NATURAL RESOURCES DIVISION

Arkansas Department of Agriculture
Natural Resources Division

Arkansas Groundwater Protection and Management Report 2019

NATURAL RESOURCES DIVISION

ARKANSAS GROUNDWATER PROTECTION AND MANAGEMENT REPORT for 2019

March 2020

Arkansas Department of Agriculture

Natural Resources Division

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Little Rock, AR 72201

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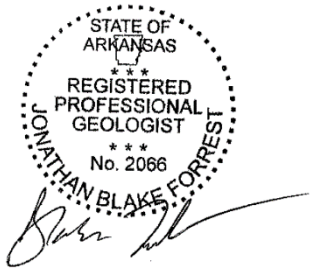
Report written and compiled by Blake Forrest, P.G.



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ABSTRACT

The Arkansas Groundwater Protection and Management Report is produced annually by the Arkansas Department of Agriculture Natural Resources Division (NRD) pursuant to the Arkansas Groundwater Protection and Management Act of 1991, Arkansas Code Annotated 15-22-906. This report provides a summary of groundwater protection and conservation programs administered by the NRD during the years 2018 and 2019, including water-level monitoring and studies of water use trends in the state.

This report focuses exclusively on two aquifers: the Mississippi River Valley Alluvial Aquifer (alluvial aquifer), which is the most important water resource for agricultural production in the state, and the Sparta/Memphis Aquifer (Sparta), which is one of the state's best sources of good quality groundwater for drinking and industrial uses. The report compares water-level data collected in the spring of 2019 to historical water level data in one, five, and ten-year intervals, as well as data collected continuously, monthly, and quarterly, to quantify the aquifers response to the stresses of the 2018 growing season. Climate and water use data are considered along with water level data to explain the water level change results.

Spring 2019 water level data had positive average change values for both the alluvial and Sparta aquifers when compared to 2018, 2004, and 2009 water level data. This result continues the trend of positive average change values in recent years. However, average water level changes can fluctuate throughout the years and do not always accurately portray the general aquifer trend.

The general trend in Arkansas's long-term water-level change is that the groundwater levels are declining in response to continued withdrawals at a rate which is not sustainable. Based on 2015 water use data, only approximately 44.2 percent of the current alluvial aquifer withdrawal of 7,636.08 million gallons per day, and approximately 55% percent of the Sparta/Memphis aquifer withdrawal of 160 million gallons per day is sustainable. At these pumping rates, water-level declines and the adverse impacts on the state's groundwater system will continue to be observed. As the competition for groundwater becomes more intense, the challenge before Arkansas' water resources users, scientists, and conservationists, is to continue to work toward conservation, education, and the conjunctive use of groundwater and excess surface water in a manner that brings about the wise and sustainable use of our valuable water resources.

Introduction

This report is prepared to provide the State of Arkansas with a comprehensive water-quantity and water-quality document to be utilized, in accordance with the Arkansas Water Plan, as a guide for water resources conservation and protection programs. It includes data, analysis, and recommendations for the groundwater protection and management program, as well as data from the Arkansas Water Well Construction Commission.

This report focuses on the two most used aquifers in the state, the Mississippi River Valley alluvial aquifer (alluvial aquifer) and the Sparta/Memphis aquifer. Data collection for the program is dependent upon a strong partnership with other state, federal, and local water resources agencies. A monitoring schedule has been established to obtain data from the alluvial aquifer and the Sparta aquifer on an annual basis. Each spring approximately 300 to 400 wells are monitored in the alluvial aquifer resulting in the largest number of water-level measurements for any one aquifer in the state, and approximately 200-300 wells are monitored each year for water levels in the Sparta/Memphis aquifer. The number of wells monitored will vary from year to year depending on the resources available, well accessibility, and other factors. The drawdown that results from seasonal pumping is taken into consideration by the NRCS and NRD taking measurements of the alluvial aquifer in both the spring and fall. Spring measurements are taken before the irrigation season begins and once again in the fall after the pumping season has ended.

There are areas of the state experiencing groundwater withdrawals of such magnitude that demand on the aquifer exceeds the sustainable yield, resulting in consistently falling groundwater levels, and the development of cones of depression. These areas occur in both the alluvial and Sparta aquifers. Water-level declines are consistently observed in areas where water use is highest, such as portions of the Grand Prairie study area and in the Cache study area for the alluvial and the South Arkansas study area for the Sparta.

The USGS maintains the Arkansas Masterwell Program that supplies long term groundwater quality monitoring in 25 wells from 14 aquifers. These Masterwells are located throughout 21 counties and each year 5 sites are sampled for a variety of water-quality constituents. Hydrogeologic data is collected statewide; however, resources are focused on study areas where water-level declines and water-quality degradation have been observed historically. Groundwater quality sampling targeting known water quality issues, such as high chlorides, throughout the

Mississippi Alluvial Plain has been conducted by the USGS in 2018 and 2019. The results of this work will be included in this report when they are published.

Water Policy

Water-resources policy in Arkansas was established in the Arkansas Water Plan of 1991, in which the NRD advocates conservation, education, and the conjunctive use of ground and surface water, along with the development of excess surface water to meet future water use needs. It is hoped that protection of the State's groundwater resources can be achieved through these measures rather than management strategies that may require allocation of water. If conservation and the development of excess surface water are not successfully implemented in the impaired areas in the future, the State will have to consider regulatory alternatives to preserve the aquifers at a sustainable level. All water-use strategies must consider the wise use of our State's water resources while protecting the sustainable yield of the State's aquifers. Stream flow needs of the State's surface-water flow system must also be considered if our water resources are to be protected for future generations to utilize and enjoy. The NRD advocates that the State move toward a sustainable yield pumping strategy through conservation and utilization of Critical Groundwater Area designation where needed to focus resources. Designation as a Critical Groundwater Area fosters conservation by offering enhanced tax credit benefits for conservation practices through the State's Water Conservation Tax Credit Program, by increasing educational outreach, and by qualifying the area for federal programs and funding. This is a non-regulatory designation. Regulation cannot be initiated without a new process involving legal proceedings, additional notice, and public hearings. Figure 1 presents the Groundwater Study Areas while Figure 2 presents the Critical Groundwater Areas as designated.

Arkansas Groundwater Study Areas

Legend

- South Arkansas
- Grand Prairie
- Cache
- Boeuf - Tensas
- St. Francis
- Crowleys Ridge
- County Boundaries

N

0 12.5 25 50 75 100 Miles

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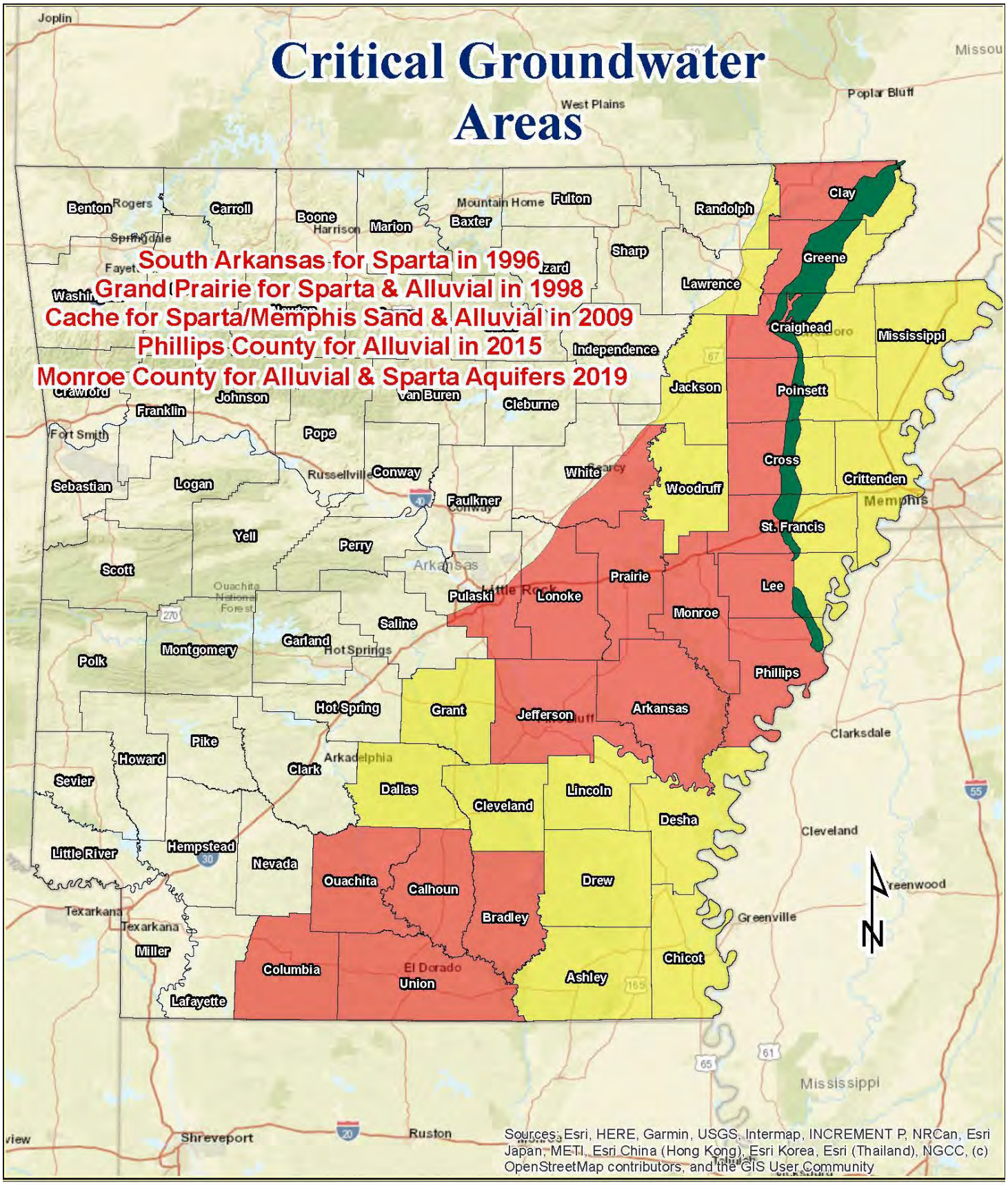
Figure 1



Legend

- Current Critical Areas
- Current Study Areas
- Crowleys Ridge
- County Boundaries

0 10 20 40 60 80 Miles

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Figure 2

Hydrogeology and Statewide Water-Level Trends

Alluvial Aquifer

The Mississippi River Valley alluvial aquifer, hereby referred to as the "alluvial aquifer", is the uppermost aquifer in the Mississippi Embayment. The alluvial aquifer is composed of 50 to 150 feet of sand and gravel, grading from coarse gravel at the bottom to fine sand at the top. It generally is overlain by the Mississippi River Confining Unit, which is composed of up to 50 feet of fine-grained sand, silt, and clay. For the purpose of this report, the term alluvial aquifer refers to the portion of the aquifer inside the state boundaries of Arkansas and the extent of the Mississippi River Alluvial Plain; generally the Fall-Line or contact with outcropping Tertiary formations to the west, the Mississippi River to the east, and the state lines to the north and south. The alluvial aquifer is connected hydraulically with several rivers and drainage areas (Ackerman, 1996).

Static water level measurements were collected from 335 wells across the alluvial aquifer prior to the irrigation season in 2019. Figure 3 presents the potentiometric surface data as depth to water values. Figure 4 presents the saturated thickness of the alluvial aquifer as a percentage of the total aquifer thickness. Saturated thickness values were calculated by subtracting the depth to water by the total aquifer thickness on a well to well basis. Aquifer thickness values were obtained from the USGS MERAS model subsurface map. The areas of greatest decline continue to be the historical cones of depression in the Grand Prairie and Cache river regions.

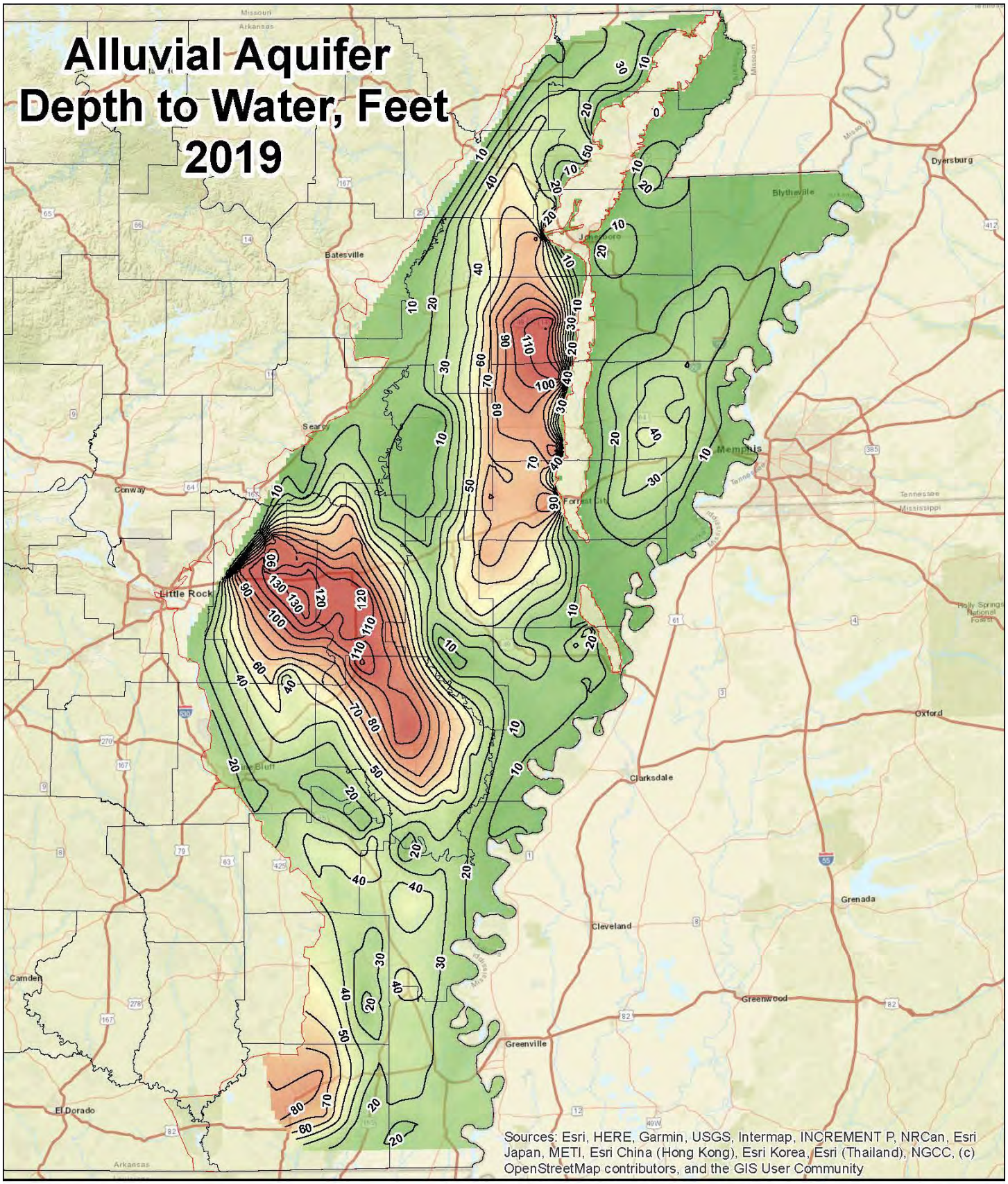
Alluvial Aquifer
Depth to Water, Feet
2019
Missouri
Arkansas
Dyersburg
Blytheville
Jonesboro
Batesville
Searcy
Memphis
Conway
Forrest City
Little Rock
Oxford
Clarksdale
Grenada
Cleveland
Camden
Greenwood
Greenville
El Dorado
Tennessee
Mississippi
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Legend
10 Foot Contour Lines
Alluvial Depth to Water Feet
0 to 15 Ft.
16 Ft. to 31 Ft.
32 Ft. to 47 Ft.
48 Ft. to 63 Ft.
64 Ft. to 79 Ft.
80 Ft. to 96 Ft.
97 Ft. to 112 Ft.
113 Ft. to 128 Ft.
129 Ft. to 144 Ft.
Alluvial Extent
County Boundaries
N
W
E
S
0 10 20 40 60 80
Miles
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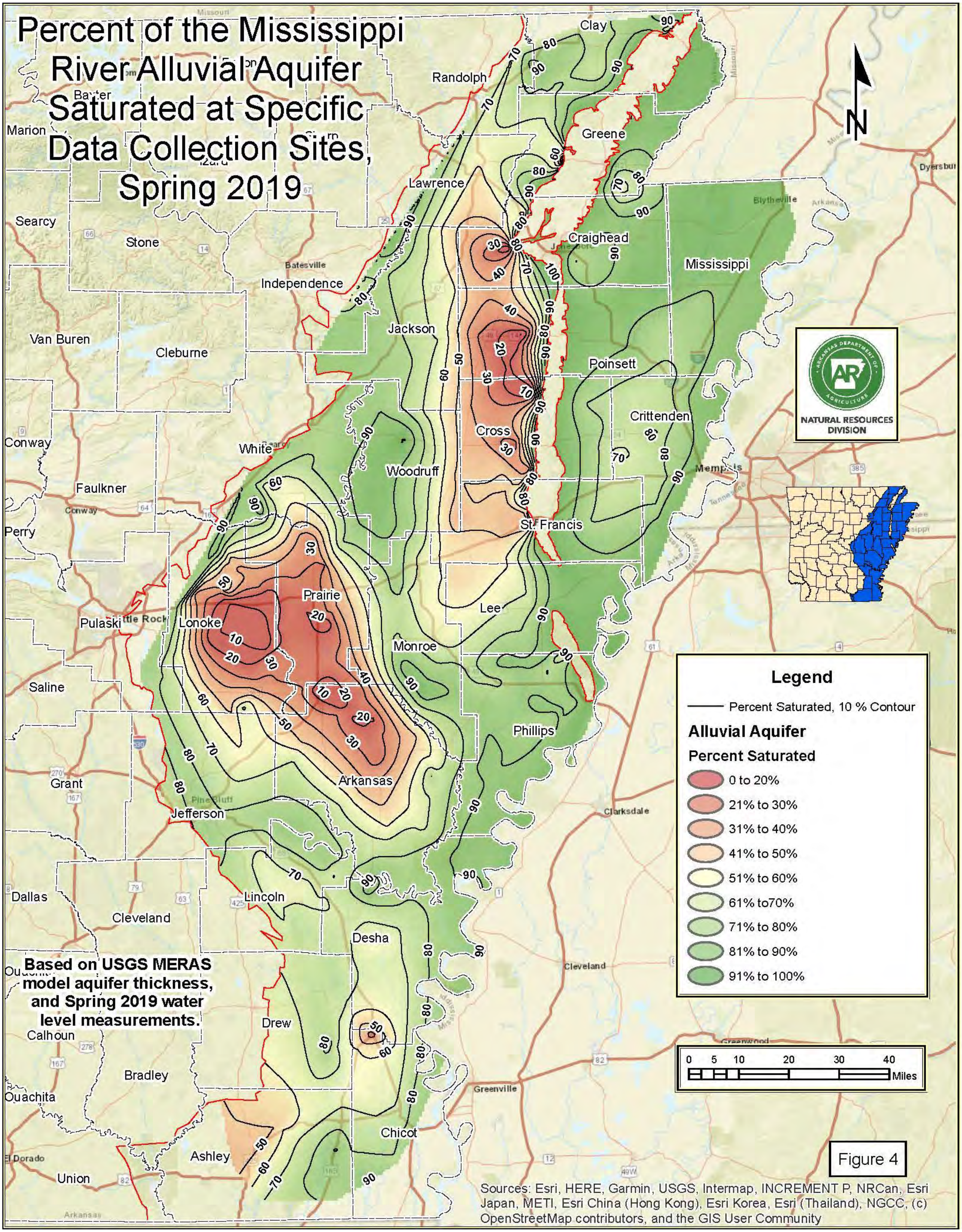
Figure 3


Percent of the Mississippi River Alluvial Aquifer Saturated at Specific Data Collection Sites, Spring 2019
Based on USGS MERAS model aquifer thickness, and Spring 2019 water level measurements.
Legend
Percent Saturated, 10 % Contour
Alluvial Aquifer
Percent Saturated
0 to 20%
21% to 30%
31% to 40%
41% to 50%
51% to 60%
61% to70%
71% to 80%
81% to 90%
91% to 100%
0 5 10 20 30 40 Miles
N
NATURAL RESOURCES DIVISION
Figure 4
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Clay
Randolph
Greene
Lawrence
Craighead
Mississippi
Independence
Jackson
Poinsett
Crittenden
Cross
White
Woodruff
St Francis
Lee
Prairie
Lonoke
Pulaski
Monroe
Phillips
Arkansas
Jefferson
Lincoln
Desha
Drew
Chicot
Ashley
Union
Bradley
Calhoun
Ouachita
Cleveland
Dallas
Grant
Saline
Perry
Faulkner
Conway
Van Buren
Cleburne
Stone
Searcy
Marion
Baxter
Memphis
Clarksdale
Greenville

Precipitation

The amount of rainfall is considered for comparison with the water level change during times of drought or excess rainfall. Years of abundant precipitation benefit the alluvial aquifer by increasing the ability for the aquifer to recharge naturally and by reducing the demand for groundwater, especially adequate amounts of rainfall throughout the growing season. In 2018, the total annual average precipitation was 64.2 inches, 14.6 inches more than the annual average, making it the wettest year since 2015 and the 7th wettest year on record. February was the wettest February on record providing a wet start to the monitoring period. However, average to below average rainfall was experienced throughout most of the irrigation season (March through July) (NWS, 2019). Figure 5 shows the monthly precipitation for 2018 compared with the monthly normal values on the following page.

Arkansas has consistently received average to above average rainfall since 2011 except for 2012, and the average change across the alluvial aquifer has been trending upwards since 2012. 2018 was no exception regarding precipitation; however, the average alluvial groundwater level change for 2018 is +0.28 feet, 0.97 feet less than the spring 2018 to spring 2017 average change of +1.25, even though 2018 had far more precipitation than 2017. The difference can most easily be explained by analyzing the timing of the rain. In 2017, the growing season experienced average to above average precipitation during each month which likely reduced the demand for groundwater to irrigate. In 2018, the growing season experienced average to below average rainfall causing groundwater to be in higher demand than the previous year. Figure 6 compares the statewide annual average precipitation to the average change in water levels in the alluvial aquifer from 1997 to 2018. Figure 7 presents data from the National Weather Service illustrating the total monthly precipitation received as a departure-from-normal value across the Mississippi River Valley Alluvial Plain for most of the 2018 growing season, March through August (NOAA, 2019).

