Appendix A

Summary of the Excess Water Calculation Method and Relevant Assumptions

Appendix A

Arkansas State Water Plan

Calculation Method Summary for Surface Water Availability

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A1. ARKANSAS RIVER BASIN

1.1 Arkansas River:

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 United States Geological Society (USGS) Water Data report (WDR) for 2012 for gage station 07263450, Arkansas River at Murray Dam at Little Rock, Arkansas. The entire period of record after river regulation was used. (WY 1970-2012). This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality (ADEQ).

1.2 Baron Fork:

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage station 07196900, Baron Fork at Dutch Mills, Arkansas. The entire period of record was used. (WY 1958-2012). This gage data was used to represent the entire watershed, as no other gage was available in that watershed or immediately downstream. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.3 Big Piney Creek:

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage station 07257006, Big Piney Creek at Hwy 164 near Dover, Arkansas. The WDR indicates that statistics are calculated for the full period of record: WY 1951 to WY 1995 and WY 1998 to WY 2012. However, the published values correspond to calculations made using only WY 1993 to WY 2012. The published values were used. This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.4 Cadron Creek:

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07261000, Cadron Creek near Guy, Arkansas. The entire period of record for the gage was used: WY 1955 to WY 2012. This gage data was used to represent the entire watershed. . The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.5 Fourche La Fave River

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07261500, Fourche La Fave River near Gravelly, Arkansas. The entire period of record for the gage was used: WY 1939 to WY 1994 and WY 2000 to WY 2012.This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.6 Illinois Bayou

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07257500, Illinois Bayou near Scottsville. The entire period of record for the gage was used: WY 1948 to WY 1970 and WY 2000 to WY 2012.This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.7 Illinois River

The Illinois River available flow was initially calculated with three different gages in order to determine which gage or combination of gages would produce the most representative values for the watershed. The gages at Siloam Springs (07195430), near Siloam Springs (07195400), and at Watts, Oklahoma (07195500), were analyzed. Data was taken from the USGS 2012 WDR for all three gages. After comparison of these gages, it was determined that the gage at Siloam Springs (07195430) had the most representative data based on the fact that it had a more recent and complete period of record that would reflect the addition of new treatment plants in North West Arkansas that have discharges in the watershed.

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07195430, Illinois River South of Siloam Springs, Arkansas. The entire period of record (1995-2012) was used. 7Q10 flow was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with ADEQ for this gage.

Separate calculations were performed for Flint Creek, a subbasin to the north that drains into the Illinois River just west of the AR/OK state line. Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07195855, Flint Creek near West Siloam Springs, Oklahoma. The entire period of record (1979-2012) was used. 7Q10 flow was found in USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board.

The calculations for the Illinois River subbasin and Flint Creek subbasin were performed on two separate spreadsheets. After the excess surface water available was calculated for Flint Creek, it was added to the excess available from the Illinois River subbasin for a total excess surface water available for the entire area.

Flint Creek demand was calculated as a percentage of the “Unassigned” area demand from the Water Demand Workgroup.

Interstate compact data was based on the Arkansas-Oklahoma River Compact, stating that annual yield is not depleted by more than 60% before flowing into Oklahoma.

1.8 Lee Creek

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07249985, Lee Creek near Short, Oklahoma. The entire period of record for the gage was used: WY 1931 to WY 2012. This gage data was used to represent the entire watershed within Arkansas only, as any flow generated in Oklahoma is wholly available to Oklahoma, per interstate compact. The value for 7Q10 flow for this gage was found in USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board.

1.9 Mulberry River

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07252000, Mulberry River near Mulberry, Arkansas. The entire period of record for the gage was used: Jun 1938 to Jan 1995 and WY 1999 to WY 2012.This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.10 Petit Jean River

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07260500, Petit Jean River at Danville, Arkansas. The published data for WY 1947to WY 2012 was used. This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.11 Point Remove Creek

There is no gage with long-term data on Point Remove Creek. Therefore, a gage on the West Fork Point Remove Creek was used for calculations. Annual runoff data was retrieved

from the 2012 USGS WDR for 2012 for gage 07260673, West Fork Point Remove Creek near Hattieville, Arkansas. West Fork and East Fork merge to form Point Remove Creek – thus this gage is in the watershed, but drains a limited portion of the total. The published period of record of WY 2002 to WY 2012 was used. However, the published monthly data was inconsistent with USGS data available on the website, so the USGS website tool for calculating monthly statistics was used for the monthly mean values and annual mean. This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

1.12 Poteau River

Gage data from two gages was used to represent the watershed, 07247000 (Poteau River at Cauthron) and 07247250 (Black Fork below Big Creek near Page, Oklahoma). The whole period of record for each gage was used (1975-2012 and 1992-2012, respectively). Data for both gages was taken from the 2012 USGS WDR for the respective gage. Hydrologic Unit Code (HUC) boundaries were used to determine the drainage area for each point of calculation. The total value for monthly means, annual mean, and annual runoff were calculated as the sum of the area proportioned values for the gages. 7Q10 flows were found in USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board and USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with . The overall 7Q10 flow was calculated as the area-weighted average of the two flows. Since both gage 7Q10 flows were zero, the overall 7Q10 flow was also 0 cfs.

1.13 Poteau River Tributaries

Gage data from two gages was used to represent the watershed, 07249400 (James Fork near Hackett) and 07249447 (Mill Creek at Fort Smith). The whole period of record for each gage was used (1958-2012 and 1996-2003, respectively). Data for 07249400 was taken from the USGS water report for 2012. Data for 07249447 was calculated using the monthly statistics tool

on the USGS website. HUC boundaries were used to the drainage area for each point of calculation. The total value for monthly means, annual mean, and annual runoff were calculated as the sum of the area proportioned values for the gages. There was no 7Q10 value available for Mill Creek, but after considering the size of the drainage area for the gage as compared to the James Fork gage, it was deemed acceptable to use the 7Q10 from the James Fork gage for the entire study basin.

1.14 Spavinaw Creek

The Spavinaw Creek basin is located in the most northwestern corner of the state, and includes Spavinaw Creek, which flows west into Oklahoma, and several small streams that flow north into Missouri. Gage data exists for Spavinaw Creek, but there was not a set of data for the other streams in the basin that would be a good representation of the basin based on period of record and location. Therefore, the Spavinaw Creek gage was used to represent the entire basin. The USGS monthly statistics tool on the USGS website was used to determine the monthly mean flows at the Spavinaw Creek gage (07191220, Spavinaw Creek near Sycamore, Oklahoma). The available period of record of WY 1961 to WY 2012 was used. Annual mean and annual runoff were calculated from the monthly mean values. 7Q10 flows based on USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board.

A2. BAYOU BARTHOLOMEW BASIN

2.1 Bayou Bartholomew

Monthly mean flows were calculated for the full period of record using the USGS website Monthly Statistics tool for the gage 07364200, Bayou Bartholomew near Jones, Louisiana. Annual mean and annual runoff were reported in USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012. The 7Q10 flow for this gage was found in USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development. The entire period of record of 1958-2012 was used.

2.2 Bayou Bartholomew Tributaries

The main tributary in the watershed is Chemin-a-haut Bayou. Gage data from gage 07364300 (Chemin-a-haut near Beekman, Louisiana) was used for the entire watershed. Data was calculated using the monthly statistics tool on the USGS website for the entire period of record (WY 1956-1979). 7Q10 flow was taken from USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development.

A3. BAYOU MACON BASIN

Gage data from 07369700 (Bayou Macon near Kilbourne, Louisiana) was used. Data was taken from the USGS website tool for monthly statistics. Several periods or records were evaluated, and it was determined that the most representative period for the watershed would be the same used for the 1990 water report (1958-1968). Data measured after 1968 does not include discharges over 200 cfs, and therefore is not representative of all seasons in the watershed.

Data was calculated using the monthly statistics tool on the USGS website for the WY POR 1958-1968 for complete data only. Annual mean and runoff were calculated from these values. 7Q10 flows are based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development. Existing demands were estimated based on the difference between Base Year demands developed by the Water Demand Workgroup and approximate surface water demands derived from the 1990 Arkansas Water Plan (AWP).

A4. BOEUF RIVER BASIN

4.1 Boeuf River

Gage data from 07367700 (Boeuf River near AR-LA line) was used. Data was evaluated from the USGS website tool for monthly statistics. Several periods or records were tried, and it was determined that the most representative period for the watershed would be the same used for the 1990 water report (1958-1968). Data measured after 1968 does not include discharges over 200 cfs, and therefore is not representative of all seasons in the watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ. Existing demands were estimated based on the difference between Base Year demands developed by the Water Demand Workgroup and approximate surface water demands derived from the 1990 AWP.

4.2 Boeuf River Tributaries

No gage exists in the tributary watershed, so the same gage and calculation method as for the main Boeuf River was used. The flow data used was area proportioned for the area of the study basin. The same 7Q10 was also used. Due to the fact that the Boeuf River Tributary study basin is relatively small, the change in existing demands from the period of record and the 1990 AWP was not included in calculations, as was in the main Boeuf River Basin.

A5. L'ANGUILLE RIVER BASIN

Data was retrieved from the USGS WDR for 2012 for gage station 07047950, L'Anguille River at Palestine, Arkansas. The entire period of record was used. (WY 1949-2012). The reported data for this POR is split between the USGS, Mississippi River Commission, and US Army Corps of Engineers. However, the data is complete when compiled from all three sources. The reported monthly mean flows, annual flow, and annual runoff from the USGS WDR seem to reflect the entire collection of data. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

A6. OUACHITA RIVER BASIN

6.1 Lower Ouachita River Tributaries (East)

No gage exists in this watershed, so the nearest representative gage was used. Gage data from gage 07364300 (Chemin-a-haut near Beekman, Louisiana) was used for the entire watershed. . Data was calculated using the monthly statistics tool on the USGS website for the entire period of record (WY 1956-1979). 7Q10 flow was taken from USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development.

6.2 Lower Ouachita River Tributaries (West)

There are five main tributaries located in this study basin: Cornie Bayou, Three Creeks, Little Corney Bayou, Bayou de Loutre, and Frank Lapere Creek. Gage data is available for the first four tributaries: 07365800, Cornie Bayou near Three Creeks, Arkansas (1957-1987) ; 07365900, Three Creeks near Three Creeks, Arkansas (1958-1971); 07366200, Little Corney Bayou near Lillie, Louisiana (1956-2012); and 07364700, Bayou de Loutre near Laran, Louisiana (1956-1977). Frank Lapere Creek does not have an available gage. The 1990 AWP methodology used the data from Cornie Bayou near Three Creeks, Arkansas, in order to determine an area-proportioned set of flow data for Frank Lapere Creek.

The mean monthly flows, annual mean flow, and annual runoff for 07366200, Little Corney Bayou near Lillie, Louisiana, was taken from the 2012 USGS WDR. The flow data for the other three gages was calculated from the monthly mean flow values for the full water year periods of record obtained from the USGS monthly statistics tool on the USGS website.

The study basin was split between the five streams by determining the contributing areas for the five using 12-digit HUC boundaries. The gage data for each stream was then area proportioned for each subbasin. The total mean monthly flows, annual mean flow, and annual runoff were determined by summing the values for each of the subbasins.

The 7Q10 flow values for the two Arkansas gages were taken from USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with

ADEQ. The 7Q10 flow values for the two Louisiana gages was taken from USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development. The 7Q10 flow for Cornie Bayou near Three Creeks, Arkansas, was used for Frank Lapere Creek. The overall 7Q10 flow was calculated as the area weighted average of the 7Q10 flows for the five subbasins.

6.3 Ouachita River

Mean monthly flow, annual flow, and annual runoff values for the overall Ouachita River basin in Arkansas were determined by calculating the total values of these characteristics of several subbasins within the Ouachita River basin. Values were calculated for the Ouachita River to the USGS gage at Camden, Arkansas, the Saline River, Smackover Creek, and Moro Creek. Two other subbasins, Ouachita River between the Camden gage and the confluence with the Saline River, and the Ouachita River between the Saline River confluence and the AR/LA state line were also included. The Smackover gage was used for these last two portions of the river because it was found to have the most representative flow/area ratio. 7Q10 flow was calculated as the area-weighted average of the 7Q10 values for each of the subwatersheds of the study basin. These individual 7Q10 values for each gage used are based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with ADEQ. 7Q10 values for the two subwatersheds of the Ouachita River downstream of the Camden gage were assumed to be the same as for the Camden gage. The 7Q10 value for the gage at Monroe, Louisiana, was also researched and was found to be 273 cfs. It was noted that the Fish & Wildlife flow needs would be greater than the 7Q10 flows, and therefore the 7Q10 values would not be used in final projected water needs calculations.

6.4 Saline River

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07363500 Saline River near Rye, Arkansas. The entire period of record for the gage was used: WY 1938 to WY 2012.This gage data was used to

represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

6.5 Upper Ouachita

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07356000, Ouachita River near Mount Ida, Arkansas. The entire period of record for the gage was used: WY 1942 to WY 2012.This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ.

A7. RED RIVER BASIN

7.1 Bayou Dorcheat

Gage data from gage 07348700 (Bayou Dorcheat near Springhill, Louisiana) was used for the entire watershed. Data was calculated using the monthly statistics tool on the USGS website for the entire period of record (WY 1958-2012). 7Q10 flow was taken from USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development.

7.2 Bodcau Creek

Gage data from gage 07349500, Bodcau Bayou near Sarepta, Louisiana. This gage was used for the entire watershed. Data was calculated using the monthly statistics tool on the USGS website for the entire period of record (WY 1939-1992). 7Q10 flow was taken from USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development. The projected demands for Bodcau Creek and Kelly Bayou were included in the Water Demand Workgroup value for Lower Red River Tributaries. Therefore the projected demand for each individual basin was calculated as the area-percentage of the workgroup values.

7.3 Kelly Bayou

Gage data from gage 07347000, Kelly Bayou near Hosston, Louisiana. This gage was used for the entire watershed. Data was calculated using the monthly statistics tool on the USGS website for the entire period of record (Oct 1944-June 1969). 7Q10 flow was taken from USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development. The projected demands for Bodcau Creek and Kelly Bayou were included in the Water Demand Workgroup value for Lower Red River Tributaries. Therefore the projected demand for each individual basin was calculated as the area-percentage of the workgroup values.

7.4 Little River

Gage data from two gages was used to represent the watershed, 07340500, Cossatot River near DeQueen, Arkansas, and 07340000, Little River near Horatio, Arkansas. The common period of record of WY 1969-1980 was used for both gages. Data for mean monthly flow for both gages was calculated using the monthly statistics tool on the USGS website. Annual mean flow was calculated as a number-of-day weighted average of the monthly flows. Annual runoff was calculated as the sum of the calculated monthly runoffs. HUC boundaries were used to determine drainage areas for both streams. The total value for monthly means, annual mean, and annual runoff were calculated as the sum of the values for the gages.

7Q10 flows were found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ. The overall 7Q10 flow was calculated as the area-weighted average of the two flows.

7.5 Millwood Lake

Mean monthly flow, annual flow, and annual runoff data was retrieved from the USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012 for gage station 07341200, Saline River near Lockesburg, Arkansas. The entire period of record was used. (WY 1975-2012). The value for 7Q10 flow for this gage was found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with ADEQ. Note: the Saline River studied for the Millwood Lake area is a separate water body than the Saline River that is in the Ouachita River Basin.

7.6 Mountain Fork

Mean monthly flow, annual mean flow, and annual runoff data was retrieved from the 2012 USGS WDR for 2012 for gage 07338750, Mountain Fork at Smithville, Oklahoma. The entire period of record for the gage was used: 1991- 2012.This gage data was used to represent the entire watershed. The value for 7Q10 flow for this gage was found in USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific

Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board. Based on the projected demand for surrounding basins, which were all negative, the projected demand for Mountain Fork was set to zero (not change).

7.7 Red River

Mean monthly flows for the study basin were determined by combining data from the two gages 07344400 and 07344370 (Red River at Hosston, Louisiana and Red River at Spring Bank, Arkansas, respectively). The periods of record for the gages are WY 1957-1991 and 1998-2012, respectively. Since these periods do not overlap, the data for each were first area proportioned to the state line and then combined. In this method, the monthly means for each gage were taken from the USGS website using the USGS monthly statistics tool. Data for each month of the years in the periods of record was area proportioned, and then the monthly mean flows were calculated for each month using both gage data sets. The annual mean and annual runoff values were calculated from these monthly mean flows. 7Q10 flow value is for the gage at Hosston, Louisiana, and is based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development.

A8. ST. FRANCIS BASIN

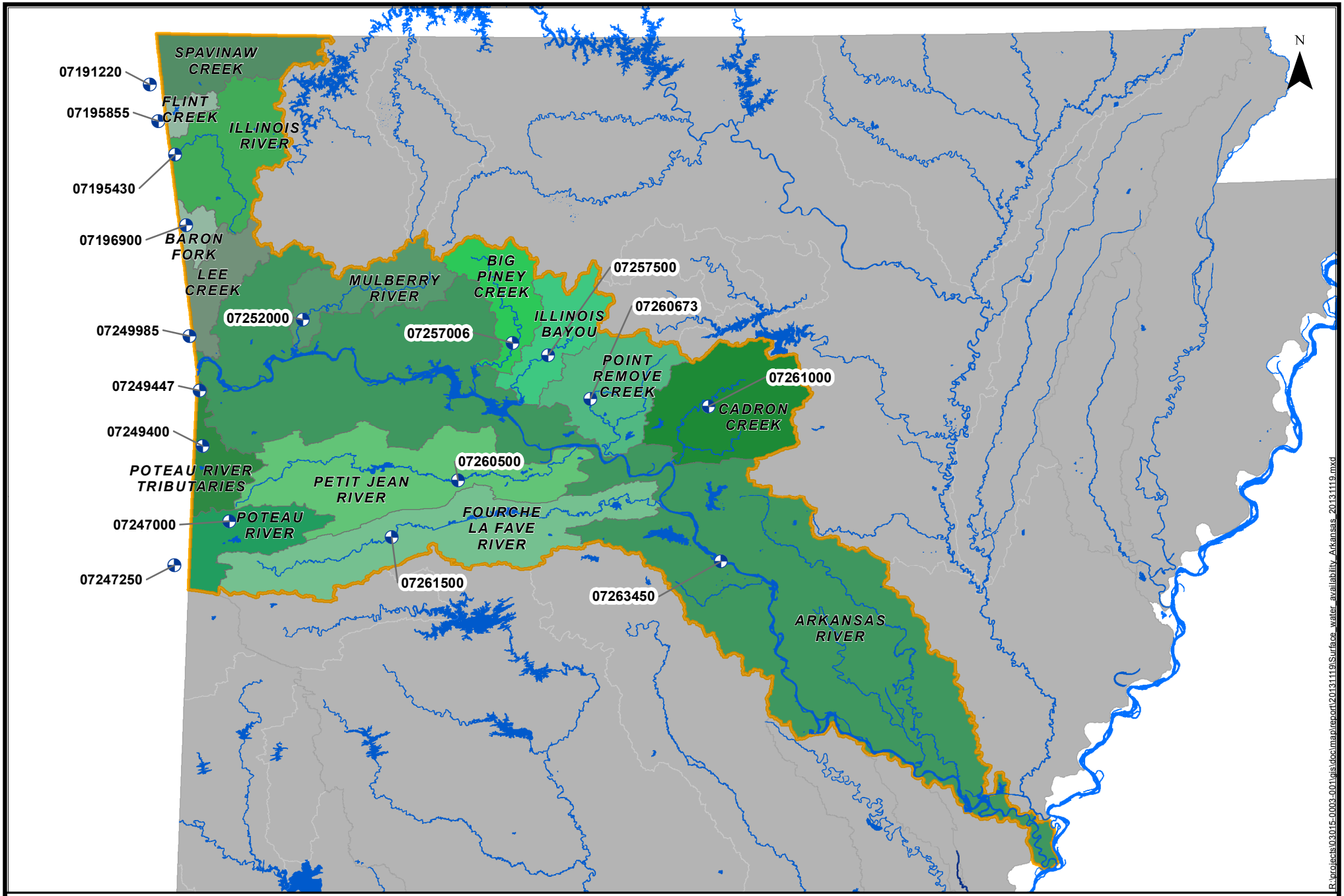
The St. Francis drainage area includes drainage area in Missouri. There is no is no interstate compact in with Missouri and therefore all flow is available. However, the drainage area for the L'Anguille River was not considered in these calculations because both St. Francis gages were located upstream of the L'Anguille River confluence and therefore the data was not considered to be representative of this area. The L'Anguille River was calculated separately. Gages 07047800 (St. Francis River at Parkin, Arkansas) and 07047900 (St. Francis Bay at Riverfront, Arkansas) were used for calculations. Mean monthly flow was calculated by first calculating the sum of flows at both gages 07047800 & 07047900 for each day in the common period of record (WY 1936-2010), and then calculating the mean monthly flows from these values. Only days with flow values available for both gages were used in the calculations. The annual mean flow and annual runoff were calculated from the mean monthly flows. Drainage areas for gages are normally published by the USGS. For the St. Francis gages, the drainage areas for the two gages used were published as indeterminate. However, the USGS did publish the combined drainage area for the St. Francis River and St. Francis Bay at Riverfront. Therefore, after combining the data from the two gages, the combined drainage area published by the USGS was used as the drainage area of the combined data set. The 7Q10 value used for calculations is the sum of the published 7Q10 values for the gages. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with ADEQ.

Appendix B

Excess Water Calculation and Maps for Each Basin

APPENDIX B

Excess Surface Water Calculation Spreadsheets and Basin Maps



Arkansas River Basin

Legend

- USGS Flow Gages used for Calculations

Arkansas WATERplan Essential For Life

Calculation of Instream Needs and Available Surface Water
Arkansas River at confluence with the Mississippi River

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area[11] (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche LaFave; Lower Arkansas	Frog-Mulberry, Dardanelle Reservoir, Lake Conway- Point Remove, Cadron, Bayou Meto, Lower Arkansas-Maumelle, Lower Arkansas	Mouth	03° 46' 42"/ 91° 06' 25"	10,052	HUC 1102 - 1111, 080204	160,670	7263450	Arkansas River at Murray Dam at Little Rock, AR	1970-2012	On Murray Dam	34° 47' 35"/ 92° 21' 30"	158,138	USGS

Total Annual Runoff (ac-ft)[1]	34,750,000

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	27,170	41,680	46,890	43,940	47,110	72,560	76,070	80,620	66,280	37,880	17,880	17,770	47,970
Monthly Mean Flow at Gage (ac-ft)	1,670,618	2,480,132	2,883,154	2,701,765	2,639,717	4,461,540	4,526,479	4,957,131	3,943,934	2,329,150	1,099,398	1,057,388	34,750,408
7Q10 (Water Quality) - (cfs)[2]	819	819	819	819	819	819	819	819	819	819	819	819	819
7Q10 (Water Quality) - (ac-ft)	50,358	48,734	50,358	50,358	45,891	50,358	48,734	50,358	48,734	50,358	50,358	48,734	593,335
Fish & Wildlife (cfs)[3]	13,585.0	25,008.0	28,134.0	26,364.0	28,266.0	43,536.0	53,249.0	56,434.0	46,396.0	18,940.0	8,940.0	8,885.0	29,784
Fish & Wildlife (ac-ft)	835,309	1,488,079	1,729,892	1,621,059	1,583,830	2,676,924	3,168,536	3,469,991	2,760,754	1,164,575	549,699	528,694	21,577,344
Navigation (cfs)[4]	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Navigation (ac-ft)	184,463	178,512	184,463	184,463	168,099	184,463	178,512	184,463	178,512	184,463	184,463	178,512	2,173,388
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	13,585	16,672	18,756	17,576	18,844	29,024	22,821	24,186	19,884	18,940	8,940	8,885	18,183
AVAILABLE Q @ GAGE (ac-ft	835,309	992,053	1,153,261	1,080,706	1,055,887	1,784,616	1,357,944	1,487,139	1,183,180	1,164,575	549,699	528,694	13,173,064
AVAILABLE Q @ MOUTH (cfs)[8]	13,803	16,939	19,056	17,857	19,146	29,489	23,186	24,573	20,202	19,243	9,083	9,027	18,474
AVAILABLE Q @ MOUTH (ac-ft)	848,684	1,007,937	1,171,727	1,098,010	1,072,793	1,813,190	1,379,686	1,510,950	1,202,124	1,183,222	558,501	537,159	13,383,983
Projected Water Needs (cfs)[6]													196.53
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	142,381

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	4,569
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	3,310,400

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1970-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07263450
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements - None
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. Point of calculation drainage area was determined by adding the published gage drainage area (which is located close to the downstream end of a HUC-10) and the HUC-10 areas downstream of the gage. This was calculated as 160,670 sq. mi.
11. Gage drainage area is from published Water Year 2012, USGS Water-Data Report. It is noted in the publication that 22,241 sq. mi may not be contributing to the gage. For these calculations, the full drainage area was used.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Baron Fork at the Arkansas/Oklahoma State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Robert S. Kerr Reservoir	Illinois	AR/OK State Line	35° 54' 22" / 94° 31' 06"	1,641	HUC 1111010307	85	7196900	Baron Fork at Dutch Mills, AR	1958-current	Near right bank on d/s side of bridge on Hwy 59 at Dutch Mills	35° 52' 48" / 94° 29' 11"	41	USGS

Total Annual Runoff (ac-ft)[1]	33,000

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	29	55	50	49	56	76	84	68	37	18	8	22	46
Monthly Mean Flow at Gage (ac-ft)	1,752	3,249	3,099	3,001	3,143	4,685	5,004	4,187	2,202	1,088	486	1,297	33,195
7Q10 (Water Quality) - (cfs)[2]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
7Q10 (Water Quality) - (ac-ft)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7
Fish & Wildlife (cfs)[3]	14.3	32.8	30.2	29.3	33.7	45.7	58.9	47.7	25.9	8.9	4.0	10.9	28
Fish & Wildlife (ac-ft)	876	1,949	1,859	1,800	1,886	2,811	3,503	2,931	1,541	544	243	649	20,594
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	11.4	21.8	20.2	19.5	22.4	30.5	33.6	27.2	14.8	7.1	3.2	8.7	
Interstate Compacts (ac-ft)	701	1,300	1,240	1,200	1,257	1,874	2,002	1,675	881	435	195	519	
AVAILABLE Q @ GAGE (cfs)[7]	14	22	20	20	22	30	25	20	11	9	4	11	17
AVAILABLE Q @ GAGE (ac-ft)	876	1,300	1,240	1,200	1,257	1,874	1,501	1,256	660	544	243	649	12,601
AVAILABLE Q @ STATE LINE (cfs)[8]	30	46	42	41	47	64	53	43	23	19	8	23	36
AVAILABLE Q @ STATE LINE (ac-ft)	1,834	2,721	2,595	2,513	2,632	3,924	3,143	2,630	1,383	1,139	509	1,358	26,381
Projected Water Needs (cfs)[6]													1.9
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	1,371

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	8.6
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	6,253

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1958-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07196900
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahome Arkansas River Compact for Illinois River Subbasin. AR has right to develop and use water subject to the limitation that the annual yield (calculated annually) shall not be depleted by more than 60 percent. Calculations are shown for illustration only.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Baron Fork needs were calculated as the area-proportioned percentage of the total unassigned area values as calculated by the Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need.
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Big Piney Creek at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche La Fave	Dardanelle Reservoir	at mouth	35° 20' 37" / 93° 19' 44"	1,860	USGS HUC - 1111020206 & 1111020208	376	07257006	Big Piney Creek at Hwy 164 near Dover	Oct 1950 - Sep 1995, Oct 1998 - current	Pope Co, north of Dover	35° 30' 21" / 93° 10' 53"	306	USGS

Total Annual Runoff (ac-ft)[1]	348,200

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	172	444	509	670	657	900	1,012	755	279	107	25.3	126	481
Monthly Mean Flow at Gage (ac-ft)	10,576	26,420	31,297	41,197	37,140	55,339	60,218	46,423	16,602	6,579	1,556	7,498	340,843
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	86.0	266.4	305.4	402.0	394.2	540.0	708.4	528.5	195.3	53.5	12.7	63.0	295
Fish & Wildlife (ac-ft)	5,288	15,852	18,778	24,718	22,284	33,203	42,153	32,496	11,621	3,290	778	3,749	214,209
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	68.8	177.6	203.6	268	262.8	360	404.8	302	111.6	42.8	10.12	50.4	
Interstate Compacts (ac-ft)	4,230	10,568	12,519	16,479	14,856	22,136	24,087	18,569	6,641	2,632	622	2,999	
AVAILABLE Q @ GAGE (cfs)[6]	86	178	204	268	263	360	304	227	84	54	13	63	175
AVAILABLE Q @ GAGE (ac-ft)	5,288	10,568	12,519	16,479	16,159	22,136	18,065	13,927	4,980	3,290	778	3,749	127,937
AVAILABLE Q @ MOUTH (cfs)[7]	106	218	250	329	323	442	373	278	103	66	16	77	215
AVAILABLE Q @ MOUTH (ac-ft)	6,498	12,985	15,383	20,248	19,855	27,199	22,198	17,113	6,120	4,042	956	4,606	157,204
Projected Water Needs (cfs)[8]													196.53
Projected Water Needs (ac-ft)													142,381

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	5
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	3,706

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1951-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07257006
   Note: WDR-US-2012 indicates that calculated statistics for site 07257006 include Water Years 1951 - 2012. However, published values appear to reflect calculations for Water Years 1993-2012 only.
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements.
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. If changes in demands within basin have not been delineated, assume constant?
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Cadron Creek at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche La Fave	Cadron	at mouth	35° 06' 53" / 92° 33' 16"	757	USGS HUC - 11110205	757	07261000	Cadron Creek near Guy	Oct 1954 - current	Faulkner Co, at US Hwy 65 SW of Guy	35° 17' 55" / 92° 24' 14"	169	USGS

Total Annual Runoff (ac-ft)[1]	196,700

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	90.1	261	416	383	461	553	451	388	123	36.8	38.5	66.8	271
Monthly Mean Flow at Gage (ac-ft)	5,540	15,531	25,579	23,550	26,060	34,003	26,836	23,857	7,319	2,263	2,367	3,975	196,879
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	45.1	156.6	249.6	229.8	276.6	331.8	315.7	271.6	86.1	18.4	19.3	33.4	169
Fish & Wildlife (ac-ft)	2,770	9,318	15,347	14,130	15,636	20,402	18,785	16,700	5,123	1,131	1,184	1,987	122,514
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[6]	45	104	166	153	184	221	135	116	37	18	19	33	103
AVAILABLE Q @ GAGE (ac-ft	2,770	6,212	10,232	9,420	10,424	13,601	8,051	7,157	2,196	1,131	1,184	1,987	74,365
AVAILABLE Q @ MOUTH (cfs)[7]	202	468	745	686	826	991	606	521	165	82	86	150	459
AVAILABLE Q @ MOUTH (ac-ft)	12,408	27,826	45,830	42,194	46,692	60,923	36,062	32,059	9,835	5,068	5,302	8,902	333,102
Projected Water Needs (cfs)[8]													196.53
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	142,381

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	66
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	47,680

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1955-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07261000
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

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Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Flint Creek at Arkansas/Oklahoma State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Robert S. Kerr Reservoir	Illinois	AR/OK State Line	36 13 30 / 94 34 20	1,641	1111010305 (partial)	70	7195855	Flint Creek near West Siloam Springs, OK	Jul 1979 - current	Delaware Co, OK, 2.5 mi from Ark/Ok state line	36 12 58 / 94 36 19	60	USGS

Total Annual Runoff (ac-ft)[1]	34,330

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	29.9	45.4	53.6	49.0	52.3	70.1	72.3	70.1	58.5	30.4	17.2	20.5	47.4
Monthly Mean Flow at Gage (ac-ft)	1,838	2,701	3,296	3,013	2,931	4,310	4,302	4,310	3,481	1,869	1,058	1,220	34,329
7Q10 (Water Quality) - (cfs)[2]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
7Q10 (Water Quality) - (ac-ft)	98	95	98	98	89	98	95	98	95	98	98	95	1,152
Fish & Wildlife (cfs)[3]	15.0	27.2	32.2	29.4	31.4	42.1	50.6	49.1	41.0	15.2	8.6	10.3	29
Fish & Wildlife (ac-ft)	919	1,621	1,977	1,808	1,758	2,586	3,012	3,017	2,437	935	529	610	21,209
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	12	18	21	20	21	28	29	28	23	12	7	8	
Interstate Compacts (ac-ft)	735	1,081	1,318	1,205	1,172	1,724	1,721	1,724	1,392	748	423	488	
AVAILABLE Q @ GAGE (cfs)[7]	15	18	21	20	21	28	22	21	18	15	9	10	18
AVAILABLE Q @ GAGE (ac-ft)	919	1,081	1,318	1,205	1,172	1,724	1,291	1,293	1,044	935	529	610	13,121
AVAILABLE Q @ STATE LINE(cfs)[8]	18	21	25	23	24	33	25	25	21	18	10	12	21
AVAILABLE Q @ STATE LINE (ac-ft)	1,076	1,265	1,543	1,411	1,372	2,018	1,511	1,514	1,222	1,094	619	714	15,359
Projected Water Needs (cfs)[6]													1.6
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	1,129

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	5
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	3,557

1. Total annual runoff and monthly mean flow for period of record (Water Years 1980-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07195855
2. 7Q10 flows based on USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahoma Arkansas River Compact for Illinois River Subbasin. AR has right to develop and use water subject to the limitation that the annual yield (calculated annually) shall not be depleted by more than 60 percent. Calculations are shown for illustration only.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Flint Creek needs were calculated as the area-proportioned percentage of the total "Unassigned" area values as calculated by the Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Fourche LaFave River at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche La Fave	Fourche LaFave	at mouth	35° 58' 02" / 92° 35' 04"	1,115	USGS HUC-11110206	1,115	07261500	Fourche LaFave River near Gravelly	Mar 1939 - Sep 1994, Oct 1999 - current	Yell Co, Hwy 28, east of Gravelly	34° 52' 21" / 93° 39' 26"	410	USGS

Total Annual Runoff (ac-ft)[1]	399,300

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	212	473	755	677	876	1,063	975	944	366	120	47	132	551
Monthly Mean Flow at Gage (ac-ft)	13,035	28,145	46,423	41,627	49,519	65,361	58,017	58,044	21,779	7,379	2,890	7,855	400,074
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	106.0	283.8	453.0	406.2	525.6	637.8	682.5	660.8	256.2	60.0	23.5	66.0	346
Fish & Wildlife (ac-ft)	6,518	16,887	27,854	24,976	29,712	39,217	40,612	40,631	15,245	3,689	1,445	3,927	250,713
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[6]	106	189	302	271	350	425	293	283	110	60	24	66	206
AVAILABLE Q @ GAGE (ac-ft)	6,518	11,258	18,569	16,651	19,808	26,145	17,405	17,413	6,534	3,689	1,445	3,927	149,362
AVAILABLE Q @ MOUTH (cfs)[7]	288	515	821	736	953	1,156	795	770	299	163	64	179	560
AVAILABLE Q @ MOUTH (ac-ft)	17,725	30,617	50,499	45,282	53,867	71,100	47,333	47,356	17,768	10,033	3,930	10,680	406,190
Projected Water Needs (cfs)[8]													196.53
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	142,381

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	91
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	65,952

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1939-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07261500
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Illinois Bayou at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche La Fave	Illinois Bayou	at mouth	35° 17' 12" / 93° 13' 15"	1,860	USGS HUCs - 1111020209 & 1111020210	392	07257500	Illinois Bayou near Scottsville	Oct 1947 - Sep 1970, Oct 1999 - current	Pope Co, Hwy 164 north of Scottsville	35° 27' 59" / 93° 02' 28"	241	USGS

Total Annual Runoff (ac-ft)[1]	274,600

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	114	265	429	546	630	777	773	626	164	96.5	51.5	91.4	379
Monthly Mean Flow at Gage (ac-ft)	7,010	15,769	26,378	33,572	35,301	47,776	45,997	38,491	9,759	5,934	3,167	5,439	274,591
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	57.0	159.0	257.4	327.6	378.0	466.2	541.1	438.2	114.8	48.3	25.8	45.7	237
Fish & Wildlife (ac-ft)	3,505	9,461	15,827	20,143	21,180	28,666	32,198	26,944	6,831	2,967	1,583	2,719	172,024
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[6]	57	106	172	218	252	311	232	188	49	48	26	46	142
AVAILABLE Q @ GAGE (ac-ft)	3,505	6,307	10,551	13,429	14,120	19,110	13,799	11,547	2,928	2,967	1,583	2,719	102,566
AVAILABLE Q @ MOUTH (cfs)[7]	93	172	279	355	410	506	377	305	80	78	42	74	230
AVAILABLE Q @ MOUTH (ac-ft)	5,701	10,259	17,162	21,843	22,968	31,084	22,445	18,782	4,762	4,826	2,575	4,423	166,830
Projected Water Needs (cfs)[8]													0.070
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	50.6

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	57.6
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	41,695

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1947-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07257500
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Illinois River at the Arkansas/Oklahoma State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Illinois River Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Illinois River Gage Drainage Area (sq miles)	Agency Maintaining Gage
Robert S. Kerr	Illinois	AR/OK State Line	Illinois River: 36 06 07 / 94 33 08 Flint Creek: 36 13 30 / 94 34 20	1,641	111010301, 111010302, 111010303, 111010304, 11101030601, 11101030602, 11101030603, 11101030606	602	7195430 & 7195855	Illinois River South of Siloam Springs, AR & Flint Creek near West Siloam Springs, OK	1995 - current, Jul 1979 - current	At bridge on Hwy 59, 5.0 mi south of Siloam Springs; Delaware Co, OK, 2.5 mi from Ark/Ok state line	36 06 31 / 94 32 00, 36 12 58 / 94 36 19	575	USGS

Note: The Illinois River Basin includes the Illinois River and Flint Creek. These two sub-watersheds were analyzed separately and then the annual flow values were added together when calculating the final value for excess surface water available for the entire study basin. The calculations for Flint Creek are presented in a separate spreadsheet, and the values for flow available at the mouth of Flint Creek were taken from those calculations.

