ARK46
ARKANSAS RIVER AT DAVID D TERRY LOCK AND DAM

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.56	43	14.10	3.80	2.25
BOD 5 Day mg/l	0.93	43	2.30	0.30	0.39
pH	7.09	43	8.64	5.93	0.57
TSS mg/l	14.82	40	121.00	2.00	20.73
NO2+NO3-N mg/l	0.40	44	0.86	0.03	0.19
Tot. Phos. mg/l	0.11	41	0.27	0.05	0.04
Tot. Org. C mg/l	5.51	41	7.10	4.20	0.69
T.Hardness mg/l	128.58	31	208.00	70.00	33.98
Chloride mg/l	90.43	41	257.00	34.00	45.44
Sulfate mg/l	53.56	42	120.00	26.00	21.70
TDS mg/l	330.04	42	628.00	179.00	107.92
Turbidity NTU	28.18	44	190.00	3.20	32.37

ARK48
ARKANSAS RIVER AT LOCK & DAM NO. 4

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.38	39	18.00	5.10	2.24
BOD 5 Day mg/l	0.95	43	2.30	0.30	0.45
pH	7.70	41	8.26	7.10	0.32
TSS mg/l	16.95	43	193.00	2.00	31.88
NO2+NO3-N mg/l	0.42	42	1.01	0.03	0.21
Tot. Phos. mg/l	0.10	42	0.29	0.03	0.04
Tot. Org. C mg/l	5.51	42	8.70	4.30	0.81
T.Hardness mg/l	125.34	32	209.00	63.00	33.50
Chloride mg/l	85.00	40	189.00	33.00	38.40
Sulfate mg/l	52.25	42	132.00	20.00	22.78
TDS mg/l	324.41	42	578.00	159.00	98.16
Turbidity NTU	24.46	43	210.00	2.40	35.57

ARK49

ARKANSAS RIVER AT LOCK & DAM NO. 5

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.40	40	16.70	4.90	2.17
BOD 5 Day mg/l	1.01	44	2.90	0.30	0.52
pH	7.72	42	8.47	7.23	0.36
TSS mg/l	16.15	43	177.00	1.00	28.89
NO2+NO3-N mg/l	0.46	43	1.95	0.03	0.31
Tot. Phos. mg/l	0.10	43	0.28	0.03	0.04
Tot. Org. C mg/l	5.37	43	8.00	3.70	0.83
T.Hardness mg/l	125.49	33	206.00	64.00	33.22
Chloride mg/l	82.90	41	189.00	9.00	39.73
Sulfate mg/l	52.57	43	131.00	22.00	22.76
TDS mg/l	319.81	43	567.00	158.00	100.95
Turbidity NTU	23.54	44	210.00	2.50	34.58

ARK29

ARK RIVER AT MURRAY LOCK AND DAM

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.60	43	14.20	3.20	2.31
BOD 5 Day mg/l	0.98	43	5.00	0.20	0.76
pH	7.16	43	8.82	6.05	0.59
TSS mg/l	12.43	40	89.00	1.00	16.41
NO2+NO3-N mg/l	0.39	43	0.82	0.02	0.18
Tot. Phos. mg/l	0.10	41	0.26	0.03	0.04
Tot. Org. C mg/l	5.36	41	7.00	4.00	0.70
T.Hardness mg/l	126.13	31	204.00	67.00	34.49
Chloride mg/l	90.48	41	275.00	34.00	48.06
Sulfate mg/l	53.04	42	121.00	6.00	22.74
TDS mg/l	326.70	42	666.00	178.00	113.72
Turbidity NTU	25.50	44	180.00	2.60	32.83

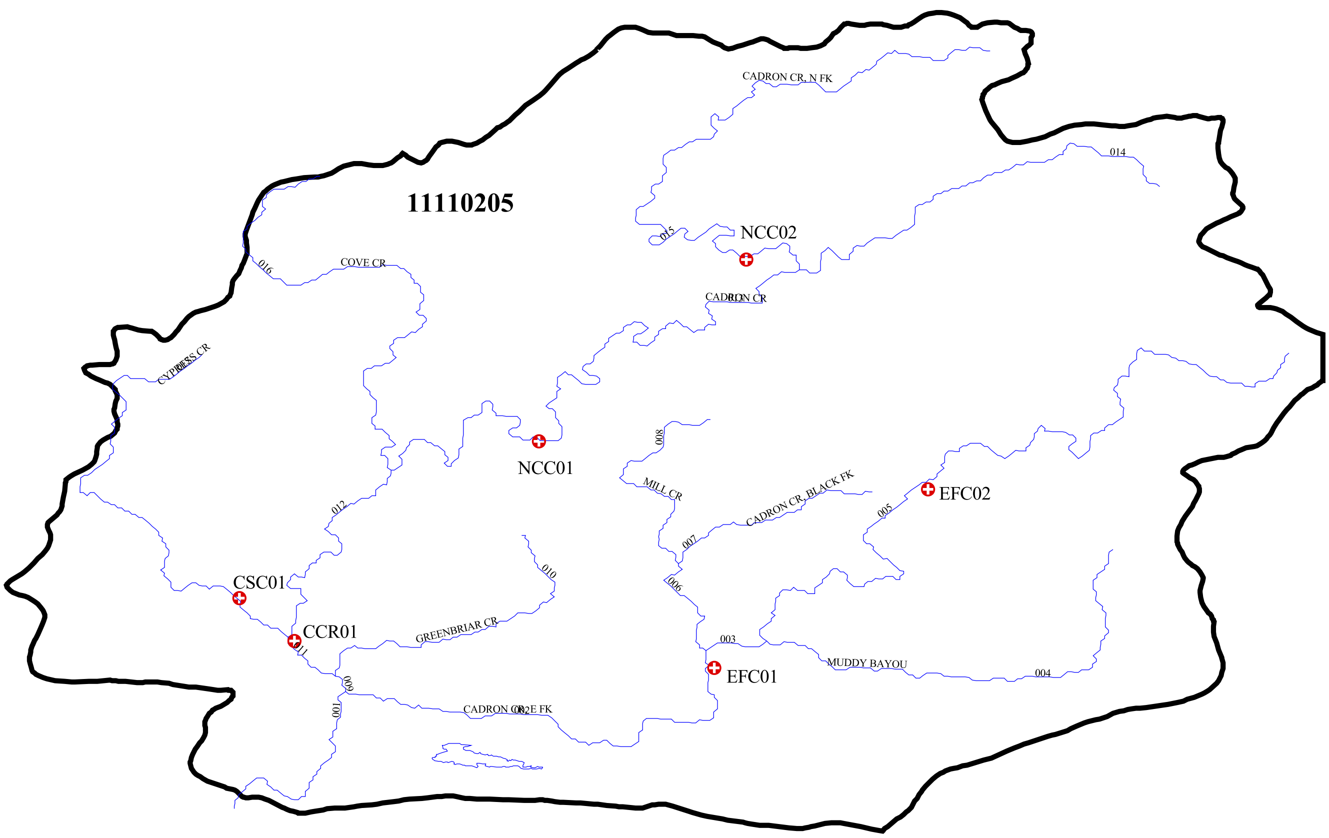
SEGMENT 3D - ARKANSAS RIVER AND TRIBUTARIES: LOCK AND DAM NO. 7 TO MORRILTON (ARKANSAS RIVER BASIN)

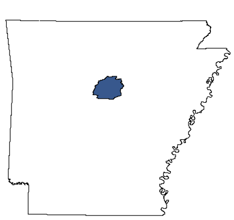
Segment 3D, located in upper central Arkansas, covers most of Conway County as well as parts of Cleburne and Van Buren Counties. The principal waters include the Cadron Creek basin.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supply. This planning segment contains a total of 221.6 stream miles, of which 119.8 stream miles were monitored. All waters assessed in this segment were supporting all designated uses.

Planning Segment 3D - Monitoring Stations

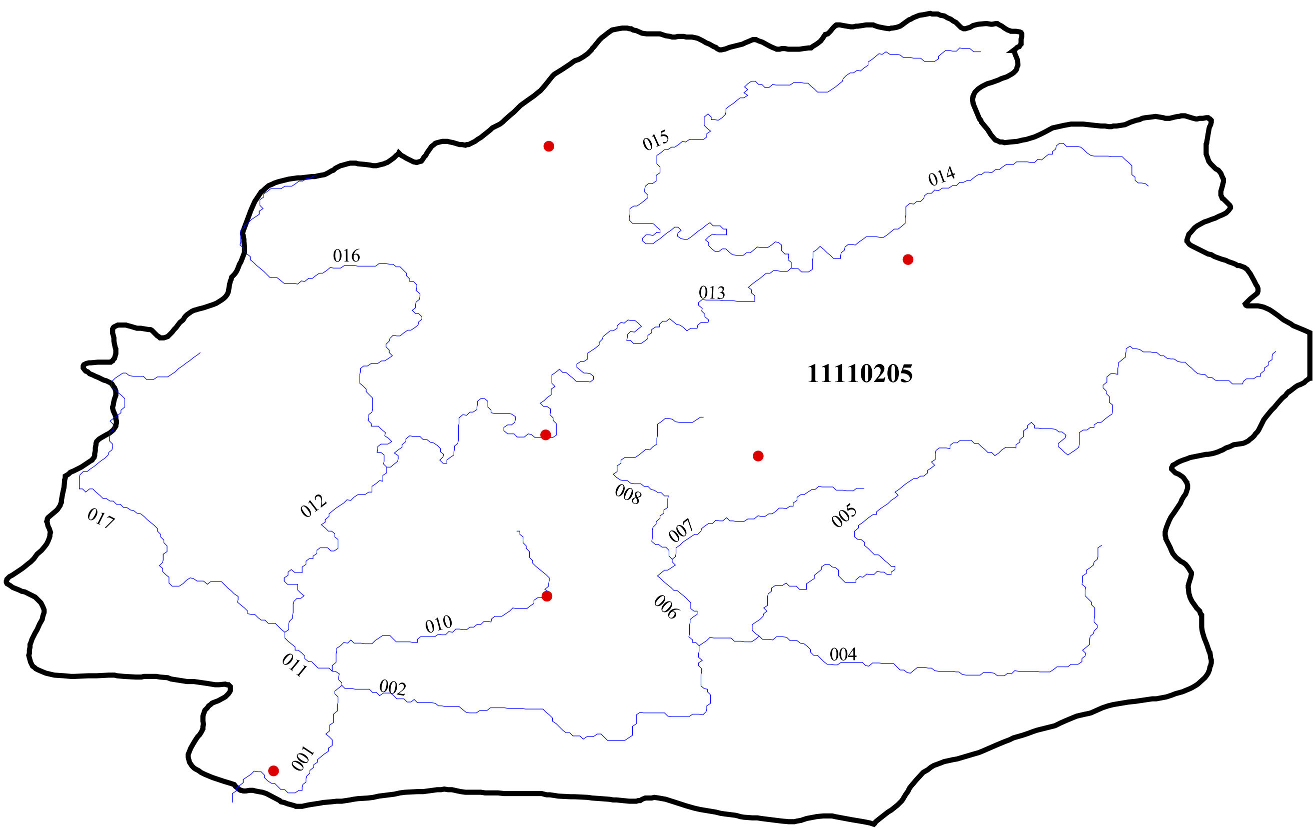


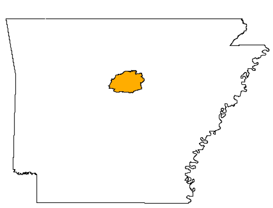


STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC
SEG-3D															
Cadron Creek	11110205	-001	7.7		E	S	S	S	S	S	S				
E. Fork Cadron	11110205	-002	15.6	EFC01	M	S	S	S	S	S	S				
E. Fork Cadron	11110205	-003	2		E	S	S	S	S	S	S				
E. Fork Cadron	11110205	-005	30.7	EFC02	M	S	S	S	S	S	S				
Muddy Bayou	11110205	-004	15.7		U										
Black Fork	11110205	-006	4.3		U										
Black Fork	11110205	-007	7.2		U										
Mill Creek	11110205	-008	8.9		E	S	S	S	S	S	S				
Cadron Creek	11110205	-009	0.7		E	S	S	S	S	S	S				
Cadron Creek	11110205	-011	2.2	CCR01	M	S	S	S	S	S	S				
Cadron Creek	11110205	-012	9.5		E	S	S	S	S	S	S				
Cadron Creek	11110205	-013	26.8	NCC01	M	S	S	S	S	S	S				
Cadron Creek	11110205	-014	14.7		E	S	S	S	S	S	S				
Greenbriar Cr.	11110205	-010	11.1		U										
North Cadron	11110205	-015	26.5	NCC02	M	S	S	S	S	S	S				
Cove Creek	11110205	-016	20		U										
Cypress Creek	11110205	-017	18	CSC01	M	S	S	S	S	S	S				
TOTAL MILES	221.6														
MILES UNASSESSED	58.3														
MILES EVALUATED	43.5														
MILES MONITORED	119.8														

USE	SUPPORT	NOT SUPPORT
FISH CONSUMPTION	163.3	0
AQUATIC LIFE	163.3	0
SWIMMING	163.3	0
SECONDARY CONTACT	163.3	0
DRINKING SUPPLY	163.3	0
AGRI & INDUSTRY	163.3	0

Planning Segment 3D - NPDES Permitted Facilities





(Segment 3D)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0036536	GREENBRIER, CITY OF	GREENBRIER CK,CADRON CK,AR RV	11110205	3D
AR0037087	AR PARKS & TOURISM-WOOLY HOLLO	BLACK FORK CK,3D-AR RB	11110205	3D
AR0040321	QUITMAN, CITY OF	MILL CK/CADRON CK/ ARKANSAS RV-RB	11110205	3D
AR0047112	ROGERS GROUP, INC-GREENBRIER Q	TRIB-CADRON CK/SEG 3D OF ARK. RB	11110205	3D
AR0047457	CADRON CREEK CATFISH HOUSE	DIT/WARD/PINE MTN/COVE/CADRON/AR RB	11110205	3D
AR0048119	CADRON CREEK CHIP MILL	CADRON CK,AR RV,3F-AR RB	11110205	3D

SEGMENT 3E - FOURCHE LAFAVE RIVER
(ARKANSAS RIVER BASIN)

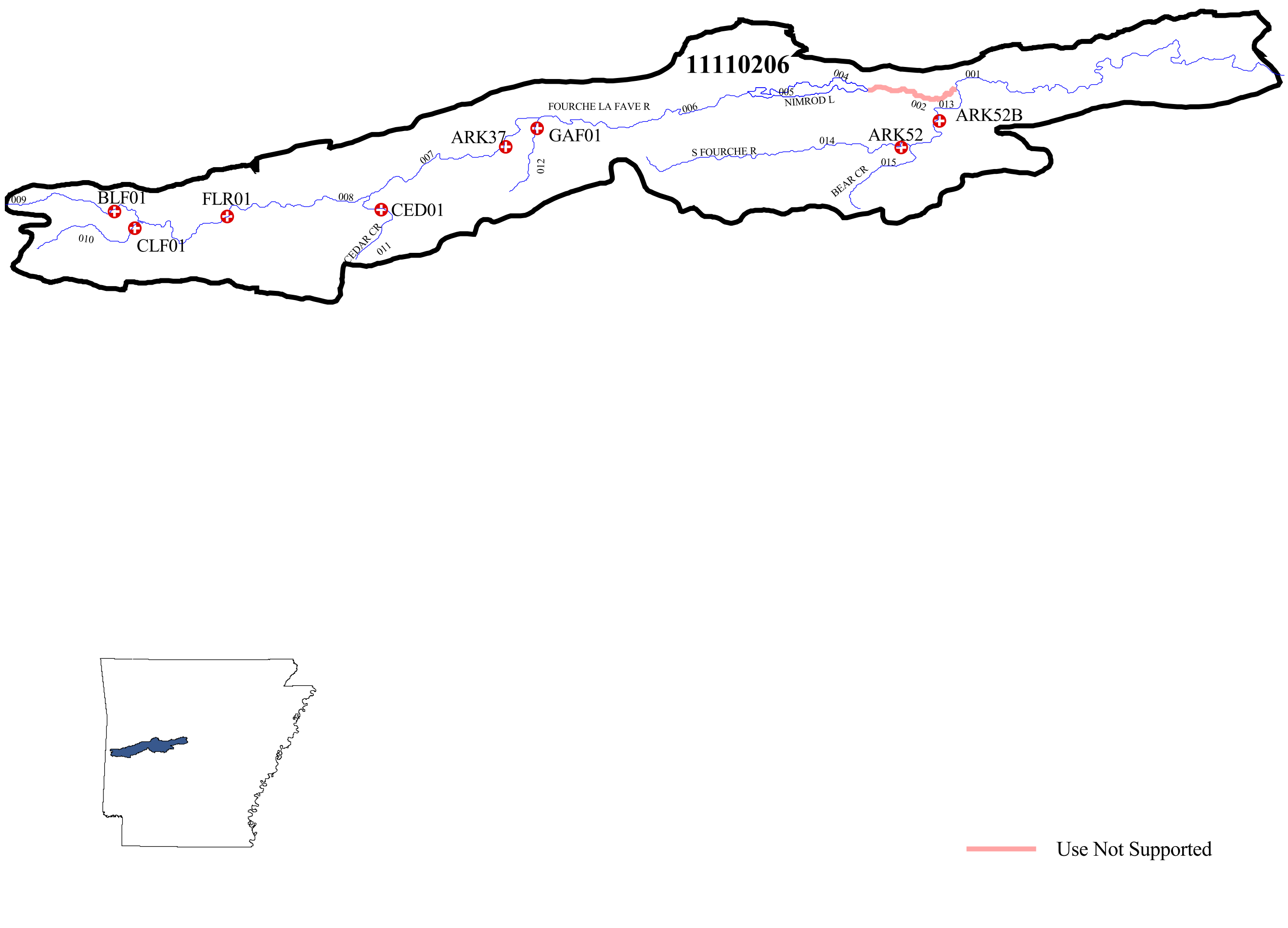
Segment 3E, located in west central Arkansas, includes portions of Perry, Yell, and Scott Counties. This segment contains a 148-mile reach of the Fourche LaFave River and its tributary streams, which include Big Cedar Creek, Mill Creek, Gafford Creek and South Fourche LaFave River. Major impoundments in this segment are Nimrod Lake (formed by a dam on Fourche LaFave River), and Harris Brake Lake.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. All 211.5 stream miles in this segment were assessed. Both monthly and quarterly sampled stations were used to monitor 125.1 miles of stream. The remaining 86.4 miles were evaluated. Previous data has shown occasional periods of elevated turbidity values which was associated with agriculture and silviculture activities since these are two of the main land uses within the watershed. However, the construction and maintenance of an abundance of dirt and gravel roads for timber access and general transportation is likely contributing to the high values. These conditions, however, were not determined to be impairing designated uses in these waters.

A statewide sampling effort has determined that fish from Lake Nimrod and the Fourche LaFave River below Nimrod Dam have elevated concentrations of mercury. Both of these waterbodies are currently listed as not supporting the fish consumption use.

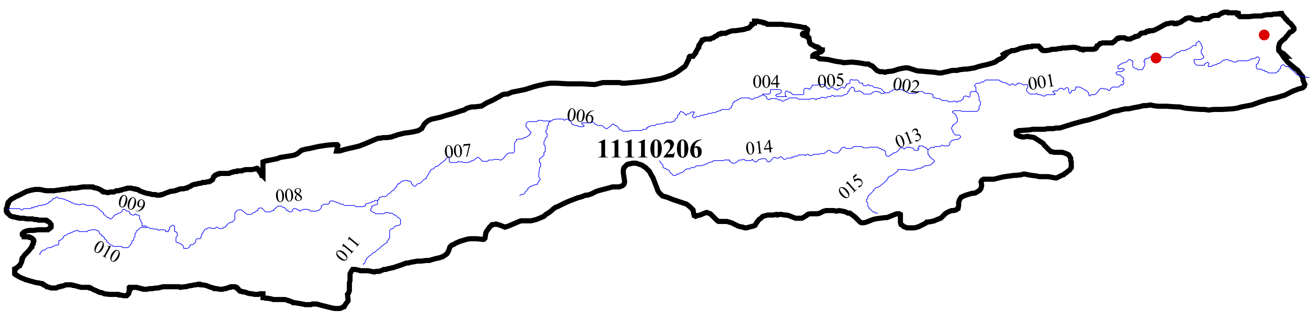
Planning Segment 3E - Monitoring Stations

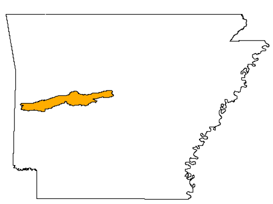


(Segment 3E)

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3E																		
Fourche LaFave	11110206	-001	44.4		E	S	S	S	S	S	S					FISH CONSUMPTION	202.8	8.7
Fourche LaFave	11110206	-002	8.7		M	N	S	S	S	S	S	UN		HG		AQUATIC LIFE	211.5	0
Fourche LaFave	11110206	-006	21.5		E	S	S	S	S	S	S					SWIMMING	211.5	0
Fourche LaFave	11110206	-007	20.2	ARK37	M	S	S	S	S	S	S					SECONDARY CONTACT	211.5	0
Fourche LaFave	11110206	-008	25.7	FLR01	M	S	S	S	S	S	S					DRINKING SUPPLY	211.5	0
Black Fork	11110206	-009	14.3	BLF01	M	S	S	S	S	S	S					AGRI & INDUSTRY	211.5	0
Clear Fork	11110206	-010	12	CLF01	M	S	S	S	S	S	S							
Cedar Creek	11110206	-011	9.6	CED01	M	S	S	S	S	S	S							
Gafford Creek	11110206	-012	8.5	GAF01	M	S	S	S	S	S	S							
S.FourcheLaFave	11110206	-013	10.3		E	S	S	S	S	S	S							
S.FourcheLaFave	11110206	-014	26.1	ARK52,B	M	S	S	S	S	S	S							
Bear Creek	11110206	-015	10.2		E	S	S	S	S	S	S							
TOTAL MILES	211.5																	
MILES UNASSESSED	0																	
MILES EVALUATED	86.4																	
MILES MONITORED	125.1																	

Planning Segment 3E - NPDES Permitted Facilities





(Segment 3E)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0020125	PERRYVILLE, CITY OF	FOURCHE LAFAVE RV/SEG 3E-AR. RV BAS	11110206	3E
AR0046957	ANNE WATSON ELEMENTARY SCHOOL	TRIB/MILL CK/FOURCHE LAFAVE RV/AR R	11110206	3E

ARK37

FOURCHE LAFAVE RIVER NR GRAVELLY

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	6.54	38	12.90	4.10	1.75
BOD 5 Day mg/l	0.99	42	3.10	0.10	0.70
pH	6.89	38	7.50	6.21	0.35
TSS mg/l	5.35	37	33.00	1.00	5.85
NO2+NO3-N mg/l	0.13	36	0.40	0.01	0.10
Tot. Phos. mg/l	0.07	33	0.39	0.02	0.07
Tot. Org. C mg/l	3.72	42	7.60	1.60	1.35
T.Hardness mg/l	11.67	30	18.00	6.00	3.07
Chloride mg/l	3.15	39	6.00	2.00	0.74
Sulfate mg/l	5.92	39	25.00	1.00	4.07
TDS mg/l	38.72	43	110.00	30.00	12.10
Turbidity NTU	11.55	44	42.00	3.00	8.16

ARK52

SOUTH FOURCHE LA FAVE RIVER ABOVE HOLLIS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.20	42	16.10	4.60	2.59
BOD 5 Day mg/l	1.19	44	3.70	0.30	0.69
pH	6.51	42	7.43	5.46	0.46
TSS mg/l	5.91	41	56.00	1.00	10.03
NO2+NO3-N mg/l	0.12	38	0.32	0.01	0.07
Tot. Phos. mg/l	0.05	29	0.28	0.02	0.05
Tot. Org. C mg/l	6.49	40	15.70	2.80	2.37
T.Hardness mg/l	11.19	32	16.00	7.00	2.48
Chloride mg/l	3.58	42	7.00	2.00	1.14
Sulfate mg/l	5.13	39	10.00	0.30	2.35
TDS mg/l	42.09	43	68.00	33.00	7.67
Turbidity NTU	15.06	45	59.00	2.80	12.71

SEGMENT 3F - ARKANSAS RIVER
(ARKANSAS RIVER BASIN)

Segment 3F is located in the central portion of Arkansas and covers parts of Faulkner, Conway, Perry, Pope, Van Buren, Logan, and Searcy Counties. This segment contains the Arkansas River and its tributaries. The principal tributaries are the East and West Forks of Point Remove Creek, Overcup Creek, Gum Log Creek, Palarm Creek and Galla Creek.

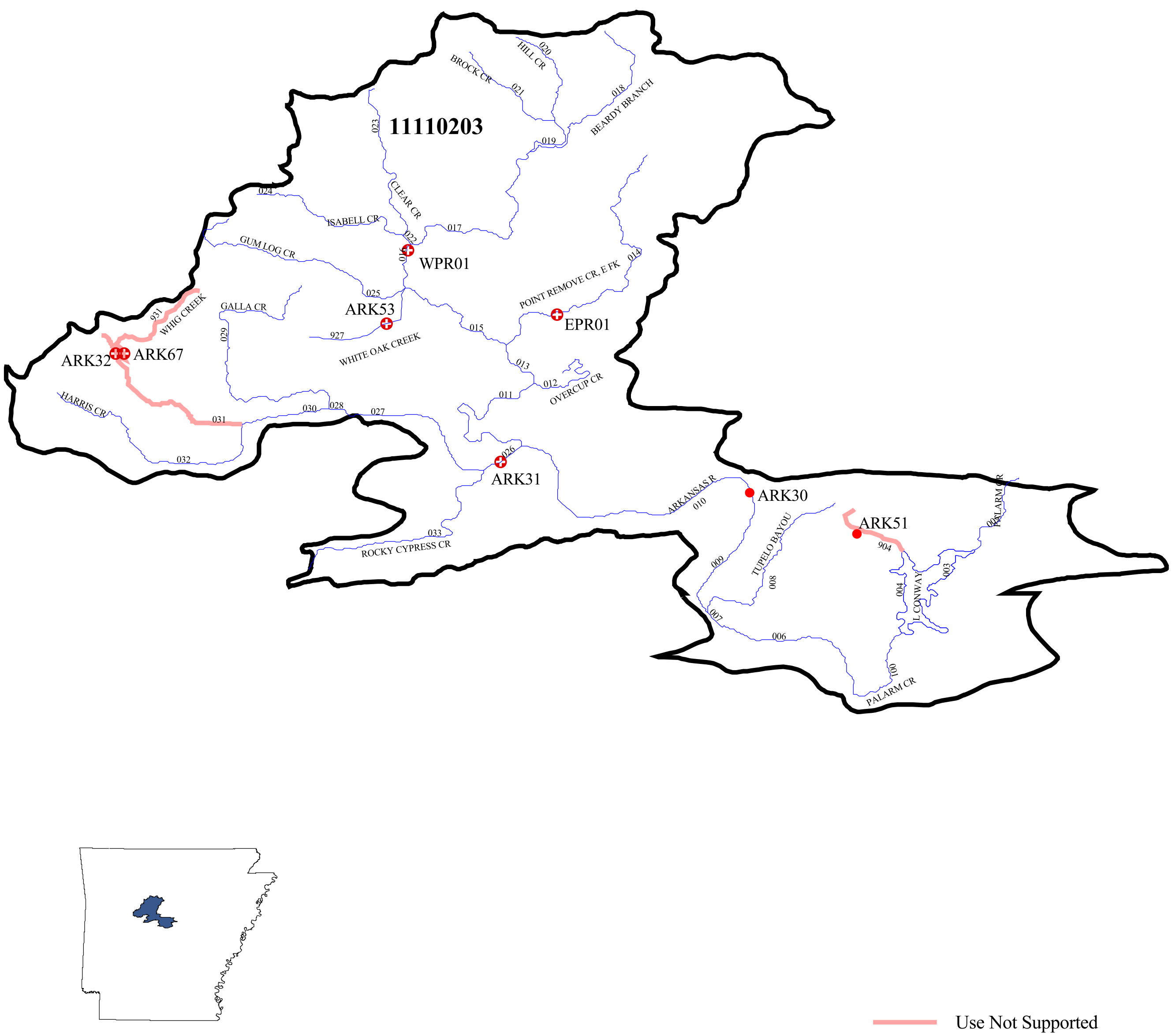
SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. This segment contains a total of 310.8 streams miles. Eight monitoring stations within this segment allow assessment of 85.6 streams miles with an additional 45.1 miles of stream being evaluated. The remaining stream segments were unassessed.

Whig Creek continues to be impaired by point source discharges. Both municipal and industrial discharges exist in Whig Creek. A municipal and industrial discharge also existed in White Oak Creek, however both were supposedly eliminated although evidence of continued discharges exist High turbidity, probably from nonpoint sources, appears to be the major problem.. Stone Dam Creek was also impaired by a municipal discharge with chronically toxic ammonia levels and nitrates exceeding the drinking water maximum contaminant level.

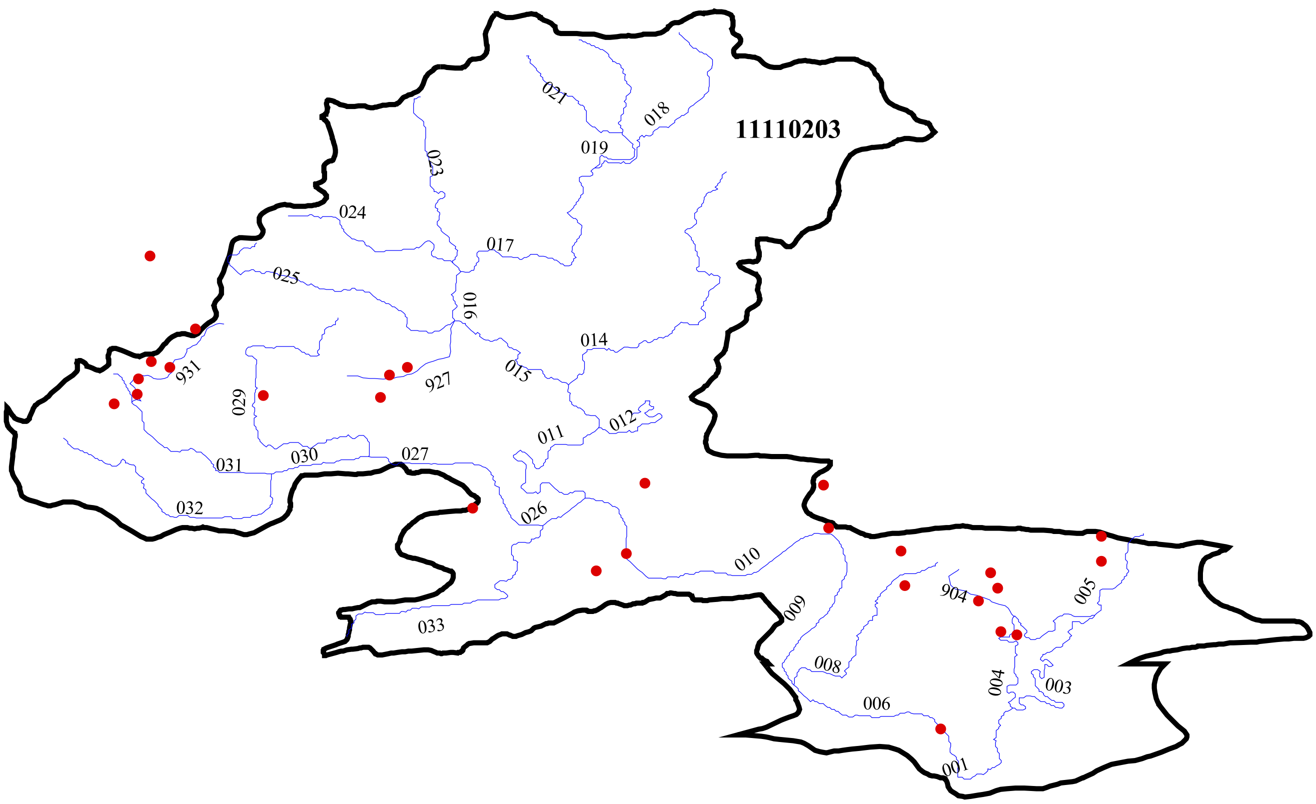
Additionally, the segment of the Arkansas River below Dardanelle Reservoir frequently exceeded the D.O. standard and was therefore listed as not supporting designated uses.

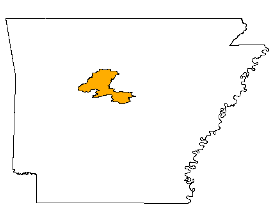
Planning Segment 3F - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3F																		
Palarm Creek	11110203	-001	6.4		U											FISH CONSUMPTION	130.7	0
Stone Dam Creek	11110203	-904	3	ARK51	M	S	N		S	N	S	MP		AM	NU	AQUATIC LIFE	106.3	24.4
Palarm Creek	11110203	-005	6.6		U											SWIMMING	117.7	0
Arkansas River	11110203	-006	10.9		E	S	S	S	S	S	S					SECONDARY CONTACT	130.7	0
Arkansas River	11110203	-007	1		E	S	S	S	S	S	S					DRINKING SUPPLY	117.7	13
Tupelo Bayou	11110203	-008	13		U											AGRI & INDUSTRY	130.7	0
Arkansas River	11110203	-009	10.6	ARK30	M	S	S	S	S	S	S							
Arkansas River	11110203	-010	16.4		E	S	S	S	S	S	S							
Point Remove	11110203	-011	13.1		U													
Point Remove	11110203	-013	3.5		U													
Overcup Creek	11110203	-012	7.5		U													
East Pt.Remove	11110203	-014	20.9	EPR01	M	S	S	S	S	S	S							
West Pt.Remove	11110203	-015	8.2		U													
West Pt.Remove	11110203	-016	3.3	WPR01	M	S	S	S	S	S	S							
West Pt.Remove	11110203	-017	14.4		E	S	S	S	S	S	S							
West Pt.Remove	11110203	-019	4.1		U													
Beardy Branch	11110203	-018	12.9		U													
Hill Creek	11110203	-020	7.3		U													
Brock Creek	11110203	-021	7.4		U													
Clear Creek	11110203	-022	0.7		U													
Clear Creek	11110203	-023	11.7		U													
Isabel Creek	11110203	-024	10.5		U													
Gum Log Creek	11110203	-025	15.8		U													
Arkansas River	11110203	-026	2.6	ARK31	M	S	S	S	S	S	S							
Arkansas River	11110203	-027	9.9		E	S	S	S	S	S	S							
Arkansas River	11110203	-028	1.2		E	S	S	S	S	S	S							
Galla Creek	11110203	-029	20.1		U													
Arkansas River	11110203	-030	5.1		E	S	S	S	S	S	S							
Arkansas River	11110203	-031	11.4	ARK32	M	S	N	S	S	S	S			DO				
Harris Creek	11110203	-032	15.6		U													
Rocky Cypress	11110203	-033	15.7		U													
Whig Creek	11110203	-931	10	ARK67	M	S	N	S	S	N	S	MP		NU	ME			
White Oak Creek	11110203	-927	10	ARK53	M	S	S		S	S	S							
TOTAL MILES	310.8																	
MILES UNASSESSED	180.1																	
MILES EVALUATED	58.9																	
MILES MONITORED	71.8																	

Planning Segment 3F - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0001830	GREEN BAY PACKAGING-AR KRAFT	SLOUGH-ARK. RV/SEG. 3F-ARKANSAS RB	11110203	3F
AR0021768	RUSSELLVILLE CITY CORP	WHIG CK,AR RV	11110203	3F
AR0033359	CONWAY, CITY OF-STONE DAM CK	STONE DAM CK,LK CONWAY	11110203	3F
AR0033421	DARDANELLE, CITY OF	ARKANSAS RIVER/SEG. 3F-ARKANSAS RB	11110203	3F
AR0034665	ATKINS, CITY OF-EAST STP	ARKANSAS RIVER/SEG 3F-ARKANSAS RB	11110203	3F
AR0034673	ATKINS, CITY OF-SOUTH WWTP	HORSE PEN CK,GALLA CK,AR RV	11110203	3F
AR0036714	TYSON FOODS INC-DARDANELLE	ARKANSAS RIVER/SEG 3F-ARKANSAS RB	11110203	3F
AR0037206	MAYFLOWER, CITY OF	ARKANSAS RV/SEG 3D-ARKANSAS RV BASN	11110203	3F
AR0039454	GOLD CREEK LANDING-CONWAY	LAKE CONWAY	11110203	3F
AR0041301	GOLDEN MEADOWS POA-CONWAY	TRIB,TUCKER CK,TUPELO BU,AR RV	11110203	3F
AR0042536	ROLLING CREEK POA	WARREN CK TRIB,PALARM CK,LK CONWAY	11110203	3F
AR0042668	GRACE MANUFACTURING, INC	WHIG CK,ARKANSAS RV	11110203	3F
AR0043028	PIONEER SOUTHERN, INC	TRIB/TANK LK/SEG 3D-ARKANSAS RV BAS	11110203	3F
AR0043214	ROGERS GROUP, INC-CONWAY ASPHALT	TRIB/STONE DAM CK/LK CONWAY/ARK RB	11110203	3F
AR0044474	FREEMAN BROTHERS, INC	TRIB,WHIG CK,3F-AR RB	11110203	3F
AR0044717	CAMP MITCHELL CONFERENCE CTR	UT,FLAT CYPRESS CK,CYPRESS CK,3F-AR	11110203	3F
AR0044997	BHT-EXXON FOOD MART-CONWAY	TRIB/WARREN-PALARM CKS/LK CONWAY/AR	11110203	3F
AR0045071	DELTA EXPRESS #3059-MAPCO PETR	TRIB,STONE DAM CK,LK CONWAY,3D-AR	11110203	3F
AR0045161	DELTA EXPRESS #7332-MAPCO PETR	WHIG CK TRIB,3F-AR RB	11110203	3F
AR0047104	ROGERS GROUP, INC-TOADSUCK QUARRY	TRIB. OF ARKANSAS RV/SEG 3E-ARK RB	11110203	3F
AR0047520	ROGERS GROUP, INC-BERYL QUARRY	TRIB,PALARM CK,LK COMWAY,3D-AR RB	11110203	3F
AR0047643	OPPELO, CITY OF	TRIB,CYPRESS CK,AR RV,3F-AR RB	11110203	3F
AR0048011	POTTSVILLE, CITY OF	RTIB,GALLA CK,SWMA RES,3F-AR RB	11110203	3F
AR0048429	DOVER, CITY OF	BAKERS CK,ILLINOIS BU,LK DARDANELLE	11110203	3F
AR0048453	DEAN PICKLE & SPEC PRODUCTS CO	TRIB/WHITE OAK CK,WHITE OAK CK,AR	11110203	3F
AR0048623	GERICORP, INC	CK, OLD RIVER LK, MILLER BU, AR RV	11110203	3F
AR0048682	WILHELMINA COVE POA	GOLD CK,LK CONWAY,PALARM CK,AR RV	11110203	3F

ARK30

ARK RIVER AT LOCK & DAM NO. 8 (TOAD SUCK FERRY)

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.04	42	14.60	5.60	2.22
BOD 5 Day mg/l	0.87	44	1.80	0.10	0.40
pH	7.59	43	8.41	7.02	0.32
TSS mg/l	14.23	41	56.00	2.00	14.79
NO2+NO3-N mg/l	0.40	45	0.87	0.02	0.18
Tot. Phos. mg/l	0.10	39	0.17	0.04	0.03
Tot. Org. C mg/l	5.40	40	7.70	3.90	0.81
T.Hardness mg/l	130.92	32	202.00	73.00	36.10
Chloride mg/l	94.67	43	288.00	31.00	50.52
Sulfate mg/l	54.86	40	120.00	27.00	23.25
TDS mg/l	344.35	43	673.00	185.00	116.45
Turbidity NTU	24.27	45	72.00	1.90	20.00

ARK51

STONE DAM CREEK BELOW CONWAY ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.12	42	13.70	4.00	1.95
BOD 5 Day mg/l	3.70	39	7.40	0.70	1.74
pH	6.58	43	7.82	5.73	0.36
TSS mg/l	21.64	42	363.00	5.00	54.40
NO2+NO3-N mg/l	5.99	45	14.76	0.17	4.51
Tot. Phos. mg/l	2.34	40	4.26	0.44	0.98
Tot. Org. C mg/l	10.98	40	17.60	7.60	2.24
T.Hardness mg/l	65.61	31	143.00	37.00	19.24
Chloride mg/l	42.31	43	67.00	11.00	13.69
Sulfate mg/l	123.92	40	227.00	29.00	57.42
TDS mg/l	349.79	43	564.00	124.00	117.79
Turbidity NTU	23.84	45	205.00	4.70	33.62

ARK31

ARK RIVER AT LOCK AND DAM NO.9 NEAR OPELLO, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.19	42	14.00	5.70	2.33
BOD 5 Day mg/l	1.05	44	2.70	0.20	0.66
pH	7.64	43	8.67	6.56	0.39
TSS mg/l	13.17	41	71.00	2.00	15.14
NO2+NO3-N mg/l	0.40	43	0.85	0.14	0.18
Tot. Phos. mg/l	0.10	40	0.16	0.04	0.03
Tot. Org. C mg/l	5.49	40	7.70	4.10	0.86
T.Hardness mg/l	134.70	31	209.00	76.00	35.04
Chloride mg/l	98.04	43	279.00	32.00	47.57
Sulfate mg/l	55.63	40	121.00	29.00	23.16
TDS mg/l	356.30	43	686.00	192.00	115.99
Turbidity NTU	23.78	45	84.00	2.90	20.96

ARK32

ARK RIVER NR DARDANELLE

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.66	42	15.50	4.10	2.81
BOD 5 Day mg/l	0.91	43	1.90	0.30	0.42
pH	7.54	42	8.34	7.01	0.28
TSS mg/l	15.61	41	85.00	1.00	18.62
NO2+NO3-N mg/l	0.40	44	0.79	0.08	0.19
Tot. Phos. mg/l	0.14	39	0.32	0.06	0.05
Tot. Org. C mg/l	5.39	39	8.00	3.90	0.81
T.Hardness mg/l	140.98	32	226.00	89.00	33.59
Chloride mg/l	102.64	42	311.00	2.00	55.08
Sulfate mg/l	57.82	39	122.00	2.00	24.51
TDS mg/l	369.86	42	713.00	201.00	116.42
Turbidity NTU	26.42	44	120.00	2.80	26.11

ARK67
WHIG CREEK BELOW RUSSELLVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.23	41	13.40	3.30	2.23
BOD 5 Day mg/l	2.17	41	6.20	0.50	1.73
pH	6.89	41	7.46	6.15	0.34
TSS mg/l	48.72	41	1348.00	2.00	209.81
NO2+NO3-N mg/l	9.77	44	19.20	0.07	5.11
Tot. Phos. mg/l	3.50	38	7.90	0.42	2.21
Tot. Org. C mg/l	7.46	39	14.00	4.60	2.08
T.Hardness mg/l	62.89	32	110.00	17.00	17.41
Chloride mg/l	41.92	42	109.00	6.00	25.81
Sulfate mg/l	42.62	39	65.00	20.00	10.18
TDS mg/l	262.36	42	509.00	32.00	117.70
Turbidity NTU	32.66	44	630.00	1.00	96.21

ARK53
WHITE OAK CREEK NEAR ATKINS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.17	39	16.20	3.40	2.76
BOD 5 Day mg/l	2.59	39	6.40	0.20	1.71
pH	6.84	39	8.03	5.61	0.51
TSS mg/l	16.42	40	201.00	2.00	31.87
NO2+NO3-N mg/l	0.16	32	0.49	0.01	0.12
Tot. Phos. mg/l	0.11	38	0.45	0.04	0.08
Tot. Org. C mg/l	8.66	38	22.80	3.00	4.14
T.Hardness mg/l	53.13	29	134.00	13.00	35.80
Chloride mg/l	75.86	40	526.00	4.00	102.96
Sulfate mg/l	18.99	38	37.00	5.00	7.43
TDS mg/l	219.39	41	971.00	89.00	182.76
Turbidity NTU	29.51	42	180.00	2.60	27.81

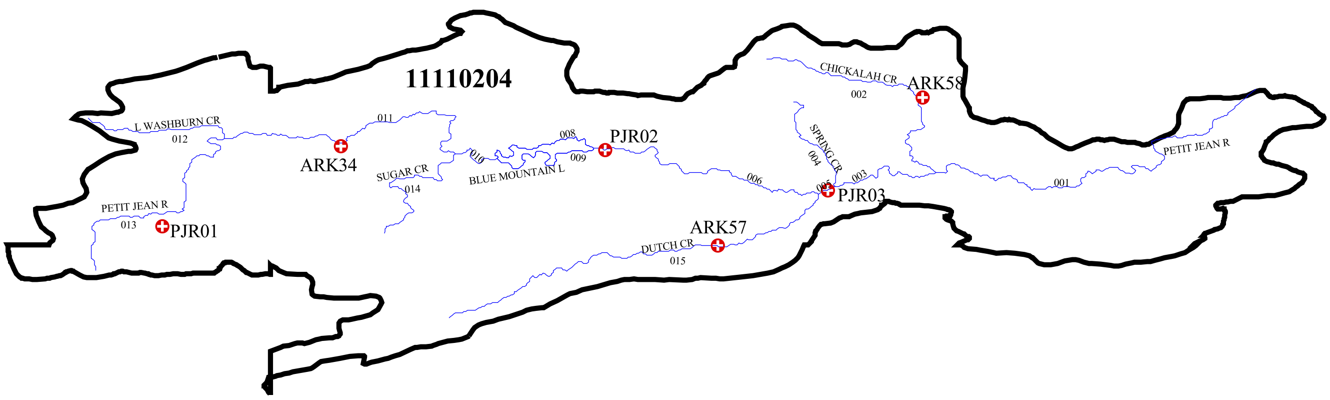
SEGMENT 3G - PETIT JEAN RIVER AND TRIBUTARIES (ARKANSAS RIVER BASIN)

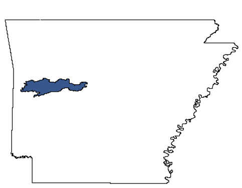
Segment 3G, located in west central Arkansas, includes portions of Yell, Conway, Perry, Logan, Sebastian, Franklin and Scott Counties. This segment includes the entire length of the Petit Jean River and its tributary streams. Major tributaries include Dutch Creek, Spring Creek, Chickalah Creek and Rose Creek. Blue Mountain Lake, formed by damming the Petit Jean River, is the largest impoundment in the segment.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supply. This planning segment contains 198.5 stream miles. Monitoring data were utilized to assess 108.2 stream miles. An additional 8.7 stream miles were evaluated. The remaining stream miles within this segment did not have adequate information for assessment and are therefore listed as unassessed. The primary land use of the watersheds in this segment is agriculture activities(primarily pasture land) and timber harvest. None of the waters in this segment were assessed as “not meeting “ designated uses.

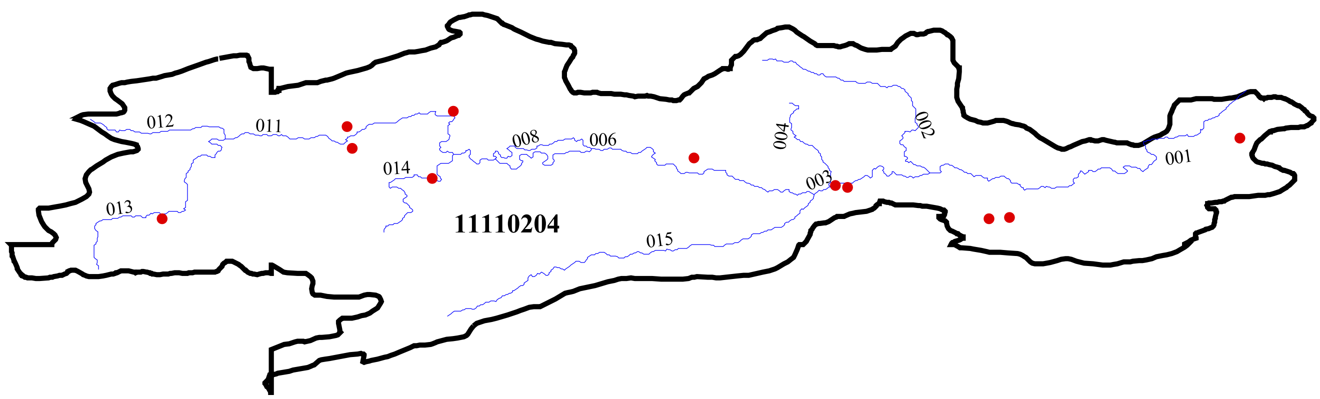
Planning Segment 3G - Monitoring Stations

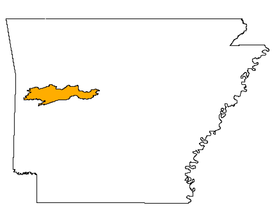




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3G																		
Petit Jean R.	11110204	-001	30.1		U											FISH CONSUMPTION	116.9	0
Petit Jean R.	11110204	-003	8.7		E	S	S	S	S	S	S					AQUATIC LIFE	116.9	0
Petit Jean R.	11110204	-005	1.3	PJR03	M	S	S	S	S	S	S					SWIMMING	116.9	0
Petit Jean R.	11110204	-006	17.9	PJR02	M	S	S	S	S	S	S					SECONDARY CONTACT	116.9	0
Petit Jean R.	11110204	-007	6		U											DRINKING SUPPLY	116.9	0
Petit Jean R.	11110204	-010	4.1		U											AGRI & INDUSTRY	116.9	0
Petit Jean R.	11110204	-011	21.6	ARK34	M	S	S	S	S	S	S							
Petit Jean R.	11110204	-013	19.2	PJR01	M	S	S	S	S	S	S							
Chickalah Cr.	11110204	-002	19.3	ARK58	M	S	S	S	S	S	S							
Spring Creek	11110204	-004	18.6		U													
L. Washburn Cr.	11110204	-012	10		U													
Sugar Creek	11110204	-014	12.8		U													
Dutch Creek	11110204	-015	28.9	ARK57	M	S	S	S	S	S	S							
TOTAL MILES	198.5																	
MILES UNASSESSED	81.6																	
MILES EVALUATED	8.7																	
MILES MONITORED	108.2																	

Planning Segment 3G - NPDES Permitted Facilities





(Segment 3G)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021571	BOONEVILLE, CITY OF	TRIB,PETIT JEAN RV, AR RV	11110204	3G
AR0022241	DANVILLE, CITY OF	PETIT JEAN RIVER/SEG 3G-ARKANSAS RB	11110204	3G
AR0035688	OLA, CITY OF	KEELAND CK,PETIT JEAN RV,3G-AR RB	11110204	3G
AR0037397	MAGAZINE, CITY OF	REVILLE CK TRIB,PETIT JEAN RV	11110204	3G
AR0037541	BOONEVILLE HUMAN DEV CTR-ADHS	PETIT JEAN RV	11110204	3G
AR0037648	AR PARKS & TOURISM-PETIT JEAN	DIT,CEDAR CK,PETIT JEAN RV,AR RV	11110204	3G
AR0038768	WAYNE FARMS	PETIT JEAN RIVER	11110204	3G
AR0045799	AR HWY DEPT-WALDRON REST AREA-	TRIB, PETIT JEAN RV	11110204	3G
AR0046256	HAVANA, CITY OF	PETIT JEAN RV	11110204	3G
AR0046426	AR GAME & FISH COMM-BLUE MTN	TRIB/SUGAR CR,PETIT JEAN R,BLUE MTN	11110204	3G
AR0048640	DELTIC TIMBER CORP - OLA MILL	KEELAND CK,PETIT JEAN RV	11110204	3G

ARK58
CHICKALAH CREEK AT CHICKALAH ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
Dissolved Oxygen mg/l	7.54	42	16.50	2.30	3.04
BOD 5 Day mg/l	1.37	42	5.50	0.20	1.24
pH	6.62	42	7.73	5.75	0.44
TSS mg/l	18.76	40	290.00	1.00	47.50
NO2+NO3-N mg/l	0.46	43	2.41	0.02	0.48
Tot. Phos. mg/l	0.09	35	0.49	0.03	0.10
Tot. Org. C mg/l	4.26	39	12.10	1.40	2.33
T.Hardness mg/l	21.07	32	67.00	9.00	14.59
Chloride mg/l	4.75	42	14.00	3.00	2.27
Sulfate mg/l	6.90	39	12.00	1.00	2.73
TDS mg/l	59.88	42	105.00	39.00	19.07
Turbidity NTU	27.03	44	280.00	8.20	40.33

ARK57
DUTCH CREEK BELOW SHARK ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
Dissolved Oxygen mg/l	7.62	42	16.10	3.40	2.73
BOD 5 Day mg/l	1.26	44	5.80	0.20	1.08
pH	6.56	42	7.52	5.89	0.39
TSS mg/l	9.00	41	62.00	1.00	12.98
NO2+NO3-N mg/l	0.38	44	1.17	0.06	0.25
Tot. Phos. mg/l	0.07	33	0.18	0.03	0.03
Tot. Org. C mg/l	4.92	40	11.30	1.80	2.28
T.Hardness mg/l	21.18	31	53.00	7.00	13.23
Chloride mg/l	4.65	43	9.00	3.00	1.52
Sulfate mg/l	5.59	40	11.00	1.00	2.38
TDS mg/l	56.70	43	99.00	41.00	14.00
Turbidity NTU	17.42	45	50.00	5.50	10.59

ARK34
PETIT JEAN RIVER NR BOONEVILLE

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.42	31	9.70	4.90	1.08
BOD 5 Day mg/l	1.33	33	4.10	0.30	0.76
pH	6.76	31	7.69	6.38	0.29
TSS mg/l	11.53	33	60.00	1.00	10.93
NO2+NO3-N mg/l	0.23	31	0.79	0.01	0.19
Tot. Phos. mg/l	0.07	32	0.15	0.03	0.03
Tot. Org. C mg/l	5.67	34	9.30	3.20	1.68
T.Hardness mg/l	21.35	20	44.00	14.00	6.72
Chloride mg/l	4.32	30	7.00	3.00	1.11
Sulfate mg/l	11.08	32	42.00	4.00	6.36
TDS mg/l	64.74	35	146.00	53.00	15.89
Turbidity NTU	25.33	35	74.00	6.70	15.87

SEGMENT 3H - ARKANSAS RIVER AND TRIBUTARIES:
STATE LINE TO RIVER MILE 210
(ARKANSAS RIVER BASIN)

Segment 3H, located in the lower portion of the northwest quarter of Arkansas, includes most of Crawford, Franklin and Johnson Counties, as well as parts of Sebastian, Logan, Pope, Newton, Madison and Washington Counties. This segment contains a reach of the Arkansas River from the Oklahoma state line to the lower end of Lake Dardanelle. Major tributaries in this reach include Big Piney Creek, Lee Creek, Mulberry River, Six Mile Creek and Vache Grasse Creek.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supply. Nine monitoring stations are located within this segment and were utilized to assess 131.3 miles of stream segments. An additional 247.8 stream miles were evaluated, with the remainder of stream segments unassessed.

