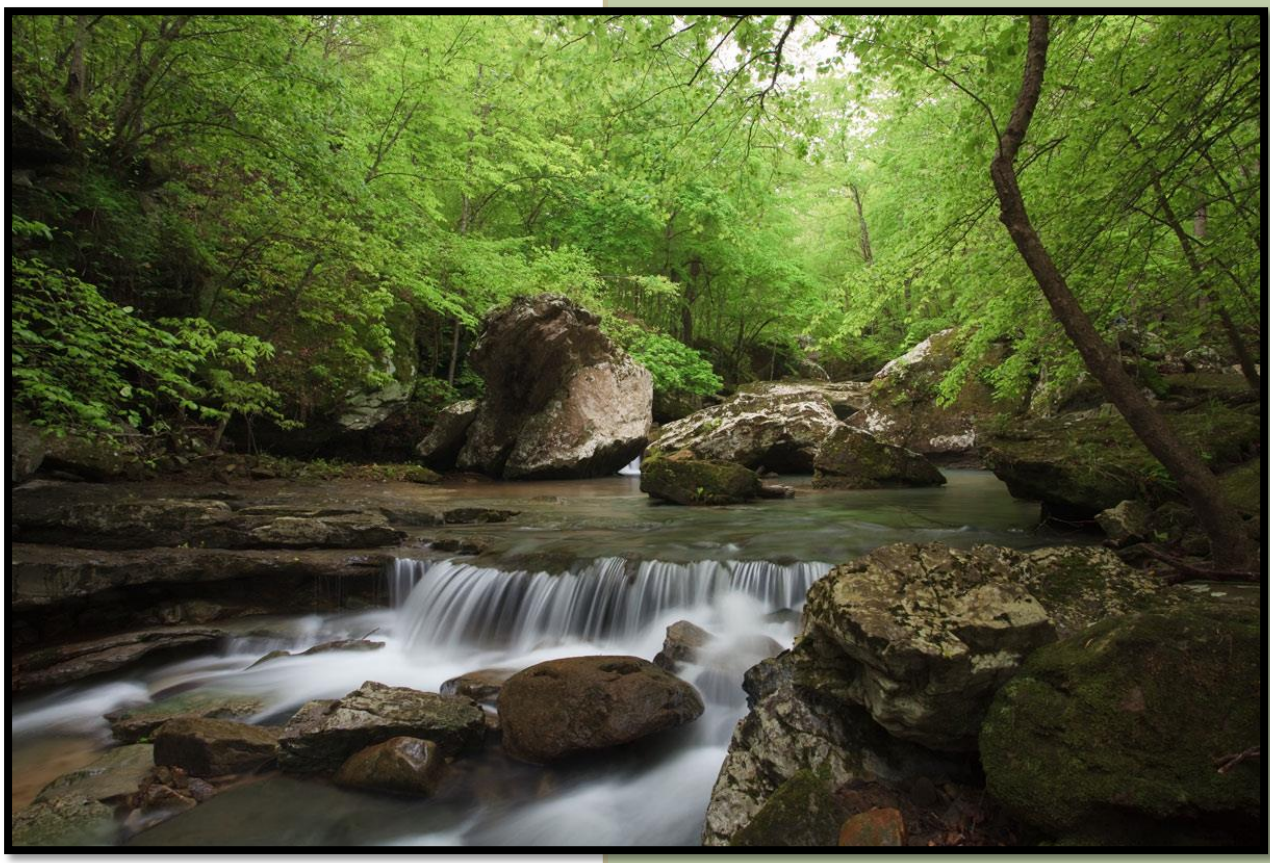
Integrated Water Quality Monitoring Assessment Report

Prepared pursuant to Section 305(b) and 303(d) of the Federal Pollution Control Act



2016

"To Protect, Enhance, and Restore

the

Natural Environment

for the

Well-being of all Arkansans."

This report is maintained by:

Arkansas Department of Environmental Quality

Office of Water Quality

Prepared pursuant to Sections 305(b) and 303(d)
of the
Federal Water Pollution Control Act

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STATE OF ARKANSAS

DEPARTMENT
OF
ENVIRONMENTAL QUALITY

INTEGRATED WATER QUALITY MONITORING
AND ASSESSMENT REPORT
2016

Prepared pursuant to Sections 305(b) and 303(d)
of the
Federal Water Pollution Control Act

WQ16-04-01

WATER QUALITY PLANNING BRANCH

The Planning Branch of the Arkansas Department of Environmental Quality consists of biologists, ecologists, and geologists that manage activities related to both surface and ground water. Among the activities is the management of the State Water Quality Monitoring Networks for both surface and subsurface waters; routine monitoring activities; and intensive, special investigations of the physical, chemical, and biological characteristics of watersheds and/or aquifers. Data generated from these activities, as well as other readily available data, are used to prepare the biennial "Integrated Water Quality Monitoring and Assessment Report (305(b))," the "List of Impaired Waterbodies, (303(d) list)," and develop Total Maximum Daily Loads. The data may also be used to develop water quality standards and criteria for the evaluation of designated use attainment and to prioritize restoration and remediation activities.

The staff is responsible for a variety of water quality planning activities, including ongoing work to develop and/or enhance ecoregion-based biological assessment criteria, develop and update water quality standards including nutrient criteria, review and administer the National Pollutant Discharge Elimination System Permits Whole Effluent Toxicity Testing Program, review and administer Short Term Activity Authorization and 401 Certification programs, and represent the Department on numerous federal, state, local, and watershed-based advisory boards and technical support groups. Ambient groundwater quality sampling continues in the established monitoring areas, and the results are periodically uploaded from the Department's Laboratory Information System to the EPA STORET/WQX data "warehouse." The Groundwater Section also recently implemented a web-based map interface for reviewing, analyzing, and retrieving the data in various formats. In addition to documenting ambient groundwater quality, the Groundwater Section administers funding that supports Groundwater Protection programs at other state agencies, e.g. the Wellhead Protection Program at the Arkansas Department of Health.

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To learn more about the Office of Water Quality and other offices of the Arkansas Department of Environmental Quality, and to view a list of publications by the Planning Branch, visit www.adeq.state.ar.us or call at (501) 682-0744.

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ABBREVIATIONS AND ACRONYMS

ADEQ	Arkansas Department of Environmental Quality
ADPC&E	Arkansas Department of Pollution Control and Ecology
ADH	Arkansas Department of Health
AGFC	Arkansas Game and Fish Commission
AGS	Arkansas Geological Survey
ANRC	Arkansas Natural Resources Commission
AOGC	Arkansas Oil and Gas Commission
APC&EC	Arkansas Pollution Control and Ecology Commission
AST	Aboveground Storage Tanks
AWAG	Arkansas Watershed Advisory Group
AWAPCA	Arkansas Water and Air Pollution Control Act
AWQMN	Ambient Water Quality Monitoring Network
AWWCC	Arkansas Water Well Construction Commission
BMP	Best Management Practice
BOD5	Biochemical Oxygen Demand (5 day)
CBA	Cost/Benefit Analysis
CBOD5	Carbonaceous Biochemical Oxygen Demand (5 day)
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CPP	Continuing Planning Process
CSI	Community Structure Index
CWA	Clean Water Act
CWS	Community Water System
DLG	Digital Line Graph
DMR	Discharge Monitoring Report
DO or D.O.	Dissolved Oxygen
EPA	Environmental Protection Agency
EPT	Ephemeroptera/Plecoptera/Trichoptera
ERW	Extraordinary Resource Waters
ESW	Ecologically Sensitive Waterbody
HBI	Hilsenhoff Biotic Index
HUC	Hydrologic Unit Code
ICIS	Integrated Compliance Information System
IGP	Industrial Stormwater General Permit
IWC	Instream Waste Concentration
MC	Methylene Chloride
MCL	Maximum Contaminant Level
MIT	Mechanical Integrity Testing
MS4	Municipal Separate Storm Sewer System
NFH	National Fish Hatchery
NH3-N	Ammonia Nitrogen

NHD	National Hydrography Dataset
NOEC	No Observed Effect Concentration
NPDES	National Pollutant Discharge Elimination System
NPS	Non-Point Source
NRCS	Natural Resources Conservation Service
NRSA	National Rivers and Streams Assessment
NSW	Natural and Scenic Waterways
PWS	Public Water Suppliers
PWSSP	Public Water Supply Supervision Program
QA/QC	Quality Assurance / Quality Control
RF3	River Reach File
RST	Regulated Storage Tanks
RWQMN	Roving Water Quality Monitoring Network
SDWA	Safe Drinking Water Act
SIC	Standard Industrial Code
SMCL	Secondary Maximum Contaminant Level
SOP	Standard Operating Procedure
SVOC	Semi-Volatile Organic Compounds
SWAP	Source Water Protection Program
SWMP	Storm Water Management Plan
SWP	Source Water Program
SWPPP	Stormwater Pollution Prevention Plan
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
UIC	Underground Injection Control
USDW	Underground Sources of Drinking Water
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
W/A	Watershed to Lake Area Ratio
WER	Water Effects Ratio
WET, Testing	Whole Effluent Toxicity
WET, Project	Water Education for Teachers
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WQAR	Water Quality Analysis Reporter
WQMP	Water Quality Management Plan
WWTP	Waste Water Treatment Plant

ACKNOWLEDGEMENTS

Appreciation is given to all those individuals, agencies, and groups who provided information and/or data for the development of this report.

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PART I EXECUTIVE SUMMARY AND OVERVIEW

Section 305(b) of the Clean Water Act (CWA) requires states to perform a comprehensive assessment of the state's water quality, which is to be reported to Congress every two years. In addition, Section 303(d) of the Clean Water Act requires states to prepare a list of impaired waters on which Total Maximum Daily Loads (TMDL) or other corrective actions must be implemented. Current U.S. Environmental Protection Agency (EPA) guidance recommends producing an integrated report combining requirements of the Clean Water Act for Sections 305(b) reporting and 303(d) submissions. The combined report is the *Integrated Water Quality Monitoring and Assessment Report.* This report is prepared using the *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act* (EPA 2006) and supplements.

Specific guidance developed by EPA is used by all states to aid in making water quality standards and designated use attainment determinations. This guidance is intended to provide national consistency in the assessment process. However, to be meaningful, assessment criteria must take into account the variations in ecology and water quality standards within a state, as well as data type, quality, and data quality objectives. Accordingly, the assessment methodology should address federal requirements and reflect each state's individual reference conditions and water quality objectives and goals.

The Arkansas Department of Environmental Quality's (ADEQ or the Department) water quality monitoring networks database is the primary database used for this assessment in Arkansas. Data are gathered for inclusion into ADEQ's database through several monitoring networks: Ambient, Lakes and Reservoirs, and Groundwater. The Ambient Surface Water Network comprises approximately 180 stations sampled monthly for chemical parameters and flow when available. The Ambient network focuses on characterizing big river systems, potentially problematic nonpoint source areas, and least-disturbed reference streams. Samples are collected year round as appropriate for each network and parameter. In addition to the Ambient Water Quality Network, Office of Water conducts collections of physical, chemical, and biological samples (fish, macroinvertebrate, and periphyton) from selected waterbodies around the state. The Lakes and Reservoirs Monitoring Network comprises 16 lakes that are sampled quarterly. The Lakes & Reservoirs network focuses on identifying potential reference lakes, verifying reference lakes, and developing water quality standards for lakes. The Ambient Groundwater Monitoring Network comprises approximately 250 stations sampled triennially for major ions, metals, nutrients, total organic carbon, and pesticides at selected sites. The Ambient Groundwater network focuses on characterizing major aquifers and documenting natural background conditions.

In addition to the data gathered by ADEQ's Office of Water Quality, all readily available data are solicited from other ADEQ divisions, state and federal agencies, universities, and other

public and private entities. All data received are evaluated against the acceptability requirements outlined in Arkansas' Assessment Methodology as described in Part III, Chapter 3.

Data included in the database described above and evaluated outside data are compared against Regulation No. 2 and Arkansas' Assessment Methodology in order to make water quality standard and designated use attainment decisions.

The number of evaluated waterbodies meeting all of the assessed designated uses and water quality standards remains similar to previous years. Exact estimates and percentages cannot be extrapolated to all waters of the State for the following reasons: (a) if any of the designated uses or assigned water quality standards of a waterbody are not met, the waterbody is listed as "not supporting water quality standards" even though other designated uses and/or water quality standards are adequately met; (b) a large number of the water quality monitoring stations are purposely located in areas known or suspected of having water quality contamination. Thus, this results in a higher percentage of areas of concern being monitored, thereby skewing results toward the impaired use category; (c) much of the data from the Delta ecoregion of the State were listed as "insufficient data" 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 guidelines require this be evaluated. Waters with restricted fish consumption advisories as per Arkansas Department of Health (ADH) are evaluated as impaired; therefore, these waters do not meet all designated uses. Previously, overall use support was based on the full support of all designated uses; if one designated use is unable to be assessed, the stream segment was not counted as supporting all uses. New guidance requires tabulation of waters supporting all *assessed* 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."

Potential impacts to water quality could include point and nonpoint sources. Arkansas has programs in place to manage point source discharges. Arkansas' point source discharge controls are managed through the National Pollutant Discharge Elimination System (NPDES) program which was delegated to the State by 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 based on non-compliance as reported through the NPDES permitting system, with monitoring data compiled through discharge monitoring reports and inspections of NPDES facilities. Additionally, Section 401 (water quality certification) is utilized to review all federal licenses or permits, including but not limited to Section 404, which may result in any discharge of dredged or fill materials into navigable waters. Such certification is determined on the basis of protection of designated uses and the antidegradation requirement of the State's water quality standards.

Nonpoint source impacts to water quality are managed through non-regulatory activities. The formation of watershed groups and educational outreach programs has encouraged the implementation of watershed restoration activities which have begun to address nonpoint source issues through the voluntary implementation of watershed management plans. The Nonpoint Source Pollution Assessment for Arkansas was last updated in 1997 and indicated land use related to agricultural activities as the major source of impacts to rivers and streams.

Classification of the State's waters by ecoregion not only categorizes them by physical, chemical and biological features, but separates major pollution concerns, most of which are related to land use.

Water quality in the Delta Ecoregion is primarily influenced by nonpoint source runoff from agricultural areas. The vast majority of waterways within this region form a network of extensively channelized drainage ditches. 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 designated water quality uses. Most agency 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 organisms which do not require in-stream cover and can exist in highly turbid waters will flourish and/or survive. Within these systems the fishable goal of the Clean Water Act is being met, even though the aquatic life communities have been substantially altered.

The Gulf Coastal Ecoregion of southern Arkansas exhibits site specific impacts due to historic resource extraction activities including the extraction of petroleum products, brine, bromine, barite, gypsum, bauxite, gravel, and other natural resources. Water quality impacts occur from the extraction, storage, transport, and processing of resources. Although timber is the major resource harvested in this area as well as the primary land use, no large scale impairments from silviculture (timber harvest) activities have been identified in this area.

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

The Arkansas River Valley Ecoregion 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 uses, which are primarily pasture lands with increasing poultry production. Fecal coliform bacteria have been a parameter of concern due to its preclusion of the swimmable use. Measurements during storm events routinely exceed the water quality standard, although the source usually is not fecal contamination. The use of *E. coli* as the indicator organism provides a more accurate measurement of contamination from warm-blooded animals and has indicated no significant problems. Exploitation of natural gas deposits has resulted in some site specific water quality degradation. Soil types in much of this area are highly erosive and tend to stay suspended in the water column, thus causing long-lasting, high turbidity values.

The Boston Mountains Ecoregion, 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 recreational use region with exceptionally high quality water. Many of the streams from this region are designated as Extraordinary Resource Waters (ERW). Major concerns about potential water quality degradation include: 1) conversion of hardwood timberland to improved pastures, 2) confined animal operations, 3) even-aged timber management, and 4) localized natural gas production. Current monitoring data from within this region continue to reflect high quality water. Periodic, elevated levels of turbidity are noted in some waters in this region. Elevated turbidity is most likely caused by clearing of timberland adjacent to major streams for conversion to pastures, which accelerates stream channel and bank erosion. In addition, secondary and tertiary road construction and maintenance and in-stream gravel removal are exacerbating turbidity problems.

The Ozark Highlands Ecoregion, located in extreme northern Arkansas, is noted for its mountainous terrain with steep gradients and fast-flowing, spring-fed streams. Many of the streams from within this region are designated as ERWs. The fractured limestone and dolomite lithology of the region allows a potential direct linkage from surface waters to groundwater. The water quality concerns within this region are primarily directly related to land use. The large human population increase in this area also has the potential to result in increased water contamination from infrastructure development as well as surface erosion from construction activities. This region has some of the highest animal production rates in the State. Additionally, removal of gravel from the banks and beds of streams is a frequent activity that causes direct habitat degradation and greatly accelerates siltation within the streams.

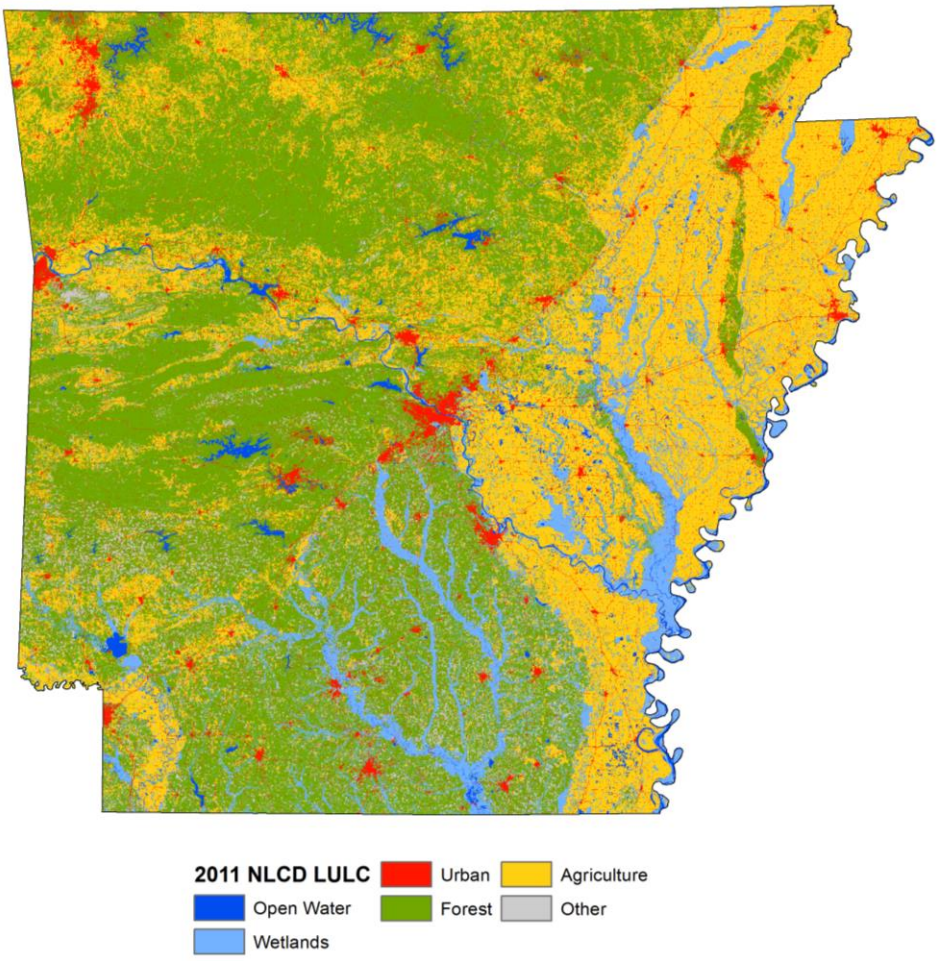
PART II BACKGROUND

Chapter One ATLAS OF ARKANSAS

Introduction

According to the Multi-Resolution Land Characteristics Consortium's 2011 National Land Cover Database, Arkansas boasts approximately 34 million acres of land and surface water. Of this total, approximately 11 million acres are in agriculture production: approximately 7 million acres in cultivated crop production and approximately 4 million acres in pasture land and hay production. There are approximately 15 million acres of forests in the State; however, not all of this acreage is managed for timber production. There are approximately 800 thousand acres of open water and approximately 3 million acres of wetlands and approximately 2 million acres in urban areas. The remaining acreage is in barren land, shrub/scrub land, and herbaceous lands. Figure II-1 is a depiction of the overall land use in the State.

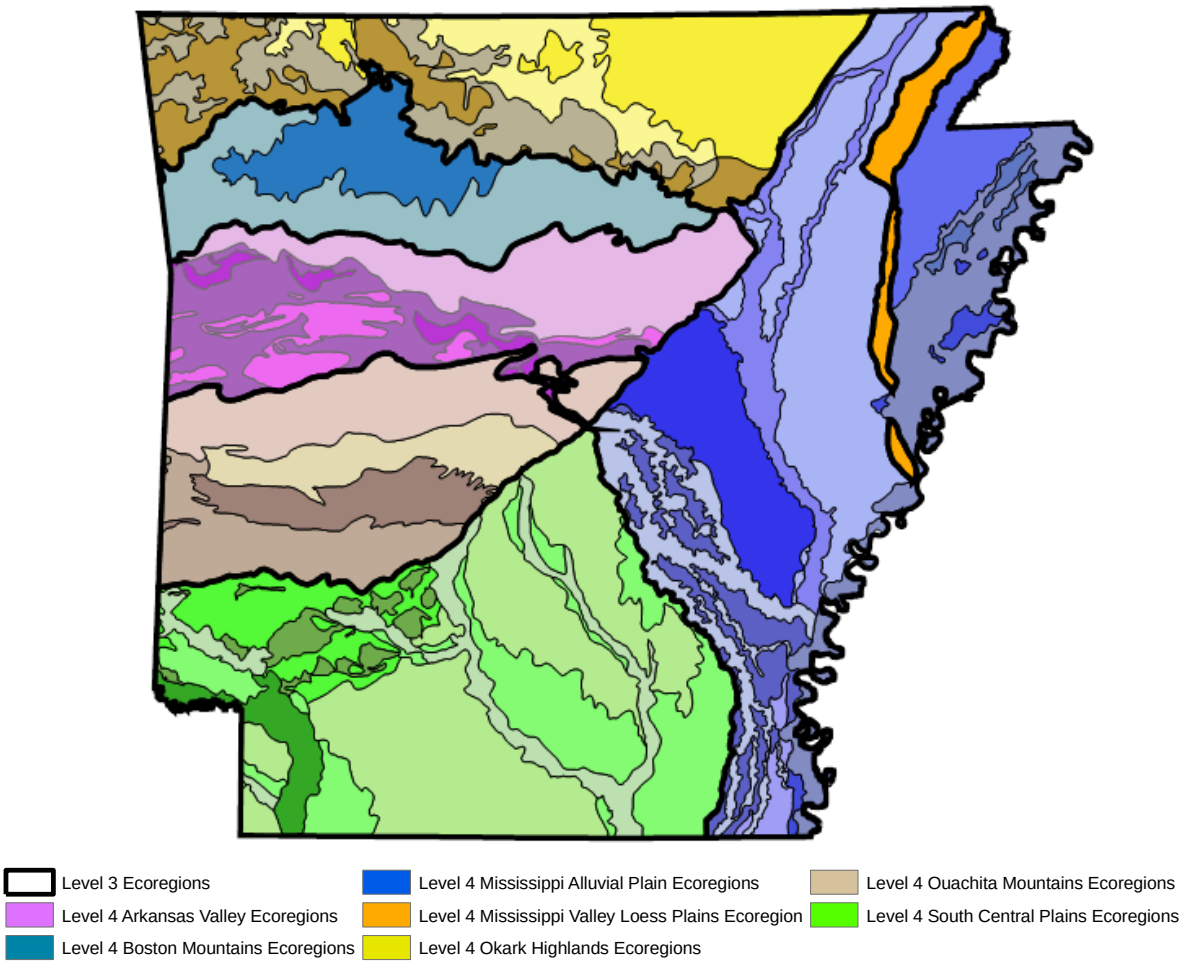
Figure II-1: Land Use



Ecoregions

The original ecoregion survey (ADPC&E 1987) identified six distinct ecoregions (Level III Ecoregions) in the State. Since that time there has been continued discussion concerning the boundaries of the ecoregions and if Crowley's Ridge, located in eastern Arkansas, should be identified as a separate ecoregion. In the late 1990s and early 2000s, a diverse group of scientists convened to better define the Level III Ecoregion boundaries and subdivide them into smaller sections: Level IV Ecoregions. Woods, et al. (2004), identified seven Level III Ecoregions and 32 Level IV Ecoregions in the State of Arkansas (Figure II-2).

Figure II-2: Arkansas' Ecoregions



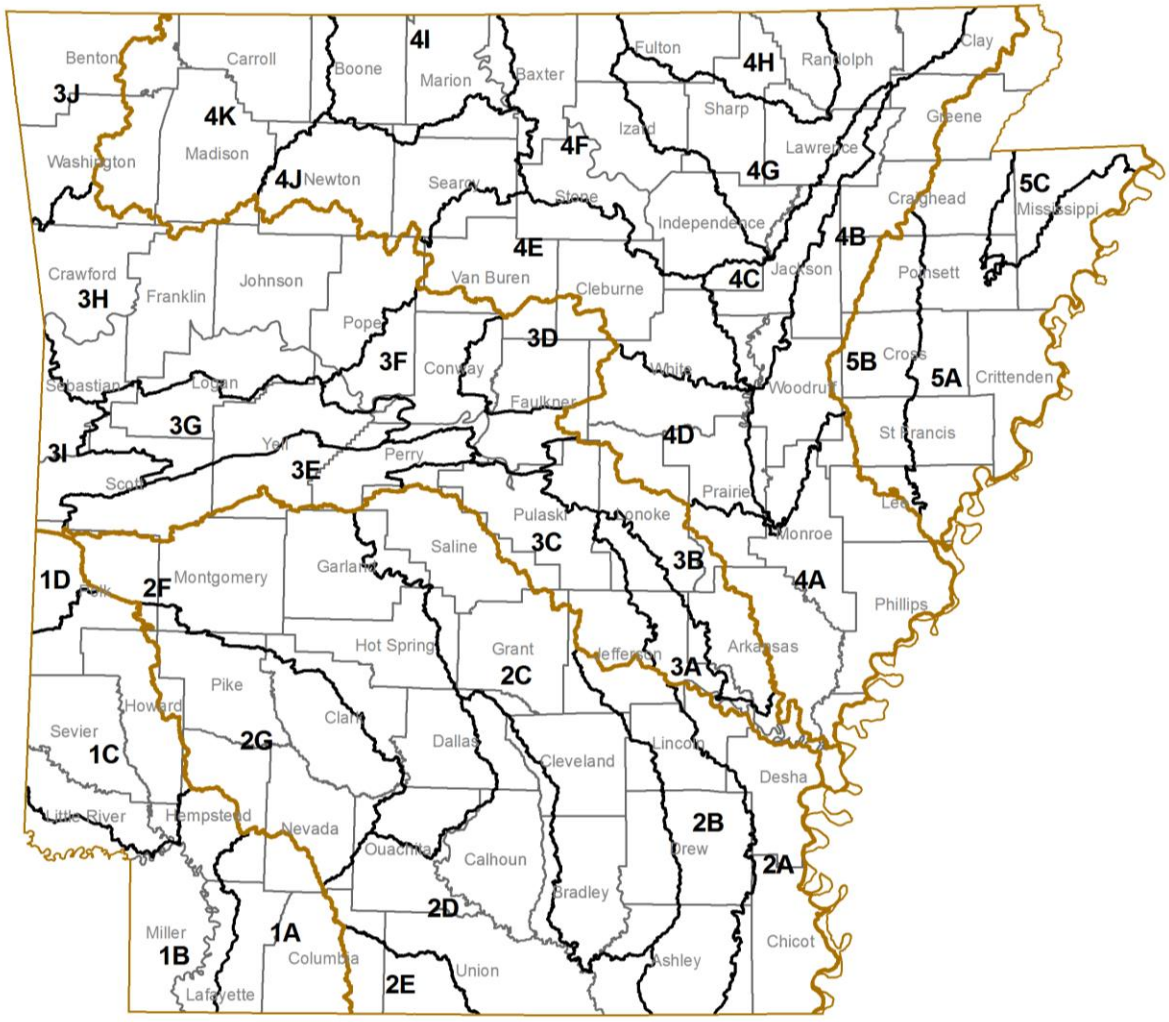
River Basins / Total River Miles

The State is divided into six major river basins: Red River, Ouachita River, Arkansas River, White River, St. Francis River, and the Mississippi River. Arkansas has 16,682 miles of rivers and streams digitized in the ADEQ Water Base Layer. The ADEQ Water Base Layer was created from the Medium Resolution (1:100,000-scale) National Hydrography Dataset (NHD). The Medium Resolution NHD includes the 2nd, 3rd, 4th and 5th order streams. The National Hydrography Dataset combines elements of the Digital Line Graph (DLG) and EPA River Reach File (RF3): spatial accuracy and comprehensiveness from the DLG and network relationships, names, and a unique identifier (reach code) for surface water features from RF3. The NHD supersedes DLG and RF3 by incorporating them, not by replacing them. The Department continues to primarily use the Medium Resolution NHD for management and planning activities, but supplements the database primarily by utilizing the High Resolution NHD. The High Resolution NHD includes the 1st order streams, or the intermittent streams and ephemeral drainages that flow only during a rainfall event. According to the Medium Resolution (1:100,000-scale) NHD, Arkansas has:

Total river and stream miles	90,147.8
Perennial stream miles	24,062.4
Intermittent stream miles	55,131.6
Ditches and canal miles	5,653.1
Other designations	5,300.6
Border stream miles	1,296.2
Total acres of lakes, reservoirs, and ponds	515,635.0

The six river basins are subdivided into ADEQ's 38 water quality planning segments (Figure II-3) based on hydrological characteristics, human activities, geographic characteristics, and other factors. The planning segments are further broken down into almost 1,600 smaller watersheds, based on discrete hydrological boundaries as defined by the United States Geological Survey (USGS) 12-digit hydrologic unit codes (HUC).

Figure II-3: ADEQ 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

Publically Owned Lakes and Reservoirs

A discussion of lakes and reservoirs is included in Part III, Chapter Five, and includes a map and list of Arkansas' significant publicly owned lakes and reservoirs and their trophic status. The State has a total of 332,292 acres of significant publicly-owned lakes. The USGS High Resolution NHD identifies a total of 1,241,947 acres of lakes, ponds and other impounded waters in the State. This value is calculated on waterbodies that range from 10 acres to 44,979 acres. This value is significantly larger than the previous EPA RF3/DLG calculation of 515, 635 acres due to the increased accuracy and detail of the USGS High Resolution NHD.

Wetlands

The draft National Wetlands Priority Conservation Plan identified Arkansas as one of nineteen states that experienced significant decreases in wetlands from 1954 to 1974. The primary threat to Arkansas' wetlands, most of which are located in the Delta Ecoregion, is conversion to cropland. The total wetland base is only a fraction of its original size, making continued losses a great concern. More information on Arkansas' wetlands, including current research, can be found in Part III, Chapter 6.

Summary of Classified Uses

Essentially, all waters of the State are classified for specific designated uses. Based on the USGS Medium Resolution NHD, approximately 1,297 miles of Arkansas' streams and 94,649 acres of Arkansas's lakes are classified as high quality, outstanding state or national resources (Extraordinary Resource Waters, Ecologically Sensitive Waterbody, and Natural and Scenic Waterways).

As stated in Reg. 2.302, the designated uses assigned to various waterbodies include:

Extraordinary Resource Waters (ERW) (Figure II-4) – This beneficial use is a combination of the chemical, physical, and biological characteristics of a waterbody and its watershed which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential, and intangible social values.

Ecologically Sensitive Waterbody (ESW) (Figure II-5) – This beneficial use identifies stream segments known to provide habitat within the existing range of threatened, endangered, or endemic species of aquatic or semi-aquatic life forms.

Natural and Scenic Waterways (NSW) – This beneficial use identifies stream segments which have been legislatively adopted into a state or federal system.

Primary Contact Recreation – This beneficial use designates waters where full body contact recreation is involved.

Secondary Contact Recreation – This beneficial use designates waters where secondary activities like boating, fishing, or wading are involved.

Fisheries – This beneficial use provides for the protection and propagation of fish, shellfish, and other forms of aquatic life and is further subdivided in these following categories:

- 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

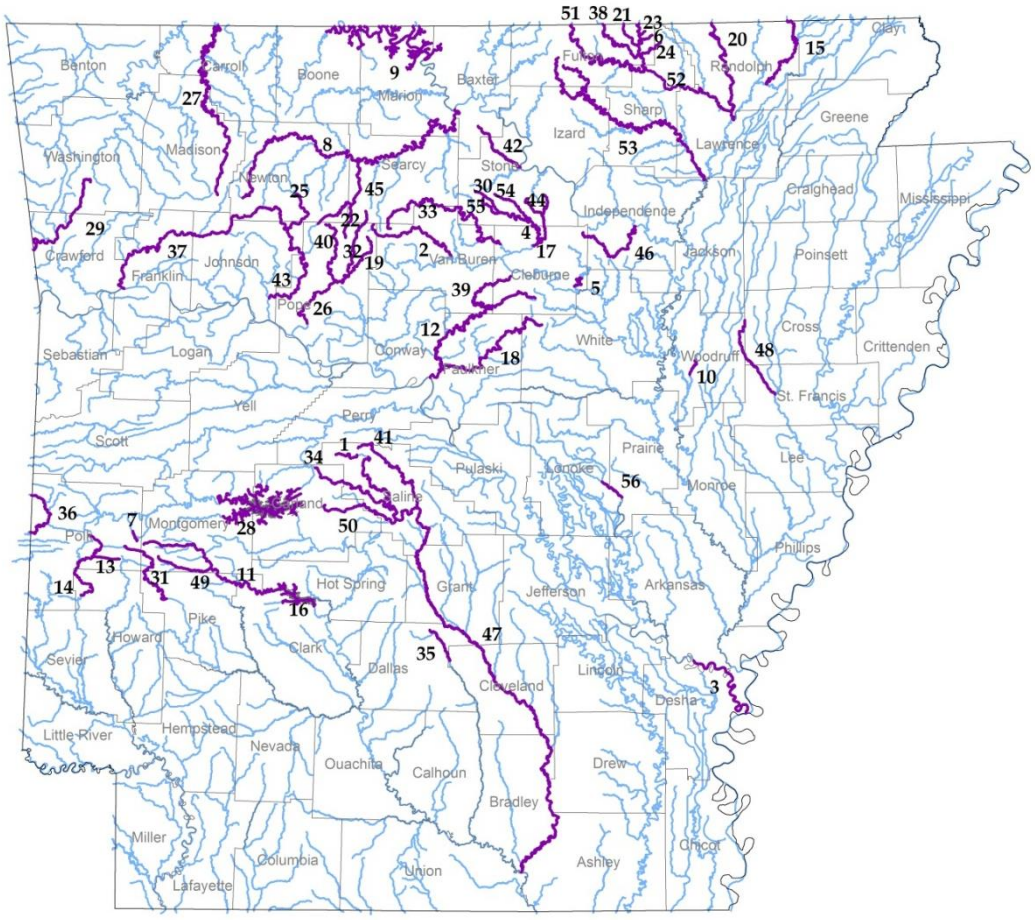
Domestic Water Supply – This designated use designates water which will be protected for use in public and private water supplies. Conditioning or treatment may be necessary prior to use.

Industrial Water Supply – This beneficial use designates water which will be protected for use as process or cooling water. Quality criteria may vary with the specific type of process involved and the water supply may require prior treatment or conditioning.

Agricultural Water Supply – This beneficial use designates waters which will be protected for irrigation of crops and/or consumption by livestock.

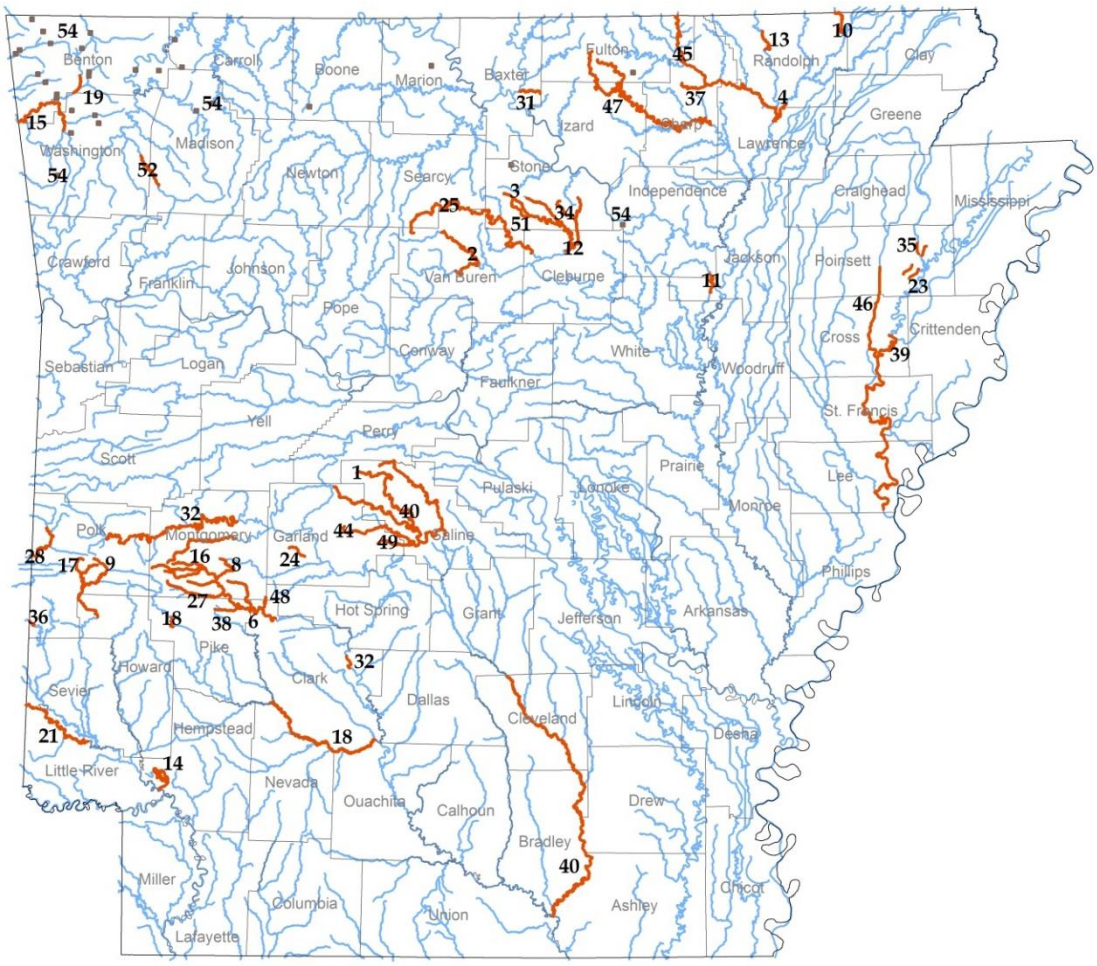
Other Uses – This category of beneficial use is generally used to designate uses not dependent upon water quality such as hydroelectric power generation and navigation.

Figure II-4: Arkansas' Extraordinary Resource Waters



1 Alum Fork Saline River	15 Current River	29 Lee Creek	43 Big Piney Creek
2 Archey Fork	16 DeGray Reservoir	30 Lick Creek	44 Raccoon Creek
3 Arkansas River	17 Devil's Fork Little Red R.	31 Little Missouri River	45 Richland Creek
4 Beech Creek	18 East fork Cadron Creek	32 Middle Fork Illinois R.	46 Salado Creek
5 Big Creek, Cleburne Co.	19 East Fork Illinois River	33 Middle Fork Little Red R.	47 Saline River
6 Big Creek, Fulton Co.	20 Eleven Point River	34 Middle Fork Saline River	48 Second Creek
7 Big Fork Creek	21 English Creek	35 Moro Creek	49 South Fork Caddo R.
8 Buffalo River	22 Falling Water Creek	36 Mountain Fork River	50 South Fork Saline R.
9 Bull Shoals Reservoir	23 Field Creek	37 Mulberry River	51 South Fork Spring R.
10 Cache River	24 Gut Creek	38 Myatt Creek	52 Spring River
11 Caddo River	25 Hurricane Creek	39 North Fork Cadron Cr.	53 Strawberry River
12 Cadron River	26 Illinois Bayou	40 North Fork Illinois R.	54 Tomahawk Creek
13 Caney River	27 Kings River	41 North Fork Saline R.	55 Turkey Creek
14 Cossatot River	28 Lake Ouachita	42 North Sylamore Creek	56 Two Prairie Bayou

Figure II-5: Arkansas' Ecologically Sensitive Waters



1 Alum Fork Saline River	15 Illinois River	29 North Fork Saline R.	43 South Fork Ouachita R.
2 Archey Fork	16 Lick Creek	30 Osage Creek	44 South Fork Saline R.
3 Beech Creek	17 Little Brushy Creek	31 Otter Creek	45 Spring River
4 Black River	18 Little Missouri River	32 Ouachita River	46 Straight Slough
5 Brushy Creek	19 Little Osage Creek	33 Polk Creek	47 Strawberry River
6 Caddo River	20 Little Raccoon Creek	34 Raccoon Creek	48 Sugarloaf Creek
7 Caney River	21 Little River	35 Right Hand Chute Little R.	49 Tenmile Creek
8 Collier Creek	22 Little Strawberry River	36 Robinson Creek	50 Tomahawk Creek
9 Cossatot River	23 Lower St. Francis River	37 Rock Creek	51 Turkey Creek
10 Current River	24 Mayberry Creek	38 Rock Creek	52 White River
11 Departee Creek	25 Middle Fork Little Red R.	39 St. Francis River	53 Yellow Creek
12 Devils Fork Little Red	26 Middle Fork Saline R.	40 Saline River	54 Seeps and Springs
13 Eleven Point River	27 Mill Creek	41 South Fork Caddo R.	
14 Grassy Lake	28 Mountain Fork River	42 South Fork Little Red R.	

Water Quality Standards

The Arkansas Water and Air Pollution Control Act (AWAPCA) designates the Department as the state water pollution control agency for purposes of the CWA pursuant to Arkansas Code Ann. § 8-4-206. Under the AWAPCA, pursuant to Ark. Code Ann. § 8-4-201, ADEQ is empowered to administer and enforce all laws and regulations relating to the pollution of waters of the state and the Arkansas Pollution Control and Ecology Commission (APC&EC or the Commission) is authorized to promulgate rules and regulations, including water quality standards and the classification of the waters of the state. "Waters of the state" is broadly defined in Ark. Code Ann. § 8-4-102 as:

> *...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 border upon the state or any portion of the state.*

Surface Water

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

Specific criteria to protect the designated uses of each waterbody were developed , in part, from the intensive ecoregion studies, an abundance of historical data, numerous additional scientific data, and considerable public and other governmental agency input. Criteria can be numeric or narrative and may prohibit physical alterations of certain waters. The aquatic life uses are specifically defined to provide a framework for fisheries designated use support, which includes community structure and toxicity investigations.

In part, standards were developed with data from least-disturbed streams with characteristics most typical of a particular Level III ecoregion. A single ecoregion can span from one edge of the State to the other and encompass two or three major river basins. The physical, chemical, and biological characteristics of one river basin within a particular ecoregion may or may not be similar to the characteristics of the other river basins in the same ecoregion. In addition, the characteristics of transitions zones between ecoregions, the transition zone of a stream from a highland stream to a lowland stream, and the areas within atypical features of ecoregions may or may not be similar to typical ecoregion characteristics. Therefore, provisions are established in the water quality standards to allow modifications of the criteria and the designated uses of

specific waterbodies based on: current actual uses, social and economic needs of the area of concern, existing uses, and ERW, ESW, or NSW designation.

Point Source Control Program

On November 1, 1986, EPA delegated the NPDES Permit Program to ADEQ. This program is administered by the Permits Branch of the Office of Water Quality.

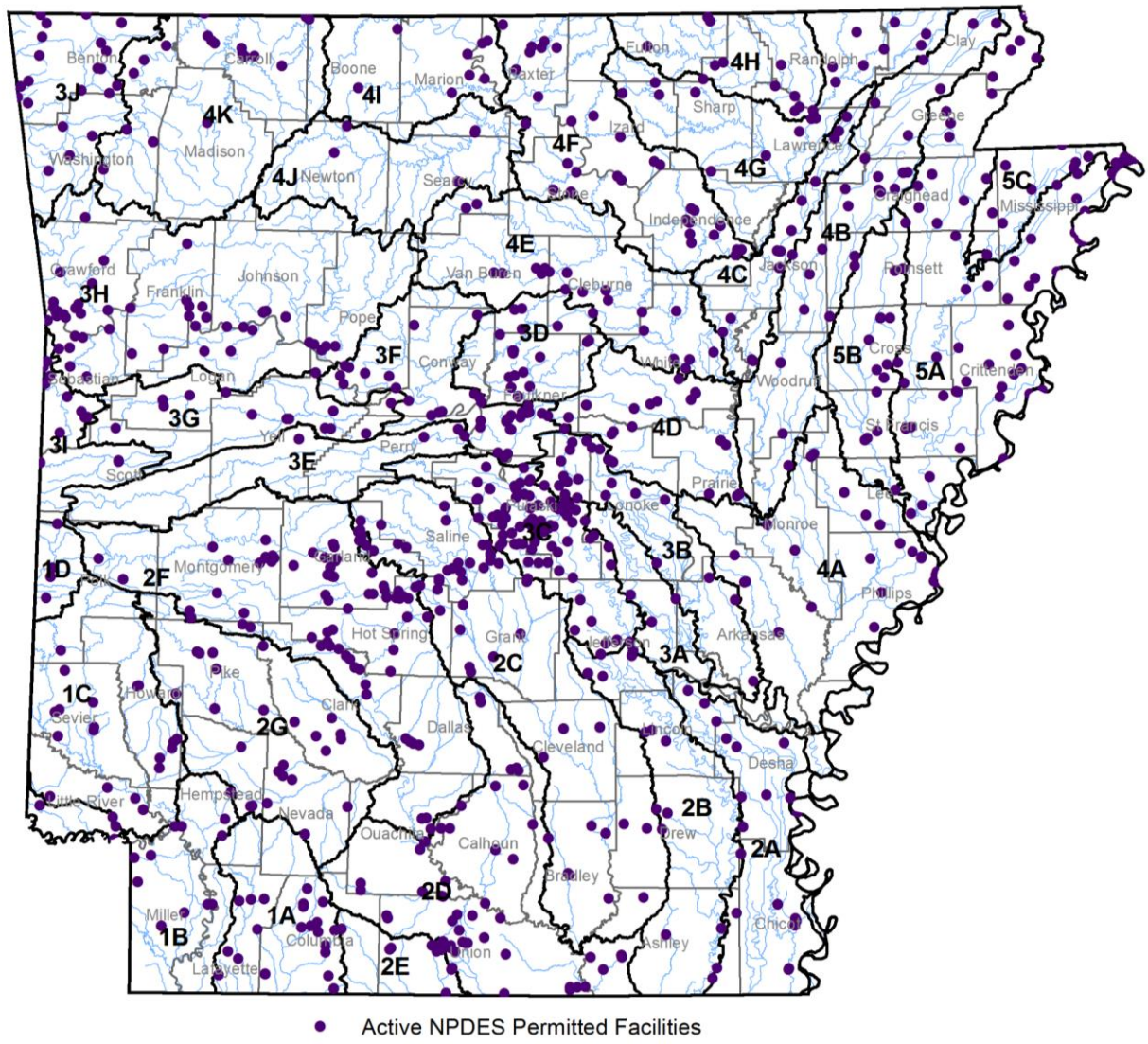
In accordance with the CWA, Section 303(e), Arkansas maintains a Continuing Planning Process (CPP) to integrate the NPDES Program, the State's water quality standards, and the Water Quality Management Plan (WQMP). In accordance with Section 208 of the Clean Water Act, the WQMP is an inventory of all permitted municipal and industrial point source dischargers in Arkansas that contain permit limits for water quality-based conventional pollutants such as Carbonaceous Biochemical Oxygen Demand (CBOD5), Biochemical Oxygen Demand (BOD5), Total Suspended Solids (TSS), Ammonia Nitrogen (NH3-N), Dissolved Oxygen (D.O.). The WQMP also contains information associated with each facility such as permit number, location, design flow, receiving stream name and critical flow along with wasteload allocations consistent with an approved TMDL. As new information is developed, revisions to the WQMP are made in accordance with the public participation requirements of the CWA.

The No-Discharge Section of the Permits Branch issues individual permits relating to waste disposal systems under the guidance of 40 CFR §503 that do not discharge directly to the waters of the State. These systems are most commonly located at confined animal facilities, commercial facilities with septic tanks and leach fields, and centralized or decentralized wastewater treatment systems for residential developments. Individual permits are also issued for the land application of waste generated by different types of treatment facilities such as wastewater treatment plants, poultry processing plants, food-processing plants, and drilling fluids from oil and gas field exploration activities. General permit for Septic Tanks for Carwashes, One Time Land Application, Saltwater Disposal, and Land Application of Water Treatment Plant Residuals In addition, this Section administers the Underground Injection Control Program for Class I, III, and V wells (excluding bromine-related spent brine disposal wells), and in conjunction with the Arkansas Oil and Gas Commission, issues permits for salt-water disposal systems.

The NPDES Permits Section of the Permits Branch administers Arkansas' NPDES program, which is patterned after the EPA program utilizing federally approved forms for permit application and monitoring reports. The Commission has adopted by reference in Regulation No. 6, most of the federal regulations applicable to an NPDES wastewater discharge permitting program. The distribution of Arkansas' major and selected minor NPDES permits is illustrated in Figure II-6. Individual NPDES Permits include all non-stormwater discharges made to Waters of the State. The NPDES Permits Section also issues General Permits for discharges from Sanitary Landfills, Aggregate Facilities, Individual Sanitary Treatment Units, Confined Animal Feeding Operations, Water Treatment Plants, Hydrostatic Testing, Car/Truck Washes, Groundwater

Cleanup, Non-Contact Cooling Water, Cooling Tower Blowdown, and Boiler Blowdown. A General Permit for Pesticide Discharges has also been issued and provides automatic coverage.

Figure II-6: Active NPDES Permitted Facilities



Stormwater Requirements

The Stormwater Section of the Permits Branch manages three general permits and one individual permit covering various stormwater discharges. The Construction Stormwater General Permit (ARR150000) covers any type of construction activity that is subject to permitting requirements. This general permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP) using Best Management Practices (BMP) to control stormwater contamination from sediment runoff and erosion and other waste generated at a construction site. The SWPPP must include a detailed description of the construction project; a detailed site map showing drainage, sediment and erosion controls, discharge locations, etc.; a description of the sediment and erosion controls used on the site; inspection and maintenance procedures for the sediment and erosion controls, documentation for TMDL and Water Quality Standards compliance; and certifications.

Industrial Stormwater General Permit (IGP) (ARR000000) covers many industry types that are required by federal regulation to obtain permit coverage based on the specific Standard Industrial Code (SIC) or specific industrial activity. All industries covered under the IGP are required to monitor for two basic parameters, TSS and pH, once per year within the first thirty minutes of a storm event. In addition, some industries, based on the specific industrial sector defined in the IGP, are required to monitor for additional parameters. Facilities with permit coverage must conduct quarterly visual inspections. They are also required to conduct a comprehensive site evaluation once a year. They must schedule and conduct corrective action if their monitoring results indicate parameter benchmark exceedance. The monitoring results, comprehensive site evaluation, four visual inspections and any corrective action needed must be included with the annual report and kept at the site with the annual report. This general permit requires the development of a SWPPP using BMPs to address the reduction in pollutants exposed to the stormwater runoff and/or removal of the pollutants after the stormwater has been contaminated. The SWPPP must include a list of personnel that will inspect the facility, a non-stormwater discharge certification, good housekeeping, spill prevention and response, and inventory of exposed material.

Industries that do not have any part of their operation exposed to stormwater may submit a no exposure certification request to be covered under no-exposure. Facilities with a no-exposure certification are not required to develop a SWPPP, monitor, or produce an annual report.

The Small Municipal Separate Storm Sewer System (MS4) General Permit (ARR040000) covers all of the regulated small MS4s (generally serving populations less than 100,000) in the State. This general permit requires the development of a Stormwater Management Plan (SWMP) to address the six minimum control measures: public education, public participation, illicit discharge detection, construction site control, post-construction control, and good housekeeping, as required by federal regulation. Each Small MS4 permittee with coverage under this general

permit is required to submit an annual report explaining the different activities carried out under their SWMPs that year.

The Individual MS4 Permit (ARS000002) covers the storm sewer discharges from the City of Little Rock and the Arkansas Highway and Transportation Department. This permit requires the development of a program to address the same basic measures as the ARR040000 general permit. This permit also requires the co-permittees to sample the stormwater discharges from the permitted outfalls on a quarterly basis.

Point Source Impacts Monitoring

The impacts from major point source discharges of concern are monitored primarily through strategically located water quality monitoring stations within the statewide Ambient Water Quality Monitoring Network. The water quality data collected at these stations enable the Department to monitor the discharges from the permitted facilities and identify areas of concern needing enforcement or some other type of abatement activity. The data can also indicate improvement of water quality 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" section below).

Toxics Strategy

Since FY 1987, the Department has utilized toxicity testing as a monitoring tool to measure compliance with its narrative toxicity standard, which states (in part) "Toxic substances 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" (Reg. 2.508). The implicit intent of the toxics strategy is that there shall be no discharge of any wastewater from any source that:

1. Results in the endangerment of any domestic 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 applicable general or numerical state or federal water quality standard.

The toxicity testing program consists of both self-monitoring conducted by the permittees 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.

In 1991, the Commission adopted specific numeric Aquatic Life criteria for 12 pollutants in terms of their acute and chronic toxicity: Reg. 2.508 of Regulation No. 2. On December 22,

1992, EPA promulgated numeric criteria for ten 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 Toxics Rule numbers previously promulgated by EPA as a part of the State's water quality standards.

When NPDES permit applications are submitted, 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* (EPA 1986) also known as the "Gold Book." If toxicity values published in the Gold Book are exceeded by the calculated IWC, whole effluent toxicity testing is required.

Self-Monitoring for Toxicity

The objective of Whole Effluent Toxicity (WET) testing is to estimate the no observed effect concentration (NOEC) of a facility's effluent. The NOEC is defined as the greatest effluent dilution at and below which toxicity (lethal or sub-lethal) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. This concentration will allow continued protection of normal propagation of fish and other aquatic life in the receiving waters.

Chronic toxicity tests are conducted for a period of seven days and utilize the Fathead minnow (*Pimephales promelas)* and the water flea (*Ceriodaphnia dubia).* The endpoints that are considered to determine adverse effects of toxicants for the Fathead minnow are survival and growth. The endpoints that are considered to determine adverse effects of toxicants for the water flea are survival and reproduction.

Acute toxicity tests are conducted for a period of 48 hours and utilize the Fathead minnow (*Pimephales promelas)* and the water flea (*Daphnia pulex).* The endpoint that is considered to determine adverse effects of toxicants for the Fathead minnow is survival. The endpoint that is considered to determine adverse effects of toxicants for the water flea is survival.

WET testing is included in the major and significant minor industrial NPDES permits. WET testing is also included in both major and some minor municipal NPDES permits and in one Federal permit.

When a facility's effluent experiences a certain number of toxic events, a Toxicity Reduction Evaluation (TRE) is required. A sub-lethal TRE is triggered based on three consecutive sub-lethal test failures while a lethal effects TRE is triggered based on two consecutive test failures

for lethality. A TRE is an investigation intended to determine those actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The goal of the TRE is to maximally reduce the toxic effects of effluent at the critical dilution. Depending on the results of the TREs, a facility will have either corrected treatment issues, relocated the effluent discharge, improved treatment capabilities, or will have lethal and/or sub-lethal WET testing limits in their NPDES permits.

The NPDES General Permit number ARG790000, Groundwater Clean-Up Located within the State of Arkansas, authorizes the discharge of treated groundwater/surface water that may have been contaminated with petroleum fuels. Determinations of coverage under this general permit are issued for short duration discharges, which sometimes only last for several months. The initial general permit was first issued on April 10, 1990. The initial general permit contained monthly acute WET testing requirements for all treated groundwater discharges, which included all permittees covered by the general permit. The monthly acute WET testing for one year requirements were continued with the effective date of the renewal permit on March 1, 1995; February 1, 2001; April 1, 2006; April 1, 2011; and April 1, 2016.

The NPDES IGP ARR000000 authorizes certain discharges from facilities composed of stormwater associated with industrial activity (except construction activity) as defined in Part 8.29 of the permit, where those discharges enter waters of the State or a MS4 leading to waters of the State. The goal of this permit is to minimize the discharge of stormwater pollutants from industrial activity. According to Part 6 of the permit, at a minimum, permittees are required to conduct two annual, twenty four hour acute Whole Effluent Toxicity tests. The previous permit was issued June 30, 2009 and expired June 30, 2014. The current permit was issued on July 1, 2014 and will expire on June 30, 2019.

Certification of Monitoring Data

Pursuant to the provisions of Act 322 of 1993, the Commission established mandatory certification for certain environmental testing laboratories. This Act clarifies the Department’s ability to refuse to accept invalid test results and expands enforcement powers over environmental testing. Regulation No. 13 establishes the fee system for laboratory certification. The number of environmental testing laboratories which have received certification from the State of Arkansas is tabulated by year are listed in Table II-1.

Table II-1: Environmental Testing Labs certified by the state of Arkansas

Time Frame	Total of Labs Certified	Number of Labs Located in AR
April 1, 2010-December 31, 2010	61	17
January 1, 2011-December 31, 2011	84	24
January 1, 2012-December 31, 2012	78	24
January 1, 2013-December 31, 2013	76	26
January 1, 2014-December 31, 2014	79	27
January 1, 2015-March 31, 2015	24	8

Enforcement

The Enforcement Branch of the Office of Water Quality implements the NPDES enforcement program. The primary basis for enforcement is self-monitoring data submitted by permittees on discharge monitoring reports (DMR) and routine compliance inspections performed by the Department. All DMR data are entered into the Integrated Compliance Information System (ICIS) national database. The State addresses all permit violations reported by permittees through an initial informal enforcement action. 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 and 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, Office of Water Quality of ADEQ, operates within the authority of Arkansas Act 211 of 1971, as amended, and Act 1103 of 1991. These 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 Publicly-Operated Treatment Works since 1971. Act 1103 of 1991 added the requirement for the licensing of industrial operators. There are approximately 3600 licensed operators in Arkansas, which includes both municipal and industrial operators. Classification of wastewater treatment plants by 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 Training Academy, a branch of Southern Arkansas University located at Camden, Arkansas, and the Arkansas Rural Water Association, Lonoke, Arkansas. Over 60 training

sessions are accomplished annually with offerings in all phases of wastewater training at various state locations by the faculty and staff. Other sources of training are provided by private contractors, professional organizations, and other institutions of higher learning.

Nonpoint Source Control Program

In 1988, the Department conducted a nonpoint source (NPS) assessment and prepared a management plan pursuant to Section 319 of the CWA. This assessment and portions of the original management program were approved by EPA Region 6 personnel.

In 1996, the former Arkansas Soil and Water Conservation Commission, now the Arkansas Natural Resources Commission (ANRC), 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; the Department has retained the responsibility of assessing and reporting on nonpoint source pollution and the responsibilities associated with Resource Extraction (mining); and the University of Arkansas Division of Agriculture, Cooperative Extension Service for education outreach. The Department and ANRC share the responsibilities of the Surface Erosion, Urban Runoff, and Road Construction / Maintenance categories. The Nonpoint Source Management Task Force prioritizes watersheds by the use of a matrix approach. The 8-digit HUCs are further broken down into 12-digit HUCs to facilitate focus in implementing projects in critical areas. In addition, both of these entities and numerous other cooperators lend assistance and/or support to each of the priority watersheds.

Assessment

The initial Arkansas Nonpoint Source Pollution Assessment was completed in 1988. This assessment was updated in June 1997 using updated assessment criteria. The 1997 report assessed 8,700 stream miles and indicated that nonpoint source pollution was impacting (but not necessarily impairing) over 4,100 stream miles. Agricultural activities were identified as the major cause of impacts on 3,197 stream miles. Other impacts were related to silviculture activities, road construction/maintenance activities and unknown sources. The unknown source was mercury contamination of fish tissue.

To reduce the confusion between the Nonpoint Source Assessment Report and this document, the Department no longer publishes a separate nonpoint source assessment report. This document, updated every two years, serves as the nonpoint source assessment report.

Management Program

The Arkansas Nonpoint Source Pollution Management Plan is developed and implemented by ANRC. It provides for continued monitoring of water quality, demonstrations of the effectiveness of BMPs, and implementation strategies of BMPs to reduce nonpoint source

pollutants. In 2006, and in each year since then, ANRC and its subsequent Nonpoint Source Management Program section have and continue to initiate annual meetings of the Nonpoint Source Management Task Force (Task Force). The Task Force utilizes new or updated information and data to incorporate into a 12-tiered risk matrix approach to adjust and/or allocate resources and support, when appropriate, to emerging or changing conditions. This approach also facilitates stakeholder participation. Although the Arkansas Nonpoint Source Management Plan is printed every five years, updates to the plan occur annually. Additional information regarding the Program including past projects can be accessed by visiting www.arkansaswater.org.

ANRC conducts in-stream water quality monitoring in various priority areas as defined by the NPS Program. Collected data are utilized to determine project effectiveness, to evaluate NPS contribution trends and to determine water quality improvement as related to best management practice implementation specifically to known NPS sources. Collected data are forward to ADEQ for use and inclusion of the Water Quality Assessment reported when applicable.

Groundwater

The Department is empowered to enforce and administer all laws and regulations relating to pollution of the waters of the state, including groundwater, per Ark. Code Ann. § 8-4-201, because "waters of the state" include "…all bodies or accumulations of water, surface *and* underground…."

The Office of Land Resources within the Department protects groundwater. The Department's Brownfields Program uses the Region VI Human Health Media-Specific Screening Levels for purposes of evaluating risk to human health and the environment. Methodologies and standards for risk assessment at contaminated sites have been established. Risk assessments demonstrate the difficulty of simply establishing numerical standards for all contaminated sites. Establishment of groundwater quality standards must be done in a manner that will augment existing departmental regulations, provide a uniform statewide set of criteria for defining and addressing groundwater contamination, and fill existing gaps in groundwater protection. In anticipation of standards development, a review of standards from other states was conducted in 2006, and initial discussions with groundwater staff and management were held. This process identified a number of important issues regarding the development of groundwater standards. Chief among these were fundamental policy decisions such as a non-degradation policy versus a risk-based or numeric cleanup standard, the role of stakeholders, coordination among applicable state agencies, and legislative support. These policy decisions must be made in advance by agency management in the event that groundwater standard development is undertaken.

Watershed Approach

The watershed approach for water quality management in Arkansas was initiated in the early to mid-1970s with the development of Water Quality Planning Segments. This approach provides a

framework where local programs can make educated choices about managing their natural resources. The Department provides many resources to citizens, and partners with environmental professionals to bring awareness to watershed topics of concern. Our Education section is available to assist citizens and organizations by promoting local approaches to watershed management and conservation.

From 2000 to the spring of 2012, the Department coordinated the Arkansas Watershed Advisory Group (AWAG), which was comprised of a panel of agencies, organizations, and watershed councils. This group brought citizens and environmental professionals together to network about watershed topics of concern. Since that time, many of the same goals have been and continue to be carried out through the education section. This section also upholds the same overall mission of the former group: to assist citizens and organizations by promoting local approaches to watershed management and conservation.

The Department through the education section continues to promote and support many activities and programs that fit within the missions and goals of the former AWAG. The following includes many of the activities and programs addressed within these goals during the past five years:

Goal I: To promote the public's interest, understanding, and involvement in the management of their watershed resources.

The Department strives to provide citizens the opportunity to learn about the available programs designed to protect natural resources through voluntary efforts at the local level. Programs and activities are tailored to assist and provide information to all citizens and citizen groups from school-aged children and teachers, to neighborhood and local organizations, clubs, and watershed groups.

We provide services to formal and non-formal educators through our association with the international Project WET (Water Education for Teachers) program, in which we are the state's host institution. All Project WET activities are multi-disciplinary, incorporating language arts, fine arts, health, math, and science to meet Arkansas' core curriculum standards, while bridging to the unifying theme of watersheds and water education. We offer, on average, 30 Project WET workshops each year. Workshops offered by Education section staff include Wonders of the Wetlands, Healthy Water, and Healthy People, as well as special topic workshops specifically tailored for Arkansas watersheds and their issues and concerns. Each May (five for this period of record) the Education section staff coordinates the Project WET Make a Splash water festival at different locations around the state. This event allows students from area schools to spend a fun day doing interactive, interdisciplinary activities that help them learn about the hydrologic cycle, groundwater, spring water, wetlands, water management, water conservation, water properties and soils. In addition to the Project WET curriculum, the Education section staff provides a

variety of in-classroom presentations and demonstrations ranging from water- and science-related career orientation to local water quality stream assessment procedures. We average nearly 40 youth education presentations each year, and assist with an additional 5 non-ADEQ workshops each year.

We also provide educational services to communities by hosting local public awareness events and policy and regulatory hearings in watersheds across the state. We actively participate in local field days, educational fairs (usually 2-3 per year), state park events, 4H/Girl Scout/Boy Scout days, and stream cleanup events. Education section staff also serves as local science fair judges and hold positions on various related boards and advisory councils. The Education section staff is available to provide presentations (about eight per year) and workshops (about two per year) to local civic and citizen groups and organizations. Previous workshop topics have included: general water quality (information, issues, concerns, and assessments), grant writing, recent legislation, watershed management, stormwater issues, rain gardens and rain barrels, water quality and pharmaceuticals, and special focus workshops designed for specific watersheds and ecosystems.

The Education section's watershed coordinator is also available to meet with small groups or individuals to provide direction concerning watershed planning and volunteer opportunities.

Goal II: To improve communication concerning watershed resources.

The former AWAG and the Education section has encouraged interaction and communication among citizens, agencies and organizations by hosting Roundtable Discussions, quarterly AWAG meetings, and biennial statewide Watershed Conferences (three during this period of record). The primary method of communication is the ADEQ Watershed Listserv. Other forms of communication are direct communication with watershed coordinators, newsletters, the ADEQ website (and former AWAG website), and presentations at local environmental events.

Goal III: To assist in providing technical support concerning watershed resources and management.

The Department's watershed coordinator is committed to providing planning and technical assistance to watershed groups across Arkansas. A watershed group can request technical and planning advice, or have the coordinator attend meetings to help with group facilitation and watershed planning during the initial formation period. The coordinator will continue to provide technical support after the formation period and assist with project planning and implementation.

The Education section hosts occasional grant writing workshops which, in the past, have produced several grants for watershed groups. Groups looking for ways to get started can request our nonprofit information packet. This packet was created specifically for watershed groups to provide checklists, state and federal forms, and sample bylaws and articles of incorporation. The

Education section watershed coordinator is also available to assist in filling out the federal forms. Funding opportunities are posted in the Watershed Watch newsletter, on the ADEQ website, and on the Watershed Listserv.

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Chapter Three COST / BENEFIT ANALYSIS

Introduction

The CWA requires states to provide an estimate of the environmental, economic, and social costs, and benefits needed to achieve CWA objectives and an estimate of the date of such achievement. A comparable procedure is needed to conduct a state-wide economic analysis of environmental, economic and social costs.

A true cost/benefit analysis (CBA) will require assessment of the value of incremental improvements in water quality from a variety of programs, some of which were implemented within the previous reporting cycle. Water quality assessment methodologies presently are inadequate to truly capture the benefits of CWA implementation on water quality. While the Department has monitored water quality as directed by CWA §305(b) guidance, these protocols are biased towards reporting failures, with little provision for reporting successes.

Recent advances in valuing benefits such as ecological services may provide insight into the true benefits of CWA regulations that have not been represented economically in previous assessments. However, protocols for including those benefits are not yet established. Therefore, pertinent accessible information has been utilized for this water quality CBA in order to provide the required information under the CWA.

Cost Information

It is difficult to separate out the costs attributable to water quality pollution control efforts across state, regional, and local governments. The environmental benefits from the environmental resources protected by ADEQ are more important than ever, as evidenced by implementation of programs by agency personnel across Arkansas.

The costs for implementing CWA regulations are summarized as agency programmatic implementation expenses, pollution abatement capital expenditures, and operating costs. Much of the water quality related budget is self-generated through permit fees; however, a portion is derived through federal grants. These include §106 grant money for water pollution control activities, §319 grant money for nonpoint source management issues, and §604(b) grant money for state ambient water quality analysis. Funds from these grants are divided throughout the appropriate water-quality related state programs as directed by each grant and provide funding for personnel, equipment, survey and research work, and ambient water quality monitoring.

State of Arkansas Budget for Water Quality Control Activities

The Department has primary responsibility for permitting and enforcement of CWA provisions in Arkansas, but the implementation of water quality control activities are distributed across several state agencies, including the Department, Arkansas Natural Resources Commission,

Arkansas Department of Health, Rural Water Association of Arkansas, and the Arkansas Division of Agriculture, among others.

Federal CWA Section 604(b) Budget

The §604(b) grant program provides funding to ADEQ's Technical Services branch in the amount of approximately $100 thousand per fiscal year. The §604(b) funds are used to help defray expenses for analytical work performed in the ADEQ Technical Services Water Lab. Expenses include supplies and analysts' salaries in the chemical analyses of ambient river, stream, and lake water quality samples, and Compliance Sampling Inspection (CSI) samples. For this period of record, the Department received approximately $500 thousand in federal §604(b) grant funding for these activities.

Federal CWA Section 106 Budget

The §106 grant program provides funding for ADEQ's general water pollution control/water quality management program. Activities funded under the §106 grant include ambient water quality monitoring, assessment of ambient water quality data, development of the Water Quality Inventory (now known as the Integrated Report), revision of Arkansas' Water Quality Management Plan, development and revision of surface water quality standards, development and issuance of waste water discharge permits (NPDES Program), compliance inspections, complaint investigations, and development of enforcement actions. For this period of record, the Department received approximately $10 million in federal §106 grant funding for these activities.

Federal CWA Section 319 Budget

The Clean Water Act §319 grant for nonpoint source management issues in Arkansas is implemented by the ANRC. The ANRC works with universities, city and regional officials, private industries, and the federal government to prevent, control, and remediate nonpoint source pollution throughout Arkansas. Part II, Chapter 2, Nonpoint Source Pollution Control has more information about the Nonpoint Source Program. For the period of record, ANRC received approximately $12.5 million in Federal funding for these activities.

Benefits Information

The benefits of implementing the CWA are numerous and obvious. Clean water means higher revenue from aquatic related tourism and recreation, decreased costs to treat drinking and waste water, and higher revenue from commercial fishing and aquaculture.

Tourism and Recreation

Arkansas has over 87,600 miles of streams and rivers, and 515,000 acres of lakes, reservoirs, and ponds; most of which are used for some sort of aquatic recreation: fishing, swimming, kayaking,

scuba diving, canoeing, hunting, motor boating, and waterskiing. All of these activities benefit from clean water, as does Arkansas' tourism revenue (directly or indirectly).

The Arkansas tourism industry experienced a year of growth in 2014. Travel expenditures increased from approximately $6.27 billion in 2013 to $6.7 billion in 2014, up 6.88% (http://www.arkansas.com/!userfiles/editor/docs/Annual%20Report%20Pages%2074_107E%20(1).pdf). A conservative estimate for tourism revenue that directly benefited from implementation of the Clean Water Act (fishing, boating, canoeing, etc.) would be 10% or approximately $670 million.

According to the United States Fish and Wildlife Service (USFWS) (http://www.fws.gov/southeast/arkansas/NationalSurvey_AR.pdf,) in 2011 (the most recent data available) $496 million was realized in Arkansas for fishing related expenditures. If we assume a conservative 10% benefit from the CWA that would be almost $50 million.

Drinking Water

Arkansas has 70 surface water intake systems that produce (collectively) an average of 284 million gallons per day (Department of Health personal communication). Cost to treat drinking water due to diminished water quality varies by contaminant and is dependent on multiple variables. Dearmont et al. (1998) conducted a case study in Texas and found that costs of treatment increased by $95 per million gallons when contamination is present. If we extrapolate this to Arkansas, this translates to a cost of nearly $27,000 per day or $9.8 million annually. They also found that a 1% increase in turbidity increased chemical treatment costs by 0.25%.

Aquaculture

According to the University of Arkansas at Pine Bluff aquaculture/fisheries center of excellence, Arkansas has a $167 million aquaculture industry. This industry has an economic impact of over $440 million/year in Arkansas.

Warm-water (smallmouth bass, striped bass, and walleye) and cold-water (trout) fisheries is another economically important industry for Arkansas. Arkansas has five hatcheries operated by the Arkansas Game and Fish Commission (AGFC) and three National Fish Hatcheries (NFH). According to the USFWS, for each $1 spent of budget expenditures at the Norfork NFH, $5.86 in tax revenue is generated. For every tax dollar spent for recreational fish production at Mammoth Spring NFH $12 of net economic value is created resulting in a total economic output of more than $1.5 million every year by way of taxes, jobs, and sales. Based on 2012 economic data, for every $1 of hatchery operational budget Greers Ferry hatchery spends, $95 is put back into the economy (http://www.fws.gov/greersferry/).

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Chapter Four SPECIAL STATE CONCERNS

Areas of special concern within the State's Water Pollution Control Program include many of the national concerns and priorities. 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 these concerns are listed below simply as an exercise of compiling ideas which are likely to shape future activities.

1. Are the programs being implemented by the Arkansas Department of Environmental Quality, Office of Water, "*Protecting, Enhancing, and Restoring the natural environment for the well-being of all Arkansans?"*

2. The evaluation of water bodies as impaired based on limited data sets, inappropriate water quality standards, or "one size fits all" assessment criteria.

   Evaluating water bodies under this circumstance may result in the development of unnecessary, costly TMDLs and/or the implementation of unnecessary point source permit requirements or permit limits, and/or expensive pollution reduction activities.

   In some cases, water bodies do not meet water quality standards simply because of the natural fluctuations in water quality that occurs from one year to the next. In other cases, it is the result of evaluating a very limited amount of data that does not fully reflect the many unique water quality characteristics of Arkansas' waterbodies. In yet other cases, the water quality standards or assessment criteria applicable to the water body is inappropriate to evaluate the condition of the stream. Further investigation utilizing valuable resources must be implemented to either confirm or reject the evaluation.

   Since 2001, several hundred TMDLs for impaired water bodies have been developed. A number of these water bodies have since been evaluated as fully meeting water quality standards. The attainment of water quality standards in the majority of these water bodies has not been the result of implementing the TMDL.

3. Developing information to determine how and to what extent limited instream water quantity affects the designated uses of the water body.

   The demand for clean water sources for drinking water, industrial, and agriculture needs continues to increase. As such, more demands for surface water to fulfill these needs are increasing. Utilizing surface waters to meet these needs can drastically reduce instream flows. In many instances, it is not fully known what instream flow amount is needed to protect the designated uses of the water body.

   Portions of the Arkansas State Water Plan, administered by the Arkansas Natural Resources Agency, address the uses of surface waters for water supply. Cooperatively, both agencies

assume the responsibility in determining what instream flows are needed for the protection of assigned designated uses.

4.The continued support of local watershed groups.

Citizen based watershed groups play a vital role in disseminating information to Arkansas residents concerning all of the natural resources in their surrounding area. They also play a vital role in informing ADEQ and other state, federal and local government agencies their concerns about the natural resources in their area.

All of Arkansas' government agencies need to work together with citizen based watershed groups to help promote stewardship and citizen involvement.

5.The conversion of streams to reservoirs under the provision of "drinking water supply" threatens Arkansas' highest quality and most ecologically important streams.

6.Developing appropriate and scientifically defensible nutrient and minerals criteria for Arkansas' diverse water resources.

The State of Arkansas does not currently have specific criteria to protect water bodies against nutrient enrichment. The individual uniqueness of each of the State's water resources presents a daunting task in criteria development. Developing criteria will have to be accomplished to maintain and enhance the State's rivers lakes and streams while taking into consideration current and future land uses.

Minerals criteria and their use present a complex problem for the State. There are a number of variable that must be considered during the development. Criteria that are overly strict may put an undue burden on the permitted community. Likewise, minerals criteria that are too lenient may not be protective of the aquatic life in the stream or the other assigned designated uses (public, industrial, and agriculture water supply).

7.The protection of Arkansas' water resources from storm water runoff.

Storm water runoff from the variety of land use practices in Arkansas presents numerous issues. Pollutants such as oil, grease, and trash runoff from parking lots and roadways; nutrients runoff of urban lawns, parks, golf courses, agriculture; turbidity (silt) originates from construction sites, undeveloped areas, county roads, pastures, row crop agriculture; and pathogens and nutrients runoff from areas of failing or poorly designed septic tanks, failing city infrastructure, agriculture areas.

Affectively permitting to address all of the constituents that can originate from a single area, or multiple areas in a single permit is difficult. Moreover, inspection and enforcement of permits extremely resource taxing.

8. In depth review of stormwater construction permit applications especially those within watersheds containing 303(d) listed waters, ERWs, ESWs, NSWs, threatened and endangered species, and/or karst topography allows for the protection of these sensitive areas.

Development of water quality standards, assessment methods, and implementation protocols which protect the waters of the state from excess siltation/suspended sediment/embeddedness. Development should assess current data, EPA's 2006 Framework guidance, other states' regulations and procedures, and utilize state resources and expertise in order to determine data needs and gaps, funding needs, feasibility and adaptability, and implementation if possible.

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PART III SURFACE WATER ASSESSMENT

Chapter One SURFACE WATER MONITORING PROGRAM

Water Quality Monitoring Program

Arkansas has more than 150 permanent surface water monitoring sites and more than 200 rotating sites across the state (Figure III-1). The current monitoring program operates under four goals: 1) to better assess the effects of point source discharges upon water quality; 2) to observe the impact of known nonpoint source inputs over time; 3) to continue monitoring the major rivers due to their basic importance to the State; and 4) to monitor the carefully selected, high quality (least impaired) streams to provide long term chemical data by physiographic region for use in future water quality standards revisions. The Department's monitoring program is thoroughly outlined in, State of Arkansas Water Quality Monitoring and Assessment Program, Revision 4 (ADEQ 2011).

If a waterbody is assessed as impaired using the data collected from the permanent or rotating stations, a special or intensive survey may be implemented. Table III-1 lists special projects within this period of record. These surveys are usually on a watershed or site specific scale and can include biological and/or special needs data collection dependent upon the impairment. Figure III-2 shows special project sites within this period of record.

Biological Testing Program

The Department maintains a monitoring system to evaluate the environmental impacts of pollutants on aquatic life and human health. Monitoring programs include macroinvertebrate and fish community assessments; fish tissue analyses for contaminants, which may be harmful for human consumption; sediment testing for pesticides, toxic chemicals, and heavy metals; EPA Ambient Toxicity Monitoring Program (results available at http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/index.htm); 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.

Macroinvertebrate 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. The Department has conducted biological community monitoring throughout the State since the 1970s. Current biological collection methods are based on EPA's Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers (Barbour 1999).

Figure III-1: ADEQ Water Quality Monitoring Stations

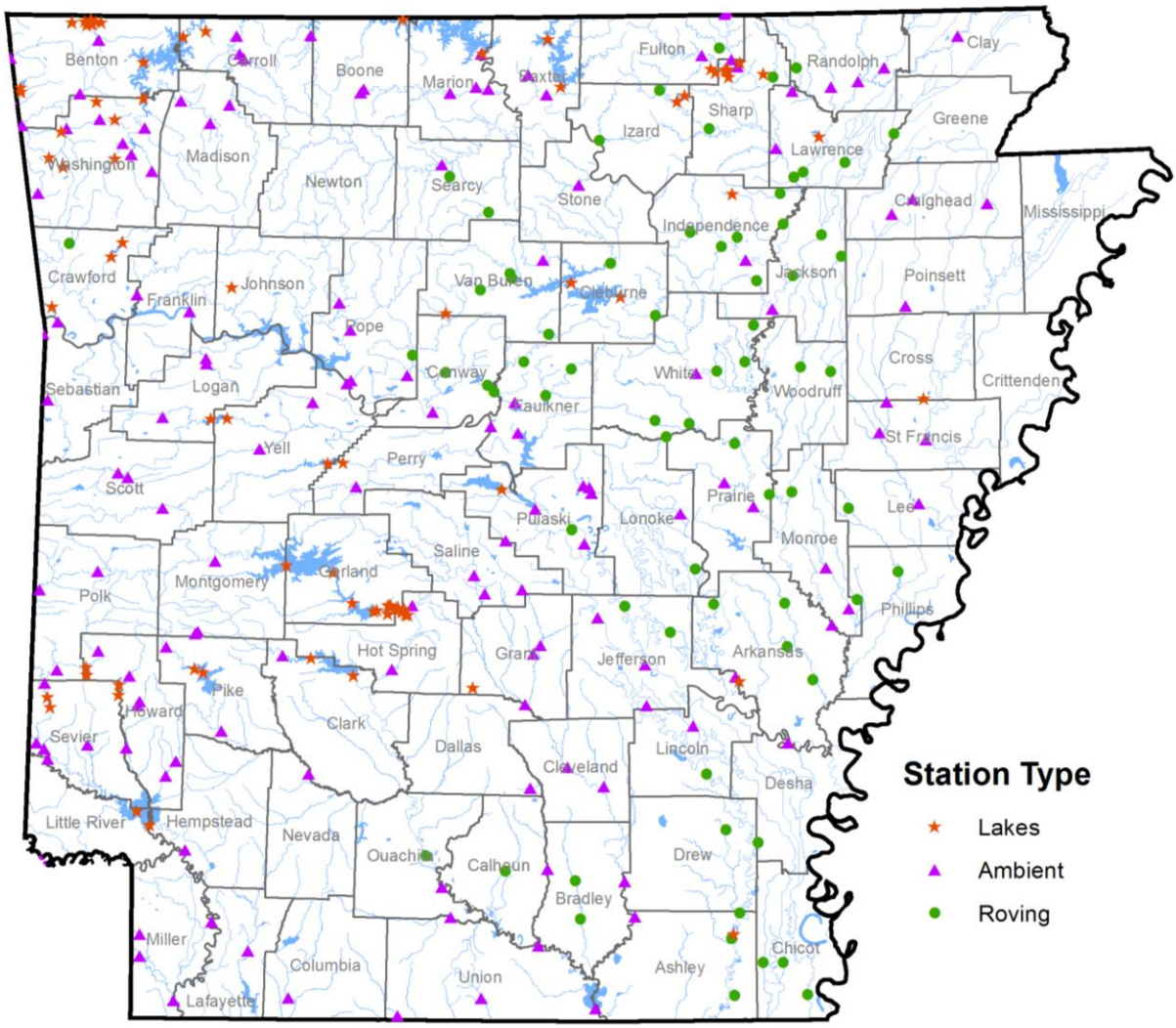

Figure III-2: Special Projects Monitoring Waters

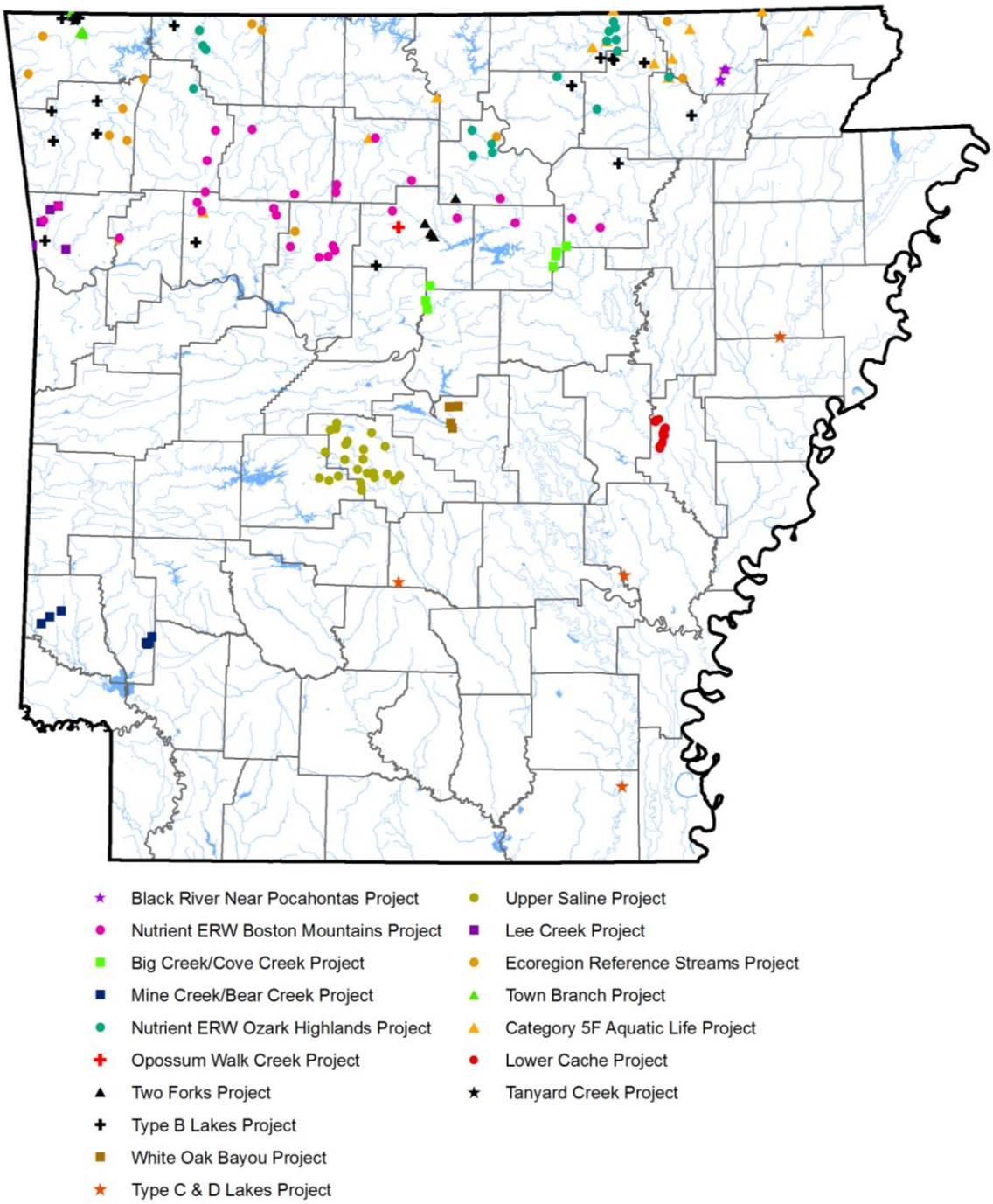

Table III-1: Special Survey Projects (4/1/2010 to 3/31/2015)

Name	Project Year(s)
Type B Reference Lake Identification	2010 to present
White Oak Bayou	2010 to present
Type C and D Reference Lakes Data Collection	2009 to present
Upper Saline Watershed Nutrient Criteria Development and MBMI Pilot Project	2006 - 2010
Inventory of Biotic Assemblages for Cedar, Cove, Lee, and Webber Creeks	2009-2010
Assessment of Ecoregion Reference Streams	2009-2010
Physical, Chemical, Biological Assessment of Town Branch, Little Sugar, and McKissic Creeks	2009-2010
Aquatic Life Use Attainment Determination of Selected Category 5F Waters Listed on the 2008 List of Impaired Waterbodies	2009-2011
Inventory of Biotic Assemblages for Mine and Bear Creeks	2011
Inventory of Aquatic Species of Big and Cove Creek Natural Areas	2011-2012
Excavation Activities in and near the Opossum Walk Creek, Van Buren County, Arkansas	2012
Lower Cache River Restoration Project	2012-present
Two Forks Restoration- Biological Monitoring Program	2012-present
Stream Restoration of Tanyard Creek in the Little Sugar Watershed	2013-present
Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Ozark Highland Ecoregion of Arkansas	2013-2015
Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Boston Mountain Ecoregion of Arkansas	2014-present
Preliminary Evaluation of Designated Use Attainment for the Black River near Pocahontas, Arkansas	2014-present

Bacteriological Program

The bacteriological monitoring network has been substantially modified during the past several years. Because of the incompatibility of current network monitoring strategies and bacteriological sample holding times, a separate sampling scheme was developed. Technicians perform the sampling and analyses in the field to comply with the holding time of the methodology. Bacteriological analyses are performed at the Roving Water Quality Monitoring Network sites and those Ambient Water Quality Monitoring Network sites located in the same region as the current roving sites scheduled for sampling. The sites should be sampled bimonthly as well as eight times during the primary contact recreation season to meet assessment criteria. In addition, bacteria samples are collected as part of most of the special survey projects.

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Chapter Two PLAN FOR ACHIEVING COMPREHENSIVE ASSESSMENTS

ADEQ Data

In Arkansas, the Water Quality Monitoring and Assessment Program has been very progressive and is one of the more intensive programs in the nation. However, it is primarily limited to chemical monitoring of the water quality using long term, fixed, and specifically targeted stations. Objectives of the program 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: 1) the ability to assess the use attainment status of the State's waters; 2) monitor long-term trends in least-disturbed areas; 3) monitor rapidly developing areas of the State; and 4) detect sudden changes in water quality of the State's waters. In addition, the program 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 (total), ecoregion hardness, and total suspended solids values for permit implementation procedures.

The water quality monitoring network in Arkansas is statewide in scope consisting of a group of fixed stations which are sampled monthly. These networks are facilitated by either the regionally located field personnel or personnel from the central office.

The weakest part of Arkansas' assessment program is reliance on chemical water quality data to assess the status of in-stream aquatic life. While some chemical parameters may be more conclusive than others in determining the aquatic life designated 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 using only chemical concentrations. In contrast, other designated uses, e.g., domestic water supply, primary contact recreation, etc., must rely on analyses of water samples directly.

To address this issue, site-specific intensive surveys are conducted to better assess the biological integrity of streams. Data from the water quality monitoring network is used to identify areas of potential aquatic life impairment. Intensive survey work, including biological assessments, is performed on these areas. Examples of such surveys are the completion of the aquatic life use attainment determination of selected Category 5F waters listed on the 2008 list of impaired waterbodies, biological community sampling of ecoregion reference streams, re-surveying below waste water treatment plants (WWTP) that were surveyed in the 1990s, and the nutrient standard surveys being conducted around the State.

Data from Outside ADEQ

In accordance with the CWA under Section 303(d) and implementing regulations in 40 CFR Part 130.7, the Department actively solicits any existing and readily available water quality data from around Arkansas and neighboring states. In order to be used for assessment and attainment purposes, data must:

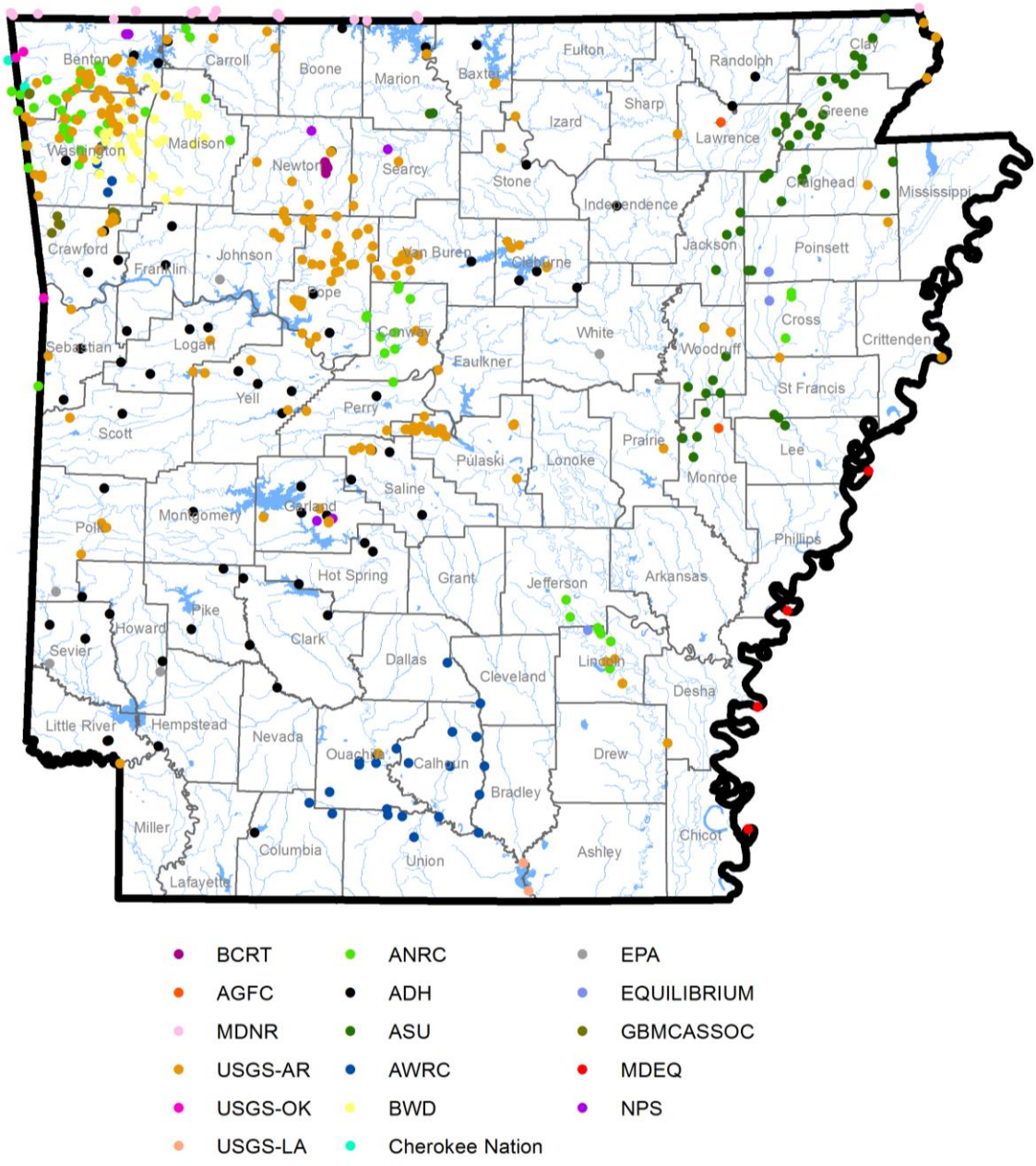
- Represent actual spatial and temporal annual ambient conditions;
- Be characteristic of the main water mass or distinct hydrologic areas;
- Entire data sets should not be biased toward specific conditions, such as flow, runoff, or season. The exceptions are the analysis of data for those designated uses that require seasonally based water quality data (e.g., primary contact recreation, biological community data, or critical season dissolved oxygen);
- Be reported in standard units recommended in the relevant approved method;
- Have been collected and analyzed under a Quality Assurance/Quality Control (QA/QC) protocol equivalent to or more stringent than that of ADEQ or the USGS. Data collection protocols should either be readily available or accompany the data;
- Be distributed over at least three (3) seasons (to include inter-seasonal variation) and over at least two (2) years (to include temporal variation);
- Not have more than two-thirds of the samples be in one (1) year or one (1) season. The exceptions are the analysis of data for those designated uses that require seasonally based water quality data (e.g., primary contact recreation, biological community data, or critical season dissolved oxygen);
- Have been analyzed pursuant to the rules outlined in the State Environmental Laboratory Certification Program Act, Ark. Code Ann. § 8-2-201 *et seq.* The name and location of the laboratory should either be readily available or accompany the data;
- Be accompanied by precise sample site location(s) data, preferably latitude and longitude in either decimal degrees or degrees, minutes, seconds;
- Be received in either an Excel spreadsheet or compatible format not requiring excessive formatting; and
- Have been collected within the period of record.

Solicitation by the Department is conducted via postal correspondence to various agencies, municipalities, universities, and other entities that collect water quality data. For the 2016 cycle, one hundred and five (105) entities were contacted via May 26, 2015 letter. In response, data were received and evaluated from the following entities listed in Table III-2. Figure III-3 shows where the data were collected by each entity.

Table III-2: Entities Submitting Outside Data for the 2016 Cycle

Name	Map Title
Arkansas Game and Fish Commission	AGFC
Arkansas Natural Resources Commission	ANRC
Arkansas Department of Health	ADH
Arkansas State University	ASU
Arkansas Water Resources Center	AWRC
Beaver Water District	BWD
Cherokee Nation	Cherokee Nation
U.S. Environmental Protection Agency	EPA
Equilibrium	Equilibrium
GBMc and Associates	GBMCASSOC
Mississippi Department of Environmental Quality	MDEQ
Missouri Department of Natural Resources	MDNR
National Parks Service	NPS
United States Geological Survey - Arkansas	USGS - AR
United States Geological Survey - Oklahoma	USGS - OK
United States Geological Survey - Louisiana	USGS - LA

Figure III-3: Data from Outside Sources



Chapter Three ASSESSMENT METHODOLOGY

Assessment Background

Section 305(b) of the Federal Water Pollution Control Act (hereinafter "Clean Water Act") requires states to perform a comprehensive assessment of the state's water quality to be reported to the U.S. Environmental Protection Agency (EPA) every two years. The report provides information on the quality of the state's waters; the extent to which state waters provide for the protection and propagation of a balanced population of fish, shellfish, and wildlife, and allow recreational activities in and on the water; and how pollution control measures are leading to water quality standards attainment.

In addition, Section 303(d) of the Clean Water Act requires each state to identify waters where existing pollution controls are not stringent enough to achieve state water quality standards, and establish a priority ranking of these waters. States must develop Total Maximum Daily Loads (TMDLs) or other corrective actions for the identified waters. TMDLs describe the amount of each pollutant a waterbody can receive and not violate water quality standards. States submit the list of impaired waters (303(d) list) to EPA; EPA has the option to approve, disapprove, or take no action on the list within 30 days of submission.

Current EPA guidance recommends producing an integrated report combining requirements of the Clean Water Act for Sections 305(b) reporting and 303(d) submissions. The combined report is the Integrated Water Quality Monitoring and Assessment Report (305(b) Report). The 305(b) Report describes the quality of all of the surface waters of the state that were evaluated for a specified assessment period. This report is prepared using the Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act; TMDL-01-03, which is supplemented by memoranda regarding development of the 2008, 2010, 2012, and 2014 305(b) Reports (EPA 2006, 2009, 2011, and 2013 respectively). Arkansas' waters are evaluated in terms of whether their assigned water quality standards and designated uses, as delineated in the Arkansas Pollution Control and Ecology Commission's (APC&EC) Regulation No. 2, are being attained.

APC&EC Regulation No. 2, Water Quality Standards for Surface Waters of the State of Arkansas, provides the foundation for the 305(b) Report. APC&EC Regulation No. 2 establishes: water quality standards for surface waters of the State of Arkansas, designated uses associated with those water quality standards, and criteria as well as policies established to protect, maintain, and restore designated uses. Monitoring data are assessed for compliance with APC&EC Regulation No. 2 to determine impairment and designated use support, based upon the frequency, duration, and/or magnitude of water quality standard exceedances as delineated in the Arkansas Department of Environmental Quality's (ADEQ) Assessment Methodology.

ADEQ follows the specific requirements of 40 C.F.R. § 130.7-130.8. ADEQ's Assessment Methodology constitutes the process that the State of Arkansas employs to determine to which of the five integrated reporting categories a monitoring segment belongs. EPA's most current 305(b) reporting and 303(d) listing requirements and guidance were considered when developing this assessment methodology.

Integrated Reporting Categories

Arkansas' waters are assessed based on water quality standard and designated use attainment, as delineated in the state's water quality standards (APC&EC Regulation No. 2) and this assessment methodology. Monitoring segments are the basic unit of record for conducting and reporting water quality assessments. Monitoring segments are individual stream reaches that are grouped by planning segments. The State of Arkansas is divided into 38 water quality planning segments that are congruent with USGS's Watershed Boundary Database 8-digit hydrologic unit code (HUC) boundaries (see Section 3.3 for more detail).

Upon assessment, monitoring segments will be categorized as "support" or "non-support." Monitoring segments will be assessed as support if all water quality standards and designated uses for which data are available are attained. A monitoring segment will be assessed as non-support if any water quality standard or designated use is not attained.

Category 5 constitutes the 303(d) impaired waterbodies list. Impaired monitoring segments will be distinguished between pollutant causes currently without a TMDL (Category 5) and pollutant causes for which TMDLs have already been approved (Category 4a). In some instances, a regulatory response outside of a TMDL is permissible and the monitoring segment/pollutant pair is assigned to Category 4b (alternative pollution control).

Arkansas' 305(b) assessments are formatted to reflect EPA's 2011 305(b) guidance, which suggests placing monitoring segments into one of the following five integrated reporting categories. Category 5 is further subdivided by ADEQ for planning and management purposes.

Category 1. Attains all water quality standards for all designated uses; categorized by existence of a TMDL or not for one or more constituents:

1a. Attaining water quality standards for all designated uses, no use is threatened. No TMDL exists for any constituents.

1b. Attaining all water quality standards for all designated uses; however, a TMDL remains in place for one or more constituents.

Category 2. Available data and/or information indicate that some, but not all of the designated uses are supported.

Category 3. Insufficient data and information are available to determine if any water quality standards are being attained.

- No data available;
- Data do not meet the spatial and/or temporal requirements outlined in this assessment methodology;
- Waters in which the data are questionable because of Quality Assurance and/or Quality Control (QA/QC) procedures and/or the stream segment requires confirmation of impairment before a TMDL is scheduled.

Category 4. Water quality standards are not attained for one or more designated uses but the development of a TMDL is not required because:

4a. A TMDL has been completed for the listed parameter(s);

4b. Other pollution control requirements are expected to result in the attainment of the water quality standard; or

4c. Non-support of the water quality standard is not caused by a pollutant.

Category 5. The waterbody is impaired, or one or more water quality standards may not be attained. Waterbodies in Category 5 will be prioritized as:

High

- Truly impaired; develop a TMDL or other corrective action(s) for the listed parameter(s).

Medium

- Waters currently not attaining standards, but may be de-listed with future revisions to APC&EC Regulation No. 2, the state water quality standards; or
- Waters which are impaired by point source discharges and future permit restrictions are expected to correct the problem(s).

Low

- Waters currently not attaining one or more water quality standards, but all designated uses are determined to be supported; or
- There is insufficient data to make a scientifically defensible decision concerning designated use attainment; or
- Waters ADEQ assessed as unimpaired, but were assessed as impaired by EPA.

Assessment Process

Data assessment forms the basis of water quality standard and designated use attainment decisions. In order to conduct accurate assessments, evaluated data must reflect current surface water quality conditions. Data types evaluated may include chemical, physical, biological, habitat, bacteriological, or toxicological information. These data are assessed based on the current EPA-approved water quality standards for the State of Arkansas (APC&EC 2014) and this assessment methodology.

Data Assembly

Pursuant to 40 C.F.R. § 130.7(b)(5), ADEQ assembles and evaluates all existing and readily available water quality data and information to make water quality and designated use attainment decisions. The primary data used in the assessment of Arkansas' water quality are generated as part of ADEQ's water quality monitoring activities, described in the *State of Arkansas' Water Quality Monitoring and Assessment Program, Revision 5 (ADEQ 2013b)*. In addition, state and federal agencies and other entities are asked to provide water quality data that meets or exceeds ADEQ's or USGS' QA/QC protocols. These requests provide a minimum of 30 days to respond before the draft 303(d) list is prepared.

The period of record for the 2016 305(b) Report is:

> **Metals and ammonia toxicity analysis:** April 1, 2012 to March 31, 2015
> **All other analyses:** April 1, 2010 to March 31, 2015

Data developed prior to the period of record will be used for long-term trend analysis; data developed after the period of record will be evaluated during the next assessment period, which may include water quality data, completed surveys (including completion of the final report), revisions in water quality standards, and the completion of TMDLs.

No new data

If no new water quality data have been generated for a monitoring segment during the current period of record, water quality standard and designated use attainment decisions from the preceding assessment period will be carried forward - unless a substantial change in the water quality standards or the assessment methodology has occurred. If substantial changes in the water quality standards or the assessment methodology has occurred since the preceding assessment period, and those changes would affect previous assessment decisions, the data from the preceding period of record will be re-assessed using the newly-defined water quality standards/methodology to determine current water quality standard attainment.

Absence of data

Water quality standard and designated use attainment assessments can be made for monitoring segments, in the absence of data, if it can be reasonably established that non-monitored segments are similar in watershed characteristic and condition to contiguous monitored segments. ADEQ will consider land use practices, the location of tributaries, impoundments, and other hydrological alterations that could impact the water quality between the station site and the adjacent non-monitored segment. If similarity in watershed characteristic and/or condition cannot be established, contiguous non-monitored segments will remain unassessed.

Water quality standard and designated use non-attainment assessments, in the absence of data, can be made for non-monitored stream segments if it can be reasonably established that the

segment is similar with respect to the cause and magnitude of impairment to contiguous monitored waters. However, an evaluation of non-attainment will not be made for non-monitored segments when the source or the origin of the impairment in contiguous monitored waters is unknown, and/or when the magnitude or frequency of the impairment is such that contiguous segments may not be impacted.

Non-monitored segments evaluated using data from monitored segments will be delineated in the Impaired Waterbodies 303(d) list, which can be found at the ADEQ website: http://www.adeq.state.ar.us.

Data Quality considerations

ADEQ maintains a strong commitment to the collection and use of high quality data to support environmental decisions and regulatory programs. ADEQ uses data submitted by various entities in different ways, depending on the QA/QC of the data; however, all data submitted to ADEQ will be evaluated.

For data to be utilized in making water quality standard and designated use attainment decisions, data must comply with the acceptability requirements below. Data that do not meet acceptability requirements below will not be used to make water quality standard and designated use attainment decisions; however, these data may be used as a screening tool to determine whether additional monitoring is warranted. As outlined in the 2006 IR guidance and adapted specifically to Arkansas, in order to be used for 305(b) reporting and 303(d) listing assessments, data must:

- Represent actual spatial and temporal annual ambient conditions;
- Be characteristic of the main water mass or distinct hydrologic areas;
- Entire data sets should not be biased toward specific conditions, such as flow, runoff, or season. The exceptions are the analysis of data for those designated uses that require seasonally based water quality data (e.g., primary contact recreation, biological community data, or critical season dissolved oxygen);
- Be reported in standard units recommended in the relevant approved method;
- Have been collected and analyzed under a QA/QC protocol equivalent to or more stringent than that of ADEQ or the USGS. Data collection protocols should either be readily available or accompany the data;
- Be distributed over at least three (3) seasons (to include inter-seasonal variation) and over at least two (2) years (to include temporal variation);
- Not have more than two-thirds of the samples be in one (1) year or one (1) season. The exceptions are the analysis of data for those designated uses that require seasonally based water quality data (e.g., primary contact recreation, biological community data, or critical season dissolved oxygen);

- Have been analyzed pursuant to the rules outlined in the State Environmental Laboratory Certification Program Act, Ark. Code Ann. § 8-2-201 *et seq.* The name and location of the laboratory should either be readily available or accompany the data;
- Be accompanied by precise sample site location(s) data, preferably latitude and longitude in either decimal degrees or degrees, minutes, seconds;
- Be received in either an Excel spreadsheet or compatible format not requiring excessive formatting; and
- Have been collected within the period of record.

Tiered approach to qualifying data

As stated above, data must, at a minimum, have been collected and analyzed under a QA/QC protocol equivalent to or more stringent than that of ADEQ or USGS to be considered for water quality and designated use assessments. Table III-3 describes the defined levels of data quality for each type of data recognized in making support determinations. These tables are adapted from the *Consolidated Assessment and Listing Methodology (CALM): Towards a Compendium of Best Practices* guidance document (EPA 2002).

Tier I and Tier II data do not meet acceptability requirements and will be used for screening purposes. Tier III and Tier IV data meet acceptability requirements and will be considered for water quality and designated use assessments.

Table III-3: Hierarchy of Data Quality Levels for Assessment Use

Data Use	Data Level	Technical Component	Spatial & Temporal Coverage	Data Quality
Used for screening purposes	**Tier I**	Water quality monitoring using grab samples	Low spatial and temporal coverage: • Only a few sites within a basin • Quarterly or less frequent sampling with limited period of record (e.g., 1 day) • Limited data during key periods (e.g., critical hydrological regimes) • Data older than five (5) years that are not likely to reflect current conditions	• Low precision and sensitivity • QA/QC protocols are not met or followed, or QA/QC results are inadequate • Methods not documented • Inadequate metadata
	Tier II	One (1) of the following: • Water quality monitoring using grab samples • Rotating basin surveys involving single visits • Verified volunteer data	Moderate spatial and temporal coverage: • Stream basin coverage, several sites within a basin • Quarterly or bimonthly sampling at fixed stations • Sampling only during a key period (e.g., high and/or low flow) • Data that are likely to reflect current conditions, but may be older than five (5) years	• Low precision and sensitivity • QA/QC protocols followed, QA/QC results adequate • Approved SOPs used for field and lab • Adequate metadata*
Used for assessments	**Tier III**	One (1) of the following: • Water quality monitoring using grab samples • Rotating basin surveys involving multiple visits or automatic sampling • Calibrated models (calibration data greater than 5 years old) • Limited use of continuous monitoring instrumentation	Broad spatial and temporal coverage of sites with sufficient frequency and coverage to capture acute events: • Multiple sites within a basin • Quarterly, bimonthly, or monthly sampling during key periods (e.g., critical hydrological regimes), multiple samples at high and low flows. • Period of sampling adequate to monitor for chronic conditions for the specific parameter of concern (sampling over at least 3 seasons) • Data five (5) years old or less	• Moderate precision and sensitivity • QA/QC protocols followed, QA/QC results adequate • Approved SOPs used for field and lab • Adequate metadata*
	Tier IV	Water quality monitoring using composite samples, a series of grab samples, and/or continuous monitoring devices	Broad spatial and temporal (at least 2 years) coverage of fixed sites with sufficient frequency and coverage to capture acute events, chronic conditions, and all other potential chemical/ physical impacts: • Multiple sites within a basin • Bimonthly or monthly sampling during key periods (e.g., critical hydrological regimes), including multiple samples at high and low flows • Continuous monitoring (e.g., use of thermographs, sondes, or similar devices) • Data five (5) years old or less	• High precision and sensitivity • QA/QC protocols followed, QA/QC results adequate • Approved SOPs used for field and lab; samplers well trained • Adequate metadata*

* Adequate metadata includes: time, date, stream name, latitude/longitude, parameters sampled, Chain of Custody from a State certified lab, and a reference to the QA/QC and standard operating procedures (SOPs) used.

Biological integrity data

The following Tables (III-4 through III-7) describe defined levels of data quality for each type of data recognized in making aquatic life use support determinations. These tables are adapted from the *Consolidated Assessment and Listing Methodology (CALM): Towards a Compendium of Best Practices* guidance document (EPA 2002). Tables for determining the level of data quality for biological, habitat, chemical/physical, and toxicological data types are presented below. It is important to evaluate data quality when an assessment performed with more than one data type results in conflicting designated use attainment decisions. These tables are included only for aquatic life use determinations because it is the only designated use for which multiple data types are currently utilized.