Total Annual Runoff (ac-ft)[1]	450,500

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	379	529	505	647	746	886	1,178	922	610	472	238	356	622
Monthly Mean Flow at Gage (ac-ft)	23,304	31,478	31,051	39,782	41,801	54,478	70,096	56,692	36,298	29,022	14,634	21,183	449,819
7Q10 (Water Quality) - (cfs)[2]	95.1	95.1	95.1	95.1	95.1	95.1	95.1	95.1	95.1	95.1	95.1	95.1	95.1
7Q10 (Water Quality) - (ac-ft)	5,847	5,659	5,847	5,847	5,329	5,847	5,659	5,847	5,659	5,847	5,847	5,659	68,896
Fish & Wildlife (cfs)[3]	189.5	317.4	303.0	388.2	447.6	531.6	824.6	645.4	427.0	236.0	119.0	178.0	383
Fish & Wildlife (ac-ft)	11,652	18,887	18,631	23,869	25,080	32,687	49,067	39,684	25,408	14,511	7,317	10,592	277,385
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	152	212	202	259	298	354	471	369	244	189	95	142	
Interstate Compacts (ac-ft)	9,322	12,591	12,420	15,913	16,720	21,791	28,038	22,677	14,519	11,609	5,854	8,473	
AVAILABLE Q @ GAGE (cfs)[7]	190	212	202	259	298	354	353	277	183	236	119	178	238
AVAILABLE Q @ GAGE (ac-ft)	11,652	12,591	12,420	15,913	16,720	21,791	21,029	17,007	10,889	14,511	7,317	10,592	172,433
AVAILABLE Q @ STATE LINE - Illinois River Area Only (cfs)[8]	198	222	211	271	312	371	370	290	192	247	125	186	249
AVAILABLE Q @ STATE LINE - Illinois River Area Only (ac-ft)	12,199	13,182	13,004	16,660	17,505	22,814	22,016	17,806	11,401	15,192	7,661	11,089	180,530
Projected Water Needs (cfs)[6]													0.475
Projected Water Needs (ac-ft)													343.9

EXCESS SURFACE WATER AVAILABLE AT STATE LINE - ILLINOIS RIVER AREA ONLY - FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	62.2
EXCESS SURFACE WATER AVAILABLE AT STATE LINE - ILLINOIS RIVER AREA ONLY - FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	45,047
EXCESS SURFACE WATER AVAILABLE AT STATE LINE - FLINT CREEK AREA ONLY - FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	5
EXCESS SURFACE WATER AVAILABLE AT STATE LINE - FLINT CREEK AREA ONLY - FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	3,557
TOTAL EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	67
TOTAL EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	48,604

1. Total annual runoff and monthly mean flow for period of record (Water Years 1995-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07195430.
This gae was used instead of Gage ID 07195500, in Watts, OK, because the Siloam Springs gage has more current data that reflects wastewater discharges from northwest AR.
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahoma Arkansas River Compact for Illinois River Subbasin. AR has right to develop and use water subject to the limitation that the annual yield (calculated annually) shall not be depleted by more than 60 percent.
Calculations are shown for illustration only.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at stateline based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. This study basin is comprised of two watersheds, Illinois River and Flint Creek. The excess surface water available for Flint Creek was calculated separately. The point of calculation drainage area for Flint Creek is 70 sq. mi, bringing the total drainage area for this study basin to 672 sq. mi. The point of calculation drainage area for the Illinois River only was used for the calculations laid out in this spreadsheet. The Flint Creek excess surface water available is added at the end of calculations.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Lee Creek at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Robert S. Kerr Reservoir	Robert S. Kerr Reservoir	mouth	35 36 47 / 94 28 07	1,809	1111010404	273	7249985	Lee Creek nr Short, OK	1931-2012	Left Bank 0.5 W of AR/OK state line	35 31 02 / 94 27 51	420	USGS

Total Annual Runoff (ac-ft)[1]	399,000

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	233	537	561	601	756	1,064	1,139	944	431	156	45	161	551
Monthly Mean Flow at Gage (ac-ft)	14,327	31,954	34,495	36,954	42,361	65,423	67,775	58,044	25,646	9,592	2,785	9,580	398,936
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	116.5	322.2	336.6	360.6	453.6	638.4	797.3	660.8	301.7	78.0	22.7	80.5	346
Fish & Wildlife (ac-ft)	7,163	19,172	20,697	22,172	25,417	39,254	47,443	40,631	17,952	4,796	1,393	4,790	250,880
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	117	215	224	240	302	426	342	283	129	78	23	81	204
AVAILABLE Q @ GAGE (ac-ft	7,163	12,781	13,798	14,782	16,944	26,169	20,333	17,413	7,694	4,796	1,393	4,790	148,056
AVAILABLE Q @ MOUTH (cfs)[8]	76	140	146	156	197	277	222	184	84	51	15	52	133
AVAILABLE Q @ MOUTH (ac-ft)	4,656	8,308	8,969	9,608	11,014	17,010	13,216	11,319	5,001	3,117	905	3,114	96,237
Projected Water Needs (cfs)[6]													0.307
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	222.6

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	33
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	24,004

1. Total annual runoff and monthly mean flow for period of record (Water Years 1931-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07249985
2. 7Q10 flows based on USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahoma Arkansas River Compact for Lee Creek Subbasin. AR has right to develop and use all water from that portion of the basin located in AR. OK has the right to develop and use all water originating in OK.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. Lee Creek begins in Arkansas, flows into Oklahoma, and then reenters Arkansas before flowing into the Arkansas River. The point of calculation drainage area is for the drainage area of Lee Creek that is in Arkansas only. The drainage area located in Oklahoma is not used based on interstate compact requirements (see note 6).

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Point Remove Creek at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche La Fave	Lake Conway - Point Remove	at mouth	35° 08' 39" / 92° 45' 56"	1,136	USGS HUCs - 1111020301 & 1111020302	526	07260673	West Fork Point Remove Creek near Hattieville	Oct 1977 - Sep 2001, Oct 2001 - current	Pope Co, Hwy 247 northwest of Hattieville	35° 19' 29" / 92° 52' 23"	222	USGS

Total Annual Runoff (ac-ft)[1]	186,500

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	155	231	432	400	368	481	398	490	44.0	23.0	5.50	71	258
Monthly Mean Flow at Gage (ac-ft)	9,531	13,745	26,563	24,595	20,620	29,576	23,683	30,129	2,618	1,414	338	4,225	187,036
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	77.5	138.6	259.2	240.0	220.8	288.6	278.6	343.0	30.8	11.5	2.8	35.5	161
Fish & Wildlife (ac-ft)	4,765	8,247	15,938	14,757	12,372	17,745	16,578	21,090	1,833	707	169	2,112	116,314
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[6]	78	92	173	160	147	192	119	147	13	12	3	36	98
AVAILABLE Q @ GAGE (ac-ft)	4,765	5,498	10,625	9,838	8,248	11,830	7,105	9,039	785	707	169	2,112	70,722
AVAILABLE Q @ MOUTH (cfs)[7]	184	219	409	379	349	456	283	348	31	27	7	84	231
AVAILABLE Q @ MOUTH (ac-ft)	11,291	13,027	25,175	23,310	19,543	28,030	16,834	21,416	1,861	1,675	401	5,005	167,567
Projected Water Needs (cfs)[8]													
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	58
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	41,892

Notes:
1. Annual runoff for period of record (Water Years 2002-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07260673. Monthly mean flow for period of record (Water Years 2002-2012) based on USGS values calculated using the Monthly Statistics tool on the USGS website. Values reported in the annual report for this gage were found to be inconsistent with other reported data.
Note: There is no gage with long-term flow data on Point Remove Creek. This gaging station was selected as a surrogate.
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Petit Jean River at mouth

River Basin[10]	Sub-Basin[10]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[10] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche LaFave	Petit Jean	at mouth	35° 10' 04" / 92° 55' 29"	1,099	USGS HUC-11110204	1,099	07260500	Petit Jean River at Danville	Oct 1947 - current	Yell Co, Hwy 10 at Danville	35° 03' 31" / 93° 23' 44"	764	USGS

Total Annual Runoff (ac-ft)[1]	608,192

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[2]	215	605	1,226	1,164	1,333	1,442	1,373	1,389	731	309	158	157	828
Monthly Mean Flow at Gage (ac-ft)	13,220	36,000	75,384	71,572	74,692	88,665	81,699	85,406	43,498	19,000	9,715	9,342	608,192
7Q10 (Water Quality) - (cfs)[3]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
7Q10 (Water Quality) - (ac-ft)	37	36	37	37	34	37	36	37	36	37	37	36	435
Fish & Wildlife (cfs)[4]	107.5	363.0	735.6	698.4	799.8	865.2	961.1	972.3	511.7	#REF! 154.5	79.0	78.5	526
Fish & Wildlife (ac-ft)	6,610	21,600	45,230	42,943	44,815	53,199	57,189	57,856	30,448	9,500	4,858	4,671	378,919
Navigation (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[6]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	108	242	490	466	533	577	412	417	219	155	79	79	314
AVAILABLE Q @ GAGE (ac-ft)	6,610	14,400	30,154	28,629	29,877	35,466	24,510	25,622	13,049	9,500	4,858	4,671	227,344
AVAILABLE Q @ MOUTH (cfs)[8]	155	348	705	670	767	830	593	599	315	222	114	113	451
AVAILABLE Q @ MOUTH (ac-ft)	9,508	20,714	43,375	41,182	42,977	51,017 0	35,257	36,857	18,771	13,665	6,987	6,719	327,031
Projected Water Needs (cfs)[9]													0.000
Projected Water Needs (ac-ft)													0

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	113
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	81,758

Notes:
1. Total annual runoff derived from annual mean flow since no published value available.
2. Annual and monthly mean flows for period of record (Water Years 1947-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07260500
3. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
4. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
5. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
6. No interstate compact requirements
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
9. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
10. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Mulberry River at mouth

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Arkansas-Fourche La Fave	Mulberry	at mouth	35° 28' 00" / 94° 02' 30"	1,268	USGS HUCs - 1111020106-08 (partial -08)	424	07252000	Mulberry River near Mulberry	Jun 1938 - Jan 1995, Oct 1998 - current	Franklin Co, north of Mulberry	35° 34' 37" / 94° 00' 55"	373	USGS

Total Annual Runoff (ac-ft)[1]	403,200

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	184	533	646	644	867	1,079	1,142	963	392	125	58.5	94.6	557
Monthly Mean Flow at Gage (ac-ft)	11,314	31,716	39,721	39,598	49,011	66,345	67,954	59,213	23,326	7,686	3,597	5,629	405,108
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	92.0	319.8	387.6	386.4	520.2	647.4	799.4	674.1	274.4	62.5	29.3	47.3	352
Fish & Wildlife (ac-ft)	5,657	19,029	23,833	23,759	29,406	39,807	47,568	41,449	16,328	3,843	1,799	2,815	255,291
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[6]	92	213	258	258	347	432	343	289	118	63	29	47	207
AVAILABLE Q @ GAGE (ac-ft)	5,657	12,686	15,888	15,839	19,604	26,538	20,386	17,764	6,998	3,843	1,799	2,815	149,817
AVAILABLE Q @ MOUTH (cfs)[7]	105	242	294	293	394	491	389	328	134	71	33	54	235
AVAILABLE Q @ MOUTH (ac-ft)	6,430	14,421	18,061	18,005	22,285	30,167	23,173	20,193	7,954	4,368	2,044	3,199	170,301
Projected Water Needs (cfs)[8]													0.052
Projected Water Needs (ac-ft)													37

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	59
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	42,566

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1938-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report; 0.37% increase over published, assumed to reflect differences of incomplete periods in monthly and annual calculations.WDR-US-2012, site 07252000
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements.
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

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Calculation of Instream Needs and Available Surface Water
Poteau River at the Arkansas/Oklahoma State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area[10] (sq miles)	Agency Maintaining Gage
Robert S. Kerr Reservoir	Poteau	AR/OK State Line	34° 53' 05" / 94° 26' 58"	1,889	HUC 1111010506, 8, & 9	332	07247000 & 07247250	Poteau River at Cauthron, AR & Black Fork below Big Creek near Page, OK	1975-2012 & 1992-2012	On right bank at d/s side of County Rd 56 bridge AND on d/s side of bridge pier of County Rd bridge	34°55'08"/ 94°17'58" 94°46'25"/ 94°30'43"	332	USGS

Total Annual Runoff (ac-ft)[1]	314,003

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	213	500	634	580	658	766	603	707	292	105	36	119	433
Monthly Mean Flow at Gage (ac-ft)	13,119	29,749	38,955	35,677	36,893	47,120	35,896	43,475	17,380	6,449	2,190	7,101	314,003
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	106.7	300.0	380.1	348.1	395.0	459.8	422.3	494.9	204.5	52.4	17.8	59.7	269
Fish & Wildlife (ac-ft)	6,560	17,850	23,373	21,406	22,136	28,272	25,127	30,432	12,166	3,225	1,095	3,550	195,191
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	85	200	253	232	263	307	241	283	117	42	14	48	
Interstate Compacts (ac-ft)	5,248	11,900	15,582	14,271	14,757	18,848	14,358	17,390	6,952	2,580	876	2,840	
AVAILABLE Q @ GAGE (cfs)[7]	107	200	253	232	263	307	181	212	88	52	18	60	164
AVAILABLE Q @ GAGE (ac-ft	6,560	11,900	15,582	14,271	14,757	18,848	10,769	13,042	5,214	3,225	1,095	3,550	118,812
AVAILABLE Q @ STATE LINE (cfs)[8]	107	200	253	232	263	307	181	212	88	52	18	60	164
AVAILABLE Q @ STATE LINE(ac-ft)	6,560	11,900	15,582	14,271	14,757	18,848	10,769	13,042	5,214	3,225	1,095	3,550	118,812
Projected Water Needs (cfs)[6]													
Projected Water Needs (ac-ft)													0

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	41
EXCESS SURFACE WATER AVAILABLE AT STATE LINEFOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	29,703

1. Total annual runoff and monthly mean flow calculated as sum of values for two sets of gage data. The values for each gage were taken from their respective water data reports (USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012). Values for each gage were area proportioned for their representative area, then totaled.
2. The 7Q10 flow for both gage stations was 0 cfs. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality AND USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahoma Arkansas River Compact for the Poteau River Sub-basin. AR allowed to develop and use water subject to limitation that annual yield shall not be reduced by more than 60%.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Negative demand growth in all surrounding river basins, therefore assume also negative and hold constant (zero change).
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. The point of calculation drainage area is the sum of the drainage areas for the Poteau River and the Black Fork. The monthly flows for each of these drainage areas were calculated using the monthly mean flows at the gages and then area proportioning. The gage drainage area given in this sheet is set as the same value as the point of calculation drainage area. This is due to the fact that the monthly flows were already area proportioned for each stream separately. No further proportioning was needed in this sheet.

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Calculation of Instream Needs and Available Surface Water
Poteau River Tributaries at the Arkansas/Oklahoma State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area[10] (sq miles)	Agency Maintaining Gage
Robert S. Kerr Reservoir	Poteau	AR/OK State Line	35 09 48 / 94 26 23	1,889	HUC 1111010506, 8, & 9	225	07249400 & 07249447	James Fork near Hackett, AR & Mill Creek at Fort Smith, AR	1958-2012 & 1997-2003	James Fork - near left bank on d/s side of bridge on Hwy 45	35 09 45 / 94 24 25 35 20 34 / 94 25 20	225	USGS

Total Annual Runoff (ac-ft)[1]	166,548

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	130	246	299	273	339	425	357	397	151	71	21	56	230
Monthly Mean Flow at Gage (ac-ft)	7,985	14,637	18,410	16,805	18,998	26,127	21,219	24,421	8,965	4,369	1,288	3,324	166,548
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	64.9	147.6	179.6	164.0	203.4	254.9	249.6	278.0	105.5	35.5	10.5	27.9	143
Fish & Wildlife (ac-ft)	3,992	8,782	11,046	10,083	11,399	15,676	14,853	17,095	6,275	2,184	644	1,662	103,693
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	52	98	120	109	136	170	143	159	60	28	8	22	
Interstate Compacts (ac-ft)	3,194	5,855	7,364	6,722	7,599	10,451	8,488	9,769	3,586	1,748	515	1,330	
AVAILABLE Q @ GAGE (cfs)[7]	65	98	120	109	136	170	107	119	45	36	10	28	87
AVAILABLE Q @ GAGE (ac-ft)	3,992	5,855	7,364	6,722	7,599	10,451	6,366	7,326	2,689	2,184	644	1,662	62,855
AVAILABLE Q @ STATE LINE (cfs)[8]	65	98	120	109	136	170	107	119	45	36	10	28	87
AVAILABLE Q @ STATE LINE (ac-ft)	3,992	5,855	7,364	6,722	7,599	10,451	6,366	7,326	2,689	2,184	644	1,662	62,855
Projected Water Needs (cfs)[6]													0
Projected Water Needs (ac-ft)													0

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	22
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	15,714

1. Total annual runoff and monthly mean flow calculated as sum of values for two sets of gage data. The values for the gage on James Fork were taken from its water data report (USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012). Values for the gage on Mill Creek were calculated using the USGS website monthly statistics tool. Values for each gage were area proportioned for their representative area, then totaled.
2. There is no published 7Q10 value for the Mill Creek Gage. The 7Q10 flows for the James Fork gage based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-5065, prepared in cooperation with the Arkansas Department of Environmental Quality
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahoma Arkansas River Compact for the Poteau River Sub-basin. AR allowed to develop and use water subject to limitation that annual yield shall not be reduced by more than 60%.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at stateline based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. The point of calculation drainage area is the sum of the drainage areas for the Poteau River and the Black Fork. The monthly flows for each of these drainage areas were calculated using the monthly mean flows at the gages and then area proportioning. The gage drainage area given in this sheet is set as the same value as the point of calculation drainage area. This is due to the fact that the monthly flows were already area proportioned for each stream separately. No further proportioning was needed in this sheet.

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Calculation of Instream Needs and Available Surface Water
Spavinaw Creek at Arkansas/Oklahoma State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Neosho	Lower Neosho	AR/OK State Line	36 20 40/94 35 36	4,170	11070206, 8, 9	387	7191220	Spavinaw Creek near Sycamore, OK	Oct. 1961 - Sept. 2012	on right bank 1.8 mi upstream from Cherokee Creek	36 20 05/94 38 29	132	USGS

Total Annual Runoff (ac-ft)[1]	81,883

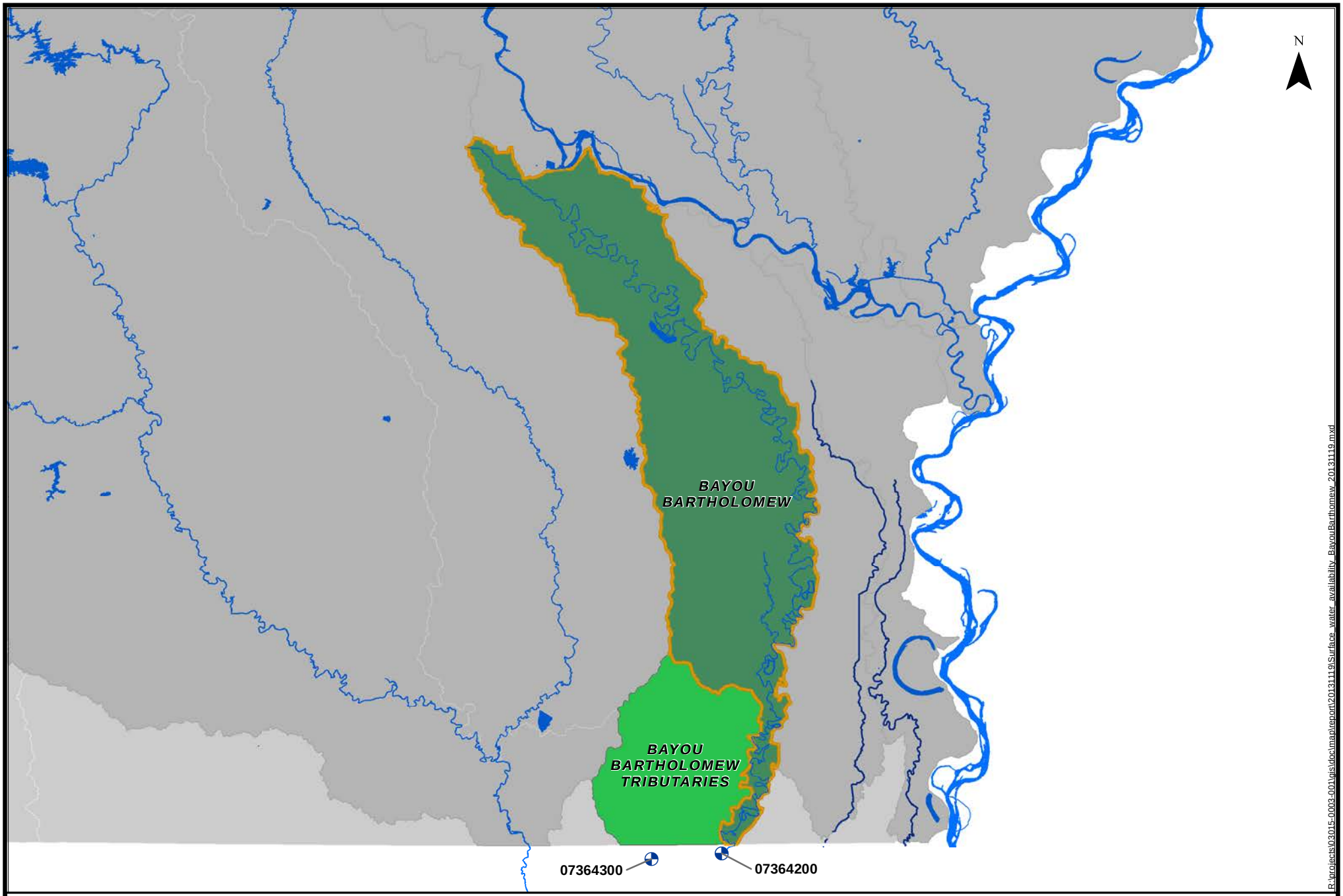
	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	59	102	115	112	127	187	202	159	143	71	32	50	113
Monthly Mean Flow at Gage (ac-ft)	3,628	6,069	7,071	6,887	7,116	11,498	12,020	9,777	8,509	4,366	1,968	2,975	81,883
7Q10 (Water Quality) - (cfs)[2]	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36
7Q10 (Water Quality) - (ac-ft)	330	319	330	330	300	330	319	330	319	330	330	319	3,883
Fish & Wildlife (cfs)[3]	29.5	61.2	69.0	67.2	76.2	112.2	141.4	111.3	100.1	35.5	16.0	25.0	70
Fish & Wildlife (ac-ft)	1,814	3,642	4,243	4,132	4,270	6,899	8,414	6,844	5,956	2,183	984	1,488	50,867
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	29.5	51.0	57.5	56.0	63.5	93.5	101.0	79.5	71.5	35.5	16.0	25.0	
Interstate Compacts (ac-ft)	1,814	3,035	3,536	3,443	3,558	5,749	6,010	4,888	4,255	2,183	984	1,488	
AVAILABLE Q @ GAGE (cfs)[7]	30	41	46	45	51	75	61	48	43	36	16	25	43
AVAILABLE Q @ GAGE (ac-ft	1,814	2,428	2,828	2,755	2,846	4,599	3,606	2,933	2,553	2,183	984	1,488	31,016
AVAILABLE Q @ STATE LINE (cfs)[8]	86	120	135	131	149	219	178	140	126	104	47	73	126
AVAILABLE Q @ STATE LINE (ac-ft)	5,318	7,118	8,292	8,076	8,345	13,484	10,572	8,599	7,484	6,400	2,884	4,361	90,934
Projected Water Needs (cfs)[6]													8.6
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	6,243

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	29
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	21,173

1. Monthly mean flow for period of record (Water Years 1962-2012) based on data calculated from USGS monthly statistics tool on USGS website. Annual mean and annual runoff calculated from these values.
2. 7Q10 flows based on USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Arkansas-Oklahoma Arkansas River Compact for Spavinaw Creek Subbasin. AR has right to develop and use water subject to the limitation that the annual yield (calculated annually) shall not be depleted by more than 50 percent. Calculations are shown for illustration only.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Flint Creek needs were calculated as the area-proportioned percentage of the total "Unassigned" area values as calculated by the Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC. NOTE: there are three 8-digit HUCs included in this study area, and the value given for area is the total area of the three.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value



Bayou Bartholomew Basin

Legend

- USGS Flow Gages used for Calculations

Calculation of Instream Needs and Available Surface Water
Bayou Bartholomew at the Arkansas/Louisiana State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Ouachita	Bayou Bartholomew	At AR/LA state line	33 00 24 / 93 37 39	1,688	HUC 08040205	1,184	7364200	Bayou Bartholomew near Jones, LA	1958-current	Morehouse Parish, LA; 1 mi Downstream of State Line	32 59 25 / 91 39 20	1,187	USGS

Total Annual Runoff (ac-ft)[1]	945,500

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	397	636	1,440	2,090	2,420	2,620	2,230	1,760	970	499	352	325	1,305
Monthly Mean Flow at Gage (ac-ft)	24,411	37,845	88,542	128,509	135,600	161,098	132,694	108,218	57,719	30,682	21,644	19,339	946,300
7Q10 (Water Quality) - (cfs)[2]	25	25	25	25	25	25	25	25	25	25	25	25	25
7Q10 (Water Quality) - (ac-ft)	1,537	1,488	1,537	1,537	1,401	1,537	1,488	1,537	1,488	1,537	1,537	1,488	18,112
Fish & Wildlife (cfs)[3]	198.5	381.6	864.0	1,254.0	1,452.0	1,572.0	1,561.0	1,232.0	679.0	249.5	176.0	162.5	812
Fish & Wildlife (ac-ft)	12,205	22,707	53,125	77,105	81,360	96,659	92,886	75,753	40,403	15,341	10,822	9,669	588,036
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	199	254	576	836	968	1,048	669	528	291	250	176	163	495
AVAILABLE Q @ GAGE (ac-ft)	12,205	15,138	35,417	51,404	54,240	64,439	39,808	32,465	17,316	15,341	10,822	9,669	358,264
AVAILABLE Q @ STATE LINE (cfs)[8]	198	254	575	834	966	1,045	667	527	290	249	176	162	493
AVAILABLE Q @ STATE LINE (ac-ft)	12,174	15,100	35,327	51,274	54,103	64,276	39,708	32,383	17,272	15,302	10,794	9,645	357,359
Projected Water Needs (cfs)[6]													1.56
Projected Water Needs (ac-ft)													1,132.1

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	123
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	89,057

Notes:
1. Monthly mean flows were calculated for the full period of record using the USGS website Monthly Statistics tool. Annual mean and annual runoff were reported in USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, shown are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Bayou Bartholomew Tributaries at the Arkansas/Louisiana State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Ouachita	Bayou Bartholomew	Chemin-a-Haut at AR/LA state line	33 00 26 / 91 48 01	1,688	HUC 0804020507, 0804020509, & 080402050803, 4, & 5	350	7364300	Chemin-A-Haut Bayou near Beekman, LA	1956-1979	At bridge on parish road, 1.5 mi d/s from AR/LA state line	32 58 55 / 91 48 20	271	USGS

Total Annual Runoff (ac-ft)[1]	213,423

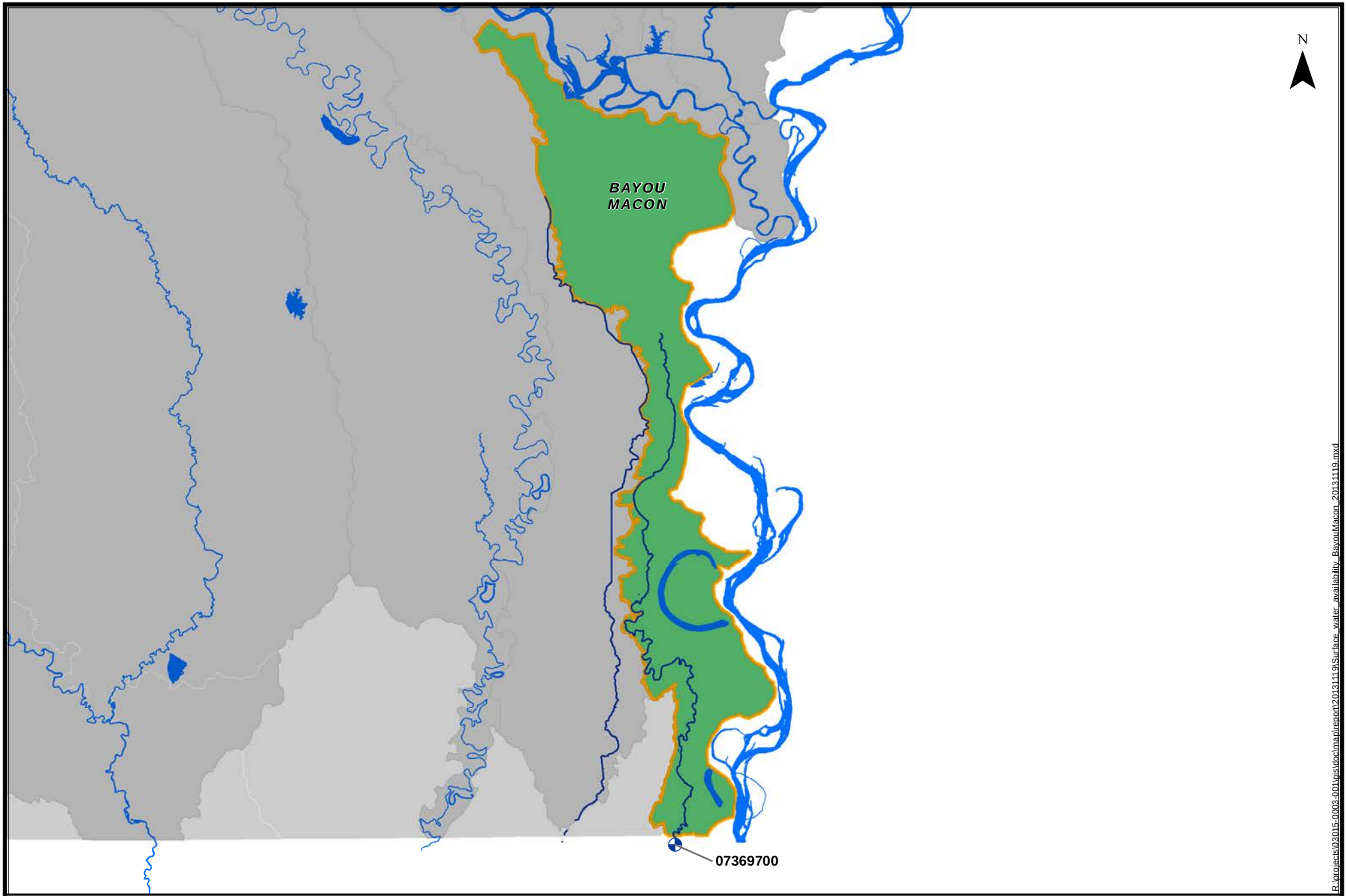
	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	29	184	295	453	555	540	652	494	157	47	34	116	295
Monthly Mean Flow at Gage (ac-ft)	1,783	10,949	18,139	27,854	31,098	33,203	38,797	30,375	9,342	2,890	2,091	6,902	213,423
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	14.5	110.4	177.0	271.8	333.0	324.0	456.4	345.8	109.9	23.5	17.0	58.0	186
Fish & Wildlife (ac-ft)	892	6,569	10,883	16,712	18,659	19,922	27,158	21,262	6,540	1,445	1,045	3,451	134,539
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	15	74	118	181	222	216	196	148	47	24	17	58	109
AVAILABLE Q @ GAGE (ac-ft)	892	4,380	7,256	11,142	12,439	13,281	11,639	9,112	2,803	1,445	1,045	3,451	78,884
AVAILABLE Q @ STATELINE (cfs)[8]	19	95	152	234	287	279	253	191	61	30	22	75	141
AVAILABLE Q @ STATELINE (ac-ft)	1,151	5,656	9,371	14,389	16,066	17,153	15,032	11,769	3,620	1,866	1,350	4,457	101,880
Projected Water Needs (cfs)[6]													0.056
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	40.32

EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	35.1
EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	25,460

1. Total annual runoff and monthly mean flow for period of record (Water Years 1956-1979) based on data from USGS Monthly Statistics table produced on USGS website.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values shown are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value



Bayou Macon Basin

Legend

- USGS Flow Gages used for Calculations

Arkansas WATERplan
Essential For Life

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Calculation of Instream Needs and Available Surface Water
Bayou Macon at Arkansas/Louisiana State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Boeuf-Tensas	Bayou Macon	AR/LA State Line	33 00 18 / 91 15 54	1,063	8050002	570	7369700	Bayou Macon near Kilbourne, LA	1957-1968, 2011-current	nr center of channel on d/s side of bridge on hwy 585, 0.8 mi S of AR/LA line	32 59 35 / 91 15 45	504	USGS

Total Annual Runoff (ac-ft)[1]	367,906

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	216	317	555	683	879	832	745	833	357	242	183	274	555
Monthly Mean Flow at Gage (ac-ft)	13,281	18,863	34,126	41,996	49,253	51,158	44,331	51,219	21,243	14,880	11,252	16,304	367,906
7Q10 (Water Quality) - (cfs)[2]	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
7Q10 (Water Quality) - (ac-ft)	473	458	473	473	431	473	458	473	458	473	473	458	5,578
Fish & Wildlife (cfs)[3]	108.0	190.2	333.0	409.8	527.4	499.2	521.5	583.1	249.9	121.0	91.5	137.0	313
Fish & Wildlife (ac-ft)	6,641	11,318	20,475	25,198	29,552	30,695	31,031	35,853	14,870	7,440	5,626	8,152	226,851
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	108	127	222	273	352	333	224	250	107	121	92	137	195
AVAILABLE Q @ GAGE (ac-ft)	6,641	7,545	13,650	16,798	19,701	20,463	13,299	15,366	6,373	7,440	5,626	8,152	141,055
AVAILABLE Q @ STATE LINE (cfs)[8]	122	143	251	309	398	376	253	283	121	137	103	155	220
AVAILABLE Q @ STATE LINE(ac-ft)	7,510	8,533	15,438	18,998	22,281	23,143	15,041	17,378	7,207	8,414	6,363	9,220	159,526
Diffence in Base Year and 1980 Demand (cfs)													60.9
Diffence in Base Year and 1980 Demand (ac-ft)													44,142
Projected Water Needs (cfs)[6]													
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	40
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	28,846

Notes:
1. Monthly mean flow calculated for period with complete data (WY 1958-1968) using USGS website tool for Monthly Statistics. Total annual runoff value calculated using these values.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, shown are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for Louisiana.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change in watershed is negative, therefore held constant (zero change) for this calculation.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

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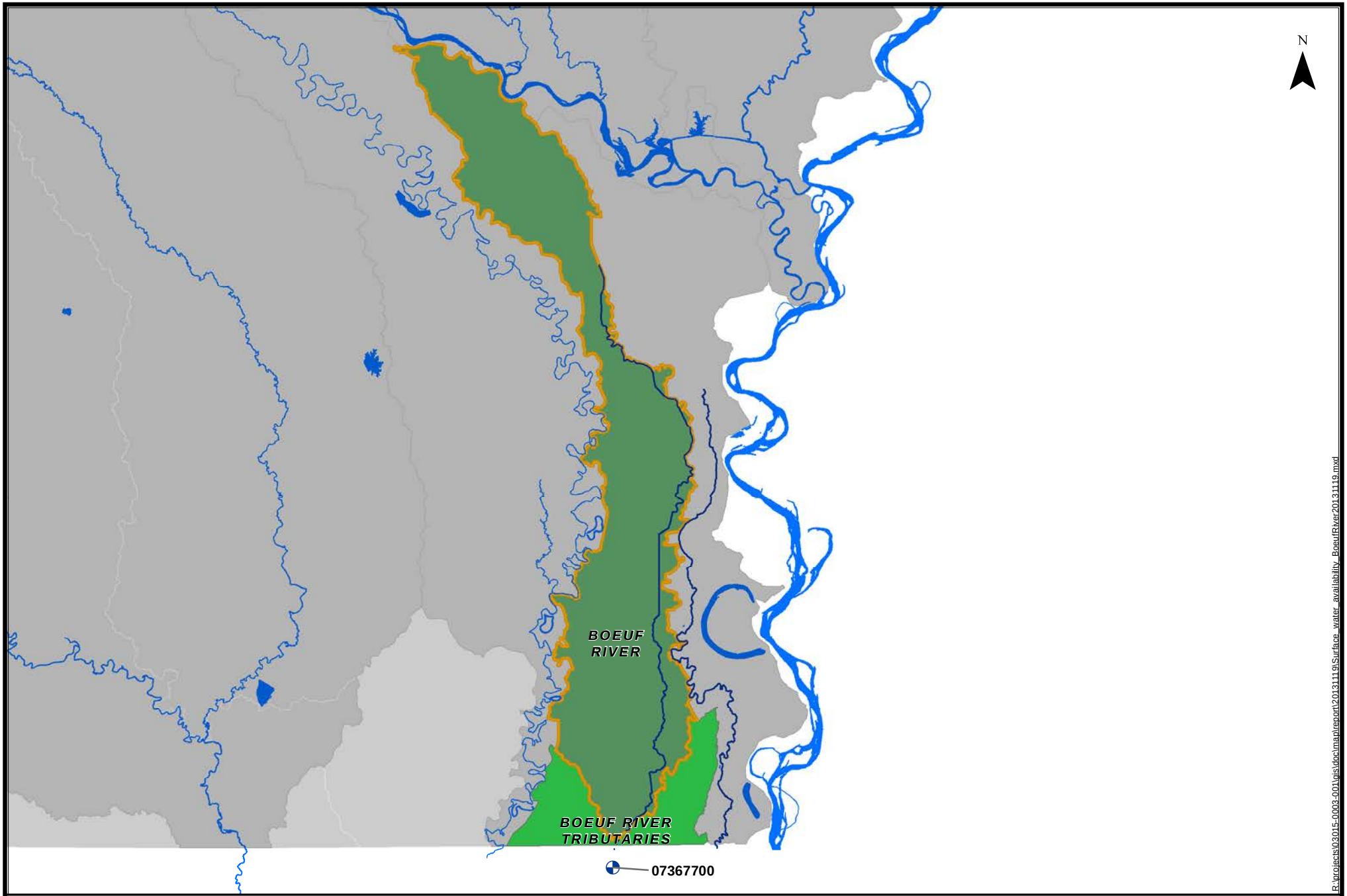


Boeuf River Basin

Legend

- USGS Flow Gages used for Calculations

Arkansas WATERplan
Essential For Life

Calculation of Instream Needs and Available Surface Water
Boeuf River at AR/LA State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Boeuf-Tensas	Boeuf	Just u/s of AR/LA State Line	33 00 52 / 91 25 43	2,891	0805000101, 2, 3, 4, 080500010501, 2	660	7367700	Boeuf River near Arkansas-Lousiana State Line	1957-1968	Near left bank on d/s side of bridge on Hwy 835, 2 mi d/s from AR-LA line	32 58 23 / 91 26 31	785	USGS

Total Annual Runoff (ac-ft)[1]	688,778

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	231	799	1,104	1,429	1,928	1,517	1,366	1,478	415	337	188	687	951
Monthly Mean Flow at Gage (ac-ft)	14,234	47,559	67,868	87,876	108,039	93,252	81,273	90,855	24,720	20,716	11,530	40,857	688,778
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	115.7	479.6	662.3	857.5	1,156.9	910.0	956.1	1,034.3	290.8	168.5	93.8	343.3	586
Fish & Wildlife (ac-ft)	7,117	28,535	40,721	52,726	64,824	55,951	56,891	63,598	17,304	10,358	5,765	20,428	424,218
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	116	320	442	572	771	607	410	443	125	168	94	343	365
AVAILABLE Q @ GAGE (ac-ft)	7,117	19,023	27,147	35,150	43,216	37,301	24,382	27,256	7,416	10,358	5,765	20,428	264,560
AVAILABLE Q @ STATE LINE (cfs)[8]	97	269	371	481	648	510	345	373	105	142	79	289	307
AVAILABLE Q @ STATE LINE (ac-ft)	5,984	15,994	22,825	29,553	36,334	31,361	20,499	22,916	6,235	8,709	4,847	17,175	222,433
Diffence in Base Year and 1980 Demand (cfs)													54.3
Diffence in Base Year and 1980 Demand (ac-ft)													39,342.8
Projected Water Needs (cfs)[6]													19.3
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	13,947

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	71.9
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	42,286

1. Total annual runoff and monthly mean flow calculated for period of 1958-1968 only due to the fact that discharge after that time was not recorded when above 200 cfs. This chosen method is consistent with the method used to produced values in the 1990 AWP report.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, shown are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Boeuf River Tributaries at AR/LA State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Boeuf-Tensas	Boeuf	Just u/s of AR/LA State Line	33 00 24 / 91 32 06	2,891	0805000101, 2, 3, 4, 080500010501, 2	113	7367700	Boeuf River near Arkansas-Lousiana State Line	1957-1968	Near left bank on d/s side of bridge on Hwy 835, 2 mi d/s from AR-LA line	32 58 23 / 91 26 31	785	USGS