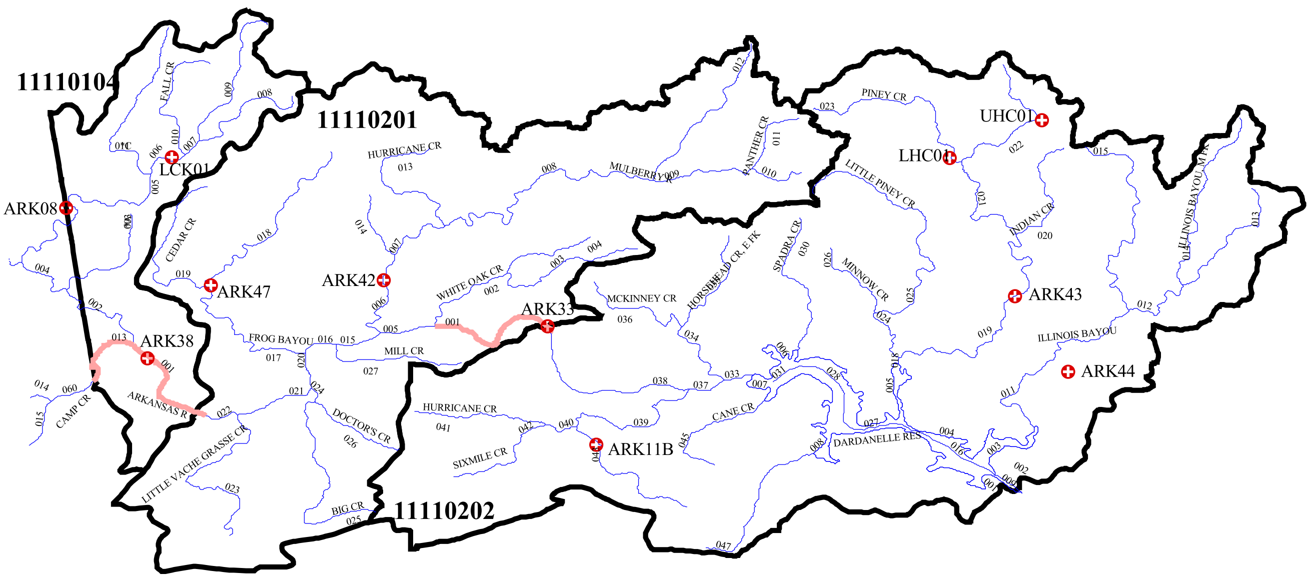
Ten ambient monitoring stations are located on the Arkansas River from Ft. Smith to Pendleton (Lock & Dam #2); two of these are in Segment 3H. All of these stations are typically sampled monthly, except during 1993 and 1998 when only nine samples were collected. Minimum dissolved oxygen values and the number of dissolved oxygen standard exceedences, < 5 mg/L, are compared for Arkansas River monitoring stations in Figures A-3H-1 and A-3H-2. Toad Suck Lock & Dam, near Conway, and Lock & Dam #2 are not shown in Figures A-3H-1 and A-3H-2 since no standard violations occurred at these stations.

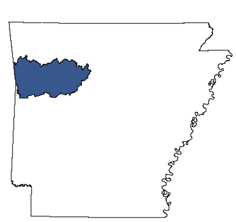
Minimum dissolved oxygen values declined substantially in segment 3H of the Arkansas River from Ft. Smith to Ozark since 1991 and has yet to recover to pre-1991 values (Figure A-3H-1). A similar, but less pronounced, decline occurred with maximum dissolved oxygen values at Ft. Smith and Ozark. Between 1995 and 1998, 14% of dissolved oxygen values exceeded standards at Ft. Smith, 12% of samples exceeded standards at Ozark and 13% of samples exceeded standards at Dardanelle (Figure A-3H-3). At Murray Lock & Dam, Terry Lock & Dam and Lock & Dam #5 the dissolved oxygen standard was violated once during the 4-year period. However, considering the time of year, river flow, dissolved oxygen level recorded and other water quality at the time of sampling, it is most likely that the violations recorded at Murray and Terry Lock & Dams are erroneous. This was probably due to a dissolved oxygen meter malfunction or an improperly calibrated meter. These two measurements were taken on the same date by the same individual. No standard violations occurred between 1995 to 1998 at Morrilton, Toad Suck Lock & Dam, Lock & Dam #4 and Lock & Dam #2.

Water Quality Standard violations are typically occurring during the low flow periods from July through October. The greatest number of dissolved oxygen standard violations are occurring on portions of the Arkansas River which receive heavy loading from the urban/suburban areas of Ft.

Smith. Lowered dissolved oxygen values in this segment of the Arkansas River may have resulted from heavy loading from the Ft. Smith area, although the dissolved oxygen values upstream in the Arkansas River in Oklahoma are unknown. Ozark and Dardanelle reservoirs are located above Ozark and Dardanelle lock and dams, and water releases for hydropower at these lock and dams occur from the deeper portion of the lake. This area of the lake typically has lowered dissolved oxygen values during the summer period, which may account for low dissolved oxygen values below Dardanelle Lock and Dam.

Planning Segment 3H - Monitoring Stations

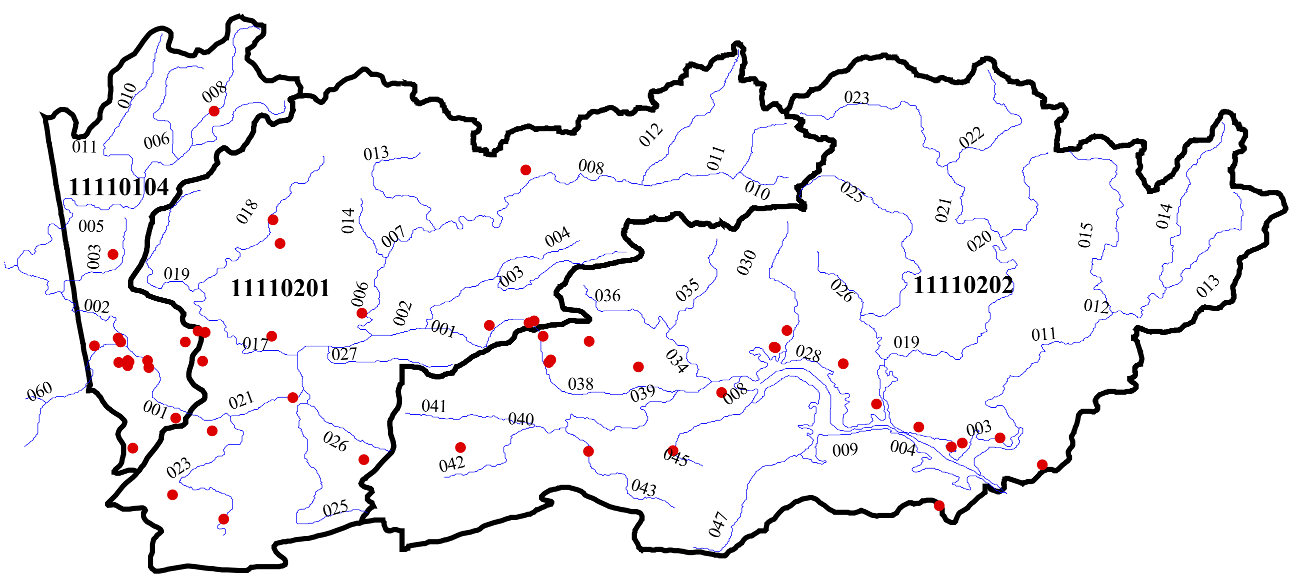


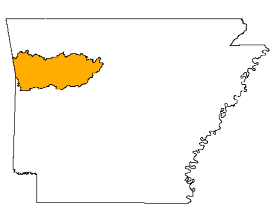


Use Not Supported

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3H																		
Arkansas River	11110202	-001	2.8		E	S	S	S	S	S	S					FISH CONSUMPTION	379.1	0
Illinois Bayou	11110202	-011	21	ARK44	M	S	S	S	S	S	S					AQUATIC LIFE	355.7	23.4
Illinois Bayou	11110202	-012	8.1		E	S	S	S	S	S	S					SWIMMING	379.1	0
Illinois Bayou	11110202	-013	14.1		E	S	S	S	S	S	S					SECONDARY CONTACT	379.1	0
M.Fk.Ill.Bayou.	11110202	-014	19.8		E	S	S	S	S	S	S					DRINKING SUPPLY	379.1	0
N.Fk.Ill.Bayou.	11110202	-015	24		E	S	S	S	S	S	S					AGRI & INDUSTRY	379.1	0
Piney Creek	11110202	-018	0.5		E	S	S	S	S	S	S							
Piney Creek	11110202	-019	26.3	ARK43	M	S	S	S	S	S	S							
Indian Creek	11110202	-020	12.2		E	S	S	S	S	S	S							
Piney Creek	11110202	-021	11.9		E	S	S	S	S	S	S							
Hurricane Creek	11110202	-022	15.4		E	S	S	S	S	S	S							
Piney Creek	11110202	-023	19		E	S	S	S	S	S	S							
Little Piney	11110202	-024	6.2		U													
Little Piney	11110202	-025	27.2		U													
Minnow Creek	11110202	-026	8.6		U													
Arkansas River	11110202	-033	2.5		E	S	S	S	S	S	S							
Horsehead Cr.	11110202	-034	7.9		U													
Horsehead Cr.	11110202	-035	11.2		U													
McKinney Cr.	11110202	-036	11.8		U													
Arkansas River	11110202	-037	3.2		E	S	S	S	S	S	S							
Arkansas River	11110202	-038	16.2		E	S	S	S	S	S	S							
Sixmile Creek	11110202	-039	14.6		U													
Sixmile Creek	11110202	-040	3		U													
Hurricane Creek	11110202	-041	11.6		U													
Sixmile Creek	11110202	-042	10.7		U													
Short Mountain	11110202	-043	14.9	ARK11B	M	S	S	S	S	S	S							
Cane Creek	11110202	-045	12.3		U													
Big Shoal Cr.	11110202	-047	15.4		U													
Arkansas River	11110201	-001	12.4	ARK33	M	S	N	S	S	S	S	MP	IP	DO				
White Oak	11110201	-002	9.2		U													
S. Fork Oak Cr.	11110201	-003	13.9		U													
N. Fork Oak Cr.	11110201	-004	8.8		U													
Arkansas River	11110201	-005	4.5		E	S	S	S	S	S	S							
Mulberry River	11110201	-006	10.4	ARK42	M	S	S	S	S	S	S							
Mulberry River	11110201	-007	6.4		E	S	S	S	S	S	S							
Mulberry River	11110201	-008	27.2		E	S	S	S	S	S	S							
Mulberry River	11110201	-009	9.1		E	S	S	S	S	S	S							
Mulberry River	11110201	-010	5.1		E	S	S	S	S	S	S							
Panther Creek	11110201	-011	7.4		U													
Little Mulberry	11110201	-012	17.4		U													
Hurricane Creek	11110201	-013	14.8		U													
Mill Creek	11110201	-014	7		U													
Arkansas River	11110201	-015	3.9		E	S	S	S	S	S	S							
Arkansas River	11110201	-016	2.9		E	S	S	S	S	S	S							
Frog Bayou	11110201	-017	15.7		U													
Frog Bayou	11110201	-018	20.4	ARK47	M	S	S	S	S	S	S							
Cedar Creek	11110201	-019	17		U													
Arkansas River	11110201	-020	3.5		E	S	S	S	S	S	S							
Arkansas River	11110201	-021	7		E	S	S	S	S	S	S							
Arkansas River	11110201	-022	3		E	S	S	S	S	S	S							
L. Vache Grass	11110201	-023	20.5		U													
Doctors Creek	11110201	-024	1.5		U													
Big Creek	11110201	-025	20.9		U													
Doctors Creek	11110201	-026	9.1		U													
Mill Creek	11110201	-027	11.9		U													
Arkansas River	11110104	-001	11	ARK38	M	S	N	S	S	S	S	MP	UN	DO				
Lee Creek	11110104	-002	10.5	ARK08	M	S	S	S	S	S	S							
Lee Creek	11110104	-005	11.4		E	S	S	S	S	S	S							
Lee Creek	11110104	-006	4.4	LCK01	M	S	S	S	S	S	S							
Lee Creek	11110104	-007	1.8		E	S	S	S	S	S	S							
Lee Creek	11110104	-008	12.3		E	S	S	S	S	S	S							
Fall Creek	11110104	-009	15.2		U													
Cove Creek	11110104	-010	13.3		U													
Mt.Fork Creek	11110104	-011	18.9		U													
TOTAL MILES	742.1																	
MILES UNASSESSED	363																	
MILES EVALUATED	247.8																	
MILES MONITORED	131.3																	

Planning Segment 3H - NPDES Permitted Facilities





(Segment 3H)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0001341	ARKHOLA-VAN BUREN SAND PLANT	ARKANSAS RV,3H-AR RB	11110104	3H
AR0001392	ENTERGY AR, INC-AR NUCLEAR 1	LK DARDANELLE	11110202	3H
AR0001511	GERBER PRODUCTS CO-FT SMITH	AR RV	11110104	3H
AR0001759	ARKANSAS ELECTRIC COOP-FITZHUG	ARKANSAS RV/SEG. 3H-ARKANSAS RV BAS	11110201	3H
AR0001791	FORT JAMES OPERATING CO	SIXTH ST DITCH/SEG 3H-ARKANSAS RB	11110104	3H
AR0020648	USDAFS-CASS CCC-JOB CORPS	FANE CK,MULBERRY RV	11110201	3H
AR0020737	GREENVILLE TUBE CORP	DIT,SPADRA CK,LK DARDANELLE	11110202	3H
AR0021466	ALMA, CITY OF	ARKANSAS RV	11110201	3H
AR0021482	VAN BUREN, CITY OF-MAIN PLANT	ARKANSAS RV	11110104	3H
AR0021512	MOUNTAINBURG, CITY OF	TRIB/PIGEON CK/SEG 3H-ARKANSAS RB	11110201	3H
AR0021563	OZARK, CITY OF	ARKANSAS RV	11110201	3H
AR0021750	FORT SMITH, CITY OF (MASSARD W	ARKANSAS RV	11110104	3H
AR0021857	PARIS, CITY OF	SHORT MOUNTAIN CK,6-MI CK,3H-AR RB	11110202	3H
AR0022187	CLARKSVILLE, CITY OF	BLUE CK,SPADRA CK,LK DARDANELLE	11110202	3H
AR0022454	GREENWOOD, TOWN OF	TRIB/VACHE GRASSE CK/ARK RV/ARK RB	11110201	3H
AR0033278	FORT SMITH, CITY OF ("P" STREE	ARKANSAS RV/SEG 3H-ARKANSAS RV BAS	11110104	3H
AR0033791	CHARLESTON, CITY OF	DOCTORS CK/BIG CK/SEG 3H-ARK RV BAS	11110201	3H
AR0034070	LAVACA, CITY OF	ARKANSAS RV,3H-AR RB	11110201	3H
AR0034592	WIEDERKEHR WINE CELLARS INC	WATERSHED LK,DIRTY CK,HORSESHOE CK	11110202	3H
AR0034932	MULBERRY, CITY OF	ARKANSAS RV	11110201	3H
AR0035491	LAMAR, CITY OF	TRIB, CABIN CK,ARKANSAS RV	11110202	3H
AR0036552	BEKAERT STEEL WIRE CORP-VAN BU	AR RV,3H-AR RB	11110104	3H
AR0037567	VAN BUREN-LEE CK INDUSTRIAL PK	ARKANSAS RV	11110104	3H
AR0037851	SGL CARBON CORP	STREAM,WEST CK,AR RV	11110202	3H
AR0037940	AR PARKS & TOURISM-DEVIL'S DEN	DIT,LEE CK,ARKANSAS RV	11110104	3H
AR0037966	AR PARKS & TOURISM-MT NEBO ST PARK	TRIB, CHICKALAH CK	11110104	3H
AR0039268	TYSON FOODS INC-CLARKSVILLE	TRIB,BLUE CK,SPADRA CK,AR RV,3H-AR	11110202	3H
AR0039730	QUANEX CORP-MACSTEEL DIV	MASSARD CK TRIB,3H-AR RB	11110104	3H
AR0040720	VAN BUREN PUB SCHOOL-TATE ELEM	MAYS CK TRIB	11110201	3H
AR0040967	VAN BUREN WATER & SEWER-NORTH	LEE CREEK/SEG 3H-ARKANSAS RV BASIN	11110104	3H

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0040983	MOUNTAIN VIEW LODGE, INC	TRIB,AR RV,3H-AR RB	11110201	3H
AR0040991	SUBIACO, TOWN OF	CANE CK	11110202	3H
AR0041068	LECTRA CIRCUITS, INC.	DIT,FROG BU	11110201	3H
AR0041289	CEDARVILLE PUBLIC SCHOOLS	LTL WEBER CK TRIB,LEE CK	11110104	3H
AR0042447	TYSON FOODS INC-TRAINING CTR	LK DARDENELLE ON AR RV,3F-AR RB	11110202	3H
AR0042455	TYSON FOODS INC-RIVER VALLEY	ARKANSAS RIVER/SEG 3H-ARKANSAS RB	11110202	3H
AR0043699	CONCORD BAPTIST CHURCH	TRIB/FROG BAYOU/SEG 3H OF ARK. RB	11110201	3H
AR0044385	L & D RENTALS, PARTNERSHIP	TRIB,FLAT ROCK CK,3H-AR RB	11110104	3H
AR0044636	COUNTY LINE SCHOOL DIST-BRANCH	N FORK-LITTLE CK/6 MILE CK/3H-AR RB	11110202	3H
AR0044725	ALTUS, CITY OF	ARKANSAS RV/SEG 3H-ARKANSAS RV BASN	11110202	3H
AR0044938	ECOLOGY MGT, INC	AR RV,3H-AR RB	11110104	3H
AR0045063	ARKHOLA-PRESTON QUARRY	TRIB,FLAT ROCK CK,3H-AR RB	11110104	3H
AR0045365	ARKHOLA-JENNY LIND QUARRY	TRIB, BEAR CK, VACHE CK, ARKANSAS RV	11110201	3H
AR0045683	AR HWY DEPT-BIG PINEY EAST	TRIB,BIG PINEY CK,LK DARDENELLE,3H	11110202	3H
AR0045691	AR HWY DEPT-BIG PINEY-WEST	TRIB,LK DARDENELLE,3F-AR RB	11110202	3H
AR0046396	PLEASANT VIEW ESTATES	DIT,LK DARDANELLE	11110202	3H
AR0047686	COAL HILL, CITY OF	ARKANSAS RV,3H-AR RB	11110202	3H
AR0048267	CARGILL, INC	AR RV,3H-AR RB	11110201	3H
AR0048739	FLYING J TRAVEL PLAZA #5038	MUNI STRM SWR SYS, PRAIRIE CK	11110202	3H
AR0048801	BARLING, CITY OF	ARKANSAS RV	11110201	3H

ARK44
ILLINOIS BAYOU NW OF DOVER ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.87	41	16.60	5.60	2.32
BOD 5 Day mg/l	0.58	42	2.10	0.04	0.42
pH	6.74	41	7.33	6.04	0.36
TSS mg/l	4.20	30	40.00	1.00	7.20
NO2+NO3-N mg/l	0.18	34	0.63	0.01	0.15
Tot. Phos. mg/l	0.04	22	0.11	0.02	0.02
Tot. Org. C mg/l	2.31	39	4.40	1.10	0.91
T.Hardness mg/l	11.54	31	21.00	8.00	2.72
Chloride mg/l	2.69	41	5.00	1.00	0.85
Sulfate mg/l	4.08	38	9.00	1.00	1.82
TDS mg/l	31.17	42	42.00	20.00	4.47
Turbidity NTU	8.09	44	41.00	2.10	7.29

ARK33
ARK RIVER AT OZARK LOCK AND DAM

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.44	37	11.50	4.50	1.47
BOD 5 Day mg/l	1.67	42	4.50	0.70	0.79
pH	6.90	38	8.28	6.42	0.40
TSS mg/l	28.90	41	156.00	2.00	34.99
NO2+NO3-N mg/l	0.39	41	0.92	0.04	0.21
Tot. Phos. mg/l	0.12	42	0.27	0.03	0.05
Tot. Org. C mg/l	6.11	41	13.40	4.10	1.60
T.Hardness mg/l	148.67	27	218.00	90.00	32.43
Chloride mg/l	108.07	38	298.00	35.00	57.95
Sulfate mg/l	58.70	41	114.00	26.00	22.22
TDS mg/l	377.23	44	752.00	141.00	131.36
Turbidity NTU	32.84	44	150.00	1.30	33.24

ARK38
ARK RIVER AT VAN BUREN, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.34	37	9.80	4.10	1.32
BOD 5 Day mg/l	1.79	42	4.80	0.80	0.85
pH	6.86	38	8.34	6.37	0.44
TSS mg/l	24.20	42	125.00	3.00	23.76
NO2+NO3-N mg/l	0.38	41	0.93	0.01	0.21
Tot. Phos. mg/l	0.12	42	0.20	0.04	0.04
Tot. Org. C mg/l	6.06	41	8.80	4.50	1.03
T.Hardness mg/l	147.40	27	208.00	91.00	33.15
Chloride mg/l	108.22	38	289.00	36.00	59.38
Sulfate mg/l	60.32	41	113.00	31.00	21.08
TDS mg/l	389.24	44	758.00	210.00	127.75
Turbidity NTU	34.59	44	140.00	6.10	31.58

ARK43
BIG PINEY CREEK AT HWY 164

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.47	49	16.50	5.80	2.03
BOD 5 Day mg/l	0.45	51	1.60	0.02	0.28
pH	7.05	48	8.21	6.17	0.46
TSS mg/l	4.94	18	32.00	1.00	8.99
NO2+NO3-N mg/l	0.16	40	3.46	0.02	0.54
Tot. Phos. mg/l	0.04	15	0.08	0.02	0.02
Tot. Org. C mg/l	2.08	44	4.60	1.10	0.89
T.Hardness mg/l	20.91	39	31.00	11.00	5.58
Chloride mg/l	2.42	48	26.00	1.00	3.48
Sulfate mg/l	3.58	43	8.00	1.00	1.44
TDS mg/l	44.96	49	321.00	28.00	43.52
Turbidity NTU	6.30	52	27.00	1.10	6.18

ARK42
MULBERRY RIVER AT INTERSTATE 40

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.27	35	8.40	3.70	1.22
BOD 5 Day mg/l	0.57	37	3.10	0.20	0.50
pH	6.87	33	8.64	6.34	0.47
TSS mg/l	3.42	26	15.00	1.00	4.04
NO2+NO3-N mg/l	0.12	35	0.33	0.04	0.08
Tot. Phos. mg/l	0.04	22	0.08	0.02	0.02
Tot. Org. C mg/l	2.21	37	4.50	1.00	0.80
T.Hardness mg/l	11.55	25	24.00	7.00	3.50
Chloride mg/l	1.94	32	3.00	1.00	0.44
Sulfate mg/l	6.94	36	71.00	1.00	11.32
TDS mg/l	31.35	39	47.00	23.00	4.87
Turbidity NTU	12.91	39	90.00	1.80	15.48

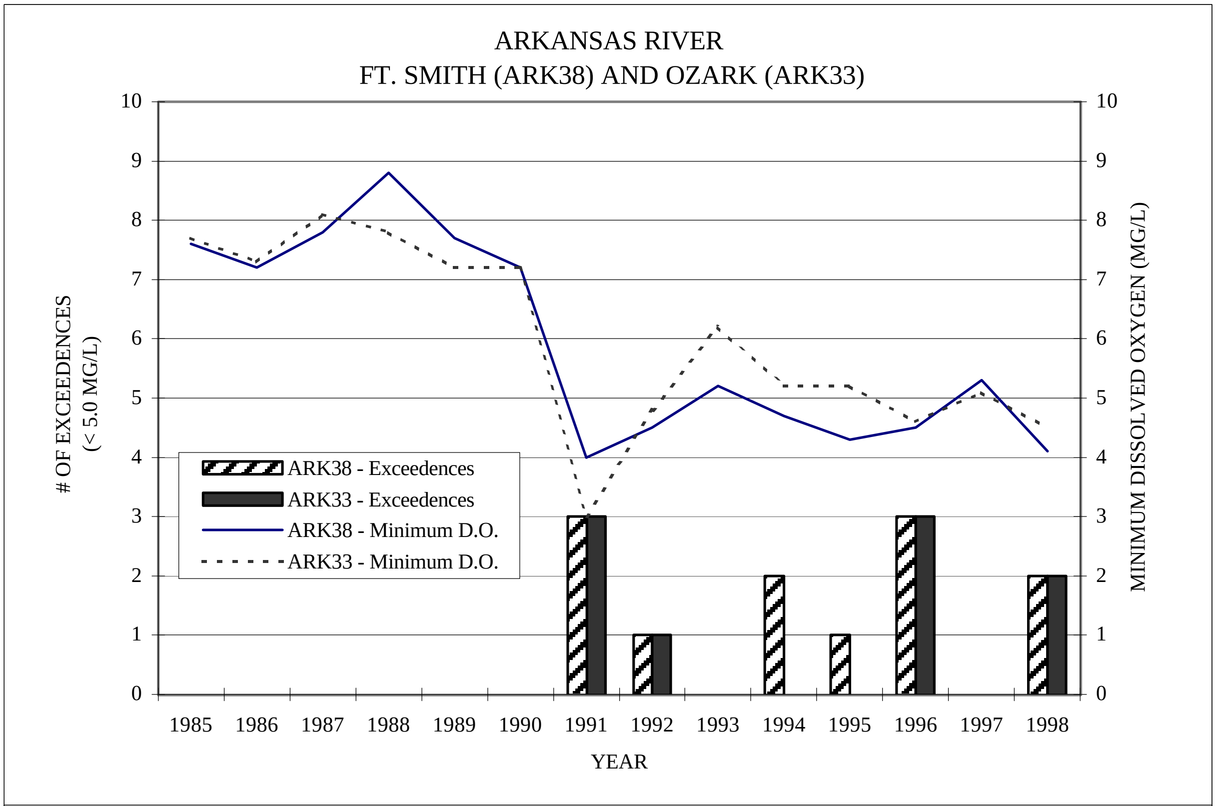
ARK11B
SHORT MOUNTAIN CREEK BELOW PARIS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.22	36	8.40	4.50	1.17
BOD 5 Day mg/l	1.01	41	2.80	0.09	0.55
pH	6.80	38	7.40	6.37	0.27
TSS mg/l	6.16	35	35.00	1.00	7.72
NO2+NO3-N mg/l	1.66	41	4.90	0.06	1.71
Tot. Phos. mg/l	0.26	40	0.74	0.04	0.23
Tot. Org. C mg/l	4.20	40	8.30	2.10	1.30
T.Hardness mg/l	32.10	27	60.00	13.00	16.95
Chloride mg/l	8.77	37	20.00	2.00	6.20
Sulfate mg/l	21.52	40	87.00	5.00	15.26
TDS mg/l	123.40	43	518.00	35.00	90.42
Turbidity NTU	9.31	43	48.00	2.10	8.94

FIGURE A-3H-1

ARKANSAS RIVER

MINIMUM VALUES FOR DISSOLVED OXYGEN AND NUMBER OF STANDARD EXCEEDENCES



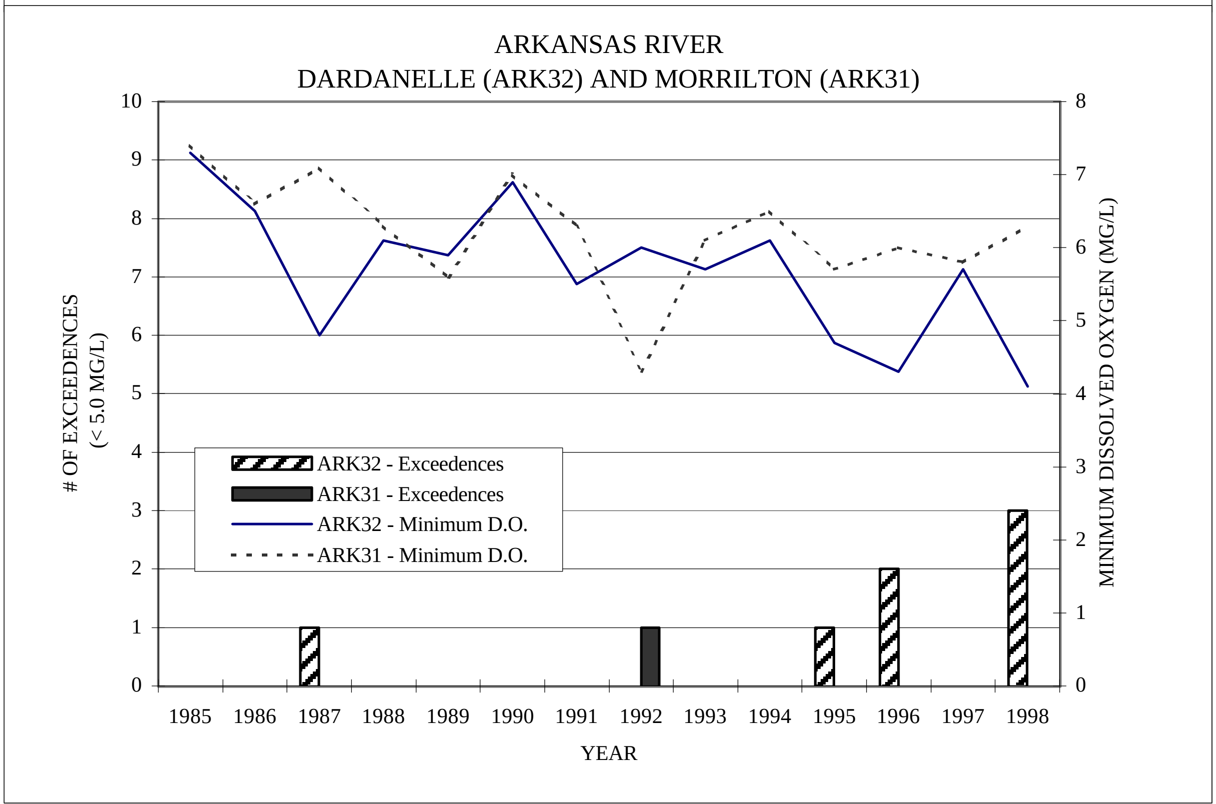
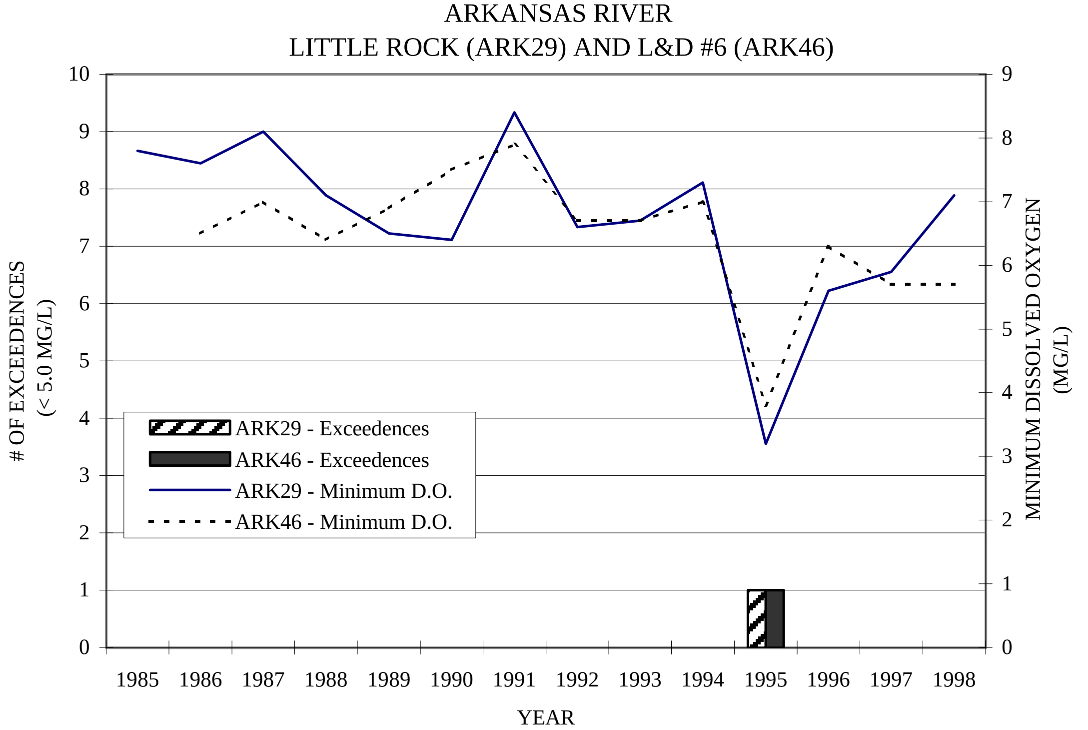


FIGURE A-3H-2

ARKANSAS RIVER

MINIMUM VALUES FOR DISSOLVED OXYGEN AND NUMBER OF STANDARD EXCEEDENCES



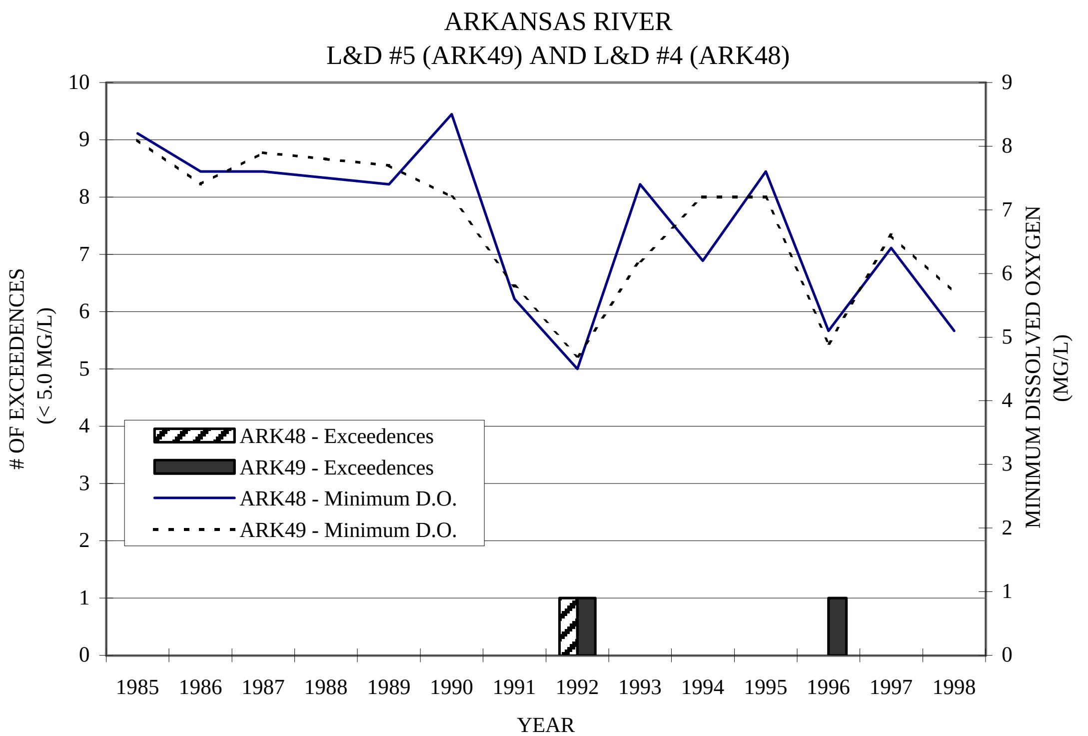
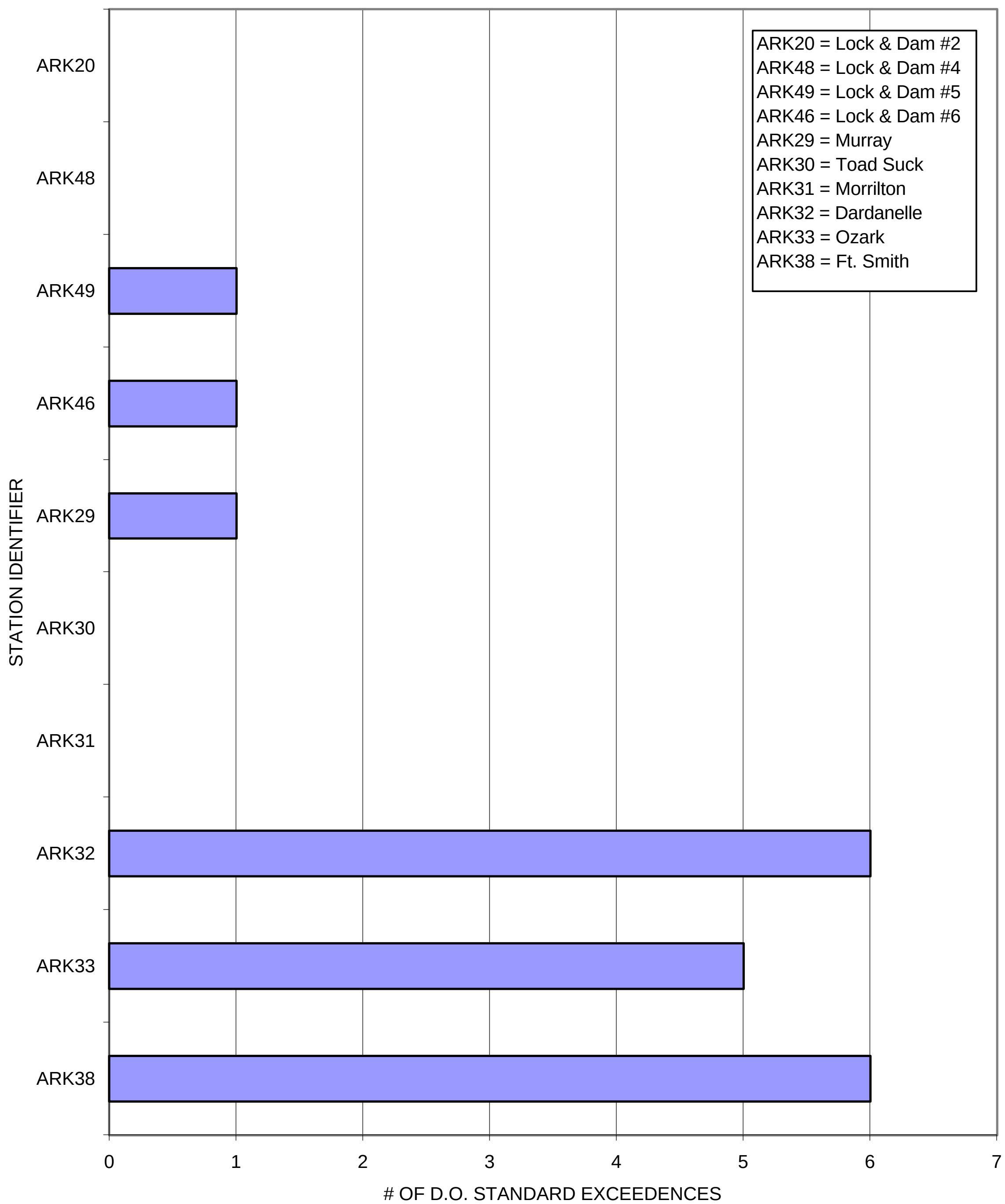


FIGURE A-3H-3
ARKANSAS RIVER
DISSOLVED OXYGEN STANDARD EXCEEDENCES, 1995-1998



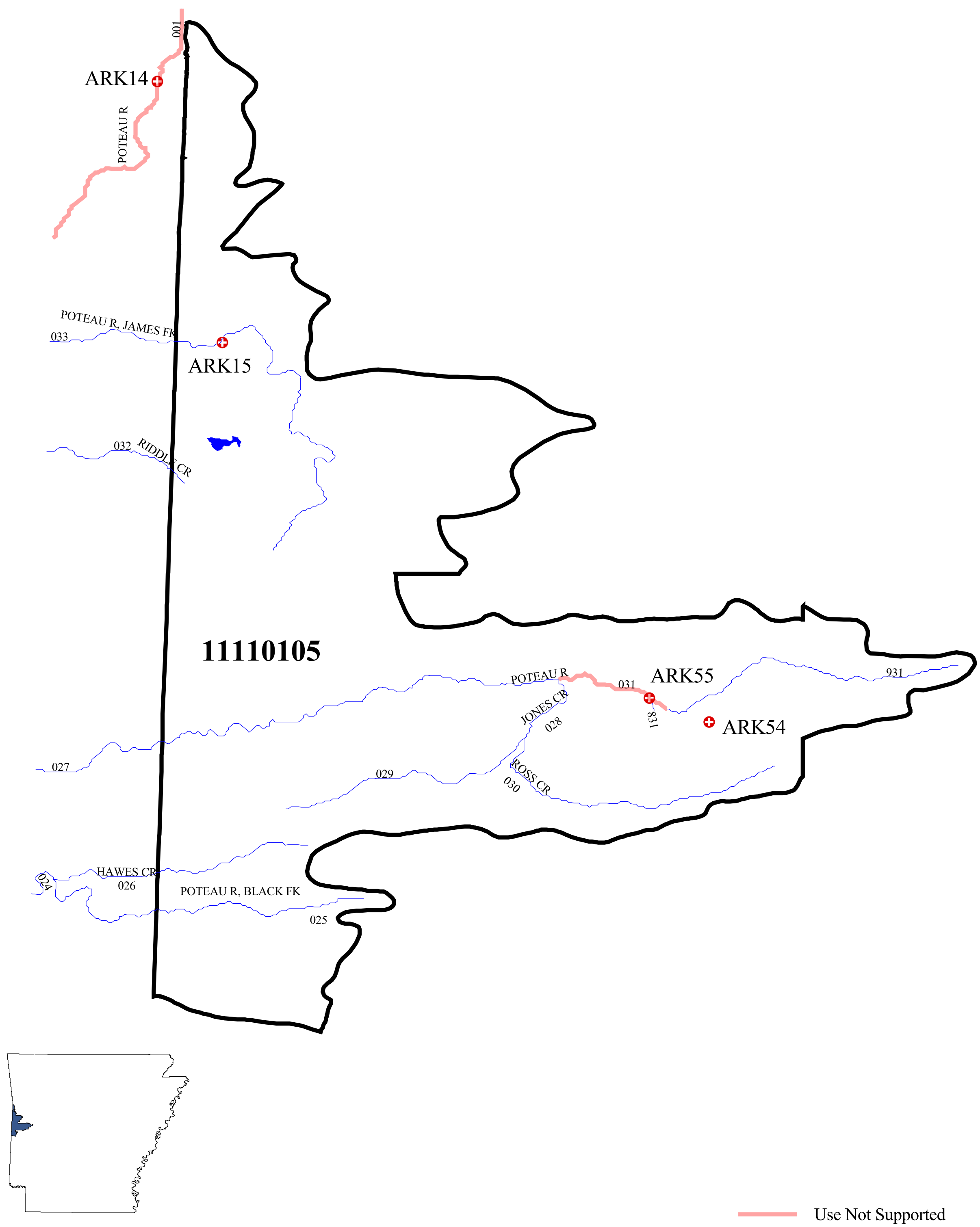
SEGMENT 3I - POTEAU RIVER
(ARKANSAS RIVER BASIN)

Segment 3I is located on the western edge of Arkansas, just south of the Arkansas River. This segment includes large portions of Scott and Sebastian Counties and a small part of northwestern Polk County. The waters of this segment include the Poteau River from its headwaters to the Oklahoma state line, as well as the tributary streams. Major tributaries include Jones Creek and James Fork.

SUMMARY OF WATER QUALITY CONDITION

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. This planning segment contains 105.3 stream miles. Five monitoring stations, including one operated by USGS, are located within this segment and were utilized to assess 55.8 stream miles. The remaining 49.5 miles were unassessed. A short section of the Poteau River below Waldron is listed as not supporting aquatic life uses due to elevated metals. Both a municipal and industrial discharge occurs in this segment.

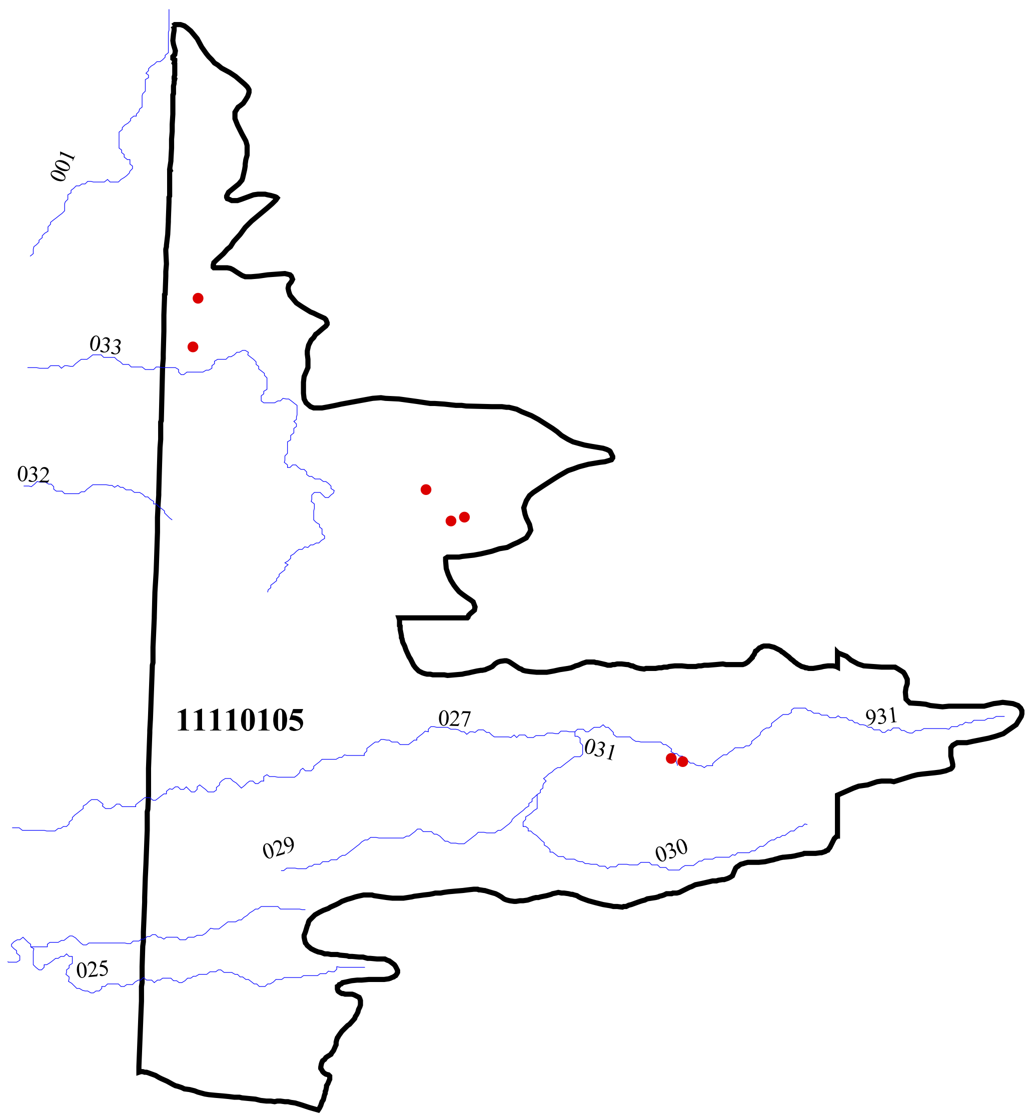
Planning Segment 3I - Monitoring Stations

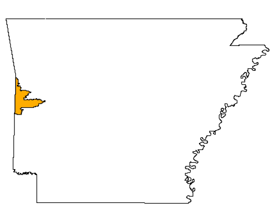


(Segment 3I)

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3I																		
Poteau River	11110105	-001	2	ARK14	M	S	N	S	S	S	S	AG		SI		FISH CONSUMPTION	55.8	0
Black Fork	11110105	-025	8		U											AQUATIC LIFE	47.2	8.6
Poteau River	11110105	-027	16	USGS	M	S	S	S	S	R	S					SWIMMING	55.8	0
Hawes Creek	11110105	-026	11.6		U											SECONDARY CONTACT	55.8	0
Jones Creek	11110105	-028	4		U											DRINKING SUPPLY	33.2	0
Jones Creek	11110105	-029	11.6		U											AGRI & INDUSTRY	55.8	0
Ross Creek	11110105	-030	14.3		U													
Poteau River	11110105	-931	12.8	ARK54	M	S	S	S	S	S	S							
Poteau River	11110105	-031	6.6	ARK55	M	S	N	S	S	R	S	IP	MP	ME				
James Fork	11110105	-033	18.4	ARK15	M	S	S	S	S	S	S							
TOTAL MILES	105.3																	
MILES UNASSESSED	49.5																	
MILES EVALUATED	0																	
MILES MONITORED	55.8																	

Planning Segment 3I - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0035769	WALDRON, CITY OF	TRIB,POTEAU RV,AR RV	11110105	3I
AR0036293	MANSFIFLD, CITY OF	COOP-CHEROKEE-PRAIRIE-JAMES FRK-AR	11110105	3I
AR0037419	HUNTINGTON, CITY OF	CHEROKEE CK,PRAIRIE CK,JAMES FRK RV	11110105	3I
AR0038482	TYSON FOODS INC-WALDRON	POTEAU RV TRIB	11110105	3I
AR0039781	HACKETT, CITY OF	BIG BR HACKETT CK,JAMES FK,POTEAU R	11110105	3I
AR0041165	SEBASTIAN LAKE UTILITY CO, INC	TRIB/HACKETT CK/BIG BRANCH/3I-AR RB	11110105	3I
AR0044679	HARTFORD SCHOOL DIST	TRIB/WEST CK/SEG. 3I-ARKANSAS RB	11110105	3I
AR0048232	TRAVIS LUMBER CO, INC	TRIB,COOPCK,CHEROKEE CK,3G-AR RB	11110105	3I

ARK15

JAMES FORK NEAR HACKETT ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.27	35	9.50	3.90	1.19
BOD 5 Day mg/l	1.14	40	4.30	0.20	0.72
pH	6.78	37	7.59	6.32	0.29
TSS mg/l	12.51	39	87.00	3.00	15.15
NO2+NO3-N mg/l	0.19	36	0.77	0.01	0.18
Tot. Phos. mg/l	0.09	41	0.60	0.03	0.09
Tot. Org. C mg/l	5.09	39	10.10	2.70	1.84
T.Hardness mg/l	68.12	26	170.00	6.00	51.45
Chloride mg/l	5.07	37	8.00	3.00	1.25
Sulfate mg/l	43.71	39	100.00	3.00	28.03
TDS mg/l	136.13	42	259.00	33.00	65.64
Turbidity NTU	22.56	42	110.00	3.90	23.02

ARK54

POTEAU RIVER ABOVE WALDRON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.56	29	9.60	4.50	1.18
BOD 5 Day mg/l	1.49	31	4.50	0.50	0.94
pH	6.77	29	7.61	6.32	0.30
TSS mg/l	10.86	29	188.00	1.00	34.29
NO2+NO3-N mg/l	0.58	30	6.88	0.01	1.72
Tot. Phos. mg/l	0.54	31	10.96	0.02	2.01
Tot. Org. C mg/l	6.99	31	18.80	3.90	2.85
T.Hardness mg/l	23.94	17	48.00	13.00	8.59
Chloride mg/l	8.22	28	75.00	2.00	13.35
Sulfate mg/l	13.45	29	39.00	5.00	6.78
TDS mg/l	86.16	31	365.00	47.00	60.46
Turbidity NTU	20.61	32	150.00	2.20	25.80

ARK55
POTEAU RIVER BELOW WALDRON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	5.95	38	9.70	2.50	1.45
BOD 5 Day mg/l	2.73	42	7.50	0.90	1.72
pH	6.79	39	7.62	6.31	0.28
TSS mg/l	14.27	43	233.00	2.00	34.50
NO2+NO3-N mg/l	3.74	41	22.60	0.03	4.38
Tot. Phos. mg/l	4.20	42	19.60	0.05	5.14
Tot. Org. C mg/l	8.90	42	23.40	5.50	3.07
T.Hardness mg/l	38.35	27	67.00	14.00	16.67
Chloride mg/l	41.35	38	132.00	3.00	34.99
Sulfate mg/l	32.60	41	99.00	6.00	22.69
TDS mg/l	220.47	44	502.00	50.00	143.09
Turbidity NTU	17.96	45	142.00	1.40	23.00

ARK14
POTEAU RIVER NR FORT SMITH ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.26	37	9.70	4.30	1.23
BOD 5 Day mg/l	2.07	42	6.80	0.60	1.20
pH	6.76	38	7.42	6.25	0.28
TSS mg/l	32.65	42	145.00	3.00	26.75
NO2+NO3-N mg/l	0.32	41	0.87	0.02	0.18
Tot. Phos. mg/l	0.13	42	0.24	0.04	0.05
Tot. Org. C mg/l	6.46	41	11.00	2.50	1.64
T.Hardness mg/l	42.31	27	115.00	16.00	23.36
Chloride mg/l	8.64	38	70.00	3.00	12.34
Sulfate mg/l	22.43	41	65.00	7.00	11.35
TDS mg/l	114.25	44	258.00	38.00	41.99
Turbidity NTU	51.98	44	150.00	4.60	28.99

SEGMENT 3J - GRAND NEOSHO BASIN
(ARKANSAS RIVER BASIN)

Segment 3J occupies the northwestern corner of Arkansas, and covers most of Benton County and a large part of Washington County. This segment includes the Illinois River and its tributaries within Arkansas. The main tributaries are Osage Creek, Spavinaw Creek, Little Sugar Creek, Flint Creek and Spring Creek.