Table III-4: Hierarchy of Bioassessment Approaches for Aquatic Life Assessment

Data Use	Data Level	Technical Components	Spatial &Temporal Coverage	Data Quality
Used for screening purposes	Tier I	• Visual observation of biota • Reference conditions not used • Simple documentation	Low spatial and temporal coverage: • Extrapolation from other sites • Limited monitoring • No taxa identification	• Low precision and sensitivity • Biologist not required • No biological assessment performed
	Tier II	• One (1) assemblage • Reference condition pre-established by a Biologist at site or in comparable watershed • Biotic index or narrative evaluation of historical records	Moderate spatial and temporal coverage: • Minimum of one (1) site • Limited to a single sampling • Identifications to family level	• Low precision and sensitivity • Biologist may provide correspondence • No biological assessment performed
Used for assessments	Tier III	• One (1) assemblage • Reference condition may be site specific, or composite of sites • Biotic index (interpretation may be supplemented by narrative evaluation of historical records)	Broad spatial and temporal coverage: • May include limited spatial coverage, with multiple sites, for watershed-level assessments • Monitoring of targeted sites during a single season, may be limited sampling for site-specific studies • Identification to lowest possible taxa*	• Moderate precision and sensitivity • Biologist performs survey or provides training • Biologist performs biological assessment
	Tier IV	• Two (2) assemblages • Regional reference conditions used • Biotic index (single dimension or multi metric index)	Broad spatial and temporal coverage: • Broad coverage of sites for either site-specific or watershed assessments • Monitoring during two (2) sampling seasons • Identification to lowest possible taxa* • Conducive to regional assessments using targeted or probabilistic design	• High precision and sensitivity • Biologist performs survey • Biologist performs biological assessment

*****Identification to lowest possible taxa is generally genus for macroinvertebrates and species for fish.

Table III-5: Hierarchy of Habitat Assessment Approaches for Aquatic Life Assessment

Data Use	Data Level	Technical Components	Spatial & Temporal Coverage	Data Quality
Used for screening purposes	**Tier I**	• Visual observation of habitat, no true assessment • Documentation of readily discernible land use characteristics that might alter habitat quality • Reference conditions not used	Low spatial and temporal coverage: • Limited spatial coverage • Sporadic visits	• Low precision and sensitivity • Biologist not required
	Tier II	• Visual observation of habitat, simple assessment • Use of land use maps for characterizing watershed condition • Reference conditions pre-established by a biologist	Moderate spatial and temporal coverage: • Limited spatial coverage and/or site-specific studies • Limited to annual visits non-specific to season	• Low precision and sensitivity • Biologist may provide correspondence
Used for assessment	**Tier III**	• EPA's Rapid Bioassessment Protocol used; bioassessment performed • Data on land use may be compiled and used to supplement assessment • Reference condition may be site specific, or composite of sites	Broad spatial and temporal coverage: • Spatial coverage may be limited sampling or broad and commensurate with biological sampling • Assessment during one season usually the norm • Assessment may be regional or site-specific	• Moderate precision and sensitivity • Biologist performs survey or provides training
	Tier IV	• Habitat assessment based on quantitative measurements of in-stream parameters, channel morphology, and floodplain characteristics; bioassessment performed • Data on land use compiled and used to supplement assessment • Reference conditions used as a basis for assessment	Broad spatial and temporal coverage: • Spatial coverage broad and corresponding with biological sampling • Assessment during one to two (1-2) seasons • Assessment may be regional or site-specific	• High precision and sensitivity • Biologist performs survey

Table III-6: Hierarchy of Chemical/Physical Data for Fisheries Assessment

Data Use	Data Level	Technical Component	Spatial & Temporal Coverage	Data Quality
Used for screening purposes	**Tier I**	Water quality monitoring using grab samples	Low spatial and temporal coverage: • Only a few sites within a basin • Quarterly or less frequent sampling with limited period of record (e.g., 1 day) • Limited data during key periods (e.g., critical hydrological regimes) • Data older than five (5) years that are not likely to reflect current conditions	• Low precision and sensitivity • QA/QC protocols are not followed, or QA/QC results are inadequate • Methods not documented • Inadequate metadata
	Tier II	One (1) of the following: • Water quality monitoring using grab sampling • Rotating basin surveys involving single visits or routine sampling • Verified volunteer data	Moderate spatial and temporal coverage: • Stream basin coverage, several sites within a basin • Quarterly or bimonthly sampling at fixed stations • Sampling during a key period (e.g., high and/or low flow) • Data that are likely to reflect current conditions, but may be older than five (5) years	• Low precision and sensitivity • QA/QC protocols followed, QA/QC results adequate • Approved SOPs used for field and lab • Adequate metadata*
Used for assessment	**Tier III**	One (1) of the following: • Water quality monitoring using grab samples • Rotating basin surveys involving multiple visits or routine sampling • Limited use of continuous monitoring instrumentation • Synthesis of existing or historical information on fish tissue contamination levels	Broad spatial and temporal coverage of sites with sufficient frequency and coverage to capture acute events: • Multiple sites within a basin • Quarterly, bimonthly, or monthly sampling during key periods (e.g., critical hydrological regimes), multiple samples at high and low flows. • Period of sampling adequate to monitor for chronic concerns for the specific parameter of concern (sampling over at least 3 seasons) • Data five (5) years old or less	• Moderate precision and sensitivity • QA/QC protocols followed, QA/QC results adequate • Approved SOPs used for field and lab • Adequate metadata*
	Tier IV	All of the following: • Water quality monitoring using composite samples, series of grab samples, and continuous monitoring devices • Follow-up sediment quality sampling or fish-tissue analyses at site with high probability of contamination	Broad spatial and temporal (at least 2 years) coverage of fixed sites with sufficient frequency and coverage to capture acute events, chronic conditions, and all other potential chemical/ physical impacts: • Multiple sites within a basin • Bimonthly or monthly, including multiple samples at high and low flows • Continuous monitoring (e.g., use of thermographs, sondes, or similar devices) • Data five (5) years old or less	• High precision and sensitivity • QA/QC protocols followed, QA/QC results adequate • Approved SOPs used for field and lab; well-trained personnel • Adequate metadata*

*Adequate metadata includes: time, date, stream name, latitude/longitude, parameters sampled, Chain of Custody from a State certified lab, and a reference to the QA/QC and standard operating procedures (SOPs) used.

Table III-7: Hierarchy of Toxicological Approaches for Fisheries Assessment

Data Use	Data Level	Technical Components	Spatial & Temporal Coverage	Data Quality
Used for screening purposes	Tier I	Any one (1) of the following: • Acute or chronic WET* for effluent-dominated channel • Acute ambient water	• One (1) ambient water sample tested in a monitoring segment or site • A minimum of one (1) species	• Low precision and sensitivity • Lab certification unknown
	Tier II	Any one (1) of the following: • Acute or chronic WET for effluent-dominated channel • Acute or chronic ambient water	• Two (2) ambient water samples tested in a monitoring segment or site • Two (2) different dates at least two (2) weeks apart using • A minimum of one (1) species	• Low to moderate precision and sensitivity • Lab certification unknown
Used for assessment	Tier III	Any one (1) of the following: • Acute and chronic WET for effluent-dominated channel • Acute or chronic ambient water	• Three (3) ambient water samples tested in a monitoring segment or site • Three (3) different dates at least two (2) weeks apart • A minimum of two (2) species for at least two (2) of the tests	• Moderate precision and sensitivity • Certified Lab
	Tier IV	One (1) of the following: • Acute and chronic WET for effluent-dominated channel • Acute or chronic ambient water	• Four or more (≥4) tests in total, based on samples collected in a monitoring segment or site • Four (4) different dates at least two (2) weeks apart • A minimum of two (2) species for at least two (2) of the tests	• High precision and sensitivity • Certified Lab

*Whole Effluent Toxicity (WET) test.

Data Representativeness Considerations

Spatial and temporal representativeness of data and information must be considered when characterizing annual ambient conditions for a given monitoring segment.

Spatial Distribution

Arkansas is divided by six major river basins: Red River, Ouachita River, Arkansas River, White River, St. Francis River, and Mississippi River. These six river basins are subdivided into 38 water quality planning segments based on hydrological characteristics, anthropogenic activities, geographic characteristics, and other factors. Water quality planning segments are further broken down into approximately 1,600 smaller watersheds, based on discrete hydrological boundaries as defined by the USGS 12-digit hydrologic unit codes.

Assessment of the State's water quality is based on individual stream reaches grouped by planning segments and based on watersheds. Planning segments are congruent with 8-digit hydrologic unit code boundaries in EPA's River Reach File. This allows geographic information system support with designation, characterization, assessment, and management. Sample locations on streams and open waterbodies should be characteristic of the main water mass or distinct hydrologic areas.

Arkansas has approximately 16,682 miles of rivers and streams digitized in the ADEQ Water Base Layer. The ADEQ Water Base Layer was created from the Medium Resolution (1:100,000-scale) National Hydrography Dataset (NHD). The Medium Resolution NHD includes 2nd, 3rd, 4th and 5th order streams. The NHD combines elements of the Digital Line Graph (DLG) and EPA River Reach File (RF3): spatial accuracy and comprehensiveness from the DLG and network relationships, names, and a unique identifier (reach code) for surface water features from RF3. The NHD supersedes DLG and RF3 by incorporating them, not by replacing them. ADEQ continues to primarily use the Medium Resolution NHD for management and planning activities, but supplements the database primarily by utilizing the High Resolution NHD (1:24,000-scale). The High Resolution NHD includes 1st order streams, or intermittent streams and ephemeral drainages that flow only during a rainfall event.

Temporal Distribution

The primary database for the 305(b) Report is generated by ADEQ's Water Quality Monitoring Networks. The networks include the monthly-sampled Ambient Water Quality Monitoring Network (AWQMN) stations and the bi-monthly sampled Roving Water Quality Monitoring Network (RWQMN). The RWQMN stations are divided into five geographic groups that are sampled on a rotating two-year schedule. Additional data, including but not limited to lakes sampling and special projects, developed by ADEQ will be evaluated and used if the sampling frequency and duration represent actual annual ambient conditions.

At a minimum, water quality samples utilized for assessment purposes should be distributed over at least three seasons (to include inter-seasonal variation) and over two years (to include inter-year variation). No more than two-thirds of the samples should be in one year or one season. The exception to this is analysis of data for those designated uses that require seasonally-based water quality data (e.g., primary contact recreation, biological community data, or critical season dissolved oxygen).

The spatial and temporal representativeness of a grab sample is a qualitative assessment that is addressed primarily in the sample design; through the selection of sampling sites and use of procedures that reflect the project goals and environment being sampled (i.e., monitoring the presence and magnitude of toxicity at specific sites for potential impacts on aquatic life may require specialized parameter sampling). For assessment purposes, grab samples from a given monitoring site are considered representative of the waterbody for that distance upstream and downstream in which there are no significant influences to the waterbody that might cause a change in water quality (e.g., point source discharges, confluence with another stream, etc.) or when there is an absence of contextual information indicating unstable hydrologic conditions, such as: 1) precipitation, 2) streamflow, 3) differing land use patterns, or 4) historic patterns of pollutant concentrations in the monitoring segment.

Instrument Error

Instrument error refers to the combined accuracy and precision of a measuring instrument, or the difference between the value indicated and the actual value. Instrument error must be taken into consideration when conducting water quality standard and use attainment assessments. Water quality data collected from ADEQ's monitoring programs will be evaluated for instrument error, such that values that exceed the numeric water quality standards, but fall within the precision/accuracy error range of the given field instrument, will not be considered an excursion from the water quality standard. See *Arkansas' Water Quality and Compliance Monitoring Quality Assurance Project Plan* (ADEQ 2013a) for ADEQ's field instrument performance criteria and for precision/accuracy error range values.

Aggregation of Samples within a Monitoring Segment

Monitoring segments are designed to represent homogenous waters with regard to water quality. ADEQ does not typically establish more than one sampling station in any particular monitoring segment for water quality monitoring programs, but there are occasions where more than one river or stream station with available data (typically chemical/physical data) is either established by ADEQ or another entity. If all monitoring segments were selected to be relatively homogenous, it follows that any independent sample taken from a monitoring segment is representative of conditions within that segment. Since each independent sample is considered to be representative of the monitoring segment at the time of collection, aggregation of independent samples within a monitoring segment to assess water quality and designated use support is appropriate.

If water quality data indicate that a monitoring segment is not homogenous (due to point or non-point source discharges), resulting in conflicting attainment conclusions, the monitoring segment will warrant further examination. The assessor will evaluate data from each station individually to confirm impairments and determine whether or not it would be more appropriate to split a monitoring segment. If data indicate that it is more appropriate to split a segment, the resulting monitoring segment(s) will be re-assessed based on data within the newly-defined boundaries for the applicable period of record.

Data Quantity Considerations

The State of Arkansas has abundant surface water resources; it is estimated that 87,617 stream and river miles, 356,254 acres of publicly-owned lakes, and 800,000 acres of wetlands occur in the state. With this amount of surface water, it is essential that ADEQ develop a monitoring strategy that can provide the information necessary to properly assess these resources so that the physical, chemical, and biological integrity of all Arkansas' waters are protected and enhanced.

ADEQ water quality monitoring goals:

- Identify impaired waters
- Support the evaluation of program effectiveness
- Establish, review, and revise water quality standards
- Establish geographic trends in stream quality
- Refine physical, chemical, and biological assessment tools to improve water quality assessments
- Evaluate water quality and designated use attainment for development of the 305(b) Report
- Characterize impacts of management actions
- Determine appropriate management strategies if designated uses are not being attained
- Assess the effects of point source dischargers upon water quality
- Observe the impact of known nonpoint source pollution trends
- Monitor waters of the State
- Provide long-term physical, chemical, and biological data, and monitoring of the State's least-disturbed ecoregion reference waterbodies

Adequate Data Sets for Attainment Determinations

ADEQ strives to follow EPA guidance, which encourages the collection of adequate data to make well-grounded attainment determinations (EPA 2005). The use of limited datasets is acceptable to EPA as limited financial, field, and laboratory resources often dictate the number of samples that can be collected and analyzed (EPA 2002). EPA has not established, required, nor encouraged the establishment of rigid minimum sample set size requirements in the water

quality standards attainment status determination process (EPA 2005). As such, EPA discourages the use of target sample sizes applied in an assessment methodology as absolute exclusionary rules (EPA 2005).

However, EPA recognizes that assessments based on larger sample sets are more likely to yield accurate conclusions than assessments based on smaller sample sets, and that it may be appropriate to identify an initial sample size screen, but also provide for a further assessment of sample sets that do not meet the target sample size (EPA 2005).

In an effort to obtain adequate data sets for water quality and designated use attainment decisions, Arkansas' water quality monitoring programs consist of the following surface water networks:

Routine Water Quality Monitoring Activities

Ambient Water Quality Monitoring Network

Water samples are systematically collected monthly and analyzed for the parameters listed in the current *State of Arkansas Water Quality Monitoring and Assessment Program, Revision 5 (2013b).* Flows are determined at a select number of sites taken either by continuous read gages, wire gages, or staff gages read by USGS or ADEQ personnel. The AWQMN provides an overview of water quality conditions and trends at specific sites across the entire state, and generally produces 60 data points per site over a five-year period.

Roving Water Quality Monitoring Network

Water samples are collected from a section of the state on a bi-monthly basis for a two-year period. The samples are analyzed for the same parameters as the AWQMN stations and additional parameters, such as Escherichia coli bacteria. The RWQMN typically produces 12 data points per site. At the end of the two-year period, the sampling effort moves to another section of the state.

Non-Routine Water Quality Monitoring Activities

Intensive Surveys

These surveys are implemented to assess the physical, chemical, and/or biological conditions of a specific waterbody or watershed.

Special Studies

These studies may or may not be limited to a specific geographic area but may have a very specific objective (e.g., fish tissue consumption, TMDL development, specific designated use attainment determination). In addition, these studies may be necessary if an investigation of a spill area or an area experiencing pollution due to a specific cause is identified.

Ambient Toxicity Testing Program

Water samples are collected at least on a quarterly basis in coordination with the EPA's Houston laboratory to determine the presence and magnitude of toxicity. These surveys are limited to specific streams or watersheds.

Probabilistic Monitoring

These studies are implemented to provide a general overview of the conditions of similar waterbodies, such as lakes of similar characteristics, within an ecoregion.

National Monitoring Initiatives

These studies are nationwide and are implemented to produce a survey of water conditions at a national or regional scale.

Through the current water quality monitoring programs, ADEQ strives for a minimum of 10 water quality samples to make water quality standard and designated use attainment decisions for physical and chemical parameters. The primary goal of obtaining 10 data points is to protect against the occurrence of Type I and Type II errors. A Type I error would result in assessing a monitoring segment as non-support when it is actually fully supporting its standards and uses. A Type II error occurs when a monitoring segment is assessed as support despite it actually not meeting its standards or uses.

For water quality and designated use attainment decisions, data sets containing fewer than 10 ($n<10$) data points will be used as a screening sample. Surface water monitoring segments with fewer than 10 ($n<10$) data points and two or more (≥ 2) exceedances will warrant additional monitoring and may be placed into Category 3 for further investigation; impairments based on this limited dataset may be assessed on a case-by-case basis. Once the sample size reaches 10 data points or greater ($n \geq 10$) the appropriate rate of exceedance will apply.

Lakes

Arkansas has many diverse landforms that are distinctly divided into major ecoregions. This diversity in geology significantly influences the biological, physical, and chemical nature of the lakes within these regions. The lake area to watershed ratio, watershed land use and geology, primary purpose of the lake, lake construction, and lake management all influence a lake's characteristics.

Surveying Arkansas' significant publicly-owned lakes was initiated in 1989. Currently, Arkansas has 79 impoundments identified as significant publicly-owned lakes. These lakes range in size from 60 acres to over 45,000 acres. Larger lakes sampled by the Department typically have two sampling stations, one near the inlet and one near the deepest part of the lake, usually near the dam. Smaller lakes sampled by the Department will have one sampling station near the deepest

part of the lake, usually near the dam. Sampling and assessment of each of the lakes generally occurred once every five years. Water samples are analyzed for routine water quality parameters, as well as chlorophyll a, bacteria, metals, plankton, and temperature and dissolved oxygen depth profiles.

In 2008, ADEQ revised its lakes monitoring program in order to generate the data necessary to develop lake-specific water quality standards and monitoring strategies. The Beaver Reservoir Water Quality Standards and Assessment Criteria Development (ADEQ 2005) and the Water Quality of Potential Reference Lakes in Two Level-III Ecoregions of Arkansas (ADEQ 2006) projects have been completed, and additional studies in the Ozark Highlands and Boston Mountains have been initiated to help accomplish this task.

The completion of the Beaver Reservoir Water Quality Standards and Assessment Criteria Development (ADEQ 2005) project has led to the creation of site specific numeric nutrient criteria for Beaver Lake. ADEQ is moving forward with its Nutrient Criteria Development Plan, with the intention of adapting the methodology, tools, and procedures derived from the Beaver Lake study to establish numeric nutrient criteria (chlorophyll a and transparency) for additional lakes around the state. The goal of this project is to develop nutrient criteria that fully recognize localized conditions and protect the specific designated uses of these waterbodies. Lake classification and adoption of this classification into the state's water quality standards must also be completed.

Impairment Source Determination

For any monitored surface water segment where a water quality standard has been evaluated as non-support, the source(s) of impairment will be identified using all available information (field observation, land use maps, point source location, nonpoint source assessment reports, special studies, and knowledge of field personnel familiar with the waterbody) and best professional judgment.

Water Quality Analysis Reporter (WQAR)

The Water Quality Analysis Reporter (WQAR) was created to calculate, store, and organize the attainment results obtained from water quality data. Attainment results are calculated using the water quality standards in APC&EC Regulation No. 2 and the processes outlined in ADEQ's Assessment Methodology.

Station IDs are assigned to monitoring segments where applicable. Monitoring segments with assigned stations are identified as "monitored." Monitoring segments without stations, where data from another segment is used for evaluating attainment, are identified as "evaluated" and the assessment unit containing the station data is linked to the unit without the data for tracking purposes. Monitoring segments are identified as "unassessed" when there are no water quality data available with which to evaluate attainment.

Water quality standards and methodology processes have been entered into the WQAR system as standard sets. Standard sets contain specific water quality criteria for parameters that apply to waters. For instance, the "Boston Mountains Less than 10 sqmi" standard set contains specific criteria that apply to Boston Mountain streams with watershed areas of less than 10 mi2 for temperature, primary and critical season dissolved oxygen, and turbidity all flows and base flows. The "Boston Mountains Less than 10 sqmi" standard set can then be applied to all assessment units in the Boston Mountains ecoregion that have watershed areas of less than 10 mi2. Other standard sets that apply more broadly include parameters such as pH, metals, bacteria, and minerals.

WQAR automatically calculates attainment of each standard using station data pulled directly from the Laboratory Information Management System. Attainment is calculated for each standard applied to the monitoring segment for the period of record. The integrated reporting category for each parameter is examined and the final integrated reporting category is determined for the monitoring segment.

Water Quality Standard Assessment Methodology

Water quality standards are comprised of: 1) an antidegradation policy, 2) designated uses, and 3) narrative and numeric criteria, which work in concert to protect water quality.

Antidegradation

An antidegradation policy is a requirement of the federal Clean Water Act, which is designed to prevent or limit future degradation of the nation's waters. The APC&EC's Regulation No. 2 contains an antidegradation policy that applies to all surface waters of the state. Existing instream uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Arkansas' Outstanding Resource Waters, as delineated in APC&EC Reg. 2.203, are to be protected and maintained for those beneficial uses and water quality for which the outstanding resource designation was granted. These waterbodies will be listed as non-support if the chemical, physical, and/or biological characteristics for which the waterbody was designated have been determined to be impaired or absent, as defined by the following assessment criteria. Per APC&EC Reg. 2.204, in those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 310 of the Clean Water Act, 33 U.S.C. § 1326.

Designated Uses

Table III-8: Designated Uses and Corresponding Parameters

Designated Use	Parameters
Aquatic Life **Reg. 2.302(F)**	Biological Integrity (macroinvertebrate and/or fish) data.
Domestic Water Supply **Reg. 2.302(G)**	Compounds that are not easily removed by drinking water treatment facilities; compounds with established secondary maximum contaminant levels (e.g., chlorides, sulfates, & total dissolved solids).
Primary and Secondary Contact **Reg. 2.302(D) & (E)**	*Escherichia coli* (*E. coli*) (Fecal Coliform bacteria data will be used in the absence of *E. coli* data).
Industrial and Agricultural Water Supply **Reg. 2.302(H) and (I)**	Compounds which 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 chlorides, sulfates, & total dissolved solids.

Narrative and Numeric Criteria

Narrative Criteria

APC&EC Regulation No. 2 contains narrative criteria (written descriptions) that apply to all waters of the state and are used to evaluate support of applicable uses. Narrative criteria include general descriptions, such as the existence of nuisance species, taste- and odor-producing substances, visible globules on surface waters, and toxins. Narrative criteria are evaluated by using screening levels, if they are available, as well as other information, including water quality studies, existence of fish kills or contaminant spills, and photographic evidence. Waters will be assessed as non-support when a violation of any narrative water quality standard has been verified by ADEQ. In addition, waters will be assessed as non-support if any associated numeric standard of a narrative criterion is violated pursuant to this assessment methodology.

Numeric Criteria

Numeric criteria are values established in APC&EC Regulation No. 2 that provide a quantitative basis for evaluating designated use support and for managing point and nonpoint loadings in

Arkansas' surface waters. Procedures for assessing instream water quality against numerical criteria are outlined in Section 6.0.

Biological Integrity

This section establishes the protocol for assessment of biological integrity for Arkansas' surface waters, per APC&EC Reg. 2.405:

> *For all waters with specific aquatic life use designated in Appendix A, aquatic biota should not be impacted. Aquatic biota should be representative of streams that have the ability to support the designated fishery, taking into consideration the seasonal and natural variability of the aquatic biota community under naturally varying habitat and hydrological conditions; the technical and economic feasibility of the options available to address the relevant conditions; and other factors*.
>
> *An aquatic biota assessment should compare biota communities that are similar in habitat and hydrologic condition, based upon either an in-stream study including an upstream and downstream comparison, a comparison to a reference water body within the same ecoregion, or a comparison to community characteristics from a composite of reference waters. Such a comparison should consider the seasonal and natural variability of the aquatic biota community. It is the responsibility of the Department to evaluate the data for an aquatic biota assessment to protect aquatic life uses designated in Appendix A. Such data may be used to develop permit effluent limitations or conditions*.

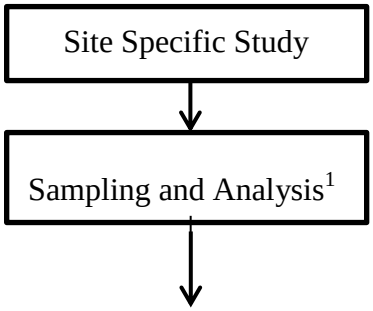
Assessment Methodology for Biological Integrity

The aquatic life designated use is evaluated based on the biological integrity (macroinvertebrate and/or fish communities) of the waterbody, where biological data exist to make an assessment. At a minimum, biological and chemical/physical data must have been collected over two seasons (preferably a minimum of two years) using methods outlined in a Quality Assurance Project Plan with requirements equal to or more stringent than that of ADEQ or USGS. Results from acute and chronic toxicity tests of vertebrates and invertebrates will also be evaluated, when available, but are not required to make a use determination.

Macroinvertebrate Assemblage Analysis

Matrices set forth in Rapid Bioassessment Protocols for Use in Stream and Rivers (Plafkin et al., 1989) are used in analysis of macroinvertebrate assemblage samples. Each site will have a Rapid Bioassessment score derived from a multi-metric analysis, which includes: 1) Taxa Richness, 2) Ephemeroptera-Plecoptera-Tricoptera Index (EPT), 3) Hilsenhoff Biotic Index (HBI), 4) Percent Dominant Contribution. See *Arkansas' Water Quality and Compliance Monitoring Quality Assurance Project Plan* (ADEQ 2013a) at the ADEQ website: http://adeq.state.ar.us for more information.

Table III-9: Flowchart Identifying Macroinvertebrate Bioassessment Metrics and Scoring Criteria



Metric	Biological Condition Scoring Criteria			
	6	4	2	0
Taxa Richness[2]	>80%	60-80%	40-60%	<40%
Hilsenhoff Biotic Index[3]	>85%	70-85%	50-70%	<50%
Ratio of EPT to Chironomid Abundances[2]	>75%	50-75%	25-50%	<25%
% Contribution of Dominant Taxa[4]	<20%	20-30%	30-40%	>40%
EPT Index[2]	>90%	80-90%	70-80%	<70%
Community Loss Index[5]	<0.5	0.5-1.5	1.5-4.0	>4.0

[1] Modified from Plafkin, J.L. M.T. Barbour, K.D. Porter, S.K. Gross, and R.M. Hughes. 1989. Rapid bioassessment protocols for use in streams and rivers: Benthic macroinvertebrates and fish. U.S. Environmental Protection Agency, Office of Water Regulations and Standards, Washington D.C. EPA 440-4-89-001.

[2] Score is a ratio of study site to reference site X 100.

[3] Score is a ratio of reference site to study site X 100.

[4] Scoring criteria evaluate actual percent contribution, not percent comparability to reference site.

[5] Range of values obtained. A comparison to the reference site is incorporated in these indices.

Biological condition scores are summed (see Table III-9 above) to calculate assemblage attainment decisions. A biological condition score is calculated for each sample and sample site. The ratio of scores between the sample site to reference site, or condition, provides the percent comparability for each station. Only the percent comparable estimate score is then used to determine attainment status (Table III-10). The percent comparable estimate categories are:

Table III-10: Scoring Criteria for Macroinvertebrate Assemblage Attainment Decisions

Attainment Status	% Comparable Estimate	Attribute
Comparable to reference	≥90%	Expected to support the community structure present at the reference site
Supporting	75-88%	Should support a diverse community similar to the reference site
Partially Supporting	60-73%	Difference in the biological community may be due to the poor habitat. Comparisons may be difficult
Non-supporting	<58%	Should not be expected to support the community present at the reference site

Fish Assemblage Analysis

ADEQ's Community Structure Index (CSI) (Table III-11) will be used in the analysis of fish assemblages. The CSI was established utilizing information from the 1987 ecoregion survey (APC&EC 1987) and supplemented with data from additional least-disturbed streams identified by ADEQ personnel. A group of Arkansas ichthyologists reviewed the data. The current metric scores and similarity ranking categories were established utilizing the prevailing deviations in the ecoregion survey data set and employ best professional judgment. Ecoregion specific metrics for watersheds (>10mi^2) outlined in *Arkansas' Water Quality and Compliance Monitoring Quality Assurance Project Plan* (ADEQ 2013a), available at the ADEQ website: http://adeq.state.ar.us, will be calculated for each site and total scores will be evaluated and assessed as follows:

Table III-11: Fish Community Structure Index (CSI)

Ecoregion(s)	Total Score	Category	Attribute
Ozark Highlands, Boston Mountains, Ouachita Mountains, AR River Valley, Typical Gulf Coastal, and Spring-Influenced Gulf Coastal	25-32	Mostly Similar	Comparable to the best situation to be expected. Balanced trophic structure and optimum community structure present.
	24-17	Generally Similar	Community structure less than expected. Taxa richness lower than expected. Some intolerant taxa loss. Percent contribution of tolerant forms may increase.
	16-9	Somewhat Similar	Obvious decline in taxa richness due to the loss of tolerant forms. Loss of Key and Indicator taxa.
	0-8	Not Similar	Few taxa present and normally dominated by one (1) or two (2) taxa.
Channel Altered Delta and Least-Disturbed Delta	22-28	Mostly Similar	Comparable to the best situation to be expected. Balanced trophic structure and optimum community structure present.
	21-15	Generally Similar	Community structure less than expected. Taxa richness lower than expected. Some intolerant taxa loss. Percent contribution of tolerant forms may increase.
	14-8	Somewhat Similar	Obvious decline in taxa richness due to the loss of tolerant forms. Loss of Key and Indicator taxa.
	0-8	Not Similar	Few taxa present and normally dominated by one (1) or two (2) taxa.

Results from fish and macroinvertebrate assemblage analysis, along with evaluation of chemical and physical data, will be used to determine support or non-support of the fisheries designated use.

Aquatic Life Use Attainment Determination

Best professional judgment is used in these circumstances to prevent the inappropriate listing of waters. If a support determination is made due to an unrepresentative sample, it will be explained in detail in the 305(b) Report and supporting documentation will be provided.

Listing Methodology

Stream and river monitoring segments will be listed as non-support when one or both of the evaluated biological communities (macroinvertebrates and/or fish) indicate perturbation/degradation (Tables III-12 and III-13), or when one or both of the toxicological test organisms (vertebrate and/or invertebrate) fail more than one ambient toxicity study acute or chronic toxicity test in a three-year period (Table II-14).

Delisting Methodology

Stream and river monitoring segments will be listed as support when evaluated biological communities (macroinvertebrates and/or fish) do not indicate perturbation/degradation (Tables III-12 and III-13), and when there have been no ambient toxicity study acute or chronic toxicity test failures in a three-year period (Table III-14).

Table III-12: Biological Assemblage Assessment Determination

Data Type	Support	Non-Support
Macroinvertebrate Community Data Available	Macroinvertebrate community structure analysis indicates comparable to reference or supporting	Macroinvertebrate community structure analysis indicates partially supporting or non-supporting*
Fish Community Data Available	Community Structure Index score is either mostly or generally similar; general presence of sensitive and indicator species	Community Structure Index score is either somewhat or not similar; absence of sensitive and indicator species*

* The fisheries designated use may be assessed as support, despite an initial evaluation of non-support, if it is demonstrated that the non-support assessment is due to unrepresentative biological community data and not an environmental factor (low dissolved oxygen, low pH, toxicity); based on acceptable variances in ecoregion assemblage structures. Under certain conditions, biological community data can be skewed due to an unrepresentative sample, which includes but is not limited to:

- Collection of irruptive species (e.g., large percentage of young-of-year in an isolated area that is not representative of the entire reach), which could trigger an inaccurate 'non-support' determination.
- Transitional areas between ecoregions.

Table III-13: Aquatic Life Designated Use Listing Protocol

Type of Data Present	Evaluation Result		Final Assessment	303 (d) Listing Category
	Fish Community	Macroinvertebrate Community		
Fish Community and/or Macroinvertebrate Community	S	S	FS	1
	S	NS	NS	5
	NS	S	NS	5
	NS	NS	NS	5
At Least One Biological Community	S	NA	FS	1
	NA	S	FS	1
	S	S	FS	1
	NA	NA	UA	3
	NS	NA	NS	5
	NA	NS	NS	5

S = Supporting NS = Non-Supporting FS = Fully Supporting NA = No Available Data
UA = Unassessed Listing Methodology

Ambient Toxicity Analysis

Results from acute and chronic toxicity tests of vertebrates and invertebrates will also be evaluated, when available, but are not required to make a use determination.

Table III-14: Ambient Toxicity Listing Protocol

Type of Test	Evaluation Result		Final Assessment	Listing Category
	Vertebrate	Invertebrate		
Acute Toxicity	S	S	FS	1
	S	NS	NS	5
	NS	S	NS	5
	NS	NS	NS	5
Chronic Toxicity	S	S	FS	1
	S	NS	NS	5
	NS	S	NS	5
	NS	NS	NS	5

S = Support NS = Non-Support FS = Fully Supporting

Per APC&EC Reg. 2.501 (Applicability), unless otherwise indicated, the following specific standards shall apply to all surface waters of the state at all times except during periods when flows are less than the applicable critical flow. Streams with regulated flow will be addressed on a case-by-case basis to maintain designated instream uses. These standards apply outside the applicable mixing zone.

Primary contact recreation, secondary contact recreation, and the majority of lake aquatic life productivity occur in the epilimnion (uppermost stratified layer); therefore, assessment of designated uses for lakes and reservoirs is conducted on samples from 1.0 meter depth.

Unless otherwise stated for a specific standard, the number of samples needed for determination of non-support is calculated using the total number of samples collected, rounded up to the nearest 'tens' place (10, 20, 30…), then multiplied by the applicable percent exceedance criterion. For example, given a sample size of 18 and a greater than 10 percent exceedance rate, a total of three (3) exceedances are needed for the determination of non-support (18 samples is rounded up to 20, then multiplied by the 10% exceedance rate, which equals 2 samples; thus if 3 or more samples exceed the criterion, a non-support evaluation is assigned).

The rounding method used by the Department has been shown to be no less stringent than other methods approved by EPA for protecting water quality. This method allows the Department to assess the data in the same way as the samples are collected - as whole samples. Not using the rounding method would result in the assessment of partial samples, which does not reflect actual field sampling procedures.

Refer to Appendix A for ecoregion based Assessment Criteria Tables; Appendix B for the Assessment Criteria Table for Arkansas' lakes; and Appendix C for Assessment Criteria Tables for Arkansas' major rivers.

Temperature

This section establishes the protocol for determining impairment due to increases in temperature of Arkansas' surface waters, per APC&EC Reg. 2.502:

> *Heat shall not be added to any waterbody in excess of the amount that will elevate the natural temperature, outside the mixing zone, by more than 5°F (2.8°C) based upon the monthly average of the maximum daily temperatures measured at mid-depth or three feet (whichever is less) in streams, lakes or reservoirs. Maximum allowable temperatures from man-induced causes in the following waters are:*

Waterbodies	Limit °C (°F)
Streams	
Ozark Highlands	29 (84.2)
Boston Mountains	31 (87.8)
Arkansas River Valley	31 (87.8)
Ouachita Mountains	30 (86.0)
Springwater-influenced Gulf Coastal	30 (86.0)
Typical Gulf Coastal	30 (86.0)
Least-Altered Delta	30 (86.0)
Channel-Altered Delta	32 (89.6)
White River (Dam #1 to mouth)	32 (89.6)
St. Francis River	32 (89.6)
Mississippi River	32 (89.6)
Arkansas River	32 (89.6)
Ouachita River (L. Missouri to Louisiana state line)	32 (89.6)
Red River	32 (89.6)
Lakes and Reservoirs	32 (89.6)
Trout waters	20 (68.0)

Temperature requirements shall not apply to off-stream privately-owned reservoirs constructed primarily for industrial cooling purposes and financed in whole or in part by the entity or successor entity using the lake for cooling purposes.

Assessment Methodology for Temperature

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when ADEQ determines that more than 10 percent of the total samples within the period of record exceed the applicable temperature standard listed in APC&EC Reg. 2.502.

Lakes and reservoirs will be listed as non-support when ADEQ determines that more than 10 percent of the total samples within the period of record exceed the temperature standard of 32°C (89.6°F). Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Delisting Methodology:

Stream and river monitoring segments will be listed as support when ADEQ determines that 10 percent or less of the total samples within the period of record exceed the applicable temperature standard listed in APC&EC Reg. 2.502.

Lakes and reservoirs will be listed as support when ADEQ determines that 10 percent or less of the total samples within the period of record exceed the temperature standard of 32°C (89.6°F). Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Turbidity

As established by APC&EC Reg. 2.503, turbidity will be evaluated for both base flows and all flows values. Base flows values represent the critical season, June 1 to October 31, when rainfall is infrequent; all flows values take into account samples collected throughout the year (including samples collected between June 1 to October 31). APC&EC Reg. 2.503 states:

> *There shall be no distinctly visible increase in turbidity of receiving waters attributable to discharges or instream activities. The values below should not be exceeded during base flow (June to October) in more than 20% of samples. The values below should not be exceeded during all flows in more than 25% of samples taken in not less than 24 monthly samples.*

Waterbodies	Base Flows Values (NTU)	All flows Values (NTU)
Streams		
Ozark Highlands	10	17
Boston Mountains	10	19
Arkansas River Valley	21	40
Ouachita Mountains	10	18
Springwater-influenced Gulf Coastal	21	32
Typical Gulf Coastal	21	32
Least-Altered Delta	45	84
Channel-Altered Delta	75	250
Arkansas River	50	52
Mississippi River	50	75
Red River	50	150
St. Francis River	75	100
Trout	10	15
Lakes and Reservoirs	25	45

Assessment Methodology for Turbidity

Base Flows Values

Base flow values apply to data collected between June 1 and October 31.

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when more than 20 percent of the total samples between June 1 and October 31 within the period of record exceed the applicable base flows values, listed in APC&EC Reg. 2.503.

Lakes and reservoirs will be listed as non-support when more than 20 percent of the total samples between June 1 and October 31 within the period of record exceed the turbidity standard of 25 NTU. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Delisting Methodology:

Stream and river monitoring segments will be listed as support when 20 percent or less of the total samples between June 1 and October 31 within the period of record exceed the applicable base flows values, listed in APC&EC Reg. 2.503.

Lakes and reservoirs will be listed as support when 20 percent or less of the total samples between June 1 and October 31 within the period of record exceed the turbidity standard of 25 NTU. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

All Flows Values

All flows values apply to data collected throughout the year, including data collected between June 1 and October 31.

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when more than 25 percent of the total samples (sample set not to be fewer than 24 data points) within the period of record exceed the applicable all flows values, listed in APC&EC Reg. 2.503.

Lakes and reservoirs will be listed as non-support when more than 25 percent of the total samples (sample set not to be fewer than 24 data points) within the period of record exceed the turbidity standard of 45 NTU. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Delisting Methodology:

Stream and river monitoring segments will be listed as support when 25 percent or less of the total samples (sample set not to be fewer than 24 data points) within the period of record exceed the applicable all flows values listed in APC&EC Reg. 2.503.

Lakes and reservoirs will be listed as support when 25 percent or less of the total samples (sample set not to be fewer than 24 data points) within the period of record exceed the turbidity standard of 45 NTU. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

If a monitoring segment is assessed as not meeting either the base flows or all flows values, or both, it will be listed as non-support for turbidity.

pH

This section establishes the protocol for determining impairment due to fluctuations in pH, per APC&EC Reg. 2.504:

> *pH between 6.0 and 9.0 standard units are the applicable standards for streams. For lakes, the standards are applicable at 1.0 meter depth. As a result of waste discharges, the pH of water in streams or lakes must not fluctuate in excess of 1.0 standard unit over a period of 24 hours.*

Assessment Methodology for pH

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when ADEQ determines that anthropogenic activities result in a variance from the pH standard (between 6.0 and 9.0 standard units) in more than 10 percent of the total samples within the period of record.

Lakes and reservoirs will be listed as non-support when ADEQ determines that anthropogenic activities result in a variance from the pH standard (between 6.0 and 9.0 standard units) in more than 10 percent of the total samples within the period of record. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

If the pH value for lakes, rivers, or streams varies from the pH standard due to natural conditions, (i.e., anthropogenic activities cannot be identified by ADEQ as the source) the waterbody will not be listed as non-support, but will be noted in the 305(b) Report.

Delisting Methodology:

Stream and river monitoring segments will be listed as support when ADEQ determines that anthropogenic activities result in variance from the pH standard (between 6.0 and 9.0 standard units) in 10 percent or less of the total samples within the period of record.

Lakes and reservoirs will be listed as support when ADEQ determines that anthropogenic activities result in variance from the pH standard (between 6.0 and 9.0 standard units) in 10 percent or less of the total samples within the period of record. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Dissolved Oxygen

This section establishes the protocol for determining impairment due to variations in dissolved oxygen, per APC&EC Reg. 2.505:

Rivers and Streams

The following dissolved oxygen standards must be met:

Waterbodies	**Limit (mg/l)**	
Streams	Primary	Critical
Ozark Highlands		
<10 mi^2 watershed	6	2
10 to 100 mi^2	6	5
>100 mi^2 watershed	6	6
Boston Mountains		
<10 mi^2 watershed	6	2
>10 mi^2 watershed	6	6
Arkansas River Valley		
<10 mi^2 watershed	5	2
10 mi^2 to 150 mi^2	5	3
151 mi^2 to 400 mi^2	5	4
>400 mi^2 watershed	5	5
Ouachita Mountains		
<10 mi^2 watershed	6	2
>10 mi^2 watershed	6	6
Typical Gulf Coastal		
<10 mi^2 watershed	5	2
10 mi^2 to 500 mi^2	5	3
>500 mi^2 watershed	5	5
Springwater-influenced Gulf Coastal		
All size watersheds	6	5
Delta (least-altered and channel altered)		
<10 mi^2 watershed	5	2
10 mi^2 to 100 mi^2	5	3
>100 mi^2 watershed	5	5
Trout Waters		
All size watersheds	6	6

In streams with watersheds of less than 10 mi2, it is assumed that insufficient water exists to support a fishery during the critical season. During this time, a D.O. standard of 2 mg/l will apply to prevent nuisance conditions. However, field

verification is required in areas suspected of having significant groundwater flows or enduring pools which may support unique aquatic biota. In such waters the critical season standard for the next size category of stream shall apply.

All streams with watersheds of less than 10 mi2 are expected to support a fishery during the primary season when stream flows, including discharges, equal or exceed 1 cubic foot per second (CFS); however, when site verification indicates that a fishery exists at flows below 1 CFS, such fishery will be protected by the primary standard.

Also, in these streams with watersheds of less than 10 mi2, where waste discharges are 1 CFS or more, they are assumed to provide sufficient water to support a perennial fishery and, therefore, must meet the dissolved oxygen standards of the next size category of streams.

For purposes of determining effluent discharge limits, the following conditions shall apply:

(A) The primary season dissolved oxygen standard is to be met at a water temperature of 22°C (71.5°F) and at the minimum stream flow for that season. At water temperatures of 10°C (50°F), the dissolved oxygen standard is 6.5 mg/l.

(B) During March, April and May, when background stream flows are 15 CFS or higher, the D.O. standard is 6.5 mg/l in all areas except the Delta Ecoregion, where the primary season D.O. standard will remain at 5 mg/l.

(C) The critical season dissolved oxygen standard is to be met at maximum allowable water temperatures and at Q7-10 flows. However, when water temperatures exceed 22°C (71.6°F), a 1 mg/l diurnal depression will be allowed below the applicable critical standard for no more than 8 hours during any 24-hour period.

Lakes and Reservoirs

Specific dissolved oxygen standards for lakes and reservoirs shall be 5 mg/l. Effluent limits for oxygen-demanding discharges into impounded waters are promulgated in Regulation #6 of the Arkansas Pollution Control and Ecology Commission. However the Commission may, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, establish alternative limits for dissolved oxygen in lakes and reservoirs where studies and other relevant information can demonstrate that predominant ecosystem

conditions may be more accurately reflected by such alternate limits; provided that these limits shall be compatible with all designated beneficial uses of named lakes and reservoirs.

Assessment Methodology for Dissolved Oxygen

Dissolved oxygen standards are divided into two (2) categories:

1) **Primary season:** Water temperatures are at or below 22°C.
2) **Critical season:** Water temperatures exceed 22°C.

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when more than 10 percent of the total samples for primary or critical season within the period of record fail to meet the minimum applicable dissolved oxygen standard listed in APC&EC Reg. 2.505.

Lakes and reservoirs will be listed as non-support when more than 10 percent of the samples for primary or critical season within the period of record fall below 5 mg/L. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Delisting Methodology:

Stream and river monitoring segments will be listed as support when 10 percent or less of the total samples for primary or critical season within the period of record fail to meet the minimum applicable dissolved oxygen standard listed in APC&EC Reg. 2.505.

Lakes and reservoirs will be listed as support when 10 percent or less of the total samples for primary or critical season in the period of record do not fall below 5 mg/L. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Radioactivity

This section establishes the protocol for determining impairment due to exceedance of limits for Radioactivity, per APC&EC Reg. 2.506:

The Rules and Regulations for the Control of Sources of Ionizing Radiation of the Division of Radiological Health, Arkansas Department of Health, limits the maximum permissible levels of radiation that may be present in effluents to surface waters in uncontrollable areas. These limits shall apply for the purposes of these standards, except that in no case shall the levels of dissolved radium-226 and strontium-90 exceed 3 and 10 picocuries/liter, respectively, in the receiving water after mixing, nor shall the gross beta concentration exceed 1000 picocuries/liter.

Assessment Methodology for Radioactivity

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when a single sample in the period of record exceeds the concentration of 3 picocuries/Liter for radium-226, or the concentration of 10 picocuries/Liter for strontium-90.

Lakes and reservoirs will be listed as non-support when a single sample in the period of record exceeds the concentration of 3 picocuries/Liter for radium-226, or the concentration of 10 picocuries/Liter for strontium-90. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Delisting Methodology:

Stream and river monitoring segments will be listed as support when a no samples in the period of record exceed the concentration of 3 picocuries/Liter for radium-226, or the concentration of 10 picocuries/Liter for strontium-90.

Lakes and reservoirs will be listed as support when no samples in the period of record exceed the concentration of 3 picocuries/Liter for radium-226, or the concentration of 10 picocuries/Liter for strontium-90. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Bacteria

This section establishes the protocol for assessment of ambient waters, primary and secondary contact recreation designated uses will be evaluated using *Escherichia coli* as outlined in Reg. 2.507:

> *For the purposes of this regulation, all streams with watersheds less than 10 mi2 shall not be designated for primary contact unless and until site verification indicates that such use is attainable. No mixing zones are allowed for discharges of bacteria.*
>
> *For assessment of ambient waters as impaired by bacteria, the below listed applicable values for E. coli shall not be exceeded in more than 25% of samples in no less than eight (8) samples taken during the primary contact season or during the secondary contact season.*

The following standards are applicable:

Contact Recreation Seasons	***Limit (col/100mL)***			
Primary Contact[1]	*E. coli*		*Fecal Coliform*	
	IS[3]	*GM[4]*	*IS[3]*	*GM[4]*
ERW, ESW, NSW, Reservoirs, Lakes[2]	*298*	*126*	*400*	*200*
All Other Waters	*410*	*-*	*400*	*200*
Secondary Contact[5]				
ERW, ESW, NSW, Reservoirs, Lakes[2]	*1490*	*630*	*2000*	*1000*
All Other Waters	*2050*	*-*	*2000*	*1000*

[1] May 1 to September 30
[2] Applicable at 1.0 meter depth in Reservoirs and Lakes
[3] For assessment of Individual Sample Criteria– at least eight (8) data points
[4] For calculation and assessment of Geometric Mean – calculated on a minimum of five (5) samples spaced evenly and within a thirty (30)-day period.
[5] October 1 to April 30

The Arkansas Department of Health has the responsibility of approving or disapproving surface waters for public water supply and of approving or disapproving the suitability of specifically delineated outdoor bathing places for body contact recreation, and it has issued rules and regulations pertaining to such uses.

Assessment Methodology for Bacteria

In the absence of *Escherichia coli* (*E. coli)* bacteria data, fecal coliform bacteria data will be utilized.

For the assessment of ambient waters:

- Individual samples: per APC&EC Reg. 2.507, at least eight data points must be taken during the primary contact season (May 1 through September 30) or during the secondary contact season (October 1 through April 30) of contiguous months to make an evaluation.
- Geometric mean: calculated on a minimum of five samples spaced evenly and within any 30-day period during either the primary contact season (May 1 through September 30) or during the secondary contact season (October 1 through April 30), when such data are available.

In either case, the most recent complete dataset (as described above) will be utilized for assessment evaluation.

Listing Methodology:

Stream and river monitoring segments will be listed as non-support when the geometric mean for the applicable contact season is exceeded, or when the applicable standard is exceeded in greater than 25 percent of the samples collected during contiguous months within the applicable contact season (as described above).

Delisting Methodology:

Stream and river monitoring segments will be listed as support when the geometric mean for the applicable contact season is not exceeded, or when the applicable standard is exceeded in 25 percent or less of the samples collected during contiguous months within the applicable contact season (as described above).

Table III-15: Statewide Bacteria Assessment Criteria

		STANDARD	SUPPORT	NON-SUPPORT
		Escherichia coli		
PRIMIMARY CONTACT	ERW, ESW, and NSW Waters, Lakes, and Reservoirs	298 col/100 mL (May-Sept)	≤ 25% exceedance	>25% exceedance
		GM 126 col/100 mL	≤ standard	> standard
	All other waters	410 col/100 mL (May-Sept)	≤ 25% exceedance	>25% exceedance
SECONDARY CONTACT	ERW, ESW, and NSW Waters, Lakes, and Reservoirs	1490 col/100 mL (anytime)	≤ 25% exceedance	>25% exceedance
		GM 630 col/100 mL	≤ standard	> standard
	All other waters	2050 col/100 mL (anytime)	≤ 25% exceedance	>25% exceedance
		Fecal Coliform		
PRIMARY CONTACT	All Waters including ERW, ESW, NSW, Lakes, and Reservoirs	400 col/100 mL (May-Sept)	≤ 25% exceedance	>25% exceedance
		GM 200 col/100 mL	≤ standard	> standard
SECONDARY CONTACT	All Waters including ERW, ESW, NSW, Lakes, and Reservoirs	2000 col/100 mL (anytime)	≤ 25% exceedance	>25% exceedance
		GM 1000 col/100 mL	≤ standard	> standard

ERW: Extraordinary Resource Water **NSW**: Natural and Scenic Waterway **ESW**: Ecologically Sensitive Water

*Geometric mean can be calculated for any 30-day period within a season (primary season May 1 through September 30; secondary season October 1 through April 30).

Toxic Substances

This section establishes the protocol for assessing impairment due to exceedance of limits for toxic substances, per APC&EC Reg. 2.508:

> *Toxic substances 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. Acute toxicity standards may not be exceeded outside the zone of initial dilution. Within the ZID acute toxicity standards may be exceeded but acute toxicity may not occur. Chronic toxicity and chronic numeric toxicity standards shall not be exceeded at, or beyond, the edge of the mixing zone. Permitting of all toxic substances shall be in accordance with the toxic implementation strategy found in the Continuing Planning Process. For non-permit issues and as a guideline for evaluating toxic substances not listed in the following tables, the Department may consider No Observed Effect Concentrations (NOECs) or other literature values as appropriate. For the substances listed below, the following standards shall apply:*

ALL WATERBODIES - AQUATIC LIFE CRITERIA

Substance	**Acute Values (µg/L)**	**Chronic Values (µg/L) (24-hr Average)**
PCBs		0.0140
Aldrin	3.0	
Dieldrin	2.5	0.0019
DDT (& metabolites)	1.1	0.0010
Endrin*	0.18	0.0023
Toxaphene	0.73	0.0002
Chlordane	2.4	0.0043
Endosulfan*	0.22	0.056
Heptachlor	0.52	0.0038
Hexachlorocyclohexane*	2.0	0.080
Pentachlorophenol	$e^{[1.005(pH)-4.869]}$	$e^{[1.005(pH)-5.134]}$
Chlorpyrifos	0.083	0.041

* Total of all isomers

DISSOLVED METALS *

	Acute Criteria (CMC) - µg/L(ppb)		Chronic Criteria (CCC) - µg/L(ppb)	
Substance	**Formula X Conversion**		**Formula X Conversion**	
Cadmium	$e^{[1.128(\ln hardness)]-3.828}$	(a)	$e^{[0.7852(\ln hardness)]-3.490}$	(c)
Chromium(III)	$e^{[0.819(\ln hardness)]+3.688}$	0.316	$e^{[0.8190(\ln hardness)]+1.561}$	0.860
Chromium (VI)	16	0.982	11	0.962
Copper	$e^{[0..9422(\ln hardness)]-1.464}$	0.960	$e^{[0.8545(\ln hardness)]-1.465}$	0.960
Lead	$e^{[1.273(\ln hardness)]-1.460}$	(b)	$e^{[1.273(\ln hardness)]-4.705}$	(b)
Mercury	2.4	0.85	0.012**	NONE
Nickel	$e^{[0.8460(\ln hardness)]+3.3612}$	0.998	$e^{[0.8460(\ln hardness)]+1.1645}$	0.997
Selenium**	20	NONE	5	NONE
Silver	$e^{[1.72(\ln hardness)]-6.52}$	0.85	----------	NONE
Zinc	$e^{[0.8473(\ln hardness)]+0.8604}$	0.978	$e^{[0.8473(\ln hardness)]+0.7614}$	0.986
Cyanide**	22.36	NONE	5.2	NONE

*These values may be adjusted by a site specific Water Effects Ratio (WER) as defined in 40 CFR Part 131.36 (c).

(a) Calculated as: 1.136672 - [(ln hardness)(0.041838)]
(b) Calculated as: 1.46203 - [(ln hardness)(0.145712)]
(c) Calculated as: 1.101672 - [(ln hardness)(0.041838)]

**Expressed as total recoverable. Mercury based on bioaccumulation of residues in aquatic organisms, rather than toxicity.

ALL WATERBODIES - HUMAN HEALTH CRITERIA

Substance	Criteria (ng/L)*
Dioxin (2,3,7,8 TCDD)	0.001
Chlordane	5.0
PCBs (polychlorinated biphenyls)	0.4
alpha Hexachlorocyclohexane	37.3
Beryllium	4000**
Dieldrin	1.2
Toxaphene	6.3

* Criteria based on a lifetime risk factor of 10^{-5}.

**4000 ng/l is also represented as 4.0 ug/l, which is the Maximum contaminant level (MCL) under the EPA Safe Drinking Water Act [40 U.S.C. s/s 300f et seq. (1974)]

The permittee shall have the option to develop site-specific numerical standards for toxic substances using EPA approved bioassay methodology and guidance. Such guidance may include but may not be limited to Water Quality Standards Handbook*;* Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses *(August, 1994);* Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms *(EPA 600/4-90/027F. 5th ed. December 2002);* Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms *(EPA/600/4-91/002. 4th ed. October 2002) or most recent update thereof.*

Only ambient water quality data for dissolved metals generated or approved by ADEQ after March 1, 1993 will be considered in the documentation of background concentrations for the purpose of developing permit limitations.

Assessment Methodology for Toxic Substances

Metals toxicity will be evaluated based on instream hardness values at the time of sample collection. If the ambient hardness value is less than 25 mg/L, then a hardness value of 25 mg/L will be used to calculate metals toxicity.

Listing Methodology:

Monitoring segments will be listed as non-support when more than one exceedance of the criterion occurs during the period of record. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Delisting Methodology:

Monitoring segments will be listed as support when there are one or fewer (≤ 1) exceedances of the criterion during the period of record. Samples collected at 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Fish Consumption

This section establishes the protocol for assessing impairment due to exceedance of limits for fish consumption, based on numeric criteria in APC&EC Reg. 2.508 and narrative criteria in APC&EC Reg. 2.409.

Fish consumption listings are determined in conjunction with the Arkansas Department of Health.

Assessment Methodology for Fish Consumption

Listing Methodology:

Monitoring segments will be listed as non-support for fish consumption if a primary segment of the fish community (e.g., all predators or all largemouth bass) has restrictions for any group of people (e.g., general population or high risk groups).

Delisting Methodology:

Monitoring segments will be listed as support if there are no fish consumption restrictions or only a *limited consumption* of fish is recommended (e.g., no more than 2 meals per month or no consumption of fish over 15 inches).

Nutrients

This section establishes the protocol for assessing impairment due to excess nutrients, per APC&EC Reg. 2.509:

> *(A) Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody. Impairment of a waterbody from excess nutrients is dependent on the natural waterbody characteristics such as stream flow, residence time, stream slope, substrate type, canopy, riparian vegetation, primary use of waterbody, season of the year and ecoregion water chemistry. Because nutrient water column concentrations do not always correlate directly with stream impairments, impairments will be assessed by a combination of factors such as water clarity, periphyton or phytoplankton production, dissolved oxygen values, dissolved oxygen saturation, diurnal dissolved oxygen fluctuations, pH values, aquatic-life community structure and possibly others. However, when excess nutrients result in an impairment, based upon Department assessment methodology, by any Arkansas established numeric water quality standard, the waterbody will be determined to be impaired by nutrients.*

(B) Site Specific Nutrient Standards

Lake	*Chlorophyll a (ug/L)***	*Secchi Transparency (m)****
*Beaver Lake**	*8*	*1.1*

**These standards are for measurement at the Hickory Creek site over the old thalweg, below the confluence of War Eagle Creek and the White River in Beaver Lake.*
***Growing season geometric mean (May - October)*
****Annual Average*

Assessment Methodology for Nutrients

Listing Methodology:

Wadeable stream and river monitoring segments will be listed as non-support for nutrients when the following conditions occur:

- The mean total phosphorus or total nitrogen concentration of the monitoring segment is greater than the 75th percentile of the total phosphorus or total nitrogen data from wadeable stream and river monitoring segments within an ecoregion, and

- When both of the 72-hour data sets indicate at least two of the four water quality translators as listed in the flow chart are exceeded, and

- One or both biological assemblages as listed in the flow chart are evaluated as impaired.

Water quality translators are dissolved oxygen fluctuation, dissolved oxygen concentrations, dissolved oxygen percent saturation, and pH. Two separate, 72-hour data sets within the same critical season (when water temperatures are greater than 22°C) are required for evaluation.

The dissolved oxygen fluctuation translator is considered exceeded when there is a greater than 3 mg/L fluctuation in concentration. The dissolved oxygen concentration translator is considered to be exceeded when dissolved oxygen concentration is below the applicable standard for greater than four consecutive hours. The dissolved oxygen saturation translator is considered exceeded when saturation is greater than 125% for four consecutive hours. The pH translator is considered to be exceeded when pH varies from the standard of between 6.0 and 9.0 standard units.

Any wadeable stream or river segment that exceeds screening level criteria, but lacks adequate data to assess will be placed into Category 3 (Insufficient Data). Category 3 streams will be prioritized based on the magnitude of nutrient concentration, available data, and staff resources.

Delisting Methodology:

Wadeable stream and river monitoring segments will be listed as support for nutrients if there are fewer than two (<2) exceedances of nutrient translators for each 72-hour data set and biological assemblages are fully supported.

Assessment Methodology for Nutrients for Beaver Lake

Listing Methodology for Beaver Lake:

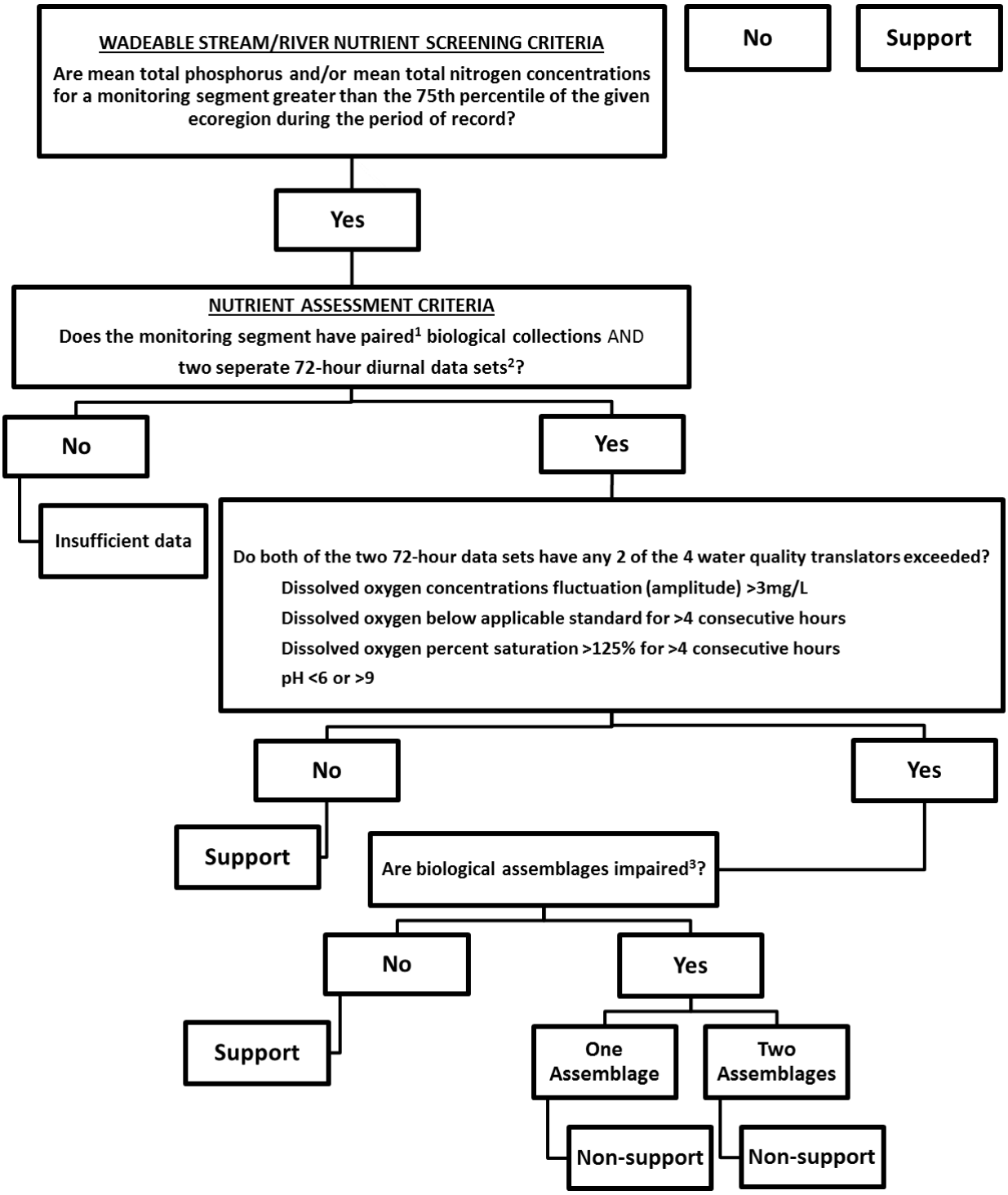
The upper portion of Beaver Lake will be listed as non-support of its drinking water designated use when there are three or more (≥3) exceedances of the chlorophyll *a* criteria within the five-year period of record. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

The upper portion of Beaver Lake will be listed as non-support of its drinking water designated use when there are three or more (≥3) exceedances of the Secchi transparency criteria within the five-year period of record.

Delisting Methodology for Beaver Lake:

The upper portion of Beaver Lake will be listed as supporting its drinking water designated use when there are no more than two (2) exceedances of the chlorophyll *a* criteria *and* no more than two (2) exceedances of the Secchi transparency criteria within the five-year period of record. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions for chlorophyll *a*.

Figure III-4: Nutrient Assessment Flowchart



[1]Paired data/ collections are defined as combined physical, chemical, and biological collections within the same calendar year and/or season.

[2] 72-hour diurnal dissolved oxygen deployments must occur during the same critical season (water temperature is >22° C).

[3]Section 5.1 discusses the determining factors for biological impairment.

Mineral Quality

This section establishes the protocol for assessing impairment due to exceedance of limits for mineral quality. Assessment for mineral quality impairment in the State of Arkansas is written per APC&EC Reg. 2.511, Sections (A), (B), & (C):

(A) Site Specific Mineral Quality Criteria

Mineral quality shall not be altered by municipal, industrial, other waste discharges or instream activities so as to interfere with designated uses. The following criteria apply to the streams indicated.

(B) Ecoregion Reference Stream Minerals Values

The following values were determined from Arkansas' least-disturbed ecoregion reference streams are considered to be the maximum naturally occurring levels. For waterbodies not listed above, any discharge which results in instream concentrations more than 1/3 higher than these values for chlorides (Cl^-) and sulfates (SO_4) or more than 15 mg/L, whichever is greater, is considered to be a significant modification of the maximum naturally occurring values. These waterbodies should be considered as candidates for site specific criteria development in accordance with Regs. 2.306 and 2.308. Similarly, site specific criteria development should be considered if the following TDS values are exceeded after being increased by the sum of the increases to Cl and SO_4. Such criteria may be developed only in accordance with Regs. 2.306 and 2.308. The values listed in the table below are not intended nor will these values be used by the Department to evaluate attainment of the water quality standards.

ECOREGION REFERENCE STREAM VALUES (mg/L)

Ecoregion	*Chlorides (Cl^-)*	*Sulfates (SO_4)*	*TDS*
Ozark Highlands	*13*	*17*	*240*
Boston Mountains	*13*	*9*	*85*
Arkansas River Valley	*10*	*13*	*103*
Ouachita Mountains	*6*	*15*	*128*
Gulf Coastal Plains	*14*	*31*	*123*
Delta	*36*	*28*	*390*

(C) Domestic Water Supply Criteria

In no case shall discharges cause concentrations in any waterbody to exceed 250, 250 and 500 mg/L of chlorides, sulfates and total dissolved solids, respectively, or cause concentrations to exceed the applicable criteria, except in accordance with Regs. 2.306 and 2.308. Lakes and reservoirs applicable at 1.0 meter depth.

Assessment Methodology for Mineral Quality

Minerals standards are divided into two categories:

1) **Waters with site specific standards:** Assessed according to site specific values listed in APC&EC Reg. 2.511(A).
2) **Waters without site specific standards:** Assessed on the criteria of 250 mg/L for chlorides, 250 mg/L for sulfates, and 500 mg/L for total dissolved solids.

Waters with Site Specific Standards Listing Methodology:

Monitoring segments with site specific standards will be listed as non-support when greater than 25 percent of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(A).

Waters without Site Specific Standards Listing Methodology:

Monitoring segments without site specific standards will be listed as non-support when greater than 10 percent of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(C).

Waters with Site Specific Standards Delisting Methodology:

Monitoring segments with site specific standards will be listed as support when 25 percent or less of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(A).

Waters without Site Specific Standards Delisting Methodology:

Monitoring segments without site specific standards will be listed as support when 10 percent or less of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(C).

Statewide Minerals Assessment Criteria

Parameter	Standard	Support	Non-Support
Site Specific Standards (mg/L)	See Reg. 2.511(A)	≤ 25%	>25%
No Site Specific Standards (mg/L)	250/250/500	≤ 10%	>10%

For waterbodies without site specific standards, any discharge which results in instream concentrations more than 1/3 higher than the values found in Reg.2.511(B) for chlorides (Cl) and sulfates (SO_4) or more than 15 mg/L, whichever is greater, is considered to be a significant modification of the maximum naturally occurring values. These waterbodies should be considered as candidates for site specific criteria development in accordance with Regs. 2.306 and 2.308. Similarly, site specific criteria development should be considered if the following TDS values are exceeded after being increased by the sum of the increases to Cl and SO_4.

Domestic, Agricultural, and Industrial Water Supply Uses

This section establishes the protocol for assessing impairment due to exceedance of limits for domestic water supply designated uses, per APC&EC Reg. 2.511(C), and is written in accordance with the Federal Safe Drinking Water Act (40 § C.F.R 143.3).

> *(C) Domestic Water Supply Criteria*
>
> *In no case shall discharges cause concentrations in any waterbody to exceed 250, 250 and 500 mg/L of chlorides, sulfates and total dissolved solids, respectively, or cause concentrations to exceed the applicable criteria, except in accordance with Regs. 2.306 and 2.308. Lakes and reservoirs applicable at 1.0 meter depth.*

Assessment Methodology for Domestic, Agricultural, and Industrial Water Supply Use

Listing Methodology:

Monitoring segments will be listed as non-support when greater than 10 percent of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(C).

Delisting Methodology:

Monitoring segments will be listed as support when 10 percent or less of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(C).

Ammonia

This section establishes the protocol for determining impairment due to ammonia in Arkansas' surface waters, per APC&EC Reg. 2.512:

> *The total ammonia nitrogen (N) criteria and the frequency of occurrence are as follows:*
>
> *(A) (A)The one-hour average concentration of total ammonia nitrogen shall not exceed, more than once every three years on the average, the acute criterion as shown in the following table:*

pH-Dependent Values of the CMC (Acute Criterion)- mg/L

pH	Salmonids*	Salmonids
	Present	**Absent**
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

* Family of fishes which includes trout.

(B) The thirty-day average concentration of total ammonia nitrogen shall not exceed those values shown as the chronic criterion in the following tables:

Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present – mg/L

	Temperature °C									
pH	**0**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Absent – mg/L

	Temperature °C									
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***	**16***
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

*At 15^{o} C and above, the criterion for fish Early Life Stage absent is the same as the criterion for fish ELS present.

(C) The highest four-day average within a 30-day period should not exceed 2.5 times the chronic values shown above.

(D) For permitted discharges, the daily maximum or seven-day average permit limit shall be calculated using the four-day average value described above as an instream value, after mixing and based on a season when fish early life stages

are present and a season when fish early life stages are absent. Temperature values used will be 14^{o} C when fish early life stages are absent and the ecoregion temperature standard for the season when fish early life stages are present. The pH values will be the ecoregion mean value from least-disturbed stream data.

Assessment Methodology for Ammonia:

Total ammonia nitrogen will be evaluated based on concurrently measured instream pH and temperature, as applicable, at the time of sample collection using APC&EC Reg. 2.512(A)–(D) standards. The Chronic Criterion for fish early life stages present apply during the critical season (April 1 through October 31). The criterion shall be applied as 1) the arithmetic mean of the analytical results of consecutive-day samples when available, or 2) the result of individual grab samples. Samples collected 1.0 meter below the surface of the water will be used to make lake and reservoir attainment decisions.

Listing Methodology:

Stream and river monitoring segments, as well as lakes and reservoirs, will be listed as non-support for ammonia toxicity standards:

I. If more than one violation of the 1-hour average concentration of total ammonia nitrogen exceeds the calculated acute criterion within the period of record; or

II. If the highest 4-day average within a 30-day period exceeds 2.5 times the chronic criterion; or

III. If the 30-day average concentration of total ammonia nitrogen exceeds the chronic criterion.

Delisting Methodology:

Stream and river monitoring segments, as well as lakes and reservoirs, will be listed as support for ammonia toxicity standards:

I. If no more than one violation of the 1-hour average concentration of total ammonia nitrogen exceeds the calculated acute criterion within the period of record; or

II. If the highest 4-day average within a 30-day period does not exceed 2.5 times the chronic criterion; or

III. If the 30-day average concentration of total ammonia nitrogen does not exceed the chronic criterion.

Table III-16: Assessment Criteria for Streams in the Arkansas River Valley Ecoregion

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	31° C		≤10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	5	2	≤ 10%		>10%	
10-150 mi^2	5	3	≤ 10%		>10%	
151-400 mi^2	5	4	≤ 10%		>10%	
>400 mi^2	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
CL/SO_4/TDS[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	21 NTU		≤ 20%		>20%	
All Flows	40 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-17: Assessment Criteria for Streams in the Boston Mountain Ecoregion

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	31° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	6	2	≤ 10%		>10%	
> 10 mi^2	6	6	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
$CL/SO_4/TDS$[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	10 NTU		≤ 20%		>20%	
All Flows	19 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-18: Assessment Criteria for Streams in the Delta Ecoregion (Channel Altered)

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	32° C		≤10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	5	2	≤ 10%		>10%	
10-100 mi^2	5	3	≤ 10%		>10%	
>100 mi^2	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
$CL/SO_4/TDS$[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	75 NTU		≤ 20%		>20%	
All Flows	250 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-19: Assessment Criteria for Streams in the Delta Ecoregion (Least Altered)

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	30° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	5	2	≤ 10%		>10%	
10-100 mi^2	5	3	≤ 10%		>10%	
>100 mi^2	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
CL/SO_4/TDS[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	45 NTU		≤ 20%		>20%	
All Flows	84 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-20: Assessment Criteria for Streams in the Gulf Coastal Ecoregion (Typical Streams)

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	30° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	5	2	≤ 10%		>10%	
10-500 mi^2	5	3	≤ 10%		>10%	
>500 mi^2	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
CL/SO_4/TDS[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	21 NTU		≤ 20%		>20%	
All Flows	32 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-21: Assessment Criteria for Streams in the Gulf Coastal Ecoregion (Springwater Influenced)

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	30° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
All Watersheds	6	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
$CL/SO_4/TDS$[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	21 NTU		≤ 20%		>20%	
All Flows	32 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-22: Assessment Criteria for Streams in the Ouachita Mountain Ecoregion

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	30° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	6	2	≤ 10%		>10%	
>10 mi^2	6	6	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
$CL/SO_4/TDS$[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	10 NTU		≤ 20%		>20%	
All Flows	18 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-23: Assessment Criteria for Streams in the Ozark Highland Mountain Ecoregion

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	29° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
<10 mi^2	6	2	≤ 10%		>10%	
10-100 mi^2	6	5	≤ 10%		>10%	
> 100 mi^2	6	6	≤ 10%		>10%	
Trout Waters	6	6	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
$CL/SO_4/TDS$[1]	250/250/500		≤ 10%		>10%	
TURBIDITY						
Base Flows	10 NTU		≤ 20%		>20%	
All Flows	17 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Assessment Criteria for Specific Waterbodies or Segments

Table III-24: Assessment Criteria for the Arkansas River

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	32° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
All Waters	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
TURBIDITY						
Base Flows	50 NTU		≤ 20%		>20%	
All Flows	52 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-25: Assessment Criteria for the Mississippi River

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	32° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
All Waters	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
TURBIDITY						
Base Flows	50 NTU		≤ 20%		>20%	
All Flows	75 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-26: Assessment Criteria for the Ouachita River

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]						
Little Missouri R. to State Line	32° C		≤ 10%		>10%	
Above Little Missouri R.	30° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
All Waters	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
TURBIDITY						
Base Flows	21 NTU		≤ 20%		>20%	
All Flows	32 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-27: Assessment Criteria for the Red River

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	32° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
All Waters	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
TURBIDITY						
Base Flows	50 NTU		≤ 20%		>20%	
All Flows	150 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-28: Assessment Criteria for the St. Francis River

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]	32° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
All Waters	5	5	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
TURBIDITY						
Base Flows	75 NTU		≤ 20%		>20%	
All Flows	100 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.

Table III-29: Assessment Criteria for the White River (main stem)

PARAMETER	STANDARD		SUPPORT		NON-SUPPORT	
			DATA POINTS EXCEEDING CRITERIA			
TEMPERATURE[1]						
Dam #1 to Mouth	32° C		≤ 10%		>10%	
Ozark Highlands	29° C		≤ 10%		>10%	
Trout Waters	20° C		≤ 10%		>10%	
DISSOLVED OXYGEN[1] (mg/L)	Primary	Critical	Primary	Critical	Primary	Critical
Delta	5	5	≤ 10%		>10%	
Ozark Highlands	6	6	≤ 10%		>10%	
Trout Waters	6	6	≤ 10%		>10%	
pH	6 to 9 standard pH units		≤ 10%		>10%	
TURBIDITY						
Base Flows - Delta	45 NTU		≤ 20%		>20%	
All Flows - Delta[2]	84 NTU		≤ 25%		>25%	
Base Flows - Ozark Highlands	10 NTU		≤ 20%		>20%	
All Flows - Ozark Highlands[2]	17 NTU		≤ 25%		>25%	

[1] Except for site specific standards approved in water quality standards.
[2] Criteria based on 90th percentile of ecoregion values.

Table III-30: Assessment Criteria for Arkansas Lakes

PARAMETER	STANDARD	SUPPORT	NON-SUPPORT
		DATA POINTS EXCEEDING CRITERIA	
TEMPERATURE[1]	32° C	≤ 10%	>10%
DISSOLVED OXYGEN[1] (mg/L)	5	≤ 10%	>10%
pH	6 to 9 standard pH units	≤ 10%	>10%
$CL/SO_4/TDS$[1]	250/250/500	≤ 10%	>10%
TURBIDITY			
Base Flows	25 NTU	≤ 20%	>20%
All Flows	45 NTU	≤ 25%	>25%

[1] Except for site specific standards approved in water quality standards.

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Physical and Chemical Parameters

Tables III-31 through III-34 summarize the designated use support and water quality standards attainment status of the State's river and stream waterbodies. A detailed listing of each waterbody, designated use and water quality standards attainment assessment, and other segment specific data are located in Appendix A.

Table III-31: Designated Use and Water Quality Standards Support in Arkansas

Degree of Use Support	Assessed Total (miles)
Supporting all assessed uses	6820
Not supporting a use	4610.6
Total Waters Assessed	11430.6

Table III-32: Designated Use Support of Assessed Waters by Use Type

Use Type	Support (miles)	Non-Support (miles)
Fisheries	7093.6	4119.86
Primary contact	10764.66	637.7
Secondary contact	11402.36	0
Domestic Water Supply	10635.3	408.6
Agri & Industrial Water Supply	10933.46	468.9

Table III-33: Total Sizes of Waters Listed as Not Supporting Water Quality Standards and/or Designated Use(s) by Various Source Categories

Source Categories	Stream Miles
Agriculture	1074.5
Industrial point sources	200.96
Municipal point sources	161.9
Resource extraction	7.9
Surface erosion	853.2
Urban run-off	12.7
Other	11.2
Unknown	2663.6

Table III-34: Total Sizes of Waters Listed Not Attaining Water Quality Standards by Various Cause Categories

Cause Categories	Stream Miles
Ammonia	29.6
Nitrogen	74.16
Phosphorus	51.56
Chlorides	643.2
Sulfates	533
Total Dissolved Solids	743.8
Siltation/Turbidity	1634.2
Pathogen Indicators	637.7
Aluminum	2.4
Beryllium	2.4
Cadmium	0
Copper	108.1
Lead	528.4
Mercury	396.7
Nickel	0
Selenium	9
Zinc	167.2
Priority Organics	53.3
Dissolved Oxygen	1885.3
pH	284.4
Temperature	154.6
Toxicity	6

Biological Parameters

Fisheries designated use assessment is a tool used to better characterize the health of the aquatic biota based on macroinvertebrate and fish community structures. Short-term water quality impairments either from point and/or nonpoint source inputs or from short-term seasonal and/or storm events may not be detected using 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. Therefore, biological data, when available, will be the ultimate

deciding factor of the attainment of the Fisheries designated use, regardless of chemical conditions.

Between April 1, 2010 and March 31, 2015, nearly 300 aquatic biota samples were collected for the purpose of watershed assessment surveys or the establishment of ecoregion based indices of biotic integrity, as well as use support determination. Data are accessible on line: www.adeq.state.ar.us/compsvs/webmaster/databases.htm. Some of these samples were part of the special project surveys listed in Part III, Chapter 1. Tables III-35 through III-49 provide information on biological samples for various projects throughout this period of record.

Percent comparability evaluation techniques were used in the evaluation of the macroinvertebrate and fish communities. Two types of community comparisons were made: upstream-downstream community comparison and least disturbed reference stream comparison.

Macroinvertebrate communities were collected and evaluated following the Department's Rapid Bioassessment Protocols.

Fish communities were analyzed following EPA's *Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analysis* (1983), 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* (ADPC&E 1987).

Table III-35: Upper Saline Watershed Nutrient Criteria Development and MBMI Pilot Project (2006 – 2010)

Site Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
AF-1 (Alum Fork)	8040203	-014	2C	OM	X	
NFS02	8040203	-011	2C	OM	X	X
NFS03	8040203	-011	2C	OM	X	X
South Fork Saline at Hwy128	8040203	-022	2C	OM	X	X
Ten Mile Creek at Hwy 70	8040203	-717	2C	OM	X	

OM = Ouachita Mountains

Table III-36: Inventory of Biotic Assemblages for Cedar, Cove, Lee, and Webber Creeks (2009-2010)

Site Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Cedar Creek at Hwy 248	11110104	-019	3H	BM	X	X
Cove Creek at Creek Ford Rd	11110104	-010	3H	BM	X	X
Lee Creek at Hwy 220	11110104	-006	3H	BM	X	X
Lee Creek at Independence Rd	11110104	-005	3H	BM	X	X
Webber Creek at Goines Rd	11110104	-019	3H	BM	X	X

BM = Boston Mountains

Table III-37: White Oak Bayou Biology (2012)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
White Oak Bayou	ARK0162	11110207	-912	3C	BM	X	X
White Oak Bayou	ARK0162B	11110207	-912	3C	BM	X	X
White Oak Bayou	ARK0162D	11110207	-912	3C	BM	X	X

BM = Boston Mountains

Table III-38: Assessment of Ecoregion Reference Streams (2009-2010)

Site Name	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Indian Creek	11110202	-020	3H	BM		X
Hurricane Creek	11110202	-022	3H	BM		X
Illinois Bayou	11110202	-011	3H	BM		X
Lee Creek	11110104	-005	3H	BM		X
Mulberry River	11110201	-006	3H	BM		X
South Fork Spavinaw Creek	11070209	-048t	3J	OH		X
Flint Creek	11110103	-031	3J	OH		X
Long Creek	11010001	-054	4K	OH		X
Yocum Creek	11010001	-052	4K	OH		X
War Eagle Creek	11010001	-034	4K	OH		X
Kings River	11010001	-037	4K	OH		X
Diles Creek	11010011	-399	4H	OH		X
Weldon Creek	11010010	-550	4H	OH		X
West Livingston Creek	11010004	-1150	4F	BM		X
Piney Creek	11010004	-009	4F	OH		X
Strawberry River	11010012	-011	4G	OH		X
Rock Creek	11010012	-469	4G	OH		X

BM = Boston Mountains, OH = Ozark Highlands

Table III-39: Aquatic Life Use Attainment Determination of Selected Category 5F Waters Listed on the 2008 List of Impaired Waterbodies (2009-2011)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Mulberry River	ARK0138	11110201	-009	3H	BM	X	X
Black River at Corning	WHI0003	11010007	-002	4G	D	X	X
Black River at Pocahontas	WHI0025	11010007	-005	4G	D	X	X
Current River	WHI0004	11010008	-001	4H	D	X	X
Eleven Point River	WHI0005B	11010010	-001	4H	D	X	X
Fourche River	WHI0170	11010010	-008	4G	D	X	X
Janes Creek	UWJNC01	11010010	-002	4H	OH	X	X
Martins Creek	UWMTC01	11010010	-004	4H	OH	X	X
Myatt Creek	WHI0171	11010010	-010	4H	OH	X	X
Spring River at Hardy	WHI0022	11010010	-003	4H	OH	X	X
Spring River at Ravenden	WHI0021	11010010	-006	4H	OH	X	X
South Fork Spring	WHI0023	11010010	-012	4H	OH	X	X
Warm Fork Spring River	WHI006A	11010010	-008t	4H	OH	X	X
Buffalo River at St. Joe	WHI0049A	11010005	-001	4J	OH	X	X
Buffalo River at confluence	BUFR09	11010005	-005	4J	OH	X	X

BM = Boston Mountains, D = Delta, OH = Ozark Highlands

Table III-40: Physical, Chemical, Biological Assessment of Town Branch, Little Sugar, and McKissic Creeks (2009-2010)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Town Branch	ARK0056	11070208	-903	3J	OH	X	X
Little Sugar	UWLSC01	11070208	-035	3J	OH	X	X
Little Sugar	ARK0001	11070208	-003	3J	OH	X	X
McKissick	UWMKC01	11070208	-116	3J	OH	X	X

OH = Ozark Highland

Table III-41: Inventory of Biotic Assemblages for Mine and Bear Creeks (2011)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Mine Creek	RED0048A	11140109	-934	1C	GCP	X	X
Mine Creek	RED0048B	11140109	-933	1C	GCP	X	X
Mine Creek	RED0051B	11140109	-932	1C	GCP	X	X
Bear Creek	RED0033	11140109	-025	1C	GCP	X	X
Bear Creek	RED0033D	11140109	-212	1C	GCP	X	

GCP = Gulf Coastal Plain

Table III-42: Inventory of Aquatic Species of Big and Cove Creek Natural Areas (2011-2012)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Big Creek	UWBCK01	11010014	013	4E	BM	X	X
Big Creek	UWBCK02	11010014	013	4E	BM	X	X
Big Creek	UWBCK03	11010014	013	4E	BM	X	X
Big Creek	UWBCK04	11010014	013	4E	BM	X	X
Cove Creek	ARK0171	11110205	016	3D	BM	X	X
Cove Creek	ARK0172	11110205	016	3D	BM	X	X

BM = Boston Mountains

Table III-43: Excavation Activities in and near the Opossum Walk Creek, Van Buren County, Arkansas (2012)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Opossum Walk Creek	OWC01	11010014	039	4E	BM	X	
Opossum Walk Creek	OWC02	11010015	039	4E	BM	X	
Opossum Walk Creek	OWC03	11010016	039	4E	BM	X	

BM = Boston Mountains

Table III-44: Lower Cache River Restoration Project (2012). All stations located on Cache River

Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
N1	8020302	016	4B	D	X	X
N2	8020302	016	4B	D	X	X
N3	8020302	016	4B	D		X
N4	8020302	016	4B	D		X
N5	8020302	016	4B	D		X
WD01	8020302	001	4B	D	X	X
WD02	8020302	001	4B	D	X	X
WD03	8020302	001	4B	D	X	X
WD04	8020302	001	4B	D		X
WD05	8020302	001	4B	D		X
WN01	8020302	001	4B	D	X	X
WN02	8020302	001	4B	D	X	X
WN03	8020302	001	4B	D	X	X
WN04	8020302	001	4B	D		X
WN05	8020302	001	4B	D		X
D1	8020302	001	4B	D	X	X
D2	8020302	001	4B	D	X	X
D3	8020302	001	4B	D		X
D4	8020302	001	4B	D		X
D5	8020302	001	4B	D		X

D = Delta

Table III-45: Two Forks Restoration-Biological Monitoring Program (2012)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Archey Fork	AF-P1	11010014	037	4E	BM	X	X
Archey Fork	AF-P2	11010014	037	4E	BM	X	X
Archey Fork	AF-P3	11010014	037	4E	BM	X	X
Archey Fork	WHI0194	11010014	037	4E	BM	X	X
Middle Fork	MF01	11010014	028	4E	BM	X	X
Beech Fork	WHI0188	11010014	025	4E	BM		X

BM = Boston Mountains

Table III-46: Stream Restoration of Tanyard Creek in the Little Sugar Watershed (2013)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Tanyard Creek	TC01	11070208	-	3J	OH	X	
Tanyard Creek	TC02	11070208	-	3J	OH	X	
Tanyard Creek	TC03	11070208	-	3J	OH	X	
Tanyard Creek	TC-CON	11070208	-	3J	OH	X	

OH = Ozark Highlands

Table III-47: Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Ozark Highlands Ecoregion of Arkansas (2013)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Periphyton Community Collected
Big Creek	WHI0142J	11010010	908	4H	OH	X	X
English Creek	WHI0142H	11010010	009	4H	OH	X	X
Field Creek	WHI0142I	11010010	909	4H	OH	X	X
Gut Creek	WHI0142K	11010010	906	4H	OH	X	X
Kings River	WHI0009A	11010001	037	4K	OH	X	X
Kings River	WHI0123	11010001	042	4K	OH	X	X
Myatt Creek	WHI0171	11010010	010	4H	OH	X	X
North Sylamore Creek	WHI0144A	11010004	009	4F	OH	X	X
North Sylamore Creek	WHI0202	11010004	009	4F	OH	X	X
Osage Creek	WHI0068	11010001	045	4K	OH	X	X
Osage Creek	WHI0069	11010001	045	4K	OH	X	X
Roasting Ear Creek	WHI0144F	11010004	-910	4F	OH	X	X
South Fork Spring	WHI0023	11010010	012	4H	OH	X	X

Table III-47: Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Ozark Highlands Ecoregion of Arkansas (2013)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Periphyton Community Collected
South Sylamore Creek	WHI0145B	11010004	010	4F	OH	X	X
Spring River at Hardy	WHI0022	11010010	003	4H	OH	X	X
Spring River at Ravenden	WHI0021	11010010	006	4H	OH	X	X
Strawberry River	UWSBR01	11010012	011	4G	OH	X	X
Strawberry River	UWSBR02	11010012	009	4G	OH	X	X

OH = Ozark Highlands

Table III-48 Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Boston Mountain Ecoregion of Arkansas (2014-2015)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected	Periphyton Collected
Archey Creek	WHI0195	11010014	937	4E	BM	X	X	X
Beech Fork Little Red River	UWBHC01	11010014	025	4E	BM	X	X	X
Big Piney Creek	ARK0113	11110202	919	3H	BM	X	X	X

Table III-48 Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Boston Mountain Ecoregion of Arkansas (2014-2015)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected	Periphyton Collected
Big Piney Creek	ARK0118	11110202	021	3H	BM	X	X	X
Hurricane Creek	ARK0119	11110202	022	3H	BM	X	X	X
Hurricane Creek	ARK0145	11110202	022	3H	BM	X	X	X
North Fork Illinois Bayou	ARK0149	11110202	015	3H	BM	X	X	X
Illinois Bayou	ARK0150	11110202	012	3H	BM	X	X	X
Middle Fork Illinois Bayou	ARK0176	11110202	014	3H	BM	X	X	X
East Fork Illinois Bayou	ARK0177	11110202	013	3H	BM	X	X	X
Kings River	BUFET004	11010001	042	4K	BM	X	X	X
Buffalo River	BUFR02	11010005	012	4J	BM	X	X	X
Falling Water Creek	BUFT903	11010005	924	4J	BM	X	X	X
Richland Creek	LRC0001	11010005	024	4J	BM	X	X	X
Beech Fork Little Red River	UWBHC01	11010014	023	4E	BM	X	X	X
Lee Creek	UWLCK01	11110104	006	3H	BM	X	X	X

Table III-48 Data Collection for the Development of Nutrient Criteria for Extraordinary Resource Waterbodies in the Boston Mountain Ecoregion of Arkansas (2014-2015)

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected	Periphyton Collected
Middle Fork Little Red River	UWMFK01	11010014	030	4E	BM	X	X	X
Middle Fork Little Red River	WHI0043	11010014	028	4E	BM	X	X	X
Buffalo River	WHI0049A	11010005	005	4J	BM	X	X	X
Salado Creek	WHI0151	11010004	012	4F	BM	X	X	X
Turkey Creek	WHI0187	11010014	925	4E	BM	X	X	X
Archey Creek	WHI0195	11010014	937	4E	BM	X	X	X
Salado Creek	WHI0201	11010004	012	4F	BM	X	X	X
Kings River	WHI0203	11010001	042	4K	BM	X	X	X

BM = Boston Mountains

Table III-49: Preliminary Evaluation of Designated Use Attainment for the Black River near Pocahontas, Arkansas

Site Name	Station ID	H.U.C.	Reach	Planning Segment	Ecoregion	Macro-Invertebrates Collected	Fish Community Collected
Black River	WHI0025	11010009	005	4G	Delta	X	X
Black River	WHI0025A	11010009	005	4G	Delta	X	X
Black River	WHI0025B	11010009	005	4G	Delta	X	X
Black River	WHI0025C	11010009	005	4G	Delta	X	X

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Chapter Five LAKES WATER QUALITY ASSESSMENT

Background

Although selected lakes have had some historic, long-term assessments, the water quality data from the majority of Arkansas' lakes are sparse. Some have only specific purpose data, e.g., bacteria 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 related concerns. In contrast, the Corps' lakes of the Little Rock District have a relatively large amount of historic, multi-parameter and multi-site water quality data. Additionally, DeGray Reservoir probably has the most extensive historic water quality database of any reservoir in this region of the country.

Arkansas currently has identified 79 significant publicly-owned lakes (Figure III-5) ranging in size from 60 to over 45,000 acres; totaling 357,896 acres. The lakes are categorized into five "Types" (ADEQ 2000) by ecoregion, primary construction purpose, and certain morphometric features such as size and average depth (Table III-50). In 2007, construction was completed on the Lake Fort Smith dam in Crawford County in northwest Arkansas which combined Lake Shepherd Springs and the original Lake Fort Smith. The new Lake Fort Smith is 1390 surface acres, 422 surface acres larger than the original two lakes combined.

Lake Water Quality Assessment

Since 1989, four lake water quality assessments have been completed on Arkansas' significant publicly-owned lakes. Water quality samples, metals, pesticides, and pathogens, as well as dissolved oxygen and temperature profiles were collected from most of these lakes between mid-July and the end of August in 1989, 1994, 1999, and 2004. Sediment samples were collected in 1994 and plankton samples were collected in 1999 and 2004.

In 2011, ADEQ initiated a sampling program on 16 Type A lakes (described below). Water quality and profile samples are collected quarterly on each lake.

Using lake morphology, ecoregion, and purpose of construction, all lakes are grouped in the following manner:

Type A

These are larger lakes, usually of several thousand acres in size. They have average depths of 30 to 60 feet and are located in the mountain areas of the State in the Ozark Highlands, Ouachita Mountains, and Boston Mountains. The watersheds of most are forest dominated, and the primary purpose 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 smaller lakes of uplands or steeper terrains of the mountainous regions and are probably the most heterogeneous 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 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 smaller lakes of 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. Delta lakes within 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.

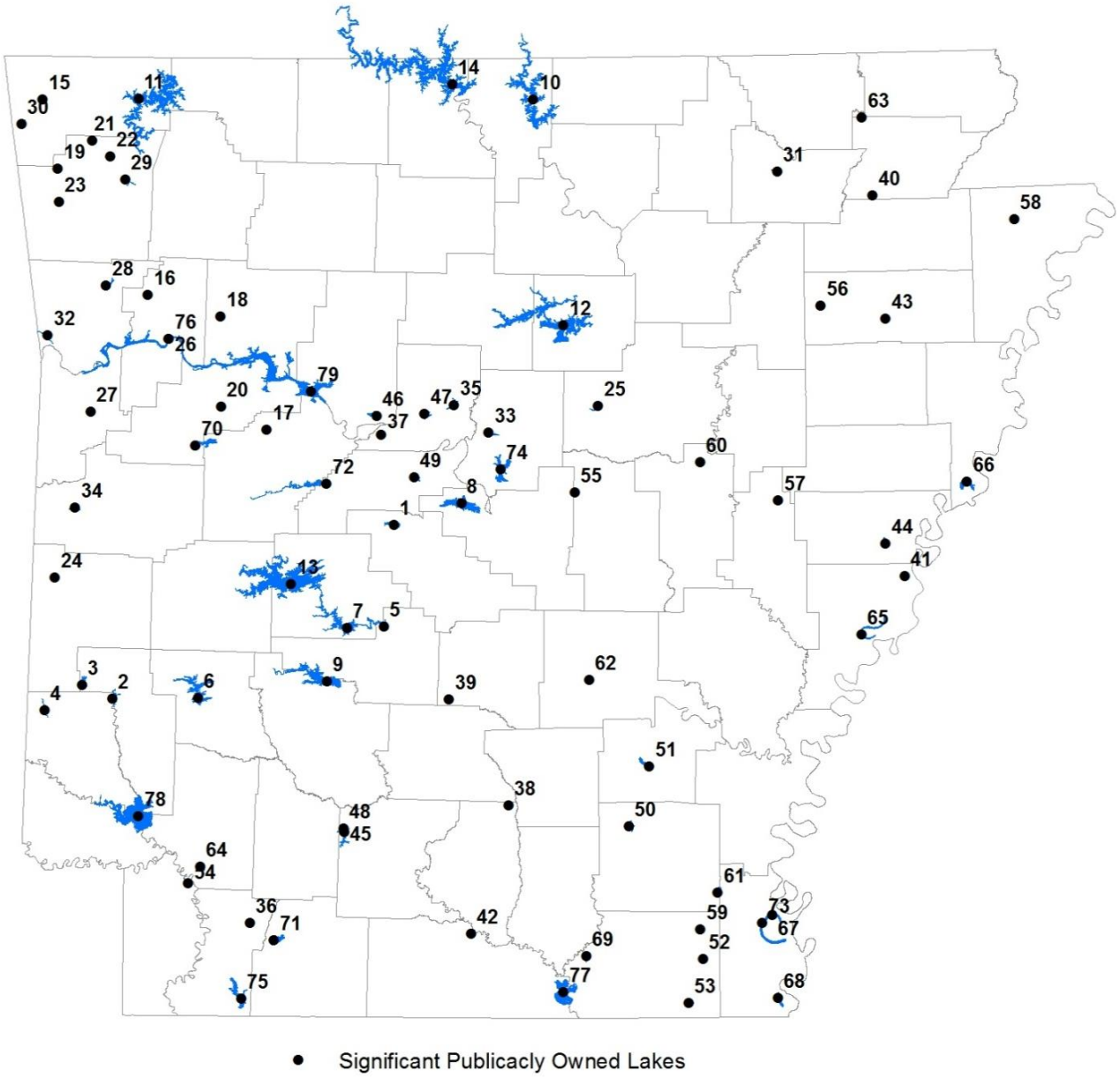
Type D

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 Plains Ecoregion. These lakes are generally 200 to 500 acres in size with average depths of approximately 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. In this group, runoff from watersheds that discharge directly into oxbow lakes is primarily from row crop agriculture.

Type E

These are large lowland lakes of the Delta, Gulf Coastal Plains, 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.

Figure III-5: Significant Publicly-Owned Lakes



See Table III-50 for lake information corresponding to numbers on map.

Table III-50: Significant Publicly-Owned Lakes

No.	Lake	County	Acres	Ave. Depth	Water Shed (mi^2)	W/A[#]	Eco-region[*]	Primary Purpose[+]	Type
1	Winona	Saline	1240	30	44.4	22.9	OM	W	A
2	Dierks	Howard	1360	22	114	53.6	OM	F	A
3	Gillham	Howard	1370	21	271	126.6	OM	F	A
4	DeQueen	Sevier	1680	21	169	64.4	OM	F	A
5	Catherine	Hot Spring	1940	18	1516	500.1	OM	H	A
6	Greeson	Pike	7200	39	237	21.1	OM	H	A
7	Hamilton	Garland	7300	26	1441	126.3	OM	H	A
8	Maumelle	Pulaski	8900	23	137	9.9	OM	W	A
9	DeGray	Clark	13200	49	453	22	OM	H	A
10	Norfork	Baxter	22000	57	1806	52.5	OH	H	A
11	Beaver	Benton	28200	58	1186	26.9	OH	H	A
12	Greers Ferry	Cleburne	31500	60	1153	23.4	BM	H	A
13	Ouachita	Garland	40100	51	1105	17.6	OM	H	A
14	Bull Shoals	Marion	45440	67	6036	85	OH	H	A
15	Crystal	Benton	60	12	4.5	48	OH	A	B
16	Shores	Franklin	82	10	26	202.9	BM	R	B
17	Spring	Yell	82	23	10.5	82	ARV	R	B
18	Horsehead	Johnson	100	16	17.3	110.7	BM	R	B
19	Wedington	Washington	102	16	3	18.8	OH	R	B
20	Cove	Logan	160	10	8.5	34	ARV	R	B
21	Elmdale	Washington	180	8	6	21.3	OH	A	B
22	Fayetteville	Washington	196	15	6	19.6	OH	R	B
23	Bobb Kidd	Washington	200	13	4	12.8	OH	A	B
24	Wilhelmina	Polk	200	10	13.5	43.2	OM	A	B
25	Barnett	White	245	27	37.5	98	ARV	A	B
26	Sugarloaf	Sebastian	250	12	5	12.8	ARV	A	B
27	Nolan (Wright)	Sebastian	350	9	3.1	5.7	ARV	A	B
28	Ft. Smith	Crawford	1390	---	73	33.6	BM	W	B
29	Sequoyah	Washington	500	8	275	352	OH	R	B
30	SWEPCO	Benton	531	17	14	16.9	OH	W	B
31	Charles	Lawrence	562	8	18	20.5	OH	A	B
32	Lee Creek	Crawford	634	11	465	469.4	BM	W	B
33	Beaver Fork	Faulkner	900	10	11.5	8.2	ARV	R	B
34	Hinkle	Scott	965	15	27.5	18.2	ARV	A	B
35	Brewer	Conway	1165	20	36.4	20	ARV	W	B
36	June	Lafayette	60	5	4	42.7	GCP	A	C
37	Bailey	Conway	124	8	7.5	38.7	ARV	R	C

Table III-50: Significant Publicly-Owned Lakes

No.	Lake	County	Acres	Ave. Depth	Water Shed (mi^2)	W/A[#]	Eco-region[*]	Primary Purpose[+]	Type
38	Tricounty	Calhoun	280	7	11.5	26.3	GCP	A	C
39	Cox Creek	Grant	300	6	17	36.3	GCP	A	C
40	Frierson	Greene	335	8	7.3	13.9	D	A	C
41	Storm Creek	Phillips	420	7	8	12.2	D	R	C
42	Calion	Union	510	6	6.7	8.4	GCP	A	C
43	Poinsett	Poinsett	550	7	4.5	5.2	D	A	C
44	Bear Creek	Lee	625	10	6	6.1	D	R	C
45	Upr White Oak	Ouachita	630	8	20.7	21	GCP	A	C
46	Atkins	Pope	750	6	10.2	8.7	ARV	A	C
47	Overcup	Conway	1025	4	17.2	10.7	ARV	A	C
48	Lwr White Oak	Ouachita	1080	8	42.5	25.2	GCP	A	C
49	Harris Brake	Perry	1300	6	11.2	5.5	ARV	A	C
50	Monticello	Drew	1520	12.5	6.8	2.9	GCP	A	C
51	Cane Creek	Lincoln	1620	6	24	9.5	GCP	A	C
52	Wilson	Ashley	150	5	1	4.3	D	A	D
53	Enterprise	Ashley	200	5	2	6.4	D	A	D
54	First Old River	Miller	200	4	2	6.4	GCP	A	D
55	Pickthorne	Lonoke	207	5	13.2	40.8	D	A	D
56	Hogue	Poinsett	280	4	2	4.6	D	A	D
57	Greenlee	Monroe	300	6	0.5	1.1	D	A	D
58	Mallard	Mississippi	300	6	0.5	1.1	D	A	D
59	Grampus	Ashley	334	6	2	3.8	D	A	D
60	Des Arc	Prairie	350	6	1	1.8	D	A	D
61	Wallace	Drew	362	5	1	1.8	D	A	D
62	Pine Bluff	Jefferson	500	6	4	5.1	D	A	D
63	Ashbaugh	Greene	500	5	1	1.3	D	A	D
64	Bois D'Arc	Hempstead	750	4	4	3.4	GCP	A	D
65	Old Town	Phillips	900	4	23	16.4	D	R	D
66	Horseshoe	Crittenden	1200	10	13.5	7.2	D	R	E
67	Upper Chicot	Chicot	1270	15	14	7.1	D	R	E
68	Grand	Chicot	1400	7	5.5	2.5	D	A	E
69	Georgia Pacific	Ashley	1700	4	4	1.5	GCP	W	E
70	Blue Mountain	Logan	2900	9	488	107.7	ARV	F	E
71	Columbia	Columbia	2950	11	48	10.4	GCP	W	E
72	Nimrod	Yell	3600	8	680	120.9	ARV	F	E
73	Lower Chicot	Chicot	4030	15	350	55.6	D	R	E
74	Conway	Faulkner	6700	5	136	13	ARV	A	E

Table III-50: Significant Publicly-Owned Lakes

No.	Lake	County	Acres	Ave. Depth	Water Shed (mi^2)	W/A[#]	Eco-region[*]	Primary Purpose[+]	Type
75	Erling	Lafayette	7000	7	400	36.6	GCP	W	E
76	Ozark	Franklin	10600	14	151801	9165.3	ARV	N	E
77	Felsenthal	Bradley	14000	7	10852	496.1	GCP	R	E
78	Millwood	Little River	29500	5	4144	89.9	GCP	F	E
79	Dardanelle	Pope	34300	14	153666	2867.2	ARV	N	E
		Total Acres	**357896**						

[#] Watershed (Acres)/Area of Lake

* OM=Ouachita Mountains; BM=Boston Mountains; OH=Ozark Highlands; ARV=Arkansas River Valley; GCP=Gulf Coastal Plain; D=Delta

+ Primary purpose corresponds with lake creation needs. This does not correspond with Designated Use(s) for the lake. W=Water Supply; F=Flood Control; H=Hydropower; A=Angling (Public Fishing); N=Navigation; R=Recreation

Water Quality Standards Development

In cooperation with the Little Rock office of the USGS, the Department coordinated projects to develop water quality standards for publicly-owned lakes. The first phase was to identify reference lakes for each of the lake types and different lake purposes within each of the State's ecoregions. The goals of the first phase were to develop a process for identifying potential reference lakes, identify these lakes, and collect water quality data from these lakes to verify reference conditions. The second phase included intensive, multi-year water quality sampling to support the reference lake determination; establish a database that can be used to help determine water quality trends and criteria; determine the similarities and differences between and among the lakes; and establish a more precise classification of the lakes.

Phase I and Phase II projects have been completed for the smaller impoundments of the Gulf Coastal, Mississippi Alluvial Plains, Boston Mountains, and Ozark Highlands ecoregions. Data produced from these projects have indicated that three to four reference lakes per ecoregion is inadequate because of the vast differences within each ecoregion. The approach outlined in the original projects is being revised to better identify least-disturbed ecoregion lakes.

Lakes on the List of Impaired Waterbodies

Part IV of this report (Table IV-5) lists lakes that have had TMDLs completed (Category 4a). The majority of the TMDLs completed involving lakes have been for mercury contamination of edible fish tissue. Other TMDLs have been completed for either nutrients or turbidity.

Impaired Uses of Lakes

Table III-51: Lakes Use Support

Degree of Use Support	Total Assessed (acres)
Size Fully Supporting	322,363
Size Not Supporting	35,533
Total Assessed (acres)	357,896

Table III-52: Designated Use Support of Assessed Lakes by Use Type

Designated Use Type	Support (Lake acres)	Non-Support (Lake acres)
Fish consumption	336,306	21,590+
Fisheries	349,270	8,626
Primary Contact Recreation	356,396	1,500
Secondary Contact Recreation	357,896	0
Domestic Water Supply	357,896	0
Agricultural & Industrial Water Supply	357,896	0

+Total surface acres of the oxbow lakes in the Ouachita River basin are unknown.

Table III-53: Total Sizes of Lakes Listed Not Supporting Uses by Various Source Categories

Source Categories	Number of Lakes	Lake Acres
Industrial Point Source	1	500
Surface erosion	2	4,410
Unknown	24	~29,686

Table III-54: Total Sizes of Lakes Listed Not Supporting Uses by Various Cause Categories

Cause Categories	Number of Lakes	Lake Acres
Nutrients (nitrogen & phosphorus)	6	4,165
Siltation/Turbidity	2	3,245
PCBs	1	500
Copper	1	335
Mercury	12+	23,084+
Unknown	2	881

+Total surface acres of the oxbow lakes in the Ouachita River basin are unknown.

Arkansas State University and USGS recently collaborated on a wetland study comparing two types of biological data (macroinvertebrates and diatoms) for indicating water quality conditions in certain wetlands of the Mississippi Alluvial Plain.

Biological assessment methods frequently used for streams have not been established for wetlands in the Mississippi Alluvial Plain, yet these methods are used frequently to indicate ecological integrity for the assessment of aquatic life designated use in streams. This study evaluated macroinvertebrate and diatom communities for their ability to indicate water quality conditions in connected depressions in the Cache River Watershed in northeastern Arkansas. Researchers from Arkansas State University and USGS collaborated on this wetland study, which was funded by USEPA Region 6 and ADEQ. Water quality sampling was conducted at 24 sites in late May, June, and July 2012. Biological samples were collected in conjunction with the June 2012 sampling event.

Connected depressions are a type of wetland that has a wide spatial extent within the Mississippi Alluvial Plain. Macroinvertebrate and diatom metrics and indices were compared to a water-quality disturbance gradient that was calculated using specific conductance, pH, and nitrate data collected at the 24 connected depressions.

The highest specific conductance measurements recorded in connected depressions in our study were an indication of groundwater-irrigation runoff that accessed the wetlands via rice field overflow. Dissolved-oxygen (DO) concentrations measured in the closed-canopy connected depressions also indicated that agricultural irrigation was influencing water quality; however, DO actually increased in wetlands influenced by rice field runoff. Overflowing irrigation that had been exposed to intense sunlight in rice patties for long periods had DO concentrations much higher than least-disturbed connected depressions which have dense canopies that inhibit light and are a source of organic input. Consequently, low DO concentrations were not associated with agriculture and were not an indication of poor water quality. This may be only published aquatic study were biological condition/integrity and DO had inverse relations.

Results of this study indicated that naturally occurring, low DO conditions in shallow connected depressions result in niche space that is limited in other aquatic environs and limiting to many aquatic species. Given the strong relation of many macroinvertebrate metrics to DO, our findings suggest that the ecological relevance of diatom metrics may be easier to interpret and defend for some wetlands having low DO concentrations under least-disturbed conditions.

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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 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 collected and/or analyzed during the 1994 reporting period were 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 predatory fishes, was analyzed for metals and pesticides from 32 lakes and numerous stream segments. These results are documented in the ADEQ (1996) *Integrated Water Quality Monitoring and Assessment Report*.

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.

Public Health and Aquatic Life Impacts

Fish Consumption Advisories

Table III-55 lists the current fish consumption advisories for the State. The most significant health advisory changes in the State over the last several years have been the reduction in the total number of stream miles with dioxin advisories.

The Arkansas Department of Health (ADH) 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 ADEQ, ADH, or AGFC for the latest advisories.