Total Annual Runoff (ac-ft)[1]	688,778

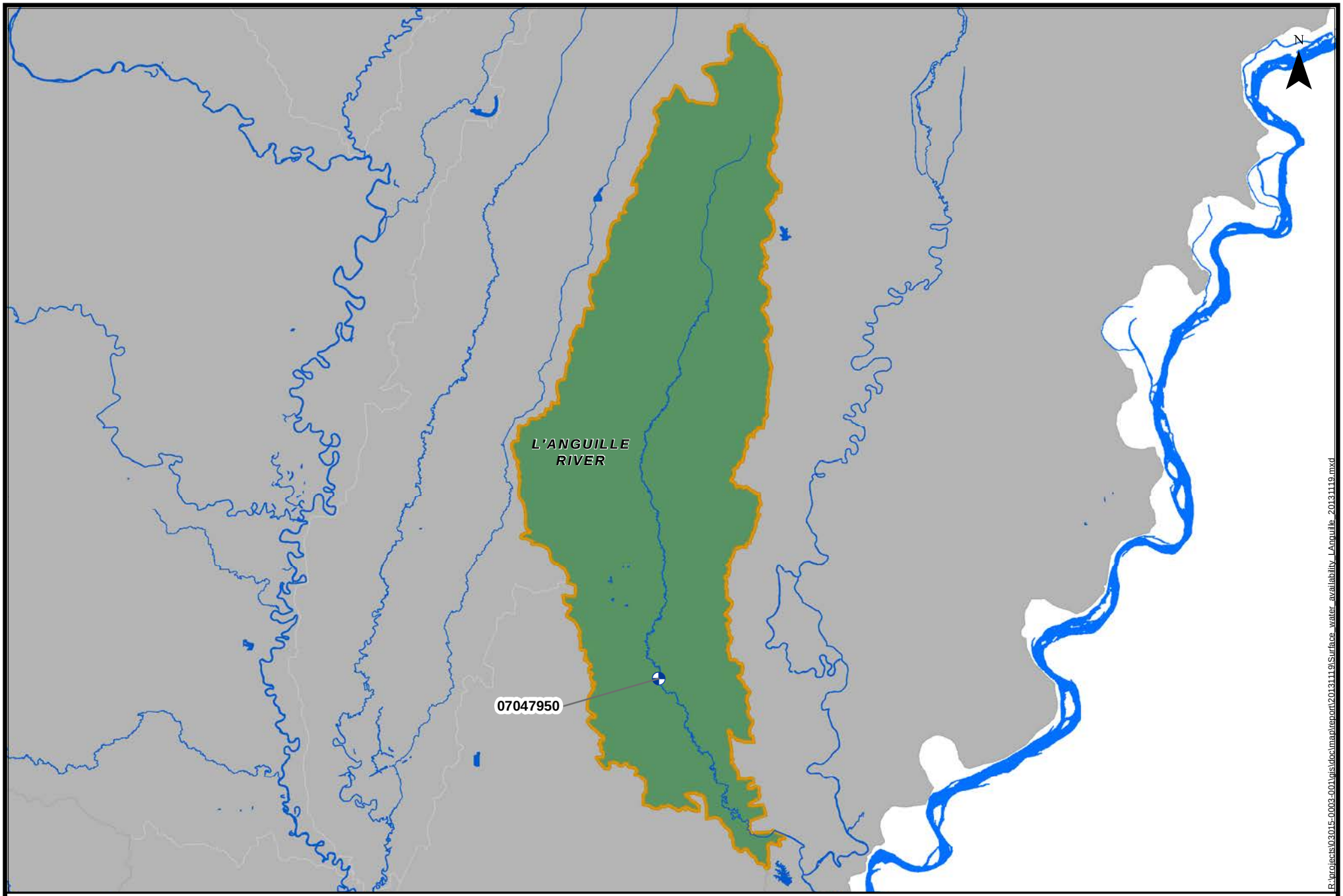
	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	231	799	1,104	1,429	1,928	1,517	1,366	1,478	415	337	188	687	951
Monthly Mean Flow at Gage (ac-ft)	14,234	47,559	67,868	87,876	108,039	93,252	81,273	90,855	24,720	20,716	11,530	40,857	688,778
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	115.7	479.6	662.3	857.5	1,156.9	910.0	956.1	1,034.3	290.8	168.5	93.8	343.3	586
Fish & Wildlife (ac-ft)	7,117	28,535	40,721	52,726	64,824	55,951	56,891	63,598	17,304	10,358	5,765	20,428	424,218
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	116	320	442	572	771	607	410	443	125	168	94	343	365
AVAILABLE Q @ GAGE (ac-ft)	7,117	19,023	27,147	35,150	43,216	37,301	24,382	27,256	7,416	10,358	5,765	20,428	264,560
AVAILABLE Q @ STATE LINE (cfs)[8]	17	46	64	82	111	87	59	64	18	24	13	49	53
AVAILABLE Q @ STATE LINE (ac-ft)	1,024	2,738	3,908	5,060	6,221	5,369	3,510	3,924	1,068	1,491	830	2,941	38,083
Projected Water Needs (cfs)[6]													0.169
Projected Water Needs (ac-ft)													122.1

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	13.1
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	9,490

1. Total annual runoff and monthly mean flow calculated for period of 1958-1968 only due to the fact that discharge after that time was not recorded when above 200 cfs. This chosen method is consistent with the method used to produced values in the 1990 AWP report.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, shown are for illustration only. AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value



L'Anguille River Basin

Legend

- USGS Flow Gages used for Calculations

Arkansas WATERplan
Essential For Life

Calculation of Instream Needs and Available Surface Water
L'Anguille River at confluence with St. Francis River

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
St. Francis	L'Anguille	Mouth	34 46 40/90 42 47	956	USGS HUC-08020205	956	7047950	L'Anguille River at Palestine, AR	Apr 1949 - Current	At bridge on U.S. Hwy 70, 1.0 mi east of Palestine	34 58 22 /90 53 08	786	USGS

Total Annual Runoff (ac-ft)[1]	786,100

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	381	685	1,426	1,519	2,122	1,946	1,573	1,474	571	405	432	588	1,085
Monthly Mean Flow at Gage (ac-ft)	23,427	40,760	87,681	93,400	118,902	119,655	93,600	90,633	33,977	24,902	26,563	34,988	788,488
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	190.5	411.0	855.6	911.4	1,273.2	1,167.6	1,101.1	1,031.8	399.7	202.5	216.0	294.0	668
Fish & Wildlife (ac-ft)	11,713	24,456	52,609	56,040	71,341	71,793	65,520	63,443	23,784	12,451	13,281	17,494	483,926
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	191	274	570	608	849	778	472	442	171	203	216	294	420
AVAILABLE Q @ GAGE (ac-ft)	11,713	16,304	35,073	37,360	47,561	47,862	28,080	27,190	10,193	12,451	13,281	17,494	304,562
AVAILABLE Q @ MOUTH (cfs)[8]	232	333	693	739	1,032	946	574	538	208	246	263	357	511
AVAILABLE Q @ MOUTH (ac-ft)	14,239	19,820	42,636	45,416	57,817	58,183	34,135	33,053	12,391	15,136	16,145	21,267	370,241
Projected Water Needs (cfs)[6]													9.71
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	7,032

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	125
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	90,802

Notes:
1. Total annual runoff and monthly mean flow for period of record (Water Years 1949-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07047950 (note no data for period Oct 1977 through Sept 1997)
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements - None
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

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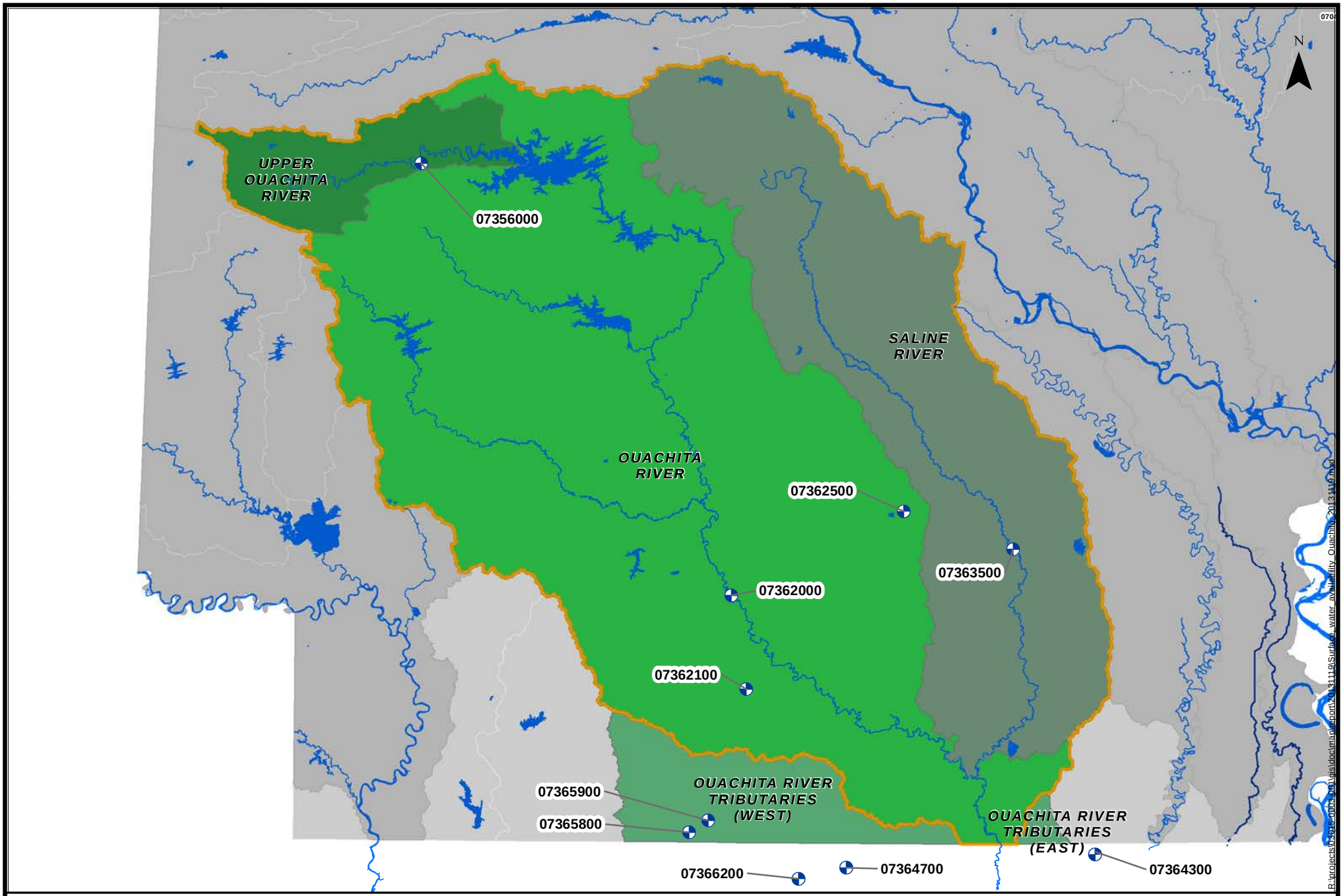

Ouachita River Basin

Legend

- USGS Flow Gages used for Calculations

Calculation of Instream Needs and Available Surface Water
Eastern Lower Ouachita River Tributaries at the Arkansas/Louisiana State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Lower Ouachita	Lower Ouachita-Bayou de Loutre	Snake Creek at the AR/LA state line	33 00 28 / 91 58 55	1,290	HUC 080402020401, 080402020402	39	7364300	Chemin-A-Haut Bayou near Beekman, LA	1956-1979	At bridge on parish road, 1.5 mi d/s from AR/LA state line	32 58 55 / 91 48 20	271	USGS

Total Annual Runoff (ac-ft)[1]	213,423

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	29	184	295	453	555	540	652	494	157	47	34	116	295
Monthly Mean Flow at Gage (ac-ft)	1,783	10,949	18,139	27,854	31,098	33,203	38,797	30,375	9,342	2,890	2,091	6,902	213,423
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	14.5	110.4	177.0	271.8	333.0	324.0	456.4	345.8	109.9	23.5	17.0	58.0	186
Fish & Wildlife (ac-ft)	892	6,569	10,883	16,712	18,659	19,922	27,158	21,262	6,540	1,445	1,045	3,451	134,539
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	15	74	118	181	222	216	196	148	47	24	17	58	109
AVAILABLE Q @ GAGE (ac-ft)	892	4,380	7,256	11,142	12,439	13,281	11,639	9,112	2,803	1,445	1,045	3,451	78,884
AVAILABLE Q @ STATELINE (cfs)[8]	2	11	17	26	32	31	28	22	7	3	2	8	16
AVAILABLE Q @ STATELINE (ac-ft)	130	637	1,055	1,620	1,809	1,931	1,692	1,325	407	210	152	502	11,469
Projected Water Needs (cfs)[6]													0.000
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0.00

EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	4
EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	2,867

1. Monthly mean flow for period of record was calculated using the USGS Monthly Statistics tool on the USGS website. Total annual runoff was calculated using this data.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for Louisiana.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. For projected decreases in demand, zero change is shown.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

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Calculation of Instream Needs and Available Surface Water
Western Lower Ouachita River Tributaries at the Arkansas/Louisiana State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Point of Calculation Drainage Area (sq miles)	Agency Maintaining Gage
Lower Ouachita	Lower Ouachita-Bayou de Loutre/ Bayou D'Arbonne	Tributaries at AR/LA State Line	Cornie Bayou -33 0 60/92 54 21 Three Creeks -33 0 51/92 50 32 Lit. Corney Bayou - 33 0 51/92 41 31 Bayou de Loutre - 33 0 45/92 31 30 Frank Lapere Creek - 33 0 33/92 12 4	3,210	HUC 08040206, 0804020203, 0804020205	634	07365800, 07365900, 07366200, 07364700	Cornie Bayou nr Three Creeks; Three Creeks nr Three Creeks; Little Cornie Bayou nr Lillie, LA; Bayou de Loutre nr Laran, LA	1957-1987; 1958-1971; 1956-2012; 1956-1977	Multiple	33 02 17/92 56 26 33 04 01/92 53 02 32 55 45/92 37 58 32 57 19/92 29 59	634	USGS

Total Annual Runoff (ac-ft)[1]	492,147

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	179	477	823	995	1,220	1,208	1,363	834	558	254	95	190	679
Monthly Mean Flow at Gage (ac-ft)	11,020	28,373	50,590	61,157	68,361	74,285	81,093	51,305	33,209	15,594	5,847	11,313	492,147
7Q10 (Water Quality) - (cfs)[2]	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
7Q10 (Water Quality) - (ac-ft)	51	49	51	51	46	51	49	51	49	51	51	49	600
Fish & Wildlife (cfs)[3]	89.6	286.1	493.7	596.8	732.0	724.9	954.0	584.1	390.7	126.8	47.5	95.1	424
Fish & Wildlife (ac-ft)	5,510	17,024	30,354	36,694	41,017	44,571	56,765	35,913	23,246	7,797	2,924	5,657	307,471
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ POINT OF CALCULATION (cfs)[7]	90	191	329	398	488	483	409	250	167	127	48	95	255
AVAILABLE Q @ POINT OF CALCULATION (ac-ft)	5,510	11,349	20,236	24,463	27,344	29,714	24,328	15,391	9,963	7,797	2,924	5,657	184,676
AVAILABLE Q @ STATELINE (cfs)[8]	90	191	329	398	488	483	409	250	167	127	48	95	255
AVAILABLE Q @ STATELINE (ac-ft)	5,510	11,349	20,236	24,463	27,344	29,714	24,328	15,391	9,963	7,797	2,924	5,657	184,676
Projected Water Needs (cfs)[6]													0.000
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0.00

EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	64
EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	46,169

1. Total monthly mean values were calculated as the sum of monthly mean flow values for five sub-watersheds of the study basin. These sub-watersheds were determined based on stream locations and the 12-digit HUCs associated with these streams. Five major streams are located in this study basin: Cornie Bayou, Three Creeks, Little Corney Bayou, Bayou de Loutre, and Frank Lapere Creek. The data for Little Corney Bayou was taken from the USGS Water Data 2012 Report for its gage. The data for Cornie Bayou, Bayou de Loutre, and Three Creeks was determined using the monthly statistics tool on the USGS website for each stream's gage. Frank Lapere Creek does not have a USGS gage; it was determined that the methodology for this stream should be similar to that of the methodology of the 1990 AWP; therefore, the same gage data (Cornie Bayou near Three Creeks, AR) was used for its area. Total annual runoff was calculated as the sum of the annual runoffs for each gage's area using the same method for each gage as for the monthly mean data.
2. The overall 7Q10 value was calculated as the area-weighted average of the five sub-watersheds of the project basin. The Arkansas gage 7Q10 values were found in USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality. The Louisiana gage 7Q10 values were found in USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development. The 7Q10 value for the area contributing to Frank Lapere Creek was assumed as the same value as Cornie Bayou.
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. **Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup**
5. Interstate compact requirements based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for Louisiana.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. For projected decreases in demand, zero change is shown.
7. Available streamflow at point of calculation based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Ouachita River at AR/LA State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Total Basin Drainage Area (sq miles)	Agency Maintaining Gage
Upper Ouachita & Lower Ouachita	Ouachita Headwaters/Upper Ouachita/Little Missouri/Lower Ouachita-Smackover/Upper & Lower Saline/Lower Ouachita-Bayou de Loutre	AR/LA Stateline	33 0 29 / 92 4 8	16,073	HUC 080401, 08040201,3,4, 0804020201,2, 080402020403,4	10,885	07362000, 07362100, 07362500, 07363500	Ouachita River at Camden, AR; Smackover Creek near Smackover, AR; Moro Creek near Fordyce, AR; Saline River near Rye, AR	WY 1956-2012; WY 1962-2012; WY 1952-1983, 01,03,04/1984, WY 2002-2012; WY 1938-2012	At bridge on US Hwy 79B; nr right bank on d/s side of bridge on State Hwy 7; on d/s side of bridge on State Hwy 8; nr left bank on d/s side of bridge on US Hwy 63	33 35 47/92 49 05 33 22 31/92 46 36 33 47 32/92 20 00 33 42 03/92 01 33	10,885	USGS

Total Annual Runoff (ac-ft)[1]													10,418,527
	October	**November**	**December**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**ANNUAL MEAN**
Monthly Mean Flow at Gage (cfs)	5,984	9,559	19,046	18,825	23,643	25,795	24,264	22,185	10,515	5,161	3,661	4,475	14,381
Monthly Mean Flow at Gage (ac-ft)	367,958	568,779	1,171,103	1,157,520	1,324,773	1,586,075	1,443,794	1,364,128	625,696	317,315	225,098	266,289	10,418,527
7Q10 (Water Quality) - (cfs)[2]	124	124	124	124	124	124	124	124	124	124	124	124	124
7Q10 (Water Quality) - (ac-ft)	7,624	7,379	7,624	7,624	6,948	7,624	7,379	7,624	7,379	7,624	7,624	7,379	89,833
Fish & Wildlife (cfs)[3]	2,992.1	5,735.2	11,427.7	11,295.2	14,185.6	15,477.0	16,984.6	15,529.8	7,360.6	2,580.3	1,830.4	2,237.6	8,940
Fish & Wildlife (ac-ft)	183,979	341,267	702,662	694,512	794,864	951,645	1,010,656	954,890	437,987	158,657	112,549	133,145	6,476,812
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ POINT OF CALCULATION (cfs[7]	2,992	3,823	7,618	7,530	9,457	10,318	7,279	6,656	3,155	2,580	1,830	2,238	5,441
AVAILABLE Q @ POINT OF CALCULATIONS (ac-ft)	183,979	227,511	468,441	463,008	529,909	634,430	433,138	409,238	187,709	158,657	112,549	133,145	3,941,715
AVAILABLE Q @ STATE LINE (cfs)[8]	2,992	3,823	7,618	7,530	9,457	10,318	7,279	6,656	3,155	2,580	1,830	2,238	5,441
AVAILABLE Q @ STATE LINE (ac-ft)	183,979	227,511	468,441	463,008	529,909	634,430	433,138	409,238	187,709	158,657	112,549	133,145	3,941,715
Projected Water Needs (cfs)[6]													34.0
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	24,630

EXCESS SURFACE WATER AVAILABLE AT STATE LINEFOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	1,352
EXCESS SURFACE WATER AVAILABLE AT STATE LINEFOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	979,271

Notes:
1. Mean monthly flow, annual flow, and annual runoff values for the overall Ouachita River basin in Arkansas were determined by calculating the total values of these characteristics of several subbasins within the Ouachita River basin. Values were calculated for the Ouachita River to the USGS gage at Camden, AR, the Saline River, Smackover Creek, and Moro Creek. Two other subbasins, Ouachita River between the Camden gage and the confluence with the Saline River, and the Ouachita River between the Saline River confluence and the AR/LA state line were also included. See the "Calculations" worksheet for further details.
2. 7Q10 flow was calculated as the area-weighted average of the 7Q10 values for each of the subwatersheds of the study basin. These individual 7Q10 values for each gage used are based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality. 7Q10 values for the two subwatersheds of the Ouachita River downstream of the Camden gage were assumed to be the same as for the Camden gage. The 7Q10 value for the gage at Monroe, LA, was also researched and was found to be 273 cfs. It was noted that the Fish & Wildlife flow needs would be greater than the 7Q10 flows, and therefore the 7Q10 values would not be used in final projected water needs calculations.
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for Louisiana.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at point of calculation based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Saline River at Confluence with Ouachita River

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Ouachita River	Saline River	Mouth	33° 09' 50" / 92° 08' 14"	3,235	USGS HUC-08040204 and 08020203	3,235	07363500	Saline River near Rye	Oct 1937 - Current	Hwy 63 near Rye	33° 42' 03" / 92° 01' 33"	2,102	USGS

Total Annual Runoff (ac-ft)[1]	1,904,000

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	643	1,290	3,181	3,787	4,967	5,333	5,097	4,498	1,480	598	306	501	2,629
Monthly Mean Flow at Gage (ac-ft)	39,537	76,760	195,592	232,854	278,316	327,913	303,293	276,571	88,066	36,770	18,815	29,812	1,904,298
7Q10 (Water Quality) - (cfs)[2]	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
7Q10 (Water Quality) - (ac-ft)	805	780	805	805	734	805	780	805	780	805	805	780	9,490
Fish & Wildlife (cfs)[3]	321.5	774.0	1,908.6	2,272.2	2,980.2	3,199.8	3,567.9	3,148.6	1,036.0	299.0	153.0	250.5	1,652
Fish & Wildlife (ac-ft)	19,768	46,056	117,355	139,712	166,990	196,748	212,305	193,600	61,646	18,385	9,408	14,906	1,196,879
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs[7]	322	516	1,272	1,515	1,987	2,133	1,529	1,349	444	299	153	251	976
AVAILABLE Q @ GAGE (ac-ft)	19,768	30,704	78,237	93,141	111,326	131,165	90,988	82,971	26,420	18,385	9,408	14,906	707,420
AVAILABLE Q @ MOUTH (cfs)[8]	495	794	1,958	2,331	3,058	3,283	2,353	2,077	683	460	235	386	1,503
AVAILABLE Q @ MOUTH (ac-ft)	30,424	47,254	120,407	143,346	171,333	201,865	140,031	127,694	40,660	28,294	14,478	22,940	1,088,726
Projected Water Needs (cfs)[6]													0.000
2050 Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	376
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	272,182

1. Total annual runoff and monthly mean flow for period of record (Water Years 1938-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07363500
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values shown are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. For projected decreases in demand, zero change is shown.
7. Available streamflow at gage based on area proportioning (total basin area to area at gage}
8. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

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Calculation of Instream Needs and Available Surface Water
Ouachita River upstream of Lake Ouachita

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Upper Ouachita	Ouachita Headwaters	Lake Ouachita	34° 38' 11" / 93° 31' 47"	1,536	USGS HUC-08040101 (partial)	516	07356000	Ouachita River near Mount Ida	Oct 1941 - Current	on right bank, 350 ft upstream from bridge on U.S. Hwy 270	34° 36' 36" / 93° 41' 51"	414	USGS

Total Annual Runoff (ac-ft)[1]	522,400

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	378	731	1,035	886	1,096	1,317	1,087	1,077	492	234	97	246	721
Monthly Mean Flow at Gage (ac-ft)	23,242	43,498	63,640	54,478	61,412	80,979	64,681	66,222	29,276	14,388	5,958	14,638	522,412
7Q10 (Water Quality) - (cfs)[2]	0	0	0	0	0	0	0	0	0	0	0	0	0
7Q10 (Water Quality) - (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish & Wildlife (cfs)[3]	189.0	438.6	621.0	531.6	657.6	790.2	760.9	753.9	344.4	117.0	48.5	123.0	447
Fish & Wildlife (ac-ft)	11,621	26,099	38,184	32,687	36,847	48,588	45,277	46,356	20,493	7,194	2,979	7,319	323,643
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs[6]	189	292	414	354	438	527	326	323	148	117	48	123	274
AVAILABLE Q @ GAGE (ac-ft)	11,621	17,399	25,456	21,791	24,565	32,392	19,404	19,867	8,783	7,194	2,979	7,319	198,770
AVAILABLE Q @ LAKE (cfs)[7,10]	236	364	516	442	546	657	406	403	184	146	60	153	342
AVAILABLE Q @ LAKE (ac-ft)	14,484	21,686	31,728	27,160	30,617	40,372	24,185	24,761	10,947	8,966	3,713	9,122	247,742
Projected Water Needs (cfs)[8]													0.000
2050 Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT LAKE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)[10]	85
EXCESS SURFACE WATER AVAILABLE AT LAKE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)[10]	61,935

1. Total annual runoff and monthly mean flow for period of record (Water Years 1942-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07356000
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values shown are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for Louisiana.
6. Available streamflow at gage based on monthly mean minus the largest in-stream need
7. Available streamflow at lake (downstream drainage point of HUC 0804010103 - upper Lake Ouachita) based on area proportioning (total basin area to area at gage)
8. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. For projected decreases in demand, zero change is shown.
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. The most downstream point of this study basin is the drainage point of HUC 0804010103 - upper Lake Ouachita. This includes the upper Ouachita River as well as a portion of Lake Ouachita.

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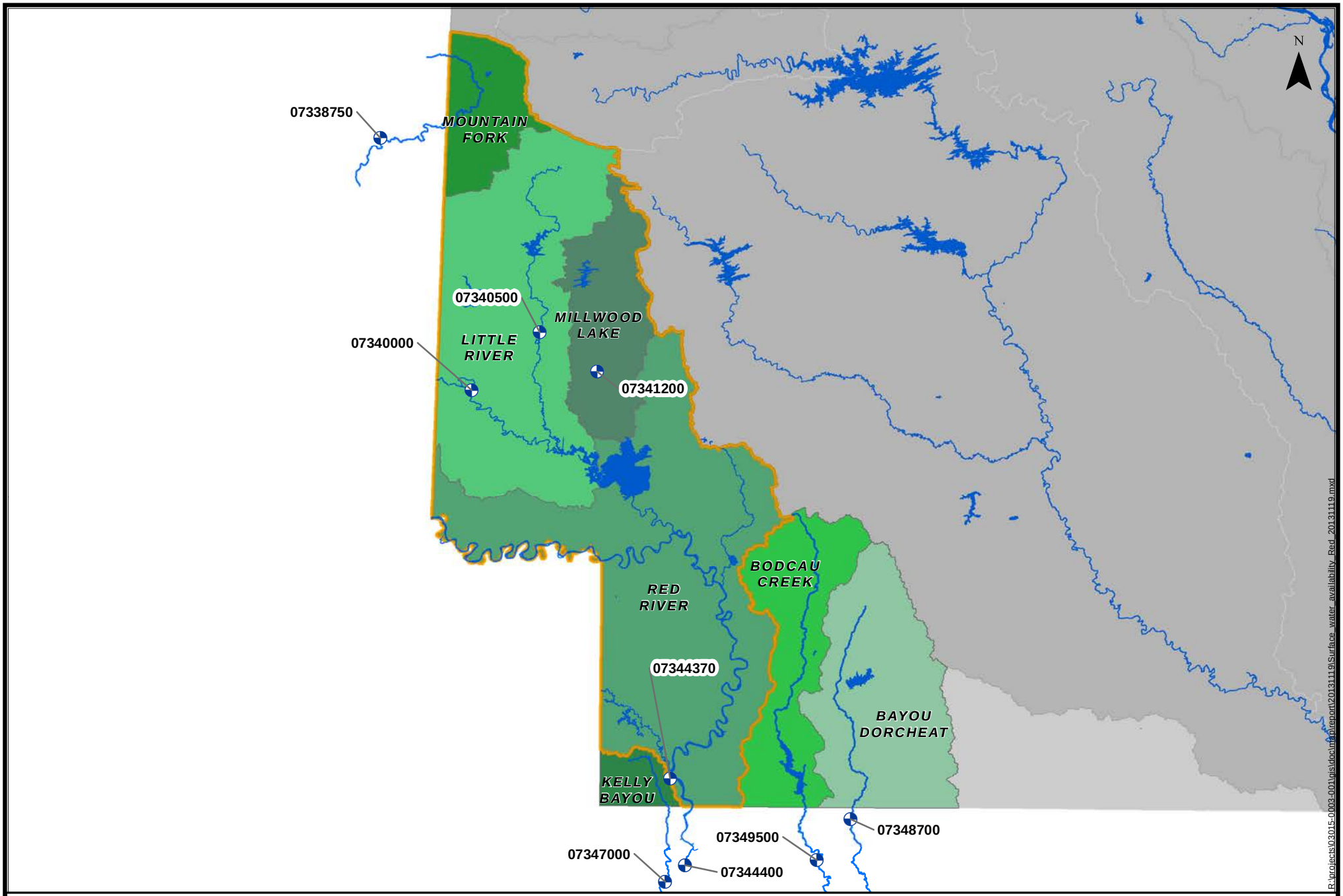

Red River Basin

Legend

- USGS Flow Gages used for Calculations

Calculation of Instream Needs and Available Surface Water
Bayou Dorcheat at AR/LA Stateline

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Red-Saline	Loggy Bayou	AR/LA stateline	33 01 06 / 93 23 34	1,458	USGS HUC-11140203	635	7348700	Bayou Dorcheat near Springhill, LA	Oct 1957 - current	near left bank on d/s side of bridge on hwy 157, 1.7 mi d/s from AR/LA state line	32 59 40 / 93 23 47	605	USGS

Total Annual Runoff (ac-ft)[1]	429,800

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	274	281	795	913	1,142	1,203	1,092	752	366	185	52.3	95.2	593
Monthly Mean Flow at Gage (ac-ft)	16,848	16,721	48,883	56,138	63,990	73,970	64,979	46,239	21,779	11,375	3,216	5,665	429,800
7Q10 (Water Quality) - (cfs)[2]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
7Q10 (Water Quality) - (ac-ft)	37	36	37	37	34	37	36	37	36	37	37	36	435
Fish & Wildlife (cfs)[3]	137.0	168.6	477.0	547.8	685.2	721.8	764.4	526.4	256.2	92.5	26.2	47.6	369
Fish & Wildlife (ac-ft)	8,424	10,032	29,330	33,683	38,394	44,382	45,485	32,367	15,245	5,688	1,608	2,832	267,469
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	137	112	318	365	457	481	328	226	110	93	26	48	224
AVAILABLE Q @ GAGE (ac-ft)	8,424	6,688	19,553	22,455	25,596	29,588	19,494	13,872	6,534	5,688	1,608	2,832	162,331
AVAILABLE Q @ STATE LINE (cfs)[8]	144	118	334	383	479	505	344	237	115	97	27	50	235
AVAILABLE Q @ STATE LINE (ac-ft)	8,842	7,020	20,523	23,569	26,865	31,055	20,460	14,559	6,858	5,970	1,688	2,973	170,380
Projected Water Needs (cfs)[6]													0
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	58.8
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	42,595

1. Total annual runoff and monthly mean flow for period of record (Water Years 1957-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07348700.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change in watershed is negative, therefore held constant (zero change) for this calculation.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)-area at State line includes minor drainages that fall within the HUC boundary for Bayou Dorcheat
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

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Calculation of Instream Needs and Available Surface Water
Bodcau Creek at Arkansas/Louisiana state line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Red-Saline	Bodcau Bayou	AR/LA line	33 01 07 / 93 30 42	771	HUC 111402	468	7349500	Bodcau Bayou near Sarepta, LA	1938-1992	left bank on downstream side of bridge on State Highway 2, 2.1 mi northwest of Sarepta	32 54 18 / 93 28 58	546	USGS

Total Annual Runoff (ac-ft)[1]	433,828

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	121	381	739	954	1,210	1,050	1,020	1,050	356	214	51	76	599
Monthly Mean Flow at Gage (ac-ft)	7,440	22,671	45,439	58,659	67,800	64,562	60,694	64,562	21,183	13,158	3,136	4,522	433,828
7Q10 (Water Quality) - (cfs)[2]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
7Q10 (Water Quality) - (ac-ft)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7
Fish & Wildlife (cfs)[3]	60.5	228.6	443.4	572.4	726.0	630.0	714.0	735.0	249.2	107.0	25.5	38.0	376
Fish & Wildlife (ac-ft)	3,720	13,603	27,264	35,196	40,680	38,737	42,486	45,193	14,828	6,579	1,568	2,261	272,115
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	48.4	152.4	295.6	381.6	484.0	420.0	408.0	420.0	142.4	85.6	20.4	30.4	
Interstate Compacts (ac-ft)	2,976	9,068	18,176	23,464	27,120	25,825	24,278	25,825	8,473	5,263	1,254	1,809	
AVAILABLE Q @ GAGE (cfs)[7]	61	152	296	382	484	420	306	315	107	107	26	38	223
AVAILABLE Q @ GAGE (ac-ft)	3,720	9,068	18,176	23,464	27,120	25,825	18,208	19,369	6,355	6,579	1,568	2,261	161,713
AVAILABLE Q @ STATE LINE (cfs)[8]	52	131	253	327	415	360	262	270	92	92	22	33	191
AVAILABLE Q @ STATE LINE (ac-ft)	3,189	7,773	15,579	20,112	23,246	22,136	15,607	16,602	5,447	5,639	1,344	1,938	138,611
Projected Water Needs (cfs)[6]													0.09
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	67

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	48
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	34,636

Notes:
1. Total annual runoff and monthly mean flow for period of record based on data calculated using the USGS Surface-Water Monthly Statistics tool on the USGS website.
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach IV, Subbasin 2, requiring AR to allow 40% of weekly runoff to flow into Louisiana-values, if shown, are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. The value provided by the Water Demand Workgroup was for the all of the Lower Red River Tributaries (Bodcau Creek and Kelly Bayou). An area-proportioned value was calculated for this study basin only. of the total unassigned area values as calculated by the Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

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Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Kelly Bayou at Arkansas/Louisiana state line (includes drainage area for State Line Creek that flows into Black Bayou in LA)

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Big Cypress-Sulphur	Cross Bayou	AR/LA line	33 01 10 / 93 52 05	85	HUC 1114030401 and 1114030402	85	7347000	Kelly Bayou near Hosston, LA	Oct 1944 - Jun 1969	Near center of span on downstream side of bridge on U.S. Highway 71, and 2.0 mi south of Hosston.	32 51 25 / 93 52 20	116	USGS

Total Annual Runoff (ac-ft)[1]	69,676

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	15	67	96	158	173	178	185	177	55	26	11	18	96
Monthly Mean Flow at Gage (ac-ft)	922	3,987	5,903	9,715	9,694	10,945	11,008	10,883	3,273	1,599	676	1,071	69,676
7Q10 (Water Quality) - (cfs)[2]	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
7Q10 (Water Quality) - (ac-ft)	86	83	86	86	78	86	83	86	83	86	86	83	1,014
Fish & Wildlife (cfs)[3]	7.5	40.2	57.6	94.8	103.8	106.8	129.5	123.9	38.5	13.0	5.5	9.0	61
Fish & Wildlife (ac-ft)	461	2,392	3,542	5,829	5,816	6,567	7,706	7,618	2,291	799	338	536	43,895
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	6.0	26.8	38.4	63.2	69.2	71.2	74.0	70.8	22.0	10.4	4.4	7.2	
Interstate Compacts (ac-ft)	369	1,595	2,361	3,886	3,877	4,378	4,403	4,353	1,309	639	271	428	
AVAILABLE Q @ GAGE (cfs)[7]	8	27	38	63	69	71	56	53	17	13	6	9	36
AVAILABLE Q @ GAGE (ac-ft)	461	1,595	2,361	3,886	3,877	4,378	3,302	3,265	982	799	338	536	25,781
AVAILABLE Q @ STATELINE (cfs)[8]	5	20	28	46	51	52	41	39	12	10	4	7	26
AVAILABLE Q @ STATELINE (ac-ft)	338	1,169	1,730	2,848	2,841	3,208	2,420	2,392	719	586	248	392	18,891
Projected Water Needs (cfs)[6]													0.02
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	12.2

EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	7
EXCESS SURFACE WATER AVAILABLE AT STATELINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	4,720

1. Total annual runoff and monthly mean flow for period of record (Water Years 1945-1969 found using Monthly Statistics tool from USGS Website for Gage Station 07347000
2. 7Q10 flows based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach III, Subbasin 2; Louisiana is entitled to 40 percent of the runoff from this subbasin-values,if shown, are for illustration only. The state of AR does not guarantee to maintain a minimum low flow for LA.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. The value provided by the Water Demand Workgroup was for the all of the Lower Red River Tributaries (Bodcau Creek and Kelly Bayou). An area-proportioned value was calculated for this study basin only.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Little River at Millwood Lake

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[11] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Point of Calculation Drainage Area[11] (sq miles)	Agency Maintaining Gage
Red-Little	Lower Little	Mouth	33 44 12 / 94 02 49	1972.2	HUC 1114010901 thru 1114010906	3,538	07340500 and 07340000	Cossatot River near DeQueen, AR & Little River near Horatio, AR	1939-1980; 1969-2012	On right bank 500 ft downstream from bridge on U.S. Hwys 70 and 71, just downstream from Hale Creek; on left bank downstream of bridge on State	34 02 42 / 94 12 45 33 55 10 / 94 23 12	3,538	USGS

Total Annual Runoff (ac-ft)[1]	3,976,645

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	2,717	5,154	7,584	6,681	7,791	9,092	7,981	8,240	4,975	2,372	1,500	1,925	5,489
Monthly Mean Flow at Gage (ac-ft)	167,075	306,665	466,307	410,794	436,549	559,035	474,921	506,648	296,008	145,847	92,241	114,555	3,976,645
7Q10 (Water Quality) - (cfs)[2]	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82
7Q10 (Water Quality) - (ac-ft)	235	227	235	235	214	235	227	235	227	235	235	227	2,768
Fish & Wildlife (cfs)[3]	1,358.6	3,092.2	4,550.3	4,008.6	4,674.6	5,455.1	5,586.9	5,767.9	3,482.2	1,186.0	750.1	962.6	3,398
Fish & Wildlife (ac-ft)	83,537	183,999	279,784	246,476	261,929	335,421	332,445	354,654	207,205	72,923	46,120	57,278	2,461,773
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	1,359	2,061	3,034	2,672	3,116	3,637	2,394	2,472	1,492	1,186	750	963	2,091
AVAILABLE Q @ GAGE (ac-ft	83,537	122,666	186,523	164,317	174,620	223,614	142,476	151,994	88,802	72,923	46,120	57,278	1,514,872
AVAILABLE Q @ LAKE (cfs)[8,10]	1,359	2,061	3,034	2,672	3,116	3,637	2,394	2,472	1,492	1,186	750	963	2,091
AVAILABLE Q @ LAKE (ac-ft)[10]	83,537	122,666	186,523	164,317	174,620	223,614	142,476	151,994	88,802	72,923	46,120	57,278	1,514,872
Projected Water Needs (cfs)[6]													0
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT LAKE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)[10]	523
EXCESS SURFACE WATER AVAILABLE AT LAKE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)[10]	378,718

1. Mean monthly flow, annual flow, and annual runoff values for theBlack River were determined by calculating the total values of these characteristics of two subbasins within the Little River River basin. Values were calculated for the Cossatot River at the confluence with the Little River and the Little River to the upstream end of Millwood Lake. See the "Calculations" worksheet for further details.
2. 7Q10 flow was calculated as the area-weighted average of the 7Q10 values for each of the subwatersheds of the study basin. These individual 7Q10 values for each gage used are based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality. It was noted that the Fish & Wildlife flow needs would be greater than the 7Q10 flows, and therefore the 7Q10 values would not be used in final projected water needs calculations.
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach II, Subbasin 3. The state of AR has the right to unrestricted use of the water within its boundaries above Millwood Dam.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at lake (drainage point of HUC 111401091103 - Beaver Creek-Millwood Lake) based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. The most downstream point of this study basin is the drainage point of HUC 111401091103 - Beaver Creek-Millwood Lake.
11. The point of calculation drainage area used is for the entire drainage area of the Little River to the upstream end of Millwood Lake This includes drainage area in Oklahoma, as there is no interstate compact that excludes water in the Little River coming from Oklahoma as being wholly available to Arkansas.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Saline River at Millwood Lake

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Red-Little	Lower Little	Mouth	33 48 53 / 93 58 38	1972.2	HUC 1114010907, 8, and 9	374	7341200	Saline River near Lockesburg, AR	1975-2012	on right bank 50 ft u/s from bridge on State Hwy 371	33 57 44/94 03 42	256	USGS