SUMMARY OF WATER QUALITY CONDITIONS

The waters within this segment have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. This segment contains 203.7 stream miles. Ten permanent monitoring stations and several temporary stations in this planning segment were utilized to monitor138.4 stream miles. An additional 32.3 stream miles were evaluated. Nonpoint source impacts affecting waters in this segment are primarily from pasture land that is also used for application of poultry waste products. In addition, in-stream gravel removal is destabilizing the streambed and causing excessive bank erosion. Road construction and maintenance is also contributing to siltation problems.

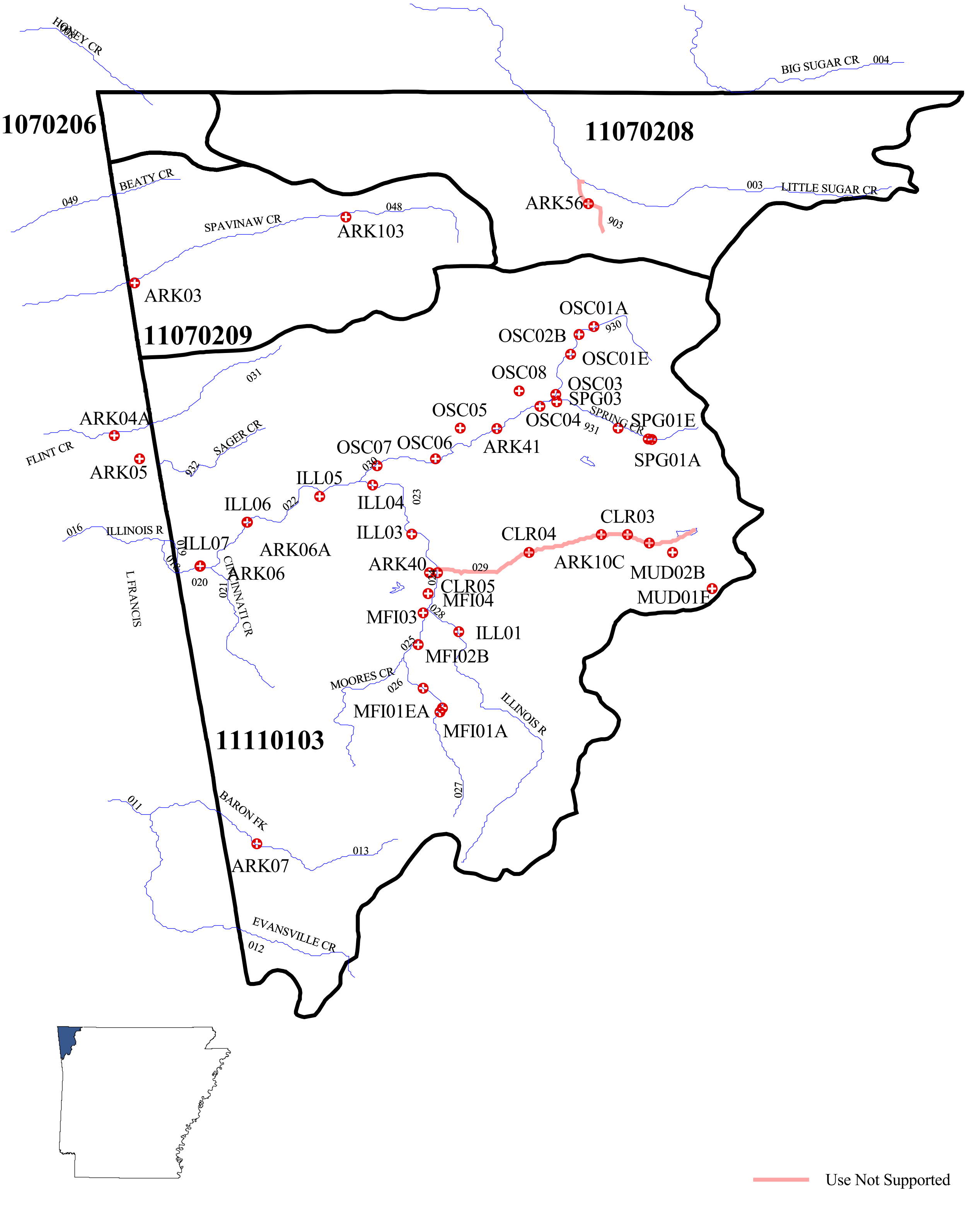
A municipal point source discharge is impairing the aquatic life use and the drinking water use in Town Branch from excessive nutrient discharges and elevated metals.

Three major municipal, point source discharges enter the Illinois River via Osage Creek and Clear Creek, and a minor municipal discharge enters the Illinois from Muddy Fork of the Illinois River. Other significant municipal discharges occur into Sager Creek and Spavinaw Creek.

Figure A-3J-1 shows the mean nitrate and total phosphorus values from the Illinois River and its major tributaries and from other tributary streams in the basin. Nitrate values from Osage Creek, and to a lesser extent, from Clear Creek are elevated above the upper Illinois River values and these inputs slightly increase the nitrate concentration in the lower Illinois River. In the four additional streams shown, nitrate values are noticeably elevated in Sager Creek and Spavinaw Creek. In contrast, total phosphorus concentrations are much higher in Osage Creek than in Clear Creek, and this contribution more than doubles the phosphorus concentration in the lower Illinois River compared to the upper Illinois River above these tributary inputs. Additionally, Sager Creek and Spavinaw Creek have the highest phosphorus concentrations of the other basin streams.

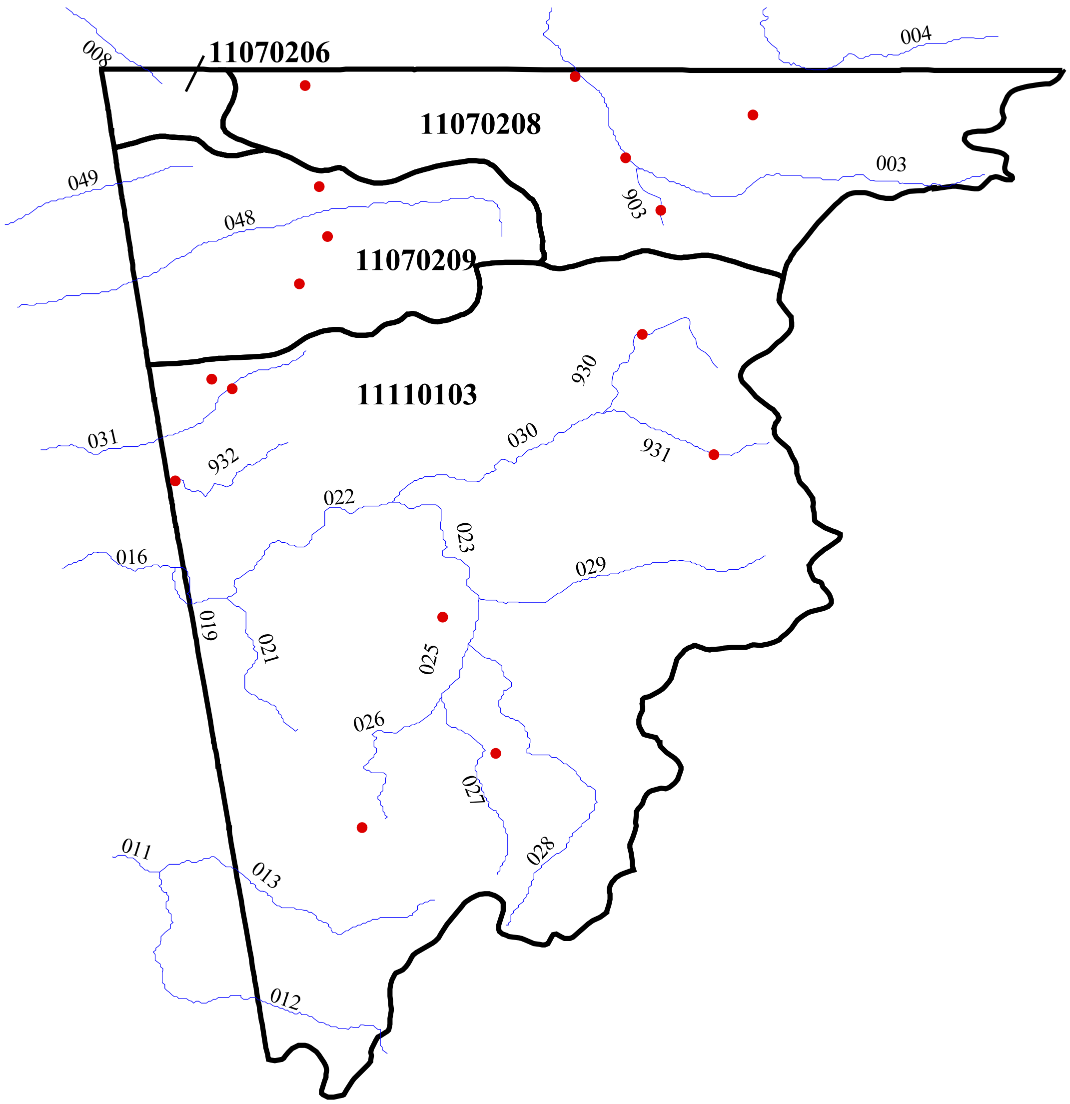
Town Branch, a tributary of Little Sugar Creek, was the only stream in this segment listed as impaired from nutrients because of nitrate values above the drinking water maximum contaminant level.

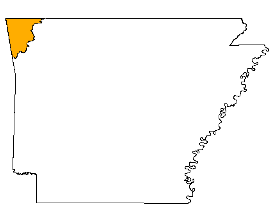
Planning Segment 3J - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-3J																		
Evansville Cr.	11110103	-012	9		U											FISH CONSUMPTION	170.7	0
Baron Fork	11110103	-013	10	ARK07	M	S	S	S	S	S	S					AQUATIC LIFE	157.2	13.5
Illinois River	11110103	-020	1.6	ARK06	M	S	S		S	S	S					SWIMMING	124	0
Cincinnati Cr.	11110103	-021	9		U											SECONDARY CONTACT	170.7	0
Illinois River	11110103	-022	10.8	ARK06A	M	S	S	S	S	S	S					DRINKING SUPPLY	167.7	3
Illinois River	11110103	-023	8.1		E	S	S	S	S	S	S					AGRI & INDUSTRY	170.7	0
Illinois River	11110103	-024	2.5	ARK40	M	S	S	S	S	S	S							
Muddy Fork.	11110103	-025	3.2	MFI04+	M	S	S		S	S	S							
Moores Creek	11110103	-026	9.8		U													
Muddy Fork	11110103	-027	11	MFI02B+	M	S	S		S	S	S							
Illinois River	11110103	-028	19.9	ILL01	M	S	S		S	S	S							
Clear Creek	11110103	-029	13.5	ARK10C	M	S	N	S	S	S	S	AG	UR	SI				
Osage Creek	11110103	-030	15	ARK41	M	S	S	S	S	S	S							
Osage Creek	11110103	-930	5	OSC03+	M	S	S		S	S	S							
Spring Creek	11110103	-931	6	SPG03+	M	S	S		S	S	S							
Flint Creek	11110103	-031	9.6	ARK04A	M	S	S	S	S	S	S							
Sager Creek	11110103	-932	8	ARK05	M	S	S	S	S	S	S							
Spavinaw Cr.	11070209	-048	19.3	ARK03	M	S	S	S	S	S	S							
Beaty Creek	11070209	-049	5.2		U													
Little Sugar	11070208	-003	24.2		E	S	S	S	S	S	S							
Town Branch	11070208	-901	3	ARK56	M	S	S	S	S	N	S	MP		NU				
TOTAL MILES	203.7																	
MILES UNASSESSED	33																	
MILES EVALUATED	32.3																	
MILES MONITORED	138.4																	

Planning Segment 3J - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0020184	GENTRY, CITY OF	SWEPCO LK,LT FLINT CK,3J-WHITE RB	11110103	3J
AR0020273	SILOAM SPRINGS, CITY OF	SAGER CK/FLINT CK/IL. RV/3J-ARK. RB	11110103	3J
AR0020672	PEA RIDGE, CITY OF	OTTER CK,BIG SUGAR CK,ELK RV	11070208	3J
AR0022063	SPRINGDALE, CITY OF	SPRING CK,OSAGE CK,IL.RV,3J AR RB	11110103	3J
AR0022098	PRAIRIE GROVE, CITY OF	MUDDY FORK/ILLINOIS RV/ARK RV BASIN	11110103	3J
AR0022292	DECATUR, CITY OF	COLUMBIA HOLLOW CK,SPAVINAW CK	11070209	3J
AR0022403	BENTONVILLE, CITY OF	TOWN BR,LTL SUGAR CK	11070208	3J
AR0023833	GRAVETTE, CITY OF	RR HOLLOW/SPAVINAW/GRAND NEOSHO/ARK	11070209	3J
AR0033910	USDAFS-LAKE WEDINGTON REC AREA	ILLINOIS RV TRIB	11110103	3J
AR0034258	VILLAGE WASTEWATER CO-NORTH	LITTLE SUGAR CK,3J-AR RB	11070208	3J
AR0034266	VILLAGE WASTEWATER CO, INC	LTL SUGAR CK	11070208	3J
AR0035246	LINCOLN, CITY OF	BUSH CK TRIB	11110103	3J
AR0036480	SULPHUR SPRINGS, CITY OF	BUTLER CK/SEG 3J-ARKANSAS RIVER BAS	11070208	3J
AR0037842	SOUTHWESTERN ELECTRIC POWER CO	LTL FLINT CK,FLINT CK,3J-AR RB	11110103	3J
AR0043397	ROGERS, CITY OF	OSAGE CK/ILLINOIS RV/ARK RV & RV BS	11110103	3J
AR0046639	BENTON COUNTY STONE CO, INC	BUTLER CK TRIB	11070208	3J

ARK07
BARON FORK AT DUTCH MILLS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.29	34	17.10	4.20	2.80
BOD 5 Day mg/l	1.29	40	3.90	0.20	0.89
pH	7.66	41	8.83	7.01	0.37
TSS mg/l	9.81	34	129.00	1.00	22.96
NO2+NO3-N mg/l	1.73	37	7.07	0.01	1.39
Tot. Phos. mg/l	0.23	36	4.54	0.03	0.75
Tot. Org. C mg/l	4.64	39	38.80	1.90	5.84
T.Hardness mg/l	134.74	31	180.00	45.00	30.97
Chloride mg/l	7.36	40	23.00	3.00	3.09
Sulfate mg/l	15.15	41	25.00	8.00	4.31
TDS mg/l	167.33	40	260.00	110.00	30.58
Turbidity NTU	9.20	42	74.00	1.20	14.76

ARK10C
HWY 112 BRIDGE ON CLEAR CREEK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.82	39	13.10	6.80	1.61
BOD 5 Day mg/l	1.31	44	4.90	0.30	0.97
pH	7.87	43	8.91	7.12	0.45
TSS mg/l	11.63	38	137.00	1.00	25.68
NO2+NO3-N mg/l	2.31	43	4.83	0.58	0.85
Tot. Phos. mg/l	0.10	40	0.31	0.03	0.07
Tot. Org. C mg/l	4.10	42	6.60	2.10	1.10
T.Hardness mg/l	137.49	33	162.00	80.00	21.67
Chloride mg/l	17.84	41	38.00	4.00	9.76
Sulfate mg/l	31.71	43	87.00	12.00	15.92
TDS mg/l	211.88	45	340.00	133.00	50.28
Turbidity NTU	11.24	44	91.00	1.20	18.62

ARK04A

FLINT CREEK NR WEST SILOAM SPRINGS OKLAHOMA

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.79	36	13.70	5.40	2.16
BOD 5 Day mg/l	0.73	44	1.90	0.05	0.40
pH	7.67	42	8.23	7.10	0.29
TSS mg/l	4.74	39	56.00	1.00	8.76
NO2+NO3-N mg/l	1.84	42	4.83	0.35	1.21
Tot. Phos. mg/l	0.06	37	0.22	0.03	0.04
Tot. Org. C mg/l	2.29	41	5.40	1.00	0.81
T.Hardness mg/l	112.79	33	133.00	74.00	12.19
Chloride mg/l	8.89	41	13.00	4.00	1.81
Sulfate mg/l	23.08	43	50.00	8.00	9.78
TDS mg/l	163.82	44	204.00	117.00	19.46
Turbidity NTU	4.07	45	45.00	0.80	6.91

ARK06

ILLINOIS RIVER SOUTH OF SILOAM SPRINGS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.61	16	12.00	5.70	1.89
BOD 5 Day mg/l	1.09	19	5.40	0.30	1.22
pH	7.62	19	8.44	6.49	0.43
TSS mg/l	35.00	18	518.00	2.00	120.77
NO2+NO3-N mg/l	2.08	19	3.41	1.18	0.61
Tot. Phos. mg/l	0.23	18	0.56	0.09	0.12
Tot. Org. C mg/l	2.83	16	10.20	1.50	2.06
T.Hardness mg/l	123.22	9	139.00	104.00	10.34
Chloride mg/l	13.45	16	24.00	5.00	5.35
Sulfate mg/l	13.10	17	19.00	10.00	2.59
TDS mg/l	173.11	19	208.00	140.00	22.84
Turbidity NTU	23.78	19	290.00	0.90	66.39

ARK06A

ILLINOIS RIVER NR SILOAM SPRINGS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.31	33	17.60	5.00	2.51
BOD 5 Day mg/l	1.18	40	5.80	0.20	1.39
pH	7.71	40	8.57	6.71	0.39
TSS mg/l	19.82	39	392.00	1.00	63.55
NO2+NO3-N mg/l	2.27	39	3.95	0.96	0.69
Tot. Phos. mg/l	0.23	38	0.56	0.09	0.11
Tot. Org. C mg/l	3.02	39	9.50	1.60	1.59
T.Hardness mg/l	120.84	31	158.00	56.00	20.32
Chloride mg/l	13.00	41	25.00	4.00	5.73
Sulfate mg/l	13.76	42	26.00	6.00	3.87
TDS mg/l	172.12	41	217.00	113.00	25.70
Turbidity NTU	19.22	42	270.00	1.40	52.11

ARK40

ILLINOIS RIVER NR SAVOY, AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.89	36	13.60	5.20	2.30
BOD 5 Day mg/l	1.30	44	5.60	0.20	1.07
pH	7.60	43	8.49	6.68	0.35
TSS mg/l	13.44	42	144.00	1.00	28.42
NO2+NO3-N mg/l	1.65	42	4.09	0.09	0.83
Tot. Phos. mg/l	0.10	39	0.45	0.04	0.09
Tot. Org. C mg/l	3.78	40	8.80	2.00	1.64
T.Hardness mg/l	114.67	33	173.00	9.00	35.33
Chloride mg/l	7.53	41	15.00	1.00	2.71
Sulfate mg/l	11.44	43	19.00	5.00	3.85
TDS mg/l	149.88	44	190.00	28.00	31.17
Turbidity NTU	17.16	45	200.00	2.10	34.01

ARK56
LITTLE SUGAR CREEK TRIB. NR BENTONVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.50	36	11.10	4.80	1.72
BOD 5 Day mg/l	0.89	43	2.90	0.10	0.56
pH	7.39	42	8.91	6.45	0.37
TSS mg/l	3.95	33	28.00	1.00	5.95
NO2+NO3-N mg/l	7.93	42	13.10	2.79	2.80
Tot. Phos. mg/l	4.19	40	7.26	0.72	1.58
Tot. Org. C mg/l	4.53	41	6.60	2.20	1.08
T.Hardness mg/l	137.73	33	180.00	99.00	13.67
Chloride mg/l	34.13	41	56.00	8.00	13.40
Sulfate mg/l	35.92	43	59.00	11.00	12.19
TDS mg/l	295.07	44	411.00	175.00	59.05
Turbidity NTU	4.72	45	35.00	0.60	7.98

ARK41
OSAGE CREEK NR ELM SPRINGS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.20	36	13.70	6.60	1.68
BOD 5 Day mg/l	1.00	43	5.80	0.20	0.99
pH	7.80	42	8.82	6.39	0.50
TSS mg/l	11.41	39	69.00	1.00	17.47
NO2+NO3-N mg/l	3.46	42	5.76	1.79	0.89
Tot. Phos. mg/l	0.75	41	2.34	0.28	0.41
Tot. Org. C mg/l	3.19	41	7.60	1.90	1.11
T.Hardness mg/l	129.49	33	161.00	90.00	16.67
Chloride mg/l	22.17	42	41.00	6.00	9.33
Sulfate mg/l	19.58	43	38.00	7.00	7.24
TDS mg/l	215.17	44	285.00	139.00	35.08
Turbidity NTU	14.61	45	230.00	0.90	38.52

ARK05
SAGER C NR SILOAM SPRINGS ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.56	37	15.40	6.20	2.05
BOD 5 Day mg/l	1.00	44	3.60	0.20	0.72
pH	7.60	43	8.70	7.06	0.34
TSS mg/l	3.83	33	21.00	1.00	4.19
NO2+NO3-N mg/l	6.82	43	12.30	0.02	2.45
Tot. Phos. mg/l	0.89	42	1.82	0.09	0.44
Tot. Org. C mg/l	4.37	42	9.50	2.30	1.78
T.Hardness mg/l	125.47	34	169.00	67.00	22.39
Chloride mg/l	43.66	42	126.00	6.00	23.13
Sulfate mg/l	16.63	44	24.00	8.00	4.10
TDS mg/l	249.46	45	454.00	127.00	57.89
Turbidity NTU	3.93	45	40.00	0.40	6.99

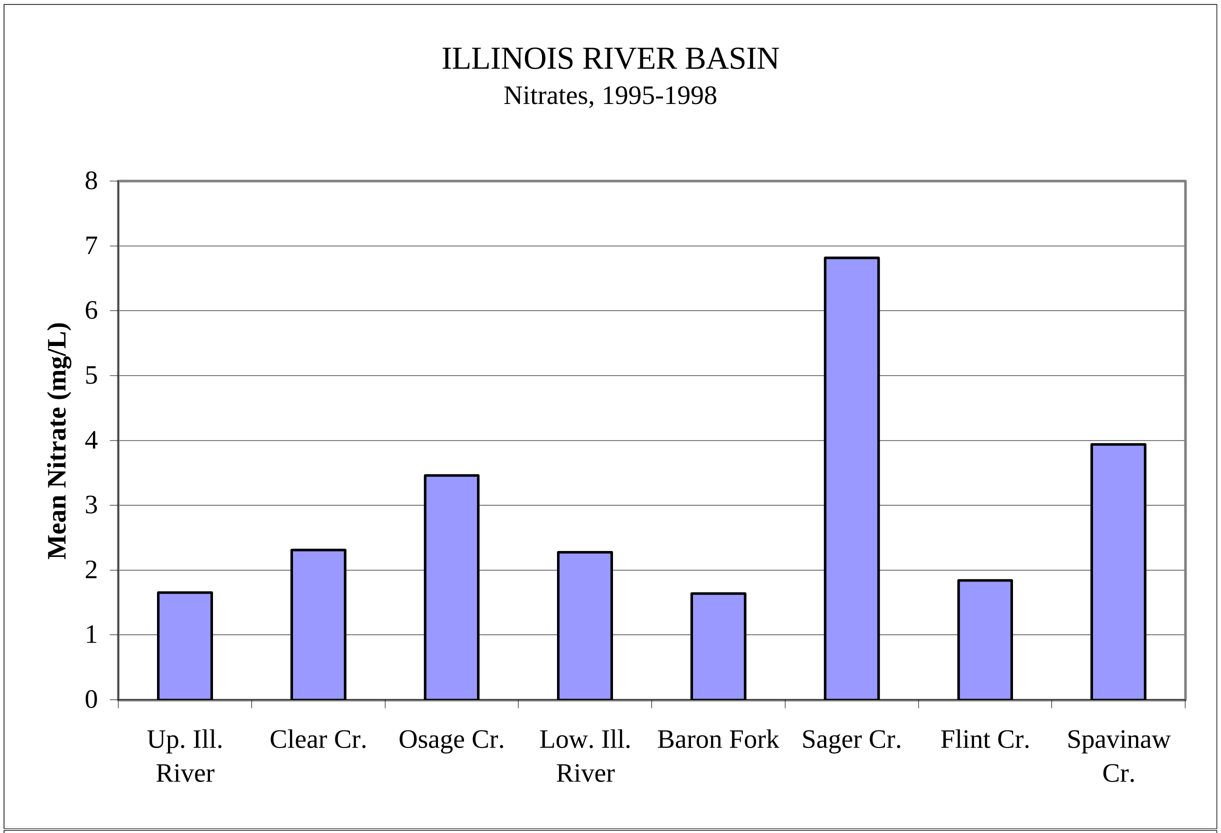
ARK03
SPAVINAW C N OF CHEROKEE CITY AR

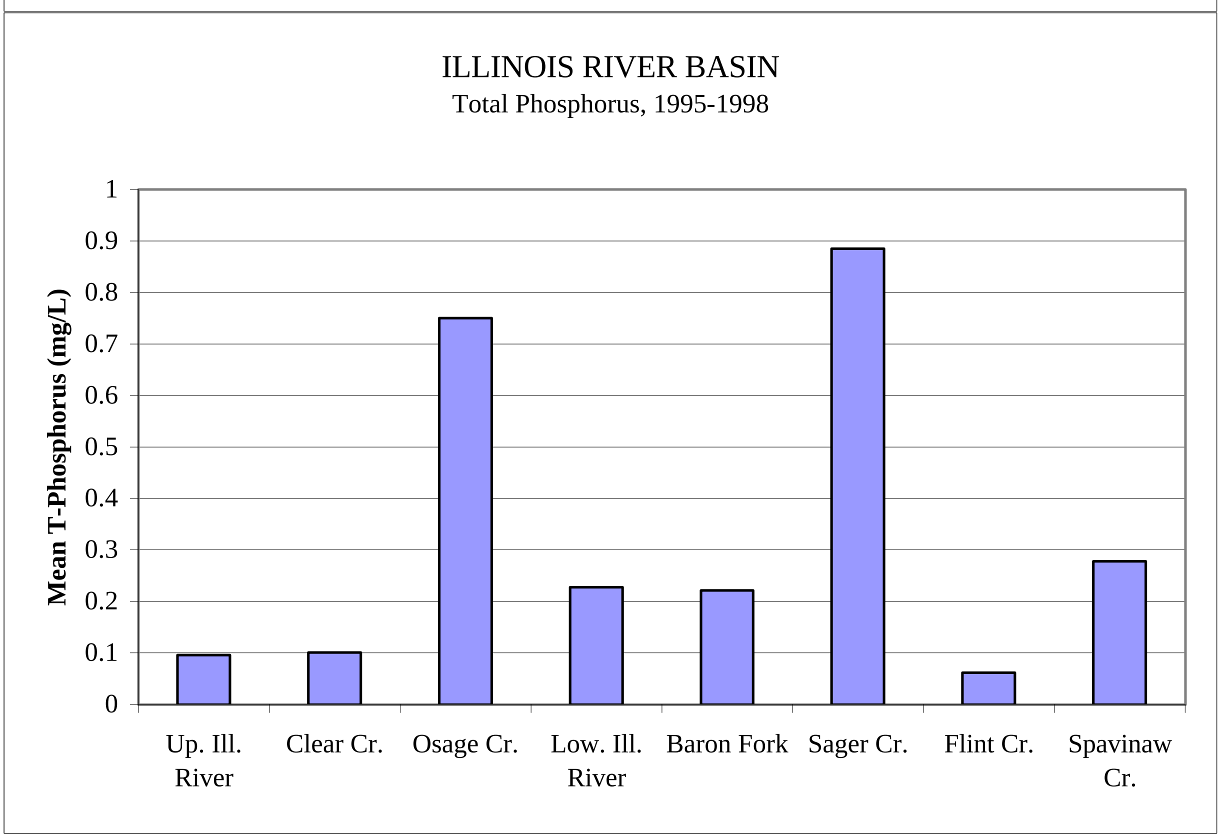
PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.54	36	13.10	6.20	1.83
BOD 5 Day mg/l	0.63	42	3.90	0.09	0.67
pH	7.86	41	8.47	7.18	0.32
TSS mg/l	4.31	16	43.00	0.50	10.39
NO2+NO3-N mg/l	3.94	42	6.30	2.43	1.05
Tot. Phos. mg/l	0.28	41	0.61	0.12	0.12
Tot. Org. C mg/l	1.98	41	4.30	1.10	0.66
T.Hardness mg/l	131.67	33	163.00	91.00	14.75
Chloride mg/l	12.01	41	19.00	5.00	3.12
Sulfate mg/l	8.15	43	16.00	5.00	2.48
TDS mg/l	180.59	44	214.00	130.00	19.98
Turbidity NTU	1.83	44	22.00	0.40	3.87

FIGURE A-3J-1

ILLINOIS RIVER BASIN

Mean Nitrates and Total Phosphorus, 1995-1998





WHITE RIVER BASIN

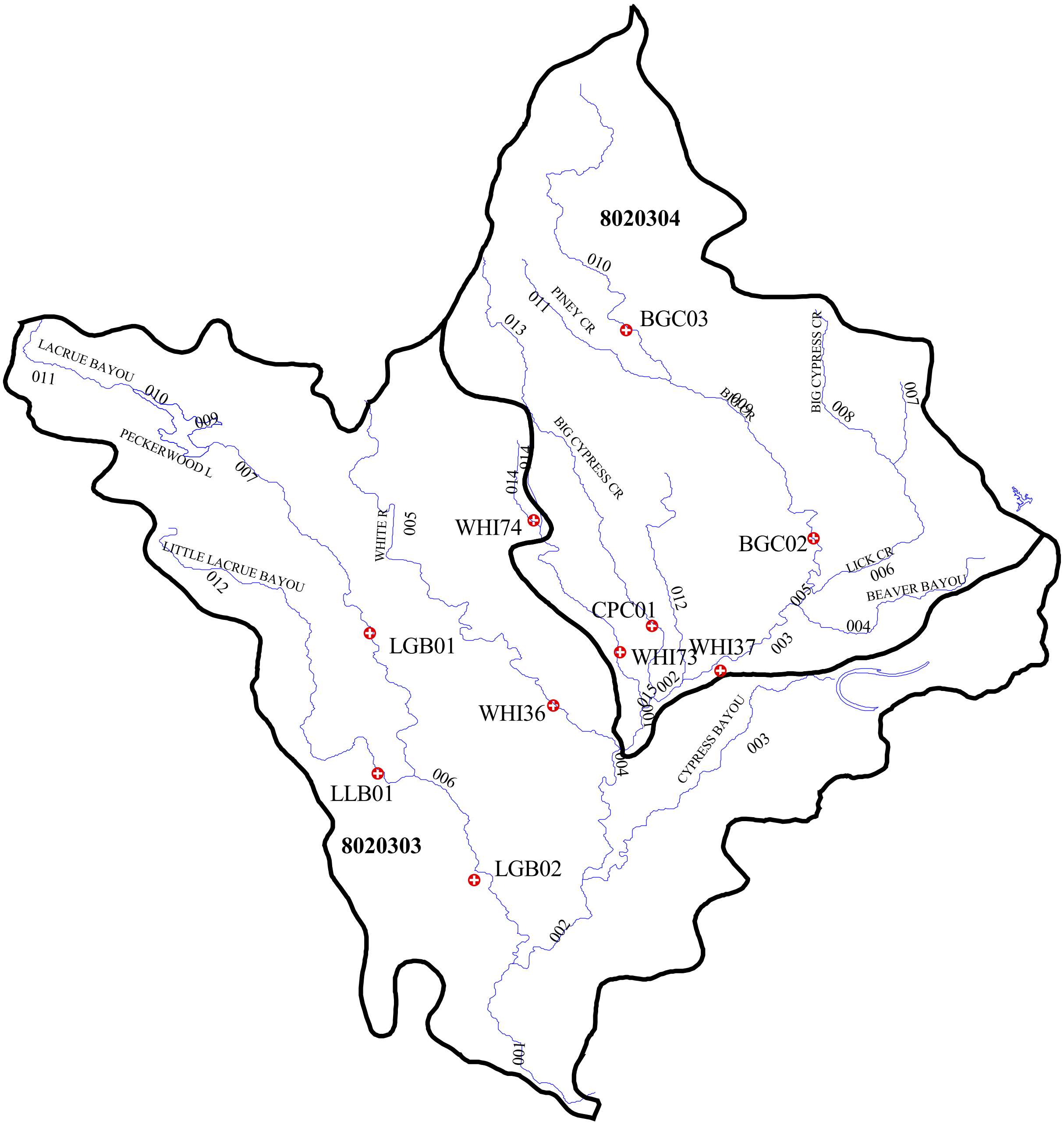
SEGMENT 4A - LOWER WHITE RIVER AND TRIBUTARIES

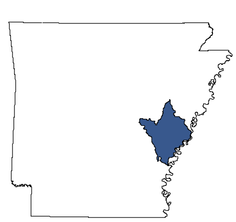
Segment 4A, located on the east central edge of Arkansas, includes most of the drainage from Monroe and Phillips Counties. It also includes parts of Arkansas, Desha, Prairie, Woodruff, St. Francis and Lee counties. This segment is drained by the lower 133-mile reach of the White River from Wattensaw Bayou to its mouth. Principal tributaries include Big Creek, La Grue Bayou, Lick Creek and Cypress Bayou.

SUMMARY OF WATER QUALITY CONDITIONS

All waters within this segment have been designated for propagation of fish and wildlife, primary and secondary contact recreation and domestic, agricultural and industrial water supply. None are designated as outstanding state or national resource waters. Monitoring stations within the segment allowed the assessment of 283.6 miles; an additional 44 miles were evaluated. All assessed waters were determined to be meeting designated uses.

Planning Segment 4A - Monitoring Stations

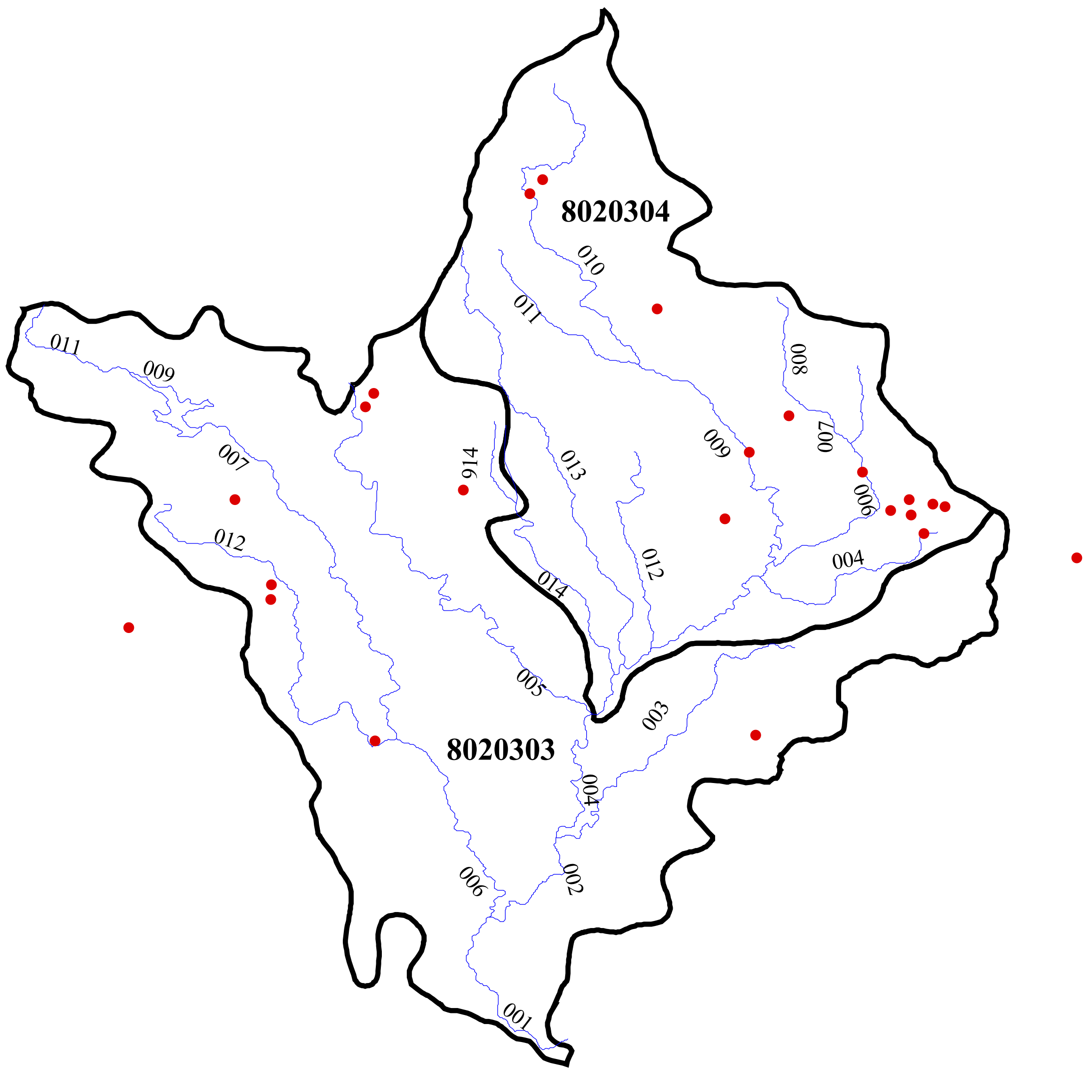


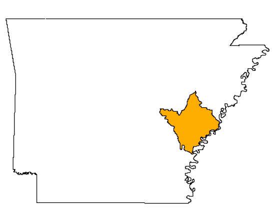


STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC
SEG-4A															
White River	8020303	-001	16.2		E	S	S	S	S	S	S				
White River	8020303	-002	11.3		E	S	S	S	S	S	S				
Cypress Bayou	8020303	-003	30		U										
White River	8020303	-004	14.8		E	S	S	S	S	S	S				
White River	8020303	-005	46.6	WHI36	M	S	S	S	S	S	S				
La Grue Bayou	8020303	-006	20.1	LGB02	M	S	S	S	S	S	S				
La Grue Bayou	8020303	-007	36.1	LGB01	M	S	S	S	S	S	S				
La Grue Bayou	8020303	-011	11.7		U										
L.La Grue Bayou	8020303	-012	37	LLB01	M	S	S	S	S	S	S				
Big Creek	8020304	-001	4.1		U										
Big Creek	8020304	-002	2.7		U										
Big Creek	8020304	-003	12.4	WHI37	M	S	S	S	S	S	S				
Beaver Bayou	8020304	-004	17.4		U										
Big Creek	8020304	-005	1.7		E	S	S	S	S	S	S				
Lick Creek	8020304	-006	15.5		U										
Lick Creek	8020304	-007	6.8		U										
Big Cypress Cr.	8020304	-008	14.9		U										
Big Creek	8020304	-009	25.2	BGC02	M	S	S	S	S	S	S				
Big Creek	8020304	-010	34.3	BGC03	M	S	S	S	S	S	S				
Piney Creek	8020304	-011	14.9		U										
Little Cypress	8020304	-012	19.3		U										
Big Cypress Cr.	8020304	-013	40.8	CPC01	M	S	S	S	S	S	S				
Prairie Cypress	8020304	-014	26.1	WHI73	M	S	S	S	S	S	S				
Big Creek	8020304	-015	1.2		U										
Boat Gunwale Slash	8020304	-914	5	WHI74	M	S	S	S	S	S	S				
TOTAL MILES	466.1														
MILES UNASSESSED	138.5														
MILES EVALUATED	44														
MILES MONITORED	283.6														

USE	SUPPORT	NOT SUPPORT
FISH CONSUMPTION	327.6	0
AQUATIC LIFE	327.6	0
SWIMMING	327.6	0
SECONDARY CONTACT	327.6	0
DRINKING SUPPLY	327.6	0
AGRI & INDUSTRY	327.6	0

Planning Segment 4A - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000418	HOFFINGER INDUSTRIES	DITCH/LICK-CROOKED-BIG CKS/WHITE RB	8020304	4A
AR0021431	DEWITT, CITY OF	CONF/BIG & LTL LAGRUE BU,WHITE RV	8020303	4A
AR0021644	CLARENDON, CITY OF	PLANT SITE/WHITE RV/SEG 4A-WHITE RB	8020303	4A
AR0022021	WEST HELENA WATER UTILITIES	MISSISSIPPI RV	8020304	4A
AR0022420	ELAINE, CITY OF	GOVAN SLOUGH/GAUZLEY/CYPRESS/WHITE	8020303	4A
AR0022438	HOLLY GROVE, CITY OF	DIAL CK/CUT BLUFF SL/MADDOX/WHITE R	8020303	4A
AR0022756	HELENA CHEMICAL CO-PHILLIPS		8020304	4A
AR0034851	BAIRD MFG, INC	MILL BU TRIB	8020303	4A
AR0035840	MARVELL, CITY OF	BIG CK/WHITE RV/SEG 4A-WHITE RV BAS	8020304	4A
AR0036315	WHEATLEY, CITY OF	FLAT FORK CK/BIG CK/WHITE RV--BASIN	8020304	4A
AR0036412	CEDAR CHEMICAL CORP	MISSISSIPPI RV,6B-MS RB	8020304	4A
AR0038008	ULM, CITY OF	TRIB/SHERRIL CK/LAGRUE BU/WHITE RB	8020303	4A
AR0038237	MORO, CITY OF	HOG TUSK CK,BIG CK	8020304	4A
AR0038784	AUBREY, CITY OF	DITCH/TRIB/CAT CK/SPRING CK/WHITE R	8020304	4A
AR0041092	LEXA, CITY OF	LICK CK	8020304	4A
AR0041327	LAKE VIEW, CITY OF	JOHNSON BU/BIG CK/WHITE RV/WHITE RB	8020304	4A
AR0042404	SOUTHLAND IMPROVEMENT DIST	CROOKED, LICK & BIG CKS/WHITE RB	8020304	4A
AR0044415	U OF A RICE RESEARCH & EXT CTR	LTL LAGRUE BU,4A-AR RB	8020303	4A
AR0045373	RONDO, CITY OF	DIT,BIG CYPRESS CK,LICK CK,4A-WHITE	8020304	4A
AR0045446	USDA-AQUACULTURE RESEARCH CENT	DIT,LT.LAGRUE BU,WHITE RV,4A-WHITE	8020303	4A
AR0046469	HARTZ SEED-UNIT OF MONSANTO CO	WILDCAT DIT TRIB,LT LAGRUE BU	8020303	4A
AR0046752	DELTA EXPRESS #3154-MAPCO PETR	TRIB, FLAT FORK CK	8020303	4A
AR0048534	P.E. BARNES & SONS, LTD	TRIB	8020304	4A
AR0048666	BROWN'S EQUIP & RENTAL-WYCAMP	TRIB,LICK CK,BIG CK,WHITE RV	8020303	4A

WHI74

BOAT GUNWALE SLASH AT HWY 146 NR DEEP ELM ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	4.33	38	15.60	0.70	2.76
BOD 5 Day mg/l	2.04	42	6.30	0.40	1.34
pH	7.07	40	8.64	6.19	0.45
TSS mg/l	8.26	41	101.00	1.00	15.37
NO2+NO3-N mg/l	0.12	26	0.86	0.01	0.17
Tot. Phos. mg/l	0.15	40	0.54	0.04	0.09
Tot. Org. C mg/l	9.40	41	15.70	3.60	2.64
T.Hardness mg/l	68.74	31	142.00	26.00	37.65
Chloride mg/l	6.19	39	19.00	2.00	3.25
Sulfate mg/l	6.23	41	16.00	1.00	3.35
TDS mg/l	125.22	41	224.00	56.00	46.69
Turbidity NTU	12.27	42	61.00	1.80	13.34

WHI73

PRAIRIE CYPRESS CREEK AT HWY 1 NR CROSSSROADS AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	4.10	38	8.50	0.70	1.99
BOD 5 Day mg/l	2.03	40	4.30	0.40	1.07
pH	7.05	40	8.05	6.31	0.39
TSS mg/l	12.88	41	71.00	1.00	18.32
NO2+NO3-N mg/l	0.07	26	0.34	0.01	0.07
Tot. Phos. mg/l	0.18	40	0.62	0.03	0.13
Tot. Org. C mg/l	10.19	41	19.10	3.40	3.60
T.Hardness mg/l	64.74	31	134.00	12.00	36.25
Chloride mg/l	6.10	39	19.00	2.00	3.43
Sulfate mg/l	5.97	39	22.00	0.70	4.58
TDS mg/l	126.78	41	410.00	38.00	63.17
Turbidity NTU	15.44	42	66.00	1.40	17.31

WHI36
WHITE RIVER @ ST CHARLES, ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.24	39	17.70	5.80	2.18
BOD 5 Day mg/l	1.11	43	3.10	0.40	0.55
pH	7.71	41	8.37	6.85	0.40
TSS mg/l	35.38	45	143.00	3.00	27.66
NO2+NO3-N mg/l	0.20	40	0.53	0.03	0.10
Tot. Phos. mg/l	0.09	41	0.29	0.03	0.04
Tot. Org. C mg/l	3.99	42	6.90	2.60	1.06
T.Hardness mg/l	130.56	32	188.00	83.00	27.23
Chloride mg/l	5.12	40	19.00	3.00	2.81
Sulfate mg/l	7.26	42	12.00	4.00	1.84
TDS mg/l	151.69	42	191.00	118.00	20.16
Turbidity NTU	26.33	43	90.00	2.80	15.34

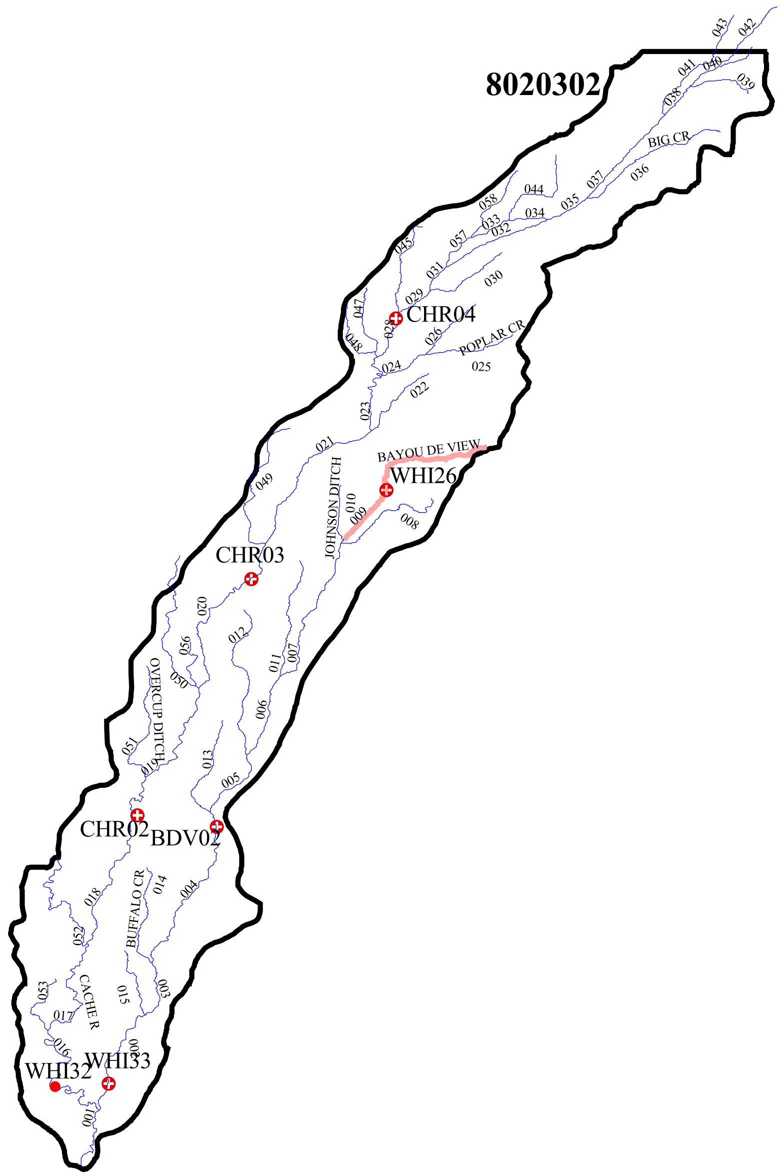
SEGMENT 4B - BAYOU DEVIEW AND CACHE RIVER (WHITE RIVER BASIN)

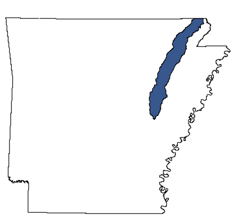
Segment 4B, located in the northeastern part of Arkansas, is a long, narrow segment that includes parts of Greene, Craighead, Poinsett, Jackson, Woodruff and Monroe counties. The segment includes Bayou DeView and Cache River and their major tributaries including Cow Ditch, Buffalo Creek and Flag Slough.

SUMMARY OF WATER QUALITY CONDITIONS

The 599.8 miles of streams in this segment are designated for propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supplies. None of these are designated as outstanding state or national resource waters. Water sampling stations allowed monitoring of 130.5 miles in this segment. An additional 114.6 miles of this stream were evaluated. The upper section of Bayou DeView is not meeting the aquatic life use due to high turbidity. Downstream reaches of this stream had some elevated turbidity values, but this section of the stream was assessed as meeting all designated uses. All other waters in this segment were meeting designated uses.