Table III-55: Fish Consumption Advisories in Place as of September, 2015

Waterbody /Reach No.	Type	Size Affected	Type Fish Consumption Restricted				Pollutant of Concern
			No Consumption		Lim. Consumption		
			Gen Pop	High Risk	Gen Pop	High Risk	
Bayou Bartholomew 08040205–002 08040205–012	River	~48 miles		X	X		Mercury
	High risk groups should not consume flathead catfish, gar, bowfin, pickerel, and blue catfish 20" or longer, largemouth bass 12" or longer, or buffalo 18" or longer". The general public should not consume more than 2 meals per month of flathead catfish, gar, pickerel, bowfin, or blue catfish 20" or longer, largemouth bass 12" or longer, or buffalo 18" or longer.						
Bayou Meto 08020402–007	Stream	~48 miles	X	X			Dioxin
	Consumption of fish from this area is not recommended due to dioxin contamination. This applies to all risk groups.						
Big Cr Tributary 11140203–XXX	Stream	~2 miles	X	X			PCBs
	This stream is closed to fishing due to polychlorinated biphenyl contamination.						
Big Johnson Lake (Calhoun County)	Lake	80 acres		X	X		Mercury
	High risk groups have no restrictions on consumption of crappie or buffalo. They should not consume all other predators and non-predators. The general public has no restrictions on the consumption of crappie or buffalo. They should not consume more than two meals per month of all other predators. There is no restriction on consumption of non-predator fish.						
Champagnolle 08040201–003 L. Champagnolle 08040201–903	Stream	~20 miles			X	X	Mercury
	High risk groups should not consume predator or non-predator species 13" or longer. The general public should not consume more than 2 meals per month of the predator species 13" or longer. There are no restrictions on non-predator species.						
Lake Columbia	Lake	2,950 acres		X	X		Mercury
	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. 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 all other predators. There are no restrictions on non-predator fish.						
Cove Creek Lake (Perry County)	Lake	46 acres			X	X	Mercury
	High risk groups should not consume largemouth bass 12" or longer. There are no restrictions on all other predator or non-predator species. 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		X	X		Mercury
	High risk groups should not consume predator or non-predator species. The general public should consume no more than 2 meals per month of the predator species. They should not consume the non-predator species.						
Dorcheat Bayou	Stream	50.6 miles		X	X		Mercury

Table III-55: Fish Consumption Advisories in Place as of September, 2015

Waterbody /Reach No.	Type	Size Affected	Type Fish Consumption Restricted				Pollutant of Concern
			No Consumption		Lim. Consumption		
			Gen Pop	High Risk	Gen Pop	High Risk	
11140203–020 11140203–022 11140203–024 11140203–026	High risk groups should not consume predator or non-predator species. The general public should not consume largemouth bass 16” or longer or consume more than 2 meals per month of all other predator species.						
Dry Fork Lake (Perry County)	Lake	104 acres			X	X	Mercury
	High risk groups should not consume largemouth bass 16” or longer. 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.						
Dupree Lake	Lake	<10 acres	X	X			Dioxin
	Consumption of fish from this area is not recommended due to dioxin contamination. This applies to all risk groups.						
Felsenthal Wildlife Refuge	Lake	14,000 acres		X			Mercury
	High risk groups should not eat largemouth bass 13” or longer, flathead or blue catfish, pickerel, gar, bowfin or drum from this refuge. The general public should not eat flathead catfish, gar, bowfin, drum, pickerel or largemouth bass 16” or longer. No more than 2 meals per month of blue catfish and largemouth bass 13-16 inches in length should be eaten from this refuge.						
Fourche La Fave River 11110206–002	River	8.7 miles			X	X	Mercury
	High risk groups should not consume largemouth bass 16” or longer. There are no restrictions on all other predator and non-predator species. 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		X	X		Mercury
	High risk groups should not consume largemouth bass 13” or longer, flathead catfish 26” or longer, or any gar, bowfin or pickerel. The general public should not consume any largemouth bass 16” or longer. The general public should not consume more than two meals per month of gar, bowfin, pickerel, flathead catfish 26” or longer, or largemouth bass 13” to 16” in length.						
Johnson Hole (Van Buren County)	Lake	~50 acres			X	X	Mercury
	High risk groups should not consume largemouth bass 16” or longer. The general public should not consume largemouth bass 16” or longer.						
Moro Bay Creek 08040201–001	Stream	~12 miles	X	X			Mercury
	High risk groups should not consume predator or non-predator species. The general public should not consume the predator species. They should not consume more than 2 meals per month of the non-predator species.						
Nimrod Lake	Lake	3,600 acres			X	X	Mercury
	High risk groups should not consume largemouth bass 16” or longer. The general public should consume no more than 2 meals per month of largemouth bass 16”						

Table III-55: Fish Consumption Advisories in Place as of September, 2015

Waterbody /Reach No.	Type	Size Affected	Type Fish Consumption Restricted				Pollutant of Concern
			No Consumption		Lim. Consumption		
			Gen Pop	High Risk	Gen Pop	High Risk	
	or longer. There are no restrictions on all other predators.						
Lake Ouachita	Lake	40,100 acres			X	X	Mercury
	High risk groups should not consume largemouth bass 13" or longer, white bass 13" or longer, or striped bass 25" or longer. The general public should consume no more than 2 meals per month of largemouth bass 13" or longer, white bass 13" or longer, or striped bass 25" or longer.						
Ouachita River 08040201–002 08040201–004 08040202–002 08040202–003 08040202–004	River	66.3 miles	X	X			Mercury
	High risk groups should not consume largemouth bass, flathead catfish, pickerel, gar or bowfin from this river. The general public should not consume largemouth bass, flathead catfish, pickerel, gar or bowfin from this river.						
Saline River 08040204–001 08040204–002	River	55.8 miles	X	X			Mercury
	High risk groups should not consume predator or non-predator species. The general public should not consume the predator species. There are no restrictions on the non-predator species.						
Saline River 08040204–004 08040204–006	River	33.9 miles		X	X		Mercury
	High risk groups should not consume predator or non-predator species. The general public should not consume more than 2 meals per month of the predator or non-predator species.						
Lake Fort Smith Formerly Shepherd Springs Lake Area (Crawford County)	Lake	1,390 acres			X	X	Mercury
	High risk groups should not consume black bass 16" or longer. There are no restrictions on all other predator or non-predator species. 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.						
South Fork Little Red River 11010014–036	River	2.0 miles			X	X	Mercury
	High risk groups should not consume largemouth bass 16" or longer. The general public should not consume more than 2 meals per month of largemouth bass 16" or longer. There are no restrictions for all other predators.						
Lake Winona (Saline County)	Lake	1,240 acres			X	X	Mercury
	High risk groups should not consume black bass 16" or longer. The general public should not consume more than 2 meals per month of black bass 16" or longer.						
Oxbow Lakes	All types	1,240 acres			X	X	Mercury
	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. High risk groups should not consume predator or non-predator species.						

Table III-55: Fish Consumption Advisories in Place as of September, 2015

Waterbody /Reach No.	Type	Size Affected	Type Fish Consumption Restricted				Pollutant of Concern
			No Consumption		Lim. Consumption		
			Gen Pop	High Risk	Gen Pop	High Risk	
	The general public should not consume predator species. They should not consume more than 2 meals per month of all non-predator species. There are no restrictions on the consumption of buffalo or crappie.						
Spring Lake (Yell County)	Lake	Total Area not known	X	X			Mercury
	High risk groups should not consume largemouth bass 16" or longer from this lake. The general public should not consume more than 2 meals per month of largemouth bass 16" or longer.						
Lake Sylvia (Perry County)	Lake	82 acres			X	X	Mercury
	High risk groups should not consume largemouth bass 16" or longer from this lake. The general public should not consume more than 2 meals per month of largemouth bass 16" or longer.						

Domestic Water Supply Use

The ambient monitoring network provided monthly data from all stations for nitrate and minerals (chlorides, sulfates, and total dissolved solids) which were compared against the domestic water supply criteria to assess the protection of the domestic water supply designated use. Of the more than 11,430.6 miles assessed for these parameters for domestic water supply use support, approximately 408.4 miles were not meeting the use. Most of the exceedances were caused by excess mineral concentrations. In addition, approximately 758.7 stream miles have had the domestic water supply designated use removed through site specific amendments to the water quality standards, to date (not just this period of record).

Source Water Protection Program, Arkansas Department of Health

Arkansas' Source Water Protection Program (SWAP) is an EPA program mandated by the 1996 amendments to the Safe Drinking Water Act that required each state to assess all public drinking water sources for vulnerability to contamination. Responsibility for the development of the SWAP plan and for conducting the vulnerability assessments was given to the Engineering Division at the ADH, now the Engineering Section at the ADH.

Vulnerability assessment is a multi-step process consisting of accurate mapping of drinking water source locations, delineation of source water "assessment" areas where the water is likely derived from, mapping of potential contaminant locations within the assessment areas, and producing a susceptibility analysis using a Geographical Information System. The purpose of the

SWAP is to establish a viable method for assessing vulnerability and for producing accurate maps intended to serve as the basis for source water protection planning by public water systems, their customers, and other interested parties. Source protection programs help to ensure a continued safe drinking water supply, provide for monitoring flexibility, and limit capital expenditures for treatment. The results of the assessments can also be used by other government entities and conservation groups to better understand the cumulative effects of various human activities; they also help to determine where the most critical problems are located within a watershed. Arkansas' SWAP was approved by EPA Region 6 in November 1999, and the original assessments were completed in May 2003 using ArcView 3.2. Currently, USGS is under contract to ADH to update the SWAP model so that it will support ArcGIS 10.x, with a scheduled completion date of July, 2016. ADH's Source Water Protection team—continues to provide technical assistance for the development of source water protection plans—and produces program report elements as required, for new water systems or new drinking water sources. More information about the SWAP and source water protection planning can be accessed on the Arkansas Department of Health's Engineering Section website at: http://www.healthy.arkansas.gov/programsServices/environmentalHealth/Engineering/sourceWaterProtection/Pages/default.aspx.

Chapter Eight REVIEW OF EPA'S NATIONAL RIVERS AND STREAMS ASSESSMENT 2008-2009

The Department, at the request of U.S. EPA Region VI, reviewed EPA's National Rivers and Streams Assessment 2008-2009 (2013). The National Rivers and Streams Assessment (NRSA) was designed to study all rivers and streams of the United States from the largest rivers to the smallest streams following a statistically validated approach. ADEQ review was initiated to address discrepancies brought forth by U.S EPA Region VI regarding the percentage of impaired waters on Arkansas' 2008 and draft 2010, 2012 303(d) listings and the percentage of impaired waters described from the 2008-2009 NRSA. In short, the 2008-2009 NRSA classifies 57% of the State's river miles sampled as "Poor" condition due to total nitrogen, total phosphorous, and/or salinity. Arkansas' 2008 303(d) list classifies 41% of State assessed waters as impaired for all parameters, including nutrients, while the State's draft 2010 and 2012 303(d) list identifies 38% and 37% as impaired, respectively.

Furthermore, 2008-2009 NRSA data indicate biological impairment at approximately 89% of stations sampled. Impairments of periphyton, macroinvertebrate, and/or fish assemblages were determined using metrics derived from a large-scale dataset and the assemblage derivation from least-disturbed reference conditions. Due to concerns of longitudinal shifts in assemblage structure associated with stream order, planning staff only assesses biocriteria scores for fishes collected from wadeable streams. Multi-metric indices to evaluate macroinvertebrate or periphyton assemblages in Arkansas have yet to be established; therefore, comparisons were only made regarding fish collections. Planning staff thoroughly reviewed fish assemblage data and are in disagreement on the proportion of site identified as "Poor" condition (43% or 30 of 69). Planning staff analyzed fish assemblages using ADEQ's CSI and determined only 14 of 69 stations had less than comparable fish assemblages. However, there were discrepancies between specific sites characterized by ADEQ and NRSA as having a poor fish assemblage. Additionally, 10 of ADEQ's 14 stations were considered as either intermittent or canal/ditch by NHD. A disproportionate amount of headwater streams may be influencing results and interpretation of water quality and biological impairment for several key reasons. A one-time site visit to headwater streams, without regard to duration of flow, cannot be expected to portray an accurate depiction of biotic and abiotic conditions. As mentioned, a number of stations sampled were actually agricultural ditches. These waterbodies should not be included when interpreting the state of our waters.

The NRSA study design was specifically geared for uneven selection of sites among stream orders for wadeable and non-wadeable. Distribution of 2008-2009 NRSA sites indicated 52% had watershed areas < 10 mi^2. Arkansas streams with watershed sizes of <10 mi^2 and of 1st-3rd order are most likely intermittent, at best. A total of 39 % of NRSA stations were identified as intermittent using NHD, and 6 sites were classified as canal/ditch. Arkansas' Regulation No. 2 establishes a secondary fisheries use for watersheds <10 mi^2 during the primary season. Of the

43 <10 mi^2 NRSA sites, 93% were sampled during the critical season, May through September, when sites are not expected to support aquatic life. The Department's water quality monitoring stations have been more orientated towards larger watersheds to fully assess waters of the State. In 2008, distribution of ADEQ's water quality monitoring stations was weighted more heavily towards streams and rivers with watersheds >100mi^2, however in 2011, a more even distribution of stations among watershed was observed. From 2008 to 2011, there was a 9% increase of streams with <10 mi^2 and a 243% increase in total number of stations. Despite marked increase of sampling stations between 2008 and 2011, there was a reduction of 2078 impaired miles between Arkansas' 2008 303(d) list and draft 2012 303(d) list.

The limited physical, chemical, and biological data collected during NRSA studies precludes the State from making assessment and designated use attainment decisions. However, the State may utilize NRSA derived data to evaluate further nutrient or aquatic life related issues.

The EPA has collected data for 2013-2014, but is processing data and evaluating data quality. The next scheduled assessment will be 2018-2019.

PART IV WATER QUALITY LIMITED WATERBODIES LIST: 303(d) LIST

Introduction

Clean Water Act Section 303(d) requires states to identify waters which do not meet or are not expected to meet applicable water quality standards. These waterbodies are compiled into a list known as the 303(d) list. The 2016 list of impaired waterbodies (303(d) list) (Tables IV-3 through IV-6) contained in this report has not yet been approved by the U. S. Environmental Protection Agency.

Methodology

The methodology used for listing of impaired waters (303(d)) is the same as for the 305(b) assessments. This is detailed in Part III, Chapter Three of this document.

Water Quality Limited Waters

Waterbodies listed on the 2016 list of impaired waterbodies are depicted on Figures IV-1 (Category 1b and 4a listings) and Figure IV-2 (Category 5 listings). The 2016 list of impaired waterbody segments is divided into four tables: a list of stream segments (Table IV-1) and a list of lakes (Table IV-2) not currently meeting water quality standards but have completed TMDLs; and a list of stream segments (Table IV-3) and lakes (Table IV-4) listed in Category 5 as described below.

Waterbodies will be classified in the following manner:

Category 1. Attains all water quality standards for all designated uses; categorized by existence of a TMDL or not for one or more constituents:

1a. Attaining water quality standards for all designated uses, no use is threatened. No TMDL exists for any constituents.

1b. Attaining all water quality standards for all designated uses; however, a TMDL remains in place for one or more constituents.

Category 4. Water quality standards are not attained for one or more designated uses but the development of a TMDL is not required because:

4a. A TMDL has been completed for the listed parameter(s);
4b. Other pollution control requirements are expected to result in the attainment of the water quality standard; or
4c. Non-support of the water quality standard is not caused by a pollutant.

Category 5. The waterbody is impaired, or one or more water quality standards may not be attained. Waterbodies in Category 5 will be prioritized as:

High

- Truly impaired; develop a TMDL or other corrective action(s) for the listed parameter(s).

Medium

- Waters currently not attaining standards, but may be de-listed with future revisions to APC&EC Regulation No. 2, the state water quality standards; or
- Waters which are impaired by point source discharges and future permit restrictions are expected to correct the problem(s).

Low

- Waters currently not attaining one or more water quality standards, but all designated uses are determined to be supported; or
- There is insufficient data to make a scientifically defensible decision concerning designated use attainment; or
- Waters ADEQ assessed as unimpaired, but were assessed as impaired by EPA.

TMDL Prioritization

The Arkansas Department of Environmental Quality (ADEQ) created a "Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act (CWA) 303(d) Program" (4/17/2015) in accordance with the new measures set forth by the United States Environmental Protection Agency (EPA). https://www.adeq.state.ar.us/water/planning/integrated/pdfs/long-term-vision-for-arkansas-20150417.pdf

ADEQ has been working in conjunction with the Arkansas Natural Resources Commission (ANRC) to target resources for water quality improvements within the state. The ANRC is responsible for developing and implementing Arkansas' Nonpoint Source Pollution Management Program. ANRC prioritized ten basins in Arkansas using stakeholder involvement coupled with a science-based process. For TMDL prioritization, nine of the ten ANRC basins were chosen because they have impairments that carry from ADEQ's 2008 303(d) list to the Draft 2014 303(d) list. ADEQ plans to work towards TMDL or alternative plan development for the currently selected basins by 2022.

Figure IV-1: Arkansas' Waterbodies with Completed TMDLs (Categories 4a and 1b)

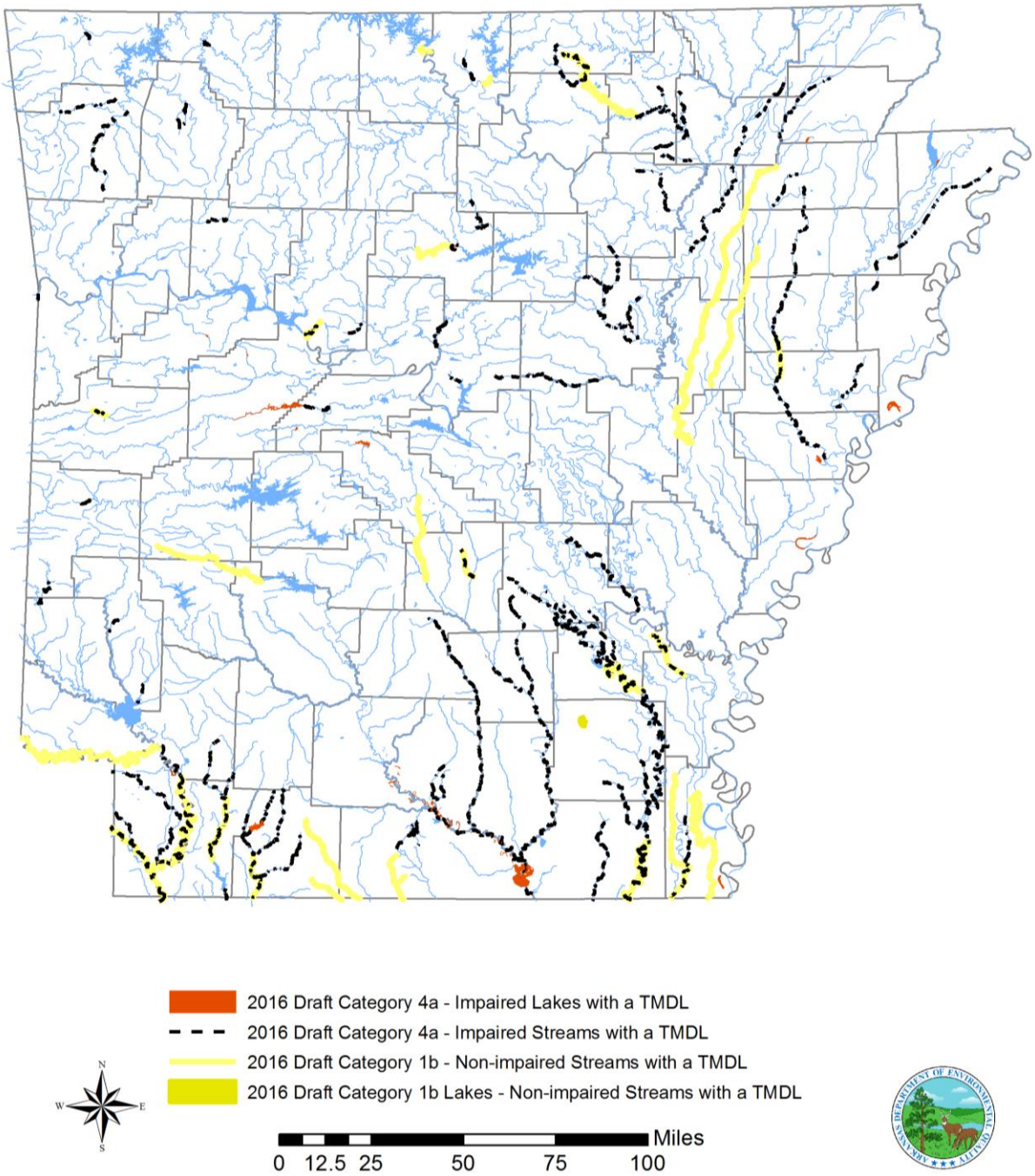
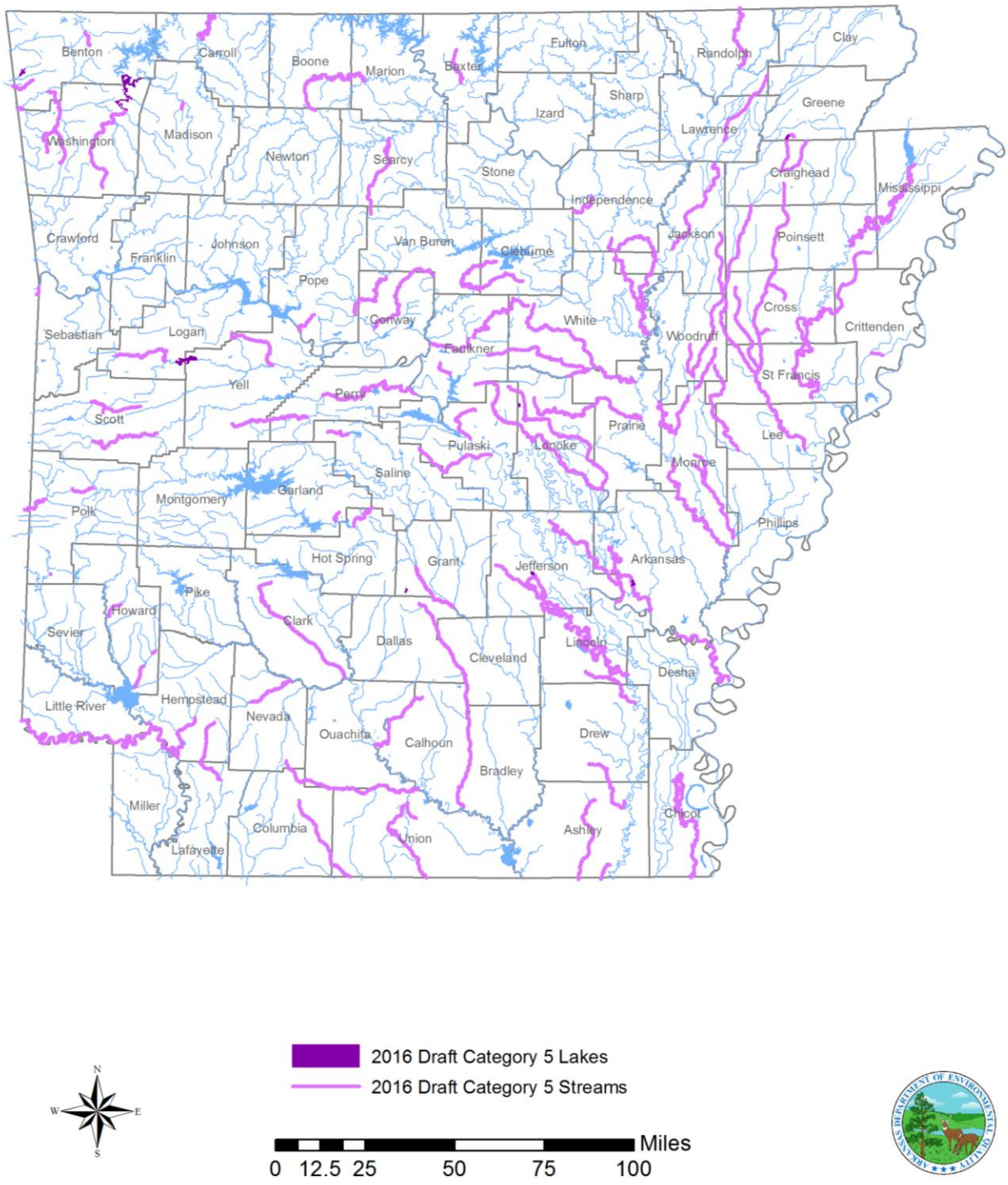


Figure IV-2: Arkansas' Impaired Waterbodies without Completed TMDLs (Category 5)



New and Removed Listings

Most of Arkansas' water quality standards were developed after the completion of the ecoregions of Arkansas survey (reference). Least-disturbed waterbodies, approximately six, in each of the ecoregions were studied; the data compiled; average concentrations of water quality constituents were calculated, and standards were set based on those averages. On occasion, water quality standards for certain constituents, such as dissolved oxygen, temperature, and pH, will not be attained simply because of weather related conditions. As a result, some waterbodies will be evaluated as impaired during one period of record, only to be evaluated as fully supporting the next. For example, twenty-six waterbodies were evaluated as impaired for dissolved oxygen during the 2016 period of record, while four others that had been on the 2014 303(d) list were evaluated as fully supporting and were removed from the 2016 list. Likewise, three waterbodies were evaluated as impaired for temperature, while eight others that had been on the 2014 303(d) list were evaluated as fully supporting and were removed from the 2016 list. These waterbodies may or may not be assessed as impaired in 2018, depending on the data.

In addition, some waterbodies have been evaluated as impaired for a constituent simply because the natural background characteristics of the water body are significantly different than the ecoregion average. This occurs mostly with the water quality standards for pH, dissolved oxygen, and temperature. The table below lists the number of pollutant pairs that have been listed and delisted for the 2016 period of record. A pollutant pair is one waterbody and one water constituent. One water body may have more than one constituent not meeting water quality standards, such as pH and temperature. In this case, that would equal two pollutant pairs.

The implementation of nonpoint source best management practices has been effective in reducing pollutants entering three of Arkansas' rivers. Turbidity concentrations in the Illinois River, the St. Francis River, and Days Creek have been reduced and the waterbodies are now meeting turbidity standards. In addition, portions of Bayou DeView, listed for excessive lead concentrations, have also been removed from the impaired waterbodies list. The Arkansas Natural Resources Commission partnered with land owners within these watersheds and provided education, demonstration, expertise, and financial assistance to implement and install best management practices. These success stories can be read on the EPA website: http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-success-stories.

Table IV-1: Waterbody pollutant pairs added and removed for the 2016 period of record

Added Pollutant Pairs (72)		Removed Pollutant Pairs (98)	
Pollutant	**Number of Pairs**	**Pollutant**	**Number of Pairs**
Minerals (Cl, SO_4, TDS)	19	Minerals (Cl, SO_4, TDS)	31
Turbidity	3	Turbidity	20
Metals (Cu, Pb, Zn, Se)	13	Metals (Cu, Pb, Zn, Se)	27
Pathogens (*E. coli*)	1	Pathogens (*E. coli*)	0
Dissolved Oxygen	26	Dissolved Oxygen	4
Temperature	3	Temperature	8
pH	7	pH	8

Table IV-2: Streams in Category 3 due to Insufficient Data to Complete Nutrient Assessment

Stream Name	HUC	Planning Segment	Data Source	Total Phosphorus	Total Nitrogen	ADEQ Monitoring Station
Ballard Creek	11110103	3J	ANRC	X	X	
Baron Fork	11110103	3J	ANRC	X	X	ARK007
Baron Fork at Dutch Mills, AR	11110103	3J	USGS	X	X	ARK007
Baron Fork near Morrow, AR	11110103	3J	USGS	X	X	ARK007A
Bayou Bartholomew @ Garrett Bridge	8040205	2B	USGS	X		UWBYB03
Bayou Bartholomew @ Meroney	8040205	2B	USGS	X		
Bayou Bartholomew @B1	8040205	2B	ANRC	X	X	
Bayou Bartholomew @B1	8040205	2B	Equilibrium	X		
Bayou Bartholomew @B2	8040205	2B	ANRC	X	X	
Bayou Bartholomew @B2	8040205	2B	Equilibrium	X		
Bayou Bartholomew @B3	8040205	2B	ANRC	X	X	UWBYB03
Bayou Bartholomew @B3	8040205	2B	Equilibrium	X		UWBYB03
Big Creek @ Carver	11010005	4J	USGS/ NPS	X	X	BUFT06
Big Creek near Mt. Judea	11010005	4J	USGS/ BCRET	X	X	
Brentwood Mountain Road @Site 7	11010001	3J	AWRC		X	
Brushy Creek @MB	8020205	3J	ANRC	X	X	
Brushy Creek @UB	8020205	3J	ANRC	X	X	
Cedar Creek in Gulf Mt WMA nr Scotland, AR	11010014	3I	USGS	X	X	
Clear Creek on Hwy 265	11110103	3J	USGS	X		
Clear Creek on Hylton Rd	11110103	3J	USGS	X	X	
Copper Creek @CC	8020205	2B	ANRC	X	X	
Copper Creek @CC	8020205	2B	Equilibrium	X		
Cousart Bayou @C1	8040205	2B	Equilibrium	X	X	
Cousart Bayou @C1	8040205	2B	ANRC	X	X	
Cousart Bayou @C2	8040205	2B	Equilibrium	X	X	OUA0149
Cousart Bayou @C2	8040205	2B	ANRC	X	X	OUA0149
Cypress Creek @CYP	11110203	3F	ANRC	X		
Cypress Creek @CYP	11110203	3F	Equilibrium	X		
Cypress Creek nr Birdtown, AR	11110205	3F	USGS	X	X	ARK0132
Deep Bayou @D1	8040205	2B	ANRC	X	X	
Deep Bayou @D1	8040205	2B	Equilibrium	X		
Deep Bayou @D2	8040205	2B	ANRC	X	X	OUA0149
Deep Bayou @D2	8040205	2B	Equilibrium	X	X	OUA0149
Deep Bayou @D3	8040205	2B	ANRC	X	X	
Deep Bayou @D3	8040205	2B	Equilibrium	X		

Table IV-2: Streams in Category 3 due to Insufficient Data to Complete Nutrient Assessment

Stream Name	HUC	Planning Segment	Data Source	Total Phosphorus	Total Nitrogen	ADEQ Monitoring Station
Deep Bayou @D4	8040205	2B	ANRC	X	X	OUA0151
Deep Bayou @D4	8040205	2B	Equilibrium	X		OUA0152
Deep Bayou @D5	8040205	2B	ANRC	X	X	
Evansville Creek near Evansville, AR	11110103	3J	USGS		X	
Flint Creek @ FC12	11110103	3J	ANRC		X	
Flint Creek @CHEROKEE_WQX-FC1	11110103	3J	CN-OK	X	X	
Flint Creek near Gentry, AR	11110103	3J	USGS		X	
Fly Creek near Morrow, AR	11110103	3J	USGS	X	X	
Frog Bayou	11110201	3H	GBMc	X		
Goose Creek near Farmington	11110103	3J	USGS		X	
Haynes Creek @HCreek7	8040201	2D	AWRC		X	OUA0109
Holman Creek-HOC01	11010001	4K	BWD	X		BUFET003
Huckleberry Creek near Augsburg	11110202	3H	USGS	X	X	
Illinois Bayou near Scottsville	11110202	3H	USGS	X	X	
Indian Creek @IC	8020205	2B	ANRC	X	X	
Indian Creek @IC	8020205	2B	Equilibrium	X		
L.P. Jarnagan Ball Park (Slicker Park) @Site 8	11010001	4K	AWRC		X	
Lee Creek	11110104	3H	GBMc	X		
Little Osage Creek near Osage Mills	11110103	3J	USGS		X	
Long Creek at Denver, AR	11010001	4K	USGS	X		WHI0134
Lower Clear Creek @LCC	11110203	3F	Equilibrium		X	
Maumelle River near Wye, AR	11110207	3F	USGS	X	X	
Middle Fork White River-MFW01	11010001	4K	BWD	X		WHI0101
Middle Fork White River-MFW02	11010001	4K	BWD	X		WHI0102
Middle Brushy Creek @MB	8020205	2B	Equilibrium	X		
Middle Fork Illinois Hwy 27	11110202	3H	USGS	X	X	
Niokaska Creek @NC	11110103	3J	ANRC	X		
North Fork Illinois bayou near Scottsville	11110202	3H	USGS	X	X	ARK0149
Osage Creek	11110103	3J	ANRC	X	X	
Osage Creek near Cave Springs	11110103	3J	USGS	X		ARK0025C
Osage Creek nw Cave Springs	11110103	3J	USGS	X	X	
Overcup Creek @OC	11110203	3F	ANRC	X		
Overcup Creek @OC	11110203	3F	Equilibrium	X	X	
Prairie Creek @ Frisco Spring	11110103	3F	USGS		X	
Prairie Creek U/S Atalanta	11010001	4K	USGS		X	
Prairie Creek U/S Diamond Creek	11010001	4K	USGS		X	
Prairie Creek @PC	8020205	2B	ANRC	X	X	
Reece Creek at Little Italy, AR	11110207	3F	USGS	X		

Table IV-2: Streams in Category 3 due to Insufficient Data to Complete Nutrient Assessment

Stream Name	HUC	Planning Segment	Data Source	Total Phosphorus	Total Nitrogen	ADEQ Monitoring Station
S Fk Lit Red River us of Gulf Mt WMA near Scotland, AR	11010014	4E	USGS	X	X	
South Fork Little Red River U.S. WMA	11010014	4E	USGS			
Spavinaw Creek near Cherokee City, AR	11070209	3J	USGS	X	X	ARK0003
Spavinaw Creek near Maysville, AR	11070209	3J	USGS		X	ARK0157
Spring Creek	11110103	3J	ANRC	X	X	ARK0068C, SPG0003
Spring Creek @ Hwy 112 near Springdale	11110103	3J	USGS	X	X	ARK0068C, SPG0003
Spring Creek @ North 40 Street Springdale	11110103	3J	USGS	X	X	ARK0026B
Spring Creek @ Park Street	11110103	3J	USGS	X		
Spring Creek @ Sanders Ave Springdale	11110103	3J	USGS	X		
Spring Creek US i-540 near Springdale	11110103	3J	USGS	X	X	ARK0026B
Town Branch @TB62	11010001	3J	ANRC	X		
Town Branch Trib @TBT	11010001	3J	ANRC	X	X	
Trib of Prairie Creek at Rogers	11010001	3J	USGS		X	
Unnamed Trib A near Augsburg	11110202	3H	USGS	X	X	
Unnamed Trib B near Augsburg	11110202	3H	USGS	X	X	
Unnamed Trib C near Augsburg	11110202	3H	USGS	X	X	
unnamed trib to Huckleberry D	11110202	3H	USGS		X	
unnamed trib to Huckleberry E	11110202	3H	USGS	X	X	
Upper Brushy Creek @UB	8020205	2B	Equilibrium	X		
Upper Sager	11110103	3J	GBMc	X		
War Eagle Creek @WAR01	11010001	4K	BWD	X		
War Eagle Creek near Hindsville, AR	11010001	4K	USGS	X		WHI0116
Wedington Creek near Cincinnati	11110103	3J	USGS		X	
West Fork Point Remove Creek @WF1	11110203	3F	ANRC		X	
West Fork Point Remove Creek @WF1	11110203	3F	Equilibrium	X	X	
West Fork Point Remove Creek @WF2	11110203	3F	ANRC	X		
West Fork White River @WFW01	11010001	3F	BWD	X		WHI0097
West Fork White River east of Fayetteville, AR	11010001	3F	USGS	X		
Whig Cr @ Confluence with Ark R near Dardanelle	11110203	3F	USGS	X	X	ARK067
Whig Cr @ WWT Plant near Russellville	11110203	3F	USGS	X	X	
White River-WHR01	11010001	4K	BWD	X		
Wildcat Creek near Robinson	11110103	3J	USGS		X	
Yocum Creek near Oak Grove, AR	11010001	4K	USGS		X	WHI0137, BUFET011

Key to Table IV-3 through IV-6 Abbreviations:

HUC – Hydrologic Unit Code. Eight-digit HUCs identify in which hydrologic unit a waterbody is located. For some eight digit HUCs, the "0" at the beginning is dropped. For example HUC 08040102 will appear as 8040102.

Reach - a numerical identifier of a specific stream segment

Lake Type – Lakes are classified into Types using lake morphology, ecoregion, and purpose of construction. Information describing Lake Type is located in Part III Chapter Five of this report.

Planning Segment – Two-digit alpha-numeric code to identify in which ADEQ Planning Segment a waterbody is located. Figure II-3 is a map of ADEQ's Planning Segments. ADEQ's 38 water quality planning segments are based on hydrological characteristics, human activities, geographic characteristics, and other factors.

Miles - the total length (in miles) of a specific reach of a stream.

Acres – total surface acreage for lake.

Monitoring Station:

ADEQ surface water monitoring stations are named in a variety of ways as shown in the following examples:

RED0015A = ADEQ stream monitoring stations in the ambient and roving networks typically follow this format where the first three letters represent the drainage basin (RED = Red River, WHI = White River, FRA = St. Francis River, OUA = Ouachita River, and ARK = Arkansas River) and the numbers, sometimes followed by a letter, represent the unique station ID within that basin.

UWAFK01 = ADEQ stream monitoring stations not on the ambient network. These stations were named when initially established, before being used for assessments. UW = Unassessed Waters. The next series of letters represents the stream (AFK = Archey Fork Creek) and the numbers are a unique identifier for that stream.

MIN0001 = ADEQ stream monitoring stations that are originally used in special studies.

LRED002A = ADEQ lake monitoring station. These typically start with "L" and the next three letters represent the drainage basin like with streams. The three digit numeric code, sometimes followed by a letter, represents the unique identifier for that lake.

e = evaluated assessment. Used when there is not a station on the actual reach but a monitoring station on an adjacent segment may be used for assessment. The "e" may be stand alone in the cell or may precede a monitoring station ID.

ANRC = Data received from the Arkansas Natural Resource Commission.

UAA = Use Attainability Analysis. Data for this assessment was attained via a UAA, not a monitoring station.

USGS = Data received from U. S. Geological Society.

Ark G&F = Data received from Arkansas Game and Fish Commission.

BWD = Data received from Beaver Water District.

Report = Data received from third party report.

Toxicity Samples = ADEQ data from ambient toxicity project.

Assessment Method

M = monitored assessment

Designated Use Not Supported: uses specified in water quality standards for each waterbody or stream segment which are not being supported.

AI = agricultural and/or industrial water supply	DW = domestic water supply
FC = fish consumption	FSH = fisheries
PC = primary contact	SC = secondary contact

Water Quality Standard Non-Attainment: contaminant identified as the cause of impairment.

Al = aluminum	AM = ammonia
Be = beryllium	Cl = chlorides
Cu = copper	DO = dissolved oxygen
Hg = mercury	NO3 = nitrate nitrogen
PA = pathogen indicator bacteria	Pb = lead
PCB = Polychlorinated biphenyl	pH = pH
PO = priority organics	Se = Selenium
SO4 = sulfates	Tb = turbidity
TDS = total dissolved solids	Tm = temperature
Tox = Toxicity	TP = total phosphorus
UN = Unknown	Zn = zinc

Sources of Contamination or Source- the probable source of the contaminant causing impairment.

AG = agriculture activities	HP = hydropower
IP = industrial point source	MP = municipal point source
SE[1] = surface erosion	UN = unknown
UR = urban runoff	

RE = resource extraction (mining; oil and gas extraction)

Cause:

HG = Mercury

NU = nutrients[2]

SI = Siltation

Priority Rank - A ranking of waters in order of need for corrective action taking into account the severity of the pollution and designated uses of the waters.

H = High priority: highest risk of affecting public health or welfare; substantial impact on aquatic life.

M = Medium priority: moderate risk to public health, welfare or to aquatic life.

L = Low priority: lowest risk to public health or welfare; secondary impact on aquatic life.

Notes:

[1] Surface Erosion – This category includes erosion from agriculture activities, unpaved road surfaces, in-stream erosion, mainly from unstable stream banks, and any other land surface disturbing activity.

[2] This listing was used in previous 303(d) lists. TMDLs are currently being developed for these listings.

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment														Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
Dorcheat Bayou	11140203	-022	1A	8.40	RED0015A	x							1b				1b				4a		4a								UN
Dorcheat Bayou	11140203	-020	1A	11.90	e - RED0015A	x							1b				1b				4a		4a								UN
Dorcheat Bayou	11140203	-026	1A	11.70	UWBDT01,02	x							4a								4a		4a								UN
Dorcheat Bayou	11140203	-024	1A	7.00	RED0065	x							4a										4a								UN
Little Bodcau Creek	11140205	-010	1A	19.50	RED0056																4a										
Bodcau Creek	11140205	-007	1A	7.80	RED0057																4a										
Bodcau Creek	11140205	-006	1A	22.40	RED0027								4a		4a					1b	4a										
Bodcau Creek	11140205	-002	1A	6.00	e-RED0027								4a		4a					4a	4a										
Beech Creek	11140203	-025	1A	15.70	UWBCH01							4a			4a						4a										
Big Creek	11140203	-923	1A	18.50	UWBIG01								4a								4a										
Big Creek	11140203	-023	1A	3.30	UWBIG02											4a	4a	4a			4a										UN
Horsehead Creek	11140203	-021	1A	16.80	UWHHC01								4a								4a										
Days Creek	11140302	-003	1B	11.00	RED0004A					x															NO_3		x				
Sulphur River	11140302	-008	1B	0.80	e - RED0005									4a	4a		1b	4a													
Sulphur River	11140302	-006	1B	6.50	RED0005									4a	4a		1b	4a													
Sulphur River	11140302	-004	1B	0.70	e - RED0005									4a	4a		1b	4a													
Sulphur River	11140302	-002	1B	8.50	e - RED0005									4a	4a		1b	4a													
Sulphur River	11140302	-001	1B	6.30	e - RED0005									4a	4a		1b	4a													
Red River	11140106	-025	1B	8.00	e - RED0025											1b	1b	1b													
Red River	11140106	-005	1B	25.30	RED0025											1b	1b	1b													
Red River	11140106	-003	1B	9.80	e - RED0025											1b	1b	1b													
Red River	11140106	-001	1B	34.80	e - RED0025											1b	1b	1b													
Red River	11140201	-011	1B	15.20	RED0046													4a													
Red River	11140201	-007	1B	40.10	RED0045										4a	1b		4a													
Red River	11140201	-005	1B	12.00	e - RED0045											1b		4a													

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment														Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
Red River	11140201	-004	1B	4.00	e - RED0045											1b		4a													
Red River	11140201	-003	1B	15.50	RED0009									1b	4a			4a													
McKinney Bayou	11140201	-014	1B	21.60	RED0055												4a	4a													
McKinney Bayou	11140201	-012	1B	23.10	RED0054											4a	4a	4a													
Rolling Fork	11140109	-919	1C	2.51	RED0058																			TP	NO_3	x					
Rolling Fork	11140109	-927	1C	9.16	RED0030																			TP	NO_3	x					
Holly Creek	11140109	-013	1C	6.20	RED0034B														4a												
Mine Creek	11140109	-033	1C	11.40	MIN0002														4a												
Oak Bayou	8050002	-910	2A	18.30	OUA0179		x			x	x				4a	1b		4a											x		
Boeuf River	8050001	-018	2A	49.40	OUA0015A		x				x				4a	4a	4a	1b											x		
Boeuf River	8050001	-019	2A	58.10	UWBFR01		x			x	x				4a	4a	4a	4a											x		
Bayou Macon	8050002	-003	2A	80.50	UWBYM01; UWBYM02										1b																
Bayou Macon	8050002	-006	2A	38.60	e - UWBYM01; UWBYM02										1b																
Big Bayou	8050001	-022	2A	27.10	OUA0032; UWBGB01										1b	1b															
Bayou Bartholomew	8040205	-001	2B	60.10	OUA0013		x								4a	1b	1b	1b											x		
Bayou Bartholomew	8040205	-002	2B	17.90	UWBYB01	x	x								4a	4a	4a	4a					4a						x		UN
Melton's Creek	8040205	-903	2B	8.70	OUA0148			x											4a												UN
Harding Creek	8040205	-902	2B	4.60	OUA0145			x											4a										x	x	
Deep Bayou	8040205	-005	2B	28.90	OUA0151		x	x							4a				4a									x	x		UN
Bayou Bartholomew	8040205	-006	2B	82.30	OUA0033		x								4a														x		
Cutoff Creek	8040205	-007	2B	16.80	UWCOC01	x									4a								4a					x			UN
Bayou Bartholomew	8040205	-912	2B	82.70	UWBYB02		x								4a	4a	4a	4a											x		
Cross Bayou	8040205	-905	2B	2.40	OUA0152			x											4a												UN

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment														Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
Bayou Bartholomew	8040205	-013	2B	33.90	UWBYB03		x	x							4a	1b	1b	1b	4a										x		
Bayou Bartholomew	8040205	-012	2B	25.00	UWBYB02	x	x								4a								4a						x		UN
Chemin-A-Haut Cr.	8040205	-907	2B	30.50	OUA0012			x											4a												UN
Bearhouse Creek	8040205	-901	2B	24.40	OUA0155			x											4a												
Jack's Bayou	8040205	-904	2B	6.00	OUA0150			x											4a												
Big Creek	8040203	-904	2C	10.00	OUA0018		x					1b			4a												x				
Saline River	8040203	-001	2C	0.20	OUA0010A,117	x																	4a								UN
Saline River	8040203	-010	2C	29.80	OUA0026													1b													
Saline River	8040204	-001	2C	2.80	e	x																	4a								UN
Saline River	8040204	-002	2C	53.00	e	x																	4a								UN
Saline River	8040204	-004	2C	16.40	e	x																	4a								UN
Big Creek	8040204	-005	2C	28.90	OUA0043										4a												x				
Saline River	8040204	-006	2C	17.50	OUA0118	x																	4a								UN
Ouachita River	8040202	-002	2D	4.00	OUA008B	x																	4a								UN
Ouachita River	8040202	-003	2D	8.40	e	x																	4a								UN
Ouachita River	8040202	-004	2D	28.90	OUA0124B	x																	4a								UN
Moro Creek	8040201	-001	2D	12.00	OUA0028	x									4a								4a					x			UN
Moro Creek	8040201	-901	2D	57.90	e - OUA0028										4a													x			
Ouachita River	8040201	-002	2D	22.50	OUA008B	x																	4a								UN
Ouachita River	8040201	-004	2D	2.50	OUA0037	x																	4a								UN
L. Champagnolle Cr.	8040201	-903	2D	20.90	e	x																	4a								UN
Champagnolle	8040201	-003	2D	20.00	UWCHC01	x																	4a								UN
Elcc Tributary	8040201	-606	2D	8.50	OUA0137A+		x									4a	4a	4a						AM		x					
Flat Creek	8040201	-706	2D	16.00	OUA0137C		x									4a	4a	4a													RE
Salt Creek	8040201	-806	2D	8.00	OUA0137D		x			x						4a		4a													R

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment													Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
																															E
Big Cornie Creek	8040206	-015	2E	15.00	OUA0002												1b														
Little Cornie Creek	8040206	-016	2E	18.00	e-OUA0002												1b														
Little Cornie Creek	8040206	-716	2E	5.00	e-OUA0002												1b														
Little Cornie Creek	8040206	-816	2E	3.00	e-OUA0002												1b														
Walker Branch	8040206	-916	2E	3.00	e-OUA0002												1b														
Prairie Creek	8040101	-048	2F	10.00	OUA0040										4a												x				
Caddo River	8040102	-019	2F	7.70	OUA0023															1b		1b									RE
Caddo River	8040102	-018	2F	4.10	OUA0023															1b		1b									RE
Caddo River	8040102	-016	2F	13.50	OUA0023															1b		1b									RE
Caddo River, S Fk	8040102	-023	2F	16.60	OUA0044; A; B															1b		1b									
Wabbaseka Bayou	8020401	-003	3A	101.70	UWWSB01										4a																
Cadron Creek	11110205	-011	3D	2.20	UWCCR01										4a																
Cadron Creek	11110205	-012	3D	9.50	UWCCR01										4a																
Fourche LaFave	11110206	-002	3E	8.70	e	x																	4a								UN
White Oak Creek	11110203	-927	3F	10.00	ARK0053		x								4a																UN
Stone Dam Creek	11110203	-904	3F	3.00	ARK0051		x			x														AM	NO_3		x				
Whig Creek	11110203	-931	3F	10.00	ARK0067		x			x										1b					NO_3		x				
Mulberry River	11110201	-007	3H	6.40	ARK0061								4a																		
Mulberry River	11110201	-008	3H	27.20	ARK0139								4a																		
Mulberry River	11110201	-009	3H	9.10	ARK0138								4a																		
Little Mulberry Creek	11110201	-012	3H	17.40	ARK0143								4a																		
Friley Creek	11110201	-912	3H	7.20	ARK0144								4a																		
Poteau River	11110105	-001	3I	2.00	ARK0014		x								4a													x			
Poteau River near Waldron	11110105	-031	3I	6.60	ARK0055		x													1b		1b		TP		x	x				
Clear Creek	11110103	-029	3J	1.50	ARK0010C														4a												

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment														Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
Town Branch	11070208	-903	3J	3.00	ARK0056; UWTBC01																			4a	T P						
Cache River Ditch	8020302	-032	4B	11.40	e - UWCHR04		x								4a														x		
Cache River	8020302	-031	4B	3.40	e - UWCHR04		x								4a														x		
Cache River	8020302	-029	4B	3.90	e - UWCHR04		x								4a														x		
Cache River	8020302	-028	4B	5.90	UWCHR04		x								4a														x		
Cache River	8020302	-027	4B	3.90	e - UWCHR04		x								4a														x		
Cache River	8020302	-021	4B	18.40	e - UWCHR02										1b																
Cache River	8020302	-020	4B	22.60	UWCHR03										1b																
Cache River	8020302	-019	4B	13.70	e - UWCHR02										1b																
Cache River	8020302	-018	4B	25.00	UWCHR02										1b																
Cache River	8020302	-017	4B	15.80	e - UWCHR02										1b																
Cache River	8020302	-016	4B	21.80	WHI0032										1b																
Bayou DeView	8020302	-004	4B	21.20	UWBDV02										1b																
Bayou DeView	8020302	-005	4B	8.60	e - UWBDV02										1b																
Bayou DeView	8020302	-006	4B	10.20	e - UWBDV02										1b																
Bayou DeView	8020302	-007	4B	18.20	e - UWBDV02										1b																
Bayou DeView	8020302	-009	4B	11.70	WHI0026										4a																
Village Creek	11010013	-006	4C	25.20	UWVGC01; UWVGC03										4a																
Village Creek	11010013	-007	4C	1.20	e										4a																
Village Creek	11010013	-008	4C	13.00	e										4a																
Village Creek	11010013	-012	4C	7.40	e										4a																
Village Creek	11010013	-014	4C	22.80	UWVGC02										4a																
Cypress Bayou	8020301	-010	4D	5.00	UWCPB01			x											4a												
Cypress Bayou	8020301	-011	4D	9.50	e - UWCPB01			x											4a												
Cypress Bayou	8020301	-012	4D	17.50	e - UWCPB02			x											4a												
S. Fk. L. Red River	11010014	-036	4E	2.00	e	x																	4a								U N
M. Fk. Little Red	11010014	-028	4E	12.00	e			x											4a												U N

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment														Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
M. Fk. Little Red	11010014	-027	4E	8.80	WHI0043			x											4a												UN
Ten Mile Creek	11010014	-009	4E	18.60	UWTMC01			x							4a				4a												
Little Red River	11010014	-007	4E	21.40	WHI0059			x											4a												
Little Red River	11010014	-008	4E	9.00	e - WHI0059			x											4a												
Little Red River	11010014	-010	4E	2.90	e - WHI0059			x											4a												
Little Red River	11010014	-012	4E	8.00	e - WHI0059			x											4a												
Overflow Creek	11010014	-004	4E	0.60	e - UWOFC01			x											4a												
Overflow Creek	11010014	-006	4E	21.70	UWOFC01			x											4a												
South Fork Little Red River	11010014	-038	4E	14.70	UWSRR01; UWSRR02; WHI0190														1b												
North Fork River	11010006	-001	4F	4.20	USGS							1b																			HP
Hicks Creek	11010004	-015	4F	9.1	WHI0065																			NO3		x					UN
Strawberry River	11010012	-011	4G	20.40	UWSBR01		x								4a				4a									x			
L. Strawberry River	11010012	-010	4G	16.00	WHI0143H+		x								1b				4a									x			
Strawberry River	11010012	-009	4G	28.40	UWSBR02		x								1b													x			
Strawberry River	11010012	-008	4G	8.40	e-WHI0024		x								4a													x			
Strawberry River	11010012	-006	4G	19.00	WHI0024		x								4a													x			
Strawberry River	11010012	-005	4G	0.70	e - UWSBR03		x								4a													x			
Strawberry River	11010012	-004	4G	0.30	e - UWSBR03		x								4a													x			
Caney Creek	11010012	-015	4G	11.60	WHI0143Q; WHI0143R														4a												
Cooper Creek	11010012	-003	4G	11.80	WHI0143S														4a												
Dota Creek	11010009	-902	4G	21.80	WHI0165														4a												
Mill Creek	11010012	-016	4G	9.90	WHI00143N														4a												

Table IV-3: Water Quality Limited Waterbodies-Streams (Category 1b and 4a) - 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment														Source of Contamination					
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Hg	Other	Other	IP	MP	SE	AG	UR	Other
Reeds' Creek	11010012	-014	4G	15.00	UWRDC01														4a												
White River	11010003	-902	4I	3.00	WHI0047/USGS							1b																			HP
West Fork	11010001	-024	4K	27.20	WHI0051		x								4a													x			
White River	11010001	-023	4K	6.20	WHI0052		x								4a													x			
Town Branch	11010001	-959	4K	0.50	UAA (TB2)																				NO3	x	x				
Holman Creek	11010001	-059	4K	1.80	WHI0070																				NO3	x	x				
Osage Creek Near Berryville	11010001	-945	4K	5.00	BUFET008; WHI0065; WHI0069; WHI0130																				TP						
Blackfish Bayou	8020203	-003	5A	2.40	e - FRA0027		x								4a														x		
Blackfish Bayou	8020203	-005	5A	2.60	e - FRA0027		x								4a														x		
Blackfish Bayou	8020203	-007	5A	16.10	FRA0027		x								4a														x		
Tyrnoza River	8020203	-012	5A	35.20	FRA0033										4a																
Tyrnoza River	8020203	-909	5A	15.10	FRA0032										4a																
Tyrnoza River	8020203	-912	5A	4.60	e-FRA0033										4a																
L'Anguille River	8020205	-001	5B	19.70	FRA0010		x								4a														x		
L'Anguille River	8020205	-002	5B	16.80	e - FRA0010		x								4a														x		
L'Anguille River	8020205	-003	5B	1.80	e - FRA0011		x								4a														x		
L'Anguille River	8020205	-004	5B	16.00	UWLGR01			x							1b				4a										x		
L'Anguille River	8020205	-005	5B	44.10	UWLGR02		x	x							4a				4a										x		

Table IV-4: Water Quality Limited Waters – Streams (Category 5) – 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Non-Support						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	Other	
Little Bodcau Creek	11140205	-010	1A	19.5	RED0056		x					x																	UN	L
Red River	11140106	-025	1B	8.0	e - RED0025						x				x											x					L
Red River	11140106	-005	1B	25.3	RED0025						x				x											x					L
Red River	11140106	-003	1B	9.8	e - RED0025						x				x											x					L
Red River	11140106	-001	1B	34.8	e - RED0025						x				x											x					L
Red River	11140201	-011	1B	15.2	RED0046						x				x											x					L
Bois D'Arc Creek	11140201	-008	1B	8.9	UWBDK02							x																	UN	L
Bois D'Arc Creek	11140201	-009	1B	20.4	UWBDK01							x																	UN	L
Mine Creek	11140109	-033	1C	11.4	MIN0002												x							x						L
Mine Creek, upper	11140109	-934	1C	9.1	MIN0001; RED0048 B													x						x						L
Little River	11140109	-001	1C	4.0	report									x															UN	L
Rolling Fork Creek below Tyson Grannis	11140109	-919	1C	2.5	RED0058												x							x						L
Holly Creek	11140109	-013	1C	6.2	RED0034 B		x					x																	UN	
Mountain Fork	11140108	-014	1D	11.0	RED0001									x	x														UN	L
Bayou Macon	8050002	-003	2A	80.5	UWBYM01											x													UN	L
Bayou Macon	8050002	-006	2A	38.6	e - UWBYM01											x													UN	
Chemin-A-Haut Cr.	8040205	-907	2B	30.5	OUA0012		x					x																	UN	L
Main Street Ditch	8040205	-909	2B	2.0	OUA0146		x	x				x							x		x							x		L
Harding Creek	8040205	-902	2B	4.6	OUA0145		x														x							x		L
Bayou Imbeau	8040205	-910	2B	7.5	OUA0147		x	x				x							x		x							x		L
Able's Creek	8040205	-911	2B	14.6	OUA0158										x														UN	L
Bearhouse Creek	8040205	-901	2B	24.4	OUA0155		x					x																	UN	L
Bayou Bartholomew	8040205	-013	2B	33.9	UWBYB03							x															x			L
Bayou Bartholomew	8040205	-006	2B	82.3	OUA0033																x								UN	L
Cross Bayou	8040205	-905	2B	2.4	OUA0152							x																	UN	L
Overflow Creek	8040205	-908	2B	9.9	OUA0012 A		x								x	x										x				L

Table IV-4: Water Quality Limited Waters – Streams (Category 5) – 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Non-Support						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	Other	
Saline River	8040203	-009	2C	15.6	e - OUA0042										x														UN	M
Saline River	8040203	-007	2C	3.8	OUA0042										x														UN	M
Alum Fk. Saline River	8040203	-018	2C	10	USGS								x																UN	M
Smackover Creek	8040201	-007	2D	29.1	e - OUA0027							x									x								UN	L
Smackover Creek	8040201	-006	2D	14.8	OUA0027							x									x								UN	L
Salt Creek	8040201	-806	2D	8.0	OUA0137 D		x						x																UN	H
Elcc Tributary	8040201	-606	2D	8.5	OUA0137 A		x						x							x			NO3	x						H
E. Two Bayou	8040201	-905	2D	30.7	OUA0052 B			x					x						x										UN	L
Moro Creek	8040201	-001	2D	12.0	OUA0028		x														x								UN	L
Moro Creek	8040201	-901	2D	57.9	e - OUA0028		x														x								UN	L
Bayou De L'outre	8040202	-008	2D	10.6	e - OUA0005, UAA		x			x		x					x	x			x	x	Se	x						H
Bayou De L'outre	8040202	-007	2D	6.9	e - OUA0005		x			x		x					x	x			x	x		x						H
Bayou De L'outre	8040202	-006	2D	32.4	OUA0005		x			x		x					x	x			x	x		x						H
Loutre Creek	8040202	-909	2D	3.3	OUA0138; UAA		x			x						x	x	x					Se	x						H
Big Corney Creek	8040206	-015	2E	15.0	OUA0002										x														UN	L
Chamberlain Creek	8040102	-971	2F	2.5	OUA0104 OUA0171 A		x			x	x		x				x	x				x	Al, Be, Tox	x					RE	H
Cove Creek	8040102	-970	2F	3.6	Toxicity samples																		Tox						RE	H
Lucinda Creek	8040102	-975	2F	2.2	OUA0171 B		x						x																RE	H
Cove Creek	8040102	-976	2F	3.6	OUA0171 C							x	x																UN	H
Prairie Creek	8040101	-048	2F	7.5	OUA0040							x																	UN	M
Wilson Creek	8040101	-901	2F	2.2	UAA												x												UN	H
Indian Springs Creek	8040101	-902	2F	1.5	OUA0184 A; B; C; D; UAA							x					x	x											UN	H
Terre Noir Creek	8040103	-003	2G	19.6	UWTNO01								x																UN	L

Table IV-4: Water Quality Limited Waters – Streams (Category 5) – 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Non-Support						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	Other	
Terre Noir Creek	8040103	-002	2G	27.4	UWTNR02								x																UN	L
Terre Rouge Creek	8040103	-031	2G	14.5	UWTRC01										x											x				L
Arkansas River	8020401	-001	3A	35.1	ARK0020							x																	UN	L
Wabbaseka Bayou	8020401	-003	3A	35.4	UWWSB01		x					x																	UN	L
Bayou Meto	8020402	-001	3B	4.3	e - ARK0023		x					x																	UN	L
Bayou Meto	8020402	-003	3B	39.8	ARK0023		x					x																	UN	L
Bayou Two Prairie	8040202	-006	3B	5.4	e - ARK0097							x																	UN	L
Bayou Two Prairie	8040202	-106	3B	1.7	e - ARK0097							x																	UN	L
Bayou Two Prairie	8040202	-206	3B	17.2	ARK0097							x																	UN	L
Bayou Two Prairie	8040202	-306	3B	43.5	e - ARK0097							x																	UN	L
Bayou Meto	8020402	-907	3B	12.3	ARK0060		x					x			x														UN	L
Bayou Meto	8020402	-007	3B	44.8	ARK0050		x					x					x	x					PO	x						H
Fourche Creek	11110207	-024	3C	11.2	ARK0130; ARK0159; ARK0147E, F, G, H							x																	UN	L
Fourche Creek	11110207	-022	3C	9.2	ARK0131; ARK0147A, B, C, D							x		x	x											x				L
White Oak Bayou	11110207	-912	3C	17.9	ARK0162B							x	x							x	x								UN	L
Cadron Creek, E Fk	11110205	-005	3D	30.7	ARK0163; UWEFC02							x																	UN	L
Cadron Creek	11110205	-014	3D	14.7	ARK0164							x																	UN	L
E. Fork Cadron Creek	11110205	-002	3D	15.6	ARK0158; UWEFC01							x			x											x				L
N. Fork Cadron Creek	11110205	-015	3D	26.5	UWNCC02							x																	UN	L
Fourche LaFave R.	11110206	-008	3E	25.7	UWFLR01							x	x	x															UN	L
Fourche LaFave R.	11110206	-001	3E	44.4	ARK0036							x																	UN	L

Table IV-4: Water Quality Limited Waters – Streams (Category 5) – 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Non-Support						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	Other	
S. Fourche LaFave R.	11110206	-014	3E	26.1	ARK0052							x		x															UN	L
Stone Dam Creek	11110203	-904	3F	3.0	ARK0051							x						x											UN	L
W. Fk.Point Remove	11110203	-017	3F	14.4	ANRC										x														UN	L
W. Fk. Point Remove	11110203	-016	3F	3.3	ANRC										x														UN	L
E. Fk Point Remove	11110203	-014	3F	20.9	ANRC										x														UN	L
Whig Creek	11110203	-931	3F	10.0	ARK0067							x											NH4		x				UN	L
Chickalah Creek	11110204	-002	3G	19.3	ARK0058							x																	UN	L
Petit Jean River	11110204	-011	3G	21.6	ARK0034		x								x											x				L
Poteau River	11110105	-001	3I	2.0	ARK0014		x					x																	UN	L
Poteau River	11110105	-031	3I	6.6	ARK0055, UAA										x	x	x	x						x	x					M
Poteau River	11110105	-731	3I	12.1	ARK0054; ARK0100										x														UN	L
Unnamed Tributary to Poteau	11110105	-831	3I	1.9	UAA											x		x											UN	L
Illinois River	11110103	-020	3J	1.6	ARK0006; ILL0007											x	x												UN	L
Illinois River	11110103	-023	3J	8.1	ILL04			x											x								x			L
Muddy Fork Illinois River	11110103	-025	3J	3.2	MFI0004			x											x								x			L
Moores Creek	11110103	-026	3J	9.8	ARK0096												x		x										UN	L
Muddy Creek	11110103	-027	3J	11.0	MFI002B												x		x										UN	L
Illinois River	11110103	-024	3J	2.5	ARK0040			x								x	x		x								x			L
Sager Creek	11110103	-932	3J	8.0	ARK0005																		NO3		x					H
Big Creek	8020304	-010	4A	34.3	UWBGC03											x		x									x			L
Boat Gunwale Slash	8020304	-914	4A	5.0	WHI0074							x																	UN	L
Prairie Cypress	8020304	-014	4A	26.1	WHI0073							x								x									UN	L
White River	8020303	-005	4A	46.6	WHI0036; WHI0086							x																	UN	L

Table IV-4: Water Quality Limited Waters – Streams (Category 5) – 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Non-Support						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	Other	
Cache River	8020302	-016	4B	21.8	WHI0032		x					x									x						x			L
Bayou DeView (Cow Ditch)	8020302	-012	4B	19.2	ANRC							x																	UN	L
Bayou DeView	8020302	-007	4B	18.2	e - UWBDV02		x					x					x										x			L
Bayou DeView	8020302	-006	4B	10.2	e - UWBDV02		x					x					x										x			L
Bayou DeView	8020302	-005	4B	8.6	e - UWBDV02		x					x					x										x			L
Bayou DeView	8020302	-004	4B	21.2	UWBDV02		x					x					x										x			L
Bayou DeView	8020302	-002	4B	13.7	WHI0033		x					x																	UN	L
Buffalo Creek	8020302	-014	4B	13.1	ANRC							x																	UN	L
Caney Creek	8020302	-903	4B		ANRC							x																	UN	L
Lost Creek Ditch	8020302	-909	4B	7.9	WHI0172		x					x				x								x	x					L
Big Creek Ditch	8020302	-910	4B	13.0	WHI0196		x													x									UN	L
Departee Creek	11010013	-020	4C	46.1	UWDTC01		x					x				x						x					x			L
Glaise Creek	11010013	-021	4C	30.1	UWGSC01		x					x										x					x			L
Village Creek	11010013	-008	4C	13.0	e							x																	UN	L
Village Creek	11010013	-007	4C	1.2	e - UWVGC01 ; UWVGC03							x																	UN	L
Village Creek	11010013	-006	4C	25.2	UWVGC01 , UWVGC03							x																	UN	L
Village Creek	11010013	-014	4C	22.8	UWVGC02									x															UN	L
Wattensaw Bayou	8020301	-015	4D	48.2	WHI0072							x																	UN	L
Cypress Bayou	8020301	-010	4D	5.0	UWCPB01		x					x															x			L
Bull Creek	8020301	-009	4D	29.0	UWBLB01		x					x										x					x			L
Bayou Des Arc	8020301	-007	4D	36.4	UWBDA01		x					x															x			L
Bayou Des Arc	8020301	-006	4D	17.8	WHI0056		x					x			x												x		UN	L
Greenbrier Creek	11010004	-017	4F	10.6	WHI0167		x	x				x							x										UN	L
Hicks Creek	11010004	-015	4F	9.1	WHI0065			x											x										UN	L
Fourche River	11010009	-008	4G	25.0	WHI0170		x								x											x				L
Crooked Creek	11010003	-049	4I	19.1	UWCKC01													x											UN	L

Table IV-4: Water Quality Limited Waters – Streams (Category 5) – 303(d) List

Stream Name	HUC	Reach	Planning Segment	Miles	Monitoring Station	Designated Use Non-Support						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	Other	
Crooked Creek	11010003	-949	4I	17.1	WHI0066; WHI0067													x											UN	L
Bear Creek	11010005	-026	4J	23.9	UWBRK01 +					x								x							x					L
Trib to Holman Creek (Town Branch)	11010001	-959	4K	0.5	UAA (TB2)													x						x	x					L
Holman Creek	11010001	-059	4K	1.8	WHI0070					x								x						x	x					L
Kings River	11010001	-037	4K	19.1	WHI0009A												x	x											UN	L
White River	11010001	-023	4K	6.2	WHI0052, BWD, UAA												x	x											UN	L
West Fork	11010001	-024	4K	27.2	WHI0051, UAA		x										x	x											UN	L
St. Francis River	8020203	-009	5A	17.1	e - FRA0013							x				x													UN	L
St. Francis River	8020203	-008	5A	55.9	FRA0013							x				x											x			L
Ten Mile Bayou	8020203	-906	5A	17.3	FRA0029		x					x																	UN	L
Tyronza River	8020203	-909	5A	34.3	FRA0032										x														UN	L
Caney Creek	8020205	-901	5B	9.0	FRA0034							x													x				UN	L
Second Creek	8020205	-008	5B	16.4	FRA0012		x					x															x			L
L' Anguille River	8020205	-005	5B	44.1	UWLGR02		x					x				x	x	x									x			L
L' Anguille River	8020205	-004	5B	16.0	UWLGR01		x					x				x	x	x									x			L
First Creek	8020205	-007	5B	227.9	FRA0030							x																	UN	L
L' Anguille River	8020205	-003	5B	16.8	e - FRA0010		x					x				x		x									x			L
L' Anguille River	8020205	-002	5B	1.8	e - FRA0010		x					x				x		x									x			L
L' Anguille River	8020205	-001	5B	19.7	FRA0010		x					x				x		x									x			L
Prairie Creek	8020205	-902	5B	12.8	FRA0035													x									x			L
Little River, Left	8020204	-001	5C	20.3	FRA0037							x																	UN	L
Little River, Left	8020204	-002	5C	50.8	e - FRA0037							x																	UN	L

Table IV - 5: Water Quality Limited Waterbodies – Lakes (Category 1b and 4a) – 303(d) List

Lake Name	HUC	Lake Type	Planning Segment	Acres	County	Assessment Methodology	Designated Use Not Supported						SOURCE			CAUSE			TMDL Date	Year Listed
							FC	FSH	PC	SC	DW	AI	1	2	3	1	2	3		
Columbia	11140203	E	1A	3000	Columbia	M	4a						UN			HG			2002	2002
First Old River	11140201	D	1B	240	Miller	M		4a					UN			NU			2007	2004
Grand	8050002	E	2A	900	Chicot	M		4a					UN			NU			2007	2004
Grays	8040204	NC	2C	36	Cleveland	M	4a						UN			HG			2004	2002
Monticello	8040204	B	2C	1520	Drew	M	1b						UN			HG			2004	2002
Winona	8040203	A	2C	715	Saline	M	4a						UN			HG			2002	2002
Ouachita River Oxbows below Camden	8040202		2D		Ashley Calhoun Union Bradley Ouachita	M	4a						UN			HG			2002	2002
Big Johnson	8040201	NC	2D	49	Calhoun	M	4a						UN			HG			2004	2002
Felsenthal	8040202	E	2D	14,000	Union Ashley	M	4a						UN			HG			2004	2002
Cove Creek	11110202	B	3H	42	Perry	M	4a						UN			HG			2002	2002
Nimrod	11110206	E	3E	3550	Yell	M	4a						UN			HG			2002	2002
Dry Fork	11110206		3E	90	Perry	M	4a						UN			HG			2002	2002
Horseshoe	8020203	E	5A	1200	Crittenden	M		4a					UN			NU			2007	2004
Frierson	8020302	C	4B	335	Greene	M		4a					UN			SI			2007	2004
Johnson Hole	11010014	A	4E	26	Van Buren	M	4a						UN			HG			2002	2002
Spring	11110204	B	3G	82	Yell	M	4a						UN			HG			2004	2002
Old Town	8020302	D	4A	900	Phillips	M		4a					UN			NU			2007	2004
Bear Creek	8020203	C	5A	625	Lee	M		4a					UN			NU			2007	2004
Mallard	8020204	D	5C	300	Mississippi	M		4a					UN			NU			2007	2004

Table IV - 6: Water Quality Limited Waterbodies – Lakes (Category 5) - 303(d) List

Lake Name	HUC	Lake Type	Planning Segment	Acres	Monitoring Station	Designated Use Not Supported						Water Quality Standard Non-Attainment												Source of Contamination						Priority
						FC	FSH	PC	SC	DW	AI	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other	IP	MP	SE	AG	UR	UN	
Cox Creek	8040203	C	2C	300	LOUA021A								x																x	L
Pickthorne	8020402	D	3B	350	Ark G&F		x																UN						x	
Rodgers	8020402	C	3B	560	LARK027A							x																	x	L
Saracen	11110207	D	3C	500	LARK026A	x																	PCB	x						L
Blue Mountian	11110204	E	3G	2910	LARK028A+B		x								x											x				L
Swepco	11110103	B	3J	531	LARK009A		x																UN						x	L
Frierson	8020302	C	4B	335	LWHI002A		x													x									x	L
Beaver - Upper	1101001	A	4K	1500	LWHI013B			x							x				x							x				H

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PART V GROUNDWATER ASSESSMENT

Introduction

Section 106(e) of the CWA specifies that each state monitor the quality of its groundwater resources and report results to Congress on a biennial basis in its state 305(b) report. The Department has sampled all major fresh-water aquifers per the EPA goal of reporting groundwater quality for specific aquifers or hydrologic setting. This section of the report consists of (1) a summary of State groundwater protection programs and (2) a listing of the major sources of groundwater contamination in the State.

The following is a combination of information from the previous report and new information since the last publication of the Arkansas Water Quality Inventory Report. Specifically, activities from the last quarter of State FY 2008 2010 through the third quarter of State FY 2013 2015 (March 31, 2013) is included; activities prior to April 1, 2008 2010 have been omitted. Due to the three year rotational period for the monitoring areas, and for completeness of major program changes in other areas in the last five years, the present report may include information also provided in the last report.

Overview

Shallow fresh water aquifer systems are found throughout Arkansas, and supply high quality groundwater for a wide range of uses including industrial, municipal, agricultural, and domestic. Groundwater is one of the most important water supply sources in Arkansas and accounts for approximately 60 percent of the total water use in the state. Most all of the surficial aquifers supply water of good to very good quality, ranging from calcium-bicarbonate to sodium-bicarbonate water types. Localized areas of poor water quality result from both natural and anthropogenic effects. Natural sources of contamination are typically regional in extent and are related to water-rock interactions, whereas the anthropogenic effects are more localized, including both point and nonpoint sources of contamination. Nonpoint sources do affect larger areas, but contaminant concentrations are typically much lower than those resulting from point sources and the contaminants are normally soluble, non-reactive constituents. Point sources of contamination often result in elevated concentrations of contaminants above federal Maximum Contaminant Level (MCL); however, the extent of contamination normally is confined to a small area with little to no offsite migration or contact with receptors.

Groundwater in Arkansas occurs in two general geologic settings, distributed among five major physiographic regions of the State: Ozark Plateaus, Arkansas River Valley, Ouachita Mountains, West Gulf Coastal Plain, and Mississippi River Alluvial Plain. The aquifer systems in eastern Arkansas (West Gulf Coastal Plain and the Mississippi River Alluvial Plain) are mainly composed of alternating sequences of gravel, sand, silt, and clay, which form both confining layers and aquifers. The main aquifer systems are located in the Quaternary deposits (the

Alluvial aquifer), the Cockfield Formation, the Sparta Formation, the Wilcox Group, the Nacatoch Sand, and the Tokio Formation (Table V-1). The Alluvial aquifer and the Sparta aquifer supply most of the groundwater used in the state. The thickness of the alluvial aquifer ranges from approximately 50 to 150 feet, and is used mainly for irrigation. It is often able to yield up to 1700 gallons per minute (gpm) to a well. The Sparta aquifer is used mainly for municipal and industrial supply, although declining levels in the alluvial aquifer in some areas have resulted in increasing exploitation of the underlying Sparta aquifer for irrigation.

Three aquifers which comprise the Ozark Plateaus Aquifer System are located in northern Arkansas (Table V-2). The Springfield Plateau aquifer is generally under unconfined conditions, with groundwater movement occurring through fractures and solution cavities formed by dissolution of carbonate rock. Local discharge is to springs and streams. The Ozark aquifer is generally under confined conditions, especially where overlain by the units of the Ozark Confining Unit (Chattanooga Shale). Most wells in the Springfield Plateau and upper units in the Ozark aquifer yield 5-10 gpm on the average, with yields greater than 25 gpm in rare cases. The Roubidoux Formation and the Gunter Sandstone Member of the Gasconade Formation in northern Arkansas constitute the only significant deep aquifer system in the Ozarks. They are used mainly for municipal supply systems where surface water sources are unavailable or unreliable. These units may yield up to 500 gpm to wells that are completed in both zones.

Table V-1: Generalized Stratigraphic Column of the Gulf Coastal Plain of Southern and Eastern Arkansas (modified from Haley et al., 1993).

ERA	SYSTEM	SERIES	GROUP	FORMATION
Cenozoic	Quaternary	Holocene & Pleistocene		Alluvium & Terrace Deposits *
	Tertiary	Eocene	Jackson	Undifferentiated
			Claiborne	Cockfield Formation *
				Cook Mountain Formation
				Sparta and Memphis Sand *
				Cane River Formation
				Carrizo Sand
		Paleocene	Wilcox	Undifferentiated *
			Midway	Undifferentiated
Mesozoic	Cretaceous	Upper Cretaceous		Arkadelphia Marl
				Nacatoch Sand *
				Tokio Formation *
				Undifferentiated
Paleozoic	Undifferentiated	Undifferentiated		Undifferentiated

(* denotes major aquifers)

Table V-2: Generalized Stratigraphic Units in Northern Arkansas with Corresponding Geohydrologic Units (modified from Imes and Emmett, 1994).

ERA	SYSTEM	FORMATION	GEOHYDROLOGIC UNIT	GEOHYDROLOGIC SYSTEM
Paleozoic	Pennsylvanian	Atoka Formation Bloyd Formation Hale Formation		Western Interior Plains Confining System
	Mississippian	Pitkin Limestone Fayetteville Shale Batesville Sandstone Moorefield Formation		
		Boone Formation St. Joe Limestone Member	Springfield Plateau Aquifer	Ozark Plateaus Aquifer System
		Chattanooga Shale	Ozark Confining Unit	
	Devonian	Clifty Limestone Penters Chert	Ozark Aquifer	
	Silurian	Lafferty Limestone St.Clair Limestone Brassfield Limestone		
	Ordovician	Cason Shale Fernvale Limestone Kimmswick Limestone Plattin Limestone Joachim Dolomite St. Peter Sandstone Everton Formation Smithville Formation Powell Dolomite Cotter Dolomite Jefferson City Dolomite Roubidoux Formation Gasconade Dolomite Van Buren Formation Gunter Sandstone Member		
	Cambrian	Eminence Dolomite Potosi Dolomite		
		Doe Run Dolomite Derby Dolomite Davis Formation	St. Francois Confining Unit	
		Bonneterre Dolomite Regan Sandstone Lamotte Sandstone	St. Francois Aquifer	

The Western Interior Highlands (Arkansas River Valley and Ouachita Mountains) are underlain by thick sequences of consolidated rocks of mostly Paleozoic age consisting generally of sandstones, shale, and novaculite (Table V-3). Groundwater in these units occurs primarily in fractures and joints, and is used both for domestic and municipal supplies. Wells throughout western Arkansas average about 150 feet in depth and normally produce less than 10 gpm.

Table V-3: Generalized Stratigraphic Column of the Arkansas River Valley and Ouachita Mountain Region. (modified from Haley et al., 1993)

ERA	SYSTEM	FORMATION
Cenozoic	Quaternary	Alluvium & Terrace Deposits
Paleozoic	Pennsylvanian	Boggy Formation Savanna Formation McAlester Formation Hartshorne Sandstone Atoka Formation Johns Valley Shale Jackfork Sandstone
	Mississippian	Stanley Shale
	Devonian	Arkansas Novaculite
	Silurian	Missouri Mountain Shale Blaylock Sandstone
	Ordovician	Polk Creek Shale Big Fork Chert Womble Shale Blakely Sandstone Mazarn Shale Crystal Mountain Sandstone Collier Shale

Groundwater Availability and Use

Groundwater use in Arkansas has more than doubled since 1985; the increased demand has resulted in water-level declines in many areas of the State. Act 154 of 1991, allows designation of "critical" groundwater areas based on indicators of groundwater depletion, and authorizes regulation of usage. Recent policy changes place an increased emphasis on the achievement of sustainable yield of all the State's aquifers. Determination of sustainable yield is established by the ANRC as part of a joint project with the USGS Arkansas Water Science Center in Little Rock.

Beginning in 1995, the Sparta aquifer beneath a five-county area in south Arkansas was designated as a critical groundwater area by the ANRC, then in 1998, they designated a second

area in eastern and central Arkansas 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, including the Cache and St. Francis study areas in northeast Arkansas and the Boeuf-Tensas study area in southeast Arkansas.

Information used to evaluate water-level trends in the various aquifers is based on a water-level monitoring measurement network maintained under cooperative agreements between the ANRC, USGS, the Arkansas Geological Survey (AGS), and the Natural Resources Conservation Service (NRCS). Through this process, over 1500 measurements are collected annually, and trends in water-level changes are used in evaluating potential critical use areas within the State.

Water use registration for all wells capable of producing 50,000 gallons per day has been required since 1985 along with an annual water use registration fee. Arkansas Act 1426 was promulgated in 2001 for the purpose of requiring a properly functioning metering device for any well constructed after September 30, 2001, which withdraws groundwater from a sustaining aquifer. Domestic wells are specifically exempt from the metering requirement. After September 30, 2006 all wells withdrawing groundwater from a sustaining aquifer were required to have a properly functioning meter. Sustaining aquifers include the Sparta, Memphis, Cockfield, Cane River, Carrizo, Wilcox, Nacatoch, Roubidoux and the Gunter aquifers. The Alluvial aquifer is not considered a sustaining aquifer. Based on sustainable yield estimates produced by groundwater modeling at the USGS Water Science Center in Little Rock, the ANRC is considering formal recommendation of sustainable yield for the Sparta/Memphis Aquifer in eastern and southern Arkansas.

The greatest water quantity issue in Arkansas is the extensive use of the Alluvial aquifer (primarily for irrigation purposes) and the Sparta aquifer (primarily for municipal and industrial supply) in eastern Arkansas. While both have historically provided abundant water, neither can sustain the current withdrawal rates indefinitely. Although the amount of water withdrawn annually from the Sparta aquifer is much less than what is withdrawn from the Alluvial aquifer, its coefficient of storage (or "storativity" that describes the amount of water released from an aquifer per unit volume) is several orders of magnitude smaller than that of the Alluvial aquifer. Thus, a much larger volume of the Sparta is dewatered compared to the alluvial aquifer in obtaining an equal volume of water. The alluvial aquiver yields around 3000 times more water per unit volume than the Sparta does, thus the drawdown from pumping at a given rate from the Sparta aquifer extends much farther than pumping at the same rate from the alluvial aquifer does.

In response to high usage rates, water levels have declined substantially in both aquifers. Large "cones of depression" have developed across broad areas. Individual cones of depression have coalesced into larger cones, eventually forming depressions of regional scale. In this way, extensive water-level declines have occurred in the Sparta, due to water being withdrawn at higher rates than the lateral recharge replenishes it. The Sparta cannot sustain the current rates of

withdrawals, and certainly not the accelerating rates of withdrawal observed in many areas. The effect of increased pumping will be especially evident where high-volume agricultural users tap the Sparta as a supplemental water source. Where pumping from the Alluvial and Sparta aquifers continues to exceed sustainable rates, water levels will continue to decline and eventually reach a physical limit at which water cannot be produced at the desired rates.

Groundwater - Surface Water Interactions

The subject of interaction of ground and surface water, exemplified by losing and gaining streams, encompasses regulatory, pollution-prevention, and research programs among others. It is considered during development of policies and regulations regarding groundwater, and in groundwater remediation projects. For example, standards for remediation of groundwater contamination at a site (say, treating to the applicable MCLs for drinking water) may be acceptable for the local groundwater use requirements; however, the same concentrations that are acceptable at the remediated site may nevertheless exceed stream standards locally if the groundwater seeps into a stream. Another example is over pumping of groundwater leading to development of a persistent cone of depression, which may then reduce base flow to streams in the area.

Many U of A investigations address surface/groundwater interaction occurring on karst. Many of the flow paths discharge as springs and seeps into nearby streams, and movement of contaminants within the karst aquifer system has a more pronounced effect on both surface and subsurface water quality because of the rapidity and higher degree of groundwater - surface water interaction relative to other geologic settings.

Chapter One PRINCIPAL SOURCES OF CONTAMINATION

Most of the potential and actual sources of groundwater contamination in the State are common to many states, i.e. anthropogenic and natural sources of contamination. Each source varies in its areal extent and in its effect on water quality, making it difficult to state which sources have the greatest effect. For example, a hazardous waste site may severely affect groundwater, with numerous organic contaminants exceeding drinking water standards. However, the areal extent of the contaminant plume may be small, with no known receptors at risk. Conversely, contamination from various land use activities may be widespread, impacting numerous receptors but possibly exhibiting few discernible effects on the usability of the water.

Potential point sources of contamination from disposal sites, underground storage tanks (UST), mining operations, and other activities are regulated under various ADEQ programs; whereas agriculture and other wide-ranging land-use activities commonly are addressed by voluntary activities like education and implementation of BMPs for protection of groundwater. These activities are described in more detail in the section titled "Groundwater Protection Programs."

Nonpoint sources of contamination range from elevated nutrients and bacteria in shallow aquifers in northern Arkansas associated with animal production and septic systems, to low-level pesticide detections in eastern Arkansas associated with row-crop agriculture. Point sources of contamination include landfills, USTs, leaking waste- and process-water storage ponds, industrial facilities, military installations and petroleum storage and transfer sites. Although these sources are responsible for numerous localized groundwater contamination instances, offsite migration of contaminants is infrequent because the flow behavior of organic constituents in the subsurface differs from that of groundwater; plumes stop expanding after the release of contaminants is stopped. However, costs for procuring an alternate water supply for impacted users and total contamination remediation costs can exceed several million dollars at a single site, thus contamination prevention remains the best approach.

In addition to anthropogenic sources of contamination, water quality degradation resulting from natural water-rock interaction ranges from simple TDS and hardness issues related to high concentrations of dissolved calcium and magnesium, to high concentrations of iron related to the dissolution of iron-oxide coatings from the aquifer sediments. Elevated manganese above the MCL (50 µg/L) is frequently noted, for the same reason. Other areas of concern from natural sources include areas of saltwater intrusion (chloride as high as 1000 mg/L) predominantly in southeast Arkansas, though isolated areas of elevated chloride are also found in several locations throughout the Alluvial aquifer in east central Arkansas, probably related to heavy drawdown and/or the depositional environments and local hydrogeologic variables.

Also, naturally-occurring radionuclides (radium) and fluoride above MCLs exist in localized areas of deeper Paleozoic aquifer systems in north central Arkansas; strong reducing conditions that allow mobilization and concentration of these constituents is the putative cause. This

situation is encountered occasionally during development of deep public water supply wells, but due to a paucity of foregoing research and background data, it is difficult to predict and avoid.

Elevated iron and manganese concentrations are ubiquitous throughout the State in the Alluvial aquifer in eastern Arkansas and in the Paleozoic strata in north central Arkansas with the exception of the carbonate aquifers. Dissolved iron and manganese do not present a health hazard, but do cause aesthetic problems (staining, taste, etc.) that can also interfere with industrial applications where high-quality water is often required. Naturally-occurring arsenic concentrations as high as 70 µg/L have been documented in isolated areas of the alluvial aquifer. These excursions are the result of reductive dissolution of iron oxides that were originally co-precipitated along with arsenic and trace metals; these then remobilize when the redox condition of the aquifer becomes reducing.

Nitrate concentrations appear to be increasing in groundwater in northwest and northern Arkansas due to the combination of the predominant land use (e.g. poultry production) and Karst terrain that is more vulnerable to surface water influence. In the Coastal Plain area of the State, groundwater quality monitoring has indicated low concentrations of pesticides due to row-crop agriculture. Finally, brine contamination can also occur due to leaky surface impoundments, corroded well casing, or pre-law disposal to the land surface.

The Safe Drinking Water Act has focused attention on minimizing microbial contaminants in public water supplies; also waterborne disease outbreaks and recent spills upstream of public water intakes have been a cause of national concern. These incidents emphasize the need for effective local source water protection measures, and reinforce the value of adherence to the proven “multiple barrier” approach in water production and treatment.

The ADEQ Office of Water Quality has increased groundwater monitoring requirements during permitting of facilities with potential sources of groundwater contamination. This assists in weighing the effects of sludge application, manure spreading, earthen lagoons, and other potential sources of groundwater contaminants. Office of Water Quality geologists review these permits as required, to better ensure that groundwater is protected beneath these facilities

There are many groundwater protection programs within the State that include both regulatory and voluntary groundwater contamination prevention activities from both point sources and nonpoint sources. Point source prevention programs are almost entirely regulatory programs and are administered by the Department, while the majority of nonpoint sources are related to agriculture and other land-use activities and commonly include joint efforts by several agencies.

Petroleum Tank Program and Enforcement Branch (ADEQ)

The Petroleum Tank Program and Enforcement Branch (Previously Regulated Storage Tanks (RST) Division) within the Office of Land Resources at the Department has program responsibility for implementing the federal underground storage tank (UST) program in Arkansas, and for the cleanup of releases from both regulated USTs and aboveground storage tanks (AST).

During this reporting period, the Petroleum Tank Program and Enforcement Branch experienced significant developments including the following:

Implementation of the division's UST Operator Certification program is required by the Energy Policy Act of 2005. Petroleum Tank Program and Enforcement Branch staff trained and certified over 2,200 UST operators to meet the August 8, 2012, compliance deadline. To accomplish this, the Petroleum Tank Program and Enforcement Branch worked closely with regulated industry to develop a free training video (made available on DVD and through ADEQ's website) and also provided free live training classes in local venues across the state to help operators prepare for the required exam.

Petroleum Tank Program and Enforcement Branch is nearing completion of its second three-year inspection cycle on all UST facilities. The Energy Policy Act also had a significant impact on several other Petroleum Tank Program and Enforcement Branch program areas, especially the three-year inspection cycle, the requirement for secondary containment on new or replaced USTs and piping, and the regulated substances delivery prohibition for noncompliant UST systems. These pollution prevention aspects of the federal UST program are increasingly successful. The number of confirmed releases peaked in the third quarter of 2001, and has been slowly declining since that time. The division recorded a significant operational compliance rate for UST owners of 53 percent as of September 30, 2012.

Claims for reimbursement of corrective action costs from the Arkansas Petroleum Storage Tank Trust Fund continue to increase. In October 2005, the Petroleum Environmental Assurance Fee was increased to 3/10ths of one cent per gallon of motor

fuel or distillate special fuel purchased in or imported into the State in order to help ensure the fund stays financially sound. The trust fund balance as of February 29, 2016, was approximately $22 million, with total estimated obligations (corrective action and third-party) of approximately $12 million.

Underground Injection Control Program (ADEQ)

The Underground Injection Control (UIC) Program regulates disposal of waste waters into appropriate underground reservoirs under authority of Part C of the federal Safe Drinking Water Act (SDWA). Congress passed the SDWA in 1974, requiring the EPA to establish a system of regulations for injection activities. The regulations are designed to establish minimum requirements for controlling all injection activities, to provide mechanisms for implementation and authorization of enforcement authority, and to provide protection of underground sources of drinking water (USDW).

Arkansas was given authority to administer the UIC program as a primacy state in 1982 and is 75 percent funded by a grant from EPA. This primacy authority (primary enforcement authority) allows the Department to regulate Class I, Class III, and Class V wells (excluding bromine-related spent brine disposal wells). The Arkansas Oil and Gas Commission (AOGC) regulates the Class II wells and Class V bromine-related spent-brine disposal wells. Protecting USDWs is accomplished through the issuance of permits, inspections, annual testing, continuous monitoring, and enforcement of the regulations in 40 CFR Parts 124, 144, 145, 146, and 147.

There were 14 Class I injection wells in the State effective April 1, 2008. These wells inject into underground saline fluid-containing formations at depths ranging from 2500 ft to 8800 ft below ground surface. There were four hazardous waste injection wells and ten non-hazardous waste injection wells in existence in Arkansas. Four of the Class I wells (one hazardous and four non-hazardous) were "shut-in" or temporarily abandoned and not injecting. No significant noncompliance or similar violations occurred. All operating wells except one passed their annual mechanical integrity testing (MIT) requirements during the time frame of April 1, 2008 to March 31, 2013. The former Red River Aluminum WDW 1 UIC well has been shut in since December 1998. ADEQ has continued inspecting this well and making sure it is secured. Once the City of Stamps obtains ownership of the Red River Aluminum property, plans are to test and if needed, rework the well for use as a Class II UIC well. Great Lakes Chemical Corporation SWD 1 M at the West Plant was plugged and abandoned according to 40 CFR § 146.10 requirements in September 2012. At present there are 13 Class I UIC wells in Arkansas.

Solid Waste Management (ADEQ)

The Department's Solid Waste Management Section within the Regulated Waste Program of the Office of Land Resources is responsible for regulating disposal of non-hazardous solid waste and handling, processing, recycling, and marketing of recycled materials. Arkansans are provided

with environmentally safe options for solid waste collection and disposal through municipal solid waste landfills, construction landfills, industrial landfills, transfer stations, waste-tire collection facilities, composting facilities and material recycling centers. Department Solid Waste Management staff oversee implementation of Regulation No. 22 solid waste management rules. This regulation governs the State's municipal, industrial, and commercial solid waste programs and was established to protect human health and the environment.

Landfills are a potential point source for groundwater contamination. To reduce groundwater contamination potential, Arkansas regulations require all landfills to:

1) Be built five feet above the seasonal high groundwater level and
2) Have liners to reduce or stop leachate from percolating through the bottom and sides of the landfill.

In addition, landfills which are considered to have a higher potential to impact the environment are required to:

1) Collect their leachate and treat it prior to discharge and
2) Perform groundwater monitoring around the landfill.

These landfills include all municipal solid waste landfills (Class 1) and certain private industrial landfills, depending on the type of waste that is disposed at the private facility. If groundwater around the landfill exceeds Groundwater Protection Standards then corrective action is required.

Solid Waste Management investigates groundwater contamination caused by older, closed landfills. A Post-Closure Trust Fund contains monies to pay for any corrective action needed at the landfills after closure. Currently, design plans have been approved to place a compacted clay cap on C&L Landfill located in Washington County, south of Fayetteville. The cap is to help prevent the generation and release of leachate from the landfill.

Hazardous Waste Management (ADEQ)

The following items are regulatory or policy changes that may impact sites within the State requiring groundwater monitoring, groundwater investigations, and groundwater remediation under the Department's Hazardous Waste Section within the Regulated Waste Program of the Office of Land Resources.

Regulation No. 23

Regulation No. 23, Hazardous Waste Management, was updated, effective September 26, 2011, to include revisions to (1) Requirements for Trans-boundary Shipments of Hazardous Wastes Between OECD Member Countries, Export Shipments of Spent Lead-Acid Batteries, Submitting Exception Reports for Export Shipments of Hazardous Wastes, and Imports of Hazardous

Wastes, and (2) a Hazardous Waste Management System Identification and Listing of Hazardous Waste Final Exclusion to delist specific wastes produced at the Tokusen, Inc. plant in Conway, which otherwise would be considered F006 hazardous wastes.

Regulation No. 23, Hazardous Waste Management, was updated, effective August 12, 2012, to include revisions to the following: 1) Withdrawal of the Emission Comparable Fuel Exclusion, 2) the Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Removal of Saccharin and Its Salts from the Lists of Hazardous Constituents, Hazardous Wastes, and Hazardous Substances, 3) Technical Corrections to the Standards Applicable to Generators of Hazardous Waste; Alternative Requirements for Hazardous Waste Determination and Accumulation of Unwanted Material at Laboratories Owned by Colleges and Universities and Other Eligible Academic Entities Formally Affiliated with Colleges and Universities, 4) Land Disposal Restrictions: Revision of the Treatment Standards for Carbamate Wastes, 5) Hazardous Waste Manifest Printing Specifications Correction Rule, 6) Miscellaneous Technical Corrections under the Burden Reduction Rule.

Regulation No. 30

Regulation No. 30, The Arkansas Remedial Action Trust Fund Hazardous Substance Site Priority List, was proposed to be updated in August 2014. Four sites were proposed for deletion and two sites for listing on the State Priority List. The changes were effective December 2014.

Sites Proposed for Delisting

Arkansas Waste to – Energy Warehouse Site, Osceola, Mississippi County
I Can Inc., Lonoke, Lonoke County
Norphlet Chemical Co., Norphlet, Union County
Thompson Scientific Industries, Scranton, Logan

Site Proposed for Listing

Macmillan Ring Free Oil, Norphlet, Union County
49ers Resource Recovery and Forty-Niner Metals Management LLC, Paragould, Greene County

Regulation No. 32

Regulation 32 was amended to establish cleanup standards for clandestine drug laboratories on April 25, 2008; effective May 26, 2008. No additional changes have been proposed for this regulation.

Department Groundwater Remediation Level Interim Policy and Technical Guidance

The Department has developed an interim Policy for the establishment of groundwater remediation requirements for contaminated sites. This policy will apply to Divisions responsible for the oversight of groundwater remediation within the Department. The purpose of this policy

is to establish consistent methods for establishing groundwater remediation levels regardless of the media Division having principal responsibility for the action.

Until a final regulation is promulgated by the Arkansas Pollution Control and Ecology Commission that is specific to the establishment of groundwater remediation levels, such levels will be established on a case-by-case basis.

Elective Site Cleanup Program

The Department administers an Elective Site Cleanup Program that allows responsible parties to enter into an agreement with the Department to govern the cleanup of sites. The Elective Site Cleanup Program does not offer a release of liability but does offer participants a means to address historic contamination on their site without penalty and with known objectives. The Department is working to promote the Elective Site Cleanup Program in order to maximize cleanups of sites within the State.

Groundwater Contamination Prevention Programs

Wellhead Protection Program (Arkansas Department of Health)

The Arkansas Wellhead Protection Program (WHPP) is designed to prevent contamination of underground sources of water used by Public Water Suppliers (PWS). The WHPP was authorized in the 1986 Amendments to the federal SDWA and assigned to the Public Water Supply Supervision Program (PWSSP) in the Engineering Division of the ADH. Wellhead Protection is a voluntary program maintained by Public Water Systems and local communities with technical assistance and guidance from ADH. A WHPP minimizes the potential for contamination by: 1) identifying the probable area that contributes water to municipal water supply wells, i.e., the Wellhead Protection Area (WHPA)) and 2) implementing protection strategies within each WHPA that will help prevent release of contaminants.

A WHP program consists of three steps: 1) delineating a WHPA for each well or wellhead; 2) identifying all potential sources of contaminants within each WHPA; and 3) developing strategies to manage the WHPA to protect the groundwater resource from contamination. The more successful WHP Programs include public outreach activities to increase awareness and coordinate local pollution prevention efforts. Emphasis is placed on public participation and local control of the plan.

Integration of the WHPP and the Source Water Assessment Program (SWAP), a similar program authorized in the 1996 amendments to the SDWA began in 2003. The SWAP assessed all sources of Public Water Supply (surface water supplies as well as groundwater sources) for their vulnerability to contamination. The SWAP, partly modeled after the WHPP, extended its emphasis on contamination prevention to all drinking water sources. The SWAP reports sent to each PWS were intended to serve as the basis for protection planning efforts. In keeping with

long-term planning goals and guidance from EPA, Arkansas has been combining the functions of the WHPP and SWAP programs.

Another source water protection activity coordinated by the Arkansas SWAP program is technical review of permitting at other agencies to assess potential adverse effects on drinking water sources. This activity involves review and tracking of permitting activities including NPDES permits, land application permits, and permits associated with oil and gas drilling and disposal of drilling fluids.

Technical assistance with proper siting and design of public water supply wells is another important feature of the WHPP. WHPP geologists analyze drill cuttings and produce detailed construction recommendations for approximately 40 proposed wells per year.

Well construction information and other data are maintained in a database that supports other aspects of the Health Department's PWSSP. Comprehensive hydrologic information is presently available for most PWS wells and is used by other agencies and organizations in achieving their missions.

The success of the source water protection program is measured by the number of Community Water Systems (CWSs) and the populations served by those CWSs that have met the criteria of the state's definition of "Substantial Implementation," defined as any CWS with a Source Water Program (SWP) in place that includes a management team, a SWAP or WHPP delineation, a PSOC inventory, and one of the following control measures/management strategies: (1) SWP/WHPP ordinance/resolution, or (2) any two of the following: SWP Emergency/Contingency plan, public outreach program, drinking water protection road signs, or other qualifying control measure/management strategy.

Water Well Construction Commission

Act 641 of 1969 created the Arkansas Water Well Construction Commission (AWWCC), which provides for safe, sanitary and orderly water well development. Standards ensure proper well construction and pump installation. Administration of the licensing and registration of drillers and pump installers, as well as technical assistance, is provided by the ANRC, which includes field inspectors, management, and technical support personnel. Act 297, effective July 1, 2003, authorized the AWWCC to develop a training program for drillers and pump installers and added a continuing education requirement for drillers and pump installers. It also increased the amount of civil penalties the Commission may seek from $500 to $2,500, and required contractors to obtain a bond of $10,000 rather than $2,000 to protect consumers.

Several part-time employees assist in building and maintaining the water-well construction report database, housing data on well construction. The database contains well-construction details, depth to static water level and water-producing formations encountered, well yield,

pump-setting information, and the geologic setting of each well. It is now been linked to the USGS water use database and is searchable online.

Act 855 of 2003, effective March 31, 2003, requires proper training and licensing for water well drillers and specifies minimum bond amounts to protect well owners. Water well contractors who repeatedly violate Arkansas law regarding proper registration and training can find their property subject to forfeiture and sale at public auction. Sale proceeds and other monies forfeited shall be applied to entities in the order listed.

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Chapter Three GROUNDWATER QUALITY MONITORING

Groundwater quality monitoring data are available from ongoing ambient monitoring; short-term research-oriented monitoring, and mandated monitoring at regulated sites. The types of data available depend on the goals and range from hard-copy reports to publicly accessible computer storage formats such as the EPA's STORET database. It is important to consider the sources of water quality data when investigating groundwater conditions. For example, contaminants in a water supply system, domestic or municipal, may simply be derived from the treatment process, the distribution lines, or household plumbing. As such, they would be an artifact of treatment and/or distribution rather than groundwater (source) problems. Comparison of quality information from various time periods and data collectors is problematic because of the differences in monitoring goals, reporting requirements, and continuing evolution of laboratory instrumentation and methods that provide ever lower quantification levels.

Ambient Groundwater Quality Monitoring

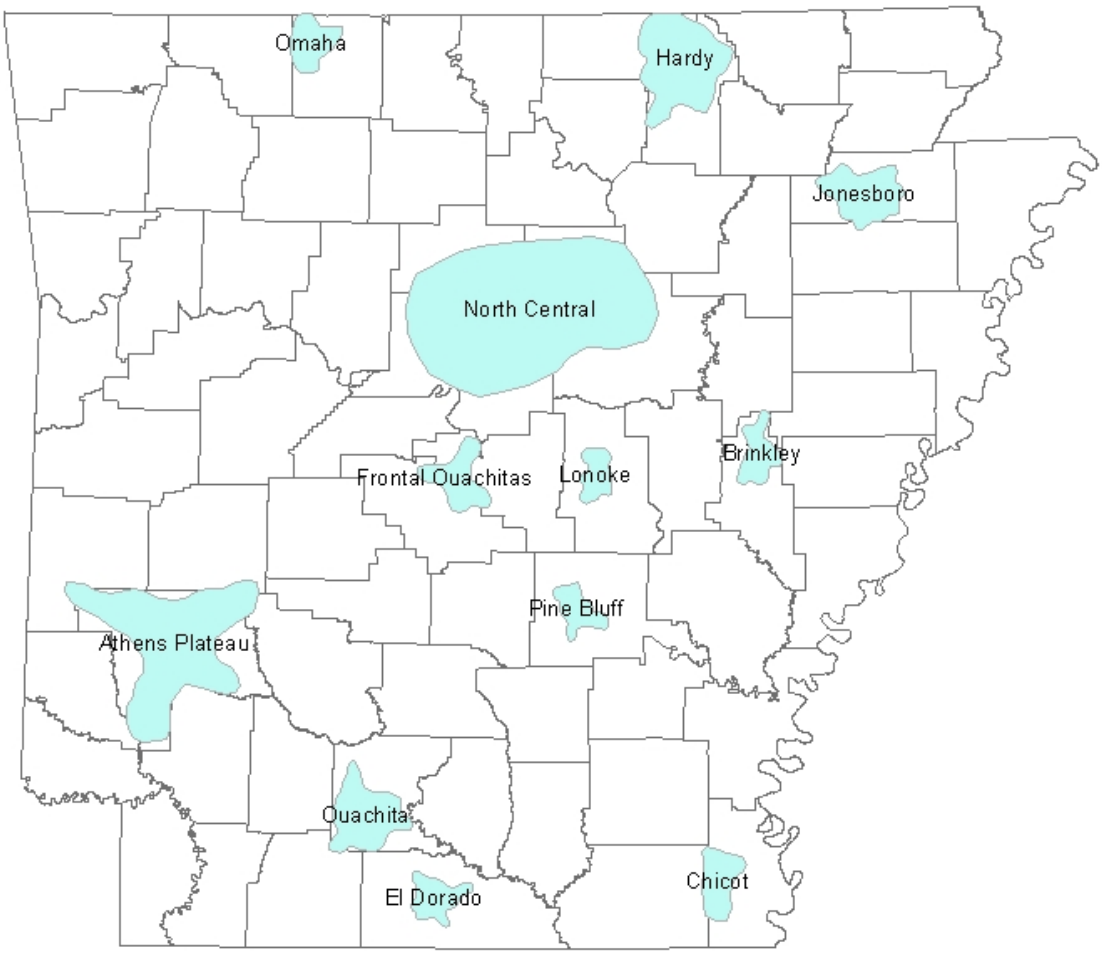
Considerable groundwater quality data have been collected in numerous investigations primarily by the U of A at Fayetteville, the USGS, and the Department. However, most of this information is available in hard-copy only in the form of reports and publications. Data from regulated sites with known sources of contamination can be useful but may not represent background water quality.

Arkansas Department of Environmental Quality

The principal goal of the Department's ambient water quality monitoring program is to analyze the appropriate constituents needed to document existing conditions in the various aquifers of the state and any changes in the quality of groundwater over time; to determine if known areas of contamination (i.e., areas of saltwater intrusion) are expanding; and to assist in water quality planning efforts at the Department and other state and federal agencies with groundwater quality protection responsibilities. To that end, the Ambient Groundwater Monitoring Program (Program) was begun in 1986. The Program currently consists of 12 monitoring areas throughout Arkansas (Figure V-1). Each area was selected to monitor various aquifers in representative areas of the State and evaluate potential effects of multiple land uses. Monitoring is conducted on an approximate three-year basis.

All of the monitoring events include field pH, conductivity, Oxidation-Reduction Potential, and temperature, laboratory analysis of nutrients, major cations and anions, Total Dissolved Solids (TDS) and trace metals. Selected sites in areas potentially impacted by industrial or other point sources are analyzed for volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC), and likewise samples from areas potentially impacted by agricultural activities are analyzed for pesticides. The current and proposed monitoring areas are described individually below.

Figure V-1: Arkansas' Groundwater Monitoring Areas



Athens Plateau Monitoring Area

The Athens Plateau Monitoring Area encompasses Paleozoic rocks of the Ouachita Mountains physiographic region and Cretaceous rocks and Quaternary deposits of the West Gulf Coastal Plain physiographic province. This monitoring area, first sampled in 2004, and comprised of 23 water wells and 1 spring in Howard and Pike Counties, provides baseline groundwater quality data including potential effects on groundwater from the extensive swine, poultry, and cattle operations in this region.

The sites in the northern part of the study area (along the southern margin of the Ouachita Mountains) are in the Devonian to Pennsylvanian Arkansas Novaculite, Stanley Shale and Jackfork Sandstone. The southern part of the study area (within the northern part of the West

Gulf Coastal Plain) is in the Cretaceous Tokio Formation and Quaternary (Pleistocene and Holocene) deposits comprising the Alluvial aquifer. Most towns within the area utilize surface water sources, thus few municipal wells are available. However, many domestic and livestock wells exist in the Cretaceous formations within the subject area.

Water quality in the study area is generally good. TDS concentrations exceed the Secondary Maximum Contaminant Level (SMCL) of 500 mg/L in one deep well, as higher mineralization is expected at greater depth. One well in the Stanley Shale and one spring exceed the MCL for nitrate (10 mg/L) but the well has exhibited a noticeable decline after the onsite poultry operation ceased some years ago. Two other wells in the Stanley Shale had somewhat elevated nitrate. Nitrate concentrations in the remainder of the samples are well below 1.0 mg/L. Chloride is highest in the Alluvial aquifer, particularly the Quaternary alluvium, ranging up to 131 mg/L in this interval. Dissolved iron concentrations often exceed the EPA Secondary MCLs (which address aesthetics like taste and odor rather than health concerns) and can range as high as 3.8 mg/L. Logically, many of the exceedances occur in samples from the Stanley Shale; manganese is also frequently detected in the Athens Plateau samples, reaching a maximum of slightly more than 0.55 mg/L. Low concentrations of Arsenic occur in three wells, but well below the MCL of 0.01 mg/L. Mobilization of naturally-occurring iron, manganese, and other multivalent ions like Arsenic is a common occurrence in aquifers across the state, due to reducing conditions that develop in response to the presence of organic matter concentrated in some parts of the formations.

Brinkley Monitoring Area

The Brinkley Monitoring Area encompasses the town of Brinkley and surrounding areas in northern Monroe County in the Mississippi River Alluvial Plain. The Alluvial and Sparta aquifers provide all community water needs: drinking water and crop irrigation. Monitoring in this area was initiated in 1989 to characterize chloride levels and assess potential presence of pesticides in the Alluvial aquifer.

Recent sampling Chloride concentrations ranged from 13.8 to 619 mg/L, with concentrations in seven wells exceeding the SMCL (250 mg/L). Iron concentrations exceeded the SMCL of 0.3 mg/L in 27 of 29 wells, and manganese concentrations exceeded the SMCL of 0.05 mg/L in 28 wells. TDS concentrations exceeded the SMCL of 500 mg/L in 22 of the 29 wells. Arsenic was detectable in all 29 samples at concentrations ranging from 0.00088 mg/L to 0.00790 mg/L, though with no exceedances of the MCL (0.01 mg/L).

El Dorado Monitoring Area

The El Dorado Monitoring Area centers on El Dorado in Union County, in the West Gulf Coast Plain physiographic region. Three aquifers, the Cockfield, Upper Sparta (Greensand), and Lower Sparta (El Dorado) are sampled in this area. The Cockfield 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. This area has oil and gas production; bromine extraction, production, and refining; light manufacturing; and food processing; all of which are potential threats to the shallow Cockfield aquifer. Monitoring in the El Dorado Monitoring Area began in 1987.

Iron and manganese exceed the SMCL in about 20 percent of the wells. Selected samples (from the Cockfield aquifer) are also analyzed for VOCs, SVOCs, Pesticides and PCBs. Pesticides and PCBs have not been detected in any of the El Dorado groundwater samples.

Omaha Monitoring Area

The Omaha Monitoring Area encompasses the northwest quarter of Boone County in the Ozark Plateaus physiographic region. Groundwater is from the Springfield Plateau and Ozark aquifers, which are primarily limestone and dolostone formations, respectively. The monitoring area assesses potential impacts in karst terrain. Potential contaminant sources include livestock, poultry houses, and USTs. The monitoring sites consist of 10 springs and 18 wells, depending on accessibility and flow conditions. The springs discharge from the Springfield Plateau aquifer, and all but one of the wells penetrates the Ozark aquifer.

Overall, groundwater quality is good. Iron is not detectable in any of the Springfield Plateau aquifer samples due mainly to the type of geology and the oxidative state of the aquifers; this also limits manganese concentrations, ranging from mostly non-detectable to just over 0.002 mg/L, well below the SMCL of 0.05 mg/L. Nitrate is present in all Springfield Plateau aquifer samples, ranging up to almost 7 mg/L. Arsenic has been detected in some samples, but well below the MCL of 0.01 mg/L, also due to the general oxidizing state of the groundwater, which limits arsenic mobility.

Hardy Monitoring Area

The Hardy Monitoring Area is located in northeast Arkansas in Sharp and Fulton counties. The standard sampling round includes 24 wells ranging in depth from 150 to 1200 feet and 2 springs. The area was originally chosen to address the lack of water quality data from the Lower Ordovician aquifers along the eastern end of the Ozark Plateaus physiographic region. The wells produce water from various formations including the Cotter and Jefferson City Dolomites and the Roubidoux Formation.

The groundwater quality in the Hardy monitoring area is generally good. Water type is calcium or magnesium bicarbonate, in which concentrations of magnesium and calcium, expressed as equivalent weights, are approximately equal. Sodium concentrations are generally less than 5 mg/L. TDS concentrations are generally below 500 mg/L in all wells and springs including four wells exceeding 1000 feet in depth. The average TDS concentration is approximately 300 mg/L. As expected, the deeper wells have very low nitrate concentrations relative to the overall mean

for all wells, which is also low (0.845 mg/L). Average TDS, nitrogen and other parameters resemble the Ozark aquifer samples from the Omaha Monitoring Area. Iron is rarely detected and the maximum manganese concentration is quite low as well (0.0026 mg/L), well below the SMCL (0.05 mg/L).