Total Annual Runoff (ac-ft)[1]	278,600

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	172	325	592	516	603	718	544	519	325	176	58	79	385
Monthly Mean Flow at Gage (ac-ft)	10,576	19,339	36,401	31,728	33,788	44,148	32,370	31,912	19,339	10,822	3,566	4,695	278,683
7Q10 (Water Quality) - (cfs)[2]	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
7Q10 (Water Quality) - (ac-ft)	20	19	20	20	18	20	19	20	19	20	20	19	232
Fish & Wildlife (cfs)[3]	86.0	195.0	355.2	309.6	361.8	430.8	380.8	363.3	227.5	88.0	29.0	39.5	238
Fish & Wildlife (ac-ft)	5,288	11,603	21,840	19,037	20,273	26,489	22,659	22,338	13,537	5,411	1,783	2,347	172,606
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	86	130	237	206	241	287	163	156	98	88	29	39	146
AVAILABLE Q @ GAGE (ac-ft)	5,288	7,736	14,560	12,691	13,515	17,659	9,711	9,574	5,802	5,411	1,783	2,347	106,077
AVAILABLE Q @ LAKE (cfs)[8,10]	126	190	346	302	352	420	238	227	142	129	42	58	214
AVAILABLE Q @ LAKE (ac-ft)[10]	7,725	11,301	21,272	18,541	19,745	25,799	14,187	13,986	8,476	7,905	2,605	3,429	154,972
Projected Water Needs (cfs)[6]													0
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0

EXCESS SURFACE WATER AVAILABLE AT LAKE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)[10]	53
EXCESS SURFACE WATER AVAILABLE AT LAKE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)[10]	38,743

1. Total annual runoff and monthly mean flow for period of record (Water Years 1975-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012.
2. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements, if required, based on Red River Compact for Reach II, Subbasin 3. The state of AR has the right to unrestricted use of the water within its boundaries above Millwood Dam.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at lake (drainage point of HUC 1114010909 - Saline River-Millwood Lake) based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. The point of calculation for this study basin is the drainage point of HUC 1114010909 - Saline River-Millwood Lake.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Mountain Fork at AR/OK State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area (sq miles)	Agency Maintaining Gage
Red-Little	Mountain Fork	AR/OK State Line	34 29 49 / 94 27 41	865.2	HUC 1114010801, 2, and 3	246	7338750	Mountain Fork at Smithville, OK	1991 - current	on Right d/s abutment of bridge on Hwy 4, 0.5 mi east of Smithville	34 27 44 / 94 38 06	322	USGS

Total Annual Runoff (ac-ft)[1]	412,500

	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	450	697	950	771	759	922	709	725	363	206	41	247	569
Monthly Mean Flow at Gage (ac-ft)	27,669	41,474	58,413	47,407	42,529	56,692	42,188	44,579	21,600	12,666	2,521	14,698	412,437
7Q10 (Water Quality) - (cfs)[2]	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
7Q10 (Water Quality) - (ac-ft)	50	48	50	50	45	50	48	50	48	50	50	48	587
Fish & Wildlife (cfs)[3]	225.0	418.2	570.0	462.6	455.4	553.2	496.3	507.5	254.1	103.0	20.5	123.5	349
Fish & Wildlife (ac-ft)	13,835	24,885	35,048	28,444	25,517	34,015	29,532	31,205	15,120	6,333	1,260	7,349	252,543
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	225	279	380	308	304	369	213	218	109	103	21	124	221
AVAILABLE Q @ GAGE (ac-ft	13,835	16,590	23,365	18,963	17,012	22,677	12,657	13,374	6,480	6,333	1,260	7,349	159,893
AVAILABLE Q @ STATE LINE (cfs)[8]	172	213	290	236	232	282	162	166	83	79	16	94	169
AVAILABLE Q @ STATE LINE (ac-ft)	10,569	12,674	17,851	14,487	12,996	17,324	9,669	10,217	4,951	4,838	963	5,614	122,155
Projected Water Needs (cfs)[6]													0
Projected Water Needs (ac-ft)													0

EXCESS SURFACE WATER AVAILABLE AT STATE LINEFOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	42
EXCESS SURFACE WATER AVAILABLE AT STATE LINEFOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	30,539

1. Total annual runoff and monthly mean flow for period of record (Water Years 1991-2012) based on USGS, 2013, Water-resources data for the US, Water Year 2012, USGS Water-Data Report WDR-US-2012, site 07338750
2. 7Q10 flows based on USGS, 2009, "Statistical Summaries of Streamflow in and near Oklahoma through 2007", Scientific Investigations Report 2009-5135, prepared in cooperation with the Oklahoma Water Resources Board
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach II, Subbasin 3.The state of AR has unrestricted use of the water from this watershed and does not guarantee to maintain a minimum low flow to Oklahoma.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Negative demand growth in Red River Basin, therefore held constant (zero change).
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at stateline based on area proportioning (total basin area to area at gage). Includes minor adjacent drainages with similar characteristics.
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value

Calculation of Instream Needs and Available Surface Water
Red River at Arkansas/Louisiana State Line

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Point of Calculation Drainage Area (sq miles)	Agency Maintaining Gage
Red River	Red River from headwaters to just past AR state line	AR/LA state line	33 01 09 / 93 48 14	57,041	HUC 11140201, 11140302, 1114010910, 1114010912, 111401091103	56,515	07344400, 07344370	Red River near Hosston, LA; Red River at Spring Bank, AR	1957-1991; 1998-2012	nr left bank on d/s side of bridge on State Hwy 2; nr right bank on d/s side of bridge on State Hwy 160	32 53 35/93 49 20 33 05 22/93 51 34	56,515	USGS

Total Annual Runoff (ac-ft)[1]	11,979,091

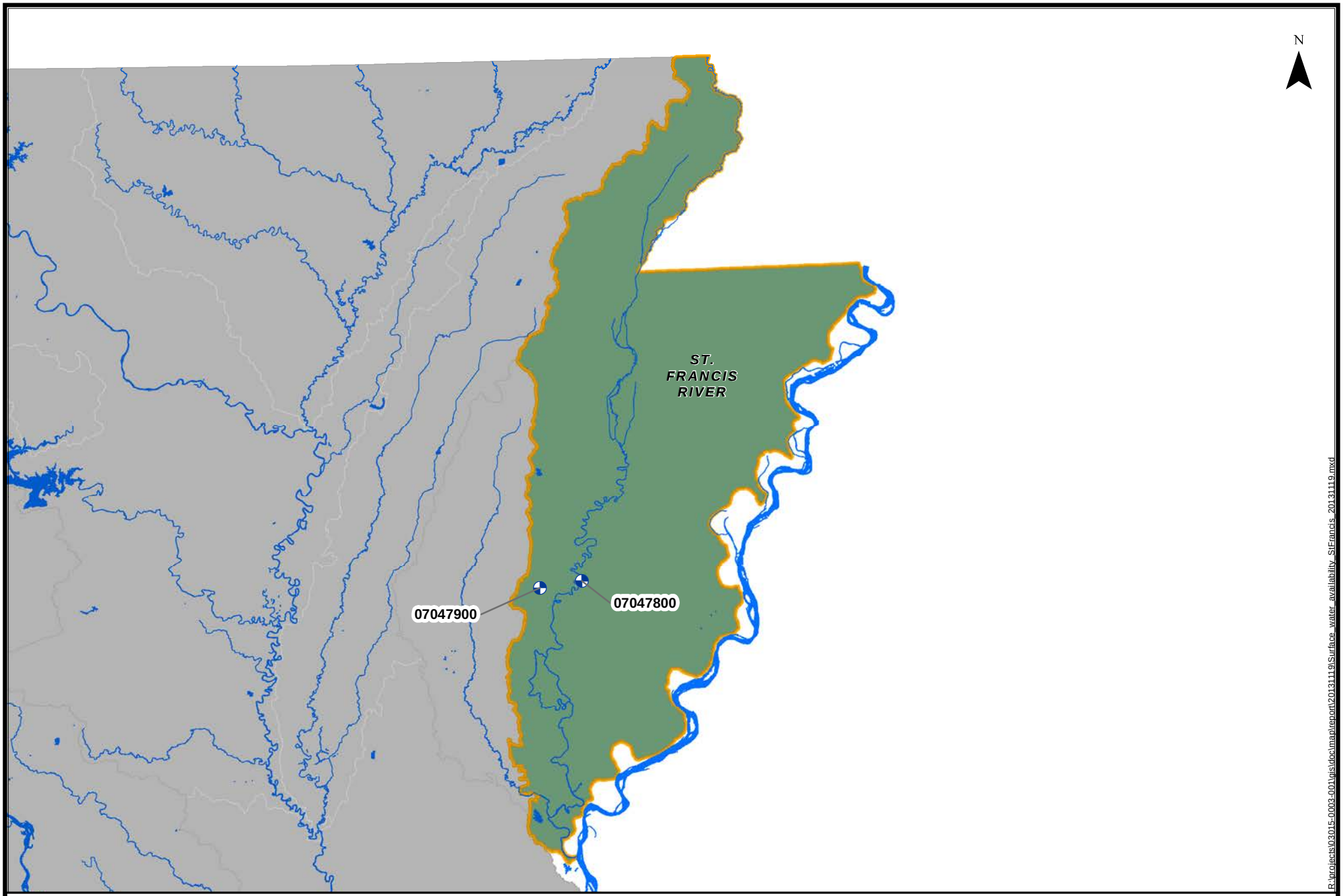
	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)	8,367	9,927	15,794	19,871	20,970	28,163	25,570	29,133	16,728	11,127	6,896	6,014	16,535
Monthly Mean Flow at Gage (ac-ft)	514,487	590,702	971,110	1,221,828	1,175,016	1,731,682	1,521,537	1,791,317	995,403	684,173	423,990	357,848	11,979,091
7Q10 (Water Quality) - (cfs)[2]	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1650
7Q10 (Water Quality) - (ac-ft)	101,455	98,182	101,455	101,455	92,455	101,455	98,182	101,455	98,182	101,455	101,455	98,182	1,195,364
Fish & Wildlife (cfs)[3]	4,183.7	5,956.2	9,476.2	11,922.7	12,582.0	16,897.9	17,899.2	20,393.1	11,709.8	5,563.5	3,447.8	3,006.9	10,242
Fish & Wildlife (ac-ft)	257,243	354,421	582,666	733,097	705,009	1,039,009	1,065,076	1,253,922	696,782	342,086	211,995	178,924	7,420,230
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	4,184	3,971	6,317	7,948	8,388	11,265	7,671	8,740	5,018	5,564	3,448	3,007	6,293
AVAILABLE Q @ GAGE (ac-ft)	257,243	236,281	388,444	488,731	470,006	692,673	456,461	537,395	298,621	342,086	211,995	178,924	4,558,860
AVAILABLE Q @ STATE LINE (cfs)[8]	4,184	3,971	6,317	7,948	8,388	11,265	7,671	8,740	5,018	5,564	3,448	3,007	6,293
AVAILABLE Q @ STATE LINE (ac-ft)	257,243	236,281	388,444	488,731	470,006	692,673	456,461	537,395	298,621	342,086	211,995	178,924	4,558,860
Projected Water Needs (cfs)[6]													0
Projected Water Needs (ac-ft)													0

EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	1,573
EXCESS SURFACE WATER AVAILABLE AT STATE LINE FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	1,139,715

Notes:
1. Mean monthly flows for the study basin were determined by combining data from the two gages 07344400 and 07344370. The periods of record for the gages are WY 1957-1991 and 1998-2012, respectively. Since these periods do not overlap, the data for each were first area proportioned to the state line and then combined. In this method, the monthly means for each gage were taken from the USGS website using the USGS monthly statistics tool. Data for each month of the years in the periods of record was area proportioned, and then the monthly mean flows were calculated for each month using both gage data sets. The annual mean and annual runoff values were calculated from these monthly mean flows. See "Combined gage data" worksheet for more detail.
2. 7Q10 flow value is for the gage at Hosston, LA, and is based on USGS, 2003, "Low-Flow Characteristics of Louisiana Streams", Water Resources Technical Report 70, prepared in cooperation with the Louisiana Department of Transportation and Development
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. Interstate compact requirements based on Red River Compact for Reach II, Subbasin 5. Compact requirements dependent on flow measurement at AR-LA state line.
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup. Projected change is negative, therefore hold constant (zero change).
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at state line based on area proportioning (total basin area to area at gage)
9. The Red River basin (in other study basins defined as 6-digit HUCs) includes all contributing area to the river beginning at its headwaters in Texas, through Oklahoma, and in Arkansas. The subbasin (in other study basins defined as 8-digit HUCs) includes all contributing HUC-8's from the headwaters to just downstream of the Arkansas/Louisiana state line. The subbasin drainage area is the total contributing drainage area to the downstream end of HUC - 11140201.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value



St. Francis River Basin

Legend

- USGS Flow Gages used for Calculations

Arkansas WATERplan Essential For Life

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Calculation of Instream Needs and Available Surface Water
St. Francis River at Confluence with Mississippi River

River Basin[9]	Sub-Basin[9]	Point of Calculation (Descriptive)	Point of Calculation (Lat/Long)	Sub-Basin Drainage Area[9] (sq miles)	Data Source for Point of Calculation Drainage Area	Point of Calculation Drainage Area[10] (sq miles)	Gage ID	Gage Name	Period of Record	Gage Location (Descriptive)	Gage Location (Lat/Long)	Gage Drainage Area[11] (sq miles)	Agency Maintaining Gage
St. Francis	Upper & Lower St. Francis, Little River Ditches, New Madrid-St. Johns	Mouth	34 37 29/90 35 40	9,126	USGS HUC-08020203 and 08020204	8,170	07047800 & 07047900	St. Francis River at Parkin, AR & St. Francis Bay at Riverfront, AR	WY 1936 - 2010	At bridge on US Hwy 64 at Parkin; at bridge on US Hwy 64 at Riverfront	35 16 23/90 33 33 35 15 37/90 41 00	6,475	USGS

Total Annual Runoff (ac-ft)[1]	5,627,549

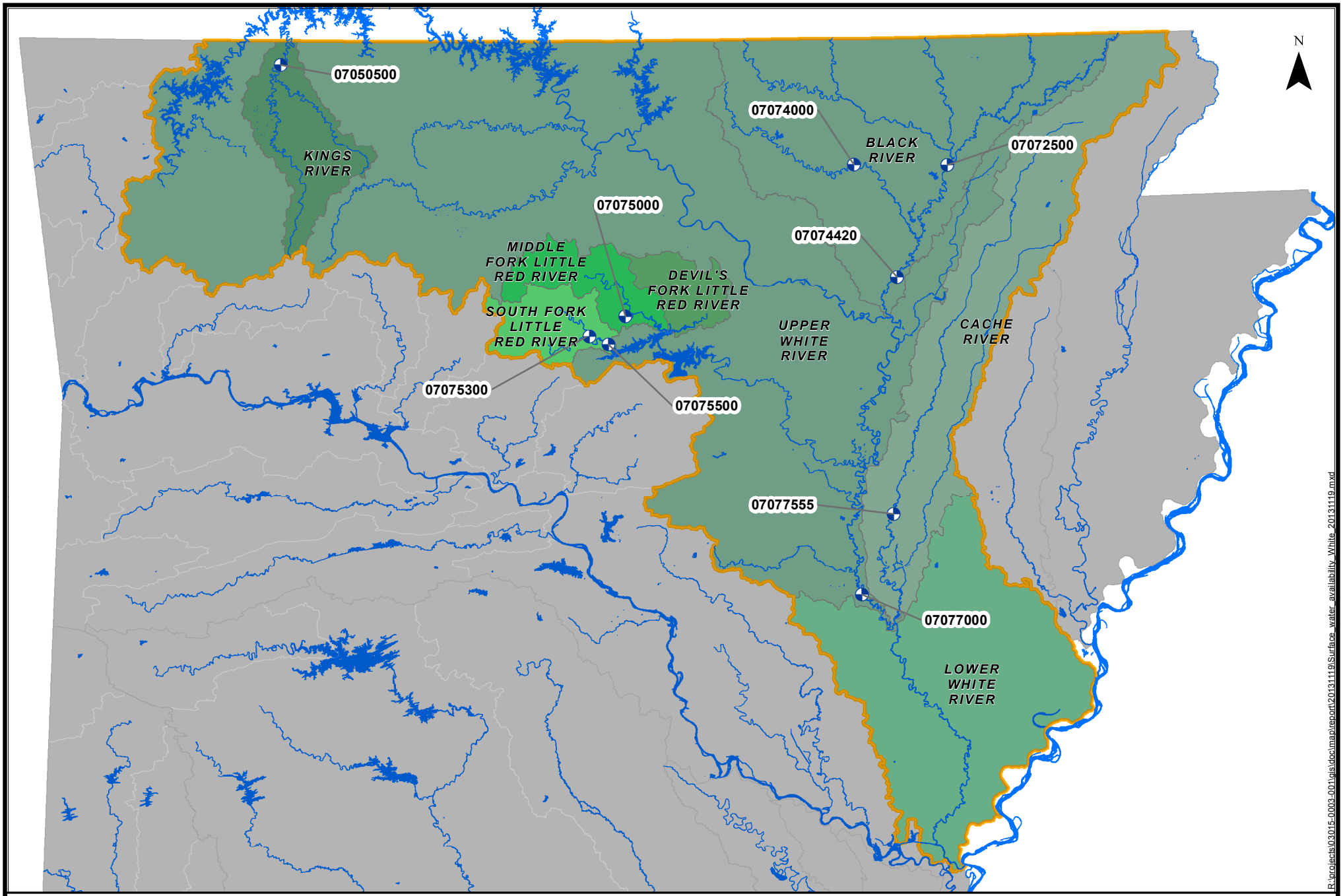
	October	November	December	January	February	March	April	May	June	July	August	September	ANNUAL MEAN
Monthly Mean Flow at Gage (cfs)[1]	2,419	4,030	7,778	10,695	12,880	13,271	13,442	11,668	7,528	4,610	2,984	2,241	7,768
Monthly Mean Flow at Gage (ac-ft)	148,750	239,778	478,234	657,633	721,701	815,981	799,878	717,411	447,931	283,437	183,482	133,333	5,627,549
7Q10 (Water Quality) - (cfs)[2]	173	173	173	173	173	173	173	173	173	173	173	173	173
7Q10 (Water Quality) - (ac-ft)	10,637	10,294	10,637	10,637	9,694	10,637	10,294	10,637	10,294	10,637	10,637	10,294	125,332
Fish & Wildlife (cfs)[3]	1,209.6	2,417.8	4,666.6	6,417.2	7,727.9	7,962.4	9,409.7	8,167.3	5,269.4	2,304.8	1,492.0	1,120.4	4,829
Fish & Wildlife (ac-ft)	74,375	143,867	286,940	394,580	433,020	489,589	559,915	502,188	313,552	141,719	91,741	66,667	3,498,151
Navigation (cfs)[4]	0	0	0	0	0	0	0	0	0	0	0	0	0
Navigation (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interstate Compacts (cfs)[5]	0	0	0	0	0	0	0	0	0	0	0	0	
Interstate Compacts (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	
AVAILABLE Q @ GAGE (cfs)[7]	1,210	1,612	3,111	4,278	5,152	5,308	4,033	3,500	2,258	2,305	1,492	1,120	2,939
AVAILABLE Q @ GAGE (ac-ft	74,375	95,911	191,294	263,053	288,680	326,392	239,963	215,223	134,379	141,719	91,741	66,667	2,129,398
AVAILABLE Q @ MOUTH (cfs)[8]	1,526	2,034	3,925	5,398	6,501	6,698	5,088	4,417	2,849	2,908	1,883	1,414	3,709
AVAILABLE Q @ MOUTH (ac-ft)	93,845	121,019	241,370	331,914	364,250	411,834	302,780	271,564	169,557	178,817	115,757	84,118	2,686,824
Projected Water Needs (cfs)[6]													6.86
Projected Water Needs (ac-ft)	0	0	0	0	0	0	0	0	0	0	0	0	4,967.62

EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (cfs)	925
EXCESS SURFACE WATER AVAILABLE AT MOUTH FOR OTHER USES, E.G., INTERBASIN TRANSFER (ac-ft per year)	670,464

Notes:
1. Mean monthly flow was calculated by first calculating the sum of flows at both gages for each day in the common period of record, and then calculating the mean monthly flows from these values. Only days with flow values available for both gages were used in the calculations. The annual mean flow and annual runoff were calculated from the mean monthly flows.
2. The 7Q10 value used for calculations is the sum of the published 7Q10 values for the gages. 7Q10 flows based on USGS, 2008, "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", Scientific Investigations Report 2008-2005, prepared in cooperation with the Arkansas Department of Environmental Quality
3. Fish and wildlife in-stream flow requirement calculated based on "Arkansas Method" (Percentage of mean monthly flow based on season: July-October, 50%; November-March, 60%; April-June, 70%)
4. Navigation based on current criteria, if applicable, except as may be modified by the Water Demand Workgroup
5. No interstate compact requirements
6. Projected water needs in basin (increases or decreases from current uses because current withdrawals are included in streamflow data) based on projections of Water Demand Workgroup.
7. Available streamflow at gage based on monthly mean minus the largest in-stream need
8. Available streamflow at mouth based on area proportioning (total basin area to area at gage)
9. The river basin name is the USGS name for the 6-digit HUC in which the studied stream basin is located. The sub-basin name is the USGS name for the 8-digit HUC in which the studied stream basin is located. This naming convention is consistent with River and Sub-Basin names given in USGS Water Data Reports for the gages used in this study. The sub-basin area reported is the drainage area of the 8-digit HUC.
10. The point of calculation drainage area was based on the entire drainage area for the St. Francis River (a 6-digit HUC), including contributing area in Missouri. There is no interstate compact regarding flow from Missouri and therefore all flow is available. However, the drainage area for the L'Anguille River, which was included in the HUC-6 boundary, was subtracted. Both gages used for the St. Francis calculations are located above the mouth of the L'Anguille River, and are therefore not representative of the flow being contributed by the L'Anguille. The surface water availability for the L'Anguille River has been calculated separately.
11. Drainage areas for gages are normally published by the USGS. For the St. Francis gages, the drainage areas for the two gages used were published as indeterminate. However, the USGS did publish the combined drainage area for the St. Francis River and St. Francis Bay at Riverfront. Therefore, after combining the data from the two gages, the combined drainage area published by the USGS was used as the drainage area of the combined data set.

Cells highlighted in BLUE indicate published data

Cells highlighted in YELLOW indicate calculated surface water availability value



White River Basin

Legend

- USGS Flow Gages used for Calculations

Appendix C

Summary of the 2008 Biennial Assessment of Surface Water Quality

APPENDIX C

Regional Summary of 2008 Water Quality Assessment

Table C.1 Summary of 2008 water quality assessment for North AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
3C reaches 10-22	86.9	86.9	none				
3D reaches 14,15	41.2	41.2	none				
3F reaches 18,20,21	27.6	27.6	none				
3H reaches 11110202-22,23,902; 11110104-9-11	86.9	86.9	none				
3J – Grand Neosho Basin	223.2	209	Aquatic life	43.9	Sediment/siltation	4.1	Erosion
					Total phosphorus	39.8	Unknown
			Primary contact	92.5	Pathogens	92.5	Unknown, UR
			Drinking water supply	8	Nitrate	8	Municipal WWTP
			Total	115.3			
4E – Little Red River	440.2	269.9	Fish consumption	2	Mercury	2	Unknown
			Aquatic life	22.3	Zinc	22.3	Ag
			Primary contact	20.8	Pathogens	20.8	unknown
			total	45.1			
4F – White River between Black River and Buffalo River	334.3	277.1	Aquatic life	14.8	DO	14.8	Unknown, HP
			Primary contact	29.1	Pathogens	29.1	Unknown, municipal WWTP
			Total	33.3			

Table C.1 Summary of 2008 water quality assessment for North AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
4G – Black River, Strawberry River & tributaries (partial)	457.8	376.3	Aquatic life	227.6	DO	100	Unknown
					Sediment/siltation	163.2	Erosion
			Primary contact	47.7	Pathogens	47.7	Unknown
			Total	223.3			
4H – Spring River, South Fork Spring River, and Eleven Point River	238.1	216.9	Aquatic life	54.9	DO	45.6	Unknown
					Sediment/siltation	9.4	Erosion
					Temperature	9.3	Unknown
			Agriculture & industrial water supply	3.1	TDS	3.1	unknown
			Total	54.9			
4I – White River from Crooked Creek to Long Creek	160.8	124.8	Aquatic life	70.9	DO	3	HP
					Temperature	31.7	RE
					Beryllium	36.2	Unknown
			Drinking water supply	25.9	Beryllium	25.9	Unknown
			Agriculture & industrial water supply	67.9	TDS	67.9	Unknown
					Sulfate & chloride	36.2	Unknown
			Total	96.8			
4J – Buffalo River & tributaries	339.8	317.1	Aquatic life	20.8	DO	9.5	Unknown
					Temperature	11.3	Unknown
			Agriculture & industrial water supply	23.9	TDS	23.9	Municipal WWTP
			Total	44.7			

Table C.1 Summary of 2008 water quality assessment for North AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
4K – Upper White River and Kings River	484.3	473.6	Aquatic life	105.8	Sediment/siltation	33.4	Erosion
					DO	72.4	Unknown
			Drinking water supply	134.1	Beryllium	125	Unknown
					Nitrate	9.1	Municipal WWTP
			Agriculture & industrial water supply	101.1	TDS	101.1	Unknown, municipal WWTP
					Chloride	6.2	Unknown
					Sulfate	33.4	Unknown
			Total	202.3			
3H – Arkansas River and tributaries: State line to river mile 210			Primary contact recreation	5.1 + some part of 15.4	Pathogens	5.1 + some part of 15.4	Unknown
Total	2742.9	2329.1		815.7			

Table C.2 Summary of 2008 water quality assessment results for West-central AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
3C – Arkansas River & tributaries: Lock & Dam 4 and 7*	96.3	96.3	Aquatic life	11.2	DO	11.2	Unknown
					Beryllium, copper, zinc	11.2	Unknown
			Drinking water	11.2	Sediment/silt ation, beryllium	11.2	Unknown
			Primary contact recreation	11.2	Pathogens	11.2	Unknown
			Total	11.2			
3D – Arkansas River & tributaries: Lock & Dam 7 to Morillton	179.3	168.2	Aquatic life	26.8	Copper	11.2	Agriculture
					Sediment/silt ation	15.6	Erosion
					Zinc	11.2	Agriculture
3E – Fourche LaFave River	211.5	201.3	Fish consumption	8.7	Mercury	8.7	Unknown
			Aquatic life	100.9	DO	82.3	Unknown
					Sediment/silt ation	20.2	Erosion
					pH	44.3	Unknown
			Total	109.6			

Table C.2 Summary of 2008 water quality assessment results for West-central AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
3F – Arkansas River*	283.2	164.3	Aquatic life	28	DO	2	HP
					Ammonia	3	Municipal WWTP
					Copper	10	Municipal WWTP
					Nitrate	13	Municipal WWTP
					Zinc	3	unknown
					Sediment/silt ation	10	Unknown
			Agriculture & industrial water supply	9.4	TDS	9.4	Unknown
			Total	34.4			
3G – Petit Jean River & tributaries	198.5	153.5	Aquatic life	69.8	Beryllium	21.6	Unknown
					DO	28.9	Unknown
					Sediment/silt ation	19.3	Unknown
			Drinking water supply	21.6	Beryllium	21.6	Unknown
			Total	69.8			

Table C.2 Summary of 2008 water quality assessment results for West-central AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
3H – Arkansas River & tributaries: state line to river mile 210*	707.2	539.3	Aquatic life	14.9	Copper	14.9	Municipal WWTP
			Agriculture & industrial water supply	12.4	TDS	12.4	Unknown
			Agriculture & industrial water supply, drinking water	11	Chloride	11	Unknown
			Primary contact recreation	47.8	Pathogens	47.8	Unknown
			Aquatic life	9.1	pH	9.1	Unknown
			Total	115.7			
3I – Poteau River	105.3	55.8	Aquatic life	14.8	DO	2	Unknown
					Copper	6.6	Industrial point source
					Total phosphorus	6.6	Municipal WWTP
					Sediment/siltation	14.8	Erosion
					Zinc	8.6	Unknown, municipal WWTP
			Drinking water, agriculture & industrial water supply	6.6	Chloride	6.6	Municipal WWTP, industrial point source
					Sulfate		
					TDS		
			Total	21.4			
Total	1781.3	1378.7		362.1			

Table C.3 Summary of 2008 water quality assessment for Southwest AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
1A – Dorcheat Bayou and Bodcau Bayou	197.5	197.5	Fish consumption	32	Mercury	50.6	Unknown
			Aquatic life	78.9	DO	11.7	Unknown
					Copper	28.4	Unknown
					Lead	67.2	Unknown, industrial point source
					pH	60.4	Unknown
					Sediment/siltation	48.7	Erosion
					Zinc	28.4	Unknown
			Agriculture & industrial water supply	20.3	Sulfate & TDS	20.3	Unknown
			Total	85.9			
1B – Red River, Sulphur River, and McKinney Bayou	389.6	340.1	Aquatic life	38.3	Sediment/siltation	38.3	Unknown, erosion
					Temperature	22.8	Unknown
			Drinking water supply	11	Nitrate	11	Municipal WWTP
			Agriculture & industrial water supply	209.4	Chloride	149.2	Unknown
					Sulfate	178.7	Unknown
					TDS	193.9	Unknown
			Total	243.2			

Table C.3 Summary of 2008 water quality assessment for Southwest AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
1C – Little River & tributaries	401.3	376.6	Aquatic life	63.6	Copper	14.1	Industrial point source
					DO	26.4	Unknown
					Sulfate	1.3	Industrial point source
					Zinc	1.3	Industrial point source
					Lead	23.5	Unknown
					Nitrate	12.8	Industrial point source
					Total phosphorus	12.8	Industrial point source
			Primary contact	36.4	Pathogens	33.6	Unknown
			Drinking water supply	28.7	Nitrate	17.3	Municipal WWTP
			Agriculture & industrial water supply	11.4	Sulfate	11.4	Unknown
			Total	125.8			
1D – Mountain Fork & tributaries	60.9	47.3	Aquatic life	11	Temperature	11	Unknown
Total	1,049.30	961.5		465.9			

Table C.4 Summary of 2008 water quality assessment for South-central AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
2C – Saline River & tributaries	576.3	527.2	Fish consumption	89.9	Mercury	89.9	Unknown
			Aquatic life	140.9	Sediment/siltation	68.7	Erosion
					Copper	72.2	Unknown
					Lead	63	unknown
					pH	28.9	Unknown
			Drinking water supply	113.2	Beryllium	113.2	
			Agriculture & industrial water supply	119.5	TDS	119.5	
			Total	179.9			
2D – Lower Ouachita River & tributaries	394.2	345.6	Fish consumption	119.2	Mercury	229.7	Unknown
			Aquatic life	271.3	Copper	148.6	Industrial point source
					DO	43.9	Unknown
					Lead	77.9	Unknown
					Sediment/siltation	113.8	Erosion
					Zinc	255.3	Unknown, resource extraction, industrial point source
					pH	8	Industrial point source
			Aquatic life, Drinking water supply	32.5	ammonia	8.5	Industrial point source
					chloride	32.5	Industrial point source, resource extraction
					Sulfate	24.5	Industrial point source, resource extraction
					TDS	32.5	Industrial point source, resource extraction
			Drinking water supply	8.5	Nitrate	8.5	Industrial point source

Table C.4 Summary of 2008 water quality assessment for South-central AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
			Agriculture & industrial water supply	49.9	TDS, sulfate	49.9	Resource extraction, industrial point source, municipal WWTP
			Total	345.6			
2E – Upper Cornie Bayou & tributaries	44	44	Aquatic life	44	Sediment/siltation	44	Resource extraction
					Zinc	44	Resource extraction
			Agriculture & industrial water supply	44	Sulfate	44	Resource extraction
					Beryllium	15	Unknown
			total	44			
2F – Ouachita River & tributaries: headwaters to Two Bayou	642.2	576	Aquatic life	116.4	Zinc	68.3	Resource extraction, unknown
					Sediment/siltation	10	Erosion
					Sulfate	14.3	Resource extraction
					TDS	12.1	Resource extraction
					pH	42.8	Resource extraction, unknown
					Chloride, cadmium	2.5	Resource extraction
					Copper	29.1	Resource extraction, unknown
					Beryllium	4.7	Resource extraction
					DO	10	Unknown
			Primary contact	22	Pathogens	22.5	Unknown
			Drinking water supply	47.3	Beryllium	47.3	Resource extraction
					pH, sulfate	4.7	Resource extraction
					Chloride, TDS, cadmium, copper	2.5	Resource extraction
					Zinc	24.2	Resource extraction

Table C.4 Summary of 2008 water quality assessment for South-central AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
			Agriculture & industrial water supply	12.5	Sulfate	14.3	Resource extraction
					TDS	12.1	Resource extraction
					pH, beryllium	4.7	Resource extraction
					Chloride, cadmium, copper	2.5	Resource extraction
					Zinc	14.3	Resource extraction
			Total	157.9			
2G – Little Missouri and Antoine River	427.5	427.5	Aquatic life	47.7	Copper	19.6	Unknown
					Lead	10.5	Unknown
					Zinc	47.7	Unknown
Total	2084.2	1920.3		775.1			

Table C.5 Summary of 2008 water quality assessment for East AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
2A – Boeuf River & tributaries	464.2	464.2	Aquatic life	67.7	Chloride	67.7	Agriculture
					Sediment/siltation	67.7	Agriculture
					Sulfate	49.4	Agriculture
					TDS	18.3	Agriculture
2B – Bayou Bartholomew & tributaries	489.3	489.3	Fish consumption	59.7	Mercury	59.7	Unknown
			Aquatic life	466.6	DO	314.8	Unknown
					Chloride	110.5	Unknown
					copper	6.6	Urban area
					Lead	72.2	Agriculture
					Sediment/siltation	41.3	Unknown
					TDS	116.6	Agriculture
					Zinc	64.7	Agriculture, urban area
			Primary contact	93.3	Pathogens	93.3	Unknown, agriculture, urban area
			Secondary contact	7	Pathogens	7	Unknown, urban area
			Drinking water supply	14.6	Beryllium	14.6	Unknown
			Agriculture & industrial water supply	134.5	Chloride	100.3	Agriculture
					lead	33.9	Agriculture
					TDS	116.6	Agriculture
			Total	469			
3A – Lower Arkansas River	186.6	186.6	Aquatic life	101.7	DO	101.7	Unknown
3B – Bayou Meto & tributaries (all but reach 907)	233.7	187.4	Fish consumption	44.8	Organics	44.8	Industrial point source
			Aquatic life	145.9	DO	101.1	Unknown
					Lead	12.3	Unknown
					Copper	44.8	Industrial point source
			Total	145.9			
3C – Arkansas River & tributaries: lock & dam 4 to 7	108.6	108.6	Drinking water supply	6.7	Beryllium	6.7	Unknown

Table C.5 Summary of 2008 water quality assessment for East AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
4A – Lower White River & tributaries	466.1	403.9	Aquatic life	31.1	DO	31.1	Unknown
			Agriculture & industrial water supply	34.3	Chloride	34.3	Agriculture
					TDS	34.3	Agriculture
			Total	65.4			
4B – Bayou DeView and Cache River	599.1	253	Aquatic life	223.6	Lead	204	Agriculture
					Aluminum	11.7	Municipal WWTP
					Beryllium	7.9	Industrial point source
					Sediment/siltation	28.5	Agriculture
			Primary contact	5.9	Pathogens	5.9	Unknown
			Drinking water supply	7.9	Beryllium	7.9	Industrial point source
			Agriculture & industrial water supply	48.1	Chloride	19.6	Industrial point source, municipal WWTP
					TDS	40.2	Agriculture
			Total	223.6			
4C – Village Creek & tributaries*	285	208.5	Aquatic life	92.6	DO	39.4	Unknown
					Zinc	53.1	Agriculture
			Primary contact recreation	43.1	Pathogens	43.1	Unknown
			Total	92.6			
4D – White River, Wattensaw Bayou, and Bayou Des Arc*	257.7	230.7	Aquatic life	136.4	DO	48.2	Unknown
					Lead	5	Agriculture
					Zinc	83.2	Agriculture
			Primary contact recreation	61	Pathogens	61	Unknown
			Total	163.4			
4G	64.4	64.4	Aquatic life	125	DO	100.2	unknown
					Sediment/siltation	35.6	erosion
			primary contact recreation	47.7	Pathogens	47.7	unknown
			total	172.9			

Table C.5 Summary of 2008 water quality assessment for East AWRPR.