Planning Segment 4B - Monitoring Stations

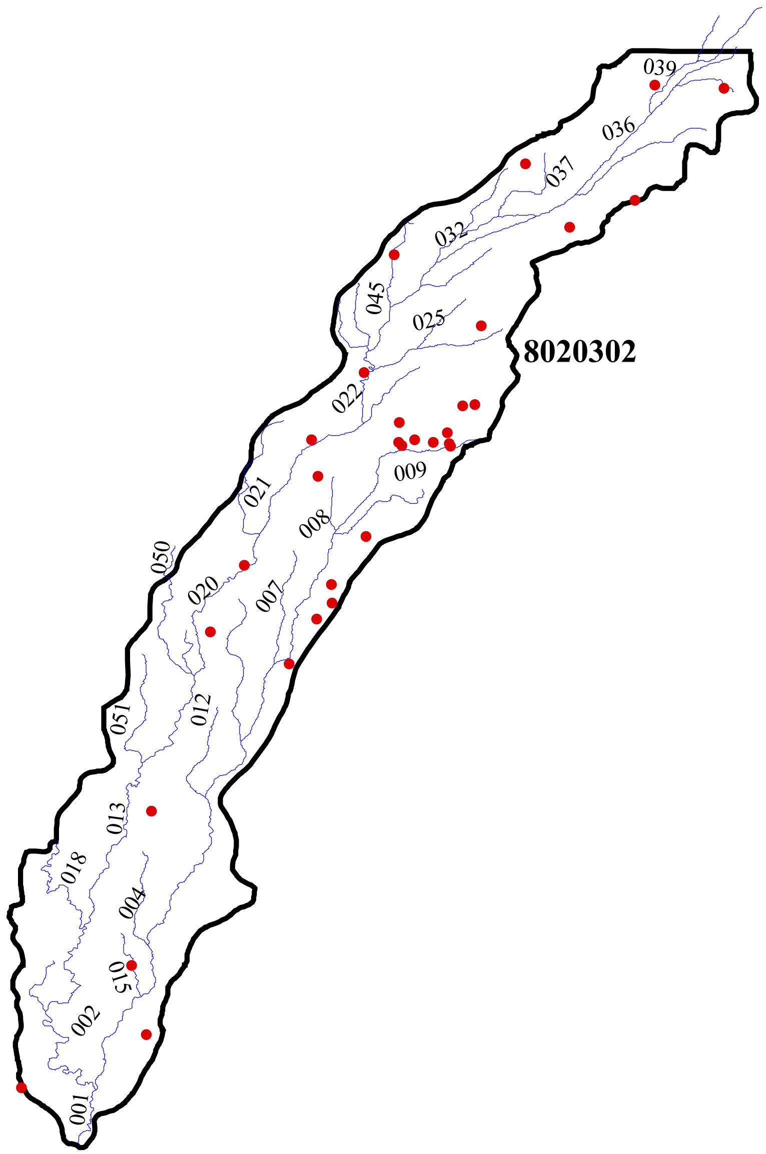


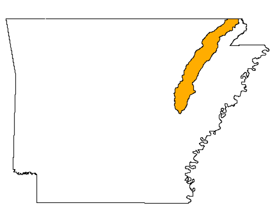


Use Not Supported

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4B																		
Cache River	8020302	-001	8.6		U											FISH CONSUMPTION	245.1	0
Bayou DeView	8020302	-002	13.7	WHI33	M	S	S	S	S	S	S					AQUATIC LIFE	224.8	20.3
Bayou DeView	8020302	-003	7.1		E	S	S	S	S	S	S					SWIMMING	245.1	0
Bayou DeView	8020302	-004	21.2	BDV02	M	S	S	S	S	S	S					SECONDARY CONTACT	245.1	0
Bayou DeView	8020302	-005	8.6		E	S	S	S	S	S	S					DRINKING SUPPLY	245.1	0
Bayou DeView	8020302	-006	10.2		E	S	S	S	S	S	S					AGRI & INDUSTRY	245.1	0
Bayou DeView	8020302	-007	18.2		E	S	S	S	S	S	S							
Bayou DeView	8020302	-009	20.3	WHI26	M	S	N	S	S	S	S	AG		SI				
Black Creek	8020302	-008	13		U													
Johnson Ditch	8020302	-010	6.5		U													
Flag Slough	8020302	-011	14.7		U													
Cow Ditch	8020302	-012	19.2		U													
May Br. Lateral	8020302	-013	12.6		U													
Buffalo Creek	8020302	-014	13.1		U													
Gum Flat	8020302	-015	8.8		U													
Cache River	8020302	-016	21.8	WHI32	M	S	S	S	S	S	S							
Cache River	8020302	-017	15.8		E	S	S	S	S	S	S							
Cache River	8020302	-018	25	CHR02	M	S	S	S	S	S	S							
Cache River	8020302	-019	13.7		E	S	S	S	S	S	S							
Cache River	8020302	-020	22.6	CHR03	M	S	S	S	S	S	S							
Cache River	8020302	-021	18.4		E	S	S	S	S	S	S							
Gum Slough	8020302	-022	9.5		U													
Cache River	8020302	-023	7.9		U													
Ditch 26	8020302	-024	5.4		U													
Poplar Creek	8020302	-025	9.2		U													
Ditch 26	8020302	-026	7.8		U													
Cache River	8020302	-027	3.9		E	S	S	S	S	S	S							
Cache River	8020302	-028	5.9	CHR04	M	S	S	S	S	S	S							
Cache River	8020302	-029	3.9		E	S	S	S	S	S	S							
Swan Ditch	8020302	-030	9.1		U													
Cache River	8020302	-031	3.4		E	S	S	S	S	S	S							
Cache River	8020302	-032	11.4		E	S	S	S	S	S	S							
Cache River	8020302	-033	4.3		U													
Cache River	8020302	-034	3.7		U													
Cache River	8020302	-035	4.6		U													
Big Creek	8020302	-036	16.2		U													
Cache River	8020302	-037	12.3		U													
Little Cache	8020302	-038	4.4		U													
Housman Creek	8020302	-039	6.7		U													
Little Cache	8020302	-040	8.1		U													
Cache River	8020302	-041	8.7		U													
Big Gum Lateral	8020302	-044	11.2		U													
Beaver Dam Cr.	8020302	-045	11.8		U													
Kello Ditch	8020302	-046	0.6		U													
Kello Ditch	8020302	-047	8.5		U													
Fry Ditch	8020302	-048	8		U													
Willow Ditch	8020302	-049	17.6		U													
Locust Creek	8020302	-050	18.8		U													
Overcup Creek	8020302	-051	15.7		U													
Cache Bayou	8020302	-052	18.7		U													
Hill Bayou	8020302	-053	8.1		U													
Locust Bayou	8020302	-055	0.4		U													
Cypress Creek	8020302	-056	6.5		U													
Cache River	8020302	-057	4.7		U													
Petersburg Ditch	8020302	-058	9.7		U													
TOTAL MILES	599.8																	
MILES UNASSESSED	354.7																	
MILES EVALUATED	114.6																	
MILES MONITORED	130.5																	

Planning Segment 4B - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000175	GEN ELECTRIC CO-JONESBORO	CHRISTIAN CK/CASHE RV/WHITE RV-RB	8020302	4B
AR0020354	WEINER, CITY OF	BU DEVIEW TRIB	8020302	4B
AR0020699	BONO, CITY OF	TRIB/WHALEY SLOUGH DT/CACHE RV/WHIT	8020302	4B
AR0021890	BRINKLEY, CITY OF	CANEY SLASH/BAYOU DEVIEW/WHITE RB	8020302	4B
AR0022446	FISHER, CITY OF	TRIB/BAYOU DEVIEW/SEG 4B-WHITE RB	8020302	4B
AR0033391	COTTON PLANT, CITY OF	TURKEY CK,4B-WHITE RB	8020302	4B
AR0034614	GRUBBS, TOWN OF	CACHE RV,4C-WHITE RB	8020302	4B
AR0035947	AR PARKS & TOURISM-CROWLEY'S	DIT,BIG DIT,CACHE,WHITE RV	8020302	4B
AR0037834	ADM-RICELAND PARTNERSHIP-WEINE	DIT,BU DEVIEW,4-B WHITE RB	8020302	4B
AR0037907	JONESBORO CITY WATER & LIGHT-W	BIG CK TRIB,DEVIEW BU TRIB,WHITE RB	8020302	4B
AR0038351	ADM-RICELAND PARTNERSHIP-OTWEL	TRIB,BIG CK LTRL #1,4B-WHITE RB	8020302	4B
AR0041629	WESTSIDE CONSOL SCHOOL DIST #5	TRIB,BIG CK DIT,BU DEVIEW,CACHE RV	8020302	4B
AR0042188	NORTHERN MHP	TRIB,BIG CK,CACHE RV	8020302	4B
AR0042552	TRI-COUNTY SAND & GRAVEL, INC	DORT CK, CACHE RV DIT #10, CACHE RV	8020302	4B
AR0042781	MCDOUGAL, CITY OF	LTL CACHE RV TRIB,WHITE RV	8020302	4B
AR0043290	KNOBEL, TOWN OF	TRIB/CACHE RV,4C-WHITE RB	8020302	4B
AR0043443	SEDGWICK, CITY OF	W. CACHE RV DITCH/CACHE RV/WHITE RB	8020302	4B
AR0043486	TRI-CITY UTILITIES, INC	TRIB, BEAVER DAM DIT	8020302	4B
AR0043524	EGYPT, CITY OF	CACHE RV/WHITE RV/SEG 4C-WHITE RB	8020302	4B
AR0043605	WALDENBURG, CITY OF	TRIB/BU DEVIEW/CACHE RV/4B-WHITE RB	8020302	4B
AR0044211	OLIVETAN BENEDICTINE SISTERS,	TRIB/LOST CK/BIG CK DITCH/WHITE RB	8020302	4B
AR0044954	MCCRORY, CITY OF	CACHE RV/WHITE RV/SEG 4C-WHITE RB	8020302	4B
AR0045284	CASH, CITY OF	TRIB/CACHE RV/4C-WHITE RB	8020302	4B
AR0045489	POLLARD, CITY OF	POLLARD CK,DIT #2,DIT #1,4C-WHITE	8020302	4B
AR0046604	AMAGON, CITY OF	CACHE RV TRIB,WHITE RV	8020302	4B
AR0046981	HEDGER AGGREGATE, INC.	TRIB-MUD CK/BIG&LOST CK DIT./WHITE	8020302	4B
AR0047589	BISCOE, CITY OF	WHITE RV,4C-WHITE RB	8020302	4B
AR0048208	BEST PETROLEUM PLUS, INC	DAVIS BR,4B-WHITE RB	8020302	4B
AR0048402	LMJ TRAILER PARK	BIG CK DIT TRIB,WHITE RV	8020302	4B
AR0048771	WILLIAMS MHP	LOST CK TRIB	8020302	4B
AR0048909	LAFE, CITY OF	BIG CK	8020302	4B

WHI26
BAYOU DEVIEW NR GIBSON, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.18	32	12.10	4.50	1.89
BOD 5 Day mg/l	3.05	39	7.10	0.90	1.52
pH	7.45	37	8.80	6.17	0.59
TSS mg/l	41.43	36	154.00	3.00	36.24
NO2+NO3-N mg/l	0.91	37	2.79	0.04	0.58
Tot. Phos. mg/l	0.96	38	4.14	0.13	0.78
Tot. Org. C mg/l	9.44	39	18.20	1.80	2.78
T.Hardness mg/l	75.57	30	311.00	18.00	67.42
Chloride mg/l	17.15	36	49.00	3.00	11.43
Sulfate mg/l	15.00	37	40.00	5.00	6.08
TDS mg/l	180.11	40	336.00	96.00	58.69
Turbidity NTU	78.28	39	250.00	8.00	58.58

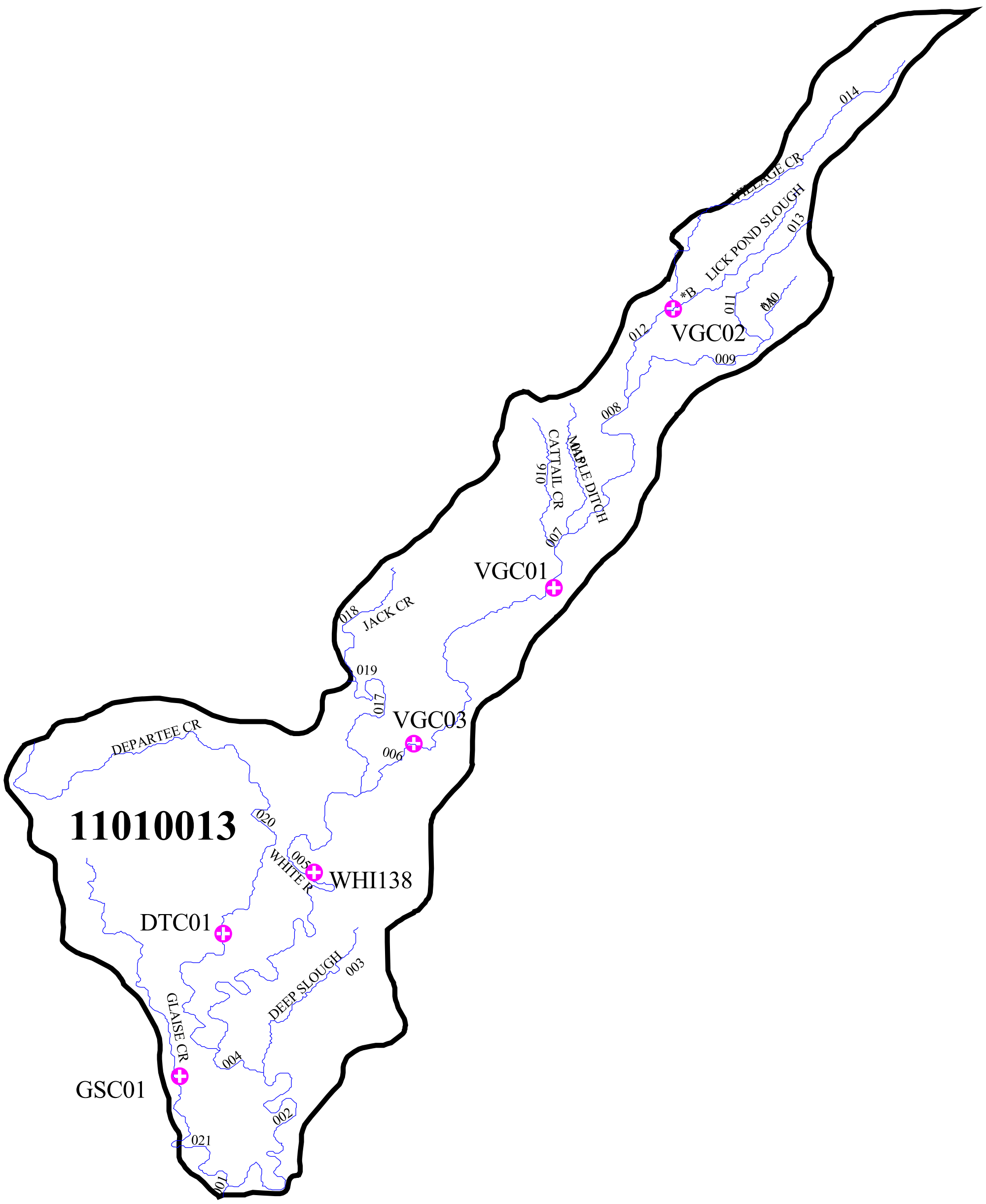
SEGMENT 4C - VILLAGE CREEK AND TRIBUTARIES
(WHITE RIVER BASIN)

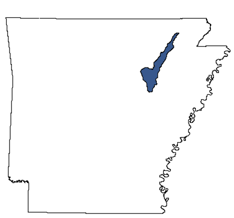
Segment 4C includes portions of Clay, Greene, Lawrence, Craighead, Jackson, Woodruff and Prairie counties. This segment includes Village Creek and its tributaries and a segment of the White River and its tributaries of Departee and Glaise Creeks.

SUMMARY OF WATER QUALITY CONDITIONS

Propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supply are the designated uses for all waters within this segment. Assessment of designated use support was made on 185.7 miles of the total of 285 miles of stream within this segment. All assessed stream segments were meeting designated uses.

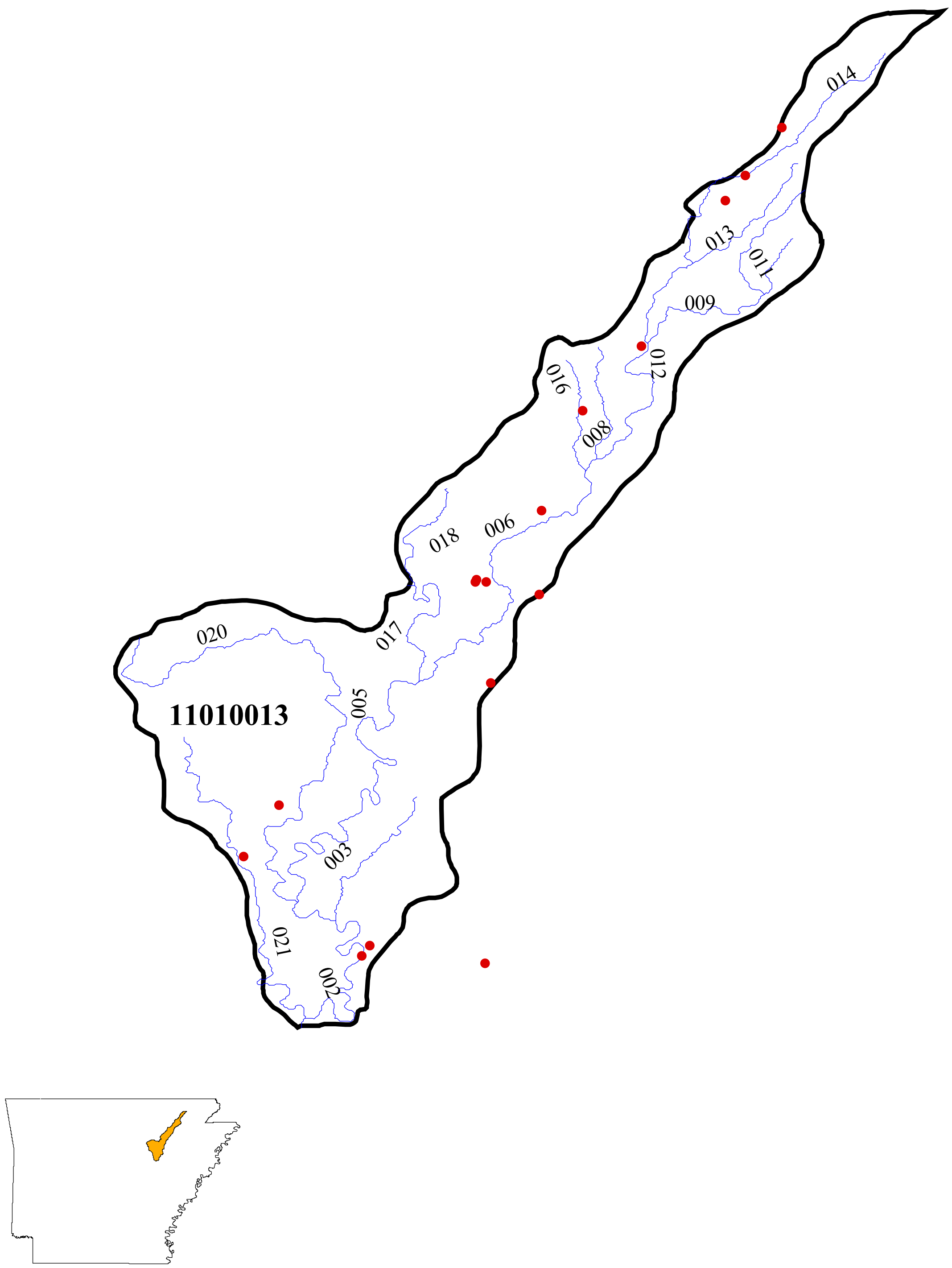
Planning Segment 4C - Monitoring Stations





STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4C																		
White River	11010013	-001	0.8		E	S	S	S	S	S	S					FISH CONSUMPTION	185.7	0
White River	11010013	-002	20.8		E	S	S	S	S	S	S					AQUATIC LIFE	185.7	0
Deep Slough	11010013	-003	12.7		U											SWIMMING	185.7	0
White River	11010013	-004	4.4		E	S	S	S	S	S	S					SECONDARY CONTACT	185.7	0
White River	11010013	-005	36.7	WHI138	M	S	S	S	S	S	S					DRINKING SUPPLY	185.7	0
Village Cr	11010013	-006	25.2	VGC01&3	M	S	S	S	S	S	S					AGRI & INDUSTRY	185.7	0
Village Cr	11010013	-007	1.2		E	S	S	S	S	S	S							
Village Cr	11010013	-008	13		E	S	S	S	S	S	S							
Lick Pond Slough	11010013	-009	10.9		U													
Lick Pond Slough	11010013	-011	10.4		U													
Village Cr	11010013	-012	7.4	VGC02	M	S	S	S	S	S	S							
Village Cr	11010013	-014	22.8		U													
Maple Ditch	11010013	-015	9.5		U													
Cattail Cr	11010013	-016	9.3		U													
White River	11010013	-017	13.7		U													
Jack Creek	11010013	-018	9.6		U													
White River	11010013	-019	0.4		U													
Departee Creek	11010013	-020	46.1	DTC01	M	S	S	S	S	S	S							
Glaise Creek	11010013	-021	30.1	GSC01	M	S	S	S	S	S	S							
TOTAL MILES	285																	
MILES UNASSESSED	99.3																	
MILES EVALUATED	40.2																	
MILES MONITORED	145.5																	

Planning Segment 4C - NPDES Permitted Facilities



Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000400	ARKANSAS ELECTRIC COOP-BAILEY	WHITE RV, 4B-WHITE RV BASIN	11010013	4C
AR0001481	NORANDAL USA, INC	DIT,VILLAGE CK,4C-WHITE RB	11010013	4C
AR0020001	TUCKERMAN, CITY OF	TUCKERMAN DITCH/VILLAGE CK/WHITE RB	11010013	4C
AR0020141	HOXIE, CITY OF	TRIB/TURKEY CK/SEG 4C-WHITE RV BAS.	11010013	4C
AR0022136	BRADFORD, CITY OF	BUTTER CK,DEPARTEE CK,WHITE RV	11010013	4C
AR0022217	RUSSELL, CITY OF	GRAISE CK,WHITE RV,4F-WHITE RB	11010013	4C
AR0034550	ARKANSAS STEEL ASSOC	VILLAGE CK TRIB	11010013	4C
AR0034738	AUGUSTA, CITY OF	WHITE RV,4C-WHITE RB	11010013	4C
AR0034860	SWIFTON, CITY OF	CATTAIL CK/VILLAGE CK/4C-WHITE RB	11010013	4C
AR0036668	FRIT INDUSTRIES, INC-WALNUT RI	TRIB,COON CK,VILLAGE CK,4C-WHITE RB	11010013	4C
AR0037044	NEWPORT, CITY OF-HWY 14	VILLAGE CK,4C-WHITE RB	11010013	4C
AR0039675	ALICIA, CITY OF	BLACK SPICE DIT,4C-WHITE RB	11010013	4C
AR0039837	PATTERSON, CITY OF	CACHE RV,4C-WHITE RB	11010013	4C
AR0041033	DIAZ, CITY OF-WWTP	DIT,VILLAGE CK,WHITE RV	11010013	4C
AR0045225	NEWPORT, CITY OF-AIRPORT/IND	TRIB/LOCUST CK,VILLAGE CK,4C-WHITE	11010013	4C
AR0046566	WALNUT RIDGE, CITY OF	VILLAGE CK/BLACK RV/SEG 4C-WHITE RB	11010013	4C

WHI138
WHITE RIVER @ HWY 14 S. OF NEWPORT ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.44	31	11.90	6.70	1.37
BOD 5 Day mg/l	0.78	40	2.20	0.03	0.38
pH	7.60	37	8.01	6.70	0.32
TSS mg/l	31.17	41	186.00	7.00	28.58
NO2+NO3-N mg/l	0.25	42	0.40	0.10	0.07
Tot. Phos. mg/l	0.07	36	0.16	0.03	0.03
Tot. Org. C mg/l	3.29	42	6.60	1.70	1.05
T.Hardness mg/l	150.70	30	196.00	114.00	18.70
Chloride mg/l	4.14	40	6.00	3.00	0.78
Sulfate mg/l	8.05	38	56.00	2.00	8.23
TDS mg/l	162.61	42	185.00	138.00	13.57
Turbidity NTU	17.22	42	87.00	2.10	15.95

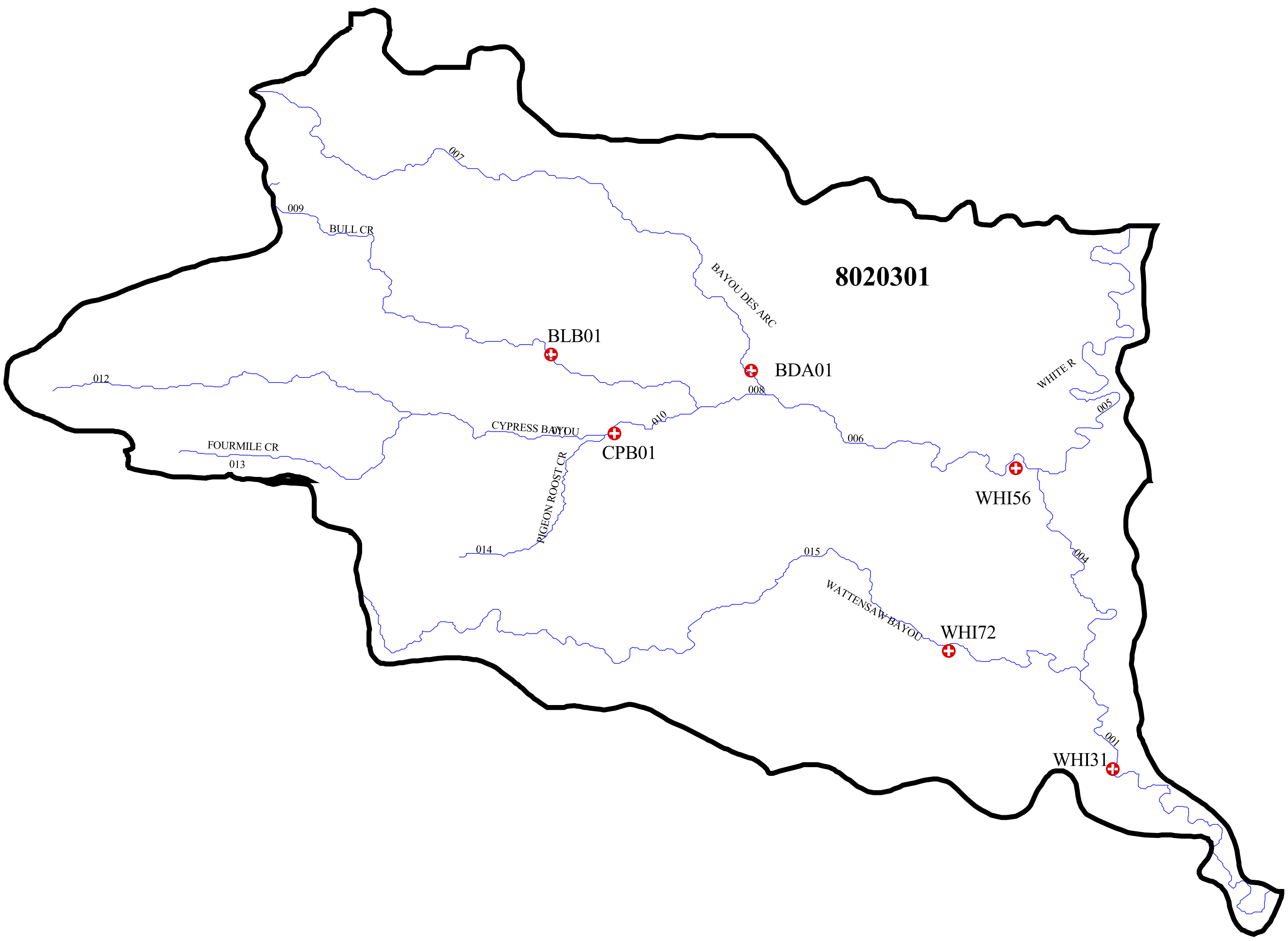
SEGMENT 4D - WHITE RIVER, WATTENSAW BAYOU AND BAYOU DES ARC (WHITE RIVER BASIN)

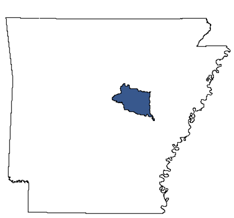
Segment 4D includes portions of White, Prairie and Lonoke Counties in central Arkansas. The segment encompasses a 67-mile stretch of the White River and Wattensaw and Des Arc Bayous, which are tributary to it.

SUMMARY OF WATER QUALITY CONDITIONS IN SEGMENT 4D

The designated uses for all waters within this segment include propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supply. No outstanding state or national resource waters are located in this segment. Monitoring stations provided data to assess 160.7 miles of stream. An additional 70 miles were evaluated. All waters within this segment were evaluated as meeting all designated uses.

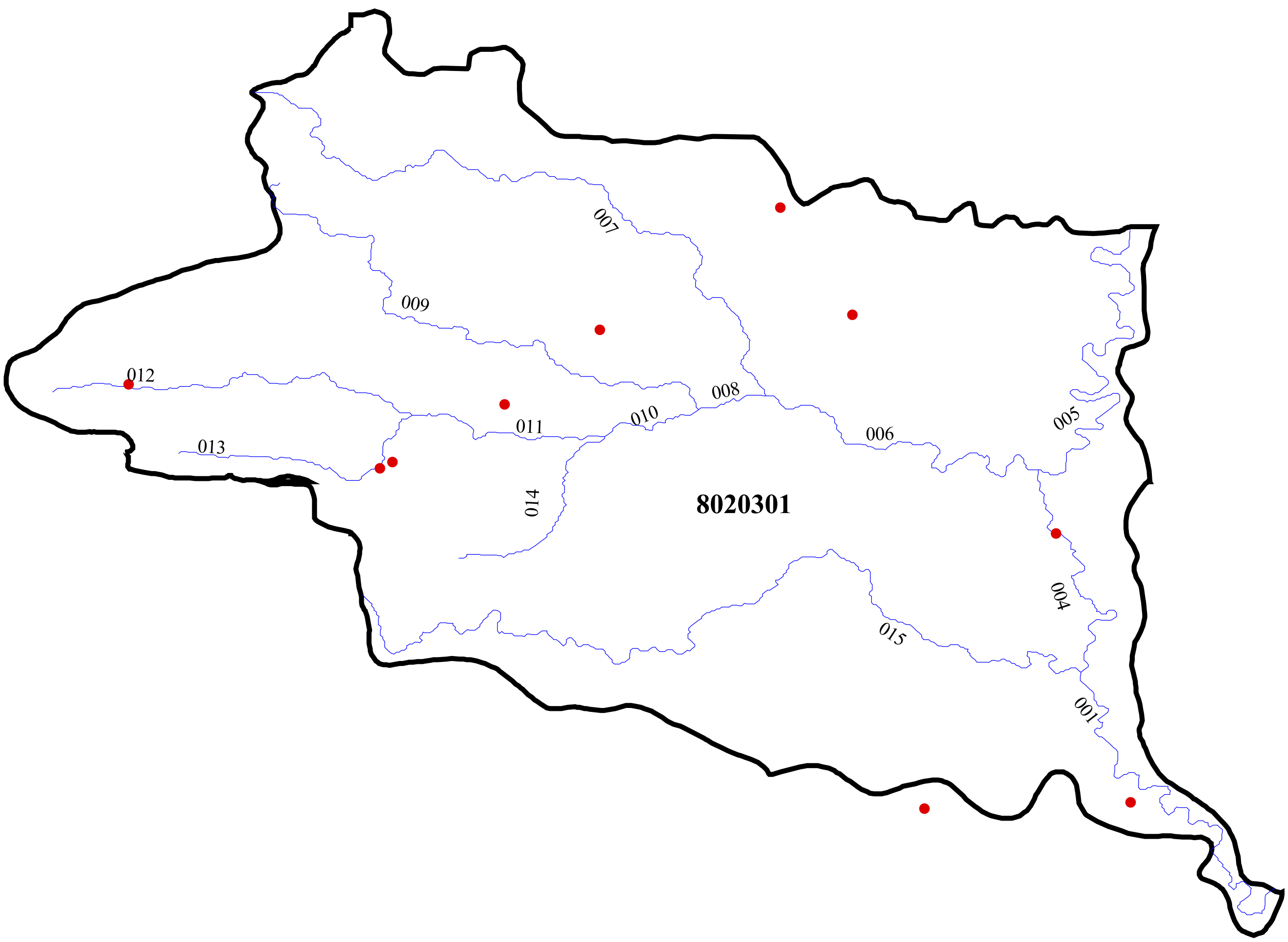
Planning Segment 4D - Monitoring Stations

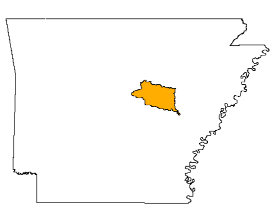




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4D																		
White River	8020301	-001	24.3	WHI31	M	S	S	S	S	S	S					FISH CONSUMPTION	230.7	0
White River	8020301	-004	14.8		E	S	S	S	S	S	S					AQUATIC LIFE	230.7	0
White River	8020301	-005	28.2		E	S	S	S	S	S	S					SWIMMING	230.7	0
Bayou Des Arc	8020301	-006	17.8	WHI56	M	S	S	S	S	S	S					SECONDARY CONTACT	230.7	0
Bayou Des Arc	8020301	-007	36.4	BDA01	M	S	S	S	S	S	S					DRINKING SUPPLY	230.7	0
Cypress Bayou	8020301	-008	3.2		U											AGRI & INDUSTRY	230.7	0
Bull Bayou	8020301	-009	29	BLB01	M	S	S	S	S	S	S							
Cypress Bayou	8020301	-010	5	CPB01	M	S	S	S	S	S	S							
Cypress Bayou	8020301	-011	9.5		E	S	S	S	S	S	S							
Cypress Bayou	8020301	-012	17.5		E	S	S	S	S	S	S							
Fourmile Creek	8020301	-013	12.8		U													
Pidgeon Roost	8020301	-014	11		U													
Wattensaw Bayou	8020301	-015	48.2	WHI72	M	S	S	S	S	S	S							
TOTAL MILES	257.7																	
MILES UNASSESSED	27																	
MILES EVALUATED	70																	
MILES MONITORED	160.7																	

Planning Segment 4D - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021504	MCRAE, CITY OF	DRY BRANCH CK, CANE CK, BU DES ARC	8020301	4D
AR0022101	BEEBE, CITY OF	CYPRESS BU/BU DES ARC/WHITE RV & RB	8020301	4D
AR0022225	DES ARC, CITY OF	WHITE RV,4D-WHITE RB	8020301	4D
AR0022411	HAZEN, CITY OF	LITTLE HURRICANE CK/SEG 4D-WHITE RB	8020301	4D
AR0035611	DEVALLS BLUFF, CITY OF	PLT/DITCH/WHITE RV/SEG. 4A-WHITE RB	8020301	4D
AR0038369	AUSTIN, CITY OF	FOUR MILE CK,BU DES ARC,WHITE RV	8020301	4D
AR0042803	GRIFFITHVILLE, CITY OF	TRIB,DOGWOOD CK,BAYOU DESARC CK	8020301	4D
AR0044822	HIGGINSON, CITY OF	GUM SPRINGSCK,GLADE CK,...,4D WHITE	8020301	4D
AR0047121	VILONIA, CITY OF	TRIB/CYPRESS BU/WHITE RV/WHITE RB	8020301	4D
AR0047554	WARD, CITY OF-FOUR MILE CK	4-MILE CK/CYPRESS&DES ARC BU/WHITE	8020301	4D

WHI31

WHITE RIVER @ DEVALLS BLUFF, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.00	41	12.40	3.80	1.82
BOD 5 Day mg/l	1.06	43	2.40	0.20	0.40
pH	7.48	43	8.49	6.60	0.41
TSS mg/l	40.20	42	110.00	12.00	23.08
NO2+NO3-N mg/l	0.23	42	0.44	0.03	0.10
Tot. Phos. mg/l	0.08	41	0.15	0.03	0.03
Tot. Org. C mg/l	3.79	38	12.20	2.10	1.58
T.Hardness mg/l	132.82	32	176.00	82.00	22.08
Chloride mg/l	5.17	42	33.00	2.00	4.48
Sulfate mg/l	7.35	41	13.00	4.00	2.13
TDS mg/l	148.66	43	182.00	101.00	18.48
Turbidity NTU	26.24	43	60.00	6.20	13.04

WHI72

WATTENSAW BAYOU NORTH OF HAZEN ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	6.05	41	11.50	2.00	2.58
BOD 5 Day mg/l	1.98	42	4.90	0.80	0.96
pH	6.93	42	7.66	6.26	0.30
TSS mg/l	11.19	41	82.00	2.00	13.02
NO2+NO3-N mg/l	0.13	39	0.43	0.02	0.10
Tot. Phos. mg/l	0.15	40	0.27	0.05	0.05
Tot. Org. C mg/l	10.66	38	21.00	6.60	3.05
T.Hardness mg/l	71.58	31	159.00	15.00	37.84
Chloride mg/l	18.83	41	71.00	4.00	14.43
Sulfate mg/l	9.41	41	26.00	2.00	4.66
TDS mg/l	147.23	42	318.00	77.00	57.51
Turbidity NTU	20.22	43	67.00	2.70	14.91

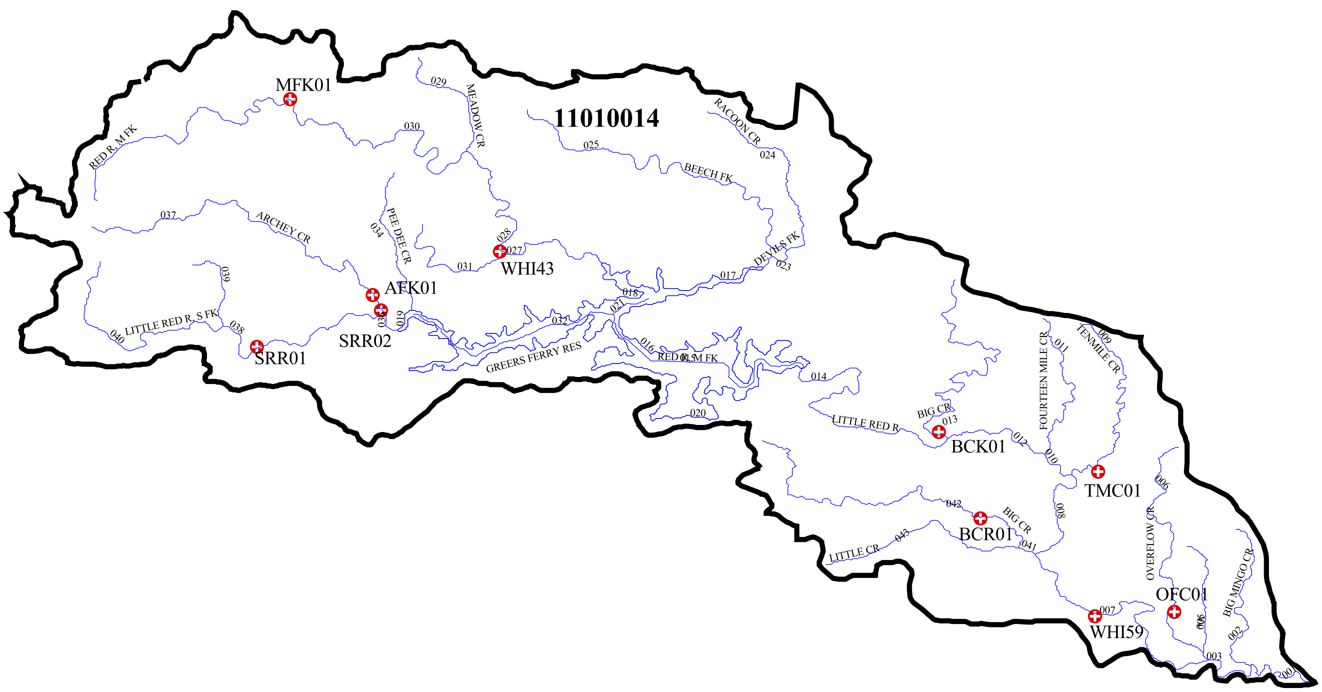
SEGMENT 4E - LITTLE RED RIVER: HEADWATERS TO MOUTH (WHITE RIVER BASIN)

Segment 4E includes portions of Searcy, Van Buren, Stone, Cleburne and White counties. The segment contains the entire 81-mile length of the Little Red River and its major tributaries the Middle, South, and North Forks, Big Creek, Devil's Fork and Archey Creek.

SUMMARY OF WATER QUALITY CONDITIONS IN SEGMENT 4E

The designated uses of waters within this segment include propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supply. Additionally, 158.1 miles, approximately one-third of the stream miles, are designated as outstanding state or national resource waters. Monitoring stations allowed for use support assessment of 213.1 miles. Approximately two miles of the South Fork of the Little Red River at the upper end of Greers Ferry Reservoir was found to have mercury contamination of certain predator fishes and was placed under a fish consumption advisory. All other waters assessed were supporting all designated uses.

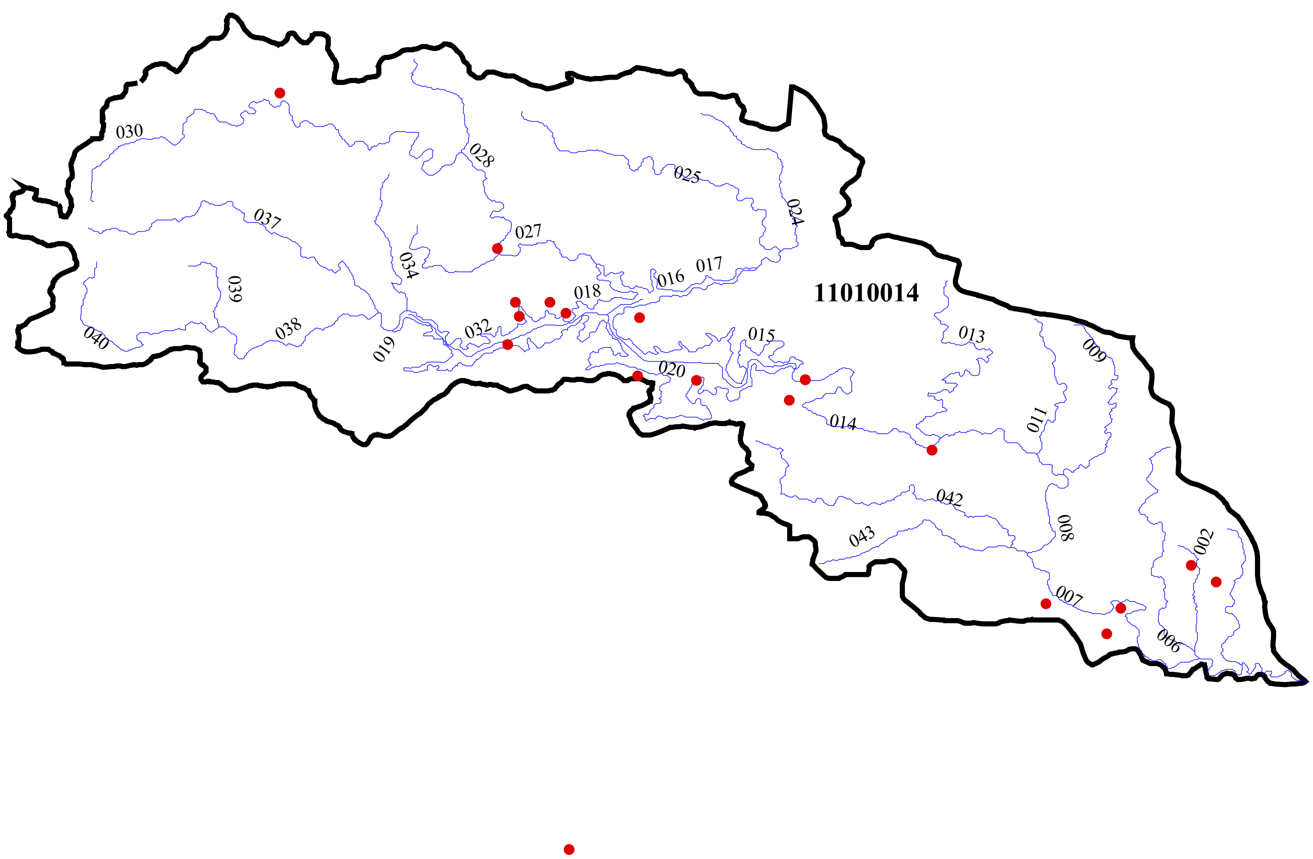
Planning Segment 4E - Monitoring Stations

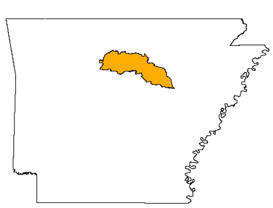


STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC
SEG-4E															
Little Red R.	11010014	-001	7.5		U										
Big Mingo Cr.	11010014	-002	14.4		U										
Little Red R.	11010014	-003	5.4		U										
Overflow Creek	11010014	-004	0.6		E	S	S	S	S	S	S				
Unnamed	11010014	-005	9.5		U										
Overflow Cr.	11010014	-006	21.7	OFC01	M	S	S	S	S	S	S				
Little Red R.	11010014	-007	21.4	WHI59	M	S	S	S	S	S	S				
Little Red R.	11010014	-008	9		E	S	S	S	S	S	S				
Ten Mile Creek	11010014	-009	18.6	TMC01	M	S	S	S	S	S	S				
Little Red R.	11010014	-010	2.9		E	S	S	S	S	S	S				
Fourteen Mile	11010014	-011	13.9		U										
Little Red R.	11010014	-012	8		E	S	S	S	S	S	S				
Big Creek	11010014	-013	26.9	BCK01	M	S	S	S	S	S	S				
Little Red R.	11010014	-014	22		E	S	S	S	S	S	S				
Devils Fork	11010014	-023	2.9		U										
Raccoon Creek	11010014	-024	15.7		U										
Beech Creek	11010014	-025	28.4		U										
Middle Fork	11010014	-027	8.8	WHI43	M	S	S	S	S	S	S				
Middle Fork	11010014	-028	12		E	S	S	S	S	S	S				
Middle Fork	11010014	-030	44.2	MFK01	M	S	S	S	S	S	S				
Meadow Creek	11010014	-029	10.3		U										
Sugar Cane Cr.	11010014	-031	10.8		U										
Pee Dee Creek	11010014	-034	12.9		U										
Archey Creek	11010014	-037	27.3	AFK01	M	S	S	S	S	S	S				
South Fork	11010014	-036	2		M	S	S	S	S	S	S				
South Fork	11010014	-038	14.7	SRR01&2	M	S	S	S	S	S	S				
Opossum Walk	11010014	-039	7		U										
South Fork	11010014	-040	17.7		E	S	S	S	S	S	S				
Big Creek	11010014	-041	1.2		U										
Big Creek	11010014	-042	27.5	BCR01	M	S	S	S	S	S	S				
Little Creek	11010014	-043	15		U										
TOTAL MILES	440.2														
MILES UNASSESSED	154.9														
MILES EVALUATED	72.2														
MILES MONITORED	213.1														

USE	SUPPORT	NOT SUPPORT
FISH CONSUMPTION	285.3	0
AQUATIC LIFE	285.3	0
SWIMMING	285.3	0
SECONDARY CONTACT	285.3	0
DRINKING SUPPLY	285.3	0
AGRI & INDUSTRY	285.3	0

Planning Segment 4E - NPDES Permitted Facilities





(Segment 4E)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021601	SEARCY, CITY OF	LITTLE RED RV/SEG 4E-WHITE RV	11010014	4E
AR0022322	KENSETT, CITY OF	BLACK CK,4E-WHITE RB	11010014	4E
AR0022381	HEBER SPRINGS, CITY OF	TRIB,SULPHUR CK,LTL RED RV	11010014	4E
AR0024066	EDEN ISLE CORP	GREERS FERRY RESERVOIR/L' RED RV/WH	11010014	4E
AR0029181	USDIFWS-GREERS FERRY NATL FISH	LITTLE RED RV	11010014	4E
AR0034401	FAIRFIELD BAY-DAVE CREEK WWTP	DAVE CK,GREERS FERRY LK,4E-WHITE RB	11010014	4E
AR0034428	FAIRFIELD BAY-HIDDEN VALLEY	TRIB,LYNN CK,GREERS FERRY LK,4E-WHI	11010014	4E
AR0034509	USDIFWS-GREERS FERRY NATL FISH	LITTLE RED RV	11010014	4E
AR0034657	LESLIE, CITY OF	COVE CK	11010014	4E
AR0035742	JUDSONIA, CITY OF	LITTLE RED RV/SEG. 4E-WHITE RV BAS.	11010014	4E
AR0035807	BALD KNOB, CITY OF	BIG MINGO CK,LITTLE RED RV,4E-WHITE	11010014	4E
AR0037303	FAIRFIELD BAY-HAMILTON HILLS	TRIB,LYNN CK,GREERS FERRY LK,4E-WHI	11010014	4E
AR0039233	PANGBURN, CITY OF	LITTLE RED RV/SEG 4E-WHITE RV BASIN	11010014	4E
AR0042714	ARKANSAS GENERAL INDUSTRIES	DIT,GUM CK,LTL RED RV,WHITE RV	11010014	4E
AR0042919	SHIRLEY CAR WASH AND LAUNDRY	DIT,LT RED RV, 4E-WHITE RB	11010014	4E
AR0043460	FAIRFIELD BAY-HOOTEN HOLLOW	HOOTEN HOLLOW/GREERS FERRY RES/WHIT	11010014	4E
AR0043940	WEST SIDE SCHOOL DIST #4	TRIB/GREERS FERRY RES./4E-WHITE RB	11010014	4E
AR0044580	FAIRFIELD BAY-LYNN CREEK WWTP	LYNN CK, GREERS FERRY LK	11010014	4E
AR0044920	DIAMOND BLUFF ESTATES	E WILDCAT HOLLOW/GREERS FERRY/WHITE	11010014	4E
AR0046078	FAIRFIELD BAY-GRAND ISLE	HOOTEN HOLLOW CK,GREERS FERRY LK	11010014	4E

WHI59

LITTLE RED RIVER BELOW SEARCY ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.11	29	12.00	3.80	1.68
BOD 5 Day mg/l	0.74	40	1.60	0.10	0.39
pH	6.79	37	7.74	6.03	0.38
TSS mg/l	14.41	38	129.00	1.00	24.69
NO2+NO3-N mg/l	0.21	43	0.67	0.03	0.13
Tot. Phos. mg/l	0.06	31	0.20	0.02	0.03
Tot. Org. C mg/l	3.46	42	6.80	1.70	1.04
T.Hardness mg/l	16.50	30	21.00	12.00	2.10
Chloride mg/l	2.84	39	5.00	2.00	0.77
Sulfate mg/l	5.53	39	15.00	1.00	2.28
TDS mg/l	39.42	42	171.00	25.00	21.60
Turbidity NTU	12.85	42	64.00	3.30	14.01

WHI43

MIDDLE FORK LITTLE RED NR SHIRLEY, ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.10	32	12.20	5.60	1.65
BOD 5 Day mg/l	0.92	41	2.10	0.02	0.59
pH	6.97	39	9.06	5.90	0.56
TSS mg/l	8.13	38	87.00	1.00	16.67
NO2+NO3-N mg/l	0.10	27	0.30	0.02	0.07
Tot. Phos. mg/l	0.06	35	0.20	0.02	0.03
Tot. Org. C mg/l	3.83	43	17.20	1.50	2.57
T.Hardness mg/l	37.22	30	46.00	22.00	6.31
Chloride mg/l	2.66	39	7.00	2.00	0.88
Sulfate mg/l	8.21	39	16.00	3.00	2.77
TDS mg/l	55.44	43	76.00	39.00	9.42
Turbidity NTU	10.91	42	70.00	1.70	14.12

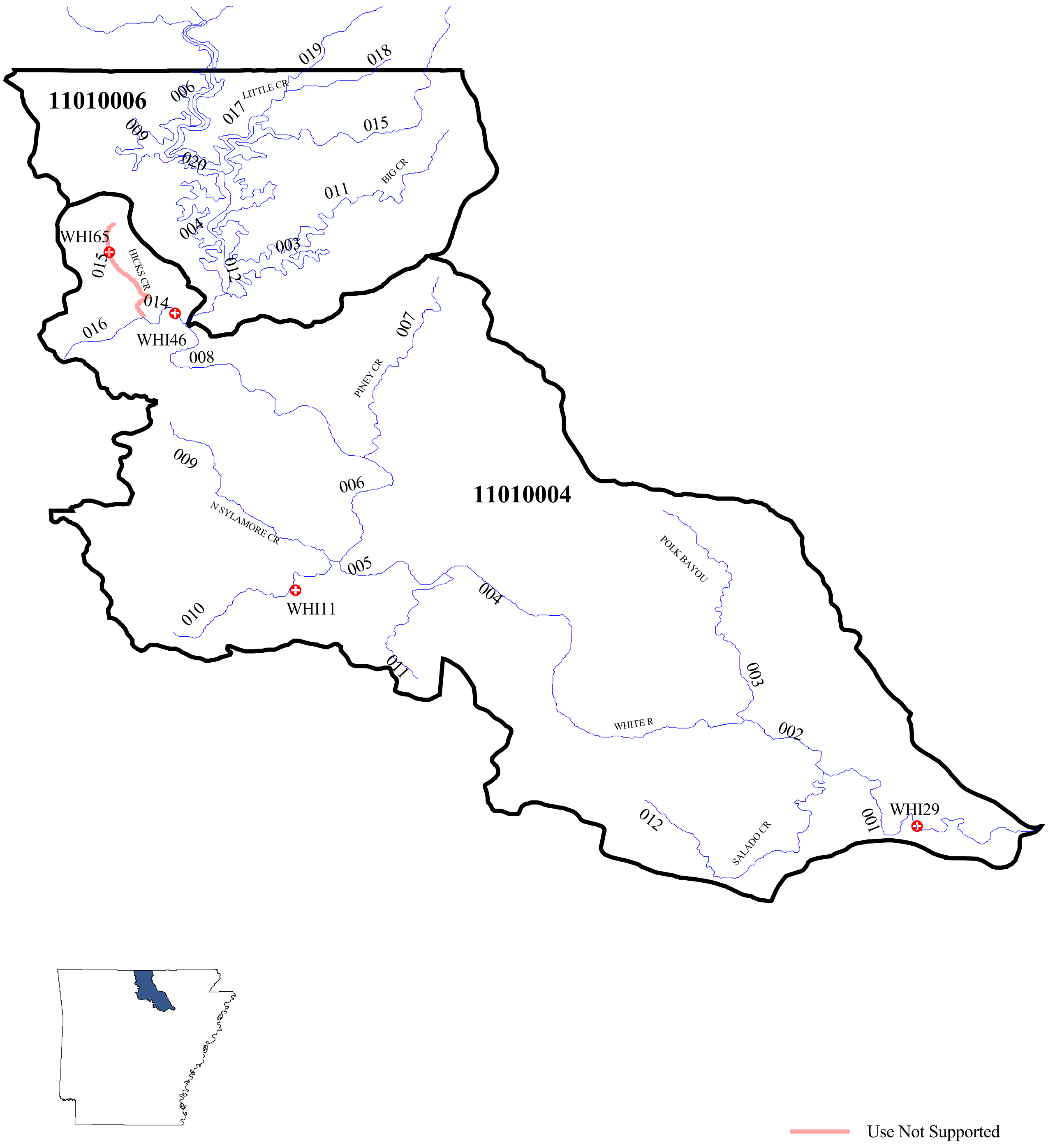
SEGMENT 4F - WHITE RIVER FROM MOUTH OF BLACK RIVER TO MOUTH OF BUFFALO RIVER (WHITE RIVER BASIN)

Segment 4F includes Baxter, Fulton, Izard, Stone, Independence and Sharp counties. The segment encompasses a 125-mile reach of the White River and its major tributaries - Polk Bayou, Sylamore Creek, Salado Creek, Hicks Creek, Norfork River and Bennett's River.