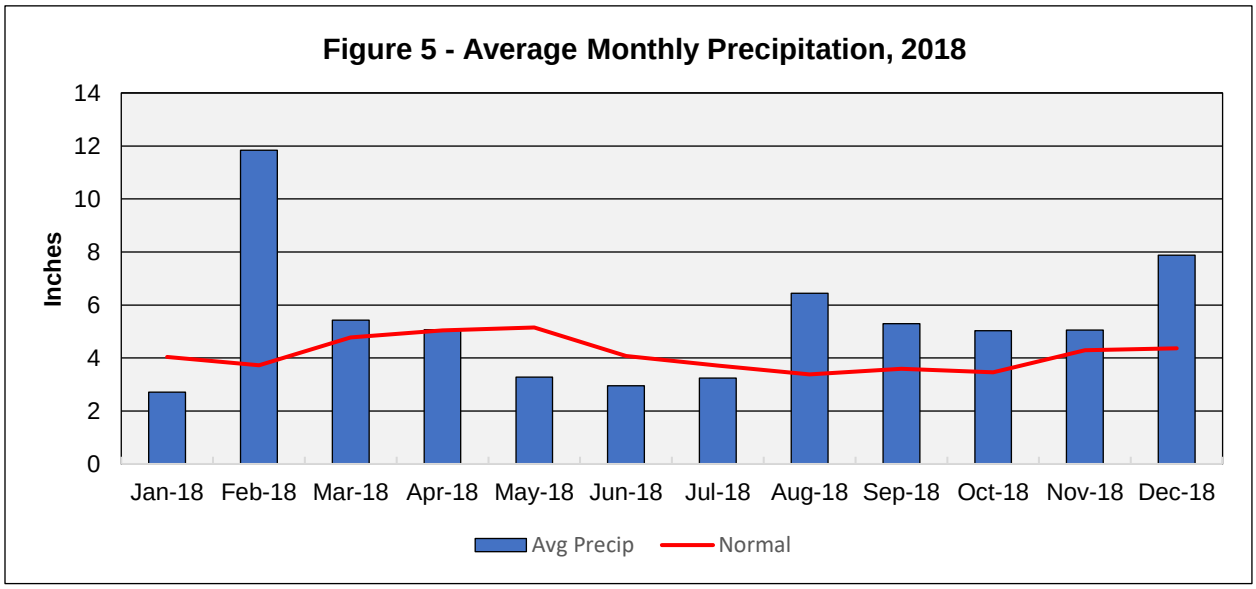


Figure 5 - Average Monthly Precipitation, 2018
Inches
14
12
10
8
6
4
2
0
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Avg Precip
Normal

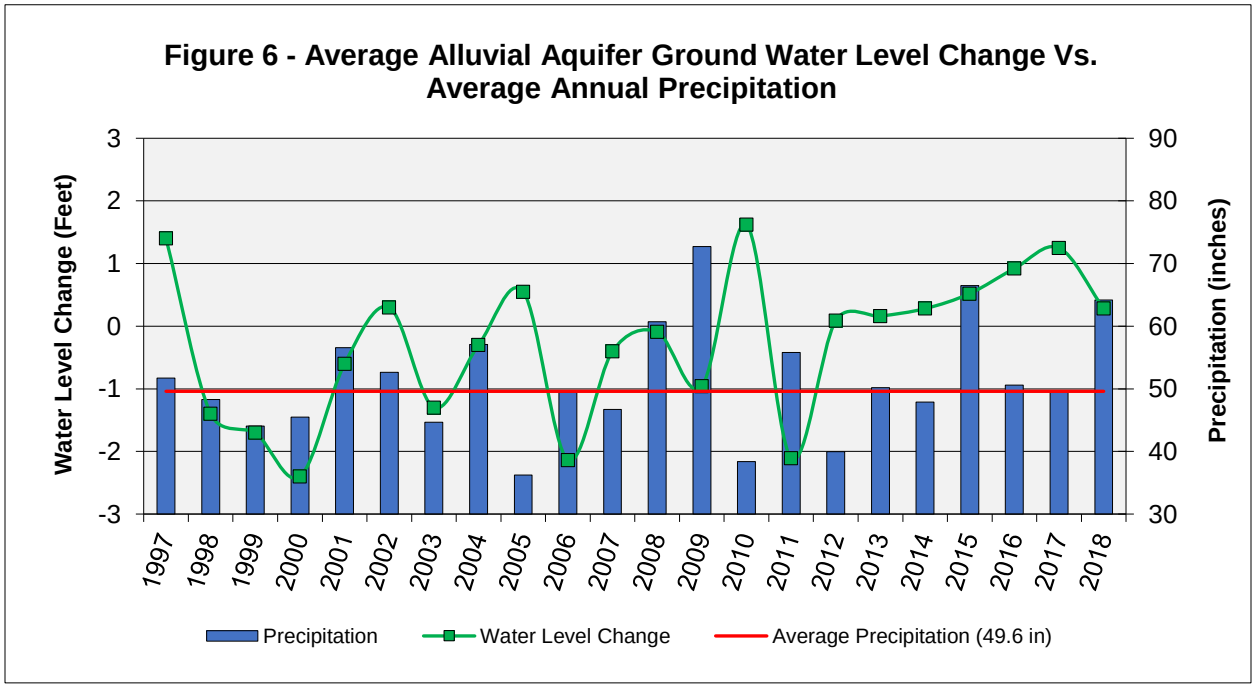
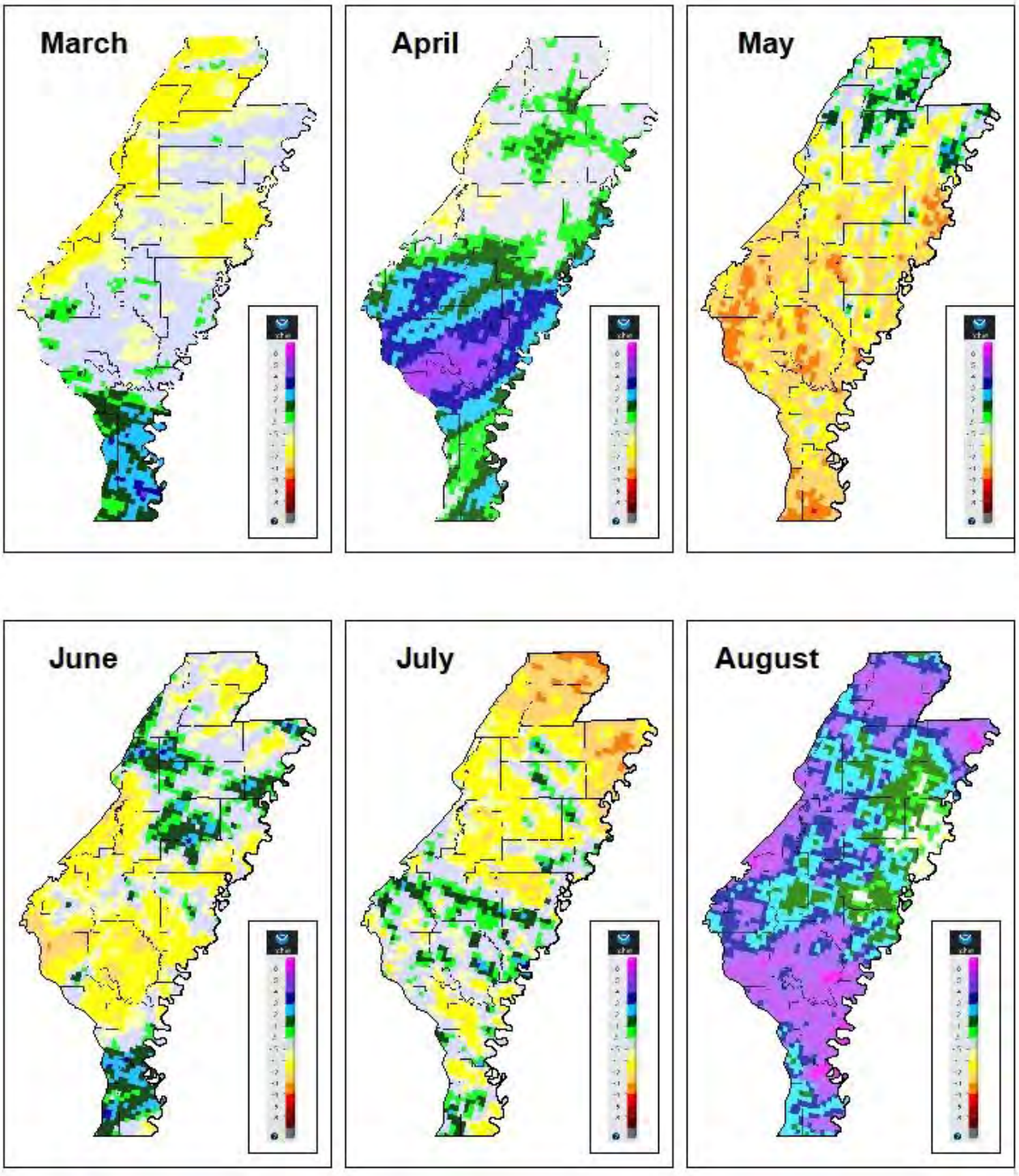


Figure 6 - Average Alluvial Aquifer Ground Water Level Change Vs. Average Annual Precipitation
Water Level Change (Feet)
Precipitation (inches)
3
2
1
0
-1
-2
-3
90
80
70
60
50
40
30
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Precipitation
Water Level Change
Average Precipitation (49.6 in)

Figure 7.
Mississippi River Valley Alluvial Plain
2018 Total Monthly Precipitation
Departure from Normal (DFN) Value

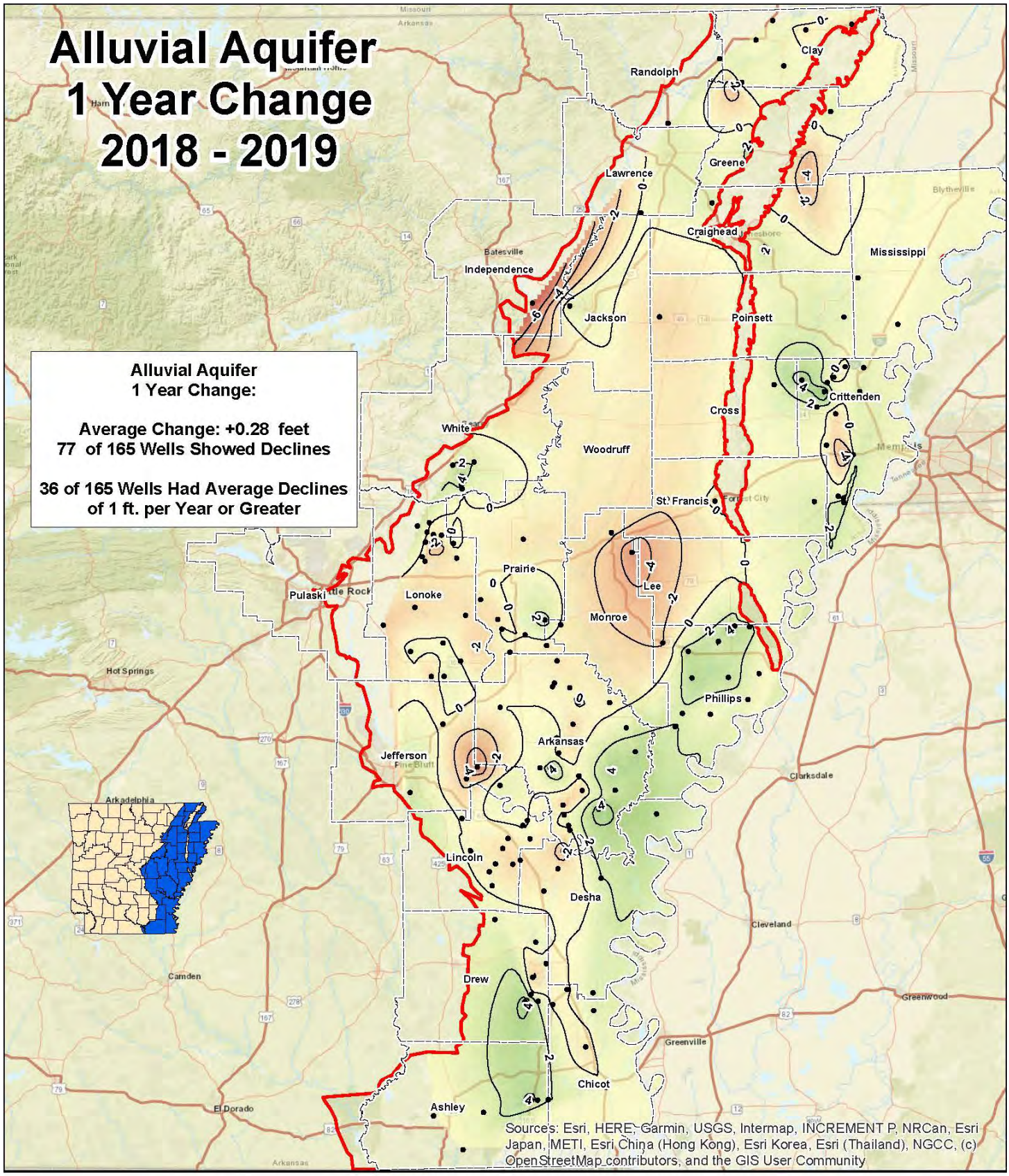


Water Level Trends

Water level data from the current year are compared with previous data on a well to well basis in one (1), five (5), and ten (10) year intervals to illustrate the water level change of the aquifer over time. For the one-year change comparison, 165 of the 335 wells measured in 2019 had data for 2018, and when compared, yield a total average water level change of +0.28 feet. For the five-year comparison, 198 wells were identified as having data for both 2014 and 2019 giving a total water level change of +1.40 with 63 (31.82%) well having declining static water levels. The ten-year analysis identified 206 wells with water levels for the years 2009 and 2019 with 59 of the 206 wells (28.64%) monitored showing declines and a total average water level change of +2.24 in the alluvial aquifer.

Aquifer-wide water level change maps were created for the different time intervals: Figure 8 presents the one-year spring 2018 to spring 2019 water level change, Figure 9 presents the five-year spring 2014 to spring 2019 water level change, and Figure 10 presents the ten-year spring 2009 to spring 2019 change data. Comparable data was sparse throughout the Cache and St. Francis study areas in the one-year interval, but the five and ten-year change intervals have good data coverage. These maps show that water level declines continue to be concentrated in the Cache and Grand Prairie areas where historical declines have been significant, particularly in the areas of the aquifer furthest from a major surface water source i.e. the Arkansas, White, and Mississippi rivers. Conversely, the areas with increasing water level change values can generally be found along these sources. This is most clear for the five and ten-year change intervals. Some water level decline can be found in the Beouf-Tensas study area, but these declines do not appear to be causing significant aquifer drawdown.

Thanks in large part to a great effort by the USDA NRCS staff, fall water level measurements were collected for alluvial aquifer wells in 2019. Numerous wells were reportedly measured in the fall of 2019, but only 83 wells were found to have also been measured during the spring. When compared, the total average change for spring to fall 2019 measurements was -2.90 feet, up from a -3.57 feet change from the 2018 change. Due to the scarcity of data, the 2019 change value is likely not an accurate representation of aquifer-wide average drawdown. Figure 11 presents the spring to fall data. The data was not contoured because of the lack of points.



Legend

- Data Points
- 2 Foot Contour Lines
- Alluvial Extent
- County Boundaries

N

0 10 20 40 60 80 Miles

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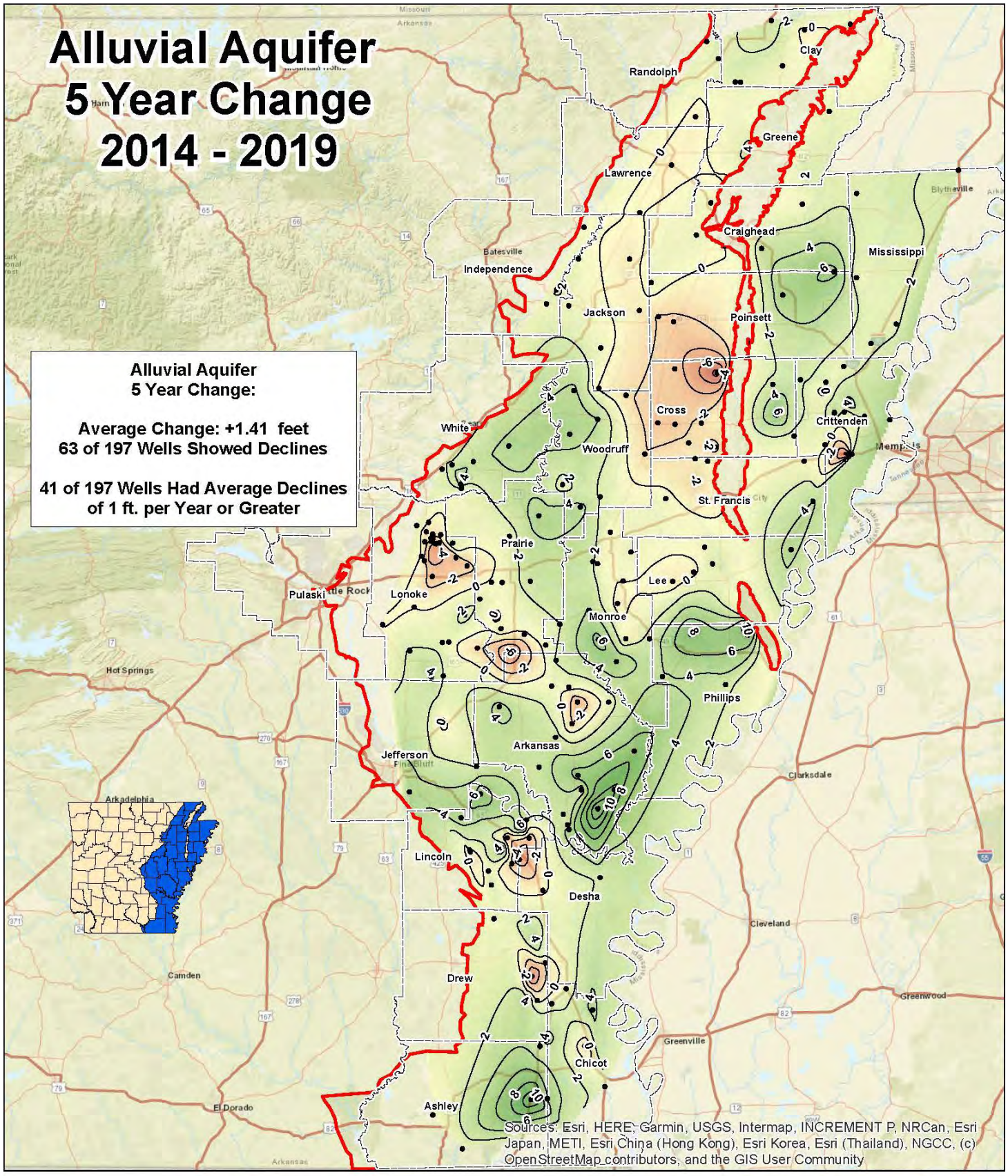
Figure 8



Legend

- Data Points
- 2 Foot Contour Lines
- Alluvial Extent
- County Boundaries

0 10 20 40 60 80 Miles

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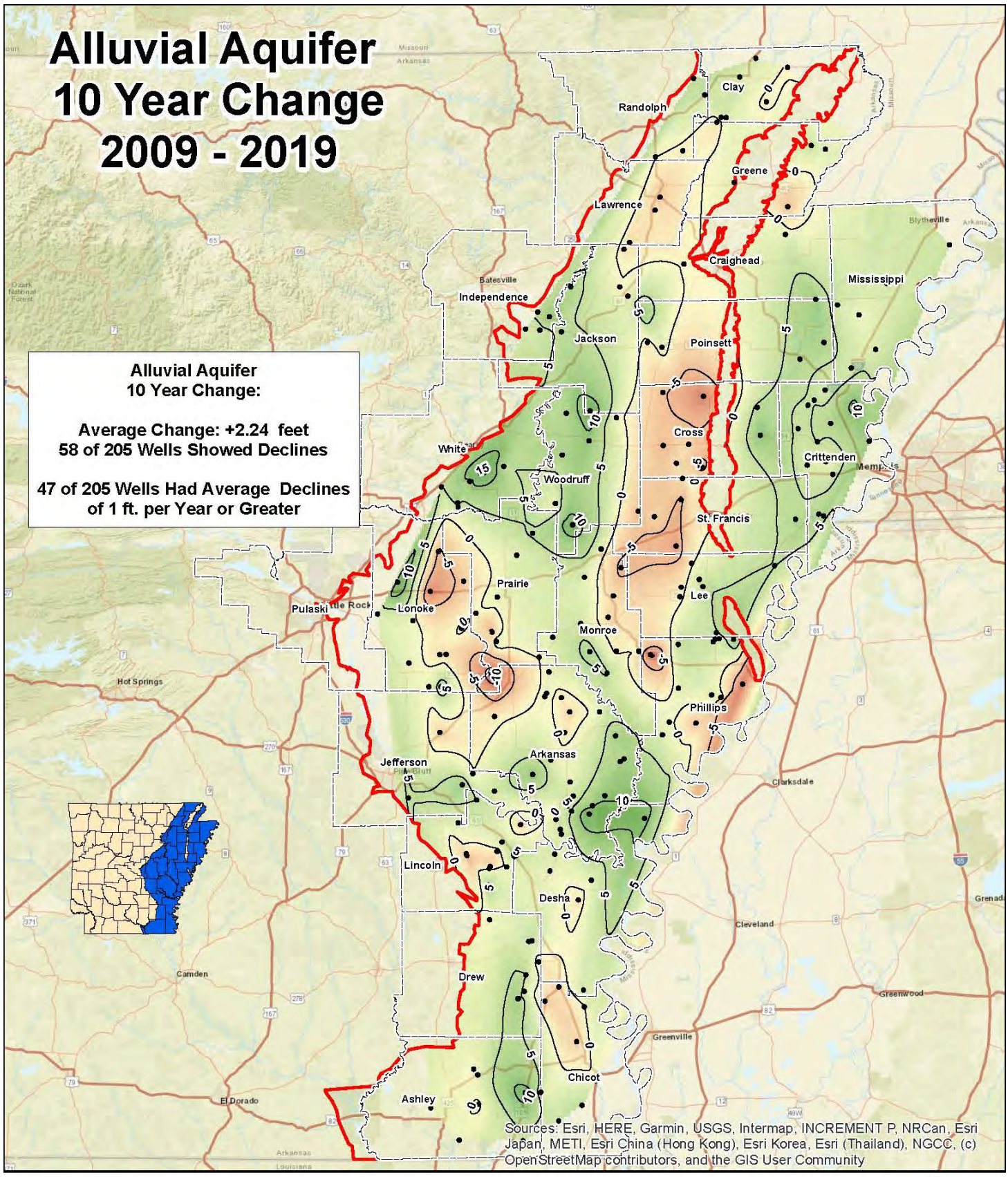
Figure 9



Legend

- Data Points
- 5 Foot Contour Lines
- Alluvial Extent
- County Boundaries

0 10 20 40 60 80 Miles

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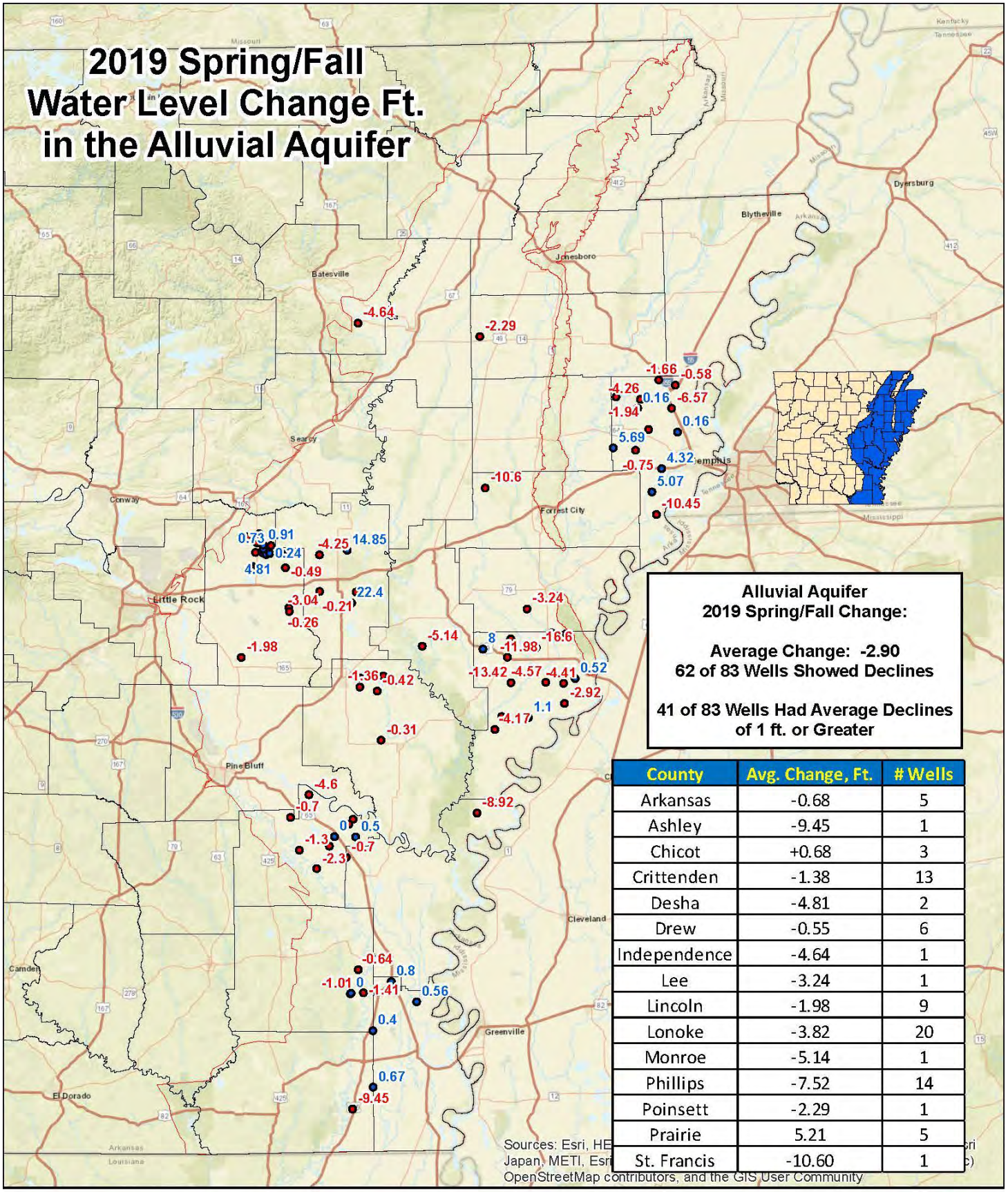
Figure 10



County	Avg. Change, Ft.	# Wells
Arkansas	-0.68	5
Ashley	-9.45	1
Chicot	+0.68	3
Crittenden	-1.38	13
Desha	-4.81	2
Drew	-0.55	6
Independence	-4.64	1
Lee	-3.24	1
Lincoln	-1.98	9
Lonoke	-3.82	20
Monroe	-5.14	1
Phillips	-7.52	14
Poinsett	-2.29	1
Prairie	5.21	5
St. Francis	-10.60	1

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Figure 11

Selected hydrographs from the Cache and Grand Prairie cones of depression that illustrate the historical nature of decline in these areas are shown below as Figure 12 and Figure 13. Figure 14 presents hydrographs from the 7 "real-time" alluvial aquifer monitoring wells maintained throughout the Mississippi Alluvial plain from January 2018 through December 2019.