ADEQ Planning Segment	Total miles	Stream miles assessed	Designated uses impaired	Stream miles impaired	Pollutant	Stream miles	Source
5A – St. Francis River Basin	572	368.8	Aquatic life	40.1	DO	40.1	Unknown
			Drinking water supply	22.8	Beryllium	22.8	Unknown
			Agriculture & industrial water supply	95.8	Chloride	95.8	Agriculture, unknown
			Total	113.1			
5B – St. Francis River Basin	208.1	165.1	Aquatic life	114.8	DO	114.8	Unknown
					Sediment/siltation	98.4	agriculture
			Primary contact	60.1	Pathogens	60.1	agriculture
			Drinking water supply	12.8	Chloride, TDS, sulfate	12.8	agriculture
			Agriculture & industrial water supply	107.4	Chloride	98.4	agriculture
					TDS	107.4	agriculture
					Sulfate	44.1	agriculture
			total	136.6			
5C – St. Francis River Basin	153	153	None				
6A thru 6C – Mississippi River Basin	437	0	None				
total	4239.8	3075		1758.6			

Appendix D

Equations Used to Estimate the Flow-Based Concentrations of Constituents in Surface Water

Appendix D

Stream, station	Parameter	Flow regression	R2
St. Francis River	Inorganic N	$10^{(0.119*\log10(Q)^2-0.492*\log10(Q)-0.563)}$	0.060
St. Francis River	Total P	$10^{(0.111*\log10(Q)^2-0.509*\log10(Q)-0.319)}$	0.057
St. Francis River	Turbidity	$10^{(2.271-0.729*\log10(Q)+0.166*\log10(Q)^2)}$	0.105
St. Francis River	TSS	$10^{(1.090+0.153*\log10(Q))}$	0.030
St. Francis Bay	DO	$10^{(0.862+0.018*\log10(Q))}$	0.013
St. Francis Bay	Suspended Sediment	$10^{(1.059+0.299*\log10(Q))}$	0.260
Black River, Corning	Inorganic N	$10^{(5.517*\log10(Q)-0.859*\log10(Q)^2-9.584)}$	0.135
Black River, Corning	Turbidity	$10^{(0.935+0.147*\log10(Q))}$	0.027
Black River, Corning	TSS	$10^{(1.985-0.216*\log10(Q))}$	0.042
White River, DeVall's Bluff	Inorganic N	$10^{(12.507*\log10(Q)-1.395*\log10(Q)^2-28.708)}$	0.250
White River, DeVall's Bluff	Total P	$10^{(0.215*\log10(Q)-2.063)}$	0.079
White River, DeVall's Bluff	Turbidity	$10^{(0.251+0.257*\log10(Q))}$	0.085
White River, DeVall's Bluff	Fecal coliforms	$10^{(0.637*\log10(Q)-1.234)}$	0.100
Cache R	DO	$10^{(0.968-0.241*\log10(Q)+0.069*\log10(Q)^2)}$	0.292
Cache R	TKN	$10^{(0.343*\log10(Q)-0.054*\log10(Q)^2-0.499)}$	0.105
Cache R	Total P	$10^{(0.056*\log10(Q)-0.803)}$	0.052
Bayou Bartholomew	DO	$10^{(0.764+0.018*\log10(Q))}$	0.011
Bayou Bartholomew	Inorganic N	$10^{(2.102*\log10(Q)-0.405*\log10(Q)^2-3.305)}$	0.234
Bayou Bartholomew	Total P	$10^{(0.538*\log10(Q)-0.091*\log10(Q)^2-1.423)}$	0.090
Bayou Bartholomew	Turbidity	$10^{(1.233+0.152*\log10(Q))}$	0.140
Bayou Bartholomew	TSS	$10^{(0.093+1.165*\log10(Q)-0.243*\log10(Q)^2)}$	0.158
Boeuf River	Inorganic N	$10^{(0.162*\log10(Q)-1.009)}$	0.054
Boeuf River	Total P	$10^{(0.005*\log10(Q)+0.031*\log10(Q)^2-0.715)}$	0.116
Boeuf River	Turbidity	$10^{(1.518+0.190*\log10(Q))}$	0.120
Boeuf River	TSS	$10^{(1.312+0.051*\log10(Q)+0.061*\log10(Q)^2)}$	0.276
Illinois River	DO	$10^{(0.384+0.396*\log10(Q)-0.065*\log10(Q)^2)}$	0.075
Illinois River	Fecal Coliform	$10^{(0.134+0.677*\log10(Q))}$	0.148
Illinois River	Inorganic N	$10^{(1.318*\log10(Q)-0.223*\log10(Q)^2-1.524)}$	0.354
Illinois River	Turbidity	$10^{(2.523-1.709*\log10(Q)}$	0.337

Stream, station	Parameter	Flow regression	R2
		+0.416*log10(Q)^2)	
Illinois River	TSS	10^(2.632-1.757*log10(Q) +0.414*log10(Q)^2)	0.335
Ouachita River, Mt. Ida	DO	10^(0.824+0.057*log10(Q))	0.191
Ouachita River, Mt. Ida	Inorganic N	10^(0.414*log10(Q)-2.036)	0.323
Ouachita River, Mt. Ida	Total P	10^(0.182*log10(Q)^2 - 0.763*log10(Q)-0.734)	0.177
Ouachita River, Mt. Ida	Turbidity	10^(0.840-0.448*log10(Q) +0.162*log10(Q)^2)	0.378
Ouachita River, Mt. Ida	TSS	10^(1.395-1.032*log10(Q) +0.270*log10(Q)^2)	0.301
Ouachita River, Camden	DO	10^(0.800+0.031*log10(Q))	0.026
Ouachita River, Camden	Fecal Coliform	10^(0.576*log10(Q)-0.419)	0.153
Ouachita River, Camden	TKN	10^(0.083*log10(Q)-0.654)	0.026
Ouachita River, Camden	Total P	10^(0.130*log10(Q)-1.763)	0.061
Ouachita River, Camden	Turbidity	10^(0.189+0.268*log10(Q))	0.187
Ouachita River, Camden	TSS	10^(0.358*log10(Q)-0.170)	0.194
Red River, Index	Fecal Colifiorm	10^(0.095+0.447*log10(Q))	0.082
Red River, Index	Suspended Sediment	10^(0.982*log10(Q)-1.578)	0.651
Red River, Index	TKN	10^(0.265-0.093*log10(Q))	0.054
Red River, Index	Total P	10^(0.165*log10(Q)-1.583)	0.085
Little River	DO	10^(0.832+0.030*log10(Q))	0.034
Little River	Inorganic N	10^(0.050*log10(Q)-0.922)	0.011
Little River	Total P	10^(0.068*log10(Q)-1.447)	0.019
Little River	Turbidity	10^(0.401*log10(Q)-0.280)	0.452
Little River	TSS	10^(0.445*log10(Q)-0.510)	0.435
Saline River	DO	10^(0.719+0.808*log10(Q))	0.213
Saline River	Inorganic N	10^(0.281*log10(Q)-1.245)	0.310
Saline River	Total P	10^(0.061*log10(Q)-1.315)	0.035
Saline River	TSS	10^(0.124+0.371*log10(Q))	0.357
Arkansas River, Trimble L&D	Fecal Coliform	10^(0.450*log10(Q)-0.027)	0.089
Arkansas River, Trimble L&D	Suspended Sediment	10^(0.046+0.361*log10(Q))	0.278
Arkansas River, Trimble L&D	Total P	10^(0.075*log10(Q)-1.320)	0.057
Fourche la Fave River	DO	10^(0.862+0.043*log10(Q))	0.147
Fourche la Fave River	Inorganic N	10^(0.147*log10(Q) +0.035*log10(Q)^2-1.662)	0.371
Fourche la Fave River	Total P	10^(0.041*log10(Q)-1.553)	0.027

Stream, station	Parameter	Flow regression	R2
Fourche la Fave River	Turbidity	$10^{(0.788-0.076*\log10(Q)+0.77*\log10(Q)^2)}$	0.335
Fourche la Fave River	TSS	$10^{(0.618-0.196*\log10(Q)+0.085*\log10(Q)^2)}$	0.172
Arkansas River, L&D 7	Inorganic N	$10^{(0.478*\log10(Q)-2.767)}$	0.333
Arkansas River, L&D 7	Total P	$10^{(0.062*\log10(Q)^2 -0.516 - 0.401*\log10(Q))}$	0.134
Arkansas River, L&D 7	Turbidity	$10^{(2.208-1.059*\log10(Q)+0.187*\log10(Q)^2)}$	0.650
Arkansas River, L&D 7	TSS	$10^{(2.847-1.348*\log10(Q)+0.212*\log10(Q)^2)}$	0.438

Appendix E

Summary of Estimated Groundwater Depletion by County

Table E-1 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Allowing Dewatering

County/Water Use Sector	Base Period			2020			2030			2040			2050		
	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**449.0**	**201.0**	**248.0**	**449.5**	**158.7**	**290.8**	**449.5**	**145.4**	**304.2**	**449.5**	**138.6**	**311.0**	**449.5**	**134.2**	**315.3**
Aquaculture	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3
Self-Supplied Commercial															
Duck Habitat	32.5	14.7	17.8	32.5	10.6	21.9	32.5	9.7	22.8	32.5	9.4	23.1	32.5	9.3	23.2
Crop Irrigation	415.0	186.2	228.8	415.5	148.0	267.6	415.6	135.5	280.0	415.6	129.0	286.6	415.6	124.8	290.8
Livestock															
Municipal															
Ashley	**129.8**	**128.6**	**1.3**	**131.4**	**127.6**	**3.8**	**131.4**	**124.6**	**6.7**	**131.3**	**122.2**	**9.1**	**131.3**	**120.8**	**10.5**
Aquaculture	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	0.1	1.9	1.9	0.1
Crop Irrigation	127.4	126.1	1.3	129.0	125.2	3.8	129.0	122.3	6.7	129.0	119.9	9.1	129.0	118.5	10.5
Livestock															
Municipal	0.5	0.5		0.5	0.5		0.4	0.4		0.4	0.4		0.4	0.4	
Calhoun	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**	
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Chicot	**211.9**	**211.2**	**0.7**	**251.5**	**234.2**	**17.3**	**251.5**	**204.7**	**46.8**	**251.5**	**179.7**	**71.8**	**251.4**	**164.3**	**87.2**
Aquaculture	6.8	6.8		6.8	6.6	0.2	6.8	5.9	0.9	6.8	5.0	1.7	6.8	4.9	1.9
Self-Supplied Domestic	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	0.6	0.6		0.6	0.6		0.6	0.4	0.2	0.6	0.3	0.3	0.6	0.3	0.3
Crop Irrigation	204.4	203.6	0.7	243.9	226.9	17.0	243.9	198.2	45.7	243.9	174.2	69.7	243.9	159.0	85.0
Livestock															
Clay	**529.2**	**476.4**	**52.8**	**573.8**	**310.6**	**263.2**	**588.0**	**186.0**	**402.1**	**597.9**	**163.7**	**434.2**	**605.6**	**143.9**	**461.7**
Aquaculture	2.2	2.0	0.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2		2.2
Crop Irrigation	526.8	474.3	52.5	571.5	310.5	261.0	585.8	185.9	399.8	595.6	163.6	432.0	603.3	143.9	459.5
Livestock															
Municipal	0.1	0.1		0.1	0.1		0.1		0.1	0.1		0.1	0.1		
Columbia	**1.5**	**0.8**	**0.8**	**1.5**	**0.7**	**0.8**	**1.5**	**0.7**	**0.8**	**1.5**	**0.7**	**0.8**	**1.5**	**0.7**	**0.8**
Duck Habitat	1.5	0.8	0.8	1.5	0.7	0.8	1.5	0.7	0.8	1.5	0.7	0.8	1.5	0.7	0.8
Craighead	**355.1**	**297.3**	**57.8**	**384.0**	**213.5**	**170.5**	**385.3**	**160.1**	**225.2**	**385.7**	**119.4**	**266.2**	**386.0**	**80.9**	**305.2**
Aquaculture															
Self-Supplied Commercial	0.1	0.1		0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.4	0.4		0.5	0.4	0.1	0.5	0.2	0.3	0.5	0.2	0.4	0.6	0.1	0.5
Industrial	0.6	0.3	0.3	0.6	0.3	0.3	0.6	0.2	0.4	0.6	0.1	0.6	0.6		0.6
Crop Irrigation	351.8	295.4	56.4	380.5	211.9	168.6	381.5	159.3	222.2	381.5	119.0	262.5	381.5	80.6	300.9
Livestock															
Mining															
Municipal	2.1	1.0	1.1	2.3	0.8	1.5	2.5	0.3	2.2	2.7	0.2	2.6	3.0	0.1	2.9
Thermoelectric															
Crittenden	**302.3**	**292.3**	**9.9**	**371.2**	**210.2**	**161.0**	**437.9**	**129.8**	**308.1**	**453.5**	**101.5**	**352.0**	**453.4**	**90.0**	**363.4**
Aquaculture	1.3	1.3		1.3	1.3		1.3	1.3		1.3	1.3		1.3	1.3	
Duck Habitat	1.1	1.1		1.1	1.1		1.1	0.9	0.1	1.1	0.9	0.1	1.1	0.9	0.2
Crop Irrigation	299.8	289.9	9.9	368.7	207.7	161.0	435.4	127.5	308.0	451.0	99.2	351.8	451.0	87.8	363.2

Table E-1 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1				
Municipal															
Cross	**492.8**	**411.4**	**81.4**	**495.6**	**314.9**	**180.7**	**497.4**	**179.5**	**317.9**	**497.6**	**113.8**	**383.8**	**497.6**	**99.9**	**397.7**
Aquaculture															
Duck Habitat	3.4	3.4		3.4	3.4		3.4	3.1	0.3	3.4	2.0	1.4	3.4	1.6	1.8
Industrial	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4
Crop Irrigation	488.3	407.4	80.9	491.2	311.4	179.8	493.0	176.3	316.7	493.3	111.7	381.6	493.3	98.2	395.1
Livestock															
Municipal	0.5	0.5	0.1	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5
Dallas	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Desha	**337.6**	**330.8**	**6.8**	**347.0**	**256.4**	**90.6**	**347.3**	**197.4**	**149.9**	**347.4**	**164.1**	**183.3**	**347.4**	**150.6**	**196.8**
Aquaculture	5.8	4.8	1.0	5.8	2.8	3.0	5.8	1.9	3.9	5.8	1.6	4.2	5.8	1.4	4.4
Duck Habitat	1.6	1.6		1.6	1.6	0.1	1.6	1.3	0.3	1.6	1.2	0.4	1.6	1.2	0.4
Crop Irrigation	330.2	324.3	5.8	339.6	252.0	87.6	339.8	194.2	145.6	340.0	161.3	178.7	340.0	148.0	191.9
Livestock															
Drew	**67.4**	**55.7**	**11.7**	**68.5**	**56.6**	**11.9**	**68.6**	**56.1**	**12.4**	**68.6**	**54.3**	**14.3**	**68.6**	**53.0**	**15.6**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Duck Habitat	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Crop Irrigation	66.9	55.2	11.7	68.0	56.1	11.8	68.0	55.6	12.4	68.0	53.8	14.2	68.0	52.5	15.5
Livestock				0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal															
Greene	**297.4**	**274.1**	**23.2**	**332.8**	**289.4**	**43.4**	**375.1**	**169.5**	**205.6**	**375.3**	**117.9**	**257.4**	**375.5**	**94.0**	**281.5**
Aquaculture	10.5	10.5		10.5	8.2	2.3	10.5	4.9	5.7	10.5	3.0	7.5	10.5	1.0	9.5
Self-Supplied Commercial	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.3	0.3		0.3	0.3	0.1	0.4	0.1	0.2	0.4		0.4	0.4		0.4
Duck Habitat	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Crop Irrigation	285.9	262.7	23.2	321.3	280.3	40.9	363.6	164.0	199.6	363.7	114.4	249.3	363.9	92.5	271.4
Livestock															
Independence	**42.4**	**33.8**	**8.6**	**50.7**	**21.2**	**29.5**	**55.1**	**20.6**	**34.5**	**55.1**	**20.2**	**34.9**	**55.2**	**20.1**	**35.1**
Self-Supplied Domestic	0.1	0.1		0.1			0.1			0.1			0.1		
Industrial															
Crop Irrigation	40.8	32.8	8.0	49.1	20.4	28.7	53.5	19.9	33.6	53.5	19.5	34.0	53.5	19.3	34.2
Livestock															
Municipal	0.6	0.6		0.6	0.6		0.6	0.6	0.1	0.7	0.6	0.1	0.7	0.6	0.1
Thermoelectric	0.8	0.2	0.6	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8
Jackson	**399.0**	**399.0**		**399.4**	**350.2**	**49.2**	**433.4**	**330.0**	**103.5**	**433.3**	**207.1**	**226.2**	**433.1**	**137.8**	**295.3**
Aquaculture	0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.8	0.1	0.9	0.6	0.3
Self-Supplied Domestic	0.2	0.2		0.1	0.1		0.1	0.1		0.1		0.1	0.1		0.1
Duck Habitat	2.3	2.3		2.3	2.3		2.3	2.3		2.3	1.2	1.1	2.3	0.4	1.9
Industrial	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	

Table E-1 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Crop Irrigation	393.7	393.7		394.4	345.3	49.1	428.7	325.3	103.4	428.7	204.0	224.8	428.7	135.9	292.8
Livestock															
Municipal	1.8	1.8		1.4	1.3	0.1	1.2	1.2	0.1	1.1	1.0	0.1	1.0	0.7	0.2
Jefferson	**317.5**	**271.3**	**46.2**	**354.9**	**211.3**	**143.6**	**354.4**	**174.3**	**180.1**	**353.9**	**156.5**	**197.4**	**353.4**	**147.1**	**206.3**
Aquaculture	0.3	0.3		0.3	0.3		0.3	0.2	0.1	0.3	0.1	0.1	0.3	0.1	0.1
Self-Supplied Commercial															
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	5.0	5.0		4.4	4.4		4.2	4.1	0.1	4.1	3.8	0.3	3.9	3.6	0.3
Crop Irrigation	302.9	263.0	39.9	341.0	205.2	135.8	341.0	169.0	172.1	341.0	151.6	189.4	341.0	142.5	198.5
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	8.6	2.3	6.3	8.4	0.6	7.9	7.9	0.1	7.8	7.6	0.1	7.5	7.2	0.1	7.1
Thermoelectric	0.6	0.6		0.8	0.8		0.8	0.8		0.8	0.7	0.1	0.8	0.6	0.2
Lafayette	**19.1**	**1.3**	**17.8**	**22.4**	**1.3**	**21.2**	**26.1**	**1.3**	**24.7**	**29.7**	**1.4**	**28.3**	**33.3**	**1.5**	**31.8**
Aquaculture	1.7	0.2	1.5	1.7	0.2	1.5	1.7	0.1	1.5	1.7	0.1	1.5	1.7	0.1	1.5
Duck Habitat	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4
Crop Irrigation	14.0	1.2	12.8	17.4	1.1	16.2	21.0	1.2	19.8	24.6	1.2	23.3	28.2	1.3	26.9
Municipal	0.1		0.1	0.1		0.1									
Lawrence	**326.8**	**304.9**	**21.8**	**353.1**	**173.4**	**179.7**	**360.5**	**91.4**	**269.1**	**360.5**	**75.0**	**285.5**	**360.5**	**70.3**	**290.2**
Aquaculture															
Crop Irrigation	325.9	304.1	21.8	352.3	172.8	179.5	359.7	91.3	268.4	359.7	74.9	284.8	359.7	70.2	289.5
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	0.7	0.7		0.7	0.4	0.3	0.7		0.7	0.7		0.7	0.7		0.7
Lee	**268.9**	**265.4**	**3.5**	**311.2**	**303.1**	**8.1**	**352.9**	**231.9**	**121.0**	**393.6**	**144.4**	**249.2**	**399.9**	**106.4**	**293.5**
Aquaculture	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.2	0.1	0.3	0.1	0.2
Crop Irrigation	268.3	264.8	3.5	310.7	302.5	8.1	352.5	231.4	121.0	393.1	144.0	249.1	399.5	106.1	293.4
Livestock															
Municipal	0.3	0.3		0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1	
Lincoln	**196.2**	**184.5**	**11.7**	**197.8**	**146.3**	**51.5**	**197.8**	**118.9**	**78.9**	**197.8**	**101.6**	**96.3**	**197.8**	**93.7**	**104.1**
Aquaculture	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.4	0.1	0.5	0.3	0.1
Duck Habitat															
Crop Irrigation	195.4	183.7	11.7	197.0	145.6	51.4	197.0	118.2	78.9	197.0	101.0	96.1	197.0	93.1	103.9
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lonoke	**303.6**	**205.8**	**97.9**	**297.6**	**124.6**	**173.1**	**298.8**	**105.1**	**193.7**	**299.7**	**90.6**	**209.1**	**300.8**	**83.1**	**217.7**
Aquaculture	39.8	28.5	11.3	39.8	20.7	19.1	39.8	18.3	21.5	39.8	15.6	24.2	39.8	13.6	26.2
Self-Supplied Commercial															
Industrial	1.0	1.0		1.1	1.0	0.1	1.0	0.4	0.6	1.0		1.0	1.0		1.0
Crop Irrigation	257.4	171.3	86.2	250.6	98.1	152.5	251.0	80.9	170.0	251.0	68.8	182.2	251.0	62.4	188.6
Livestock	0.1			0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	5.4	5.0	0.3	6.1	4.8	1.3	6.9	5.5	1.5	7.8	6.2	1.7	9.0	7.1	1.9
Miller	**3.0**	**2.8**	**0.2**	**1.3**	**1.1**	**0.2**	**1.6**	**1.4**	**0.2**	**1.9**	**1.7**	**0.2**	**2.2**	**2.0**	**0.2**

Table E-1 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Self-Supplied Commercial															
Duck Habitat	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Crop Irrigation	2.8	2.8		1.1	1.1		1.4	1.4		1.7	1.7		2.0	2.0	
Mississippi	**341.1**	**338.3**	**2.8**	**434.7**	**432.7**	**2.0**	**528.3**	**501.0**	**27.3**	**528.4**	**405.3**	**123.1**	**528.4**	**343.6**	**184.8**
Aquaculture	0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.8	
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	0.6	0.6		0.7	0.7		0.8	0.8		0.8	0.8		0.8	0.8	
Crop Irrigation	339.4	336.6	2.8	432.9	430.9	2.0	526.5	499.3	27.3	526.6	403.6	123.0	526.6	341.9	184.7
Municipal	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.1	0.1	0.2	0.1	0.1
Monroe	**302.0**	**300.1**	**2.0**	**344.1**	**327.4**	**16.7**	**377.3**	**206.9**	**170.4**	**380.1**	**148.3**	**231.9**	**380.1**	**127.9**	**252.2**
Aquaculture	5.6	5.6		5.6	5.6		5.6	2.3	3.2	5.6	1.5	4.1	5.6	1.3	4.3
Self-Supplied Commercial															
Self-Supplied Domestic	0.3	0.3		0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1	
Duck Habitat	13.4	13.4		13.4	11.1	2.4	13.4	6.9	6.5	13.4	5.1	8.3	13.4	4.8	8.6
Industrial															
Crop Irrigation	282.6	280.6	2.0	324.8	310.5	14.3	358.1	197.5	160.6	361.0	141.5	219.5	361.0	121.8	239.2
Livestock															
Municipal	0.1	0.1													
Phillips	**267.7**	**263.7**	**4.0**	**268.1**	**247.4**	**20.7**	**268.5**	**211.9**	**56.5**	**268.7**	**172.6**	**96.1**	**268.7**	**140.1**	**128.6**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.1	0.1
Self-Supplied Commercial															
Duck Habitat	7.8	7.8		7.8	6.2	1.6	7.8	5.5	2.3	7.8	5.2	2.6	7.8	5.1	2.7
Crop Irrigation	259.7	255.7	4.0	260.1	241.0	19.1	260.5	206.2	54.2	260.7	167.2	93.5	260.7	134.9	125.9
Livestock															
Poinsett	**647.8**	**503.4**	**144.4**	**694.2**	**373.1**	**321.1**	**695.7**	**199.3**	**496.4**	**695.8**	**99.6**	**596.2**	**695.8**	**83.7**	**612.1**
Aquaculture	0.9	0.9		0.9	0.9		0.9	0.2	0.7	0.9	0.1	0.8	0.9	0.1	0.8
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1
Duck Habitat	2.3	2.3		2.3	2.3		2.3	2.3		2.3	0.2	2.2	2.3	0.1	2.2
Industrial															
Crop Irrigation	643.7	499.7	144.0	690.1	369.8	320.4	691.7	196.8	494.9	691.8	99.3	592.5	691.8	83.5	608.3
Livestock															
Municipal	0.7	0.4	0.2	0.6	0.1	0.5	0.6		0.6	0.6		0.6	0.6		0.6
Prairie	**186.4**	**180.6**	**5.8**	**196.6**	**165.0**	**31.6**	**196.7**	**126.3**	**70.4**	**196.6**	**113.9**	**82.7**	**196.5**	**106.9**	**89.7**
Aquaculture	19.5	19.5		19.5	18.2	1.3	19.5	14.1	5.4	19.5	12.7	6.8	19.5	11.7	7.8
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1				
Duck Habitat															
Industrial															
Crop Irrigation	166.2	160.4	5.8	176.5	146.2	30.3	176.7	111.7	65.0	176.8	100.9	75.9	176.8	94.9	81.9
Livestock															
Municipal	0.6	0.6		0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2	
Pulaski	**24.7**	**23.2**	**1.6**	**23.4**	**19.7**	**3.8**	**23.0**	**18.4**	**4.5**	**22.6**	**17.3**	**5.3**	**22.4**	**16.7**	**5.7**

Table E-1 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Aquaculture	0.5	0.5		0.5	0.2	0.3	0.5	0.1	0.4	0.5	0.1	0.4	0.5	0.1	0.4
Self-Supplied Commercial															
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Duck Habitat	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Crop Irrigation	23.4	22.1	1.3	22.0	18.9	3.2	21.6	17.7	3.9	21.2	16.5	4.7	21.0	15.9	5.1
Livestock															
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Randolph	**116.2**	**82.4**	**33.7**	**129.5**	**35.8**	**93.7**	**129.7**	**18.5**	**111.3**	**129.7**	**15.6**	**114.2**	**129.8**	**14.8**	**114.9**
Self-Supplied Domestic	0.2	0.2		0.2		0.1	0.2		0.2	0.2		0.2	0.2		0.2
Crop Irrigation	115.8	82.1	33.7	129.2	35.7	93.5	129.4	18.4	110.9	129.4	15.5	113.8	129.4	14.8	114.6
Livestock															
Municipal	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
St. Francis	**324.3**	**319.6**	**4.8**	**379.6**	**282.7**	**96.9**	**440.7**	**216.8**	**223.8**	**441.4**	**160.9**	**280.5**	**441.2**	**120.3**	**320.9**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1
Self-Supplied Domestic															
Duck Habitat	3.0	3.0		3.0	0.9	2.2	3.0	0.4	2.7	3.0	0.3	2.7	3.0	0.3	2.8
Crop Irrigation	317.3	312.5	4.8	373.2	278.5	94.7	434.6	213.6	221.1	435.7	158.0	277.7	435.8	118.6	317.3
Municipal	3.8	3.8		3.1	3.1		2.7	2.7		2.4	2.4		2.1	1.3	0.8
White	**54.0**	**48.2**	**5.8**	**54.1**	**46.4**	**7.7**	**54.2**	**45.1**	**9.1**	**54.3**	**42.7**	**11.6**	**54.4**	**39.0**	**15.4**
Crop Irrigation	52.9	47.2	5.7	53.0	45.4	7.6	53.0	44.2	8.8	53.0	41.8	11.2	53.0	38.1	14.9
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.0	0.9	0.1	1.0	0.9	0.1	1.1	0.8	0.2	1.1	0.8	0.4	1.2	0.8	0.5
Woodruff	**293.3**	**292.8**	**0.5**	**319.1**	**222.4**	**96.6**	**323.2**	**179.8**	**143.4**	**323.1**	**128.8**	**194.3**	**323.0**	**111.9**	**211.1**
Aquaculture	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Duck Habitat	11.0	11.0		11.0	8.9	2.1	11.0	6.6	4.5	11.0	2.5	8.6	11.0	2.0	9.1
Industrial															
Crop Irrigation	281.0	280.5	0.5	306.9	212.4	94.5	311.1	172.2	139.0	311.1	125.4	185.7	311.1	109.1	202.0
Livestock															
Municipal	0.8	0.8		0.7	0.7		0.5	0.5		0.4	0.4		0.3	0.3	
Thermoelectric															
Grand Total	**7,608.4**	**6,700.8**	**907.7**	**8,239.2**	**5,658.1**	**2,581.1**	**8,651.7**	**4,353.0**	**4,298.7**	**8,726.3**	**3,379.4**	**5,346.9**	**8,744.7**	**2,899.2**	**5,845.5**

Table E-2 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Allowing Dewatering

County/Water Use Sector	Base Period			2020			2030			2040			2050		
	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**42.2**	**42.2**		**42.1**	**42.1**		**42.0**	**42.0**		**41.9**	**41.9**		**41.9**	**41.9**	
Aquaculture															
Self-Supplied Commercial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Industrial															
Crop Irrigation	38.6	38.6		38.7	38.7		38.7	38.7		38.7	38.7		38.7	38.7	
Municipal	1.9	1.9		1.8	1.8		1.7	1.7		1.6	1.6		1.6	1.6	
Ashley	**1.5**	**1.5**		**1.5**	**1.5**		**1.4**	**1.4**		**1.3**	**1.3**		**1.2**	**1.2**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.5	1.5		1.4	1.4		1.3	1.3		1.2	1.2		1.1	1.1	
Bradley	**1.2**	**1.2**		**1.2**	**1.2**		**1.1**	**1.1**		**1.0**	**1.0**		**0.9**	**0.9**	
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock				0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.1	1.1		1.0	1.0		0.9	0.9		0.9	0.9		0.8	0.8	
Calhoun	**0.5**	**0.5**		**0.5**	**0.5**		**0.5**	**0.5**		**0.4**	**0.4**		**0.4**	**0.4**	
Industrial															
Crop Irrigation	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.4	0.4		0.4	0.4		0.3	0.3		0.3	0.3		0.3	0.3	
Chicot	**2.2**	**2.2**		**2.1**	**2.1**		**1.9**	**1.9**		**1.7**	**1.7**		**1.5**	**1.5**	
Aquaculture															
Industrial															
Crop Irrigation	0.8	0.8		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9	
Municipal	1.4	1.4		1.2	1.2		0.9	0.9		0.7	0.7		0.6	0.6	
Clay	**0.2**	**0.1**	**0.1**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2	0.1	0.1	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Cleveland	**0.7**	**0.7**		**0.8**	**0.8**		**0.8**	**0.8**		**0.8**	**0.8**		**0.8**	**0.8**	
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.5	0.5		0.5	0.5		0.6	0.6		0.6	0.6		0.6	0.6	
Columbia	**1.4**	**1.1**	**0.2**	**1.3**	**1.1**	**0.2**	**1.2**	**1.0**	**0.2**	**1.2**	**1.0**	**0.2**	**1.1**	**1.0**	**0.1**
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.1	0.9	0.2	1.0	0.8	0.1	0.9	0.8	0.1	0.9	0.8	0.1	0.8	0.7	0.1
Craighead	**14.4**	**9.9**	**4.5**	**15.2**	**8.0**	**7.2**	**16.1**	**6.7**	**9.4**	**17.2**	**5.3**	**11.8**	**18.3**	**4.8**	**13.5**
Industrial	2.9	2.2	0.7	3.0	2.3	0.7	3.0	2.1	0.9	3.0	1.7	1.2	3.0	1.5	1.4
Crop Irrigation	2.7	2.1	0.6	2.9	1.8	1.1	2.9	1.7	1.2	2.9	1.3	1.6	2.9	1.2	1.7
Municipal	8.8	5.6	3.2	9.3	3.9	5.4	10.3	2.9	7.4	11.3	2.3	8.9	12.4	2.1	10.3
Crittenden	**0.2**	**0.2**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**				
Industrial	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1				
Cross	**6.7**	**5.8**	**0.9**	**6.7**	**5.8**	**0.9**	**6.6**	**5.5**	**1.1**	**6.6**	**5.3**	**1.3**	**6.6**	**5.3**	**1.3**

Table E-2 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Industrial															
Crop Irrigation	5.6	4.7	0.9	5.7	4.8	0.9	5.7	4.6	1.1	5.7	4.4	1.3	5.7	4.4	1.3
Municipal	1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9	
Dallas	**0.7**	**0.6**	**0.1**	**0.6**	**0.5**	**0.1**	**0.5**	**0.5**	**0.1**	**0.5**	**0.4**	**0.1**	**0.4**	**0.3**	**0.1**
Industrial															
Livestock															
Municipal	0.7	0.6	0.1	0.6	0.5	0.1	0.5	0.5	0.1	0.5	0.4	0.1	0.4	0.3	0.1
Desha	**6.5**	**5.9**	**0.6**	**6.2**	**5.9**	**0.3**	**5.9**	**5.7**	**0.2**	**5.6**	**5.5**	**0.1**	**5.4**	**5.4**	
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	2.5	1.9	0.6	2.2	1.8	0.3	2.0	1.8	0.2	1.9	1.8	0.1	1.8	1.8	
Crop Irrigation	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Municipal	2.2	2.2		2.1	2.1		1.9	1.9		1.8	1.8		1.7	1.7	
Drew	**1.8**	**1.8**		**1.7**	**1.7**		**1.7**	**1.7**		**1.6**	**1.6**		**1.5**	**1.5**	
Industrial	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Mining	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.2	0.2	
Municipal	1.3	1.3		1.2	1.2		1.2	1.2		1.2	1.2		1.2	1.2	
Grant	**1.7**	**1.7**		**1.9**	**1.9**		**2.1**	**2.1**		**2.2**	**2.2**		**2.4**	**2.4**	
Industrial	0.3	0.3		0.3	0.3		0.3	0.3		0.2	0.2		0.2	0.2	
Municipal	1.5	1.5		1.7	1.7		1.8	1.8		2.0	2.0		2.2	2.2	
Greene	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Hot Spring															
Self-Supplied Commercial															
Jackson	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Jefferson	**36.7**	**36.7**		**32.9**	**32.9**		**31.8**	**31.8**		**30.7**	**30.7**		**29.5**	**29.5**	
Industrial	32.4	32.4		28.6	28.6		27.7	27.7		26.8	26.8		25.7	25.7	
Crop Irrigation	0.3	0.3		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Municipal	3.5	3.5		3.4	3.4		3.2	3.2		3.0	3.0		2.9	2.9	
Thermoelectric	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lafayette	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.7**
Self-Supplied Commercial															
Crop Irrigation	0.3	0.1	0.2	0.4	0.2	0.2	0.5	0.2	0.3	0.6	0.2	0.4	0.6	0.2	0.4
Mining															
Municipal	0.5	0.2	0.4	0.5	0.1	0.3	0.4	0.1	0.3	0.3	0.1	0.2	0.3	0.1	0.2
Thermoelectric	0.2	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Lawrence	**0.1**	**0.1**		**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lee	**1.1**	**1.1**		**0.9**	**0.9**		**0.8**	**0.8**		**0.7**	**0.7**		**0.6**	**0.6**	
Industrial															
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	

Table E-2 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Municipal	0.8	0.8		0.6	0.6		0.4	0.4		0.3	0.3		0.2	0.2	
Lincoln	**3.6**	**3.4**	**0.1**	**3.6**	**3.4**	**0.2**	**3.5**	**3.4**	**0.2**	**3.5**	**3.3**	**0.2**	**3.5**	**3.3**	**0.2**
Industrial															
Crop Irrigation	1.3	1.1	0.1	1.3	1.1	0.2	1.3	1.1	0.2	1.3	1.1	0.2	1.3	1.1	0.2
Municipal	2.3	2.3		2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	
Lonoke	**10.2**	**10.1**	**0.2**	**10.1**	**9.7**	**0.4**	**10.2**	**9.7**	**0.5**	**10.3**	**9.6**	**0.7**	**10.5**	**9.5**	**1.0**
Aquaculture	0.8	0.8		0.8	0.8		0.8	0.7	0.1	0.8	0.7	0.1	0.8	0.6	0.2
Industrial															
Crop Irrigation	9.0	8.8	0.2	8.7	8.4	0.4	8.8	8.3	0.5	8.8	8.1	0.7	8.8	8.0	0.8
Municipal	0.5	0.5		0.6	0.6		0.7	0.7		0.8	0.8		1.0	1.0	
Miller	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Self-Supplied Commercial															
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Mississippi	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Monroe	**1.3**	**1.3**		**1.3**	**1.3**		**1.2**	**1.1**	**0.1**	**1.1**	**1.0**	**0.1**	**1.0**	**0.9**	**0.1**
Industrial															
Crop Irrigation	0.6	0.6		0.7	0.7		0.8	0.7	0.1	0.8	0.7	0.1	0.8	0.7	0.1
Municipal	0.7	0.7		0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2	
Ouachita	**0.7**	**0.7**		**0.6**	**0.6**		**0.5**	**0.5**		**0.4**	**0.4**		**0.4**	**0.4**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.5	0.5		0.4	0.4		0.3	0.3		0.3	0.3		0.3	0.3	
Phillips	**2.7**	**2.7**		**2.1**	**2.1**		**1.6**	**1.6**		**1.2**	**1.2**		**1.0**	**1.0**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1							
Mining															
Municipal	2.6	2.6		2.0	2.0		1.6	1.6		1.2	1.2		0.9	0.9	
Poinsett	**4.1**	**2.4**	**1.7**	**4.4**	**2.3**	**2.1**	**4.4**	**2.1**	**2.3**	**4.4**	**2.0**	**2.4**	**4.4**	**1.9**	**2.4**
Industrial															
Crop Irrigation	4.1	2.4	1.7	4.3	2.3	2.1	4.3	2.0	2.3	4.3	1.9	2.4	4.3	1.9	2.4
Mining															
Prairie	**6.9**	**6.9**		**7.3**	**7.2**	**0.1**	**7.3**	**7.0**	**0.2**	**7.2**	**6.9**	**0.3**	**7.2**	**6.9**	**0.3**
Industrial															
Crop Irrigation	6.7	6.7		7.1	7.0	0.1	7.1	6.9	0.2	7.1	6.8	0.3	7.1	6.8	0.3
Municipal	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Pulaski	**0.9**	**0.6**	**0.3**	**1.1**	**0.6**	**0.5**	**1.1**	**0.5**	**0.5**	**1.1**	**0.5**	**0.6**	**1.1**	**0.5**	**0.6**
Crop Irrigation	0.5	0.5		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Thermoelectric	0.5	0.2	0.3	0.6	0.1	0.5	0.6	0.1	0.5	0.7	0.1	0.6	0.7	0.1	0.6
Saline	**0.5**	**0.5**		**0.5**	**0.5**		**0.6**	**0.6**		**0.7**	**0.7**		**0.7**	**0.7**	
Municipal	0.5	0.5		0.5	0.5		0.6	0.6		0.7	0.7		0.7	0.7	
St. Francis	**0.5**	**0.5**		**0.6**	**0.6**		**0.7**	**0.7**		**0.7**	**0.7**		**0.7**	**0.7**	

Table E-2 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Crop Irrigation	0.5	0.5		0.6	0.6		0.7	0.7		0.7	0.7		0.7	0.7	
Union	**11.3**	**10.5**	**0.9**	**11.4**	**10.4**	**1.1**	**10.9**	**10.0**	**0.9**	**10.4**	**9.6**	**0.8**	**9.9**	**9.3**	**0.7**
Self-Supplied Commercial															
Self-Supplied Domestic	0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.3	0.3	
Industrial	5.7	4.9	0.8	6.0	4.9	1.0	5.8	4.8	0.9	5.5	4.7	0.8	5.3	4.6	0.7
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	5.0	5.0		4.9	4.9		4.6	4.6		4.4	4.4		4.2	4.1	
Woodruff	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**0.9**	**0.1**	**1.0**	**0.6**	**0.3**	**0.9**	**0.6**	**0.3**
Crop Irrigation	0.8	0.8		0.9	0.9		0.9	0.8	0.1	0.9	0.6	0.3	0.9	0.5	0.3
Municipal	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Grand Total	**165.4**	**155.1**	**10.3**	**161.7**	**147.7**	**14.0**	**159.5**	**142.5**	**17.0**	**157.6**	**137.7**	**19.9**	**156.1**	**134.4**	**21.8**

Table E-3 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Clay	**1.1**	**0.8**	**0.3**	**1.1**	**0.7**	**0.4**	**1.2**	**0.7**	**0.5**	**1.2**	**0.7**	**0.5**	**1.2**	**0.7**	**0.5**
Crop Irrigation	1.1	0.8	0.3	1.1	0.7	0.4	1.2	0.7	0.5	1.2	0.7	0.5	1.2	0.7	0.5
Craighead	**0.7**	**0.7**		**0.7**	**0.7**		**0.8**	**0.8**		**0.9**	**0.9**		**1.0**	**1.0**	
Industrial															
Municipal	0.7	0.7		0.7	0.7		0.8	0.8		0.9	0.9		1.0	1.0	
Crittenden	**8.3**	**3.0**	**5.3**	**8.2**	**2.9**	**5.3**	**8.1**	**2.9**	**5.2**	**8.0**	**2.9**	**5.2**	**8.0**	**2.8**	**5.1**
Industrial	0.1	0.1													
Municipal	8.2	2.9	5.3	8.1	2.9	5.3	8.0	2.8	5.2	8.0	2.8	5.2	7.9	2.8	5.1
Cross	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**
Municipal	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1
Greene	**6.2**	**5.3**	**1.0**	**6.8**	**5.4**	**1.4**	**7.4**	**5.5**	**1.8**	**7.7**	**5.5**	**2.3**	**8.2**	**5.5**	**2.7**
Self-Supplied Commercial															
Industrial	0.7	0.7		0.7	0.7		0.7	0.7		0.7	0.7		0.7	0.7	
Crop Irrigation	1.6	1.6		1.8	1.8		2.0	1.9	0.1	2.0	1.9	0.1	2.0	1.9	0.1
Mining															
Municipal	4.0	3.0	1.0	4.3	2.9	1.4	4.6	2.9	1.7	5.0	2.8	2.2	5.4	2.8	2.6
Lafayette															
Crop Irrigation															
Lonoke	**2.0**	**2.0**		**2.1**	**2.1**		**2.2**	**2.2**		**2.3**	**2.3**		**2.5**	**2.3**	**0.2**
Aquaculture	0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Crop Irrigation	1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Municipal	0.5	0.5		0.7	0.7		0.8	0.8		0.9	0.9		1.1	0.9	0.2
Miller	**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.3**	**0.3**		**0.3**	**0.3**	
Self-Supplied Commercial															
Municipal	0.2	0.2		0.2	0.2		0.2	0.2		0.3	0.3		0.3	0.3	
Mississippi	**5.8**	**5.8**		**6.1**	**6.1**		**5.9**	**5.9**		**5.7**	**5.7**		**5.6**	**5.6**	
Industrial	2.2	2.2		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Mining															
Municipal	3.0	3.0		2.7	2.7		2.5	2.5		2.3	2.3		2.2	2.2	
Thermoelectric	0.5	0.5		0.3	0.3		0.3	0.3		0.4	0.4		0.4	0.4	
Nevada	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**	
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal															
Poinsett	**2.5**	**2.0**	**0.5**	**2.5**	**1.9**	**0.6**	**2.5**	**1.9**	**0.6**	**2.4**	**1.8**	**0.6**	**2.4**	**1.8**	**0.6**
Industrial															
Crop Irrigation	0.9	0.5	0.4	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5
Municipal	1.6	1.5	0.1	1.5	1.4	0.1	1.5	1.4	0.1	1.4	1.3	0.1	1.4	1.3	0.1
Prairie	**1.6**	**1.6**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**	
Crop Irrigation	1.6	1.6		1.7	1.7		1.7	1.7		1.7	1.7		1.7	1.7	
Saline	**1.0**	**0.8**	**0.2**	**1.1**	**0.8**	**0.3**	**1.2**	**0.8**	**0.4**	**1.3**	**0.8**	**0.5**	**1.5**	**0.8**	**0.7**
Industrial															