Jonesboro Monitoring Area

The Jonesboro Monitoring Area includes Jonesboro and surrounding areas in central Craighead County and northern Poinsett County, in the Mississippi River Alluvial Plain region. The Alluvial aquifer and the Memphis aquifer (northern extension of the Sparta) are the primary groundwater sources. The monitoring area was chosen because it has large populations using groundwater that is vulnerable to surface contaminants and is subject to intensive pumping from the Alluvial aquifer. A cone of depression coinciding with drawdown in the underlying Memphis aquifer indicates minimal physical (hydraulic) separation between the two aquifers. Potential contaminant sources in the area include pesticides, solvents, landfill leachate, and septic systems. One sampling site is in the deeper Wilcox Formation.

Groundwater ranges from a calcium-bicarbonate to a strongly sodium-bicarbonate water type, with an intermediate "mixed" type containing approximately equal portions of calcium, sodium and magnesium. This reflects a gradual chemical evolution from a calcium-dominated water type in the shallow Alluvial aquifer to sodium-dominated water at depth within the Memphis aquifer due to natural ion-exchange processes. TDS concentrations range from less than 100 mg/L, to just over 1110 mg/L in one well. High dissolved iron is common, ranging up to 7 mg/L. About one third of wells exceed the SMCL of 0.3 mg/L. Manganese is detectable in all wells at concentrations ranging from less than 0.001 to over 1.2 mg/L, and about one third exceed the SMCL of 0.05 mg/L. Nitrate is present in almost 50 percent of wells, ranging from very low to just above 2 mg/L.

Lonoke Monitoring Area

The Lonoke Monitoring Area includes Lonoke and surrounding areas in central Lonoke County and is located in the Mississippi River Alluvial Plain physiographic region. Groundwater is from the Alluvial and Sparta aquifers, for agricultural, domestic and municipal use. This monitoring area was selected to represent a rural, agricultural area that relies entirely on groundwater for water. Pesticides are the primary potential contaminants in the area.

Elevated iron and manganese are common, ranging from 1.49 to 30 mg/L, due to reducing conditions that result from a high proportion of disseminated organic debris in the aquifer. TDS concentrations range from 140 to almost 500 mg/L, with no exceedances of the SMCL.

Frontal Ouachita Monitoring Area

The Frontal Ouachita Monitoring Area is located in central Arkansas in Pulaski and Saline counties in the Ouachita Mountains region. Strata within this monitoring area consist of intensely folded and faulted Paleozoic sandstones, shales, novaculites and cherts, deformed during the late Paleozoic era into generally east-west trending anticlines and synclines. Strata exposed at the surface include formations ranging in age from Ordovician through Mississippian. The more resistant novaculite or sandstone persists to form ridge tops, while valleys develop above the less resistant shale intervals. Sixteen wells and three springs comprise the current monitoring sites. Laboratory analyses include inorganic chemistry and nutrients.

Most wells are completed in bedrock with minimal surface casing and thus likely producing water from multiple horizons. Twelve are in the Ordovician Womble Shale, two in the Ordovician Bigfork Chert, one in the Devonian to Mississippian Arkansas Novaculite, one from the Mississippian Stanley Shale, one from the Bigfork Chert/Arkansas Novaculite contact, and one from a spring at the Ordovician Bigfork Chert/Polk Creek Shale contact. The remaining two wells are completed in Quaternary terrace deposits of the Alluvial aquifer.

Generally, the groundwater quality is good. Dissolved iron exists in about one third of the wells at concentrations up to 1.54 mg/L. Manganese is present in many of the wells, at concentrations ranging up to 0.15 mg/L, with several exceeding the SMCL (0.05 mg/L). Due to reducing conditions, arsenic is present in concentrations ranging up to almost 0.004 mg/L but still below the MCL of 0.01 mg/L. Nitrite is present in about half the wells, at concentrations ranging from 0.060 to 8.15 mg/L. Most of the nitrate detections correlate to the presence of septic systems, livestock, or poultry houses.

Ouachita Monitoring Area

The Ouachita Monitoring Area is located in Ouachita County and includes the city of Camden. This area is located in the West Gulf Coast Plain physiographic region, chosen because it is in the recharge area of the Sparta aquifer; in addition, a portion of the Cockfield aquifer recharge area is present in the southwestern portion of this monitoring area. Groundwater is the primary water source in the area. Most wells penetrate the Sparta aquifer; however, several potentially tap the underlying Cane River Formation, which is the lower confining unit of the Sparta. However, some minor water-bearing zones exist within the Cane River, sufficient for domestic water supplies.

Generally, groundwater quality in this area is good, with TDS concentrations ranging from 31 to just over 150 mg/L. Water type ranges from a calcium-bicarbonate water type at shallow depths to a sodium-bicarbonate water type in the deeper portions of the aquifer where natural ion exchange processes have neared completion along the flow path. Iron is elevated in about half of the wells, at concentrations ranging to 3.35 mg/L. Manganese is ubiquitous in the area at

concentrations ranging up to 0.0546 mg/L. Nitrate is present in moderate amounts but currently there are no exceedances of the MCL with the highest at just above 0.005 mg/L. Arsenic is generally not present in the sites within this monitoring area.

Pine Bluff Monitoring Area

The Pine Bluff Monitoring Area includes the town of Pine Bluff and environs, in central Jefferson County. The monitoring area spans the boundary between the West Gulf Coast Plain and the Mississippi River Alluvial Plain regions. Groundwater in the area is produced from the Alluvial, Cockfield, and Sparta aquifers, the only sources of water for 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 groundwater quality is generally good. The Alluvial aquifer produces a calcium-bicarbonate water type and the Cockfield and Sparta aquifers produce a sodium-bicarbonate water type, similar to its composition elsewhere. Iron is detectable in all the wells at concentrations ranging from 0.01 to 38.5 mg/L, with many exceeding the SMCL (0.3 mg/L). Manganese is also nearly always present, in concentration ranging from 0.015 to 2.6 mg/L, with many exceeding the SMCL (0.05 mg/L). In association with the iron and manganese, arsenic is detectable in several wells, but well below the MCL. Nitrate has only been detected in one well at a concentration of 0.060 mg/L, well below the MCL. Four alluvial wells are sampled for VOCs, but only a very small concentration of Methylene Chloride (MC), a common laboratory contaminant, has been detected and is attributed to the presence of MC within the instrument.

North Central Monitoring Area

The North Central Monitoring Area a new ambient groundwater monitoring area, developed in response to the shale gas development "boom." It was initially sampled in May through November 2010; it includes portions of Conway, Van Buren, Cleburne, White, and Faulkner Counties in the Arkansas River Valley physiographic region. Groundwater in the area is derived from the Pennsylvanian Atoka Formation or Hale Formation which lie well above the Fayetteville Shale. Historically, public water supply wells in the area were beset by iron problems, hydrogen sulfide and limited supply and thus were all abandoned decades ago after a regional surface water supply (from Greer's Ferry Lake) became available. The majority of the area is served by surface water from Greer's Ferry, but there are still a small fraction of domestic wells in use, mainly as backup supplies for livestock and home gardens, though a small percentage are used as primary (drinking water) supply. A total of 64 springs and wells were sampled during the initial sampling event. During subsequent sampling events, some of the shallow springs were discontinued and some new wells were added. Over the long term, the North Central monitoring area will be reduced to a small subset of sites on par with the other monitoring areas.

The groundwater quality was generally good, though iron was detected in about two thirds of the sites and was above SMCLs in about half of them. Manganese was detected in all 64 sample locations at concentration ranging from 0.00091 to 2.8 mg/L, with 45 detections exceeding the SMCL (0.05 mg/L). Arsenic, commonly co-existent with iron, and mobilized by similar geochemical conditions, was detected in 17 of the 64 samples at concentrations ranging from 0.00051 to 0.0181 mg/L (one detection above the MCL). Nitrate was detected in about 30 percent of the samples at concentrations ranging from 0.020 to 6.40 mg/L, all below the MCL. Chloride and TDS, primary indicators of potential impacts from deeper groundwater zones and gas drilling were within normal ranges; chloride was detected in all 64 samples at concentrations ranging from 1.1 to 105 mg/L. TDS ranged from 10 to 644 mg/L. Three exceedances of the SMCL for TDS were noted in the mineral springs located in Heber Springs Park, assumed to originate from deeper groundwater zones. One other exceedance was a domestic well with artesian flow and also interpreted to connect to a deeper, more mineralized groundwater horizon. Based upon the analyses conducted, no effects from the gas drilling or hydraulic fracturing in the underlying shale were evident.

Other Monitoring Efforts

Some ambient monitoring is also performed by other divisions within ADEQ and the USGS, at numerous Department-regulated facilities throughout Arkansas. However, because the purpose of the monitoring is to evaluate potential and actual anthropogenic impacts, the parameter list is limited, and thus is not as useful for interpretation of natural or background quality. However, in the absence of other data, monitoring results from these sites, especially up gradient "background" wells, can be a useful source of information.

Arkansas Department of Health

Monitoring of public water supply wells by the ADH under the SDWA provides another source of groundwater data. The ADH monitors approximately 1200 wells every three years for inorganic and organic (pesticide, herbicide, SVOCs, VOCs) contaminants, and radionuclides. The Total Coliform Rule requires sampling monthly, with the number of samples dependent on the population size. Nitrate monitoring is conducted yearly unless a sample greater than or equal to 50 percent of the MCL triggers the need for increased frequency. Additionally, the Disinfection Byproduct Rule requires monitoring for trihalomethanes and haloacetic acids, byproducts of the disinfection process, on a quarterly or annual basis, with the number of samples dependent on the type of source and population served by the system.

Raw water sampling is conducted for selected wells in "hydrologically sensitive" aquifers (i.e. those which may be at risk for contamination per the Groundwater Rule) to assess whether they are influenced by surface water pathogens; this sampling includes frequent raw water bacteriological testing during the evaluation period, and may include water temperature variations and Microscopic Particulate Analysis to detect insects, organic debris, large diameter

pathogens, and algae and other microorganisms. Raw water sampling for *E. coli* is conducted monthly for at least 12 months to establish baseline conditions, including analysis for *E. coli* and/or cryptosporidium oocysts.

Short Term Water Quality Monitoring (Special Investigations)

Arkansas Department of Environmental Quality

Special groundwater investigations are occasionally undertaken, normally upon request by management, as a result of general interest in an area, or to address an identified or incipient groundwater problem that warrants examination. Recent examples of such projects range from occasional complaint investigations in conjunction with Inspection or Enforcement duties of the Office of Water Quality or other agency divisions, to comprehensive investigations of groundwater conditions associated with land uses at permitted facilities. The establishment of the North Central ambient monitoring area falls into this category of activities. However, these projects are intentionally limited in scope and duration so as to minimize the diversion of the groundwater section's staff time and budget, which is primarily dedicated to the operation of the ongoing long-term ambient monitoring network.

United States Geological Survey

The USGS, in cooperation with the Arkansas Natural Resources Commission, has 45 master wells throughout the State that are sampled every five years. Additionally, 150 wells in the Sparta-Memphis aquifer and 150 wells in the Mississippi River Valley Alluvial aquifer are sampled for specific conductance, pH, temperature, chloride, and bromide on alternating years. Although limited in the number of constituents, the relatively large number of wells provides a means of documenting general water-quality trends over time, through the plotting and comparison of isopleth maps and the use of statistical programs. Other wells are utilized for water quality sampling, but are sampled for special investigations and do not provide long-term data for trend analyses. The data derived from water quality investigations are presented in reports, which are easily obtainable at the local or national level or online at http://ar.water.usgs.gov/; data also are available in downloadable tabular or graphic format on the USGS NWISWeb, see http://waterdata.usgs.gov/ar/nwis/qw/.

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PART VI PUBLIC PARTICIPATION (REGULATION NO. 8)

The Public Participation Program (Regulation No. 8) at the Department is designed to be an active program that seeks out individuals and/or organizations that may provide useful input and those who will be affected by Department activities. The program includes provisions for disseminating information to the public through easily accessible avenues. These avenues include, but are not limited to, local media, internet access, and information depositories located throughout the State. Additional avenues include the publication and distribution of newsletters, informational pamphlets, and activity reports; and the participation of Department representatives at public meeting, hearings, and citizen group gatherings.

The purpose of the public participation program at the Department is to inform affected Arkansans, organizations, and public officials of the factors involved in, and of decisions contemplated in, Department activities. It is also used to incorporate public thinking into planning decisions and to provide all citizens and organizations an equal opportunity to influence the design of alternatives and selection of choices. This process will produce activities that have substantial community support.

The current Public Participation Program at the Department complies with all applicable regulations and guidelines of the Federal Water Pollution Control Act amendments of 1979 40 CFR, Parts 25 and 35.

For additional information concerning the Public Participation Program at the Department, visit the Office of Water Quality website http://www.adeq.state.ar.us/water/reports_data.htm and go to the State of Arkansas Continuing Planning Process document.

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APPENDIX A WATERBODY-SPECIFIC INFORMATION BY PLANNING SEGMENT

A segment-specific water quality analysis was conducted for each of the 38 planning segments utilizing the monitoring network stations and other available data. Support or nonsupport of a designated use was assessed by using the assessment methodology described earlier.

Data included for each planning segment includes:

- A description of the segment location and its major waters.
- A narrative summary of the water quality within the segment.
- A planning segment map with river reaches identified by hydrologic unit code and reach numbers, monitoring stations, and NPDES permitted discharges.
- An assessment of use support by river reach.
- A listing of permitted discharges within the segment.

Key to abbreviations on "Planning Segment (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary" Tables within Appendix A:

Assess:

E = Evaluated Assessment
M = Monitored Assessment
U = Unassessed (Unknown)

Designated Use:

FC = Fish Consumption
FSH = Fisheries Use
PC = Primary Contact
SC = Secondary Contact
DW = Domestic Water Supply
AI =Agriculture and Industrial Use
A = Advisory
S = Use Supported
N = Use Not Supported
R = Use Removed

Cause:

Tb = Turbidity
AM = Ammonia
NO_3 = Nitrogen (Nitrates)
TP = Total Phosphorus
DO = Dissolved Oxygen
Tm = Water Temperature
PA = Pathogen Indicators (Bacteria)
OE = Organic Enrichment
PO = Priority Organics
Al = Aluminum
Be = Beryllium
Cu = Copper
Hg = Mercury
Pb = Lead

Causes (cont.)

CL = Chlorides

SO_4 = Sulfates

TDS = Total Dissolved Solids

Zn = Zinc

Se = Selenium

Source:

AG = Agriculture

SE = Surface Erosion

RE = Resource Extraction

UR = Urban Runoff

IP = Industrial Point Source

MP = Municipal Point Source

UN = Unknown

Tox = Toxicity

Status:

1-5 = Assessment Category (see below)

Data Period:

1 = Assessment based on new data

2 = Assessment forwarded from 2014

Monitoring Network:

Y/ USGS = US Geological Survey Gauging Station Present

A = Ambient

R = Roving

S = Special Project

USNPS = U.S. National Park Service

ANRC = Arkansas Natural Resources Commission

Assessment Categories

1. Attains all water quality standards for all designated uses; categorized by existence of a TMDL or not for one or more constituents:

   1a. Attaining water quality standards for all designated uses, no use is threatened. No TMDL exists for any constituents.

   1b. Attaining all water quality standards for all designated uses; however, a TMDL remains in place for one or more constituents.

2. Available data and/or information indicate that some, but not all of the designated uses are supported.

3. Insufficient data and information are available to determine if any water quality standards are or are not being attained.

- No data available;
- A water quality standard has not been approved for Clean Water Act purposes and therefore and assessment cannot be made;
- Data do not meet the spatial and/or temporal requirements outlined in this assessment methodology;
- Waters in which the data are questionable because of Quality Assurance and/or Quality Control (QA/QC) procedures and/or the stream segment requires confirmation of impairment before a TMDL is scheduled.

4. Water quality standards are not attained for one or more designated uses but the development of a TMDL is not required because:

4a. A TMDL has been completed for the listed parameter(s);

4b. Other pollution control requirements are expected to result in the attainment of the water quality standard; or

4c. Non-support of the water quality standard is not caused by a pollutant.

5. The waterbody is impaired, or one or more water quality standards may not be attained. Waterbodies in Category 5 will be prioritized as:

High

- Truly impaired; develop a TMDL or other corrective action(s) for the listed parameter(s).

Medium

- Waters currently not attaining standards, but may be de-listed with future revisions to APC&EC Regulation No. 2, the state water quality standards; or
- Waters which are impaired by point source discharges and future permit restrictions are expected to correct the problem(s).

Low

- Waters currently not attaining one or more water quality standards, but all designated uses are determined to be supported; or
- There is insufficient data to make a scientifically defensible decision concerning designated use attainment; or
- Waters ADEQ assessed as unimpaired, but were assessed as impaired by EPA.

pH Note:

Arkansas' pH standards, adopted in the 1970s, were established to protect the variable life stages of the most sensitive aquatic life species. These standards were based solely on literature, such as EPA (1986), which generally states that aquatic life thrives and propagates

best when the pH of water is between 6 and 9 standard units. This is unlike the majority of all the other water quality standards that were developed from data gathered from Arkansas' least-disturbed ecoregion reference streams (DPC&EC, 1987, Volumes I and II). In addition, the current assessment protocol is from an EPA guidance document that sets nationwide exceedance criterion for the determination of water quality standards attainment.

Metals Note:

It has been determined that some of the dissolved metals data used to assess the waterbodies of the state in the recent assessment periods have been found to be contaminated by some unknown factor. Quality assurance procedures have been implemented to address this issue, as is apparent by the delisting of some waterbodies that were formally impaired by metals. Waterbodies that were recently listed for metals contamination should be listed as attaining water quality standards with the next one to two listing cycles.

RED RIVER BASIN

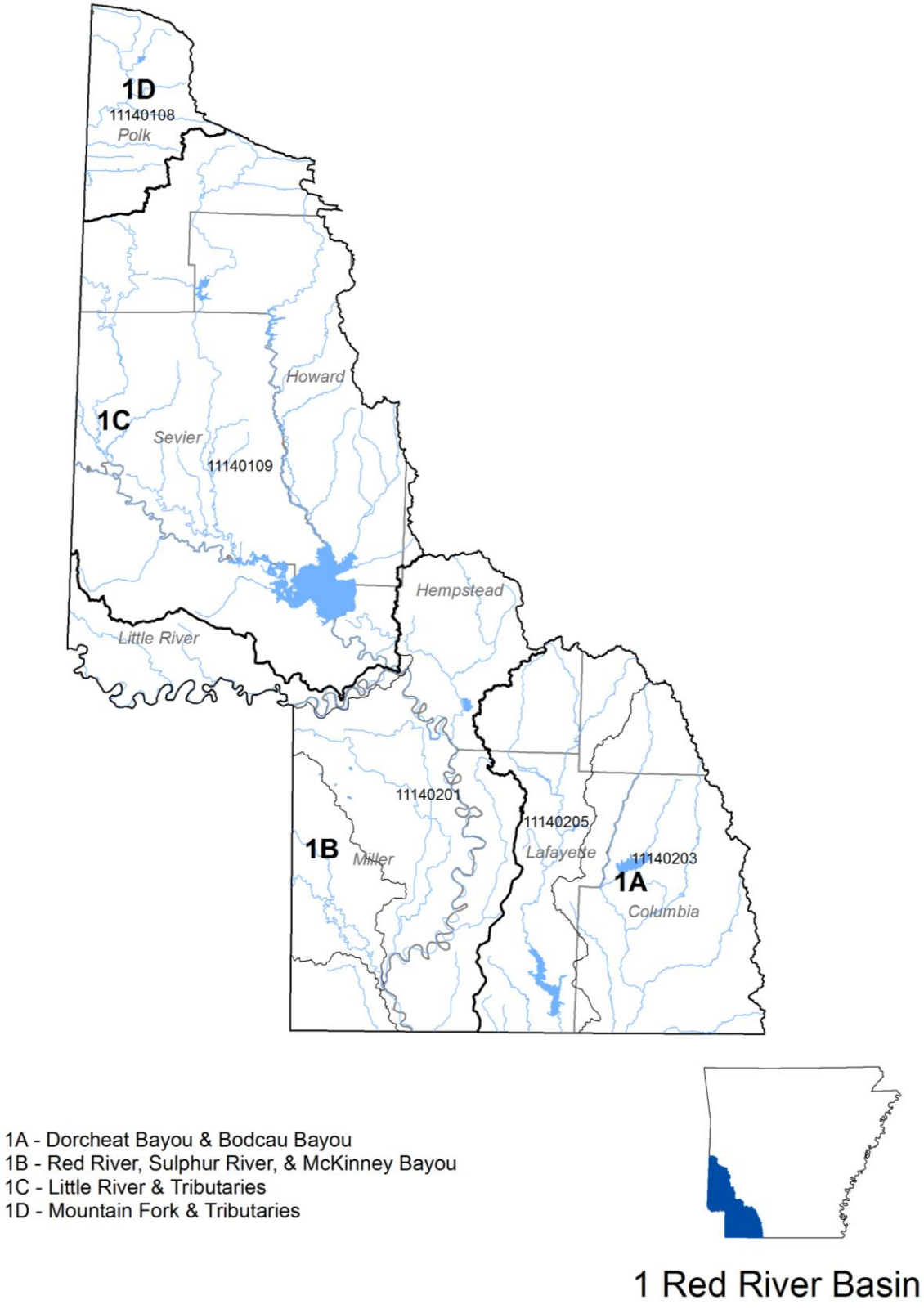
The Red River Basin (Figure A-1) is located in the extreme southwest corner of the state. The majority of its waterbodies flow south into Louisiana with a few flowing west into Oklahoma.

This basin is bisected into four ADEQ planning segments and eight major watersheds (8 digit HUCs): Dorcheat Bayou, Bodcau Bayou, Lower Middle Red River, Lower Red River, Sulphur River, McKinney Bayou, Little River, and Mountain Fork. Major reservoirs within this basin are, Millwood Reservoir, Lake Erling, Lake Columbia, De Queen Reservoir, Gillham Reservoir, and Dierks Reservoir.

Parts, or all, of eight Arkansas counties are within this basin's boundaries: Polk, Howard, Sevier, Little River, Hempstead, Miller, Lafayette, and Columbia.

This basin spans parts of the Ouachita Mountains ecoregion and the Gulf Coastal Plains ecoregion.

Figure A-1: 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 Bodcau Bayou and Lake Columbia is a major impoundment on Beech Creek, a tributary to Dorcheat 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.

Many of the streams in this segment are affected by low pH values and are unable to meet the minimum pH standard of six (6) standard units. The soils in these watersheds are acidic and have a low buffering capacity. In addition, these streams naturally have a high organic matter, which in turn increases the dissolved organic matter in the water column.

Many of the streams in this segment have mineral concentrations (chlorides, sulfates, and total dissolved solids) above the applicable standards. While the source of the minerals is listed as unknown, it most likely from a combination of point source discharges and nonpoint source inputs from oil and gas activities.

Toxic amounts of lead concentrations are present in the streams throughout the segment. It is unknown at this time what affects, if any, these elevated concentrations are having on aquatic life within the streams of the segment. The source is also unknown at this time.

Numerous waterbody segments have been moved from Category 5 to Category 4a in the list of impaired waterbodies, as TMDLs have been established for constituents listed on previous lists of impaired waterbodies.

Figure A-2: Planning Segment 1A

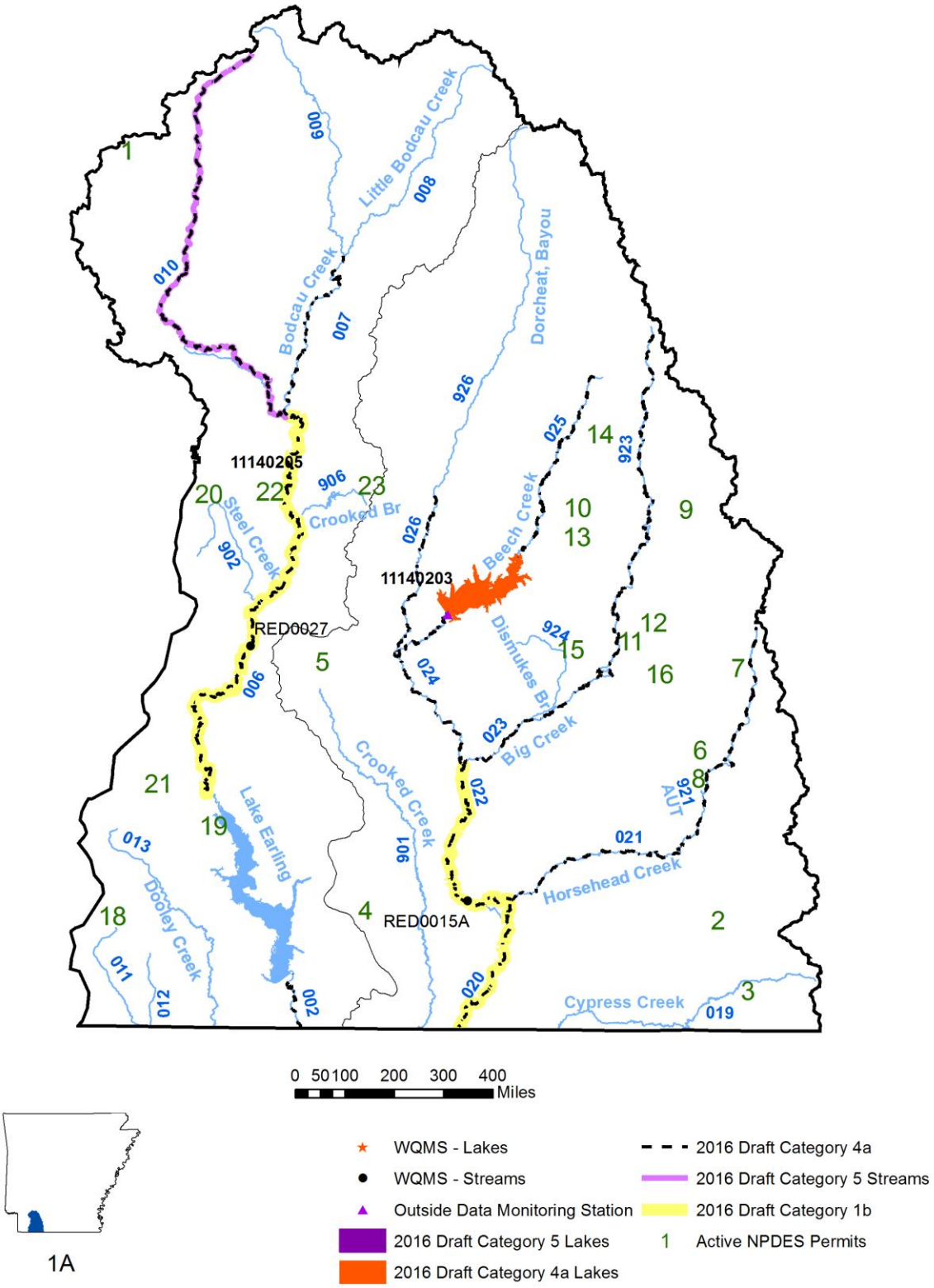


Table A-1 (a-c): Planning Segment 1A (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Beech Creek	11140203	-025	24.9	UWBCH01	M		N	S	S	S	S	UN	SE	UN		DO	Tb	Pb		4a	4a	4a	
Big Creek	11140203	-023	4.1	UWBIG02	M		N	S	S	R	N	IP	IP	IP	UN	Cl	SO4	TDS	Pb	4a	4a	4a	4a
Big Creek	11140203	-923	30.7	RED0043; UWBIG01	M		N	S	S	R	S	IP	IP			pH	Pb			4a	4a		
Crooked Creek	11140203	-901	25.4	RED0014	U															3			
Cypress Creek	11140203	-019	20.0	RED0016	U															3			
Dismukes Branch	11140203	-924	7.0	RED0047	U					R										3			
Dorcheat Bayou	11140203	-020	10.0	RED0015	E	A	N	S	S	S	S	UN	UN			Pb	Hg			4a	4a		
Dorcheat Bayou	11140203	-022	10.6	RED0015A	M	A	N	S	S	S	S	UN	UN			Pb	Hg			4a	4a		
Dorcheat Bayou	11140203	-024	7.3	RED0015B; RED0065	M	A	N	S	S	S	S	UN	UN			pH	Hg			4a	4a		
Dorcheat Bayou	11140203	-026	9.4	UWBDT02	M	A	N	S	S	S	S	UN	UN	UN		pH	Pb	Hg		4a	4a	4a	
Dorcheat Bayou	11140203	-926	20.3	UWBDT01; UWBDT02	M		S	S	S	S	S									1			
Horsehead Creek	11140203	-021	27.4	UWHHC01	M		N	S	S	R	S	UN	UN			pH	Pb			4a	4a		
Bear Creek	11140205	-012	3.8	RED0011B	U															3			
Bodcau Creek	11140205	-002	4.7	RED0013	E		N	S	S	S	S	UN	SE	UN		pH	Tb	Pb	Cu	4a	4a	4a	4a
Bodcau Creek	11140205	-006	28.2	RED0017; RED0027; RED0066	M		N	S	S	S	S	UN	SE	UN		pH	Tb	Pb		4a	4a	4a	
Bodcau Creek	11140205	-007	11.0	RED0057	M		N	S	S	S	S	UN				Pb				4a			
Bodcau Creek	11140205	-009	14.4		U															3			
Crooked Branch	11140205	-906	4.6		U															3			
Dooley Creek	11140205	-013	16.2	RED0012	U															3			
L. Bodcau Creek	11140205	-008	13.8		U															3			
L. Bodcau Creek	11140205	-010	31.4	RED0056	M		N	S	S	S	S	UN	UN			Pb	DO			4a	5		

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Steel Creek	11140205	-902	9.0		U															3			
Wheeler Creek	11140205	-011	8.4	RED0011; RED0011A	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
RED0011	Wheeler Creek at Bear Creek Confluence		2	S
RED0011A	Wheeler Creek near Texarkana, AR		2	S
RED0011B	Bear Creek near Texarkana, AR		2	S
RED0012	Dooley Creek near AR-LA Line		2	S
RED0014	Crooked Creek @ AR-LA Line		2	S
RED0015	Bayou Dorcheat near Springhill, LA	07348650	2	S
RED0015A	Dorcheat Bayou east of Taylor on SR160		1	A
RED0015B	Dorcheat Bayou near Busset AR		2	S
RED0016	Cypress Creek @ AR-LA line		2	S
RED0017	Lake Erling near Canfield, AR		2	S
RED0027	Bodcaw Creek south of Lewisville	07349440	1	A
RED0043	Big Creek near Magnolia on Hwy 371		2	S
RED0047	Dismukes Branch W of Magnolia on Hwy 371		2	S
RED0056	Little Bodcaw Creek at Highway 29 near Lewisville		2	R
RED0057	Bodcaw Creek at Highway 355 near Hempstead County Line		2	R
RED0065	Bayou Dorcheat at Highway 371		2	R
RED0066	Bodcau Bayou south of Stamps on CR23		2	S
UWBCH01	Beech Creek at Highway 82 near Waldo		2	R
UWBDT01	Bayou Dorcheat at Highway 355		2	R

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBDT02	Bayou Dorcheat at Highway 82, 6 miles west of Waldo		2	R
UWBIG01	Big Creek at Highway 132 near Magnolia		2	R
UWBIG02	Big Creek at Co. Rd. ~1.3 mi. SE of Highway 371		2	R
UWHHC01	Horsehead Creek at Highway 19, 2 miles north of Walkerville		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	122.6	Fish Consumption	-	37.3
Evaluated	14.7	Fisheries	20.3	199.7
Monitored	205.3	Primary Contact	220	0
Total	**342.6**	Secondary Contact	220	0
		Domestic Water Supply	157.8	0
		Agri. & Industry	215.9	4.1

Table A-2: Active NPDES permits for Planning Segment 1A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0046345	SPRING HILL SCHOOL-WWTF	TRIB,FLAT BOIS D'ARC CR,LITTLE BODCAU CR	010	11140201	Hempstead	1	001
AR0039594	EMERSON, CITY OF	TRIB,LITTLE CYPRESS CR,CYPRESS CR,DORCHEAT BU, RED R	019	11140203	Columbia	2	001
AR0043923	WEYERHAEUSER NR COMPANY - EMERSON DIVISION	DIT,N CYPRESS CR,DORCHEAT BU,LK BISTINEAU,LOGGY BU,	019	11140203	Columbia	3	001
AR0020044	TAYLOR, CITY OF	LITTLE CROOKED CR, RED R BASIN	020	11140203	Columbia	4	001
AR0046418	BONANZA CREEK ENERGY RESOURCES, LLC - MCKAMIE PLANT	TRIB,CROOKED CR,DORCHEAT BU,RED R	020	11140203	Lafayette	5	001
AR0046973	MAGNOLIA COUNTRY CLUB, INC.	TRIB, HORSEHEAD CR, DORCHEAT BU	021	11140203	Columbia	6	001
AR0052329	J&B MOBILE HOME PARK	HORSEHEAD CR,BU DORCHEAT, RED R	021	11140203	Columbia	7	001
AR0038857	ALBEMARLE CORPORATION - SOUTH PLANT	TRIB,HORSEHEAD CR,DORCHEAT BU,RED R	021	11140203	Columbia	8	004
AR0021555	MCNEIL, CITY OF	O'REAR CR,BIG CR,RED R	023	11140203	Columbia	9	001
AR0043508	WALDO, CITY OF	TRIB,BIG CR,DORCHEAT BU	023	11140203	Columbia	10	001
AR0043613	MAGNOLIA, CITY OF-BIG CREEK WWTP	BIG CR,DORCHEAT BU,RED R	023	11140203	Columbia	11	001
AR0000434	AMFUEL	TRIB,BIG CR,DORCHEAT BU,RED R	023	11140203	Columbia	12	002
AR0047953	DELTIC TIMBER CORPORATION-WALDO MILL	TRIB,BEECH CR,LK COLUMBIA	025	11140203	Columbia	13	001
AR0048054	QUAD HARDWOOD PRODUCTS, INC.	TRIB,BEECH CR,DORCHEAT BU,RED R	025	11140203	Columbia	14	001
AR0047635	ALBEMARLE CORP-WEST PLANT	TRIB,DISMUKES CR,BIG CR,BU DORCHEAT	923	11140203	Columbia	15	001
AR0051489	W2 OIL, INC.	TRIB NATIONS CR, NATIONS CR, BIG CR, BU DORCHEAT	923	11140203	Columbia	16	001

Table A-2: Active NPDES permits for Planning Segment 1A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051349	TUCKER LUMBER CO., LLC	UNNAMED TRIB, LITTLE CROOKED CR,DORCHEAT BU, RED R	---	11140203	Columbia	17	001
AR0020621	BRADLEY, CITY OF-WWTP	TRIB,WHEELER CR,MARTIN CR,BODCAU BU	002	11140205	Lafayette	18	001
AR0051004	EAGLE VIEW WWTF	DIT,TRIB,LK ERLING,BODCAU CR	005	11140205	Bradley	19	001
AR0035696	LEWISVILLE, CITY OF	BATTLE CR,STEEL CR, BODCAU CR, LK ERLING	006	11140205	Lafayette	20	001
AR0045535	CANFIELD BAPTIST ASSEMBLY	TRIB,MILL BR,HEIRS BR,BODCAU CR,LK ERLING, BODCAU	006	11140205	Lafayette	21	001
AR0048305	STAMPS, CITY OF	DIT,BODCAU CR,LK ERLING,RED R	006	11140205	Lafayette	22	001
AR0000493	ENTERGY, INC.- HAREY COUCH STEAM ELEC STA	TRIB, LK JUNE,CROOKED BRANCH,BODCAU CR	006	11140205	Lafayette	23	002

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SEGMENT 1B RED RIVER, SULPHUR RIVER AND MCKINNEY BAYOU

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

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 on the Red River near its entrance into Arkansas indicate that the total dissolved solids, sulfate, and chloride criteria, protective of the public water supply use, are not being maintained. However, the domestic water supply designated use has been removed from the Red River from its point of entrance into the State to its confluence with the Little River. The source of the minerals is thought to be from naturally occurring mineral deposits located in western Oklahoma and eastern Colorado and New Mexico.

Total dissolved solids and sulfate concentrations exceed the domestic water supply and agricultural and industrial water supply standards for McKinney Bayou. This is a reflection of the natural background conditions of the streams in the area; Red River flooding.

Data trends for Days Creek reveal major water quality improvements in the creek as a result of the City of Texarkana's improvement of the WWTPs. However, Day's Creek continues to not meet the domestic water supply designated use because of high nitrate levels. A TMDL to address this issue was completed in early 2006.

Turbidity trend analysis from the Sulphur River indicates an increasing trend over the past 16years from an average of about 20 NTU to over 50 NTU (Figure A-3). Turbidity concentrations the past seven years have routinely been above the instream "All Flows" standard of 32 NTU. Several stream reaches of the Sulphur River in Arkansas have been assessed as not attaining the fisheries designated use due to excessive instream turbidity; predominately caused by surface erosion.

Numerous total maximum daily loads have been established for constituents listed on previous lists of impaired waterbodies. These waterbody segments have been moved from Category 5 to Category 4a in the list of impaired waterbodies.

Figure A-3: Planning Segment 1B

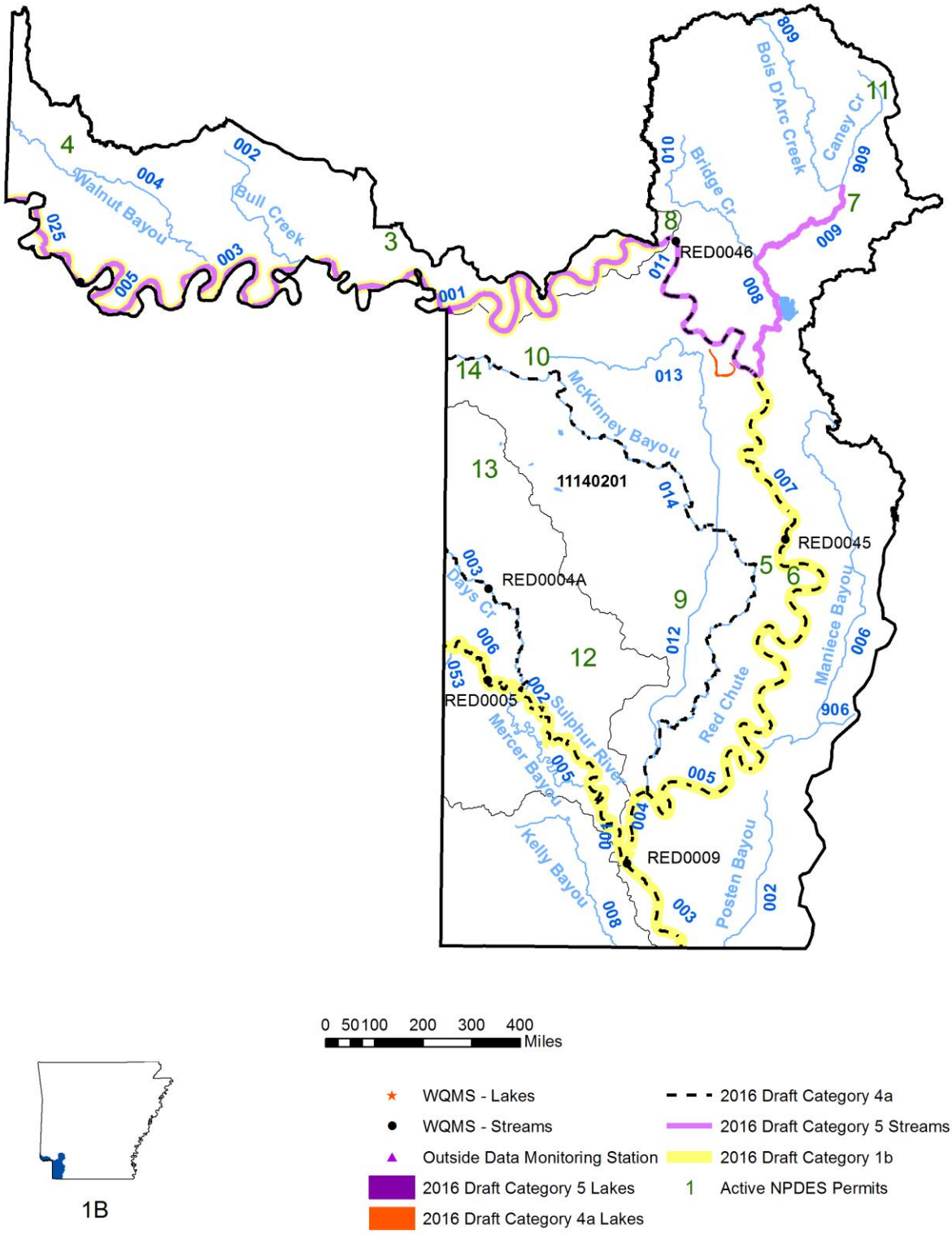

Table A-3: Planning Segment 1B (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bull Creek	11140106	-002	13.4		U		S	S	S	S	S									3			
Red River	11140106	-001	35.1	RED0044	E		N	S	S	R	N	SE				Tb				5			
Red River	11140106	-003	16.5	RED0025	E		N	S	S	R	N	SE				Tb				5			
Red River	11140106	-005	19.8	RED0025	M		N	S	S	R	N	SE				Tb				5			
Red River	11140106	-025	5.6	RED0025	E		N	S	S	R	N	SE				Tb				5			
Walnut Bayou	11140106	-004	21.8	RED0064	M		S	S	S	S	S									3			
Bois D'Arc Cr.	11140201	-008	9.8	UWBDK02	M		N	S	S	R	S	UN				DO				5			
Bois D'Arc Cr.	11140201	-009	16.3	UWBDK01	M		N	S	S	R	S	UN				DO				5			
Bois D'Arc Cr.	11140201	-809	9.0		U															3			
Bridge Creek	11140201	-010	12.8		E		S	S	S	S	S									1			
Caney Creek	11140201	-909	8.2		U					R										3			
Maniece Bayou	11140201	-006	29.4		U															3			
Maniece Bayou	11140201	-906	2.3		U															3			
McKinney Bayou	11140201	-012	56.2	RED0008; RED0008A; RED0054	M		N	S	S	N	N	UN	UN	UN		Cl	SO4	TDS		4a	4a	4a	
McKinney Bayou	11140201	-014	28.7	RED0055	M		N	S	S	N	N	UN	UN			SO4	TDS			4a	4a		
Posten Bayou	11140201	-002	12.6		U															3			
Red Chute Creek	11140201	-013	23.7		U															3			
Red River	11140201	-003	8.6	RED0009	M		N	S	S	N	N	UN	UN			TDS	Tb			4a	4a		
Red River	11140201	-004	4.5	RED0045	E		N	S	S	N	N	UN				TDS				4a			
Red River	11140201	-005	12.9	RED0045	E		N	S	S	N	N	UN				TDS				4a			
Red River	11140201	-007	37.1	RED0045	M		N	S	S	N	N	UN	UN			TDS	Tb			4a	4a		
Red River	11140201	-011	16.0	RED0046	M		N	S	S	N	N	UN	SE			TDS	Tb			4a	5		
Cypress Creek	11140302	-053	3.7		U															3			
Days Creek	11140302	-003	16.8	RED0004; RED0004A	M		N	S	S	N	N	MP				NO3				4a			
Mercer Bayou	11140302	-005	17.2		U															3			
Sulphur River	11140302	-001	7.9	RED0029	E		N	S	S	N	N	UN	SE	UN		Tm	Tb	TDS		4a	4a	4a	

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Sulphur River	11140302	-002	10.7	RED0005	E		N	S	S	N	N	UN	SE	UN		Tm	Tb	TDS		4a	4a	4a	
Sulphur River	11140302	-004	0.2	RED0005	E		N	S	S	N	N	UN	SE	UN		Tm	Tb	TDS		4a	4a	4a	
Sulphur River	11140302	-006	8.0	RED0005	M		N	S	S	N	N	UN	SE	UN		Tm	Tb	TDS		4a	4a	4a	
Sulphur River	11140302	-008	2.9	RED0005	E		N	S	S	N	N	UN	SE	UN		Tm	Tb	TDS		4a	4a	4a	
Kelley Bayou	11140304	-008	13.4		U		S	S	S	S	S									3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
RED0004	Days Creek South of Texarkana		2	S
RED0004A	Days Creek southeast of Texarkana	7344300	1	A
RED0005	Sulphur river south of Texarkana	7344275	1	A
RED0008	McKinney Bayou near Fort Lynn, AR		2	S
RED0008A	McKinney Bayou near Fouke, AR		2	S
RED0009	Red River near Doddridge	7344350	1	A
RED0025	Red River south of Foreman	7336860	1	A
RED0029	Sulphur River at Hwy. 71 Bridge		2	S
RED0044	Red River BL Nekoosa Paper on dirt road off Shepard Day Dr.		2	S
RED0045	Red River at Highway 82 near Garland		1	A
RED0046	Red River at Fulton railroad bridge	7337000	1	A
RED0054	McKinney Bayou at Highway 296, east of Mandeville		2	R
RED0064	Walnut Bayou near Foreman on CR180/Waldrop Rd		2	R
RED0055	McKinney Bayou at Highway 134, southeast of Fouke		2	R
UWBDK01	Bois D' Arc Creek at Highway 67 near Hope		2	R
UWBDK02	Bois D' Arc Creek on county road northwest of Center Point		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	132.9	Fish Consumption	-	0
Evaluated	109.1	Fisheries	61.4	313.6
Monitored	239.1	Primary Contact	375	0
Total	**481.1**	Secondary Contact	375	0
		Domestic Water Supply	61.4	210.5
		Agri. & Industry	87.5	287.5

Table A-4: Active NPDES permits for Planning Segment 1B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051047	GREENWAY WWTP	TRIB,BIG SLOUGH DIT,ST FRANCIS R	015	08020203	Clay	1	001
AR0002968	DOMTAR A.W. LLC	PIPING & OPEN CANAL,RED R	001	11140106	Little River	2	001
AR0042951	ASHDOWN WW TREATMENT PLANT	DOMTAR CANAL,RED R	001	11140106	Little River	3	001
AR0042846	ASH GROVE CEMENT COMPANY	FRENCH CR,WALNUT BU,RED R	004	11140106	Little River	4	001
AR0050857	GARLAND, CITY OF	RED R	007	11140201	Miller	5	001
AR0051942	SAMSAND, LLC - GARLAND PIT	RED R	007	11140201	Miller	6	001
AR0038466	HOPE, CITY OF-BOIS D'ARDC WWTP	BLACK BR,BOIS D'ARC CR,RED R	009	11140201	Hempstead	7	001
AR0048810	FULTON, CITY OF-WWTP	RED R	011	11140201	Hempstead	8	001
AR0052035	WOOTEN SAND AND GRAVEL, INC.	MCKINNEY BU,RED R	012	11140201	Miller	9	001
AR0044709	FLYING J TRAVEL PLAZA #606	TRIB,BOIS D'ARC BU,RED R	013	11140201	Miller	10	002
AR0021326	TYSON FOODS, INC. - HOPE PROCESSING PLANT	UNNAMED TRIB,CANEY CR,BOIS D'ARC CR,RED R	909	11140201	Hempstead	11	001
AR0041548	FOUKE WASTEWATER TREATMENT PLT	TRIB,CHICKEN CR,BOGGY CR,DAYS CR,SULPHUR R	003	11140302	Miller	12	001
AR0038822	COOPER TIRE & RUBBER COMPANY	TRIB,NIX CR,DAYS CR,SULPHUR R,RED R	003	11140302	Miller	13	001
AR0048691	TEXARKANA, CITY OF-NORTH WWTP	MCKINNEY BU,RED R	014	11140302	Miller	14	001

SEGMENT 1C LITTLE RIVER AND TRIBUTARIES

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 and wildlife, primary and secondary contact recreation, public, industrial and agricultural water supplies and contain Ecologically Sensitive Waterbodies. Overall water quality is good in the basin with the exception of a few long-term problem areas.

Bear Creek has shown major improvements over the last several years to the point that it has been delisted from the list of impaired waterbodies. There has been a significant decrease in nitrogen concentrations over the last decade.

The Rolling Fork River above DeQueen Reservoir historically has had elevated nutrient concentrations. Most recently, sulfates have been listed as impaired. The source is thought to be from a waste water treatment facility. A TMDL addressing the nutrients was completed in 2006.

Mine Creek has elevated nutrients concentrations. The source is believed to be from the Tyson Foods Inc. waste water treatment facility in Nashville, Arkansas. Additional point source controls will be investigated to address these issues.

Figure A-4: Planning Segment 1C

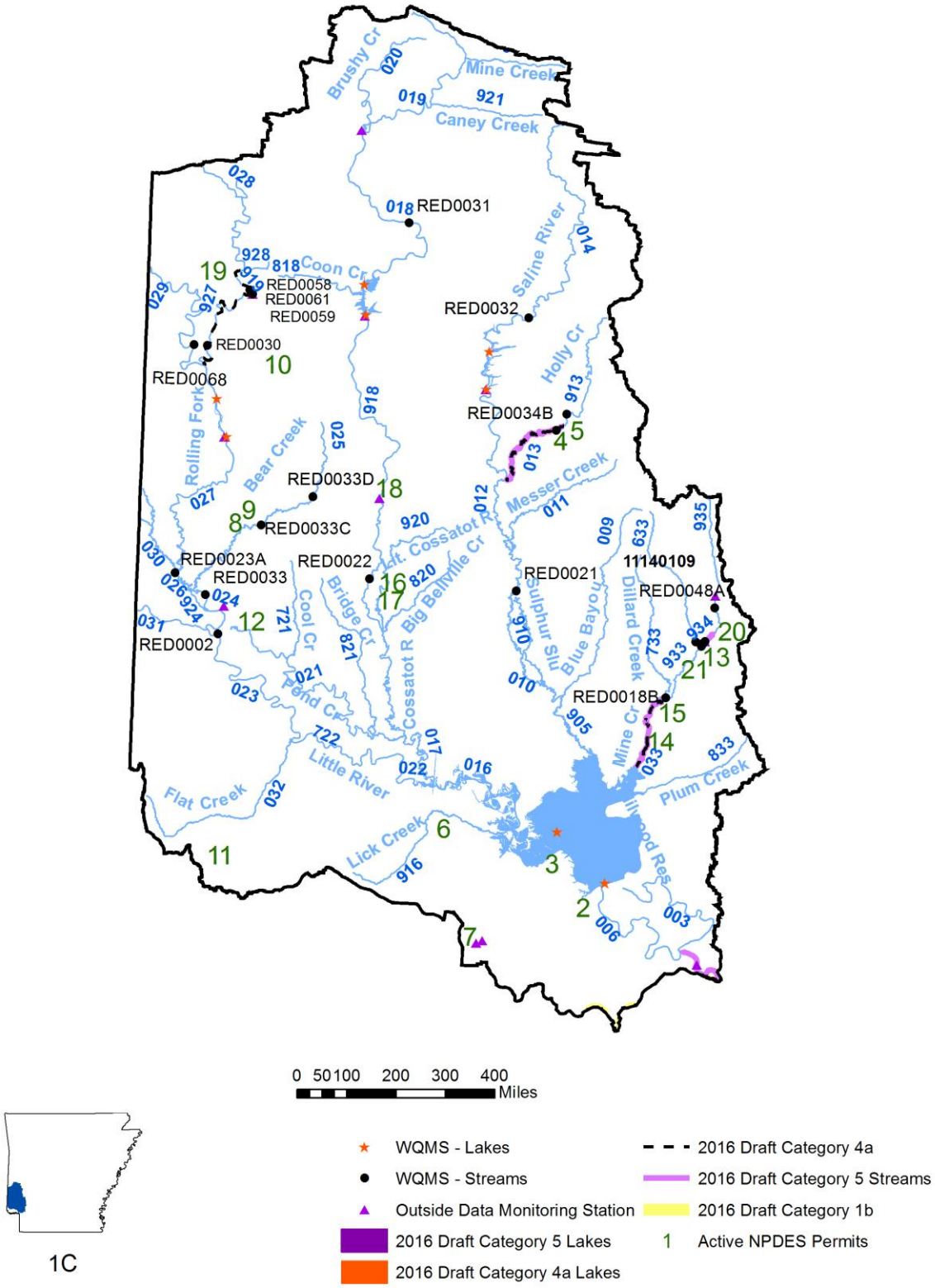

Table A-5: Planning Segment 1C Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bear Creek	11140109	-025	24.2	RED0033C; RED0033D	M		S	S	S	S	S									1			
Big Bellville Creek	11140109	-820	9.3	BEL0001	U															3			
Blue Bayou	11140109	-009	16.8	BLB0001	M		S	S	S	S	S									1			
Bridge Creek	11140109	-821	12.5	BRI0001	M		S	S	S	S	S									1			
Bushy Creek	11140109	-020	11.4	RED0053	E		S	S	S	S	S									1			
Caney Creek	11140109	-921	7.8		U															3			
Cool Creek	11140109	-721	7.9	CEG0001	U															3			
Coon Creek	11140109	-818	6.9		U					R										3			
Cossatot R.	11140109	-017	11.0		E		S	S	S	S	S									1			
Cossatot R.	11140109	-018	22.4	RED0031	M		S	S	S	S	S									1			
Cossatot R.	11140109	-019	16.8		E		S	S	S	S	S									1			
Cossatot R.	11140109	-918	38.2	COS0001; COS0003; RED0022	M		S	S	S	S	S									1			
Dillard Creek	11140109	-733	13.4	DIL0001	U															3			
Flat Creek	11140109	-032	16.7		U															3			
Holly Creek	11140109	-013	7.5	RED0034B	M		N	N	S	S	S	UN	UN			PA	DO			4A	5		
Holly Creek	11140109	-913	10.8	RED0034A	M		S	S	S	S	S									1			
L. Cossatot R.	11140109	-920	14.0	LCO001	M		S	S	S	S	S									1			
Lick Creek	11140109	-916	15.7		U			R												3			
Little River	11140109	-001	4.0	Report	M		N	S	S	S	S	UN				Tm				5			
Little River	11140109	-016	14.2		E		S	S	S	S	S									1			
Little River	11140109	-022	5.9		E		S	S	S	S	S									1			
Little River	11140109	-023	15.8	RED0002	M		S	S	S	S	S									1			
Little River	11140109	-031	5.9		E		S	S	S	S	S									1			
Little River	11140109	-722	10.0		U															3			
Messer Creek	11140109	-011	14.5	MES0001	E		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	**HUC**	**Reach**	**Miles**	**Monitoring Station**	**Assess**	**FC**	**FSH**	**PC**	**SC**	**DW**	**AI**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Mine Creek	11140109	-033	7.6	MIN0002	M		N	N	S	R	S	IP	UN			SO4	PA			5	4A		
Mine Creek	11140109	-919	6.7		U															3			
Mine Creek	11140109	-933	5.2	RED0018B; RED0051B	M		S	S	S	R	S									1			
Mine Creek	11140109	-934	0.6	MIN0001; RED0018A; RED0048B; RED0051A	M		N	S	S	R	N	IP				TDS				5			
Mine Creek	11140109	-935	10.3	RED0048A	M		S	S	S	S	S									1			
Plum Creek	11140109	-833	9.5	PLM0001	U															3			
Pond Creek	11140109	-021	28.4	RED0063	M		S	S	S	S	S									1			
Robinson Creek	11140109	-029	18.1	RED0068	M		S	S	S	S	S									1			
Rock Creek	11140109	-030	12.7		U															3			
Rolling Fork	11140109	-024	6.3	RED0033; RED0033A; RED0033B	M		S	S	S	S	S	IP				Cu				5			
Rolling Fork	11140109	-026	4.1	RED0023A	M		S	S	S	S	S									1			
Rolling Fork	11140109	-027	21.8		E		S	S	S	S	S									1			
Rolling Fork	11140109	-028	11.6	RED0059	U		S	S	S	R	S									3			
Rolling Fork	11140109	-919	0.3	RED0058	M		N	S	S	R	S	IP	IP	IP		TP	NO3	SO4		4a	4a	5	
Rolling Fork	11140109	-924	2.0	RED0023; RED0023A	M		S	S	S	S	S									1			
Rolling Fork	11140109	-927	9.2	RED0030; RED0062	M		N	S	S	R	S	IP	IP			TP	NO3			4a	4a		
Saline River	11140109	-010	27.7	RED0021; SAL0003	M		S	S	S	S	S									1			
Saline River	11140109	-012	8.0		E		S	S	S	S	S									1			
Saline River	11140109	-014	39.5	RED0032+	M		S	S	S	S	S									1			
Sulphur Slough	11140109	-910	11.1	RSS0001	U															1			
Temperanceville Creek	11140109	-633	11.5	RED0052	U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Twomile Creek	11140109	-930	3.9		U															3			
Upper Rolling Fork	11140109	-028	3.6	RED0059	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BEL0001	Big Bellville Creek south of Lockesburg, AR on Gore Rd.		2	S
BLB0001	Blue Bayou west of Mineral Springs		1	S
BRI0001	Bridge Creek southwest of Lockesburg		1	S
CEG0001	Cool Creek south of Walnut Springs		2	S
COS0001	Cossatot River northwest of DeQueen		2	S
COS0003	Cossatot River south of Lockesburg	7340500	2	S
DIL0001	Dillard creek at Highway 27 south of Nashville		2	S
LCO01	Little Cossatot River Highway 24 near Lockesburg		2	R
MES0001	Messers Creek SW of Dierks, AR on Mt. Caramel Rd.		2	S
MIN0001	Mine Creek S of Nashville, AR on Buck Range Rd.		2	S
MIN0002	Mine Creek 1.4 miles west of Tollette		2	S
PLM0001	Plum Creek at Highway 355		2	R
RED0002	Little River near Horatio	7340000	1	A
RED0018A	Mine Creek AB Nashville on Buck Range Rd.		2	S
RED0018B	Mine Creek at Highway 355 above Tyson effluent		1	A
RED0021	Saline River at Highway 24	7341200	1	A
RED0022	Cossatot River at Highway 24 bridge	7340520	1	A

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
RED0023	Rolling Fork Creek near Horatio, AR		2	S
RED0023A	Rolling Fork River at county road north of Highway 24	7339780	1	A
RED0030	Rolling Fork River above Dequeen Reservoir		1	A
RED0031	Cossatot River at Highway 4 near Wickes	7340300	1	A
RED0032	Saline River at Highway 4 north of Dierks		1	A
RED0033	Bear Creek below Process City		1	A
RED0033B	Bear Creek at Highway 24 near Horatio		2	A
RED0033C	Bear Creek at Hwy. 41 south of DeQueen, AR		2	S
RED0033D	Bear Creek at US Hwy. 71 east of DeQueen, AR		2	S
RED0034A	Holly Creek above Dierks		1	A
RED0034B	Holly Creek below Dierks		1	A
RED0048A	Mine Creek at Highway 27 bypass above Tyson effluent		1	A
RED0048B	Mine Creek near Nashville below Tyson effluent		1	A
RED0051	City of Nashville effluent		2	S
RED0051A	Mine Creek 50 yards AB Nashville STP (MNC202A) near SR 27		2	S
RED0051B	Mine Creek 50 yards BL Nashville STP (MNC03B) near SR 27		2	S
RED0052	Coleman Creek south of Nashville (MNC04T) on SR27		2	S
RED0053	Brushy Creek south of Mena on CR633		2	S
RED0058	Rolling Fork River near Grannis		1	A
RED0059	Rolling Fork River west of Grannis above Tyson effluent		2	S
RED0062	Rolling Fork River off CR446 W of Grannis		2	S
RED0063	Pond Creek in the National Wildlife Refuge		2	R
RED0064	Walnut Bayou at Co. Rd. off Highway 32		2	R
RED0068	Robinson Creek on logging road W of Gillham		1	S
RSS0001	Sulphur Slough near Lockesburg, AR		2	S
SAL0001	Saline River near Direks	7341000	2	S
SAL0003	Saline River west Mineral Springs		2	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	158.3	Fish Consumption	-	0
Evaluated	109.5	Fisheries	417.4	29.16
Monitored	325.46	Primary Contact	431.46	15.1
Total	**593.26**	Secondary Contact	446.56	0
		Domestic Water Supply	412.1	0
		Agri. & Industry	445.96	0.6

Table A-6: Active NPDES permits for Planning Segment 1C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051136	SWEPCO-JOHN W TURK, JR POWER PLANT	LITTLE RED, RED R	001	11140109	Hempstead	1	001
AR0037079	ARKANSAS STATE PARKS-MILLWOOD STATE PARK	TRIB,BUSTER CREEK,LITTLE R,RED R	006	11140109	Little River	2	001
AR0041246	MILLWOOD WATER CORP	TRIB, LK MILLWOOD,LITTLE R,RED R	006	11140109	Little River	3	001
AR0021709	DIERKS, CITY OF	HOLLY CR,SALINE R,LITTLE R,RED R	013	11140109	Howard	4	001
AR0002917	WEYERHAEUSER NR COMPANY-DIERKS MILL	HOLLY CR, SALINE R, RED R	013	11140109	Howard	5	002
AR0040886	WILTON, TOWN OF - WWTF	TRIB,LICK CR,MILLWOOD LK,LITTLE R, RED R	016	11140109	Little River	6	001
AR0048411	DOMTAR A.W. LLC - ASHDOWN WOODYARD WET DECK	TRIB,HUDSON CR,LITTLE R	016	11140109	Little River	7	001
AR0002909	WEYERHAEUSER NR COMPANY-DEQUEEN REMEDIATION SITE	BEAR CR,ROLLING FORK CR,LITTLE R, RED R	025	11140109	Sevier	8	001
AR0021733	DEQUEEN, CITY OF	TRIB,BEAR CR,ROLLING FORK R,LITTLE R	025	11140109	Sevier	9	001
AR0047996	GILLHAM REGIONAL WASTEWATER DISTRICT	BELLAH CR,LK DEQUEEN,ROLLING FK CR,LITTLE R, RED R	027	11140109	Sevier	10	001
AR0023817	FOREMAN, CITY OF	E FLAT CR,FLAT CR,LITTLE R,RED R	032	11140109	Little River	11	001
AR0035785	HORATIO, CITY OF	TRIB,POND CR,COSSATOT R,LITTLE R,MILLWOOD LK	032	11140109	Sevier	12	001
AR0021776	NASHVILLE, CITY OF	MINE CR,MILLWOOD LK,RED R	033	11140109	Howard	13	001
AR0045144	TOLLETTE, CITY OF	MINE CR,MILLWOOD LK,LITTLE R,RED R	033	11140109	Howard	14	001
AR0021261	MINERAL SPRINGS, CITY OF-WWTP	MINE CR,MILLWOOD LK, LITTLE R, RED R	033	11140109	Howard	15	002
AR0021377	LOCKESBURG, CITY OF	TRIB,LITTLE COSSATOT R,COSSATOT R,LITTLE R	918	11140109	Sevier	16	001
AR0048593	LOCKSBURG PLT #1544	BRANCH MILL SLU,COSSATOT R, LITTLE R	918	11140109	Sevier	17	001

Table A-6: Active NPDES permits for Planning Segment 1C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0049034	COSSATOT ROCK, LLC	TRIB,HALE CR,COSSATOT R,LITTLE R,MILLWOOD LK, RED R	918	11140109	Sevier	18	001
AR0003018	TYSON FOODS, INC. - GRANNIS PROCESSING FACILITY	TRIB,ROLLING FORK R,LITTLE R,RED R	919	11140109	Polk	19	001
AR0041734	TYSON FOODS, INC.NASHVILLE	MINE CR,MILLWOOD LK,LITTLE R,RED R	933	11140109	Howard	20	001
AR0041769	DALTON MOBILE HOME PARK	TRIB,MINE CR,MILLWOOD LK	933	11140109	Howard	21	001

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SEGMENT 1D MOUNTAIN FORK AND TRIBUTARIES

This segment is located on the western edge of Montgomery County and covers a portion of Polk County. It encompasses a 22-mile reach of the Mountain Fork of Little River from its headwaters to the Arkansas-Oklahoma state line.

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. The Mountain Fork River is also designated as an Extraordinary Resource Waterbody and an Ecologically Sensitive Waterbody because of the occurrence of the leopard darter (*Etheostoma pantherina*).

The waters within this segment currently maintain all assigned designated uses; however a portion of the Mountain Fork River does not meet the turbidity and temperature water quality standards.

The source of the turbidity is thought to be from nonpoint sources (mainly pasture) in the watershed. In addition, the turbidity and the cause of the elevated temperatures are most likely from the inadequate riparian zone adjacent to the river in the watershed.

Figure A-5: Planning Segment 1D

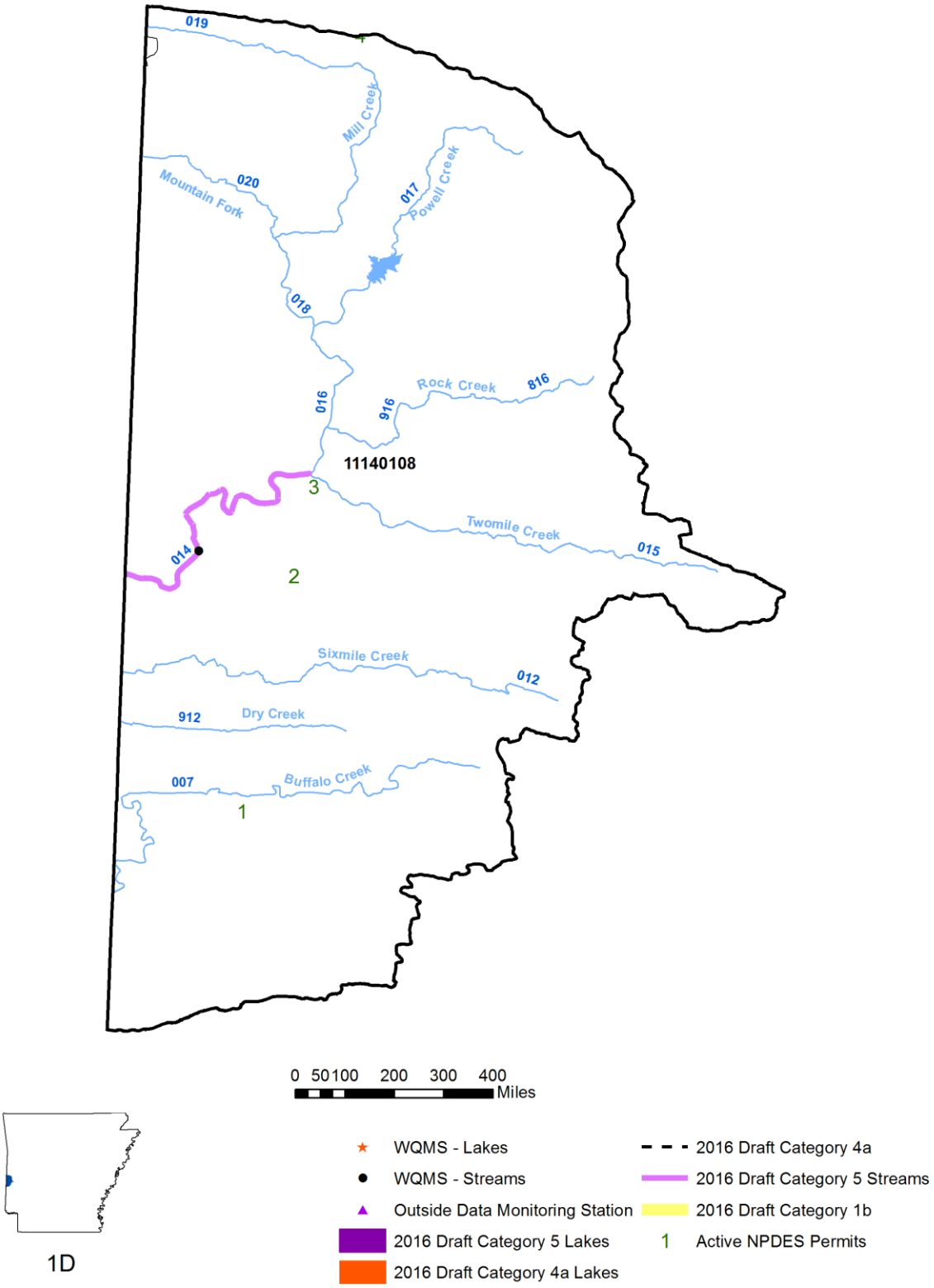


Table A-7: Planning Segment 1D (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Buffalo Creek	11140108	-007	21.1		U															3			
Dry Creek	11140108	-912	9.2		U															3			
Mill Creek	11140108	-019	12.1		E		S	S	S	S	S									1			
Mountain Fork	11140108	-014	11.2	RED0001	M		N	S	S	S	S	SE	*			Tb	Tm			5	5		
Mountain Fork	11140108	-016	4.6		E		S	S	S	S	S									1			
Mountain Fork	11140108	-018	2.9		E		S	S	S	S	S									1			
Mountain Fork	11140108	-020	5.9		E		S	S	S	S	S									1			
Powell Creek	11140108	-017	9.1		E		S	S	S	S	S									1			
Rock Creek	11140108	-816	3.0	RED0039; RED0042B	U															3			
Rock Creek	11140108	-916	5.5	RED0003; RED0040	U															3			
Sixmile Creek	11140108	-012	16.6		U															3			
Twomile Creek	11140108	-015	11.3		E		S	S	S	S	S									1			

*Low Water Bridge

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
RED0001	Mountain Fork near Hatfield	7338720	1	A
RED0003	Rock Creek near Mena on SR375		2	S
RED0039	Rock Creek NW of Potter Junction on CR167		2	S
RED0040	Rock Creek near Potter on CR165		2	S
RED0042B	Rock Creek below Mid-South Wood Prod NPDES and SF discharges		2	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Use	Miles Support	Miles Non-Support
Unassessed	55.4	Fish Consumption	-	0
Evaluated	45.9	Fisheries	45.9	11.2
Monitored	11.2	Primary Contact	57.1	0
Total	**112.5**	Secondary Contact	57.1	0
		Domestic Water Supply	57.1	0
		Agri. & Industry	57.1	0

Table A-8: Active NPDES permits for Planning Segment 1D

Permit #	Facility Name	Receiving Waters	Reach	HUC 8	County	Map #	Outfall
AR0049247	COVE, CITY OF	BUFFALO CR,MOUNTAIN FORK R,LITTLE R,RED R	007	11140108	Polk	1	001
AR0035483	HATFIELD, CITY OF	JOSHLING CR,MOUNTAIN FORK R, RED R	014	11140108	Polk	2	001
AR0046787	BOY SCOUTS OF AMERICA - CAMP PIONEER C/O CADDO AREA COUNCIL	TWO MILE CR,MOUNTAIN FORK R,LITTLE R	015	11140108	Polk	3	001
AR0037605	QUEEN WILHELMINA STATE PARK	TRIB,MILL CR,MOUNTAIN FORK/LITTLE R,RED R	019	11140108	Polk	4	001

OUACHITA RIVER BASIN

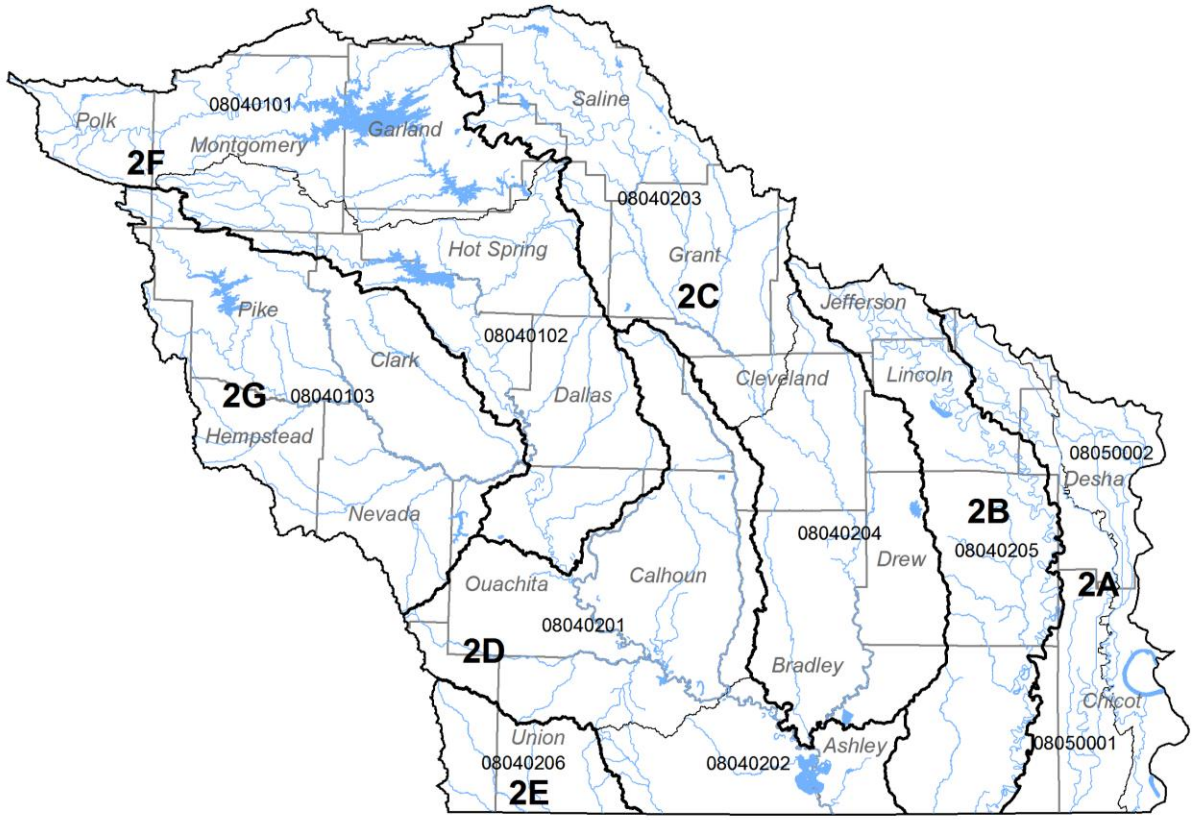
Covering most of the southern half of the state (Figure A-6), the Ouachita River basin spans parts of three ecoregions: Ouachita Mountains, Gulf Coastal Plains, and Delta. All major rivers within this basin drain south, directly into Louisiana.

The basin is divided into seven ADEQ planning segments and ten 8 digit HUCs. Major reservoirs include Lake Ouachita, Lake Hamilton, Lake Catherine, De Gray Reservoir, Lake Greeson, White Oak Lake, Lake Chicot, and Mossy Lake.

Major watersheds include: Boeuf River, Bayou Bartholomew, Saline River, Ouachita River, Cornie Bayou, Little Missouri River, and Antoine River.

This basin spans parts of or all of Yell, Polk, Montgomery, Garland, Saline, Grant, Jefferson, Pike, Howard, Hempstead, Clark, Nevada, Dallas, Hot Spring, Cleveland, Lincoln, Desha, Drew, Bradley, Calhoun, Ouachita, Union, Columbia, Ashley, and Chicot counties.

Figure A-6: Ouachita River Basin



2A - Boeuf River & Tributaries
2B - Bayou Bartholomew & Tributaries
2C - Saline River & Tributaries
2D - Lower Ouachita River & Tributaries
2E - Lower Cornie Bayou & Tributaries
2F - Ouachita River & Tributaries: Headwaters to Little Missouri River
2G - Little Missouri River & Antoine River

2 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. Row crop agriculture is also the dominant land use in this watershed.

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. The majority of the waters in this segment have been severely altered by channelization, ditching, and rerouting the drainage patterns.

Numerous stream segments in the Planning Segment have been evaluated as not meeting their respective turbidity and mineral standards. Row-crop agriculture dominates the land use in this planning segment. Total Maximum Daily Loads have been completed for most of the listed constituents in these waterbodies and are being implemented through the Nonpoint Source Program at the Arkansas Natural Resources Commission.

Figure A-7: Planning Segment 2A

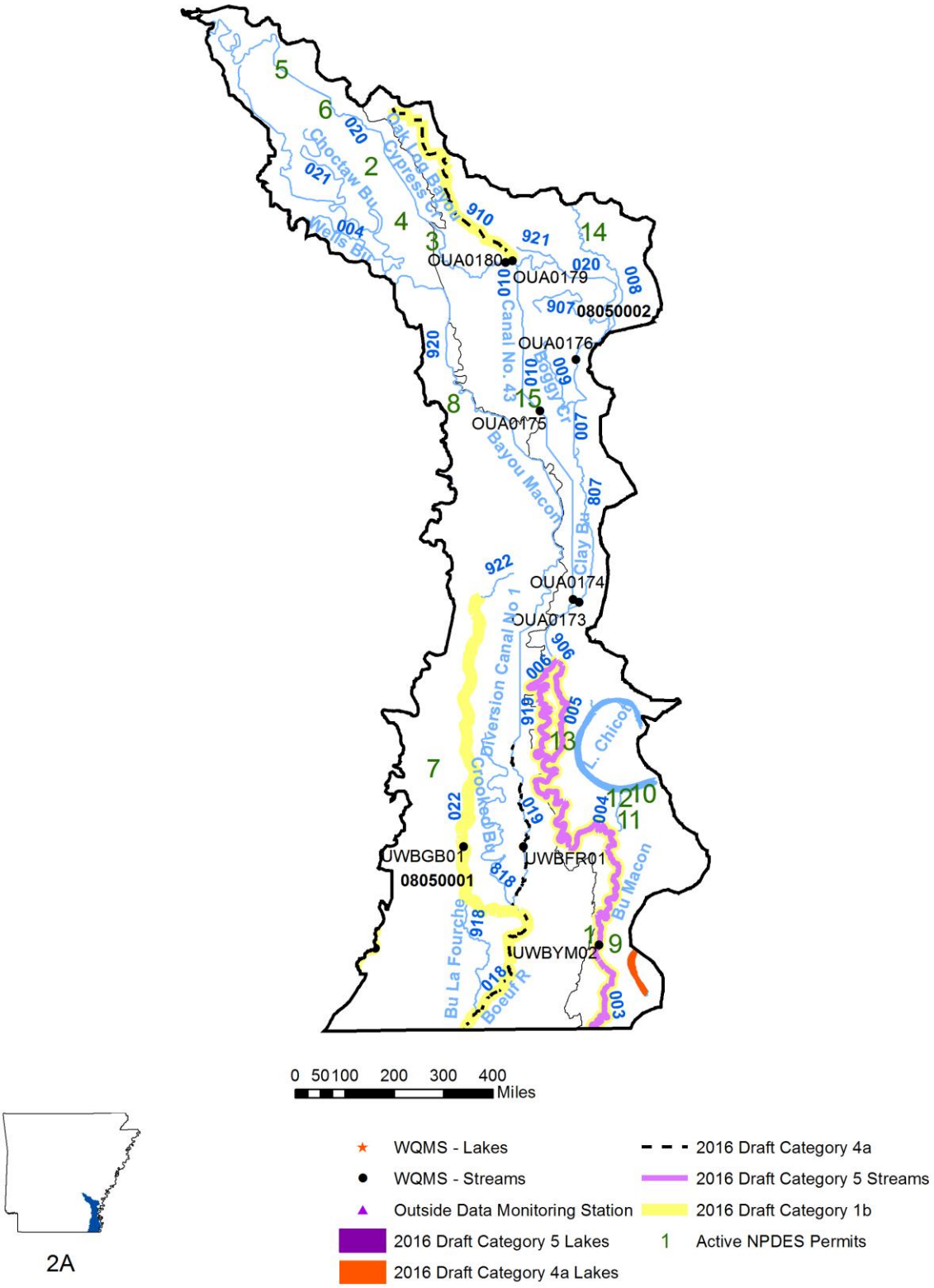


Table A-9: Planning Segment 2A (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bayou La Fourche	8050001	-918	12.1	OUA0014	U															3			
Bayou Macon	8050001	-920	34.8		U															3			
Big Bayou	8050001	-022	33.5	UWBGB01, OUA0032	M		S	S	S	S	S									1			
Black Pond Slough	8050001	-922	3.7	OUA0139	U															3			
Boeuf River	8050001	-018	13.3	OUA0015, OUA0015A	M		N	S	S	N	N	AG	AG	AG		Tb	SO4	CL		4a	4a	4a	
Boeuf River	8050001	-019	15.7	UWBFR01	M		N	S	S	N	N	AG	AG	AG	AG	Tb	SO4	CL	TDS	4a	4a	4a	4a
Choctaw Bayou	8050001	-021	55.5	OUA0181	M		S	S	S	S	S									1			
Crooked Bayou	8050001	-818	25.9	OUA0113	U															3			
Diversion Canal No 1	8050001	-919	11.1		U															3			
Wells Bayou	8050001	-004	4.4		U															3			
Amos Bayou	8050002	-907	19.8		U															3			
Bayou Macon	8050002	-003	22.9	UWBYM01, OUA0016, OUA0016A	M		N	S	S	S	S	UN				CL				5			
Bayou Macon	8050002	-006	47.5	UWBYM02	M		N	S	S	S	S	UN				CL				5			
Boggy Creek	8050002	-009	8.2		E		S	S	S	S	S									1			
Canal No. 43	8050002	-010	28.9	OUA0174, OUA0175	M		S	S	S	S	S									1			
Canal No. 43	8050002	-910	18.5		U															3			
Clay Bayou	8050002	-007	5.8	OUA0173, OUA0176	M		S	S	S	S	S									1			
Clay Bayou	8050002	-807	14.7		U															3			
Cypress Creek	8050002	-020	66.7	OUA0180	M		S	S	S	S	S									1			
Ditch Bayou	8050002	-004	4.2	OUA0172	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Oak Bayou	8050002	-910	18.3	OUA0179	M		N	S	S	N	N	AG		AG		Tb	Cl	TDS		4a	1b	4a	
Oak Log Bayou	8050002	-912	3.6	OUA0178	M		N	S	S	N	N	AG	AG			Tb	TDS			4a	4a		
Red Fork Bayou	8050002	-008	16.0	OUA0177	M		S	S	S	S	S									1			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0014	Bayou La Fourche near Wilmot AR		2	S
OUA0015A	Boeuf River near Arkansas-Louisiana State line	7367700	1	A
OUA0016	Bayou Macon near Eudora AR		2	S
OUA0016A	Bayou Macon near Kilbourne LA		2	S
OUA0032	Big Bayou at Highway 144 near Jerome		2	R
OUA0113	Crooked Bayou near Eudora, AR on SR160/Portland Rd.		2	S
OUA0139	Black Pond Slough at Hwy. 65		2	S
OUA0172	Ditch Bayou at AGFC access off US 82 near Lake Village		2	R
OUA0173	Clay Bayou at Highway 35		2	R
OUA0174	Canal No. 43, Amos Bayou, at Highway 35		1	R
OUA0175	Macon Bayou at Highway 1 near McArthur		1	R
OUA0176	Amos Bayou off Highway 1 near Rohwer		1	R
OUA0177	Red Fork Bayou on county road northeast of Kelso		2	R
OUA0178	Oak Log Bayou at county road off Highway 277 southeast of Dumas		2	R
OUA0179	Oak Bayou at Highway 277 southeast of Dumas		1	R
OUA0180	Cypress Creek on county road off Highway 277 southwest of Dumas		2	R
OUA0181	Choctaw Bayou at county road southwest of Dumas		2	R
UWBFR01	Boeuf River at Highway 278, 4 miles west of Chicot		2	R

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBGB01	Big Bayou at Highway 278, 5 miles east of Portland		1	R
UWBYM01	Macon Bayou at Highway 65 near Eudora	7369680	1	R
UWBYM02	Macon Bayou at Hwy 65 0.5 mi. N of McMillan Corner		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	145	Fish Consumption	-	0
Evaluated	8.2	Fisheries	218.8	121.3
Monitored	331.9	Primary Contact	340.1	0
Total	**485.1**	Secondary Contact	340.1	0
		Domestic Water Supply	289.2	50.9
		Agri. & Industry	289.2	50.9

Table A-10: Active NPDES permits for Planning Segment 2A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050580	ALABAMA CATFISH, LLC - HAREST SELECT CATFISH EUDORA	BU MACON,OUACHITA R	003	08050001	Chicot	1	001
AR0021679	GOULD, CITY OF - MUNICIPAL WWTF	TRIB,KERCH CANAL,CYPRESS CR,BOEUF R,OUACHITA R	020	08050001	Lincoln	2	001
AR0033987	DUMAS, CITY OF-WWTP	CANAL #19,BU MACON,OUACHITA R	020	08050001	Desha	3	001
AR0037125	MITCHELLVILLE, CITY OF	TRIB, DIT 19,AMOS BU,MACON BU, BOEUF R	020	08050001	Desha	4	001
AR0039381	GRADY, CITY OF-WWTP	CAN #19,BU MACON,BOEUF R,OUACHITA	020	08050001	Lincoln	5	001
AR0040827	AR DEPT OF CORRECTION - CUMMINS UNIT	CAN #19,CYPRESS CR,CAN #43,BU MACON, OUACHITA R	020	08050001	Lincoln	6	002
AR0041297	MONTROSE, CITY OF - WASTE WATER FACILITIES	TRIB WARDS BU,BIG BU,BOEUF R	022	08050001	Ashley	7	001
AR0033707	TILLAR, CITY OF	CAN #18,MACON BU,BOEUFF R	920	08050001	Drew	8	001
AR0033839	EUDORA, CITY OF	BU MACON,OUACHITA R	003	08050002	Chicot	9	001
AR0050008	CHICOT COUNTY PARK	LK CHICOT,DIT BU,MACON BU,OUACHITA R	004	08050002	Chicot	10	001
AR0050091	CHICOT COUNTY-DITCH BAYOU BOAT RAMP	DIT BU,BU MACON	004	08050002	Chicot	11	001
AR0052281	SOUTH SHORE COTTAGES, LLC	DIT BU, MACON BU, OUACHITA R	004	08050002	Chicot	12	001
AR0021849	LAKE VILLAGE, CITY OF	LITTLE LK BU,BU MACON,CANAL #4,BOEUF R,OUACHITA R	006	08050002	Chicot	13	001
AR0021610	WATSON, CITY OF	RED FORK BU,BOGGY BU,CLAY BU,BU MACON, STATE OF LA	008	08050002	Desha	14	001
AR0051985	COON BAYOU, LLC - DELTA CONFERENCE CENTER	CANAL 43,MACON LK, MACON BU, OUACHITA R	010	08050002	Desha	15	001

SEGMENT 2B BAYOU BARTHOLOMEW AND TRIBUTARIES

Segment 2B, located in the southeastern part of Arkansas and drains portions of Jefferson, Lincoln, Drew, and Ashley Counties and very small portions of Cleveland, Desha, and Chicot Counties. The major streams in this segment are Bayou Bartholomew, Able's Creek, Cutoff Creek, Deep Bayou, 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, as well as public, industrial, and agricultural water supplies. This segment contains a total of 489.3 stream miles, all of which are being assessed, which are mainly used as an irrigation water supply. However, many sections of these waterbodies are used by canoers and offer excellent fishing opportunities.

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 within many of these streams. For many years, the Bayou Bartholomew Alliance addressed these concerns through the implementation of best management practices on a watershed scale. Analyses have indicated an increasing tread in instream turbidity concentrations in Bayou Bartholomew since 1995.

Figure A-8: Bayou Bartholomew Turbidity (OUA0013)

Figure A-9: Planning Segment 2B

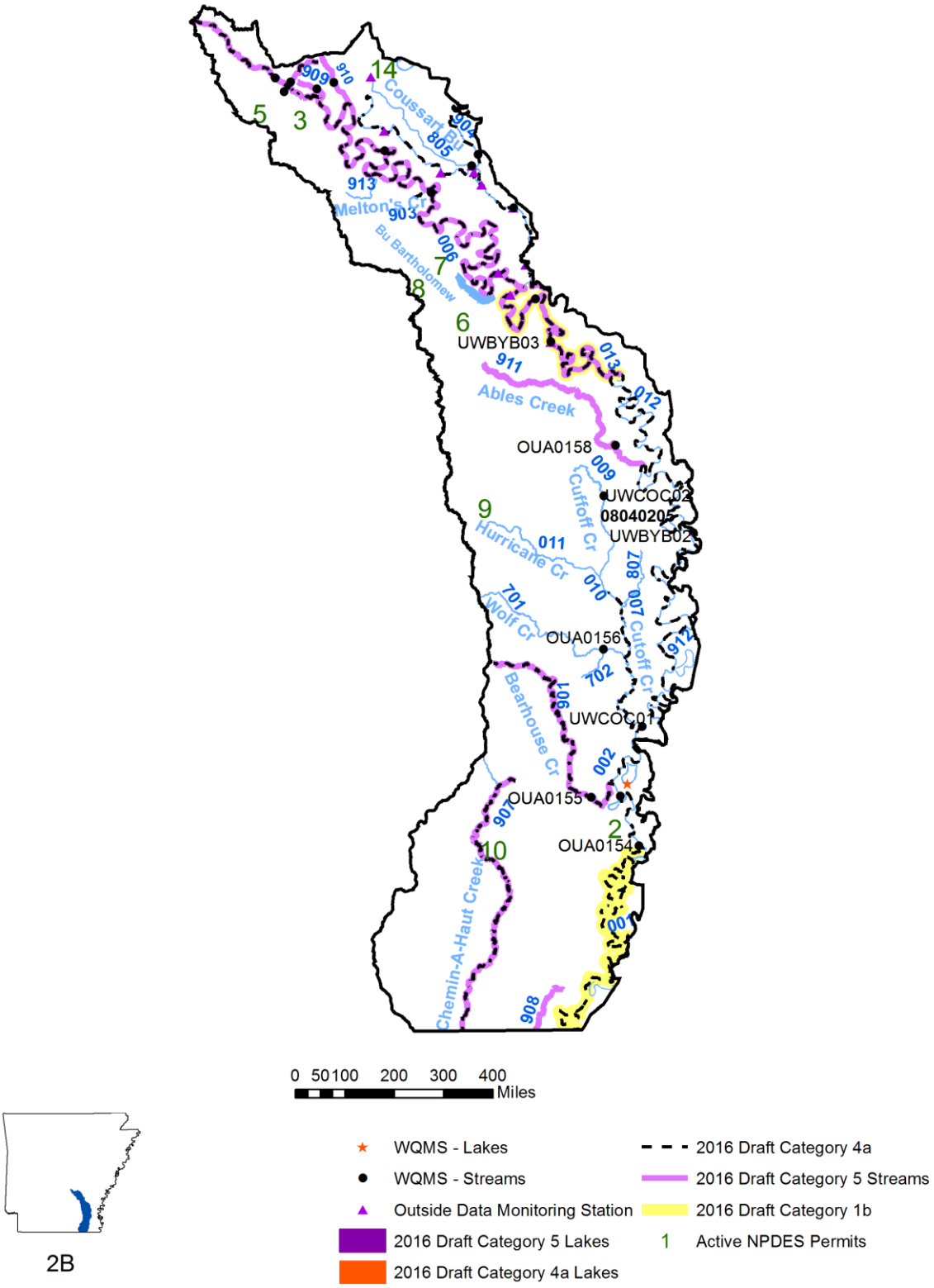


Table A-11: Planning Segment 2B (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Able's Creek	8040205	-911	26.7	OUA0153, OUA0158	M		N	S	S	S	S	SE				Tb				5			
B. Bartholomew	8040205	-001	48.0	OUA0013	M		N	S	S	S	S	AG				Tb				4a			
B. Bartholomew	8040205	-002	17.6	OUA0154, UWBYB01	M	A	N	S	S	S	S	UN	SE	UN		Hg	Tb	*		4a	4a	4a	
B. Bartholomew	8040205	-006	92.9	OUA0033, OUA0143, OUA0160	M		N	S	S	S	S	UN	AG			Pb	Tb			5	4a		
B. Bartholomew	8040205	-012	34.8	UWBYB02	E	A	N	S	S	S	S	SE	AG			Tb	Hg			4a	4a		
B. Bartholomew	8040205	-013	34.2	UWBYB03	M		N	N	S	S	S	AG	AG	AG		Tb	PA	DO		4a	4a	5	
B. Bartholomew	8040205	-912	61.5	UWBYB02	M		N	S	S	S	S	SE	AG	AG	AG	Tb	Cl	SO4	TDS	4a	4a	4a	4a
Bailey Creek	8040205	-702	4.5		U															3			
Bayou Imbeau	8040205	-910	5.4	OUA0147	M		N	N	S	S	S	UR	UR	UR		DO	Pb	PA		5	5	5	
Bearhouse Creek	8040205	-901	32.8	OUA0155	M		N	N	S	S	S	UN	UN			DO	PA			5	4a		
Chemin-A-Haut Creek	8040205	-907	46.8	OUA0012	M		N	N	S	S	S	UN	UN			DO	PA			5	4a		
Coussart Bayou	8040205	-805	14.1	OUA0149	U															3			
Cross Bayou	8040205	-905	2.4	OUA0152	M		N	N	S	S	S	UN	UN			DO	PA			5	4a		
Cutoff Creek	8040205	-007	21.6	UWCOC01	M	A	N	S	S	S	S	SE	UN			Tb	Hg			4a	4a		
Cutoff Creek	8040205	-009	17.2	UWCOC02	U															3			
Deep Bayou	8040205	-003	0.9		U															3			
Deep Bayou	8040205	-005	32.0	OUA0151	M		N	N	S	S	S	AG	AG			PA	Tb			4a	4a		
Dry Bayou	8040205	-807	7.3	OUA0157	U															3			
Harding Creek	8040205	-902	4.1	OUA0145	M		N	N	S	S	S	UR	UR			PA	Pb			4a	5		
Hurricane Creek	8040205	-011	15.7		U															3			
Jacks Bayou	8040205	-904	7.4	OUA0150	M		S	N	S	S	S	UN				PA				4a			
Main Street Ditch	8040205	-909	3.2	OUA0146	M		N	S	S	S	S	UR	UR			DO	Pb			5	5		

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Melton's Creek	8040205	-903	2.2	OUA0148	M		S	N	S	S	S	UN				PA				4a			
Nevins Creek	8040205	-906	8.5	OUA0144	M		S	S	S	S	S									1			
Overflow Creek	8040205	-908	6.6	OUA0012A	M		N	S	S	S	S	SE	UN			Tb	Cl			5	5		
Walker Branch	8040205	-913	5.3		U															3			
Wolf Creek	8040205	-701	25.1	OUA0156	M		S	S	S	S	S									1			

*=Cl, SO4, TDS

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0012	Overflow Creek at Louisiana Highway 590 in Morehouse Parish		2	R
OUA0012A	Chemin-A-Haut Creek at Louisiana Highway 834 in Morehouse Parish		1	R
OUA0013	Bayou Bartholomew near Jones Louisiana	7364200	1	A
OUA0033	Bayou Bartholomew near Ladd	7364115	1	A
OUA0143	Bayou Bartholomew near Pine Bluff on Oakwood Rd.		1	S
OUA0144	Nevins Creek on Good Faith road in Pine Bluff		1	S
OUA0145	Harding Creek on Oak Wood road in Pine Bluff		1	S
OUA0146	Unnamed trib to Bayou Bartholomew in SE Pine Bluff, AR		1	S
OUA0147	Bayou Imbeau SE of Pine Bluff on E 38th St		1	S
OUA0148	Melton's Creek on county road 2 miles south of Tarry		1	S
OUA0149	Cousart Bayou S of Tamo on Black Button Ln.		1	S
OUA0150	Jack's Bayou S of Tamo on W Clemmons Rd.		1	S
OUA0151	Deep Bayou at Highway 11, 3 miles south of Grady		1	S
OUA0152	Cross Bayou on county road 2 miles south of Highway 114 near Fresno		1	S
OUA0153	Ables Creek SW of Tyro on SR54		2	S
OUA0154	Bayou Bartholomew at Highway 278 west of Portland	7364185	1	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0155	Bearhouse Creek at county road 75, north of Snyder		1	S
OUA0156	Wolf Creek S of Collins on Collins-Line Rd		2	S
OUA0157	Dry Bayou on SR35 E of Collins		2	S
OUA0158	Ables Creek N of Selma on SR138		2	S
OUA0160	Bayou Bartholomew S of Tarry on Amherst Rd.		2	S
UWBYB01	Bayou Bartholomew at Highway 82 near Thebes		1	R
UWBYB02	Bayou Bartholomew at Highway 4 near McGehee	7364150	2	R
UWBYB03	Bayou Bartholomew at Highway 54 at Garrett Bridge	7364133	1	A
UWCOC01	Cut-Off Creek near Boydell		2	R
UWCOC02	Cut-Off Creek at Highway 4 east of Monticello		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	65	Fish Consumption	-	74
Evaluated	34.8	Fisheries	43.2	470.6
Monitored	479	Primary Contact	343.3	170.5
Total	**578.8**	Secondary Contact	513.8	0
		Domestic Water Supply	513.8	0
		Agri. & Industry	513.8	0

Table A-12: Active NPDES permits for Planning Segment 2B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050997	PARKDALE, CITY OF	BU BARTHOLOMEW	001	08040205	Ashley	1	001
AR0034371	PORTLAND, CITY OF	TRIB,BU BARTHOLOMEW,OUACHITA R	002	08040205	Ashley	2	001
AR0037885	TANTARA #1- D/B/A BOGGY BAYOU SID	BOGGY BU,BU BARTHOLOMEW,ARKANSAS R	006	08040205	Jefferson	3	001
AR0039144	PINEWOOD SEWER IMPROVEMENT DISTRICT (SID) #1	TRIB,NEVINS CR,BU BARTHOLOMEW, OUACHITA R	006	08040205	Jefferson	4	001
AR0041602	SUBURBIA SID #1	UNNAMED TRIB NEVIN CR,BU BARTHOLOMEW, OUACHITA R	006	08040205	Jefferson	5	001
AR0045888	ARKANSAS STATE PARKS-CANE CREEK STATE PARK	CANE CREEK LK,BU BARTHOLOMEW	006	08040205	Lincoln	6	001
AR0046477	STAR CITY WW TREATMENT FCILITY	CANE CR,BU BARTHOLOMEW,OUACHITA R	006	08040205	Lincoln	7	001
AR0047872	ROBERT FLOYD SAWMILL, INC.	TRIB,CANE CR,BU BARTHOLOMEW,OUACHITA R	006	08040205	Lincoln	8	001
AR0021831	MONTICELLO, CITY OF - EAST PLANT	TRIB,GODFREY CR,LOWER CUTOFF CR,CUTOFF CR,7 DEVILS	009	08040205	Drew	9	001
AR0034029	HAMBURG, CITY OF	CHEMIN-A-HAUT CR, OUACHITA R	011	08040205	Ashley	10	001
AR0047350	PINE HAVEN PARK	TRIB,GODFREY CR,CUTOFF CR,BU BARTHO	011	08040205	Drew	11	001
AR0022071	MCGEHEE, CITY OF	BU BARTHOLOMEW,OUACHITA R	912	08050001	Desha	12	001
AR0022250	DERMOTT, CITY OF (SOUTH POND)	BU BARTHOLOMEW,OUACHITA R	912	08050001	Chicot	13	002
AR0001970	EVERGREEN PACKAGING, INC. - PINE BLUFF MILL	TRIB, COUSART BU,BU BARTHOLOMEW (002)	805	11110205	Jefferson	14	002

SEGMENT 2C SALINE RIVER AND TRIBUTARIES

Segment 2C is located in south central Arkansas and covers parts of Saline, Garland, Hot Spring, Grant, Dallas, 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, L'Aigle Creek, Derrieusseaux Creek, and the four forks of the upper Saline River.

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. 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. These streams offer, and are utilized, by canoers and boaters year-round. Fishing and swimming activities are more dominant during the warmer months.

The domestic water supply use has been removed from 83.8 stream miles in the Hurricane Creek sub-watershed because of excessive mineral content. The minerals (chlorides, sulfates, and other dissolved minerals) in this basin originate from the historic open pit bauxite mines.

Water quality in Big Creek below the City of Sheridan effluent has improved greatly. A TMDL was completed for dissolved oxygen in Big Creek in 2007. This stream is classified as a seasonal fishery and the critical season dissolved oxygen standard is 2.0 mg/L to prevent nuisance conditions. Many small streams in this ecoregion have dissolved oxygen levels below 2.0 mg/L during the critical season.

A fish consumption advisory has been placed on much of the lower Saline River because of mercury contamination. A TMDL was completed in September 2002 for these waters.

A few total maximum daily loads have been established for constituents listed on previous lists of impaired waterbodies. These waterbody segments have been moved from Category 5 to Category 4a.