Figure 12. Cache Critical Groundwater Area Hydrographs

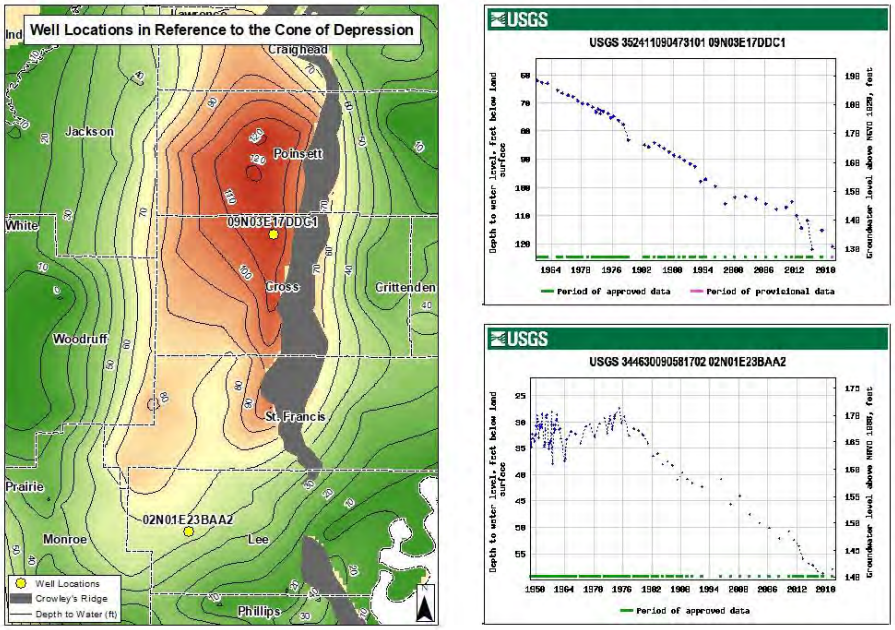


Figure 13. Grand Prairie Critical Groundwater Area Hydrographs

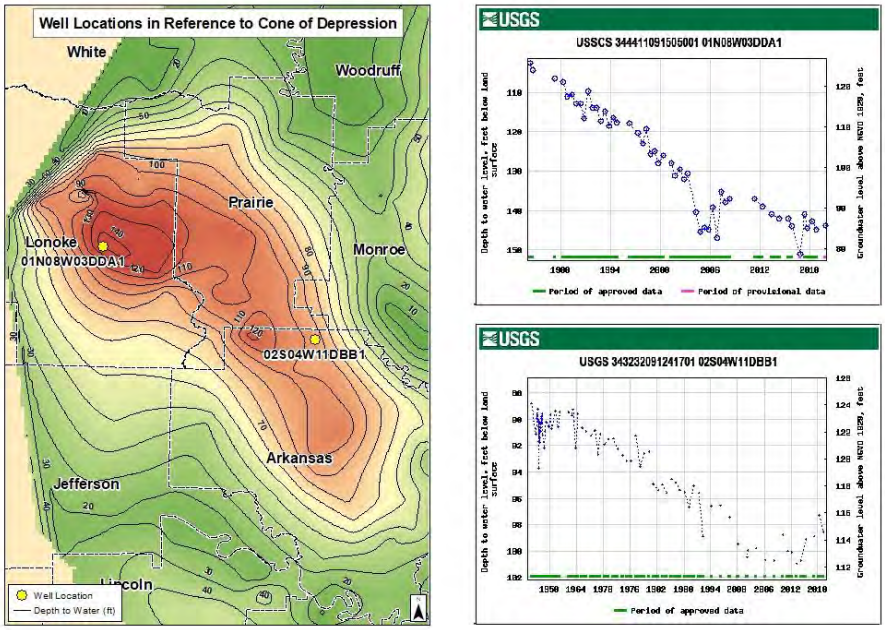
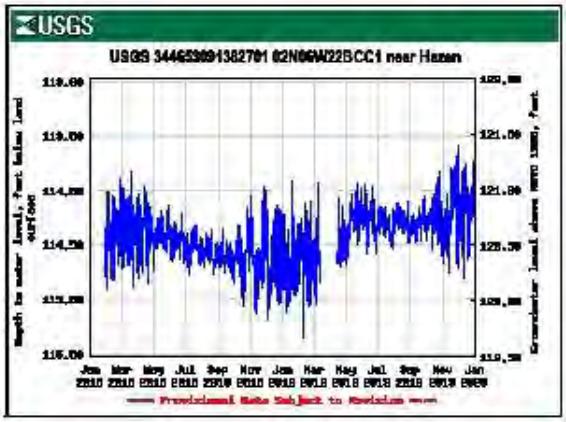
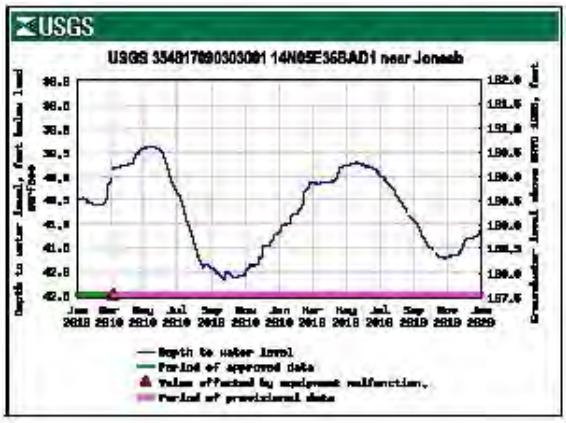


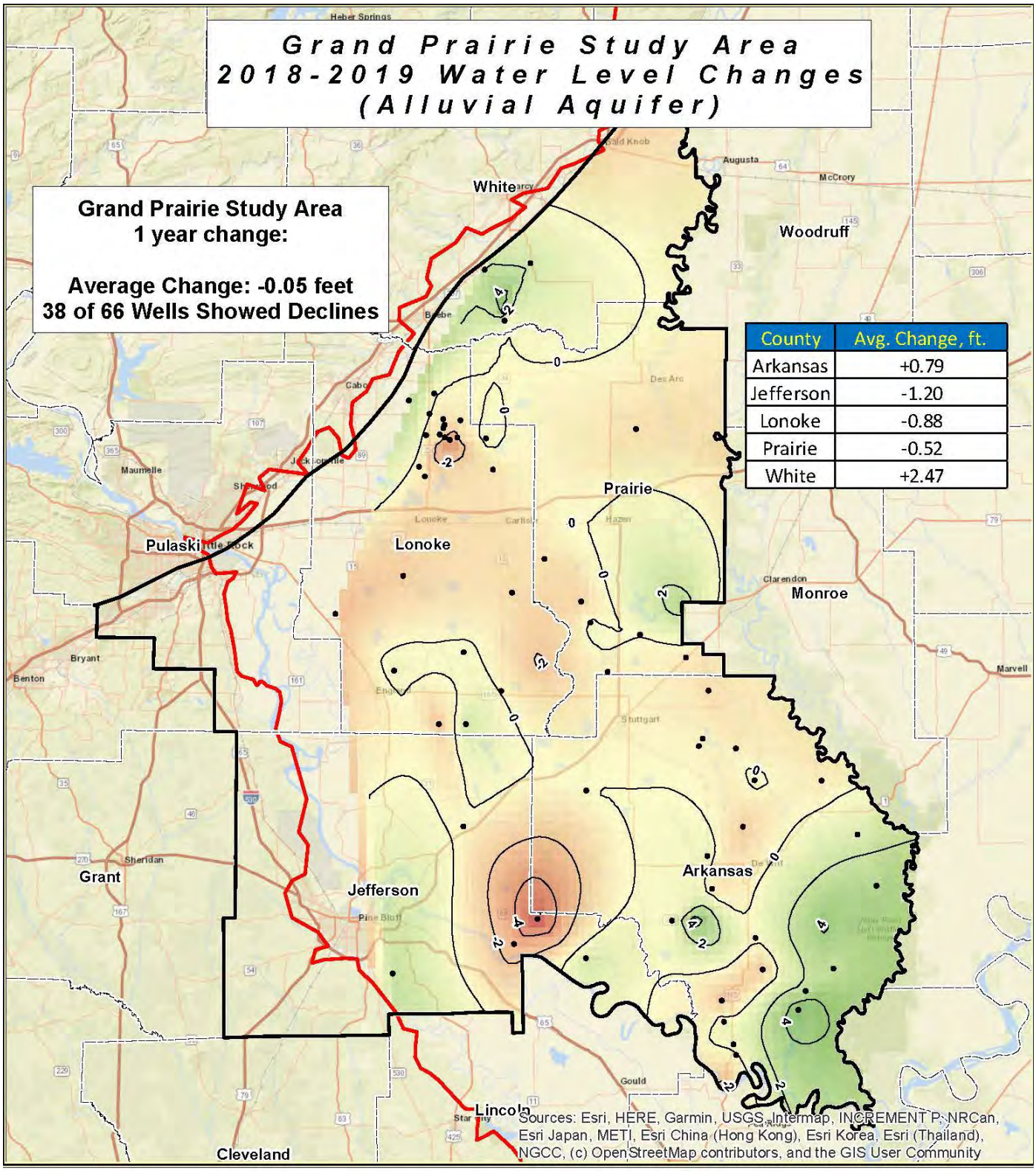
Figure 14. NRD Real-Time Monitoring Wells, Alluvial Aquifer





As previously mentioned, the spring 2018 to spring 2019 water level change values showed a positive average change for the entire aquifer for each of the three time periods analyzed. The aquifer-wide data has been focused per the four study areas that include the alluvial aquifer, Grand Prairie, Cache, St. Francis, and Beouf-Tensas, for each time period. The 2019 data shows increasing average water level changes for each study area for all three time periods except for the Grand Prairie one-year change which had an average decline of -0.05 ft. Figures 15 through 26 depict the spring 2019 alluvial aquifer water level change data and well locations for the four study areas over the one, five, and ten-year change intervals.

Appendix A presents the 2019 Mississippi River Valley alluvial aquifer water level data along with the 2009, 2014, and 2018 water level data for wells measured in 2019.



0 5 10 20 30 Miles

Legend

One Year Alluvial Change
High : +6 Feet
Low : -6 Feet

- Data Points
- 2 Foot Contour Lines
- Alluvial Extent
- Grand Prairie Study Area

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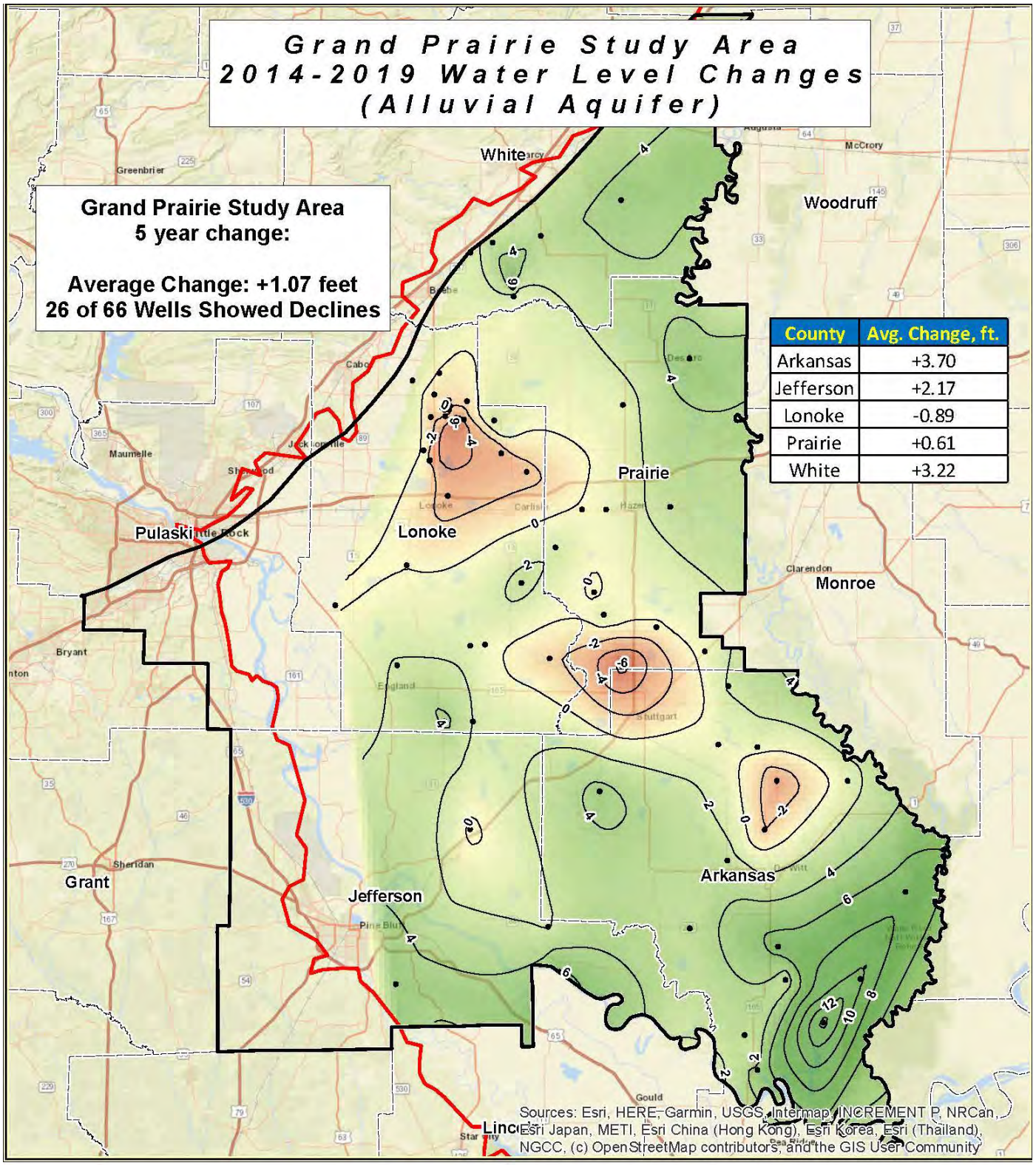
Figure 15



0 5 10 20 30 Miles

Legend

Five Year Alluvial Change
High : +7 Feet
Low : -7 Feet

- Data Points
- 2 Foot Contour Lines
- Alluvial Extent
- Grand Prairie Study Area

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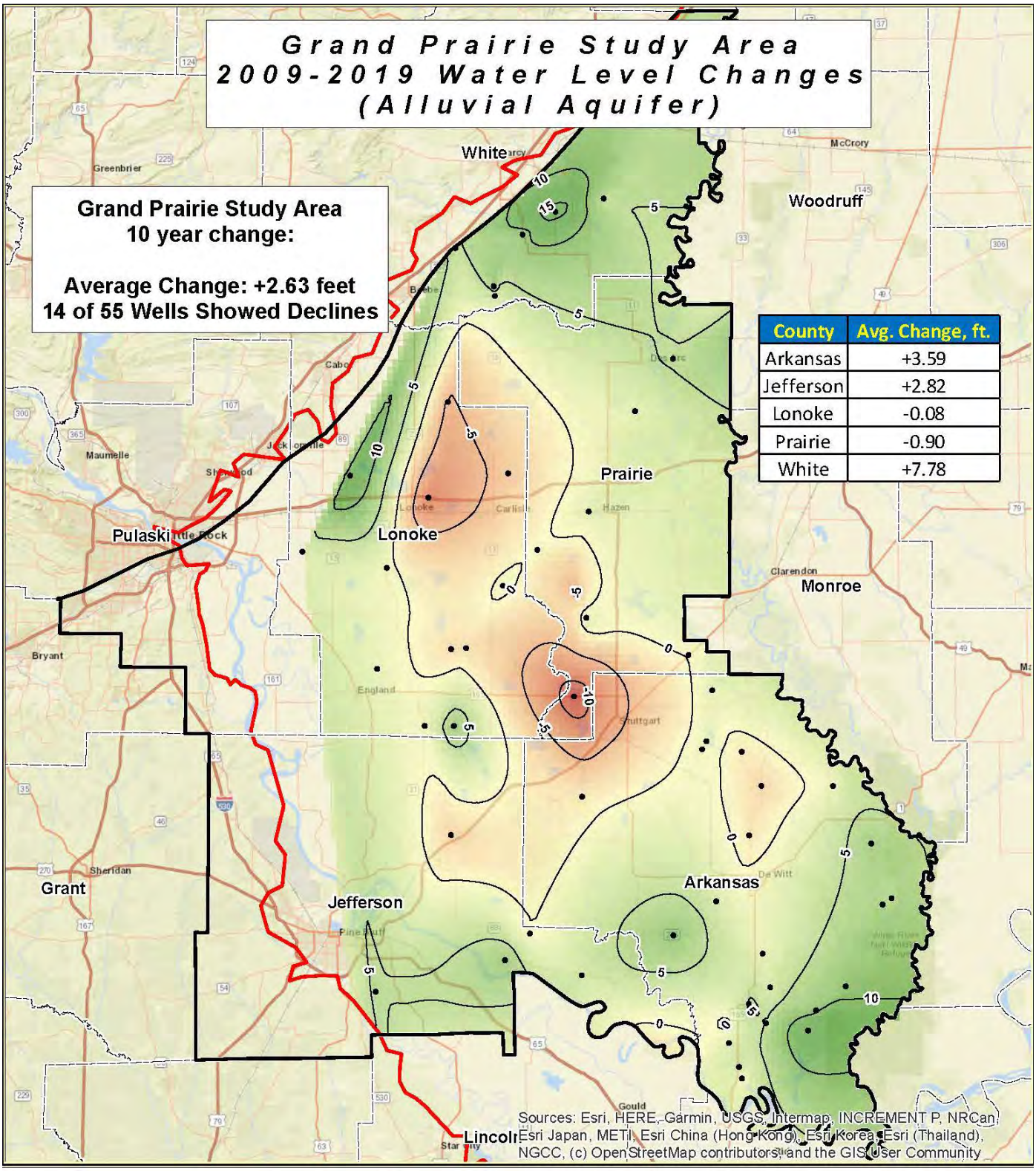
Figure 16



0 5 10 20 30 Miles

Legend

Ten Year Alluvial Change
- High : +12 Feet
- Low : -12 Feet

- Data Points
- 5 Foot Contour Lines
- Grand Prairie Study Area
- Alluvial Extent

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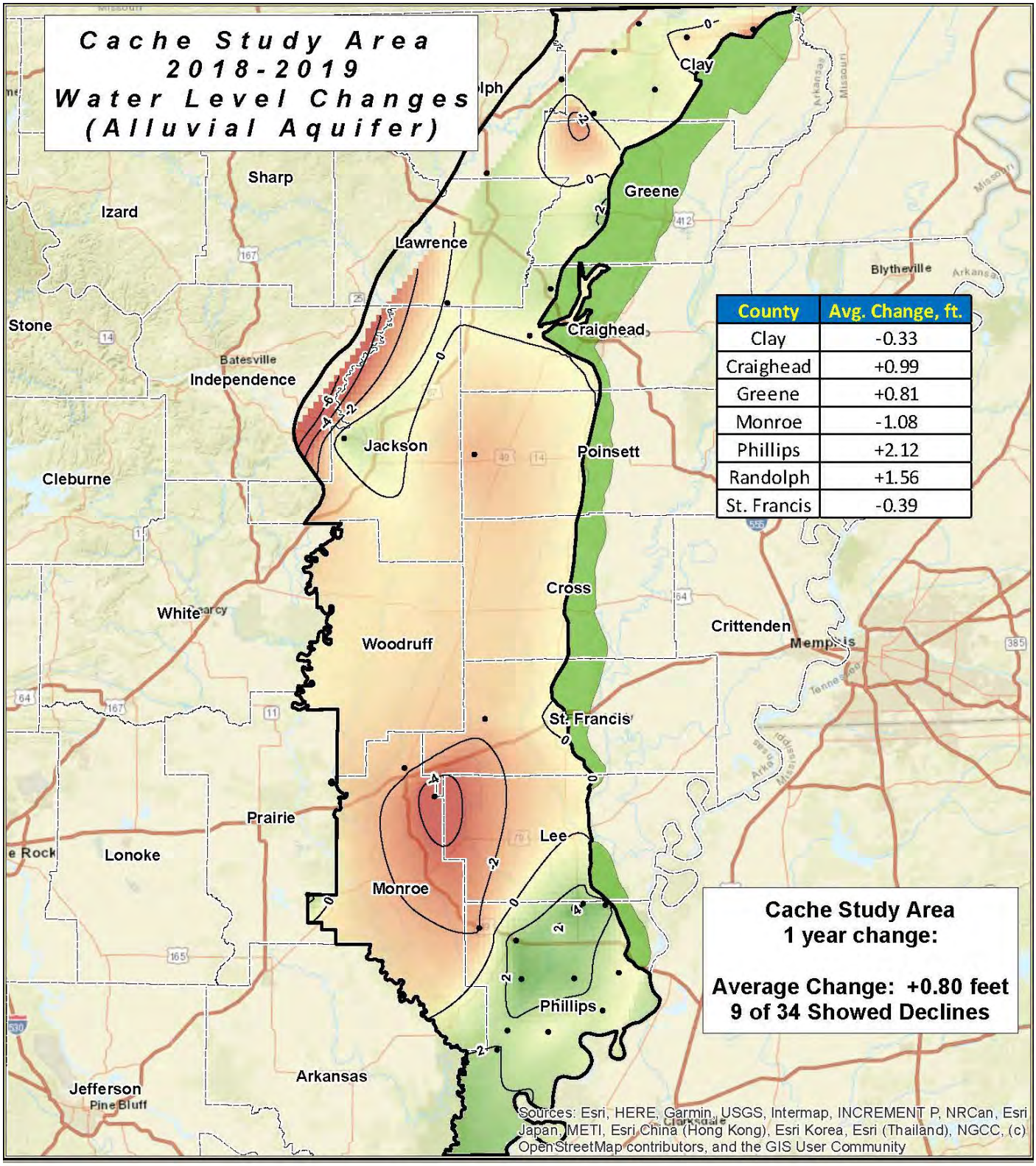
Figure 17