SUMMARY OF WATER QUALITY CONDITIONS IN SEGMENT 4F

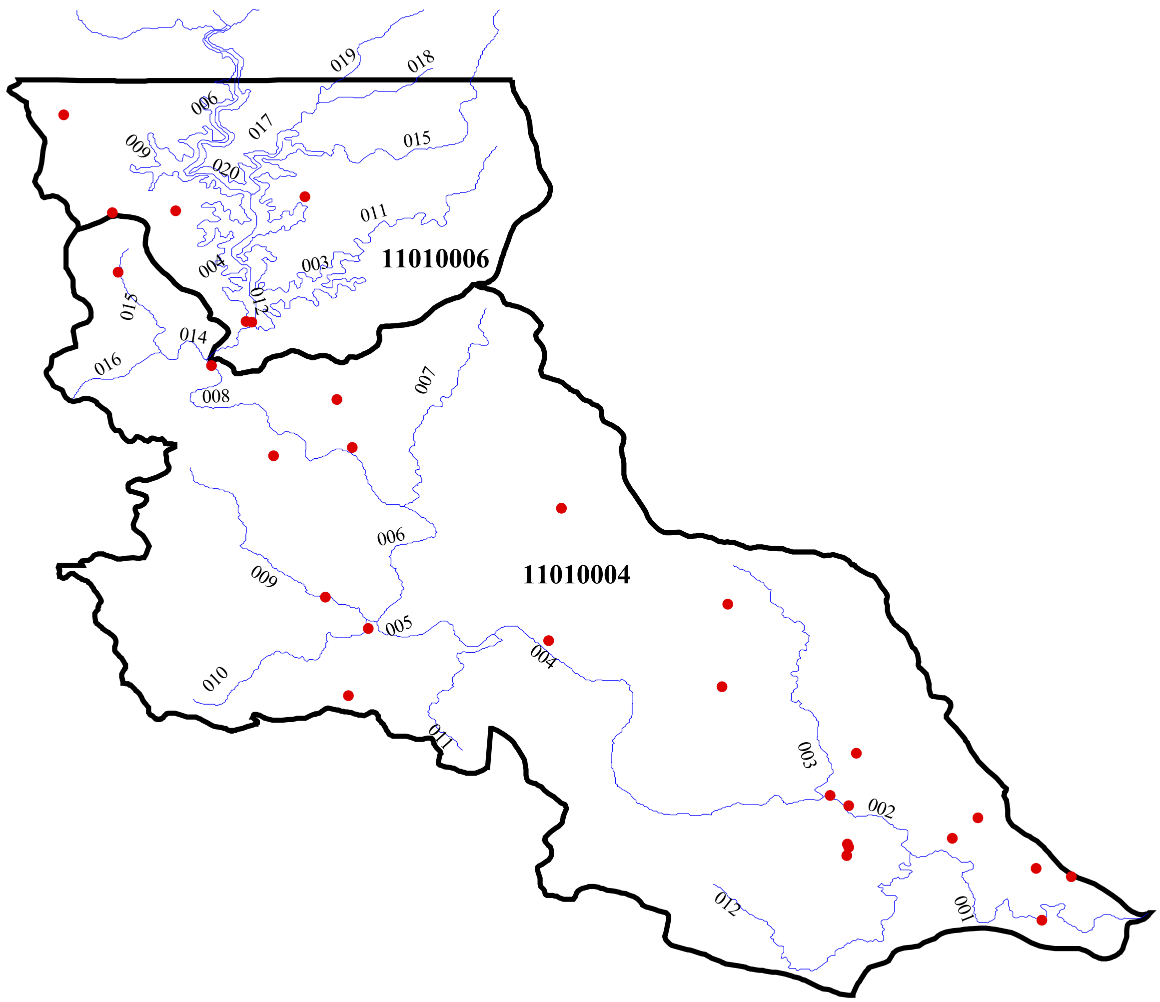
Waters within this segment have been designated for fish and wildlife propagation, primary and secondary contact recreation, domestic, agricultural and industrial water supply uses. Outstanding state or national resource waters make up 19.1 miles within the segment. Use support assessments were made on 173.1 miles of streams. The 9.1 miles of Hicks Creek did not meet the drinking water use due to high nitrates. The source of the contaminant is a municipal point source discharge. All other waters assessed in this segment were found to be supporting all designated uses.

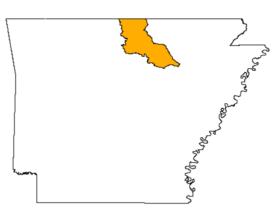
Planning Segment 4F - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4F																		
White River	11010004	-001	26.7	WHI29	M	S	S	S	S	S	S					FISH CONSUMPTION	173.1	0
White River	11010004	-002	8.2		E	S	S	S	S	S	S					AQUATIC LIFE	173.1	0
Polk Bayou	11010004	-003	23.4		U											SWIMMING	173.1	0
White River	11010004	-004	32.6		E	S	S	S	S	S	S					SECONDARY CONTACT	173.1	0
White River	11010004	-005	9.6		E	S	S	S	S	S	S					DRINKING SUPPLY	164.0	9.1
White River	11010004	-006	12.5		E	S	S	S	S	S	S					AGRI & INDUSTRY	173.1	0
White River	11010004	-008	23.6		E	S	S	S	S	S	S							
Piney Creek	11010004	-007	19.7		U													
North Sylamore	11010004	-009	18.4		E	S	S	S	S	S	S							
South Sylamore	11010004	-010	16	WHI11	M	S	S	S	S	S	S							
Rocky Bayou	11010004	-011	13.5		U													
Salado Creek	11010004	-012	27.4		U													
North Sylamore	11010004	-013	0.7		E	S	S	S	S	S	S							
White River	11010004	-014	4.7	WHI46	M	S	S	S	S	S	S							
Hicks Creek	11010004	-015	9.1	WHI65	M	S	S	S	S	N	S	MP		NU				
White River	11010004	-016	6.8		E	S	S	S	S	S	S							
Norfork River	11010006	-001	4.2		E	S	S	S	S	S	S							
Big Creek	11010006	-011	18.4		U													
Bennetts River	11010006	-015	15.3		U													
Bennetts River	11010006	-017	3		U													
Bennetts River	11010006	-019	12.7		U													
Little Creek	11010006	-018	7.8		U													
TOTAL MILES	314.3																	
MILES UNASSESSED	141.2																	
MILES EVALUATED	116.6																	
MILES MONITORED	56.5																	

Planning Segment 4F - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0001589	GALLOWAY SAND & GRAVEL	WHITE RV	11010004	4F
AR0001783	BAXTER HEALTHCARE CORP-WALKER	WALKER CK TRIB,PIGEON CK,NORFORK LK	11010006	4F
AR0001899	UNIMIN CORP-GUION PLANT	ROCKY BAYOU (1) & BACKWATER SLU (2)	11010004	4F
AR0002437	USDIBSFW-NORFORK NATL FISH HAT	DRY RUN CK,N FORK RV,WHITE RV,4F	11010006	4F
AR0020036	MELBOURNE, CITY OF	MILL CK,PINEY CK,4F-WHITE RB	11010004	4F
AR0020117	MOUNTAIN VIEW, CITY OF	HUGHES CK/SYLAMORE CK/4F-WHITE RB	11010004	4F
AR0020664	USDAFS-BLANCHARD SPRINGS	N SYLAMORE CK,S SYLAMORE CK,WHITE R	11010004	4F
AR0020702	BATESVILLE, CITY OF	WHITE RV	11010004	4F
AR0021211	MOUNTAIN HOME, CITY OF	HICKS CK,BIG CK,WHITE RV,4F-WHITE	11010004	4F
AR0021229	NEWARK, CITY OF	TRIB,MUD CK,4F-WHITE RB	11010004	4F
AR0034517	USDIBSFW-NORFORK NATL FISH HAT	DRY CK/TRIB-NO. FORK/4F-WHITE RB	11010006	4F
AR0034606	CALICO ROCK, CITY OF	WHITE RV,4F-WHITE RB	11010004	4F
AR0035386	EASTMAN CHEMICAL CO	DIT,WHITE RV	11010004	4F
AR0036081	HOLIDAY MOUNTAIN RESORT	SYLAMORE CK,4F-WHITE RB	11010004	4F
AR0037451	ENTERGY AR, INC-INDEPENDENCE	WHITE RV,4F-WHITE RB	11010004	4F
AR0042226	ROLLING MEADOWS MOBILE HOME ES	PANTHER CK TRIB	11010004	4F
AR0043036	NORFORK, CITY OF	TOWN CK/WHITE RV/SEG. 4F-WHITE RB	11010004	4F
AR0044016	AR DEPT OF CORRECTION-IZARD CO	TRIB-MOCCASIN CK/SEG 4F-WHITE RV BS	11010004	4F
AR0044113	CALVARY BIBLE SCHOOL	MILL CK/WHITE RV/SEG 4F-WHITE RB	11010004	4F
AR0045357	MOUNT PLEASANT HOUSING AUTH	BARREN FORK CK,POLK BU,4F-WHITE RB	11010004	4F
AR0046680	SULPHUR ROCK, CITY OF	BIG CK	11010004	4F
AR0046779	SOUTHSIDE SCHOOL DIST #3	SCH PROPERTY,E BR/DOUBLE CK,CANEY C	11010004	4F
AR0047031	CUSHMAN HOUSING AUTH	TRIB/SPRING CK/SEG 4F-WHITE RV BAS	11010004	4F
AR0047406	MIDWEST LIME CO	DITCH/MILLER CK/POKE BU/WHITE RV/AR	11010004	4F
AR0047597	OIL TROUGH, CITY OF	WHITE RIVER/SEG. 4F-WHITE RIVER BAS	11010004	4F
AR0047970	ROLLING HILLS NURSING CTR	DIT,DOUBLE BR,CANEY CK,SALADO CK,WH	11010004	4F
AR0048631	RLH LANDFILL #3	HUTCH CK TRIB,PIGEON CK,LK NORFORK	11010006	4F
AR0048798	WASHDAY LAUNDROMAT & CAR WASH	LK NORFORK TRIB	11010006	4F
AR0048992	AR HWY DEPT-DISTRICT 5 HQ	DOUBLE BR, CANEY CK, SALADO CK	11010006	4F

WHI65
HICKS CREEK BELOW MOUNTAIN HOME ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	10.79	41	15.30	7.20	2.07
BOD 5 Day mg/l	1.18	43	4.90	0.30	0.90
pH	8.11	39	8.89	7.28	0.37
TSS mg/l	3.99	36	23.00	1.00	4.11
NO2+NO3-N mg/l	5.73	42	15.70	0.17	4.00
Tot. Phos. mg/l	1.20	41	2.82	0.20	0.77
Tot. Org. C mg/l	4.78	43	10.00	2.00	1.64
T.Hardness mg/l	221.14	31	271.00	152.00	28.60
Chloride mg/l	42.59	40	102.00	16.00	22.14
Sulfate mg/l	19.67	41	25.00	15.00	2.78
TDS mg/l	329.37	43	444.00	221.00	50.09
Turbidity NTU	3.83	44	22.00	1.00	4.02

WHI11
SOUTH SYLAMORE CREEK NEAR MOUNTAIN VIEW

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.91	27	13.30	6.70	1.86
BOD 5 Day mg/l	0.46	38	1.10	0.10	0.27
pH	7.49	36	8.37	6.36	0.46
TSS mg/l	3.17	29	15.00	1.00	3.87
NO2+NO3-N mg/l	0.56	40	1.10	0.04	0.23
Tot. Phos. mg/l	0.06	33	0.12	0.03	0.02
Tot. Org. C mg/l	2.51	40	6.00	1.20	1.04
T.Hardness mg/l	134.07	28	152.00	107.00	12.50
Chloride mg/l	4.64	39	7.00	3.00	1.00
Sulfate mg/l	10.89	37	17.00	5.00	2.70
TDS mg/l	156.75	40	183.00	33.00	23.75
Turbidity NTU	4.35	40	25.00	0.90	5.69

WHI29
WHITE RIVER @ OIL TROUGH, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.96	33	12.30	7.30	1.29
BOD 5 Day mg/l	1.95	42	50.00	0.05	7.60
pH	7.65	40	8.38	6.44	0.38
TSS mg/l	13.60	43	137.00	1.00	23.89
NO2+NO3-N mg/l	0.28	44	0.46	0.09	0.09
Tot. Phos. mg/l	0.06	30	0.14	0.03	0.03
Tot. Org. C mg/l	3.26	44	5.60	2.20	0.80
T.Hardness mg/l	144.85	31	174.00	103.00	14.81
Chloride mg/l	4.52	42	7.00	3.00	0.91
Sulfate mg/l	7.42	40	11.00	2.00	1.80
TDS mg/l	157.23	44	184.00	119.00	13.08
Turbidity NTU	7.62	44	43.00	1.90	9.39

WHI46
WHITE RIVER NR NORFORK, ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	10.34	41	14.80	7.60	1.51
BOD 5 Day mg/l	0.59	44	1.60	0.20	0.28
pH	7.92	40	8.73	7.11	0.39
TSS mg/l	2.81	31	12.00	1.00	2.55
NO2+NO3-N mg/l	0.28	43	0.50	0.08	0.11
Tot. Phos. mg/l	0.04	21	0.09	0.02	0.02
Tot. Org. C mg/l	2.98	44	5.40	1.60	0.79
T.Hardness mg/l	129.20	30	144.00	98.00	11.49
Chloride mg/l	4.33	41	6.00	2.00	0.99
Sulfate mg/l	7.14	42	11.00	3.00	1.64
TDS mg/l	143.48	44	169.00	107.00	12.41
Turbidity NTU	2.69	44	18.00	0.60	3.44

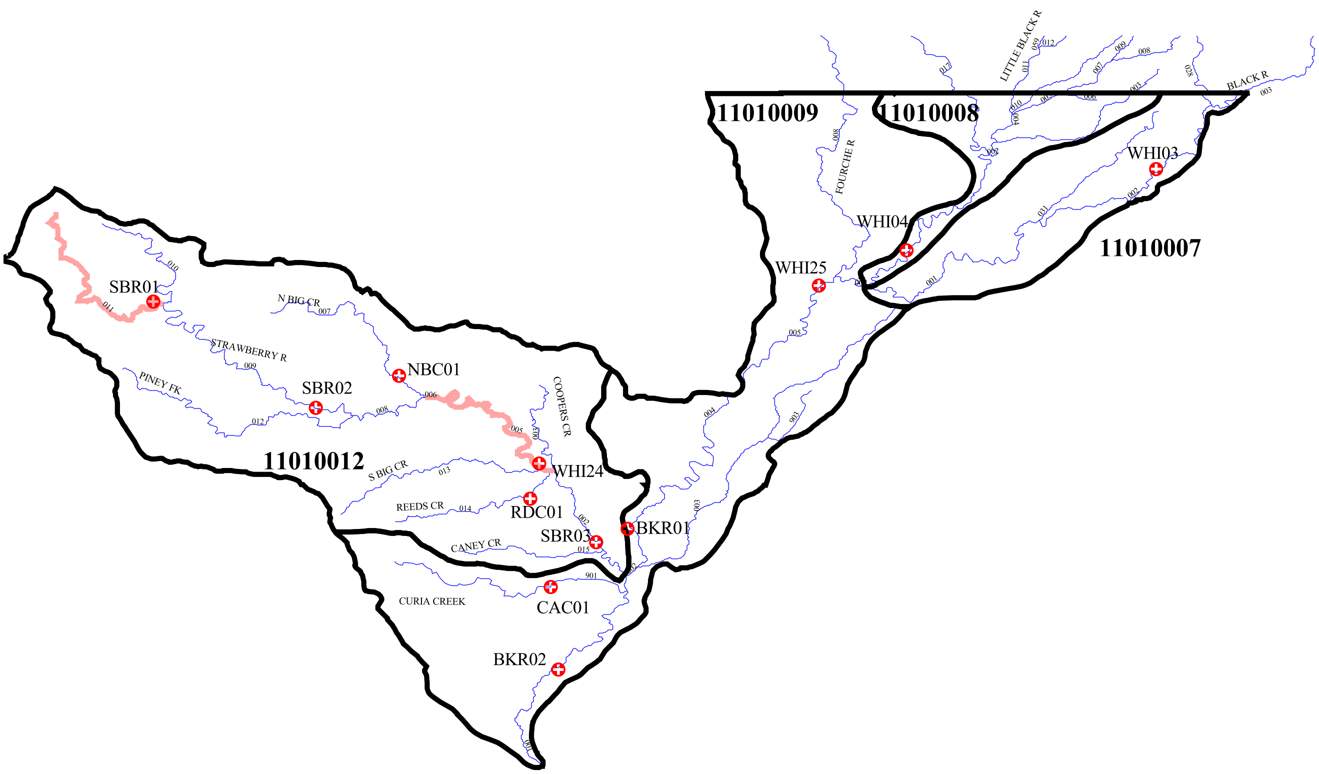
SEGMENT 4G - BLACK RIVER, STRAWBERRY RIVER AND TRIBUTARIES (WHITE RIVER BASIN)

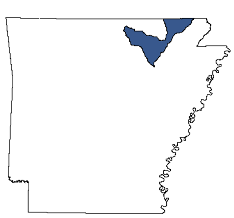
Segment 4G includes portions of Izard, Sharp, Independence, Lawrence, Randolph and Clay counties in the northeast corner of the state. This segment encompasses a 121-mile reach of the Black River to the Missouri state line, and its major tributaries - the Strawberry River and Current River.

SUMMARY OF WATER QUALITY CONDITIONS

Fish and wildlife propagation, primary and secondary contact recreation, domestic, agricultural and industrial water supplies are the designated uses for all waters within this segment. Also, 112.2 miles of these streams are designated as outstanding state or national resource waters. The water quality monitoring stations allowed for the monitored assessment of 248 miles of streams in the segment and the evaluation of 42.8 miles. Almost 40 miles of extraordinary resource waters in this segment were assessed as not supporting aquatic life uses due to excessive turbidity levels. Trend data from the monitoring station on the Strawberry River demonstrates these excessive turbidity levels occurring routinely over the last five to ten years. Concurrently, the total suspended solids and the total phosphorus levels show peaking values much above normal. This is most likely from agriculture activities probably associated with pasturing and animal grazing to the edge of the stream bank.

Planning Segment 4G - Monitoring Stations

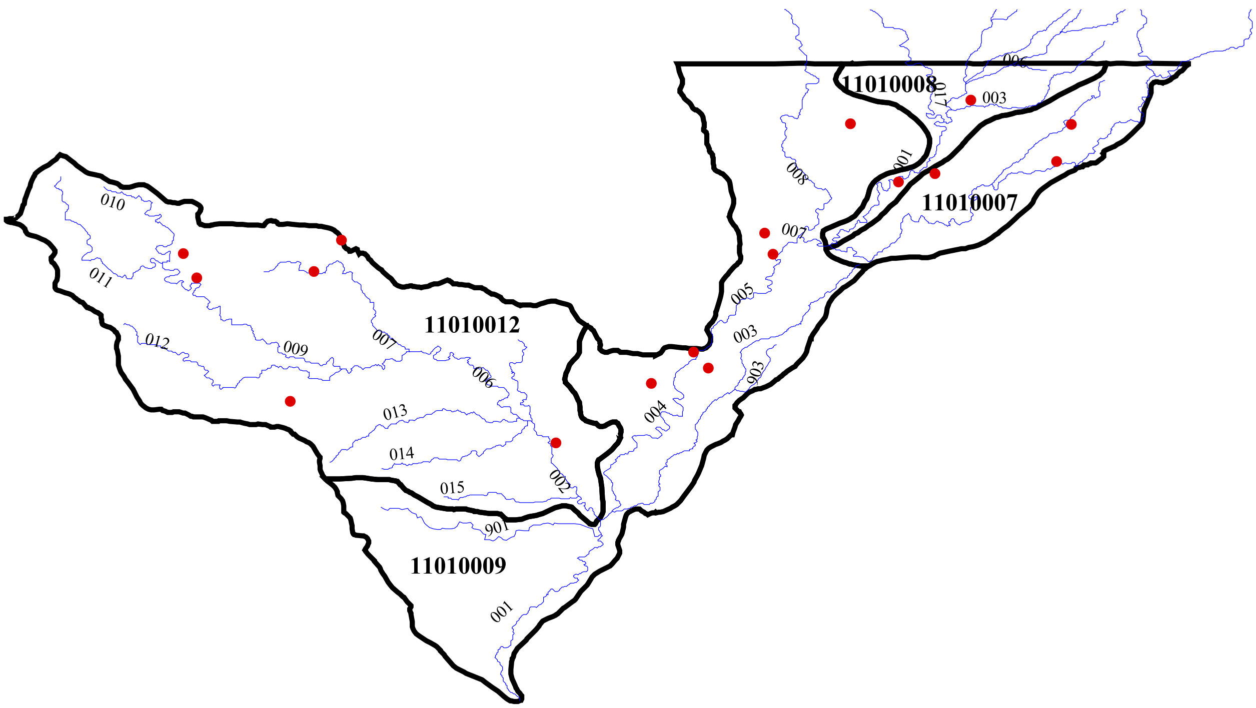


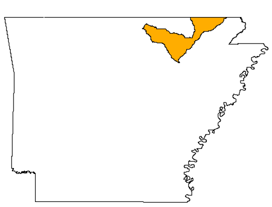


Use Not Supported

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4G																		
Black River	11010007	-001	24.2		E	S	S	S	S	S	S					FISH CONSUMPTION	290.8	0
Black River	11010007	-002	22.7	WHI03	M	S	S	S	S	S	S					AQUATIC LIFE	250.4	40.4
Murray Creek	11010007	-031	15.2		U											SWIMMING	270.4	20.4
Current River	11010008	-001	23.6	WHI04	M	S	S	S	S	S	S					SECONDARY CONTACT	290.8	0
Current River	11010008	-017	12		E	S	S	S	S	S	S					DRINKING SUPPLY	290.8	0
Little Black	11010008	-002	2.5		U											AGRI & INDUSTRY	290.8	0
Byrnes Ditch	11010008	-003	16.2		U													
Little Black	11010008	-004	3.7		U													
Indian Creek	11010008	-005	4.1		U													
Black River	11010009	-001	25.8	BKR02	M	S	S	S	S	S	S							
Black River	11010009	-002	1.2		E	S	S	S	S	S	S							
Black River	11010009	-004	27.4	BKR01	M	S	S	S	S	S	S							
Black River	11010009	-005	17.5	WHI25	M	S	S	S	S	S	S							
Black River	11010009	-007	3.8		U													
Big Running C.	11010009	-003	36		U													
Fourche River	11010009	-008	25		U													
Strawberry R.	11010012	-001	4.4		E	S	S	S	S	S	S							
Strawberry R.	11010012	-002	9.4	SBR03	M	S	S	S	S	S	S							
Coopers Creek	11010012	-003	11.8		U													
Strawberry R.	11010012	-004	0.3		E	S	N	S	S	S	S	AG		SI				
Strawberry R.	11010012	-005	0.7		E	S	N	S	S	S	S	AG		SI				
Strawberry R.	11010012	-006	19	WHI24	M	S	N	S	S	S	S	AG		SI				
N. Big Creek	11010012	-007	20.8	NBC01	M	S	S	S	S	S	S							
Strawberry R.	11010012	-008	8.4		U													
Strawberry R.	11010012	-009	28.4	SBR02	M	S	S	S	S	S	S							
L.Strawberry	11010012	-010	16		U													
Strawberry R.	11010012	-011	20.4	SBR01	M	S	N	N	S	S	S	AG		SI	PA			
Piney Fork	11010012	-012	26.1		U													
S. Big Creek	11010012	-013	19.3		U													
Reeds Creek	11010012	-014	15	RDC01	M	S	S	S	S	S	S							
Caney Creek	11010012	-015	11.6		U													
Curia Creek	11010009	-901	18	CAC01	M	S	S	S	S	S	S							
TOTAL MILES	490.5																	
MILES UNASSESSED	199.7																	
MILES EVALUATED	42.8																	
MILES MONITORED	248																	

Planning Segment 4G - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0022110	CAVE CITY, CITY OF	CURIA CK/BLACK RV/SEG 4G-WHITE RB	11010009	4G
AR0022209	REYNO, CITY OF	MURRAY CK DITCH/BLACK RV/WHITE RB	11010007	4G
AR0033979	CORNING, CITY OF	BLACK RV	11010007	4G
AR0034835	POCAHONTAS, CITY OF	BLACK RV/SEG. 4G-WHITE RIVER BASIN	11010009	4G
AR0035254	HORSESHOE BEND, CITY OF-WHITE	LT STRAWBERRY RV TRIB,STRAWBERRY RV	11010012	4G
AR0036820	MACLEAN-ESNA	MANSKER CK TRIB,BLACK RV	11010009	4G
AR0037508	BLACK ROCK, CITY WATER & SEWER	TRIB/BLACK RV/WHITE RV/4G-WHITE RB	11010009	4G
AR0038199	AR PARKS & TOURISM-LK CHARLES	LAKE CHARLES/SEG 4G-WHITE RIVER BAS	11010009	4G
AR0038326	ALLEGHENY WASTEWATER ASSN	TRIB,WORTHINGTON CK,...,BLACK RV	11010012	4G
AR0039608	HORSESHOE BEND, CITY OF-PARADI	HUBBLE BR,LTL STRAWBERRY RV	11010012	4G
AR0040355	PORTIA, CITY OF	BLACK RV,4G-WHITE RB	11010009	4G
AR0040533	FIRST NATIONWIDE RESORT MGT	DEER RUN LK, MILL CK, PINEY FRK	11010012	4G
AR0041742	ASH FLAT, CITY OF	TRIB,N BIG CK,STRAWBERRY RV,BLACK R	11010012	4G
AR0042072	BIGGERS, CITY OF	CURRENT RV, BLACK RV	11010008	4G
AR0043834	MAYNARD, CITY OF	LEMMONS-BIG CKS/FOURCHE-BLACK/WHITE	11010009	4G
AR0047911	J.W. BLACK LUMBER CO	TRIB,CORNING LK,4G-WHITE RB	11010007	4G
AR0048071	SUCCESS, TOWN OF	TRIB,L.BLACK RV,CURRENT RV,BLACK RV	11010008	4G
AR0048488	WESTERN LAWRENCE CO WWT DIST	STRAWBERRY RV TRIB	11010012	4G

WHI03
BLACK RIVER NR CORNING, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.57	29	14.90	5.10	2.40
BOD 5 Day mg/l	1.08	43	3.70	0.40	0.64
pH	7.60	41	9.46	6.14	0.64
TSS mg/l	24.69	39	168.00	3.00	30.70
NO2+NO3-N mg/l	0.22	42	0.54	0.04	0.13
Tot. Phos. mg/l	0.09	43	0.29	0.03	0.05
Tot. Org. C mg/l	3.48	43	7.50	1.40	1.56
T.Hardness mg/l	118.74	32	206.00	32.00	34.51
Chloride mg/l	3.73	40	7.00	2.00	1.17
Sulfate mg/l	9.51	42	15.00	6.00	2.02
TDS mg/l	134.36	43	171.00	91.00	22.64
Turbidity NTU	30.23	42	190.00	4.60	35.02

WHI25
BLACK RIVER @ POCAHONTAS, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.75	29	15.90	4.90	2.37
BOD 5 Day mg/l	0.77	44	2.20	0.10	0.37
pH	7.74	41	9.70	6.53	0.55
TSS mg/l	16.81	39	66.00	3.00	12.04
NO2+NO3-N mg/l	0.23	43	0.56	0.10	0.10
Tot. Phos. mg/l	0.07	41	0.27	0.03	0.04
Tot. Org. C mg/l	3.23	43	7.00	1.00	1.32
T.Hardness mg/l	143.65	32	179.00	76.00	28.91
Chloride mg/l	3.25	40	5.00	2.00	0.67
Sulfate mg/l	6.13	42	10.00	4.00	1.38
TDS mg/l	153.48	43	195.00	109.00	22.92
Turbidity NTU	18.86	42	76.00	3.50	17.20

WHI04

CURRENT RIVER NR POCAHONTAS, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.08	29	15.00	5.60	2.32
BOD 5 Day mg/l	0.61	43	2.20	0.10	0.41
pH	7.81	41	9.65	6.72	0.50
TSS mg/l	11.30	38	81.00	1.00	15.11
NO2+NO3-N mg/l	0.28	43	0.59	0.10	0.11
Tot. Phos. mg/l	0.06	30	0.17	0.03	0.03
Tot. Org. C mg/l	2.33	42	6.20	1.00	1.18
T.Hardness mg/l	160.03	32	252.00	83.00	29.73
Chloride mg/l	2.93	40	5.00	2.00	0.64
Sulfate mg/l	5.10	42	8.00	3.00	1.45
TDS mg/l	159.41	43	189.00	103.00	21.02
Turbidity NTU	10.65	42	58.00	1.30	14.06

WHI24

STRAWBERRY RIVER NR SMITHVILLE, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.96	34	12.20	6.10	1.65
BOD 5 Day mg/l	0.97	42	5.50	0.20	0.98
pH	7.72	40	8.28	6.65	0.34
TSS mg/l	26.88	42	240.00	1.00	47.39
NO2+NO3-N mg/l	0.15	40	0.55	0.01	0.11
Tot. Phos. mg/l	0.08	24	0.34	0.02	0.07
Tot. Org. C mg/l	3.53	44	13.60	1.50	2.32
T.Hardness mg/l	193.80	31	239.00	90.00	36.76
Chloride mg/l	3.07	41	4.00	2.00	0.47
Sulfate mg/l	6.59	39	12.00	1.00	2.15
TDS mg/l	199.31	44	246.00	138.00	24.08
Turbidity NTU	16.94	44	230.00	1.40	36.87

SEGMENT 4H - SPRING RIVER, SOUTH FORK SPRING RIVER, AND ELEVEN POINT RIVER (WHITE RIVER BASIN)

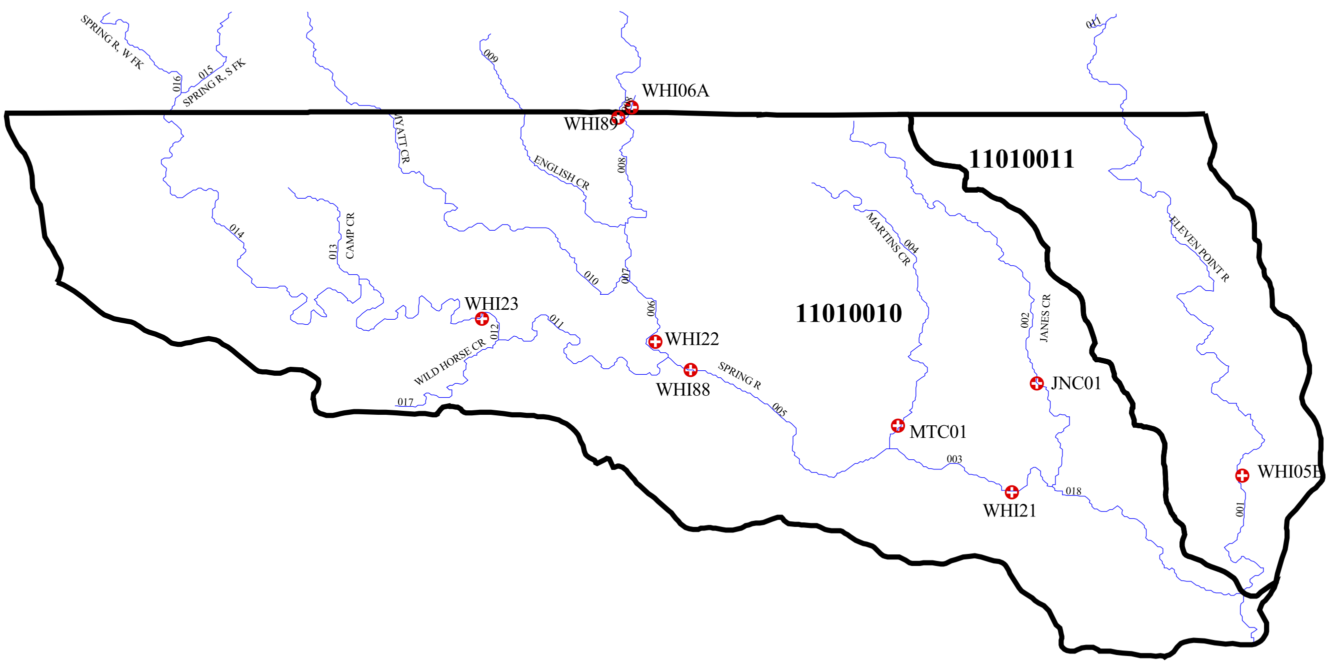
Segment 4H, in north central Arkansas, includes portions of Fulton, Sharp and Randolph counties. The segment encompasses the entire 46-mile length of the Spring River and its major tributaries, the South Fork Spring River, the Eleven Point River, Myatt Creek and Martin's Creek.

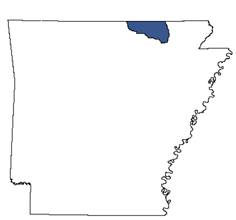
SUMMARY OF WATER QUALITY CONDITIONS

Designated uses for all waters within this segment include propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supplies. Additionally, about 74 percent of these waters are designated as outstanding state or national resource waters. Approximately 134.2 miles of the waters were assessed from nine monitoring stations, and 16 miles were evaluated. All waters in this segment were meeting designated uses. The lower reaches of the Spring River occasionally show high turbidity levels. These levels seem to be associated with major storm events and are likely caused by land clearing to the edge of the stream. However, the long-term trend data for the lower Spring River station do not show significant upward trends in turbidity and TSS. The South Fork of the Spring River, which in the past has contributed high bacteria and excessive turbidity to the Spring River, did not demonstrate these excessive values over the past four years. Janes Creek water quality appears to be near pristine levels.

Figure A-4H-1 demonstrates the distribution of nutrients in the Spring River. Highest nitrate values occur in Mammoth Spring and decline in a downstream direction with lowest values in South Fork of Spring River. In contrast, total phosphorus values are highest in the lower sections of Spring River. Although all phosphorus values are low, the higher concentrations are associated with the highest inputs of suspended silt particles.

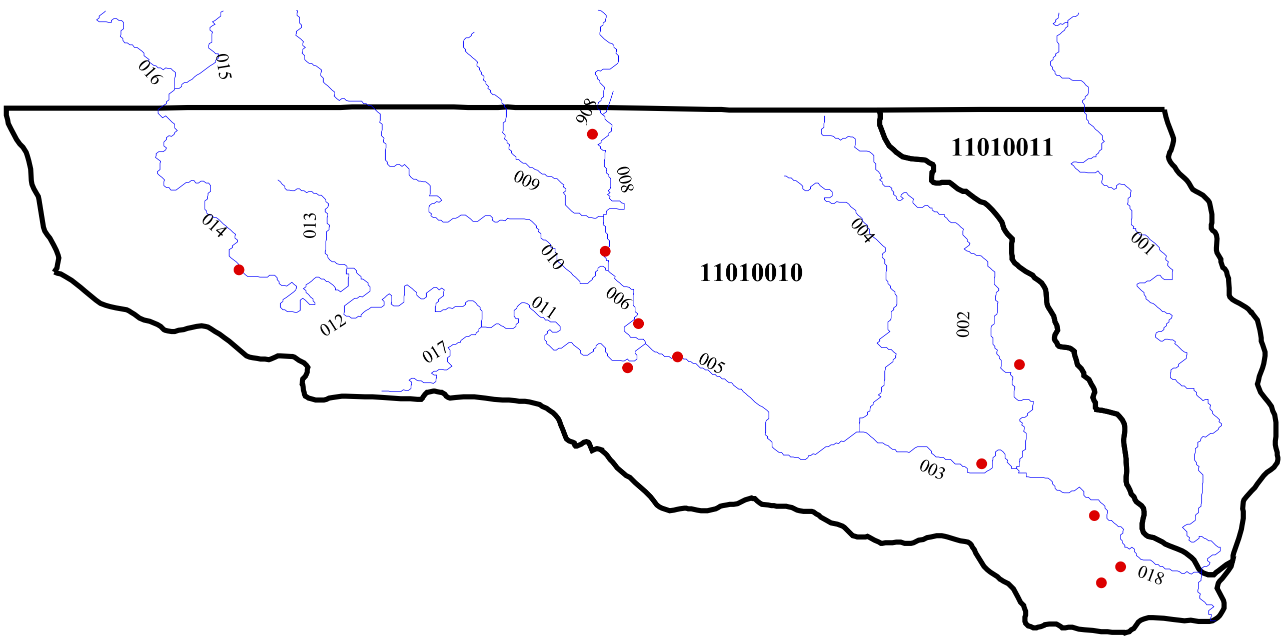
Planning Segment 4H - Monitoring Stations

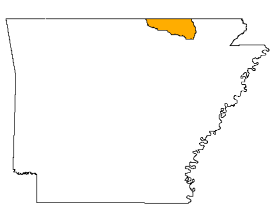




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4H																		
Spring River	11010010	-001	3.3		U											FISH CONSUMPTION	150.2	0
Janes Creek	11010010	-002	26.7	JNC01	M	S	S	S	S	S	S					AQUATIC LIFE	150.2	0
Spring River	11010010	-003	9.4	WHI21	M	S	S	S	S	S	S					SWIMMING	150.2	0
Martins Creek	11010010	-004	19	MTC01	M	S	S	S	S	S	S					SECONDARY CONTACT	150.2	0
Spring River	11010010	-005	13.2	WHI88	M	S	S	S	S	S	S					DRINKING SUPPLY	150.2	0
Spring River	11010010	-006	5.3	WHI22	M	S	S	S	S	S	S					AGRI & INDUSTRY	150.2	0
Spring River	11010010	-007	4		E	S	S	S	S	S	S							
Warm Fork Spring R.	11010010	-008t	3.1	WHI06A	M	S	S	S	S	S	S							
Spring River	11010010	-008	8.8	WHI89	M	S	S	S	S	S	S							
English Creek	11010010	-009	6.5		U													
Myatt Creek	11010010	-010	26		U													
S. Fork Spring	11010010	-011	13.4		U													
S. Fork Spring	11010010	-012	15.6	WHI23	M	S	S	S	S	S	S							
S. Fork Spring	11010010	-014	24		U													
Camp Creek	11010010	-013	7		U													
Wild Horse C.	11010010	-017	7.7		U													
Spring River	11010010	-018	12		E	S	S	S	S	S	S							
Eleven Point	11010011	-001	33.1	WHI05B	M	S	S	S	S	S	S							
TOTAL MILES	238.1																	
MILES UNASSESSED	87.9																	
MILES EVALUATED	16																	
MILES MONITORED	134.2																	

Planning Segment 4H - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0002879	AR GAME & FISH COMM-SPRING RV	SPRING RV,4H-WHITE RB	11010010	4H
AR0021628	IMBODEN, TOWN OF	WAYLAND CK/SPRING RV/BLACK RV/WHITE	11010010	4H
AR0023850	MAMMOTH SPRING, CITY OF	SPRING RV TRIB,SPRING RV	11010010	4H
AR0034282	CHEROKEE VILLAGE SEWER INC	SOUTH FORK/SPRING RV/4H-WHITE RV BA	11010010	4H
AR0034789	SALEM, CITY OF	SOUTH FORK/SPRING RV/SEG 4H-WHITE R	11010010	4H
AR0037991	HARDY, CITY OF	SPRING RV,BLACK RV	11010010	4H
AR0040312	HIGHLAND SQUARE COIN OPERATED	TRIB/LK MIRANDY/SEG 4H-WHITE RV BAS	11010010	4H
AR0041254	RAVENDEN, CITY OF	TRIB/SPRING RV/BLACK RV/WHITE RB	11010010	4H
AR0046922	VULCAN CONSTR MATERIALS-BLACK	HWY 63 DIT, BRUSHY CK,. . . , BLACK RV	11010010	4H
AR0047198	MAC ACQUISITIONS,L.P.	STENNITT CREEK/SEG 4G-WHITE RV BASN	11010010	4H
AR0048712	RAVENDEN SPRINGS, TOWN OF	JOHNS CK TRIB, JANES CK, SPRING RV	11010010	4H

WHI05B
ELEVEN POINT RIVER NR POCAHONTAS, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.04	28	15.10	5.70	2.39
BOD 5 Day mg/l	0.64	44	2.10	0.20	0.39
pH	7.78	41	9.75	6.52	0.60
TSS mg/l	9.26	37	39.00	1.00	8.52
NO2+NO3-N mg/l	0.50	43	0.94	0.24	0.13
Tot. Phos. mg/l	0.05	28	0.18	0.02	0.03
Tot. Org. C mg/l	2.21	42	7.80	1.00	1.38
T.Hardness mg/l	191.57	33	227.00	129.00	25.28
Chloride mg/l	2.60	40	4.00	1.00	0.46
Sulfate mg/l	4.12	42	8.00	1.00	1.65
TDS mg/l	192.18	43	222.00	138.00	19.99
Turbidity NTU	7.69	42	51.00	1.10	10.50

WHI89
SPRING RIVER AT MAMMOTH SPRING AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	7.50	44	12.70	5.80	1.32
BOD 5 Day mg/l	0.53	44	1.60	0.08	0.33
pH	7.23	41	7.93	6.51	0.27
TSS mg/l	3.01	34	13.00	1.00	2.12
NO2+NO3-N mg/l	1.03	44	1.54	0.73	0.22
Tot. Phos. mg/l	0.05	34	0.11	0.03	0.02
Tot. Org. C mg/l	1.83	39	4.50	1.10	0.70
T.Hardness mg/l	220.67	30	248.00	184.00	19.56
Chloride mg/l	3.63	42	6.00	2.00	0.76
Sulfate mg/l	4.05	42	9.00	1.00	1.79
TDS mg/l	222.77	44	245.00	181.00	17.33
Turbidity NTU	4.71	44	17.00	1.50	3.79

WHI23

SO. FORK SPRING RIVER @ SADDLE, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
Dissolved Oxygen mg/l	9.65	44	15.00	6.00	2.02
BOD 5 Day mg/l	0.75	44	1.80	0.30	0.34
pH	8.04	41	8.72	7.55	0.31
TSS mg/l	4.29	41	23.00	1.00	4.10
NO2+NO3-N mg/l	0.19	39	0.62	0.03	0.16
Tot. Phos. mg/l	0.05	22	0.13	0.02	0.03
Tot. Org. C mg/l	2.90	44	11.10	1.50	1.64
T.Hardness mg/l	193.63	31	246.00	50.00	38.58
Chloride mg/l	3.61	42	6.00	3.00	0.73
Sulfate mg/l	4.19	42	8.00	1.00	1.66
TDS mg/l	197.73	44	239.00	134.00	26.20
Turbidity NTU	4.06	44	25.00	1.10	4.85

WHI06A

SPRING RIVER NR THAYER, MO.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
Dissolved Oxygen mg/l	9.70	44	15.10	6.10	2.11
BOD 5 Day mg/l	0.61	44	2.30	0.20	0.38
pH	7.78	41	8.39	6.56	0.32
TSS mg/l	10.12	41	159.00	1.00	24.08
NO2+NO3-N mg/l	0.59	44	0.94	0.30	0.17
Tot. Phos. mg/l	0.10	30	0.76	0.04	0.13
Tot. Org. C mg/l	2.26	44	8.00	1.10	1.24
T.Hardness mg/l	241.95	31	295.00	90.00	44.06
Chloride mg/l	4.04	42	8.00	1.00	1.42
Sulfate mg/l	7.10	42	49.00	2.00	7.07
TDS mg/l	247.00	44	293.00	190.00	27.47
Turbidity NTU	9.22	44	220.00	0.80	32.70

WHI21

SPRING RIVER @ RAVENDEN,ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.23	31	16.60	5.10	2.37
BOD 5 Day mg/l	0.74	43	2.30	0.10	0.49
pH	7.88	41	10.23	6.25	0.69
TSS mg/l	10.55	38	55.00	2.00	11.13
NO2+NO3-N mg/l	0.40	43	0.80	0.08	0.15
Tot. Phos. mg/l	0.05	28	0.12	0.02	0.03
Tot. Org. C mg/l	2.68	43	7.40	1.20	1.50
T.Hardness mg/l	224.54	32	262.00	133.00	33.43
Chloride mg/l	3.06	40	5.00	2.00	0.48
Sulfate mg/l	4.74	42	8.00	1.00	1.66
TDS mg/l	223.43	43	258.00	156.00	24.81
Turbidity NTU	10.22	43	51.00	0.90	13.97

WHI22

SPRING RIVER NR HARDY, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	10.24	44	15.00	6.90	1.63
BOD 5 Day mg/l	0.46	44	0.80	0.20	0.18
pH	8.14	41	8.79	7.37	0.28
TSS mg/l	5.87	42	15.00	1.00	3.03
NO2+NO3-N mg/l	0.66	44	1.03	0.45	0.14
Tot. Phos. mg/l	0.05	28	0.08	0.03	0.01
Tot. Org. C mg/l	2.00	44	6.00	1.00	0.93
T.Hardness mg/l	235.22	32	259.00	166.00	17.61
Chloride mg/l	3.38	42	5.00	2.00	0.58
Sulfate mg/l	4.65	42	8.00	1.00	1.74
TDS mg/l	234.91	44	265.00	200.00	12.55
Turbidity NTU	4.79	44	28.00	1.20	4.09

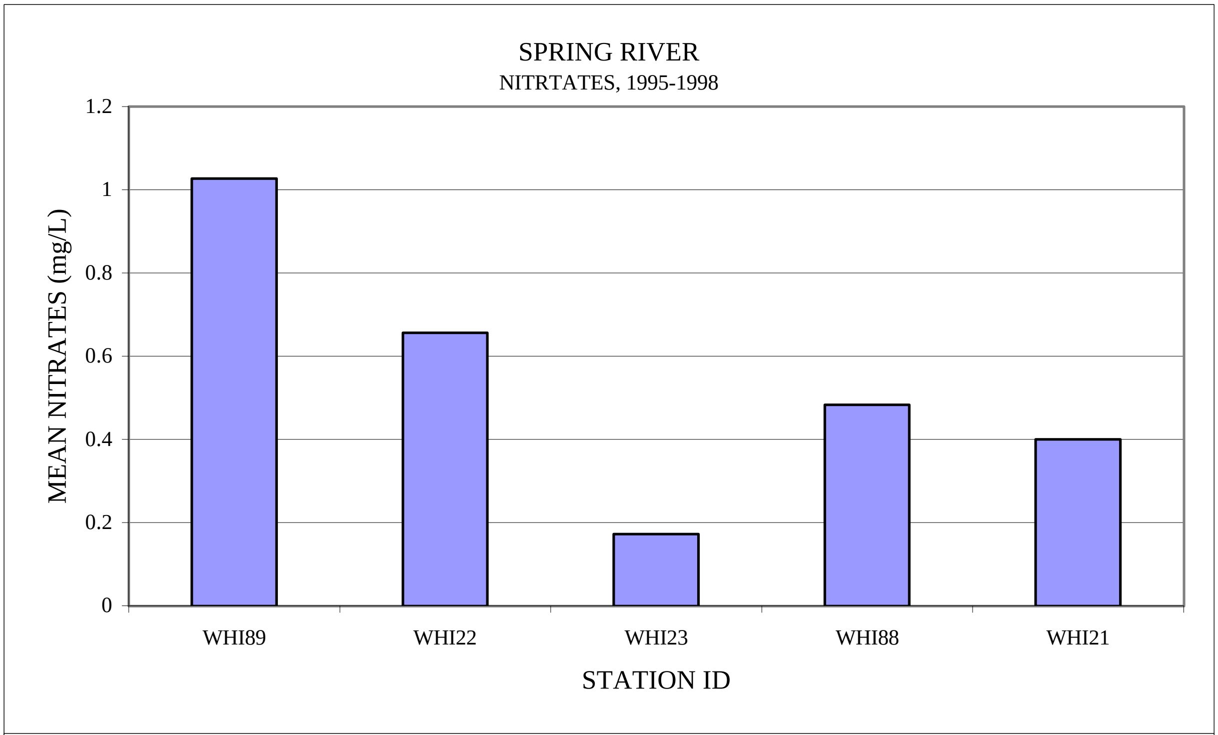
WHI88
SPRING RIVER AT HARDY AR

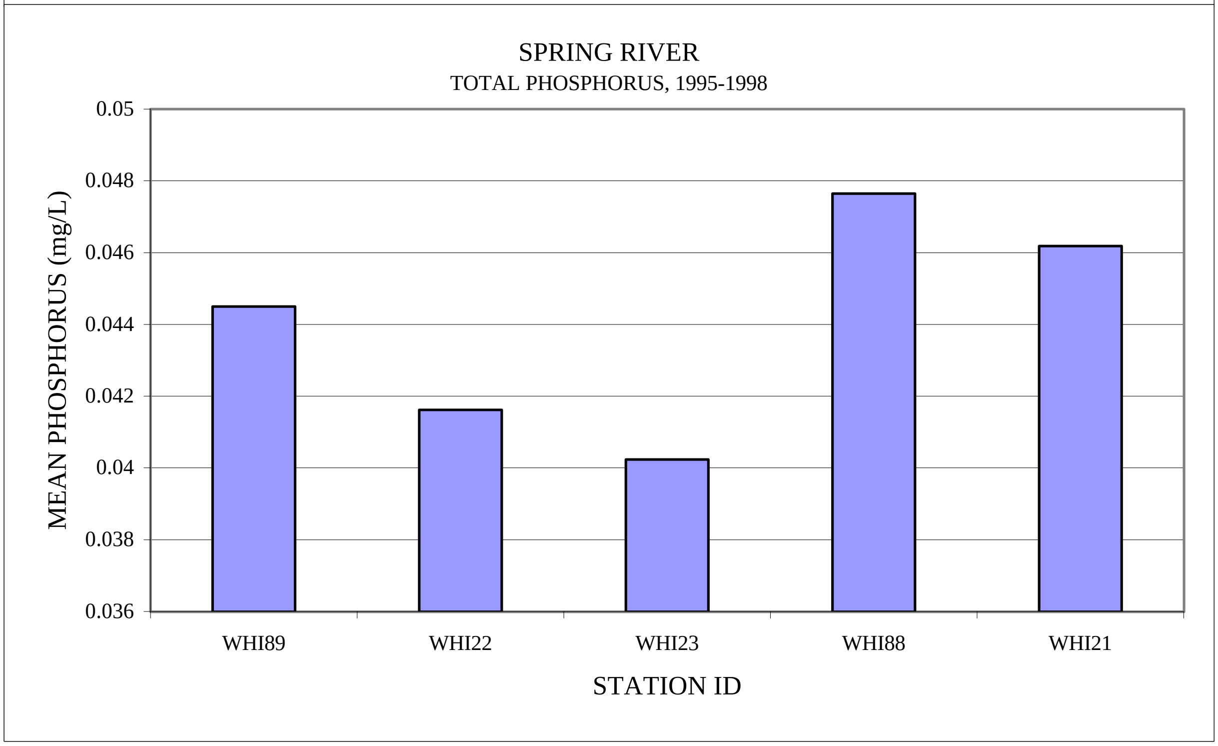
PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	—	—	----
Dissolved Oxygen mg/l	9.89	44	15.20	7.00	1.60
BOD 5 Day mg/l	0.66	44	2.00	0.20	0.30
pH	8.12	41	8.75	7.38	0.26
TSS mg/l	5.47	43	24.00	2.00	3.85
NO2+NO3-N mg/l	0.48	44	0.80	0.18	0.13
Tot. Phos. mg/l	0.05	34	0.08	0.03	0.02
Tot. Org. C mg/l	2.39	44	7.60	1.10	1.16
T.Hardness mg/l	232.42	31	262.00	188.00	18.28
Chloride mg/l	4.47	41	52.00	2.00	7.66
Sulfate mg/l	5.35	42	38.00	1.00	5.43
TDS mg/l	229.59	44	256.00	173.00	17.08
Turbidity NTU	4.55	44	33.00	1.20	4.72

FIGURE A-4H-1

SPRING RIVER

MEAN NITRATE AND TOTAL PHOSPHORUS, 1995-1998





WHI89 - Spring River at Mammoth Spring
WHI22 - Spring River N. of Hardy
WHI23 - South Fork Spring River nr Saddle
WHI88 - Spring River @ town bridge in Hardy
WHI21 - Spring River nr Ravenden

SEGMENT 4I - WHITE RIVER FROM CROOKED CREEK TO LONG CREEK (WHITE RIVER BASIN)

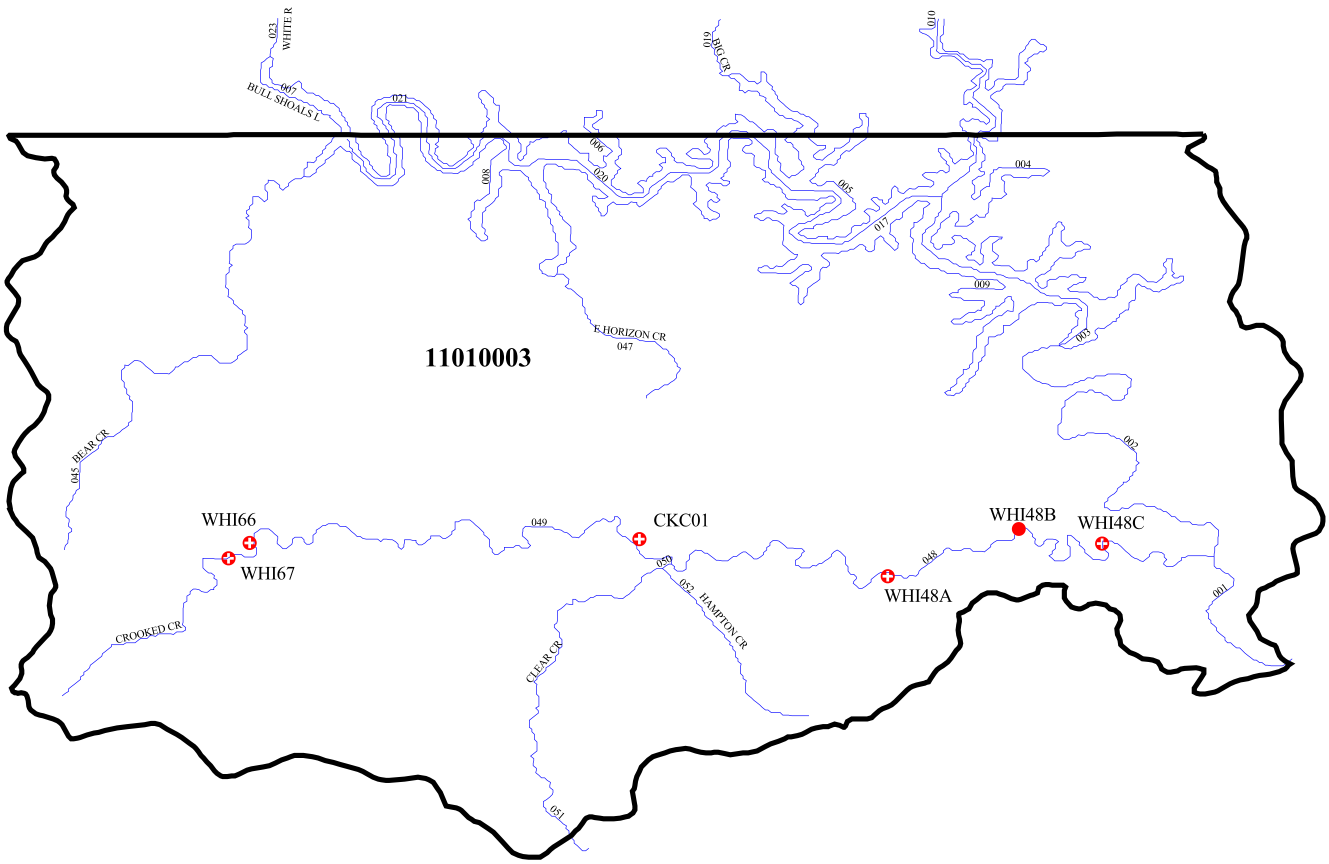
Segment 4I, located in north central Arkansas, includes portions of Carroll, Boone and Marion counties. This segment encompasses a 31-mile reach of the White River and Crooked Creek and its tributaries.