Figure A-10: Planning Segment 2C

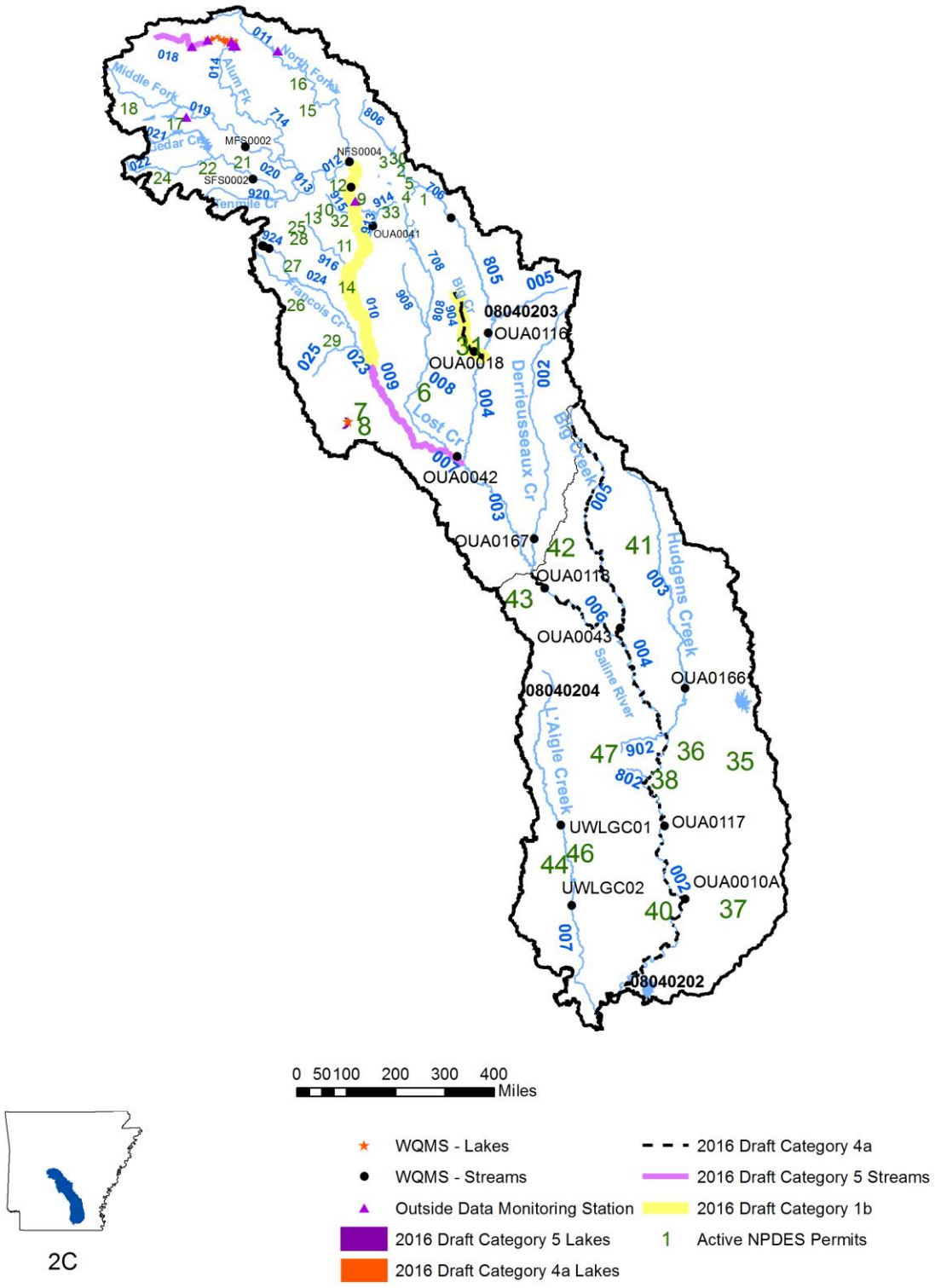


Figure A-11: Planning Segment 2C Close-up of Upper Saline River watershed

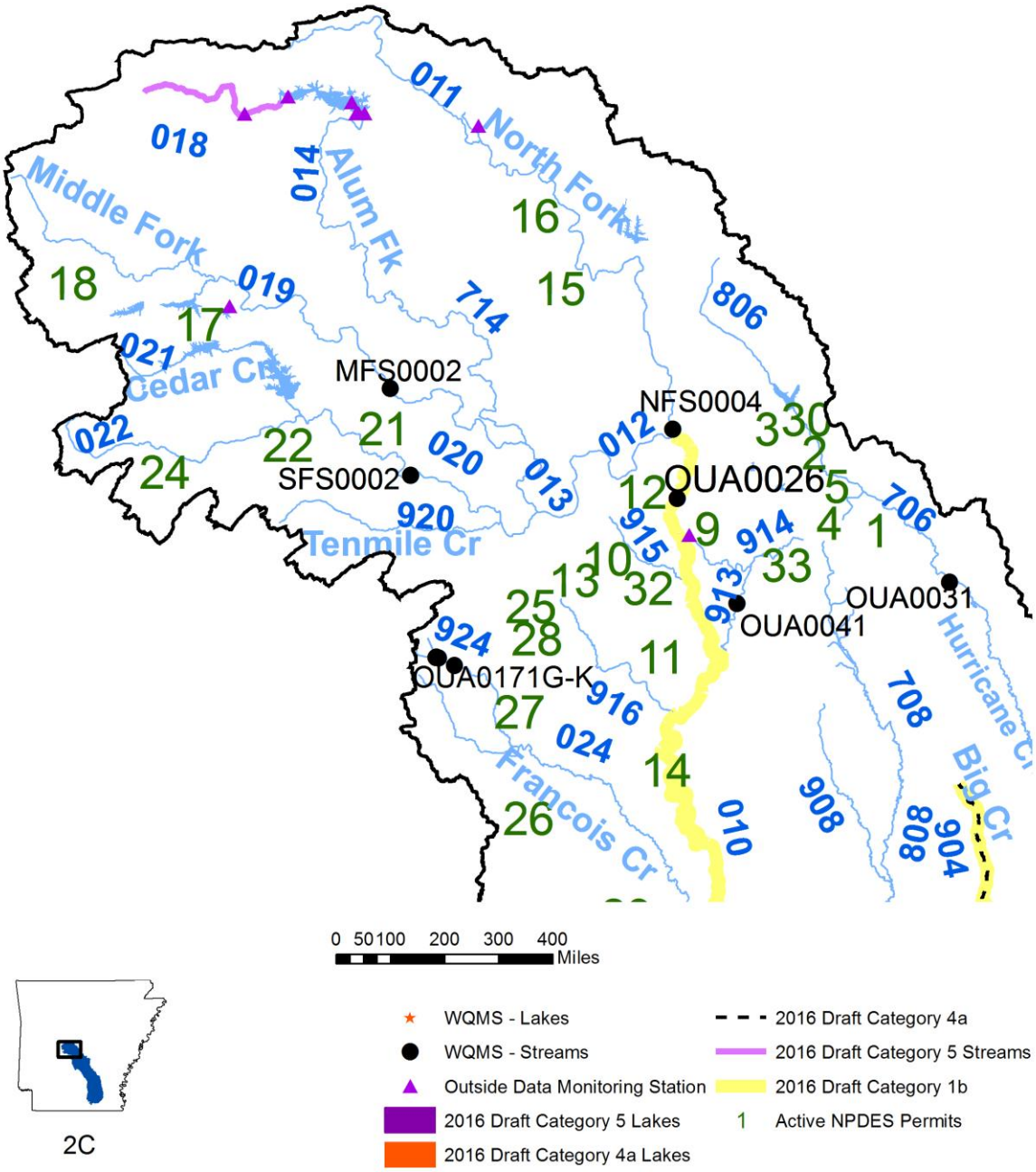


Table A-13: Planning Segment 2C (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Alum Fork Saline	8040203	-014	19.0	AFS0001	M		S	S	S	S	S									1			
Alum Fork Saline	8040203	-018	7.7	USGS	M		N	S	S	S	S	UN				pH				5			
Alum Fork Saline	8040203	-714	10.8		U															3			
Big Branch	8040203	-812	1.3		U															3			
Big Creek	8040203	-904	12.1	OUA0018	M		N	S	S	S	S	SE				Tb				4a			
Cedar Creek	8040203	-021	10.8		E		S	S	S	S	S									1			
Derrieusseaux Creek	8040203	-002	44.4	OUA0167	E		S	S	S	S	S									1			
Dodson Creek	8040203	-915	5.0		U															3			
Dry Lost Creek	8040203	-008	12.5		U					R										3			
Dry Lost Creek	8040203	-708	13.2		U					R										3			
Dry Lost Creek	8040203	-808	5.0		U					R										3			
Francois Cr.	8040203	-023	3.8		E		S	S	S	S	S									1			
Francois Cr.	8040203	-024	23.0		E		S	S	S	S	S									1			
Holly Creek	8040203	-914	3.4		U					R										3			
Holly Creek	8040203	-916	8.9	OUA0041	U					R										3			
Hurricane Cr.	8040203	-004	25.1	OUA0116	M		S	S	S	R	S									1			
Hurricane Cr.	8040203	-006	5.3	OUA0031, OUA0182A, OUA0182B	M		S	S	S	S	S									1			
Hurricane Cr.	8040203	-706	6.8	OUA0105	U					R										3			
Hurricane Cr.	8040203	-804	3.8		U					R										3			
Hurricane Cr.	8040203	-805	20.3		U					R										3			
Hurricane Cr.	8040203	-806	8.5		U															3			
Huskey Creek	8040203	-025	8.1		E		S	S	S	S	S									1			
Little Lost Creek	8040203	-908	10.3		U															3			
Lost Creek	8040203	-008	11.2		U					R										3			
Lost Creek	8040203	-808	2.7		U					R										3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Middle Fork Saline	8040203	-019	36.0	MFS0001, MFS0001B, MFS0002, MFS0003, MFS0004, MFS0004B, MFS0005	M		S	S	S	S	S									1			
Mill Creek	8040203	-919	1.6	MFS0004E	U															3			
North Fork Saline	8040203	-011	36.7	NFS0001, NFS0001A, NFS0002, NFS0003, NFS0003A, NFS0004	M		S	S	S	S	S									1			
Reyburn Creek	8040203	-924	7.5		U															3			
S. Fork Saline	8040203	-020	16.1	OUA0098, SFS0001, SFS0002	M		S	S	S	S	S									1			
S. Fork Saline	8040203	-022	13.1		E		S	S	S	S	S									1			
Saline River	8040203	-913	10.1		E		S	S	S	S	S									1			
Saline River	8040203	-001	0.2	OUA0010A; OUA0117	E	A	S	S	S	S	S	UN				Hg				4a			
Saline River	8040203	-003	23.0		E		S	S	S	S	S									1			
Saline River	8040203	-007	4.0	OUA0042	M		N	S	S	S	S	SE				Tb				5			
Saline River	8040203	-009	27.4	OUA0042	E		N	S	S	S	S	SE				Tb				5			
Saline River	8040203	-010	38.9	OUA0026, OUA0041	M		S	S	S	S	S									1			
Saline River	8040203	-012	10.8		E		S	S	S	S	S									1			
Saline River	8040203	-013	4.4		E		S	S	S	S	S									1			
Simpson Creek	8040203	-005	14.1		E		S	S	S	S	S									1			
Skull Creek	8040203	-824	0.9		U															3			
Tenmile Creek	8040203	-920	33.2		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Big Creek	8040204	-005	43.6	OUA0043, OUA0099	M		N	S	S	S	S	SE				Tb				4a			
Carmicahel Creek	8040204	-802	3.6	OUA0107	U															3			
Franklin Creek	8040204	-902	8.8	OUA0108	U															3			
Hudgens Creek	8040204	-003	57.4	OUA0166	M		S	S	S	S	S									1			
L'Aigle Creek	8040204	-007	62.6	UWLGC01, UWLGC02	M		S	S	S	S	S												
Saline River	8040204	-001	4.1		E	A	S	S	S	S	S	UN				Hg				4a			
Saline River	8040204	-002	59.4	OUA0010, OUA0010A, OUA0046, OUA0117	M	A	S	S	S	S	S	UN				Hg				4a			
Saline River	8040204	-004	20.1	OUA0045	E	A	S	S	S	S	S	UN				Hg				4a			
Saline River	8040204	-006	18.6	OUA0118	M	A	S	S	S	S	S	UN				Hg				4a			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
AFS0001	Alum Fork Saline River at Highway 5 east of Crows		1	A
MFS0001	Middle Fork Saline River at county road south of Crows		2	R
MFS0001B	Middle Fork Saline River at SR5 Bridge		2	S
MFS0002	Middle Fork Saline River at Vance Road Bridge		1	A
MFS0003	Middle Fork Saline River on Antioch Rd		2	S
MFS0004	Middle Fork Saline River at Danville Road low water bridge		2	S
MFS0004B	Middle Fork Saline River off of Devaca Way		2	S
MFS0004E	Mill Creek below Hot Springs Village WWTP near Cortez Rd		2	S
MFS0005	Middle Fork Saline River at Talley Cemetery Road		1	A

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
NFS0001	N. Fork Saline River off Hwy 9 east of Paron, AR on 12th St.		1	A
NFS0001A	N. Fork Saline River @ Hwy 9 bridge N. of Paron, AR		2	S
NFS0002	North Fork Saline River near Benton		2	R
NFS0003	N. Fork Saline R. 3 mi W. of Congo 1/2 mi above Boot Cr.		2	S
NFS0003A	N. Fork Saline River 3 mi W. of Congo, AR above Boot Cr conf		2	S
NFS0004	N. Fork Saline River @ Hwy 5 bridge		1	A
OUA0010A	Saline River near Fountain Hill, AR on SR8/160	7364012	1	A
OUA0018	Big Creek below Sheridan		1	A
OUA0026	Saline River near Benton	7363002	1	A
OUA0031	Hurricane Creek near Sardis	7363270	1	A
OUA0041	Saline River at Shaw Bridge south of Benton	7363054	1	A
OUA0042	Saline River at Highway 167 near Sheridan	7363200	1	A
OUA0043	Big Creek at Highway 35 northwest of Sheridan		1	A
OUA0045	Saline River above Warren AR		2	S
OUA0046	Saline River below Warren AR		2	S
OUA0098	South Fork Saline R Cen.S.18, T2S, R16W, Saline Co., AR		2	S
OUA0099	Big Creek at AR Hwy 133 SE1/4, S31, T8S, R10W, Cleveland Co., AR		2	S
OUA0105	Hurricane Creek on Hwy 167 S of ICO		2	S
OUA0107	Unnamed Trib to Carmichael Cr below Potlatch in Warren		2	S
OUA0108	Franklin Cr below Potlatch on Boyd Rd in Warren		2	S
OUA0116	Hurricane Creek at Highway 270 bridge	7363300	1	A
OUA0117	Saline River at Ozment Bluff	7364011	1	A
OUA0118	Saline River at Highway 79 bridge	7363445	1	A
OUA0166	Derrieusseaux Creek at Highway 35 northwest of Rison		2	R
OUA0167	Hudgens Creek at Highway 35 east of Rye		2	R
OUA0182A	Hurricane Creek near Bryant on SR183 (S Reynolds Rd)		2	S
OUA0182B	Hurricane Creek near Sardis on S Sardis Road		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
SFS0001	South fork Saline River on county road north of Nance off US 70		2	R
SFS0002	South Fork of the Saline River on Owensville Cutoff/CR268		1	A
UWLGC01	L'Aigle Creek at Farmville Road, 2 miles southeast of Farmville		2	R
UWLGC02	L'Aigle Creek at county road, 2.5 miles west of Ingalls		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	179.3	Fish Consumption	-	102.4
Evaluated	217.4	Fisheries	565.1	94.8
Monitored	442.5	Primary Contact	659.9	0
Total	**839.2**	Secondary Contact	659.9	0
		Domestic Water Supply	634.8	0
		Agri. & Industry	659.9	0

Table A-14: Active NPDES permits for Planning Segment 2C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0000582	ALCOA ARKANSAS REMEDIATION	HURRICANE CR (008,028)	003	08040203	Saline	1	008
AR0034002	BRYANT, CITY OF - WWTP	TRIB,HURRICANE CR,SALINE R,OUACHITA R	006	08040203	Saline	2	001
AR0035955	BRYANT SCHOOL DISTRICT - SALEM ELEMENTARY SCHOOL WWTP	TRIB,HURRICANE CR,SALINE R,OUACHITA R	006	08040203	Saline	3	001
AR0049786	BAUXITE, CITY OF - WWTF	TRIB,HURRICANE CR,SALINE R,OUACHITA R	006	08040203	Saline	4	001
AR0050270	ALMATIS, INC.	HURRICANE CR,SALINE R,OUACHITA R	006	08040203	Saline	5	001
AR0049751	SHERIDAN WHITE ROCK, INC.	TRIB,LOST CR,SALINE R,OUACHITA R	008	08040203	Grant	6	001
AR0047902	H.G. TOLER & SON LUMBER COMPANY	TRIB,SALINE R,OUACHITA R	009	08040203	Grant	7	001
AR0046698	WEST FRASER, INC. - LEOLA LUMBER MILL	TRIB,SALINE R,OUACHITA R	009	08040203	Grant	8	003
AR0036498	BENTON, CITY OF	TRIB,DEPOT CR,SALINE R	010	08040203	Saline	9	001
AR0042277	PAWNEE VILLAGE POA	TRIB,TRACE CR,SALINE R	010	08040203	Saline	10	001
AR0044547	HASKELL, CITY OF	UNNAMED CR,TRACE CR,SALINE R,OUACHITA R	010	08040203	Saline	11	001
AR0050326	CENTRAL ARKANSAS UTIL SER-REUNION SUBDIVISION WWTP	TRIB,SALINE R,OUACHITA R	010	08040203	Saline	12	001
AR0050563	CROSSROADS VILLAGE (LANDERS BCO, LLC)	TRIB,CLIFT CR,SALINE R, OUACHITA R	010	08040203	Saline	13	001
AR0051284	NATURAL GAS PIPELINE COMPANY OF AMERICA, LLC	SALINE R, OUACHITA R	010	08040203	Grant	14	001
AR0041416	TIMBER RIDGE NEUROREHABILITATION CENTER, INC.	DOG CR,NORTH FORK SALINE R,SALINE R,OUACHITA R	011	08040203	Saline	15	001
AR0050202	SECOND CHANCE RANCH	TRIB,N FRK SALINE R,SALINE R.OUACHITA R	011	08040203	Saline	16	001

Table A-14: Active NPDES permits for Planning Segment 2C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0034291	HOT SPRINGS VILLAGE POA-MILL CREEK WWTP	MILL CR,MIDDLE FRK,ALUM FRK,SALINE R,OUACHITA R	019	08040203	Garland	17	001
AR0044423	JESSIEVILLE PUBLIC SCHOOL	TRIB,COLEMAN CR,SALINE R	019	08040203	Garland	18	001
AR0045047	VILLAGE SQUAREOF HSV, LLC D/B/A VILLAGE SQUARE SHOPPING CENTER	TRIB,MILL CR,SALINE R,OUACHITA R	019	08040203	Garland	19	001
AR0048194	JESSIEVILLE SCHOOL DISTRICT AND FOUNTAIN LAKE SCHOOL DISTRICT	TRIB,COLEMAN CR,MIDDLE FORK SALINE R	019	08040203	Garland	20	001
AR0049328	SALINE CO. PROPERTY OWNERS' IMPROV. DIST#37 - WWTP	TRIB SOUTH FORK SALINE R,SOUTH FORK SALINE R	020	08040203	Saline	21	001
AR0039284	HOT SPRINGS VILLAGE P.O.A. - CEDAR CREEK WWTP	CEDAR CR,SOUTH FRK SALINE R,SALINE R,OUACHITA R	021	08040203	Garland	22	001
AR0046141	MOUNTAIN VALLEY RETREAT CENTER	TRIB,SOUTH FORK SALINE R,SALINE R,OUACHITA R	022	08040203	Garland	23	001
AR0050750	HSNC, INC. D/B/A VILLAGE SPRINGS HEALTHCARE AND REHABILITATION	S FORK OF SALINE R,SALINE R,OUACHITA R	022	08040203	Garland	24	001
AR0042889	AL'S TRUCK STOP OF MALVERN, INC. D/B/A JJ'S TRUCK STOP, INC.	TRIB,BRUSHY CR,FRANCOIS CR,SALINE R	024	08040203	Saline	25	001
AR0044105	FLAKEBOARD AMERICA LIMITED	TRIB,BIG CR,SALINE R,OUACHITA R	024	08040203	Hot Spring	26	001
AR0046817	GLEN ROSE PUBLIC SCHOOL	TRIB,10-MILE CR, FRANCOIS CR, SALINE R	024	08040203	Hot Spring	27	001
AR0047431	CHURCH OF GOD IN ARKANSAS DBA PATHWAY CAMPGROUND	TRIB,BRUSHY CR,FRANCOIS CR,SALINE R,OUACHITA R	024	08040203	Saline	28	001
AR0048445	POYEN, CITY OF	TRIB,BIG CR,FRANCOIS CR,SALINE R,OUACHITA R	025	08040203	Grant	29	001
AR0049522	FREDS STORE/COMMERCIAL PARK	TRIB,HURRICANE CR,SALINE R	806	08040203	Saline	30	001
AR0034347	SHERIDAN, CITY OF - WWTP	BIG CR,HURRICANE CR,SALINE R,OUACHITA R	904	08040203	Grant	31	001
AR0051713	HASKELL, CITY OF - NORTH WWTP	DODSON CR, SALINE R, OUACHITA R	910	08040203	Saline	32	001

Table A-14: Active NPDES permits for Planning Segment 2C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0000582	ALCOA ARKANSAS REMEDIATION	HOLLY CR (009)	914	08040203	Saline	33	009
AR0052345	HALLIBURTON ENERGY SRICES, INC. - MAGNET COVE PLT	TRIB,REYBURN CR,FRANCOIS CR,SALINE R,OUACHITA R	924	08040203	Hot Spring	34	001
AR0021822	MONTICELLO, CITY OF-WEST PLANT	TENMILE CR,SALINE R,OUACHITA R	002	08040204	Drew	35	001
AR0040096	WILMAR, CITY OF	FLAT BRANCH CR,TEN MILE CR,SALINE R,OUACHITA R	002	08040204	Drew	36	001
AR0042421	FOUNTAIN HILL, CITY OF	TRIB,FLAT CR,SALINE R	002	08040204	Ashley	37	001
AR0043427	WARREN WATER & SEWER	SALINE R,OUACHITA R	002	08040204	Bradley	38	001
AR0047732	INTERFOR U.S., INC.	TRIB OF CLEAR CR, CLEAR CR, SALINE R, OUACHITA R	002	08040204	Drew	39	001
AR0047830	JOHNSVILLE COMPANY, LLC	HUNT BR,SALINE R,OUCHITA R	002	08040204	Bradley	40	001
AR0048569	WOODLAWN SCH00L DISTRICT #6	TRIB,HUDGIN CR,SALINE R	003	08040204	Cleveland	41	001
AR0021695	RISON, CITY OF	TRIB,HARRISON CR,SALINE R,OUACHITA R	006	08040204	Cleveland	42	001
AR0043672	KINGSLAND, CITY OF	PANTHER CR,SALINE R,OUACHITA R	006	08040204	Cleveland	43	001
AR0050300	OASIS TRADING CO., LLC	TRIB,L'AIGLE CR,SALINE R,OUACHITA R	007	08040204	Saline	44	001
AR0050601	BANKS, CITY OF	TRIB,L'AIGLE CR,SALINE R,OUACHITA R	007	08040204	Bradley	45	001
AR0051055	HERMITAGE, CITY OF-STP	Big Town CR, L'Aigle CR, Saline R, Ouachita R	007	08040204	Bradley	46	001
AR0000914	POTLATCH LAND AND LUMBER, LLC - WARREN LUMBER	TRIB,FRANKLIN CR,SALINE R,OUACHITA R	902	08040204	Bradley	47	001 & 002

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SEGMENT 2D LOWER OUACHITA RIVER AND TRIBUTARIES

Segment 2D occupies the south central part of Arkansas covering Calhoun, Bradley, Dallas, Ouachita, Cleveland, Columbia, Ashley, Nevada, and Union Counties. It 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 propagation of fish and wildlife; primary and secondary contact recreation; and public, industrial, and agricultural water supplies. These waters, which include Felsenthal Reservoir, are heavily used for fishing, boating, and hunting activities.

The Lower Ouachita River, Champagnolle, and Moro Creeks have fish consumption advisories because of mercury contamination. 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. A TMDL was completed in 2002 for mercury in the lower Ouachita River Basin in Arkansas and Louisiana.

Bayou de L'outre and L'outre Creek have been listed as not attaining the agriculture and industrial water supply uses because of elevated levels of minerals and metals. A combination of nonpoint source pollution runoff and discharges from industrial and municipal point sources are the suspected sources. Additional monitoring is needed to better assess impairments and delineate the sources.

Some of the most severe water quality problems exist in the unnamed tributary from El Dorado Chemical Company (ELCC), Flat Creek, and Salt Creek. The ELCC tributary contains ammonia at toxic levels; elevated nitrates, minerals (sulfates and total dissolved solids) and copper concentrations. The source is from the El Dorado Chemical Company discharge. Flat Creek and Salt Creek have elevated minerals (chlorides, sulfates, total dissolved solids) and ammonia concentrations. The exact source is unknown, but these streams drain basins from the northern edge of El Dorado where numerous oil and brine processing and storage facilities exist along with numerous abandoned pumping facilities. These streams enter Smackover Creek below the ambient monitoring station. TMDLs were completed in October 2002 and in October 2003. Both point source and nonpoint source controls are needed to address these issues.

Figure A-12: Planning Segment 2D

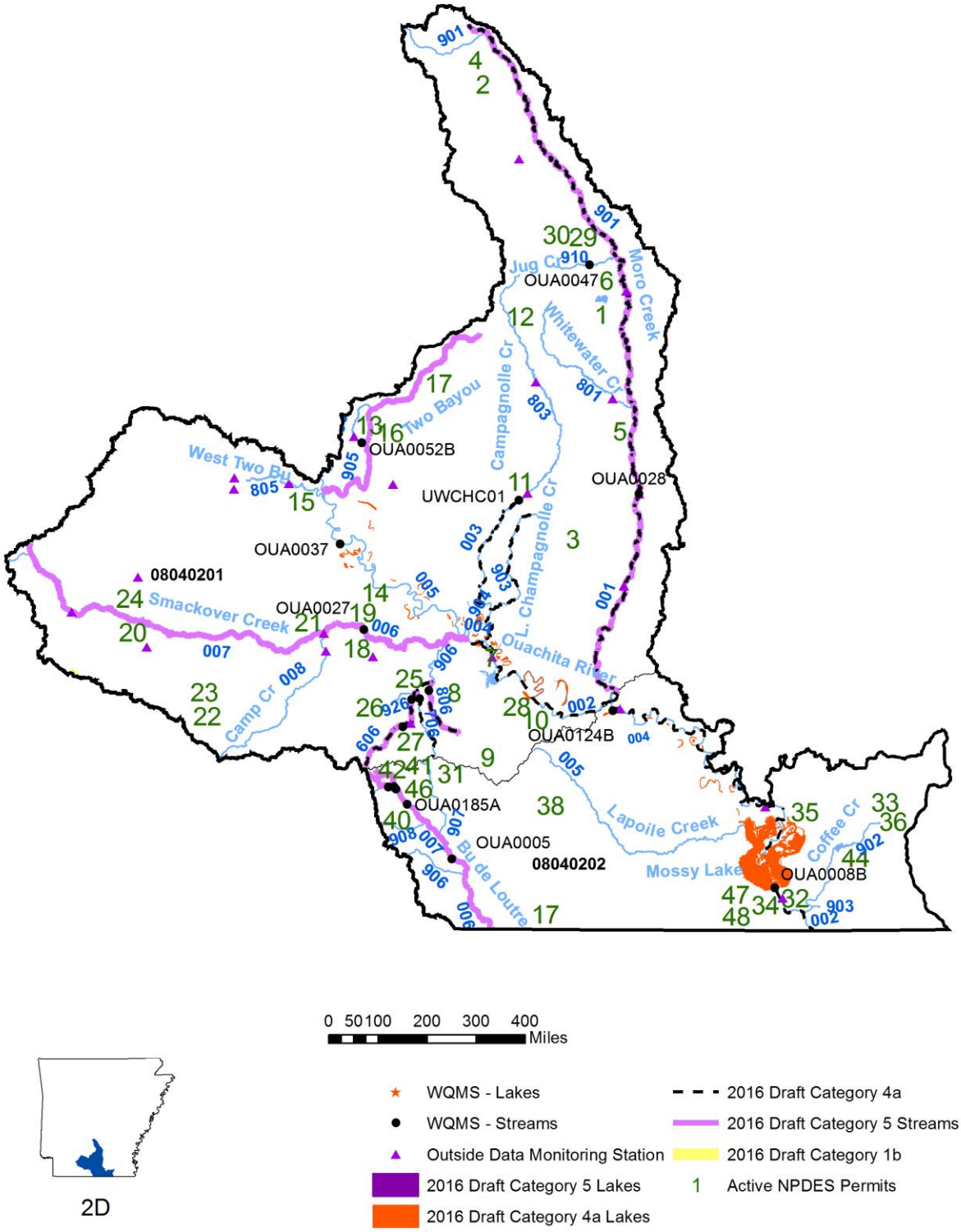

Table A-15: Planning Segment 2D (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Camp Creek	8040201	-008	20.5		U															3			
Champagnolle Cr.	8040201	-003	19.2	UWCHC01	M	A	S	S	S	S	S	UN				Hg				4a			
Champagnolle Cr.	8040201	-803	34.6		U															3			
E. Two Bayou	8040201	-905	35.2	OUA0052A, OUA0052B	M		N	N	S	S	S	UN	UN			PA	pH			5	5		
ELCC Tr.	8040201	-606	5.0	OUA0137A	M		N	S	S	N	N	MP	MP	MP	IP	Cu	NO3	**	pH	5	5	4a	5
ELCC Tr.	8040201	-616	3.8	OUA0137F	U															3			
ELCC Tr.	8040201	-626	2.0		U															3			
Flat Cr.	8040201	-706	9.4	OUA0137C	M		N	S	S	N	N	IP	IP			**				4a			
Haynes Cr.	8040201	-906	5.3		U															3			
Jug Creek	8040201	-910	6.8	OUA0047	M		S	S	S	S	S									3			
L. Champagnolle Cr.	8040201	-903	14.1		E	A	S	S	S	S	S	UN				Hg				4a			
Moro Creek	8040201	-001	55.0	OUA0028, OUA0050	M	A	N	S	S	S	S	UN	SE	UN		Pb	Tb	Hg		5	4a	4a	
Moro Creek	8040201	-901	50.3		E		N	S	S	S	S	UN	SE			Pb	Tb			5	4a		
Ouachita River	8040201	-002	26.6	OUA0007, OUA0007A	M	A	S	S	S	S	S	UN				Hg				4a			
Ouachita River	8040201	-004	2.9	OUA0133	M	A	S	S	S	S	S	UN				Hg				4a			
Ouachita River	8040201	-005	33.3	OUA0037, OUA0131, OUA0132	M		N	S	S	S	S	UN				Cu				5			
Salt Cr.	8040201	-806	6.6	OUA0137D	M		N	S	S	N	N	IP	IP	IP		pH	Cl	TDS		5	4a	4a	
Smackover Cr.	8040201	-006	21.5	OUA0019, OUA0027	M		N	S	S	S	S	UN	UN			Pb	DO			5			
Smackover Cr.	8040201	-007	45.3		E		N	S	S	S	S	UN	UN			Pb	DO			5			
W. Two Bayou	8040201	-805	12.8	OUA0020, OUA0053A, OUA0053B	U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Whitewater Creek	8040201	-801	21.4	OUA0097	U															3			
B. De L'Outre	8040202	-006	12.5	OUA0005	M		N	S	S	R	N	IP	MP	UN	MP/IP	SO4	TDS	DO	***	5	5	5	5
B. De L'Outre	8040202	-007	3.8	UAA, OUA0005	E		N	S	S	R	N	IP	MP	IP	IP	SO4	TDS	DO	***	5	5	5	5
B. De L'Outre	8040202	-008	5.7	UAA	E		N	S	S	R	N	IP	MP	IP	IP	SO4	TDS	DO	*	5	5	5	5
Boggy Creek	8040202	-807	1.8		U															3			
Boggy Creek	8040202	-907	6.6		U					R										3			
Coffee Creek	8040202	-902	13.9	OUA0011	U		R	R		R										3			
Gum Creek	8040202	-908	4.7		U					R										3			
Lapoile Creek	8040202	-005	37.6		U															3			
Loutre Creek	8040202	-909	3.3	UAA, OUA0138	M		N	S	S	N	N	IP	IP	IP	IP	Cl	SO4	TDS	Se	5	5	5	
Mill Creek	8040202	-906	6.6		U															3			
Ouachita River	8040202	-002	7.4	OUA0008, OUA0008B, OUA0135, OUA0136	M	A	N	S	S	S	S	UN	UN			Hg	Tb			4a	5		
Ouachita River	8040202	-003	10.2		M	A	S	S	S	S	S	UN				Hg				4a			
Ouachita River	8040202	-004	32.2	OUA0124B, OUA0134	M	A	S	S	S	S	S	UN				Hg				4a			

*= Pb, Zn, Se

** = TMDLs for AM, CL, SO4, & TDS.

***= Pb, Zn

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0005	Bayou L'Outre near Junction City	7364600	1	A
OUA0007	Ouachita River @ Calion, AR		2	S
OUA0007A	Ouachita River @ Lock and Dam #8		2	S
OUA0008	Ouachita River @ Felsenthal, AR		2	S
OUA0008A	Ouachita River near Crossett, AR on Hwy. 82		2	S
OUA0008B	Ouachita River at Felsenthal Lock / Dam on New Lock 6 Rd.		1	A
OUA0011	Coffee Creek S of Mossy Lake		2	S
OUA0019	Smackover Cr near Calion, AR on dirt road		2	S
OUA0020	West Two Bayou on S Adams Ave near Camden		2	S
OUA0027	Smackover Creek near Smackover	7362110	1	A
OUA0028	Moro Creek east of Hampton	7362550	1	A
OUA0036	Ouachita River near Crossett @ Hwy 82		2	S
OUA0037	Ouachita River below Camden	7362065	1	A
OUA0047	Jug Creek below Fordyce		1	A
OUA0050	Moro Cr. at Ar. Hwy 160.NE1/4,S.9,T15S,R12W,Calhoun Co.,Ar.		2	S
OUA0052A	East Two Bayou ab. Highland Public services NPDES outfall		2	S
OUA0052B	East two bayou bl. Highland Public Services NPDES Outfall		2	S
OUA0053A	West Two Bayou ab. International Paper NPDES outfall.		2	S
OUA0053B	West Two Bayou bl. international Paper NPDES outfall.		2	S
OUA0060B	East Branch Loutre Cr. bl. Great Lakes NPDES Discharge.		2	S
OUA0097	Whitewater Cr.at AR.274.NE1/4,S.20,T12S,R12W,Calhoun Co,AR.		2	S
OUA0109	Unnamed trib to Flat Cr on Hwy 7 below El Dorado Chemical CO		2	S
OUA0124B	Ouachita River at Pigeon Hill		1	A
OUA0131	Ouachita River 8 mi below Camden		2	S
OUA0132	Lowg seg 5l Ouachita r. Approx 1/4 mi above Smackover Creek		2	S
OUA0133	Lowg seg 6U Ouachita R. Approx 1/2 mi below Smackover Creek		2	S
OUA0134	Lowg weg 6l Ouachita r. Below Pigeon Hill River mile 268		2	S
OUA0135	Lowg seg 8u Ouachita R. Approx 1 mi above Coffee Creek		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0136	Lowg seg 8l Ouachita R. Approx 1 1/2 mi below Coffee Creek		2	S
OUA0137A	Flat Creek tributary at Highway 7 spur near El Dorado		1	S
OUA0137B	Flat Creek tributary south of Norphlet on O'Rear Road		1	S
OUA0137C	Flat Creek south of Norphlet on O'Rear Road		1	S
OUA0137D	Salt Creek west of Norphlet on O'Rear Road		1	S
OUA0137E	El Dorado Chem. US site - trib to Flat Cr. on Morningstar Rd		2	S
OUA0137F	El Dorado Chem. DS Lake Killdeer trib to Flat		2	S
OUA0138	Loutre Creek at U.S. Hwy. 82 Bypass		1	S
UWCHC01	Champagnolle Creek at Highway 4 near Hampton		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	171.6	Fish Consumption	-	167.6
Evaluated	119.2	Fisheries	112	294.3
Monitored	287.1	Primary Contact	371.1	35.2
Total	**577.9**	Secondary Contact	406.3	0
		Domestic Water Supply	360	24.3
		Agri. & Industry	360	46.3

Table A-16: Active NPDES permits for Planning Segment 2D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0049204	GEORGIA PACIFIC CORPORATION - FORDYCE OSB FACILITY	UNNAMED TRIB,MORO CR,OUACHITA R	001	08020401	Dallas	1	001
AR0033715	CARTHAGE, CITY OF	TRIB MATTHEWS CR,MORO CR,MORO BAY,OUACHITA R	001	08040201	Dallas	2	001
AR0042609	HARRELL, CITY OF - WATERWORKS	SPRING BR,BLANN CR,LLOYD CR,MORO CR,OUACHITA R	001	08040201	Calhoun	3	001
AR0047503	IDAHO TIMBER CORP. OF CARTHAGE, LLC	TRIB,MORO CR,SALINE R,OUCHITA R	001	08040201	Dallas	4	001
AR0050661	TINSMAN, AR WASTEWATER TREATMENT FACILITY	WATSON CR,MORO CR,OUACHITA R	001	08040201	Calhoun	5	001
AR0052205	TRIPLE B WOOD DEALERS	TRIB,ACRUMAN DIT,MORO CR,OUACHITA R	001	08040201	Dallas	6	001
AR0038211	CALION, CITY OF	CHAPELLE SLU,OUACHITA R	002	08040201	Union	7	001
AR0049140	UNION POWER STATION	OUACHITA R	002	08040201	Union	8	001
AR0051811	EL DORADO PUBLIC SCHOOLS - OLD UNION SCHOOL	TRIB,MILL CR,OUACHITA R	002	08040201	Union	9	001
AR0050296	EL DORADO JOINT PIPELINE	OUACHITA R	002	08040201	Union	10	010R
AR0021873	HAMPTON, CITY OF	TRIB,CHAMPAGNOLLE CR, OUACHITA R	003	08040201	Calhoun	11	001
AR0035661	THORNTON, CITY OF	TURNERS CR,CHAMPAGNOLLE CR,OUACHITA R	003	08040201	Calhoun	12	001
AR0034363	SHUMAKER PUBLIC SERICE CORP.	TWO BU,OUACHITA R	005	08040201	Ouachita	13	001
AR0037761	BEECH SPRINGS BAPTIST CAMP	UNNAMED TRIB,OUACHITA R	005	08040201	Ouachita	14	001
AR0050482	VICTORY LUMBER, LLC	UNNAMED TRIB,MILL CR,TWO BU,OUACHITA R	005	08040201	Ouachita	15	001
AR0051071	AEROJET ROCKETDYNE, INC.	TRIB, TWO BU, OUACHITA R	005	08040201	Ouachita	16	001
AR0021474	BEARDEN, CITY OF	EAST TWO BU CR,OUACHITA R	005	08040201	Ouachita	17	002

Table A-16: Active NPDES permits for Planning Segment 2D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0000591	MARTIN OPERATING PARTNERSHIP, L.P.	SMACKOVER CR,OUACHITA R	006	08040201	Union	18	001
AR0021440	SMACKOVER, CITY OF	SMACKOVER CR,OUACHITA R	006	08040201	Union	19	001
AR0020168	STEPHENS, CITY OF	SMACKOVER CR,OUACHITA R	007	08040201	Ouachita	20	001
AR0040517	LOUANN, CITY OF	BRUSHY CR,SMACROVER CR,OUACHITA R	007	08040201	Ouachita	21	001
AR0048381	WATSON SAWMILL, INC.	TRIB,BEECH CR,SMACKOVER CR,OUACHITA R	007	08040201	Union	22	001
AR0049123	JIM YEAGER - D/B/A YEAGER APARTMENTS	TRIB,DRY CR,BEECH CR,SMACKOVER CR,OUACHITA R	007	08040201	Union	23	001
AR0000663	BERRY PETROLEUM CO-STEPHENS	TRIB,SMACKOVER CR,OUACHITA R	007	08040201	Ouachita	24	002
AR0035653	NORPHLET, CITY OF	UNNAMED TRIB FLAT CR,HAYNER CR,SMACKOVER CR	606	08040201	Union	25	001
AR0044733	CEDARWOOD LEISURE PARK, LLC	TRIB,FLAT CR,HAYNES CR,SMACKOVER CR, OUACHITA R	606	08040201	Union	26	001
AR0033936	EL DORADO WATER - NORTH PLANT	TRIB,FLAT CR,HAYNES CR,SMACKOVER CR, OUACHITA R	706	08040201	Union	27	001
AR0049743	EL DORADO WATER UTILITIES	OUACHITA R	706	08040201	Union	28	010N
AR0033758	FORDYCE, CITY OF	JUG CR,MORO CR,OUACHITA R	901	08040201	Dallas	29	001
AR0036064	FORDYCE PLYWOOD PLANT	TRIB,JUG CR,MORO CR,OUACHITA R	901	08040201	Dallas	30	001
AR0047368	COLUMBIAN CHEMICAL COMPANY	TRIB,BOGGY CR,BU DE LOUTRE,OUACHITA	907	08040201	Union	31	001
AR0022268	HUTTIG, CITY OF	OUACHITA R	002	08040202	Union	32	001
AR0033812	NORTH CROSSETT UTILITIES	TRIB,LITTLE BRUSHY CR,BIG BRUSHY CR,OUACHITA R	002	08040202	Ashley	33	001

Table A-16: Active NPDES permits for Planning Segment 2D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0039659	FELSENTHAL, CITY OF	WOLF SLOUGH TO BUCKHORN SLOUGH, OUACHITA R	002	08040202	Union	34	001
AR0042315	CROSSETT HARBOR PORT AUTHORITY	OUACHITA R	003	08040202	Ashley	35	001
AR0048097	GEORGIA PACIFIC, LLC - NORTH LOG YARD	TRIB,LITTLE BRUSHY CR,BIG BRUSHY CR,BRUSHY CR,MARAIS	003	08040202	Ashley	36	001
AR0021687	STRONG, CITY OF	LAPILE CR,OUACHITA R	005	08040202	Union	37	001
AR0047384	ANTHONY FOREST PRODUCTS-URBANA	TRIB, N LAPILE CR,LAPILE CR,OUACHITA R	005	08040202	Union	38	001
AR0001171	GREAT LAKES CHEMICAL CORPORATION-CENTRAL	BU DE LOUTRE;LITTLE CORNIE BU;OUACHITA	007	08040202	Union	39	001
AR0033723	EL DORADO WATER UILITIES - SOUTH PLANT	BU DE LOUTRE,OUACHITA R	007	08040202	Union	40	001
AR0037800	CLEAN HARBORS EL DORADO, LLC	BOGGY CR,BU DELOUTRE,OUACHITA RB	007	08040202	Union	41	001
AR0000647	LION OIL CO-EL DORADO REFINERY	LOUTRE CR	008	08040202	Union	42	001
AR0000752	EL DORADO CHEMICAL CO., INC.	TRIB, FLAT CR, HAYNES CR, OUACHITA R	606	08040202	Union	43	001
AR0001210	GEORGIA-PACIFIC, LLC-CROSSETT PAPER OPERATIONS	MOSSY LK,COFFEE CR,OUACHITA R	902	08040202	Ashley	44	001
AR0000680	GREAT LAKES CHEMICAL CORPORATION-SOUTH	GUM CR (001)	906	08040202	Union	45	001
AR0051420	SOUTHERN MUD COMPANY, LLC	TRIB, BOGGY CR, BU DE LOUTRE, OUACHITA R	907	08040202	Union	46	001
AR0046116	WEST FRASER, INC. - HUTTIG MILL	DOLLAR SLU (001)	----	08040202	Union	47	001
AR0046116	WEST FRASER, INC. - HUTTIG MILL	BUCKHORN SLU (004)	---	08040202	Union	48	004

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SEGMENT 2E UPPER CORNIE BAYOU AND TRIBUTARIES

Segment 2E is located in south central 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

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.

Sulfates continue to be the major causes of impairment to all of the waters within this basin. Siltation is also impairing several stream segments in this basin. Additional assessment and reclamation activities are needed to address these issues.

All assessed waters in this segment have been evaluated as not meeting the water quality standards for turbidity, sulfates, and/or zinc. The source of these pollutants has been identified as resource extraction activities.

Numerous total maximum daily loads have been established for constituents listed on previous lists of impaired waterbodies. These waterbody segments have been moved from Category 5 to Category 4a.

Figure A-13: Planning Segment 2E

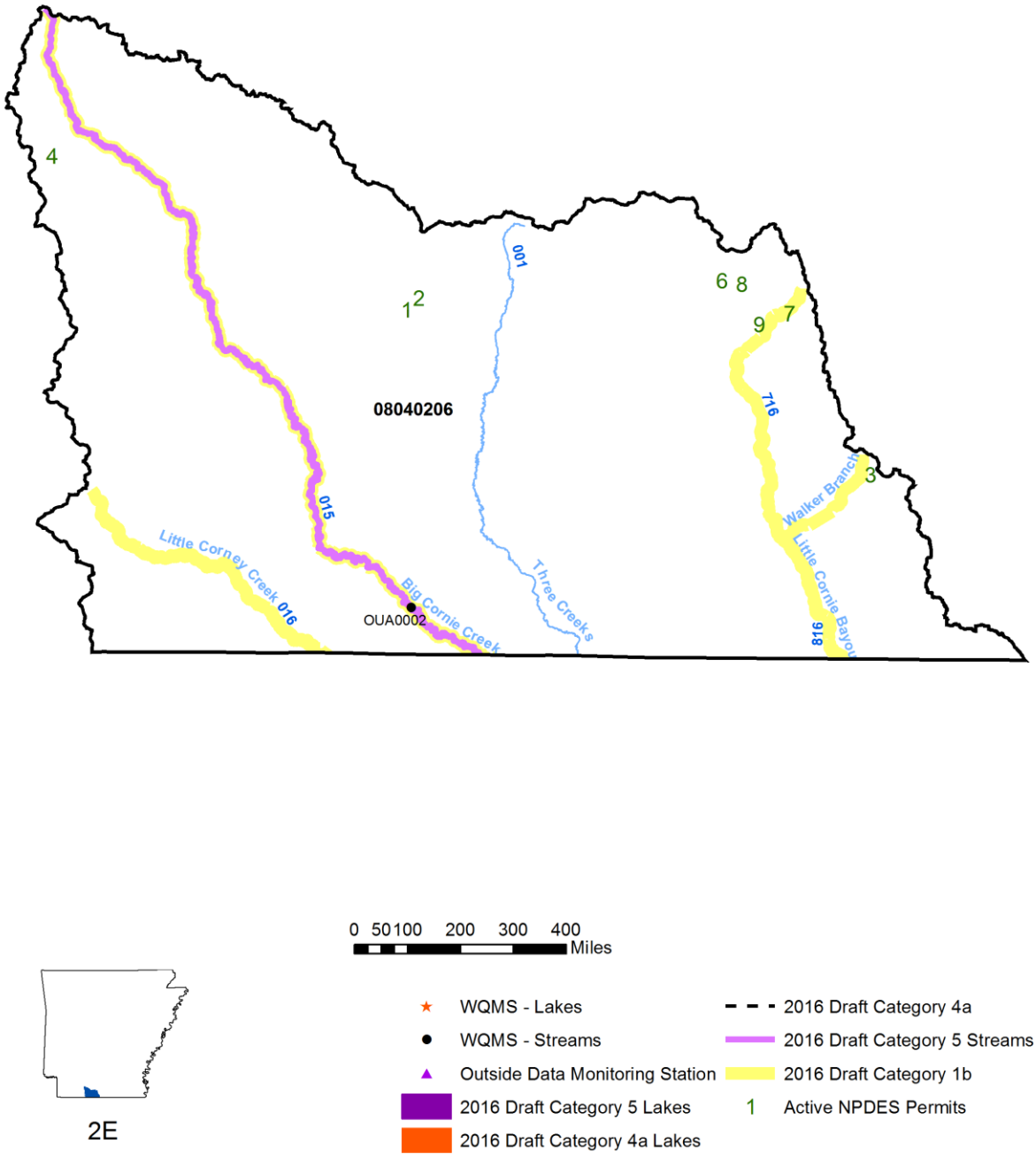

Table A-17: Planning Segment 2E Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Big Cornie Cr.	8040206	-015	5.7	OUA0002	M		N	S	S	S	S	UN				Tb				5			
Little Cornie Bayou	8040206	-716	15.6		E		S	S	S	R	S									1			
Little Cornie Bayou	8040206	-816	3.2	OUA0004	E		S	S	S	R	S									1			
Little Cornie Cr.	8040206	-016	15.3	OUA0001	E		S	S	S	S	S									1			
Three Creeks	8040206	-001	25.5	OUA0003	U															3			
Walker Branch	8040206	-916	4.5		E		S	S	S	R	S									1			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0001	Little Cornie Creek near AR-LA line		2	S
OUA0002	Cornie Bayou near Three Creeks	7365800	1	A
OUA0003	Three Creeks near Three Creeks, AR		2	S
OUA0004	Cornie Bayou near Junction City, AR		2	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	25.5	Fish Consumption	-	0
Evaluated	38.6	Fisheries	38.6	5.7
Monitored	5.7	Primary Contact	44.3	0
Total	**69.8**	Secondary Contact	44.3	0
		Domestic Water Supply	21	0
		Agri. & Industry	44.3	0

Table A-18: Active NPDES permits for Planning Segment 2E

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0043516	GREAT LAKES CHEMICAL CORPORATION-WEST PLANT	SEWELL CR,W THREE CRS,THREE CRS,CORNIE BU	015	08040202	Union	1	001
AR0049000	ALBEMARLE CORP-EAST PLANT	TRIB,SEWELL CR,W THREE CREEKS,OUACHITA R	001	08040206	Union	2	005
AR0000680	GREAT LAKES CHEMICAL CORPORATION-SOUTH	WALKER CR (002,003)	007	08040206	Union	3	003
AR0047945	GUNNELS MILLS, INC.	TRIB,LITTLE CORNIE BU,CORNIE CR, BIG CORNIE CR	015	08040206	Columbia	4	001
AR0049182	WILLIAM R. GAUNT PROPERTIES	TRIB,FLAT CR,HAYNES CR,SMACKOVER CR, OUACHITA R	606	08040206	Union	5	001
AR0047813	OAK MANOR WATER & WASTEWATER P.F.B.	JAY DISON SPRING BR,DRY CR,LITTLE CORNIE BU,OUACHITA	716	08040206	Union	6	001
AR0051292	TETRA TECHNOLOGIES	TRIB, LITTLE CORNIE BU, OUACHITA R	716	08040206	Union	7	001
AR0051861	TIMBER EQUIPMENT LEASING CO., LLC - TLC/TELCO	TRIB,DRY CR,LITTLE CORNIE BU,OUACHITA R	716	08040206	Union	8	001
AR0048461	DEL-TIN FIBER L.L.C.	TRIB,LITTLE CORNIE CR,CORNEY BU,BU D'ARBONNE LK	716	08040206	Union	9	004
AR0022179	JUNCTION CITY, CITY OF	LITTLE CORNIE BU	816	08040206	Union	10	001

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SEGMENT 2F OUACHITA RIVER AND TRIBUTARIES: HEADWATERS TO CONFLUENCE WITH LITTLE MISSOURI RIVER

Segment 2F, located in west central Arkansas, and covers most of Hot Spring, Garland, and Montgomery Counties and portions of Clark, Dallas, Pike, Polk, Yell, Perry, Calhoun, and Ouachita Counties. This segment consists of a 220-mile reach of the upper 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 on the Ouachita River: Lake Ouachita, Lake Hamilton and Lake Catherine; and DeGray Reservoir, an impoundment on the Caddo River.

Summary of Water Quality Conditions

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. Approximately 36 percent of the waters within this segment are designated as Extraordinary Resource Waters. Water quality in Segment 2F is generally good and trends seem to indicate it is improving.

These waters are heavily used for fishing, boating, canoeing year-round, and primary contact water activities during the warmer months.

Chamberlain Creek and its tributaries receiving drainage from the MagCoBar pit mine were listed as not attaining the fisheries designated use, domestic water supply use, and the industrial and agriculture water supply uses. Low pH values, elevated minerals (total dissolved solids, sulfates, chlorides), and elevated metals (beryllium, cadmium, copper, zinc), are all causes of the impairments. Additional point source and nonpoint source controls are needed to address the problem.

Prairie Creek below the City of Mena was assessed as not meeting the water quality standards for copper and dissolved oxygen. Surface erosion, including storm water runoff from industrial sites in the watershed, is listed as the source of the contaminants.

Figure A-14: Planning Segment 2F

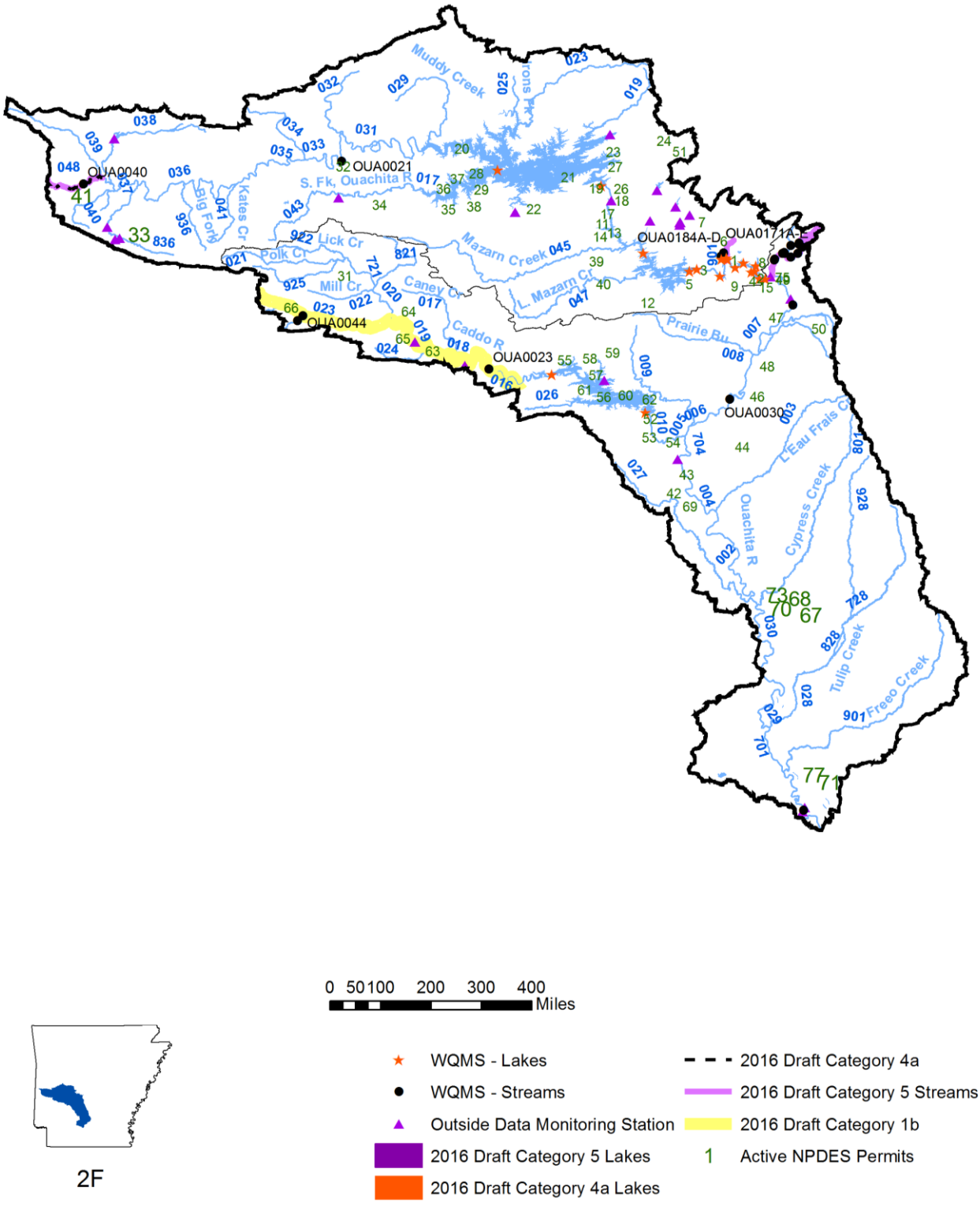

Figure A-15: Planning Segment 2F – Close-up of Ouachita River lakes area

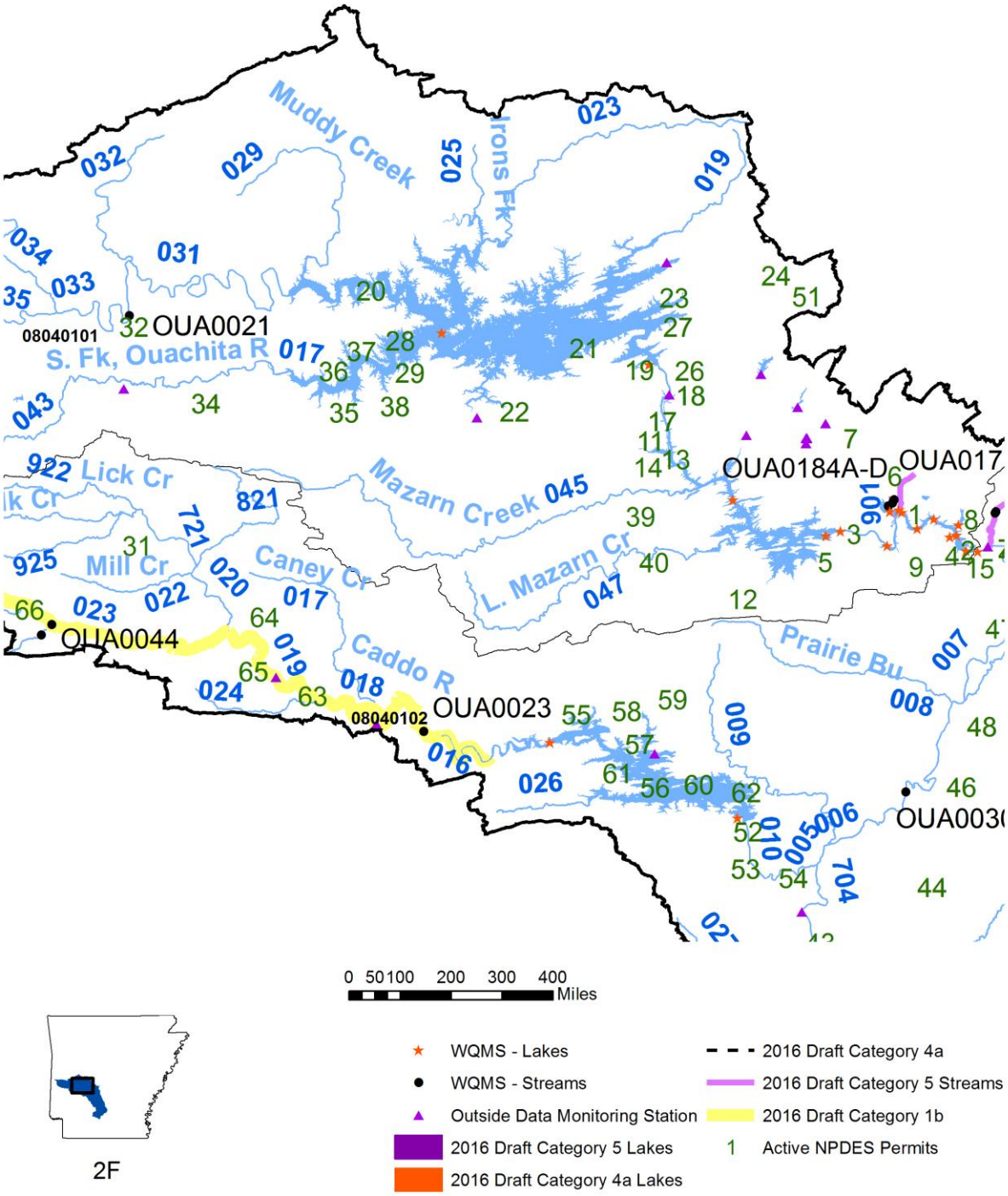

Table A-19: Planning Segment 2F (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Big Bushy Creek	8040101	-034	12.0		E		S	S	S	S	S									1			
Big Fork	8040101	-936	9.5	OUA0161	U															3			
Blakely Creek	8040101	-019	8.5		E		S	S	S	S	S									1			
Boardcamp Creek	8040101	-836	16.4	OUAEE	U															3			
Carter Creek	8040101	-040	9.3		U															3			
Fiddlers Creek	8040101	-032	12.1	OUA0141	E		S	S	S	S	S									1			
Indian Springs Creek	8040101	-902	1.5	UAA, OUA0184A, OUA0184B, OUA0184C, OUA0184D	M		N	S	S	N	N	IP	IP	UN		SO4	TDS	DO		5	5	5	
Irons Fork	8040101	-025	4.9		E		S	S	S	S	S									1			
Irons Fork	8040101	-038	17.9	OUA0142	E		S	S	S	S	S									1			
Kates Creek	8040101	-041	9.4		U															3			
Little Mazarn	8040101	-047	23.5	UWSFM01	M		S	S	S	S	S									1			
Mazarn Creek	8040101	-045	30.2	UWMZC01	M		S	S	S	S	S									1			
Muddy Creek	8040101	-029	13.7		E		S	S	S	S	S									1			
Muddy Creek	8040101	-940	3.0		U															3			
N. Fork Ouachita	8040101	-023	21.7		E		S	S	S	S	S									1			
Ouachita River	8040101	-001	11.8		E		S	S	S	S	S									1			
Ouachita River	8040101	-009	2.6	OUA0025	E		S	S	S	S	S									1			
Ouachita River	8040101	-031	16.2		E		S	S	S	S	S									1			
Ouachita River	8040101	-033	12.1	OUA0021	M		S	S	S	S	S									1			
Ouachita River	8040101	-035	11.9		E		S	S	S	S	S									1			
Ouachita River	8040101	-036	25.3	UWOAR01	M		S	S	S	S	S									1			
Ouachita River	8040101	-037	0.8		E		S	S	S	S	S									1			
Ouachita River	8040101	-039	16.9	UWOAR01	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	**HUC**	**Reach**	**Miles**	**Monitoring Station**	**Assess**	**FC**	**FSH**	**PC**	**SC**	**DW**	**AI**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Prairie Creek	8040101	-048	7.5	OUA0040, OUA0040A, OUA0123	M		N	S	S	S	S	SE	UN			Tb	DO			4a	5		
S. Fork Ouachita	8040101	-043	25.5	OUA0164, OUACC, UWSFO01	M		S	S	S	S	S									1			
Turner Creek	8040101	-938	1.6		U															3			
Wilson Creek	8040101	-901	2.6	UAA	M		N	S	S	N	N	IP				SO4				5			
Back Valley Creek	8040102	-924	3.2		U															3			
Basin Creek	8040102	-973	2.9	OUA0171D	M		S	S	S	S	S									1			
Bayou Freeo	8040102	-901	39.8	OUA0048, UWFRE01	M		S	S	S	S	S									1			
Brushy Creek	8040102	-026	6.1		E		S	S	S	S	S									1			
Caddo River	8040102	-010	7.7		E		S	S	S	S	S									1			
Caddo River	8040102	-011	5.5		U															3			
Caddo River	8040102	-012	13.3		U															3			
Caddo River	8040102	-014	4.2		U															3			
Caddo River	8040102	-016	11.6	OUA0023	M		N	S	S	S	S									1			
Caddo River	8040102	-018	4.6		E		S	S	S	S	S									1			
Caddo River	8040102	-019	8.7	OUA0009A, OUA0009B	E		S	S	S	S	S									1			
Caddo River	8040102	-020	4.8		U															3			
Caddo River	8040102	-021	15.1		U															3			
Caddo River	8040102	-521	0.5		U															3			
Caddo River	8040102	-621	1.1		U															3			
Caddo River	8040102	-721	5.5		U															3			
Caney Creek	8040102	-017	14.4		U															3			
Chamberlain Creek	8040102	-971	2.4	OUA0101, OUA0104, OUA0171A	M		N	S	S	N	N	IP/ RE	IP/ RE	IP/ RE	IP/ RE	pH	Tox	*	**	5	5	5	5
Chatman Creek	8040102	-807	12.7		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Collier Creek	8040102	-821	12.3	OUA0162	U															3			
Cove Creek	8040102	-970	3.6	OUA0100, OUA0103B, OUA0159	M		N	S	S	N	N	IP				Tox				5			
Cove Creek	8040102	-972	1.1	OUA0103	E		S	S	S	S	S									1			
Cove Creek	8040102	-974	0.7		E		S	S	S	S	S									1			
Cove Creek	8040102	-976	3.3	OUA0171C	M		N	S	S	S	S	RE	RE			pH	DO			5	5		
Cypress Creek	8040102	-801	42.4	OUA0170, OUAAA	M		S	S	S	S	S									1			
D.C. Creek	8040102	-923	3.0	OUA0044T	M		S	S	S	S	S									1			
Deceiper Cr.	8040102	-027	67.9	UWDPC01	M		S	S	S	S	S									1			
De Roche Cr.	8040102	-009	21.3		U															3			
East Tulip Creek	8040102	-728	26.4	OUABB	U															3			
L'Eau Frais Creek	8040102	-003	25.2	UWLEF01	M		S	S	S	S	S									1			
Lick Creek	8040102	-922	10.1		U															3			
Lucinda Creek	8040102	-975	2.2	OUA0171B	M		N	S	S	S	S	RE				pH				5			
Mill Creek	8040102	-022	8.1		E		S	S	S	S	S									1			
Ouachita River	8040102	-001	4.0	OUA0165, OUA0183	M		S	S	S	S	S									1			
Ouachita River	8040102	-002	17.4		E		S	S	S	S	S									1			
Ouachita River	8040102	-004	8.7	OUA0127	E		S	S	S	S	S									1			
Ouachita River	8040102	-005	1.4		E		S	S	S	S	S									1			
Ouachita River	8040102	-006	15.6	OUA0030, OUA0126	M		S	S	S	S	S									1			
Ouachita River	8040102	-007	14.0	OUA0006, OUA0006A, OUA0102, OUA0125, OUA0165	M		S	S	S	S	S									1			
Ouachita River	8040102	-029	12.3	OUA0129	E		S	S	S	S	S									1			
Ouachita River	8040102	-030	13.7	OUA0029, OUA0128	E		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Ouachita River	8040102	-701	16.7	OUA0130	U															3			
Ouachita River	8040102	-704	5.0		U															3			
Polk Creek	8040102	-925	12.2	OUA0163	U															3			
Prairie Bayou	8040102	-008	16.3		E		S	S	S	S	S									1			
Rock Creek	8040102	-024	8.4		E		S	S	S	S	S									1			
S. Fork Caddo	8040102	-023	17.9	OUA0044, OUA0044A, OUA0044B	M		S	S	S	S	S									1			
Town Branch	8040102	-907	9.1		U					R										3			
Tulip Creek	8040102	-028	17.2	OUA0169+	M		S	S	S	S	S									1			
Tulip Creek	8040102	-928	32.2	OUA0169	M		S	S	S	S	S									1			
White Oak Creek	8040102	-828	3.8	OUA0168	M		S	S	S	S	S									1			

*=Al, Be, Zn

**=SO4, TDS

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0006	Ouachita River at Rock Port	7359500	1	A
OUA0006A	Ouachita River near Malvern, Arkansas		2	S
OUA0009A	Caddo River AB Glenwood, AR on Hwy 70		2	S
OUA0009B	Caddo River BL Glenwood, AR near Hwy 70		2	S
OUA0021	Ouachita River near Pencil Bluff	7356000	1	A
OUA0023	Caddo River near Amity	7359770	1	A
OUA0025	Ouachita River at Blakley Mt Dam		2	S
OUA0029	Ouachita River near Sparkman, AR		2	S
OUA0030	Ouachita River near Donaldson	7359580	1	A

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0040	Prairie Creek below Mena		1	A
OUA0040A	Prairie Creek above Mena, AR on CR54		2	S
OUA0044	South Fork of Caddo River at Fancy Hill		2	S
OUA0044A	South Fork Caddo River AB Milchem, AR on SR240		2	S
OUA0044B	South Fork Caddo River BL Milchem, AR		2	S
OUA0044T	N.L. Baroid tributary to South Fork Caddo River		1	A
OUA0048	Freeo Creek "205j". S1/2, S15, T12S, R17W, Ouachita Co., AR		2	S
OUA0100	Cove Creek above Highway 51		1	A
OUA0101	Chamberlain Creek near Magnet Cove on Bettis Rd.		1	A
OUA0102	Cove Creek on Gourdneck Valley Rd N of Magnet Cove		2	S
OUA0103	Cove Creek AB Chamberlain Creek on Gourdneck Valley Rd		2	S
OUA0103B	Cove Creek downstream of Chamberlain Creek confluence		1	A
OUA0104	Chamberlain Creek above confluence of Cove Creek		1	A
OUA0123	Prairie Cr. above confluence of Brier Cr. near Mena, AR		2	S
OUA0125	Ouachita River upstream of Grigsby Ford		2	S
OUA0126	Ouachita River on Hwy 67		2	S
OUA0127	Ouachita River 1 mi below Hwy 7 at Arkadelphia		2	S
OUA0128	Ouachita River 1/8 mi above Dallas Co. access on CR273		2	S
OUA0129	Ouachita River 1/2 mi below Little Missouri Confluence		2	S
OUA0130	Ouachita River 1 mi above Camden by railroad bridge		2	S
OUA0141	Fiddlers Creek N of Pencil Bluff on NF-814/D17,214		2	S
OUA0142	Irons Fork NE of Mena on CR70		2	S
OUA0159	Cove Creek at Highway 51 near Magnet Cove		1	A
OUA0161	Big Fork Creek off Hwy. 8 NW of Big Fork on CR67		2	S
OUA0162	Collier Creek near Norman on Liberty Rd.		2	S
OUA0163	Polk Creek SW of Black Springs on Polk Creek Rd.		2	S
OUA0164	South Fork Ouachita River NW of Black Spring on NF-91		2	S
OUA0165	Ouachita River off Highway 270 above Stone Quarry Creek		2	R

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0168	White Oak Creek at Highway 128 northwest of Holly Springs		2	R
OUA0169	Tulip Creek at Highway 128 northwest of Holly Springs		2	R
OUA0170	Cypress Creek at Highway 7 north of Sparkman		2	R
OUA0171A	Chamberlain Creek at Baroid Road near Magnet Cove		1	S
OUA0171B	Lucinda Creek on Baroid Road above confluence of Chamberlain Creek		1	S
OUA0171C	Cove Creek on Baroid Road above confluence of Chamberlain Creek		1	S
OUA0171D	Basin Creek on county road above confluence of Cove Creek		1	S
OUA0183	Ouachita River near Camden		1	S
OUA0184A	Indian Springs Creek at Sump near Hwy 270 in Lakeside		1	S
OUA0184B	Indian Springs Creek 10 feet DS of trib Hwy 270 in Lakeside		1	S
OUA0184C	Indian Springs Creek 0.03 miles US of Hwy 270 in Lakeside		1	S
OUA0184D	Indian Springs Creek mixing zone with Spencer Bay of Lake Ca		1	S
OUAAA	Cypress Creek 205J83-84		2	S
OUABB	East Tulip Creek 205J83-84		2	S
OUACC	South Fork Ouachita 205J83-84		2	S
OUAEE	Boardcamp Creek 205J "84-85"		2	S
UWDPC01	Deceiper Creek at county road, 8 miles southeast of Gurdon		2	R
UWFRE01	Freeo Creek at Highway 9, 5 miles west of Bearden		2	R
UWLEF01	L'Eua Frais Creek at Highway 128 near Joan		2	R
UWMZC01	Mazarn Creek at Highway 227 near Sunshine		2	R
UWOAR01	Ouachita River at county road off Highway 88 near Boardcamp		2	R
UWSFM01	Little Mazarn Creek at county road, 1.5 miles north of Pettyview		2	R
UWSFO01	South Fork Ouachita River at Highway 270 at Mount Ida		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	242.6	Fish Consumption	-	0
Evaluated	249.3	Fisheries	668.7	34.7
Monitored	454.1	Primary Contact	703.4	0
Total	**946**	Secondary Contact	703.4	0
		Domestic Water Supply	693.3	10.1
		Agri. & Industry	693.3	10.1

Table A-20: Active NPDES permits for Planning Segment 2F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0000523	EVRAZ STRATCOR, INC.	TRIB,LK CATHERINE,OUACHITA R	001	08040101	Garland	1	001
AR0001147	ENTERGY ARKANSAS, INC. - LAKE CATHERINE	LK CATHERINE,OUACHITA R	001	08040101	Hot Spring	2	001
AR0033880	HOT SPRINGS, CITY OF	LK CATHERINE,OUACHITA R	001	08040101	Garland	3	001
AR0038121	ARKANSAS STATE PARKS-LAKE CATHERINE STATE PARK	LK CATHERINE,OUACHITA R	001	08040101	Hot Spring	4	001
AR0048755	ENTERGY ARKANSAS, INC. - CARPENTER DAM	OUACHITA R @LK OUACHITA DOWNSTREAM/CARPENTER DAM	001	08040101	Garland	5	001
AR0048950	UMETCO MINERALS CORPORATION - WILSON MINE AREA	WILSON CR,LK CATHERINE,OUACHITA R	001	08040101	Garland	6	001
AR0049115	MAGIC SPRINGS & CRYSTAL FALLS	TRIB,MIDDLE BR/GULPHA CR,LK CATHERINE,OUACHITA R	001	08040101	Garland	7	001
AR0050512	REYNOLDS CONSUMER PRODUCTS, LLC	STONEY CR,LK CATHERINE,OUACHITA R	001	08040101	Hot Spring	8	001
AR0048615	RIVIERA UTILITIES WWTF	TRIB,LK CATHERINE,OUACHITA R	001	08040101	Garland	9	002
AR0050733	WAL-MART SUPERCENTER #5433	TRIB,GLAZYPEAU CR,LK HAMILTON,LK CATHERINE	003	08040101	Garland	10	001
AR0050644	LAKESIDE GARDENS P.O.A. D/B/A LAKESIDE GARDENS CONDOMINIUM	LK HAMILTON,LK CATHERINE,OUACHITA R	004	08040101	Garland	11	001
AR0041319	MILL POND VILLAGE	SORRELLS CR, FOURCHE A LOUPE CR,LK HAMILTON,OUCHIT	006	08040101	Garland	12	001
AR0044172	WESTWOOD VILLAGE SEWER FACILITIES BOARD	LK HAMILTON, OUACHITA R	006	08040101	Garland	13	001
AR0045128	JIMMY A. MCCLARD - D/B/A MCCLARD'S 270 WEST SHOPPING CENTER	UNNAMED TRIB,CEARLEY CR,LK HAMILTON,OUACHITA R	006	08040101	Garland	14	001

Table A-20: Active NPDES permits for Planning Segment 2F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0048763	ENTERGY ARKANSAS, INC. - REMMEL DAM	OUACHITA R	007	08040101	Hot Spring	15	001
AR0000850	MOUNTAIN VALLEY SPRING COMPANY	TRIB,GLAZYPEAU CR,LK HAMILTON	009	08040101	Garland	16	001
AR0020109	USDAFS-OUACHITA CIVILIAN CONSER. CTR	LK HAMILTON,OUACHITA R	009	08040101	Garland	17	001
AR0021539	MOUNTAIN PINE, CITY OF - WWTP	GLAZYPEAU CR,OUACHITA R	009	08040101	Garland	18	001
AR0022781	USACE - SPILLWAY RECREATION AREA	LK OUACHITA,OUACHITA R	009	08040101	Garland	19	001
AR0022799	USACE-LITTLE FIR RECREATION AREA	LK OUACHITA	009	08040101	Montgomery	20	001
AR0022802	USA-COE-BRADY MOUNTAIN REC AREA	LK OUACHITA	009	08040101	Garland	21	001
AR0035416	USA-COE - CRYSTAL SPRINGS REC AREA WWTP	LK OUACHITA	009	08040101	Garland	22	001
AR0036811	ARKANSAS STATE PARKS-LAKE OUACHITA STATE PARK	LK OUACHITA,OUACHITA R	009	08040101	Garland	23	001
AR0045829	O'BRIEN'S PIZZA PUB	TRIB,GLAZYPEAU CR,OUACHITA R	009	08040101	Garland	24	001
AR0050458	EL ACAPULCO RESTAURANT	UNNAMED TRIB,GLAZYPEAU CR,OUACHITA R	009	08040101	Garland	25	001
AR0000833	WEYERHAEUSER NR CO-MOUNTAIN PINE	GLAZYPEAU CR,OUACHITA R	009	08040101	Garland	26	007
AR0050806	CAMP YORKTOWN BAY	LK OUACHITA,OUACHITA R	011	08040101	Garland	27	001
AR0035424	USA-COE - JOPLIN REC AREA	LK OUACHITA	017	08040101	Garland	28	001
AR0039403	HEPOA, LLC	TRIB,LK OUACHITA	017	08040101	Montgomery	29	001
AR0050962	CHARLIE'S PIZZA PUB	TRB, LITTLE BLAKELY CR,LK OUACHITA, OUACHITA R	019	08040101	Garland	30	001

Table A-20: Active NPDES permits for Planning Segment 2F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0043125	NORMAN, CITY OF	CADDO R,DEGRAY LK,OUACHITA R	021	08040101	Montgomery	31	001
AR0048275	CAMP OZARK	TRIB,OUACHITA R	031	08040101	Montgomery	32	001
AR0041050	SOUTH ARKANSAS DIST CHURCH OF THE NAZARENE	TRIB,MACRS CR,OUACHITA R	036	08040101	Polk	33	001
AR0033855	MOUNT IDA, CITY OF	SOUTH FORK OUACHITA R,LK OUACHITA	043	08040101	Montgomery	34	001
AR0035394	USA-COE - DENBY POINT RECREATION AREA	LK OUACHITA	043	08040101	Garland	35	001
AR0035408	USACE-TOMPKINS BEND RECREATION AREA	LK OUACHITA	043	08040101	Montgomery	36	001
AR0040801	SHANGRI-LA RESORT, INC.	LK OUACHITA	043	08040101	Montgomery	37	001
AR0042293	HARBOR SOUTH DEVELOPMENT	TRIB,LK OUACHITA	043	08040101	Montgomery	38	001
AR0045624	LAKE HAMILTON SCHOOL DISTRICT NO. 5	UNNAMED TRIB,LOST CR,MAZARN CR,LK HAMILTON	047	08040101	Garland	39	001
AR0050148	HOT SPRINGS, CITY OF SW WWTP	LITTLE MAZARN CR,LK HAMILTON	047	08040101	Garland	40	001
AR0036692	MENA WASTEWATER TREATMENT PLANT	TRIB,PRAIRIE CR,OUACHITA R	048	08040101	Polk	41	001
AR0020605	ARKADELPHIA WASTEWATER TREATMENT PLANT	OUACHITA R	004	08040102	Clark	42	001
AR0047856	SHIELDS WOOD PRODUCTS, INC.	TRIB,OUACHITA R	004	08040102	Clark	43	001
AR0052043	THE FATHERS HOUSE	SWALE,BROWN SPRINGS BR,WHITE OAK CR,SALINE BU	004	08040102	Hot Spring	44	001
AR0022365	CAMDEN WATER UTILITIES	OUACHITA R	005	08040102	Ouachita	45	002
AR0048020	DONALDSON, CITY OF	OUACHITA R	006	08040102	Hot Spring	46	001

Table A-20: Active NPDES permits for Planning Segment 2F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0034126	MALVERN WW TREATMENT PLANT	QUACHITA R	007	08040102	Hot Spring	47	001
AR0049417	ENTERGY ARKANSAS-HOT SPRING PLANT	OUACHITA R	007	08040102	Hot Spring	48	001
AR0049611	AECC-MAGNET COVE GENERATING STATION	OUACHITA R	007	08040102	Hot Spring	49	001
AR0043354	ACME BRICK CO-PERLA FACILITY	UNNAMED TRIB, TOWN CR,OUACHITA R	007	08040102	Hot Spring	50	003
AR0051829	WAGGIN' WHEEL VET CLINIC	TRIB LITTLE GLAZYPEAU CR,LK HAMILTON	009	08040102	Garland	51	001
AR0036021	U.S. ARMY - COE - SPILLWAY/DEGRAY LAKE	TRIB,CADDO R,OUACHITA R	010	08040102	Clark	52	001
AR0036749	ARKADELPHIA HUMAN DEVELOPMENT CENTER	TRIB,CADDO R,OUACHITA R	010	08040102	Clark	53	001
AR0045411	CADDO VALLEY, CITY OF - MUNICIPAL WWTP	CADDO R,OUACHITA R	010	08040102	Clark	54	001
AR0020231	U.S. ARMY - COE - SHOUSE FORD/DEGRAY LAKE	DEGRAY LK,CADDO R,OUACHITA R	012	08040102	Hot Spring	55	001
AR0035432	U.S. ARMY COE - CADDO DRIVE REC AREA - DEGRAY LAKE	DEGRAY LK,CADDO R,OUACHITA R	012	08040102	Hot Spring	56	001
AR0036013	U.S. ARMY - COE - ARLIE MOORE/DEGRAY LAKE	DEGRAY LK,CADDO R,OUACHITA R	012	08040102	Hot Spring	57	001
AR0048241	LAKE CENTER GROCERY	BIG HILL CR,LK DEGRAY,CADDO R	012	08040102	Clark	58	001
AR0051098	BISMARCK HIGH SCHOOL	TRIB,BIG HILL CR,LK DEGRAY,CADDO R,OUACHITA R	012	08040102	Hot Spring	59	001
AR0037061	ARKANSAS STATE PARKS-LAKE DEGRAY RESORT STATE PARK	DEGRAY LK,OUACHITA R	012	08040102	Hot Spring	60	002
AR0035459	U.S. ARMY - COE - ALPINE RIDGE/DEGRAY LAKE	DEGRAY LK,CADDO R,OUACHITA R	013	08040102	Clark	61	001

Table A-20: Active NPDES permits for Planning Segment 2F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0020222	U.S. ARMY - COE IRON MOUNTAIN/DEGRAY LAKE	DEGRAY LK,CADDO R,OUACHITA R	014	08040102	Clark	62	001
AR0035645	GLENWOOD, CITY OF	CADDO R,DEGRAY LK,OUACHITA R	019	08040102	Pike	63	001
AR0044814	G & S ROOFING	TRIB,FIVE MI CR,CADDO R,OUACHITA R	019	08040102	Pike	64	001
AR0049263	BEAN LUMBER COMPANY	TRIB,CADDO R,OUACHITA R	019	08040102	Pike	65	001
AR0038270	BAKER HUGHES-FANCY HILL OPERATIONS	BACK VALLEY CR,S FK CADDO R,CADDO R,DEGRAY LK	023	08040102	Montgomery	66	002
AR0046612	GENE BRAZEALE LUMBER COMPANY, INC.	TRIB,BRUSHY CR,OUACHITA R	026	08040102	Dallas	67	001
AR0049026	GARLAND GASTON LUMBER CO. INC.	BRUSHY CR,OUACHITA R	026	08040102	Dallas	68	001
AR0000531	REYNOLDS METALS COMPANY - GUM SPRINGS PLANT	OUACHITA R	027	08040102	Clark	69	003
AR0047139	RAY WHITE LUMBER COMPANY	TRIB,CYPRUS CR,OUACHITA R	030	08040102	Dallas	70	001
AR0050105	HARMONY GROVE PUBLIC SCHOOL	TRIB,MIZZELL CR,PALMER BU,OUCHITA R	054	08040102	Ouachita	71	001
AR0049794	HALLIBURTON ENERGY SERICES	CHAMBERLAIN CR,COVE CR,OUACHITA R	501	08040102	Hot Spring	72	001
AR0035939	SPARKMAN, CITY OF	CYPRESS CR TRIB,OUACHITA R	801	08040102	Dallas	73	001
AR0036609	DEMPSEY RECLAMATION MINE SITE	BLACK VALLEY CR TRIB,S FRK CADDO R	923	08040102	Montgomery	74	002
AR0000868	HOT SPRING CO-JONES MILL WWTF	COVE CR,OUACHITA R	970	08040102	Hot Spring	75	001
AR0000841	AECC-MCCLELLAN GENERATING STAT	OUACHITA R	001	08040201	Ouachita	76	001
AR0048046	ROGERS LUMBER COMPANY, INC.	TRIB, LOWER OLD R,OUACHITA R	001	08040201	Ouachita	77	001
AR0049891	ANTHONY TIMBERLANDS, INC. - CAMDEN LOG YARD	TRIB,OUACHITA R	001	08040201	Ouachita	78	001

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SEGMENT 2G LITTLE MISSOURI RIVER AND ANTOINE RIVER

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

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. Approximately 17 percent of the waters within this segment are designated as Extraordinary Resource Waters.

These waters are heavily used for boating, canoeing, and fishing year-round; and for primary contact water activities during the warmer months.

Portions of Terre Noir Creek have been listed as not attaining the pH water quality standard. Waterbodies arising in the Ouachita Mountains tend to have low pH values, mainly because of the soils and other geologic features.

Figure A-16: Planning Segment 2G

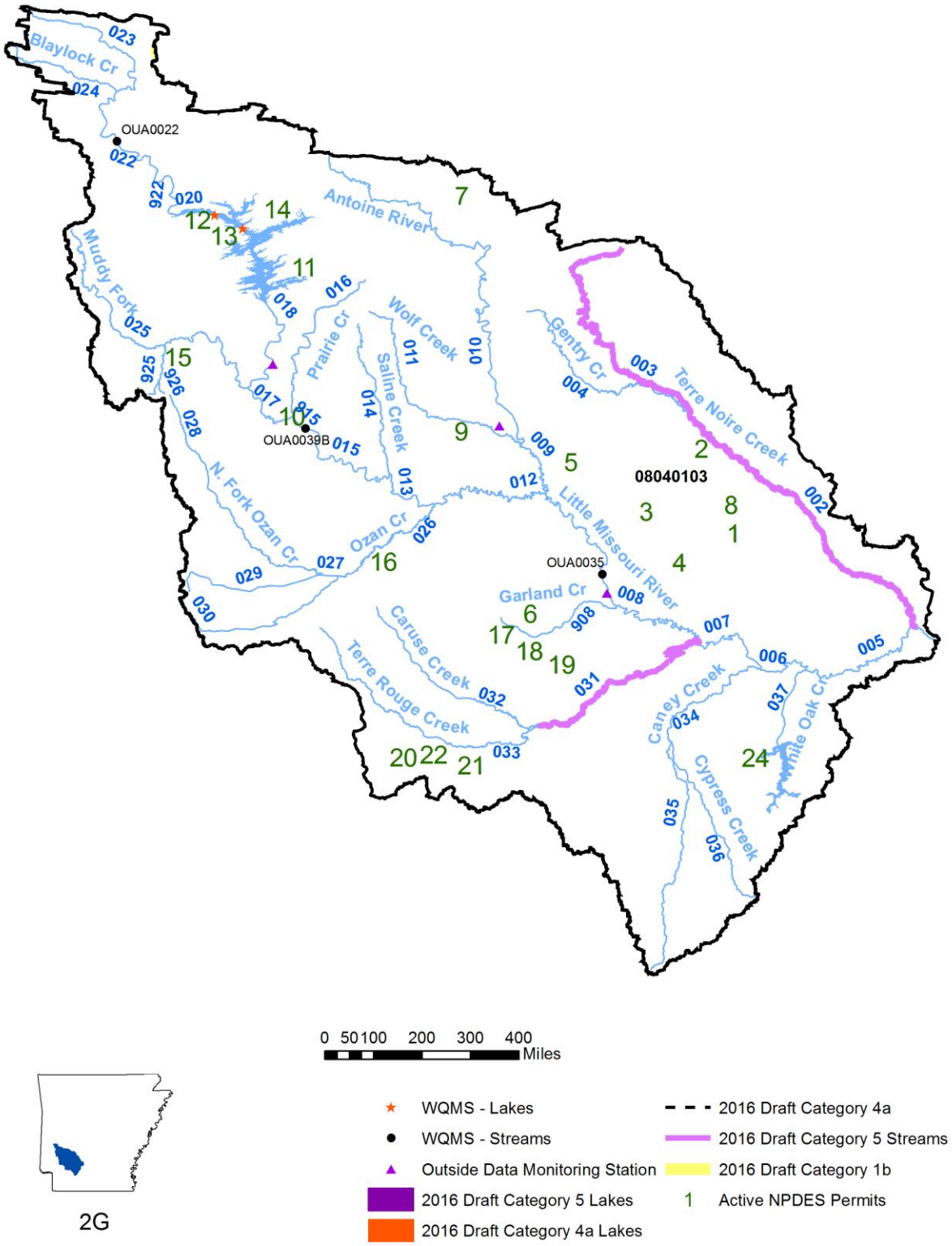

Table A-21: Planning Segment 2G Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Antoine River	8040103	-009	7.1		E		S	S	S	S	S									1			
Antoine River	8040103	-010	40.3	UWATR01	M		S	S	S	S	S									1			
Blaylock Creek	8040103	-024	9.6		U															3			
Bluff Creek	8040103	-925	4.6		U					R										3			
Caney Creek	8040103	-034	11.6	UWCYC01	M		S	S	S	S	S									1			
Caney Creek	8040103	-035	19.8		E		S	S	S	S	S									1			
Caruse Creek	8040103	-032	18.1		E		S	S	S	S	S									1			
Cypress Creek	8040103	-036	14.5		E		S	S	S	S	S									1			
Garland Creek	8040103	-908	10.6		U															3			
Gentry Creek	8040103	-004	23.0		E		S	S	S	S	S									1			
L. Missouri R.	8040103	-001	1.7		U															3			
L. Missouri R.	8040103	-005	13.7		U															3			
L. Missouri R.	8040103	-006	5.4		U															3			
L. Missouri R.	8040103	-007	8.5		U															3			
L. Missouri R.	8040103	-008	27.3	OUA0035	M		S	S	S	S	S									1			
L. Missouri R.	8040103	-012	16.0		E		S	S	S	S	S									1			
L. Missouri R.	8040103	-013	5.7		E		S	S	S	S	S									1			
L. Missouri R.	8040103	-015	11.6	OUA0039B	M		S	S	S	S	S									1			
L. Missouri R.	8040103	-017	6.2		E		S	S	S	S	S									1			
L. Missouri R.	8040103	-018	9.6		E		S	S	S	S	S									1			
L. Missouri R.	8040103	-020	11.0		U															3			
L. Missouri R.	8040103	-022	13.9	OUA0022	M		S	S	S	S	S									1			
L. Missouri R.	8040103	-023	14.6	OUADD	E		S	S	S	S	S									1			
L. Missouri R.	8040103	-915	1.1	OUA0039B	U															3			
L. Missouri R.	8040103	-922	3.7		U															3			
Long Creek	8040103	-024	6.8		E		S	S	S	S	S									1			
M. Fork Ozan	8040103	-029	11.4		E		S	S	S	S	S									1			
Muddy Fork	8040103	-025	27.7	UWMFC01	M		S	S	S	S	S									1			
N. Fork Ozan	8040103	-028	20.9		E		S	S	S	S	S									1			
Ozan Creek	8040103	-026	13.3	UWOZC01	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Ozan Creek	8040103	-027	1.1		E		S	S	S	S	S									1			
Prairie Creek	8040103	-016	15.3	OUA0038, OUA0039	E		S	S	S	S	S									1			
S. Fork Ozan	8040103	-030	14.4		E		S	S	S	S	S									1			
Saline Creek	8040103	-014	13.3		E		S	S	S	S	S									1			
Terre Noire Cr.	8040103	-002	34.4	UWTNR01	M		N	S	S	S	S	UN				pH				5			
Terre Noire Cr.	8040103	-003	27.1	UWTNR01	M		N	S	S	S	S	UN				pH				5			
Terre Rouge Cr.	8040103	-031	21.5	UWTRC01	M		N	S	S	S	S	SE				Tb				5			
Terre Rouge Cr.	8040103	-033	25.1		M		S	S	S	S	S									1			
White Oak Creek	8040103	-037	6.5		E		S	S	S	S	S									1			
Wolf Creek	8040103	-011	19.7		E		S	S	S	S	S									1			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
OUA0022	Little Missouri River near Langley	7360200	1	A
OUA0035	Little Missouri River near Boughton	7361600	1	A
OUA0038	Prairie Creek AB Murfreesboro, AR on E 13st St.		2	S
OUA0039B	Little Missouri River below Murfreesboro, AR on Roy Rd.		2	S
OUA0039B	Little Missouri River below Murfreesboro	7361035	1	A
OUADD	Little Missouri River 205J83-84		2	S
UWATR01	Antoine River at Highway 26 near Antoine	7361500	2	R
UWCYC01	Caney Creek at Highway 24 near Bluff City		2	R
UWMFC01	Muddy Fork at county road off Highway 27 near Murfreesboro		2	R
UWOZC01	Ozan Creek at Highway 24 near Blevins		2	R

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWTNR01	Terre Noir Creek at Highway 51, 2.5 miles east of Red Springs		2	R
UWTNR02	Terre Noir Creek at Highway 53, 2 miles south of Hollywood		2	R
UWTRC01	Terre Rouge Creek at Highway 19, 5 miles south of Prescott		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	69.9	Fish Consumption	-	0
Evaluated	244	Fisheries	414.8	83
Monitored	253.8	Primary Contact	497.8	0
Total	**567.7**	Secondary Contact	497.8	0
		Domestic Water Supply	497.8	0
		Agri. & Industry	497.8	0

Table A-22: Active NPDES Permits for Planning Segment 2G

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0022551	GURDON, CITY OF	CANEY CR,TERRE NOIR CR,LITTLE MISSOURI R,OUACHITA R	002	08040103	Clark	1	001
AR0045551	INTERSTATE PROPERTY OWNERS ASSOCIATION, LLC - SOUTH FORK TRUCK STOP	TRIB,S BOAT DIT,TERRE NOIRE CR,OUACHITA R	002	08040103	Clark	2	001
AR0044270	AHTD-DISTRICT 7-GURDON REST AREA	TRIB,BOGGY CR,BEAVER SLU,LITTLE MISSOURI R,OUACHITA R	007	08040103	Clark	3	001
AR0047546	ANTHONY TIMBERLANDS, INC.-BEIRNE FACILITY	TRIB,LITTLE MCNEELEY CR, MCNEELEY CR,LITTLE MISSOURI R,	007	08040103	Clark	4	001
AR0048551	OKOLONA, CITY OF - WWTP	TRIB,ANTOINE R,LITTLE MISSOURI R,OUACHITA R	008	08040103	Clark	5	001
AR0051187	HORIZON FOOD MART, INC.	GARLAND CR, LIT MISSOURI R, OUACHITA R	008	08040103	Ouachita	6	001
AR0051101	AMITY, CITY OF	LITTLE ANTOINE CR,ANTOINE R,LITTLE MISSOURI R,OUACHITA R	010	08040103	Clark	7	001
AR0037796	GP-GURDON PLYWOOD AND LUMBER COMPLEX	TRIB,CANEY CR,TERRE NOIRE CR,LITTLE MISSOURI R,OUACHITA R	010	08040103	Clark	8	004
AR0041432	DELIGHT, CITY OF	TRIB,WOLF CR,ANTOINE R,LITTLE MISSOURI R,OUACHITA R	011	08040103	Pike	9	001
AR0043281	MURFREESBORO, CITY OF	LITTLE MISSOURI R,OUACHITA R	015	08040103	Pike	10	001
AR0036048	USA-COE-COWHIDE COVE RECREATION AREA	LK GREESON,LITTLE MISSOURI R,OUACHITA R	018	08040103	Pike	11	001
AR0022772	USA COE-SELF CREEK REC AREA-LAKE GREESON	LK GREESON,LITTLE MISSOURI R,OUACHITA R	020	08040103	Pike	12	001
AR0038113	DAISY STATE PARK	LK GREESON,LITTLE MISSOURI R,OUACHITA R	020	08040103	Pike	13	001
AR0051161	USA-COE-KIRBY LANDING RECREATION AREA	LK GREESON,LITTLE MISSOURI R, OUACHITA R	020	08040103	Pike	14	001

Table A-22: Active NPDES Permits for Planning Segment 2G

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0020729	CERTAINTEED GYPSUM, INC	BLUFF CR,MUDDY FORK CR-LITTLE MISSOURI R	025	08040103	Howard	15	001
AR0041688	BLEVINS, CITY OF	TRIB,OZAN CR,LITTLE MISSOURI R,OUACHITA R	026	08040103	Hempstead	16	001
AR0000612	FIRESTONE BLDG PRODUCTS COMPANY	TRIB GARLAND CR,LITTLE MISSOURI R,OUACHITA R	031	08040103	Nevada	17	001
AR0000906	PRESCOTT LUMBER MILL	MILL BR,ONION CR,TERRE ROUGE CR,LITTLE MISSOURI R	031	08040103	Nevada	18	001
AR0033481	PRESCOTT, CITY OF	SEWER CR,TERRE ROUGE CR, LITTLE MISSOURI R	031	08040103	Nevada	19	001
AR0038458	HOPE, CITY OF - PATE CREEK WWTP	PATE CR,TERRE ROUGE CR,LITTLE MISSOURI R,OUACHITA R	033	08040103	Hempstead	20	001
AR0041815	EMMET, CITY OF	TERRE ROUGE CR,LITTLE MISSOURI R,OUACHITA R	033	08040103	Nevada	21	001
AR0047180	PERRYTOWN, CITY OF - WWTP	PATE CR,TERRE ROUCH CR,LITTLE MISSOURI R,OUACHITA R	033	08040103	Hempstead	22	001
AR0042439	NEVADA HIGH SCHOOL	TRIB,LITTLE CANEY CR,CANEY CR,LITTLE MISSOURI R,OUACHITA R	034	08040103	Nevada	23	001
AR0051241	ARKANSAS STATE PARKS-WHITE OAK LAKE STATE PARK	WHITE OAK LK	038	08040103	Nevada	24	001

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ARKANSAS RIVER BASIN

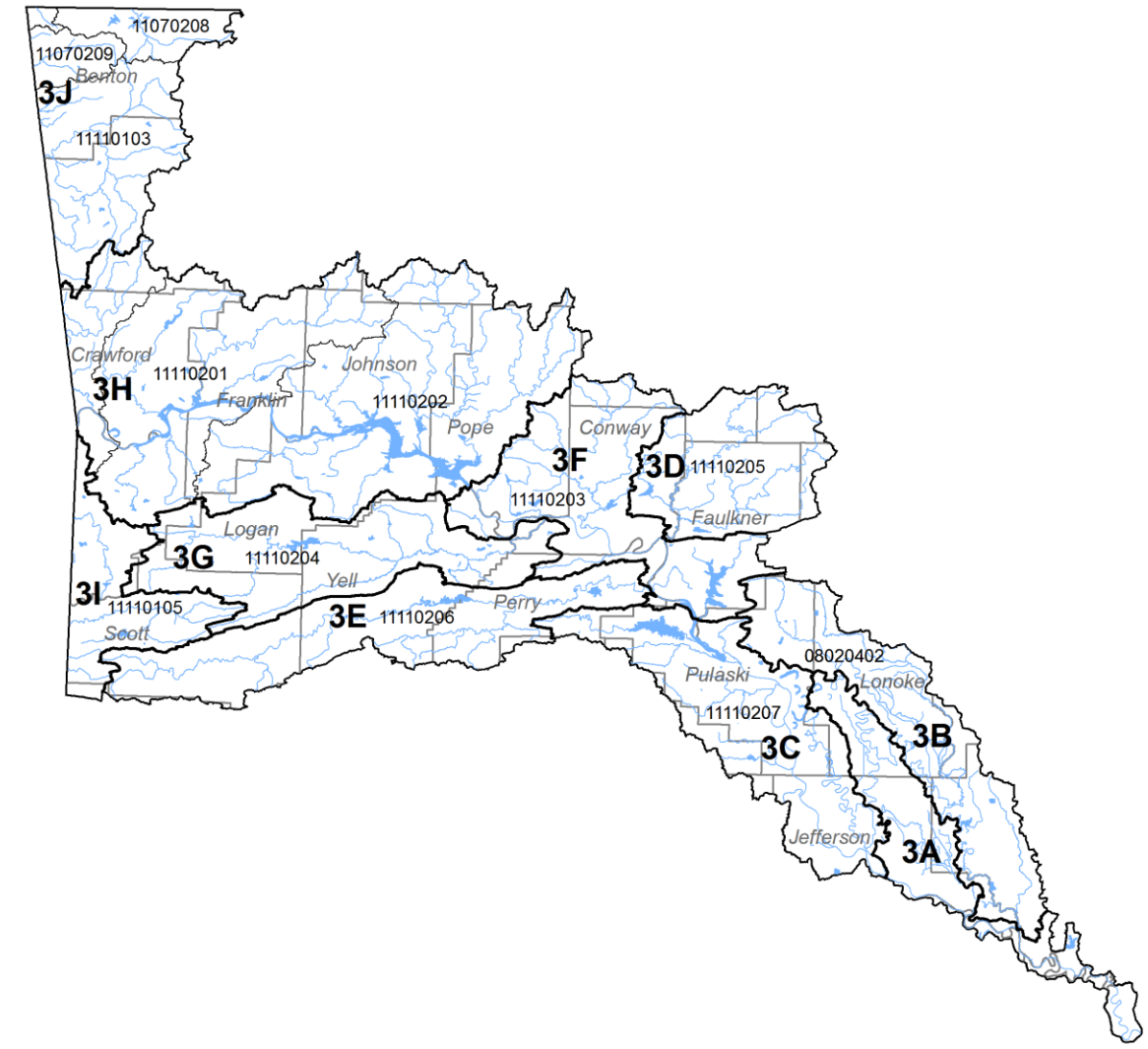
The Arkansas River flows east-southeasterly across Arkansas, bisecting the state roughly through the center. The entire basin spans the state from the extreme northwest corner to the Mississippi River.

The basin spans part of Arkansas' six major ecoregions and consists of ten ADEQ planning segments. The northern extreme of the basin spans parts of Benton and Washington counties and is within the Ozark Highland ecoregion. One planning segment is within part of the Boston Mountain ecoregion, but the majority of the basin lies within the Arkansas River Valley ecoregion. The southwestern most part of the basin dips into the Ouachita Mountain ecoregion. The major tributaries of the Arkansas River drain south easterly through the eastern edge of the Gulf Coastal ecoregion and finally into the Delta ecoregion where the Arkansas empties into the Mississippi River.

Major stream and watersheds within the Arkansas River basin include the Arkansas River, Bayou Meto, Cadron Creek, Fourche LaFave River, Petit Jean River, Poteau River, and Illinois River.

Major reservoirs include: Lake Saracen, Lake Maumelle, Nimrod Lake, Harris Brake Lake, Blue Mountain Lake, and Lake Dardanelle.

Figure A-17: Arkansas River Basin



3A - Lower Arkansas River
3B - Bayou Meto & Tributaries
3C - Arkansas River & Tributaries: Emmett Sanders L&D & Murray L&D
3D - Arkansas River & Tributaries : Murray L&D to Morrilton L&D
3E - Fourche LaFave River
3F - Arkansas River
3G - Petit Jean River & Tributaries
3H - Arkansas River & Tributaries: Oklahoma State Line to River Mile 210
3I - Poteau River
3J - Grand Neosho Basin

3 Arkansas River Basin

SEGMENT 3A LOWER ARKANSAS RIVER

Segment 3A, located in the southeastern part of Arkansas includes small portions of Desha, Lincoln, Jefferson, Arkansas, and Lonoke Counties. These waters make up the last 52-mile segment of the main stem of the Arkansas River and Wabbaseka Bayou.

Summary of Water Quality Conditions

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. The lower 30-mile portion of the Arkansas River is designated as an Extraordinary Resource Waterbody. This stream segment stretches from the Arkansas Post Lock and Dam to the mouth of the Mississippi River. Barge traffic is diverted out of the Arkansas River above the lock and dam to the White River through the Arkansas Post Canal. Thus, the lower 30-mile stretch of the Arkansas River receives little to no channel maintenance and remains free flowing.

This portion of the Arkansas River is quickly becoming a favorite canoeing and camping destination. It offers excellent fishing and primary contact recreation opportunities.

The fisheries designated use is listed as impaired in Wabbaseka Bayou because the Bayou is unable to maintain the dissolved oxygen standard for Channel Altered Delta streams. However, there is no aquatic community data to support this listing. In addition, low dissolved oxygen concentrations are a naturally occurring condition throughout the Delta ecoregion during the critical season when flows are diminished and water temperatures are elevated. There is also no discernible man-induced cause for the low dissolved oxygen concentrations during the critical season in Wabbaseka Bayou.

Figure A-18: Planning Segment 3A

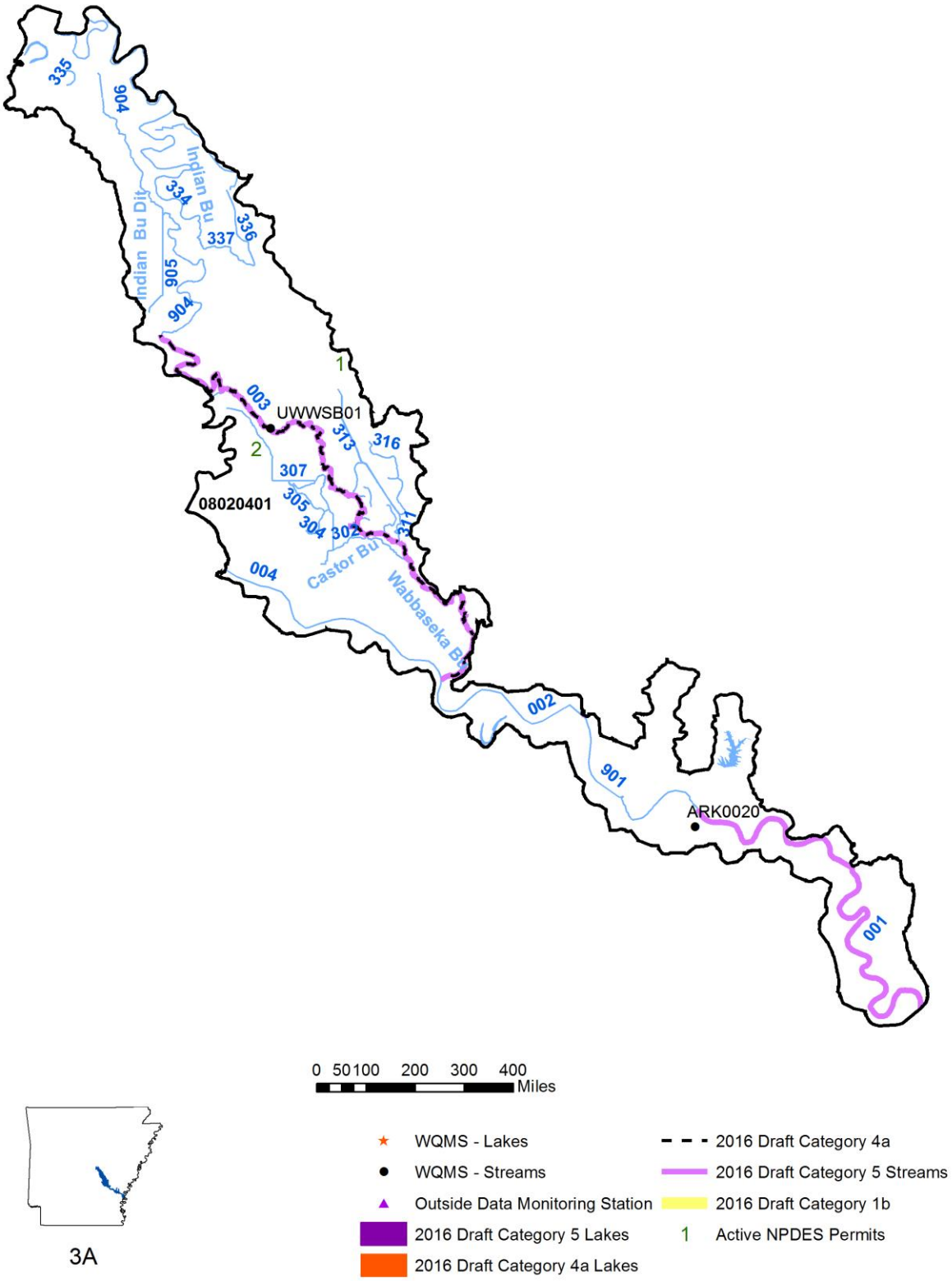


Table A-23: Planning Segment 3A Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Arkansas River	8020401	-001	36.5	ARK0020	M		N	S	S	S	S	UN				DO				5			
Arkansas River	8020401	-002	13.2		E		S	S	S	S	S									1			
Arkansas River	8020401	-004	17.8	ARK0048	M		S	S	S	S	S									1			
Arkansas River	8020401	-901	14.3	ARK0020	U															3			
Bakers Bayou	8020401	-334	53.6		U															3			
Boggy Bayou	8020401	-306	8.1		U															3			
Bradley Slough	8020401	-307	9.2		U															3			
Bubbling Slough	8020401	-310	0.6		U															3			
Caney Creek	8020401	-338	8.7		U															3			
Caney Creek Ditch	8020401	-336	5.7		U															3			
Castor Bayou	8020401	-302	4.5		U															3			
Cross Bayou	8020401	-314	2.5		U															3			
Five Forks Bayou	8020401	-304	2.8		U															3			
Flat Bayou	8020401	-308	14.0		U															3			
Gov. Cypress Slough	8020401	-309	3.0		U															3			
Hurricane Slough	8020401	-316	4.1		U															3			
Indian Bayou	8020401	-904	28.1		U															3			
Indian Bayou Ditch	8020401	-906	6.8		U															3			
Little Bayou Meto	8020401	-311	6.0		U															3			
Long Pond Slough	8020401	-301	4.0		U															3			
Newton Bayou	8020401	-312	1.6		U															3			
Salt Bayou	8020401	-337	6.4		U															3			
Salt Bayou Ditch	8020401	-313	18.5		U															3			
Snow Brake	8020401	-335	1.8		U															3			
Tupelo Bayou	8020401	-305	3.7		U															3			
Wabbaseka B.	8020401	-003	52.1	UWWSB01	M		N	S	S	S	S	UN	SE			DO	Tb			5	4a		
West Bayou	8020401	-315	1.0		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0020	Arkansas River at Lock and Dam No. 2	7265283	1	A
ARK0048	Arkansas River at Lock and Dam No. 4		1	A
UWWSB01	Wabbaseka Bayou at Highway 79 near Wabbaseka		1	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	209	Fish Consumption	-	0
Evaluated	13.2	Fisheries	31	88.6
Monitored	106.4	Primary Contact	119.6	0
Total	**328.6**	Secondary Contact	119.6	0
		Domestic Water Supply	119.6	0
		Agri. & Industry	119.6	0

Table A-24: Active NPDES permits for Planning Segment 3A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0035980	ADC-TUCKER INTERMEDIATE REFORMATORY	WABBSEKA BU,GRAND CYPRESS LK, BU METO,ARKANSAS	003	08020401	Jefferson	1	001
AR0039896	WABBASEKA, CITY OF	TRIB,BRADLEY SLU,ARKANSAS R	003	08020401	Jefferson	2	001

SEGMENT 3B BAYOU METO AND TRIBUTARIES

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 make up the major surface water resource in the segment. Major tributaries include Bayou Two Prairie, Mill Bayou, and Kings Bayou.

Summary of Water Quality Conditions

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. Most of these streams are utilized as irrigation water supply.

The upper segments of Bayou Meto are under a fish consumption advisory due dioxin in fish tissue. The source has been eliminated and the contamination is being addressed through natural attenuation.

Many segments of Bayou Meto and a segment of Bayou Two Prairie are listed because of low dissolved oxygen concentrations. This is a naturally occurring condition throughout the Delta ecoregion during the critical season when flows are diminished and water temperatures are elevated. This issue will need to be addressed either through a standards change or an assessment methodology change.

Figure A-19: Planning Segment 3B

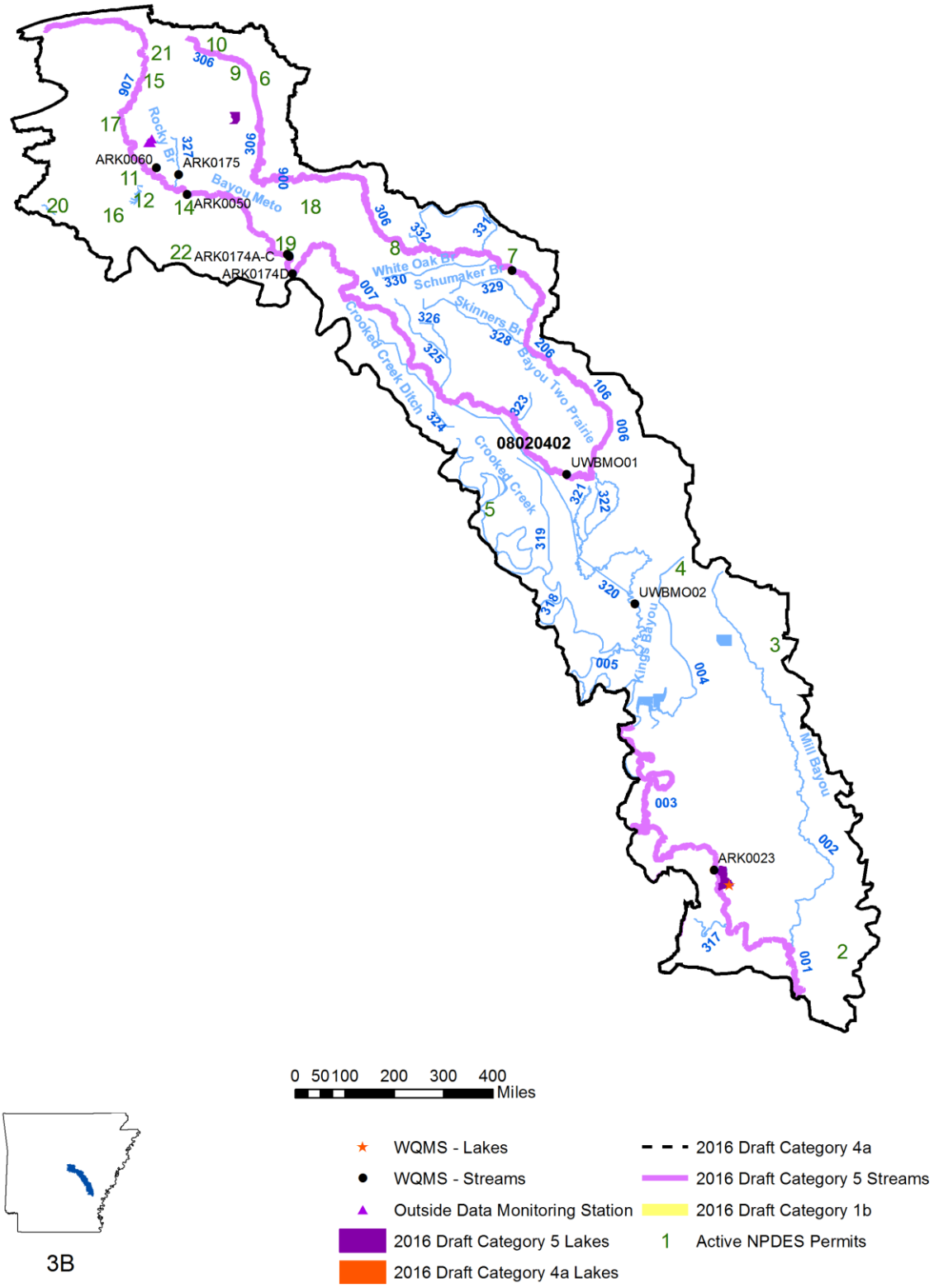


Table A-25: Planning Segment 3B (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bayou Meto	8020402	-001	5.9	ARK0023	E		N	S	S	S	S	UN				DO				5			
Bayou Meto	8020402	-003	40.9	ARK0023	M		N	S	S	S	S	UN				DO				5			
Bayou Meto	8020402	-005	51.7	UWBMO02	M		S	S	S	S	S									1			
Bayou Meto	8020402	-007	53.3	ARK0050, ARK0059, ARK0086, ARK0174A, ARK0174B, ARK0174C, ARK0174D, UWBMO01	M		N	S	S	R	S	IP	IP	IP	IP	DO	SO4	TDS	PO	5	5	5	5
Bayou Meto	8020402	-807	1.6		U															3			
Bayou Meto	8020402	-907	23.6	ARK0060	M		N	S	S	S	S	UN	UN			DO	Tb			5	5		
Bayou Two Prairie	8020402	-006	5.5	ARK0097	E		N	S	S	S	S	UN				DO				5			
Bayou Two Prairie	8020402	-106	1.7	ARK0097	E		N	S	S	S	S	UN				DO				5			
Bayou Two Prairie	8020402	-206	17.2	ARK0097	M		N	S	S	S	S	UN				DO				5			
Bayou Two Prairie	8020402	-306	43.5	ARK0097	E		N	S	S	S	S	UN				DO				5			
Bear Bayou	8020402	-317	4.9		U															3			
Big Ditch	8020402	-320	18.1		U															3			
Blue Point Ditch	8020402	-323	2.4		U															3			
Brownsville Branch	8020402	-332	1.6		U															3			
Buffalo Slough	8020402	-321	6.0		U															3			
Crooked Creek	8020402	-318	46.2		U															3			
Crooked Creek Ditch	8020402	-324	10.4		U															3			
Dennis Slough	8020402	-322	3.8		U															3			
Eagle Branch	8020402	-326	3.4		U															3			
Fish Trap Slough	8020402	-325	8.5		U															3			
Flynn Slough	8020402	-319	8.7		U															3			
Kings Bayou	8020402	-004	16.9		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Mill Bayou	8020402	-002	35.9		U															3			
Rickey Branch	8020402	-331	9.8		U															3			
Rocky Branch	8020402	-327	7.8		U					R										3			
Schumaker Branch	8020402	-329	7.9		U															3			
Skinners Branch	8020402	-328	10.7		U															3			
White Oak Branch	8020402	-330	7.6		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0023	Bayou Meto near Bayou Meto		1	A
ARK0050	Bayou Meto at Highway 161 below Jacksonville		1	A
ARK0059	Bayou Meto on CR646/SE Ave N of Galloway		2	S
ARK0060	Bayou Meto at west Main Street in Jacksonville		1	A
ARK0086	Bayou Meto below Remington Arms above Hwy 15		2	S
ARK0097	Bayou Two Prairie south of Carlisle		1	A
ARK0174A	Bayou Meto upstream of Remington Arms		1	S
ARK0174B	Bayou Meto downstream of Remington Arms Outfall 004 trib		1	S
ARK0174C	Bayou Meto off Blackman Road		1	S
ARK0174D	Bayou Meto at Hwy. 15		1	S
UWBMO01	Bayou Meto at county road crossing southeast of Seaton Dump		1	R
UWBMO02	Bayou Meto at Highway 79, 2 miles southwest of Stuttgart		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Use	Miles Support	Miles Non-Support
Unassessed	455.5	Fish Consumption	-	0
Evaluated	212.2	Fisheries	51.7	191.6
Monitored	56.6	Primary Contact	243.3	0
Total	**186.7**	Secondary Contact	243.3	0
		Domestic Water Supply	190	0
		Agri. & Industry	243.3	0

Table A-26: Active NPDES permits for Planning Segment 3B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0022284	HUMPHREY, CITY OF - WWTP	LATERAL #5 DIT,BEAR BU,SALT BU,CYPRESS LK, ARKANSAS R	313	08020401	Arkansas	1	001
AR0022390	GILLETT, CITY OF-WWTP	BILL'S BU,FLAG LK,BU METO,ARKANSAS R	001	08020402	Arkansas	2	002
AR0043761	ALMYRA, CITY OF	MILL BU,BIG BU METO,ARKANSAS R	002	08020402	Arkansas	3	001
AR0034380	STUTTGART, CITY OF	DIT,KING BU,BU METO,ARKANSAS R	004	08020402	Arkansas	4	001
AR0048313	H.A.C.T. REGIONAL WW TREATMENT DIST	CROOKED CR,BU METO,ARKANSAS R	005	08020402	Lonoke	5	001
AR0021661	CABOT WASTEWATER TREATMENT FACILITY	TRIB, BU TWO PRAIRIE,BU METO,ARKANSAS R	006	08020402	Lonoke	6	001
AR0033740	CARLISLE, CITY OF	BU TWO PRAIRIE,BU METO,ARKANSAS R	006	08020402	Lonoke	7	001
AR0034746	LONOKE, CITY OF	BU TWO PRAIRIE,BU METO,ARKANSAS R	006	08020402	Lonoke	8	001
AR0046311	ROGERS GROUP, INC-CABOT QUARRY	WHITE OAK BR,2 PRAIRIE BU,BU METO, ARKANSAS R	006	08020402	Lonoke	9	001
AR0049875	PHIL ROD ACRES MOBILE HOME PARK	TRIB, BLUE BR, BU TWO PRAIRIE, BU METO, ARKANSAS R	006	08020402	Lonoke	10	001
AR0033642	GRAVEL RIDGE SID #213	TRIB,KELLOGG CR,BU METO,ARKANSAS R	007	08020402	Pulaski	11	001
AR0037176	SHERWOOD, CITY OF - NORTH FACILITY	TRIB,KELLOGG CR,BU METO,ARKANSAS R	007	08020402	Pulaski	12	001
AR0038075	RUNYAN SID #211	TRIB,KELLOGG CR,BU METO,ARKANSAS R	007	08020402	Pulaski	13	001
AR0041335	JACKSONVILLE, CITY OF	BU METO,ARKANSAS R	007	08020402	Pulaski	14	001
AR0044598	PCSSD-BAYOU METO ELEMENTARY SCHOOL	DIT, BU METO, ARKANSAS R	007	08020402	Pulaski	15	001
AR0045608	SHERWOOD, CITY OF-SOUTH FACILITY	WOODRUFF CR, BRUSHY ISLAND CR ,BU METO CR, ARKANSAS R	007	08020402	Pulaski	16	001

Table A-26: Active NPDES permits for Planning Segment 3B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050687	HILLSIDE BAYOU, LLC	TRIB BU METO,BU METO,ARKANSAS R	007	08020402	Pulaski	17	001
AR0051799	DOLLAR GENERAL STORE #14793	TRIB,BU METO,ARKANSAS R	007	08020402	Lonoke	18	001
AR0001163	REMINGTON ARMS COMPANY, LLC	BU METO,ARKANSAS R	007	08020402	Lonoke	19	004
AR0041149	ARKANSAS MILITARY DEPARTMENT-ROBINSON MANEUVER TRAINING CENTER	5-MILE CR,TRAMMEL LK,BRUSHY ISLAND CR,BU METO,AR R	011	08020402	Pulaski	20	001
AR0050822	HARRELL PROPERTY SEWER SYSTEM	TRIB,BU METO,ARKANSAS R	907	08020402	Pulaski	21	001
AR0052019	TA OPERATING, LLC - PETRO STOPPING CENTERS, LP #326	TRIB,INK BU,LONE CYPRESS BRAKE,HILL LK,FAULKNER LK	----	08020402	Pulaski	22	001

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SEGMENT 3C ARKANSAS RIVER AND TRIBUTARIES EMMETT LOCK AND DAM SANDERS (#4) TO MURRAY LOCK AND DAM (#7)

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

Summary of Water Quality Conditions

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. Four monitoring stations are located on the main stem of the Arkansas River which provides monitored data for 52.2 miles of the river. Data from USGS studies on the Maumelle River and Lake Maumelle were used to assess these waterbodies.