County	Avg. Change, ft.
Clay	-0.33
Craighead	+0.99
Greene	+0.81
Monroe	-1.08
Phillips	+2.12
Randolph	+1.56
St. Francis	-0.39

0 5 10 20 30 40 Miles

Legend

One Year Alluvial Change
High : +4 Feet
Low : -4 Feet

Data Points
2 Foot Contour Lines
Crowleys Ridge
Cache Study Area

N

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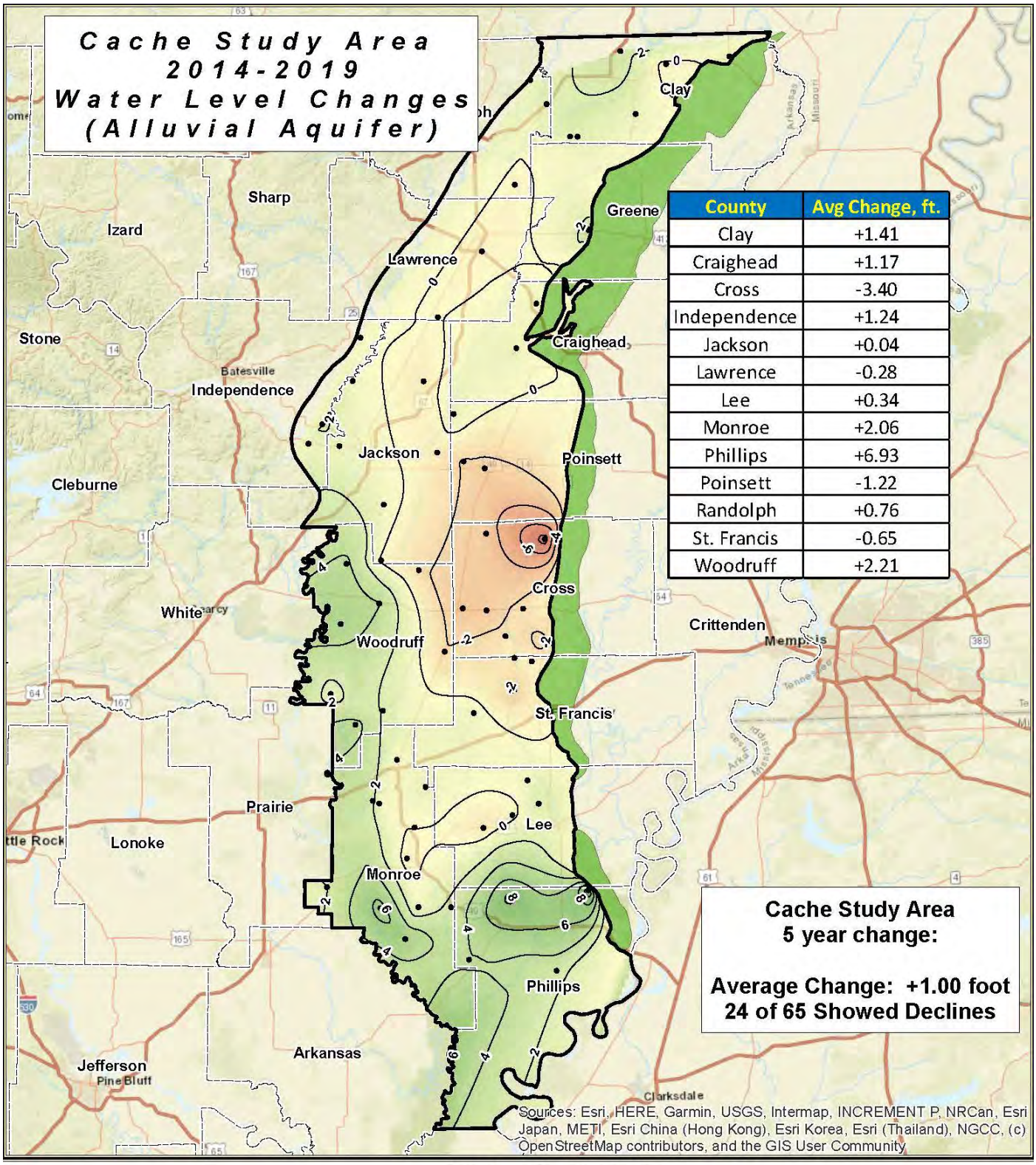
Figure 18



County	Avg Change, ft.
Clay	+1.41
Craighead	+1.17
Cross	-3.40
Independence	+1.24
Jackson	+0.04
Lawrence	-0.28
Lee	+0.34
Monroe	+2.06
Phillips	+6.93
Poinsett	-1.22
Randolph	+0.76
St. Francis	-0.65
Woodruff	+2.21

0 3 6 12 18 24 30 Miles

Legend

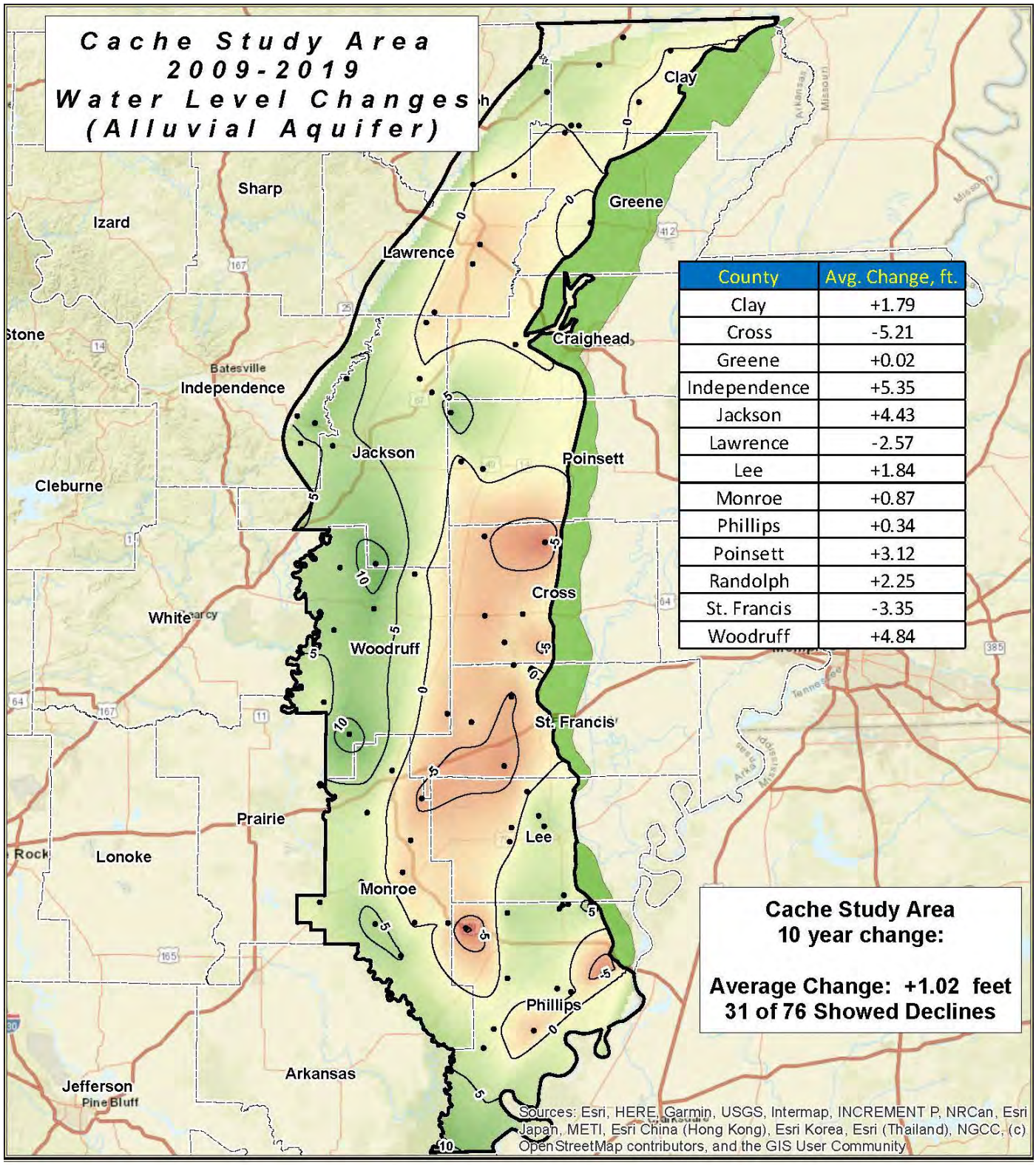
Five Year Alluvial Change
High : +9 Feet
Low : -9 Feet

- Data Points
- 2 Foot Contour Lines
- Crowleys Ridge
- Cache Study Area

N

NATURAL RESOURCES DIVISION

Figure 19



County	Avg. Change, ft.
Clay	+1.79
Cross	-5.21
Greene	+0.02
Independence	+5.35
Jackson	+4.43
Lawrence	-2.57
Lee	+1.84
Monroe	+0.87
Phillips	+0.34
Poinsett	+3.12
Randolph	+2.25
St. Francis	-3.35
Woodruff	+4.84

0 5 10 20 30 40 Miles

Legend

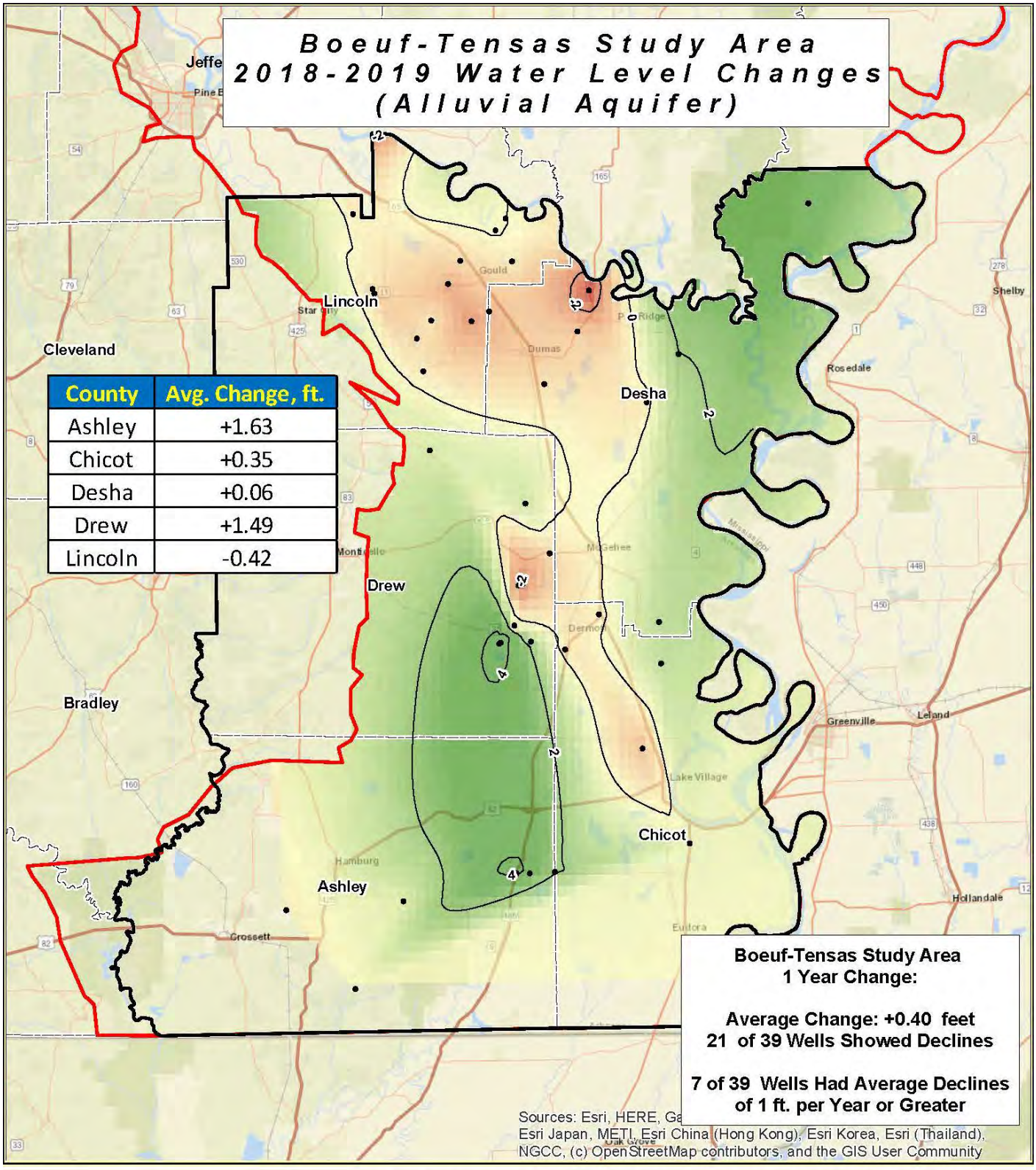
Ten Year Alluvial Change
- High : +11 Feet
- Low : -11 Feet

- Data Points
- 5 Foot Contour Lines
- Crowleys Ridge
- Cache Study Area

N

NATURAL RESOURCES DIVISION

Figure 20



County	Avg. Change, ft.
Ashley	+1.63
Chicot	+0.35
Desha	+0.06
Drew	+1.49
Lincoln	-0.42

Boeuf-Tensas Study Area
1 Year Change:

Average Change: +0.40 feet
21 of 39 Wells Showed Declines

7 of 39 Wells Had Average Declines of 1 ft. per Year or Greater

0 3 6 12 18 24 30 Miles

Legend

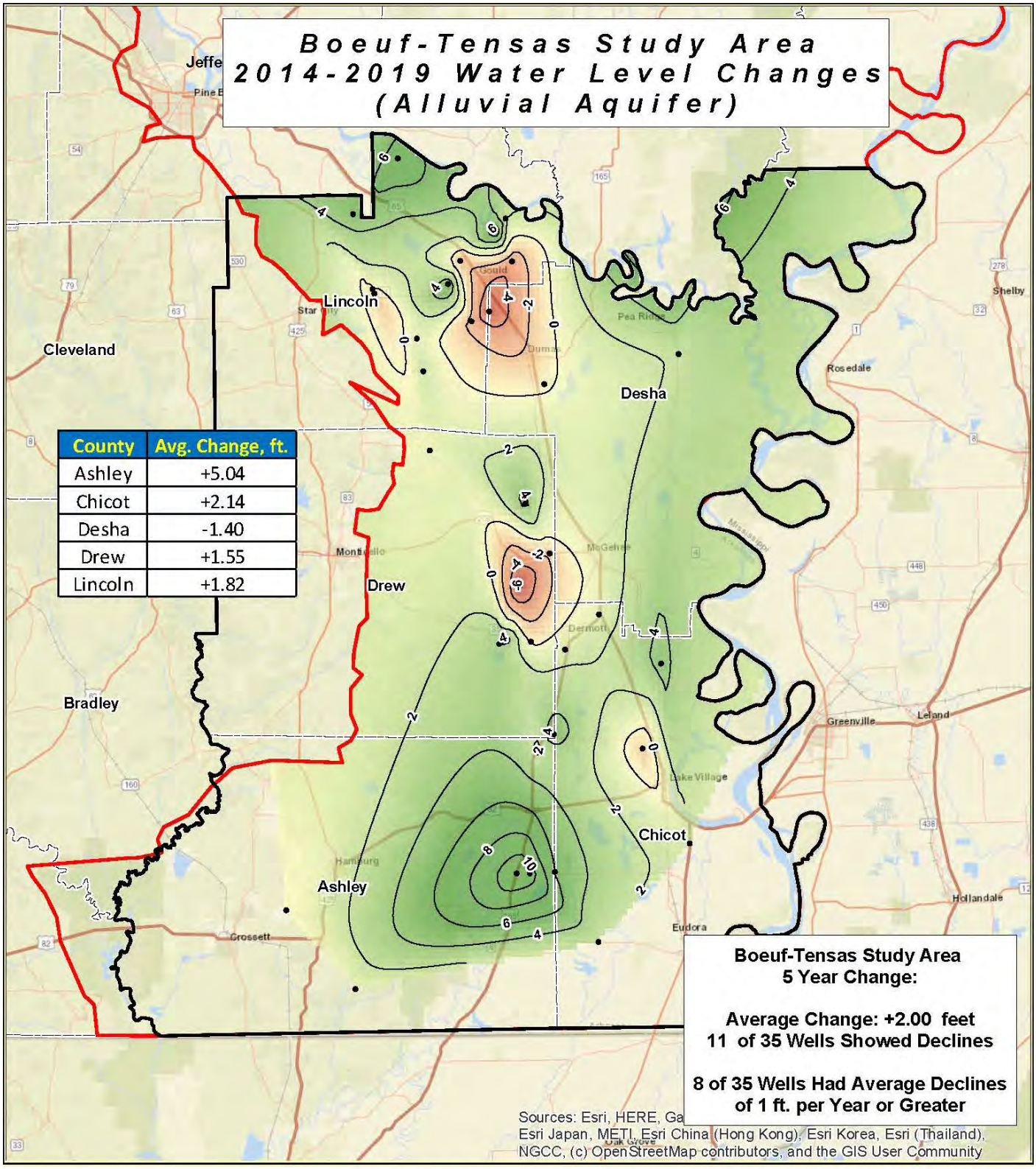
One Year Alluvial Change
High : +3 Feet
Low : -3 Feet

- Data Points
- 2 Foot Contour Lines
- Alluvial Extent
- Boeuf-Tensas Study Area

N

NATURAL RESOURCES DIVISION

Figure 21



County	Avg. Change, ft.
Ashley	+5.04
Chicot	+2.14
Desha	-1.40
Drew	+1.55
Lincoln	+1.82

0 3 6 12 18 24 30 Miles

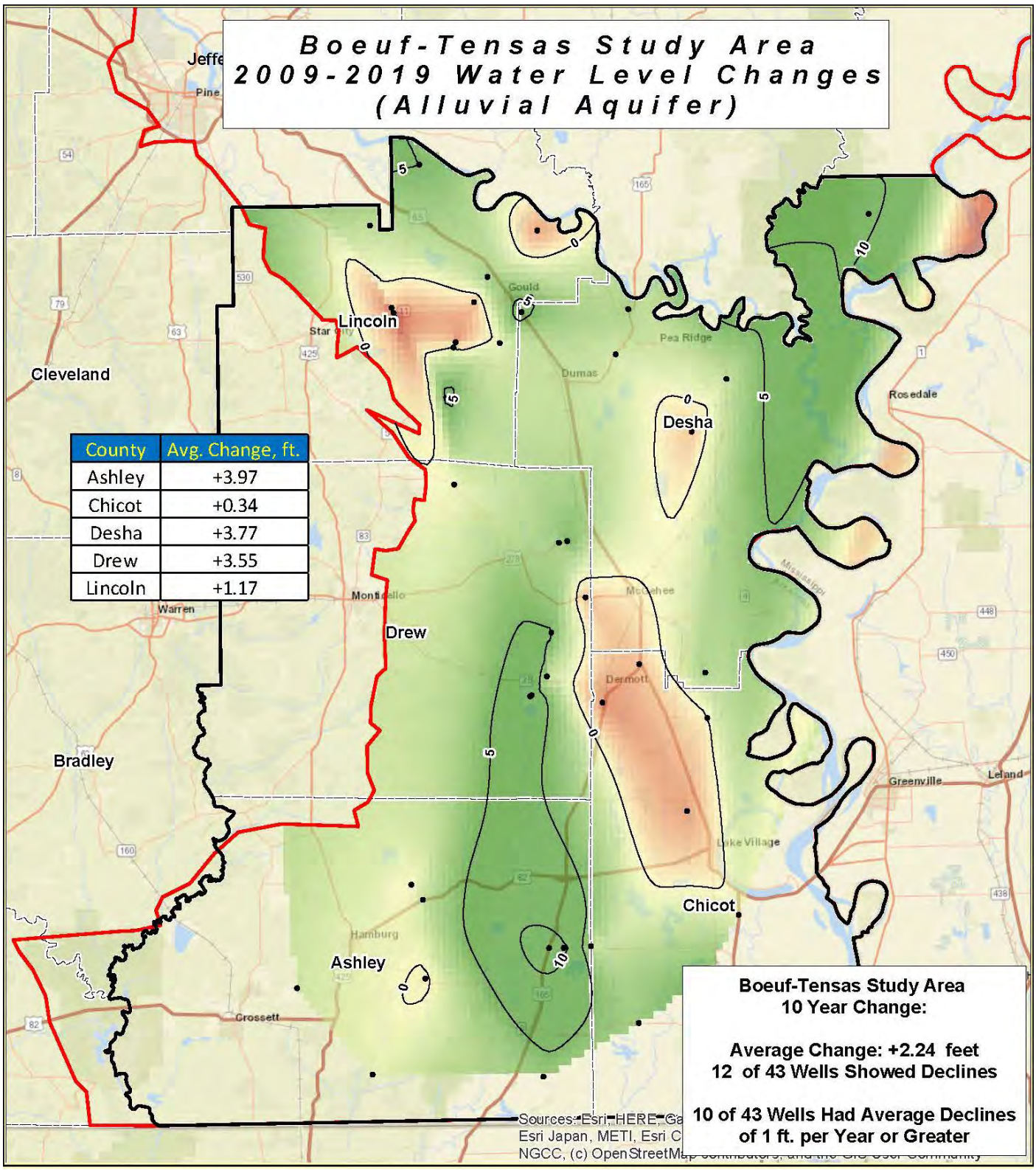
Legend

Ten Year Alluvial Change
High : +6 Feet
Low : -6 Feet

- Data Points
- 2 Foot Contour Lines
- AlluvialExtent
- Boeuf-Tensas Study Area

NATURAL RESOURCES DIVISION

Figure 22



County	Avg. Change, ft.
Ashley	+3.97
Chicot	+0.34
Desha	+3.77
Drew	+3.55
Lincoln	+1.17

0 3 6 12 18 24 30 Miles

Legend

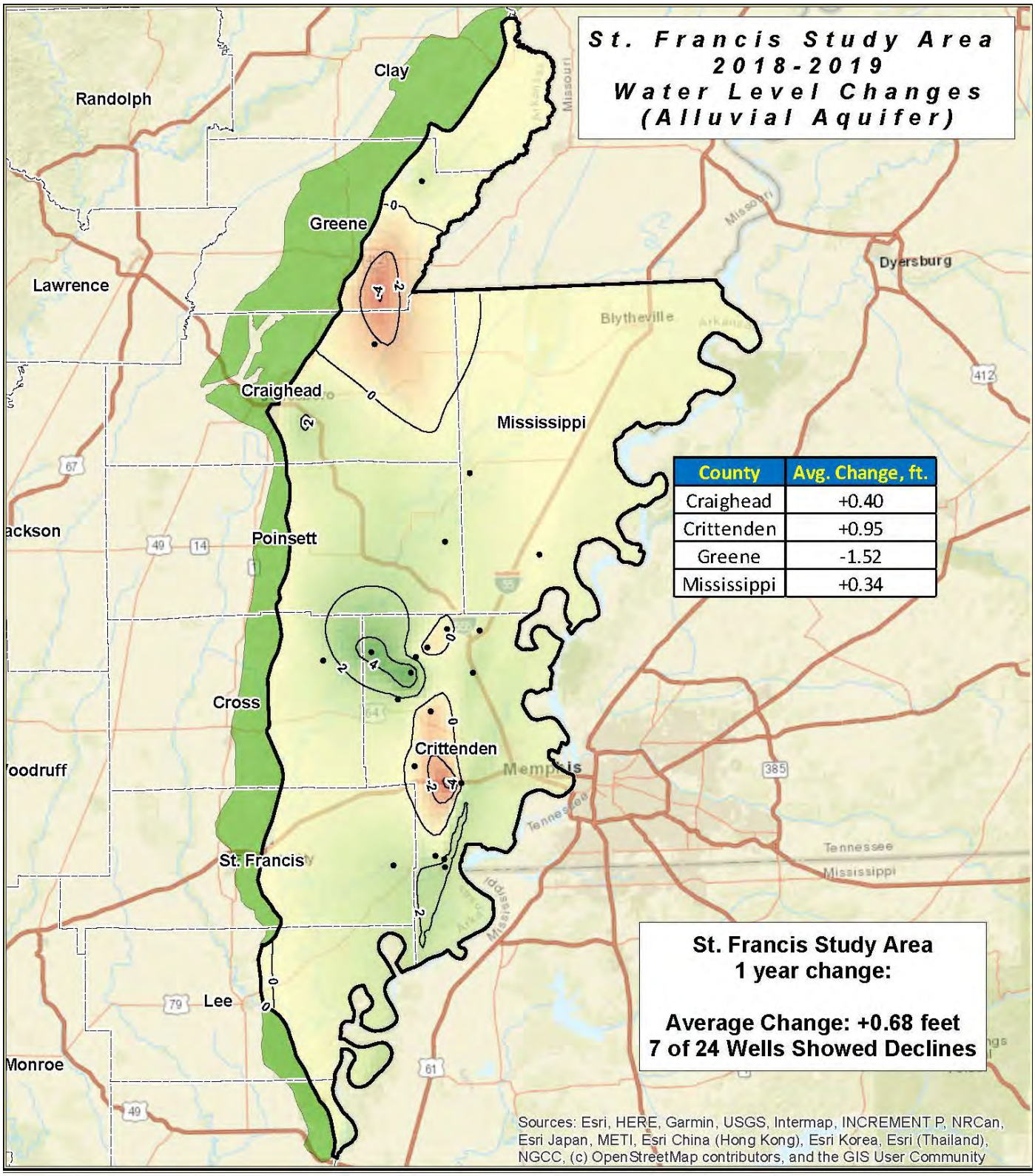
Ten Year Alluvial Change
- High : +5 Feet
- Low : -5 Feet