Table E-3 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Livestock															
Municipal	1.0	0.8	0.2	1.0	0.8	0.2	1.2	0.8	0.4	1.3	0.8	0.5	1.4	0.8	0.6
St. Francis	**0.8**	**0.5**	**0.3**	**0.7**	**0.5**	**0.2**	**0.6**	**0.4**	**0.1**	**0.5**	**0.4**	**0.1**	**0.4**	**0.4**	**0.1**
Municipal	0.8	0.5	0.3	0.7	0.5	0.2	0.6	0.4	0.1	0.5	0.4	0.1	0.4	0.4	0.1
White	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**
Crop Irrigation	0.8	0.2	0.6	0.8	0.2	0.6	0.8	0.2	0.6	0.8	0.2	0.6	0.8	0.2	0.6
Grand Total	**31.5**	**23.2**	**8.4**	**32.5**	**23.6**	**8.9**	**32.9**	**23.6**	**9.4**	**33.3**	**23.5**	**9.9**	**33.9**	**23.3**	**10.6**

Table E-4 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**449.0**	**183.4**	**265.6**	**449.5**	**142.3**	**307.2**	**449.5**	**136.4**	**313.1**	**449.5**	**132.4**	**317.1**	**449.5**	**129.6**	**320.0**
Aquaculture	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3
Self-Supplied Commercial															
Duck Habitat	32.5	13.5	19.0	32.5	9.6	22.9	32.5	9.3	23.2	32.5	9.0	23.5	32.5	8.9	23.6
Crop Irrigation	415.0	169.8	245.2	415.5	132.7	282.9	415.6	127.0	288.5	415.6	123.2	292.3	415.6	120.5	295.0
Livestock															
Municipal															
Ashley	**129.8**	**128.6**	**1.3**	**131.4**	**127.5**	**3.9**	**131.4**	**125.2**	**6.2**	**131.3**	**123.2**	**8.1**	**131.3**	**122.3**	**9.0**
Aquaculture	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Crop Irrigation	127.4	126.1	1.3	129.0	125.1	3.9	129.0	122.9	6.1	129.0	120.9	8.1	129.0	120.0	9.0
Livestock															
Municipal	0.5	0.5		0.5	0.5		0.4	0.4		0.4	0.4		0.4	0.4	
Calhoun	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**	
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Chicot	**211.9**	**210.2**	**1.7**	**251.5**	**229.9**	**21.6**	**251.5**	**210.4**	**41.1**	**251.5**	**191.0**	**60.5**	**251.4**	**177.2**	**74.2**
Aquaculture	6.8	6.8		6.8	6.6	0.2	6.8	6.4	0.3	6.8	5.6	1.2	6.8	5.4	1.4
Self-Supplied Domestic	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	0.6	0.6		0.6	0.6		0.6	0.5	0.1	0.6	0.4	0.2	0.6	0.4	0.3
Crop Irrigation	204.4	202.6	1.7	243.9	222.6	21.4	243.9	203.4	40.6	243.9	184.9	59.1	243.9	171.4	72.5
Livestock															
Clay	**529.2**	**481.4**	**47.8**	**573.8**	**332.1**	**241.7**	**588.0**	**205.3**	**382.8**	**597.9**	**182.3**	**415.6**	**605.6**	**166.5**	**439.1**
Aquaculture	2.2	2.0	0.2	2.2	0.1	2.1	2.2		2.2	2.2		2.2	2.2		2.2
Crop Irrigation	526.8	479.2	47.6	571.5	331.9	239.6	585.8	205.2	380.6	595.6	182.2	413.5	603.3	166.4	436.9
Livestock															
Municipal	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Columbia	**1.5**	**0.8**	**0.8**	**1.5**	**0.8**	**0.8**	**1.5**	**0.8**	**0.7**	**1.5**	**0.8**	**0.7**	**1.5**	**0.8**	**0.7**
Duck Habitat	1.5	0.8	0.8	1.5	0.8	0.8	1.5	0.8	0.7	1.5	0.8	0.7	1.5	0.8	0.7
Craighead	**355.1**	**299.8**	**55.3**	**384.0**	**221.6**	**162.4**	**385.3**	**180.4**	**204.9**	**385.7**	**129.9**	**255.8**	**386.0**	**92.8**	**293.2**
Aquaculture															
Self-Supplied Commercial	0.1	0.1		0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.4	0.4		0.5	0.4		0.5	0.2	0.3	0.5	0.2	0.4	0.6	0.1	0.5
Industrial	0.6	0.3	0.3	0.6	0.3	0.3	0.6	0.3	0.3	0.6	0.1	0.5	0.6	0.1	0.6
Crop Irrigation	351.8	297.9	53.9	380.5	219.9	160.6	381.5	179.4	202.1	381.5	129.5	252.1	381.5	92.5	289.1
Livestock															
Mining															
Municipal	2.1	1.0	1.1	2.3	0.8	1.5	2.5	0.4	2.0	2.7	0.2	2.6	3.0	0.1	2.9
Thermoelectric															
Crittenden	**302.3**	**286.5**	**15.8**	**371.2**	**199.4**	**171.8**	**437.9**	**125.1**	**312.7**	**453.5**	**99.1**	**354.3**	**453.4**	**86.4**	**367.1**
Aquaculture	1.3	1.3		1.3	1.3		1.3	1.2	0.1	1.3	1.0	0.3	1.3	0.9	0.4
Duck Habitat	1.1	1.1		1.1	1.1		1.1	0.9	0.1	1.1	0.9	0.1	1.1	0.9	0.2
Crop Irrigation	299.8	284.0	15.8	368.7	196.9	171.8	435.4	123.0	312.4	451.0	97.1	353.9	451.0	84.5	366.5
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1				

Table E-4 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Municipal															
Cross	**492.8**	**419.5**	**73.3**	**495.6**	**338.3**	**157.3**	**497.4**	**212.0**	**285.4**	**497.6**	**128.6**	**369.0**	**497.6**	**112.8**	**384.8**
Aquaculture															
Duck Habitat	3.4	3.4		3.4	3.4		3.4	3.0	0.4	3.4	1.9	1.5	3.4	1.5	1.9
Industrial	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4
Crop Irrigation	488.3	415.6	72.8	491.2	334.8	156.4	493.0	208.9	284.2	493.3	126.7	366.6	493.3	111.3	382.0
Livestock															
Municipal	0.5	0.4	0.1	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5
Dallas	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Desha	**337.6**	**327.0**	**10.6**	**347.0**	**259.2**	**87.8**	**347.3**	**213.5**	**133.7**	**347.4**	**187.2**	**160.2**	**347.4**	**174.3**	**173.1**
Aquaculture	5.8	4.6	1.2	5.8	3.0	2.8	5.8	2.3	3.5	5.8	2.0	3.9	5.8	1.9	4.0
Duck Habitat	1.6	1.6		1.6	1.5	0.1	1.6	1.3	0.3	1.6	1.2	0.4	1.6	1.2	0.4
Crop Irrigation	330.2	320.7	9.4	339.6	254.7	84.9	339.8	209.9	129.9	340.0	184.0	156.0	340.0	171.2	168.7
Livestock															
Drew	**67.4**	**55.7**	**11.7**	**68.5**	**56.4**	**12.0**	**68.6**	**56.2**	**12.4**	**68.6**	**55.8**	**12.8**	**68.6**	**55.0**	**13.6**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Duck Habitat	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Crop Irrigation	66.9	55.2	11.7	68.0	56.0	12.0	68.0	55.7	12.3	68.0	55.3	12.7	68.0	54.5	13.5
Livestock				0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal															
Greene	**297.4**	**274.3**	**23.0**	**332.8**	**290.3**	**42.4**	**375.1**	**183.8**	**191.3**	**375.3**	**128.3**	**247.0**	**375.5**	**111.8**	**263.7**
Aquaculture	10.5	10.5		10.5	8.7	1.9	10.5	5.0	5.5	10.5	3.5	7.0	10.5	1.5	9.1
Self-Supplied Commercial	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.3	0.3		0.3	0.3	0.1	0.4	0.1	0.2	0.4		0.4	0.4		0.4
Duck Habitat	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Crop Irrigation	285.9	262.9	22.9	321.3	280.8	40.4	363.6	178.1	185.5	363.7	124.3	239.5	363.9	109.8	254.1
Livestock															
Independence	**42.4**	**35.2**	**7.2**	**50.7**	**23.3**	**27.4**	**55.1**	**22.0**	**33.2**	**55.1**	**21.2**	**34.0**	**55.2**	**21.0**	**34.2**
Self-Supplied Domestic	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Industrial															
Crop Irrigation	40.8	34.1	6.7	49.1	22.6	26.5	53.5	21.2	32.3	53.5	20.4	33.1	53.5	20.2	33.3
Livestock															
Municipal	0.6	0.6		0.6	0.6		0.6	0.6		0.7	0.7		0.7	0.7	
Thermoelectric	0.8	0.3	0.5	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8
Jackson	**399.0**	**399.0**		**399.4**	**358.6**	**40.8**	**433.4**	**340.7**	**92.8**	**433.3**	**244.1**	**189.2**	**433.1**	**165.1**	**268.0**
Aquaculture	0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.7	0.2
Self-Supplied Domestic	0.2	0.2		0.1	0.1		0.1	0.1		0.1		0.1	0.1		0.1
Duck Habitat	2.3	2.3		2.3	2.3		2.3	2.3		2.3	1.5	0.8	2.3	0.7	1.6
Industrial	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Crop Irrigation	393.7	393.7		394.4	353.7	40.7	428.7	336.0	92.7	428.7	240.5	188.2	428.7	162.8	265.9

Table E-4 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Livestock															
Municipal	1.8	1.8		1.4	1.3	0.1	1.2	1.2	0.1	1.1	1.0	0.1	1.0	0.7	0.2
Jefferson	**317.5**	**267.8**	**49.7**	**354.9**	**217.9**	**137.0**	**354.4**	**185.2**	**169.2**	**353.9**	**170.4**	**183.5**	**353.4**	**163.0**	**190.4**
Aquaculture	0.3	0.3		0.3	0.3		0.3	0.2		0.3	0.2	0.1	0.3	0.2	0.1
Self-Supplied Commercial															
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	5.0	5.0		4.4	4.4		4.2	3.9	0.3	4.1	3.7	0.4	3.9	3.5	0.4
Crop Irrigation	302.9	259.7	43.2	341.0	211.8	129.2	341.0	180.0	161.0	341.0	165.6	175.4	341.0	158.4	182.6
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	8.6	2.2	6.4	8.4	0.6	7.8	7.9	0.1	7.8	7.6	0.1	7.4	7.2	0.1	7.1
Thermoelectric	0.6	0.6		0.8	0.8		0.8	0.8		0.8	0.7	0.1	0.8	0.6	0.2
Lafayette	**19.1**	**1.4**	**17.6**	**22.4**	**1.6**	**20.9**	**26.1**	**1.6**	**24.4**	**29.7**	**1.7**	**27.9**	**33.3**	**1.8**	**31.4**
Aquaculture	1.7	0.2	1.5	1.7	0.2	1.5	1.7	0.2	1.5	1.7	0.2	1.5	1.7	0.2	1.5
Duck Habitat	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4
Crop Irrigation	14.0	1.3	12.7	17.4	1.4	16.0	21.0	1.4	19.5	24.6	1.5	23.1	28.2	1.6	26.6
Municipal	0.1		0.1	0.1		0.1									
Lawrence	**326.8**	**307.5**	**19.3**	**353.1**	**196.6**	**156.6**	**360.5**	**111.5**	**249.0**	**360.5**	**91.1**	**269.4**	**360.5**	**85.3**	**275.2**
Aquaculture															
Crop Irrigation	325.9	306.7	19.2	352.3	195.8	156.5	359.7	111.5	248.3	359.7	91.0	268.7	359.7	85.3	274.5
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	0.7	0.7		0.7	0.7	0.1	0.7		0.7	0.7		0.7	0.7		0.7
Lee	**268.9**	**265.4**	**3.5**	**311.2**	**308.7**	**2.5**	**352.9**	**250.3**	**102.6**	**393.6**	**150.3**	**243.3**	**399.9**	**109.2**	**290.7**
Aquaculture	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.2	0.1	0.3	0.2	0.2
Crop Irrigation	268.3	264.8	3.5	310.7	308.2	2.5	352.5	249.8	102.6	393.1	149.9	243.2	399.5	109.0	290.5
Livestock															
Municipal	0.3	0.3		0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1	
Lincoln	**196.2**	**177.8**	**18.4**	**197.8**	**141.2**	**56.6**	**197.8**	**120.8**	**77.0**	**197.8**	**108.2**	**89.6**	**197.8**	**102.0**	**95.9**
Aquaculture	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.4	0.1	0.5	0.4	0.1
Duck Habitat															
Crop Irrigation	195.4	177.0	18.4	197.0	140.5	56.6	197.0	120.1	77.0	197.0	107.6	89.4	197.0	101.3	95.7
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.1			0.1			0.1			0.1			0.1		
Lonoke	**303.6**	**206.3**	**97.3**	**297.6**	**139.1**	**158.5**	**298.8**	**120.6**	**178.2**	**299.7**	**108.0**	**191.8**	**300.8**	**97.3**	**203.5**
Aquaculture	39.8	28.4	11.4	39.8	22.9	16.9	39.8	19.6	20.1	39.8	17.8	22.0	39.8	14.6	25.2
Self-Supplied Commercial															
Industrial	1.0	1.0		1.1	1.0		1.0	0.4	0.6	1.0		1.0	1.0		1.0
Crop Irrigation	257.4	171.8	85.6	250.6	110.4	140.2	251.0	95.1	155.9	251.0	84.0	167.0	251.0	75.9	175.1
Livestock	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	5.4	5.1	0.3	6.1	4.8	1.3	6.9	5.5	1.5	7.8	6.2	1.7	9.0	6.8	2.1
Miller	**3.0**	**2.8**	**0.2**	**1.3**	**1.1**	**0.2**	**1.6**	**1.4**	**0.2**	**1.9**	**1.7**	**0.2**	**2.2**	**2.0**	**0.2**
Self-Supplied Commercial															

Table E-4 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Duck Habitat	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	**2.8**	**2.8**		**1.1**	**1.1**		**1.4**	**1.4**		**1.7**	**1.7**		**2.0**	**2.0**	
Mississippi	**341.1**	**338.3**	**2.8**	**434.7**	**432.5**	**2.1**	**528.3**	**500.7**	**27.6**	**528.4**	**418.7**	**109.7**	**528.4**	**366.5**	**161.8**
Aquaculture	0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.7	
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	0.6	0.6		0.7	0.7		0.8	0.8		0.8	0.8		0.8	0.8	
Crop Irrigation	339.4	336.6	2.8	432.9	430.8	2.1	526.5	498.9	27.6	526.6	417.0	109.6	526.6	364.9	161.7
Municipal	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.1	0.1	0.2	0.1	0.1
Monroe	**302.0**	**301.7**	**0.3**	**344.1**	**340.2**	**3.9**	**377.3**	**247.6**	**129.7**	**380.1**	**170.7**	**209.5**	**380.1**	**144.5**	**235.6**
Aquaculture	5.6	5.6		5.6	5.6		5.6	3.2	2.4	5.6	1.9	3.7	5.6	1.7	3.9
Self-Supplied Commercial															
Self-Supplied Domestic	0.3	0.3		0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1	
Duck Habitat	13.4	13.4		13.4	13.4		13.4	10.7	2.7	13.4	6.3	7.1	13.4	5.0	8.4
Industrial															
Crop Irrigation	282.6	282.3	0.3	324.8	320.9	3.9	358.1	233.4	124.7	361.0	162.3	198.7	361.0	137.8	223.2
Livestock															
Municipal	0.1	0.1													
Phillips	**267.7**	**264.6**	**3.1**	**268.1**	**260.2**	**7.9**	**268.5**	**246.1**	**22.4**	**268.7**	**207.5**	**61.2**	**268.7**	**167.4**	**101.3**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Self-Supplied Commercial															
Duck Habitat	7.8	7.8		7.8	7.8		7.8	7.8		7.8	7.8	0.1	7.8	7.4	0.4
Crop Irrigation	259.7	256.6	3.1	260.1	252.2	7.9	260.5	238.1	22.3	260.7	199.6	61.1	260.7	159.9	100.8
Livestock															
Poinsett	**647.8**	**522.6**	**125.1**	**694.2**	**404.1**	**290.1**	**695.7**	**240.2**	**455.5**	**695.8**	**113.9**	**581.9**	**695.8**	**92.5**	**603.3**
Aquaculture	0.9	0.9		0.9	0.9		0.9	0.2	0.7	0.9	0.1	0.8	0.9	0.1	0.8
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1
Duck Habitat	2.3	2.3		2.3	2.3		2.3	2.3	0.1	2.3	0.2	2.2	2.3	0.1	2.2
Industrial															
Crop Irrigation	643.7	519.0	124.7	690.1	400.7	289.4	691.7	237.7	453.9	691.8	113.6	578.2	691.8	92.3	599.5
Livestock															
Municipal	0.7	0.4	0.2	0.6	0.1	0.5	0.6		0.6	0.6		0.6	0.6		0.6
Prairie	**186.4**	**179.2**	**7.2**	**196.6**	**156.5**	**40.1**	**196.7**	**120.9**	**75.8**	**196.6**	**109.0**	**87.6**	**196.5**	**102.8**	**93.7**
Aquaculture	19.5	19.5		19.5	17.5	1.9	19.5	13.7	5.8	19.5	12.4	7.1	19.5	11.5	8.0
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1				
Duck Habitat															
Industrial															
Crop Irrigation	166.2	159.0	7.2	176.5	138.3	38.2	176.7	106.7	70.0	176.8	96.3	80.5	176.8	91.0	85.8
Livestock															
Municipal	0.6	0.6		0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2	
Pulaski	**24.7**	**23.0**	**1.7**	**23.4**	**20.1**	**3.3**	**23.0**	**19.1**	**3.8**	**22.6**	**18.4**	**4.3**	**22.4**	**17.7**	**4.6**
Aquaculture	0.5	0.4	0.1	0.5	0.2	0.3	0.5	0.2	0.3	0.5	0.2	0.3	0.5	0.2	0.3

Table E-4 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Self-Supplied Commercial															
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Duck Habitat	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Crop Irrigation	23.4	22.0	1.4	22.0	19.3	2.8	21.6	18.3	3.3	21.2	17.5	3.7	21.0	16.9	4.0
Livestock															
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Randolph	**116.2**	**84.3**	**31.9**	**129.5**	**40.2**	**89.4**	**129.7**	**22.2**	**107.5**	**129.7**	**17.8**	**111.9**	**129.8**	**16.6**	**113.1**
Self-Supplied Domestic	0.2	0.2		0.2		0.1	0.2		0.1	0.2		0.2	0.2		0.2
Crop Irrigation	115.8	84.0	31.9	129.2	40.1	89.1	129.4	22.2	107.2	129.4	17.8	111.6	129.4	16.6	112.8
Livestock															
Municipal	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
St. Francis	**324.3**	**318.9**	**5.5**	**379.6**	**305.2**	**74.4**	**440.7**	**222.0**	**218.7**	**441.4**	**159.3**	**282.1**	**441.2**	**115.2**	**326.0**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1
Self-Supplied Domestic															
Duck Habitat	3.0	3.0		3.0	1.5	1.6	3.0	0.4	2.6	3.0	0.3	2.7	3.0	0.3	2.7
Crop Irrigation	317.3	311.8	5.5	373.2	300.4	72.8	434.6	218.6	216.0	435.7	156.4	279.3	435.8	113.6	322.2
Municipal	3.8	3.8		3.1	3.1		2.7	2.7		2.4	2.4		2.1	1.1	1.0
White	**54.0**	**48.2**	**5.8**	**54.1**	**46.6**	**7.6**	**54.2**	**45.4**	**8.8**	**54.3**	**41.4**	**12.9**	**54.4**	**38.1**	**16.3**
Crop Irrigation	52.9	47.2	5.7	53.0	45.6	7.5	53.0	44.4	8.6	53.0	40.5	12.6	53.0	37.2	15.8
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.0	0.9	0.1	1.0	0.9	0.1	1.1	0.9	0.2	1.1	0.8	0.3	1.2	0.8	0.4
Woodruff	**293.3**	**292.9**	**0.4**	**319.1**	**233.5**	**85.6**	**323.2**	**191.8**	**131.4**	**323.1**	**132.1**	**190.9**	**323.0**	**115.3**	**207.7**
Aquaculture	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Duck Habitat	11.0	10.6	0.4	11.0	8.1	2.9	11.0	6.5	4.5	11.0	2.3	8.7	11.0	1.9	9.1
Industrial															
Crop Irrigation	281.0	281.0		306.9	224.2	82.6	311.1	184.2	126.9	311.1	128.9	182.2	311.1	112.5	198.6
Livestock															
Municipal	0.8	0.8		0.7	0.7		0.5	0.5		0.4	0.4		0.3	0.3	
Thermoelectric															
Grand Total	**7,608.4**	**6,704.2**	**904.2**	**8,239.2**	**5,825.1**	**2,414.0**	**8,651.7**	**4,659.4**	**3,992.3**	**8,726.3**	**3,644.1**	**5,082.2**	**8,744.7**	**3,153.1**	**5,591.5**

Table E-5 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**42.2**	**42.2**		**42.1**	**42.1**		**42.0**	**42.0**		**41.9**	**41.9**		**41.9**	**41.9**	
Aquaculture															
Self-Supplied Commercial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Industrial															
Crop Irrigation	38.6	38.6		38.7	38.7		38.7	38.7		38.7	38.7		38.7	38.7	
Municipal	1.9	1.9		1.8	1.8		1.7	1.7		1.6	1.6		1.6	1.6	
Ashley	**1.5**	**1.5**		**1.5**	**1.5**		**1.4**	**1.4**		**1.3**	**1.3**		**1.2**	**1.2**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.5	1.5		1.4	1.4		1.3	1.3		1.2	1.2		1.1	1.1	
Bradley	**1.2**	**1.2**		**1.2**	**1.2**		**1.1**	**1.1**		**1.0**	**1.0**		**0.9**	**0.9**	
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock				0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.1	1.1		1.0	1.0		0.9	0.9		0.9	0.9		0.8	0.8	
Calhoun	**0.5**	**0.5**		**0.5**	**0.5**		**0.5**	**0.5**		**0.4**	**0.4**		**0.4**	**0.4**	
Industrial															
Crop Irrigation	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.4	0.4		0.4	0.4		0.3	0.3		0.3	0.3		0.3	0.3	
Chicot	**2.2**	**2.2**		**2.1**	**2.1**		**1.9**	**1.9**		**1.7**	**1.7**		**1.5**	**1.5**	
Aquaculture															
Industrial															
Crop Irrigation	0.8	0.8		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9	
Municipal	1.4	1.4		1.2	1.2		0.9	0.9		0.7	0.7		0.6	0.6	
Clay	**0.2**		**0.1**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2		0.1	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Cleveland	**0.7**	**0.7**		**0.8**	**0.8**		**0.8**	**0.8**		**0.8**	**0.8**		**0.8**	**0.8**	
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.5	0.5		0.5	0.5		0.6	0.6		0.6	0.6		0.6	0.6	
Columbia	**1.4**	**1.3**	**0.1**	**1.3**	**1.2**	**0.1**	**1.2**	**1.1**	**0.1**	**1.2**	**1.1**	**0.1**	**1.1**	**1.1**	**0.1**
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.1	1.0	0.1	1.0	0.9		0.9	0.9		0.9	0.8		0.8	0.8	
Craighead	**14.4**	**10.7**	**3.7**	**15.2**	**9.0**	**6.2**	**16.1**	**7.7**	**8.4**	**17.2**	**6.2**	**10.9**	**18.3**	**5.6**	**12.7**
Industrial	2.9	2.2	0.7	3.0	2.3	0.7	3.0	2.2	0.8	3.0	2.1	0.9	3.0	1.8	1.1
Crop Irrigation	2.7	2.1	0.6	2.9	1.8	1.1	2.9	1.8	1.1	2.9	1.3	1.6	2.9	1.3	1.6
Municipal	8.8	6.3	2.5	9.3	4.9	4.5	10.3	3.6	6.6	11.3	2.8	8.4	12.4	2.5	9.9
Crittenden	**0.2**	**0.2**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**				
Industrial	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1				
Cross	**6.7**	**5.8**	**0.9**	**6.7**	**5.8**	**0.9**	**6.6**	**5.7**	**0.9**	**6.6**	**5.4**	**1.2**	**6.6**	**5.3**	**1.3**

Table E-5 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Industrial															
Crop Irrigation	5.6	4.7	0.9	5.7	4.8	0.9	5.7	4.8	0.9	5.7	4.4	1.2	5.7	4.4	1.3
Municipal	1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9	
Dallas	**0.7**	**0.6**	**0.1**	**0.6**	**0.5**	**0.1**	**0.5**	**0.5**	**0.1**	**0.5**	**0.4**	**0.1**	**0.4**	**0.3**	**0.1**
Industrial															
Livestock															
Municipal	0.7	0.6	0.1	0.6	0.5	0.1	0.5	0.5	0.1	0.5	0.4	0.1	0.4	0.3	0.1
Desha	**6.5**	**5.9**	**0.6**	**6.2**	**5.9**	**0.3**	**5.9**	**5.7**	**0.2**	**5.6**	**5.6**	**0.1**	**5.4**	**5.4**	
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	2.5	1.9	0.6	2.2	1.9	0.3	2.0	1.8	0.2	1.9	1.8	0.1	1.8	1.8	
Crop Irrigation	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Municipal	2.2	2.2		2.1	2.1		1.9	1.9		1.8	1.8		1.7	1.7	
Drew	**1.8**	**1.8**		**1.7**	**1.7**		**1.7**	**1.7**		**1.6**	**1.6**		**1.5**	**1.5**	
Industrial	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Mining	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.2	0.2	
Municipal	1.3	1.3		1.2	1.2		1.2	1.2		1.2	1.2		1.2	1.2	
Grant	**1.7**	**1.7**		**1.9**	**1.9**		**2.1**	**2.1**		**2.2**	**2.2**		**2.4**	**2.4**	
Industrial	0.3	0.3		0.3	0.3		0.3	0.3		0.2	0.2		0.2	0.2	
Municipal	1.5	1.5		1.7	1.7		1.8	1.8		2.0	2.0		2.2	2.2	
Greene	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Hot Spring															
Self-Supplied Commercial															
Jackson	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Jefferson	**36.7**	**36.7**		**32.9**	**32.9**		**31.8**	**31.8**		**30.7**	**30.7**		**29.5**	**29.5**	
Industrial	32.4	32.4		28.6	28.6		27.7	27.7		26.8	26.8		25.7	25.7	
Crop Irrigation	0.3	0.3		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Municipal	3.5	3.5		3.4	3.4		3.2	3.2		3.0	3.0		2.9	2.9	
Thermoelectric	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lafayette	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.6**	**1.0**	**0.4**	**0.7**
Self-Supplied Commercial															
Crop Irrigation	0.3	0.1	0.2	0.4	0.2	0.2	0.5	0.2	0.3	0.6	0.2	0.4	0.6	0.2	0.4
Mining															
Municipal	0.5	0.2	0.4	0.5	0.1	0.3	0.4	0.1	0.3	0.3	0.1	0.2	0.3	0.1	0.2
Thermoelectric	0.2	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Lawrence	**0.1**	**0.1**		**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lee	**1.1**	**1.1**		**0.9**	**0.9**		**0.8**	**0.8**		**0.7**	**0.7**		**0.6**	**0.6**	
Industrial															
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	

Table E-5 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Municipal	0.8	0.8		0.6	0.6		0.4	0.4		0.3	0.3		0.2	0.2	
Lincoln	**3.6**	**3.4**	**0.2**	**3.6**	**3.4**	**0.2**	**3.5**	**3.4**	**0.2**	**3.5**	**3.3**	**0.2**	**3.5**	**3.3**	**0.2**
Industrial															
Crop Irrigation	1.3	1.1	0.2	1.3	1.1	0.2	1.3	1.1	0.2	1.3	1.1	0.2	1.3	1.1	0.2
Municipal	2.3	2.3		2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	
Lonoke	**10.2**	**9.1**	**1.2**	**10.1**	**8.5**	**1.6**	**10.2**	**8.3**	**1.9**	**10.3**	**8.3**	**2.1**	**10.5**	**8.3**	**2.1**
Aquaculture	0.8	0.7	0.1	0.8	0.7	0.1	0.8	0.6	0.1	0.8	0.6	0.1	0.8	0.6	0.1
Industrial															
Crop Irrigation	9.0	7.9	1.1	8.7	7.2	1.5	8.8	7.0	1.8	8.8	6.8	1.9	8.8	6.7	2.0
Municipal	0.5	0.5		0.6	0.6		0.7	0.7		0.8	0.8		1.0	1.0	
Miller	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Self-Supplied Commercial															
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Mississippi	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Monroe	**1.3**	**1.3**		**1.3**	**1.3**		**1.2**	**1.1**	**0.1**	**1.1**	**1.0**	**0.1**	**1.0**	**0.9**	**0.1**
Industrial															
Crop Irrigation	0.6	0.6		0.7	0.7		0.8	0.7	0.1	0.8	0.7	0.1	0.8	0.7	0.1
Municipal	0.7	0.7		0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2	
Ouachita	**0.7**	**0.7**		**0.6**	**0.6**		**0.5**	**0.5**		**0.4**	**0.4**		**0.4**	**0.4**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.5	0.5		0.4	0.4		0.3	0.3		0.3	0.3		0.3	0.3	
Phillips	**2.7**	**2.7**		**2.1**	**2.1**		**1.6**	**1.6**		**1.2**	**1.2**		**1.0**	**1.0**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1							
Mining															
Municipal	2.6	2.6		2.0	2.0		1.6	1.6		1.2	1.2		0.9	0.9	
Poinsett	**4.1**	**2.5**	**1.6**	**4.4**	**2.3**	**2.1**	**4.4**	**2.1**	**2.2**	**4.4**	**2.0**	**2.4**	**4.4**	**2.0**	**2.4**
Industrial															
Crop Irrigation	4.1	2.5	1.6	4.3	2.3	2.1	4.3	2.1	2.2	4.3	2.0	2.4	4.3	1.9	2.4
Mining															
Prairie	**6.9**	**6.9**		**7.3**	**7.1**	**0.1**	**7.3**	**7.0**	**0.2**	**7.2**	**7.0**	**0.3**	**7.2**	**6.9**	**0.3**
Industrial															
Crop Irrigation	6.7	6.7		7.1	7.0	0.1	7.1	6.9	0.2	7.1	6.9	0.3	7.1	6.9	0.3
Municipal	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Pulaski	**0.9**	**0.6**	**0.3**	**1.1**	**0.6**	**0.5**	**1.1**	**0.5**	**0.5**	**1.1**	**0.5**	**0.6**	**1.1**	**0.5**	**0.6**
Crop Irrigation	0.5	0.5		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Thermoelectric	0.5	0.1	0.3	0.6	0.1	0.5	0.6	0.1	0.5	0.7	0.1	0.6	0.7	0.1	0.6
Saline	**0.5**	**0.5**		**0.5**	**0.5**		**0.6**	**0.6**		**0.7**	**0.7**		**0.7**	**0.7**	**0.1**
Municipal	0.5	0.5		0.5	0.5		0.6	0.6		0.7	0.7		0.7	0.7	0.1
St. Francis	**0.5**	**0.5**		**0.6**	**0.6**		**0.7**	**0.7**		**0.7**	**0.7**		**0.7**	**0.7**	

Table E-5 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Crop Irrigation	0.5	0.5		0.6	0.6		0.7	0.7		0.7	0.7		0.7	0.7	
Union	**11.3**	**10.5**	**0.8**	**11.4**	**10.4**	**1.1**	**10.9**	**10.0**	**0.9**	**10.4**	**9.6**	**0.8**	**9.9**	**9.3**	**0.7**
Self-Supplied Commercial															
Self-Supplied Domestic	0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.3	0.3	
Industrial	5.7	4.9	0.8	6.0	4.9	1.0	5.8	4.9	0.9	5.5	4.8	0.8	5.3	4.6	0.6
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	5.0	5.0		4.9	4.9		4.6	4.6		4.4	4.4		4.2	4.1	
Woodruff	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**0.7**	**0.3**	**0.9**	**0.6**	**0.3**
Crop Irrigation	0.8	0.8		0.9	0.9		0.9	0.9		0.9	0.6	0.3	0.9	0.5	0.3
Municipal	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Grand Total	**165.4**	**155.0**	**10.4**	**161.7**	**147.4**	**14.2**	**159.5**	**142.7**	**16.8**	**157.6**	**137.5**	**20.1**	**156.1**	**134.1**	**22.1**

Table E-6 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Clay	**1.1**	**0.8**	**0.3**	**1.1**	**0.7**	**0.4**	**1.2**	**0.7**	**0.5**	**1.2**	**0.7**	**0.5**	**1.2**	**0.7**	**0.5**
Crop Irrigation	1.1	0.8	0.3	1.1	0.7	0.4	1.2	0.7	0.5	1.2	0.7	0.5	1.2	0.7	0.5
Craighead	**0.7**	**0.7**		**0.7**	**0.7**		**0.8**	**0.8**		**0.9**	**0.9**		**1.0**	**1.0**	
Industrial															
Municipal	0.7	0.7		0.7	0.7		0.8	0.8		0.9	0.9		1.0	1.0	
Crittenden	**8.3**	**3.0**	**5.3**	**8.2**	**2.9**	**5.3**	**8.1**	**2.9**	**5.2**	**8.0**	**2.9**	**5.2**	**8.0**	**2.8**	**5.1**
Industrial	0.1	0.1													
Municipal	8.2	2.9	5.3	8.1	2.9	5.3	8.0	2.8	5.2	8.0	2.8	5.2	7.9	2.8	5.1
Cross	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.3**	**0.2**	**0.1**
Municipal	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1
Greene	**6.2**	**5.3**	**1.0**	**6.8**	**5.4**	**1.3**	**7.4**	**5.6**	**1.8**	**7.7**	**5.5**	**2.2**	**8.2**	**5.5**	**2.7**
Self-Supplied Commercial															
Industrial	0.7	0.7		0.7	0.7		0.7	0.7		0.7	0.7		0.7	0.7	
Crop Irrigation	1.6	1.6		1.8	1.8		2.0	1.9	0.1	2.0	1.9	0.1	2.0	1.9	0.1
Mining															
Municipal	4.0	3.0	1.0	4.3	2.9	1.3	4.6	2.9	1.7	5.0	2.8	2.1	5.4	2.9	2.6
Lafayette															
Crop Irrigation															
Lonoke	**2.0**	**2.0**		**2.1**	**2.1**		**2.2**	**2.2**		**2.3**	**2.3**		**2.5**	**2.3**	**0.2**
Aquaculture	0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Crop Irrigation	1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Municipal	0.5	0.5		0.7	0.7		0.8	0.8		0.9	0.9		1.1	0.9	0.2
Miller	**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.3**	**0.3**		**0.3**	**0.3**	
Self-Supplied Commercial															
Municipal	0.2	0.2		0.2	0.2		0.2	0.2		0.3	0.3		0.3	0.3	
Mississippi	**5.8**	**5.8**		**6.1**	**6.1**		**5.9**	**5.9**		**5.7**	**5.7**		**5.6**	**5.6**	
Industrial	2.2	2.2		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Mining															
Municipal	3.0	3.0		2.7	2.7		2.5	2.5		2.3	2.3		2.2	2.2	
Thermoelectric	0.5	0.5		0.3	0.3		0.3	0.3		0.4	0.4		0.4	0.4	
Nevada	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**	
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal															
Poinsett	**2.5**	**2.0**	**0.5**	**2.5**	**1.9**	**0.6**	**2.5**	**1.9**	**0.6**	**2.4**	**1.8**	**0.6**	**2.4**	**1.8**	**0.6**
Industrial															
Crop Irrigation	0.9	0.5	0.4	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5
Municipal	1.6	1.5	0.1	1.5	1.4	0.1	1.5	1.4	0.1	1.4	1.3	0.1	1.4	1.3	0.1
Prairie	**1.6**	**1.6**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**	
Crop Irrigation	1.6	1.6		1.7	1.7		1.7	1.7		1.7	1.7		1.7	1.7	
Saline	**1.0**	**0.8**	**0.2**	**1.1**	**0.8**	**0.3**	**1.2**	**0.8**	**0.4**	**1.3**	**0.8**	**0.5**	**1.5**	**0.8**	**0.7**
Industrial															
Livestock															

Table E-6 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Wet Scenario Allowing Dewatering

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Municipal	1.0	0.8	0.2	1.0	0.8	0.2	1.2	0.8	0.3	1.3	0.8	0.5	1.4	0.8	0.6
St. Francis	**0.8**	**0.5**	**0.3**	**0.7**	**0.5**	**0.2**	**0.6**	**0.4**	**0.1**	**0.5**	**0.4**	**0.1**	**0.4**	**0.4**	**0.1**
Municipal	0.8	0.5	0.3	0.7	0.5	0.2	0.6	0.4	0.1	0.5	0.4	0.1	0.4	0.4	0.1
White	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**	**0.8**	**0.2**	**0.6**
Crop Irrigation	0.8	0.2	0.6	0.8	0.2	0.6	0.8	0.2	0.6	0.8	0.2	0.6	0.8	0.2	0.6
Grand Total	**31.5**	**23.2**	**8.4**	**32.5**	**23.6**	**8.8**	**32.9**	**23.6**	**9.3**	**33.3**	**23.5**	**9.8**	**33.9**	**23.4**	**10.6**

Table E-7 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**449.0**	**11.0**	**438.0**	**449.5**	**19.3**	**430.2**	**449.5**	**45.7**	**403.9**	**449.5**	**55.1**	**394.4**	**449.5**	**55.6**	**393.9**
Aquaculture	1.4		1.4	1.4		1.4	1.4	0.1	1.3	1.4	0.1	1.3	1.4	0.1	1.3
Self-Supplied Commercial															
Duck Habitat	32.5	1.1	31.4	32.5	1.9	30.6	32.5	7.3	25.2	32.5	9.3	23.2	32.5	9.2	23.3
Crop Irrigation	415.0	9.9	405.2	415.5	17.4	398.2	415.6	38.3	377.3	415.6	45.7	369.8	415.6	46.3	369.3
Livestock															
Municipal															
Ashley	**129.8**	**104.8**	**25.0**	**131.4**	**106.6**	**24.8**	**131.4**	**104.3**	**27.0**	**131.3**	**101.1**	**30.3**	**131.3**	**98.6**	**32.8**
Aquaculture	1.9	1.8	0.1	1.9	1.8	0.1	1.9	1.8	0.1	1.9	1.8	0.1	1.9	1.8	0.1
Crop Irrigation	127.4	102.6	24.8	129.0	104.4	24.6	129.0	102.2	26.8	129.0	98.9	30.1	129.0	96.4	32.6
Livestock															
Municipal	0.5	0.4	0.1	0.5	0.4	0.1	0.4	0.3	0.1	0.4	0.3	0.1	0.4	0.3	0.1
Calhoun	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**	
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Chicot	**211.9**	**178.1**	**33.9**	**251.5**	**163.1**	**88.4**	**251.5**	**129.1**	**122.4**	**251.5**	**116.7**	**134.8**	**251.4**	**109.0**	**142.4**
Aquaculture	6.8	6.3	0.5	6.8	6.0	0.8	6.8	5.2	1.6	6.8	4.9	1.9	6.8	4.8	2.0
Self-Supplied Domestic	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	0.6	0.3	0.3	0.6	0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4
Crop Irrigation	204.4	171.3	33.0	243.9	156.8	87.2	243.9	123.6	120.3	243.9	111.5	132.4	243.9	104.0	139.9
Livestock															
Clay	**529.2**	**315.9**	**213.3**	**573.8**	**154.1**	**419.7**	**588.0**	**128.6**	**459.4**	**597.9**	**117.4**	**480.5**	**605.6**	**109.9**	**495.7**
Aquaculture	2.2	0.7	1.5	2.2		2.2	2.2		2.2	2.2		2.2	2.2		2.2
Crop Irrigation	526.8	315.0	211.8	571.5	154.0	417.5	585.8	128.6	457.2	595.6	117.4	478.2	603.3	109.9	493.4
Livestock															
Municipal	0.1	0.1		0.1		0.1	0.1		0.1	0.1		0.1	0.1		
Columbia	**1.5**	**0.1**	**1.5**	**1.5**	**0.1**	**1.5**	**1.5**	**0.1**	**1.5**	**1.5**	**0.1**	**1.5**	**1.5**	**0.1**	**1.4**
Duck Habitat	1.5	0.1	1.5	1.5	0.1	1.5	1.5	0.1	1.5	1.5	0.1	1.5	1.5	0.1	1.4
Craighead	**355.1**	**133.6**	**221.5**	**384.0**	**98.2**	**285.8**	**385.3**	**77.1**	**308.2**	**385.7**	**52.8**	**332.8**	**386.0**	**45.9**	**340.1**
Aquaculture															
Self-Supplied Commercial	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.4		0.4	0.5		0.5	0.5		0.5	0.5		0.5	0.6		0.6
Industrial	0.6		0.6	0.6		0.6	0.6		0.6	0.6		0.6	0.6		0.6
Crop Irrigation	351.8	133.6	218.2	380.5	98.2	282.3	381.5	77.0	304.5	381.5	52.8	328.7	381.5	45.9	335.6
Livestock															
Mining															
Municipal	2.1	0.1	2.1	2.3	0.1	2.2	2.5	0.1	2.4	2.7		2.7	3.0		3.0
Thermoelectric															
Crittenden	**302.3**	**161.3**	**141.0**	**371.2**	**59.4**	**311.8**	**437.9**	**43.0**	**394.9**	**453.5**	**36.1**	**417.4**	**453.4**	**32.9**	**420.6**
Aquaculture	1.3	0.5	0.8	1.3	0.4	0.9	1.3	0.3	1.0	1.3	0.3	1.0	1.3	0.3	1.1
Duck Habitat	1.1	1.1		1.1	0.8	0.3	1.1	0.6	0.5	1.1	0.6	0.5	1.1	0.5	0.5
Crop Irrigation	299.8	159.6	140.2	368.7	58.1	310.6	435.4	42.0	393.4	451.0	35.2	415.8	451.0	32.0	419.0