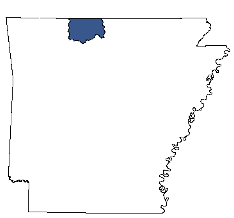
SUMMARY OF WATER QUALITY CONDITIONS

All waters within this segment are designated for fish and wildlife propagation, primary and secondary contact recreation, domestic, agricultural and industrial water supplies. None of these waters, except Bull Shoals Reservoir, are designated as outstanding state or national resource. Five monitoring stations were used to assess 67.9 miles of stream uses, and 31 miles were evaluated. All waters assessed in this segment were supporting all designated uses.

Data from Crooked Creek above and below the City of Harrison sewage treatment plant demonstrates some elevated parameters from this discharge and also reflects urban area runoff during storm events. Additional stations recently initiated in the lower section of Crooked Creek below the major losing section of the stream have not provided sufficient data for additional assessments because water has not been present during many of the recent sample runs.

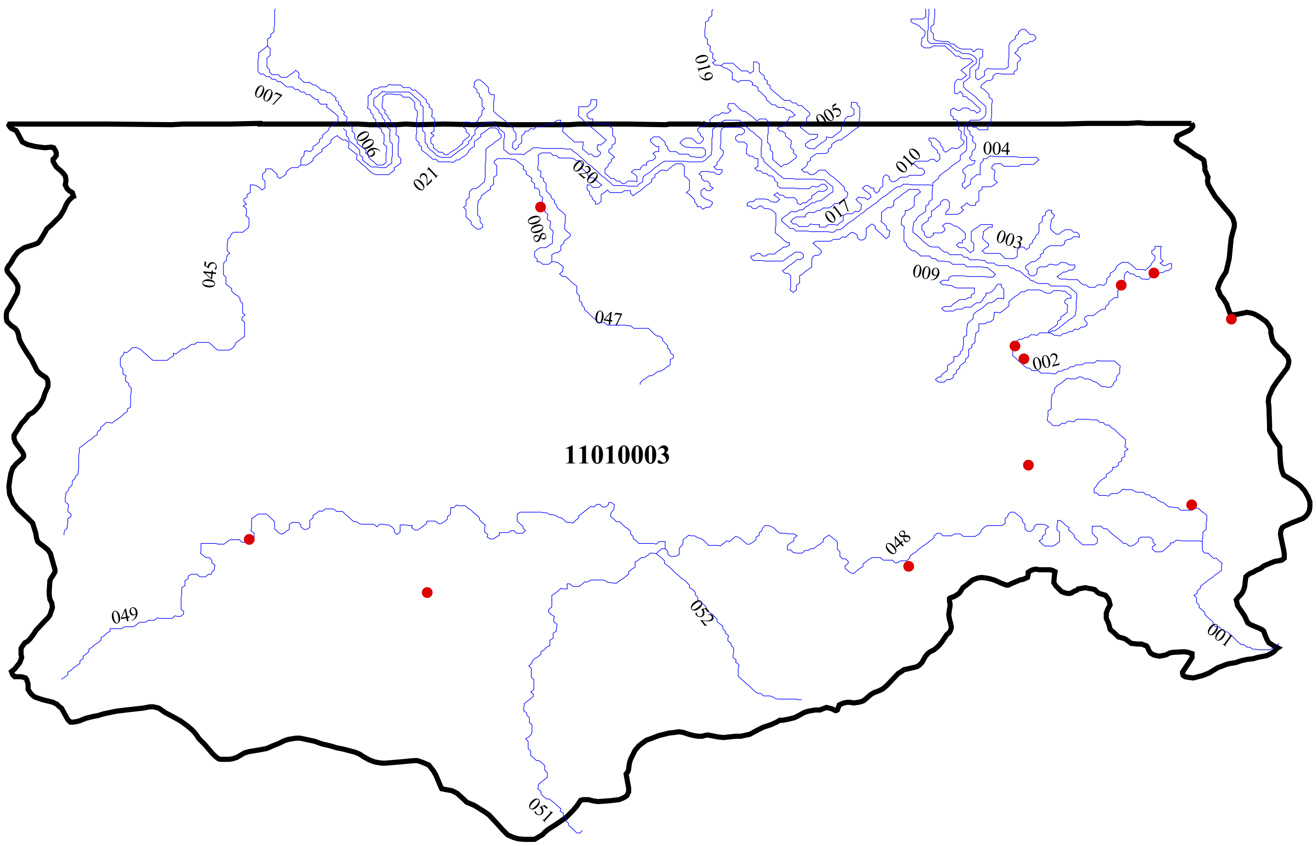
Planning Segment 4I - Monitoring Stations

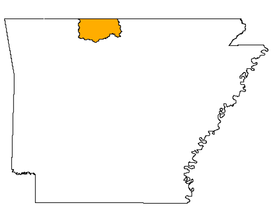




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
Seg 4I																		
White River	11010003	-001	7.6		E	S	S	S	S	S	S					FISH CONSUMPTION	98.9	0
White River	11010003	-002	23.4		E	S	S	S	S	S	S					AQUATIC LIFE	98.9	0
Bear Creek	11010003	-045	25.9		U											SWIMMING	98.9	0
E. Horizon C.	11010003	-047	8.9		U											SECONDARY CONTACT	98.9	0
Crooked Creek	11010003	-048	31.7	WHI48A,B,C	M	S	S	S	S	S	S					DRINKING SUPPLY	98.9	0
Crooked Creek	11010003	-049	36.2	WHI66&67	M	S	S	S	S	S	S					AGRI & INDUSTRY	98.9	0
Clear Creek	11010003	-050	0.4		U													
Clear Creek	11010003	-051	17.6		U													
Hampton Creek	11010003	-052	9.1		U													
TOTAL MILES	160.8																	
MILES UNASSESSED	61.9																	
MILES EVALUATED	31																	
MILES MONITORED	67.9																	

Planning Segment 4I - NPDES Permitted Facilities





(Segment 4I)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021717	FLIPPIN, CITY OF	FALLEN ASH CK,WHITE RV	11010003	4I
AR0033545	COTTER-GASSVILLE, TOWNS OF	WHITE RV/SEG 4I-WHITE RIVER BASIN	11010003	4I
AR0034037	YELLVILLE, CITY OF	CROOKED CREEK/SEG 4I-WHITE RV BASIN	11010003	4I
AR0034321	HARRISON, CITY OF	CROOKED CK,WHITE RIVER	11010003	4I
AR0036439	BAXTER HEALTHCARE CORP-BRUCE C	TRIB,BRUCE CK,WHITE RV,4F-WHITE RB	11010003	4I
AR0037028	BULL SHOALS, CITY OF	WHITE RV,4I-WHITE RB	11010003	4I
AR0037052	AR PARKS & TOURISM-BULL SHOALS	WHITE RV	11010003	4I
AR0037435	HOLIDAY SHORES RESORT	BULL SHOALS LK TRIB,4I-WHITE RB	11010003	4I
AR0043753	SUGARLOAF WASTEWATER DIST	E.SUGARLOAF CK,BULL SHOALS LK,4I-WH	11010003	4I
AR0045390	ROLLING MEADOWS MHP	TRIB/MEEK CK,4I-WHITE RB	11010003	4I
AR0048518	LAURENCE'S CEDAR OAKS RESORT	BULL SHOALS LK,4I-WHITE RB	11010003	4I

WHI48A

CROOKED CREEK AT YELLVILLE AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	10.61	39	14.00	7.10	1.69
BOD 5 Day mg/l	0.72	42	1.70	0.20	0.30
pH	8.06	38	8.63	7.25	0.29
TSS mg/l	3.27	28	11.00	1.00	2.79
NO2+NO3-N mg/l	0.72	40	2.70	0.02	0.55
Tot. Phos. mg/l	0.05	20	0.19	0.03	0.04
Tot. Org. C mg/l	2.27	41	4.30	1.40	0.73
T.Hardness mg/l	165.74	29	201.00	129.00	21.98
Chloride mg/l	6.64	39	11.00	4.00	1.87
Sulfate mg/l	7.14	40	12.00	3.00	2.07
TDS mg/l	185.60	42	215.00	148.00	18.22
Turbidity NTU	2.13	42	15.00	0.30	2.60

WHI66

CROOKED CREEK BELOW HARRISON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	10.58	43	14.90	7.80	1.79
BOD 5 Day mg/l	0.95	42	3.80	0.20	0.70
pH	7.65	42	8.40	7.03	0.28
TSS mg/l	5.64	43	45.00	1.00	8.33
NO2+NO3-N mg/l	2.54	40	5.10	0.99	0.93
Tot. Phos. mg/l	0.21	39	0.45	0.04	0.13
Tot. Org. C mg/l	3.02	42	7.70	1.50	1.32
T.Hardness mg/l	162.94	31	194.00	96.00	26.68
Chloride mg/l	13.33	41	25.00	4.00	6.05
Sulfate mg/l	13.24	42	29.00	5.00	6.41
TDS mg/l	213.37	43	277.00	137.00	36.97
Turbidity NTU	8.42	44	72.00	1.50	13.79

WHI67
CROOKED CREEK ABOVE HARRISON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.92	43	12.40	7.10	1.16
BOD 5 Day mg/l	0.90	42	3.30	0.02	0.67
pH	7.40	42	8.16	6.75	0.26
TSS mg/l	13.20	42	298.00	1.00	45.83
NO2+NO3-N mg/l	1.43	40	2.18	0.78	0.30
Tot. Phos. mg/l	0.07	28	0.28	0.02	0.06
Tot. Org. C mg/l	2.62	42	8.10	1.10	1.49
T.Hardness mg/l	164.91	32	204.00	91.00	29.85
Chloride mg/l	6.51	41	11.00	4.00	1.30
Sulfate mg/l	6.63	42	11.00	4.00	1.67
TDS mg/l	191.79	43	227.00	128.00	26.11
Turbidity NTU	15.57	44	280.00	2.00	43.48

SEGMENT 4J - BUFFALO RIVER AND TRIBUTARIES (WHITE RIVER BASIN)

Segment 4J includes portions of Newton, Searcy and Marion counties in north central Arkansas. This segment contains the entire 113-mile length of the Buffalo River and its major tributaries - Big Creek, Little Buffalo, Richland Creek, Water Creek, Bear Creek and others.

SUMMARY OF WATER QUALITY CONDITIONS

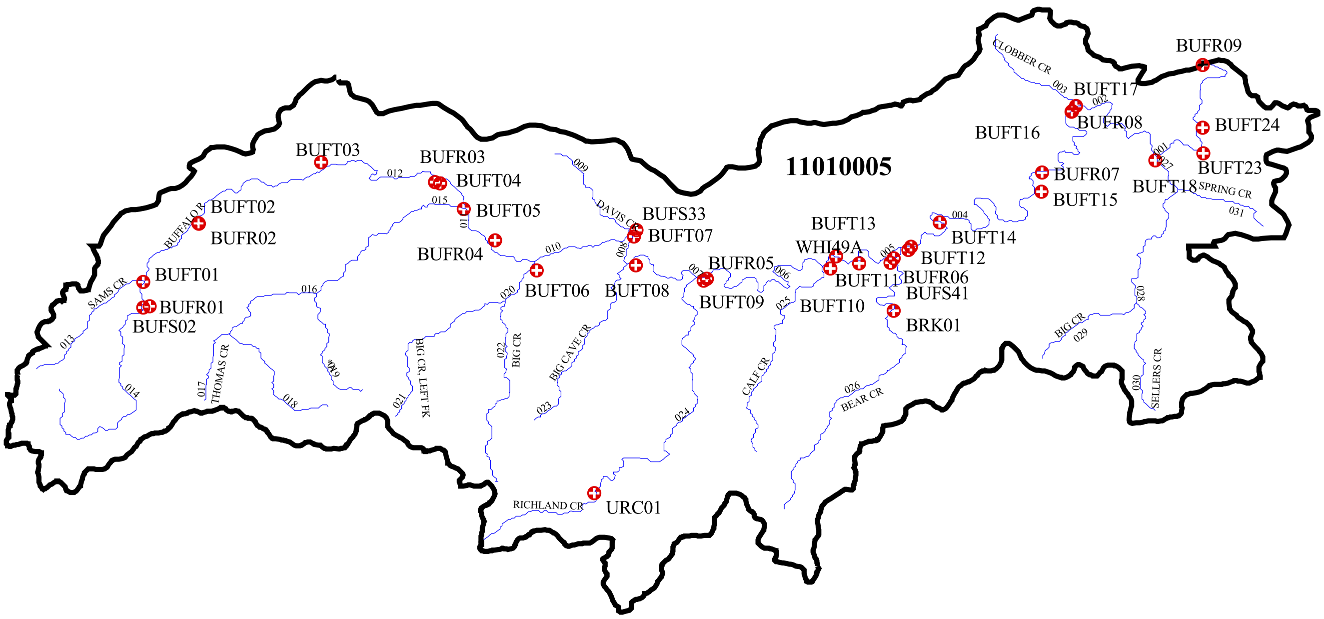
Designated uses of waters in this segment include propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supplies. Almost 48 percent are also designated as outstanding state or national resource waters. Only one routine monitoring station is located in this segment; however, over the past several years, a cooperative project with the Buffalo National River has added nine sites on the Buffalo River, 20 tributary sites and three spring sites. This has allowed for a much more detailed assessment of the river and its tributaries. All waters assessed in this segment met all designated uses. Although nutrient values are low in the Buffalo River, nitrite/nitrate-nitrogen values show an increase in a downstream direction. The most significant increases were noted below Boxley Valley and below Mill Creek (between Pruitt and Hastey). Of the 20 tributary sites, highest nitrite/nitrate-nitrogen concentrations were found in Mill Creek, Calf Creek, Brush Creek and Tomahawk Creek.

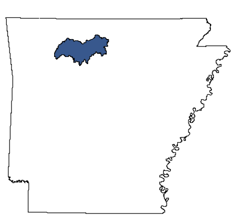
The mean nitrate values on the main stem of the Buffalo River during 1989-1993 is compared to the mean nitrate values for 1995-1998 in Figure A-4J-1. Mean values for the 1995-1998 period were very similar to those from the earlier assessment period. However, an increase in the mean nitrate concentration is apparent in the lower one-third of the river. This, although easily seen in Figure A-4J-1**,** only reflects an increase of about 0.07 mg/L. Nitrate concentrations in the main channel of the Buffalo National River are, on average, two thirds lower than those seen in the tributaries.

A similar comparison was made among the tributary streams and shown in Figure A-4J-1. Calf, Bear, Tomahawk, Water, Rush, Clabber and Big Creeks all show considerably higher mean nitrate values during the last four years. This condition may have resulted from the significantly lower rainfall and surface runoff over the last two years which would have caused these tributary streams to be more dominated by ground water discharges than surface runoff. Highest nitrates have generally been found in ground water in this area. Mill Creek and Brush Creek consistently exhibit the highest average nitrate values, although Calf Creek values for 1995-98 were similar to their values.

Nitrate values in the springs sampled were about three times higher than in the main channel of the Buffalo River.

Planning Segment 4J - Monitoring Stations

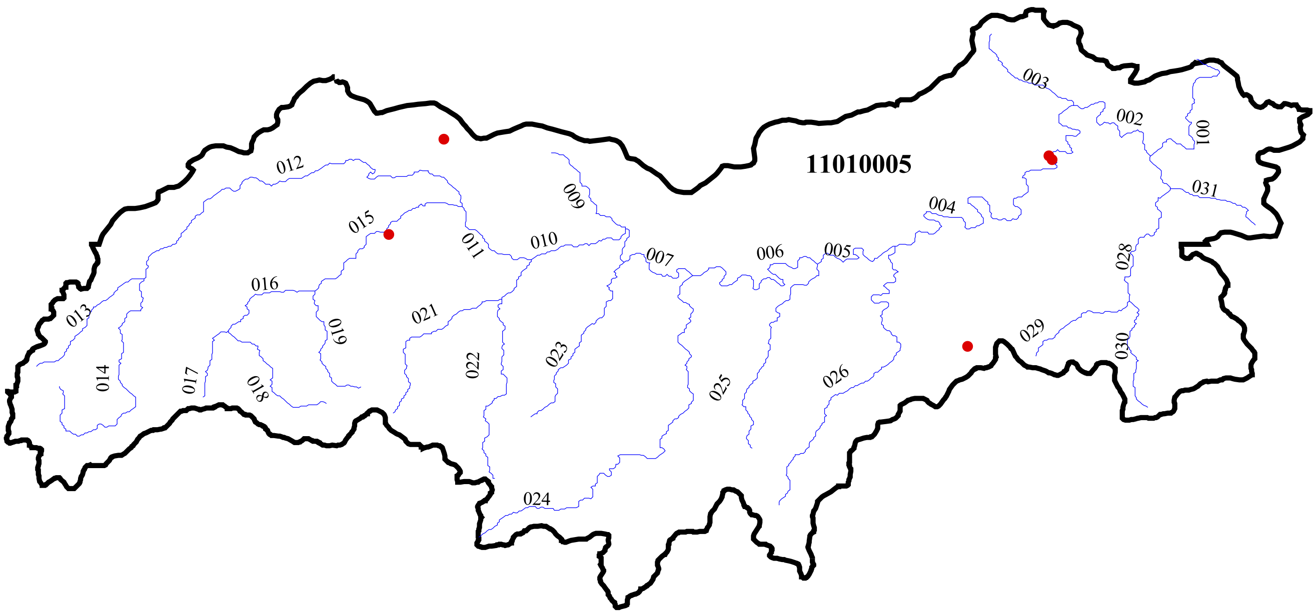


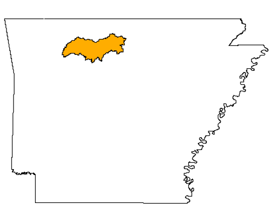


STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC
Seg 4J															
Buffalo River	11010005	-001	11.3	BUFR09	M	S	S	S	S	S	S				
Buffalo River	11010005	-002	8.7		M	S	S	S	S	S	S				
Clabber Creek	11010005	-003	7.3	BUFT17	M	S	S	S	S	S	S				
Buffalo River	11010005	-004	27.8	BUFR07&08	M	S	S	S	S	S	S				
Buffalo River	11010005	-005	6.9	WHI49A	M	S	S	S	S	S	S				
Buffalo River	11010005	-006	13.7		M	S	S	S	S	S	S				
Buffalo River	11010005	-007	5.9	BUFR05	M	S	S	S	S	S	S				
Buffalo River	11010005	-008	2.6		M	S	S	S	S	S	S				
Davis Creek	11010005	-009	7.3	BUFT07	M	S	S	S	S	S	S				
Buffalo River	11010005	-010	6.2		M	S	S	S	S	S	S				
Buffalo River	11010005	-011	6	BUFR04	M	S	S	S	S	S	S				
Buffalo River	11010005	-012	25.8	BUFR02&03	M	S	S	S	S	S	S				
Sams Creek	11010005	-013	9		U										
Buffalo River	11010005	-014	18.2	BUFR01	M	S	S	S	S	S	S				
Little Buffalo	11010005	-015	11.6	BUFT05	M	S	S	S	S	S	S				
Little Buffalo	11010005	-016	6.6		E	S	S	S	S	S	S				
Thomas Creek	11010005	-017	5.2		U										
East Fork	11010005	-018	8.9		U										
Shop Creek	11010005	-019	8.6		U										
Big Creek	11010005	-020	3.2	BUFT06	M	S	S	S	S	S	S				
Big Creek Left Fk.	11010005	-021	11.7		E	S	S	S	S	S	S				
Big Creek	11010005	-022	13.7		E	S	S	S	S	S	S				
Big Cave Cr.	11010005	-023	13	BUFT08	M	S	S	S	S	S	S				
Richland Creek	11010005	-024	28.7	BUFT09	M	S	S	S	S	S	S				
Calf Creek	11010005	-025	15	BUFT10	M	S	S	S	S	S	S				
Bear Creek	11010005	-026	23.9	BRK01,+	M	S	S	S	S	S	S				
Big Creek	11010005	-027	2.6	BUFT18	M	S	S	S	S	S	S				
Big Creek	11010005	-028	9.4		E	S	S	S	S	S	S				
Big Creek	11010005	-029	7.1		E	S	S	S	S	S	S				
Sellers Creek	11010005	-030	8.1		U										
Spring Creek	11010005	-031	5.8		U										
TOTAL MILES	339.8														
MILES UNASSESSED	45.6														
MILES EVALUATED	48.5														
MILES MONITORED	245.7														

USE	SUPPORT	NOT SUPPORT
FISH CONSUMPTION	294.2	0
AQUATIC LIFE	294.2	0
SWIMMING	294.2	0
SECONDARY CONTACT	294.2	0
DRINKING SUPPLY	294.2	0
AGRI & INDUSTRY	294.2	0

Planning Segment 4J - NPDES Permitted Facilities





(Segment 4J)

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0034011	MARSHALL, CITY OF	FOREST CR,BEAR CR,BUFFALO R, 4J	11010005	4J
AR0034088	MARBLE FALLS SID #1-DOGPATCH	TRIB, MILL CK	11010005	4J
AR0034584	JASPER, CITY OF	L' BUFFALO RV/BUFFALO RV/WHITE RB	11010005	4J
AR0034941	USDINPS-BUFFALO NATL RIVER-BUF	BUFFALO RV	11010005	4J
AR0034959	USDINPS-BUFFALO NATL RIVER-BUF	PANTHER CK,BUFFALO RV	11010005	4J

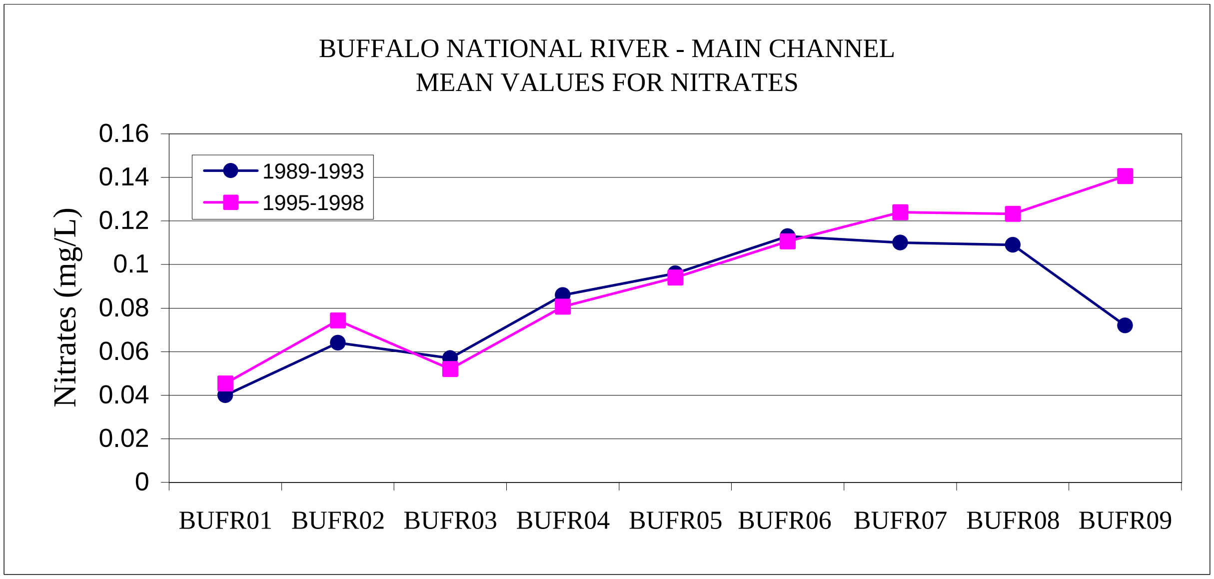
WHI49A
BUFFALO RIVER NR ST. JOE, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.78	30	12.50	7.00	1.45
BOD 5 Day mg/l	0.58	42	2.40	0.05	0.42
pH	7.39	38	8.30	6.25	0.42
TSS mg/l	5.21	24	35.00	1.00	8.24
NO2+NO3-N mg/l	0.14	36	0.47	0.01	0.10
Tot. Phos. mg/l	0.04	19	0.08	0.03	0.02
Tot. Org. C mg/l	2.26	43	4.70	1.10	0.88
T.Hardness mg/l	105.75	31	140.00	70.00	19.82
Chloride mg/l	2.66	39	4.00	2.00	0.58
Sulfate mg/l	7.73	39	48.00	1.00	6.98
TDS mg/l	118.37	43	154.00	88.00	18.17
Turbidity NTU	5.06	43	31.00	0.60	6.42

FIGURE A-4J-1

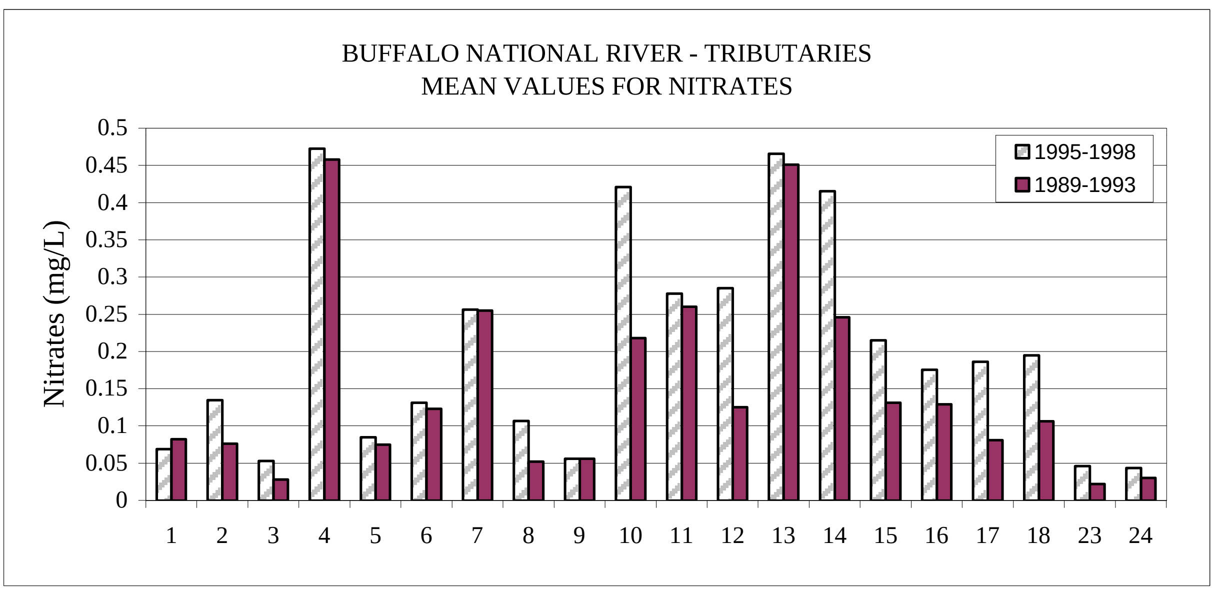
BUFFALO NATIONAL RIVER

MEAN VALUES FOR NITRATES



LEGEND

BUFR01 - Above Boxley
BUFR02 - Ponca
BUFR03 - Pruitt
BUFR04 - Hastey
BUFR05 - Woolum
BUFR06 - Gilbert
BUFR07 - Ark. Hwy. 14
BUFR08 - Rush
BUFR09 - Mouth of River



LEGEND

1 - Beech Creek
2 - Ponca Creek
3 - Cecil Creek
4 - Mill Creek (Pruitt)
5 - Little Buffalo
6 - Big Creek (S. Hasty)
7 - Davis Creek
8 - Cave Creek
9 - Richland Creek
10 - Calf Creek
11 - Mill Creek (St. Joe)
12 - Bear Creek
13 - Brush Creek
14 - Tomahawk Creek
15 - Water Creek
16 - Rush Creek
17 - Clabber Creek
18 - Big Creek (lower)
23 - Middle Creek
24 - Leatherhead Creek

SEGMENT 4K - UPPER WHITE RIVER AND KINGS RIVER (WHITE RIVER BASIN)

Segment 4K includes portions of Washington, Benton, Madison and Carroll counties in northwest Arkansas. This segment encompasses a 66-mile reach of the White River and its tributaries and an 85-mile reach of the Kings River and its tributaries. It also includes Long Creek and Yocum Creek.

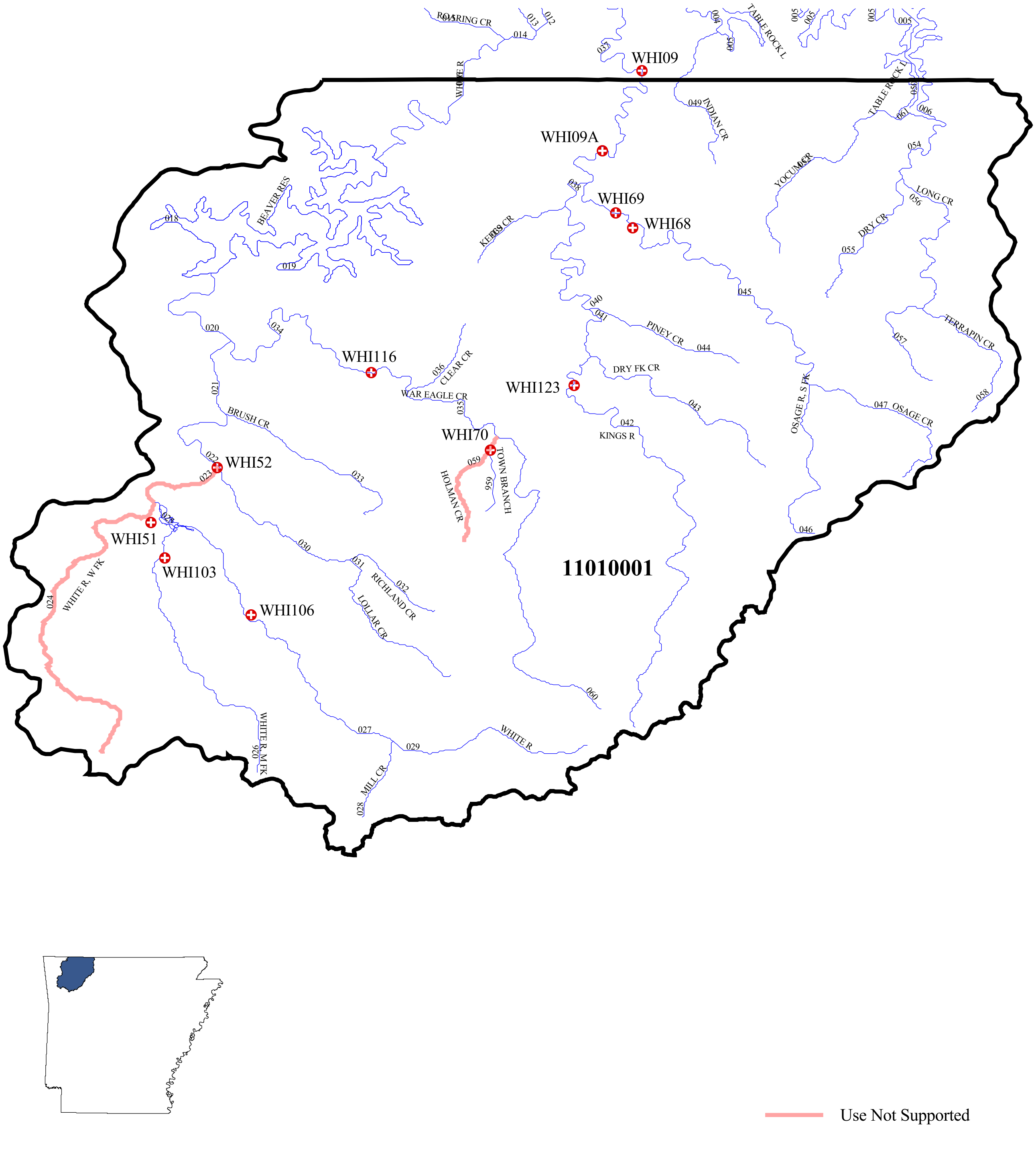
SUMMARY OF WATER QUALITY CONDITIONS IN SEGMENT 4K

All waters within this segment are designated for propagation of fish and wildlife, primary and secondary contact recreation, domestic, agricultural and industrial water supplies. Also, about 20 percent of these waters are designated as outstanding state or national resource waters. A total of 208 miles of streams were monitored for use support utilizing data from 11 routine monitoring stations. An additional 193.3 miles were evaluated. Aquatic life use was assessed as not supported in 33.4 miles of the West Fork of the White River. The major cause was high turbidity levels and excessive silt loads. This is from three primary sources: (1) agriculture land clearing; (2) road construction and maintenance; and (3) gravel removal from stream beds.

A point source discharge to Holman Creek has impaired the drinking water use of the lower section of this stream by discharges of excessive levels of nitrates.

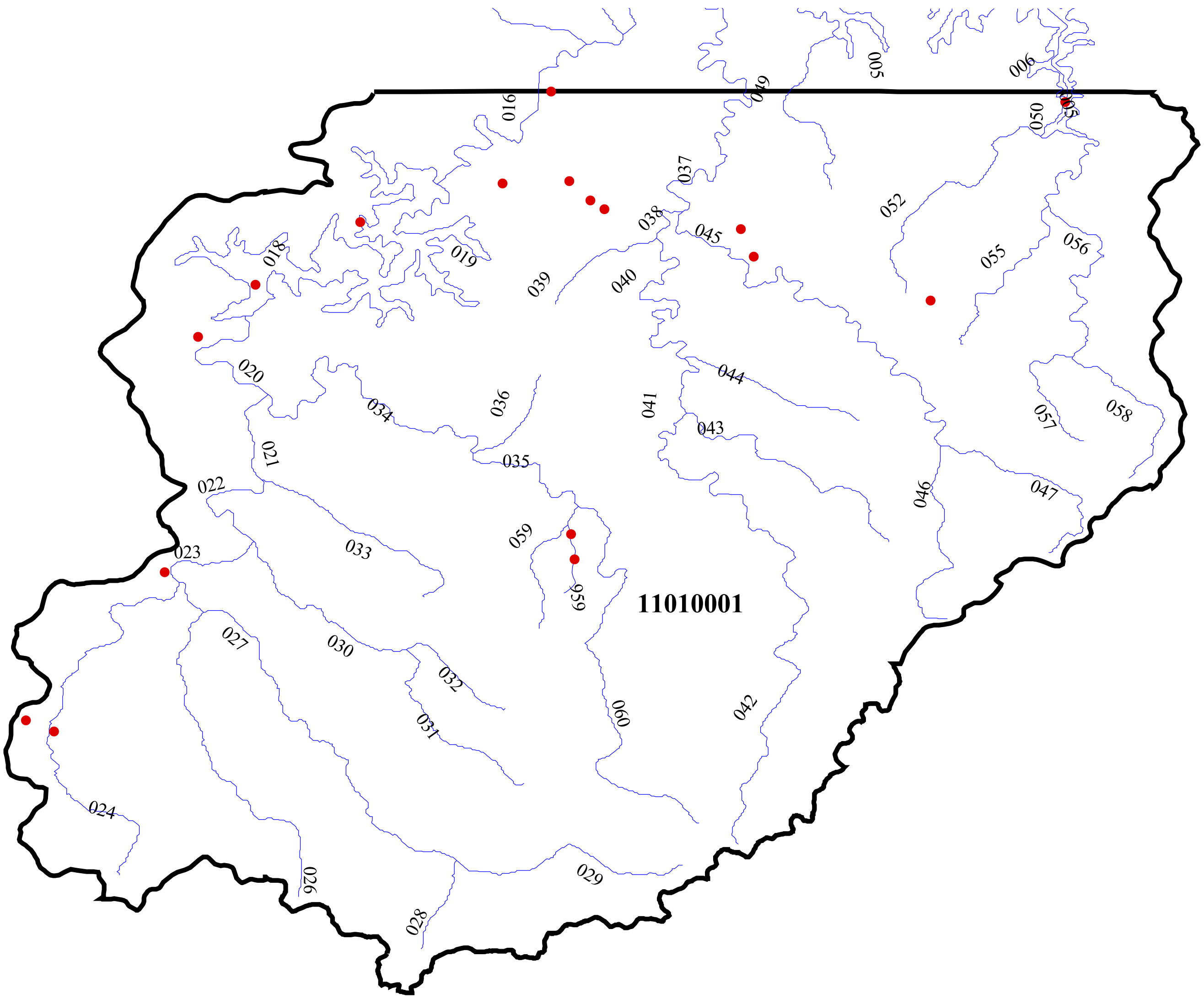
Figure A-4K-1 is a plot of the total phosphorus data from Osage Creek below a point source discharge and from the Kings River below its confluence with Osage Creek. The same day data from these stations demonstrates the influence of the point source discharge on both Osage Creek and downstream in Kings River. It is apparent, however, that the greatest influence on the Kings River occurs during low run-off periods, e.g., September.

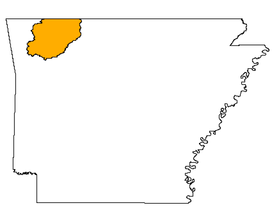
Planning Segment 4K - Monitoring Stations



STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-4K																		
White River	11010001	-016	2.4		U											FISH CONSUMPTION	401.3	0
White River	11010001	-020	9.8		U											AQUATIC LIFE	367.9	33.4
White River	11010001	-021	6.1		U											SWIMMING	200.2	0
White River	11010001	-022	8.3		U											SECONDARY CONTACT	401.3	0
White River	11010001	-023	6.2	WHI52	M	S	N	S	S	S	S	RC	AG	SI		DRINKING SUPPLY	392.2	9.1
West Fork	11010001	-024	27.2	WHI51	M	S	N	S	S	S	S	RC	AG	SI		AGRI & INDUSTRY	401.3	0
White River	11010001	-025	2.4		U													
Middle Fork	11010001	-026	21.9	WHI103	M	S	S	S	S	S	S							
White River	11010001	-027	23.8	WHI106	M	S	S	S	S	S	S							
Mill Creek	11010001	-028	6.1		U													
White River	11010001	-029	13.5		E	S	S	S	S	S	S							
Richland Cr.	11010001	-030	12.1		E	S	S	S	S	S	S							
Lollar Creek	11010001	-031	12.5		U													
Richland Cr.	11010001	-032	7.1		U													
Brush Creek	11010001	-033	13.5		E	S	S		S	S	S							
War Eagle Cr.	11010001	-034	22.2	WHI116	M	S	S		S	S	S							
War Eagle Cr.	11010001	-035	8.6		E	S	S		S	S	S							
Clear Creek	11010001	-036	6.7		U													
Kings River	11010001	-037	19.1	WHI09A	M	S	S	S	S	S	S							
Kings River	11010001	-038	3.4		E	S	S		S	S	S							
Kings River	11010001	-040	17.9		E	S	S		S	S	S							
Kings River	11010001	-041	4.8		E	S	S		S	S	S							
Kings River	11010001	-042	39.5	WHI123	M	S	S		S	S	S							
Keels Creek	11010001	-039	7.3		U													
Dry Fork	11010001	-043	16.5		E	S	S		S	S	S							
Piney Creek	11010001	-044	10.2		E	S	S		S	S	S							
Osage Creek	11010001	-045	25.6	WHI68	M	S	S	S	S	S	S							
Osage Creek	11010001	-901	5	WHI69	M	S	S	S	S	S	S							
South Fork	11010001	-046	13.8		U													
Osage Creek	11010001	-047	13.4		E	S	S		S	S	S							
Yocum Creek	11010001	-052	16.2		E	S	S		S	S	S							
Long Creek	11010001	-054	8.4	WHI71	M	S	S	S	S	S	S							
Dry Creek	11010001	-055	12		E	S	S		S	S	S							
Long Creek	11010001	-056	14.3		E	S	S		S	S	S							
Long Creek	11010001	-057	8.6		E	S	S		S	S	S							
Terrapin Cr.	11010001	-058	11.2		U													
Holman Creek	11010001	-059	9.1	WHI70	M	S	S	S	S	N	S	MP		NU				
War Eagle Cr.	11010001	-060	28.3		E	S	S	S	S	S	S							
TOTAL MILES	495																	
MILES UNASSESSED	93.7																	
MILES EVALUATED	193.3																	
MILES MONITORED	208																	

Planning Segment 4K - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0020010	FAYETTEVILLE, CITY OF	W FK WHITE RV (1) & MUD CK-AR RV(2)	11010001	4K
AR0021741	GREEN FOREST, CITY OF	TRIB,DRY CK,LONG CK,4I-WHITE RB	11010001	4K
AR0021792	BERRYVILLE, CITY OF	FREEMAN BR,OSAGE CK,KINGS RV	11010001	4K
AR0021865	EUREKA SPRINGS, CITY OF	LEATHERWOOD CK	11010001	4K
AR0022004	HUNTSVILLE, CITY OF	TOWN BRANCH/HOLMAN CK/WAR EAGLE CK	11010001	4K
AR0022373	WEST FORK, CITY OF	W FK WHITE RV,4K- WHITE RB	11010001	4K
AR0033197	HERITAGE BAY HOMEOWNERS ASSN	BEAVER LK,4K-WHITE RB	11010001	4K
AR0036676	LOST BRIDGE VILLAGE W&S DIST	BEAVER LAKE/SEG 4K-WHITE RV BASIN	11010001	4K
AR0037249	HOLIDAY ISLAND SID	TABLE ROCK LK,4K-WHITE RB	11010001	4K
AR0037320	BEAVER LODGE, INC	PLT/MONTE NE COVE-BEAVER LK/WHITE R	11010001	4K
AR0040118	COUNTRY MOUNTAIN INN	TRIB-KEELS CK/KINGS RV/WHITE RV BAS	11010001	4K
AR0044059	CARROLL ELECTRIC COOP CORP	TRIB,CLABBER CK,KING RV,4K-WHITE RB	11010001	4K
AR0044300	TEYAR LLC	LEATHERWOOD CK,4K-WHITE RB	11010001	4K
AR0045667	APAC-ARKANSAS, INC-WEST FORK	TRIB/W FK/WHITE RV,4K-WHITE RB	11010001	4K
AR0047988	EUREKA SPRINGS KOA CAMPGROUND	RAVINE,LK LEATHERWOOD,WHITE RV,4K-W	11010001	4K
AR0048577	BEAVER LK CONCRETE	TOWN BR,HOLMAN CK,WAR EAGLE,BEAVER	11010001	4K
AR0048844	OUTDOOR RESORTS OF THE OZARKS	TABLE ROCK RSRV, IMPD, WHITE RV	11010001	4K

WHI71
LONG CREEK BELOW DENVER ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.92	44	14.50	6.90	1.83
BOD 5 Day mg/l	0.63	43	2.80	0.03	0.53
pH	7.80	43	8.24	7.15	0.26
TSS mg/l	6.24	33	53.00	1.00	10.52
NO2+NO3-N mg/l	1.91	41	3.01	1.00	0.49
Tot. Phos. mg/l	0.12	40	0.47	0.04	0.07
Tot. Org. C mg/l	2.32	43	7.60	1.40	1.07
T.Hardness mg/l	151.55	31	189.00	99.00	24.75
Chloride mg/l	9.13	42	16.00	3.00	3.96
Sulfate mg/l	9.41	43	18.00	5.00	2.65
TDS mg/l	187.04	44	233.00	129.00	29.85
Turbidity NTU	7.01	45	49.00	0.80	10.85

WHI70
HOLMAN CREEK BELOW HUNTSVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	10.29	43	14.00	5.20	1.68
BOD 5 Day mg/l	0.76	43	1.60	0.30	0.28
pH	8.03	42	9.01	7.07	0.51
TSS mg/l	7.49	38	42.00	1.00	8.79
NO2+NO3-N mg/l	9.02	40	28.40	0.42	7.96
Tot. Phos. mg/l	1.14	40	3.54	0.05	0.96
Tot. Org. C mg/l	3.46	42	5.80	1.80	0.96
T.Hardness mg/l	152.65	31	277.00	43.00	68.78
Chloride mg/l	74.19	41	302.00	4.00	65.75
Sulfate mg/l	16.91	42	26.00	7.00	5.24
TDS mg/l	330.81	43	757.00	86.00	186.52
Turbidity NTU	9.01	44	45.00	1.00	11.93

WHI09A

KINGS RIVER NR BERRYVILLE, ARK.

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.45	45	13.50	5.70	1.92
BOD 5 Day mg/l	0.64	44	2.60	0.10	0.42
pH	7.90	44	8.51	6.81	0.35
TSS mg/l	8.32	30	76.00	1.00	17.31
NO2+NO3-N mg/l	0.43	38	1.53	0.03	0.36
Tot. Phos. mg/l	0.38	40	1.33	0.04	0.37
Tot. Org. C mg/l	2.68	44	5.40	1.50	0.94
T.Hardness mg/l	117.94	32	163.00	65.00	23.11
Chloride mg/l	7.12	43	23.00	2.00	5.29
Sulfate mg/l	7.40	44	14.00	4.00	2.01
TDS mg/l	151.51	45	228.00	91.00	39.08
Turbidity NTU	6.38	45	46.00	0.90	10.54

WHI123

KINGS R. NEAR ALABAM ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.48	43	12.40	6.80	1.51
BOD 5 Day mg/l	0.63	43	1.50	0.03	0.33
pH	7.67	42	8.37	7.07	0.28
TSS mg/l	4.26	37	36.00	1.00	6.73
NO2+NO3-N mg/l	0.48	40	1.09	0.19	0.22
Tot. Phos. mg/l	0.05	23	0.11	0.03	0.03
Tot. Org. C mg/l	2.46	42	5.70	1.20	1.04
T.Hardness mg/l	90.97	32	150.00	39.00	33.32
Chloride mg/l	3.11	41	5.00	2.00	0.65
Sulfate mg/l	6.09	42	12.00	3.00	2.11
TDS mg/l	110.44	43	164.00	69.00	29.16
Turbidity NTU	7.48	44	49.00	0.90	11.34

WHI103

MIDDLE FORK WHITE R. SW OF ELKINS

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	9.28	37	13.00	5.70	2.06
BOD 5 Day mg/l	0.66	44	2.60	0.10	0.53
pH	7.49	42	8.14	6.03	0.42
TSS mg/l	8.57	34	89.00	1.00	16.68
NO2+NO3-N mg/l	0.60	40	2.75	0.02	0.58
Tot. Phos. mg/l	0.06	20	0.22	0.02	0.05
Tot. Org. C mg/l	2.51	40	7.70	1.20	1.42
T.Hardness mg/l	54.85	33	136.00	24.00	26.39
Chloride mg/l	3.21	41	5.00	1.00	0.80
Sulfate mg/l	9.62	42	18.00	4.00	3.39
TDS mg/l	74.86	43	117.00	55.00	12.98
Turbidity NTU	12.70	45	89.00	1.10	18.13

WHI68

OSAGE CREEK ABOVE BERRYVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.00	43	13.20	4.80	2.23
BOD 5 Day mg/l	0.79	43	2.30	0.10	0.52
pH	7.76	42	8.25	7.24	0.27
TSS mg/l	8.22	32	66.00	1.00	13.73
NO2+NO3-N mg/l	0.51	40	1.60	0.03	0.39
Tot. Phos. mg/l	0.07	29	0.21	0.02	0.05
Tot. Org. C mg/l	2.97	42	6.70	1.40	1.13
T.Hardness mg/l	129.19	32	203.00	73.00	31.28
Chloride mg/l	4.19	41	7.00	2.00	1.08
Sulfate mg/l	8.35	42	13.00	5.00	2.19
TDS mg/l	145.51	43	212.00	96.00	29.60
Turbidity NTU	7.28	44	48.00	0.70	10.81

WHI69
OSAGE CREEK BELOW BERRYVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
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Dissolved Oxygen mg/l	8.83	41	14.30	5.20	2.42
BOD 5 Day mg/l	0.90	41	5.20	0.10	0.84
pH	7.91	40	8.56	7.25	0.32
TSS mg/l	6.18	37	31.00	1.00	7.04
NO2+NO3-N mg/l	0.95	38	6.06	0.11	0.97
Tot. Phos. mg/l	1.88	38	24.62	0.04	4.01
Tot. Org. C mg/l	3.89	40	17.80	1.60	2.70
T.Hardness mg/l	130.00	29	169.00	78.00	24.04
Chloride mg/l	18.29	39	118.00	3.00	23.47
Sulfate mg/l	10.63	40	25.00	5.00	3.83
TDS mg/l	226.16	41	785.00	102.00	133.38
Turbidity NTU	5.55	42	26.00	1.10	5.56

WHI116
WAR EAGLE CREEK @ HWY 45 N. HINDSVILLE ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.80	43	11.90	5.80	1.68
BOD 5 Day mg/l	0.72	42	3.60	0.03	0.54
pH	7.46	42	8.04	6.67	0.28
TSS mg/l	12.84	41	283.00	1.00	44.26
NO2+NO3-N mg/l	1.24	40	2.38	0.59	0.48
Tot. Phos. mg/l	0.06	35	0.36	0.03	0.06
Tot. Org. C mg/l	2.55	42	7.80	1.40	1.12
T.Hardness mg/l	90.78	32	143.00	43.00	31.52
Chloride mg/l	8.21	41	23.00	2.00	4.91
Sulfate mg/l	7.48	42	14.00	3.00	2.57
TDS mg/l	118.79	43	193.00	75.00	33.25
Turbidity NTU	12.83	44	212.00	1.80	32.13

WHI51

W FORK WHITE RIVER E OF FAYETTEVILLE, ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.84	36	14.20	4.00	2.34
BOD 5 Day mg/l	1.12	43	3.80	0.20	0.75
pH	7.60	41	8.83	6.91	0.32
TSS mg/l	24.33	42	140.00	2.00	33.71
NO2+NO3-N mg/l	0.53	38	2.39	0.03	0.43
Tot. Phos. mg/l	0.09	30	0.25	0.03	0.06
Tot. Org. C mg/l	3.55	40	7.40	1.80	1.40
T.Hardness mg/l	87.88	32	145.00	36.00	29.17
Chloride mg/l	4.97	40	13.00	2.00	2.01
Sulfate mg/l	26.74	42	59.00	9.00	11.91
TDS mg/l	129.58	43	198.00	61.00	34.33
Turbidity NTU	37.33	44	250.00	1.50	51.33

WHI52

WHITE RIVER NR GOSHEN ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.05	43	14.40	5.00	2.17
BOD 5 Day mg/l	1.35	44	4.30	0.20	0.85
pH	7.40	43	8.47	6.73	0.33
TSS mg/l	25.91	44	458.00	1.00	69.33
NO2+NO3-N mg/l	1.18	41	3.15	0.02	0.83
Tot. Phos. mg/l	0.10	38	0.46	0.03	0.09
Tot. Org. C mg/l	3.81	43	9.40	1.40	1.68
T.Hardness mg/l	60.64	33	122.00	25.00	27.53
Chloride mg/l	10.05	43	43.00	2.00	11.24
Sulfate mg/l	24.30	43	89.00	6.00	20.24
TDS mg/l	120.50	45	345.00	57.00	71.24
Turbidity NTU	30.99	45	340.00	4.80	55.32

WHI106

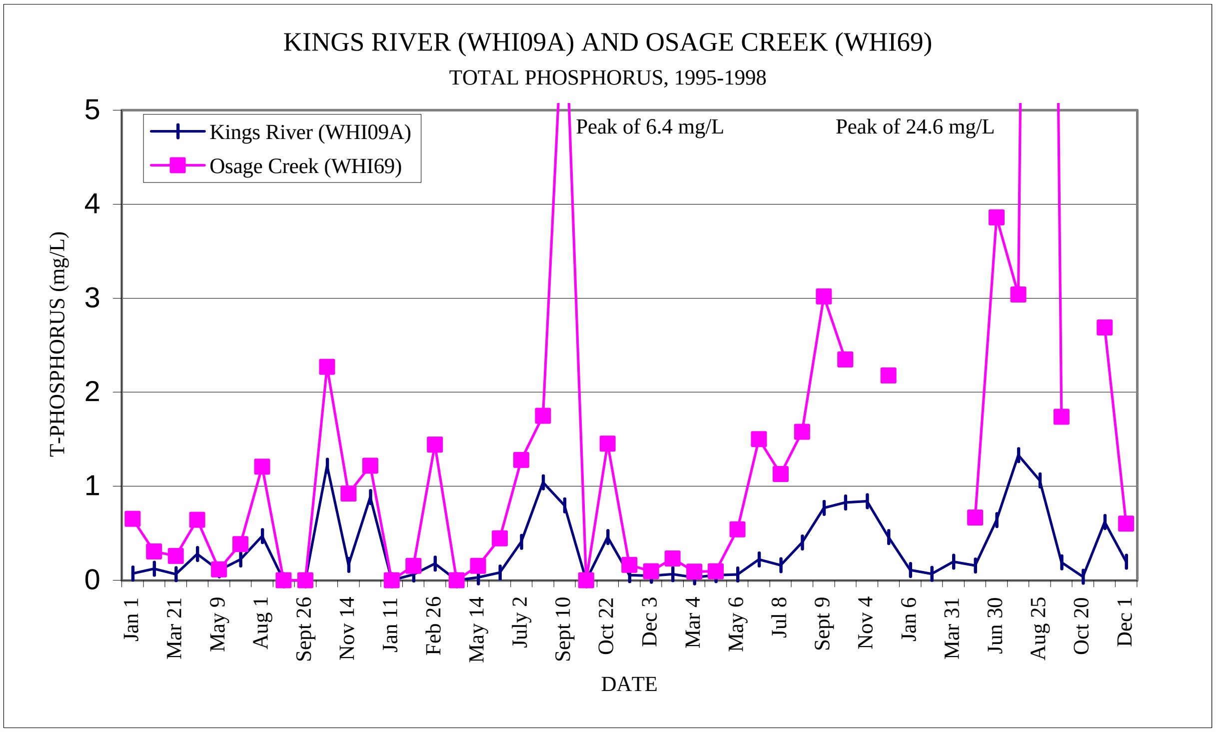
WHITE RIVER @ DURHAM ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	9.41	36	14.10	5.40	2.09
BOD 5 Day mg/l	0.46	42	1.20	0.20	0.24
pH	7.41	41	8.17	6.64	0.40
TSS mg/l	8.29	28	61.00	1.00	16.08
NO2+NO3-N mg/l	0.38	39	1.42	0.02	0.31
Tot. Phos. mg/l	0.05	22	0.10	0.02	0.02
Tot. Org. C mg/l	2.10	40	5.00	1.10	0.94
T.Hardness mg/l	20.49	33	36.00	11.00	6.64
Chloride mg/l	2.34	40	4.00	1.00	0.47
Sulfate mg/l	7.09	41	39.00	2.00	5.76
TDS mg/l	41.00	42	57.00	27.00	7.65
Turbidity NTU	13.13	44	68.00	1.40	18.02

FIGURE A-4K-1

KINGS RIVER AND OSAGE CREEK

TOTAL PHOSPHORUS, 1995-1998



ST. FRANCIS RIVER BASIN

SEGMENTS 5A, 5B, 5C - THE ST. FRANCIS RIVER BASIN (ST. FRANCIS RIVER BASIN)

Segment 5A is located on the east central edge of Arkansas and covers parts of Crittenden, St. Francis, Lee, Phillips and Cross counties. This segment contains the St. Francis River and its principal tributaries Fifteen Mile Bayou, Blackfish Bayou and Tyronza River.