- Data Points
- 5 Foot Contour Lines
- Alluvial Extent
- Boeuf-Tensas Study Area

N

NATURAL RESOURCES DIVISION

Figure 23



NATURAL RESOURCES DIVISION

Figure 24

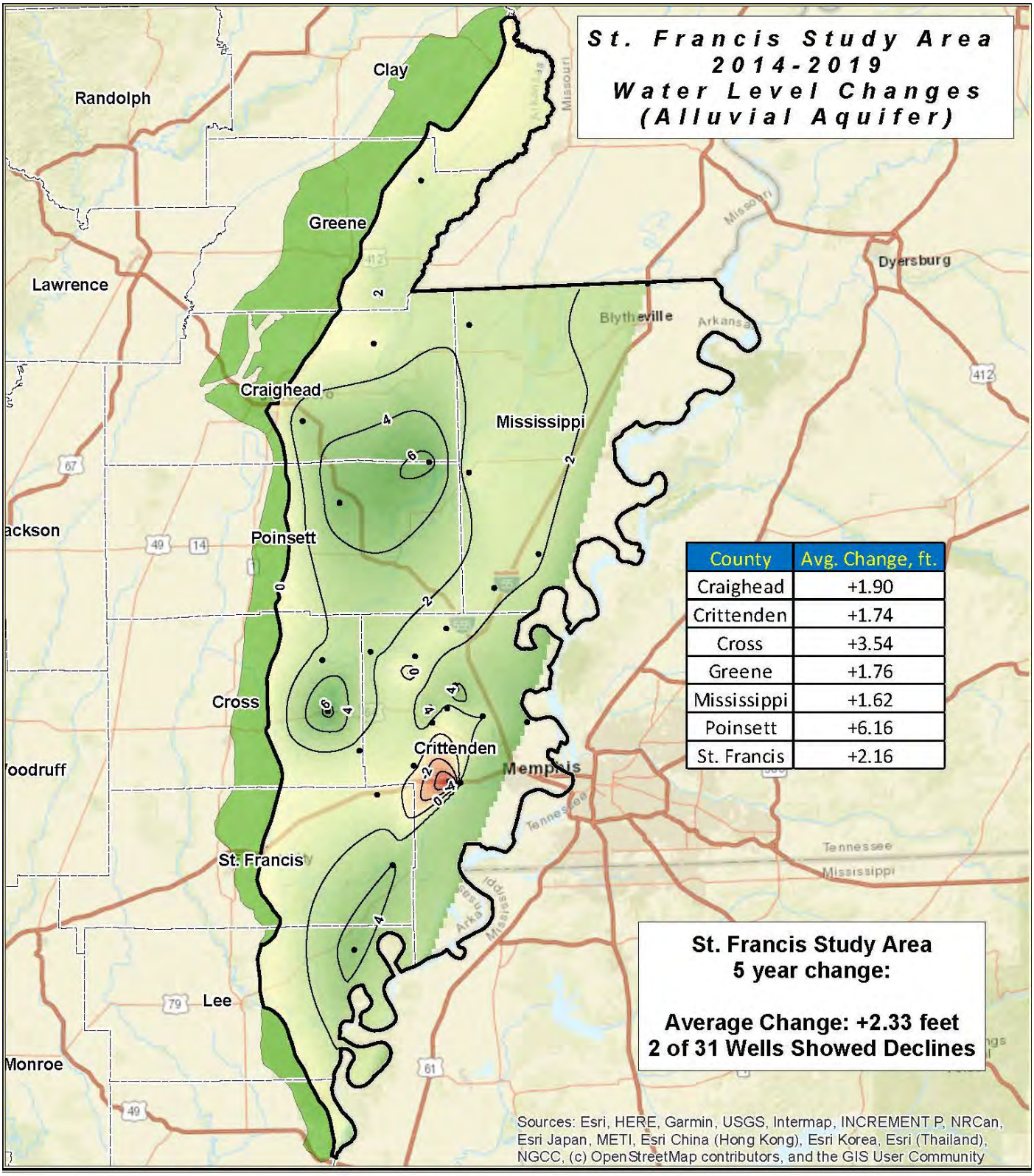

St. Francis Study Area
2014-2019
Water Level Changes
(Alluvial Aquifer)
Clay
Randolph
Greene
Lawrence
Craighead
Mississippi
Poinsett
Cross
Crittenden
St. Francis
Lee
Monroe
Dyersburg
Blytheville
Memphis
Tennessee
Missouri
Arkansas
Mississippi
County | Avg. Change, ft.
Craighead | +1.90
Crittenden | +1.74
Cross | +3.54
Greene | +1.76
Mississippi | +1.62
Poinsett | +6.16
St. Francis | +2.16
St. Francis Study Area
5 year change:
Average Change: +2.33 feet
2 of 31 Wells Showed Declines
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Legend
Five Year Alluvial Change
High : +6 Feet
Low : -6 Feet
Data Points
2 Foot Contour Lines
Crowleys Ridge
St. Francis Study Area
0 3 6 12 18 24 30
Miles
N
NATURAL RESOURCES DIVISION

Figure 25

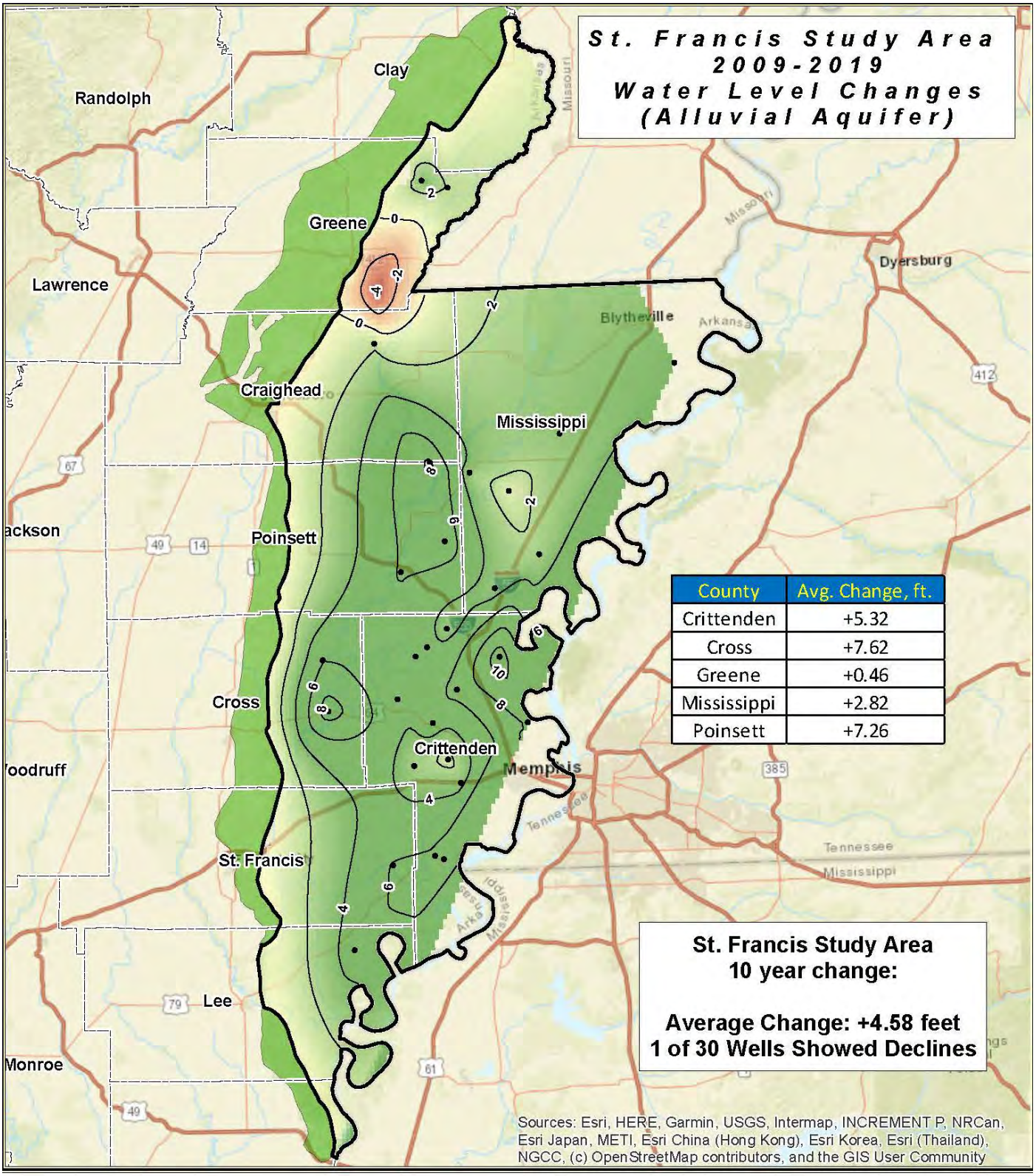
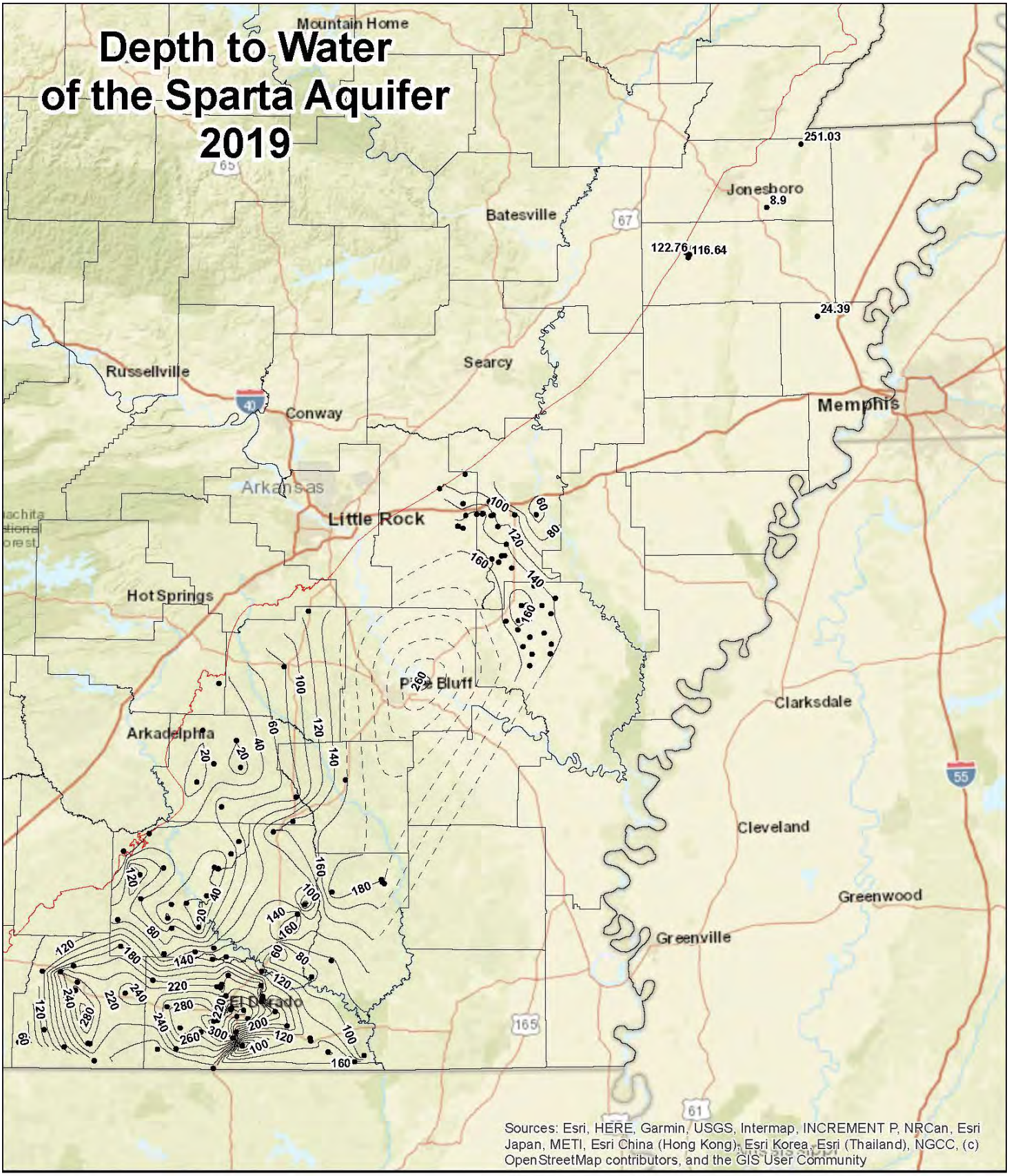

St. Francis Study Area
2009-2019
Water Level Changes
(Alluvial Aquifer)
Clay
Randolph
Greene
Lawrence
Craighead
Mississippi
Poinsett
Cross
Crittenden
St. Francis
Lee
Monroe
Dyersburg
Blytheville
Memphis
Tennessee
Missouri
Arkansas
Mississippi
County | Avg. Change, ft.
Crittenden | +5.32
Cross | +7.62
Greene | +0.46
Mississippi | +2.82
Poinsett | +7.26
St. Francis Study Area
10 year change:
Average Change: +4.58 feet
1 of 30 Wells Showed Declines
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Legend
Ten Year Alluvial Change
High : +4 Feet
Low : -4 Feet
Data Points
2 Foot Contour Lines
Crowleys Ridge
St. Francis Study Area
0 3 6 12 18 24 30
Miles
N
NATURAL RESOURCES DIVISION

Figure 26

Sparta Aquifer

The Sparta aquifer, also known as the Sparta Sand or Memphis Sand, is a Tertiary-aged water bearing assemblage composed mainly of sand with considerable amounts of silt, clay, shale, and lignite found in lenses throughout the unit. The formation outcrops along the western edge of the Embayment in south Arkansas and is overlain by the Mississippi River Valley alluvial aquifer throughout central and northeastern Arkansas. The Sparta Sand is the thickest sand unit in the Embayment system, ranging in thickness from 0 to 200 feet along the outcrop to up to 900 ft in the southeastern part of the state. Generally, the Sparta Sand is a confined aquifer system as it is confined by the underlying Cook Mountain formation and overlying Cane River formation. Lithological differences occur in the Sparta aquifer in southern Arkansas and northeastern Arkansas. In southern Arkansas, the Sparta aquifer is divided into two units, Greensand (upper Sparta) and the El Dorado sand (lower Sparta), by a confining layer. In northeastern Arkansas, the underlying Cane River and Carrizo Sand formations become sand and are generally indistinguishable from the Sparta Sand; because of this, the three formations are grouped together and referred to as the Memphis Sand, or the Memphis Aquifer, in this region. (Kresse, T. M., et al., 2014.)

Groundwater levels were collected from 152 water wells in the Sparta/Memphis aquifer throughout the south and east portions of Arkansas in spring 2019. It should be noted that there was a shortage of Sparta measurements this year, particularly throughout the Beouf-Tensas, Cache, and St. Francis Study Areas. Figure 27 depicts the 2019 potentiometric surface as depth to water values for the Sparta/Memphis aquifer.



Legend

- 20 Foot Contour Lines
- Approximate 20 Foot Contour Lines
- Data Points
- Sparta Boundary
- County Boundaries

N W E S

0 10 20 40 60 80 Miles

NATURAL RESOURCES DIVISION

Figure 27

Water Level Trends

Water level data from the 152 wells collected in spring 2019 were compared with historical data in one, five and ten-year intervals. The one-year interval had 123 comparable wells giving a total average water level change of +3.09 feet with 35 (28.46%) of the wells in decline. Water level data for 124 comparable wells were found for the five-year interval with a total average change of +9.88 with 17 (13.71%) wells in decline. As for the ten-year interval, shared water level data was compared for 116 wells with total average water level change of +13.30 with 17 (14.66%) wells in decline. These figures summarize the entire dataset but do not provide an accurate characterization of the entire aquifer as the data are mostly concentrated in parts of the Grand Prairie and South Arkansas regions. Due to the lack of data, aquifer-wide water level change maps were not created. One, five- and ten-year change maps were only created for the Grand Prairie and South Arkansas Study Areas where substantial data exists.

In the Grand Prairie, overall water levels in the Sparta show a study area-wide average water level changes of +4.29, +10.95, and +3.37 feet throughout the one, five- and ten-year intervals, respectively. The primary area with consistently declining water level change values is central Lonoke county where negative change values occur throughout each time interval. Arkansas County wells and the Jefferson County well have positive average water level change values across the three time periods. Prairie County has positive average water level change values in the one- and five-year periods but has a negative change value of -0.36 feet in the ten-year due to declining wells on the west side of the county.

Overall recovery continues in the areas where historical drawdown has been the most significant in South Arkansas with the study area having positive average water level change values of +2.77, +10.62, and +20.05 feet in the one, five- and ten-year intervals, respectively. The 10-year change only had 4 wells in decline across the entire study area. The areas of most significant recovery are Union and southern Ouachita County where several wells have positive water level change values greater than +50 feet.

As previously mentioned, there was a shortage of data collected for the Sparta in spring 2019 with the Beouf-Tensas study area having no data and the Cache and St. Francis study areas having only a few data points. The few wells that were measured had little to no comparable historical data and maps were not generated for these areas. However, these wells and their values can be found on Figure 27 and in the Change Table (Appendix B).

While positive average water level changes are present throughout this year's data for the Sparta, decline in the potentiometric surface in the aquifer is expected to continue due to overuse. There has been a statewide increase in water use in the Sparta from 139 million gallons per day (Mgal/d) in 1970 to approximately 160 Mgal/d in 2015. The estimated sustainable yield for the aquifer is 87 Mgal/d leaving an unmet demand of approximately 73 Mgal/d. The most recent significant increase in water use from the Sparta aquifer has been for agriculture-irrigation in the Grand Prairie and Cache Study Areas. In 2018, it is estimated that 68 Mgal/d was used from the Sparta for irrigation; 78% of the estimated yield for the aquifer is being used for irrigation. Groundwater use will be further discussed in the Groundwater Use section below.

The following Figure 28 and Figure 29 present hydrographs from wells in the South Arkansas and Grand Prairie study areas, respectively. Within the cone of depression in Union and Columbia counties in South Arkansas recovery has be steady for approximately 20 years. In two of these hydrographs current water levels are near or above what they were in the 1960's or 1970's when the wells were first measured. In the Grand Prairie depression, the hydrographs show that wells have recovered slightly since approximately 2009-2012 when water levels were at their lowest in the period of record.

Figure 28. South Arkansas Critical Groundwater Area Hydrographs
Sparta Aquifer

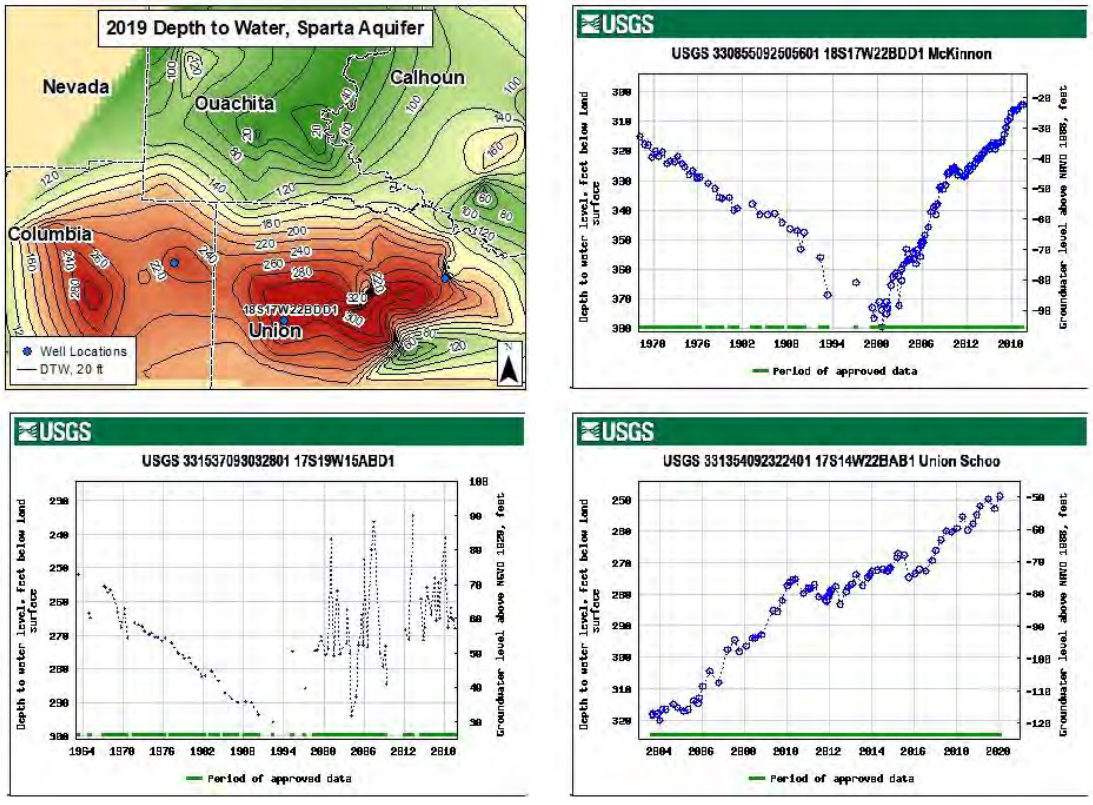
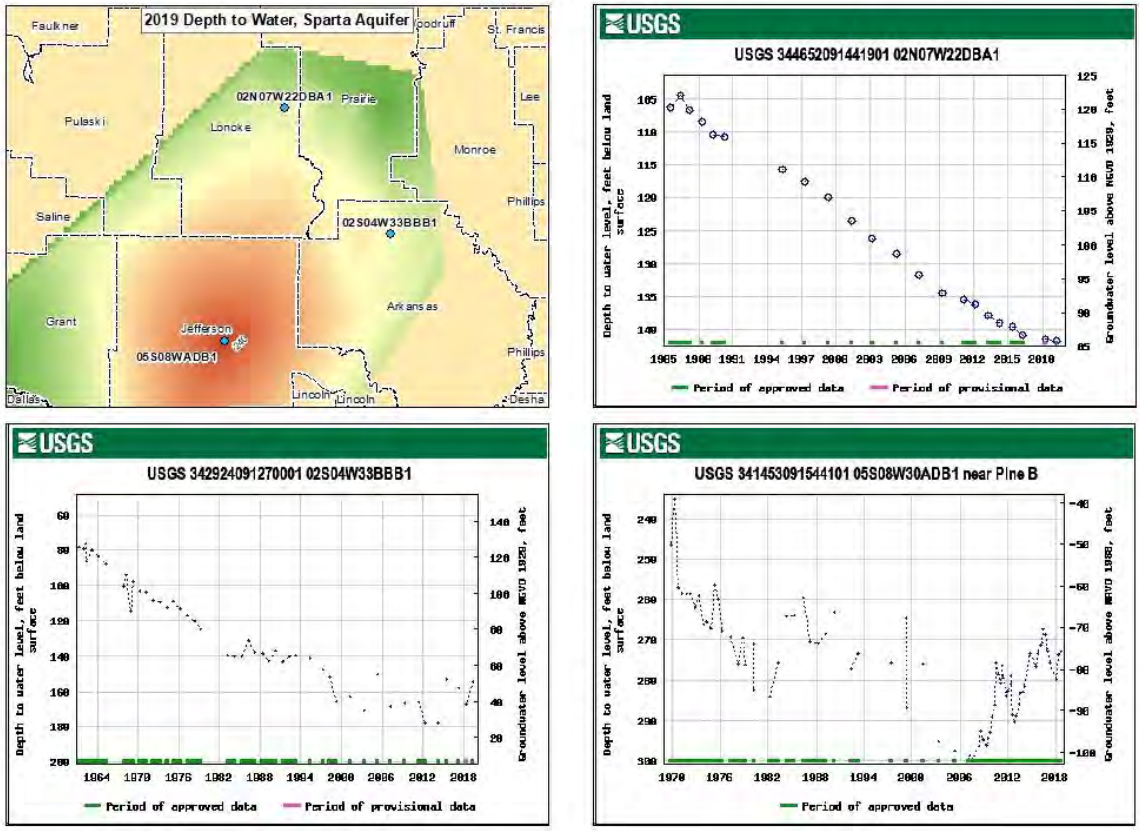