Table E-7 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Mining	0.1	0.1		0.1	0.1		0.1			0.1					
Municipal															
Cross	**492.8**	**164.1**	**328.6**	**495.6**	**93.3**	**402.3**	**497.4**	**79.3**	**418.1**	**497.6**	**74.4**	**423.3**	**497.6**	**72.2**	**425.3**
Aquaculture															
Duck Habitat	3.4	2.9	0.5	3.4	2.3	1.1	3.4	1.6	1.8	3.4	1.3	2.1	3.4	1.3	2.2
Industrial	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4
Crop Irrigation	488.3	161.2	327.2	491.2	91.0	400.2	493.0	77.7	415.3	493.3	73.0	420.3	493.3	70.9	422.3
Livestock															
Municipal	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5
Dallas	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Desha	**337.6**	**127.4**	**210.2**	**347.0**	**91.7**	**255.3**	**347.3**	**87.9**	**259.3**	**347.4**	**89.8**	**257.6**	**347.4**	**88.5**	**258.9**
Aquaculture	5.8	1.3	4.6	5.8	0.7	5.1	5.8	0.7	5.1	5.8	0.7	5.2	5.8	0.6	5.2
Duck Habitat	1.6	1.4	0.3	1.6	1.1	0.5	1.6	1.1	0.5	1.6	1.1	0.5	1.6	1.1	0.5
Crop Irrigation	330.2	124.8	205.4	339.6	89.9	249.7	339.8	86.1	253.8	340.0	88.0	252.0	340.0	86.7	253.3
Livestock															
Drew	**67.4**	**54.0**	**13.4**	**68.5**	**48.7**	**19.8**	**68.6**	**44.9**	**23.6**	**68.6**	**42.4**	**26.2**	**68.6**	**40.7**	**27.8**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.1	0.1	0.2	0.1	0.1
Duck Habitat	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Crop Irrigation	66.9	53.6	13.3	68.0	48.2	19.7	68.0	44.5	23.5	68.0	42.0	26.0	68.0	40.3	27.7
Livestock				0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal															
Greene	**297.4**	**238.3**	**59.1**	**332.8**	**96.3**	**236.5**	**375.1**	**73.5**	**301.6**	**375.3**	**62.0**	**313.3**	**375.5**	**54.8**	**320.7**
Aquaculture	10.5	5.4	5.1	10.5	2.6	7.9	10.5	1.0	9.6	10.5	0.4	10.2	10.5	0.2	10.4
Self-Supplied Commercial	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.3		0.3	0.3		0.3	0.4		0.4	0.4		0.4	0.4		0.4
Duck Habitat	0.5	0.4	0.1	0.5	0.3	0.2	0.5		0.5	0.5		0.5	0.5		0.5
Crop Irrigation	285.9	232.5	53.4	321.3	93.3	227.9	363.6	72.5	291.1	363.7	61.6	302.1	363.9	54.6	309.2
Livestock															
Independence	**42.4**	**0.3**	**42.0**	**50.7**	**0.8**	**49.9**	**55.1**	**0.9**	**54.2**	**55.1**	**1.1**	**54.1**	**55.2**	**1.1**	**54.1**
Self-Supplied Domestic	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Industrial															
Crop Irrigation	40.8	0.3	40.5	49.1	0.8	48.3	53.5	0.9	52.6	53.5	1.1	52.4	53.5	1.1	52.4
Livestock															
Municipal	0.6		0.6	0.6		0.6	0.6		0.6	0.7		0.7	0.7		0.7
Thermoelectric	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8
Jackson	**399.0**	**246.3**	**152.8**	**399.4**	**74.4**	**325.0**	**433.4**	**60.8**	**372.6**	**433.3**	**59.3**	**374.0**	**433.1**	**59.9**	**373.2**
Aquaculture	0.9	0.9		0.9	0.3	0.6	0.9	0.3	0.6	0.9	0.3	0.6	0.9	0.3	0.6
Self-Supplied Domestic	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Duck Habitat	2.3	2.3		2.3	0.5	1.8	2.3	0.4	1.9	2.3	0.4	1.9	2.3	0.4	1.9
Industrial	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	

Table E-7 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Crop Irrigation	393.7	241.6	152.1	394.4	72.6	321.8	428.7	59.5	369.2	428.7	58.1	370.6	428.7	58.7	370.0
Livestock															
Municipal	1.8	1.4	0.4	1.4	0.8	0.7	1.2	0.5	0.8	1.1	0.3	0.7	1.0	0.3	0.7
Jefferson	**317.5**	**60.0**	**257.5**	**354.9**	**69.1**	**285.8**	**354.4**	**67.4**	**286.9**	**353.9**	**69.6**	**284.2**	**353.4**	**71.0**	**282.4**
Aquaculture	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.1	0.3	0.1	0.2	0.3	0.1	0.1
Self-Supplied Commercial															
Duck Habitat	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Industrial	5.0	0.9	4.1	4.4	0.2	4.1	4.2	0.2	4.1	4.1	0.2	3.9	3.9	2.2	1.7
Crop Irrigation	302.9	58.4	244.5	341.0	68.5	272.5	341.0	66.8	274.2	341.0	69.0	272.0	341.0	68.4	272.6
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	8.6	0.1	8.5	8.4		8.4	7.9		7.9	7.6		7.5	7.2		7.2
Thermoelectric	0.6	0.3	0.2	0.8	0.2	0.5	0.8	0.2	0.5	0.8	0.2	0.6	0.8	0.2	0.6
Lafayette	**19.1**	**0.4**	**18.7**	**22.4**	**0.4**	**22.0**	**26.1**	**0.4**	**25.6**	**29.7**	**0.5**	**29.2**	**33.3**	**0.5**	**32.8**
Aquaculture	1.7		1.6	1.7	0.1	1.6	1.7	0.1	1.6	1.7	0.1	1.6	1.7	0.1	1.6
Duck Habitat	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4
Crop Irrigation	14.0	0.3	13.7	17.4	0.4	17.0	21.0	0.4	20.6	24.6	0.4	24.2	28.2	0.4	27.8
Municipal	0.1		0.1	0.1		0.1									
Lawrence	**326.8**	**59.6**	**267.1**	**353.1**	**31.4**	**321.7**	**360.5**	**32.7**	**327.8**	**360.5**	**34.9**	**325.6**	**360.5**	**38.0**	**322.5**
Aquaculture															
Crop Irrigation	325.9	59.6	266.3	352.3	31.4	320.9	359.7	32.7	327.1	359.7	34.9	324.9	359.7	37.9	321.8
Livestock	0.1		0.1	0.1		0.1	0.1			0.1	0.1		0.1	0.1	
Municipal	0.7		0.7	0.7		0.7	0.7		0.7	0.7		0.7	0.7		0.7
Lee	**268.9**	**186.0**	**82.9**	**311.2**	**97.0**	**214.3**	**352.9**	**84.1**	**268.8**	**393.6**	**82.8**	**310.7**	**399.9**	**76.5**	**323.4**
Aquaculture	0.3	0.3		0.3	0.2	0.1	0.3	0.2	0.2	0.3	0.1	0.2	0.3	0.1	0.3
Crop Irrigation	268.3	185.4	82.9	310.7	96.5	214.2	352.5	83.8	268.6	393.1	82.6	310.5	399.5	76.4	323.1
Livestock															
Municipal	0.3	0.3		0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1	
Lincoln	**196.2**	**70.8**	**125.3**	**197.8**	**69.7**	**128.1**	**197.8**	**64.0**	**133.8**	**197.8**	**60.3**	**137.6**	**197.8**	**58.7**	**139.1**
Aquaculture	0.5	0.4	0.1	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.2	0.3	0.5	0.2	0.3
Duck Habitat															
Crop Irrigation	195.4	70.2	125.2	197.0	69.2	127.8	197.0	63.5	133.5	197.0	59.9	137.2	197.0	58.4	138.7
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	0.1	0.2	0.1	0.1
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lonoke	**303.6**	**3.9**	**299.7**	**297.6**	**3.2**	**294.5**	**298.8**	**3.1**	**295.7**	**299.7**	**3.6**	**296.1**	**300.8**	**4.8**	**296.0**
Aquaculture	39.8	1.4	38.4	39.8	1.4	38.4	39.8	1.4	38.4	39.8	1.4	38.4	39.8	1.3	38.5
Self-Supplied Commercial															
Industrial	1.0		1.0	1.1		1.1	1.0		1.0	1.0		1.0	1.0		1.0
Crop Irrigation	257.4	2.5	255.0	250.6	1.8	248.8	251.0	1.7	249.3	251.0	2.2	248.8	251.0	3.5	247.5
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	5.4		5.4	6.1		6.1	6.9		6.9	7.8		7.8	9.0		9.0
Miller	**3.0**	**2.7**	**0.3**	**1.3**	**1.1**	**0.2**	**1.6**	**1.4**	**0.2**	**1.9**	**1.6**	**0.3**	**2.2**	**1.9**	**0.3**

Table E-7 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Self-Supplied Commercial															
Duck Habitat	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	**2.8**	**2.7**	**0.1**	**1.1**	**1.1**		**1.4**	**1.4**		**1.7**	**1.6**	**0.1**	**2.0**	**1.9**	**0.1**
Mississippi	**341.1**	**338.3**	**2.8**	**434.7**	**395.5**	**39.2**	**528.3**	**342.0**	**186.4**	**528.4**	**254.3**	**274.1**	**528.4**	**217.3**	**311.1**
Aquaculture	0.8	0.8		0.8	0.8		0.8	0.4	0.4	0.8	0.2	0.6	0.8	0.2	0.6
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	0.6	0.6		0.7	0.7		0.8	0.8		0.8	0.8		0.8	0.8	
Crop Irrigation	339.4	336.6	2.8	432.9	393.7	39.2	526.5	340.7	185.8	526.6	253.3	273.4	526.6	216.3	310.4
Municipal	0.2	0.2		0.2	0.2		0.2		0.2	0.2		0.1	0.2		0.1
Monroe	**302.0**	**116.5**	**185.5**	**344.1**	**69.4**	**274.7**	**377.3**	**66.9**	**310.4**	**380.1**	**67.3**	**312.9**	**380.1**	**67.3**	**312.8**
Aquaculture	5.6	1.6	4.0	5.6	1.0	4.6	5.6	0.9	4.7	5.6	0.9	4.7	5.6	0.9	4.7
Self-Supplied Commercial															
Self-Supplied Domestic	0.3		0.3	0.2		0.2	0.2		0.2	0.1		0.1	0.1		0.1
Duck Habitat	13.4	6.8	6.6	13.4	3.7	9.7	13.4	3.7	9.8	13.4	3.7	9.8	13.4	3.7	9.8
Industrial															
Crop Irrigation	282.6	107.9	174.7	324.8	64.6	260.2	358.1	62.3	295.8	361.0	62.6	298.3	361.0	62.7	298.3
Livestock															
Municipal	0.1	0.1													
Phillips	**267.7**	**167.2**	**100.6**	**268.1**	**80.5**	**187.6**	**268.5**	**73.4**	**195.0**	**268.7**	**74.3**	**194.4**	**268.7**	**73.8**	**195.0**
Aquaculture	0.2	0.2		0.2	0.1	0.1	0.2		0.1	0.2		0.1	0.2		0.1
Self-Supplied Commercial															
Duck Habitat	7.8	4.1	3.7	7.8	2.9	4.9	7.8	2.9	4.9	7.8	2.9	4.9	7.8	3.0	4.8
Crop Irrigation	259.7	162.9	96.9	260.1	77.6	182.5	260.5	70.5	190.0	260.7	71.3	189.4	260.7	70.7	190.0
Livestock															
Poinsett	**647.8**	**167.0**	**480.8**	**694.2**	**86.1**	**608.1**	**695.7**	**69.3**	**626.4**	**695.8**	**65.0**	**630.9**	**695.8**	**63.7**	**632.1**
Aquaculture	0.9		0.9	0.9		0.9	0.9	0.1	0.9	0.9	0.1	0.9	0.9	0.1	0.8
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1
Duck Habitat	2.3	0.5	1.9	2.3		2.3	2.3	0.1	2.3	2.3	0.1	2.3	2.3	0.1	2.3
Industrial															
Crop Irrigation	643.7	166.5	477.2	690.1	86.1	604.1	691.7	69.1	622.5	691.8	64.8	627.0	691.8	63.6	628.3
Livestock															
Municipal	0.7		0.7	0.6		0.6	0.6		0.6	0.6		0.6	0.6		0.6
Prairie	**186.4**	**17.4**	**169.0**	**196.6**	**15.9**	**180.7**	**196.7**	**17.1**	**179.6**	**196.6**	**18.9**	**177.7**	**196.5**	**21.0**	**175.6**
Aquaculture	19.5	0.7	18.8	19.5	0.7	18.8	19.5	0.7	18.8	19.5	0.5	19.0	19.5	0.6	18.8
Self-Supplied Domestic	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1			
Duck Habitat															
Industrial															
Crop Irrigation	166.2	16.6	149.5	176.5	15.1	161.4	176.7	16.4	160.4	176.8	18.4	158.4	176.8	20.3	156.5
Livestock															
Municipal	0.6	0.1	0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2		0.2
Pulaski	**24.7**	**1.6**	**23.1**	**23.4**	**1.1**	**22.3**	**23.0**	**1.4**	**21.6**	**22.6**	**3.2**	**19.4**	**22.4**	**4.8**	**17.5**

Table E-7 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Aquaculture	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5
Self-Supplied Commercial															
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Duck Habitat	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5		0.5	0.5	
Crop Irrigation	23.4	1.5	21.9	22.0	1.0	21.1	21.6	1.2	20.4	21.2	2.6	18.7	21.0	4.2	16.7
Livestock															
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Randolph	**116.2**	**27.1**	**89.1**	**129.5**	**11.6**	**117.9**	**129.7**	**11.2**	**118.5**	**129.7**	**11.2**	**118.6**	**129.8**	**11.2**	**118.6**
Self-Supplied Domestic	0.2	0.1	0.1	0.2		0.1	0.2		0.1	0.2		0.1	0.2		0.1
Crop Irrigation	115.8	26.9	89.0	129.2	11.5	117.6	129.4	11.2	118.2	129.4	11.1	118.3	129.4	11.1	118.3
Livestock															
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
St. Francis	**324.3**	**148.6**	**175.8**	**379.6**	**124.3**	**255.3**	**440.7**	**96.0**	**344.7**	**441.4**	**71.8**	**369.6**	**441.2**	**66.3**	**375.0**
Aquaculture	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2
Self-Supplied Domestic															
Duck Habitat	3.0	0.2	2.8	3.0	0.2	2.9	3.0	0.1	2.9	3.0	0.1	2.9	3.0	0.2	2.8
Crop Irrigation	317.3	145.6	171.7	373.2	122.8	250.5	434.6	95.7	338.9	435.7	71.5	364.2	435.8	65.9	369.9
Municipal	3.8	2.6	1.2	3.1	1.2	1.9	2.7		2.7	2.4		2.4	2.1		2.1
White	**54.0**	**11.3**	**42.6**	**54.1**	**10.6**	**43.5**	**54.2**	**10.9**	**43.3**	**54.3**	**11.2**	**43.1**	**54.4**	**11.7**	**42.6**
Crop Irrigation	52.9	11.2	41.7	53.0	10.5	42.5	53.0	10.9	42.2	53.0	11.2	41.8	53.0	11.7	41.3
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	1.0	0.2	0.8	1.0	0.1	0.9	1.1		1.0	1.1		1.1	1.2		1.2
Woodruff	**293.3**	**114.2**	**179.1**	**319.1**	**68.1**	**250.9**	**323.2**	**59.5**	**263.7**	**323.1**	**59.8**	**263.3**	**323.0**	**60.4**	**262.6**
Aquaculture	0.5	0.4	0.1	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2
Duck Habitat	11.0	2.5	8.5	11.0	1.1	9.9	11.0	1.0	10.0	11.0	1.0	10.0	11.0	1.1	10.0
Industrial															
Crop Irrigation	281.0	110.5	170.5	306.9	66.2	240.7	311.1	57.8	253.3	311.1	58.2	253.0	311.1	58.8	252.3
Livestock															
Municipal	0.8	0.8		0.7	0.5	0.2	0.5	0.4	0.1	0.4	0.3	0.1	0.3	0.2	0.1
Thermoelectric															
Grand Total	**7,608.4**	**3,228.0**	**4,380.6**	**8,239.2**	**2,141.1**	**6,098.1**	**8,651.7**	**1,876.4**	**6,775.3**	**8,726.3**	**1,698.5**	**7,027.9**	**8,744.7**	**1,618.2**	**7,126.4**

Table E-8 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**42.2**	**42.2**		**42.1**	**42.1**		**42.0**	**42.0**		**41.9**	**41.9**		**41.9**	**41.9**	
Aquaculture															
Self-Supplied Commercial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Industrial															
Crop Irrigation	38.6	38.6		38.7	38.7		38.7	38.7		38.7	38.7		38.7	38.7	
Municipal	1.9	1.9		1.8	1.8		1.7	1.7		1.6	1.6		1.6	1.6	
Ashley	**1.5**	**1.5**		**1.5**	**1.5**		**1.4**	**1.4**		**1.3**	**1.3**		**1.2**	**1.2**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.5	1.5		1.4	1.4		1.3	1.3		1.2	1.2		1.1	1.1	
Bradley	**1.2**	**1.2**		**1.2**	**1.2**		**1.1**	**1.1**		**1.0**	**1.0**		**0.9**	**0.9**	
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock				0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.1	1.1		1.0	1.0		0.9	0.9		0.9	0.9		0.8	0.8	
Calhoun	**0.5**	**0.5**		**0.5**	**0.5**		**0.5**	**0.5**		**0.4**	**0.4**		**0.4**	**0.4**	
Industrial															
Crop Irrigation	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.4	0.4		0.4	0.4		0.3	0.3		0.3	0.3		0.3	0.3	
Chicot	**2.2**	**2.2**		**2.1**	**2.1**		**1.9**	**1.9**		**1.7**	**1.7**		**1.5**	**1.5**	
Aquaculture															
Industrial															
Crop Irrigation	0.8	0.8		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9	
Municipal	1.4	1.4		1.2	1.2		0.9	0.9		0.7	0.7		0.6	0.6	
Clay	**0.2**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.2**		**0.1**	**0.2**		**0.1**	**0.2**		**0.1**
Crop Irrigation	0.2	0.1	0.1	0.2	0.1	0.1	0.2		0.1	0.2		0.1	0.2		0.1
Cleveland	**0.7**	**0.7**		**0.8**	**0.7**		**0.8**	**0.7**		**0.8**	**0.7**		**0.8**	**0.8**	**0.1**
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.5	0.5		0.5	0.5		0.6	0.5		0.6	0.5		0.6	0.6	0.1
Columbia	**1.4**	**0.5**	**0.9**	**1.3**	**0.5**	**0.8**	**1.2**	**0.5**	**0.7**	**1.2**	**0.5**	**0.7**	**1.1**	**0.5**	**0.6**
Self-Supplied Domestic	0.1			0.1			0.1			0.1			0.1		
Industrial	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	1.1	0.3	0.7	1.0	0.4	0.6	0.9	0.4	0.6	0.9	0.4	0.5	0.8	0.4	0.5
Craighead	**14.4**	**7.6**	**6.8**	**15.2**	**7.0**	**8.2**	**16.1**	**6.9**	**9.2**	**17.2**	**6.9**	**10.3**	**18.3**	**6.9**	**11.4**
Industrial	2.9	2.2	0.7	3.0	2.2	0.8	3.0	2.2	0.8	3.0	2.2	0.8	3.0	2.2	0.8
Crop Irrigation	2.7	1.7	1.0	2.9	1.4	1.5	2.9	1.4	1.5	2.9	1.4	1.5	2.9	1.4	1.5
Municipal	8.8	3.7	5.1	9.3	3.4	6.0	10.3	3.3	7.0	11.3	3.3	8.0	12.4	3.3	9.1
Crittenden	**0.2**	**0.2**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**				
Industrial	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1				
Cross	**6.7**	**5.5**	**1.2**	**6.7**	**5.7**	**1.0**	**6.6**	**5.6**	**1.0**	**6.6**	**5.6**	**1.1**	**6.6**	**5.5**	**1.1**

Table E-8 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Industrial															
Crop Irrigation	5.6	4.4	1.2	5.7	4.6	1.0	5.7	4.6	1.0	5.7	4.6	1.1	5.7	4.6	1.1
Municipal	1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9	
Dallas	**0.7**	**0.5**	**0.2**	**0.6**	**0.5**	**0.1**	**0.5**	**0.4**	**0.1**	**0.5**	**0.4**	**0.1**	**0.4**	**0.3**	**0.1**
Industrial															
Livestock															
Municipal	0.7	0.5	0.2	0.6	0.5	0.1	0.5	0.4	0.1	0.5	0.4	0.1	0.4	0.3	0.1
Desha	**6.5**	**5.3**	**1.2**	**6.2**	**5.3**	**0.9**	**5.9**	**5.1**	**0.8**	**5.6**	**5.0**	**0.7**	**5.4**	**4.8**	**0.5**
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	2.5	1.3	1.2	2.2	1.3	0.9	2.0	1.2	0.8	1.9	1.2	0.7	1.8	1.2	0.5
Crop Irrigation	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Municipal	2.2	2.2		2.1	2.1		1.9	1.9		1.8	1.8		1.7	1.7	
Drew	**1.8**	**1.8**		**1.7**	**1.7**		**1.7**	**1.7**		**1.6**	**1.6**		**1.5**	**1.5**	
Industrial	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Mining	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.2	0.2	
Municipal	1.3	1.3		1.2	1.2		1.2	1.2		1.2	1.2		1.2	1.2	
Grant	**1.7**	**1.6**	**0.1**	**1.9**	**1.8**	**0.1**	**2.1**	**1.9**	**0.1**	**2.2**	**2.1**	**0.1**	**2.4**	**2.2**	**0.1**
Industrial	0.3	0.2		0.3	0.2		0.3	0.2		0.2	0.2		0.2	0.2	
Municipal	1.5	1.4	0.1	1.7	1.6	0.1	1.8	1.7	0.1	2.0	1.9	0.1	2.2	2.0	0.1
Greene	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Hot Spring															
Self-Supplied Commercial															
Jackson	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Jefferson	**36.7**	**36.7**		**32.9**	**32.9**		**31.8**	**31.8**		**30.7**	**30.7**		**29.5**	**29.5**	
Industrial	32.4	32.4		28.6	28.6		27.7	27.7		26.8	26.8		25.7	25.7	
Crop Irrigation	0.3	0.3		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Municipal	3.5	3.5		3.4	3.4		3.2	3.2		3.0	3.0		2.9	2.9	
Thermoelectric	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lafayette	**1.0**		**1.0**	**1.0**	**0.1**	**0.9**	**1.0**	**0.1**	**0.9**	**1.0**	**0.1**	**0.9**	**1.0**	**0.1**	**1.0**
Self-Supplied Commercial															
Crop Irrigation	0.3		0.3	0.4		0.4	0.5		0.5	0.6		0.5	0.6		0.6
Mining															
Municipal	0.5		0.5	0.5	0.1	0.4	0.4	0.1	0.3	0.3	0.1	0.3	0.3	0.1	0.2
Thermoelectric	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lawrence	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lee	**1.1**	**1.1**		**0.9**	**0.9**		**0.8**	**0.8**		**0.7**	**0.7**		**0.6**	**0.6**	
Industrial															
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	

Table E-8 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Municipal	0.8	0.8		0.6	0.6		0.4	0.4		0.3	0.3		0.2	0.2	
Lincoln	**3.6**	**3.2**	**0.4**	**3.6**	**3.2**	**0.4**	**3.5**	**3.2**	**0.4**	**3.5**	**3.2**	**0.4**	**3.5**	**3.1**	**0.4**
Industrial															
Crop Irrigation	1.3	0.9	0.4	1.3	0.9	0.4	1.3	0.9	0.4	1.3	0.9	0.4	1.3	0.9	0.4
Municipal	2.3	2.3		2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	
Lonoke	**10.2**	**9.4**	**0.9**	**10.1**	**9.3**	**0.8**	**10.2**	**9.5**	**0.7**	**10.3**	**9.6**	**0.7**	**10.5**	**9.8**	**0.7**
Aquaculture	0.8	0.5	0.3	0.8	0.5	0.3	0.8	0.5	0.3	0.8	0.5	0.3	0.8	0.5	0.3
Industrial															
Crop Irrigation	9.0	8.4	0.6	8.7	8.2	0.5	8.8	8.3	0.5	8.8	8.3	0.5	8.8	8.3	0.4
Municipal	0.5	0.5		0.6	0.6		0.7	0.7		0.8	0.8		1.0	1.0	
Miller	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Self-Supplied Commercial															
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Mississippi	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Monroe	**1.3**	**1.3**		**1.3**	**1.3**		**1.2**	**1.2**		**1.1**	**1.1**		**1.0**	**1.0**	
Industrial															
Crop Irrigation	0.6	0.6		0.7	0.7		0.8	0.8		0.8	0.8		0.8	0.8	
Municipal	0.7	0.7		0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2	
Ouachita	**0.7**	**0.4**	**0.2**	**0.6**	**0.4**	**0.2**	**0.5**	**0.3**	**0.2**	**0.4**	**0.3**	**0.1**	**0.4**	**0.3**	**0.1**
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.5	0.3	0.2	0.4	0.3	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1
Phillips	**2.7**	**2.7**		**2.1**	**2.1**		**1.6**	**1.6**		**1.2**	**1.2**		**1.0**	**1.0**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1							
Mining															
Municipal	2.6	2.6		2.0	2.0		1.6	1.6		1.2	1.2		0.9	0.9	
Poinsett	**4.1**	**2.1**	**2.0**	**4.4**	**2.1**	**2.3**	**4.4**	**2.1**	**2.3**	**4.4**	**2.1**	**2.3**	**4.4**	**2.1**	**2.3**
Industrial															
Crop Irrigation	4.1	2.0	2.0	4.3	2.1	2.3	4.3	2.1	2.3	4.3	2.1	2.3	4.3	2.1	2.3
Mining															
Prairie	**6.9**	**6.6**	**0.3**	**7.3**	**7.0**	**0.3**	**7.3**	**7.0**	**0.3**	**7.2**	**6.9**	**0.3**	**7.2**	**6.9**	**0.3**
Industrial															
Crop Irrigation	6.7	6.4	0.3	7.1	6.8	0.3	7.1	6.8	0.3	7.1	6.8	0.3	7.1	6.9	0.3
Municipal	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Pulaski	**0.9**	**0.5**	**0.4**	**1.1**	**0.4**	**0.6**	**1.1**	**0.4**	**0.6**	**1.1**	**0.4**	**0.7**	**1.1**	**0.4**	**0.7**
Crop Irrigation	0.5	0.5		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Thermoelectric	0.5		0.4	0.6		0.6	0.6		0.6	0.7		0.7	0.7		0.7
Saline	**0.5**	**0.1**	**0.4**	**0.5**	**0.1**	**0.4**	**0.6**	**0.1**	**0.5**	**0.7**	**0.1**	**0.6**	**0.7**	**0.1**	**0.6**
Municipal	0.5	0.1	0.4	0.5	0.1	0.4	0.6	0.1	0.5	0.7	0.1	0.6	0.7	0.1	0.6
St. Francis	**0.5**	**0.5**		**0.6**	**0.6**		**0.7**	**0.7**		**0.7**	**0.7**		**0.7**	**0.7**	

Table E-8 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Crop Irrigation	0.5	0.5		0.6	0.6		0.7	0.7		0.7	0.7		0.7	0.7	
Union	**11.3**	**5.8**	**5.5**	**11.4**	**5.8**	**5.7**	**10.9**	**5.7**	**5.2**	**10.4**	**5.6**	**4.8**	**9.9**	**5.5**	**4.4**
Self-Supplied Commercial															
Self-Supplied Domestic	0.4	0.2	0.2	0.4	0.2	0.2	0.4	0.2	0.1	0.4	0.2	0.1	0.3	0.2	0.1
Industrial	5.7	2.0	3.7	6.0	2.0	4.0	5.8	2.0	3.7	5.5	2.0	3.5	5.3	2.0	3.2
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	5.0	3.4	1.6	4.9	3.4	1.5	4.6	3.3	1.3	4.4	3.2	1.2	4.2	3.1	1.0
Woodruff	**1.0**	**0.9**	**0.1**	**1.0**	**0.8**	**0.2**	**1.0**	**0.7**	**0.2**	**1.0**	**0.7**	**0.2**	**0.9**	**0.7**	**0.2**
Crop Irrigation	0.8	0.7	0.1	0.9	0.6	0.2	0.9	0.6	0.2	0.9	0.6	0.2	0.9	0.6	0.2
Municipal	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Grand Total	**165.4**	**143.2**	**22.2**	**161.7**	**138.3**	**23.4**	**159.5**	**135.7**	**23.9**	**157.6**	**133.2**	**24.4**	**156.1**	**131.0**	**25.1**

Table E-9 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

County/Water Use Sector	Base Period			2020			2030			2040			2050		
	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Clay	**1.1**	**0.1**	**1.0**	**1.1**	**0.1**	**1.1**	**1.2**	**0.1**	**1.1**	**1.2**	**0.1**	**1.1**	**1.2**		**1.2**
Crop Irrigation	1.1	0.1	1.0	1.1	0.1	1.1	1.2	0.1	1.1	1.2	0.1	1.1	1.2		1.2
Craighead	**0.7**	**0.7**		**0.7**	**0.7**		**0.8**	**0.8**		**0.9**	**0.9**		**1.0**	**1.0**	
Industrial															
Municipal	0.7	0.7		0.7	0.7		0.8	0.8		0.9	0.9		1.0	1.0	
Crittenden	**8.3**	**2.2**	**6.1**	**8.2**	**2.1**	**6.1**	**8.1**	**2.1**	**6.0**	**8.0**	**2.1**	**5.9**	**8.0**	**2.1**	**5.9**
Industrial	0.1	0.1													
Municipal	8.2	2.1	6.1	8.1	2.1	6.1	8.0	2.1	6.0	8.0	2.1	5.9	7.9	2.1	5.9
Cross	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**
Municipal	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2
Greene	**6.2**	**2.1**	**4.2**	**6.8**	**1.9**	**4.8**	**7.4**	**1.8**	**5.5**	**7.7**	**1.7**	**6.0**	**8.2**	**1.7**	**6.5**
Self-Supplied Commercial															
Industrial	0.7	0.5	0.2	0.7	0.4	0.3	0.7	0.4	0.3	0.7	0.4	0.3	0.7	0.4	0.3
Crop Irrigation	1.6	0.9	0.6	1.8	0.8	0.9	2.0	0.8	1.2	2.0	0.8	1.2	2.0	0.7	1.3
Mining															
Municipal	4.0	0.7	3.3	4.3	0.6	3.6	4.6	0.6	4.0	5.0	0.6	4.4	5.4	0.5	4.9
Lafayette															
Crop Irrigation															
Lonoke	**2.0**	**2.0**		**2.1**	**2.1**		**2.2**	**2.2**		**2.3**	**2.2**	**0.2**	**2.5**	**2.2**	**0.3**
Aquaculture	0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Crop Irrigation	1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Municipal	0.5	0.5		0.7	0.7		0.8	0.7		0.9	0.7	0.2	1.1	0.8	0.3
Miller	**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.3**	**0.3**		**0.3**	**0.3**	
Self-Supplied Commercial															
Municipal	0.2	0.2		0.2	0.2		0.2	0.2		0.3	0.3		0.3	0.3	
Mississippi	**5.8**	**5.8**		**6.1**	**6.0**	**0.1**	**5.9**	**5.8**	**0.1**	**5.7**	**5.6**	**0.1**	**5.6**	**5.5**	**0.1**
Industrial	2.2	2.2		3.0	2.9	0.1	3.0	2.9	0.1	3.0	2.9	0.1	3.0	2.9	0.1
Mining															
Municipal	3.0	3.0		2.7	2.7		2.5	2.5		2.3	2.3		2.2	2.2	
Thermoelectric	0.5	0.5		0.3	0.3		0.3	0.3		0.4	0.4		0.4	0.4	
Nevada	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal															
Poinsett	**2.5**	**1.2**	**1.3**	**2.5**	**1.2**	**1.3**	**2.5**	**1.2**	**1.3**	**2.4**	**1.2**	**1.2**	**2.4**	**1.2**	**1.2**
Industrial															
Crop Irrigation	0.9		0.9	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0
Municipal	1.6	1.2	0.4	1.5	1.2	0.3	1.5	1.2	0.3	1.4	1.2	0.3	1.4	1.1	0.2
Prairie	**1.6**	**1.6**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**	
Crop Irrigation	1.6	1.6		1.7	1.7		1.7	1.7		1.7	1.7		1.7	1.7	
Saline	**1.0**	**0.6**	**0.5**	**1.1**	**0.6**	**0.5**	**1.2**	**0.6**	**0.6**	**1.3**	**0.6**	**0.7**	**1.5**	**0.6**	**0.9**
Industrial															

Table E-9 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Livestock															
Municipal	1.0	0.6	0.4	1.0	0.6	0.5	1.2	0.6	0.6	1.3	0.6	0.7	1.4	0.6	0.9
St. Francis	**0.8**	**0.5**	**0.3**	**0.7**	**0.4**	**0.3**	**0.6**	**0.4**	**0.2**	**0.5**	**0.3**	**0.2**	**0.4**	**0.3**	**0.1**
Municipal	0.8	0.5	0.3	0.7	0.4	0.3	0.6	0.4	0.2	0.5	0.3	0.2	0.4	0.3	0.1
White	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**
Crop Irrigation	0.8	0.1	0.8	0.8	0.1	0.8	0.8	0.1	0.8	0.8	0.1	0.8	0.8	0.1	0.8
Grand Total	**31.5**	**17.2**	**14.4**	**32.5**	**17.3**	**15.1**	**32.9**	**17.1**	**15.8**	**33.3**	**16.9**	**16.5**	**33.9**	**16.7**	**17.2**

Table E-10 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level

	Base Period			2020			2030			2040			2050		
Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Aquaculture	101.8	23.2	78.6	101.8	18.0	83.8	101.8	15.3	86.5	101.8	14.4	87.4	101.8	14.5	87.4
Self-Supplied Commercial	0.2	0.0	0.2	0.2	0.0	0.2	0.3	0.0	0.2	0.3	0.0	0.2	0.3	0.0	0.2
Self-Supplied Domestic	2.3	0.4	1.9	2.1	0.3	1.9	2.0	0.2	1.8	2.0	0.2	1.8	2.0	0.1	1.8
Duck Habitat	85.7	30.2	55.5	85.7	18.5	67.2	85.7	21.7	64.0	85.7	24.2	61.5	85.7	24.3	61.4
Industrial	7.9	1.7	6.2	7.5	3.4	4.1	7.3	3.3	4.0	7.1	3.2	3.9	6.9	3.1	3.8
Crop Irrigation	7,380.0	3,274.8	4,105.3	8,011.8	2,331.6	5,680.3	8,424.9	2,088.4	6,336.6	8,499.8	1,922.0	6,577.8	8,517.8	1,839.5	6,678.4
Livestock	0.8	0.3	0.5	0.9	0.4	0.5	0.9	0.4	0.5	0.9	0.4	0.5	0.9	0.4	0.5
Mining	0.2	0.1	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.2	0.0
Municipal	28.2	7.0	21.1	27.3	3.6	23.7	26.9	1.6	25.4	26.9	1.2	25.7	27.4	1.0	26.4
Thermoelectric	1.4	0.3	1.0	1.6	0.3	1.4	1.6	0.2	1.4	1.7	0.2	1.4	1.7	0.2	1.4
Grand Total	**7,608.4**	**3,338.2**	**4,270.4**	**8,239.2**	**2,376.2**	**5,863.1**	**8,651.7**	**2,131.4**	**6,520.4**	**8,726.3**	**1,966.2**	**6,760.2**	**8,744.7**	**1,883.4**	**6,861.3**

Table E-11 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level

	Base Period			2020			2030			2040			2050		
Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Aquaculture	0.8	0.4	0.3	0.8	0.4	0.3	0.8	0.4	0.3	0.8	0.4	0.3	0.8	0.4	0.3
Self-Supplied Commercial	0.2	0.1	0.0	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0
Self-Supplied Domestic	0.6	0.4	0.2	0.6	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.1	0.5	0.3	0.1
Duck Habitat	1.6	1.6	0.0	1.6	1.6	0.0	1.6	1.6	0.0	1.6	1.6	0.0	1.6	1.6	0.0
Industrial	44.8	39.0	5.8	40.8	35.1	5.7	39.5	34.1	5.3	38.0	33.1	4.9	36.5	32.0	4.5
Crop Irrigation	74.9	67.5	7.4	76.3	68.5	7.8	76.6	68.5	8.1	76.7	68.6	8.1	76.8	68.6	8.1
Livestock	0.5	0.4	0.1	0.6	0.5	0.1	0.6	0.5	0.1	0.6	0.5	0.1	0.6	0.5	0.1
Mining	0.3	0.3	0.0	0.3	0.3	0.0	0.4	0.4	0.0	0.3	0.3	0.0	0.3	0.2	0.0
Municipal	40.5	32.4	8.1	39.4	30.8	8.5	38.2	29.0	9.2	37.6	27.6	10.0	37.6	26.6	11.0
Thermoelectric	1.1	0.5	0.6	1.3	0.6	0.7	1.3	0.6	0.7	1.3	0.6	0.8	1.4	0.6	0.8
Grand Total	**165.4**	**142.7**	**22.6**	**161.7**	**138.3**	**23.4**	**159.5**	**135.6**	**24.0**	**157.6**	**133.1**	**24.4**	**156.1**	**131.0**	**25.1**

Table E-12 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Sustainable Pumping Level

	Base Period			2020			2030			2040			2050		
Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Aquaculture	0.4	0.4	0.0	0.4	0.4	0.0	0.4	0.4	0.0	0.4	0.4	0.0	0.4	0.4	0.0
Self-Supplied Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial	3.0	2.8	0.2	3.8	3.4	0.4	3.8	3.4	0.4	3.8	3.4	0.4	3.8	3.4	0.4
Crop Irrigation	7.0	3.8	3.3	7.5	3.8	3.7	7.7	3.7	4.0	7.8	3.7	4.1	7.8	3.6	4.1
Livestock	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Municipal	20.4	9.7	10.8	20.3	9.4	10.9	20.5	9.3	11.2	20.9	9.1	11.8	21.4	9.0	12.4
Thermoelectric	0.5	0.5	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.4	0.4	0.0	0.4	0.4	0.0
Grand Total	**31.5**	**17.2**	**14.3**	**32.5**	**17.4**	**15.1**	**32.9**	**17.2**	**15.8**	**33.3**	**17.0**	**16.4**	**33.9**	**16.8**	**17.1**