These waters are heavily used for boating, hunting and fishing activities year-round and some primary contact recreation activities during the warmer months.

Fourche Creek, an Arkansas River tributary draining the Little Rock area, has been listed as not attaining the fisheries designated use based on water chemistry data. The cause of the impairment is from low dissolved oxygen concentrations, elevated silt and turbidity, and metals (lead, zinc) concentrations. The exact sources of the contamination are unknown at this time.

Figure A-20: Planning Segment 3C

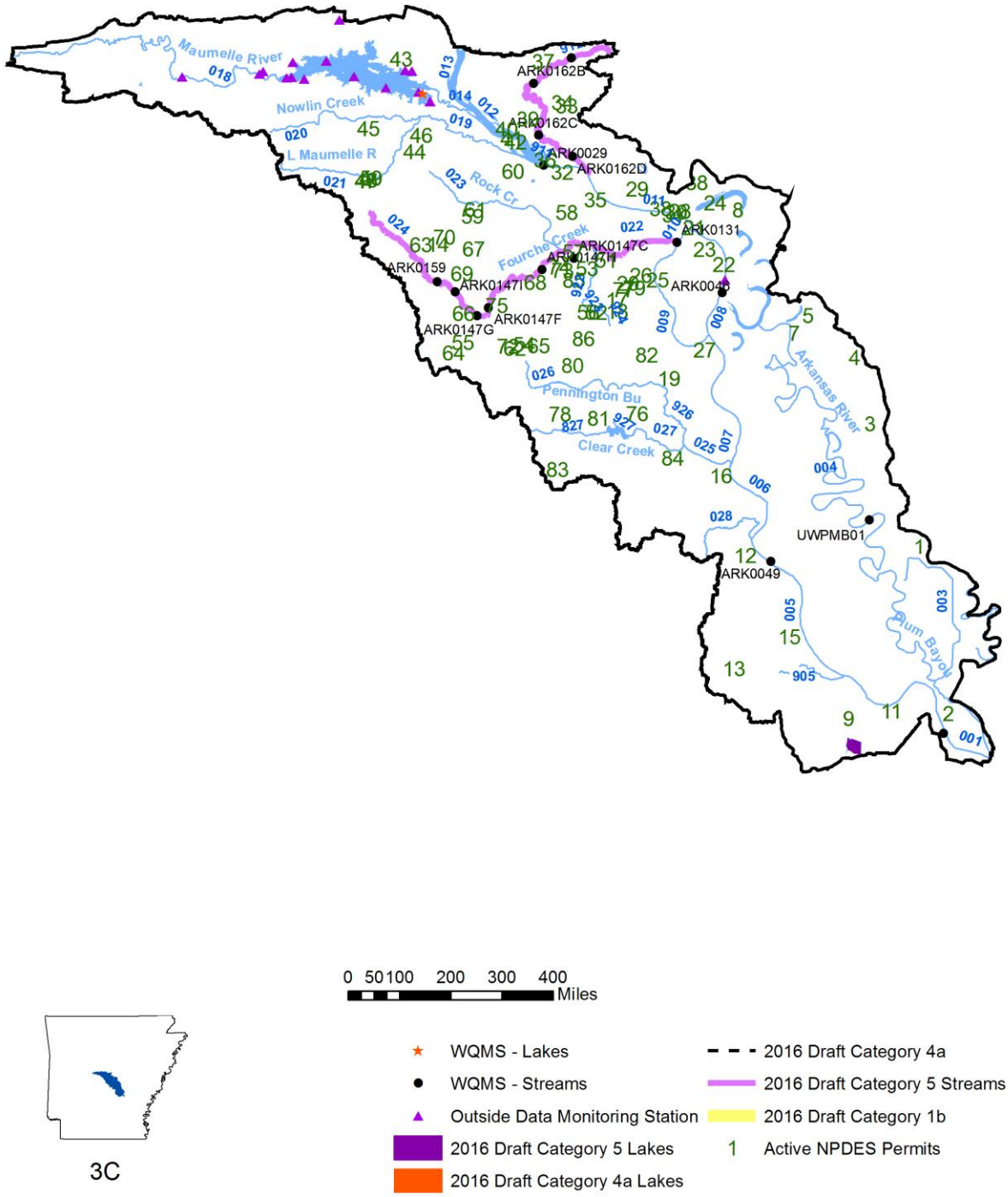

Figure A-21: Planning Segment 3C – Close-Up of Fourche Creek Area

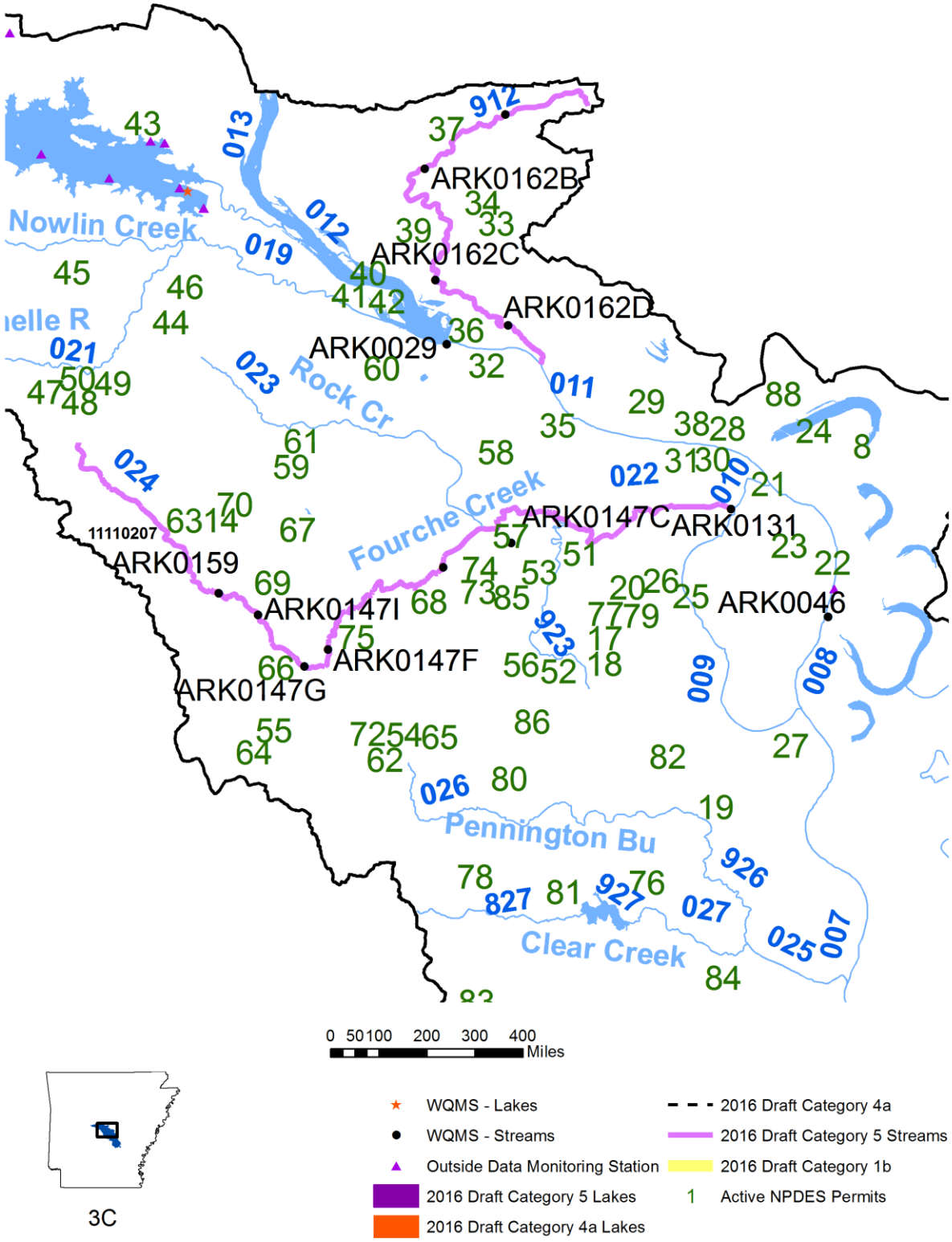

Table A-27 (a-c): Planning Segment 3C (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Asses	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Arkansas River	11110207	-001	6.5	ARK0048	M		S	S	S	S	S									1			
Arkansas River	11110207	-005	19.2	ARK0049	M		S	S	S	S	S									1			
Arkansas River	11110207	-006	6.5		E		S	S	S	S	S									1			
Arkansas River	11110207	-007	9.9		E		S	S	S	S	S									1			
Arkansas River	11110207	-008	8.3	ARK0046, ARK0152	M		S	S	S	S	S									1			
Arkansas River	11110207	-011	11.7	ARK0029	M		S	S	S	S	S									1			
Arkansas River	11110207	-012	5.5		M		S	S	S	S	S									1			
Arkansas River	11110207	-013	4.6		E		S	S	S	S	S									1			
Arkansas River	11110207	-911	1.0		U															3			
Clear Creek	11110207	-027	5.0		U															3			
Clear Creek	11110207	-827	6.4		U															3			
Clear Creek	11110207	-927	1.2		U															3			
Fourche Bayou	11110207	-010	1.9	ARK0094	U															3			
Fourche Creek	11110207	-009	10.4		U															3			
Fourche Creek	11110207	-022	10.2	ARK0131, ARK0147A, ARK0147B, ARK0147C, ARK0147D	M		N	S	S	S	S	SE	UN	UN		DO	Tb	Tm		5	5	5	
Fourche Creek	11110207	-024	20.7	ARK0130, ARK0147E, ARK0147F, ARK0147G, ARK0147H, ARK0159	M		N	S	S	S	S	SE	UN			DO				5			
Little Maumelle River	11110207	-019	9.3	ARK0140	M		S	S	S	S	S									1			
Little Maumelle	11110207	-021	13.3		E		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Asses	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
River																							
Little Fourche Creek	11110207	-922	5.5		U															3			
Lorance Creek	11110207	-026	15.1		U															3			
Main Ditch	11110207	-003	12.7		U															3			
Maumelle River	11110207	-014	5.2		E		S	S	S	S	S									1			
Maumelle River	11110207	-017	9.7		U															3			
Maumelle River	11110207	-018	29.4	USGS	M		S	S	S	S	S									1			
McGeorge Creek	11110207	-924	2.4		U															3			
Nowlin Creek	11110207	-020	12.0		E		S	S	S	S	S									1			
Pennington Bayou	11110207	-025	3.7		U															3			
Pennington Bayou	11110207	-926	3.4		U															3			
Plum Bayou	11110207	-002	7.0		M		S	S	S	S	S									1			
Plum Bayou	11110207	-004	68.6	UWPMB01	M		S	S	S	S	S									1			
Rock Creek	11110207	-023	12.8	ARK0153A, ARK0153B, ARK0153C, ARK0153D, ARK0153E, ARK0153F, ARK0153G,	U															3			
Tar Camp Creek	11110207	-028	7.9		U															3			
White Oak Bayou	11110207	-912	17.9	ARK0162B	M		N	S	S	N	S	UN	UN	UN	UN	DO	Tm	Tb	*	5	5	5	5
Willow Springs Branch	11110207	-923	0.6		U															3			

* = Pb, Cu

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0029	Arkansas River at Murray Lock and Dam		1	A
ARK0046	Arkansas River at Lock and Dam No. 6	7263620	1	A
ARK0048	Arkansas River below Pine Bluff, Lock and Dam No. 4	7263706	1	A
ARK0049	Arkansas River above Pine Bluff, Lock and Dam No. 5	7263640	1	A
ARK0094	Fourche Creek in Little Rock on Fourche Dam Pike		2	S
ARK0130	Fourche Creek at I-430 bridge in Little Rock		2	R
ARK0131	Fourche Creek at Fourche Dam Pike road off I-440 in Little Rock		1	A
ARK0140	Little Maumelle River near Little Rock		2	R
ARK0147A	Fourche Creek at Confederate Boulevard		2	S
ARK0147B	Fourche Creek at Arch-Pike Street Bridge		2	S
ARK0147C	Fourche Creek at Benny Craig Park		1	A
ARK0147D	Fourche Creek below Rock Creek Confluence		2	S
ARK0147E	Fourche Creek below I-430		2	S
ARK0147F	Fourche Creek at Otter Creek Road		1	S
ARK0147G	Fourche Creek at Highway 5 Bridge		1	S
ARK0147H	Fourche Creek		1	R
ARK0152	Arkansas River @ Willow Beach		2	S
ARK0153A	Rock Creek @ Chenal Valley Dr.		2	S
ARK0153B	Rock Creek @ Chenal Gardens on Kanis Rd		2	S
ARK0153C	Rock Creek @ Parkway Place Dr.		2	S
ARK0153D	Rock Creek @ Bowman Rd		2	S
ARK0153E	Rock Creek @ Shackleford Rd		2	S
ARK0153F	Rock Creek @ Kanis Park		2	S
ARK0153G	Rock Creek @ Boyle Park		2	S
ARK0159	Fourche Creek headwaters near Raines Rd		1	S
ARK0162B	White Oak Bayou @ Marche Rd		1	S
UWPMB01	Plum Bayou 1 mile west of Highway 15 near Tucker		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	99.7	Fish Consumption	-	0
Evaluated	51.5	Fisheries	217	48.8
Monitored	214.3	Primary Contact	265.8	0
Total	**365.5**	Secondary Contact	265.8	0
		Domestic Water Supply	247.9	17.9
		Agri. & Industry	265.8	0

Table A-28: Active NPDES permits for Planning Segment 3C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050113	FOREST TOWER FOOD MART, INC.	TRIB,KELLEY BR,DUCK CR,CLEAR CR,PENNINGTON BU,ARKANSAS R	027	08040203	Pulaski	1	001
AR0034771	ALTHEIMER, CITY OF	ARKANSAS R	001	11110207	Jefferson	2	001
AR0022128	ENGLAND, CITY OF	WABBASEKA BU,NELSON BRAKE,BLACK BU,PLUM BU, ARKANSAS R	004	11110207	Lonoke	3	001
AR0037613	KEO, CITY OF	TRIB,NORTH BU,PLUM BU,ARKANSAS R	004	11110207	Lonoke	4	001
AR0040380	ARKANSAS STATE PARKS-TOLTEC MOUNDS STATE PARK	DIT,NORTH BU,PLUM BU,ARKANSAS R	004	11110207	Lonoke	5	001
AR0047449	PCSSD-SCOTT SCHOOL TREATMENT	ASHLEY BU,HORSESHOE LK,SCOTT BU,OLD R LK,PLUM	004	11110207	Lonoke	6	001
AR0050831	MOUND LAKE II PHASE III WWTP	PLUM BU,ARKANSAS R	004	11110207	Lonoke	7	001
AR0051802	SWN SAND COMPANY	TRIB,FAULKNER LK,ASHLEY BU,HORSESHOE LK,OLD R	004	11110207	Pulaski	8	001
AR0001601	MONDI BAGS USA, LLC	ARKANSAS R	005	11110207	Jefferson	9	001
AR0001970	EVERGREEN PACKAGING, INC. - PINE BLUFF MILL	ARKANSAS R(001)	005	11110207	Jefferson	10	001
AR0033316	BOYD POINT WW TREATMENT FACILITY	ARKANSAS R	005	11110207	Jefferson	11	001
AR0036331	ENTERGY-WHITE BLUFF PLANT	ARKANSAS R	005	11110207	Jefferson	12	001
AR0049581	THE FAMILY CHURCH	TRIB,ARNOLD CR,CANEY BU,LK LANGHOFER, ARKANSAS R	005	11110207	Jefferson	13	001
AR0050890	DOWNHOME RESTAURANT & CATERING	TRIB,FOURCHE CR,ARKANSAS R	005	11110207	Faulkner	14	001
AR0001678	U.S. ARMY-PINE BLUFF ARSENAL	TRIB,PHILLIPS CR,ARKANSAS R	005	11110207	Jefferson	15	008

Table A-28: Active NPDES permits for Planning Segment 3C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0039357	REDFIELD, CITY OF	ARKANSAS R	006	11110207	Jefferson	16	001
AR0036447	GEO SPECIALTY CHEMICALS, INC.	FISH CR, BIG LK, PENNINGTON BU, ARKANSAS R	007	11110207	Pulaski	17	001
AR0043931	DIXON MANOR MOBILE HOME PARK	TRIB,FISH CR,ARKANSAS R	007	11110207	Pulaski	18	001
AR0049255	AECC-HARRY L. OSWALD GENERATING STATION	ARKANSAS R	007	11110207	Pulaski	19	001
AR0050075	ERGON ASPHALT AND EMULSIONS-LITTLE ROCK PLANT	TRIB,FISH CR,ARKANSAS R	007	11110207	Pulaski	20	001
AR0020303	NLR WASTEWATER UTILITY-FAULKNER LAKE	ARKANSAS R	008	11110207	Pulaski	21	001
AR0040177	LRWU-FOURCHE CREEK WWTP	ARKANSAS R	008	11110207	Pulaski	22	001
AR0048895	LITTLE ROCK HARBOR SERICES	ARKANSAS R	008	11110207	Pulaski	23	001
AR0051454	CATERPILLAR, INC., NORTH AMERICAN MOTOR GRADER FACILITY	UNNAMED DIT,FAULKNER LK, PLUM BU, ARKANSAS R	008	11110207	Pulaski	24	001
AR0042927	PCSSD-AUXILIARY SERICES FACILITY	FOURCHE BU,ARKANSAS R	009	11110207	Pulaski	25	001
AR0046710	GRANITE MOUNTAIN QUARRIES	TRIB,FOURCHE CR,ARKANSAS R	009	11110207	Pulaski	26	001
AR0051021	WRIGHTSVILLE, CITY OF	FOURCHE BU,ARKANSAS R	009	11110207	Pulaski	27	001
AR0001376	ENTERGY ARKANSAS, INC. - CECIL LYNCH PLANT	ARKANSAS R	011	11110207	Pulaski	28	001
AR0001775	UNION PACIFIC RAILROAD COMPANY	E & W BR/DARK HOLLOW CANAL,ARKANSAS R	011	11110207	Pulaski	29	001
AR0020320	NLRWU-FIVE MILE CREEK	ARKANSAS R	011	11110207	Pulaski	30	001
AR0021806	LRWU-ADAMS FIELD WASTEWATER TREATMENT FACILITY	ARKANSAS R	011	11110207	Pulaski	31	001
AR0038288	NLRWU-WHITE OAK BAYOU	ARKANSAS R	011	11110207	Pulaski	32	001

Table A-28: Active NPDES permits for Planning Segment 3C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0044750	PCSSD - OAK GROVE HIGH SCHOOL TREATMENT FACILITY	UNNAMED TRIB,NEWTON CR,WHITE OAK BU, ARKANSAS R	011	11110207	Pulaski	33	001
AR0046086	HAPPY MART, INC.	TRIB,NEWTON CR,WHITE OAK BU,ARKANSAS R	011	11110207	Pulaski	34	001
AR0047929	CENTRAL ARKANSAS WATER-OZARK POINT WATER TREATMENT PLANT	TRIB,ARKANSAS R	011	11110207	Pulaski	35	001
AR0048542	NORTH LITTLE ROCK ELECTRIC DEPARTMENT - MURRAY HYDROELECTRIC PLANT	ARKANSAS R	011	11110207	Pulaski	36	001
AR0048968	CEDAR HEIGHTS BAPTIST CHURCH	TRIB,WHITE OAK BU, ARKANSAS R	011	11110207	Pulaski	37	001
AR0052213	BRUCE OAKLEY, INC.	ARKANSAS R	011	11110207	Pulaski	38	001
AR0046868	ROWLETT QUARRY & ASPHALT PLANT	TRIB,WHITE OAK BU,ARKANSAS R	011	11110207	Pulaski	39	002
AR0033626	MAUMELLE SUBURBAN IMPROVE DISTRICT #500	ARKANSAS R	012	11110207	Pulaski	40	001
AR0050547	TWO RS HARBOR SUBDIVISION	ARKANSAS R	012	11110207	Pulaski	41	001
AR0050849	LITTLE ROCK WASTEWATER-LITTLE MAUMELLE WWTP	ARKANSAS R	012	11110207	Pulaski	42	001
AR0050393	WATERIEW ESTATES, POA	MILL BU,ARKANSAS R	013	11110207	Pulaski	43	001
AR0043893	PCSSD-ROBINSON HIGH SCHOOL	UNNAMED TRIB,LITTLE MAUMELLE R,ARKANSAS R	019	11110207	Pulaski	44	001
AR0050245	ALOTIAN CLUB, LLC-WATER TREATMENT FACILITY	NOWLIN CR,LITTLE MAUMELLE R,ARKANSAS R	020	11110207	Pulaski	45	001
AR0035963	PCSSD-ROBINSON ELEMENTARY SCHOOL TREATMENT FACILITY	TRIB,LITTLE MAUMELLE R,ARKANSAS R	021	11110207	Pulaski	46	001
AR0036421	FERNCLIFF CAMP & CONF. CENTER	FERNDALE CR,LITTLE MAUMELLE R,ARKANSAS R	021	11110207	Pulaski	47	001
AR0039250	4-H EDUCATION CENTER	FERNDALE CR,LITTLE MAUMELLE R,AR R	021	11110207	Pulaski	48	001

Table A-28: Active NPDES permits for Planning Segment 3C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050504	FERNDALE GROCERY	UNNAMED TRIB,LITTLE MAUMELLE R,ARKANSAS R	021	11110207	Pulaski	49	001
AR0051144	TALL OAKS, LLC - CUTOFF CORNER CAFE	TRIB,LITTLE MAUMELLE R,ARKANSAS R	021	11110207	Pulaski	50	001
AR0001414	3M COMPANY - ARCH STREET PLANT	TRIB,FOURCHE CR,ARKANSAS R	022	11110207	Pulaski	51	001
AR0001503	RAUCH & HERNDON MINE	TRIB,MCGEORGE CR,WILLOW SPRINGS BR,LITTLE FOURCHE CR	022	11110207	Pulaski	52	001
AR0001635	FIBER GLASS SYSTEMS, LP	DIT, TRIB, FOURCHE CR ARKANSAS R	022	11110207	Pulaski	53	001
AR0044393	HEINKE ROAD PROPERTY OWNERS SID #34	UNNAMED TRIB,LITTLE FOURCHE CR,FOURCHE CR,ARKANSAS R	022	11110207	Pulaski	54	001
AR0050181	WWTP 1, LLC, D/B/A ST. JOSEPH'S GLEN SUBDIVISION	TRIB,CROOKED CR,FOURCHE CR,ARKANSAS R	022	11110207	Pulaski	55	001
AR0050971	DSL DEVELOPMENT, LLC	WILLOW SPGS BR,LITTLE FOURCHE CR,ARKANSAS R	022	11110207	Pulaski	56	001
AR0051977	BFI WASTE SYSTEMS OF ARKANSAS, LLC D/B/A BFI MODEL FILL LANDFILL	TRIB, FOURCHE CR, ARKANSAS R	022	11110207	Pulaski	57	001
AR0037745	LITTLE ROCK ZOOLOGICAL GARDENS	COLEMAN CR,FOURCHE CR,AR R	022	11110207	Pulaski	58	002
AR0045560	OASIS RENEWAL CENTER	TRIB,BRODIE CR, FOURCHE CR, ARKANSAS R	023	11110207	Pulaski	59	001
AR0047937	CENTRAL ARKANSAS WATER-JACK H. WILSON WATER TREATMENT PLANT	TRIB,GRASSY FLAT CR,ROCK CR,FOURCHE CR,ARKANSAS R	023	11110207	Pulaski	60	009
AR0037338	BAKER APARTMENTS	PANTHER BR,BRODIE CR,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	61	001
AR0041424	PLEASANT OAKS SID #31	TRIB,OTTER CR,FOURCHE CR,ARKANSAS R	024	11110207	Saline	62	001
AR0044628	PCSSD-LAWSON ELEMENTARY SCHOOL	TRIB,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	63	001
AR0044881	SALINE COUNTY WATERWORKS AND SANITARY SEWER PUBLIC FACILITIES BOARD	CROOKED CR,FOURCHE CR,ARKANSAS R	024	11110207	Saline	64	001

Table A-28: Active NPDES permits for Planning Segment 3C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0047261	CHICOT SEWER SYSTEM, LLC	TRIB,LITTLE FOURCHE CR,FOURCHE CR, ARKANSAS R	024	11110207	Pulaski	65	001
AR0049042	OWEN CREEK, LLC	OWEN CR,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	66	001
AR0049051	HUMANE SOCIETY OF PULASKI COUNTY	UNNAMED TRIB,MCHENRY CR,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	67	001
AR0049131	PARKER SOLVENTS COMPANY	WESSON SPRING,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	68	001
AR0050130	CALLAGHAN CREEK SUBDIVISION	CALLAGHAN CR,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	69	001
AR0050521	LOCHRIDGE ESTATES WWTP	MCHENRY CR,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	70	001
AR0050539	PINEWOOD ESTATES SUBDIVISION	TRIB,PANTHER CR,FOURCHE CR,ARKANSAS R	024	11110207	Saline	71	001
AR0050636	SHANNON HILLS, CITY OF	OTTER CR,FOURCHE CR,ARKANSAS R	024	11110207	Saline	72	001
AR0050679	HILLCREST CAMSHAFT SERICE, INC.	DIT,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	73	001
AR0052191	SYSCO ARKANSAS	TRIB,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	74	001
AR0052302	LOVE'S TRAVEL STOP #457	TRIB,OTTER CR,FOURCHE CR,ARKANSAS R	024	11110207	Pulaski	75	001
AR0040860	MAPLE CREEK FARMS WWTP	TRIB MAPLE CR, BIG LK, PENNINGTON BU, ARKANSAS R	026	11110207	Pulaski	76	001
AR0042544	SPEEDY STOP, LLC	TRIB,FISH CR,BIG LK,PENNINGTON BU,ARKANSAS R	026	11110207	Pulaski	77	001
AR0042862	SHERIDAN SCHOOL DIST #37-EAST END ELEMENTARY/INTERMEDIATE SCHOOLS	TRIB,MCCRIGHT BR,LORRANCE CR,BIG LK,PENNINGTON BU,	026	11110207	Benton	78	001
AR0044601	PCSSD - FULLER SCHOOL TREATMENT FAC	TRIB,FISH CR,FISH CR,LORANCE CR,PENNINGTON BU,	026	11110207	Pulaski	79	001
AR0044610	PCSSD-LANDMARK ELEMENTARY SCHOOL TREATMENT FACILITY	TRIB,TREADWAY BR,LORANCE CR	026	11110207	Pulaski	80	001

Table A-28: Active NPDES permits for Planning Segment 3C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0048399	MAPLE CREEK FARMS TRACT C H	TRIB,MAPLE CR,LORANCE CR,PENNINGTON BU,ARKANSAS R	026	11110207	Pulaski	81	001
AR0040266	145TH STREET WATER AND SEWER IMPROVEMENT DISTRICT NO. 345 OF PULASKI COUNTY	CANE CR,FISH CR,LARANCE CR,PENNINGTON BU, AR R	026	11110207	Pulaski	82	002
AR0050628	MWM DEVELOPMENT, LLC - D/B/A DEER CREEK DEVELOPMENT	KELLY BR,DUCK CR,CLEAR CR,FERGUSON LK,PENNINGTON	027	11110207	Grant	83	001
AR0051993	WOODSON-HENSLEY WATER COMPANY - WATER TREATMENT FACILITY	DIT, CLEAR CR, PENNINGTON BU, ARKANSAS R	027	11110207	Pulaski	84	001
AR0001449	7400 SCOTT HAMILTON LLC.	LITTLE FOURCHE CR TRIB	922	11110207	Pulaski	85	002
AR0051373	JUDY SURRETT - CHINA CAFE	TRIB,WILLOW SPRINGS BR,LITTLE FOURCHE CR, FOURCHE	923	11110207	Pulaski	86	001
AR0039543	MCALMONT CHURCH OF CHRIST	STARK BEND,FAULKNER LK	---	11110207	Pulaski	87	001
AR0046299	MAVERICK TRANSPORTATION	DIT,STARK BEND TRIB,FAULKNER LK	---	11110207	Pulaski	88	001
AR0051110	COLTEC INDUSTRIES, INC.-CENTRAL MOLONEY FACILITY	BRUMPS BU, LK SARACEN	---	11110207	Jefferson	89	001

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SEGMENT 3D ARKANSAS RIVER AND TRIBUTARIES" MURRAY LOCK AND DAM (#7) TO MORRILTON LOCK AND DAM (#9)

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

Summary of Water Quality Conditions

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 supply. These waters are used for hunting, boating, and fishing activities year-round, and primary contact recreation activities in the warmer months. Cadron Creek is also a favorite canoeing and kayaking destination.

A small tributary to Cadron Creek, Cypress Creek, is currently evaluated as not attaining the fisheries designated use because of metals (copper, zinc) contamination. This is a very small tributary that ceases to flow during the critical season. The source of the metals contamination is suspected to be from agriculture activities, primarily confined animal operations in the watershed.

East Fork Cadron Creek has been listed for exceeding the turbidity criterion. The source is listed as surface runoff, however, natural gas extraction activities (drilling and piping) continue in the watershed. These activities include drilling extraction wells, construction of pipelines to carry the natural gas from the wells to main distribution lines, and construction of hundreds of miles of unimproved roads to move construction equipment to and from the sites. Thousands of acres of land are exposed and thousands of streams are crossed during this process. Each acre and every stream crossing increases the nonpoint source input into the streams in the area.

Figure A-22: Planning Segment 3D

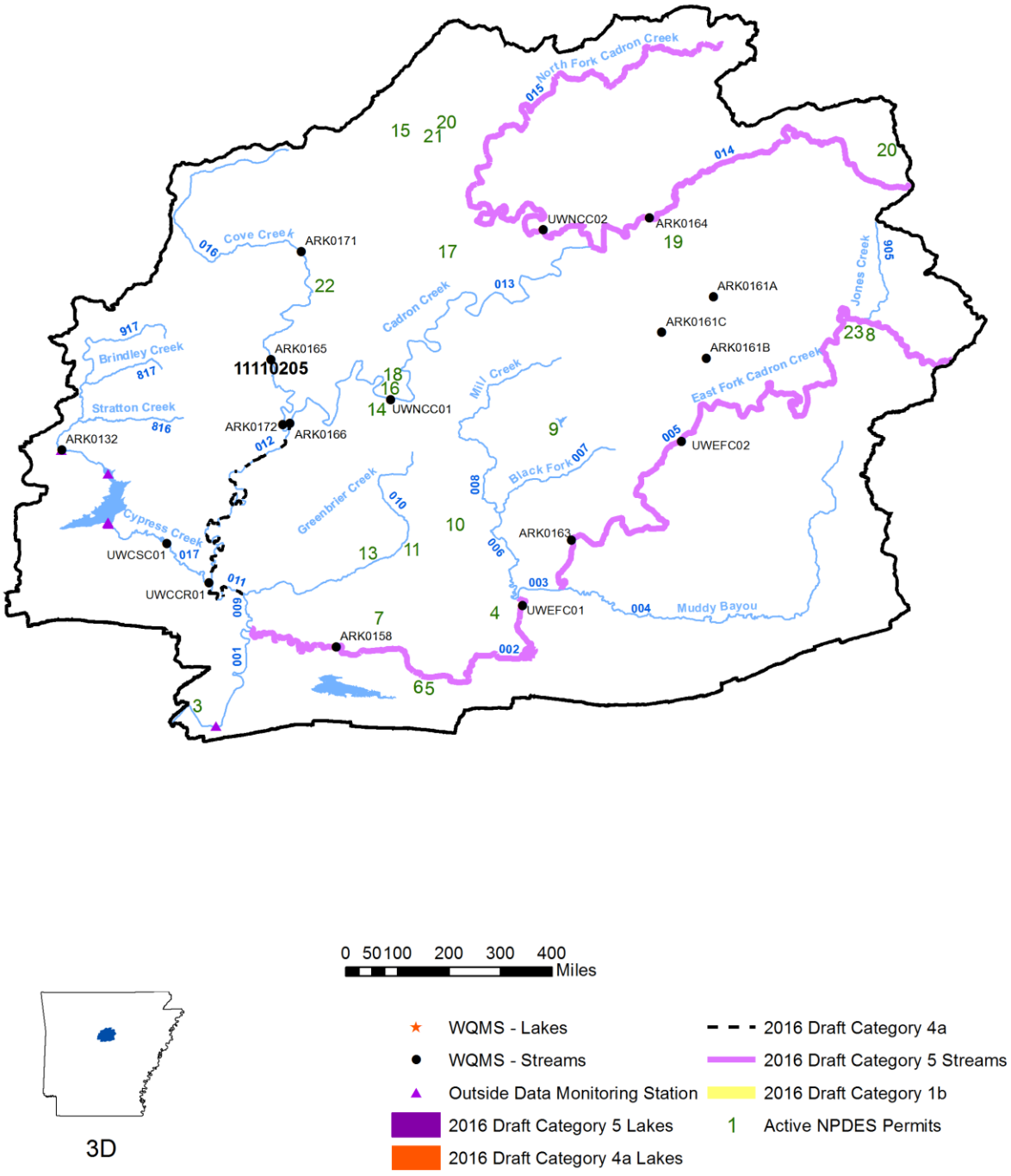

Table A-29 (a-c): Planning Segment 3D (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Black Fork	11110205	-006	5.7		E		S	S	S	S	S									1			
Black Fork	11110205	-007	6.0		E		S	S	S	S	S									1			
Brindley Creek	11110205	-817	3.7	ARK0134	U															3			
Cadron Creek	11110205	-001	8.3		E		S	S	S	S	S									1			
Cadron Creek	11110205	-009	1.8		E		S	S	S	S	S									1			
Cadron Creek	11110205	-011	2.7	ARK0062	M		N	S	S	S	S	UN				Tb				4a			
Cadron Creek	11110205	-012	13.1	UWCCR01	E		N	S	S	S	S	UN				Tb				4a			
Cadron Creek	11110205	-013	28.7	ARK0166, UWNCC01	M		S	S	S	S	S									1			
Cadron Creek	11110205	-014	19.2	ARK0164	M		N	S	S	S	S	UN				DO				5			
Cove Creek	11110205	-016	24.5	ARK0165, ARK0171, ARK0172	E		S	S	S	S	S									1			
Cypress Creek	11110205	-017	11.6	UWCSC01	M		S	S	S	S	S									1			
Cypress Creek	11110205	-917	9.8	ARK0132, ARK0135	M		S	S	S	S	S									1			
E. Fork Cadron	11110205	-002	19.5	ARK0158, UWEFC01	M		N	S	S	S	S	SE	UN			Tb	DO			5	5		
E. Fork Cadron	11110205	-003	2.0		E		S	S	S	S	S									1			
E. Fork Cadron	11110205	-005	34.8	ARK0163, UWEFC02	M		N	S	S	S	S	UN				DO				5			
Greenbrier Cr.	11110205	-010	13.0		U															3			
Jones Creek	11110205	-905	4.8		U															3			
Mill Creek	11110205	-008	11.3	ARKAA	E		S	S	S	S	S									1			
Muddy Bayou	11110205	-004	21.6		E		S	S	S	S	S									1			
North Cadron Creek	11110205	-015	29.6	ARKBB, UWNCC02	M		N	S	S	S	S	UN				DO				5			
Stratton Creek	11110205	-816	5.0	ARK0133	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARKAA	Mill Creek 2O5J83-84		2	S
ARKBB	North Fork Cadron 205J83-84		2	S
ARK0062	Cadron Creek 4 mi. W of Wooster SW 1/4, S.31, T7N, R14W, Faulkner		2	S
ARK0132	Cypress Creek at Highway 9 bridge near Cypress Valley		1	R
ARK0133	Stratton Creek near Cypress Valley (Hwy. 9)		2	S
ARK0134	Brindley Creek near Birdtown on CR70/ Dutton Mountain Rd		2	S
ARK0135	Cypress Creek near Birdtown on CR70/ Dutton Mountain Rd		2	S
ARK0158	East Fork Cadron Creek near Wooster		1	A
ARK0163	East Fork Cadron Creek on Clinton Mountain Rd		1	S
ARK0164	Cadron Creek on Cadron Creek Rd		1	S
ARK0165	Cove Creek on Cole Mountain		1	S
ARK0166	Cadron Creek on Highway 285		1	S
ARK0171	Cove Creek on Inlet Road Bridge		1	S
ARK0172	Cove Creek at AR Natural Heritage Commission		1	S
UWCCR01	Cadron Creek at county road, 5 miles west of Wooster	7261000	1	R
UWCSC01	Cypress Creek at county road, 2 miles southeast of Highway 92		2	R
UWEFC01	East Fork Cadron Creek at Highway 287, 3 miles southeast of Greenbrier		1	R
UWEFC02	East Fork Cadron Creek at Highway 107 near Barney		1	R
UWNCC01	North Cadron Creek at Highway 65 near Damascus		1	R
UWNCC02	North Cadron Creek at county road, 0.75 miles north of Highway 124		1	A

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Use	Miles Support	Miles Non-Support
Unassessed	26.5	Fish Consumption	-	0
Evaluated	94.3	Fisheries	131.3	118.9
Monitored	155.9	Primary Contact	250.2	0
Total	**276.7**	Secondary Contact	250.2	0
		Domestic Water Supply	250.2	0
		Agri. & Industry	250.2	0

Table A-30: Active NPDES permits for Planning Segment 3D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050253	HAYDEN'S PLACE SUBDIVISION	TRIB,BENTLEY CR,PALARM CR,LK CONWAY, PALARM CR, AR	005	11110203	Faulkner	1	001
AR0049361	MENIFEE, CITY OF	TRIB OF GAP CR,GAP CR,ARKANSAS R	010	11110203	Conway	2	001
AR0048119	EVERGREEN PACKAGING, INC. - CADRON CREEK CHIP MILL	CADRON CR, ARKANSAS R	001	11110205	Conway	3	001
AR0049620	ARKAVALLEY AIRPARK	TRIB,EAST FORK CADRON CR,CADRON CR, ARKANSAS R	002	11110205	Faulkner	4	001
AR0050466	WASTEWATER MANAGEMENT, INC. - SHADOW RIDGE WWTF	EAST FORK OF CADRON CR, ARKANSAS R	002	11110205	Faulkner	5	001
AR0050491	NORTH HILLS SUBDIVISION WWTP	E FORK CADRON CR,CADRON CR,ARKANSAS R	002	11110205	Faulkner	6	001
AR0050598	WASTEWATER MANAGEMENT, INC. - HUNTINGTON ESTATES SUBDIVISION	KANEY CR,E FRK CADRON CR,CADRON CR,ARKANSAS R	002	11110205	Faulkner	7	001
AR0051403	ROSE BUD, CITY OF	EAST FORK CADRON CR, CADRON CR, ARKANSAS R	005	11110205	White	8	001
AR0037087	ARKANSAS STATE PARKS-WOOLLY HOLLOW STATE PARK	BLACK FRK CR,E FRK CADRON CR, CADRON CR, ARKANSAS R	007	11110205	Faulkner	9	001
AR0050440	GREENBRIER, CITYOF - GREENBRIER SPORTS PARK	TRIB,BLACK FORK,E FORK CADRON CR,ARKANSAS R	007	11110205	Faulkner	10	001
AR0036536	GREENBRIER, CITY OF	GREENBRIER CR,CADRON CR,ARKANSAS R	010	11110205	Faulkner	11	001
AR0043028	GOOD EARTH HORTICULTURE, INC.	TRIB,TANK LK,TRIB,ARKANSAS R	010	11110205	Conway	12	001
AR0050768	STERLING MEADOWS SUB.WWTP	TRIB,GREENBRIER CR,CADRON CR,ARKANSAS R	010	11110205	Faulkner	13	001
AR0047112	ROGERS GROUP, INC. - GREENBRIER QUARRY	CADRON CR,ARKANSAS R	013	11110205	Faulkner	14	001

Table A-30: Active NPDES permits for Planning Segment 3D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0047457	CADRON CREEK CATFISH HOUSE	TRIB,WARD CR,PINE MOUNTAIN CR,COVE CR,CADRON CR	013	11110205	Van Buren	15	001
AR0051268	ARKANSAS SALTWATER RECYCLING, LLC	TRIB,CADRON CR,ARKANSAS R	013	11110205	Faulkner	16	001
AR0051756	SOUTHWESTERN ENERGY COMPANY SWN DAMASCUS CAMP	TRB,BATESVILLE CR,COVE CR,CADRON CR, ARKANSAS R	013	11110205	Columbia	17	001
AR0051705	ARKANSAS SALTWATER RECYCLING, LLC	DIT,UNNAMED TRIB CADRON CR,CADRON CR,ARKANSAS R	013	11110205	Faulkner	18	002
AR0040321	QUITMAN, CITY OF	MILL CR,CADRON CR,ARKANSAS R	014	11110205	Cleburne	19	001
AR0052311	SEECO, INC. - BIRDSONG SANFORD SE1	POND, UNNAMED CR,CADRON CR,ARKANSAS R	014	11110205	Cleburne	20	001
AR0052086	BEE BRANCH WATER REUSE/RECYCLE FACILITY	TRIB, LINN CR, N FORK CADRON CR, ARKANSAS R	015	11110205	Van Buren	21	001
AR0049077	BOY SCOUTS OF AMERICA - GUS BLASS SCOUT RESERATION	COVE CR,CADRON CR,ARKANSAS R	016	11110205	Van Buren	22	001
AR0049913	DOGWOOD MEADOWS	TRIB, E FORK CADRON CR,ARKANSAS R	024	11110205	Pulaski	23	001

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SEGMENT 3E FOURCHE LAFAVE RIVER

Segment 3E, located in west central Arkansas, includes portions of Perry, Yell, Scott Counties, Saline, and Polk Counties. This segment contains a 148-mile reach of the Fourche LaFave River and its tributaries; 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

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. These waterbodies are primarily used for fishing and hunting activities with primary contact recreation activities occurring in the warmer months.

One reach of the Fourche LaFave River was assessed as not attaining the fisheries designated use due to excessive turbidity. Previous data have shown occasional periods of elevated turbidity values associated with agriculture and silviculture activities. However, the construction and maintenance of an abundance of unpaved roads for timber access and general transportation is likely to be another contributing factor. A TMDL was completed in 2007.

Other reaches were listed because of low dissolved oxygen concentrations. These streams experience very low flow conditions reducing them to a series of large pools. With little to no water exchange in these pools and high ambient air temperatures during the critical season, dissolved oxygen concentrations routinely fall below the standard.

A statewide sampling effort has determined that some fishes from Lake Nimrod and the Fourche LaFave River below Nimrod Dam have elevated concentrations of mercury. A TMDL addressing this problem was completed in October 2002.

Major streams and bayous entering the Arkansas River provide important habitat for alligator gar spawning. The United States Fish and Wildlife Service, the United States Corps of Engineers, the Arkansas Game and Fish Commission, and several other federal, state, and academic institutions, as well as local land owners and concerned citizens are developing action plans to protect, manage, and restore these areas.

Figure A-23: Planning Segment 3E

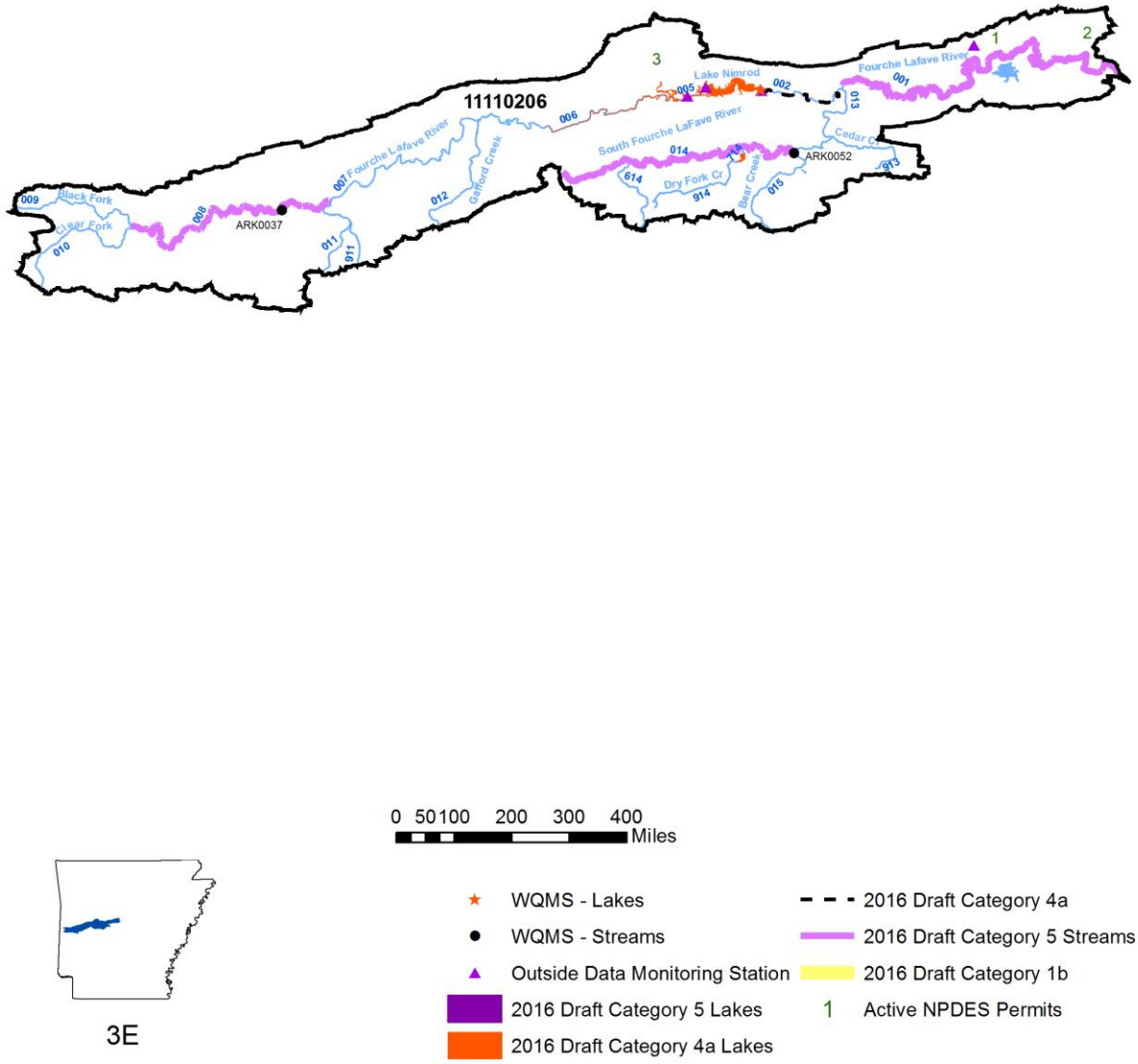

Table A-31 (a-c): Planning Segment 3E (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bear Creek	11110206	-015	12.0	BRC0001, BRC0002	U															3			
Big Cedar Creek	11110206	-011	10.6	UWCED01	M		S	S	S	S	S									1			
Black Fork	11110206	-009	14.2	UWBLF01	M		S	S	S	S	S									1			
Cedar Creek	11110206	-913	10.2	CDC0001	U															3			
Clear Fork	11110206	-010	16.2	UWCLF01	M		S	S	S	S	S									1			
Dry Fork Creek	11110206	-714	0.9		U															3			
Dry Fork Creek	11110206	-814	0.8		U															3			
Dry Fork Creek	11110206	-914	12.2	DFC0001	U															3			
Fourche LaFave	11110206	-001	52.5	ARK0036	M		N	S	S	S	S	UN				DO				5			
Fourche LaFave	11110206	-002	10.4		E	A	S	S	S	S	S	UN				Hg				4a			
Fourche LaFave	11110206	-006	22.8		E		S	S	S	S	S									1			
Fourche LaFave	11110206	-007	23.4	ARK0037	M		S	S	S	S	S									1			
Fourche LaFave	11110206	-008	27.4	ARK0037A, UWFLR01	M		N	S	S	S	S	UN	UN	UN		DO	Tm	pH		5	5	5	
Gafford Creek	11110206	-012	14.2	UWGAF01	M		S	S	S	S	S									1			
Graham Creek	11110206	-614	9.3	GRC0001, GRC0002	U															3			
Little Joe Creek	11110206	-911	4.3		U															3			
S. Fourche LaFave	11110206	-013	12.7	ARK0052B, SFR0008, SFR0009, SFR0010	E		S	S	S	S	S									1			
S. Fourche LaFave	11110206	-014	29.3	ARK0052, SFR0001, SFR0002, SFR0003, SFR0004, SFR0005, SFR0006	M		N	S	S	S	S	UN	UN			DO	Tm			5	5		

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0036	Fourche LaFave River at Highway 113 south of Bigelow		2	R
ARK0037	Fourche LaFave River near Gravelly	7261500	1	A
ARK0037A	Fourche LaFave River near Harvey		2	R
ARK0052	South Fourche LaFave River above Hollis	7263000	1	A
ARK0052B	South Fourche LaFave River below Cedar Creek		2	R
BRC0001	Bear Creek near Hollis, AR		2	S
BRC0002	Bear Creek South of Hollis, AR		2	S
CDC0001	Cedar Creek near Hollis, AR on Trail86,39		2	S
DFC0001	Dry Fork Creek Southwest of Hollis, AR		2	S
GRC0001	Graham Creek near Onyx, AR on CR7		2	S
GRC0002	Graham Creek near Onyx, AR near CR7		2	S
SFR0001	South Fourche River near Onyx, AR		2	S
SFR0002	South Fourche River East of Onyx, AR		2	S
SFR0003	South Fourche River Ease of Onyx, AR		2	S
SFR0004	South Fourche River West of Hollis, AR		2	S
SFR0005	South Fourche River West of Hollis, AR		2	S
SFR0006	South Fourche River West of Hollis, AR		2	S
SFR0008	South Fourche River near Hollis, AR		2	S
SFR0009	South Fourche River Northeast of Hollis, AR		2	S
SFR0010	South Fourche River near mouth		2	S
UWBLF01	Black Fork at county road 3.5 miles above Clear Fork		2	R
UWCED01	Big Cedar Creek at Highway 28, 3 miles east of Cedar Creek		2	R
UWCLF01	Clear Fork at county road above Black fork, 8 miles west of Boyles		2	R
UWFLR01	Fourche LaFave River at county road near Bluffton		2	R
UWGAF01	Gafford Creek at Highway 28 near Bluffton		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	49.7	Fish Consumption	-	10.4
Evaluated	45.9	Fisheries	124.5	109.2
Monitored	187.8	Primary Contact	233.7	0
Total	**283.4**	Secondary Contact	233.7	0
		Domestic Water Supply	233.7	0
		Agri. & Industry	233.7	0

Table A-32: Active NPDES permits for Planning Segment 3E

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0020125	PERRYVILLE, CITY OF-STP	FOURCHE LAFAVE R	001	11110206	Perry	1	001
AR0046957	ANNE WATSON ELEMENTARY SCHOOL	TRIB,MILL CR,FOURCHE LAFAVE R,ARKANSAS R	001	11110206	Perry	2	001
AR0049344	PLAINVIEW WASTEWATER	SALLY SPRING BRANCH,NIMROD LK,FOURCHE LA FAVE R	004	11110206	Yell	3	001

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SEGMENT 3F ARKANSAS RIVER

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

Summary of Water Quality Conditions

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. The Arkansas River and lakes (Overcup, Conway, and Brewer) in this segment offer excellent fishing and boating opportunities.

Stone Dam Creek is impaired by a municipal point source discharge. Chronic ammonia toxicity and elevated nitrate levels exceed the drinking water maximum contaminant level. A TMDL to address these issues was completed in 2003.

Whig Creek continues to be impaired by municipal and industrial point source discharges. Elevated levels of nutrients and copper are the cause of the impairment. TMDLs were completed for this waterbody in 2000 (nitrite) and 2003 (copper).

White Oak Creek remains listed for high silt and turbidity levels. Nonpoint sources appear to be the major cause. A TMDL addressing this issue was completed in 2006.

Major streams and bayous entering the Arkansas River provide important habitat for alligator gar spawning. The United States Fish and Wildlife Service, the United States Corps of Engineers, the Arkansas Game and Fish Commission, and several other federal, state, and academic institutions, as well as local land owners and concerned citizens are developing action plans to protect, manage, and restore these areas.

Figure A-24: Planning Segment 3F

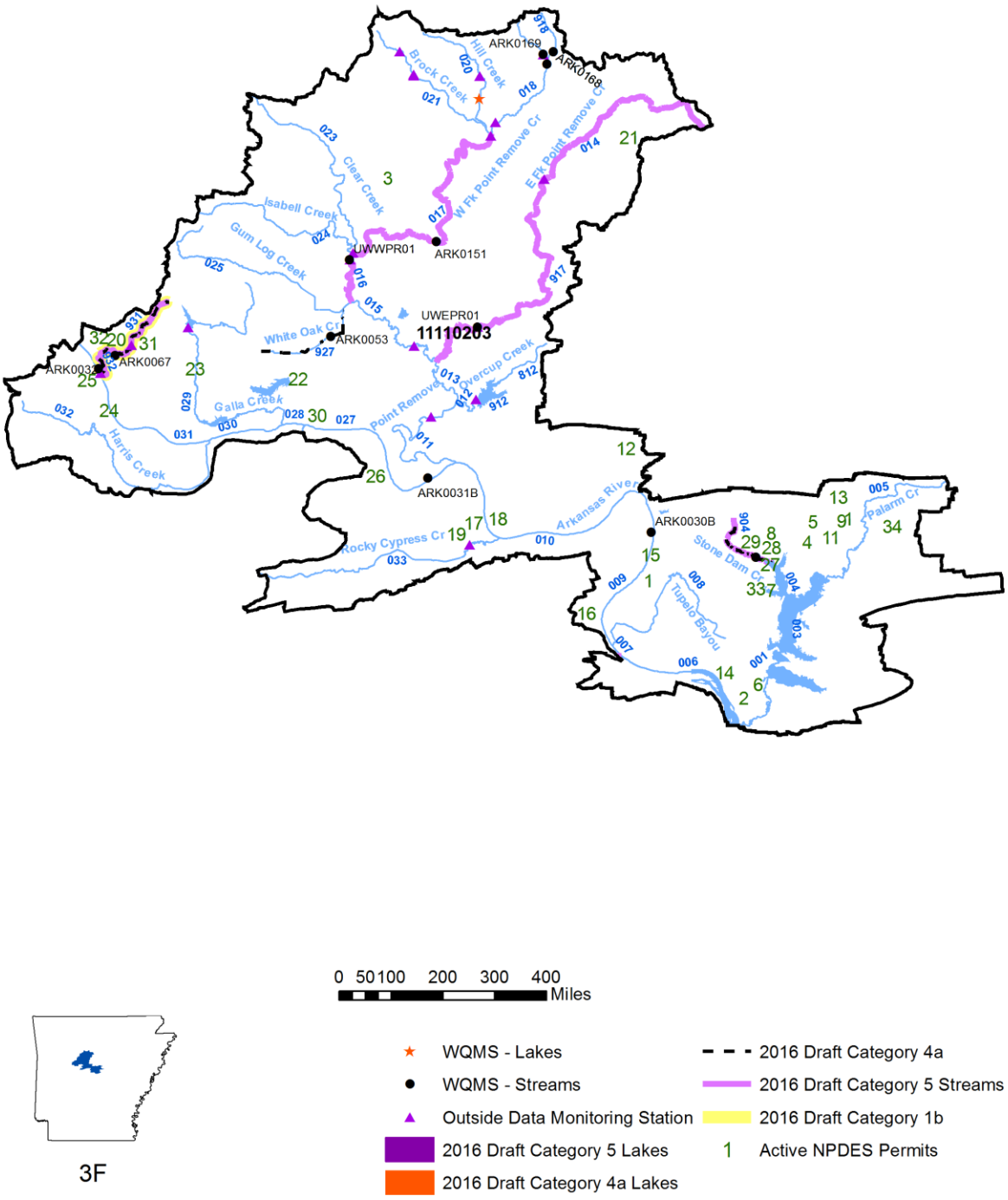

Table A-33 (a-c): Planning Segment 3F (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Arkansas River	11110203	-006	9.6		E		S	S	S	S	S									1			
Arkansas River	11110203	-007	0.8		E		S	S	S	S	S									1			
Arkansas River	11110203	-009	11.1	ARK0030	M		S	S	S	S	S									1			
Arkansas River	11110203	-010	16.0		E		S	S	S	S	S									1			
Arkansas River	11110203	-026	2.6	ARK0031	M		S	S	S	S	S									1			
Arkansas River	11110203	-027	12.4		E		S	S	S	S	S									1			
Arkansas River	11110203	-028	1.4		E		S	S	S	S	S									1			
Arkansas River	11110203	-030	4.8		E		S	S	S	S	S									1			
Arkansas River	11110203	-031	9.5	ARK0032	M		S	S	S	S	S									1			
Arkansas River	11110203	-932	2.4	special study	M		S	S	S	S	S									1			
Brock Creek	11110203	-021	10.8		E		S	S	S	S	S									1			
Clear Creek	11110203	-022	1.0		E		S	S	S	S	S									1			
Clear Creek	11110203	-023	15.5		E		S	S	S	S	S									1			
East Pt. Remove	11110203	-014	37.4	UWEPR01	M		N	S	S	S	S	AG				Tb				5			
Galla Creek	11110203	-029	23.6		U															3			
Gum Log Creek	11110203	-025	16.6		U															3			
Harris Creek	11110203	-032	20.1		U															3			
Hill Creek	11110203	-020	9.4		E		S	S	S	S	S									1			
Isabell Creek	11110203	-024	13.7		E		S	S	S	S	S									1			
Overcup Creek	11110203	-012	3.1		U															3			
Overcup Creek	11110203	-812	4.4		U															3			
Overcup Creek	11110203	-912	2.0		U															3			
Palarm Creek	11110203	-001	8.7		U															3			
Palarm Creek	11110203	-003	7.8		U															3			
Palarm Creek	11110203	-004	2.7		U															3			
Palarm Creek	11110203	-005	14.6	ARK0136	M		S	S	S	S	S									1			
Point Remove	11110203	-011	13.8		U															3			
Point Remove	11110203	-013	4.6		U															3			
Rocky Cypress Creek	11110203	-033	18.2		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Stone Dam Creek	11110203	-904	5.8	ARK0051	M		N	S	S	N	S	MP	MP	MP	MP	AM	NO3	DO	TDS	4a	4a	5	5
Trimble Creek	11110203	-918	3.4		U															3			
Tupelo Bayou	11110203	-008	15.2		U															3			
West Fork Pt. Remove	11110203	-015	10.6		U															3			
West Fork Pt. Remove	11110203	-016	4.2	UWWPR01	M		N	S	S	S	S	AG				Tb				5			
West Fork Pt. Remove	11110203	-017	20.3	ARK0151	M		N	S	S	S	S	AG				Tb				5			
West Fork Pt. Remove	11110203	-018	10.9	ARK0169	M		S	S	S	S	S									1			
West Fork Pt. Remove	11110203	-019	0.5		E		S	S	S	S	S									1			
Whig Creek	11110203	-931	9.4	ARK0067	M		N	S	S	N	S	MP	MP			NO3	DO	NH4		4a	5	5	
White Oak Creek	11110203	-927	7.3	ARK0053	M		N	S	S	S	S	UN				Tb				4a			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0030	Arkansas River at Lock and Dam No. 8		2	S
ARK0030B	Arkansas River at Lock and Dam No. 8	7261260	1	A
ARK0031	Arkansas River at Lock and Dam No. 9		2	S
ARK0031B	Arkansas River at Lock and Dam No. 9	7260660	1	A
ARK0032	Arkansas River near Dardanelle	7258000	1	A
ARK0051	Stone Dam Creek below Conway		1	A
ARK0051A	Stone Dam Creek above Conway on S. German Lane		2	S
ARK0053	White Oak Creek near Atkins		1	A
ARK0067	Whig Creek below Russellville		1	A
ARK0084	White Oak Creek at Hwy 105 in Atkins		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0136	Palarm Creek at Highway 36 east of Conway		2	R
ARK0151	West Point Remove Creek at Highway 124 near Macedonia		1	R
ARK0169	West Point Remove Creek at State Rd 389		1	A
UWEPR01	East Point Remove Creek at Highway 95 near Hickory Hill		1	R
UWWPR01	West Point Remove Creek at Highway 247 near Atkins		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	154.8	Fish Consumption	-	0
Evaluated	95.9	Fisheries	147	84.4
Monitored	135.5	Primary Contact	231.4	0
Total	**386.2**	Secondary Contact	231.4	0
		Domestic Water Supply	216.2	15.2
		Agri. & Industry	231.4	0

Table A-34: Active NPDES permits for Planning Segment 3F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051951	CONWAY-TUPELO BAYOU WWTP	ARKANSAS R	001	11110203	Faulkner	1	001
AR0051764	ALTERNATIVE WASTE MANAGEMENT, LLC. - CLASS IV LANDFILL	UNNAMED TRIB, PALARM CR, ARKANSAS R	001	11110203	Faulkner	2	001 & 002
AR0052141	SEECO, INC. - CAMPBELL THOMAS SE1	POND,CR,CEDAR CR,HACKERS CR,W FRK PT REMOVE CR	003	11110203	Conway	3	001
AR0048879	FLUSHING MEADOWS WATER TREATMENT, INC.	TRIB,GOLD CR,LK CONWAY,PALARM CR,ARKANSAS R	004	11110203	Faulkner	4	001
AR0049832	JESSE FERREL RENTAL DEVELOPMENT	TRIB,LITTLE CR,LK CONWAY,PALARM CR, ARKANSAS R	004	11110203	Faulkner	5	001
AR0050334	GRASSY LAKE APARTMENTS	TRIB,PARLARM CR,ARKANSAS R	004	11110203	Faulkner	6	001
AR0050571	FAULKNER COUNTY PUBLIC FACILITY BOARD - D/B/A PRESTON COMMUNITY WW UTILITY	LK CONWAY ARKANSAS R	004	11110203	Faulkner	7	001
AR0052396	ARGOS READY MIX (SOUTH CENTRAL) CORP. - CONWAY PLANT	TRIB,LITTLE CR,PALARM CR,LK CONWAY,ARKANSAS R	004	11110203	Faulkner	8	001
AR0044997	BHT INVESTMENT COMPANY, INC.	TRIB,WARREN CR,PALARM CR,LK CONWAY, ARKANSAS R	005	11110203	Faulkner	9	001
AR0047520	ROGERS GROUP, INC. - BERYL QUARRY	TRIB,PALARM CR,LITTLE PALARM CR,PALARM CR, LK CONWAY	005	11110203	Faulkner	10	001
AR0050792	OAK TREE SUBDIVISION WWTP	BENTLEY CR,PALARM CR,LK CONWAY,PALARM CR, ARKANSAS R	005	11110203	Faulkner	11	001
AR0050903	FAULKNER COUNTY POID. - SEVEN POINT LAKE SUBDIVISION	TRIB,LT CYPRESS CR,PALARM CR,ARKANSAS R	005	11110203	Faulkner	12	001
AR0051152	GENESIS WATER TREATMENT, INC.	PALARM CR, ARKANSAS R	005	11110203	Faulkner	13	001
AR0037206	MAYFLOWER, CITY OF	ARKANSAS R	006	11110203	Faulkner	14	001

Table A-34: Active NPDES permits for Planning Segment 3F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0047279	CONWAY, CITY OF-TUCKER CREEK WWTP	ARKANSAS R	009	11110203	Faulkner	15	001
AR0049999	BIGELOW WASTEWATER SYSTEM	TRIB,TAYLOR CR,ARKANSAS R	009	11110203	Perry	16	001
AR0001830	GREEN BAY PACKAGING, INC. - ARKANSAS KRAFT DIVISION	TRIB,ARKANSAS R	010	11110203	Conway	17	001
AR0051357	ENVIRONMENTAL SOLUTIONS & SERICES, INC.	ARKANSAS R	010	11110203	Conway	18	001
AR0047643	OPPELO, CITY OF - OPPELO MUNICIPAL SEWAGE TREATMENT PLANT	TRIB,CYPRESS CR,ARKANSAS R	010	11110203	Conway	19	001 & 002
AR0052175	SEECO, INC.-CLEVELAND WATER REUSE/RECYCLE FACILITY	TRIB,SUCKER CR,E FORK PT REMOVE CR,ARKANSAS R	014	11110203	Conway	20	001
AR0052221	SEECO, INC. - J AND R FARMS SE1	POND,TRIB,E FRK PT REMOVE CR,PT REMOVE CR,ARKANSAS	014	11110203	Van Buren	21	001
AR0034673	ATKINS, CITY OF-SOUTH WWTP	HORSE PEN CR,GALLA CR,ARKANSAS R	029	11110203	Pope	22	001
AR0048011	POTTSVILLE, CITY OF	TRIB,GALLA CR,ARKANSAS R	029	11110203	Pope	23	001
AR0033421	DARDANELLE, CITY OF	ARKANSAS R	031	11110203	Yell	24	001
AR0036714	TYSON FOODS, INC. - DARDANELLE PROCESSING FACILITY	ARKANSAS R	031	11110203	Yell	25	001
AR0044717	CAMP MITCHELL CONFERENCE CTR	UNHNAMED TRIB,FLAT CYPRESS CR,CYPRESS CR, AR R	033	11110203	Conway	26	001
AR0033359	CONWAY, CITY OF-STONE DAM CREEK WWTP	TRIB,STONE DAM CR,LK CONWAY,PARLARM CR,ARKANSAS R	904	11110203	Faulkner	27	001
AR0045071	MAPCO EXPRESS #3059	TRIB,STONE DAM CR,LK CONWAY,PALARM CR,ARKANSAS R	904	11110203	Faulkner	28	001

Table A-34: Active NPDES permits for Planning Segment 3F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050474	CORESLAB STRUCTURES (ARK), INC.	TRIB,STONE DAM CR,LK CONWAY,PALARM CR, ARKANSAS R	904	11110203	Faulkner	29	001
AR0034665	ATKINS, CITY OF - NORTH WWTF	ARKANSAS R	927	11110203	Pope	30	001
AR0021768	RUSSELLVILLE WATER & SEWER SYSTEM-CITY CORPORATION	WHIG CR,ARKANSAS R	931	11110203	Pope	31	001
AR0044474	RUSSELLVILLE, A DIVISION OF WEST FRASER, INC.	TRIB,WHIG CR,ARKANSAS R	931	11110203	Pope	32	001
AR0048682	WILHELMINA COVE WW TREATMENT	LK CONWAY,PALARM CR,ARKANSAS R	---	11110203	Faulkner	33	001
AR0050717	ARKANSAS WATER AND WASTEWAER MANAGEMENT CORP. - EAGLEBROOK SUBDIVISION	TRIB,LITTLE PARLARM CR,PARLARM CR,LK CONWAY, ARKANSAS R	005	11110205	Faulkner	34	001

SEGMENT 3G PETIT JEAN RIVER AND TRIBUTARIES

Segment 3G, located in west central Arkansas, includes portions of Yell, Conway, Perry, Logan, Sebastian, 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

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 supply. Primary land use within this segment is agriculture activities (primarily pasture land) and timber harvest.

The waterbodies in this segment are primarily used for hunting, boating and fishing activities, and some primary contact recreation activities during the warmer months.

Dutch Creek and the Petit Jean River are both listed for exceeding the turbidity criterion. Exceedances occur during storm events indicating that the primary source is surface erosion.

Major streams and bayous entering the Arkansas River provide important habitat for alligator gar spawning. The United States Fish and Wildlife Service, the United States Corps of Engineers, the Arkansas Game and Fish Commission, and several other federal, state, and academic institutions, as well as local land owners and concerned citizens are developing action plans to protect, manage, and restore these areas.

Figure A-25: Planning Segment 3G

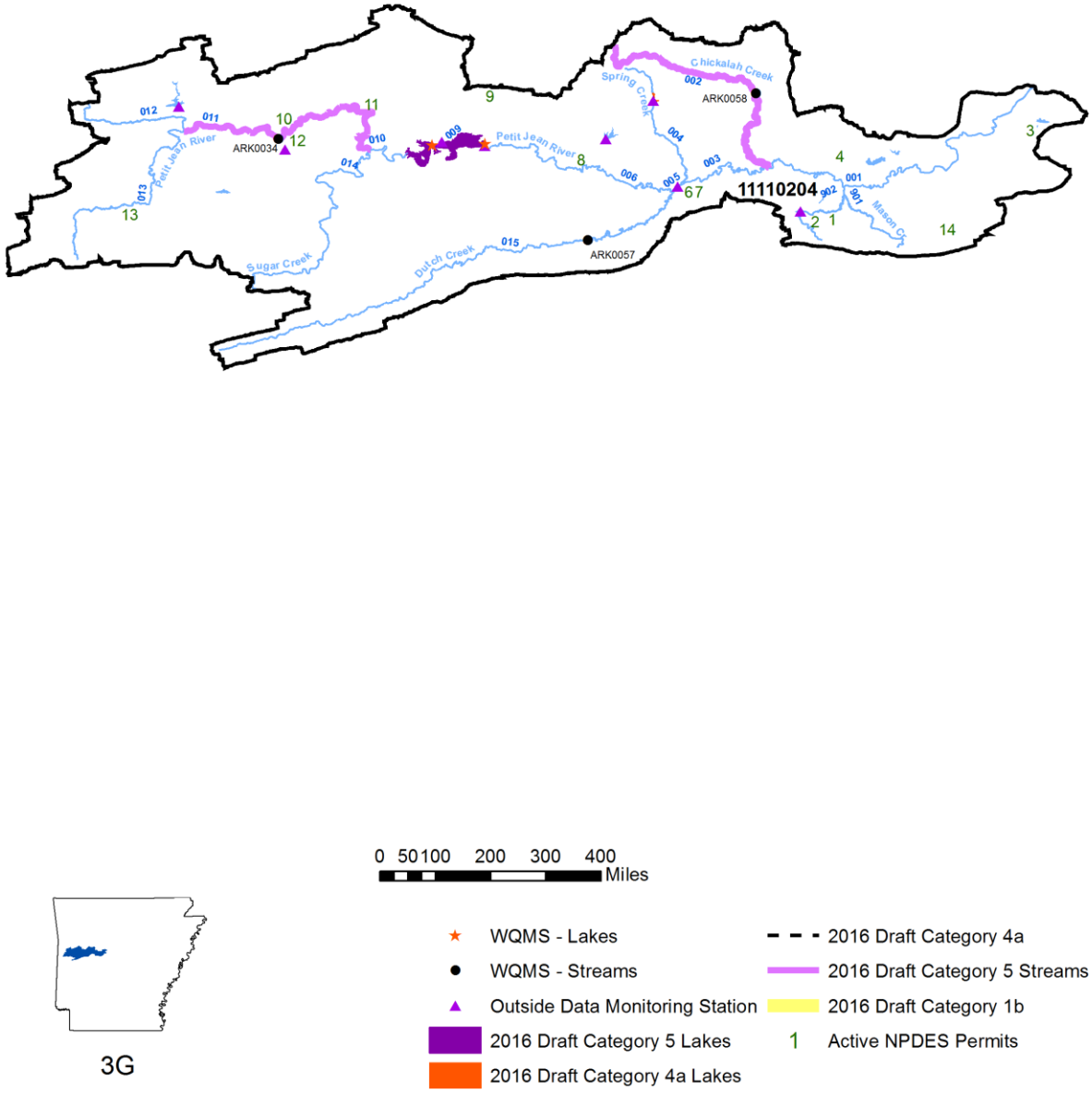

Table A-35 (a-c): Planning Segment 3G (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Chickalah Cr.	11110204	-002	27.9	ARK0058	M		N	S	S	S	S	UN				DO				5			
Dutch Creek	11110204	-015	50.3	ARK0057	M		S	S	S	S	S									1			
Keeland Creek	11110204	-902	10.6	ARK0028	U															3			
L. Washburn Cr.	11110204	-012	12.3		U															3			
Mason Creek	11110204	-901	9.7		U															3			
Petit Jean R.	11110204	-001	34.3	ARK0035	U															3			
Petit Jean R.	11110204	-003	12.1		E		S	S	S	S	S									1			
Petit Jean R.	11110204	-005	0.9	UWPJR03	M		S	S	S	S	S									1			
Petit Jean R.	11110204	-006	22.5	UWPJR02	M		S	S	S	S	S									1			
Petit Jean R.	11110204	-009	7.3		U															3			
Petit Jean R.	11110204	-010	4.5		U															3			
Petit Jean R.	11110204	-011	24.0	ARK0034, ARK0034B	M		N	S	S	S	S	SE				Tb				5			
Petit Jean R.	11110204	-013	21.8	UWPJR01	M		S	S	S	S	S									1			
Spring Creek	11110204	-004	13.5		U															3			
Sugar Creek	11110204	-014	25.1		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0028	Keeland Creek on CR 62 east of Ola		2	S
ARK0034	Petit Jean River south of Booneville	7258500	1	A
ARK0034B	Petit Jean R BL Booneville AR		2	S
ARK0035	Petit Jean River on SR7 south of Centerville		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0057	Dutch Creek below Shark	7260020	1	A
ARK0058	Chickalah Creek at Chickalah	7260620	1	A
UWPJR01	Petit Jean River at county road off Highway 71 at Elm Park		2	R
UWPJR02	Petit Jean River at Highway 309 near Waveland		2	R
UWPJR03	Petit Jean River at Highway 10 at Danville		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	117.3	Fish Consumption	-	0
Evaluated	12.1	Fisheries	107.6	51.9
Monitored	147.4	Primary Contact	159.5	0
Total	**276.8**	Secondary Contact	159.5	0
		Domestic Water Supply	159.5	0
		Agri. & Industry	159.5	0

Table A-36: Active NPDES permits for Planning Segment 3G

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0035688	OLA, CITY OF (SEWER LAGOON)	TRIB, KEELAND CR,PETIT JEAN R,ARKANSAS R	001	11110204	Yell	1	001
AR0048640	DELTIC TIMBER CORPORATION	KEELAND CR,PETIT JEAN R,ARKANSAS R	001	11110204	Yell	2	001
AR0049972	ARKANSAS DEPT OF PARKS & TOURISM - PETIT JEAN STATE PARK	TRIB,CEDAR CR,PETIT JEAN R,ARKANSAS R	001	11110204	Conway	3	001
AR0051195	CUSTOM WOOD RECYCLING, INC.	TRIB,PETIT JEAN R,ARKANSAS R	001	11110204	Yell	4	001
AR0037966	ARKANSAS STATE PARKS-MT. NEBO STATE PARK	TRIB,LITTLE CHICKALAH CR,CHICKALAH CR,PETIT JEAN R,ARKANSAS R	002	11110204	Yell	5	001
AR0022241	DANVILLE, CITY OF-WWTF	PETIT JEAN R, ARKANSAS R	003	11110204	Yell	6	001
AR0038768	WAYNE FARMS, LLC	TRIB, PETIT JEAN R,ARKANSAS R	003	11110204	Yell	7	001
AR0046256	HAVANA, CITY OF	PETIT JEAN R,ARKANSAS R	006	11110204	Yell	8	001
AR0048852	MOUNT MAGAZINE STATE PARK	W BASS CR,SMALLW00D CR,ROCK CR,PETIT JEAN R, ARKANSAS R	006	11110204	Logan	9	001
AR0021571	BOONEVILLE, CITY OF	TRIB,BOONEVILLE CR,PETIT JEAN R,ARKANSAS R	011	11110204	Logan	10	001
AR0037397	MAGAZINE, CITY OF	TRIB,REVILLEE CR,PETIT JEAN R, ARKANSAS R	011	11110204	Logan	11	001
AR0037541	BOONEVILLE HUMAN DEVELOPMENT CENTER	TRIB,PETIT JEAN R,ARKANSAS R	011	11110204	Logan	12	002
AR0045799	AHTD DIST 4 - WALDRON REST AREA & COMFORT STATION	TRIB,PETIT JEAN R,ARKANSAS R	013	11110204	Scott	13	001
AR0052264	PERRY COUNTY CLASS 4 LANDFILL	TRIB,BIG CR,ROSE CR,PETIT JEAN R,ARKANSAS R	001	11110206	Perry	14	001

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SEGMENT 3H ARKANSAS RIVER AND TRIBUTARIES: OKLAHOMA STATE LINE TO RIVER MILE 210

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, Van Buren, Searcy, Newton, Madison, Yell, 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 Illinois Bayou, Big Piney Creek, Mulberry River, Lee Creek, Six Mile Creek, and Vache Grasse Creek.

Summary of Water Quality Conditions

Waters within this segment are designated as suitable for the propagation of fish and wildlife; primary and secondary contact recreation; and public, industrial, and agricultural water supply.

Fishing, hunting, and boating activities are common on all of the waterbodies in this segment throughout the year. The tributary streams are utilized for kayaking and canoeing activities as well as primary contact recreation.

Short Mountain Creek is now attaining its fisheries designated. It had been listed as impaired previously; however, current water quality data indicates that the stream is meeting all water quality standard criteria. The source was thought to be from historic management activities of the municipal water supply lake located on the stream.

The Mulberry River, an ecoregion reference stream, was listed because of low pH values. The statewide pH standard of 6 to 9 standard units does not take into consideration of the natural variations because of geology or land use. During the development of the TMDL designed to address this issue, aquatic life data were collected. These data indicate no impairment to the aquatic communities in the stream. Thus, the fisheries designated use was evaluated as fully supporting, but the stream is still listed for not supporting the pH water quality standard.

Figure A-26: Planning Segment 3H

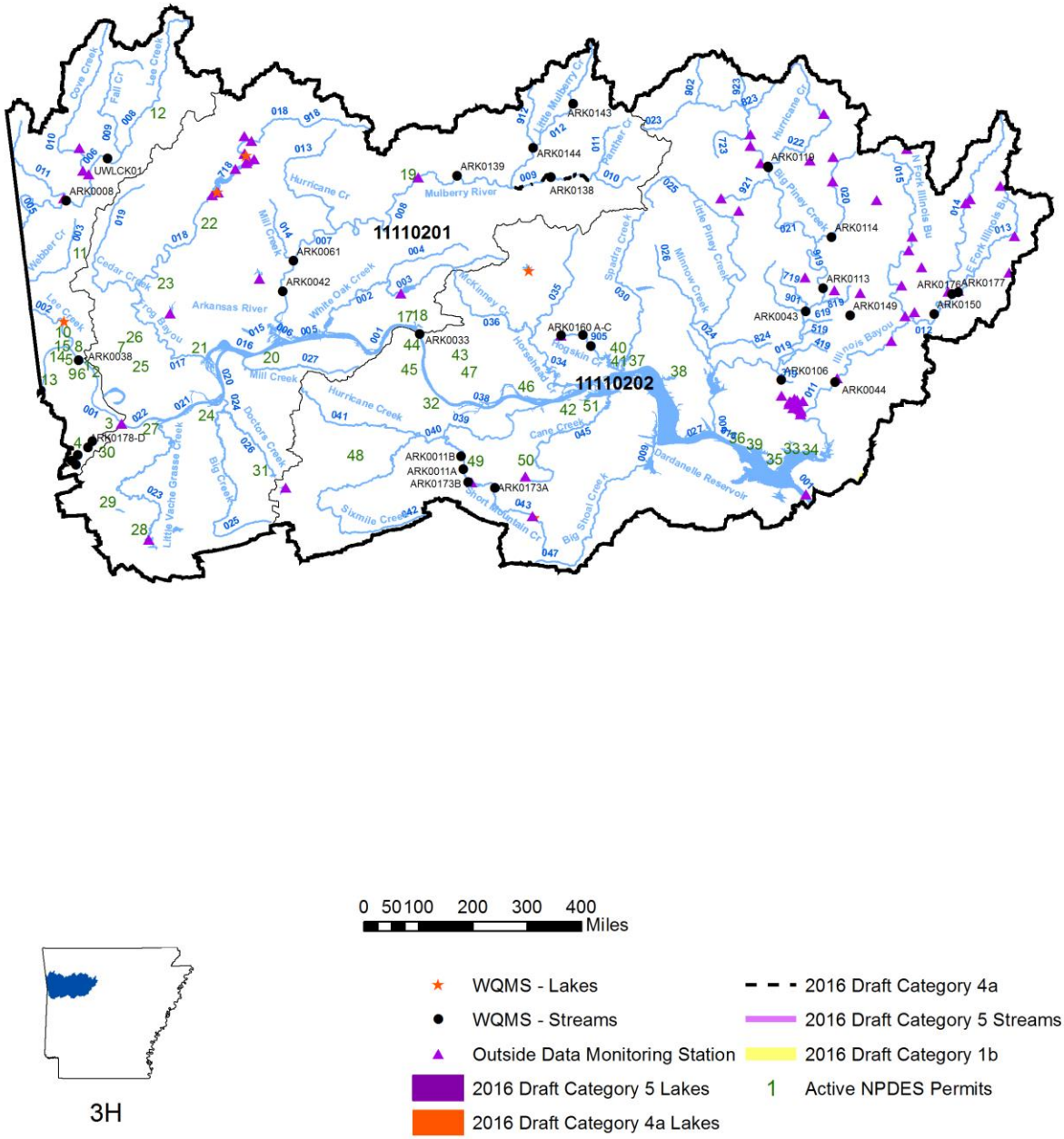

Table A-37 (a-c): Planning Segment 3H (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Arkansas River	11110104	-001	9.4	ARK0038	M		S	S	S	S	S									1			
Arkansas River	11110104	-013	6.2	ARK0146, ARK0154	M		S	S	S	S	S									1			
Arkansas River	11110104	-060	1.6		U															3			
Cove Creek	11110104	-010	19.5		E		S	S	S	S	S									1			
Fall Creek	11110104	-009	15.0		E		S	S	S	S	S									1			
Lee Creek	11110104	-002	9.8	ARK0009, ARK0009A	E		S	S	S	S	S									1			
Lee Creek	11110104	-005	15.9	ARK0008	E		S	S	S	S	S									1			
Lee Creek	11110104	-006	5.2	UWLCK01	M		S	S	S	S	S									1			
Lee Creek	11110104	-007	1.9		E		S	S	S	S	S									1			
Lee Creek	11110104	-008	16.5		E		S	S	S	S	S									1			
Webber Creek	11110104	-003	9.7		U															3			
Mountain Fork	11110104	-011	11.7		E		S	S	S	S	S									1			
Arkansas River	11110201	-001	11.8	ARK0033	M		S	S	S	S	S									1			
Arkansas River	11110201	-005	3.5	ARK0033	E		S	S	S	S	S									1			
Arkansas River	11110201	-015	3.7		E		S	S	S	S	S									1			
Arkansas River	11110201	-016	2.2		E		S	S	S	S	S									1			
Arkansas River	11110201	-020	5.1		E		S	S	S	S	S									1			
Arkansas River	11110201	-021	5.9		E		S	S	S	S	S									1			
Arkansas River	11110201	-022	4.5		E		S	S	S	S	S									1			
Big Creek	11110201	-025	24.4		U															3			
Cedar Creek	11110201	-019	17.9		E		S	S	S	S	S									1			
Doctors Creek	11110201	-024	1.9		U															3			
Doctors Creek	11110201	-026	10.1		U															3			
Friley Creek	11110201	-912	7.2	ARK0144	M		N	S	S	S	S	UN				pH				4a			
Frog Bayou	11110201	-017	18.0		E		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Frog Bayou	11110201	-018	18.1	ARK0047, ARK0090A, ARK0090B	M		S	S	S	S	S									1			
Frog Bayou	11110201	-618	2.3		U															3			
Frog Bayou	11110201	-718	1.3		U															3			
Frog Bayou	11110201	-818	2.2		U															3			
Frog Bayou	11110201	-918	16.7		U															3			
Hurricane Creek	11110201	-013	17.7		E		S	S	S	S	S									1			
L. Vache Grasse Creek	11110201	-023	28.4		U															3			
Little Mulberry	11110201	-012	18.9	ARK0143	M		N	S	S	S	S	UN				pH				4a			
Mill Creek	11110201	-014	7.2		E		S	S	S	S	S									1			
Mill Creek	11110201	-027	14.9		U															3			
Mulberry River	11110201	-006	11.2	ARK0042	M		S	S	S	S	S									1			
Mulberry River	11110201	-007	7.0	ARK0061	E		N	S	S	S	S	UN				pH				4a			
Mulberry River	11110201	-008	29.5	ARK0139	M		N	S	S	S	S	UN				pH				4a			
Mulberry River	11110201	-009	9.6	ARK0138	M		N	S	S	S	S	UN				pH				4a			
Mulberry River	11110201	-010	5.8		E		S	S	S	S	S									1			
N. Fork White Oak Cr.	11110201	-004	9.8		U															3			
Panther Creek	11110201	-011	6.4		E		S	S	S	S	S									1			
S. Fork White Oak Cr.	11110201	-003	15.6		U															3			
White Oak	11110201	-002	11.4		U															3			
Arkansas River	11110202	-001	3.0		E		S	S	S	S	S									1			
Arkansas River	11110202	-002	1.1		U															3			
Arkansas River	11110202	-005	2.5		U															3			
Arkansas River	11110202	-009	5.1		U															3			
Arkansas River	11110202	-016	8.2		U															3			
Arkansas River	11110202	-027	4.3		U															3			
Arkansas River	11110202	-028	9.0		U															3			
Arkansas River	11110202	-031	2.4		U															3			
Arkansas River	11110202	-033	2.4		E		S	S	S	S	S									1			
Arkansas River	11110202	-037	5.1		E		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Arkansas River	11110202	-038	15.6		E		S	S	S	S	S									1			
Big Piney Creek	11110202	-019	13.4	ARK0105	U															3			
Big Piney Creek	11110202	-021	12.8	ARK0116, ARK0118	U															3			
Big Piney Creek	11110202	-023	20.8	ARK0120, ARK0124	U															3			
Big Piney Creek	11110202	-919	15.3	ARK0043, ARK0113	M		S	S	S	S	S									1			
Big Shoal Creek	11110202	-047	17.7		U															3			
Cane Creek	11110202	-045	19.0		U															3			
Cow Creek	11110202	-723	6.3	ARK0121	U															3			
Curtis Creek	11110202	-823	4.9		U															3			
East Fork Horsehead Creek	11110202	-035	14.3	ARK0137	E		S	S	S	S	S									1			
East Fork Illinois Bayou	11110202	-013	16.3		U															3			
Hogskin Creek	11110202	-905	13.5	ARK0160B	U															3			
Home Creek	11110202	-923	3.7	ARK0123	U															3			
Horsehead Cr.	11110202	-034	12.0	ARK0137	E		S	S	S	S	S									1			
Horsehead Cr.	11110202	-035	11.2	ARK0137	M		S	S	S	S	S									1			
Hurricane Creek	11110202	-022	18.3	ARK0119, ARK0145, LHC001, UHC001	M		S	S	S	S	S									1			
Hurricane Creek	11110202	-041	17.0		U															3			
Hurricane Creek	11110202	-921	6.4		U															3			
Illinois Bayou	11110202	-003	7.9		U															3			
Illinois Bayou	11110202	-011	22.7	ARK0044	M		S	S	S	S	S									1			
Illinois Bayou	11110202	-012	8.7	ARK0150	M		S	S	S	S	S									1			
Illinois Bayou	11110202	-013	14.1		E		S	S	S	S	S									1			
Indian Creek	11110202	-020	12.9	ARK0114, ARK0142	M		S	S	S	S	S									1			
Jakes Creek	11110202	-719	6.0	ARK0111	U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Levi Branch	11110202	-819	4.6	ARK0112	U															3			
Little Piney	11110202	-024	6.4	ARK0104	M		S	S	S	S	S									1			
Little Piney	11110202	-025	30.5	ARK0126	M		S	S	S	S	S									1			
M.Fk.Ill.Bayou	11110202	-014	23.4	ARK0149	M		S	S	S	S	S									1			
McKinney Cr.	11110202	-036	14.9		E		S	S	S	S	S									1			
Mill Creek	11110202	-901	8.2	ARK0110	M		S	S	S	S	S									1			
Minnow Creek	11110202	-026	10.0	ARK0129	M		S	S	S	S	S									1			
N.Fk.Ill.Bayou	11110202	-015	24.5	ARK0149	E		S	S	S	S	S									1			
Piney Creek	11110202	-018	5.8	ARK0105	M		S	S	S	S	S									1			
Piney Creek	11110202	-019	26.3	ARK0043	M		S	S	S	S	S									1			
Piney Creek	11110202	-021	11.9		E		S	S	S	S	S									1			
Piney Creek	11110202	-023	19.0	ARK0124	M		S	S	S	S	S									1			
Opossum Branch	11110202	-924	3.8	ARK0127	U															3			
Short Mountain	11110202	-043	21.1	ARK0011A, ARK0011B, ARK0173A, ARK0173B	M		S	S	S	S	S									1			
Sixmile Creek	11110202	-039	14.7		U															3			
Sixmile Creek	11110202	-040	3.0		U															3			
Sixmile Creek	11110202	-042	31.6		U															3			
Slover Creek	11110202	-824	7.4	ARK0128	U															3			
Spadra Creek	11110202	-030	18.9	ARK0148	M		S	S	S	S	S									1			
Walnut Creek	11110202	-902	4.9	ARK0125	M		S	S	S	S	S									1			
Wilson Creek	11110202	-419	6.5	ARK0107	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0008	Lee Creek at Highway 59 near Natural Dam		1	S
ARK0009	Lee Creek @ Van Buren AR		2	S
ARK0009A	Lee Creek @ Van Buren AR		2	S
ARK0011A	Short Mountain Creek on SR 22 in Paris		1	S
ARK0011B	Short Mountain Creek below Paris		1	A
ARK0033	Arkansas River at Ozark Lock and Dam	07252406	1	A
ARK0038	Arkansas River near Fort Smith, AR.	07250500	1	A
ARK0042	Mulberry River at I-40	07252000	1	A
ARK0043	Big Piney Creek at Highway 164	07257006	1	A
ARK0044	Illinois Bayou northwest of Dover	07257690	1	A
ARK0047	Frog Bayou at Highway 282		2	R
ARK0061	Mulberry River site 205j		1	S
ARK0090A	Frog Bayou at Highway 282 below Lectra Circuit		2	S
ARK0090B	Frog Bayou at Highway 282 above Lectra Circuit		2	S
ARK0104	Little Piney Creek at Highway 359 east of Lamar		2	R
ARK0105	Big Piney Creek at Highway 359, 6 miles east of Lamar		2	S
ARK0106	Unnamed Tributary east of Agusburg on SR333		1	S
ARK0107	Wilson Creek north of Piney on Rushing Rd		2	S
ARK0108	Unnamed Tributary north of Piney on Lindsey Hill Rd		2	S
ARK0109	Unnamed tributary at Highway 164 bridge		2	S
ARK0110	Mill Creek at county road 0.4 miles south of Highway 164 near Twin Bridges		2	S
ARK0111	Dry Creek southwest of Long Pool on SR164/Pilot Mountain Rd		2	S
ARK0112	Levi Creek south of Long Pool on CR1801		2	S
ARK0113	Big Piney Creek below Long Pool Recreation Area on CR1804		1	S
ARK0114	Indian Creek at FAS road 1808 near Treat		1	S
ARK0116	Piney Creek south of Ft. Douglas on CR1802		2	S
ARK0118	Big Piney Creek FR 1003		1	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0119	Hurricane Creek at FAS road 1003 near Ft. Douglas		1	S
ARK0120	Big Piney Creek at CR30/FR202		2	S
ARK0121	Cow Creek off CR309/FR1202		2	S
ARK0122	Curtis Creek on CR311/FR1002		2	S
ARK0123	Home Creek at CR29/FR1232		2	S
ARK0124	Big Piney Creek at FAS road 1458 south of Edwards Junction		2	S
ARK0125	Walnut Creek as FAS road 1217 south of Edwards Junction		2	S
ARK0126	Little Piney Creek at Highway 123 bridge near Hagarville		2	S
ARK0127	Opossum Branch east of Lamar (LPCT01) on SR359		2	S
ARK0128	Slover Creek east of Lamar on SR315		2	S
ARK0129	Minnow Creek at county road 50 bridge, south of Hagarville		2	S
ARK0137	Horsehead Creek at Highway 64 east of Hartman		2	R
ARK0138	Mulberry River at Highway 103 west of Oark		1	S
ARK0139	Mulberry River 4.3 miles east of Highway 23 near Cass		1	S
ARK0142	Indian Creek 3.5 miles north of Treat on CR1808		2	S
ARK0143	Little Mulberry Creek 5 miles south of Boston off SR16		1	S
ARK0144	Friley Creek 5 miles north of Yale on CR408		1	S
ARK0146	Arkansas River below Mayo Lock and Dam		1	A
ARK0148	Spadra Creek at US 64 near Clarksville		2	R
ARK0149	North Fork Illinois Bayou on county road north of Scottsville		1	S
ARK0150	Illinois Bayou at Highway 27 north of Hector		1	S
ARK0154	Arkansas River at Hwy. 64 Bridge (Garrison Avenue)		1	A
ARK0160B	Hogskin Creek at Hayes Chapel Road		1	S
ARK0173A	Short Mountain Creek at Johnson Rd		1	S
ARK0173B	Short Mountain Creek at SR109		1	S
ARK160B	Hogskin Creek at Hayes Chapel road		2	S
UHC001	Hurricane Creek south of confluence with Buck Branch near Deer		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWLCK01	Lee Creek at Highway 220, 10 miles north of Cedarville		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Use	Miles Support	Miles Non-Support
Unassessed	420.2	Fish Consumption	-	0
Evaluated	313	Fisheries	631.5	72.2
Monitored	390.7	Primary Contact	703.7	0
Total	**1124**	Secondary Contact	703.7	0
		Domestic Water Supply	703.7	0
		Agri. & Industry	703.7	0

Table A-38: Active NPDES permits for Planning Segment 3H

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0001341	APAC-CENTRAL, INC. - D/B/A VAN BUREN SAND	ARKANSAS R	001	11110104	Crawford	1	001
AR0021482	VAN BUREN, CITY OF-MAIN PLANT	ARKANSAS R	001	11110104	Crawford	2	001
AR0021750	FORT SMITH, CITY OF-MASSARD	ARKANSAS R	001	11110104	Sebastian	3	001
AR0039730	GERDAU MACSTEEL-FORT SMITH MILL	TRIB,MASSARD CR,ARKANSAS R	001	11110104	Sebastian	4	001
AR0044938	EMI-FORT SMITH WWTF	ARKANSAS R	001	11110104	Sebastian	5	001
AR0049808	SAINT-GOBAIN PROPPANTS, INC.	DIT,CLAYTON EXPRESSWAY,ARKANSAS R	001	11110104	Sebastian	6	001
AR0050938	CONCORD WATER AND SEWER WASTEWATER TREATMENT PLANT	TRIB,FLAT ROCK CR,HOLLIS LK,FLAT ROCK CR, ARKANSAS R	001	11110104	Van Buren	7	001
AR0001511	GERBER PRODUCTS COMPANY	ARKANSAS R	001	11110104	Sebastian	8	002
AR0001791	DIXIE CONSUMER PRODUCTS, LLC	DIT,6TH ST DIT,ARKANSAS R	001	11110104	Sebastian	9	004
AR0040967	VAN BUREN, CITY OF-NORTH WWTP	LEE CR,ARKANSAS R	002	11110104	Crawford	10	001
AR0041289	CEDARILLE PUBLIC SCHOOLS	TRIB,LITTLE WEBER CR,WEBBER CR,ARKANSAS R	003	11110104	Crawford	11	001
AR0037940	ARKANSAS STATE PARKS-DEVILS DEN STATE PARK	TRIB,LEE CR,ARKANSAS R	009	11110104	Washington	12	001
AR0033278	FORT SMITH, CITY OF - "P" STREET WWTP	ARKANSAS R	013	11110104	Sebastian	13	001
AR0036552	BEKAERT CORPORATION	ARKANSAS R	013	11110104	Crawford	14	001
AR0037567	VAN BUREN - LEE CREEK INDUSTRIAL PARK	ARKANSAS R	013	11110104	Crawford	15	001
AR0050431	SEBASTIAN COUNTY & BLACKSTONE RANCH WASTEWATER TREATMENT BOARD	CEDAR CR,POTEAU R,ARKANSAS R	018	11110105	Sebastian	16	001

Table A-38: Active NPDES permits for Planning Segment 3H

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0021563	OZARK, CITY OF	ARKANSAS R	001	11110201	Franklin	17	001
AR0048267	BUTTERBALL, LLC.	ARKANSAS R	001	11110201	Franklin	18	001
AR0020648	USDA/US FOREST SERICE-CASS CIVILIAN CONSERATION CENTER	MULBERRY R,ARKANSAS R	008	11110201	Franklin	19	001
AR0034932	MULBERRY, CITY OF	ARKANSAS R	015	11110201	Crawford	20	001
AR0021466	ALMA, CITY OF	ARKANSAS R	016	11110201	Crawford	21	001
AR0021512	MOUNTAINBURG, CITY OF - WWTP	TRIB,PIGEON CR,FROG BU,ARKANSAS R	018	11110201	Crawford	22	001
AR0050725	HILLTOP TRAVEL CENTER	I-540 DIT,TRIB,LK ALMA,LITTLE FROG BU	018	11110201	Crawford	23	001
AR0034070	LAVACA, CITY OF - WWTP	ARKANSAS R	021	11110201	Sebastian	24	001
AR0040720	VAN BUREN PUBLIC SCHOOLS - TATE ELEMENTARY SCHOOL	TRIB,MAYS BRANCH,ARKANSAS R	021	11110201	Crawford	25	001
AR0045063	APAC-CENTRAL, INC. - D/B/A PRESTON QUARRY	TRIB,FLAT ROCK CR,ARKANSAS R	022	11110201	Crawford	26	001
AR0048801	BARLING, CITY OF	ARKANSAS R	022	11110201	Sebastian	27	002
AR0022454	GREENWOOD, CITY OF	TRIB,VACHE GRASSE CR,ARKANSAS R	023	11110201	Sebastian	28	001
AR0045365	APAC-CENTRAL, INC. - JENNY LIND QUARRY	TRIB,BEAR CR,VACHE GRASSE CR,ARKANSAS R	023	11110201	Sebastian	29	001
AR0051012	MARS PETCARE U.S., INC.	TRIB,LITTLE VACHE GRASSE CR,ARKANSAS R	023	11110201	Sebastian	30	001
AR0033791	CHARLESTON, CITY OF	DOCTORS CR,BIG CR,ARKANSAS R	026	11110201	Franklin	31	001
AR0037851	SGL CARBON, LLC	ARKANSAS R	038	11110201	Franklin	32	003
AR0042447	ARKANSAS TECH UNIVERSITY - LAKE POINT CONFERENCE CENTER	LK DARDENELLE,ARKANSAS R	003	11110202	Pope	33	001

Table A-38: Active NPDES permits for Planning Segment 3H

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0046396	PLEASANT VIEW ESTATES	TRIB,LK DARDANELLE, ARKANSAS R	003	11110202	Pope	34	001
AR0001392	ARKANSAS NUCLEAR ONE	LK DARDANELLE,ARKANSAS R	004	11110202	Pope	35	001
AR0045691	ARKANSAS STATE HWY AND TRANSPORTATION DEPT DISTRICT 8 - BIG PINEY REST AREA-WEST	TRIB,LK DARDENELLE,ARKANSAS R	004	11110202	Pope	36	001
AR0022187	CLARKSVILLE LIGHT & WATER	SPADRE CR (002)	006	11110202	Johnson	37	002
AR0035491	LAMAR, CITY OF	TRIB,CABIN CR,ARKANSAS R	008	11110202	Johnson	38	001
AR0050946	LONDON POLLUTION CONTROL FAC.	LK DARDANELLE, ARKANSAS R	013	11110202	Pope	39	001
AR0022187	CLARKSVILLE LIGHT & WATER	LK DARDANELLE, ARKANSAS R (001)	030	11110202	Johnson	40	001
AR0039268	TYSON FOODS, INC - CLARKSVILLE	BLUE CR,SPADRA CR, ARKANSAS R	030	11110202	Johnson	41	001
AR0042455	TYSON POULTRY, INC. - D/B/A R VALLEY ANIMAL FOODS	ARKANSAS R	033	11110202	Logan	42	001
AR0034592	WIEDERKEHR WINE CELLARS, INC.	WATERSHED LK,DIRTY CR,HORSEHEAD CR	034	11110202	Franklin	43	002
AR0001759	AECC-T.B. FITZHUGH GENERATING	TRIB,ARKANSAS R	038	11110202	Franklin	44	001
AR0044725	ALTUS, CITY OF	ARKANSAS R	038	11110202	Franklin	45	001
AR0047686	COAL HILL, CITY OF-WWTP	ARKANSAS R	038	11110202	Johnson	46	001
AR0049212	BUTTERBALL, LLC - ALIX FEED MILL	TRIB,CEDAR CR,ARKANSAS R	038	11110202	Franklin	47	001
AR0044636	COUNTY LINE SCHOOL DISTRICT	N FORK OF LITTLE CR,LITTLE CR,6-MILE CR,ARKANSAS R	042	11110202	Franklin	48	001
AR0021857	PARIS, CITY OF-WWTP	SHORT MOUNTAIN CR,6-MILE CR	043	11110202	Logan	49	001
AR0040991	SUBIACO,CITY OF	TRIB,CANE CR,ARKANSAS R	045	11110202	Logan	50	001

Table A-38: Active NPDES permits for Planning Segment 3H

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051471	PORKY'S ONE STOP	TRIB CANE CR, CANE CR,ARKANSAS R	045	11110202	Logan	51	001

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SEGMENT 3I POTEAU RIVER

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 Conditions

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. Recreation in this segment is mainly hunting, fishing and canoeing.

A short section of the Poteau River below the city of Waldron was listed as not supporting the fisheries designated use due to elevated metals, total phosphorus, and minerals. Both a municipal and industrial discharge occurs in this segment. In addition, a short section of the Poteau River just above its confluence with the Arkansas River was listed as not supporting the fisheries designated use because of excessive turbidity. A TMDL to address some of these issues was completed in 2006.

Figure A-27: Planning Segment 3I

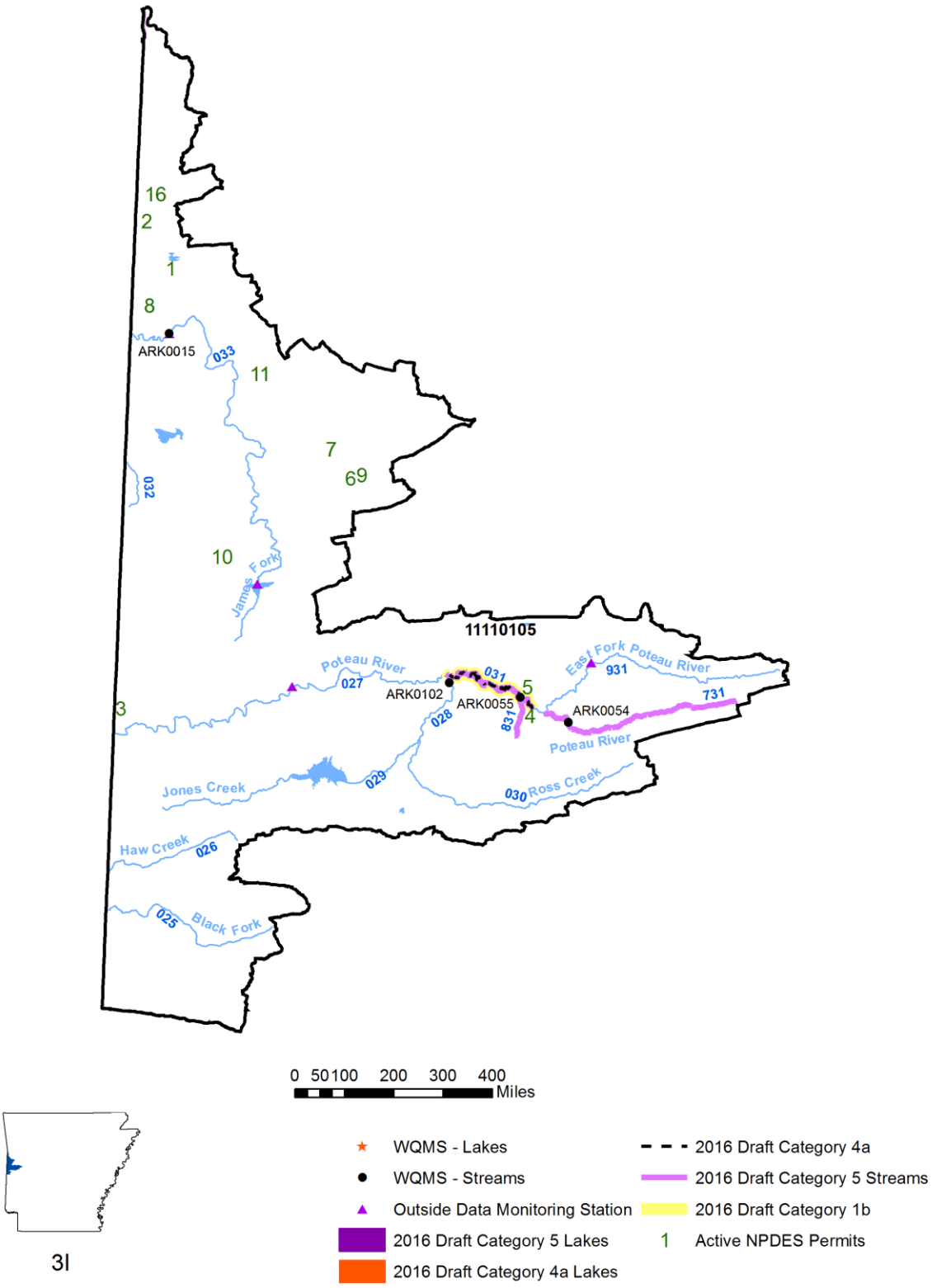

Table A-39 (a-c): Planning Segment 3I (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Black Fork	11110105	-025	12.1		U															3			
East Fork Poteau R.	11110105	-931	14.8	ARK0054	U															3			
Haw Creek	11110105	-026	8.6		U															3			
James Fork	11110105	-033	30.6	ARK0015	M		S	S	S	S	S									1			
Jones Creek	11110105	-028	4.3	ARK0102	U															3			
Jones Creek	11110105	-029	15.7		U															3			
Poteau River	11110105	-001	2.3	ARK0014	M		N	S	S	S	S	UN	SE			DO	Tb			5	4a		
Poteau River	11110105	-027	24.9	USGS, ARK0016	M		S	S	S	R	S									1			
Poteau River	11110105	-031	6.2	ARK0055/ UAA	M		N	S	S	R	N	MP/ IP				*	Tb	TP		5	5	4a	
Poteau River	11110105	-731	12.1	ARK0054, ARK0100	M		N	S	S	S	S	MP/ IP				Tb				5			
Riddle Creek	11110105	-032	3.4		U															3			
Ross Creek	11110105	-030	14.7		U															3			
Unnamed Tributary	11110105	-831	3.9	UAA	M		N	S	S	R	N	MP/ IP	MP/ IP			Cl	TDS			5	5		

* = Cl, SO4, TDS

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0014	Poteau River near Fort Smith		1	A
ARK0015	James Fork near Hacket	7249400	1	A
ARK0016	Poteau River on CR59 in Bates		2	S
ARK0054	Poteau River above Waldron	7246940	1	A
ARK0055	Poteau River below Waldron	7246950	1	A
ARK0100	Poteau River 600 yards below Hwy. 71 bridge		2	S
ARK0102	Jones Creek 300 m upstream of confluence of Poteau River		1	S
ARK0154	Poteau River near Fort Smith		1	A

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	73.6	Fish Consumption	-	0
Evaluated	0	Fisheries	55.5	24.5
Monitored	80	Primary Contact	80	0
Total	**153.6**	Secondary Contact	80	0
		Domestic Water Supply	45	0
		Agri. & Industry	69.9	10.1

Table A-40: Active NPDES permits for Planning Segment 3I

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051039	SEBASTIAN LAKE PUBLIC WATER AUTHORITY OF ARKANSAS	TRIB,HACKET CR,JAMES FORK CR,POTEAU R, ARKANSAS R	027	11010105	Sebastian	1	001
AR0051080	BONANZA, TOWN OF	TRIB,WELLS CR,POTEAU R,ARKANSAS R	---	11110104	Sebastian	2	001
AR0051900	OURO MINING, INC. - BATES MINE	SCOTT BR,POTEAU R,ARKANSAS R	027	11110105	Scott	3	001
AR0035769	WALDRON, CITY OF	TRIB,POTEAU R,ARKANSAS R	031	11110105	Scott	4	001
AR0038482	TYSON FOODS, INC. - WALDRON COMPLEX	TRIB,POTEAU R,ARKANSAS R	031	11110105	Scott	5	001
AR0036293	MANSFIELD, CITY OF	COOP CR,CHEROKEE CR,PRAIRIE CR,JAMES FORK R,POTEAU	033	11110105	Sebastian	6	001
AR0037419	HUNTINGTON, CITY OF-WWTP	CHEROKEE CR,PRAIRIE CR,JAMES FRK R	033	11110105	Sebastian	7	001
AR0039781	HACKETT, CITY OF	BIG BRANCH OF HACKETT CR,ARKANSAS R	033	11110105	Sebastian	8	001
AR0048232	WEST FRASER, INC. - MANSFIELD, A DIVISION OF WEST FRASER, INC.	TRIB,COOP CR,CHEROKEE CR,PRAIRIE CR,JAMES FORK	033	11110105	Sebastian	9	001
AR0051853	SEBASTIAN MINE	TRIB, WEST CR, JAMES FORK, ARKANSAS R	033	11110105	Sebastian	10	001
AR0051926	COMER MINING CORPORATION - COMER MINE NO. 2	MACKENNAY CR,JAMES FORK,ARKANSAS R	033	11110105	Sebastian	11	001

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SEGMENT 3J GRAND NEOSHO 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

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. Waterbodies in this segment are heavily used year-round for fishing, boating, and canoeing as well as and primary contact recreation activities in the warmer months.

Nonpoint source impacts affecting waters in this segment are primarily from urban development, pasture lands which receive applications of poultry waste products, and surface erosion. Instream gravel removal destabilizes the streambed and causes excessive bank erosion. Road construction and maintenance also contributes to siltation problems. Animal agriculture practices contribute to pathogen impairments as well as stream bank destabilization.

Three major municipal, point source discharges enter the Illinois River via Osage Creek and Clear Creek, and a minor municipal discharge enters the Illinois River from Muddy Fork of the Illinois River. Several of these facilities have upgraded their processes for advanced phosphorus removal.

Upgrades to the treatment facility on Town Branch Creek has corrected earlier problems and restored the fisheries designated use.