Figure 29. Grand Prairie Study Area Hydrographs
Sparta Aquifer



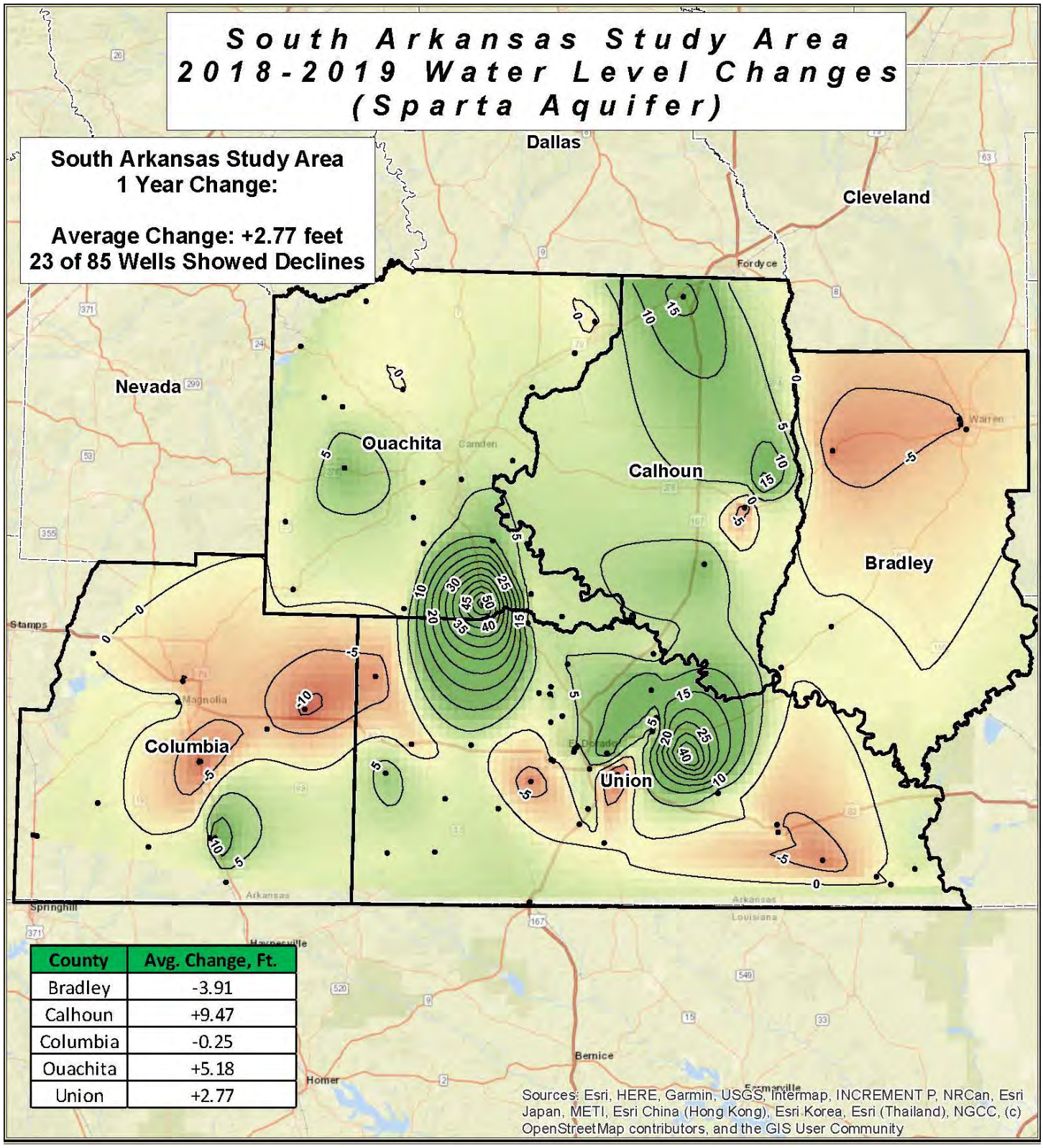
The following Figures 30-35 present the 2019 Sparta aquifer water level change data and well locations for the Grand Prairie and South Arkansas study areas over the one (1), five (5), and ten (10) year change intervals.

Appendix B presents a table of specific water-level monitoring data for the Sparta/Memphis aquifer from the 2018 monitoring period, as well as the 1, 5, and 10-year change comparisons.

South Arkansas Study Area 2018-2019 Water Level Changes (Sparta Aquifer)

South Arkansas Study Area
1 Year Change:

Average Change: +2.77 feet
23 of 85 Wells Showed Declines



County	Avg. Change, Ft.
Bradley	-3.91
Calhoun	+9.47
Columbia	-0.25
Ouachita	+5.18
Union	+2.77

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

0 2.5 5 10 15 20 25 Miles

Legend

One Year Change
- High : +11 Feet
- Low : -11 Feet

- Data Points
- 5 Foot Contour Lines
- South Arkansas Study Area

N

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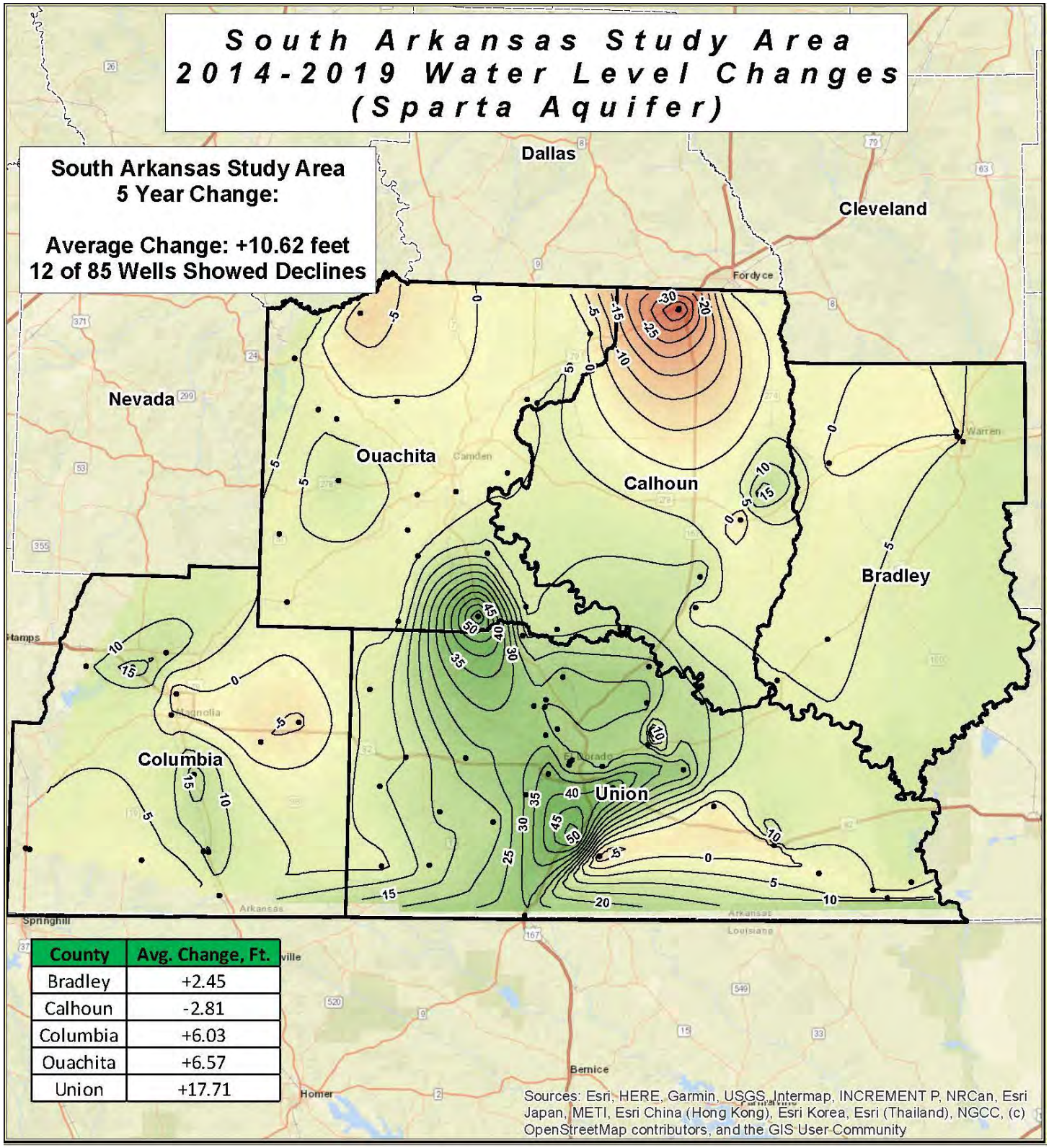
Figure 30



County	Avg. Change, Ft.
Bradley	+2.45
Calhoun	-2.81
Columbia	+6.03
Ouachita	+6.57
Union	+17.71

0 2.5 5 10 15 20 25 Miles

Legend

Five Year Change
High : +41 Feet
Low : -41 Feet

Data Points
5 Foot Contour Lines
South Arkansas Study Area

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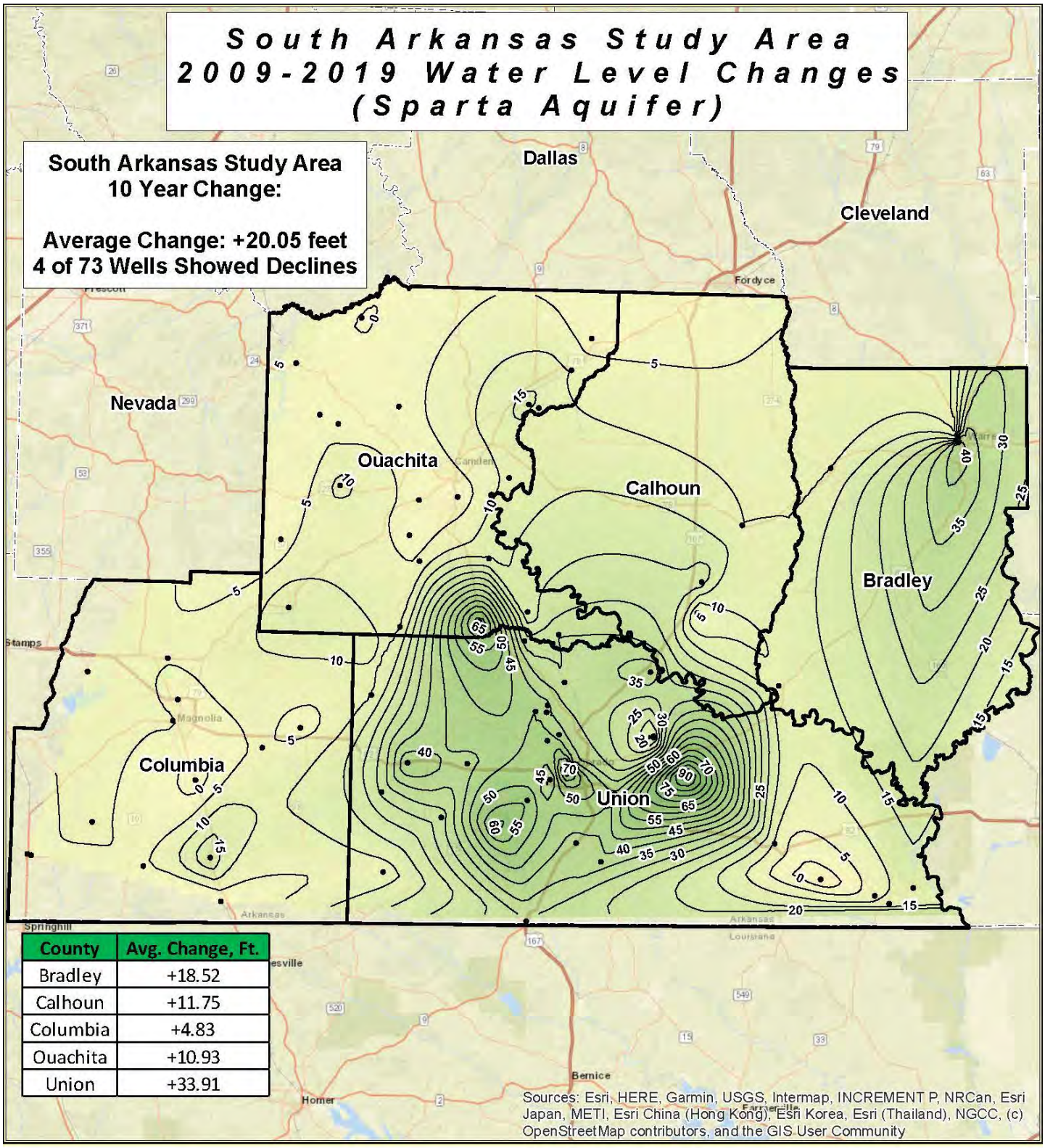
Figure 31



County	Avg. Change, Ft.
Bradley	+18.52
Calhoun	+11.75
Columbia	+4.83
Ouachita	+10.93
Union	+33.91

0 2.5 5 10 15 20 25 Miles

Legend

Ten Year Change
High : +80 Feet
Low : -80 Feet

Data Points
5 Foot Contour Lines
South Arkansas Study Area

N

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Figure 32

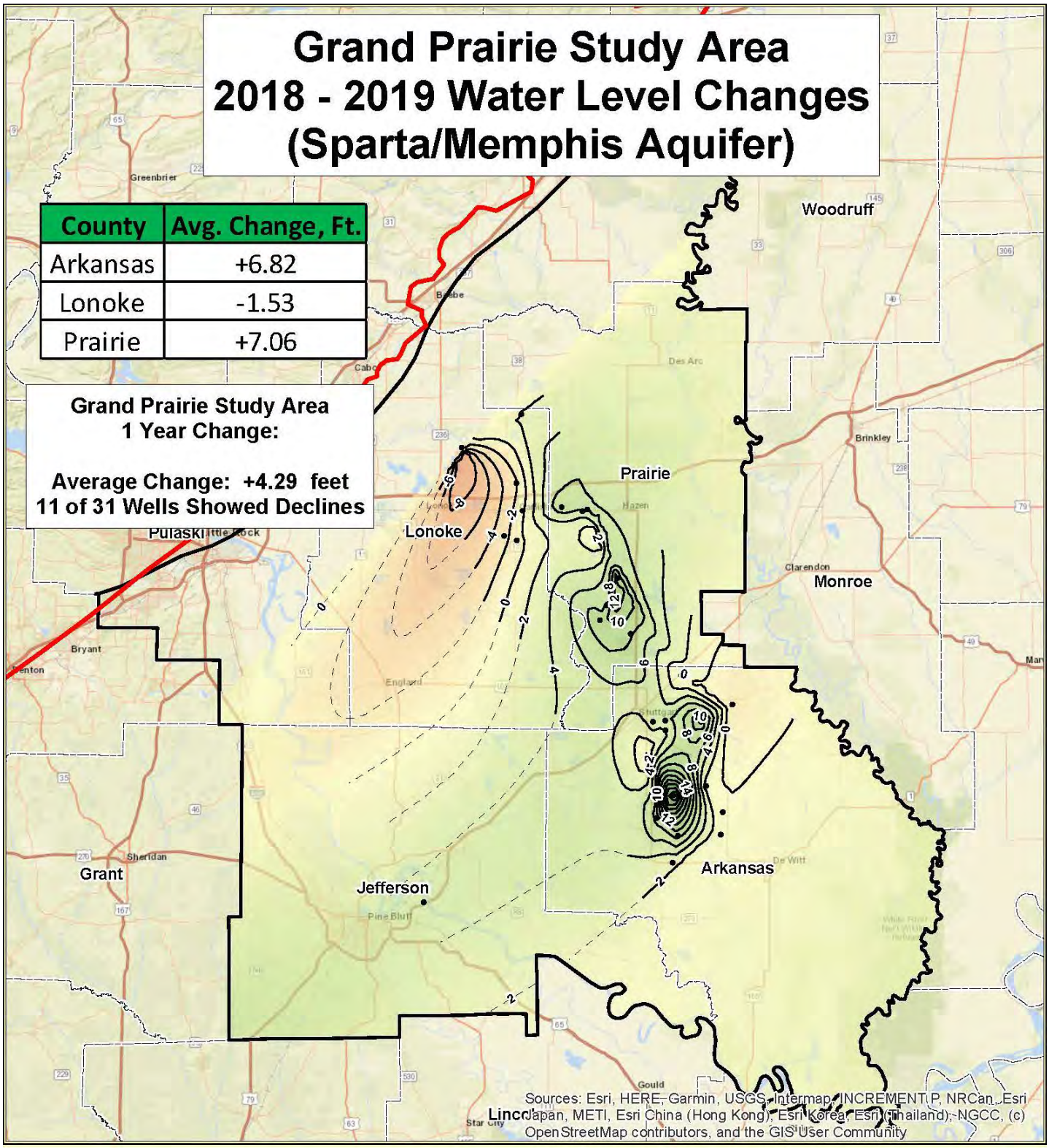
Grand Prairie Study Area
2018 - 2019 Water Level Changes
(Sparta/Memphis Aquifer)
County | Avg. Change, Ft.
Arkansas | +6.82
Lonoke | -1.53
Prairie | +7.06
Grand Prairie Study Area
1 Year Change:
Average Change: +4.29 feet
11 of 31 Wells Showed Declines
Woodruff
Prairie
Lonoke
Pulaski
Monroe
Arkansas
Jefferson
Grant
Bryant
Brinkley
Clarendon
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
0 3 6 12 18 24 30
Miles
Legend
One Year Change
High : +20 Feet
Low : -20 Feet
Data Points
2 Foot Contour Lines
Sparta Boundary
Grand Prairie Study Area
N
NATURAL RESOURCES DIVISION

Figure 33

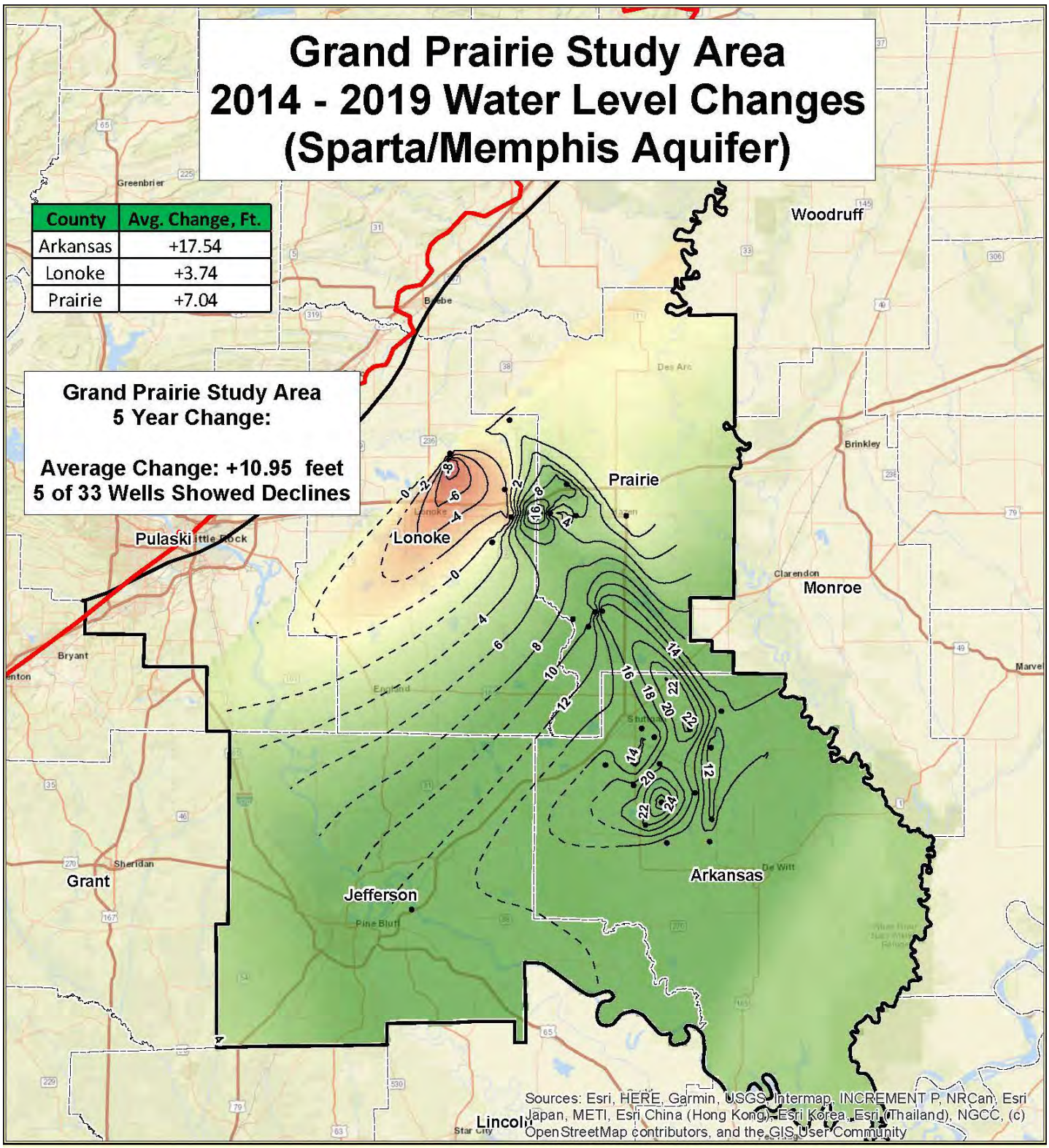
Grand Prairie Study Area
2014 - 2019 Water Level Changes
(Sparta/Memphis Aquifer)
County | Avg. Change, Ft.
Arkansas | +17.54
Lonoke | +3.74
Prairie | +7.04
Grand Prairie Study Area
5 Year Change:
Average Change: +10.95 feet
5 of 33 Wells Showed Declines
Prairie
Lonoke
Pulaski
Woodruff
Brinkley
Monroe
Clarendon
Bryant
Grant
Sheridan
Jefferson
Pine Bluff
Arkansas
De Witt
Lincoln
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
0 3 6 12 18 24 30
Miles
Legend
Five Year Change
High : +9 Feet
Low : -9 Feet
Data Points
2 Foot Contour Lines
Sparta Boundary
Grand Prairie Study Area
N
NATURAL RESOURCES DIVISION

Figure 34

Grand Prairie Study Area 2009 - 2019 Water Level Changes (Sparta/Memphis Aquifer)