Table E-13 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**449.0**	**11.0**	**438.0**	**449.5**	**23.9**	**425.6**	**449.5**	**45.3**	**404.2**	**449.5**	**60.7**	**388.9**	**449.5**	**62.1**	**387.5**
Aquaculture	1.4		1.4	1.4		1.4	1.4		1.4	1.4	0.1	1.3	1.4	0.1	1.3
Self-Supplied Commercial															
Duck Habitat	32.5	1.3	31.2	32.5	1.9	30.6	32.5	6.0	26.5	32.5	8.6	24.0	32.5	8.6	23.9
Crop Irrigation	415.0	9.6	405.4	415.5	22.0	393.5	415.6	39.3	376.3	415.6	52.0	363.6	415.6	53.3	362.2
Livestock															
Municipal															
Ashley	**129.8**	**104.1**	**25.8**	**131.4**	**109.7**	**21.7**	**131.4**	**106.7**	**24.7**	**131.3**	**105.7**	**25.6**	**131.3**	**103.5**	**27.8**
Aquaculture	1.9	1.8	0.1	1.9	1.8	0.1	1.9	1.8	0.1	1.9	1.8	0.1	1.9	1.8	0.1
Crop Irrigation	127.4	101.8	25.6	129.0	107.4	21.6	129.0	104.5	24.5	129.0	103.5	25.5	129.0	101.3	27.7
Livestock															
Municipal	0.5	0.4	0.1	0.5	0.4	0.1	0.4	0.4	0.1	0.4	0.4		0.4	0.3	
Calhoun	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**	
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Chicot	**211.9**	**170.7**	**41.2**	**251.5**	**178.2**	**73.3**	**251.5**	**146.3**	**105.2**	**251.5**	**132.2**	**119.3**	**251.4**	**125.9**	**125.6**
Aquaculture	6.8	6.3	0.5	6.8	6.2	0.6	6.8	5.9	0.9	6.8	5.6	1.2	6.8	5.6	1.2
Self-Supplied Domestic	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	0.6	0.3	0.3	0.6	0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4
Crop Irrigation	204.4	164.0	40.4	243.9	171.7	72.3	243.9	140.1	103.9	243.9	126.3	117.6	243.9	120.0	124.0
Livestock															
Clay	**529.2**	**329.3**	**199.9**	**573.8**	**174.3**	**399.5**	**588.0**	**147.2**	**440.9**	**597.9**	**130.5**	**467.4**	**605.6**	**121.0**	**484.6**
Aquaculture	2.2	0.8	1.3	2.2		2.2	2.2		2.2	2.2		2.2	2.2		2.2
Crop Irrigation	526.8	328.4	198.5	571.5	174.2	397.3	585.8	147.1	438.7	595.6	130.4	465.2	603.3	120.9	482.4
Livestock															
Municipal	0.1	0.1		0.1	0.1		0.1	0.1		0.1			0.1		
Columbia	**1.5**	**0.1**	**1.5**	**1.5**	**0.1**	**1.4**	**1.5**	**0.2**	**1.4**	**1.5**	**0.3**	**1.3**	**1.5**	**0.3**	**1.2**
Duck Habitat	1.5	0.1	1.5	1.5	0.1	1.4	1.5	0.2	1.4	1.5	0.3	1.3	1.5	0.3	1.2
Craighead	**355.1**	**141.1**	**214.1**	**384.0**	**111.8**	**272.2**	**385.3**	**88.4**	**296.9**	**385.7**	**56.6**	**329.1**	**386.0**	**49.0**	**337.0**
Aquaculture															
Self-Supplied Commercial	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.4		0.4	0.5		0.5	0.5		0.5	0.5		0.5	0.6		0.6
Industrial	0.6		0.6	0.6		0.6	0.6		0.6	0.6		0.6	0.6		0.6
Crop Irrigation	351.8	141.0	210.8	380.5	111.8	268.7	381.5	88.3	293.2	381.5	56.6	325.0	381.5	49.0	332.5
Livestock															
Mining															
Municipal	2.1	0.1	2.1	2.3	0.1	2.2	2.5	0.1	2.4	2.7		2.7	3.0		3.0
Thermoelectric															
Crittenden	**302.3**	**146.2**	**156.1**	**371.2**	**61.4**	**309.8**	**437.9**	**45.5**	**392.4**	**453.5**	**38.4**	**415.0**	**453.4**	**35.0**	**418.5**
Aquaculture	1.3	0.3	1.0	1.3	0.2	1.1	1.3	0.2	1.1	1.3	0.2	1.1	1.3	0.2	1.2
Duck Habitat	1.1	1.1		1.1	0.8	0.3	1.1	0.7	0.4	1.1	0.7	0.4	1.1	0.6	0.4
Crop Irrigation	299.8	144.8	155.1	368.7	60.3	308.4	435.4	44.5	390.9	451.0	37.5	413.5	451.0	34.1	416.9

Table E-13 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1				
Municipal															
Cross	**492.8**	**179.9**	**312.9**	**495.6**	**102.9**	**392.7**	**497.4**	**88.8**	**408.6**	**497.6**	**83.7**	**413.9**	**497.6**	**81.5**	**416.1**
Aquaculture															
Duck Habitat	3.4	2.9	0.5	3.4	1.8	1.6	3.4	1.3	2.1	3.4	1.2	2.2	3.4	1.1	2.3
Industrial	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4
Crop Irrigation	488.3	176.9	311.4	491.2	101.1	390.1	493.0	87.4	405.6	493.3	82.5	410.8	493.3	80.3	413.0
Livestock															
Municipal	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5
Dallas	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Desha	**337.6**	**122.5**	**215.1**	**347.0**	**117.2**	**229.8**	**347.3**	**116.7**	**230.5**	**347.4**	**113.0**	**234.4**	**347.4**	**114.4**	**233.0**
Aquaculture	5.8	1.2	4.6	5.8	0.8	5.0	5.8	1.0	4.8	5.8	1.2	4.6	5.8	1.2	4.6
Duck Habitat	1.6	1.3	0.3	1.6	1.2	0.4	1.6	1.2	0.4	1.6	1.2	0.4	1.6	1.2	0.4
Crop Irrigation	330.2	120.0	210.2	339.6	115.2	224.4	339.8	114.6	225.3	340.0	110.6	229.4	340.0	112.1	227.9
Livestock															
Drew	**67.4**	**53.5**	**13.9**	**68.5**	**52.2**	**16.3**	**68.6**	**50.3**	**18.3**	**68.6**	**49.2**	**19.3**	**68.6**	**48.6**	**20.0**
Aquaculture	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Duck Habitat	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Crop Irrigation	66.9	53.1	13.8	68.0	51.8	16.2	68.0	49.8	18.2	68.0	48.8	19.3	68.0	48.1	19.9
Livestock				0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal															
Greene	**297.4**	**239.0**	**58.3**	**332.8**	**105.2**	**227.5**	**375.1**	**84.0**	**291.1**	**375.3**	**71.9**	**303.4**	**375.5**	**64.5**	**311.0**
Aquaculture	10.5	5.5	5.1	10.5	3.0	7.5	10.5	1.2	9.4	10.5	0.4	10.1	10.5	0.2	10.3
Self-Supplied Commercial	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Self-Supplied Domestic	0.3		0.3	0.3		0.3	0.4		0.4	0.4		0.4	0.4		0.4
Duck Habitat	0.5	0.4	0.1	0.5	0.4	0.1	0.5	0.1	0.5	0.5		0.5	0.5		0.5
Crop Irrigation	285.9	233.2	52.7	321.3	101.8	219.4	363.6	82.8	280.8	363.7	71.5	292.3	363.9	64.3	299.6
Livestock															
Independence	**42.4**	**0.3**	**42.1**	**50.7**	**1.2**	**49.5**	**55.1**	**1.4**	**53.8**	**55.1**	**1.5**	**53.7**	**55.2**	**1.5**	**53.7**
Self-Supplied Domestic	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Industrial															
Crop Irrigation	40.8	0.3	40.5	49.1	1.2	47.9	53.5	1.4	52.2	53.5	1.5	52.0	53.5	1.5	52.0
Livestock															
Municipal	0.6		0.6	0.6		0.6	0.6		0.6	0.7		0.7	0.7		0.7
Thermoelectric	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8
Jackson	**399.0**	**254.9**	**144.2**	**399.4**	**90.9**	**308.5**	**433.4**	**80.5**	**353.0**	**433.3**	**78.8**	**354.5**	**433.1**	**79.2**	**353.9**
Aquaculture	0.9	0.9		0.9	0.4	0.5	0.9	0.3	0.6	0.9	0.3	0.6	0.9	0.3	0.6
Self-Supplied Domestic	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Duck Habitat	2.3	2.3		2.3	0.8	1.5	2.3	0.6	1.7	2.3	0.6	1.7	2.3	0.6	1.7
Industrial	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	

Table E-13 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Crop Irrigation	393.7	250.2	143.5	394.4	89.0	305.4	428.7	79.1	349.6	428.7	77.5	351.2	428.7	77.9	350.8
Livestock															
Municipal	1.8	1.3	0.5	1.4	0.5	0.9	1.2	0.2	1.0	1.1	0.2	0.9	1.0	0.2	0.8
Jefferson	**317.5**	**57.2**	**260.3**	**354.9**	**84.5**	**270.4**	**354.4**	**80.4**	**273.9**	**353.9**	**88.7**	**265.2**	**353.4**	**90.1**	**263.2**
Aquaculture	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2
Self-Supplied Commercial															
Duck Habitat	0.1		0.1	0.1		0.1	0.1		0.1	0.1			0.1	0.1	
Industrial	5.0	0.8	4.1	4.4	2.5	1.9	4.2	2.4	1.9	4.1	2.3	1.8	3.9	2.2	1.7
Crop Irrigation	302.9	55.8	247.2	341.0	81.6	259.4	341.0	77.6	263.4	341.0	86.0	255.1	341.0	87.5	253.5
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	8.6	0.1	8.5	8.4	0.1	8.4	7.9		7.9	7.6		7.5	7.2		7.2
Thermoelectric	0.6	0.3	0.3	0.8	0.2	0.5	0.8	0.2	0.5	0.8	0.2	0.6	0.8	0.2	0.6
Lafayette	**19.1**	**0.4**	**18.7**	**22.4**	**0.6**	**21.9**	**26.1**	**0.6**	**25.5**	**29.7**	**0.6**	**29.0**	**33.3**	**0.6**	**32.6**
Aquaculture	1.7	0.1	1.6	1.7	0.1	1.6	1.7	0.1	1.6	1.7	0.1	1.6	1.7	0.1	1.6
Duck Habitat	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4		3.4
Crop Irrigation	14.0	0.3	13.6	17.4	0.5	16.9	21.0	0.5	20.4	24.6	0.6	24.0	28.2	0.6	27.6
Municipal	0.1		0.1	0.1		0.1									
Lawrence	**326.8**	**62.9**	**263.9**	**353.1**	**41.2**	**311.9**	**360.5**	**44.8**	**315.7**	**360.5**	**49.2**	**311.3**	**360.5**	**49.9**	**310.6**
Aquaculture															
Crop Irrigation	325.9	62.9	263.0	352.3	41.2	311.2	359.7	44.7	315.0	359.7	49.1	310.6	359.7	49.8	309.9
Livestock	0.1		0.1	0.1		0.1	0.1			0.1	0.1		0.1	0.1	
Municipal	0.7		0.7	0.7		0.7	0.7		0.7	0.7		0.7	0.7		0.7
Lee	**268.9**	**193.8**	**75.1**	**311.2**	**103.7**	**207.5**	**352.9**	**88.4**	**264.5**	**393.6**	**83.9**	**309.7**	**399.9**	**78.0**	**321.9**
Aquaculture	0.3	0.3		0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.1	0.2	0.3	0.1	0.2
Crop Irrigation	268.3	193.2	75.1	310.7	103.3	207.4	352.5	88.1	264.4	393.1	83.6	309.5	399.5	77.8	321.7
Livestock															
Municipal	0.3	0.3		0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1	
Lincoln	**196.2**	**68.3**	**127.9**	**197.8**	**73.2**	**124.7**	**197.8**	**70.1**	**127.7**	**197.8**	**70.4**	**127.4**	**197.8**	**65.6**	**132.2**
Aquaculture	0.5	0.4	0.1	0.5	0.3	0.1	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2
Duck Habitat															
Crop Irrigation	195.4	67.7	127.7	197.0	72.6	124.4	197.0	69.6	127.5	197.0	69.8	127.2	197.0	65.1	132.0
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lonoke	**303.6**	**3.9**	**299.7**	**297.6**	**3.9**	**293.7**	**298.8**	**5.5**	**293.3**	**299.7**	**8.0**	**291.7**	**300.8**	**17.0**	**283.8**
Aquaculture	39.8	1.4	38.4	39.8	1.4	38.4	39.8	1.4	38.4	39.8	1.5	38.3	39.8	1.7	38.1
Self-Supplied Commercial															
Industrial	1.0		1.0	1.1		1.1	1.0		1.0	1.0		1.0	1.0		1.0
Crop Irrigation	257.4	2.5	254.9	250.6	2.5	248.1	251.0	4.0	246.9	251.0	6.5	244.5	251.0	15.3	235.7
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	5.4		5.4	6.1		6.1	6.9		6.9	7.8		7.8	9.0		9.0
Miller	**3.0**	**2.7**	**0.3**	**1.3**	**1.1**	**0.2**	**1.6**	**1.4**	**0.2**	**1.9**	**1.6**	**0.2**	**2.2**	**1.9**	**0.3**

Table E-13 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Self-Supplied Commercial															
Duck Habitat	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	**2.8**	**2.7**	**0.1**	**1.1**	**1.1**		**1.4**	**1.4**		**1.7**	**1.6**		**2.0**	**1.9**	**0.1**
Mississippi	**341.1**	**337.4**	**3.7**	**434.7**	**395.6**	**39.1**	**528.3**	**358.0**	**170.4**	**528.4**	**286.0**	**242.4**	**528.4**	**243.0**	**285.3**
Aquaculture	0.8	0.8		0.8	0.8		0.8	0.4	0.4	0.8	0.2	0.6	0.8	0.2	0.6
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1		
Industrial	0.6	0.6		0.7	0.7		0.8	0.8		0.8	0.8		0.8	0.8	
Crop Irrigation	339.4	335.7	3.7	432.9	393.8	39.1	526.5	356.7	169.8	526.6	285.0	241.7	526.6	242.0	284.6
Municipal	0.2	0.2		0.2	0.2		0.2	0.1	0.1	0.2		0.1	0.2		0.1
Monroe	**302.0**	**141.7**	**160.3**	**344.1**	**86.9**	**257.2**	**377.3**	**84.3**	**293.0**	**380.1**	**83.7**	**296.5**	**380.1**	**83.6**	**296.6**
Aquaculture	5.6	1.7	3.9	5.6	1.1	4.5	5.6	1.0	4.6	5.6	1.0	4.6	5.6	1.0	4.6
Self-Supplied Commercial															
Self-Supplied Domestic	0.3		0.3	0.2		0.2	0.2		0.2	0.1		0.1	0.1		0.1
Duck Habitat	13.4	10.5	3.0	13.4	4.6	8.9	13.4	4.4	9.1	13.4	4.4	9.1	13.4	4.4	9.1
Industrial															
Crop Irrigation	282.6	129.4	153.2	324.8	81.2	243.6	358.1	78.8	279.2	361.0	78.2	282.7	361.0	78.2	282.8
Livestock															
Municipal	0.1	0.1													
Phillips	**267.7**	**197.8**	**69.9**	**268.1**	**104.8**	**163.4**	**268.5**	**97.4**	**171.1**	**268.7**	**97.4**	**171.3**	**268.7**	**96.7**	**172.1**
Aquaculture	0.2	0.2		0.2	0.1	0.1	0.2		0.1	0.2		0.1	0.2		0.2
Self-Supplied Commercial															
Duck Habitat	7.8	6.4	1.4	7.8	4.8	3.0	7.8	4.7	3.1	7.8	4.8	3.0	7.8	4.8	3.0
Crop Irrigation	259.7	191.2	68.5	260.1	99.8	160.3	260.5	92.6	167.9	260.7	92.6	168.1	260.7	91.9	168.9
Livestock															
Poinsett	**647.8**	**192.6**	**455.1**	**694.2**	**103.5**	**590.7**	**695.7**	**81.3**	**614.3**	**695.8**	**73.9**	**621.9**	**695.8**	**73.9**	**621.9**
Aquaculture	0.9		0.9	0.9		0.9	0.9	0.1	0.9	0.9	0.1	0.9	0.9	0.1	0.8
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1
Duck Habitat	2.3	0.8	1.5	2.3	0.1	2.2	2.3	0.1	2.2	2.3	0.1	2.2	2.3	0.1	2.2
Industrial															
Crop Irrigation	643.7	191.8	451.9	690.1	103.3	586.8	691.7	81.2	610.5	691.8	73.8	618.1	691.8	73.7	618.1
Livestock															
Municipal	0.7		0.7	0.6		0.6	0.6		0.6	0.6		0.6	0.6		0.6
Prairie	**186.4**	**17.2**	**169.3**	**196.6**	**16.9**	**179.6**	**196.7**	**18.2**	**178.5**	**196.6**	**20.0**	**176.6**	**196.5**	**22.0**	**174.5**
Aquaculture	19.5	0.7	18.8	19.5	0.7	18.8	19.5	0.7	18.8	19.5	0.7	18.8	19.5	0.7	18.8
Self-Supplied Domestic	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1			
Duck Habitat															
Industrial															
Crop Irrigation	166.2	16.4	149.8	176.5	16.2	160.3	176.7	17.4	159.3	176.8	19.3	157.5	176.8	21.2	155.5
Livestock															
Municipal	0.6	0.1	0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2		0.2
Pulaski	**24.7**	**1.7**	**23.0**	**23.4**	**2.3**	**21.1**	**23.0**	**6.1**	**16.8**	**22.6**	**9.4**	**13.3**	**22.4**	**10.1**	**12.3**

Table E-13 Summary of Groundwater Demands and Supply Gaps for the Alluvial Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Aquaculture	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.1	0.4	0.5	0.2	0.3
Self-Supplied Commercial															
Self-Supplied Domestic	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2
Duck Habitat	0.5		0.5	0.5		0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Crop Irrigation	23.4	1.6	21.8	22.0	2.1	19.9	21.6	5.5	16.1	21.2	8.6	12.7	21.0	9.3	11.7
Livestock															
Mining	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Randolph	**116.2**	**31.0**	**85.2**	**129.5**	**14.3**	**115.3**	**129.7**	**13.7**	**116.0**	**129.7**	**13.6**	**116.2**	**129.8**	**13.6**	**116.2**
Self-Supplied Domestic	0.2	0.1	0.1	0.2		0.1	0.2		0.1	0.2		0.1	0.2		0.1
Crop Irrigation	115.8	30.8	85.0	129.2	14.2	115.0	129.4	13.6	115.7	129.4	13.5	115.9	129.4	13.5	115.9
Livestock															
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
St. Francis	**324.3**	**148.1**	**176.2**	**379.6**	**126.5**	**253.1**	**440.7**	**98.1**	**342.5**	**441.4**	**75.0**	**366.3**	**441.2**	**68.6**	**372.6**
Aquaculture	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
Self-Supplied Domestic															
Duck Habitat	3.0	0.2	2.8	3.0	0.2	2.9	3.0	0.1	2.9	3.0	0.3	2.8	3.0	0.3	2.8
Crop Irrigation	317.3	144.5	172.8	373.2	124.9	248.4	434.6	97.9	336.8	435.7	74.7	361.0	435.8	68.3	367.6
Municipal	3.8	3.3	0.5	3.1	1.3	1.8	2.7		2.7	2.4		2.4	2.1		2.1
White	**54.0**	**11.0**	**42.9**	**54.1**	**10.7**	**43.4**	**54.2**	**11.2**	**43.0**	**54.3**	**11.8**	**42.4**	**54.4**	**12.3**	**42.1**
Crop Irrigation	52.9	10.9	42.0	53.0	10.6	42.5	53.0	11.1	41.9	53.0	11.8	41.2	53.0	12.3	40.8
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	1.0	0.2	0.8	1.0	0.1	0.9	1.1	0.1	1.0	1.1		1.1	1.2		1.2
Woodruff	**293.3**	**117.7**	**175.6**	**319.1**	**77.3**	**241.8**	**323.2**	**70.7**	**252.5**	**323.1**	**70.3**	**252.8**	**323.0**	**69.9**	**253.0**
Aquaculture	0.5	0.3	0.1	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2
Duck Habitat	11.0	2.2	8.8	11.0	1.3	9.7	11.0	1.2	9.8	11.0	1.2	9.8	11.0	1.2	9.8
Industrial															
Crop Irrigation	281.0	114.4	166.7	306.9	75.2	231.6	311.1	68.8	242.3	311.1	68.5	242.6	311.1	68.2	242.9
Livestock															
Municipal	0.8	0.8		0.7	0.5	0.2	0.5	0.4	0.1	0.4	0.3	0.1	0.3	0.2	0.1
Thermoelectric															
Grand Total	**7,608.4**	**3,338.2**	**4,270.4**	**8,239.2**	**2,376.2**	**5,863.1**	**8,651.7**	**2,131.4**	**6,520.4**	**8,726.3**	**1,966.2**	**6,760.2**	**8,744.7**	**1,883.4**	**6,861.3**

Table E-14 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Arkansas	**42.2**	**42.2**		**42.1**	**42.1**		**42.0**	**42.0**		**41.9**	**41.9**		**41.9**	**41.9**	
Aquaculture															
Self-Supplied Commercial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Duck Habitat	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Industrial															
Crop Irrigation	38.6	38.6		38.7	38.7		38.7	38.7		38.7	38.7		38.7	38.7	
Municipal	1.9	1.9		1.8	1.8		1.7	1.7		1.6	1.6		1.6	1.6	
Ashley	**1.5**	**1.5**		**1.5**	**1.5**		**1.4**	**1.4**		**1.3**	**1.3**		**1.2**	**1.2**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.5	1.5		1.4	1.4		1.3	1.3		1.2	1.2		1.1	1.1	
Bradley	**1.2**	**1.2**		**1.2**	**1.2**		**1.1**	**1.1**		**1.0**	**1.0**		**0.9**	**0.9**	
Self-Supplied Domestic	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock				0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	1.1	1.1		1.0	1.0		0.9	0.9		0.9	0.9		0.8	0.8	
Calhoun	**0.5**	**0.5**		**0.5**	**0.5**		**0.5**	**0.5**		**0.4**	**0.4**		**0.4**	**0.4**	
Industrial															
Crop Irrigation	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.4	0.4		0.4	0.4		0.3	0.3		0.3	0.3		0.3	0.3	
Chicot	**2.2**	**2.2**		**2.1**	**2.1**		**1.9**	**1.9**		**1.7**	**1.7**		**1.5**	**1.5**	
Aquaculture															
Industrial															
Crop Irrigation	0.8	0.8		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9	
Municipal	1.4	1.4		1.2	1.2		0.9	0.9		0.7	0.7		0.6	0.6	
Clay	**0.2**		**0.1**	**0.2**		**0.1**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.2**
Crop Irrigation	0.2		0.1	0.2		0.1	0.2		0.2	0.2		0.2	0.2		0.2
Cleveland	**0.7**	**0.7**		**0.8**	**0.7**		**0.8**	**0.7**		**0.8**	**0.7**		**0.8**	**0.8**	**0.1**
Livestock	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Municipal	0.5	0.5		0.5	0.5		0.6	0.5		0.6	0.5		0.6	0.6	0.1
Columbia	**1.4**	**0.5**	**0.9**	**1.3**	**0.5**	**0.7**	**1.2**	**0.5**	**0.7**	**1.2**	**0.5**	**0.6**	**1.1**	**0.5**	**0.6**
Self-Supplied Domestic	0.1			0.1			0.1			0.1			0.1		
Industrial	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal	1.1	0.4	0.7	1.0	0.4	0.6	0.9	0.4	0.5	0.9	0.4	0.5	0.8	0.4	0.4
Craighead	**14.4**	**8.4**	**6.0**	**15.2**	**8.0**	**7.2**	**16.1**	**7.8**	**8.4**	**17.2**	**7.8**	**9.4**	**18.3**	**7.8**	**10.5**
Industrial	2.9	2.2	0.7	3.0	2.3	0.7	3.0	2.3	0.7	3.0	2.3	0.7	3.0	2.3	0.7
Crop Irrigation	2.7	1.7	1.0	2.9	1.6	1.3	2.9	1.4	1.5	2.9	1.4	1.5	2.9	1.4	1.5
Municipal	8.8	4.5	4.3	9.3	4.1	5.2	10.3	4.1	6.2	11.3	4.1	7.2	12.4	4.1	8.3
Crittenden	**0.2**	**0.2**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**				
Industrial	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1				
Cross	**6.7**	**5.5**	**1.2**	**6.7**	**5.7**	**1.0**	**6.6**	**5.6**	**1.0**	**6.6**	**5.6**	**1.0**	**6.6**	**5.5**	**1.1**

Table E-14 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Industrial															
Crop Irrigation	5.6	4.4	1.2	5.7	4.7	1.0	5.7	4.6	1.0	5.7	4.6	1.0	5.7	4.6	1.1
Municipal	1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9	
Dallas	**0.7**	**0.5**	**0.2**	**0.6**	**0.5**	**0.1**	**0.5**	**0.4**	**0.1**	**0.5**	**0.4**	**0.1**	**0.4**	**0.3**	**0.1**
Industrial															
Livestock															
Municipal	0.7	0.5	0.2	0.6	0.5	0.1	0.5	0.4	0.1	0.5	0.4	0.1	0.4	0.3	0.1
Desha	**6.5**	**5.3**	**1.2**	**6.2**	**5.3**	**0.9**	**5.9**	**5.1**	**0.8**	**5.6**	**5.0**	**0.6**	**5.4**	**4.9**	**0.5**
Duck Habitat	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Industrial	2.5	1.3	1.2	2.2	1.3	0.9	2.0	1.3	0.8	1.9	1.3	0.6	1.8	1.2	0.5
Crop Irrigation	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Municipal	2.2	2.2		2.1	2.1		1.9	1.9		1.8	1.8		1.7	1.7	
Drew	**1.8**	**1.8**		**1.7**	**1.7**		**1.7**	**1.7**		**1.6**	**1.6**		**1.5**	**1.5**	
Industrial	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Mining	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.2	0.2	
Municipal	1.3	1.3		1.2	1.2		1.2	1.2		1.2	1.2		1.2	1.2	
Grant	**1.7**	**1.6**	**0.1**	**1.9**	**1.8**	**0.1**	**2.1**	**1.9**	**0.1**	**2.2**	**2.1**	**0.1**	**2.4**	**2.2**	**0.1**
Industrial	0.3	0.2		0.3	0.2		0.3	0.2		0.2	0.2		0.2	0.2	
Municipal	1.5	1.4	0.1	1.7	1.6	0.1	1.8	1.7	0.1	2.0	1.9	0.1	2.2	2.0	0.1
Greene	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Hot Spring															
Self-Supplied Commercial															
Jackson	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Jefferson	**36.7**	**36.7**		**32.9**	**32.9**		**31.8**	**31.8**		**30.7**	**30.7**		**29.5**	**29.5**	
Industrial	32.4	32.4		28.6	28.6		27.7	27.7		26.8	26.8		25.7	25.7	
Crop Irrigation	0.3	0.3		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Municipal	3.5	3.5		3.4	3.4		3.2	3.2		3.0	3.0		2.9	2.9	
Thermoelectric	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lafayette	**1.0**		**1.0**	**1.0**	**0.1**	**0.9**	**1.0**	**0.1**	**0.9**	**1.0**	**0.1**	**0.9**	**1.0**	**0.1**	**1.0**
Self-Supplied Commercial															
Crop Irrigation	0.3		0.3	0.4		0.4	0.5		0.5	0.6		0.5	0.6		0.6
Mining															
Municipal	0.5		0.5	0.5	0.1	0.4	0.4	0.1	0.3	0.3	0.1	0.3	0.3	0.1	0.2
Thermoelectric	0.2		0.2	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lawrence	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Crop Irrigation	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Lee	**1.1**	**1.1**		**0.9**	**0.9**		**0.8**	**0.8**		**0.7**	**0.7**		**0.6**	**0.6**	
Industrial															
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	

Table E-14 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Municipal	0.8	0.8		0.6	0.6		0.4	0.4		0.3	0.3		0.2	0.2	
Lincoln	**3.6**	**3.2**	**0.4**	**3.6**	**3.2**	**0.4**	**3.5**	**3.2**	**0.4**	**3.5**	**3.2**	**0.4**	**3.5**	**3.1**	**0.4**
Industrial															
Crop Irrigation	1.3	0.9	0.4	1.3	0.9	0.4	1.3	0.9	0.4	1.3	0.9	0.4	1.3	0.9	0.4
Municipal	2.3	2.3		2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	
Lonoke	**10.2**	**8.0**	**2.3**	**10.1**	**8.0**	**2.1**	**10.2**	**8.2**	**2.0**	**10.3**	**8.4**	**1.9**	**10.5**	**8.6**	**1.9**
Aquaculture	0.8	0.4	0.3	0.8	0.4	0.3	0.8	0.4	0.3	0.8	0.4	0.3	0.8	0.4	0.3
Industrial															
Crop Irrigation	9.0	7.1	1.9	8.7	7.0	1.7	8.8	7.1	1.7	8.8	7.2	1.6	8.8	7.2	1.5
Municipal	0.5	0.5		0.6	0.6		0.7	0.7		0.8	0.8		1.0	1.0	
Miller	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Self-Supplied Commercial															
Municipal	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Mississippi	**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**		**0.3**	**0.3**	
Crop Irrigation	0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3		0.3	0.3	
Monroe	**1.3**	**1.3**		**1.3**	**1.3**		**1.2**	**1.2**		**1.1**	**1.1**		**1.0**	**1.0**	
Industrial															
Crop Irrigation	0.6	0.6		0.7	0.7		0.8	0.8		0.8	0.8		0.8	0.8	
Municipal	0.7	0.7		0.5	0.5		0.4	0.4		0.3	0.3		0.2	0.2	
Ouachita	**0.7**	**0.4**	**0.2**	**0.6**	**0.4**	**0.2**	**0.5**	**0.3**	**0.2**	**0.4**	**0.3**	**0.1**	**0.4**	**0.3**	**0.1**
Industrial	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Livestock															
Municipal	0.5	0.3	0.2	0.4	0.3	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.1
Phillips	**2.7**	**2.7**		**2.1**	**2.1**		**1.6**	**1.6**		**1.2**	**1.2**		**1.0**	**1.0**	
Industrial	0.1	0.1		0.1	0.1		0.1	0.1							
Mining															
Municipal	2.6	2.6		2.0	2.0		1.6	1.6		1.2	1.2		0.9	0.9	
Poinsett	**4.1**	**2.1**	**2.0**	**4.4**	**2.1**	**2.2**	**4.4**	**2.1**	**2.2**	**4.4**	**2.1**	**2.2**	**4.4**	**2.1**	**2.2**
Industrial															
Crop Irrigation	4.1	2.0	2.0	4.3	2.1	2.2	4.3	2.1	2.2	4.3	2.1	2.2	4.3	2.1	2.2
Mining															
Prairie	**6.9**	**6.6**	**0.3**	**7.3**	**7.0**	**0.3**	**7.3**	**7.0**	**0.3**	**7.2**	**6.9**	**0.3**	**7.2**	**6.9**	**0.3**
Industrial															
Crop Irrigation	6.7	6.4	0.3	7.1	6.8	0.3	7.1	6.8	0.3	7.1	6.8	0.3	7.1	6.8	0.3
Municipal	0.2	0.2		0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1	
Pulaski	**0.9**	**0.5**	**0.4**	**1.1**	**0.5**	**0.6**	**1.1**	**0.5**	**0.6**	**1.1**	**0.5**	**0.6**	**1.1**	**0.5**	**0.7**
Crop Irrigation	0.5	0.5		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Thermoelectric	0.5		0.4	0.6		0.6	0.6	0.1	0.6	0.7	0.1	0.6	0.7	0.1	0.7
Saline	**0.5**	**0.1**	**0.4**	**0.5**	**0.1**	**0.4**	**0.6**	**0.1**	**0.5**	**0.7**	**0.1**	**0.5**	**0.7**	**0.1**	**0.6**
Municipal	0.5	0.1	0.4	0.5	0.1	0.4	0.6	0.1	0.5	0.7	0.1	0.5	0.7	0.1	0.6
St. Francis	**0.5**	**0.5**		**0.6**	**0.6**		**0.7**	**0.7**		**0.7**	**0.7**		**0.7**	**0.7**	

Table E-14 Summary of Groundwater Demands and Supply Gaps for the Sparta Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Crop Irrigation	0.5	0.5		0.6	0.6		0.7	0.7		0.7	0.7		0.7	0.7	
Union	**11.3**	**5.8**	**5.5**	**11.4**	**5.8**	**5.6**	**10.9**	**5.7**	**5.2**	**10.4**	**5.6**	**4.8**	**9.9**	**5.6**	**4.4**
Self-Supplied Commercial															
Self-Supplied Domestic	0.4	0.2	0.2	0.4	0.2	0.2	0.4	0.2	0.1	0.4	0.2	0.1	0.3	0.2	0.1
Industrial	5.7	2.0	3.7	6.0	2.0	4.0	5.8	2.0	3.7	5.5	2.1	3.5	5.3	2.1	3.2
Livestock	0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Municipal	5.0	3.4	1.6	4.9	3.4	1.5	4.6	3.3	1.3	4.4	3.2	1.2	4.2	3.1	1.0
Woodruff	**1.0**	**1.0**		**1.0**	**0.9**	**0.1**	**1.0**	**0.8**	**0.2**	**1.0**	**0.8**	**0.2**	**0.9**	**0.8**	**0.2**
Crop Irrigation	0.8	0.8		0.9	0.7	0.1	0.9	0.7	0.2	0.9	0.7	0.2	0.9	0.7	0.2
Municipal	0.2	0.2		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1	
Grand Total	**165.4**	**142.7**	**22.6**	**161.7**	**138.3**	**23.4**	**159.5**	**135.6**	**24.0**	**157.6**	**133.1**	**24.4**	**156.1**	**131.0**	**25.1**

Table E-15 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)	Groundwater Demand (MGD)	Groundwater Demand Met (MGD)	Supply Gap (MGD)
Clay	**1.1**	**0.1**	**1.0**	**1.1**	**0.1**	**1.1**	**1.2**		**1.1**	**1.2**		**1.2**	**1.2**		**1.2**
Crop Irrigation	1.1	0.1	1.0	1.1	0.1	1.1	1.2		1.1	1.2		1.2	1.2		1.2
Craighead	**0.7**	**0.7**		**0.7**	**0.7**		**0.8**	**0.8**		**0.9**	**0.9**		**1.0**	**1.0**	
Industrial															
Municipal	0.7	0.7		0.7	0.7		0.8	0.8		0.9	0.9		1.0	1.0	
Crittenden	**8.3**	**2.2**	**6.1**	**8.2**	**2.1**	**6.1**	**8.1**	**2.1**	**6.0**	**8.0**	**2.1**	**5.9**	**8.0**	**2.1**	**5.9**
Industrial	0.1	0.1													
Municipal	8.2	2.1	6.1	8.1	2.1	6.1	8.0	2.1	6.0	8.0	2.1	5.9	7.9	2.1	5.9
Cross	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**
Municipal	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2
Greene	**6.2**	**2.1**	**4.1**	**6.8**	**2.0**	**4.8**	**7.4**	**1.9**	**5.5**	**7.7**	**1.8**	**6.0**	**8.2**	**1.7**	**6.5**
Self-Supplied Commercial															
Industrial	0.7	0.5	0.2	0.7	0.4	0.3	0.7	0.4	0.3	0.7	0.4	0.3	0.7	0.4	0.3
Crop Irrigation	1.6	0.9	0.6	1.8	0.9	0.9	2.0	0.8	1.2	2.0	0.8	1.2	2.0	0.7	1.3
Mining															
Municipal	4.0	0.7	3.3	4.3	0.6	3.6	4.6	0.6	4.0	5.0	0.6	4.4	5.4	0.6	4.9
Lafayette															
Crop Irrigation															
Lonoke	**2.0**	**2.0**		**2.1**	**2.1**		**2.2**	**2.2**		**2.3**	**2.2**	**0.2**	**2.5**	**2.2**	**0.3**
Aquaculture	0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4		0.4	0.4	
Crop Irrigation	1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Municipal	0.5	0.5		0.7	0.7		0.8	0.8		0.9	0.8	0.2	1.1	0.8	0.3
Miller	**0.2**	**0.2**		**0.2**	**0.2**		**0.2**	**0.2**		**0.3**	**0.3**		**0.3**	**0.3**	
Self-Supplied Commercial															
Municipal	0.2	0.2		0.2	0.2		0.2	0.2		0.3	0.3		0.3	0.3	
Mississippi	**5.8**	**5.8**		**6.1**	**6.0**	**0.1**	**5.9**	**5.8**	**0.1**	**5.7**	**5.6**	**0.1**	**5.6**	**5.5**	**0.1**
Industrial	2.2	2.2		3.0	2.9	0.1	3.0	2.9	0.1	3.0	2.9	0.1	3.0	2.9	0.1
Mining															
Municipal	3.0	3.0		2.7	2.7		2.5	2.5		2.3	2.3		2.2	2.2	
Thermoelectric	0.5	0.5		0.3	0.3		0.3	0.3		0.4	0.4		0.4	0.4	
Nevada	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**	**0.1**		**0.1**
Livestock	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1	0.1		0.1
Municipal															
Poinsett	**2.5**	**1.2**	**1.3**	**2.5**	**1.2**	**1.3**	**2.5**	**1.2**	**1.3**	**2.4**	**1.2**	**1.2**	**2.4**	**1.2**	**1.2**
Industrial															
Crop Irrigation	0.9		0.9	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0
Municipal	1.6	1.2	0.4	1.5	1.2	0.3	1.5	1.2	0.3	1.4	1.2	0.3	1.4	1.1	0.2
Prairie	**1.6**	**1.6**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**		**1.7**	**1.7**	
Crop Irrigation	1.6	1.6		1.7	1.7		1.7	1.7		1.7	1.7		1.7	1.7	
Saline	**1.0**	**0.6**	**0.5**	**1.1**	**0.6**	**0.5**	**1.2**	**0.6**	**0.6**	**1.3**	**0.6**	**0.7**	**1.5**	**0.6**	**0.9**
Industrial															

Table E-15 Summary of Groundwater Demands and Supply Gaps for the Wilcox Aquifer - Dry Scenario Sustainable Pumping Level - By County and Sector

	Base Period			2020			2030			2040			2050		
County/Water Use Sector	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**	**Groundwater Demand (MGD)**	**Groundwater Demand Met (MGD)**	**Supply Gap (MGD)**
Livestock															
Municipal	1.0	0.6	0.4	1.0	0.6	0.5	1.2	0.6	0.6	1.3	0.6	0.7	1.4	0.6	0.9
St. Francis	**0.8**	**0.5**	**0.3**	**0.7**	**0.4**	**0.3**	**0.6**	**0.4**	**0.2**	**0.5**	**0.3**	**0.2**	**0.4**	**0.3**	**0.1**
Municipal	0.8	0.5	0.3	0.7	0.4	0.3	0.6	0.4	0.2	0.5	0.3	0.2	0.4	0.3	0.1
White	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**	**0.8**	**0.1**	**0.8**
Crop Irrigation	0.8	0.1	0.8	0.8	0.1	0.8	0.8	0.1	0.8	0.8	0.1	0.8	0.8	0.1	0.8
Grand Total	**31.5**	**17.2**	**14.3**	**32.5**	**17.4**	**15.1**	**32.9**	**17.2**	**15.8**	**33.3**	**17.0**	**16.4**	**33.9**	**16.8**	**17.1**