Segment 5B is located in northeast Arkansas and covers parts of Craighead, Poinsett, Cross, St. Francis and Lee counties. This segment includes the entire 98-mile length of the L'Anguille River. The principal tributaries are Brushy Creek, First Creek, Second Creek and Larkin Creek.

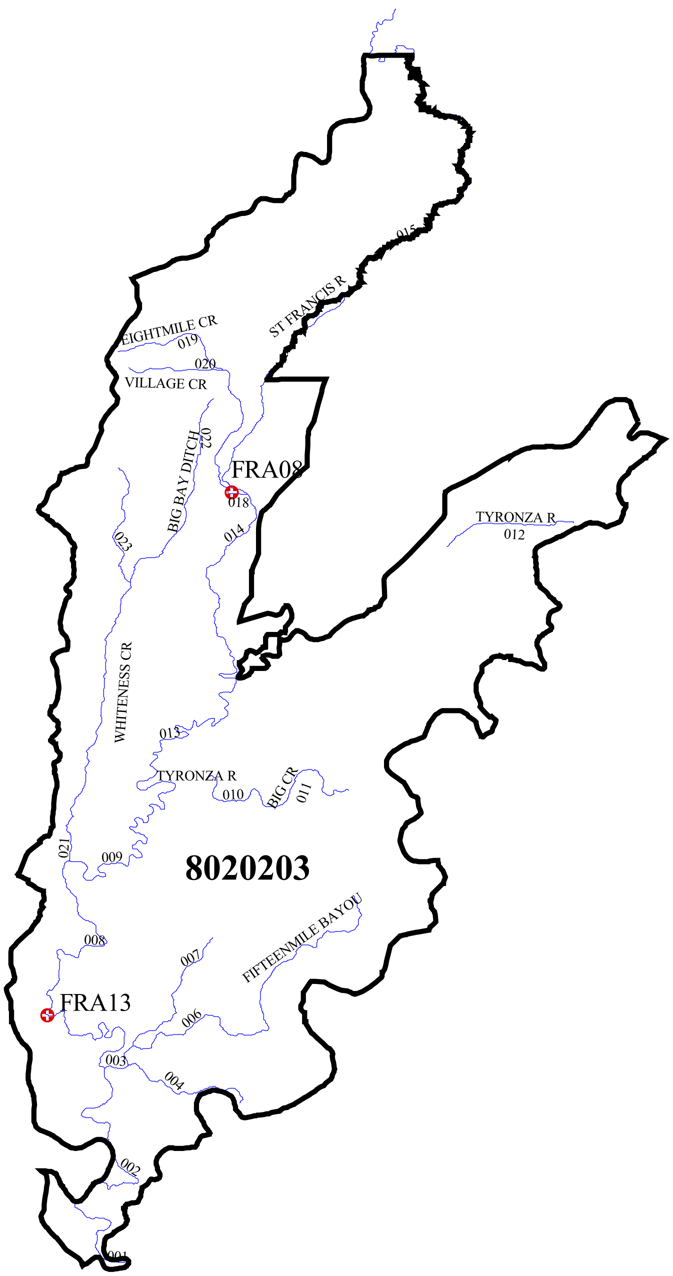
Segment 5C is located in the northeast corner of Arkansas and covers parts of Clay, Greene, Craighead, Mississippi, Poinsett and Cross counties. This segment includes the Little River Basin and Pemiscot Bayou.

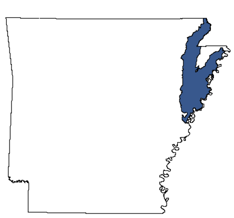
SUMMARY OF WATER QUALITY CONDITIONS IN THE ST. FRANCIS RIVER BASIN

The waters within these segments have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. These three segments are discussed as one unit due to the consistent nature of the water quality. The overriding impact of land use on water quality can be seen in this segment. This basin contains 833.6 stream miles of which approximately 15 percent are designated as outstanding resources. Approximately 45% of the waters within this basin were assessed; 174.9 miles were monitored and 199.5 miles evaluated. The assessment concludes that essentially all of the streams within these segments have high turbidity and silt loads carried into the streams from row crop agriculture activities. This condition was encouraged by the drainage of lowland areas and by ditching and the channelization of streams to facilitate the runoff. The continuation of such activities and the continuous maintenance dredging of the ditches and streams aggravates and further deteriorates the conditions.

Because of the very high levels of turbidity during high flows and consistently elevated values during other flows, the entire length of the L’Anguille River was assessed as not supporting the aquatic life uses.

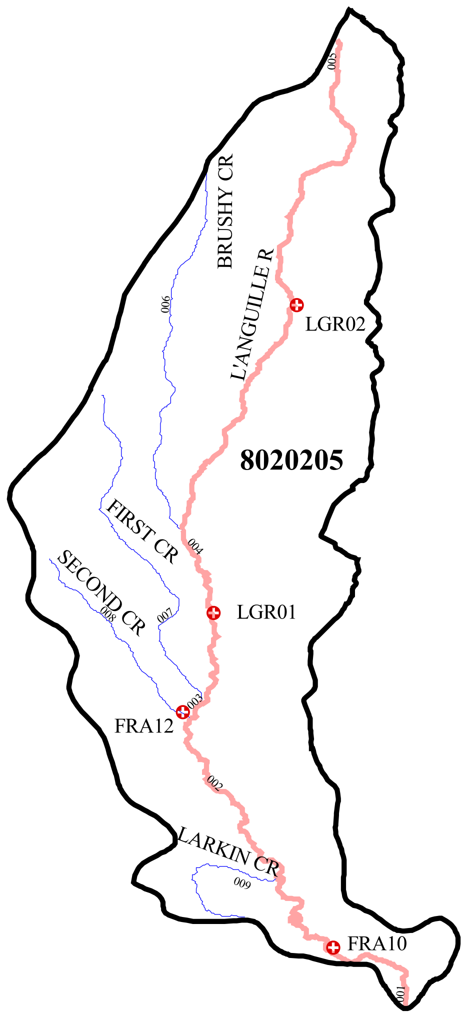
Planning Segment 5A - Monitoring Stations

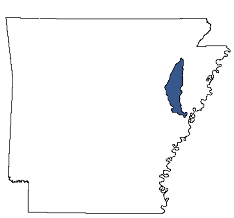




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-5A																		
St. Francis R.	8020203	-001	11.9		U											FISH CONSUMPTION	259.6	0
St. Francis R.	8020203	-002	25.5		E	S	S		S	S	S					AQUATIC LIFE	259.6	0
Blackfish Bayou	8020203	-003	2.4		U											SWIMMING	55.9	0
Frenchmans B.	8020203	-004	14.5		U											SECONDARY CONTACT	259.6	0
Blackfish Bayou	8020203	-005	2.6		U											DRINKING SUPPLY	259.6	0
Fifteen Mile B.	8020203	-006	38.4		U											AGRI & INDUSTRY	259.6	0
Blackfish Bayou	8020203	-007	16.1		U													
St. Francis R.	8020203	-008	55.9	FRA13	M	S	S	S	S	S	S							
St. Francis R.	8020203	-009	17.1		E	S	S		S	S	S							
Tyronza River	8020203	-010	8.4		U													
Big Creek	8020203	-011	15.8		U													
Tyronza River	8020203	-012	12.8		U													
St. Francis R.	8020203	-013	47.5		E	S	S		S	S	S							
St. Francis R.	8020203	-014	22.8	FRA08	M	S	S		S	S	S							
St. Francis R.	8020203	-015	90.8		E	S	S		S	S	S							
Eightmile Ditch	8020203	-018	17.8		U													
Eightmile Ditch	8020203	-019	12.8		U													
Village Creek	8020203	-020	9		U													
Whiteness Cr.	8020203	-021	33.6		U													
Big Boy Creek	8020203	-022	24.2		U													
Whiteness Cr.	8020203	-023	15		U													
TOTAL MILES	494.9																	
MILES UNASSESSED	235.3																	
MILES EVALUATED	180.9																	
MILES MONITORED	78.7																	

Planning Segment 5B - Monitoring Stations



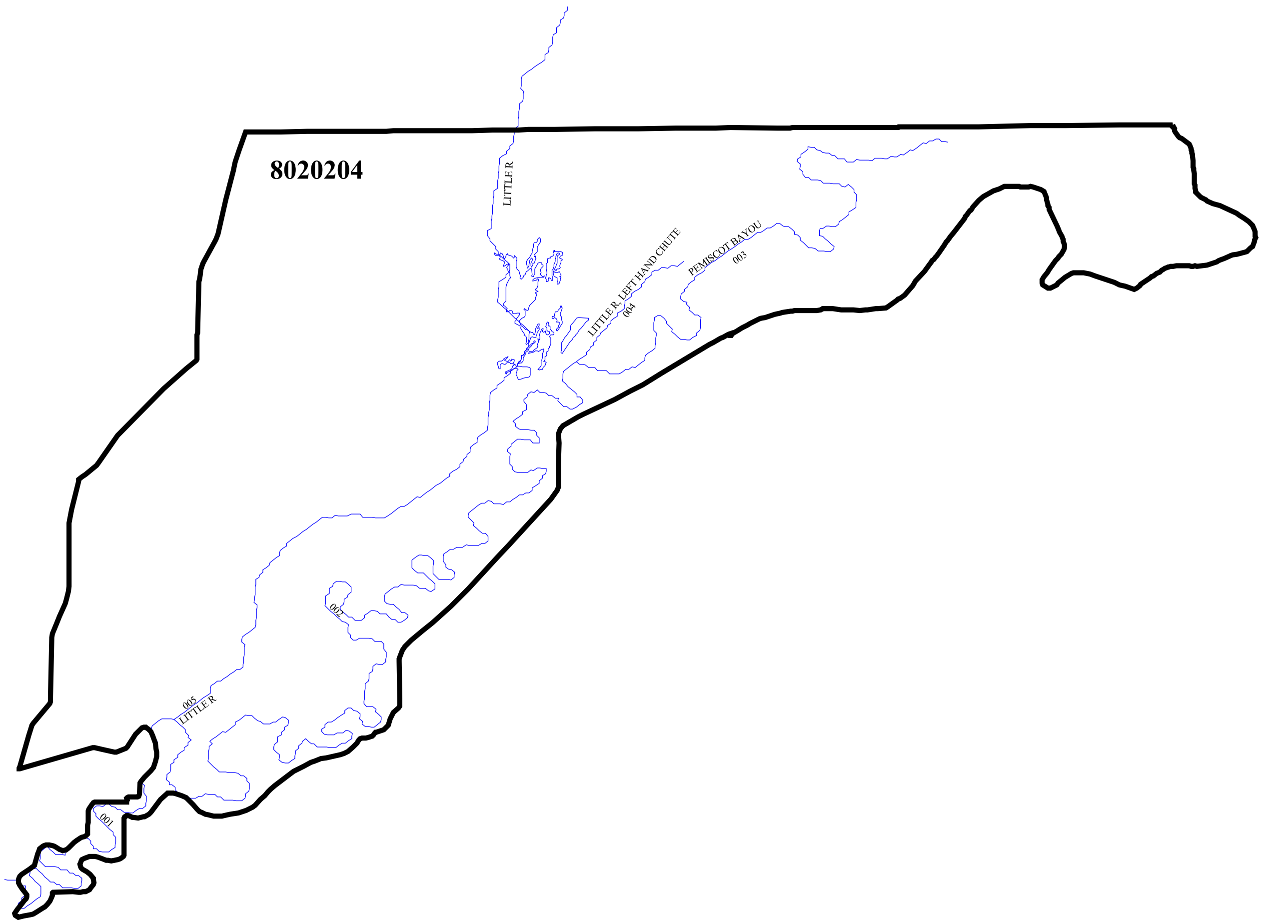


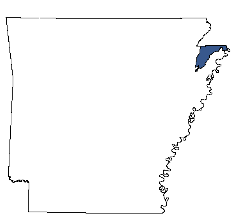
Use Not Supported

(Segment 5B)

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-5B																		
L'Anguille R.	8020205	-001	19.7	FRA10	M	S	N	S	S	S	S	AG		SI		FISH CONSUMPTION	114.8	0
L'Anguille R.	8020205	-002	16.8		E	S	N		S	S	S	AG		SI		AQUATIC LIFE	16.4	98.4
L'Anguille R.	8020205	-003	1.8		E	S	N		S	S	S	AG		SI		SWIMMING	96.2	0
L'Anguille R.	8020205	-004	16	LGR01	M	S	N	S	S	S	S	AG		SI		SECONDARY CONTACT	114.8	0
L'Anguille R.	8020205	-005	44.1	LGR02	M	S	N	S	S	S	S	AG		SI		DRINKING SUPPLY	114.8	0
Brushy Creek	8020205	-006	30.7		U											AGRI & INDUSTRY	114.8	0
First Creek	8020205	-007	27.9		U													
Second Creek	8020205	-008	16.4	FRA12	M	S	S	S	S	S	S							
Larkin Creek	8020205	-009	12.3		U													
TOTAL MILES	185.7																	
MILES UNASSESSED	70.9																	
MILES EVALUATED	18.6																	
MILES MONITORED	96.2																	

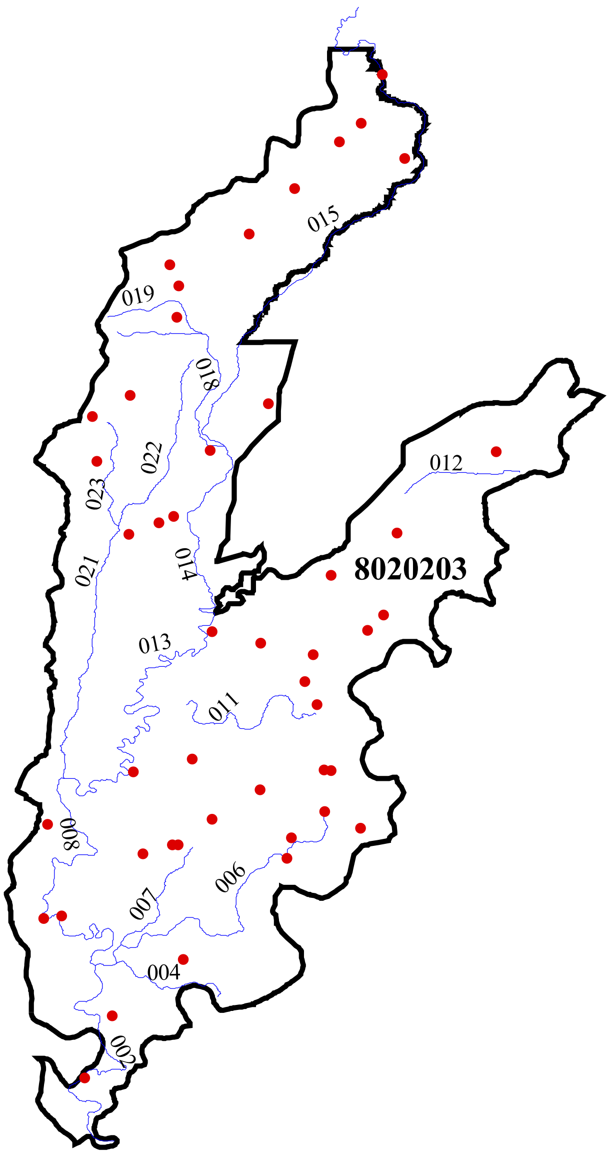
Planning Segment 5C - Monitoring Stations

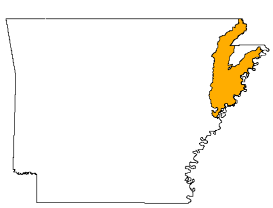




STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-5C																		
Little River	8020204	-001	20.3		U											FISH CONSUMPTION	0	0
Little River	8020204	-002	61.7		U											AQUATIC LIFE	0	0
Pemiscot Bayou	8020204	-003	28		U											SWIMMING	0	0
Little River	8020204	-004	6		U											SECONDARY CONTACT	0	0
Little River	8020204	-005	37		U											DRINKING SUPPLY	0	0
TOTAL MILES	153															AGRI & INDUSTRY	0	0
MILES UNASSESSED	153																	
MILES EVALUATED	0																	
MILES MONITORED	0																	

Planning Segment 5A - NPDES Permitted Facilities





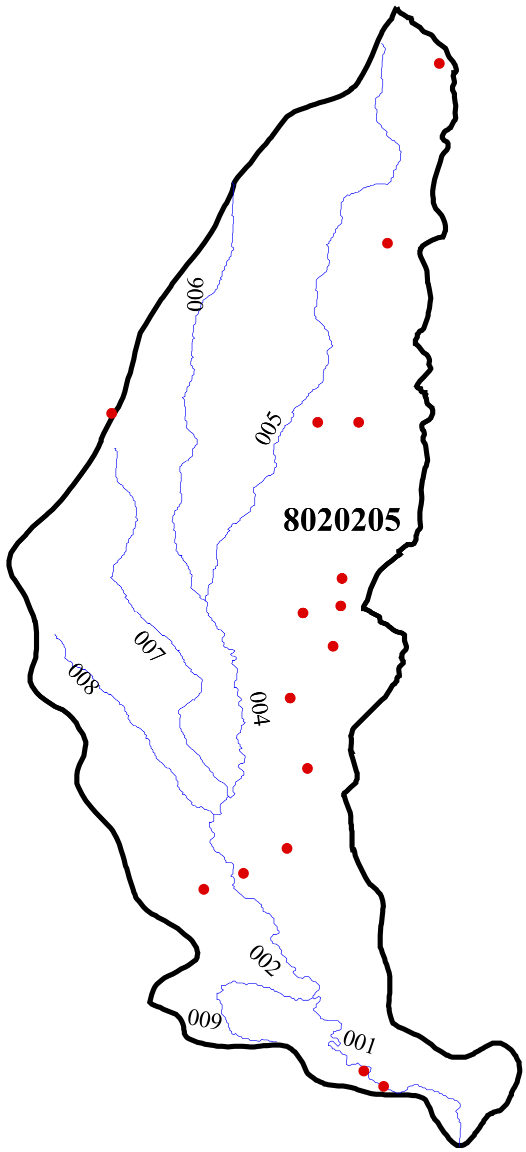
Active NPDES Permits

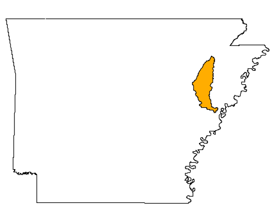
Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0021547	HUGHES, CITY OF	CROOKED BU/MILLSEED LK/ST. FRANCIS	8020203	5A
AR0021911	RECTOR, CITY OF	POST OAK CK,BIG SLOUGH DIT,5C-ST FR	8020203	5A
AR0021954	TURRELL, CITY OF	BIG CK/TYRONZA RV/ST FRANCIS RV-RB	8020203	5A
AR0021971	MARION, CITY OF	15 MI BU,5A-ST. FRANCIS RB	8020203	5A
AR0022152	JOINER, CITY OF	DITCH 4&7/FRENCHMAN'S BU/ST FRANCIS	8020203	5A
AR0022195	CRAWFORDSVILLE, CITY OF	ALLIGATOR BU/BLACKFISH BU/ST FRANCI	8020203	5A
AR0033430	MARKED TREE, CITY OF-POND #2	ST FRANCIS RV,5C-ST FRANCIS RB	8020203	5A
AR0033472	PIGGOTT, CITY OF	BIG SLOUGH DIT, ST FRANCIS RV	8020203	5A
AR0033766	PARAGOULD, CITY LIGHT, WATER &	DIT, 8-MILE CK, ST FRANCIS RV	8020203	5A
AR0033588	PARKIN, CITY OF	ST FRANCIS RV,5C-ST FRANCIS RB	8020203	5A
AR0033651	MONETTE, CITY OF	LITTLE DITCH #3/5C-ST. FRANCIS RB	8020203	5A
AR0034134	LAKE CITY, CITY OF	PURCELL SLOUGH (DT 9),ST FRANCIS RB	8020203	5A
AR0034304	EARLE, CITY OF	PLANT/TYRONZA RV/SEG 5A-ST FRANC RB	8020203	5A
AR0034312	BAY, CITY OF	DITCH #6/MAIN DITCH/5C-ST FRANCIS R	8020203	5A
AR0034754	KEISER, CITY OF	TYRONZA RV/SEG 5D-ST. FRANCIS RB	8020203	5A
AR0035602	TRUMANN, CITY OF-WWTP	DIT #60	8020203	5A
AR0035629	MARMADUKE, CITY OF	BIG SLOUGH DITCH/5C-ST. FRANCIS RB	8020203	5A
AR0035637	TYRONZA, CITY OF	TYRONZA RV/SEG. 5D OF ST FRANCIS RB	8020203	5A
AR0036790	GARLOCK RUBBER TECHNOLOGIES	JOHNSON CREEK TRIB	8020203	5A
AR0036897	USA-COE W.G.HUXTABLE PUMP PLAN	ST.FRANCIS RV,5A-ST.FRANCIS RB	8020203	5A
AR0037010	MEMPHIS GATEWAY TRAVEL CTR, INC	DIT,TEN MILE BU,5A-ST FRANCIS RB	8020203	5A
AR0037893	MADISON, CITY OF	ST. FRANCIS RV,5C-ST.FRANCIS RB	8020203	5A
AR0037974	BROOKLAND, CITY OF	MAPLE SLOUGH DITCH/ST FRANCIS RV/RB	8020203	5A
AR0038202	AR PARKS & TOURISM-VILLAGE CK	VILLAGE CK, CLARK CORNER CUTOFF	8020203	5A
AR0039047	DYESS, CITY OF	TYRONZA RIVER/SEG 5D-ST FRANCIS RB	8020203	5A
AR0042196	NIMMONS, CITY OF	DIT,HAMPTON SLU	8020203	5A
AR0043087	WIDENER, CITY OF	ST. FRANCIS RV/SEG 5A-ST FRANCIS RB	8020203	5A
AR0043320	GREENWAY, CITY OF	BIG SLOUGH DIT TRIB	8020203	5A
AR0043401	JONESBORO CITY WATER & LIGHT-E	WHITEMAN’S CK	8020203	5A
AR0043591	ST FRANCIS, CITY OF	ST FRANCIS RV	8020203	5A
AR0044024	BEST HOLIDAY TRAV-L-PARK	DIT, 15-MILE BU, ST FRANCIS RV	8020203	5A

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0044237	BURDETTE, TOWN OF	DIT #24,#6,TYRONZA RV,ST.FRANCIS RV	8020203	5A
AR0044521	HERITAGE HILLS MHP	TRIB-LATERAL #1/SEG 5C-ST FRANCIS R	8020203	5A
AR0044661	EDMONDSON, CITY OF	15-MI BU,BLACKFISH BU,5A-ST.FRANCIS	8020203	5A
AR0044695	LAKESIDE INN	SHELL LK,BLACKFISH BU,5A-ST.FRANCIS	8020203	5A
AR0044890	NIMOCKS OIL COMPANY, INC.	TRIB,15-MILE BU,5A-ST.FRANCIS RB	8020203	5A
AR0045021	GILMORE, CITY OF	LT CYPRESS DIT#9,BIG CK,5A-ST.FRANC	8020203	5A
AR0045403	TRUCKSTOPS OF AMERICA	DIT #22,5A-ST FRANCIS RB	8020203	5A
AR0045578	AR DEPT OF CORRECTION-EAST AR	ST. FRANCIS RV,5A-ST FRANCIS RB	8020203	5A
AR0045837	OAK GROVE HEIGHTS, CITY OF	TRIB/LOCUST CK,5C-ST.FRANCIS RB	8020203	5A
AR0045918	PARKER HANNIFIN CORP	DIT #14 TRIB,DIT #10	8020203	5A
AR0045934	BIRDSONG, TOWN OF	SNAKE LK,LAMB BU,DIT#1,...,BIG CK	8020203	5A
AR0046272	BASSETT, CITY OF	DIT #5 TRIB	8020203	5A
AR0046761	WILLIAMS EXPRESS #3155	TRIB/N.BLACKFISH BU,5A-MS RB	8020203	5A
AR0047490	FLASH MARKET	RR DIT,15-MI BU,5A-ST.FRANCIS RV&RB	8020203	5A
AR0048151	JEANNETTE, CITY OF	BLACKFISH BU, ST FRANCIS RV	8020203	5A

Planning Segment 5B - NPDES Permitted Facilities

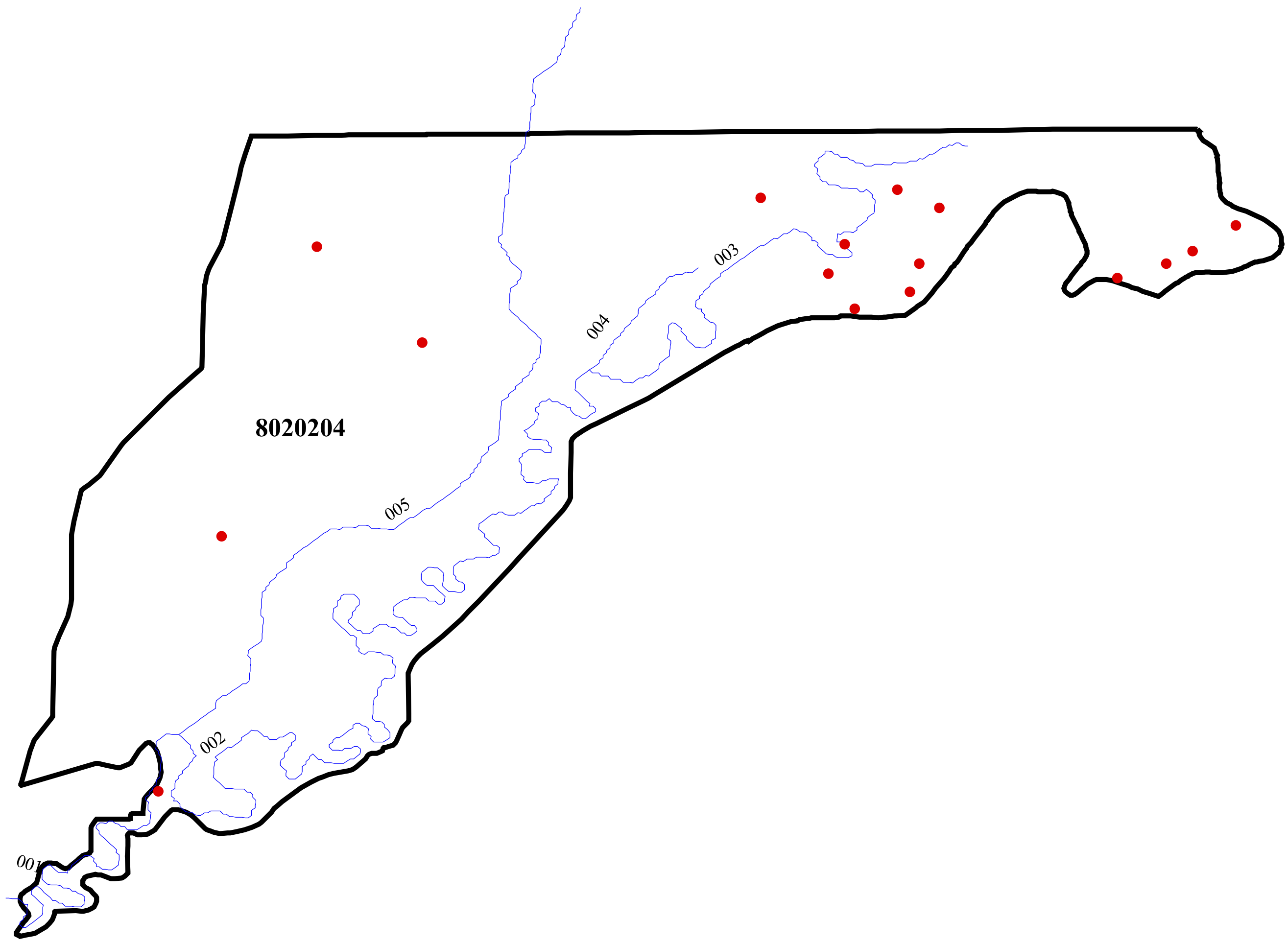


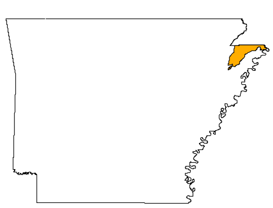


Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0000370	ENTERGY AR, INC-HAMILTON MOSES	TRIB,L'ANGUILLE RV	8020205	5B
AR0020087	FORREST CITY, CITY OF	TRIB,L'ANGUILLE RV,5B-ST.FRANCIS RB	8020205	5B
AR0021393	CHERRY VALLEY, CITY OF	COPPER CK,WOLF CK,L'ANGUILLE RV,5B	8020205	5B
AR0021903	WYNNE, CITY OF	DIT,CANEY,CK,L'ANGILLE RV,5B-ST FRA	8020205	5B
AR0022632	MUELLER IND, INC	TURKEY CK,L'ANGUILLE RV	8020205	5B
AR0033863	HARRISBURG, CITY OF	TOWN CK,LTRL T,HOLLOW BR,L'ANGUILLE	8020205	5B
AR0034142	MARIANNA, CITY OF-POND B	L'ANGUILLE RIVER/ST FRANCIS RV-RB	8020205	5B
AR0034169	MARIANNA, CITY OF-POND A	L'ANGUILLE RV/ST FRANCIS RV & RB	8020205	5B
AR0034720	HICKORY RIDGE, CITY OF	BAYOU DEVIEW/SEG 5B-ST. FRANCIS RB	8020205	5B
AR0038679	ANDREWS TRAILER PK	BEAR&CANEY CK/L'ANGUILLE RV/ST FRAN	8020205	5B
AR0038806	FORREST CITY SCHOOL DIST #7	BIG TELICO CK/SO. HWYS 1 & 261 INTR	8020205	5B
AR0039365	PALESTINE, CITY OF	TRIB-COFFEE CK/L'ANGUILLE RV/ST FRA	8020205	5B
AR0041394	HARWICK CHEMICAL MFG CORP	TURKEY CK,INDIAN CK,L'ANGUILLE RV	8020205	5B
AR0043192	COLT, CITY OF	TAYLOR CK DIT/L'ANGUILLE RV/ST FRAN	8020205	5B
AR0044041	CROSS CO SCHOOL DIST #7	COOPER CK,L'ANGUILLE RV,5B-ST.FRANC	8020205	5B
AR0048658	HUNTER GLEN SUBDIVISION	CK, DIT #1, MULLIGAN LTRL, L'ANGUILLE	8020205	5B

Planning Segment 5C - NPDES Permitted Facilities





Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0020028	CARAWAY, CITY OF	DITCH/ASHER & #4 DIT./ST FRANCIS RB	8020204	5C
AR0021881	MANILA, CITY OF	DITCH #81/LITTLE RV/ST FRANCIS RB	8020204	5C
AR0021962	GOSNELL, CITY OF	DITCH 29/PEMISCOT/SEG 5C-ST FRANCIS	8020204	5C
AR0022012	LEACHVILLE, CITY OF	HONEY CYPRESS DT 2/BUFFALO/ST FRANC	8020204	5C
AR0022560	BLYTHEVILLE, CITY OF-WEST WWTP	DITCH 27/SEG 5C-ST FRANCIS RV BASIN	8020204	5C
AR0022578	BLYTHEVILLE, CITY OF-SOUTH WWP	DIT,DIT 17,6,1,ST FRANCIS RB	8020204	5C
AR0022586	BLYTHEVILLE, CITY OF-NORTH WWP	DRAINAGE DITCH #30 TRIB.	8020204	5C
AR0023841	LEPANTO, CITY OF-BOARD OF PUB	LEFT HAND CHUTE,LITTLE RV,5C-ST.FRA	8020204	5C
AR0039713	ENTERGY AR, INC-BLYTHEVILLE	DIT #36,5D-ST FRANCIS RB	8020204	5C
AR0041441	BUSH BROTHERS & CO-BLYTHEVILLE	DIT,DIT #37,PEMISCOTT BU	8020204	5C
AR0044181	QUARLES WHEEL ACRES	DIT 36,PEMISCOT BU,5C-ST.FRANCIS RB	8020204	5C
AR0045977	NUCOR STEEL-ARKANSAS	DIT38,CROOKED L BU,PEMISCOT BU,ST F	8020204	5C
AR0046094	FOX MEADOWS MHP	KRUTZ DIT TRIB	8020204	5C
AR0046523	MAVERICK TUBE CORP	DIT #38,CROOKED BU,PEMISCOT BU	8020204	5C
AR0046663	MG INDUSTRIES	DIT, DIT 14A, DIT 13, TYRONZA RV	8020204	5C
AR0048178	HUNTCO STEEL, INC	DIT 38,PEMISCOT BU,LTL RV,ST.FRANCI	8020204	5C

FRA13
ST FRANCIS RIVER AT MADISON ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.51	38	14.50	3.80	2.42
BOD 5 Day mg/l	1.71	42	8.50	0.30	1.21
pH	7.51	40	8.70	6.93	0.35
TSS mg/l	47.64	44	189.00	9.00	44.72
NO2+NO3-N mg/l	0.22	38	0.76	0.02	0.15
Tot. Phos. mg/l	0.20	41	0.39	0.05	0.08
Tot. Org. C mg/l	5.76	41	12.10	2.90	1.72
T.Hardness mg/l	113.48	31	203.00	28.00	43.78
Chloride mg/l	7.17	39	12.00	4.00	2.05
Sulfate mg/l	14.69	41	28.00	5.00	4.95
TDS mg/l	174.39	41	252.00	127.00	32.69
Turbidity NTU	52.70	42	188.00	9.30	44.84

FRA08
ST FRANCIS RIVER AT LAKE CITY AR

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	8.20	30	14.70	3.90	2.69
BOD 5 Day mg/l	1.89	42	6.20	0.60	1.01
pH	7.33	39	9.38	6.17	0.61
TSS mg/l	30.72	38	204.00	3.00	33.57
NO2+NO3-N mg/l	0.24	41	1.73	0.03	0.28
Tot. Phos. mg/l	0.23	42	2.00	0.04	0.30
Tot. Org. C mg/l	6.15	42	14.30	3.70	1.97
T.Hardness mg/l	99.13	32	225.00	43.00	39.30
Chloride mg/l	7.16	39	18.00	2.00	3.99
Sulfate mg/l	10.58	41	16.00	5.00	2.57
TDS mg/l	153.91	42	350.00	87.00	48.10
Turbidity NTU	56.83	41	280.00	7.10	67.24

FRA10

L'ANGUILLE RIVER NR MARIANNA ARK

PARAMETER	MEAN	NO. OF SAMPLES	MAX	MIN	STD. DEV.
---------	----	-------	---	---	----
Dissolved Oxygen mg/l	7.46	39	18.10	3.90	2.78
BOD 5 Day mg/l	1.85	43	8.80	0.40	1.25
pH	7.49	41	8.25	6.76	0.32
TSS mg/l	46.70	45	197.00	8.00	47.95
NO2+NO3-N mg/l	0.22	38	0.60	0.03	0.14
Tot. Phos. mg/l	0.21	42	0.44	0.06	0.09
Tot. Org. C mg/l	7.46	42	63.20	2.90	9.11
T.Hardness mg/l	112.16	32	202.00	29.00	43.68
Chloride mg/l	7.93	40	27.00	4.00	4.14
Sulfate mg/l	14.81	42	27.00	4.00	4.80
TDS mg/l	177.10	42	260.00	128.00	36.97
Turbidity NTU	53.07	43	180.00	7.20	44.84

MISSISSIPPI RIVER BASIN

SEGMENTS 6A, 6B AND 6C

These three segments comprise the Mississippi River Basin, which consists of a 437 mile reach of the Mississippi River. It is levied throughout its total length within the state. Segment 6A contains a 129.9-mile reach of the Mississippi from its confluence with the Arkansas River to the Arkansas-Louisiana state line. No surface drainage enters this reach below the Arkansas River except from the Lake Chicot pumping plant on Macon Bayou. Segment 6B consists of a 137.2-mile reach of the Mississippi from its confluence with the St. Francis River to the confluence with the Arkansas River. All drainage from the White River Basin reaches the Mississippi River at the lower end of this reach. Segment 6C is a 174.4-mile reach of the Mississippi from the Arkansas-Missouri state line to its confluence with the St. Francis River. All surface drainage from the St. Francis River Basin within Arkansas enters the Mississippi River via the St. Francis River at the end of this reach.

SUMMARY OF WATER QUALITY CONDITIONS IN THE MISSISSIPPI RIVER BASIN

The waters within these segments have been designated as suitable for the propagation of fish/wildlife, primary and secondary contact recreation and public, industrial and agricultural water supplies. These three segments include 437 miles of the Mississippi River. No recent data was available to assess the Mississippi River; however, USGS Circular 1133 provides an extensive review of the Mississippi River water quality from 1987-92. For the 305(b) report all waters of the Mississippi adjacent to Arkansas are listed as unassessed.

STREAM NAME	H.U.C.	REACH	MILES	STATION	ASSESS	FC	AL	SW	SC	DW	AI	MJS	MNS	MJC	MNC	USE	SUPPORT	NOT SUPPORT
SEG-6																		
Mississippi R.	8010100	-001	6.2		U											FISH CONSUMPTION	0	0
Mississippi R.	8010100	-002	7.8		U											AQUATIC LIFE	0	0
Mississippi R.	8010100	-003	8.6		U											SWIMMING	0	0
Mississippi R.	8010100	-004	4.8		U											SECONDARY CONTACT	0	0
Mississippi R.	8010100	-005	4.8		U											DRINKING SUPPLY	0	0
Mississippi R.	8010100	-007	2.3		U											AGRI & INDUSTRY	0	0
Mississippi R.	8010100	-008	10.1		U													
Mississippi R.	8010100	-009	19.4		U													
Mississippi R.	8010100	-010	24.3		U													
Mississippi R.	8010100	-011	4.8		U													
Mississippi R.	8010100	-012	4		U													
Mississippi R.	8010100	-013	5.8		U													
Mississippi R.	8010100	-017	16.8		U													
Mississippi R.	8010100	-018	43.6		U													
Mississippi R.	8010100	-034	6.6		U													
Mississippi R.	8020100	-001	18		U													
Mississippi R.	8020100	-002	76.1		U													
Mississippi R.	8020100	-003	43.1		U													
Mississippi R.	8030100	-003	56.6		U													
Mississippi R.	8030100	-005	4.7		U													
Mississippi R.	8030100	-006	8.9		U													
Mississippi R.	8030100	-007	3.8		U													
Mississippi R.	8030100	-009	2.6		U													
Mississippi R.	8030100	-011	19.2		U													
Mississippi R.	8030100	-012	34.1		U													
TOTAL MILES	437																	
MILES UNASSESSED	437																	
MILES EVALUATED	0																	
MILES MONITORED	0																	

Active NPDES Permits

Permit Number	Facility Name	Receiving Waters	USGS H.U.C. Code	Planning Segment
AR0035751	ARKANSAS CITY, CITY OF	MISSISSIPPI RV	8030100	6A
AR0035823	POTLATCH CORP-MCGEHEE	MISSISSIPPI,6A-MS RB	8030100	6A
AR0000019	ADM-HELENA	MISSISSIPPI RV,6B-MS RB	8020100	6B
AR0000035	G & B TERMINAL INC	MISSISSIPPI RV,6B-MS RB	8020100	6B
AR0000388	ENTERGY AR, INC-RITCHIE PLANT	MS RV (1,2,3) & LONG CK BU (4,5)	8020100	6B
AR0043389	HELENA, CITY OF	MS. RIVER - SEG. 6B OF MS. RVR. BAS	8020100	6B
AR0000361	TERRA NITROGEN LTD PARTNERSHIP	001-MISSISSIPPI RV/002-ST FRANCIS R	8010100	6C
AR0021580	OSCEOLA, CITY OF	MISSISSIPPI RV,6C-MS RB	8010100	6C
AR0022039	WEST MEMPHIS, CITY OF-WWTP	MISSISSIPPI RV,6C-MS RB	8010100	6C
AR0022314	WILSON, CITY OF	MISSISSIPPI RV	8010100	6C
AR0033782	LUXORA, CITY OF	MISSISSIPPI RV	8010100	6C
AR0036544	VISKASE CORP-OSCEOLA PLANT	1:6C-MS RB; 2&3:5D-ST.FRANCIS RB	8010100	6C
AR0037770	CIBA SPECIALITY CHEMICALS WT	MS. RIVER IN SEGMENT 6C OF MS. RVR.	8010100	6C
AR0041831	S-R OF ARKANSAS	MS RV-6C (2) & TYRONZA RV-5D (1)	8010100	6C
AR0043117	NUCOR-YAMATO STEEL CO-ARMOREL	MISSISSIPPI-6C (1) & DIT #14A-5D (2)	8010100	6C
AR0045101	FRUIT OF THE LOOM, INC	MISSISSIPPI RV,6C-MS RB	8010100	6C
AR0048224	CANAL GARDENS POA	ROCK POINT LANDING,6C-MS RB	8010100	6C

APPENDIX B

AMBIENT GROUND WATER MONITORING PROGRAM DATA

The following tables list data specific to each monitoring area sampled during the Federal Fiscal years 1997 through 1999. The tables identify sampling locations for each monitoring area, list descriptive statistics for each monitoring area, and summarize all volatile organic compounds and semi-volatile organic compounds (including pesticides) detected during the referenced period. Most of the tables contain spaces occupied by a single dash. These dashes represent unavailable data or, in the case of Table 19B, indicate a non-detectable concentration. For statistical analyses (calculating mean), a value of one half the detection limit was used in cases where the value is displayed as "less than" the detection limit.

The following abbreviations are used in the Sampling Locations tables:

NA	=	not applicable
S	=	spring
W	=	well
C/I	=	commercial/industrial
D	=	domestic
I	=	irrigation
M	=	municipal
St	=	stock
U	=	unused
NT	=	not tested (not analyzed for specified parameter)

The following chemical abbreviations are used in the Selected Descriptive Statistics tables:

TDS	=	total dissolved solids	Cl	=	chloride
HCO_3	=	bicarbonate	Fe	=	iron
NH_3-N	=	ammonia-nitrogen	F	=	fluoride
NO_3-N	=	nitrate-nitrogen	K	=	potassium
O-Phos.	=	ortho-phosphate	Mg	=	magnesium
T-Phos.	=	total phosphorous	Mn	=	manganese
SO_4	=	sulfate	Na	=	sodium
Ba	=	barium	SiO_2	=	silica
Ca	=	calcium			

Table 1B - Brinkley Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
MON103	08/25/98	03N02W08ABB1	34 53 47.4	91 13 55.7		Alluvial	D
MON116	08/25/98	03N02W08ABB1	34 53 47.4	91 13 55.7		Alluvial	D
MON121	08/25/98	03N02W16AAA1	34 52 55.0	91 12 18.4	160	Alluvial	I
MON122	08/25/98	03N02W22ACD1	34 51 42.8	91 11 43.4	65	Alluvial	D
MON129	09/01/98	03N02W23CCD1	34 51 14.3	91 11 04.5	100	Alluvial	D
MON162	08/24/98	04N02W22DAD1	34 56 37.5	91 11 18.8		Alluvial	I
MON182	08/24/98	04N02W30BAC1	34 56 17.0	91 15 13.6	101	Alluvial	P
MON183	08/24/98	04N02W30BAD1	34 56 16.7	91 15 04.2	111	Alluvial	P
MON304	08/25/98	04N02W02DDD1	34 57 17.9	91 10 54.1	110	Alluvial	D
MON310	09/01/98	02N02W14ACB1	34 47 23.6	91 10 51.5	140	Alluvial	I
MON315	08/24/98	04N02W28DDD1	34 55 36.6	91 12 19.9	~120	Alluvial	I
MON316	08/24/98	04N02W29DDB1	34 55 47.9	91 13 35.4	~60	Alluvial	I
MON318	08/24/98	04N02W21CDA1	34 55 47.6	91 12 28.0	121	Alluvial	I
MON322	08/24/98		34 56 24.4	91 11 34.9			I
MON323	08/25/98		34 45 24.0	91 10 20.0			I
MON324	08/25/98		34 44 45.5	91 12 03.0			I
MON325	08/25/98		34 44 47.2	91 17 00.8			I
MON326	08/25/98		34 45 20.0	91 16 59.8			I
MON327	08/25/98		34 52 04.6	91 12 54.9			I
MON328	09/01/98		34 48 31.7	91 11 14.8			I
MON329	09/01/98		34 51 60.0	91 08 55.4			D
MON330	09/01/98		34 49 04.6	91 07 07.8			I
MON331	09/01/98		34 49 54.0	91 07 03.4			I
MON332	09/01/98		34 51 10.9	91 08 34.1			I
MON333	09/01/98		34 47 17.3	91 14 32.1			I
MON334	09/01/98		34 49 17.7	91 13 28.5			I
MON335	09/01/98		34 49 20.3	91 14 44.3			I

Table 2B - Brinkley Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity	TDS	Alkalinity	HCO3	NH3-N	NO3-N	O-Phos.	T-Phos.	SO4	Ba	Ca	Cl	Fe	F	K	Mg	Mn	Na	SiO2
		uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
MON103	7.43	948	541	327	399	0.496	<0.010	0.021	0.522	7.49	246.50	86.80	115	4920	0.318	1.620	28.7	388.3	80.60	40.00
MON116	7.32	791	498	378	461	0.453	<0.010	0.02	0.356	23.8	264.30	97.22	36.4	2840	0.221	<0.46	33.1	328.5	34.30	37.30
MON121	7.16	1015	652	394	481	0.631	<0.010	0.02	0.488	112	409.40	105.90	44.7	3200	0.207	<0.46	41.5	389.1	38.50	33.90
MON122	7.22	1042	655	434	529	0.735	<0.010	0.02	0.466	46.2	398.40	131.20	82.5	3230	0.209	1.110	41.6	345.2	49.60	31.90
MON129	7.04	1080	733	422	515	0.205	0.0170	0.241	0.409	121.3	48.8	30.8	50.1	779	0.206	2.600	9.0	108.4	229.0	29.8
MON162	7.16	544	305	261	318	0.258	<0.010	0.04	0.199	1.58	151.30	69.24	7.8	1230	0.234	0.950	19.7	372.8	17.00	33.90
MON182	6.88	209	140	73	89	0.071	0.0460	0.031	0.23	9.06	119.20	21.50	4.33	4830	0.147	1.460	6.7	586.7	6.98	42.00
MON183	6.70	193	132	61	74	0.072	0.2410	0.037	0.132	10.5	112.80	13.83	6.75	6190	0.129	<0.46	5.7	700.6	7.58	42.40
MON304	7.28	1033	684	354	432	0.553	<0.010	0.05	0.504	154	195.20	111.60	56.1	2020	0.237	0.670	35.4	931.4	90.40	31.40
MON310	7.46	1521	1048	430	525	1.002	0.0190	0.012	0.369	94.7	466.1	151.5	242	4470	0.224	4.000	53.1	414.4	143.0	28.7
MON315	7.21	2160	1130	383	467	0.857	<0.010	0.031	0.321	9.32	430.40	102.70	458	2160	0.307	8.880	27.6	392.1	316.00	30.80
MON316	8.12	867	462	235	287	0.742	<0.010	0.665	0.726	1.89	56.22	8.81	98	212	0.814	2.850	1.9	18.4	173.00	18.80
MON318	7.30	1440	768	360	439	0.69	<0.010	0.277	0.615	11.4	248.30	45.08	212	1270	0.808	4.550	12.8	161.1	239.00	22.20
MON322	6.95	704	392	322	393	0.321	<0.010	0.022	0.252	5.65	177.80	60.99	20.9	1620	0.241	0.540	22.2	427.6	43.70	33.30
MON323	7.30	861	576	368	449	0.64	<0.010	0.019	0.132	53.4	305.30	115.80	66.4	2150	0.197	2.260	35.6	365.4	50.50	33.90
MON324	7.12	688	454	304	371	0.283	<0.010	0.021	0.482	56.5	511.30	89.38	20.4	4450	0.269	0.890	28.9	879.8	21.40	48.00
MON325	7.24	651	409	260	317	0.344	<0.010	0.012	0.339	35.2	604.40	94.07	43	3990	0.21	2.130	23.4	606.2	17.60	38.60
MON326	7.32	736	486	334	407	0.353	<0.010	0.02	0.417	43	752.50	116.20	36.4	5710	0.208	2.470	29.4	1037.0	27.00	42.30
MON327	7.27	715	443	338	412	0.61	<0.010	0.024	0.433	20.7	232.50	106.80	35.5	2220	0.215	1.150	29.2	273.7	28.90	35.10
MON328	7.53	1252	821	434	529	0.850	0.0440	0.015	0.616	38.3	312.0	96.4	168	3890	0.23	3.000	36.7	426.6	145.0	28.5
MON329	7.60	801	518	386	471	0.540	0.0190	0.013	0.469	42.6	333.4	87.8	33	4110	0.237	<0.46	35.6	423.0	27.7	34.3
MON330	7.53	740	518	370	451	0.454	0.0190	0.014	0.353	68.7	370.4	96.1	23.2	4390	0.226	2.200	34.8	525.6	32.9	31.5
MON331	7.41	721	464	374	456	0.205	0.0200	0.012	0.184	30.6	247.4	93.8	19.6	2470	0.203	2.000	30.5	571.1	31.6	34.1
MON332	7.22	634	432	310	378	0.476	0.0170	0.014	0.426	39.4	278.6	77.0	25	2820	0.249	1.200	28.2	475.0	22.1	34.4
MON333	7.46	1890	1208	430	525	1.278	0.0190	0.011	0.39	13.2	952.6	120.1	402	7910	0.267	5.000	46.5	324.0	249.0	32.8
MON334	7.54	1218	805	460	561	0.946	0.0190	0.012	0.514	24.3	570.1	109.1	158	4890	0.228	3.700	35.9	483.0	140.0	32.0
MON335	7.52	613	404	280	342	0.558	0.0170	0.012	0.483	22.0	352.3	75.7	46.8	3180	0.258	2.200	24.9	229.1	35.1	30.7
Min.	6.70	193.00	132.00	61.00	74.42	0.07	<0.010	0.01	0.13	1.58	48.80	8.81	4.33	212.00	0.13	<0.46	1.86	18.40	6.98	18.80
Max.	8.12	2160.00	1208.00	460.00	561.20	1.28	0.2410	0.67	0.73	154.00	952.60	151.50	458.00	7910.00	0.81	8.880	53.10	1037.00	316.00	48.00
Mean	7.3	928.4	580.7	336.4	410.4	0.5	0.0187	0.1	0.4	40.6	338.8	85.8	93.0	3376.0	0.3	2.127	28.1	451.3	85.1	33.8

Table 3B - Chicot Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
CHI001	07/08/97	16S03W32BCB1	33 16' 44.6"	91 26' 31.6"	-	Alluvial	I
CHI002	07/08/97	16S03W34BBB1	33 16' 14.7"	91 24' 27.9"	-	Alluvial	D
CHI003	07/08/97	16S03W27ADD1	33 16' 46.3"	91 23' 30.5"	-	Alluvial	D
CHI004	07/07/97	17S03W33BBA1	33 11' 00.9"	91 25' 11.0"	-	Alluvial	I
CHI005	07/08/97	18S03W16CDD1	33 07' 37.0"	91 24' 54.8"	-	Alluvial	I
CHI008	07/08/97	17S03W15DAD1	33 13' 03.7"	91 23' 24.2"	-	Alluvial	I
CHI009	07/07/97	17S03W28ACD1	33 11' 26.6"	91 24' 41.3"	-	Alluvial	I
CHI010	07/07/97	16S02W08DDC1	33 18' 56.2"	91 19' 26.3"	-	Alluvial	I
CHI011	07/07/97	16S03W11ADC1	33 19' 19.3"	91 22' 33.4"	-	Alluvial	I
CHI012	07/07/97	16S03W15CDD1	33 18' 01.4"	91 23' 57.7"	-	Alluvial	I
CHI013	07/07/97	16S03W05BCA1	33 20' 22.9"	91 26' 15.9"	-	Alluvial	I
CHI014	07/07/97	17S03W16BBB1	33 13' 36.7"	91 25' 27.0"	-	Alluvial	I
CHI015	07/07/97	17S03W09AAA1	33 14' 30.1"	91 24' 29.6"	-	Alluvial	I
CHI016	07/07/97	16S03W25CAC1	33 16' 28.4"	91 22' 01.5"	-	Alluvial	I
CHI017	07/08/97	17S03W10AAD1	33 14' 20.4"	91 23' 23.7"	-	Alluvial	I
CHI018	07/08/97	16S03W35CAB1	33 15' 45.7"	91 23' 09.7"	-	Alluvial	I
CHI019	07/08/97	17S03W03AAB1	33 15' 19.8"	91 23' 31.0"	-	Alluvial	I
CHI020	07/08/97	16S03W20BCD1	33 17' 37.7"	91 26' 17.9"	-	Alluvial	I
CHI021	07/08/97	17S03W20AAD1	33 12' 32.9"	91 25' 27.1"	-	Alluvial	I
CHI022	07/08/97	17S03W32BBC1	33 10' 54.8"	91 26' 28.9"	-	Alluvial	I
CHI023	07/08/97	17S03W06DCC1	33 14' 34.2"	91 27' 00.3"	-	Alluvial	I
CHI024	07/08/97	18S03W14BBC1	33 08' 14.6"	91 23' 21.7"	-	Alluvial	I
CHI025	07/08/97	18S03W08DCC1	33 08' 26.6"	91 25' 56.3"	-	Alluvial	I
CHI026	07/08/97	18S03W08AAD1	33 09' 05.8"	91 25' 31.5"	-	Alluvial	I
CHI027	07/08/97	18S03W11CBD1	33 08' 39.8"	91 23' 12.6"	-	Alluvial	I
CHI028	07/08/97	17S03W35CCD1	33 10' 11.0"	91 23' 05.7"	-	Alluvial	I