County	Avg. Change, Ft.
Arkansas	+11.42
Lonoke	-5.20
Prairie	-0.36

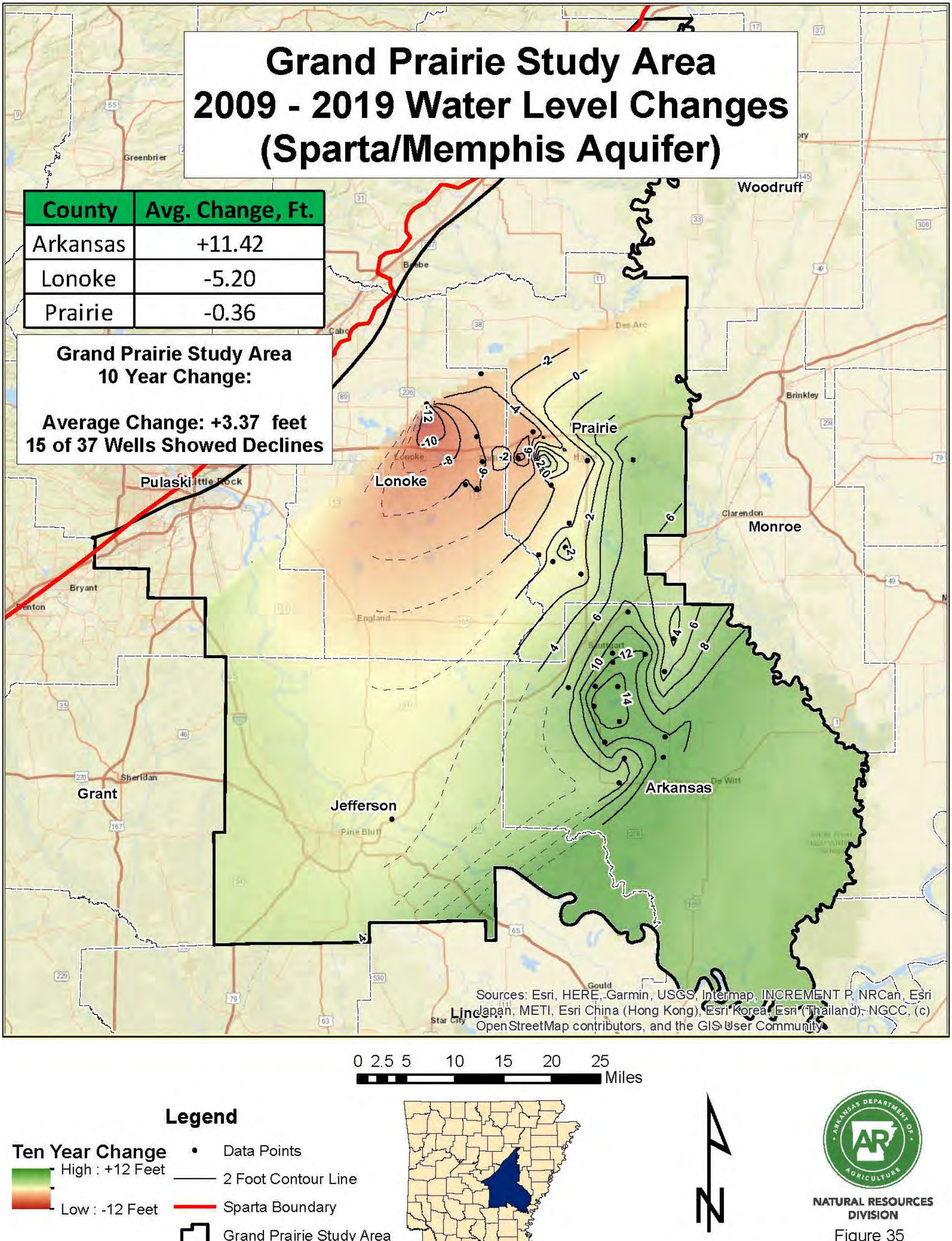

Figure 35

Groundwater Use

Registered Wells

In accordance with Act 1051 of 1985, all wells in Arkansas that have the capacity to produce fifty thousand (50,000) gallons per day must be registered with the NRD. Domestic wells are exempt. The quantity used must be reported by March 1st of the following year. USGS reports that there are approximately 50,000 registered wells in the State and over 97% are agricultural wells used primarily for irrigation eastern Arkansas. The remaining approximate 3% reported wells are used predominately for commercial, industrial, and public water supply purposes.

Reported Water Use

In 2015 an estimated total of 8,254.60 million gallons per day (Mgal/d) of water were reportedly withdrawn from all the state's aquifers. The greatest reported volumes are from the alluvial and Sparta aquifers, with approximately 7,636.08 Mgal/d being used from the alluvial and approximately 160 Mgal/d being used from the Sparta. The 2015 total water use data is still the most recent accurate figure for total water use across the state for various reasons; however, reported agricultural-irrigation water use numbers for 2018 have been provided by the USGS as being nearly complete, as the dataset does not contain the results of the mail-out reporting forms. The remaining water use data, non-agricultural/non-irrigation, for 2018 are still being processed.

Reported agricultural-irrigation water use in 2018 estimates that a total of 7,590 Mgal/d of groundwater was used for irrigation from all aquifer sources in eastern Arkansas, with 6,570 Mgal/d from 42,452 wells in the alluvial aquifer and 68 Mgal/d from 286 wells in the Sparta aquifer (USGS, 2019). In 2015, reported irrigation groundwater use is estimated to have been 7,434 Mgal/d from 48,410 wells in the alluvial aquifer and 66 Mgal/d from 285 wells in the Sparta aquifer. Based on these numbers, irrigation groundwater use from the alluvial aquifer in 2018 was approximately 864 Mgal/d less than in 2015 with nearly 6,000 fewer wells reported. Reported irrigation groundwater use from the Sparta aquifer in 2018 increased by 2 Mgal/d from 2015 with one more well reported. The discrepancy in the number of wells reported is due partly to the fact that mail-out report forms for 2018 have not yet been received. However, 2018 mail-out forms are expected to be fewer than 6,000 and reported agricultural-irrigation groundwater use is anticipated to be reduced from 2015 reported use.

The estimated sustainable yield of the alluvial aquifer is 3,374 Mgal/d meaning that only 51% of our estimated 2018 irrigation groundwater use is sustainable using an incomplete, conservative estimate. Regarding the Sparta aquifer, 2018 irrigation water use estimates of 68 Mgal/d would account for approximately 78% of the estimated sustainable yield of 87 Mgal/d. Total water use numbers estimate that 160 Mgal/d is being used from the Sparta aquifer, mostly used for municipal and industrial purposes. Based on these figures, only 54% of the total water use from the Sparta is sustainable.

Historically, counties that report the largest groundwater withdrawals from the alluvial aquifer are the same counties with groundwater depletion issues. Using 2018 water use numbers Arkansas, Lonoke, Poinsett, Woodruff, Clay, Desha, and Prairie counties used the most groundwater for irrigation. This is mostly consistent with the areas of significant drawdown in the alluvial aquifer.

Figure 36 presents the 2018 agricultural-irrigation water use as reported at the time of this report.

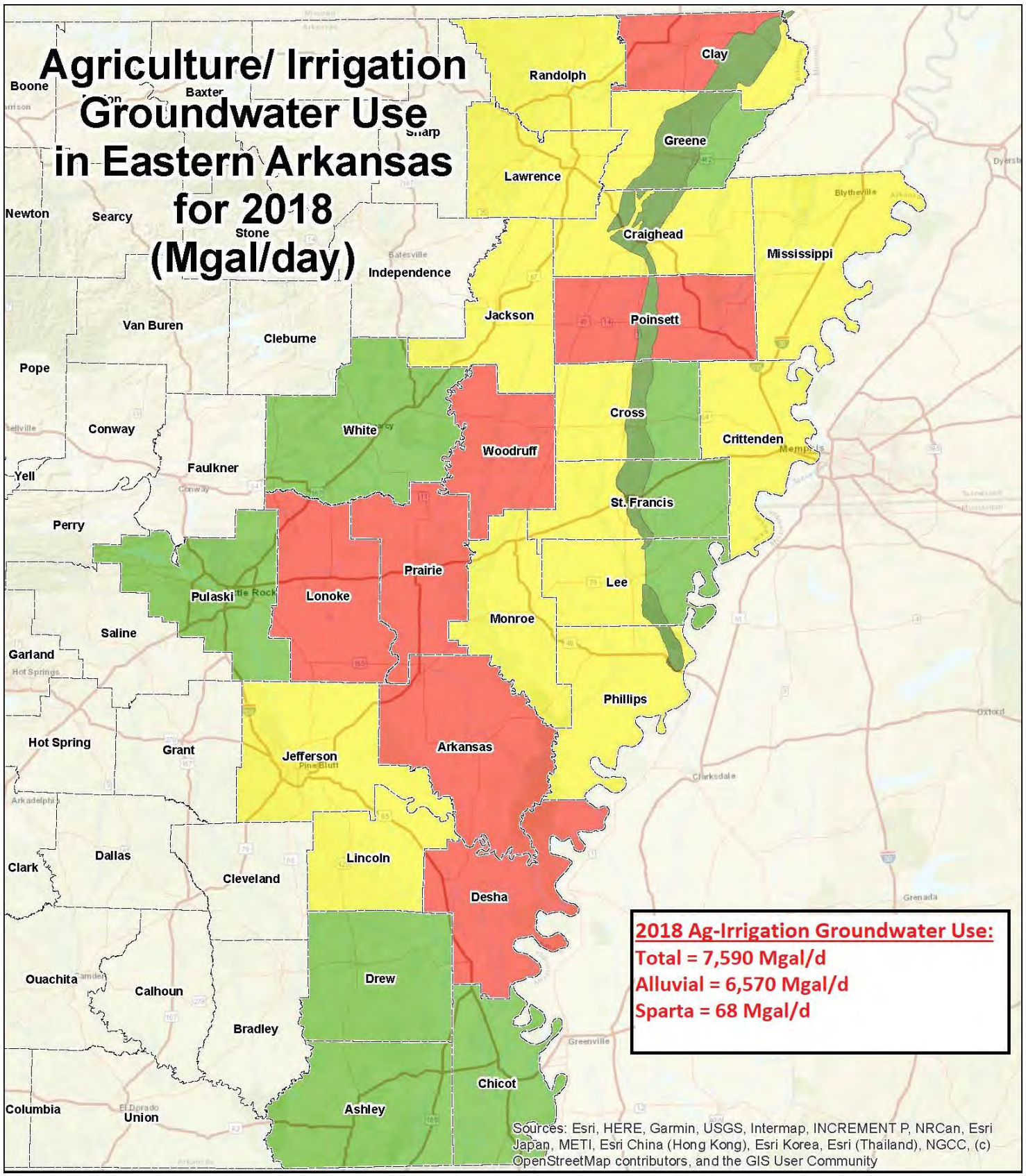
Agriculture/ Irrigation Groundwater Use in Eastern Arkansas for 2018 (Mgal/day)
Boone
Baxter
Newton
Searcy
Stone
Independence
Van Buren
Cleburne
Pope
Conway
White
Woodruff
Faulkner
Yell
Perry
Pulaski
Lonoke
Prairie
Saline
Garland
Hot Spring
Grant
Jefferson
Arkansas
Dallas
Clark
Cleveland
Lincoln
Desha
Ouachita
Calhoun
Drew
Bradley
Columbia
Union
Ashley
Chicot
Randolph
Clay
Greene
Lawrence
Craighead
Mississippi
Jackson
Poinsett
Cross
Crittenden
St. Francis
Lee
Monroe
Phillips
2018 Ag-Irrigation Groundwater Use:
Total = 7,590 Mgal/d
Alluvial = 6,570 Mgal/d
Sparta = 68 Mgal/d
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Legend
0 to 100 Mgal/day
100 to 300 Mgal/day
Greater than 300 Mgal/day
No Data Available
Crowleys Ridge
N
W
E
S
0 5 10 20 30 40
Miles
*Data Obtained from United States Geological Survey
The water use values shown in the counties divided by Crowley's Ridge represent the separation of water use based on location East or West of the ridge
NATURAL RESOURCES DIVISION

Figure 36

Water Conservation Tax Incentive Program

The Water Conservation Tax Incentive Program encourages water users to invest in water conservation practices by offering a tax credit equal to 10% (statewide) or 50% (in a Critical Groundwater Area) of the cost to implement the practice. The following water conservation practices are eligible for tax credits: (1) the construction of impoundments to utilize available surface water and reduce our dependence on ground water; (2) the conversion from ground water use to surface water use when surface water is available; (3) land leveling to reduce agricultural irrigation water use; and (4) the installation of water meters to monitor ground water usage.

Figure 37 shows the locations of the water conservation projects that were approved for a tax credit for the years 2016 through 2019. A summary table of the number and types of conservation practices approved for a tax credit can be found below.

Approved Tax Credits 2016 - 2019				
Conservation Practice	**Year Approved**			
	2016	**2017**	**2018**	**2019**
Water Meters	22	12	13	9
Impoundments	10	8	15	27
Land Leveling	64	45	22	12
Surface Water Conversions	0	0	23	9
Total Approved	96	65	73	57

Each applicant is required to list the estimated total acre-footage of groundwater used in the year prior to applying for a tax credit and the estimated total acre-footage of groundwater used after the project has been completed. Based on the 291 tax credit projects that were approved in 2016 through 2019, an estimated 129,593 acre-feet per year of groundwater will be conserved after these projects have been completed and implemented. In 2019, a total of 57 conservation practices were approved on 6,322 acres of land in Arkansas.

Water Conservation Tax Credits Approved from 2016 to 2019

NATURAL RESOURCES DIVISION

Project Type	Number Of Projects Approved			
	2016	2017	2018	2019
Impoundments	22	12	13	9
Land Leveling	64	45	22	27
Surface Water Conversions	10	8	15	12
Water Meter Installations	0	0	23	9
Total	96	65	73	57

Legend

- 2016 Land Leveling
- 2016 Impoundments
- 2016 Surface Conversions
- 2017 Land Leveling
- 2017 Impoundments
- 2017 Surface Water Conversions
- 2018 Land Leveling
- 2018 Impoundments
- 2018 Surface Water Conversions
- 2018 Water Meters
- 2019 Land Leveling
- 2019 Impoundments
- 2019 Surface Water Conversions
- 2019 Water Meters
- County Boundaries

0 5 10 20 30 40 Miles

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailar OpenStreetMap contributors, and the GIS User Community

Figure 37

Summary

The Groundwater Protection and Management Report for 2019 is a summary of the activities and significant findings of the Arkansas Department of Agriculture – Natural Resources Division (NRD) Groundwater Section staff. This report is prepared annually in response to legislative mandates that direct the NRD to study the state's groundwater resources.

The purposes of the programs outlined in this report are to monitor the condition of the state's groundwater resources and to evaluate trends in water-level and water-quality fluctuations. The NRD, the USDA-NRCS, and the USGS monitor up to approximately 1,000 water wells each year for water levels and prescribed water quality parameters. This monitoring is accomplished through a cooperative agreement with the NRD and the USGS.

In the Mississippi River Valley alluvial aquifer, 2019 spring water-level measurements showed positive average changes when compared to historical data in one, five- and ten-year intervals with values of +0.28, +1.41, and +2.24 feet, respectively. The areas with the most severe groundwater declines continue to be the Grand Prairie and Cache study areas, particularly in the areas of the aquifer furthest from a major surface water source i.e. the Arkansas, White, and Mississippi rivers. Some water level decline has been observed in the Beouf-Tensas study area, but these declines do not appear to be causing significant aquifer drawdown in the area.

In the Sparta/Memphis aquifer, significant data gaps are present in the Cache, St. Francis, and Beouf-Tensas study areas for 2019. The 2019 data shows average water level change values of +3.09, +9.88, and +13.30 feet in the one, five, and ten-year intervals, respectively. While aquifer-wide coverage was lacking, good data exists for the South Arkansas and Grand Prairie study areas. South Arkansas continues to see recovery in the areas where historical drawdown has been the most severe with most counties having positive average water level change values in the one- and five-year change intervals and all counties having positive average change values in the ten-year interval. Union County continues to experience the most recovery, having the greatest average change in the five- and ten-year intervals. In the Grand Prairie, Sparta wells have measured positive average change in Arkansas and Prairie counties in the one and five-year change interval while Lonoke county shows declines. In the ten-year period, Lonoke and Prairie counties have average declines, while Arkansas County continues to show a positive change.

While aquifer and study area wide averages may show that water levels are increasing over the 10-year period, it is important to realize that groundwater levels continue to decline in areas with the highest water use. In the Cache study area, wells Poinsett, Cross, and Woodruff show average declines. Arkansas is withdrawing groundwater from the alluvial and Sparta/Memphis aquifers in eastern and southern Arkansas at a rate far above that which is estimated to be sustainable. So long as water use from these aquifers continues to exceed sustainable yield, the resource will continue to be depleted. The NRD should continue to promote conservation, education, and the conjunctive use of ground and surface-water at rates that are sustainable for current and future water use needs.

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Appendix A

Alluvial Aquifer Water Level Monitoring Data

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Arkansas	02S04W11DBB1	34.542500	-91.404167	213.04	152	3/29/2019	98.56	130.64	32.08	24.55%	97.27	100.76	100.20	-1.29	2.20	1.64
Arkansas	02S04W19AA1	34.506350	-91.486031	205.00	155	3/15/2019	107.59	127.00	19.41	15.28%						
Arkansas	02S04W23DA1	34.512319	-91.398119	207.00	140	3/15/2019	95.39	133.00	37.61	28.28%						
Arkansas	02S05W09AA1	34.548339	-91.539619	220.00	162	3/15/2019	124.67	133.00	8.33	6.26%						
Arkansas	02S05W36DDD1	34.478519	-91.488119	212.00	140	3/15/2019	100.74	143.00	42.26	29.55%						
Arkansas	03S02W27ABB1	34.413333	-91.214444	197.00	87	4/3/2019	62.98	126.50	63.52	50.21%	62.32	64.04	64.10	-0.66	1.06	1.12
Arkansas	03S03W05CCD1	34.460556	-91.358889	201.00	145	3/29/2019	99.35	122.47	23.12	18.88%	98.77	100.25	98.10	-0.58	0.90	-1.25
Arkansas	03S03W27BBC1	34.415278	-91.328333	195.00	120	4/2/2019	95.19	137.00	41.81	30.52%	95.69	90.87	92.70	0.50	-4.32	-2.49
Arkansas	03S04W02BBB1	34.475278	-91.415000	197.63	116	3/29/2019	93.50	121.40	27.90	22.98%	93.39		95.00	-0.11		1.50
Arkansas	03S04W03DCA16	34.464722	-91.421944	205.00	126	4/11/2019	100.96	120.82	19.86	16.44%	100.62	101.65	101.87	-0.34	0.69	0.91
Arkansas	03S06W35ADD1	34.404444	-91.614167	190.00		3/27/2019	55.28	105.76	50.48	47.73%	55.30	59.99	54.10	0.02	4.71	-1.18
Arkansas	04S01W19AAD1	34.336667	-91.155278	196.00	157	4/3/2019	59.31	154.40	95.09	61.59%	60.57		67.00	1.26		7.69
Arkansas	04S03W17ADD1	34.350278	-91.349167	200.00		4/2/2019	110.34	145.10	34.76	23.96%	108.61	108.31	108.90	-1.73	-2.03	-1.44
Arkansas	04S04W35ABC1	34.309722	-91.410278	197.00		4/11/2019	103.49	166.70	63.21	37.92%	104.10	106.40		0.61	2.91	
Arkansas	04S06W15DBB1	34.356111	-91.640556	190.00	100	3/27/2019	34.72	113.00	78.28	69.27%						
Arkansas	05S01W16BAB1	34.263889	-91.124444	183.00		4/3/2019	41.55	170.46	128.91	75.63%	44.70	48.68	47.70	3.15	7.13	6.15
Arkansas	05S01W17CAD1	34.255833	-91.138889	180.00		4/3/2019	36.48	141.00	104.52	74.13%			42.70			6.22
Arkansas	05S04W14AAD1	34.263611	-91.403056	186.00	160	3/28/2019	91.11	167.00	75.89	45.44%	90.19		93.80	-0.92		2.69
Arkansas	05S04W32BBA1	34.219722	-91.472222	191.00		3/28/2019	54.18	168.31	114.13	67.81%	54.17	57.21	63.20	-0.01	3.03	9.02
Arkansas	05S04W34BAC1	34.219167	-91.434167	191.00	142	3/28/2019	66.58	166.00	99.42	59.89%	71.87			5.29		
Arkansas	06S02W03AB1	34.207889	-91.217306	188.00		4/2/2019	60.46	165.00	104.54	63.36%	64.80			4.34		
Arkansas	06S02W23DCD1	34.148611	-91.199722	188.00		4/2/2019	52.05	159.00	106.95	67.26%	54.23	62.65	61.00	2.18	10.60	8.95
Arkansas	06S03W10BBA1	34.193611	-91.330833	184.00	155	3/28/2019	79.59	164.03	84.44	51.48%	79.79	86.65	81.00	0.20	7.06	1.41
Arkansas	06S03W27AAA1	34.149167	-91.319722	183.14	132	4/2/2019	65.69	165.11	99.42	60.21%	63.84	68.11	68.10	-1.85	2.42	2.41
Arkansas	06S03W32DDA1	34.127778	-91.354167	180.00		3/28/2019	52.08	160.48	108.40	67.55%			57.99			5.91
Arkansas	07S02W04BBB1	34.117778	-91.247500	176.00		4/2/2019	35.65	158.83	123.18	77.56%	38.08		44.50	2.43		8.85
Arkansas	07S02W17BBA1	34.091389	-91.260556	184.00	95	4/2/2019	36.46	164.30	127.84	77.81%	41.84	51.38	51.30	5.38	14.92	14.84
Arkansas	07S03W10ACB1	34.101944	-91.327222	187.00		4/2/2019	43.32	152.00	108.68	71.50%			48.30			4.98
Arkansas	07S03W18CCD1	34.076389	-91.386667	186.16		3/28/2019	39.15	137.84	98.69	71.60%	40.08	42.48	41.50	0.93	3.33	2.35
Arkansas	07S03W32BBC1	34.044444	-91.371111	176.92	128	3/28/2019	22.77	152.99	130.22	85.12%	23.16	24.26	27.10	0.39	1.49	4.33
Arkansas	07S04W01DDD1	34.106111	-91.390000	186.00	155	3/28/2019	43.70	163.40	119.70	73.26%	41.49	25.75	42.90	-2.21		-0.80
Arkansas	08S03WT2299	34.029444	-91.366944	178.00	158	3/28/2019	19.32	161.02	141.70	88.00%	19.16	24.66	19.70	-0.16	5.34	0.38
								Average % Saturated:		**51.91%**		**Wells in Decline:**		**11**	**2**	**5**
								Min % Saturated:		**6.26%**		**Total Wells:**		**24**	**17**	**24**
								Max % Saturated:		**88.00%**		**Average Change:**		**0.79**	**3.70**	**3.59**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Ashley	15S04W26DCC1	33.375556	-91.483889	127.00	64	3/12/2019	31.16	83.00	51.84	62.46%		32.58			1.42	
Ashley	16S04W10DC1	33.316506	-91.500399	130.00	100	3/12/2019	29.06	117.00	87.94	75.16%						
Ashley	16S06W27BAB1	33.291389	-91.711111	182.00	115	3/14/2019	85.40	172.00	86.60	50.35%			85.50			0.10
Ashley	16S06W35BAD1	33.273333	-91.695278	175.00		3/14/2019	74.34	189.00	114.66	60.67%			76.30			1.96
Ashley	17S04W15DDC1	33.214444	-91.498333	116.00	57	3/12/2019	21.05	185.00	163.95	88.62%	24.25	32.25	32.40	3.20	11.20	11.35
Ashley	17S04W21ABA1	33.214444	-91.518889	117.00		3/12/2019	16.33	190.00	173.67	91.41%	21.02	28.44	29.20	4.69	12.11	12.87
Ashley	17S06W35CAC1	33.180278	-91.693333	179.00	140	3/14/2019	73.40	232.00	158.60	68.36%	73.86		73.00	0.46		-0.40
Ashley	18S05W24BDC1	33.125000	-91.576389	118.00		3/12/2019	20.15	155.00	134.85	87.00%						
Ashley	18S08W01AAB1	33.170833	-91.873333	181.00	128	3/14/2019	85.56	152.00	66.44	43.71%	85.34	85.46	87.00	-0.22	-0.10	1.44
Ashley	19S04W09CBB1	33.062778	-91.529444	105.00		3/12/2019	24.00	136.00	112.00	82.35%			27.80			3.80
Ashley	19S06W07BCC1	33.067778	-91.768611	134.70		3/14/2019	30.89	103.00	72.11	70.01%	30.93	31.45	31.50	0.04	0.56	0.61
Ashley	19S08W05CD1	33.147778	-91.538333	122.00	100	3/12/2019	27.55	179.00	151.45	84.61%						
								Average % Saturated:		72.06%		Wells in Decline:		1	1	1
								Min % Saturated:		43.71%		Total Wells:		5	5	8
								Max % Saturated:		91.41%		Average Change:		1.63	5.04	3.97
Chicot	13S03W27AAA1	33.547778	-91.386111	138.00		4/22/2019	49.01	75.62	26.61	35.19%	48.81	50.00	47.00	-0.20	0.99	-2.01
Chicot	14S02W09BDD1	33.483056	-91.291389	133.00		4/22/2019	29.31	87.40	58.09	66.46%	30.58	34.00	29.00	1.27	4.69	-0.31
Chicot	14S03W07BBD1	33.503056	-91.438889	134.00		3/20/2019	31.21	81.00	49.79	61.47%	30.82	32.60	27.62	-0.39	1.39	-3.59
Chicot	15S02W20DDC1	33.373611	-91.321944	126.00		3/20/2019	34.67	100.00	65.33	65.33%	33.58	33.07	31.70	-1.09	-1.60	-2.97
Chicot	16S03W14BD1	33.310278	-91.376111	118.00	100	3/20/2019	34.20	115.00	80.80	70.26%						
Chicot	17S01W06BCC1	33.250000	-91.251944	115.00	100	3/19/2019	20.98	139.00	118.02	84.91%	21.31	22.53	21.80	0.33	1.55	0.82
Chicot	17S02W33DDA	33.172500	-91.305556	120.00		3/19/2019	30.33	150.00	119.67	79.78%			35.70			5.37
Chicot	17S03W18CBC1	33.215833	-91.460000	117.00		4/22/2019	32.21	156.80	124.59	79.46%	34.38	38.00	34.00	2.17	5.79	1.79
Chicot	18S03W22ABA2	33.124444	-91.394722	103.00	86	3/19/2019	12.42	145.00	132.58	91.43%		14.57	16.00		2.15	3.58
								Average % Saturated:		70.48%		Wells in Decline:		3	1	4
								Min % Saturated:		35.19%		Total Wells:		6	7	8
								Max % Saturated:		91.43%		Average Change:		0.35	2.14	0.34
Clay	19N03E24AAA1	36.281667	-90.699167	278.00		4/17/2019	19.95	131.22	111.27	84.80%		20.94	23.00		0.99	3.05
Clay	19N04E19AAA1	36.280833	-90.679167	282.00		4/17/2019	30.42	139.50	109.08	78.19%	31.33	32.06	33.20	0.91	1.64	2.78
Clay	19N08E27DAA1	36.249722	-90.194444	261.00		4/17/2019	3.71	116.30	112.59	96.81%						
Clay	20N04E02BBC1	36.407500	-90.622778	285.00		4/18/2019	14.79	126.30	111.51	88.29%	14.92		17.50	0.13		2.71
Clay	20N05E34DBA1	36.327222	-90.521111	285.00	110	4/17/2019	32.89	121.53	88.64	72.94%	33.75	33.91	32.20	0.86	1.02	-0.69
Clay	21N05E17ABB1	36.465278	-90.558056	298.00	105	4/17/2019	22.64	88.00	65.36	74.27%	23.49	25.54	25.90	0.85	2.90	3.26
Clay	21N06E28BBB1	36.434444	-90.435278	292.50	130	4/18/2019	20.79	107.49	86.70	80.66%	20.17	20.20	20.40	-0.62	-0.59	-0.39
Clay	21N08E18CCC1	36.447222	-90.263889	324.00	110	4/17/2019	41.20	111.90	70.70	63.18%	37.07	43.71		-4.13	2.51	
								Average % Saturated:		79.89%		Wells in Decline:		2	1	2
								Min % Saturated:		63.18%		Total Wells:		6	6	6
								Max % Saturated:		96.81%		Average Change:		-0.33	1.41	1.79