Figure A-28: Planning Segment 3J

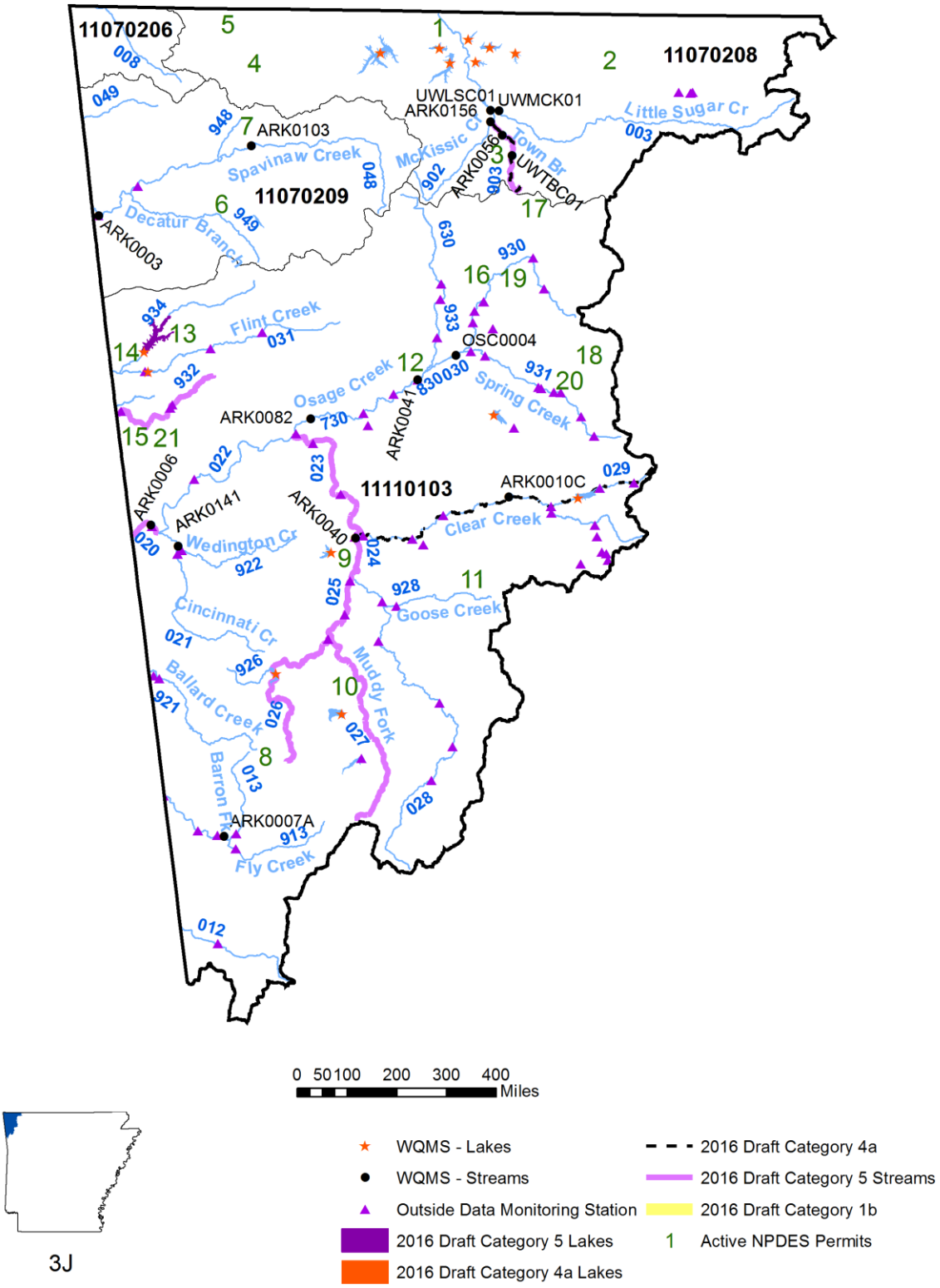


Table A-41 (a-c): Planning Segment 3J (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Honey Creek	11070206	-008	9.7		U															3			
Little Sugar	11070208	-003	26.8	ARK0001, ARK0156	M		S	S	S	S	S									1			
McKissic Creek	11070208	-902	7.6		U															3			
Town Branch	11070208	-901	0.6		U															3			
Town Branch	11070208	-903	4.9	ARK0056, UWTBC01	M		N	S	S	S	S	MP				TP				4a			
Beaty Creek	11070209	-049	5.0	ARK0095	U															3			
Decatur Branch	11070209	-949	9.2		U															3			
Railroad Hollow Creek	11070209	-948	2.7		U		R	R												3			
Spavinaw Cr.	11070209	-048	24.8	ARK0003, ARK0103	M		S	S	S	S	S									1			
Ballard Creek	11110103	-921	10.1		U															3			
Baron Fork	11110103	-013	12.7	ARK0007, ARK0007A	M		S	S	S	S	S									1			
Beatty Branch	11110103	-926	3.6		U															3			
Cincinnati Cr.	11110103	-021	12.2	ARK0141	M		S	S	S	S	S									1			
Clear Creek	11110103	-029	18.5	ARK0010C, ARK0080, CLR0001R, CLR0003, CLR0004, CLR0005	M		S	N	S	S	S	AG				PA				4a			
Evansville Cr.	11110103	-012	8.4		U															3			
Flint Creek	11110103	-031	16.0	ARK0004A, ARK0078, WHIBB	M		S	S	S	S	S									1			
Fly Creek	11110103	-913	6.9		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Goose Creek	11110103	-928	6.6		U															3			
Illinois River	11110103	-020	1.9	ARK0006, ILL0007	M		N	S	S	S	S	UN	UN			Cl	SO4			5	5		
Illinois River	11110103	-022	12.5	ARK0006A, ILL0005	M		S	S	S	S	S									1			
Illinois River	11110103	-023	8.9	ARK0079, ILL0003, ILL0004	M		S	N	S	S	S	AG				PA				5			
Illinois River	11110103	-024	2.8	ARK0040, ILL0002	M		N	N	S	S	S	AG	AG	AG		SO4	PA	Cl		5	5	5	
Illinois River	11110103	-028	23.4	ARK0081, ILL0001	M		S	S	S	S	S									1			
Little Flint Creek	11110103	-934	10.1		U															3			
Little Osage Creek	11110103	-630	8.2	ARK0155	M		S	S	S	S	S									1			
Little Osage Creek	11110103	-933	4.0		U															3			
Moores Creek	11110103	-026	11.6	ARK0096	E		N	N	S	N	N	AG				PA	SO4			5	5		
Mud Creek	11110103	-929	6.9	MUD0002B	U															3			
Muddy Fork	11110103	-027	12.7	MFI0001A, MFI0002B	M		N	N	S	N	N	AG	UN			PA	SO4			5	5		
Muddy Fork	11110103	-025	4.0	ARK0083, MFI0003, MFI0004	M		S	N	S	S	S	AG				PA				5			
Osage Creek	11110103	-030	2.4	ARK0068B, OSC0004	M		S	S	S	S	S									1			
Osage Creek	11110103	-730	8.5	ARK0082, OSC0006, OSC0007	U															3			
Osage Creek	11110103	-830	1.7	ARK0041, OSC0005	U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Osage Creek	11110103	-930	12.5	ARK0025A, ARK0025B, ARK0025C, ARK0068A, ARK0155, OSC0001A, OSC0001E, OSC0002B, OSC0003	M		S	S	S	S	S									1			
Sager Creek	11110103	-932	12.2	ARK0005, SAG01, SAG03, SAG04, SAG08E, SAG09, SAG12, SAG13	M		N	S	S	N	S	MP				NO3				5			
Spring Creek	11110103	-931	11.0	ARK0068C, SPG0001A, SPG0002B, SPG0003	M		S	S	S	S	S									1			
Weddington Creek	11110103	-922	7.9		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0001	Little Sugar Creek at Caverna MO		1	A
ARK0003	Spavinaw Creek north of Cherokee	7191179	1	A
ARK0004A	Flint Cr NW of W Siloam Springs OK		1	A
ARK0005	Sager Creek near Siloam Springs		1	A
ARK0006	Illinois River south of Siloam Springs	7195430	1	A
ARK0006A	Illinois River near Siloam Springs		2	R
ARK0007	Barren Fork on SR59 north of Dutch Mills		2	S
ARK0007A	Barren Fork on SR45 east of Dutch Mills	7196900	1	S
ARK0010C	Clear Creek at Hwy 112		1	A
ARK0025A	Osage Creek upstream of Rogers		2	S
ARK0025B	Osage Creek downstream Rogers		2	S
ARK0025C	Osage Creek at Hwy 112 downstream of Rogers Sewer treatment plant		2	S
ARK0040	Illinois River on SR16 west of Savoy	7194800	1	A
ARK0041	Osage Creek near Elm Springs	7195000	1	S
ARK0056	Little Sugar Creek tributary below Bentonville		1	A
ARK0068A	Osage creek upstream of confluence with Spring Creek		2	S
ARK0068C	Osage Creek downstream of Spring Creek		2	S
ARK0078	Flint Creek at Hwy. 59	7195800	2	S
ARK0079	Illinois River near Pedro, AR		2	S
ARK0080	Clear Creek at Savoy, AR		2	S
ARK0081	Illinois River near Viney Grove, AR		2	S
ARK0082	Osage Creek at Logan		1	S
ARK0083	Muddy Fork Illinois River near Savoy, AR on CR37/Viney Grove Rd.		2	S
ARK0095	Betty Branch 1/2 mile upstream of Lincoln Lake		2	S
ARK0096	Moores Creek 1/2 mile upstream of Lincoln Lake		2	S
ARK0103	Spavinaw Creek east of hwy 59	7191160	2	S
ARK0141	Cincinnati Creek near Cincinnati		1	A

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
ARK0155	Osage Creek at SR264/ Healing Springs Rd		2	S
ARK0156	Little Sugar Creek near Bella Vista		1	S
ARK0157	Columbia Hollow on Mt. Zion Rd west of Decatur		2	S
CLR0001R	Clear Creek south of Johnson on Wilkerson Rd		2	S
CLR0003	Clear Creek west of Johnson near I49		2	S
CLR0004	Clear Creek north of Wheeler on Wheeler Rd		2	S
CLR0005	Clear Creek south of Savoy		2	S
ILL0001	Illinois River west of Farmington on Goose Creek Rd		2	S
ILL0002	Illinois River west of Savoy on Viney Rd		2	S
ILL0003	Illinois River north of Savoy on WC Rd 848		2	S
ILL0004	Illinois River south of Logan on Kincheloe Rd		2	S
ILL0005	Illinois River west of Gum Springs on Chamber Springs Rd		2	S
ILL0007	Illinois River south of Siloam Springs on SR59		2	S
MFI0001A	Muddy fork near Prairie Grove on CR 98		2	S
MFI0002B	Muddy Fork west of Viney grove on CR 80		2	S
MFI0003	Muddy Fork north of Viney grove on CR610		2	S
MFI0004	Muddy Fork south of Savoy on CR37		2	S
MUD0002B	Mud Creek north of Fayetteville on North Front Street		2	S
OSC0001A	Osage Creek upstream of Roger WWTP		2	S
OSC0001E	City of Rogers WWTP outfall		2	S
OSC0002B	Osage Creek downstream of Roger WWTP		2	S
OSC0003	Osage Creek near Cave Springs		2	S
OSC0004	Osage Creek on CR 71 1 mile west of Hwy 112		1	S
OSC0005	Osage Creek southwest of Cave Springs on Snavely Rd		2	S
OSC0006	Osage Creek E. of Logan, AR on CR12		2	S
OSC0007	Osage Creek S. of Logan, AR on Logan Rd.		2	S
SAG01	Sager Creek Hwy 43 downstream Siloam Springs Golf Coarse		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
SAG03	Sager Creek off HWY 264 north Hwy 68B		2	S
SAG04	Sager Creek at Siloam Springs Park		2	S
SAG08E	Effluent form Siloam Springs WWTP		2	S
SAG09	Sager Creek at ARK/OK state line		2	S
SAG12	Sager Creek near HWY 43 and 204 junction		2	S
SAG13	Sager Creek in OK on DO565		2	S
SAGT06	Tributary to Sager Creek off Hwy 43		2	S
SAGT10	Tributary to Sager Creek 1/2 mile west of ARK/OK state line		2	S
SPG0001A	Spring Creek northwest of Springdale on North Silent Grove		2	S
SPG0002B	Spring Creek northwest of Springdale on CR70		2	S
SPG0003	Spring Creek south of Cave Springs on SR112		2	S
UWTBCO1	Town Branch Creek downstream Bentonville WWTP		2	S
WHIBB	Flint Creek 205J83-84		2	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	109.5	Fish Consumption	-	0
Evaluated	11.6	Fisheries	193.9	46.1
Monitored	228.4	Primary Contact	181.5	58.5
Total	**349.5**	Secondary Contact	240	0
		Domestic Water Supply	203.5	36.5
		Agri. & Industry	215.7	24.3

Table A-42: Active NPDES permits for Planning Segment 3J

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0034258	VILLAGE WASTEWATER COMPANY, INC.	LITTLE SUGAR CR,ARKANSAS R	003	11070208	Benton	1	001
AR0020672	PEA RIDGE, CITY OF	OTTER CR,BIG SUGAR CR,ELK R	004	11070208	Benton	2	001
AR0022403	BENTONVILLE WW TREATMENT PLANT	TOWN BR,MCKISIC CR,LITTLE SUGAR CR,ELK R, ARKANSAS R	903	11070208	Benton	3	001
AR0046639	BENTON COUNTY STONE CO., INC.	TRIB,BUTLER CR,ARKANSAS R	---	11070208	Benton	4	001
AR0051179	SULPHUR SPRINGS, CITY OF	BUTTER CR	---	11070208	Benton	5	001
AR0022292	DECATUR, CITY OF	COLUMBIA HOLLOW CR (aka DECATUR BR),SPAVINAW CR,	048	11070209	Benton	6	001
AR0023833	GRAVETTE, CITY OF	RR HOLLOW,SPAVINAW CR,ARKANSAS R	048	11070209	Benton	7	001
AR0035246	LINCOLN, CITY OF	TRIB,BUSH CR,BARON FORK CR,ARKANSAS R	013	11110103	Washington	8	001
AR0033910	USDA FOREST SERICE - LAKE WEDINGTON REC AREA	TRIB, ILLINOIS R, ARKANSAS R	024	11110103	Washington	9	001
AR0022098	PRAIRIE GROVE, CITY OF	MUDDY FORK,ILLINOIS R	027	11110103	Washington	10	002
AR0050288	FAYETTEVILLE/WEST SIDE WWTP	GOOSE CR,ILLINOIS R,ARKANSAS R	028	11110103	Washington	11	001
AR0050024	NORTHWEST ARKANSAS CONSERATION AUTHORITY -REGIONAL WWTP	OSAGE CR, ILLINOIS R	030	11110103	Benton	12	001
AR0020184	GENTRY, CITY OF - WWTP	ASH POND,SWEPCO RSR,LITTLE FLINT CR,ARKANSAS R	031	11110103	Benton	13	001
AR0037842	SWEPCO - FLINT CREEK POWER PLANT	SWEPCO RSRR,LT FLINT CR,FLINT CR	031	11110103	Benton	14	001
AR0020273	SILOAM SPRINGS, CITY OF	SAGER CR,FLINT CR,ILLINOIS R	032	11110103	Benton	15	001
AR0043397	ROGERS, CITY OF	OSAGE CR,IL R (001)	930	11110103	Benton	16	001

Table A-42: Active NPDES permits for Planning Segment 3J

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050652	WAL- MART STORES, INC. - EAST DATA CENTER	TRIB,OSAGE CR,ILLINOIS R,ARKANSAS R	930	11110103	Benton	17	001
AR0051608	SPRINGDALE IRON AND METAL - D/B/A LOWELL IRON AND METAL	UNNAMED TRIB CHRISTIE CR,PUPPY CR,OSAGE CR, ILLINOIS R	930	11110103	Benton	18	001
AR0043397	ROGERS, CITY OF	PINNACLE GOLF (002)	930	11110103	Benton	19	002
AR0022063	SPRINGDALE WASTEWATER TREATMENT FACILITY	SPRING CR,OSAGE CR,ILLINOIS R	931	11110103	Washington	20	001
AR0051331	SILOAM IRON & METAL	TRIB SAGER CR,SAGER CR, ARKANSAS R	932	11110103	Benton	21	001

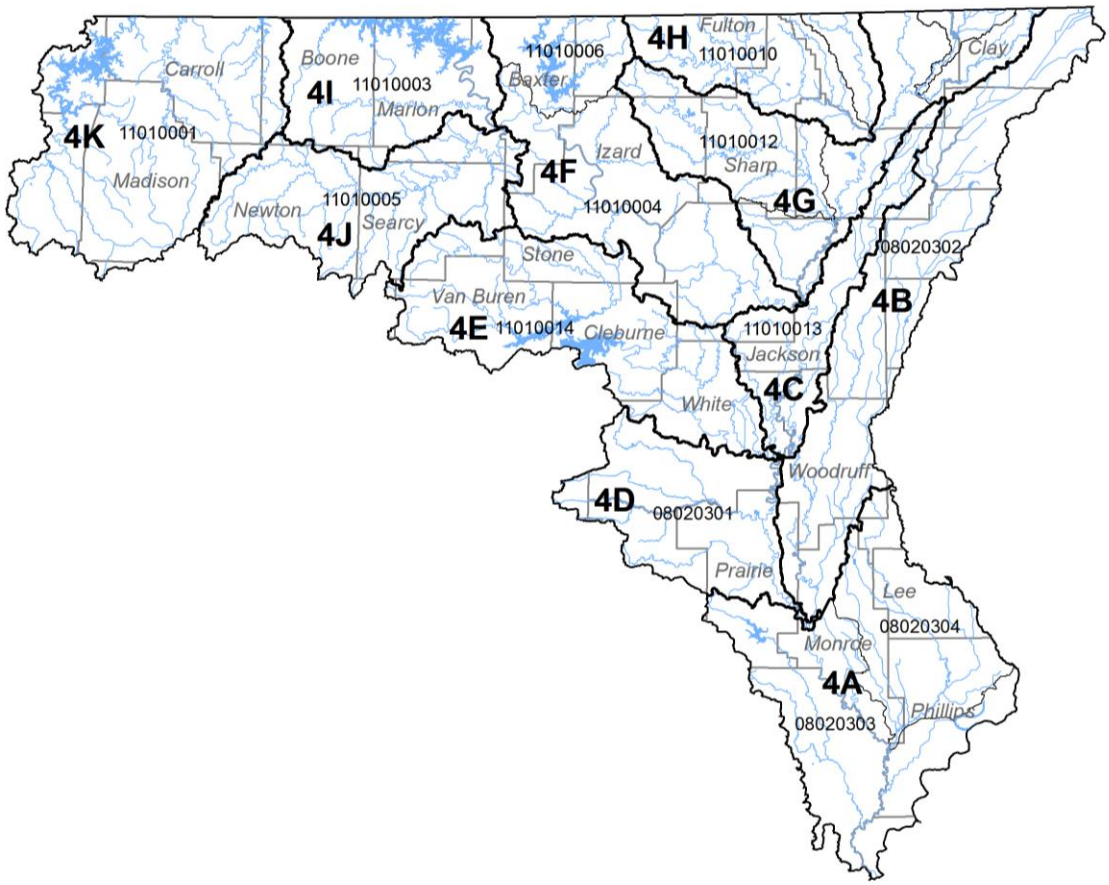
WHITE RIVER BASIN

The White River basin stretches, within Arkansas, from the northern border of the state south-southeast to the Arkansas River. The White River originates in the western part of the state, flows north into Missouri, and then reenters north central Arkansas.

This basin is comprised of 11 ADEQ planning segments and spans 31 counties: Benton, Washington, Carroll, Madison, Boone, Newton, Marion, Searcy, Van Buren, Baxter, Fulton, Izard, Stone, Cleburne, Randolph, Clay, Sharp, Lawrence, Independence, Jackson, White, Woodruff, Prairie, Lee, Monroe, Phillips, Greene, Craighead, Poinsett, Cross, and Desha.

Additionally, this basin spans parts of the Ozark Mountain, Boston Mountain, Arkansas River Valley, and Delta ecoregions.

Figure A-29: White River Basin



4A - Lower White River & Tributaries
4B - Bayou DeView & Chache River
4C - Village Creek & Tributaries
4D - White River, Wattensaw Bayou, & Bayou Des Arc
4E - Little Red River: Headwaters to Mouth
4F - White River from Mouth of Black River to Mouth of Buffalo River
4G - Black River, Strawberry River, & Tributaries
4H - Spring River, South Fork Spring River, & Eleven Point River
4I - White River from Crooked Creek to Long Creek
4J - Buffalo River & Tributaries
4K - Upper White River & Kings River

4 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 drains portions of Arkansas, Prairie, Woodruff, St. Francis, Lee, and Desha 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. These waters are heavily used year-round for hunting, fishing and boating activities. The streams in this segment are also used for irrigation water supply.

A segment of Big Creek was listed as not meeting the chloride and total dissolved solids water quality standards. The source is suspected to be from row crop agriculture activities.

Prairie Cypress Creek and Boat Gunwale Slash were both listed because of low dissolved oxygen concentrations. This is a naturally occurring condition throughout the Delta ecoregion during the critical season when flows are diminished and water temperatures are elevated. This issue will need to be addressed either through a standards change or an assessment methodology change.

Figure A-30: Planning Segment 4A

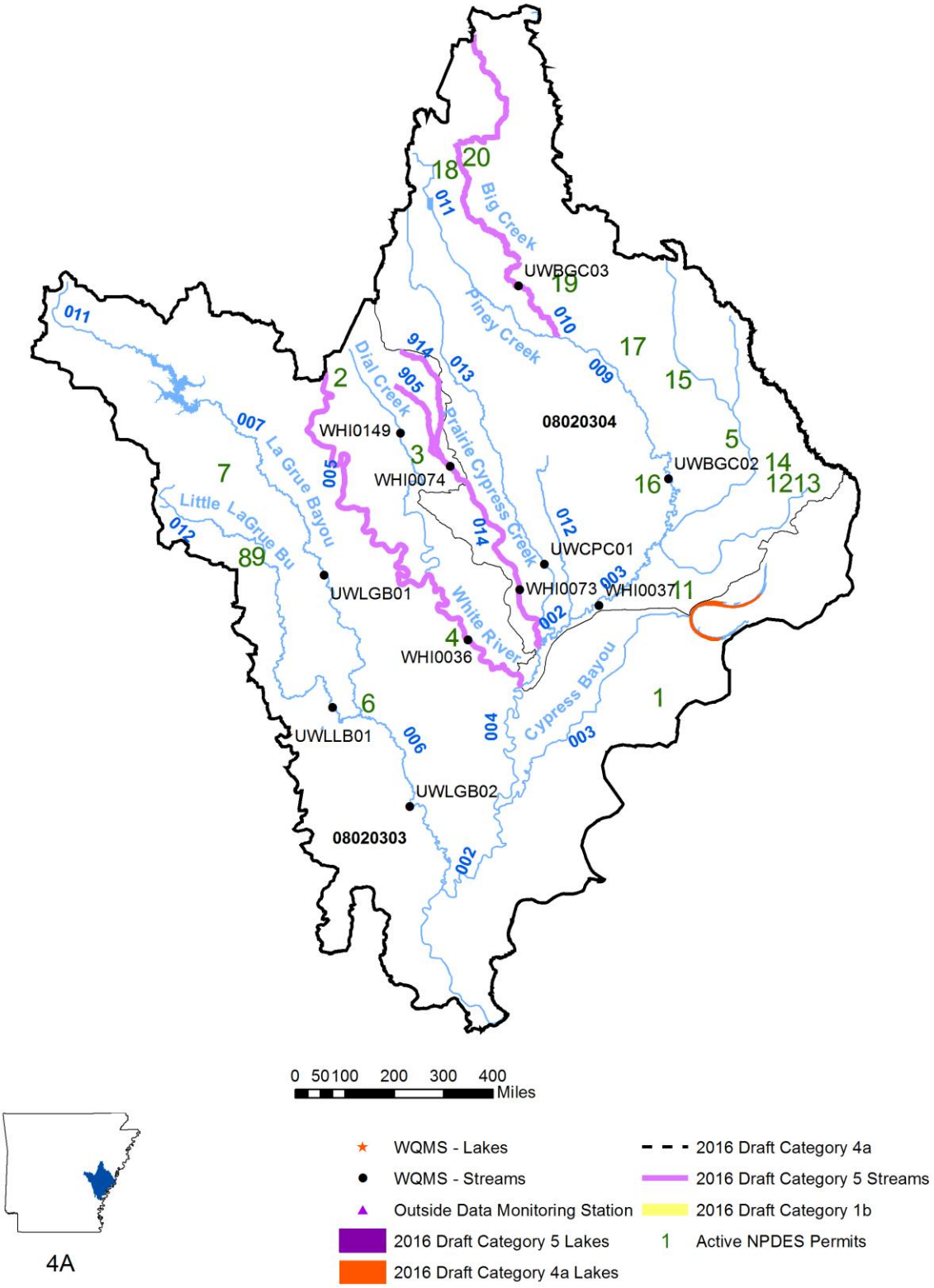


Table A-43 (a-c): Planning Segment 4A (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Cypress Bayou	8020303	-003	36.9		U															3			
Dial Creek	8020303	-905	28.8	WHI0149	M		N	S	S	S	S	UN				DO				5			
L .La Grue Bayou	8020303	-012	37.0	UWLLB01	M		S	S	S	S	S									1			
La Grue Bayou	8020303	-006	25.3	UWLGB02	M		S	S	S	S	S									1			
La Grue Bayou	8020303	-007	45.9	UWLGB01	M		S	S	S	S	S									1			
La Grue Bayou	8020303	-011	12.8		U															3			
Little La Grue Bayou	8020303	-012	47.8		U															3			
White River	8020303	-001	17.3	WHI0001	E		S	S	S	S	S									1			
White River	8020303	-002	13.7		E		S	S	S	S	S									1			
White River	8020303	-004	18.5		E		S	S	S	S	S									1			
White River	8020303	-005	50.8	WHI0036; WHI0086	M		N	S	S	S	S	UN				DO				5			
Beaver Bayou	8020304	-004	17.8		E		S	S	S	S	S									1			
Big Creek	8020304	-001	5.3		E		S	S	S	S	S									1			
Big Creek	8020304	-002	3.7		E		S	S	S	S	S									1			
Big Creek	8020304	-003	20.6	WHI0037	M		S	S	S	S	S									1			
Big Creek	8020304	-009	32.6	UWBGC02	M		S	S	S	S	S									1			
Big Creek	8020304	-010	39.1	UWBGC03	M		N	S	S	S	S	AG	AG			Cl	TDS			5	5		
Big Creek	8020304	-015	3.4		U															3			
Big Cypress Cr.	8020304	-008	14.8		E		S	S	S	S	S									1			
Big Cypress Cr.	8020304	-013	44.8	UWCPC01	M		S	S	S	S	S									1			
Boat Gunwale Slash	8020303	-914	10.9	WHI0074	M		N	S	S	S	S	UN				DO				5			
Lick Creek	8020304	-006	14.4		E		S	S	S	S	S									1			
Lick Creek	8020304	-007	8.0		E		S	S	S	S	S									1			
Little Cypress	8020304	-012	17.3		U															3			
Piney Creek	8020304	-011	24.5		U															3			
Prairie Cypress	8020304	-014	27.9	WHI0073	M		N	S	S	S	S	UN	UN			DO	Cu			5	5		

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBGC02	Big Creek at Highway 49 near Poplar Bluff		2	R
UWBGC03	Big Creek at Highway 79, 3 miles west of Moro		2	R
UWCPC01	Big Cypress Creek at Highway 1, 4 miles northeast of Cross Roads		2	R
UWLGB01	La Grue Bayou at Highway 33 near La Grue		2	R
UWLGB02	La Grue Bayou at Highway 17 at La Grue Springs		2	R
UWLLB01	Little La Grue Bayou at Highway 1 near Dewitt		2	R
WHI0001	White River at Public Access Ramp L & D No 1		2	S
WHI0036	White River at Highway 1 near St. Charles	7077820	1	A
WHI0037	Big Creek at Highway 318 near Watkins Corner		2	R
WHI0073	Prairie Cypress Creek at Highway 1 near Cross Roads		1	A
WHI0074	Boat Gunwale Slash at Highway 146 near Holly Grove		1	A
WHI0086	White River near Clarendon and confluence with Cache River		2	S
WHI0149	Dial Creek on Davidson Rd N of Holly Grove		1	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Use	Miles Support	Miles Non-Support
Unassessed	142.7	Fish Consumption	-	0
Evaluated	113.5	Fisheries	319.7	157.5
Monitored	363.7	Primary Contact	477.2	0
Total	**619.9**	Secondary Contact	477.2	0
		Domestic Water Supply	477.2	0
		Agri. & Industry	477.2	0

Table A-44: Active NPDES permits for Planning Segment 4A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0022420	ELAINE, CITY OF	GOVAN SLU,GAUZLEY BU,CYPRESS BU,WHITE R	003	08020303	Phillips	1	001
AR0021644	CLARENDON, CITY OF	WHITE R	005	08020303	Monroe	2	001
AR0022438	HOLLY GROVE, CITY OF	DIAL CR,CUT BLUFF SLU,MADDOX BAY,WHITE R	005	08020303	Monroe	3	001
AR0049310	ST. CHARLES, CITY OF	WHITE R	005	08020303	Arkansas	4	001
AR0041092	LEXA, CITY OF	TRIB,LICK CR,BIG CR,WHITE R	006	08020303	Phillips	5	001
AR0021431	DEWITT, CITY OF	LAGRUE BU,WHITE R	007	08020303	Arkansas	6	001
AR0038008	ULM, TOWN OF-STP	TRIB,SHERRIL CR,LAGRUE BU	007	08020303	Prairie	7	001
AR0044415	UNIVERSITY OF ARKANSAS RICE RESEARCH & EXTENSION CENTER	DIT, LITTLE LAGRUE BU,WHITE R	012	08020303	Arkansas	8	001
AR0049352	U.S.DEPARTMENT OF AGRICULTURE - AQUACULTURE RESEARCH SERICE USDA-ARS	UNNAMED DIT,LITTLE LAGRUE BU, WHITE R	012	08020303	Arkansas	9	001
AR0000388	ENTERGY ARKANSAS-RITCHIE PLANT	LONG LK BU (004,005)	---	08020303	Phillips	10	004
AR0041327	LAKE VIEW, CITY OF	JOHNSON BU,BIG CR,WHITE R	003	08020304	Phillips	11	001
AR0022756	HELENA INDUSTRIES, INC.	DIT,CROOKED CR,LICK CR,BIG CR,WHITE R	004	08020304	Phillips	12	001
AR0051276	DELTA LUMBER, LLC	TRIB,CROOKED CR,LICK CR,BIG CR,WHITE R	004	08020304	Phillips	13	001
AR0042404	SOUTHLAND IMPROVEMENT DISTRICT	CROOKED CR,LICK CR,BIG CR,WHITE R	006	08020304	Phillips	14	001
AR0045373	RONDO, CITY OF-WWTF	TRIB,BIG CYPRESS CR,LICK CR,BIG CR,WHITE R	008	08020304	Lee	15	001
AR0035840	MARELL, CITY OF	BIG CR,WHITE R	009	08020304	Phillips	16	001
AR0038784	AUBREY, CITY OF	TRIB,CAT CR,SPRING CR,WHITE R	009	08020304	Lee	17	001
AR0036315	WHEATLEY, CITY OF	FLAT FORK CR,BIG CR,WHITE R	010	08020304	St. Francis	18	001

Table A-44: Active NPDES permits for Planning Segment 4A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0038237	MORO, CITY OF	HOG TUSK CR,BIG CR,WHITE R	010	08020304	Lee	19	001
AR0046752	MAPCO EXPRESS STORE #3154	TRIB,FLAT FORK CR,FLAT FORK,LITTLE R	010	08020304	St. Francis	20	001

SEGMENT 4B BAYOU DE VIEW AND CACHE RIVER

Segment 4B, located in the northeastern part of Arkansas, is a long, narrow segment that includes parts of Greene, Craighead, Poinsett, Jackson, Woodruff, Monroe, Prairie, Lawrence, and Clay 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

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. The greatest use of waters in this segment is for irrigation water supply. However, local wetlands offer excellent hunting and fishing opportunities.

The upper section of Bayou DeView and Lost Creek Ditch are not meeting the fisheries designated use because of elevated levels of chlorides and total dissolved solids. Potential sources include point source discharges and row crop agriculture activities.

Several segments of the Cache River and Bayou DeView have been listed because of lead contamination. It is possible elevated metals detections are associated with the large winter and spring storm events that carry large amounts of clay particles into the waterbodies. Also, historic lead mine in headwaters streams of these waterbodies located in the foothills of the Ozark Mountains may also be contributing to this issue. Additional investigation is needed to more accurately assess this problem.

Figure A-31: Planning Segment 4B

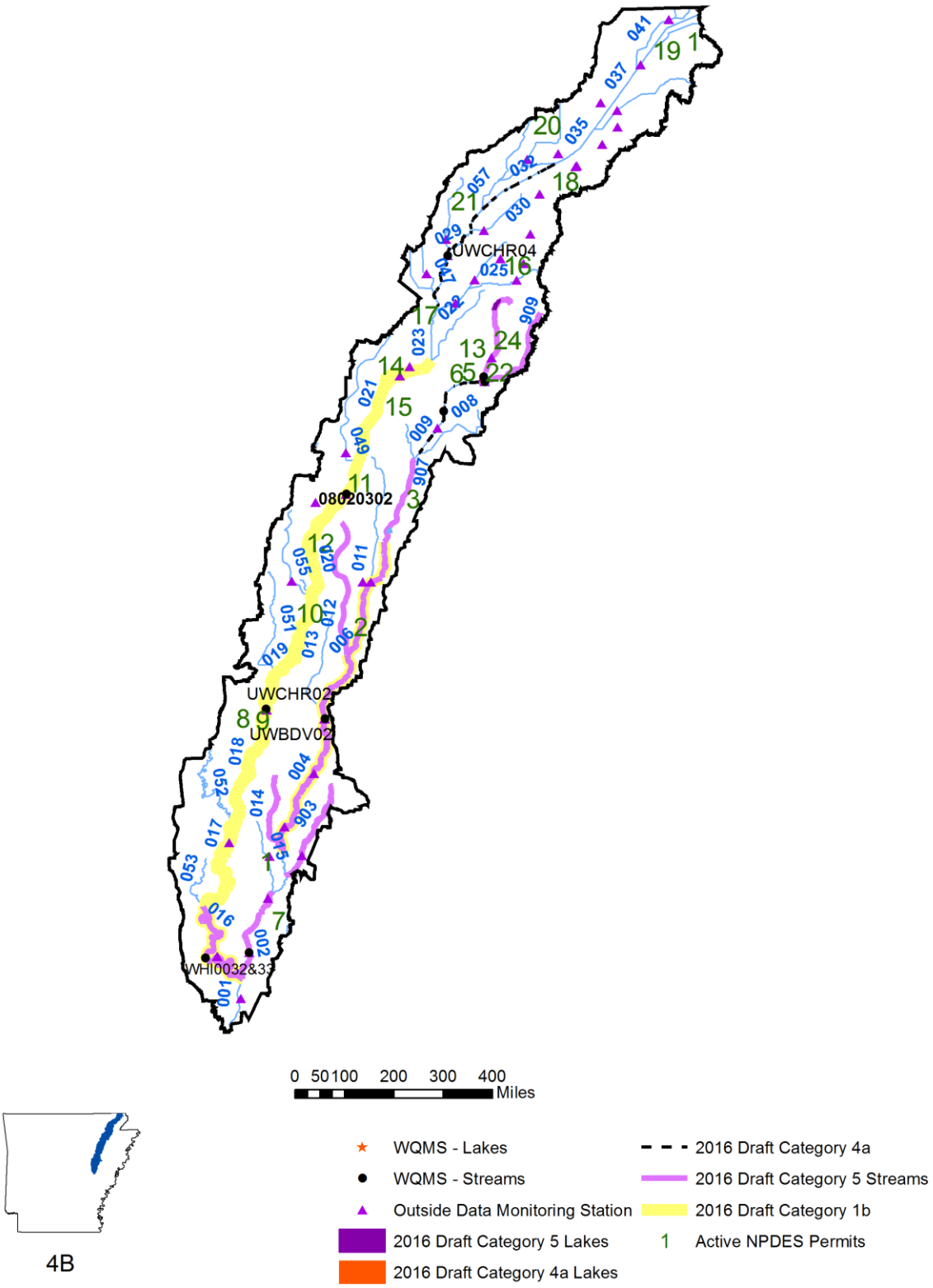


Table A-45 (a-c): Planning Segment 4B (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bayou DeView	8020302	-002	14.2	WHI0033	M		N	S	S	S	S	AG				DO				5			
Bayou DeView	8020302	-003	8.5		E		S	S	S	S	S									1			
Bayou DeView	8020302	-004	23.8	UWBDV02	M		N	S	S	S	S	AG	AG			SO4	DO			5	5		
Bayou DeView	8020302	-005	8.3	UWBDV02	E		N	S	S	S	S	AG	AG			SO4	DO			5	5		
Bayou DeView	8020302	-006	10.1	UWBDV02	E		N	S	S	S	S	AG	AG			SO4	DO			5	5		
Bayou DeView	8020302	-007	6.2	UWBDV02	E		N	S	S	S	S	AG	AG			SO4	DO			5	5		
Bayou DeView	8020302	-009	11.7	WHI0026	M		N	S	S	S	S	AG				Tb				4a			
Bayou DeView	8020302	-054	1.0		U															3			
Bayou DeView	8020302	-907	11.7	UWBDV02	E		N	S	S	S	S	UN	SE			SO4	DO			5	5		
Beaver Dam Cr.	8020302	-045	10.8		U															3			
Big Creek	8020302	-036	15.4		U															3			
Big Creek Ditch	8020302	-910	1.2	WHI0196	M		N	S	S	S	S	UN				Cu				5			
Big Creek Ditch	8020302	-912	11.8	WHI0196	E		N	S	S	S	S	UN				Cu				5			
Big Gum Lateral	8020302	-044	12.3		U															3			
Black Creek	8020302	-008	13.0		U															3			
Buffalo Creek	8020302	-014	11.3	ANRC	M		N	S	S	S	S	AG				DO				5			
Cache Bayou	8020302	-052	24.8		U															3			
Cache River	8020302	-001	6.9		E		S	S	S	S	S									1			
Cache River	8020302	-016	24.1	WHI0032	M		N	S	S	S	S	AG	AG			Pb	DO			5	5		
Cache River	8020302	-017	22.6		E		N	S	S	S	S									1			
Cache River	8020302	-018	31.6	UWCHR02	M		N	S	S	S	S									1			
Cache River	8020302	-019	18.3		E		N	S	S	S	S									1			
Cache River	8020302	-020	26.9	UWCHR03	M		N	S	S	S	S									1			
Cache River	8020302	-021	19.3	WHI0027	E		N	S	S	S	S									1			
Cache River	8020302	-023	6.8		U															3			
Cache River	8020302	-027	2.2	UWCHR04	E		N	S	S	S	S	AG				Tb				4a			
Cache River	8020302	-028	6.0	UWCHR04	M		N	S	S	S	S	AG				Tb				4a			
Cache River	8020302	-029	5.4	UWCHR04	E		N	S	S	S	S	AG				Tb				4a			
Cache River	8020302	-031	2.9	UWCHR04	E		N	S	S	S	S	AG				Tb				4a			
Cache River	8020302	-033	4.3		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Cache River	8020302	-034	3.6		U															3			
Cache River	8020302	-057	4.7		U															3			
Cache River Ditch	8020302	-032	11.4		E		N	S	S	S	S	AG				Tb				4a			
Cache River Ditch	8020302	-035	6.3		U															3			
Cache River Ditch	8020302	-036	9.0		U															3			
Cache River Ditch	8020302	-041	8.9		U															3			
Cache River Ditch	8020302	-033	2.0		U															3			
Caney Creek	8020302	-903	16.8	ANRC	M		N	S	S	S	S	AG				DO				5			
Cow Lake Ditch	8020302	-012	18.3	ANRC	M		N	S	S	S	S	UN				DO				5			
Cypress Creek	8020302	-056	2.4		U															3			
Ditch 26	8020302	-024	4.9		U															3			
Ditch 26	8020302	-026	7.6		U															3			
Fish Trap Slough	8020302	-042	3.0		U															3			
Flag Slough	8020302	-011	17.1		U															3			
Fry Ditch	8020302	-048	8.1		U															3			
Gum Slough	8020302	-022	11.9		U															3			
Hill Bayou	8020302	-053	9.3		U															3			
Housman Creek	8020302	-039	10.1		U															3			
Johnson Ditch	8020302	-010	5.2		U															3			
Kellow Ditch	8020302	-046	0.8		U															3			
Kellow Ditch	8020302	-047	9.5		U															3			
Little Cache	8020302	-038	3.8	WHI0002	U															3			
Little Cache	8020302	-040	7.5		U															3			
Locust Creek	8020302	-050	3.5		U															3			
Locust Creek	8020302	-055	10.2		U															3			
Lost Creek Ditch	8020302	-909	13.5	WHI0172	M		N	S	S	S	S	IP/ MP	UN			Cl	DO			5	5		
May Br. Lateral	8020302	-013	14.0		U															3			
Overcup Creek	8020302	-051	16.2		U															3			
Petersburg Ditch	8020302	-058	9.5		U															3			
Poplar Creek	8020302	-025	11.4		U															3			
Swan Pond Ditch	8020302	-030	8.5		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Turkey Creek	8020302	-015	9.6		U															3			
Whistle Ditch	8020302	-008	12.5		U															3			
Willow Ditch	8020302	-049	20.6		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBDV02	Bayou DeView at Highway 64 east of McCrory		1	R
UWCHR02	Cache River at Highway 64 at Peterson	7077500	1	R
UWCHR03	Cache River at Highway 18 near Gruggs	7077380	1	R
UWCHR04	Cache River at Highway 412 east of Walnut Ridge		1	R
WHI0002	Cache River on Hwy 62 near McDougal		2	S
WHI0026	Bayou DeView on Highway 226 west of Gibson	7077660	1	A
WHI0027	Cache River on SR226 near Cache		2	S
WHI0032	Cache River at Highway 70 near Brinkley	7077555	1	R
WHI0033	Bayou DeView at Highway 70 near Brinkley		1	R
WHI0172	Lost Creek Ditch at Lacy Drive near Jonesboro	7077652	1	A
WHI0196	Big Creek ditch on SR91/Dan Ave NW of Jonesboro		1	A

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	340.1	Fish Consumption	-	0
Evaluated	145.6	Fisheries	15.4	329.6
Monitored	199.4	Primary Contact	345	0
Total	**685.1**	Secondary Contact	345	0
		Domestic Water Supply	345	0
		Agri. & Industry	345	0

Table A-46: Active NPDES permits for Planning Segment 4B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0033391	COTTON PLANT, CITY OF	TRIB,TURKEY CR,BU DEVIEW,CACHE R,WHITE R	002	08020302	Woodruff	1	001
AR0034720	HICKORY RIDGE, CITY OF	BU DEVIEW,CACHE R,WHITE R	006	08020302	Cross	2	001
AR0020354	WEINER, CITY OF	TRIB, BU DEVIEW, CACHE R, WHITE R	007	08020302	Poinsett	3	001
AR0037834	RICELAND-WALDENBURG RICE DIV.	TRIB,BU DEVIEW,CACHE R,WHITE R	007	08020302	Poinsett	4	001
AR0041629	WESTSIDE CONSOLIDATED SCHOOL DISTRICT #5	TRIB,BIG CR DIT,BU DEVIEW,CACHE R	009	08020302	Craighead	5	001
AR0042188	NORTHERN MOBILE HOME PARK	TRIB,BIG CR,BU DEVIEW,CACHE R,WHITE R	009	08020302	Craighead	6	001
AR0021890	BRINKLEY, CITY OF	CANEY SLASH,TRIB,BIG CYPRESS CR,BIG CR,WHITE R	013	08020302	Monroe	7	001
AR0039837	PATTERSON, CITY OF	CACHE R, WHITE R	018	08020302	Woodruff	8	001
AR0044954	MCCRORY, CITY OF	CACHE R,WHITE R	018	08020302	Woodruff	9	001
AR0049603	BEEDEVILLE, CITY OF	CACHE R,WHITE R	019	08020302	Jackson	10	001
AR0034614	GRUBBS, CITY OF	CACHE R,WHITE R	020	08020302	Jackson	11	001
AR0046604	AMAGON, CITY OF	TRIB,CACHE R,WHITE R	020	08020302	Jackson	12	001
AR0020699	BONO, CITY OF	TRIB/WHALEY SLU DIT, EAST CACHE R, WHITE R	021	08020302	Craighead	13	001
AR0043524	EGYPT SEWER SYSTEM	TRIB,OLD CACHE R SLU,CACHE R,WHITE R	021	08020302	Craighead	14	001
AR0045284	CASH, CITY OF	TRIB,CACHE R,WHITE R	021	08020302	Craighead	15	001
AR0035947	ARKANSAS STATE PARKS-CROWLEY'S RIDGE STATE PARK	TRIB,MAIN LATERAL DIT,CACHE R,WHITE R	026	08020302	Greene	16	001
AR0043443	SEDGWICK, CITY OF	W CACHE R DIT,CACHE R,WHITE R	027	08020302	Lawrence	17	001
AR0048909	LAFE, TOWN OF	BIG CR, CACHE R, WHITE R	036	08020302	Greene	18	001

Table A-46: Active NPDES permits for Planning Segment 4B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0042781	MCDOUGAL MUNICIPAL WATER/SEWER	CACHE R DIT #1,CACHE R,WHITE R	041	08020302	Clay	19	001
AR0043290	KNOBEL, CITY OF	TRIB,BIG GUM LATERAL,CACHE R,WHITE R	044	08020302	Clay	20	001
AR0043486	TRI-CITY UTILITIES, INC.	TRIB,BEAVER DAM DIT,CACHE R,WHITE R	045	08020302	Randolph	21	001
AR0037907	JONESBORO, CITY WATER AND LIGHT (CWL) - WESTSIDE WWTP	UNNAMED TRIB,BIG CR,BU DEVIEW,CACHE R	909	08020302	Craighead	22	001
AR0044211	HOLY ANGELS CONVENT	TRIB,LOST CR DIT,BIG CR DIT,MAIN CR DIT,BU DEVIEW	909	08020302	Craighead	23	001
AR0046981	HEDGER AGGREGATE, INC.	UNNAMED TRIB,MUD CR,BIG CR DIT,BYU DEVIEW,CACHE R	909	08020302	Craighead	24	001

SEGMENT 4C VILLAGE CREEK AND TRIBUTARIES

Segment 4C includes portions of Randolph, Green, Lawrence, Jackson, Woodruff, and White Counties. This segment contains Village Creek and its tributaries, sections of the White River and its tributaries, 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. The primary use of waters in this segment is for irrigation water supply. However, local wetlands offer excellent hunting and fishing opportunities.

Three reaches of Village Creek, an ecoregion reference stream, and one segment of Glaise Creek have been listed because of low dissolved oxygen concentrations. This is a naturally occurring condition throughout the Delta ecoregion during the critical season when flows are diminished and water temperatures are elevated.

One segment of Departee Creek was listed as not supporting the fisheries designated use because of low dissolved oxygen levels and high turbidity concentrations. The source is suspected to be from row-crop agriculture practices in the watershed.

Figure A-32: Planning Segment 4C

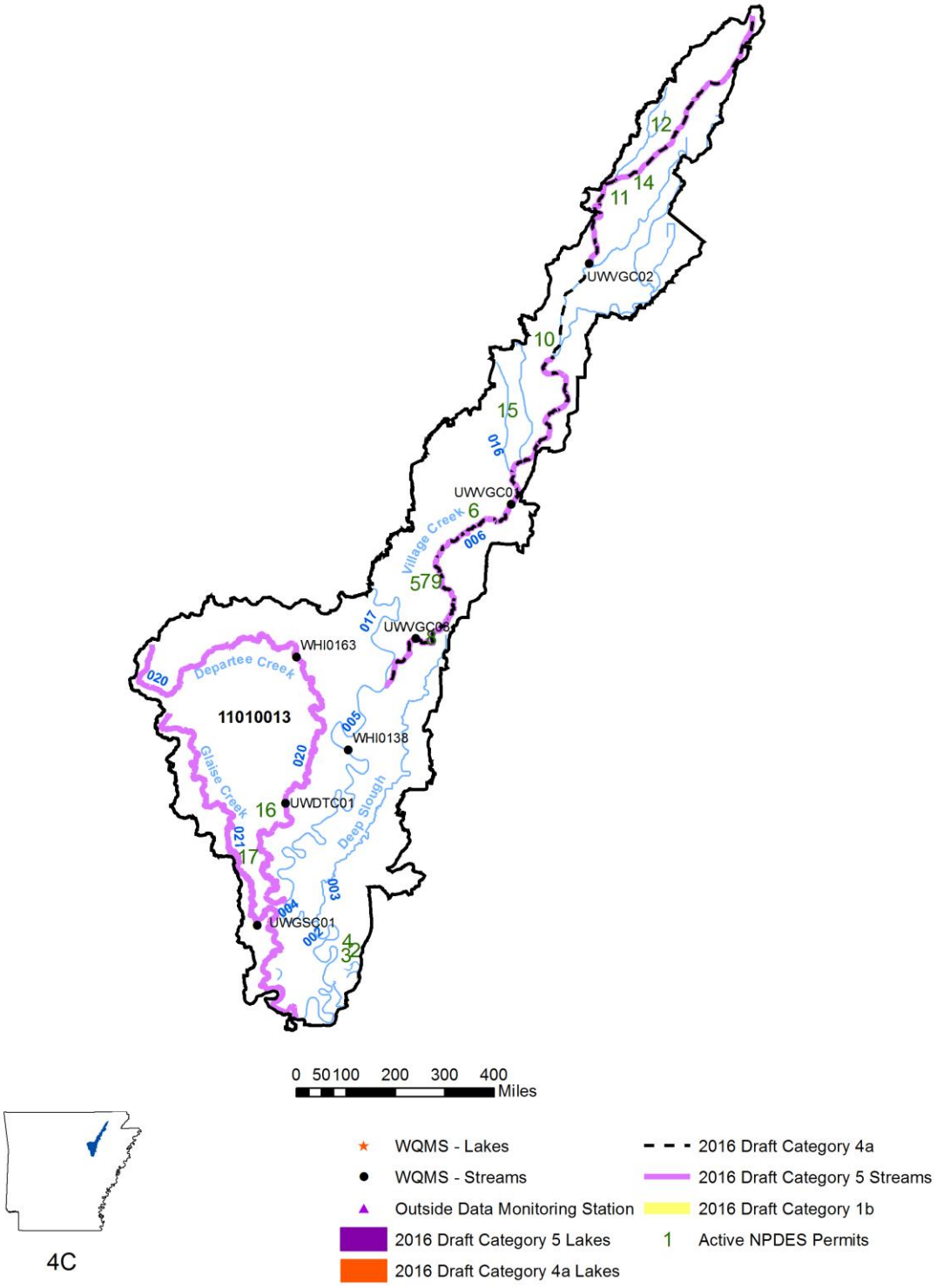


Table A-47 (a-c): Planning Segment 4C (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Cattail Cr	11010013	-016	8.5		U															3			
Coon Creek	11010013	-914	4.4	WHI0013	U					R										3			
Deep Slough	11010013	-003	30.9		U															3			
Departee Creek	11010013	-020	53.9	UWDTC01; WHI0163	M		N	S	S	S	S	AG	AG	AG		DO	Cl	Zn		5	5	5	
Glaise Creek	11010013	-021	44.8	UWGSC01	M		N	S	S	S	S	AG	AG			DO	Zn			5	5		
Jack Creek	11010013	-018	9.6		U															3			
Lick Pond Slough	11010013	-009	12.2		U															3			
Lick Pond Slough	11010013	-010	7.3		U															3			
Lick Pond Slough	11010013	-011	10.5		U															3			
Maple Ditch	11010013	-015	9.8		U															3			
Village Cr	11010013	-006	27.6	UWVGC01; UWVGC03	M		N	S	S	S	S	UN	SE			DO	Tb			5	4a		
Village Cr	11010013	-007	1.1		E		N	S	S	S	S	UN	SE			DO	Tb			5	4a		
Village Cr	11010013	-008	11.9	UWVGC01	E		N	S	S	S	S	UN	SE			DO	Tb			5	4a		
Village Cr	11010013	-012	7.7		E		N	S	S	S	S		SE				Tb			1	4a		
Village Cr	11010013	-014	24.9	UWVGC02	M		N	S	S	S	S	UN	SE			Tm	Tb			5	4a		
White Oak Slough	11010013	-013	12.8																				
White River	11010013	-001	0.8		E		S	S	S	S	S									1			
White River	11010013	-002	23.0	WHI0034	E		S	S	S	S	S									1			
White River	11010013	-004	5.5		E		S	S	S	S	S									1			
White River	11010013	-005	39.5	WHI0138	M		S	S	S	S	S									1			
White River	11010013	-017	13.1	WHI0060	U															3			
White River	11010013	-019	0.4		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWDTC01	Departee Creek east of Bradford		1	R
UWGSG01	Glaise Creek at Highway 64 east of Bald Knob		2	R
UWVGC01	Village Creek at Highway 37 near Tuckerman		1	R
UWVGC02	Village Creek at Highway 228 near Miniturn		1	R
UWVGC03	Village Creek at Highway 24 near Newport		1	R
WHI0013	Coon Creek off Hwy 67 on Dunlap Ln near Walnut Ridge		2	S
WHI0034	White River on Hwy 64 near Augusta		2	S
WHI0060	White River above Jacksonport AR		2	S
WHI0138	White River at Highway 67 near Newport	7074500	1	A

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	106.7	Fish Consumption	-	0
Evaluated	50	Fisheries	68.8	171.9
Monitored	190.7	Primary Contact	240.7	0
Total	**360.2**	Secondary Contact	240.7	0
		Domestic Water Supply	240.7	0
		Agri. & Industry	240.7	0

Table A-48: Active NPDES permits for Planning Segment 4C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0045489	POLLARD, CITY OF	HORSE CR,DIT#2,LITTLE CACHE R DIT#1,CACHE R,WHITE R	039	08020302	Clay	1	001
AR0000400	AECC-CARL BAILEY GENERATING STATION	WHITE R (001)	002	11010013	Woodruff	2	001
AR0034738	AUGUSTA, CITY OF	WHITE R	002	11010013	Woodruff	3	001
AR0000400	AECC-CARL BAILEY GENERATING STATION	LD CANEY CR (002)	002	11010013	Woodruff	4	002
AR0001481	NORANDAL USA, INC.	DIT,VILLAGE CR,WHITE R	006	11010013	Jackson	5	001
AR0020001	TUCKERMAN, CITY OF	TUCKERMAN DIT CR,VILLAGE CR,WHITE R	006	11010013	Jackson	6	001
AR0034550	ARKANSAS STEEL ASSOCIATES, LLC	TRIB,VILLAGE CR,WHITE R	006	11010013	Jackson	7	001
AR0037044	NEWPORT, CITY OF-WASTEWATER FACILITY	VILLAGE CR,WHITE R	006	11010013	Jackson	8	001
AR0041033	DIAZ, CITY OF	TRIB,VILLAGE CR,WHITE R	006	11010013	Jackson	9	001
AR0039675	ALICIA, CITY OF	BLACK SPICE DIT,VILLAGE CR, WHITE R	008	11010013	Lawrence	10	001
AR0020141	HOXIE, CITY OF	TRIB,TURKEY CR,VILLAGE CR,WHITE R	014	11010013	Lawrence	11	001
AR0036668	FRIT INDUSTRIES, INC.	TRIB,COON CR,VILLAGE CR,WHITE R	014	11010013	Lawrence	12	001
AR0045225	NEWPORT, CITY OF - AIRPORT/INDUSTRIAL PARK	TRIB,LOCUST CR,VILLAGE CR,WHITE R	014	11010013	Jackson	13	001
AR0046566	WALNUT RIDGE WW TREATMENT PLNT	VILLAGE CR,WHITE R	014	11010013	Lawrence	14	001
AR0034860	SWIFTON, CITY OF	CATTAIL CR,VILLAGE CR,WHITE R	016	11010013	Jackson	15	001
AR0050911	BRADFORD, CITY OF	BUTTER CR,DEPARTEE CR,WHITE R	020	11010013	White	16	001
AR0022217	RUSSELL, CITY OF-WASTEWATER TREATMENT	UNNAMED TRIB/GLAISE CR,WHITE R	021	11010013	White	17	001

SEGMENT 4D WHITE RIVER, WATTENSAW BAYOU, AND BAYOU DES ARC

Segment 4D includes portions of White, Prairie, Faulkner, Pulaski, Lonoke, and Monroe Counties in central Arkansas. The segment encompasses a 67-mile stretch of the White River, and its tributaries, Wattensaw and Des Arc Bayous.

Summary of Water Quality Conditions

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. The primary use of waters in this segment is irrigation water supply.

Several stream segments were listed because of low dissolved oxygen concentrations. This is a naturally occurring condition throughout the Delta ecoregion during the critical season when flows are diminished and water temperatures are elevated. This issue will need to be addressed either through a standards change or an assessment methodology change.

Figure A-33: Planning Segment 4D

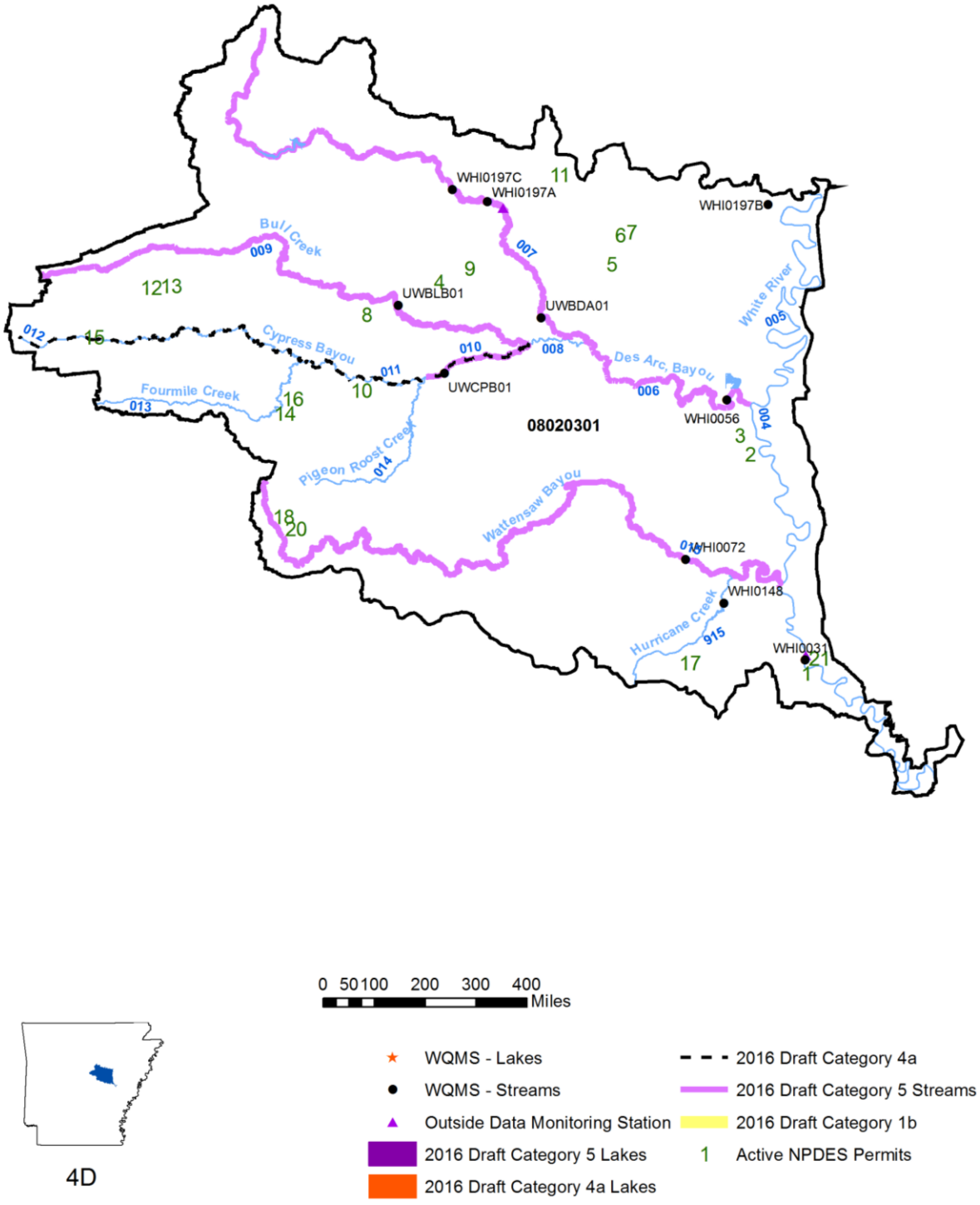


Table A-49 (a-c): Planning Segment 4D (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bayou Des Arc	8020301	-006	19.6	WHI0056	M		N	S	S	S	S	AG	AG			DO	Tb			5	5		
Bayou Des Arc	8020301	-007	49.6	UWBDA01; WHI0197A; WHI0197C	M		N	S	S	S	S	AG				DO				5			
Bull Creek	8020301	-009	44.1	UWBLB01	M		N	S	S	S	S	AG	AG			DO	Zn			5	5		
Cypress Bayou	8020301	-008	5.1		U															3			
Cypress Bayou	8020301	-010	7.5	UWCPB01	M		N	N	S	S	S	AG	UN			DO	PA			5	4a		
Cypress Bayou	8020301	-011	11.2	UWCPC01	E		S	N	S	S	S		UN				PA			3	4a		
Cypress Bayou	8020301	-012	25.2	UWCPC01	E		S	N	S	S	S		UN				PA			3	4a		
Fourmile Creek	8020301	-013	19.8		U															3			
Hurricane Creek	8020301	-915	14.1	WHI0148	M		S	S	S	S	S									1			
Pigeon Roost	8020301	-014	15.9		U															3			
Wattensaw Bayou	8020301	-015	66.8	WHI0072	M		N	S	S	S	S	UN				DO				5			
White River	8020301	-001	29.4	WHI0031	M		S	S	S	S	S									1			
White River	8020301	-004	17.2		E		S	S	S	S	S									1			
White River	8020301	-005	34.8		E		S	S	S	S	S									1			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBDA01	Bayou DesArc at county road above Cypress Creek		1	R
UWBLB01	Bull Bayou at Highway 367 near Beebe		1	R
UWCPB01	Cypress Creek at Highway 13 southeast of Beebe		1	R
WHI0031	White River at DeValls Bluff	7077000	1	A
WHI0056	Bayou DesArc at Highway 11 near Walker		1	R
WHI0072	Wattensaw Bayou north of Hazen	7076950	1	A
WHI0148	Hurricane Creek on CR708 N of Hazen		1	S
WHI0197A	Bayou Des Arc on Hwy 67 S of Searcy		2	S
WHI0197C	Bayou Des Arc on Hwy 267 S of Searcy		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	40.8	Fish Consumption	-	0
Evaluated	88.4	Fisheries	131.9	187.6
Monitored	231.1	Primary Contact	275.6	43.9
Total	**360.3**	Secondary Contact	319.5	0
		Domestic Water Supply	319.5	0
		Agri. & Industry	319.5	0

Table A-50: Active NPDES permits for Planning Segment 4D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0035611	DEVALLS BLUFF, CITY OF	WHITE R	001	08020301	Prairie	1	001
AR0022225	DES ARC, CITY OF	WHITE R	004	08020301	Prairie	2	001
AR0052256	PATTERSON HARDWOODS, INC.	TRIB,TUBS CR,WHITE R	004	08020301	Prairie	3	001
AR0021504	MCRAE, CITY OF	DRY BRANCH CR,CANE CR,BU DES ARC,WHITE R	006	08020301	White	4	001
AR0042803	GRIFFITHVILLE, CITY OF	TRB,DOGWOOD CR,BU DES ARK,WHITE R	006	08020301	White	5	001
AR0051527	OILFIELD COMPLIANCE SOLUTIONS, LLC (SEARCY)	TRIB, WHITE OAK CR, BU DES ARC, WHITE R	006	08020301	White	6	001
AR0051594	OILFIELD COMPLIANCE SOLUTIONS, LLC (WEST POINT)	WHITE OAK CR,DES ARC BU, WHITE R	006	08020301	White	7	002
AR0051390	J.C. WARNER, INC.	BULL CR, CYPRESS BU, BU DES ARC, WHITE R	009	08020301	White	8	001
AR0051438	OILFIELD COMPLIANCE SOLUTIONS, LLC-GARNER TRUCK WASH	TRIB,CANE CR,BULL CR,CYPRESS BU,BU DES ARC	009	08020301	White	9	001
AR0022101	BEEBE, CITY OF	CYPRESS BU,BU DES ARC,WHITE R	011	08020301	White	10	001
AR0044822	HIGGINSON, TOWN OF	GUM SPRINGS CR,GLADE CR,BU DES ARC,CYPRESS CR	012	08020301	White	11	001
AR0049301	NEW NEPTUNE, LLC D/B/A MAX MART #1026	TRIB,LITTLE CYPRESS CR,CYPRESS BU,BU DES ARC, WHITE R	012	08020301	White	12	001
AR0050156	B-H-T INVESTMENT COMPANY, INC. - DOUBLEBEES STORE	TRIB,LITTLE CYPRESS CR,CYPRESS BU,BU DES ARC,WHITE R	012	08020301	White	13	001
AR0038369	AUSTIN, CITY OF	4-MILE CR,MAGNESS CR,CYPRESS BU,BU DES ARC,WHITE R	013	08020301	Lonoke	14	001
AR0047121	VILONIA, CITY OF	CYPRESS BU,BU DES ARC,WHITE R	013	08020301	Faulkner	15	001
AR0047554	WARD, CITY OF	4-MILE CR,CYPRESS BU,BU DES ARC,WHITE R	013	08020301	Lonoke	16	001

Table A-50: Active NPDES permits for Planning Segment 4D

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0022411	HAZEN, CITY OF - WWTF	TRIB,LITTLE HURRICANE CR,WATTENSAW CR-BU,WHITE R	015	08020301	Prairie	17	001
AR0050814	WATTENSAW WWT FACILTY	WATTENSAW BU,WHITE R	015	08020301	Lonoke	18	001
AR0052001	GERALD HUNTER	TRIB,WATTENSAW BU, WHITE R	015	08020301	Lonoke	19	001
AR0052299	MT. TABOR ESTATES WWTF	TRIB,WATTENSAW BU,WHITE R	015	08020301	Lonoke	20	001
AR0047589	BISCOE, CITY OF - WWTF	WHITE R	001	08020303	Prairie	21	001

SEGMENT 4E LITTLE RED RIVER: HEADWATERS TO MOUTH

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

Summary of Water Quality Conditions

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. Additionally, 158.1 miles, approximately one-third of the stream miles, are designated as outstanding state or national resource waters. Waters within this segment, which includes Greer's Ferry reservoir, offer excellent fishing, canoeing, and boating opportunities. Primary contact recreation activities are prevalent during the warmer months.

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.

The Middle Fork Little Red River near Shirley is currently assessed as not attaining the primary contact recreation use because of pathogen contamination.

Figure A-34: Planning Segment 4E

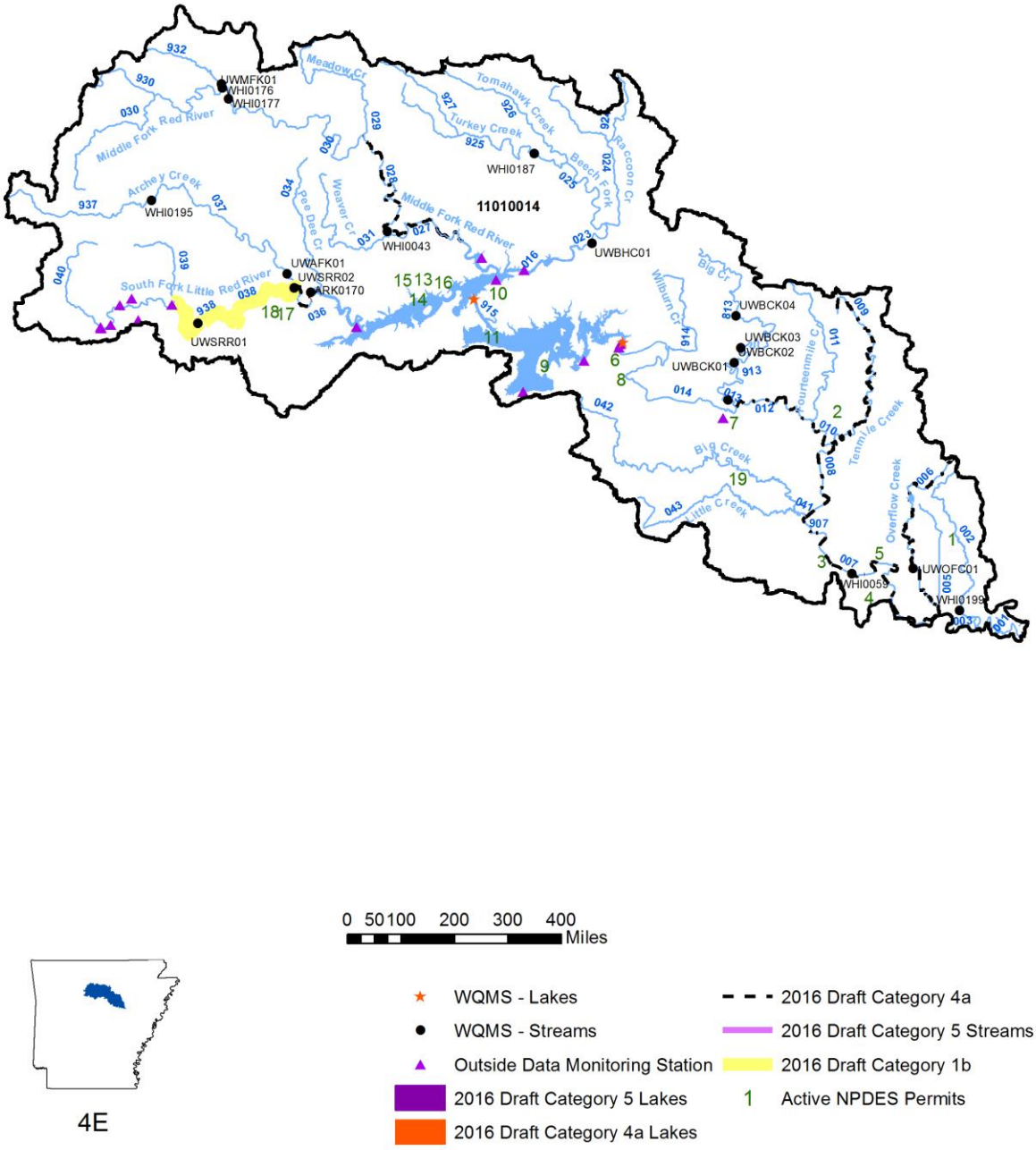


Table A-51 (a-c): Planning Segment 4E (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Archey Creek	11010014	-037	18.0	UWAFK01; WHI0185; WHI0186; WHI0194; WHI0195	M		S	S	S	S	S									1			
Archey Creek	11010014	-937	18.1		U															3			
Beech Fork	11010014	-025	10.8	WHI0188	U															3			
Big Creek	11010014	-013	3.0	UWBCK01, UWBCK02, UWBCK03, UWBCK04	M		S	S	S	S	S									1			
Big Creek	11010014	-813	23.8	UWBCK01, UWBCK02, UWBCK03, UWBCK04	E		S	S	S	S	S									1			
Big Creek	11010014	-913	7.9	UWBCK01, UWBCK02, UWBCK03, UWBCK04	E		S	S	S	S	S									1			
Big Creek	11010014	-041	1.8	UWBCR01	E		S	S	S	S	S									1			
Big Creek	11010014	-042	36.9	UWBCR01	M		S	S	S	S	S									1			
Big Mingo Cr.	11010014	-002	20.5	WHI0199	U															3			
Cove Creek	11010014	-931	15.8	WHI0182	U															3			
Cove Creek	11010014	-932	0.7	WHI0176	U															3			
Devils Fork	11010014	-023	4.6	UWBHC01	U															3			
Fourteen Mile	11010014	-011	17.3		U															3			
Gum Creek	11010014	-005	9.3		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Lick Creek	11010014	-927	9.9		U															3			
Little Creek	11010014	-043	22.5		E		S	S	S	S	S									1			
Little Raccoon Creek	11010014	-924	7.1		U															3			
Little Red Creek	11010014	-930	7.1	WHI0180	U															3			
Little Red R.	11010014	-001	8.5		U															3			
Little Red R.	11010014	-003	6.1		U															3			
Little Red R.	11010014	-007	21.9	WHI0059	M		S	N	S	S	S	UN				PA				4a			
Little Red R.	11010014	-008	8.4	WHI0059	E		S	N	S	S	S	UN				PA				4a			
Little Red R.	11010014	-010	3.6	WHI0059	E		S	N	S	S	S	UN				PA				4a			
Little Red R.	11010014	-012	8.4	WHI0059	E		S	N	S	S	S	UN				PA				4a			
Little Red R.	11010014	-014	22.8	WHI0041	U															3			
Little Red R.	11010014	-015	16.1		U															3			
Little Red R.	11010014	-016	9.0		U															3			
Little Red R.	11010014	-021	3.0		U															3			
Little Red R.	11010014	-032	16.4		U															3			
Little Red R.	11010014	-915	2.5		U															3			
Meadow Creek	11010014	-029	16.1	WHI0153	M		S	S	S	S	S									1			
Middle Fork	11010014	-027	6.5	WHI0043	M		S	N	S	S	S	UN				PA				4a			
Middle Fork	11010014	-028	14.1		E		S	N	S	S	S	UN				PA				4a			
Middle Fork	11010014	-030	48.4	UWMFK01; WHI0177	M		S	S	S	S	S									1			
Opossum Walk	11010014	-039	8.1		U															1			
Overflow Creek	11010014	-006	19.4	UWOFC01	M		S	N	S	S	S	AG				PA				4a			
Overflow Creek	11010014	-004	0.9		E		S	N	S	S	S	AG				PA				4a			
Pee Dee Creek	11010014	-034	14.0	WHI0184	U															3			
Raccoon Creek	11010014	-024	17.0		U															3			
South Fork Little Red	11010014	-036	5.0	ARK0170	E	A	S	S	S	S	S	UN				Hg				4a			
South Fork Little Red	11010014	-038	10.5	UWSRR01; USSRR02	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
South Fork Little Red	11010014	-040	21.1	WHI0189	E		S	S	S	S	S									1			
South Fork Little Red	11010014	-938	7.2		U															3			
Sugar Cane Cr.	11010014	-031	10.8	WHI0179	U															3			
Ten Mile Creek	11010014	-009	23.1	UWTMC01	M		N	N	S	S	S	UN	SE			PA	Tb			4a	4a		
Tomahawk Creek	11010014	-926	14.7		U															3			
Turkey Creek	11010014	-925	22.3	WHI0187	U															3			
Weaver Creek	11010014	-031	16.5		U															3			
Wilburn Creek	11010014	-914	15.1	WHI0150	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWAFK01	Archey Fork Little Red River at Highway 65 near Clinton		1	R
UWBCK01	Big Creek off Highway 110 near Hiram		1	R
UWBCR01	Big Creek at Highway 16 neat Letona	7076530	2	R
UWMFK01	Middle Fork Little Red River at US 65 near Leslie		1	R
UWOFC01	Overflow Creek 1.5 miles southeast of Judsonia		1	R
UWSRR01	South Fork Little Red River at Highway 95 near Scotland	7075270	1	R
UWSRR02	South Fork Little Red River at US 65 near Clinton	7075300	1	R
UWTMC01	Ten Mile Creek at Highway 157 north of Providence		2	R
WHI0043	Middle Fork Little Red River at Highway 9 near Shirley	7075000	1	A
WHI0059	Little Red River at Highway 367 below Searcy	7076517	1	A
WHI0153	Meadow Creek at county road northeast of Old Lexington		2	R
ARK0170	South Fork Little Red River on County Road 23		1	S
UWBCK04	Big Creek at low-water bridge crossing at County Rd. 75		1	R

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBCK03	Big Creek at low-water bridge crossing at Warren Mountain Rd		1	R
UWBHC01	Beech Fork at co. rd. 2.5 mi S.E. Hwy. 263 near Woodrow		1	S
WHI0041	Little Red River on Swinging Bridge Dr near Heber Springs		2	R
WHI0035	Little Red River off Carson Rd on RR tracks near Judsonia		2	S
WHI0075	Little Red River on CW Rd AB Searcy AR		2	S
WHI0150	Wilburn Creek off School Ln NE of Heber Springs		2	S
WHI0176	Cove Creek off Hwy 65 S of Leslie		2	S
WHI0179	Weaver Creek on CR16 S of Shirley		2	S
WHI0180	Little Red Creek on CR40 S of Marshall		2	S
WHI0177	Middle Fork Little Red River off Hwy 65 S of Leslie		1	S
WHI0178	Middle Fork Little Red River on CR1 near Alberg		2	S
WHI0181	Middle Fork Little Red River on CR39 S of Marshall		2	S
WHI0182	Cove Creek off Hwy 65 at Leslie		2	S
WHI0184	Pee Dee Creek on SR9 NE of Clinton		2	S
WHI0187	Turkey Creek on CR21/Hanover Rd N of Prim		1	S
WHI0188	Beech Fork Creek on Everett Ridge Rd E of Woodrow		2	S
WHI0189	South Fork Little Red River on CR9/Low Gap N of Scotland		2	S
WHI0190	South Fork Little Red River off SR95 E of Walnut Grove		2	S
WHI0185	Archey Fork on CR255/Watergate Rd S of Botkinburg		2	S
WHI0186	Archey Fork on CR166 SW of Dennard		2	S
WHI0194	Archey Fork Little Red River on CR79 NW of Clinton		2	S
WHI0195	Archey Fork Little Red River on CR166 SW of Dennard		1	S
WHI0199	Mingo Creek on Lone Star Rd E of Searcy		2	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	331.3	Fish Consumption	-	5
Evaluated	117.5	Fisheries	298.2	23.1
Monitored	203.8	Primary Contact	215	106.3
Total	**652.6**	Secondary Contact	321.3	0
		Domestic Water Supply	321.3	0
		Agri. & Industry	321.3	0

Table A-52: Active NPDES permits for Planning Segment 4E

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0035807	BALD KNOB, CITY OF - WASTEWATER TREATMENT FACILITY	BIG MINGO CR,LITTLE RED R,WHITE R	002	11010014	White	1	001
AR0052051	SEECO - JUDSONIA WATER REUSE RECYCLING FACILITY	TIRB, HOLCOMB BRANCH, FOURTEEN MILE CR, LITTLE RED R, WHITE R	002	11010014	White	2	001
AR0021601	SEARCY, CITY OF WWTF	LITTLE RED R,WHITE R	007	11010014	White	3	001
AR0022322	KENSETT, CITY OF-WWTP	BLACK CR,LITTLE RED R,WHITE R	007	11010014	White	4	001
AR0035742	JUDSONIA, CITY OF	LITTLE RED R, WHITE R	007	11010014	White	5	001
AR0029181	USF&WS - GREERS FERRY NATL FISH HATCHERY	LITTLE RED R,WHITE R	014	11010014	Cleburne	6	001
AR0039233	PANGBURN, CITY OF - WWTF	LITTLE RED R,WHITE R	014	11010014	White	7	001
AR0022381	HEBER SPRINGS WASTEWATER TREATMENT PLANT	LITTLE RED R,WHITE R	014	11010014	Cleburne	8	002
AR0024066	EDEN ISLE CORP-WWTP	GREERS FERRY RSVR,LITTLE RED R,WHITE R	015	11010014	Cleburne	9	001
AR0043940	WEST SIDE SCHOOL DISTRICT #4	TRIB,GREERS FERRY RSR,LITTLE RED R,WHITE R	015	11010014	Cleburne	10	001
AR0044920	DIAMOND BLUFF PROPERTY OWNERS IMPROVEMENT DISTRICT NO. 1	GREERS FERRY LK	015	11010014	Cleburne	11	001
AR0034657	LESLIE, CITY OF	COVE CR, MID FORK LITTLE RED R, GREERS FERRY LK	030	11010014	Searcy	12	001
AR0034401	FAIRFIELD BAY WASTEWATER CORPORATION - DAVE CREEK WWTP	DAVE CR,GREERS FERRY LK,LITTLE RED R,WHITE R	032	11010014	Van Buren	13	001
AR0037303	FAIRFIELD BAY WASTEWATER CORP. - HAMILTON HILLS WWTP	TRIB,LYNN CR,GREERS FERRY LK	032	11010014	Van Buren	14	001
AR0044580	FAIRFIELD BAY-LYNN CREEK WWTP	LYNN CR,GREERS FERRY LK,LITTLE RED R,WHITE R	032	11010014	Van Buren	15	001

Table A-52: Active NPDES permits for Planning Segment 4E

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0046078	GRAND ISLE WWTP	HOOTEN HOLLOW CR,GREERS FRY LK,LITTLE RED R,WHITE R	032	11010014	Van Buren	16	001
AR0048836	CLINTON EAST WW TREATMENT FACILITY	TRIB,S FRK LITTLE RED R,GREERS FERRY LK,LITTLE RED R,	036	11010014	Van Buren	17	001
AR0048747	CLINTON WEST WW TREATMENT FACILITY	TRIB,S FK LITTLE RED R,GREERS FERRY LK, LITTLE RED R	038	11010014	Van Buren	18	001
AR0049859	LETONA, CITY OF - WWTF	TRB,BIG CR,LITTLE RED R,WHITE R	042	11010014	White	19	001

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SEGMENT 4F WHITE RIVER FROM MOUTH OF BLACK RIVER TO MOUTH OF BUFFALO RIVER

Segment 4F includes Baxter, Fulton, Izard, Searcy, Stone, Sharp, Cleburne, Independence, and Jackson Counties. The segment encompasses a 125-mile reach of the White River and its tributaries: Polk Bayou, Sylamore Creek, Salado Creek, Hicks Creek, North Fork River, Bennett's River, and others.

Summary of Water Quality Conditions

Waters within this segment have been designated for fish and wildlife propagation, primary and secondary contact recreation, and domestic, agricultural, and industrial water supply uses. Kayaking, canoeing, wade fishing, and primary contact recreation activities are prevalent in the waters of this segment.

The stream segment of the North Fork River below Lake Norfork was listed because of low dissolved oxygen concentrations. The source is from the hydropower facility located at the dam. A TMDL was developed in 2009. In addition, changes in the operational plan, modifications to the turbines, and direct injection of oxygen into the receiving stream have all been implemented and funded by the hydropower facility to address this issue.

Figure A-35: Planning Segment 4F

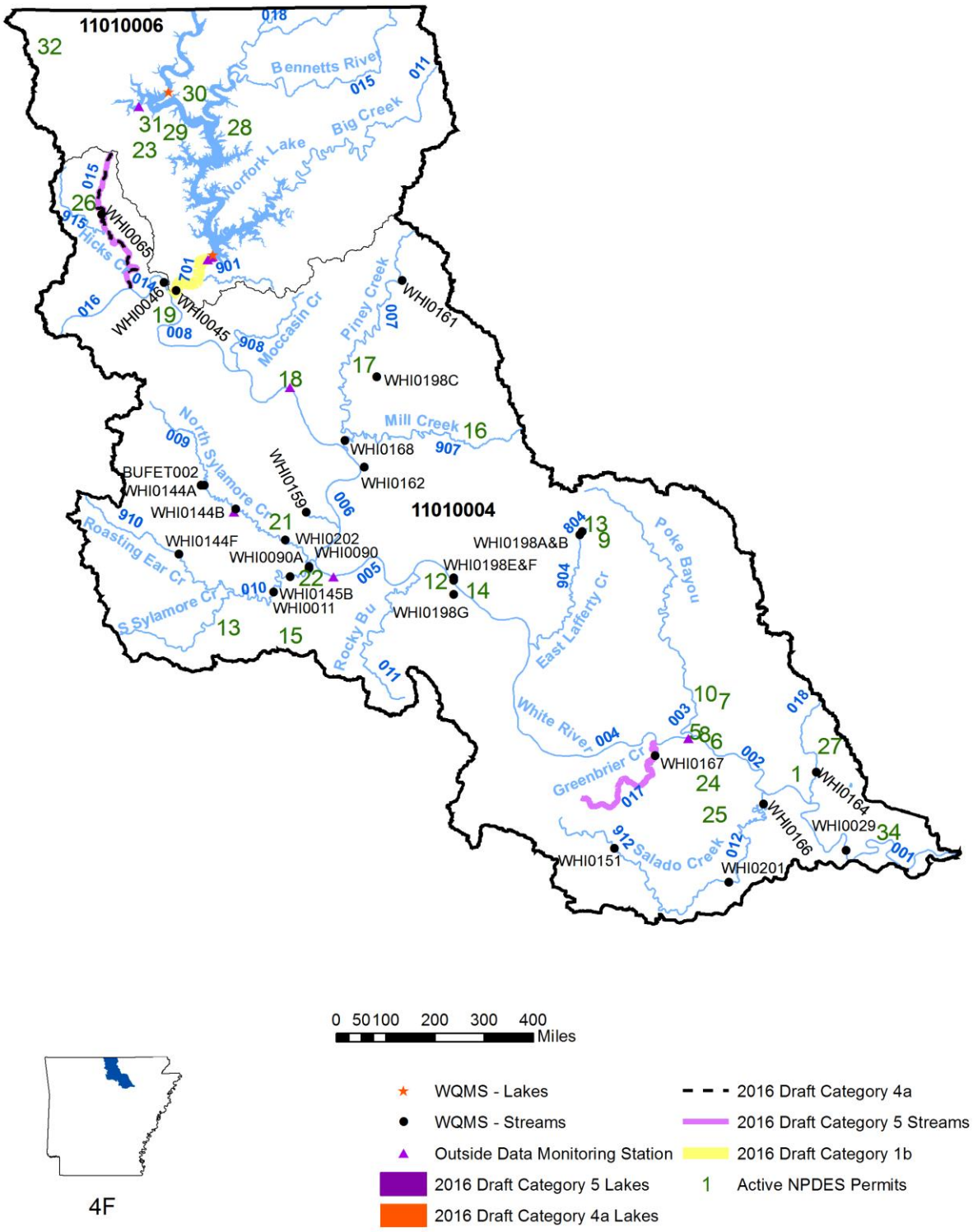

Table A-53 (a-c): Planning Segment 4F (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Big Creek	11010004	-018	9.3	WHI0164	M		S	S	S	S	S									1			
Big Creek	11010004	-915	8.2	WHI0141	U															3			
East Lafferty Creek	11010004	-904	13.2		U															3			
Greenbrier Creek	11010004	-017	12.6	WHI0167	M		N	S	S	S	S	UN				DO				5			
Hicks Creek	11010004	-015	13.2	WHI0065; WHI0139; WHI0140	M		N	N	S	S	S	MP	MP			PA	NO3			5	4a		
Mill Creek	11010004	-907	19.1	WHI0063	U															3			
Moccasin Creek	11010004	-908	11.9		U															3			
North Sylamore	11010004	-009	24.1	BUFET002; WHI0144A; WHI0144B	E		S	S	S	S	S									1			
North Sylamore	11010004	-013	0.5		E		S	S	S	S	S									1			
Piney Creek	11010004	-007	28.8	WHI0161; WHI0168	M		S	S	S	S	S									1			
Poke Bayou	11010004	-003	29.6	WHI0169	M		S	S	S	S	S									1			
Roasting Ear Creek	11010004	-910	16.9	WHI0144F; WHI0144G	M		S	S	S	S	S									1			
Rocky Bayou	11010004	-011	17.5		E		S	S	S	S	S									1			
Salado Creek	11010004	-012	14.4	WHI0166	M		S	S	S	S	S									1			
Salado Creek	11010004	-912	22.6	WHI0151; WHI0201	M															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
South Sylamore	11010004	-010	27.0	WHI0011; WHI0090; WHI0144D; WHI0144E; WHI0145; WHI0145B; WHI0146; WHI0147	M		S	S	S	S	S									1			
Trib to E. Lafferty Cr.	11010004	-804	0.8	WHI0198B	M		S	S	S	S	S									1			
West Livingston Creek	11010004	-906	3.1	WHI0159	U															3			
White River	11010004	-001	26.3	WHI0029	M		S	S	S	S	S									1			
White River	11010004	-002	8.3	WHI0062	E		S	S	S	S	S									1			
White River	11010004	-004	32.4		E		S	S	S	S	S									1			
White River	11010004	-005	9.4	WHI0173	E		S	S	S	S	S									1			
White River	11010004	-006	10.7		E		S	S	S	S	S									1			
White River	11010004	-008	24.1		E		S	S	S	S	S									1			
White River	11010004	-014	5.0	WHI0046	M		S	S	S	S	S									1			
White River	11010004	-016	6.6		E		S	S	S	S	S									1			
Whideman Creek	11010004	-905	6.9	WHI0162	M		S	S	S	S	S									1			
Bennetts Bayou	11010006	-017	6.0		U															3			
Bennetts Bayou	11010006	-019	4.2		U															3			
Bennetts River	11010006	-015	19.2		U															3			
Big Creek	11010006	-011	26.3		U															3			
Little Creek	11010006	-018	8.9		U															3			
N. Fork White River	11010006	-001	2.4	WHI0045	M		S	S	S	S	S									1b			
N. Fork White River	11010006	-701	1.6	WHI0045	E		S	S	S	S	S									1b			
Otter Creek	11010006	-901	7.9		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BUFET002	North Sylamore Cr. upstream of Cap Fork at Barkshed Rec Area		1	S
WHI0011	South Sylamore Creek below Lick Fork Creek		1	A
WHI0029	White River at Oil Trough	7061000	1	A
WHI0045	North Fork White River near Norfork	7060000	1	A
WHI0046	White River near Norfork	7057370	1	A
WHI0054	White River AB Ark Eastman		2	S
WHI0057	White River at RM2685 AB AP&L Industries		2	S
WHI0058	White River at RM2685 BL AP&L Industries		2	S
WHI0061	White River below Batesville, AR		2	S
WHI0062	White River on Chaney Dr in Batesville		2	S
WHI0063	Mill Creek on SR9 BL Melbourne		2	S
WHI0065	Hicks Creek below Mountain Home		1	A
WHI0090	South Sylamore Creek at CR283 N of Mountain View		1	S
WHI0139	Hicks Creek 200 yards BL Mountain Home WWTP		2	S
WHI0140	Hicks Creek 100 yards AB Big Creek Confluence		2	S
WHI0141	Big Creek 100 yards AB Hicks Creek Confluence		2	S
WHI0144A	North Sylamore Creek on CR76 at Barkshed Rec area		1	S
WHI0144B	North Sylamore Creek on CR93 BL Gunner Pool Rec area	7060710	2	S
WHI0144D	South Sylamore Creek on CR9 NE of Newnata		2	S
WHI0144E	South Sylamore Creek at Hwy 87 bridge NW of Mountain View		2	S
WHI0144F	Roasting Ear Creek on CR86 W of Fifty-Six		1	S
WHI0144G	Roasting Ear Creek on CR83 N of Newnata		2	S
WHI0145	South Sylamore Creek above Stevens Gravel Removal Site		1	S
WHI0145B	South Sylamore Creek approximately 1.5 miles below Hwy. 87		1	S
WHI0146	South Sylamore Creek within Stevens gravel removal site		2	S
WHI0147	South Sylamore Creek below Stevens gravel removal site		2	S
WHI0151	Salado Creek on Logging Rd SW of Batesville		1	S
WHI0159	West Livingston Creek on SR5 S of Optimus		1	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
WHI0161	Piney Creek on CR263 W of Oxford		1	S
WHI0162	Wideman Creek on CR13 S of Boswell		1	S
WHI0164	Big Creek at Highway 394 near Magness		2	R
WHI0166	Salado Creek at Highway 14 near Salado		1	R
WHI0167	Greenbrier Creek at Highway 25 near Batesville		1	R
WHI0168	Piney Creek on county road near Boswell		1	R
WHI0169	Poke Bayou near Batesville		2	R
WHI0173	White River on SR933 N of Mountain View		2	S
WHI0198B	East Lafferty Creek off CR6 E of Mt Pleasant		1	S
WHI0201	Salado Creek on Hwy 167 (Batesville Blvd) S of Huff		1	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	128	Fish Consumption	-	0
Evaluated	135.2	Fisheries	302.6	25.8
Monitored	215.8	Primary Contact	302.6	25.8
Total	**479**	Secondary Contact	328.4	0
		Domestic Water Supply	328.4	0
		Agri. & Industry	328.4	0

Table A-54: Active NPDES permits for Planning Segment 4F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0035386	FUTUREFUEL CHEMICAL COMPANY	DIT,WHITE R	001	11010004	Independence	1	001
AR0047597	OIL TROUGH, CITY OF	WHITE R	001	11010004	Independence	2	001
AR0021229	NEWARK, CITY OF	WHITE R	001	11010004	Independence	3	002
AR0037451	ENTERGY ARKANSAS, INC. - INDEPENDENCE PLANT	WHITE R	001	11010004	Independence	4	002
AR0001589	GALLOWAY SAND & GRAVEL	POKE BU, WHITE R	002	11010004	Independence	5	001
AR0020702	BATESVILLE WW TREATMENT PLANT	WHITE R	002	11010004	Independence	6	001
AR0049069	CUSHMAN SAW MILL INC	TRIB PFEIFER CR,PFEIFER CR,MILLER CR,POKE BU	002	11010004	Independence	7	001
AR0052418	WHITE R MATERIALS, INC.	TRIB,WHITE R	002	11010004	Independence	8	001
AR0045357	MT. PLEASANT HOUSING AUTHORITY	BARREN FORK CR,POLK BU,WHITE R	003	11010004	Izard	9	001
AR0047406	MIDWEST LIME COMPANY	TRIB,MILLERS CR,POLK BU,WHITE R	003	11010004	Independence	10	001
AR0052060	T MART #11 LAUNDROMAT	TRIB,PFEIFFER CR,MILLER CR,POKE BU,WHITE R	003	11010004	Independence	11	001
AR0001899	UNIMIN CORPORATION - GUION FACILITY	ROCKY BU (001)	004	11010004	Izard	12	001
AR0051969	BLUEBIRD SAND, LLC D/B/A BLUEBIRD SAND PROCESSING PLANT	TRIB,EAST LAFFERTY CR,WHITE R	004	11010004	Izard	13	001
AR0001899	UNIMIN CORPORATION - GUION FACILITY	BACKWATER SLU (009)	004	11010004	Izard	14	009
AR0020117	MOUNTAIN VIEW, CITY OF	HUGHES CR,TUBBS CR,LICK FRK CR,S SYLAMORE CR,WHITE	005	11010004	Stone	15	001
AR0020036	MELBOURNE, CITY OF-WWTP	MILL CR,PINEY CR,WHITE R	007	11010004	Izard	16	001
AR0051748	EVERGREEN PROCESSING, LLC - D/B/A TWIN MOUNTAIN QUARRY	UNNAMED TRIB, PINEY CR, WHITE R	007	11010004	Izard	17	001

Table A-54: Active NPDES permits for Planning Segment 4F

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0034606	CALICO ROCK, CITY OF	CALICO CR, WHITE R	008	11010004	Izard	18	001
AR0043036	NORFORK, CITY OF - WW TREATMENT PLANT	TOWN CR,WHITE R	008	11010004	Baxter	19	001
AR0044016	AR DEPT OF CORRECTION-NCU-IZARD COUNTY FACILITY	UNNAMED TRIB,MOCCASIN CR,WHITE R	008	11010004	Izard	20	001
AR0020664	USDAFS - BLANCHARD SPRINGS CAVERN	N SYLAMORE CR,WHITE R	009	11010004	Stone	21	001
AR0036081	ANGLERS HOLIDAY MOUNTAIN RESORT	TRIB,S SYLAMORE CR,WHITE R	010	11010004	Stone	22	001
AR0042226	ROLLING MEADOWS MOBILE HOME ESTATES	TRIB,PANTHER CR,NORFORK LK,WHITE R	012	11010004	Baxter	23	001
AR0048992	AHTD-DISTRICT 5 HEADQUARTERS	DOUBLE BR,CANEY CR,SALADO CR	012	11010004	Independence	24	001
AR0050784	SOUTHSIDE PUBLIC WATER AUTHORITY	CANEY CR,SALADO CR,WHITE R	012	11010004	Independence	25	001
AR0021211	MOUNTAIN HOME, CITY OF-WWTP	HICKS CR,BIG CR,WHITE R	015	11010004	Baxter	26	001
AR0046680	SULPHUR ROCK, CITY OF	BIG CR,WHITE R BASIN	018	11010004	Independence	27	001
AR0048798	HENDERSON CAR WASH & LAUNDROMAT	TRIB,NORFORK LK,NORTH FORK R,WHITE R	012	11010006	Baxter	28	001
AR0051209	ROYAL VIEW PROPERTIES, LLC	UNNAMED TRIB LK NORFORK, NORTH FORK R, WHITE R	012	11010006	Baxter	29	001
AR0051225	LAKE NORFORK QUICK STOP	TRIB, TO NORFORK LK, NORFORK LK, N FORK R, WHITE	020	11010006	Baxter	30	001
AR0051837	CHIP & SHONNA SMITH - D/B/A THE CHAPARRAL AT CRANFIELD	TRIB, NORFORK LK, NORTH FORK R, WHITE R	020	11010006	Baxter	31	001
AR0048631	NABORS LANDFILL	HUTCH CR TRIB,PIGEON CR,LK NORFORK	---	11010006	Baxter	32	001

SEGMENT 4G BLACK RIVER, STRAWBERRY RIVER, AND TRIBUTARIES

Segment 4G includes portions of Fulton, Izard, Sharp, Independence, Jackson, Lawrence, Randolph, Clay, and Greene 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 tributaries; the Strawberry River and Current River.

Summary of Water Quality Conditions

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. Additionally, 112.2 miles of these streams are designated as outstanding state or national resource waters. The waters of this segment are routinely used for canoeing, fishing and primary contact recreation activities.

Almost 40 miles of Extraordinary Resource Waters in this segment were assessed as not supporting the Fisheries Designated use due to excessive turbidity levels. The total suspended solids and 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. A TMDL was developed in 2006 addressing the silt issue.

Figure A-36: Planning Segment 4G

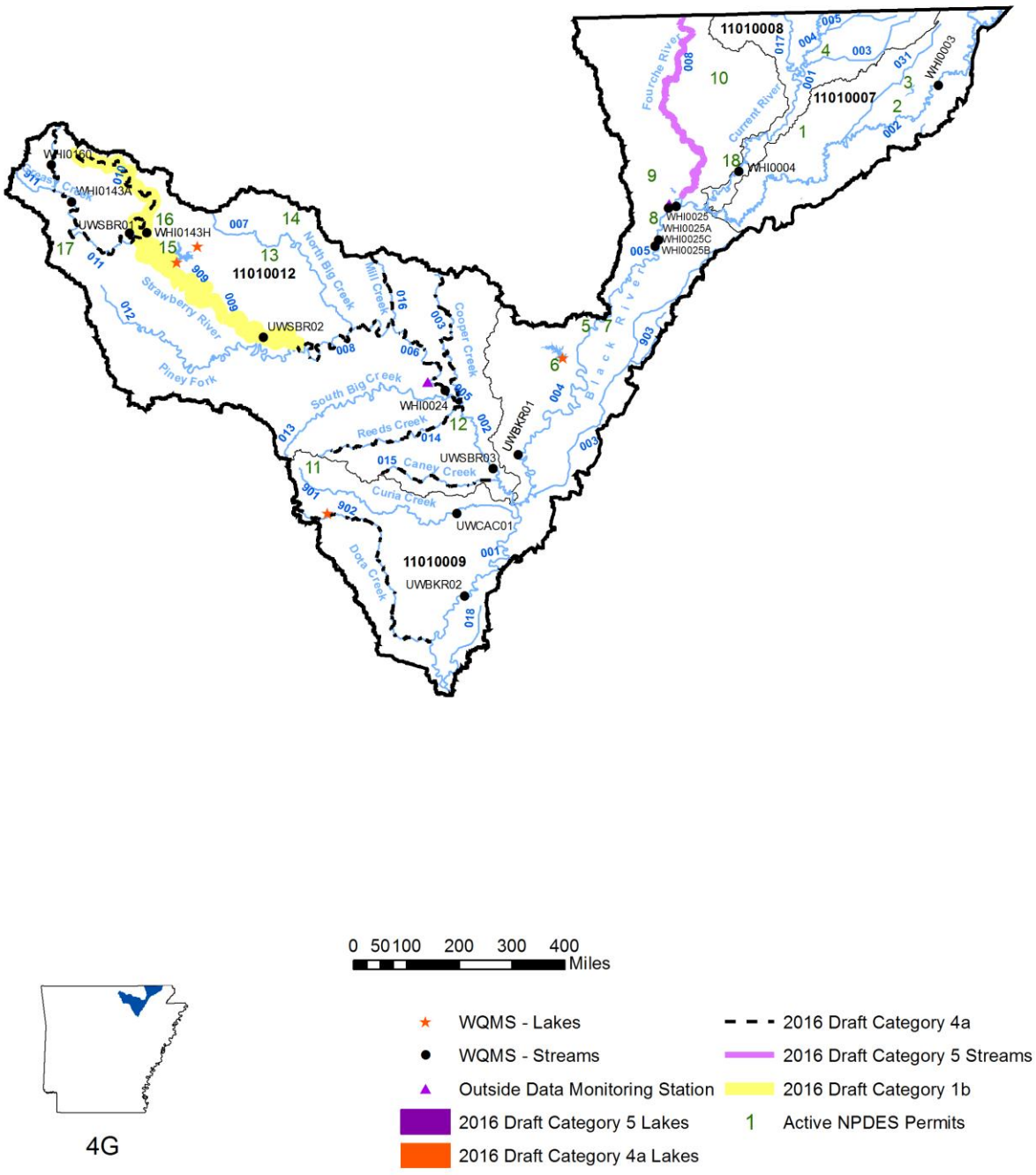

Table A-55 (a-c): Planning Segment 4G (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Black River	11010007	-001	36.6		E		S	S	S	S	S									1			
Black River	11010007	-002	33.2	WHI0003	M		S	S	S	S	S									1			
Black River	11010007	-003	8.7		U															3			
Cane Creek	11010007	-028	7.2		U															3			
Murray Creek	11010007	-031	14.6		U															3			
Byrnes Ditch	11010008	-003	15.4		U															3			
Current River	11010008	-001	25.9	WHI0004	M		S	S	S	S	S									1			
Current River	11010008	-017	11.6		E		S	S	S	S	S									1			
Cypress Ditch	11010008	-010	4.4		U															3			
Indian Creek	11010008	-005	3.0		U															3			
Indian Creek	11010008	-006	3.8		U															3			
Little Black	11010008	-002	2.1		U															3			
Little Black	11010008	-004	5.3		U															3			
Little Black	11010008	-011	6.8		U															3			
Little Black	11010008	-058	0.9		U															3			
Taft Ditch	11010008	-007	3.1		U															3			
Big Running Water Creek	11010009	-003	34.4		U															3			
Black River	11010009	-001	31.4	UWBKR02	M		S	S	S	S	S									1			
Black River	11010009	-002	2.6		E		S	S	S	S	S									1			
Black River	11010009	-004	32.0	UWBKR01	M		S	S	S	S	S									1			
Black River	11010009	-005	20.5	WHI0025	M		S	S	S	S	S									1			
Black River	11010009	-007	4.1		U															3			
Black River	11010009	-019	1.5	WHI0028	U															3			
Black River	11010009	-704	2.7		U															3			
Coon Creek	11010009	-903	6.6		U															3			
Curia Creek	11010009	-901	28.1	UWCAC01	M		S	S	S	S	S									1			
Dota Creek	11010009	-902	24.5	WHI0165	M		S	N	S	S	S	UN				PA				4a			
Fourche River	11010009	-008	31.3	WHI0170	M		N	S	S	S	S	SE				Tb				5			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Caney Creek	11010012	-015	12.0	WHI0143Q; WHI0143R	M		S	N	S	S	S	UN				PA				4a			
Cooper Creek	11010012	-003	19.5	WHI0143S	M		S	N	S	S	S	UN				PA				4a			
Greasy Creek	11010012	-911	5.2	WHI0143G	U															3			
L. Strawberry R.	11010012	-010	19.5	WHI0143D; WHI0143E; WHI0143H	M		S	N	S	S	S	UN				PA				4a			
Mill Creek	11010012	-016	7.1	WHI0143N	M		S	N	S	S	S	UN				PA				4a			
N. Big Creek	11010012	-007	24.2	UWNBC01; WHI0143I	M		S	S	S	S	S									1			
Piney Fork	11010012	-012	40.7	WHI0143L; WHI0143M	M		S	S	S	S	S									1			
Reeds Creek	11010012	-014	17.6	UWRDC01	M		S	N	S	S	S	UN				PA				4a			
S. Big Creek	11010012	-013	26.1	WHI0143J; WHI0143K	M		S	S	S	S	S									1			
Strawberry R.	11010012	-001	5.6		E		S	S	S	S	S									1			
Strawberry R.	11010012	-002	10.4	UWSBR03	M		S	S	S	S	S									1			
Strawberry R.	11010012	-005	1.9	UWSBR03	E		N	S	S	S	S	SE				Tb				4a			
Strawberry R.	11010012	-006	20.2	WHI0024; WHI0143P	M		N	S	S	S	S	SE				Tb				4a			
Strawberry R.	11010012	-008	12.3		E		N	S	S	S	S	SE				Tb				4a			
Strawberry R.	11010012	-009	16.4	UWSBR02; WHI0143C	M		S	S	S	S	S									1			
Strawberry R.	11010012	-011	26.1	UWSBR01; WHI0143A; WHI0143F; WHI0160	M		N	N	S	S	S	SE	UN			Tb	PA			4a	4a		
Strawberry R.	11010012	-909	21.1	WHI0143B	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWBKR01	Black River east of Highway 361 north of Strawberry		1	R
UWBKR02	Black River at Highway 37 east of Cord	7074420	1	R
UWCAC01	Curia Creek at Highway 25 north of Dowdy		1	R
UWNBC01	North Big Creek off Highway 354 east of Center		2	R
UWRDC01	Reeds Creek at Highway 117 north of Strawberry		2	R
UWSBR01	Strawberry River off Highway 354 near Wiseman		1	R
UWSBR02	Strawberry River at Highway 167 at Evening Shade	7074000	1	R
UWSBR03	Strawberry River at Highway 361 near Saffell		1	R
WHI0003	Black River at Highway 63 east of Corning	7064000	1	A
WHI0004	Current River near Pocahontas	7068850	1	A
WHI0024	Strawberry River south of Smithville	7074100	1	A
WHI0025	Black River at Pocahontas	7069000	1	A
WHI0028	Black River off SR69 near Newport, AR		2	S
WHI0143A	Strawberry River at Hwy 9 N of Oxford		1	S
WHI0143B	Strawberry River on SR56 NE of Franklin		2	S
WHI0143C	Strawberry River on CR251/Hans Rd below Hars		2	S
WHI0143D	Strawberry River on Brookfield Road E of Wheeling		2	S
WHI0143E	Little Strawberry River on CR59/Morrison Rd at Morriston		2	S
WHI0143F	Strawberry River on CR55 at Wiseman		2	S
WHI0143G	Greasy Creek CR29/Creasy Creek Rd S of Byron		2	S
WHI0143H	Little Strawberry River at Highway 354 east of Wiseman		1	S
WHI0143I	North Big Creek on SR354 E of Ash Flat		2	S
WHI0143J	South Big Creek at Highway 117 near Jesup		2	S
WHI0143K	South Big Creek on SR58 S of Poughkeepsie		2	S
WHI0143L	Piney Fork Creek at county road west of Zion		2	S
WHI0143M	Piney Fork on Hwy 167 N of Evening Shade		2	S
WHI0143N	Mill Creek on Strawberry Road south of Sitka		2	S

WHI0143P	Strawberry River on SR58 N of Poughkeepsie	2	S
WHI0143Q	Caney Creek on county road 346 near Saffell	2	S
WHI0143R	Caney Creek on CR349 E of Saffell	2	S
WHI0143S	Cooper Creek at county road east of Highway 115 south of Smithville	2	S
WHI0160	Strawberry River on SR395/CR27 SW of Salem	1	S
WHI0165	Data Creek on Highway 25 near Mt. Zion	2	S
WHI0170	Fourche Creek at Highway 166 north of Pocahontas	2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	150.9	Fish Consumption	-	0
Evaluated	70.6	Fisheries	445.5	91.8
Monitored	466.7	Primary Contact	411	126.3
Total	**688.2**	Secondary Contact	537.3	0
		Domestic Water Supply	537.3	0
		Agri. & Industry	537.3	0

Table A-56: Active NPDES permits for Planning Segment 4G

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0022209	REYNO, CITY OF	MURRAY CR,GAR SLU,BLACK R,WHITE R	001	11010007	Randolph	1	001
AR0033979	CORNING, CITY OF-WWTP	BLACK R,WHITE R	002	11010007	Clay	2	001
AR0047911	J. W. BLACK LUMBER COMPANY	TRIB,CORNING LK,BLACK R	031	11010007	Clay	3	001
AR0048071	SUCCESS, CITY OF	TRIB,LITTLE BLACK R,CURRENT R,BLACK R,WHITE R	003	11010008	Clay	4	001
AR0037508	BLACK ROCK, CITY OF	TRIB,BLACK R,WHITE R	004	11010009	Lawrence	5	001
AR0038199	ARKANSAS DEPT. PARKS & TOURISM-LAKE CHARLES STATE PARK	LK CHARLES, FLAT CR, BLACK R, WHITE R	004	11010009	Lawrence	6	001
AR0040355	PORTIA, CITY OF	BLACK R,BLACK & SPRING RS,WHITE R	004	11010009	Lawrence	7	001
AR0034835	POCAHONTAS, CITY OF-WWTP	BLACK R,WHITE R	005	11010009	Randolph	8	001
AR0036820	MACLEAN-ESNA	TRIB,MANSKER CR TRIB,BLACK R,WHITE R	005	11010009	Randolph	9	003
AR0043834	MAYNARD, CITY OF	TRIB,LEMMONS CR,MAIN DIT,FOURCHE R,BLACK R	008	11010009	Randolph	10	001
AR0022110	CAVE CITY, CITY OF - WASTEWATER TREATMENT PLANT	TRIB,CURIA CR,BLACK R,WHITE R	901	11010009	Sharp	11	001
AR0048488	WESTERN LAWRENCE CO WWT DIST	TRIB,STRAWBERRY R,BLACK R,WHITE R	002	11010012	Lawrence	12	001
AR0041742	ASH FLAT, CITY OF - WASTEWATER TREATMENT FACILITY	N BIG CR,STRWBERRY R,BLACK R,WHITE R	007	11010012	Sharp	13	001
AR0050261	HIGHLAND WW TREATMENT FACILITY	TRIB,WORTHINGTON CR, WHITE R BASIN	007	11010012	Sharp	14	001
AR0035254	HORSESHOE BEND, CITY OF - WHITE OAK WWTF	TRB,STRAWBERRY R,BLACK R,WHITE R	009	11010012	Izard	15	001
AR0039608	HORSESHOE BEND, CITY-PARADISE ACRES	TRIB,HUBBLE BR,LITTLE STRWB R,STRWB R,BLACK R,WHITE R	010	11010012	Izard	16	001
AR0049701	OXFORD, CITY OF	SANDY CR,STRAWBERRY R,BLACK R,WHITE R	011	11010012	Izard	17	001

Table A-56: Active NPDES permits for Planning Segment 4G

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0052388	CURRENT R BEACH RESORT	TRIB,CURRENT R,BLACK R	001	11010080	Randolph	18	001

SEGMENT 4H SPRING RIVER, SOUTH FORK SPRING RIVER, AND ELEVEN POINT RIVER

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 tributaries; the South Fork Spring River, the Eleven Point River, Myatt Creek, and Martin's Creek.