Table 4B - Chicot Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity uS/cm	TDS mg/L	Alkalinity mg/L	HCO3 mg/L	NH3-N mg/L	NO3-N mg/L	O-Phos. mg/L	T-Phos. mg/L	SO4 mg/L	Ba ug/l	Ca mg/l	Cl mg/l	Fe ug/l	F mg/l	K mg/l	Mg mg/l	Mn ug/l	Na mg/l	SiO2 mg/l
CHI001	7.17	1070	772	365	445	0.55	0.01	0.015	0.44	25	623.5	102	220	4620	0.41	3.9	30.8	284	136.4	-
CHI002	8.1	1480	1116	248	303	0.961	0.01	0.247	0.29	8	180.4	17.2	385	146	0.39	4.5	3.9	22	480.6	-
CHI003	6.56	1450	922	258	315	1.005	0.01	0.143	0.17	11	68.3	6	380	52	0.28	3.3	1.4	6	393.2	-
CHI004	7.17	2080	1334	368	449	0.701	0.01	0.015	0.56	45	416	212	460	13200	0.17	6.2	45.4	552	207.9	-
CHI005	6.95	898	2944	394	481	0.949	0.01	0.015	0.49	200	239.4	320	1230	12700	0.23	6.8	148	2130	473.4	-
CHI008	7.15	1688	1173	395	482	0.534	0.01	0.015	0.85	145	561	129	340	8000	0.34	2.9	54.5	1460	204.4	-
CHI009	7.08	2970	2064	422	515	0.751	0.01	0.015	0.59	161	495.3	237	890	8010	0.2	7.4	70.6	692	450.9	-
CHI010	7.16	1264	894	419	511	0.266	0.01	0.015	0.26	200	160.9	129	82.53	3450	0.21	2.3	49.5	532	100.9	-
CHI011	7.05	2730	2086	376	459	0.578	0.01	0.015	0.32	200	120	278	680	8010	0.19	6.1	99.6	875	238.2	-
CHI012	7.01	2910	2075	370	451	0.588	0.01	0.015	0.48	200	100	247	780	8470	0.19	5.1	88.2	1090	354.3	-
CHI013	6.91	1410	831	306	373	0.637	0.01	0.032	0.75	84	781	149	260	14900	0.2	5.1	28.7	902	104.2	-
CHI014	7.24	1320	815	342	417	0.424	0.01	0.015	0.53	34	373.3	140	250	8130	0.24	3.3	27.4	530	127.2	-
CHI015	6.99	2920	2043	404	493	1.028	0.01	0.015	0.61	189	428	284	840	14200	0.18	3.6	74	1400	288	-
CHI016	7.01	2290	1597	334	407	0.728	0.01	0.015	0.4	200	320	276	570	6400	0.24	3.2	76	1070	183	-
CHI017	7.1	2360	1421	338	412	0.836	0.01	0.045	0.76	70	668	154	630	9000	0.28	3.6	45	1260	244	-
CHI018	7.19	2510	1816	374	456	0.989	0.01	0.015	0.44	-	485.6	270	700	7740	0.2	5.6	77.9	999	286.5	-
CHI019	7.35	2770	1922	466	569	1.026	0.01	0.015	0.61	145	699.2	207	780	6460	0.28	5.6	62.7	1080	502.7	-
CHI020	6.97	947	690	336	410	0.573	0.01	0.015	0.65	46	724.2	111	180	6610	0.28	3.5	30.1	248	86.8	-
CHI021	7.13	1072	669	348	425	0.405	0.01	0.015	0.52	30	409.6	109	170	6560	0.23	3.2	25.6	383	89.9	-
CHI022	7.14	671	434	266	325	0.169	0.01	0.015	0.31	30	295.8	84.3	48.47	4710	0.2	2.7	18.6	880	29.4	-
CHI023	7.15	736	445	290	354	0.367	0.01	0.015	0.66	17	422.9	90.3	68.02	5160	0.31	2.4	20	532	37	-
CHI024	7.07	1406	1115	337	411	0.728	0.01	0.015	0.51	177	276.2	166	320	8020	0.26	3.4	47.2	1060	159.6	-
CHI025	7.13	1414	1193	350	427	0.431	0.054	0.015	0.36	90	935.4	196	390	10500	0.16	5.3	44.3	776	127	-
CHI026	6.76	1884	1693	397	484	0.531	0.01	0.031	0.26	154	522	239	640	11100	0.16	4.7	56.2	836	243.6	-
CHI027	7.04	1990	1773	388	473	0.752	0.01	0.034	0.5	174	332.9	226	690	8590	0.25	6.1	81	688	277.5	-
CHI028	-	2770	3132	446	544	1.14	0.01	0.034	0.78	145	1138	313	1460	12200	0.22	8.6	141	1420	620.9	-
Min.	6.56	671.00	434.00	248.00	302.56	0.17	0.01	0.02	0.17	8.00	68.30	6.00	48.47	52.00	0.16	2.30	1.40	6.00	29.40	-
Max.	8.10	2970.00	3132.00	466.00	568.52	1.14	0.05	0.25	0.85	200.00	1138.00	320.00	1460.00	14900.00	0.41	8.60	148.00	2130.00	620.90	-
Mean	7.10	1808.08	1421.88	359.12	438.12	0.68	0.01	0.03	0.50	111.20	452.96	180.45	517.08	7959.15	0.24	4.55	55.68	834.88	247.98	-

Table 5B - El Dorado Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
UNI008	08/06/97	17S15W32BDD1	33 11 42.0	92 40 47.0	712	El Dorado	C/I
UNI010	08/06/97	18S15W16ACB1	33 09 37.0	92 39 22.5	295	Greensand	D
UNI011	08/05/97	17S16W24BBC1	33 14 02.5	92 42 58.5	704	El Dorado	M
UNI015	08/06/97	18S16W01DBC1	33 11 02.0	92 42 25.5	770	El Dorado	C/I
UNI021	08/05/97	17S15W16BBA1	33 15 01.5	92 39 44.5	37	Cockfield	C/I
UNI023	08/05/97	16S16W34BDD1	33 17 21.5	92 44 38.0	56	Cockfield	D
UNI024	08/06/97	17S15W09BBB1	33 15 54.0	92 39 54.5	550	El Dorado	C/I
UNI025	08/05/97	18S15W35DAC1	33 06 35.0	92 37 05.0	770	El Dorado	M
UNI026	08/05/97	17S14W14DBC1	33 14 17.0	92 31 03.0	49	Cockfield	D
UNI027	08/06/97	18S14W07BBA1	33 10 37.0	92 35 16.0	783	El Dorado	M
UNI028	08/05/97	17S14W32CBB1	33 11 53.0	92 34 28.5	120	Cockfield	D
UNI029	08/05/97	16S16W34BDD2	33 17 19.5	92 44 43.5	300	Greensand	D
UNI061	08/06/97	18S15W21DAC1	33 08 23.0	92 39 08.0	40	Cockfield	D
UNI062R	08/06/97	-	-	-	-	Cockfield	C/I
UNI063	08/06/97	18S15W20BDC1	33 08 37.0	92 40 44.5	320	Greensand	D
UNI094	08/06/97	18S16W02AAA1	33 11 35.5	92 43 04.5	43	Cockfield	D
UNI099	08/06/97	18S16W11CDD1	33 09 53.5	92 43 37.0	70	Cockfield	D
UNI116	08/05/97	17S16W01CCC1	-	-	-	El Dorado	C/I
UNI117	08/05/97	-	-	-	-	El Dorado	M
UNI118	08/05/97	-	-	-	-	El Dorado	M
UNI119	08/05/97	17S15W22CCD1	33 13 23	92 38 43	346	Greensand	D
UNI120	08/06/97	18S15W27AAB	-	-	662	El Dorado	C/I
UNI121	08/06/97	18S15W21DAC2	33 08 22	92 39 09	310	Greensand	D
UNI122	08/06/97	-	-	-	-	Greensand	C/I

Table 6B - El Dorado Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity uS/cm	TDS mg/L	Alkalinity mg/L	HCO3 mg/L	NH3-N mg/L	NO3-N mg/L	O-Phos. mg/L	T-Phos. mg/L	SO4 mg/L	Ba ug/L	Ca mg/L	Cl mg/L	Fe ug/L	F mg/L	K mg/L	Mg mg/L	Mn ug/L	Na mg/L	SiO2 mg/L
UNI008	8.5	612	322	186	227	0.50	0.01	0.21	0.22	3.4	30.7	4.5	72.0	12	-	1.6	0.8	12	122.2	11.3
UNI010	8.15	289	165	148	181	0.62	0.01	0.11	0.13	4.8	70.4	9.7	2.5	29	-	2.4	2.1	23	49.8	11.9
UNI011	8.68	448	252	181	221	0.33	0.01	0.26	0.26	0.5	7.4	0.9	22.9	6	-	1	0.1	7	97.2	11.7
UNI015	8.65	529	321	197	240	0.43	0.01	0.21	0.22	23.4	14.5	1.8	45.0	9	-	1.4	0.3	4	122.9	11.2
UNI021	5.26	93	83	17.5	21	0.03	0.59	0.02	0.02	18.5	89.7	4.7	4.1	136	-	2.6	2.3	13	8.6	32.1
UNI023	5.54	133	213	71	87	0.03	0.14	0.03	0.08	16.2	49.6	14.4	43.5	342	-	3.3	4.3	108	12.3	49
UNI024	8.63	438	251	194	237	0.37	0.01	0.20	0.21	1.7	10.0	1.2	23.4	10	-	1.1	0.2	8	98.9	11.3
UNI025	8.92	692	399	205	250	0.47	0.01	0.25	0.26	8.3	11.0	1.4	103.1	4	-	1.4	0.2	1	156.8	12.1
UNI026	5.86	69	72	29	35	0.03	0.28	0.02	0.02	3.4	36.0	8.6	1.8	8	-	1	0.8	4	4	36
UNI027	8.31	708	404	209	255	0.47	0.01	0.20	0.21	35.7	10.2	1	81.4	6	-	1.3	0.2	1	157.9	11.7
UNI028	5.81	132	124	35	43	0.03	0.14	0.20	0.11	7.2	65.1	4.7	13.3	4120	-	2.1	0.03	38	14.1	58
UNI029	7.94	302	188	170	207	0.37	0.03	0.05	0.07	1.7	111.0	15	0.6	104	-	2.4	3.1	25	51.4	15.6
UNI061	6.79	157	123	80	98	0.03	0.09	0.02	0.02	7.2	61.7	31	0.6	939	-	0.7	0.03	107	3.8	25.2
UNI062R	6.17	358	203	178	217	0.57	0.05	0.02	0.02	3.4	468.2	31.9	10.0	9230	-	17.3	7.9	4720	4.9	6.9
UNI063	8.44	280	163	145	177	0.81	0.01	0.19	0.21	4.8	61.2	8.1	3.3	43	-	2.6	1.9	21	50.7	12.4
UNI094	5.96	309	281	44.5	54	0.03	0.03	0.25	0.25	43.7	34.7	11.3	31.1	20	-	1	2.9	4	39.7	89.1
UNI099	5.2	53	45	5	6	0.03	2.07	0.01	0.02	0.5	44.6	3.2	4.6	12	-	1.7	1.3	5	2.2	12.6
UNI116	8.7	448	239	190.5	232	0.33	0.01	0.25	0.24	1.7	6.7	0.5	21.2	12	-	2.9	0.1	5	98.9	11.5
UNI117	8.53	485	268	196.5	240	0.41	0.01	0.23	0.23	0.5	19.7	2.3	33.0	8	-	1.3	0.5	10	105.4	11.4
UNI118	8.66	592	327	202	246	0.43	0.01	0.20	0.22	12.1	15.0	1.9	54.6	12	-	1.3	0.3	5	127.4	11.5
UNI119	8.17	293	173	148.5	181	0.58	0.01	0.14	0.15	3.4	93.0	10.5	0.6	71	-	3.2	2.7	28	50.6	13.1
UNI120	8.56	656	352	200.5	245	0.44	0.01	0.22	0.22	32.5	8.5	0.9	57.4	11	-	1.1	0.2	5	138.3	11.9
UNI121	8.11	309	188	158	193	0.67	0.01	0.31	0.32	1.7	94.6	12.2	2.6	32	-	3	2.8	22	51.2	15.6
UNI122	8.65	455	250	186	227	0.42	0.01	0.24	0.26	1.7	13.3	1.5	25.5	18	-	1.3	0.3	8	98.6	11.4
Min.	5.2	53	45	5	6	0.03	0.01	0.01	0.02	0.5	6.7	0.5	0.6	4	-	0.7	0.03	1	2.2	6.9
Max.	8.92	708	404	209	255	0.81	2.07	0.31	0.32	43.7	468.2	31.9	103.1	9230	-	17.3	7.9	4720	157.9	89.1
Mean	7.59	368	225	141	172	0.35	0.15	0.16	0.16	9.9	59.5	7.6	27.4	633	-	2.5	1.5	216	69.5	21.0

Table 7B - Hardy Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
SHA001	05/18/98	17N06W23BCC1	36 06 36.1	91 36 12.6	1045	Cotter-Jefferson City	D
SHA002	05/18/98	18N07W01DCD1	36 14 23.2	91 40 47.2	-	-	D
SHA003	05/18/98	18N07W01CBB1	36 14 39.6	91 41 28.2	263	Cotter	D
SHA004	05/18/98	18N06W05DCA1	36 14 26.7	91 39 07.9	368	Cotter	D
SHA005	05/18/98	18N05W19BBA1	36 12 21.1	91 33 44.2	563	Cotter-Jefferson City	D
SHA006	05/19/98	19N05W11BDB1	36 18 59.0	91 29 09.3	1180	Roubidoux-Gunter	M
SHA007	05/19/98	19N05W10ADC1	36 18 52.1	91 29 39.9	150	Cotter-Jefferson City	M
SHA008	05/19/98	19N05W22CBC1	36 17 01.0	91 30 36.2	368	Cotter-Jefferson City	C
SHA009	05/19/98	20N04W05ABA1	36 25 17.1	91 25 16.4	685	Roubidoux	D
SHA010	05/19/98	21N04W33ACC1	36 25 51.4	91 24 23.0	158	Cotter	D
SHA011	05/19/98	20N04W23BAA1	36 22 35.4	91 22 26.1	120	Cotter	D
SHA012	05/20/98	19N03W05DCC1	36 19 08.4	91 19 11.8	830	Roubidoux	D
SHA013	05/20/98	20N03W29ADB1	36 21 22.0	91 18 52.2	-	-	D
SHA014	05/20/98	19N04W26CCB1	36 15 45.1	91 22 59.3	188	Cotter	D
SHA015	05/20/98	17N04W04DBD1	36 08 49.2	91 24 30.7	293	Powell	D
SHA016	05/20/98	18N04W28BBB1	36 11 15.5	91 25 22.4	-	-	D
SHA017	05/20/98	17N06W32BBD1	36 05 10.9	91 39 22.9	1200	Roubidoux	D
FUL001	05/18/98	19N06W30BBC1	36 16 46.4	91 40 20.4	368	Cotter	D
FUL002	05/18/98	19N07W36AAB1	36 16 03.6	91 40 39.8	1050	Roubidoux	M
FUL003	05/18/98	20N07W26DAA1	36 21 44.7	91 41 30.3	200	Cotter-Jefferson City	D
FUL004	05/18/98	21N07W35DAA1	36 26 04.9	91 41 30.9	-	-	D
FUL005	05/18/98	21N06W12ACD1	36 29 30.5	91 34 10.0	220	Cotter-Jefferson City	D
FUL006	05/19/98	20N06W35DBB1	36 20 44.9	91 35 27.6	180	Cotter-Jefferson City	SP
FUL007	05/19/98	19N06W36CCD1	36 15 04.5	91 34 50.6	160	Cotter-Jefferson City	D
FUL008	05/19/98	20N05W09BCD1	36 24 14.4	91 31 32.6	260	Roubidoux	SP
FUL009	05/19/98	20N05W17ADA1	36 23 28.0	91 31 49.4	140	Cotter-Jefferson City	SP
FUL010	05/19/98	21N06W18CBD1	36 28 34.6	91 40 07.2	760	Roubidoux	D
FUL011	05/20/98	20N06W33BBD1	36 21 05.5	91 38 03.0	160	Cotter-Jefferson City	SP

Table 8B - Hardy Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity	TDS	Alkalinity	HCO3	NH3-N	NO3-N	O-Phos.	T-Phos.	SO4	Ba	Ca	Cl	Fe	F	K	Mg	Mn	Na	SiO2
		uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	Mg/L	mg/L	ug/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
SHA001	7.45	526	286	274	334	0.008	0.36	0.016	-	3.13	22.7	59.8	3.62	10.90	0.04	0.4	31.2	<2.0	1.4	13
SHA002	7.37	545	295	266	325	0.01	0.948	0.008	-	6	14.8	59.4	2.13	2.00	0.035	0.8	33	<2.0	1.3	10.2
SHA003	7.49	469	255	230	281	0.005	1.058	0.011	-	4.37	23.9	49.7	6.33	<1.8	0.045	0.5	28.3	<2.0	2.2	11.4
SHA004	7.59	548	293	284	346	0.007	0.477	0.01	-	2.58	21.5	60.5	1.31	8.50	0.022	0.5	33.9	<2.0	0.8	11.4
SHA005	7.38	626	313	300	366	0.04	1.104	0.01	-	4.34	19.2	64.1	3.16	<1.8	0.034	0.4	35.9	<2.0	0.2	11.5
SHA006	7.31	631	373	362	442	0.008	0.049	0.007	-	9.4	35.1	74.7	2.39	4.80	0.016	1.1	44.1	<2.0	1.3	11
SHA007	7.29	807	459	438	534	0.009	1.183	0.009	-	6.49	38.2	93.7	8.22	<1.8	0.023	1.1	49.5	<2.0	2.4	13.6
SHA008	7.8	609	319	262	320	0.014	1.797	0.008	-	4.23	33.7	61.5	30.9	40.50	0.007	0.5	33.9	4.80	6.1	10.8
SHA009	7.75	409	229	208	254	0.008	0.602	0.008	-	3.74	29.1	46	6.58	<1.8	0.016	0.5	25.5	<2.0	1.5	10.3
SHA010	7.79	418	195	156	190	0.008	1.181	0.013	-	2.47	18.2	36.8	16.7	86.00	0.031	0.6	20.6	<2.0	4.1	10.2
SHA011	7.78	580	276	268	327	0.007	1.377	0.011	-	3.66	25	57	1.48	3.70	0.031	0.3	30.9	<2.0	1.2	12
SHA012	7.48	654	334	326	398	0.006	0.199	0.008	-	8.87	9.6	45.8	1.51	6.00	0.028	1.2	47.2	<2.0	14.2	11.9
SHA013	7.39	726	390	380	464	0.009	0.723	0.008	-	6.12	24.8	79.4	3.89	<1.8	0.027	0.3	44.2	<2.0	0.5	9.4
SHA014	7.72	480	258	244	298	0.005	0.246	0.011	-	3.73	15.6	53.1	2.63	7.10	0.017	0.3	29.4	<2.0	1.6	12.4
SHA015	7.33	703	375	354	432	0.009	0.292	0.007	-	11.3	18.4	80.6	2.48	<1.8	0.027	1.2	40	<2.0	1	9.6
SHA016	7.4	583	297	288	351	0.006	0.364	0.01	-	6.74	20.6	60.2	1.61	<1.8	0.026	0.4	34.3	<2.0	0.9	8.9
SHA017	7.25	761	393	380	464	0.008	0.141	0.008	-	11.88	25	80.8	2.71	45.90	0.03	0.8	45	<2.0	0.8	11.8
FUL001	7.54	491	250	242	295	0.005	0.762	0.011	-	3.57	19.2	51.1	1.95	<1.8	0.04	0.5	28.7	<2.0	1.4	10.3
FUL002	7.62	191	247	238	290	0.007	0.2	0.012	-	4.38	22.3	52	1.81	45.80	0.031	0.6	28.4	<2.0	1.1	10.8
FUL003	7.24	726	376	338	412	<0.005	4.3	0.013	-	3.6	28.5	76.4	12.3	6.60	0.033	0.3	42.7	<2.0	3.1	15.5
FUL004	7.15	831	439	369	450	0.005	3.24	0.009	-	2.67	37.1	85.3	37.7	2.90	0.029	0.3	49.4	<2.0	5.5	13.6
FUL005	7.31	635	341	328	400	0.011	1.039	0.012	-	4.33	29.3	71.6	6.2	11.10	0.023	0.7	40.1	<2.0	1.6	13.6
FUL006	7.31	631	354	346	422	0.008	1.189	0.015	-	1.9	27.6	73.8	3.15	<1.8	0.021	0.6	40.6	<2.0	0.7	14.3
FUL007	7.8	471	245	231	282	0.014	2.32	0.012	-	1.41	24.4	51.5	2.19	<1.8	0.017	0.2	28.4	<2.0	0.2	11.8
FUL008	7.45	659	344	294	359	0.008	7.18	0.013	-	3.02	31.9	69	7.28	<1.8	0.028	0.6	36.7	<2.0	3.4	15.3
FUL009	7.35	636	389	370	451	<0.005	2.13	0.012	-	6.62	33	81.2	4.04	5.40	0.018	0.6	44.1	<2.0	1.3	12.6
FUL010	7.32	862	423	423	516	0.006	0.565	0.009	-	3.07	29.4	86.1	2.54	4.70	0.029	0.3	48.8	<2.0	<0.04	14.2
FUL011	7.56	594	313	306	373	0.006	1.513	0.012	-	1.98	22.5	67.2	1.31	19.60	0.027	0.3	36.7	<2.0	0.2	13.6
Min.	7.15	191.00	195.00	156.00	190.32	0.00	0.05	0.01	-	1.41	9.60	36.80	1.31	<1.8	0.01	0.20	20.60	<2.0	<0.04	8.90
Max.	7.80	862.00	459.00	438.00	534.36	0.04	7.18	0.02	-	11.88	38.20	93.70	37.70	86.00	0.05	1.20	49.50	4.80	14.20	15.50
Mean	7.47	600.07	323.61	303.75	370.57	0.01	1.30	0.01	-	4.84	25.02	65.30	6.36	9.87	0.03	0.57	36.84	1.14	2.14	11.96

Table 9B - Jonesboro Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
CRA002	07/27/98	14N04E07ABA1	35 51 52.2	90 42 01.1	70	Alluvial	D
CRA005	07/27/98	14N04E07CDC2	35 51 08.4	90 42 29.7	180	Memphis	P
CRA009	07/28/98	13N04E03ABB1	35 47 30.1	90 39 06.0	90	Alluvial	I
CRA010	07/27/98	13N04E09DCD1	35 45 52.6	90 39 58.1	105	Alluvial	A
CRA014	07/27/98	14N04E22CBD1	35 49 28.9	90 39 20.9	350	Memphis	P
CRA015	07/27/98	14N04E32BCA1	35 48 10.4	90 41 30.8	342	Memphis	P
CRA017	07/27/98	14N04E28DAB1	35 48 49.4	90 39 49.5	362	Memphis	P
CRA038	07/27/98	14N02E23CDD1	35 49 23.3	90 51 00.4	97	Alluvial	I
CRA039	07/27/98	14N03E14CAA1	35 50 30.3	90 44 22.7	173	Alluvial	I
CRA040	07/27/98	14N03E31ABA1	35 48 18.1	90 48 26.6	112	Alluvial	I
CRA042	07/28/98	14N05E20ABA1	35 50 04.6	90 34 30.7	167	Alluvial	I
CRA044	07/28/98	13N05E21BAA1	35 44 57.5	90 33 42.5	871	Memphis?	P
CRA045	07/27/98	15N03E29BBB1	35 54 28.5	90 48 01.3	160,180	Alluvial	P
CRA046	07/28/98	15N05E29DBB1	35 53 59.9	90 34 33.1			P
CRA047	07/27/98	14N05E27DDD1	35 48 32.6	90 32 08.0	~800	Memphis?	P
CRA048	07/27/98	14N02E14BDA1	35 50 51.6	90 50 49.5		Alluvial	I
CRA049	07/27/98	14N02E08DAB1	35 51 32.8	90 53 39.4		Alluvial	I
CRA050	07/28/98	13N04E10DDA1	35 46 13.5	90 38 35.2		Alluvial	I
CRA051	07/28/98	13N04E26DBD1	35 43 25.3	90 37 48.5		Alluvial	I
CRA052	07/28/98	13N03E13BDB1	35 45 33.4	90 43 34.5		Alluvial	I
PON019	07/28/98	12N03E12BBC1	35 41 24.9	90 43 47.3	160	Alluvial	I

Table 10B - Jonesboro Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity uS/cm	TDS mg/L	Alkalinity mg/L	HCO3 mg/L	NH3-N mg/L	NO3-N mg/L	O-Phos. mg/L	T-Phos. mg/L	SO4 mg/L	Ba ug/L	Ca mg/L	Cl mg/L	Fe ug/L	F mg/L	K mg/L	Mg mg/L	Mn ug/L	Na mg/L	SiO2 mg/L
CRA002	6.18	321	172	51	62.22	<0.005	3.0400	0.034	0.03	9.60	38.9	18.9	34.2	<15	0.038	2.1	7.9	<0.5	19.5	28
CRA005	6.48	249	137	59	71.98	<0.005	1.5670	0.023	0.024	16.2	15.3	16.9	11.3	<15	0.033	2.3	7.5	<0.5	13.6	25.8
CRA009	7.07	403	215	152	185.44	<0.005	0.0590	0.067	0.059	11.0	25.9	40.1	9.43	16.70	0.074	1.8	12.3	239.60	15.2	32.6
CRA010	7.00	306	175	97	118.34	<0.005	0.2050	0.072	0.058	18.9	48.2	21.7	12.3	<15	0.069	1.5	9.1	0.70	22.1	31.2
CRA015	6.22	175	98	45	54.9	<0.005	0.4890	0.021	0.031	4.25	15.2	9.7	9.06	78.70	0.028	1.1	4.2	2.60	10.7	26.3
CRA014	6.42	179	95	45	54.9	<0.005	0.7180	0.017	0.023	3.34	22.7	10.4	12.1	111.00	0.037	1.1	4.5	4.70	10.5	22.3
CRA017	6.29	212	114	60	73.2	<0.005	0.3720	0.031	0.030	6.93	22.1	12.8	11.4	<15	0.04	1.3	5.7	4.10	13.1	25.2
CRA038	7.00	548	361	193	235.46	0.071	0.0130	0.011	0.124	44.8	109.9	69.8	35.5	2520.00	0.083	1.9	17.5	637.30	21.8	44.6
CRA039	6.82	358	175	108	131.76	<0.005	0.2630	0.021	0.042	7.11	33	26.2	18.8	3510.00	0.06	1.4	11.8	101.70	13.6	25.7
CRA040	6.38	260	162	59	71.98	<0.005	2.2900	0.031	0.032	8.51	41.2	13.2	29.2	<15	0.074	0.8	5	<0.5	28.2	28.9
CRA042	7.21	869	460	335	408.7	0.210	0.0110	0.023	0.231	47.8	297.4	92.9	16.9	7410.00	0.036	1.5	22.5	280.10	39.6	36.2
CRA044	8.04	457	216	184	224.48	0.362	0.0130	0.234	0.214	0.325	14.4	1	3.25	88.30	0.105	2.7	0.4	13.10	85.5	10.4
CRA045	6.27	158	105	37	45.14	<0.005	1.4800	0.074	0.060	3.26	18.5	9	11.1	<15	0.066	2	2.7	5.20	11.9	35.8
CRA046	6.04	113	74	29	35.38	<0.005	0.3050	0.011	<0.02	1.98	26.6	6	8.55	15.00	0.014	1.4	2.6	<0.5	7.5	25.5
CRA047	7.93	430	208	172	209.84	0.357	0.0110	0.158	0.267	0.330	24.7	6.2	2.78	1210.00	0.115	2.1	1.7	29.70	70.4	12
CRA048	7.31	556	293	192	234.24	0.036	<0.010	0.011	0.146	23.6	79.8	55.7	16.4	4370.00	0.098	1.4	15.4	885.80	20	44.8
CRA049	6.95	927	555	243	296.46	0.305	0.0100	0.032	0.341	142.9	555.1	101.4	21.8	-	0.058	2	29.2	2283.00	20.8	41.1
CRA050	7.30	685	393	264	322.08	<0.005	<0.010	0.020	0.037	51.2	90.5	71.3	22.3	298.00	0.05	1.3	22	710.40	38.3	31.3
CRA051	7.44	980	591	441	538.02	0.091	0.0100	0.008	0.126	86.1	451	120.6	11.2	4160.00	0.03	1.9	36.2	247.40	45.1	29
CRA052	6.90	695	430	78	95.16	<0.005	1.1300	0.024	0.031	179.7	67.4	49.7	25.1	79.70	0.073	1.8	19.7	3.20	50.8	28
PON019	7.47	626	605	306	373.32	0.064	<0.010	0.033	0.113	130.8	282	125.8	47.3	4740.00	0.025	1.1	38.9	335.90	15.7	32.2
Min.	6.04	113.00	74.00	29.00	35.38	<0.005	<0.010	0.01	0.00	0.33	14.40	1.00	2.78	<15	0.01	0.80	0.40	<0.5	7.50	10.40
Max.	8.04	980.00	605.00	441.00	538.02	0.3620	3.0400	0.23	0.34	179.70	555.10	125.80	47.30	7410.00	0.12	2.70	38.90	2283.00	85.50	44.80
Mean	6.9	452.7	268.3	150.0	183.0	0.0728	0.5712	0.0	0.1	38.0	108.6	41.9	17.6	1432.62	0.1	1.6	13.2	275.50	27.3	29.4

Table 11B - Lonoke Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
LON003R	09/10/97	-	-	-	-	Alluvial	I
LON005	09/10/97	03N09W28CCA1	34 51 09.7	91 58 48.7	104	Alluvial	I
LON009R	09/10/97	-	-	-	-	Alluvial	I
LON010	09/10/97	02N08W06ADA1	34 49 47.5	91 53 39.0	128	Alluvial	D
LON014	09/10/97	02N08W20BCD1	34 47 09.3	91 53 28.9	164	Alluvial	M
LON017R	09/10/97	-	-	-	-	Alluvial	I
LON021	09/10/97	01N09W21BAB1	34 42 19.0	91 59 02.0	100	Alluvial	I
LON022	09/10/97	02N09W34AAA1	34 45 43.5	91 57 07.8	354	Sparta	C/I
LON024	09/10/97	01N08W16BAC1	34 42 56.3	91 52 32.4	~150	Alluvial	I
LON026	09/10/97	01N09W13CBB1	34 42 41.0	91 56 00.6	~160	Alluvial	I

Table 12B - Lonoke Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity	TDS	Alkalinity	HCO3	NH3-N	NO3-N	O-Phos.	T-Phos.	SO4	Ba	Ca	Cl	Fe	F	K	Mg	Mn	Na	SiO2
		uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
LON003R	6.63	195	162	64	78	-	0.005	0.021	0.38	21.8	117	16.6	10.2	2990	0.112	0.9	3	1790	13.5	43.9
LON005	6.63	381	225	122	149	-	0.043	0.027	0.1	13.4	140.9	28.8	36.9	360	0.106	1.2	10.1	2000	32.3	25
LON009R	6.48	360	259	98	120	-	0.071	0.023	0.254	40.2	233.3	35.2	33	6600	0.106	1.4	5.7	654	21	40.1
LON010	6.92	247	171	112	137	-	0.07	0.019	0.312	4.95	155.6	25	11.8	3830	0.142	1.8	4.1	784	17.2	33.8
LON014	7.36	343	219	144	176	-	0.005	0.016	0.264	8.16	198.4	39.6	21.5	2810	0.151	1.9	8.9	422	19.1	32.8
LON017R	6.92	504	320	239	292	-	0.005	0.016	0.264	30.8	322.4	72.1	10.4	2800	0.151	1.3	14.7	222	14.2	25.6
LON021	7.20	736	466	308	376	-	0.005	0.045	0.768	63.1	410.1	106	33.1	10600	0.127	1.3	12.3	799	30	22.6
LON022	6.95	374	215	194	237	-	0.005	0.015	0.216	2.21	329.6	43.5	6.86	3690	0.095	2.1	8.2	258	22.8	14.7
LON024	6.75	571	374	289	353	-	0.005	0.014	0.226	23.9	427.3	89.7	17.9	1740	0.126	1.3	15.3	413	21.5	25.7
LON026	7.79	861	643	259	316	-	0.005	0.021	0.546	223	146.2	141	11.8	24500	0.086	1.4	7.1	984	13.8	28.5
Min.	6.48	195	162	64	78	-	0.005	0.014	0.1	2.21	117	16.6	6.86	360	0.086	0.9	3	222	13.5	14.7
Max.	7.79	861	643	308	376	-	0.071	0.045	0.768	223	427.3	141	36.9	24500	0.151	2.1	15.3	2000	32.3	43.9
Mean	6.96	457	305	183	223	-	0.022	0.022	0.333	43.2	248.1	59.8	19.3	5992	0.120	1.5	8.9	833	20.5	29.3

Table 13B - Omaha Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
BNE002	03/03/99	19N21W14CDA1	36 17 53.1	93 11 05.9	NA	Springfield Plateau	U
BNE003	03/03/99	19N22W12CAB1	36 19 00.6	93 16 24.7	NA	Springfield Plateau	D
BNE005A	03/03/99				NA	Springfield Plateau	
BNE007	03/09/99	19N21W31ACB1	36 23 02.0	93 12 29.0	NA	Springfield Plateau	D
BNE007A	03/09/99				NA	Springfield Plateau	
BNE008	03/03/99	21N21W02DBB1	36 21 06.0	93 10 33.2	NA	Springfield Plateau	U
BNE012	03/02/99	21N20W29ACD1	36 26 47.0	93 07 31.0	NA	Springfield Plateau	D
BNE013	03/02/99	21N21W27BCB1	36 26 58.1	93 12 09.3	NA	Springfield Plateau	U
BNE015	03/02/99	21N21W17CCB1	36 28 19.0	93 14 24.0	NA	Springfield Plateau	U
BNE017	03/02/99	21N21W09BAD1	36 29 45.0	93 12 46.0	NA	Springfield Plateau	D
BNE023	03/03/99	20N21W33ACA1	36 22 31.0	93 14 29.5	565	Ozark	D
BNE025	03/09/99	20N21W15CAD1	36 23 18.0	93 11 52.0	455	Ozark	D
BNE027	03/09/99	20N20W03CCA1	36 24 34.0	93 05 54.0	240	Ozark	D
BNE028	03/03/99	20N22W03DDA1	36 25 01.0	93 17 50.9	400	Ozark	D
BNE029	03/02/99	21N21W26ADA1	36 26 54.0	93 10 10.0	675	Ozark	D
BNE030	03/09/99	21N20W23CDD1	36 27 05.0	93 04 36.0	755	Ozark	D
BNE032	03/02/99	21N21W15BDA1	36 28 43.2	93 11 49.2	705	Ozark	D
BNE033	03/02/99	21N22W12DCC1	36 29 10.0	93 16 00.0	550	Ozark	D
BNE036	03/02/99	21N21W22DDA1	36 27 24.0	93 11 19.4	1340	Ozark	M
BNE037	03/03/99	19N21W20BDC1	36 17 22.2	93 14 14.8	450	Ozark	D
BNE040	03/03/99	20N21W31ABC1	36 21 05.0	93 14 58.0	~160	Springfield Plateau	D
BNE042	03/09/99	20N20W09AAA1	36 24 22.0	93 06 18.0	NA	Ozark	U
BNE044	03/02/99				NA	Springfield Plateau	
BNE045	03/02/99				~550	Ozark	
BNE046	03/02/99				~245	Ozark	
BNE047	03/03/99					Ozark	
BNE048	03/09/99					Ozark	

Table 14B - Omaha Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity uS/cm	TDS mg/L	Alkalinity mg/L	HCO3 mg/L	NH3-N mg/L	NO3-N mg/L	O-Phos. mg/L	T-Phos. mg/L	SO4 mg/L	Ba ug/L	Ca mg/L	Cl mg/L	Fe ug/L	F mg/L	K mg/L	Mg mg/L	Mn ug/L	Na mg/L	SiO2 mg/L
Springfield Plateau Aquifer																				
BNE002	6.76	404	236.5	197	240	<0.005	1.65	0.019	<0.02	4.87	37.0	85.6	6.87	<15	0.049	<0.46	1.5	<0.5	3.5	10.3
BNE003	7.07	471	280	221	270	<0.005	2.80	0.014	<0.02	9.75	50.3	98.6	8.67	<15	0.065	0.5	1.7	<0.5	4.8	10.5
BNE005A	7.15	424	250	201	245	<0.005	2.11	0.020	0.0260	5.39	43.2	89.0	9.05	<15	0.048	1.7	1.3	<0.5	3.8	10.8
BNE007	7.48	356	224.5	170	207	<0.005	2.81	0.035	0.0510	5.93	37.2	68.9	8.03	41.50	0.046	<0.46	1.4	<0.5	3.4	11.0
BNE007A	7.45	358	227.5	160	195	<0.005	2.92	0.043	0.0540	6.03	35.6	69.2	8.12	39.10	0.04	<0.46	1.4	2.2	3.6	10.8
BNE008	7.59	370	219	133	162	0.045	3.22	0.078	0.1450	19.2	44.5	62.0	18.1	<15	0.049	1.0	3.5	21.500	12.4	11.6
BNE012	7.89	315	212.5	86	105	<0.005	11.5	0.019	0.0800	6.3	32.2	51.2	8.23	<15	0.047	0.5	2.8	<0.5	3.1	11.2
BNE013	-	-	215	178	217	0.061	0.053	0.008	0.0250	6.67	65.1	73.9	7.47	966.00	0.051	<0.46	3.5	1348.000	2.6	10.0
BNE015	7.84	344	219.5	102	124	<0.005	8.37	0.023	0.0260	5.49	44.7	54.3	18.2	<15	0.057	3.0	3.3	<0.5	6.8	11.0
BNE017	7.99	235	134.5	82	100	<0.005	2.36	0.020	0.0210	2.91	41.2	35.8	13.9	<15	0.069	<0.46	2.2	<0.5	6.9	9.9
BNE040	7.19	400	235	189	231	<0.005	3.10	0.017	0.0210	4.07	33.6	81.9	6.63	<15	0.04	1.0	1.3	<0.5	6.3	11.1
BNE044	7.72	200	113	52	63	<0.005	1.86	0.163	0.1640	4.92	43.2	23.4	20.7	<15	0.069	1.3	2.6	<0.5	9.9	9.2
Min.	6.76	200.00	113.00	52.00	63.44	<0.005	0.05	0.01	<0.02	2.91	32.20	23.40	6.63	<15	0.04	<0.46	1.30	<0.5	2.60	9.20
Max.	7.99	471.00	280.00	221.00	269.62	0.0025	11.50	0.16	0.1640	19.20	65.10	98.60	20.70	966.00	0.07	3.00	3.50	1348.000	12.40	11.60
Mean	7.47	352.45	213.92	147.58	180.05	0.0021	3.56	0.04	0.0513	6.79	42.32	66.15	11.16	92.84	0.05	0.85	2.21	114.313	5.59	10.62
Ozark Aquifer																				
BNE023	1.50	342	197	159	194	<0.005	0.041	0.007	<0.02	18.8	12.1	45.3	3.58	<15	0.306	<0.46	16.8	1.000	2.9	9.4
BNE025	7.27	605	362.0	204	249	<0.005	5.29	0.006	0.024	47.1	28.4	83.9	40.2	<15	0.161	2.1	23.6	<0.5	8.2	10.5
BNE027	6.93	655	369.0	322	393	<0.005	2.09	0.008	0.021	9.94	35.2	70.4	26.89	<15	0.257	<0.46	44.5	<0.5	8.9	13.1
BNE028	7.39	425	250.5	197	240	0.023	3.59	0.007	<0.02	13.5	8.9	61.4	8.77	<15	0.881	1.4	17.0	1.000	6.7	9.3
BNE029	7.50	625	364	285	348	<0.005	1.077	0.005	<0.02	52.4	39.4	86.6	3.75	<15	0.452	1.0	32.1	1.900	2.0	9.9
BNE030	6.81	526	298.5	282	344	<0.005	0.778	0.007	0.020	19.15	9.4	62.4	2.38	<15	0.46	1.4	35.5	<0.5	1.1	9.0
BNE032	7.56	344	192	136	166	<0.005	0.053	0.005	<0.02	37.7	10.2	37.3	1.41	<15	0.503	<0.46	19.5	1.900	1.1	8.4
BNE033	7.44	346	192	163	199	<0.005	0.384	0.007	<0.02	14.3	<8.8	38.2	2.97	<15	0.113	<0.46	20.7	<0.5	1.3	10.1
BNE036	7.67	338	186.5	164	200	<0.005	0.022	0.005	<0.02	13.5	<8.8	40.5	1.74	77.1	0.155	0.6	18.8	0.900	1.5	9.4
BNE037	7.01	509	295	240	293	<0.005	0.535	0.006	<0.02	25.59	25.5	81.8	6.92	<15	0.526	<0.46	16.4	1.400	10.4	9.4
BNE042	7.11	613	350.0	338	412	<0.005	2.01	0.007	0.024	5.08	34.2	71.1	6.5	<15	0.266	<0.46	44.0	<0.5	1.1	12.6
BNE045	7.65	328	183	152	185	<0.005	0.832	0.006	<0.02	13.0	<8.8	41.2	2.16	<15	0.083	<0.46	16.1	<0.5	1.2	9.5
BNE046	7.63	552	304	282	344	0.009	0.253	0.008	0.050	17.0	<8.8	65.2	2.3	<15	0.705	1.2	35.7	0.600	1.5	9.1
BNE047	7.19	716	460.5	285	348	<0.005	0.108	0.006	<0.02	121	21.4	93.9	2.38	<15	0.621	5.2	43.9	0.500	2.9	8.6
BNE048	6.94	497	265.0	218	266	<0.005	3.8	0.007	0.032	9.85	25.6	48.1	2.38	96.800	0.044	2.2	30.2	2.5	0.7	7.6
Min.	1.50	328.00	183.00	136.00	165.92	<0.005	0.02	0.01	<.02	5.08	0.00	37.30	1.41	<15	0.04	<0.46	16.10	<0.5	0.70	7.60
Max.	7.67	716.00	460.50	338.00	412.36	0.0025	5.29	0.01	0.050	121.00	39.40	93.90	40.20	96.800	0.88	5.20	44.50	1.900	10.40	13.10
Mean	6.91	494.73	284.60	228.47	278.73	0.0022	1.39	0.01	0.017	27.86	16.69	61.82	7.62	12.950	0.37	1.01	27.65	0.713	3.43	9.73

Table 15B - Ouachita Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
OUA005	04/12/99	12S19W13BCB1	33 41 42.4	93 01 06.4	60	Cane River	M
OUA006	04/12/99	12S19W13BBC1	33 41 44.3	93 01 05.2	52	Cane River	M
OUA013	04/13/99	13S17W35DBD1	33 33 14.2	92 49 16.8	274	Sparta	C/I
OUA017	04/12/99	13S19W28BCD1	33 34 32.8	93 04 16.9	52	Sparta	D
OUA021	04/13/99	14S17W10CDC1	33 31 19.1	92 50 48.2	90	Sparta	D
OUA024	04/12/99	14S18W27BDC1	33 29 16.3	92 57 06.6	55	Sparta	M
OUA028	04/12/99	14S19W20BAD1	33 30 26.0	93 05 13.4	61	Sparta	M
OUA030	04/12/99	15S19W10DCC1	33 26 18.0	93 03 18.4	370	Sparta	M
OUA031	04/12/99	15S19W22CCC1	33 24 37.0	93 03 50.3	375	Sparta	M
OUA033	04/12/99	15S19W30DBD1	33 23 56.7	93 06 18.3	59	Sparta	D
OUA036	04/13/99	14S17W30ACD1	33 29 10.2	92 29 10.2	52	Sparta	D
OUA038	04/13/99	13S17W34DAC1	33 33 14.8	92 50 16.9	278	Sparta	C/I
OUA039	04/12/99	15S19W22BDD1	33 25 00.9	93 03 26.2	294	Sparta	C/I
OUA041	04/12/99	14S18W28CAB1	33 29 16.3	92 58 06.2	10	Sparta	U
OUA042	04/13/99	13S17W35DCC1	33 33 00.3	92 49 26.2	271	Sparta	C/I
OUA044	04/13/99	15S18W25BCD1	33 23 57.0	92 55 20.8	335	Sparta	D
OUA048	04/12/99						

Table 16B - Ouachita Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity uS/cm	TDS mg/L	Alkalinity mg/L	HCO3 mg/L	NH3-N mg/L	NO3-N mg/L	O-Phos. mg/L	T-Phos. mg/L	SO4 mg/L	Ba ug/L	Ca mg/L	Cl mg/L	Fe ug/L	F mg/L	K mg/L	Mg mg/L	Mn ug/L	Na mg/L	SiO2 mg/L
OUA005	5.04	33	33	4	4.88	0.0060	0.181	0.016	<0.02	4.11	30.0	0.7	3.5	<15	0.053	0.7	0.6	8.6	3.4	9.3
OUA006	5.32	38	32	6	7.32	<0.005	0.185	0.014	<0.02	5.29	35.6	1.7	2.89	224.00	0.052	1.6	0.7	56.0	3.1	7.6
OUA017	5.54	47	43	4	4.88	<0.005	0.231	0.013	<0.02	8.2	43.1	1.4	4.77	<15	0.122	1.1	0.8	7.1	4.7	13.2
OUA028	5.32	58	69	17	20.74	0.0080	0.046	0.019	<0.02	7.19	76.0	7.5	2.68	39.70	0.087	0.7	0.3	10.4	2.4	32.2
OUA039	6.90	196	119	83	101.26	0.2090	0.066	0.015	0.254	5.83	132.4	13.8	6.02	3830.00	0.176	3.9	2.7	50.3	23.7	18.4
OUA030	6.50	187	126	67	81.74	0.1560	0.032	0.016	0.218	12.7	103.3	14.3	4.98	4870.00	0.171	3.9	2.6	73.4	19.6	27.7
OUA031	7.20	235	147	105	128.1	0.3330	0.053	0.017	0.188	9.31	127.9	12.4	6.81	1740.00	0.163	3.7	2.7	26.8	36.8	14.3
OUA033	5.49	107	85	13	15.86	<0.005	0.663	0.015	<0.02	15.4	54.9	6.1	11.2	<15	0.115	1.5	0.9	16.0	13.9	21.9
OUA024	6.81	118	85	13	15.86	<0.005	0.173	0.101	0.112	24.7	23.1	14.7	9.75	17.20	0.063	0.8	1.1	0.8	4.2	5.7
OUA041	4.91	27	37	2	2.44	<0.005	0.492	0.017	<0.02	2.32	18.2	0.5	2.96	105.00	0.093	1.0	0.3	6.6	2.7	16.6
OUA048	5.50	57	56	7	8.54	<0.005	0.834	0.015	<0.02	2.06	99.2	3.4	9.13	<15	0.108	1.4	1.0	14.0	4.5	18.7
OUA042	7.60	432	247	128	156.16	0.6860	0.043	0.114	0.184	19	185.4	20.6	46.9	352.00	0.115	4.1	4.2	48.4	65.4	15.6
OUA013	7.85	403	241	140	170.8	0.7600	0.033	0.217	0.247	12.2	144.0	13.4	38.9	181.00	0.168	3.7	3.1	27.1	73.2	18.1
OUA038	7.23	235	152	97	118.34	0.5980	0.099	0.149	0.261	10.8	93.8	8.2	9.42	430.00	0.109	2.5	2.0	19.8	45.0	18.6
OUA021	7.05	305	205	89	108.58	<0.005	0.170	0.032	0.119	63.8	118.6	38.0	3.1	<15	0.158	5.1	5.8	20.9	17.2	19.5
OUA044	7.37	335	207	157	191.54	0.2470	0.180	0.168	0.512	7.35	197.6	20.1	14.6	139.00	0.144	3.1	2.8	104.4	59.2	10.7
OUA036	5.27	71	66	5	6.1	<0.005	2.11	0.016	<0.02	3.25	99.5	3.9	9.29	<15	0.083	1.4	1.3	8.6	6.5	22.0
Min.	4.91	27.00	32.00	2.00	2.44	<0.005	0.03	0.01	<0.02	2.06	18.20	0.50	2.68	<15	0.05	0.70	0.30	0.80	2.40	5.70
Max.	7.85	432.00	247.00	157.00	191.54	0.7600	2.11	0.22	0.512	63.80	197.60	38.00	46.90	4870.00	0.18	5.10	5.80	104.40	73.20	32.20
Mean	6.30	175.95	117.32	57.68	70.37	0.1992	0.41	0.06	0.142	14.70	94.65	11.54	12.45	886.86	0.12	2.42	2.05	31.81	24.27	17.26

Table 17B - Pine Bluff Monitoring Area Sampling Locations

Sample ID	Sample Date	T/R Location	Latitude	Longitude	Well Depth (ft.)	Aquifer	Use
JEF003	09/02/97	05S09W19BAA1	34 16 08.0	92 01 29.0	1275	Sparta	C/I
JEF004	09/02/97	05S09W30DBA1	34 15 06.0	92 01 29.0	792	Sparta	I
JEF008	09/03/97	05S10W11ACA1	34 17 40.0	92 03 24.0	992	Sparta	M
JEF010	09/02/97	06S09W04BAB1	34 13 30.5	92 01 06.0	865	Sparta	M
JEF012	09/02/97	06S09W17CCC1	34 11 49.0	92 02 29.0	848	Sparta	M
JEF016	09/02/97	05S09W07CCC1	34 17 05.0	92 01 58.0	265	Cockfield	D
JEF024	09/02/97	05S08W30AAB1	34 15 07.5	91 54 46.0	~900	Sparta	C/I
JEF027	09/02/97	05S09W10CDD1	34 17 06.0	91 58 13.0	93	Alluvial	I
JEF034	09/02/97	05S09W34CAB1	34 13 54.0	91 58 25.0	102	Alluvial	C/I
JEF038	09/02/97	06S08W09ACC1	34 13 05.0	91 54 38.0	165	Alluvial	C/I
JEF039	09/02/97	06S08W10CAA1	34 12 59.0	91 53 44.0	1020	Sparta	C/I

Table 18B - Pine Bluff Monitoring Area Selected Descriptive Statistics

Sample ID	pH	Conductivity uS/cm	TDS mg/L	Alkalinity mg/L	HCO3 mg/L	NH3-N mg/L	NO3-N mg/L	O-Phos. mg/L	T-Phos. mg/L	SO4 mg/L	Ba ug/L	Ca mg/L	Cl mg/L	Fe ug/L	F mg/L	K mg/L	Mg mg/L	Mn ug/L	Na mg/L	SiO2 mg/L
JEF003	6.54	121	74	27	33	0.25	0.06	0.023	0.144	3.82	125.2	4.8	2.57	2370	0.08	4.3	0.03	49.6	13	15.6
JEF004	6.73	165	81	54	66	0.29	0.083	0.029	0.126	2.65	117.6	4.3	2.48	6640	0.07	4.1	0.03	81.1	14.3	15.8
JEF008	6.76	119	77	52	63	0.23	0.07	0.023	0.136	3.09	119.1	6.1	2.25	2800	0.07	4.2	0.03	62	10.9	14.1
JEF010	6.43	133	84	61	74	0.26	0.068	0.023	0.154	2.74	125.3	6.7	1.9	2220	0.1	5.2	0.2	62.3	12.6	16
JEF012	6.96	147	93	68	83	0.29	0.051	0.024	0.182	2.6	88.2	8.3	1.63	1570	0.1	5.1	0.6	72.8	15.8	17.9
JEF016	6.78	534	318	203	248	0.69	0.05	0.058	0.248	31	50	16.1	16.4	1170	0.16	4.4	3.7	233	85.2	34.5
JEF024	-	-	101	70	85	0.29	0.092	0.023	0.154	20.1	113	6.9	31.7	2230	0.16	5.1	0.1	56.4	19.9	16.7
JEF027	6.68	691	397	303	370	0.53	0.084	0.054	0.512	9.06	376.2	91.2	2.71	5950	0.09	1.1	14.9	385	16.7	23.9
JEF034	6.63	630	342	283	345	0.69	0.05	0.053	0.814	17.6	366.9	75.9	13.5	11800	0.17	1.2	11.9	260	11.9	28.5
JEF038	-	-	829	581	709	0.84	0.05	0.083	0.994	22.9	560.5	143	131	19000	0.11	1.9	12.8	1130	118.4	25.2
JEF039	-	-	103	74	90	0.30	0.05	0.025	0.174	5.28	86.4	7.1	2.09	1590	0.11	4.7	0.4	53.1	20.6	17.3
Min.	6.43	119	74	27	33	0.23	0.05	0.023	0.126	2.6	50	4.3	1.63	1170	0.07	1.1	0.03	49.6	10.9	14.1
Max.	6.96	691	829	581	709	0.84	0.092	0.083	0.994	31	560.5	143	131	19000	0.17	5.2	14.9	1130	118.4	34.5
Mean	6.69	318	227	161	197	0.42	0.064	0.038	0.331	11.0	193.5	33.7	18.9	5213	0.11	3.8	4.1	222.3	30.8	20.5