Summary of Water Quality Conditions

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. Additionally, about 74 percent of these waters are designated as outstanding state or national resource waters. The waters in this segment are routinely used for canoeing, kayaking, wade fishing, and primary contact recreation activities.

Figure A-37: Planning Segment 4H

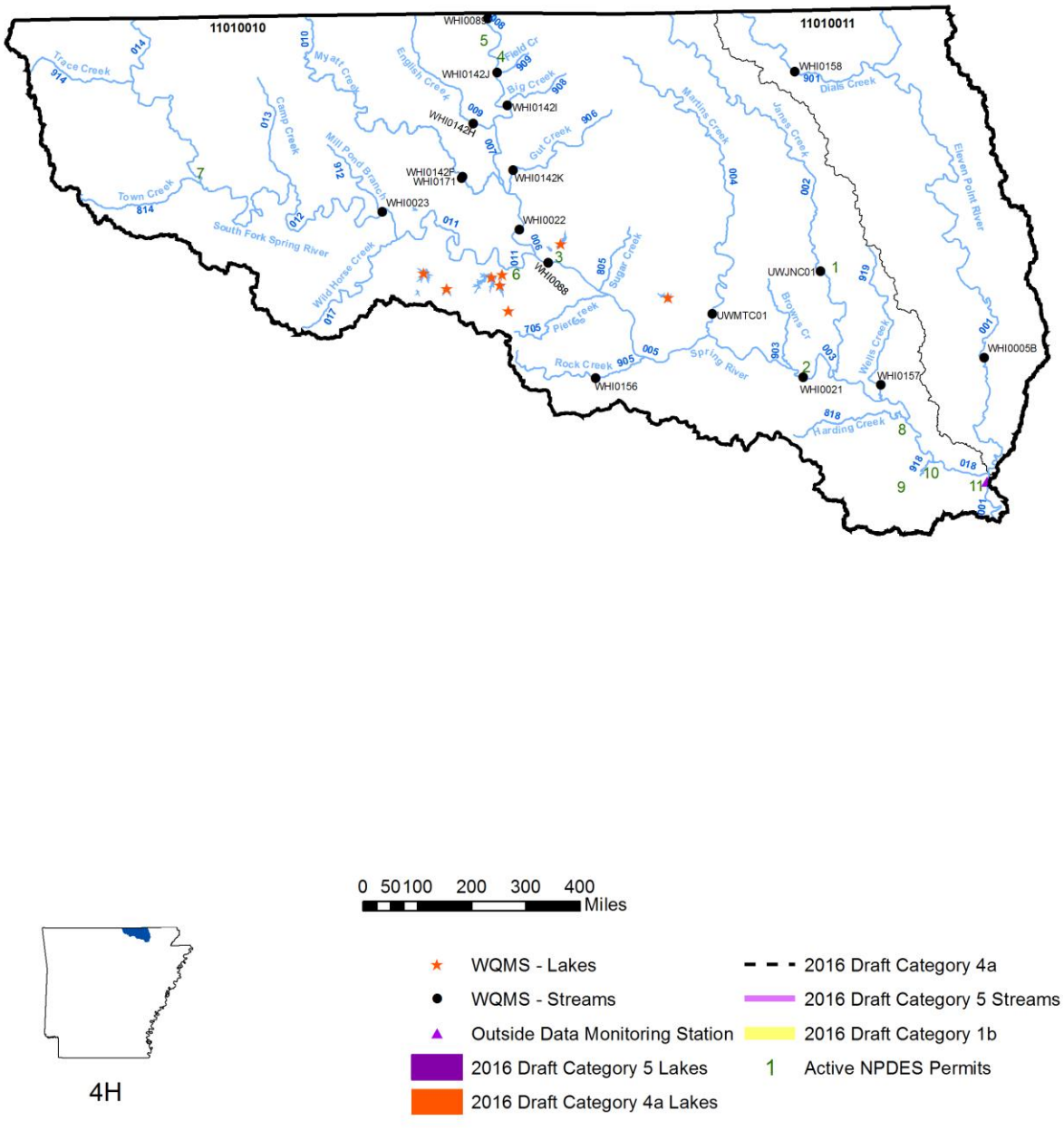

Table A-57 (a-c): Planning Segment 4H (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Big Creek	11010010	-908	4.1	WHI0142J; WHI0142W	U															3			
Browns Creek	11010010	-903	6.1	WHI0142R	U															3			
Camp Creek	11010010	-013	6.4	WHI0142Z	E		S	S	S	S	S									1			
English Creek	11010010	-009	9.4	WHI0142H; WHI0142G	M		S	S	S	S	S									1			
Field Creek	11010010	-909	2.1	WHI0142I	U															3			
Gut Creek	11010010	-906	9.1	WHI0142K	U															3			
Harding Creek	11010010	-818	8.1	WHI0142U	U															3			
Janes Creek	11010010	-002	30.7	UWJNC01; WHI0142M; WHI0142N; WHI0142O	M		S	S	S	S	S									1			
Martins Creek	11010010	-004	24.0	UWMTC01; WHI0142P	M		S	S	S	S	S									1			
Mill Pond Branch	11010010	-912	5.7	WHI0142X	U															3			
Myatt Creek	11010010	-010	53.3	WHI0142F; WHI0171	M		S	S	S	S	S									1			
Pierce Creek	11010010	-705	7.1	WHI0142V	U															3			
Rock Creek	11010010	-905	9.4	WHI0156	U															3			
S. Fork Spring	11010010	-011	16.0		E		S	S	S	S	S									1			
S. Fork Spring	11010010	-012	15.9	WHI0023	M		S	S	S	S	S									1			
S. Fork Spring	11010010	-014	28.4	WHI0142A	E		S	S	S	S	S									1			
Spring River	11010010	-001	3.8		E		S	S	S	S	S									1			
Spring River	11010010	-003	10.5	WHI0021	M		S	S	S	S	S									1			
Spring River	11010010	-005	12.9	WHI0088	M		S	S	S	S	S									1			
Spring River	11010010	-006	5.3	WHI0022	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Spring River	11010010	-007	3.7		E		S	S	S	S	S									1			
Spring River	11010010	-008	8.5	WHI0006	M		S	S	S	S	S									1			
Spring River	11010010	-018	12.5		E		S	S	S	S	S									1			
Stennitt Creek	11010010	-918	1.6		U					R										3			
Sugar Creek	11010010	-705	4.4	WHI0142L	U															3			
Town Creek	11010010	-814	8.1	WHI0142Y	U															3			
Trace Creek	11010010	-914	6.6	WHI0142B	U															3			
Warm Fork Spring R.	11010010	-808	1.8	WHI006A; WHI0089	M		S	S	S	S	S									1			
Wells Creek	11010010	-919	10.3	WHI0157	U															3			
Wild Horse C.	11010010	-017	9.9		E		S	S	S	S	S									1			
Dials Creek	11010011	-901	24.9	WHI0158	U															3			
Eleven Point	11010011	-001	41.8	WHI0005B; WHI0005A	M		S	S	S	S	S									1			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
UWJNC01	Janes Creek at Highway 90 near Ravenden Springs		1	R
UWMTC01	Martins Creek at Highway 63 near Williford		1	R
WHI0005A	Eleven Point River on SR90 near Ravenden Springs		2	S
WHI0005B	Eleven Point River near Pocahontas	7072000	1	A
WHI0006A	Warm Fork Spring River near Thayer, Mo	7069170	1	A
WHI0021	Spring River south of Ravenden	7069370	1	A

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
WHI0022	Spring River at low water crossing near Hardy	7069266 7069305	1	A
WHI0023	South Fork of Spring River near Saddle	7069295	1	A
WHI0088	White River at Town Bridge in Hardy		1	A
WHI0089	Mammoth Spring east bridge at spillway		1	A
WHI0142A	South Fork Spring River on CR80/Sunrise Road E of Sturkie		2	S
WHI0142B	Trace Creek on CR31/Sturkie Rd S of Sturkie		2	S
WHI0142F	Myatt Creek on CR63 AB Wolf Creek confluence		2	S
WHI0142G	English Creek on SR289 4 miles SW of Mammoth Springs		2	S
WHI0142H	English Creek on CR67/English Creek Rd S of Mammoth Springs		2	S
WHI0142I	Field Creek at Hwy 63 S of Mammoth Spring		1	S
WHI0142J	Big Creek S of Mammoth Spring		1	S
WHI0142K	Gut Creek on CR71 N of Hardy		1	S
WHI0142L	Sugar Creek on Hwy 62 E of Hardy		2	S
WHI0142M	Janes's Creek on English Bluff Rd NE of Wirth		2	S
WHI0142N	Jane's Creek on J Bellah Rd N of Ravenden Springs		2	S
WHI0142O	Jane's Creek on SR90 SW of Ravenden Springs		2	S
WHI0142P	Martin's Creek on Martin Creek Rd N of Williford		2	S
WHI0142R	Brown's Creek on Hwy 63 W of Ravenden		2	S
WHI0142U	Harding Creek on Henderson Rd S of Imboden		2	S
WHI0142V	Pierce Creek on River Rd E of Hardy		2	S
WHI0142W	Big Creek on CR87/Wirth Rd S of Mammoth Springs		2	S
WHI0142X	Mill Pond Branch on CR222/Heart Rd N of Ash Flat		2	S
WHI0142Y	Town Creek on dirt road off SR9 NE of Salem		2	S
WHI0142Z	Camp Creek on CR198/S Camp Creek Rd S of Camp		2	S
WHI0156	Rock Creek on Rock Creek Rd N of Sitka		1	S
WHI0157	Weldon Creek on Henderson Rd N of Imboden		1	S
WHI0158	Diles Creek on Marriott Rd in S of Myrtle		1	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
WHI0171	Myatt Creek at Bakers Ford road near Saddle		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	107.6	Fish Consumption	-	0
Evaluated	80.7	Fisheries	294.8	0
Monitored	214.1	Primary Contact	294.8	0
Total	**402.4**	Secondary Contact	294.8	0
		Domestic Water Supply	294.8	0
		Agri. & Industry	294.8	0

Table A-58: Active NPDES permits for Planning Segment 4H

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0048712	RAVENDEN SPRINGS, TOWN OF	TRIB JOHNS CR,JANES CR,SPRING R,BLACK R,WHITE R	002	11010010	Randolph	1	001
AR0041254	RAVENDEN, CITY OF	TRIB,SPRING R,BLACK R	003	11010010	Lawrence	2	001
AR0037991	HARDY, CITY OF	SPRING R,BLACK R,WHITE R	005	11010010	Sharp	3	001
AR0002879	JIM HINKLE/SPRING R FISH HATCHERY	SPRING R, BLACK R, WHITE R	008	11010010	Fulton	4	001
AR0023850	MAMMOTH SPRING WWTP	TRIB,SPRING R	008	11010010	Fulton	5	001
AR0034282	CHEROKEE VILLAGE SEWER, INC.	S FORK SPRING R, SPRING R	011	11010010	Sharp	6	001
AR0034789	SALEM, CITY OF	S FORK SPRING R,BLACK R,WHITE R	014	11010010	Fulton	7	001
AR0021628	IMBODEN, CITY OF-WWTF	WAYLAND CR,SPRING R,BLACK R,WHITE R	015	11010010	Lawrence	8	001
AR0046922	BLACK ROCK QUARRY	TRIB,BRUSHY CR,STENNITT CR,SPRING R,BLACK R	018	11010010	Lawrence	9	001
AR0047198	MARTIN MARIETTA MAT/BLACK ROCK	STENNITT CR,SPRING R,BLACK R,WHITE R	918	11010010	Lawrence	10	001
AR0051616	NORTHEAST ARKANSAS PUBLIC WATER AUTHORITY - WATER TREATMENT PLANT	SPRING R, BLACK R, WHITE R	001	11010011	Randolph	11	001

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SEGMENT 4I WHITE RIVER: CROOKED CREEK TO LONG CREEK

Segment 4I, located in north central Arkansas, includes portions of Boone and Marion Counties, and small portions of Baxter, Searcy, and Newton Counties. This segment encompasses a 31 mile reach of the White River and Crooked Creek and its tributaries.

Summary of Water Quality Conditions

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. Bull Shoals Reservoir is designated as an Arkansas Extraordinary Resource Water. The waters in this segment offer outstanding fishing, boating, canoeing, and primary contact water recreation opportunities.

Data from Crooked Creek above and below the City of Harrison waste water treatment plant demonstrate elevated water quality constituent concentrations from this discharge and also reflect urban area runoff during storm events. In addition, both segments are listed for elevated total dissolved solids concentrations.

Figure A-38: Planning Segment 4I

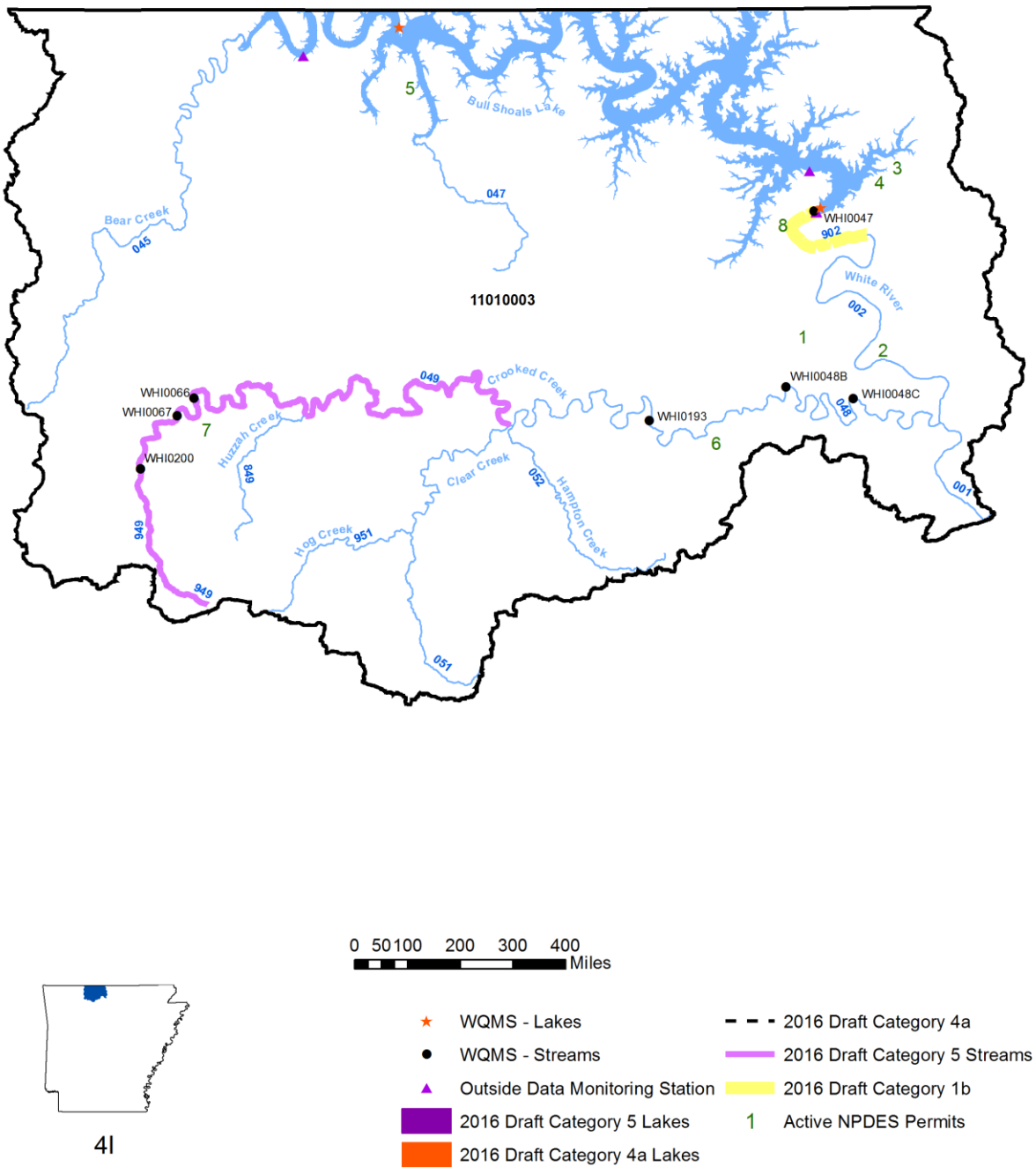

Table A-59 (a-c): Planning Segment 4I (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bear Creek	11010003	-045	31.8	WHI0174	M		S	S	S	S	S									1			
Clear Creek	11010003	-051	21.9	BUFET006	U															3			
Crooked Creek	11010003	-048	42.9	BUFET010; UWCKC02; WHI0048A; WHI0048B; WHI0048C; WHI0193	M		S	S	S	S	S									1			
Crooked Creek	11010003	-049	20.4	UWLCK01; WHI0048	M		N	S	S	S	S	UN				TDS				5			
Crooked Creek	11010003	-050	0.1		E		N	S	S	S	S	UN				TDS				5			
Crooked Creek	11010003	-949	23.9	WHI0066; WHI0067	M		N	S	S	S	S	UN				TDS				5			
E. Horizon C.	11010003	-047	8.9		U															3			
Hampton Creek	11010003	-052	13.3	BUFET007	U															3			
Hog Creek	11010003	-951	9.9		U															3			
Huzzah Creek	11010003	-849	8.8	BUFET005	U															3			
White River	11010003	-001	7.4		E		S	S	S	S	S									1			
White River**	11010003	-002	18.4	USGS	M		S	S	S	S	S									1			
White River	11010003	-003	10.7		U															3			
White River	11010003	-010	6.0		U															3			
White River	11010003	-017	10.9		U															3			
White River	11010003	-020	14.4		U															3			
White River	11010003	-021	18.7		U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
White River*	11010003	-902	5.4	USGS; WHI0047	M		S	S	S	S	S									1b			

*Reach formally -002U
**Reach formally -002L

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BUFET005	Huzzah Creek near Olvey, Arkansas		2	S
BUFET006	Clear Creek near Pyatt, Arkansas		2	S
BUFET007	Hampton Creek near Pyatt, Arkansas		2	S
BUFET010	Crooked Creek at Hwy. 14 near Yellville, AR (ADEQ# WHI0048A)		2	S
UWCKC02	Crooked Creek at Hwy 101 N. of Rea Valley		2	S
UWLCK01	Lee Creek at SR220/N Lee Creek Rd N of Cedarville		1	S
WHI0047	White River on River Cliff Dr BL Bull Shoals Dam	7055000	1	A
WHI0048	Crooked Creek on Hwy 412/62 near Pyatt		2	S
WHI0048A	Crooked Creek on SR14 at Yellville (replaced 8/8/06 WHI0193)		2	S
WHI0048B	Crooked Creek on CR7055/6002 2 miles S of Flippin		1	S
WHI0048C	Crooked Creek at Hwy. 101 2 miles north of Rea Valley		1	A
WHI0066	Crooked Creek below Harrison		1	A
WHI0067	Crooked Creek above Harrison		1	A
WHI0174	Bear Creek at Highway 14 east of New Hope	7054410	2	R
WHI0193	Crooked Creek at Highway 14 near Yellville	7055608	1	A

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	123.5	Fish Consumption	-	0
Evaluated	7.5	Fisheries	105.9	44.4
Monitored	142.8	Primary Contact	150.3	0
Total	**273.8**	Secondary Contact	150.3	0
		Domestic Water Supply	150.3	0
		Agri. & Industry	150.3	0

Table A-60: Active NPDES permits for Planning Segment 4I

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0021717	FLIPPIN, CITY OF	FALLEN ASH CR,WHITE R	002	11010003	Marion	1	001
AR0033545	COTTER-GASSVILLE, CITIES OF	UNNAMED TRIB WHITE R, WHITE R	002	11010003	Baxter	2	001
AR0037435	HOLIDAY SHORE RESORT	BULL SHOALS LK,WHITE R	003	11010003	Baxter	3	001
AR0050865	CEDAR OAKS HOMEOWNERS ASSOCIATION	BULL SHOALS LK,WHITE R	004	11010003	Garland	4	001
AR0043753	SUGARLOAF WASTEWATER TREATMENT DISTRICT	E SUGAR LOAF CR,BULL SHOALS LK, WHITE R	020	11010003	Boone	5	001
AR0034037	YELLVILLE, CITY OF	CROOKED CR,WHITE R	048	11010003	Marion	6	001
AR0034321	HARRISON, CITY OF	CROOKED CR,WHITE R	049	11010003	Boone	7	001
AR0037028	BULL SHOALS, CITY OF	WHITE R	902	11010003	Marion	8	001

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SEGMENT 4J BUFFALO RIVER AND TRIBUTARIES

Segment 4J includes portions of Newton, Searcy, and Marion Counties, and small portions of Boone, Pope, Baxter, Stone, and Van Buren Counties in north central Arkansas. This segment contains the entire 113-mile length of the Buffalo River and its tributaries; Big Creek, Little Buffalo River, Richland Creek, Water Creek, Bear Creek, Mill Creek, and others.

Summary of Water Quality Conditions

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. Approximately 48 percent of the stream miles are designated as outstanding state or national resource waters. In cooperation with the National Parks Service, approximately 60 monitoring stations on the Buffalo River, its tributaries, and watershed springs are routinely monitored.

Waters in this segment are highly prized for, and heavily used for primary contact recreation activities, canoeing, kayaking, and fishing.

Bear Creek below the city of Harrison is listed as not attaining the domestic water designated use due to elevated total dissolved solids (TDS). The source is thought to be from a municipal point source discharge.

Figure A-39: Planning Segment 4J

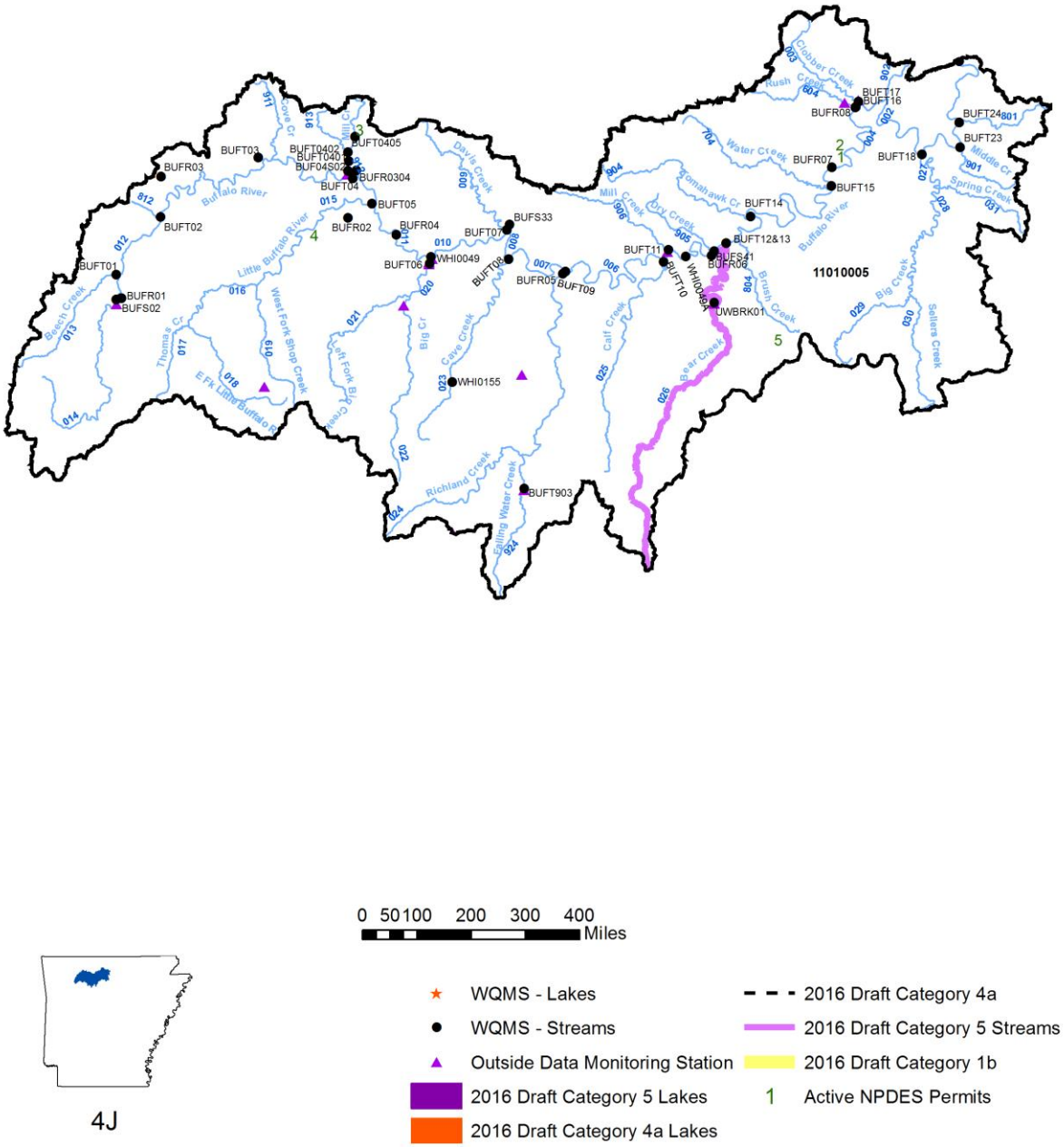

Table A-61 (a-c): Planning Segment 4J (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Bear Creek	11010005	-026	32.7	BUFT12; BUFT1201; UWBRK01; WHI0064; WHI0154	M		N	S	S	N	N	MP				TDS				5			
Beech Creek	11010005	-013	10.4	BUFT01	U															3			
Big Creek	11010005	-020	3.7	BUFT06	M															3			
Big Creek	11010005	-022	14.8	BUFT601	E															3			
Big Creek	11010005	-027	5.0	BUFT18	M		S	S	S	S	S									1			
Big Creek	11010005	-028	14.2	WHI0152	M		S	S	S	S	S									1			
Big Creek	11010005	-029	10.0		E		S	S	S	S	S									1			
Big Creek Left Fk.	11010005	-021	11.7	BUFT602	E		S	S	S	S	S									1			
Brush Creek	11010005	-804	9.6	BUFT13	U															3			
Buffalo River	11010005	-001	13.1	BUFR09	M		S	S	S	S	S									1			
Buffalo River	11010005	-002	10.3		M		S	S	S	S	S									1			
Buffalo River	11010005	-004	29.6	BUFR07; BUFR08	M		S	S	S	S	S									1			
Buffalo River	11010005	-005	7.7	BUFR05.9; BUFR06; BUFR06.1; WHI0049A	M		S	S	S	S	S									1			
Buffalo River	11010005	-006	14.3		M		S	S	S	S	S									1			
Buffalo River	11010005	-007	6.2	BUFR05	M		S	S	S	S	S									1			
Buffalo River	11010005	-008	2.4		M		S	S	S	S	S									1			
Buffalo River	11010005	-010	6.8		M		S	S	S	S	S									1			
Buffalo River	11010005	-011	7.4	BUFR04; WHI0049	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Buffalo River	11010005	-012	33.0	BUFR02; BUFR03; BUFR0304	M		S	S	S	S	S									1			
Buffalo River	11010005	-014	20.2	BUFR01; BUFR100	M		S	S	S	S	S									1			
Calf Creek	11010005	-025	19.1	BUFT10	M		S	S	S	S	S									1			
Cave Creek	11010005	-023	18.0	BUFT08; BUFT801; WHI0155	M		S	S	S	S	S									1			
Cedar Creek	11010005	-902	3.2	BUFT19	U															3			
Clabber Creek	11010005	-003	9.9	BUFT17	M		S	S	S	S	S									1			
Cove Creek	11010005	-911	7.2		U															3			
Davis Creek	11010005	-009	14.1	BUFT07	M		S	S	S	S	S									1			
Dry Creek	11010005	-905	7.6	BUFT11.5	U															3			
East Fork Little Buffalo	11010005	-018	11.0	BUFT501	U															3			
Falling Water Creek	11010005	-924	11.1	BUFT903	U															3			
Harp Creek	11010005	-913	10.3		U															3			
Leatherwood Creek	11010005	-801	7.9	BUFT24	U															3			
Left Fork Big Creek	11010005	-021	13.3		U															3			
Little Buffalo	11010005	-015	13.5	BUFT05; BUFT25; BUFT26	M		S	S	S	S	S									1			
Little Buffalo	11010005	-016	7.4		E		S	S	S	S	S									1			
Middle Creek	11010005	-901	7.0	BUFT23	U															3			
Mill Creek	11010005	-906	10.5	BUFT11	U															3			
Mill Creek	11010005	-912	7.1	BUFT04	U															3			
Ponca Creek	11010005	-812	2.3	BUFT02	U															3			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Uses						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Richland Creek	11010005	-024	31.1	BUFT09; BUFT901; BUFT902; LRC0001; URC001	M		S	S	S	S	S									1			
Rush Creek	11010005	-604	10.4	BUFT16	U																		
Sellers Creek	11010005	-030	9.9		E		S	S	S	S	S									1			
Spring Creek	11010005	-031	8.3		E		S	S	S	S	S									1			
Thomas Creek	11010005	-017	6.6		U															3			
Tomahawk Creek	11010005	-904	15.9	BUFT14	U															3			
Water Creek	11010005	-704	15.2	BUFT15	U															3			
West Fork Shop Creek	11010005	-019	10.4		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BUFR01	Buffalo River at Wilderness Boundary	7055646	1	USNPS
BUFR02	Buffalo River at Ponca	7055660	1	USNPS
BUFR03	Buffalo River near Pruitt	7055680	1	USNPS
BUFR0304	Buffalo River at the Crow Hole		2	USNPS
BUFR04	Buffalo River at Hasty	7055780	1	USNPS
BUFR05	Buffalo River at Woolum		1	USNPS
BUFR05.9	Buffalo River upstream of Dry Creek		2	USNPS

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BUFR06	Buffalo River at Gilbert		1	USNPS
BUFR06.1	Buffalo River downstream of Gilbert Spring		2	USNPS
BUFR07	Buffalo River at Highway 14	7056700	1	USNPS
BUFR08	Buffalo River at Rush		1	USNPS
BUFR09	Buffalo River near its mouth		1	USNPS
BUFR100	Buffalo River downstream from Dixon Ford		2	USNPS
BUFT01	Beech Creek - tributary of Buffalo River		1	USNPS
BUFT02	Ponca Creek - tributary of Buffalo River		1	USNPS
BUFT04	Mill Creek South of Marble Falls		1	USNPS
BUFT05	Little Buffalo River		1	USNPS
BUFT06	Big Creek - Newton County		1	USNPS
BUFT07	Davis Creek - tributary of Buffalo River		1	USNPS
BUFT08	Cave Creek - tributary of Buffalo River		1	USNPS
BUFT09	Richland Creek - tributary of Buffalo River	7055875	1	USNPS
BUFT10	Calf Creek - tributary of Buffalo River		1	USNPS
BUFT11	Mill Creek - tributary of Buffalo River		1	USNPS
BUFT11.5	Dry Creek above Hwy. 333		2	USNPS
BUFT12	Bear Creek - tributary of Buffalo River		1	USNPS
BUFT1201	Bear Creek at the proposed dam site		2	USNPS
BUFT13	Brush Creek - tributary of Buffalo River		1	USNPS
BUFT14	Tomahawk Creek - tributary of Buffalo River		1	USNPS
BUFT15	Water Creek - tributary of Buffalo River		1	USNPS
BUFT16	Rush Creek - tributary of Buffalo River		1	USNPS
BUFT17	Clabber Creek - tributary of Buffalo River		1	USNPS
BUFT18	Big Creek - Marion County		1	USNPS
BUFT19	Cedar Creek - tributary of Buffalo River		2	USNPS
BUFT23	Middle Creek - tributary of Buffalo River		1	USNPS

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BUFT24	Leatherwood Creek - tributary of Buffalo River		1	USNPS
BUFT25	Little Buffalo River above Jasper, Arkansas (Cow Creek)		2	USNPS
BUFT26	Little Buffalo River below Jasper, Arkansas (Stewart Creek)		2	USNPS
BUFT501	East Fork of the Little Buffalo River south of Murray, AR		2	USNPS
BUFT601	East Fork of Big Cr upper Buffalo R. trib. on Campbell		2	USNPS
BUFT602	West Fork of Big Creek below Wolf Creek		2	USNPS
BUFT7	Clabber Creek near mouth		1	USNPS
BUFT801	Cave Creek near Bass, Arkansas		2	S
BUFT901	Richland Creek above Richland Creek Wilderness Area		2	S
BUFT902	Richland Creek above Falling Water Creek		2	S
BUFT903	Falling Water Creek below Falling Water Falls		1	S
LRC0001	Richland Cr. near confluence with Falling Water Cr. - U.S.F.S		2	S
URC001	Richland Creek N of Moore on Ben Hur Cemetery Rd.		2	S
UWBRK01	Bear Creek at Highway 65, 4 miles west of Marshall	7056515	1	R
WHI0049A	Buffalo River at Highway 65 near St. Joe	7056000	1	A
WHI0064	Bear Creek on SR74 BL Marshall		2	S
WHI0152	Big Creek at Highway 14, west of Big Flat		2	R
WHI0154	Bear Creek on CR398 N of Tilly		2	S
WHI0155	Cave Creek on CR67 S of Bass		1	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	177	Fish Consumption	-	0
Evaluated	62.1	Fisheries	341.7	32.7
Monitored	312.3	Primary Contact	374.4	0
Total	**551.4**	Secondary Contact	374.4	0
		Domestic Water Supply	341.7	32.7
		Agri. & Industry	341.7	32.7

Table A-62: Active NPDES permits for Planning Segment 4J

Permit #	Facility Name	Receiving Waters	Reach	HUC 8	County	Map #	Outfall
AR0034941	USDINPS-BUFFALO NATL R-BUFFALO POINT LOWER PLANT (U2-B)	BUFFALO R,WHITE R	004	11010005	Marion	1	001
AR0034959	USDINPS-BUFFALO NATL R-BUFFALO POINT UPPER PLANT (U2-A)	TRIB PANTHER CR,BUFFALO R,WHITE R	004	11010005	Marion	2	001
AR0034088	MARBLE FALLS SID NO. 1 - WWTP	TRIB,MILL CR,BUFFALO R,WHITE R	012	11010005	Newton	3	001
AR0034584	JASPER, CITY OF	LITTLE BUFFALO R,BUFFALO R, WHITE R	015	11010005	Newton	4	001
AR0034011	MARSHALL, CITY OF-WWTP	TRIB,FOREST CR,BEAR CR,BUFFALO R	026	11010005	Searcy	5	001

SEGMENT 4K UPPER WHITE RIVER AND KINGS RIVER

Segment 4K includes portions of Washington, Benton, Madison, Carroll, Boone, Newton, and Franklin 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

Waters in this segment are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. Approximately 20 percent of these waters are designated as outstanding state or national resource waters. Waters in this segment, Including Beaver Reservoir, are highly prized for canoeing and fishing. Primary contact recreation is also prevalent.

The fisheries designated use was assessed as not supported in the West Fork of the White River and the White River downstream of the West Fork. The major cause was high turbidity levels and excessive silt loads. A TMDL to address this issue was completed in 2006.

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 total dissolved solids. Additional investigation into this issue is ongoing.

Figure A-40: Planning Segment 4K

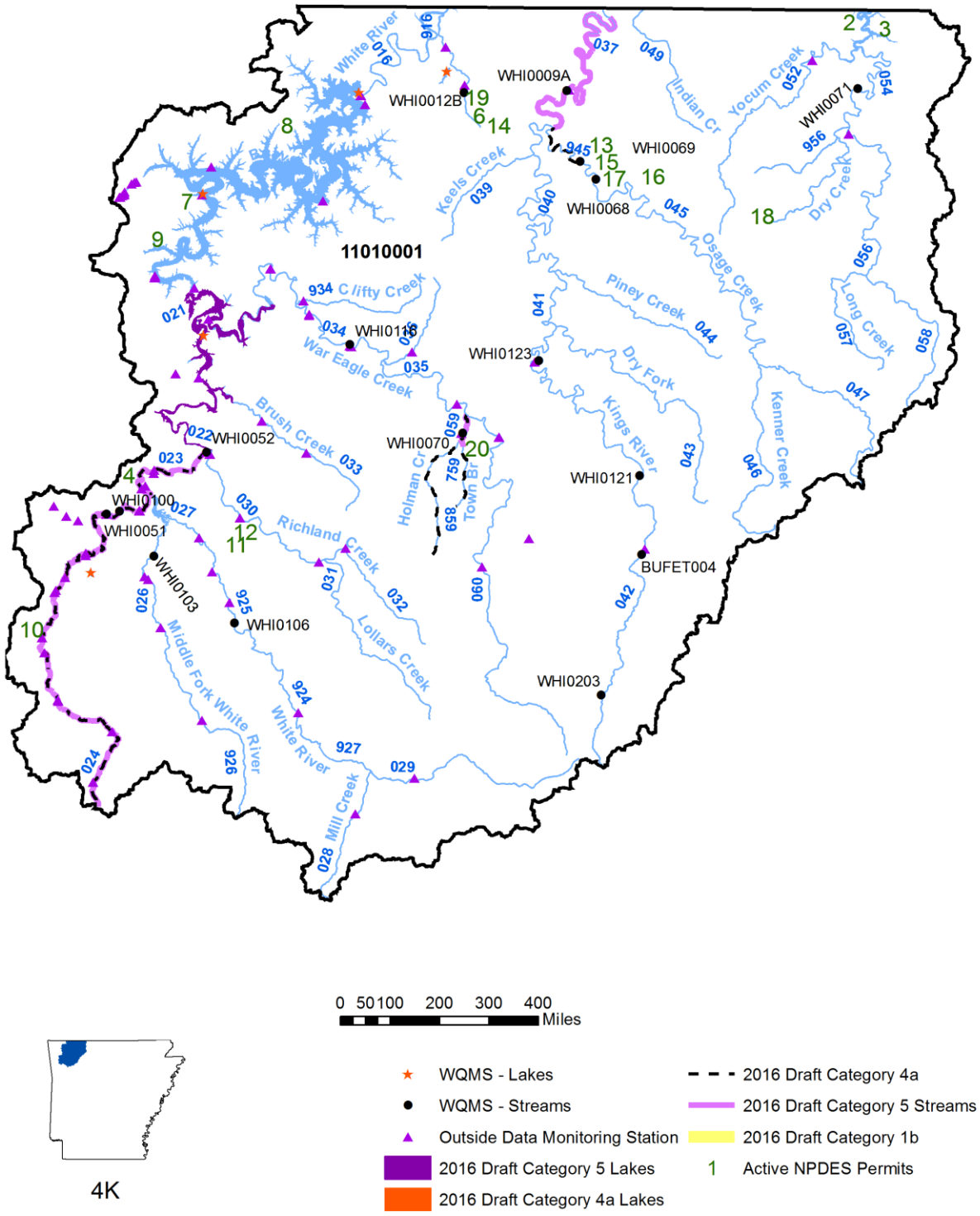

Table A-63 (a-c): Planning Segment 4K (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Brush Creek	11010001	-033	14.1	WHI0111; WHI0112	M		S	S	S	S	S									1			
Callens Branch	11010001	-956	6.9	WHI0175	U															3			
Clear Creek	11010001	-036	7.7		E		S	S	S	S	S									1			
Clifty Creek	11010001	-919	4.5		U															3			
Clifty Creek	11010001	-934	9.9	WHI0119	U															3			
Dry Creek	11010001	-055	11.4	WHI0135	E		S	S	S	S	S									1			
Dry Fork	11010001	-043	22.5	WHI0127	M		S	S	S	S	S									1			
Holman Creek ab Town Branch	11010001	-859	8.6	WHI0070	M		S	S	S	S	S									1			
Holman Creek bl. Town Branch	11010001	-059	1.8	WHI0070	M		N	S	S	N	N	IP/ MP	IP/ MP			TDS	NO3			5	4a		
Indian Creek	11010001	-049	11.8		U															3			
Keels Creek	11010001	-039	9.0	WHI0192	E		S	S	S	S	S									1			
Kenner Creek	11010001	-046	15.3		U															3			
Kings River	11010001	-037	22.5	WHI0009; WHI0009A; WHI0077	M		N	S	S	S	S	UN	UN			SO4	TDS			5	5		
Kings River	11010001	-038	4.7	WHI0076; WHI0125	M		S	S	S	S	S									1			
Kings River	11010001	-040	20.4	WHI0124	E		S	S	S	S	S									1			
Kings River	11010001	-041	6.1	WHI0121	M		S	S	S	S	S									1			
Kings River	11010001	-042	45.5	WHI0120; WHI0121; WHI0122; WHI0123	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Leatherwood Creek	11010001	-916	9.0	WHI0012A; WHI0012B	M		S	S	S	S	S									1			
Lollar Creek	11010001	-031	14.8		E		S	S	S	S	S									1			
Long Creek	11010001	-054	11.3	BUFET009; WHI0071	M		S	S	S	S	S									1			
Long Creek	11010001	-056	15.9	WHI0132; WHI0133; WHI0134	M		S	S	S	S	S									1			
Long Creek	11010001	-057	10.6		E		S	S	S	S	S									1			
Middle Fork**	11010001	-026	9.0	WHI0102; WHI0103	M		S	S	S	S	S									1			
Middle Fork*	11010001	-926	15.1	WHI0101	M		S	S	S	S	S									1			
Mill Creek	11010001	-028	9.3		E		S	S	S	S	S									1			
Osage Creek+++	11010001	-045	31.0	BUFET008; WHI0053; WHI0068; WHI0069; WHI0129; WHI0130; WHI0131	M		N	S	S	S	S	MP				TP				4a			
Osage Creek	11010001	-047	14.8	WHI0128	E		S	S	S	S	S									1			
Osage Creek++	11010001	-945	5.4		U															3			
Piney Creek	11010001	-044	13.6	WHI0126	M		S	S	S	S	S									1			
Richland Cr.	11010001	-030	13.1	WHI0108; WHI0109; WHI0110	M		S	S	S	S	S									1			
Richland Cr.	11010001	-032	10.0	BUFET003	E		S	S	S	S	S									1			
South Fork Osage	11010001	-046	13.8	WHI0068; WHI0069	E		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Terrapin Creek	11010001	-058	12.7		E		S	S	S	S	S									1			
Town Branch ab. WWTP	11010001	-759	4.1	UAA (TB1)	M		S	S	S	S	S									1			
Town Branch bl. WWTP	11010001	-959	0.5	UAA (TB2)	M		N	S	S	N	N	MP	MP			TDS	NO3			5	4a		
War Eagle Cr.	11010001	-034	29.0	WHI0116; WHI0117; WHI0118	M		S	S	S	S	S									1			
War Eagle Cr.	11010001	-035	10.0	WHI0115	E		S	S	S	S	S									1			
War Eagle Cr.	11010001	-060	33.1	WHI0113; WHI0114	M		S	S	S	S	S									1			
West Fork	11010001	-024	31.4	WHI0051; WHI0097; WHI0098; WHI0099; WHI0100	M		N	S	S	S	S	UN	UN	SE		SO4	TDS	Tb		5	5	4a	
White River	11010001	-016	23.6	WHI0010A; WHI0010B	U															3			
White River	11010001	-020	12.4		U															3			
White River	11010001	-021	7.7		U															3			
White River	11010001	-022	10.9		U															3			
White River	11010001	-023	7.4	WHI0051A; WHI0052	M		N	S	S	S	S	UN	UN	SE		SO4	TDS	Tb		5	5	4a	
White River	11010001	-025	1.8		U															3			
White River	11010001	-029	15.8	WHI0104	E		S	S	S	S	S									1			
White River	11010001	-050	4.1		U															3			
White River	11010001	-061	2.8		U															3			
White River	11010001	-924	9.4	WHI0106	M		S	S	S	S	S									1			
White River	11010001	-925	2.3		U															3			
White River***	11010001	-927	7.2	WHI0105	M		S	S	S	S	S									1			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
White River+	11010001	-027	17.2	WHI0106; WHI0107	M		S	S	S	S	S									1			
Yocum Creek	11010001	-052	23.5	BUFET011; WHI0136; WHI0137	M		S	S	S	S	S									1			

*Reach formally -026U
**Reach formally -026L
***Reach formally -027U
+Reach formally -027L
++Reach formally -045U
+++Reach formally -045L

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
BUFET003	Hock Creek near Wesley, Arkansas		2	S
BUFET008	Osage Creek above Berryville, Arkansas (aka ADEQ# WHI0068)		2	S
BUFET009	Long Creek at Denver, Arkansas (aka ADEQ# WHI0071)		2	S
BUFET011	Yocum Creek near Oak Grove, AR		2	S
WHI0009	Kings River on SR86 N of Berryville, AR		2	S
WHI0009A	Kings River on SR143 N of Berryville	7050500	1	A
WHI0010A	White River on SR187 Beaver Dam near Eureka Springs		2	S
WHI0010B	White River on SR187 near Beaver		2	S
WHI0012A	Leatherwood creek on SR23 AB Eureka Springs		2	S
WHI0012B	Leatherwood Creek on SR 23 BL Eureka Springs		1	A
WHI0051	West Fork White River near Fayetteville	7048550	1	A

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
WHI0051A	White River on CR48/E Wyman Rd E of Fayetteville		2	S
WHI0052	White River near Goshen	7048600	1	A
WHI0053	Osage Creek W of Berryville AR		2	S
WHI0068	Osage Creek above Berryville	7050390	1	A
WHI0069	Osage Creek below Berryville		1	A
WHI0070	Holman Creek below Huntsville		1	A
WHI0071	Long Creek below Denver	7053230	1	A
WHI0076	Kings River on Hwy 62 AB Berryville, AR		2	S
WHI0077	Kings River below Berryville		2	R
WHI0097	W Fork White River on Woolsey Rd at Woolsey Bridge		2	S
WHI0098	West Fork White River at county road bridge below Dye Creek near West Fork		2	R
WHI0099	W Fork White River on CR69/Wilson Hollow Rd near Greenland		2	S
WHI0100	W Fork White River on CR55/Dead Horse Mountain Rd		1	A
WHI0101	M Fork White River on CR119/Vance Pashal Rd		2	S
WHI0102	Middle Fork White River at county road 32, I mile south of Sulphur City		2	R
WHI0103	Middle Fork White River west of Elkins	7047985	1	A
WHI0105	White River near Crosses		2	R
WHI0106	White River near Durham		1	A
WHI0107	White River on SR74 at Elkins		2	S
WHI0108	Richland Creek on Hwy 303 SE of Wesley		2	S
WHI0109	Richland Creek1 mile north of Tuttle	7048800	2	R
WHI0110	Richland Creek on SR45/W Bowen Blvd near Goshen		2	S
WHI0111	Brush Creek on SR295 S of Hindsville		2	S
WHI0112	Brush Creek north of Highway 45 off Highway 303		2	R
WHI0113	War Eagle Creek at county road bridge west of Highway 23		2	R
WHI0114	War Eagle Creek at Highway 412		2	R
WHI0115	War Eagle Creek on CR40 N of Huntsville		2	S

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
WHI0116	War Eagle Creek at Highway 45, north of Hindsville	7049000	1	A
WHI0117	War Eagle Creek at CR526/Fate Anderson Rd N of Spring Valley		2	S
WHI0118	War Eagle Creek on CR98 at War Eagle		2	S
WHI0119	Clifty Creek on CR529/Gar Hole Rd N of Spring Valley		2	S
WHI0120	Kings River on CR144 S of Kingston		2	S
WHI0121	Kings River at Highway 21		1	R
WHI0122	Kings River on CR1919 W of Marble		2	S
WHI0123	Kings River northeast of Alabam	7050206	1	A
WHI0124	Kings River on Hwy 221 SW of Berryville		2	S
WHI0125	Kings River on CR306/329 W of Pleasant Valley		2	S
WHI0126	Piney Creek northwest of Metalton		2	R
WHI0127	Dry Fork Creek west of Metalton		2	R
WHI0128	Osage Creek on CR933 SE of Oage		2	S
WHI0129	Osage Creek at Hwy 412 NW of Osage		2	S
WHI0130	Osage Creek northeast of Metalton		2	R
WHI0131	Osage Creek on CR741 SE of Berryville		2	S
WHI0132	Long Creek on Cemetery Rd S, S of Alpena		2	S
WHI0133	Long Creek on Long Creek Rd N of Alpena		2	S
WHI0134	Long Creek near Denver	7053207	2	R
WHI0135	Dry Creek on CR814 N of Alpena		2	S
WHI0136	Yocum Creek on CR625 N of Green Forest		2	S
WHI0137	Yocum Creek on county road 1.25 miles northwest of Highway 311	7053250	2	R
WHI0170	Fourche Creek on SR166/Engelberg NE of Pocahontas		2	S
WHI0192	Keels Creek on CR326 E of Eureka Springs		2	S
WHI0175	Callens Branch near Denver		2	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	119.4	Fish Consumption	-	0
Evaluated	160.3	Fisheries	472.3	94.6
Monitored	406.6	Primary Contact	566.9	0
Total	**686.3**	Secondary Contact	566.9	0
		Domestic Water Supply	564.6	2.3
		Agri. & Industry	564.6	2.3

Table A-64: Active NPDES permits for Planning Segment 4K

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0050989	WILMOT, CITY OF	BU BARTHOLOMEW, OUACHITA R	001	08040205	Ashley	1	001
AR0048844	OZARKS R RESORT	TABLE ROCK RSR,IMPD/WHITE R	006	11010001	Carroll	2	001
AR0049191	CRICKET CREEK R ESTATES	UNNAMED TRIB INTO TABLE ROCK LK, WHITE R	006	11010001	Boone	3	001
AR0020010	FAYETTEVILLE, CITY OF-PAUL NOLAND WWTP	WHITE R,BEAVER RESEROIR	012	11010001	Washington	4	001
AR0037249	HOLIDAY ISLAND WASTEWATER TREATMENT FACILITY	TABLE ROCK LK, WHITE R	016	11010001	Carroll	5	001
AR0044300	VPG PARTNERS II, LLC - D/B/A STATUE ROAD INN	TRIB,LEATHERWOOD CR,TABLE ROCK LK,WHITE R	016	11010001	Carroll	6	001
AR0033197	HERITAGE BAY HORIZONTAL PROPERTY REGIME UNIT ONE, INC.	BEAVER LK,WHITE R	017	11010001	Benton	7	001
AR0036676	LOST BRIDGE VILLAGE W&S DISTS	BEAVER LK, WHITE R	017	11010001	Benton	8	001
AR0037320	MOUNT NE BEAVER LAKE CAMP RESORT	MONTE NE COVE,BEAVER LK,WHITE R	020	11010001	Benton	9	001
AR0022373	WEST FORK, CITY OF	W FK/WHITE R,WHITE R,BEAVER LK	024	11010001	Washington	10	001
AR0051501	WASHINGTON COUNTY ROAD DEPARTMENT - GOSHEN TUTTLE QUARRY	TRIB RICHLAND CR, RICHLAND CR, WHITE R	030	11010001	Washington	11	001
AR0051501	WASHINGTON COUNTY ROAD DEPARTMENT - GOSHEN TUTTLE QUARRY	TRIB RICHLAND CR, RICHLAND CR, WHITE R	030	11010001	Washington	12	002
AR0044059	CARROLL ELECTRIC COOP. CORP.	TRIB,CLABBER CR,KING R,WHITE R	037	11010001	Carroll	13	001
AR0040118	COUNTRY MOUNTAIN INN, INC	TRIB,KEELS CR,KINGS R	039	11010001	Carroll	14	001
AR0021792	BERRYVILLE WW TREATMENT PLANT	MILL BR,FREEMAN BR,OSAGE CR,KINGS R	045	11010001	Carroll	15	001

Table A-64: Active NPDES permits for Planning Segment 4K

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0047619	CARROLL COUNTY STONE, INC.	UNNAMED TRIB,WARDEN BR,OSAGE CR,KINGS R	045	11010001	Carroll	16	001
AR0049867	BEDFORD FALLS MOBILE HOME PARK	TRIB,OSAGE CR,KINGS R,TABLE ROCK LK	045	11010001	Carroll	17	001
AR0021741	GREEN FOREST, CITY OF-WWTP	TRIB,DRY CR,LONG CR,WHITE R	055	11010001	Carroll	18	001
AR0021865	EUREKA SPRINGS, CITY OF	LEATHERWOOD CR,TABLE ROCK LK,WHITE	916	11010001	Carroll	19	001
AR0022004	HUNTSVILLE, CITY OF	TOWN BR,HOLMAN CR,WAR EAGLE CR,WHITE R	959	11010001	Madison	20	001

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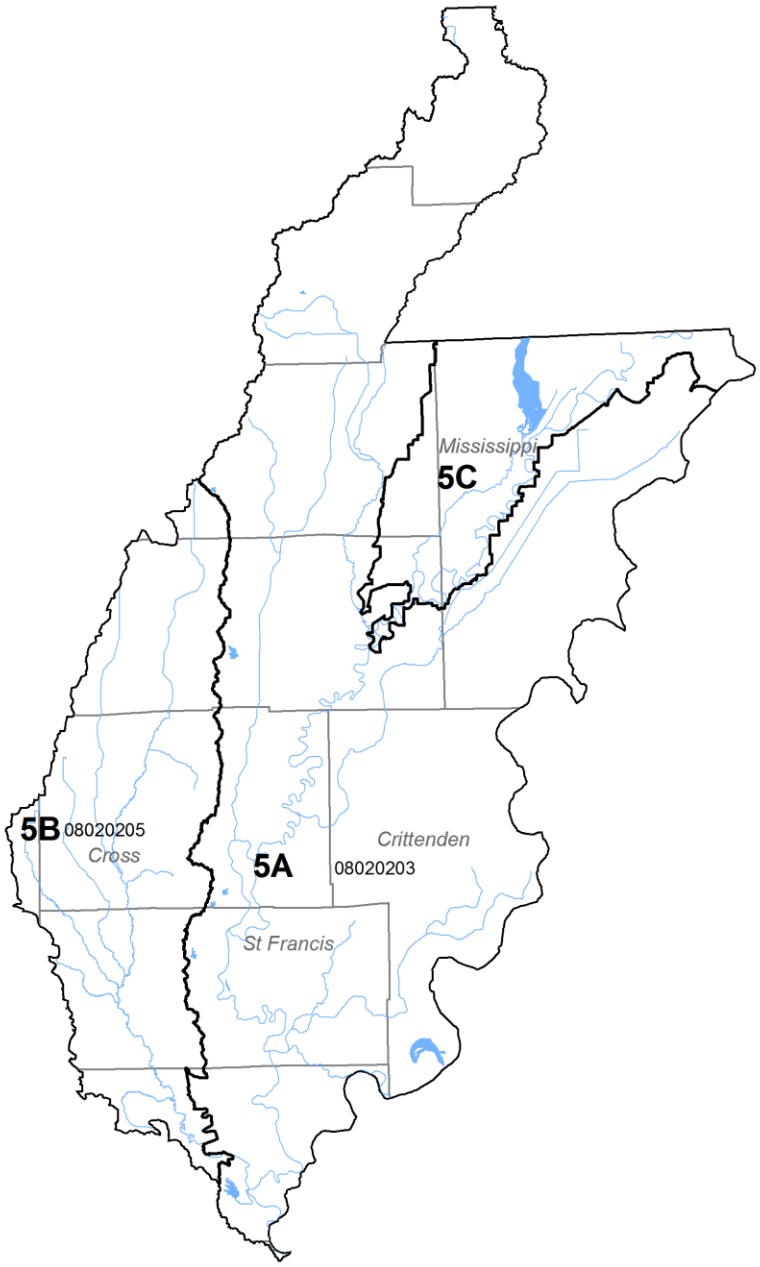
St. Francis River Basin

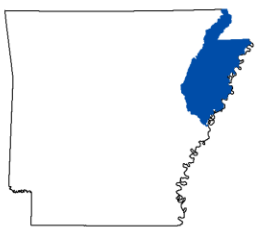
The St. Francis River Basin is located in the extreme north east corner of Arkansas and covers all, or part, of Clay, Greene, Craighead, Poinsett, Mississippi, Woodruff, Cross, Crittenden, St. Francis, and Lee Counties.

This basin is divided into three ADEQ planning segments and three major watersheds (8 digit HUCs): St. Francis River, L'Anguille River, and Little River. The major waterbodies in this basin flow south and ultimately empty into the Mississippi River.

Figure A-41: St. Francis River Basin



5A - St. Francis River Basin
5B - St. Francis River Basin
5C - St. Francis River Basin



5 St. Francis River Basin

SEGMENT 5A, 5B, AND 5C ST. FRANCIS RIVER BASIN

Segment 5A is located on the east central edge of Arkansas and covers parts of Crittenden, St. Francis, Lee, Poinsett, Craighead, Greene, Mississippi, Clay, and Cross Counties. This segment contains the St. Francis River and its 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, Woodruff, and Lee. 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 Craighead, Mississippi, and Poinsett. This segment includes the Little River Basin and Pemiscot Bayou.

Summary of Water Quality Conditions

Waters in this basin are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial 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 933.1 stream miles of which approximately 14 percent are designated as outstanding resources.

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 elevated 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 Fisheries designated use. A TMDL has been completed for siltation/turbidity in the L'Anguille River basin in 2002. Numerous stream segments are listed because of low dissolved oxygen concentrations. As discussed earlier, delta streams naturally have lower dissolved oxygen concentrations during the critical season.

Figure A-42: Planning Segment 5A

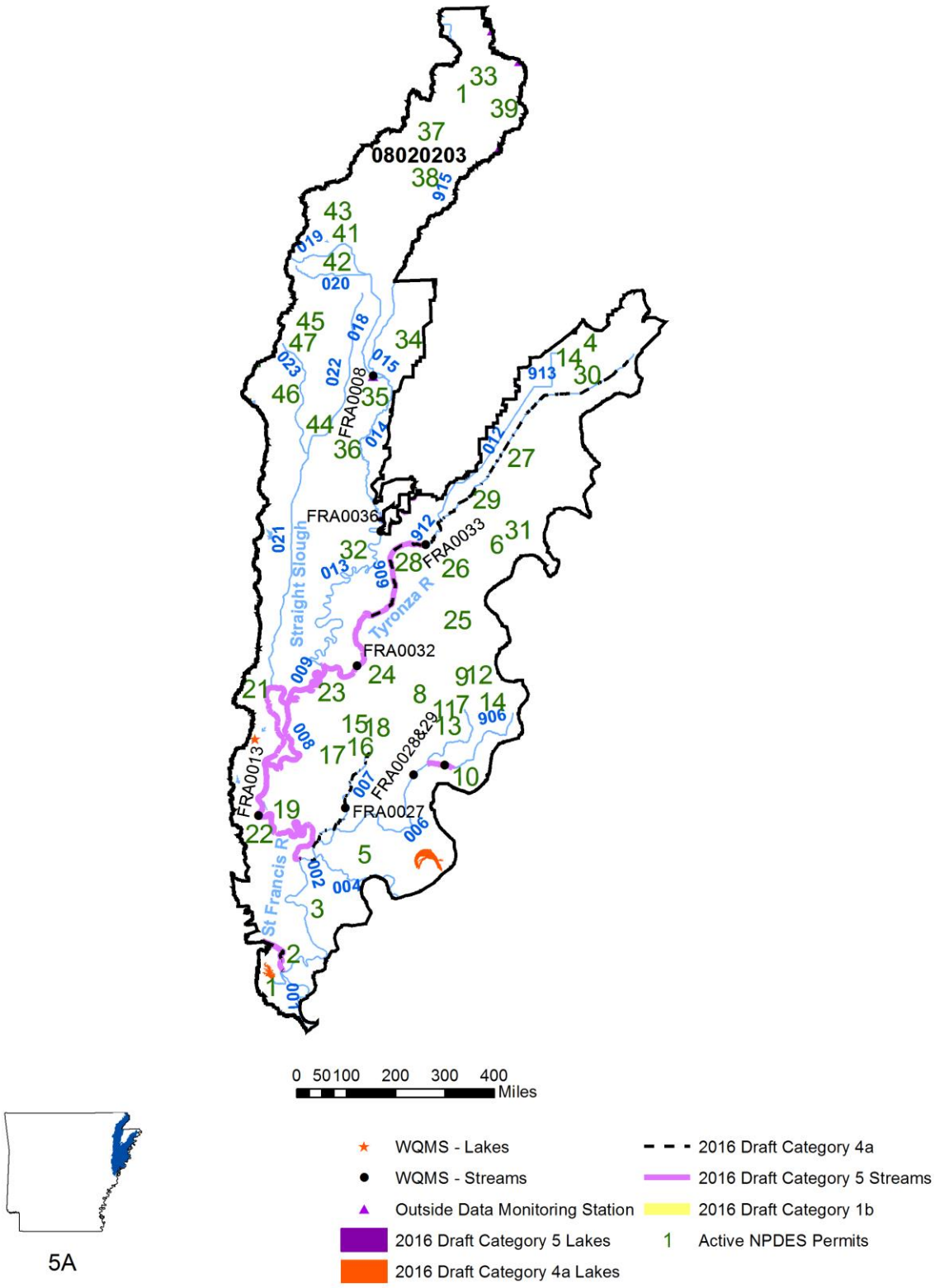


Table A-65 (a-c): Planning Segment 5A (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Big Bay Ditch	8020203	-022	23.5		U															3			
Big Creek	8020203	-011	15.8		U															3			
Blackfish Bayou	8020203	-003	2.1		E		N	S	S	S	S	AG				Tb				4a			
Blackfish Bayou	8020203	-005	2.6		E		N	S	S	S	S	AG				Tb				4a			
Blackfish Bayou	8020203	-007	16.8	FRA0027	M		N	S	S	S	S	AG				Tb				4a			
Ditch No. 27	8020203	-914	5.3		U					R										3			
Ditch No. 6	8020203	-913	23.9		U					R										3			
Eightmile Ditch	8020203	-018	17.0	FRA0008	M		S	S	S	S	S									1			
Eightmile Ditch	8020203	-019	14.0	FRA0014A	U															3			
Fifteen Mile B.	8020203	-006	38.6	FRA0028	M		S	S	S	S	S									1			
Frenchmans B.	8020203	-004	17.0		E		S	S	S	S	S									1			
St. Francis R.	8020203	-001	12.0	FRA0002; FRA0002A	E		S	S	S	S	S									1			
St. Francis R.	8020203	-002	26.6	FRA0022	E		S	S	S	S	S									1			
St. Francis R.	8020203	-008	55.0	FRA0011; FRA0013	M		N	S	S	S	S	AG	AG			Cl	DO			5	5		
St. Francis R.	8020203	-009	17.8	FRA0013	E		N	S	S	S	S	AG	AG			Cl	DO			5	5		
St. Francis R.	8020203	-013	51.0	FRA0036	M		S	S	S	S	S									1			
St. Francis R.	8020203	-014	26.7		E		S	S	S	S	S									1			
St. Francis R.	8020203	-015	12.1		U															3			
St. Francis R.	8020203	-915	59.8	FRA0007	U															3			
Straight Slough	8020203	-021	31.7		U															3			
Straight Slough	8020203	-023	17.1		U															3			
Ten Mile Bayou[1]	8020203	-906	33.6	FRA0029	M		N	S	S	S	S	UN				DO				5			
Tyronza River	8020203	-012	35.3		M		N	S	S	S	S	AG				Tb				4a			
Tyronza River	8020203	-909	30.4	FRA0009; FRA0032	E		N	S	S	S	S	AG	UN			Tb				4a			
Tyronza River	8020203	-912	4.6	FRA0033	E		N	S	S	S	S	AG				Tb				4a			

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Tyronza River	8020203	-913	0.4		U															3			
Village Creek	8020203	-020	10.5		U															3			
Whiteness Cr.	8020203	-021	33.6		U															3			
Whiteness Cr.	8020203	-023	15.0	FRALB	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
FRA0002	St. Francis R NW of Helena AR		2	S
FRA0002A	St. Francis River north of Helena on Lee road		2	S
FRA0007	St. Francis river in St. Francis		2	S
FRA0008	St. Francis River at Highway 18 near Lake City	7040450	1	A
FRA0009	Tyronza River near Twist on SR42		2	S
FRA0011	St. Francis Cutoff at Hwy 70 near Madison		2	S
FRA0013	St. Francis River at Highway 50 near Forrest City	7047907	1	A
FRA0014A	Eight Mile Creek upstream of Paragould		2	S
FRA0022	St. Francis River at Huxtable Dam pump station on Lee Rd		2	S
FRA0027	Blackfish Bayou at Highway 50 near Woldwood		1	R
FRA0028	15 Mile Bayou at Simsboro Road near Proctor		1	R
FRA0029	10 Mile Bayou at Highway 147 near Edmondson		1	R
FRA0032	Tyronza River at Highway 184 near Earl		1	R
FRA0033	Tyronza River at Highway 133 near Tyronza		1	R
FRA0036	St. Francis River at Highway 140 at Marked Tree		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	262.7	Fish Consumption	-	0
Evaluated	139.8	Fisheries	188.9	198.2
Monitored	247.3	Primary Contact	387.1	0
Total	**649.8**	Secondary Contact	387.1	0
		Domestic Water Supply	387.1	0
		Agri. & Industry	387.1	0

Table A-66: Active NPDES permits for Planning Segment 5A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0051845	ARKANSAS STATE PARKS-MISSISSIPPI R STATE PARK	BEAR CR,ST FRANCIS R	001	08020203	Lee	1	001
AR0036897	U.S. ARMY CORPS OF ENGINEERS - W.G. HUXTABLE PUMPING PLANT	ST FRANCIS R	002	08020203	Lee	2	001
AR0045578	ARKANSAS DEPT OF CORRECTIONS - EAST ARKANSAS REGIONAL UNIT	ST. FRANCIS R	002	08020203	Lee	3	001
AR0022578	BLYTHEVILLE, CITY OF-SOUTH	TRIB,DIT #17,DIT #6,DIT #1,ST FRANCIS R	003	08020203	Mississippi	4	001
AR0021547	HUGHES, CITY OF	CROOKED BU,MILLSEED LK,FRENCHMAN BU,ST FRANCIS R	004	08020203	St. Francis	5	001
AR0022152	JOINER, CITY OF-WWTP	DIT #4,FRENCHMAN'S BU,DIT #11,BELL HAMMER SLOUGH	004	08020203	Mississippi	6	001
AR0021971	MARION, CITY OF	15-MILE BU,BLACK FISH BU,ST FRANCIS R	006	08020203	Crittenden	7	001
AR0022195	CRAWFORDSVILLE, CITY OF	ALLIGATOR BU,DIT 19,DIT 18,20 MI BU,CUTOFF BU,15 M	006	08020203	Crittenden	8	001
AR0044024	RECREATIONAL ADVENTURE CO. - MEMPHIS KOA	DIT,15-MILE BU,ST FRANCIS R	006	08020203	Crittenden	9	001
AR0044661	EDMONDSON, CITY OF	15-MILE BU,BLACKFISH BU,ST FRANCIS R	006	08020203	Crittenden	10	001
AR0044890	NIMOCKS OIL COMPANY, INC.	TRIB,15-MILE BU,BLACKFISH BU,ST FRANCIS R	006	08020203	Crittenden	11	001
AR0047490	FAST MARKET	DIT,15-MILE BU,BLACLFISH BU, ST FRANCIS R	006	08020203	Crittenden	12	001
AR0050121	PJ'S COUNTRY STORE, INC.	DIT,DIT #11,15-MILE BU,ST FRANCIS R	006	08020203	Crittenden	13	001
AR0050164	FLASH MARKET #152	SW DRAIN,DIT,DIT #10,10-MI BU,15-MI BU,ST FRANCIS	006	08020203	Crittenden	14	001
AR0044695	HANUMANTA, LLC - SUPER 8 MOTEL	SHELL LK,BLACKFISH BU,ST. FRANCIS R	007	08020203	St. Francis	15	001

Table A-66: Active NPDES permits for Planning Segment 5A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0045403	TA OPERATING, LLC - EARLE TRAVEL CENTER	DIT 22,BLACKFISH BU,ST FRANCIS R	007	08020203	Crittenden	16	001
AR0046761	MAPCO EXPRESS #3155	TRIB,BLAKFISH BU,ST FRANCIS R	007	08020203	St. Francis	17	001
AR0048151	JENNETTE, TOWN OF	BLACKFISH BU,ST FRANCIS R	007	08020203	Crittenden	18	001
AR0037893	MADISON, CITY OF-WWTP	ST FRANCIS R	008	08020203	St. Francis	19	001
AR0038202	ARKANSAS STATE PARKS-VILLAGE CREEK STATE PARK	VILLAGE CR,CLARK CORNER CUTOFF,ST FRANCIS R	008	08020203	Cross	20	001
AR0050423	CROSS COUNTY BANK D/B/A POND-A-ROSE TRAILER PARK	TRIB,COPPERAS CR,ST FRANCIS R	008	08020203	Cross	21	001
AR0051063	WIDENER, TOWN OF	ST FRANCIS R	008	08020203	St. Francis	22	001
AR0033588	PARKIN, CITY OF-WWTF	ST FRANCIS R	009	08020203	Cross	23	001
AR0034304	EARLE, CITY OF-WATER WORKS	TYRONZA R,ST FRANCIS R	010	08020203	Crittenden	24	001
AR0021954	TURRELL, CITY OF	BIG CR, TYRONZA R, ST FRANCIS R	011	08020203	Crittenden	25	001
AR0045934	BIRDSONG, CITY OF SEWAGE TREATMENT	SNAKE LK,LAMB BU,DIT#1,DIT#7, LITTLE CYPRESS DIT	011	08020203	Mississippi	26	001
AR0034754	KEISER, CITY OF	DIT #31,TYRONZA R,ST FRANCIS R	012	08020203	Mississippi	27	001
AR0035637	TYRONZA, CITY OF	TYRONZA R,ST. FRANCIS R	012	08020203	Poinsett	28	001
AR0039047	DYESS, CITY OF	TYRONZA R,ST FRANCIS R	012	08020203	Mississippi	29	001
AR0044237	TOWN OF BURDETTE - BURDETTE WATER SYSTEM	DIT #24,#31,#6,TYRONZA R,ST FRANCIS R	012	08020203	Mississippi	30	001
AR0046272	BASSETT, CITY OF	TRB,DIT#5,FRCHMN BU,DIT#11,BELLHAMMER SLOUGH	012	08020203	Mississippi	31	001
AR0033430	MARKED TREE, CITY OF	ST FRANCIS R	013	08020203	Poinsett	32	001

Table A-66: Active NPDES permits for Planning Segment 5A

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0033472	PIGGOTT, CITY OF	BIG SLOUGH DIT,ST FRANCIS R	014	08020203	Clay	33	001
AR0033651	MONETTE, CITY OF	LITTLE DIT #3,COCKLE BURR SL, ST FRANCIS R	014	08020203	Craighead	34	001
AR0034134	LAKE CITY, CITY OF	PURCELL SLU DIT #9, ST FRANCIS R	014	08020203	Craighead	35	001
AR0035602	TRUMANN, CITY OF - WWTP	DIT #60,ST FRANCIS R	014	08020203	Poinsett	36	001
AR0021911	RECTOR, CITY OF - SEWAGE TREATMENT FACILITY	UNNAMED TRIB,POST OAK CR,BIG SLU,ST FRANCIS R	015	08020203	Clay	37	001
AR0035629	MARMADUKE, CITY OF	BIG SLOUGH DIT,ST FRANCIS R	015	08020203	Greene	38	001
AR0042196	NIMMONS, CITY OF	DIT,HAMPTON SLU,MAYO DIT,BIG SLU DIT,ST. FRANCIS R	015	08020203	Clay	39	001
AR0043591	ST. FRANCIS, CITY OF	ST FRANCIS R	015	08020203	Clay	40	001
AR0036790	GARLOCK RUBBER TECH-GOODRICH	JOHNSON CR,ST FRANCIS R	018	08020203	Greene	41	001
AR0033766	PARAGOULD CITY LIGHT AND WATER	TRIB,EIGHT MILE CR,ST FRANCIS R	019	08020203	Greene	42	001
AR0045837	OAK GROVE HEIGHTS, CITY OF - WASTEWATER TREATMENT FACILITY	TRIB,LOCUST CR,8-MILE DIT,ST FRANCIS R	019	08020203	Greene	43	001
AR0034312	BAY, CITY OF	DIT #6,GUM SLOUGH DIT,MAIN DIT #10,ST.FRANCIS R	022	08020203	Craighead	44	001
AR0037974	BROOKLAND, CITY OF-WWTP	TRIB,MAPLE SLU DIT,GUM SLU DIT,BIG BAY DIT,DIT #10	022	08020203	Craighead	45	002
AR0043401	JONESBORO, CITY OF - CITY WATER & LIGHT EASTSIDE WWTP	WHITEMAN CR,LITTLE BAY DIT,DIT #9,#10,#23	023	08020203	Craighead	46	001
AR0044521	HERITAGE HILLS MOBILE HOME PK	LATERAL #1,#2,LITTLE BAY DIT,#10,#23	023	08020203	Craighead	47	001
AR0043117	NUCOR-YAMATO STEEL	DIT #14A (002)	---	08020203	Mississippi	48	002

Figure A-43: Planning Segment 5B

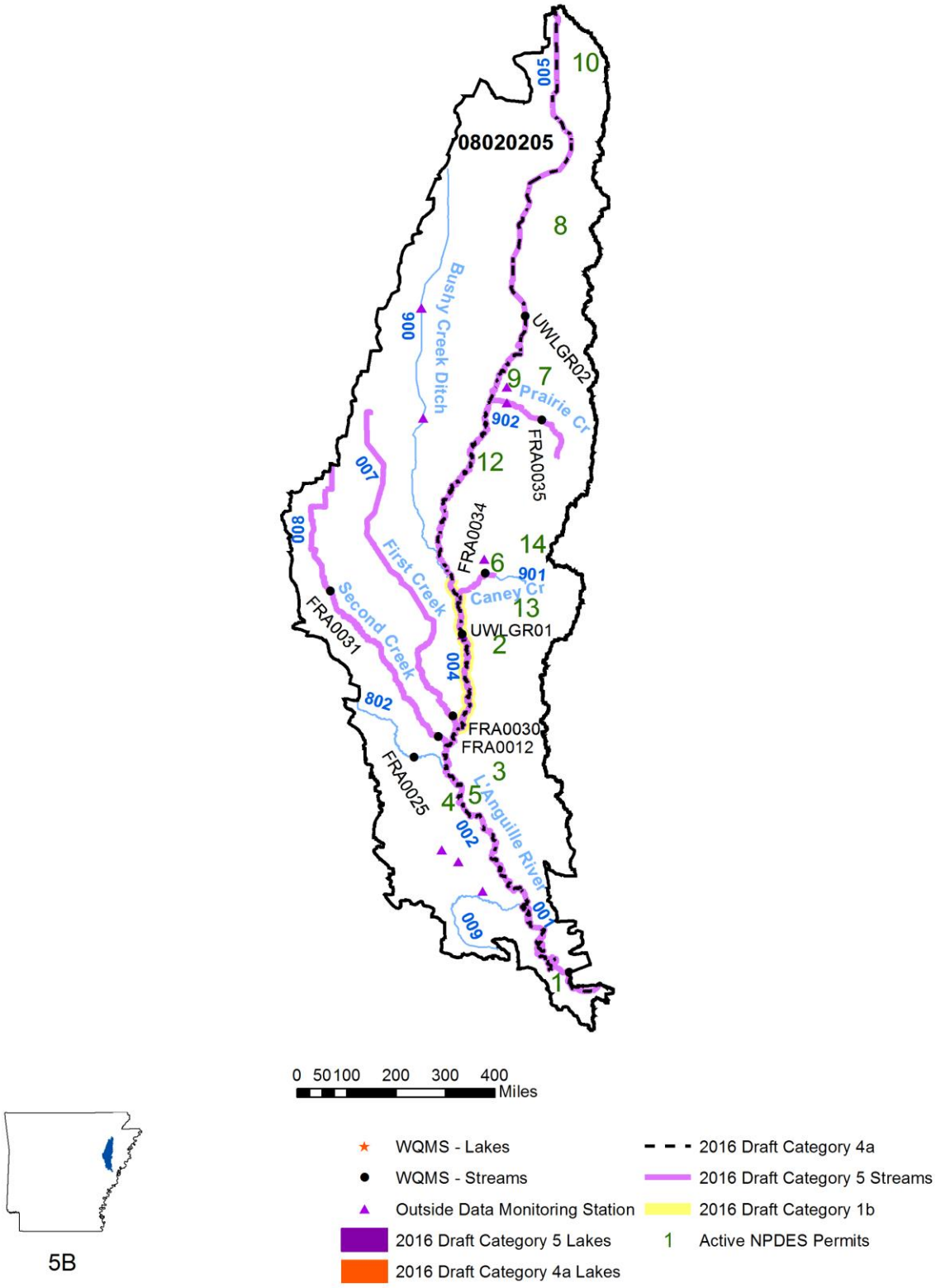


Table A-67 (a-c): Planning Segment 5B (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Brushy Creek	8020205	-006	32.9	FRAAA	U																		
Caney Creek	8020205	-901	9.0	FRA0034	M		N	S	S	S	S	MP				DO				5			
Cypress Creek	8020205	-802	15.2	FRA0025	U															3			
First Creek	8020205	-007	30.0	FRA0030	M		N	S	S	S	S	AG				DO				5			
Indian Creek	8020205	-901	6.4		U															3			
L'Anguille R.	8020205	-001	23.6	FRA0010	M		N	S	S	S	S	AG	AG	AG	SE	DO	Cl	TDS	Tb	5	5	5	4a
L'Anguille R.	8020205	-002	23.0	FRA0010	E		N	S	S	S	S	AG	AG	AG	SE	DO	Cl	TDS	Tb	5	5	5	4a
L'Anguille R.	8020205	-003	2.8	FRA0010	E		N	S	S	S	S	AG	AG	AG	SE	DO	Cl	TDS	Tb	5	5	5	4a
L'Anguille R.	8020205	-004	16.6	UWLGR01	M		N	N	S	S	S	AG	AG	SE	AG	DO	*	PA		5	5	4a	
L'Anguille R.	8020205	-005	55.3	UWLGR02	M		N	N	S	S	S	AG	AG	SE	AG	DO	*	PA	Tb	5	5	4a	4a
Larkin Creek	8020205	-009	13.4		U															3			
Prairie Creek	8020205	-902	8.2	FRA0035	M		N	S	S	N	S	AG				TDS				5			
Second Creek	8020205	-008	31.6	FRA0012; FRA0031; FRABB	M		N	S	S	S	S	AG				DO				5			

* = Cl, SO4, TDS

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
FRA0010	L'Anguille River at Highway 50 near Marianna	7047964	1	A
FRA0012	Second Creek on county road north of Palestine	7047947	1	A
FRA0025	Cypress Creek northwest of Palestine on FR 107		1	S
FRA0030	First Creek near Horton		1	R
FRA0031	Second Creek at Highway 284 near Penrose		1	R
FRA0034	Caney Creek at Highway 305 near Wynne		1	R
FRA0035	Prairie Creek at Highway 1 north of Vanndale		1	R
FRAAA	Brushy Creek 205J "84-85"		2	S
FRABB	Second Creek 205J "84-85"		2	S
UWLGR01	L'Anguille River at Highway 306 near Wynne		1	A
UWLGR02	L'Anguille River at Highway 214 west of Whitehall		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	67.9	Fish Consumption	-	0
Evaluated	25.8	Fisheries	0	200.1
Monitored	174.3	Primary Contact	128.2	71.9
Total	**268**	Secondary Contact	200.1	0
		Domestic Water Supply	191.9	8.2
		Agri. & Industry	200.1	0

Table A-68: Active NPDES permits for Planning Segment 5B

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0034142	MARIANNA, CITY OF	L'ANGUILLE R,ST FRANCIS R	001	08020205	Lee	1	001
AR0043192	COLT, CITY OF	TAYLOR CR DIT,L'ANGUILLE R;ST FRANCIS R	001	08020205	St. Francis	2	001
AR0020087	FORREST CITY, CITY OF	TRIB,L'ANGUILLE R,ST FRANCIS R	002	08020205	St. Francis	3	001
AR0039365	PALESTINE, CITY OF - WWTF	L'ANGUILLE R, ST. FRANCIS R	002	08020205	St. Francis	4	001
AR0000370	ENTERGY-HAMILTON MOSES PLANT	TRIB,L'ANGUILLE R,ST FRANCIS R	002	08020205	St. Francis	5	002
AR0021903	WYNNE, CITY OF	DIT,CANEY CR,L'ANGUILLE R,ST FRANCIS R	004	08020205	Cross	6	001
AR0021393	CHERRY VALLEY, CITY OF - CHERRY VALLEY SEWAGE TREATMENT PLANT	COPPER CR,WOLF CR,L'ANGUILLE R,ST FRANCIS R	005	08020205	Cross	7	001
AR0033863	HARRISBURG, CITY OF	TOWN CR,LTRL T,HOLLOW BR,L'ANGUILLE R,ST FRANCIS R	005	08020205	Poinsett	8	001
AR0044041	CROSS COUNTY HIGH SCHOOL	COOPER CR,L'ANGUILLE R,ST FRANCIS R	005	08020205	Cross	9	001
AR0048658	PAUL HARRISON D/B/A HUNTERS GLEN OWNERS ASSOCIATION	CR,DIT #1,MULLIGAN LTRL,L'ANGUILLE R,ST FRANCIS R	005	08020205	Craighead	10	001
AR0051918	POINSETT COUNTY CLASS IV LANDFILL	TRIB,L'ANGUILLE R,ST FRANCIS R	005	08020205	Poinsett	11	001
AR0049409	VANNDALE - BIRDEYE WATER	L'ANGUILLE R,ST FRANCIS R	012	08020205	Cross	12	001
AR0038679	SHADY OAKS TRAILER PARK	TRIB,BEAR CR,CANEY CR,L'ANGUILLE R,ST FRANCIS R	901	08020205	Cross	13	001
AR0049476	MUELLER COPPER TUBE PRODUCTS	DIT,INDIAN CR,CANEY CR,L'ANGUILLE R	901	08020205	Cross	14	001

Figure A-44: Planning Segment 5C

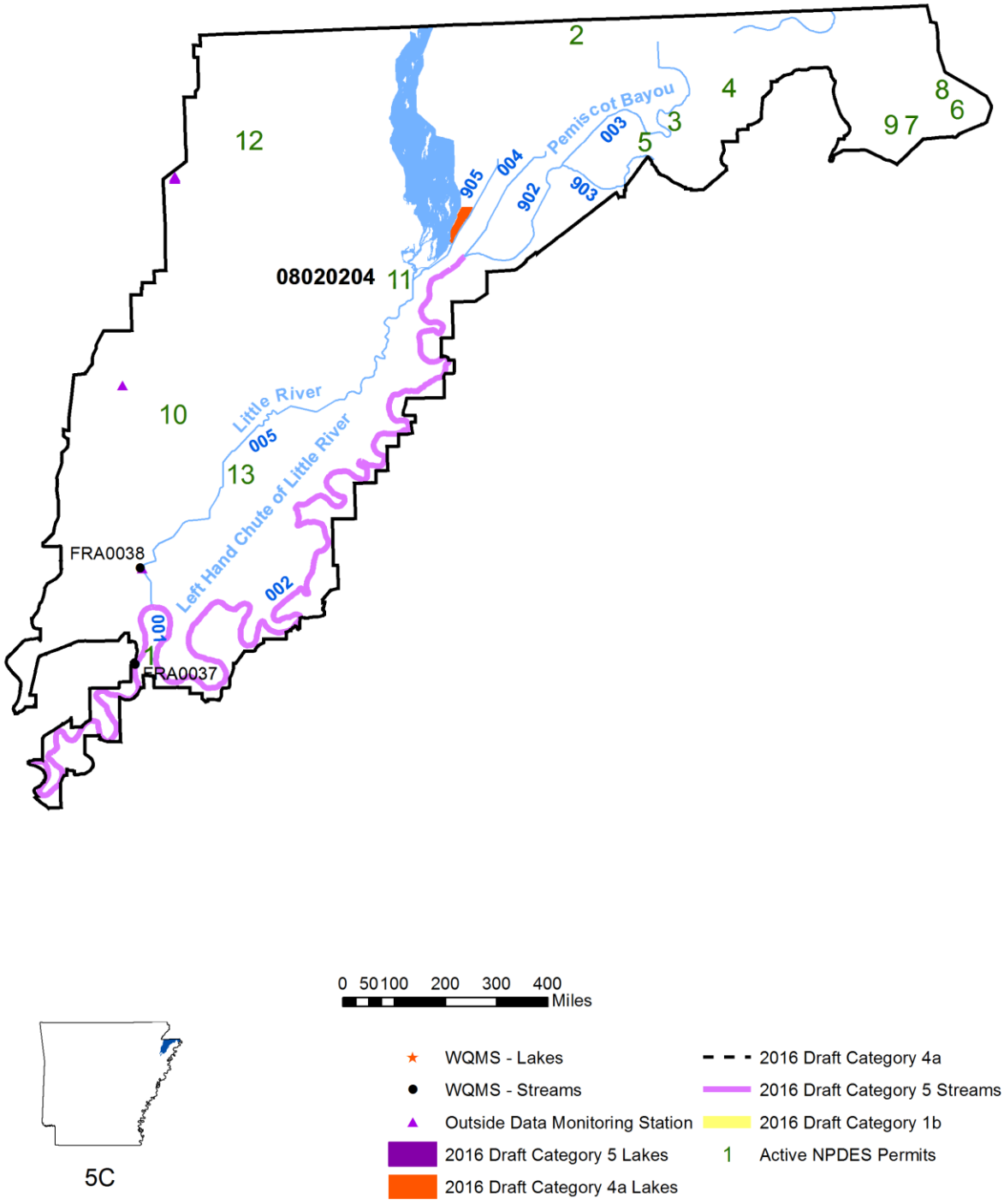


Table A-69 (a-c): Planning Segment 5C (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
SEG-5C																							
Little River Left	8020204	-001	17.5	FRA0037	M		N	S	S	S	S	UN				DO				5			
Little River Left	8020204	-002	50.8	FRA0037	E		N	S	S	S	S	UN				DO				5			
Little River Left	8020204	-004	6.0		U															3			
Little River Right	8020204	-005	39.3		U															3			
Little River Right	8020204	-005	5.8	FRA0038	M		S	S	S	S	S									1			
Little River Right	8020204	-905	6.5	FRA0006	U															3			
Pemiscot Bayou	8020204	-003	12.3		E		S	S	S	S	S									1			
Pemiscot Bayou	8020204	-006	6.4	FRA0005	U															3			
Pemiscot Bayou	8020204	-902	7.1	FRA0005A	U															3			
Pemiscot Bayou	8020204	-903	5.2		U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
FRA0005	Pemiscot Bayou near Blytheville		2	S
FRA0005A	Pemiscot Bayou near Dell		2	S
FRA0006	Right Hand Chute of Little River near Manila on SR18		2	S
FRA0037	Left Hand Chute of Little River at Highway 140 near Lepanto		1	R
FRA0038	Right Hand Chute of Little River at Highway 135 at Riverdale		1	R

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	70.5	Fish Consumption	0	0
Evaluated	63.1	Fisheries	18.1	68.3
Monitored	23.3	Primary Contact	86.4	0
Total	**156.9**	Secondary Contact	86.4	0
		Domestic Water Supply	86.4	0
		Agri. & Industry	86.4	0

Table A-70: Active NPDES permits for Planning Segment 5C

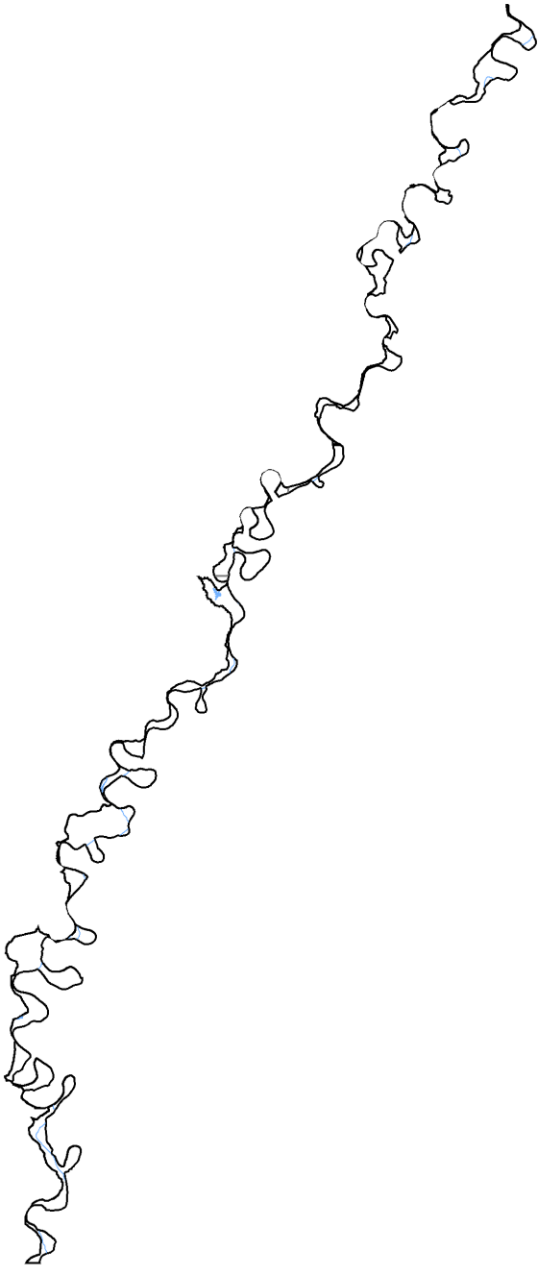
Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall
AR0023841	LEPANTO, CITY OF - ARKANSAS SEWAGE TREATMENT FACILITY	LEFT HAND CHUTE,LITTLE R,ST FRANCIS R	001	08020204	Poinsett	1	001
AR0021962	GOSNELL, CITY OF	DIT 29,BIG LK RELIEF DIT,DIT 3,DIT 1,ST FRANCIS R	003	08020204	Mississippi	2	001
AR0022560	BLYTHEVILLE, CITY OF-WEST WWTF	DIT #27,LEFTHAND CHUTE/LITTLE R,ST FRANCIS R	003	08020204	Mississippi	3	001
AR0022586	BLYTHEVILLE, CITY OF - NORTH TREATMENT FACILITY	TRIB,DIT #30,DIT #27,L CHUTE,LITTLE R,ST FRANCIS R	003	08020204	Mississippi	4	001
AR0044181	WHEEL ACRES	DIT #36 TRIB,PEMISCOT BU,ST FRANCIS R	003	08020204	Mississippi	5	001
AR0045977	NUCOR STEEL - ARKANSAS, DIVISION OF NUCOR CORPORTION HICKMAN MILL	DIT,CROOKED LK BU,PEMISCOT BU	003	08020204	Mississippi	6	001
AR0046523	MAVERICK TUBE CORPORATION	DIT #38,CROOKED BU,PEMISCOT BU,LITTLE ST FRANCIS.R,	003	08020204	Mississippi	7	001
AR0049166	TMK - IPSCO TUBULARS, INC. - BLYTHEVILLE WORKS	DIT,DIT #42,CROOKED LK BU, PEMISCOT BU	003	08020204	Mississippi	8	001
AR0050776	PRECOAT METALS CORP.	DIT 49,CROOKD LK BU,PEMISCOT BU,ST.FRANCIS R	003	08020204	Mississippi	9	001
AR0020028	CARAWAY, CITY OF	TRIB,ASHER DIT,BUFFALO CR DIT,R HAND CHUTE,LITTLE R	005	08020204	Craighead	10	001
AR0021881	MANILA, CITY OF	DIT #81,(R) HAND CHUTE LITTLE R,ST FRANCIS R	005	08020204	Mississippi	11	001
AR0022012	LEACHVILLE, CITY OF	HONEY CYPRESS DIT,BUFFALO CR DIT	005	08020204	Mississippi	12	001
AR0050741	ETOWAH, CITY OF - WASTEWATER TREATMENT SYSTEM	RIGHT HAND CHUTE/LITTLE R FLOODWAY DIT,ST FRANCIS R	005	08020204	Mississippi	13	001
AR0049425	ASSOC.ELEC.CO-OP,INC.AECI/DELL	DIT #27,DIT #6,TYRONZA R,ST FRANCIS R	914	08020204	Mississippi	14	001

MISSISSIPPI RIVER BASIN

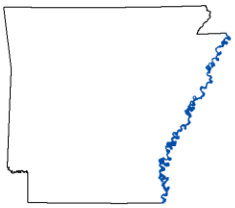
The Mississippi River Basin runs along the eastern border of Arkansas within the Delta Ecoregion and is split into three ADEQ planning segments: Upper, Middle, and Lower. The upper segment runs from the Arkansas/Missouri state line to the confluence of the St. Francis River. The middle segment runs from the confluence with the St. Francis to the confluence with the Arkansas River. And the lower segment runs from the confluence of the Arkansas River to the Arkansas/Louisiana border.

The Mississippi River is levied throughout its total length of the State.

Figure A-45: Mississippi River Basin



6A - Mississippi River Basin
6B - Mississippi River Basin
6C - Mississippi River Basin



6 Mississippi River Basin

SEGMENT 6A, 6B, AND 6C LOWER MISSISSIPPI RIVER BASIN

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 Arkansas and the White River Basins 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

Waters in these segments are designated for propagation of fish and wildlife; primary and secondary contact recreation; and domestic, agricultural, and industrial water supplies. These three segments include 437 miles of the Mississippi River. No recent data were available to assess the Mississippi River; however, USGS Circular 1133 provides an extensive review of the Mississippi River water quality from 1987-92. For this report all waters of the Mississippi River adjacent to Arkansas are listed as unassessed. However, most of the water contributed to the Mississippi River from Arkansas is from the White and Arkansas River Basins, both of which are assessed as meeting all designated uses in their lower segments prior to flowing into the Mississippi River.

Through a combined effort of the US Corps of Engineers, The Nature Conservancy, Audubon, the Lower Mississippi River Conservation Committee, and many other entities, a Lower Mississippi River Resource Assessment survey has been completed. The assessment culminated in an aquatic resources management plan entitled “Restoring America’s Greatest River.” Numerous aquatic and terrestrial habitat restoration projects have been completed on the River from Cairo to the Gulf of Mexico.

Figure A-46: Planning Segment 6A

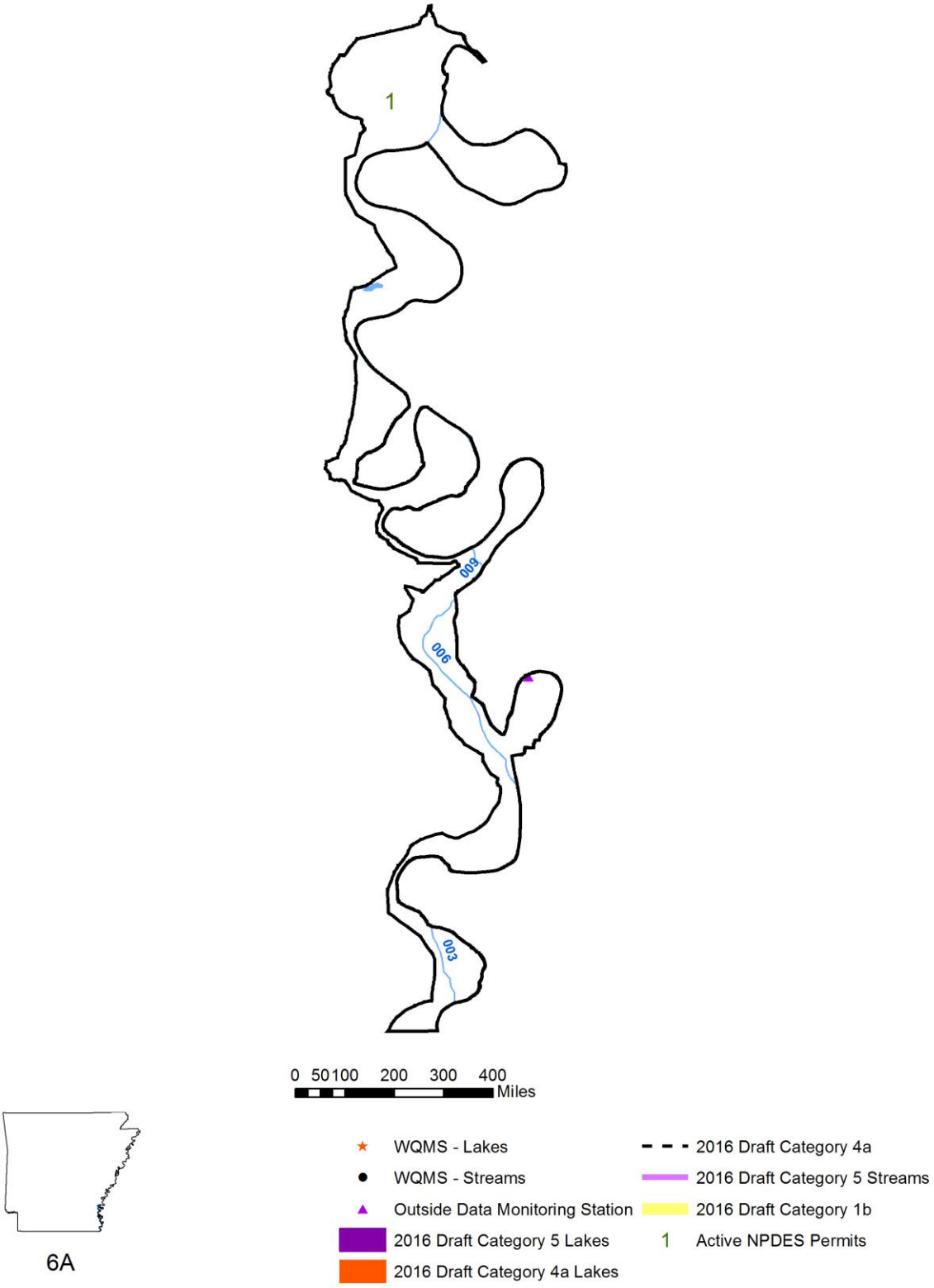


Figure A-47: Planning Segment 6B

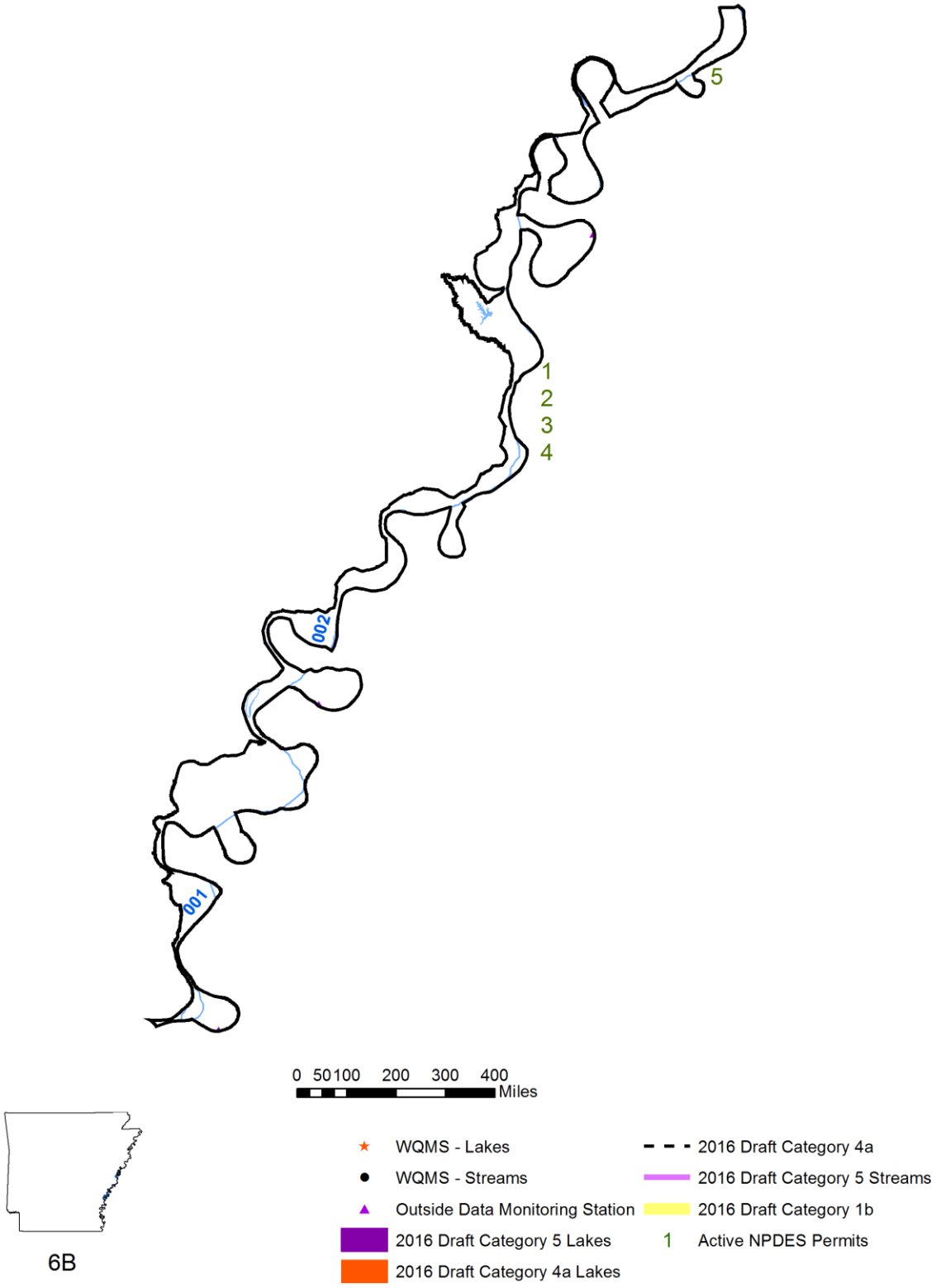


Figure A-48: Planning Segment 6C

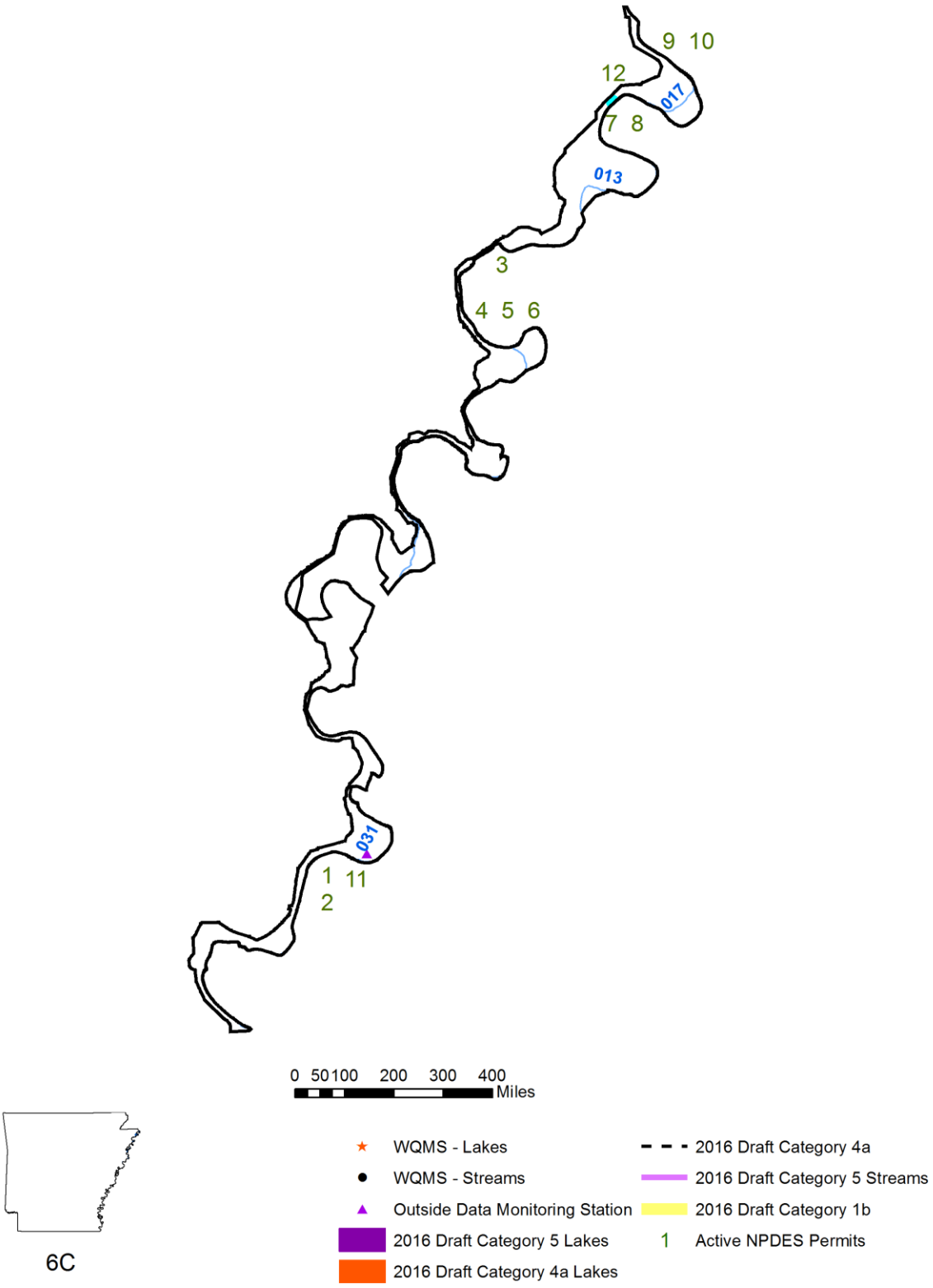


Table A-71 (a-c): Planning Segment 6A, 6B, and 6C (a) Designated Use Attainment and Water Quality Status, (b) Monitoring Station Information, and (c) Mileage Summary

a. Stream Designated Use Attainment, Source, Cause, and Status

						Designated Use						Source				Cause				Status			
Stream Name	HUC	Reach	Miles	Monitoring Station	Assess	FC	FSH	PC	SC	DW	AI	1	2	3	4	1	2	3	4	1	2	3	4
Mississippi R.	8010100	-001	7.0		U															3			
Mississippi R.	8010100	-003	9.3		U															3			
Mississippi R.	8010100	-004	3.0		U															3			
Mississippi R.	8010100	-005	4.5		U															3			
Mississippi R.	8010100	-007	4.6		U															3			
Mississippi R.	8010100	-008	8.3		U															3			
Mississippi R.	8010100	-009	6.0		U															3			
Mississippi R.	8010100	-010	23.4		U															3			
Mississippi R.	8010100	-012	2.9		U															3			
Mississippi R.	8010100	-013	6.8		U															3			
Mississippi R.	8010100	-017	14.2	FRA0004A	U															3			
Mississippi R.	8010100	-018	7.8	FRA0004	U															3			
Mississippi R.	8010100	-029	16.7		U															3			
Mississippi R.	8010100	-031	3.9		U															3			
Mississippi R.	8010100	-034	5.5		U															3			
Mississippi R.	8020100	-001	17.7		U															3			
Mississippi R.	8020100	-002	75.0	FRA0001; FRA0023	U															3			
Mississippi R.	8020100	-003	39.0		U															3			
Mississippi R.	8030100	-003	17.8		U															3			
Mississippi R.	8030100	-006	9.0	OUA0017	U															3			
Mississippi R.	8030100	-007	4.3		U															3			
Mississippi R.	8030100	-009	2.3		U															3			
Mississippi R.	8030100	-010	10.6		U															3			
Mississippi R.	8030100	-012	32.5	OUA0119	U															3			

b. Stream Monitoring Station Information

Station Name	Station Location	Flow Gauge	Data Period	Monitoring Network
FRA0001	Mississippi River near Helena		2	S
FRA0004	Mississippi River near Huffman		2	S
FRA0004A	Mississippi River at Barfield		2	S
FRA0023	Mississippi River at Mcallister Grain Co. Elaine		2	S
OUA0017	Mississippi River near Greenville Miss		2	S
OUA0119	Mississippi River at McCallie G and F boat Launch		2	S

c. Stream Assessment Status and Designated Use Support/Non-Support Mileage Summary

Assessment Status	Miles	Designated Use	Miles Support	Miles Non-Support
Unassessed	332.1	Fish Consumption	0	0
Evaluated	0	Fisheries	0	0
Monitored	0	Primary Contact	0	0
Total	**332.1**	Secondary Contact	0	0
		Domestic Water Supply	0	0
		Agri. & Industry	0	0

Table A-72: Active NPDES permits for Planning Segment 6A, 6B, and 6C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall	PlanSeg
AR0035823	CLEARWATER PAPER CORPORATION - CYPRESS BEND	MISSISSIPPI R	012	08030100	Desha	1	001	6A
AR0000388	ENTERGY ARKANSAS-RITCHIE PLANT	MISSISSIPPI R (001,002,003)	002	08020100	Phillips	1	001	6B
AR0022021	WEST HELENA, CITY OF - WATER UTILITIES	MISSISSIPPI R	002	08020100	Phillips	2	001	6B
AR0043389	HELENA MUNICIPAL WATER AND SEWER SYSTEM	MISSISSIPPI R	002	08020100	Phillips	3	001	6B
AR0052027	G & B TERMINAL, INC. AND AFFILIATES	MISSISSIPPI R	002	08020100	Phillips	4	001	6B
AR0049531	HORSESHOE LAKE WWT FACILITY	MISSISSIPPI R	003	08020100	Crittenden	5	001	6B
AR0022039	WEST MEMPHIS, CITY OF - WWTF	MISSISSIPPI R	003	08010100	Crittenden	1	001	6C
AR0021580	OSCEOLA WW TREATMENT PLANT	MISSISSIPPI R	010	08010100	Mississippi	2	001	6C
AR0033782	LUXORA, CITY OF	MISSISSIPPI R	010	08010100	Mississippi	3	001	6C
AR0036544	VISKASE COMPANIES, INC.	MISSISSIPPI R	010	08010100	Mississippi	4	001	6C
AR0049557	PLUM POINT ENERGY STATION	MISSISSIPPI R	010	08010100	Mississippi	5	001	6C
AR0000361	KINDER MORGAN OPERATING L.P.-C	MISSISSIPPI R	017	08010100	Mississippi	6	001	6C
AR0043117	NUCOR-YAMATO STEEL	MISSISSIPPI-6C (001,003)	017	08010100	Mississippi	7	001	6C
AR0050083	KINDER-MORGAN - BARFIELD FACILITY	MISSISSIPPI R	017	08010100	Mississippi	8	001	6C
AR0051128	KINDER MORGAN-HICKMAN FACILITY	MISSISSIPPI R	018	08010100	Mississippi	9	002	6C
AR0022314	WILSON, CITY OF	SLOUGH,ISLAND 35 CHUTE,MISSISSIPPI R	029	08010100	Mississippi	10	001	6C
AR0037770	BASF CORPORATION	MISSISSIPPI R	031	08010100	Crittenden	11	001	6C

Table A-72: Active NPDES permits for Planning Segment 6A, 6B, and 6C

Permit #	Facility Name	Receiving Waters	Reach	HUC	County	Map #	Outfall	PlanSeg
AR0046663	AIR LIQUIDE	MISSISSIPP R	017	08020204	Mississippi	12	002	6C
AR0035751	ARKANSAS CITY, CITY OF-WWTF	MISSISSIPPI R	012	08030100	Desha	13	002	6C

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