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Craighead	13N04E12ABB1	35.776667	-90.615556	231.00	110	4/24/2019	23.42	109.03	85.61	78.52%	25.80	27.00		2.38	3.58	
Craighead	14N02E27AAA1	35.821667	-90.856944	255.00		4/24/2019	85.13	92.46	7.33	7.93%	85.25	86.37	84.70	0.12	1.24	-0.43
Craighead	14N05E36BAD1	35.804892	90.508606			2/13/2019	40.40	105.00	64.60	61.52%	39.86			-0.54		
Craighead	15N03E19ADA1	35.918333	-90.800556	262.00	116	4/24/2019	53.90	116.00	62.10	53.53%	55.75	55.00		1.85	1.10	
Craighead	15N06E20DDD1	35.907222	-90.460833	234.00		4/24/2019	8.55	87.20	78.65	90.19%	6.96	8.77	10.30	-1.59	0.22	1.75
								Average % Saturated:		**58.34%**		**Wells in Decline:**		**2**	**0**	**1**
								Min % Saturated:		**7.93%**		**Total Wells:**		**5**	**4**	**2**
								Max % Saturated:		**90.19%**		**Average Change:**		**0.44**	**1.54**	**0.66**
Crittenden	04N07E21AAD1	34.945278	-90.355833	202.00	82	3/29/2019	6.59	152.00	145.41	95.66%						
Crittenden	05N07E04CC1	35.074436	-90.355783	200.00	124	3/7/2019	24.10	115.00	90.90	79.04%						
Crittenden	05N07E28CBA1	35.022500	-90.360833	201.00		3/28/2019	12.73	133.78	121.05	90.48%	13.84		19.00	1.11		6.27
Crittenden	05N07E34BAB1	35.016111	-90.342500	203.00	100	3/29/2019	8.41	136.18	127.77	93.82%	9.94		16.00	1.53		7.59
Crittenden	05N07E34CDD1	35.002778	-90.341111	205.00	110	3/7/2019	1.95	138.00	136.05	98.59%	4.50	16.00		2.55		
Crittenden	06N07E13BAA1	35.146667	-90.302222	205.00	130	3/29/2019	18.50	125.21	106.71	85.22%	19.59	21.48	22.00	1.09	2.98	3.50
Crittenden	06N07E14ABA1	35.146667	-90.316111	211.00	110	3/7/2019	27.80	125.00	97.20	77.76%	21.95	20.00		-5.85	-7.80	
Crittenden	07N06E19CC1	35.216097	-90.500000	210.00	121	3/7/2019	45.85	141.00	95.15	67.48%						
Crittenden	07N06E24CCD1	35.206944	-90.414722	213.00		3/7/2019	39.40	138.00	98.60	71.45%						
Crittenden	07N07E05DAD1	35.251111	-90.358056	215.00	132	3/29/2019	30.60	141.34	110.74	78.35%		31.51	35.70		0.91	5.10
Crittenden	07N07E31CCC1	35.178056	-90.399722	207.00	110	3/29/2019	36.14	136.61	100.47	73.54%	35.83	36.87	38.80	-0.31	0.73	2.66
Crittenden	07N07E34DDA1	35.187778	-90.328056	215.00		3/29/2019	30.74	149.00	118.26	79.37%			31.80			1.06
Crittenden	07N08E04BBD1	35.260556	-90.251389	224.00	120	3/12/2019	19.10	138.00	118.90	86.16%		21.00			1.90	
Crittenden	07N09E05CDD1	35.248056	-90.158611	214.00	120	4/2/2019	4.77	111.00	106.23	95.70%		10.27	13.00		5.50	8.23
Crittenden	08N06E01DCC1	35.339167	-90.402222	215.00	120	3/12/2019	33.00	123.00	90.00	73.17%	40.00	32.00		7.00	-1.00	
Crittenden	08N06E26BBA1	35.293611	-90.431111	215.00		4/2/2019	32.49	124.00	91.51	73.80%	34.06		36.90	1.57		4.41
Crittenden	08N07E13CCC2	35.307500	-90.305556	221.00	100	4/2/2019	28.90	134.00	105.10	78.43%		35.86	35.47		6.96	6.57
Crittenden	08N07E14DAA2	35.314722	-90.308056	219.00		4/2/2019	29.98	134.00	104.02	77.63%		34.02			4.04	
Crittenden	08N07E32DAA1	35.271667	-90.362778	215.00	110	3/12/2019	25.00	138.20	113.20	81.91%	23.40	30.00		-1.60	5.00	
Crittenden	08N07E34BD1	35.336336	-90.271652	220.00		3/12/2019	26.75	133.00	106.25	79.89%	28.60			1.85		
Crittenden	08N07E35BCB1	35.275000	-90.325833	221.00		4/2/2019	32.35	145.00	112.65	77.69%		33.07			0.72	
Crittenden	09N06E26ABC1	35.381944	-90.422222	210.00		3/29/2019	32.86	116.00	83.14	71.67%						
Crittenden	09N06E30ADD1	35.376389	-90.484444	214.00		3/12/2019	29.50	118.00	88.50	75.00%	34.80	32.00		5.30	2.50	
Crittenden	09N07E02CDB1	35.426944	-90.318056	225.00	130	3/12/2019	31.40	126.00	94.60	75.08%						
Crittenden	09N07E10DDA1	35.413056	-90.323333	221.00	60	3/29/2019	28.53	124.88	96.35	77.15%	28.20	29.18	31.50	-0.33	0.65	2.97
Crittenden	09N07E20DDC1	35.382222	-90.366111	215.00		3/29/2019	30.65	118.00	87.35	74.03%	29.69		35.55	-0.96		4.90
Crittenden	09N07E31BAB1	35.366667	-90.390833	221.00	110	3/29/2019	32.96	124.70	91.74	73.57%	33.30	34.18	37.60	0.34	1.22	4.64
Crittenden	09N08E17ABA1	35.408794	-90.254967	224.00		3/12/2019	23.40	139.00	115.60	83.17%	24.40			1.00		
Crittenden	09N08E35BBD1	35.362222	-90.214167	225.00		4/2/2019	8.45	136.00	127.55	93.79%			19.75			11.30
Crittenden	09N08E35BBD2	35.361944	-90.213889	225.00		4/2/2019	10.02	136.00	125.98	92.63%						
								Average % Saturated:		**81.04%**		**Wells in Decline:**		**5**	**2**	**0**
								Min % Saturated:		**67.48%**		**Total Wells:**		**15**	**14**	**13**
								Max % Saturated:		**98.59%**		**Average Change:**		**0.95**	**1.74**	**5.32**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Cross	07N01E05CDA1	35.255556	-91.014444	217.00	140	4/3/2019	82.19	143.46	61.27	42.71%		79.23			-2.96	
Cross	07N01E11AAA1	35.250278	-90.951389	217.00	120	4/3/2019	85.13	146.19	61.06	41.77%		82.13	80.00		-3.00	-5.13
Cross	07N02E02CDD1	35.252222	-90.853611	225.00		4/3/2019	87.10	109.00	21.90	20.09%		85.63	85.25		-1.47	-1.85
Cross	07N02E29DDC1	35.193333	-90.902222	220.00	100	4/3/2019	77.70	150.29	72.59	48.30%		76.18	75.10		-1.52	-2.60
Cross	07N03E32DCC1	35.178889	-90.803611	251.00	138	4/3/2019	104.67	153.00	48.33	31.59%		101.84	97.90		-2.83	-6.77
Cross	07N05E25ABA1	35.206389	-90.513056	205.00	140	4/3/2019	36.80	140.38	103.58	73.79%		37.94			1.14	
Cross	08N05E32ADD1	35.275556	-90.577222	204.00		4/3/2019	20.83	141.42	120.59	85.27%		27.68	30.10		6.85	9.27
Cross	09N01E12CBB1	35.418056	-90.948056	226.00		4/3/2019	100.50	148.00	47.50	32.09%		97.62	95.87		-2.88	-4.63
Cross	09N01E33BBA2	35.367433	-91.000167	225.00	0	4/3/2019	90.04	150.16	60.12	40.04%						
Cross	09N03E17DDC1	35.403056	-90.791944	105.90	160	4/3/2019	120.90	124.00	3.10	2.50%		111.73	110.60		-9.17	-10.30
Cross	09N05E32BDB1	35.364167	-90.586389	210.00		4/3/2019	25.94	121.00	95.06	78.56%	27.00	28.56	31.90	1.06	2.62	5.96
								Average % Saturated:		**45.15%**		**Wells in Decline:**		**0**	**7**	**6**
								Min % Saturated:		**2.50%**		**Total Wells:**		**1**	**10**	**8**
								Max % Saturated:		**85.27%**		**Average Change:**		**1.06**	**-1.32**	**-2.01**
Desha	07S01E19ABA1	34.074444	-91.050833	154.00	120	3/29/2019	6.08	96.40	90.32	93.69%	9.70		18.00	3.62		11.92
Desha	08S03W33ABD1	33.966944	-91.393611	165.04	60	3/14/2019	8.00	147.00	139.00	94.56%	4.69		11.00	-3.31		3.00
Desha	09S02W26DDC1	33.882778	-91.256389	149.27	94	3/4/2019	31.54	129.00	97.46	75.55%	33.55	33.76	33.40	2.01	2.22	1.86
Desha	09S03W17DCB1	33.913889	-91.412500	155.08	126	3/20/2019	37.61	137.00	99.39	72.55%	36.73		39.00	-0.88		1.39
Desha	09S04W06BCA1	33.965556	-91.545000	161.00		3/20/2019	37.71	152.00	114.29	75.19%			44.50			6.79
Desha	09S04W06CBB1	33.941389	-91.548889	162.00		3/27/2019	47.00	148.00	101.00	68.24%	45.70	41.00		-1.30	-6.00	
Desha	10S02W20ADA1	33.821111	-91.306944	148.00		3/14/2019	44.83	126.26	81.43	64.49%	44.46		43.09	-0.37		-1.74
Desha	10S03W26CCB1	33.799444	-91.375278	152.00	103	3/14/2019	49.60	128.00	78.40	61.25%						
Desha	10S04W12CCB1	33.846667	-91.465000	155.00		3/20/2019	38.17	136.00	97.83	71.93%	37.63	37.76		-0.54	-0.41	
Desha	10S04W16DD1	33.824722	-91.503333	157.00	100	3/20/2019	33.36	131.00	97.64	74.53%						
Desha	11S02W03DD1	33.770107	-91.276505	144.00	105	3/14/2019	35.33	118.00	82.67	70.06%						
Desha	13S02W27CAC1	33.536667	-91.293333	133.00	120	3/14/2019	32.83	89.00	56.17	63.11%	34.11		36.00	1.28		3.17
								Average % Saturated:		**73.76%**		**Wells in Decline:**		**5**	**2**	**1**
								Min % Saturated:		**61.25%**		**Total Wells:**		**8**	**3**	**7**
								Max % Saturated:		**94.56%**		**Average Change:**		**0.06**	**-1.40**	**3.77**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Drew	11S04W35CDD1	33.694444	-91.485000	154.00	65	3/12/2019	27.61	114.00	86.39	75.78%			32.64			5.03
Drew	11S05W08CCC1	33.762778	-91.643611	185.00	153	3/12/2019	38.82	143.00	104.18	72.85%	39.57	39.39	39.20	0.75	0.57	0.38
Drew	12S04W03ABB1	33.692500	-91.496944	155.00		3/12/2019	25.21	114.00	88.79	77.89%	26.13	29.87	28.30	0.92	4.66	3.09
Drew	12S04W25DBB1	33.627500	-91.460556	149.00	90	4/26/2019	35.67	108.00	72.33	66.97%	35.06	34.00	33.80	-0.61	-1.67	-1.87
Drew	13S04W09ACD1	33.586667	-91.509444	145.00	90	4/26/2019	27.81	100.60	72.79	72.36%	25.31	21.00	33.00	-2.50	-6.81	5.19
Drew	13S04W33BAA1	33.535000	-91.516667	138.00	130	3/12/2019	19.38	89.00	69.62	78.22%	19.68		21.40	0.30		2.02
Drew	14S04W03ADD1	33.513889	-91.491389	141.00	92	4/26/2019	31.46	88.00	56.54	64.25%	33.06	31.00		1.60	-0.46	
Drew	14S04W05CBA1	33.513056	-91.538333	131.00	90	4/26/2019	13.21	86.50	73.29	84.73%	19.87	20.00	20.00	6.66	6.79	6.79
Drew	14S04W05CBC1	33.511667	-91.540556	131.00	90	4/26/2019	14.21	85.00	70.79	83.28%	18.97	18.00	22.00	4.76	3.79	7.79
Drew	15S04W13DAD1	33.393889	-91.458333	131.00		4/22/2019	37.51	93.55	56.04	59.90%		43.00			5.49	
								Average % Saturated:		**73.62%**		**Wells in Decline:**		**2**	**3**	**1**
								Min % Saturated:		**59.90%**		**Total Wells:**		**8**	**8**	**8**
								Max % Saturated:		**84.73%**		**Average Change:**		**1.49**	**1.55**	**3.55**
Greene	16N06E28ABB1	35.994444	-90.448611	251.00		4/23/2019	30.33	83.00	52.67	63.46%	25.83	32.46	25.73	-4.50	2.13	-4.60
Greene	17N04E28DAA1	36.075278	-90.654722	319.00		4/23/2019	88.80	97.10	8.30	8.55%	93.85	94.38	90.95	5.05	5.58	2.15
Greene	18N03E13CD1	36.195000	-90.709167			4/23/2019	34.15	112.00	77.85	69.51%						
Greene	18N07E20BBA1	36.185833	-90.351111	257.00		4/23/2019	8.50	113.12	104.62	92.49%	9.96	9.89	12.60	1.46	1.39	4.10
Greene	18N07E23CCD1	36.172778	-90.296389	250.00		4/23/2019	5.42	118.00	112.58	95.41%			7.30			1.88
Greene	19N03E26AD1	36.266667	-90.716111	281.00	100	4/23/2019	33.62	143.03	109.41	76.49%	30.19		31.50	-3.43		-2.12
								Average % Saturated:		**67.65%**		**Wells in Decline:**		**2**	**0**	**2**
								Min % Saturated:		**8.55%**		**Total Wells:**		**4**	**3**	**5**
								Max % Saturated:		**95.41%**		**Average Change:**		**-0.36**	**3.03**	**0.28**
Independence	12N04W09CAA1	35.679167	-91.425833	236.00		4/12/2019	16.44	52.00	35.56	68.38%			22.50			6.06
Independence	12N04W14DD1	35.663889	-91.380556	231.00	60	4/12/2019	16.26	127.12	110.86	87.21%		18.81	25.00		2.55	8.74
Independence	12N04W34CBB1	35.621667	-91.418333	231.00		4/12/2019	14.23	126.62	112.39	88.76%		15.07	18.10		0.84	3.87
Independence	12N05W36AAA1	35.625833	-91.473611	236.00		4/12/2019	16.46	132.91	116.45	87.62%	7.54		19.20	-8.92		2.74
Independence	14N03W14DBB1	35.851667	-91.274444	230.00	65	4/12/2019	1.25	102.77	101.52	98.78%		1.57			0.32	
								Average % Saturated:		**86.15%**		**Wells in Decline:**		**1**	**0**	**0**
								Min % Saturated:		**68.38%**		**Total Wells:**		**1**	**3**	**4**
								Max % Saturated:		**98.78%**		**Average Change:**		**-8.92**	**1.24**	**5.35**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Jackson	09N02W32CBB1	35.364167	-91.229722	220.00	117	4/24/2019	29.88	135.00	105.12	77.87%		29.64	44.00		-0.24	14.12
Jackson	10N02W29ABB1	35.485833	-91.220000	227.00		4/24/2019	27.06	148.00	120.94	81.72%		27.82			0.76	
Jackson	11N01W11CBB1	35.597222	-91.074444			4/24/2019	57.77	142.48	84.71	59.45%		56.80			-0.97	
Jackson	11N01W29AAD1	35.560556	-91.109722	225.00		4/24/2019	41.50	138.36	96.86	70.00%						
Jackson	11N03W06DAB1	35.615278	-91.335556	223.00	100	4/30/2019	8.52	68.00	59.48	87.47%	10.15	9.48	14.00	1.63	0.96	5.48
Jackson	13N01W20AAA1	35.753611	-91.106944	242.00	147	4/24/2019	42.49	119.00	76.51	64.29%		41.56	42.90		-0.93	0.41
Jackson	13N01W27DDD1	35.724167	-91.076389	233.00		4/24/2019	37.75	112.00	74.25	66.29%			38.70			0.95
Jackson	13N03W15CDD1	35.756944	-91.296944	232.00		4/30/2019	9.61	50.00	40.39	80.78%		10.30	16.50		0.69	6.89
Jackson	14N01W09AAA1	35.872222	-91.087500	251.00	125	4/24/2019	46.28	114.10	67.82	59.44%			45.00			-1.28
								Average % Saturated:		**71.92%**		**Wells in Decline:**		**0**	**3**	**1**
								Min % Saturated:		**59.44%**		**Total Wells:**		**1**	**6**	**6**
								Max % Saturated:		**87.47%**		**Average Change:**		**1.63**	**0.04**	**4.43**
Jefferson	04S08W13DCB1	34.356111	-91.823889	204.00	110	3/21/2019	48.50	124.00	75.50	60.89%	48.30	48.04	45.50	-0.20	-0.46	-3.00
Jefferson	05S06W31CAA1	34.224722	-91.700000	189.22		3/19/2019	19.99	112.00	92.01	82.15%	13.23	21.81	20.00	-6.76	1.82	0.01
Jefferson	06S06W23AAD1	34.168611	-91.618611	189.01	107	3/19/2019	14.81	122.00	107.19	87.86%	16.24		18.20	1.43		3.39
Jefferson	06S07W14BAA1	34.190000	-91.740278	199.00	110	3/19/2019	16.50	111.00	94.50	85.14%	13.70		24.50	-2.80		8.00
Jefferson	07S08W06BAA1	34.150278	-91.946111	202.31	160	3/26/2019	15.29	111.00	95.71	86.23%	17.60	20.45	21.00	2.31	5.16	5.71
								Average % Saturated:		**80.45%**		**Wells in Decline:**		**3**	**1**	**1**
								Min % Saturated:		**60.89%**		**Total Wells:**		**5**	**3**	**5**
								Max % Saturated:		**87.86%**		**Average Change:**		**-1.20**	**2.17**	**2.82**
Lawrence	15N01W35CBB1	35.893333	-91.065556	250.00		4/29/2019	50.78	113.34	62.56	55.20%	51.00	50.73	48.50	0.22	-0.05	-2.28
Lawrence	16N01E11DAC2	36.034722	-90.943611	262.00		4/29/2019	53.97	131.00	77.03	58.80%		53.47	50.20		-0.50	-3.77
Lawrence	16N01E27ADC1	35.993889	-90.963889	260.00		4/29/2019	59.36	127.00	67.64	53.26%			57.70			-1.66
Lawrence	17N01E27AAA1	36.088611	-90.958889	270.00	110	4/29/2019	38.72	102.00	63.28	62.04%						
Lawrence	17N02E03BBB1	36.150278	-90.866111			4/29/2019	44.04	126.00	81.96	65.05%						
								Average % Saturated:		**58.87%**		**Wells in Decline:**		**0**	**2**	**3**
								Min % Saturated:		**53.26%**		**Total Wells:**		**1**	**2**	**3**
								Max % Saturated:		**65.05%**		**Average Change:**		**0.22**	**-0.28**	**-2.57**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Lee	01N03E35BBA1	34.656389	-90.763611	202.00	120	3/27/2019	9.58	138.93	129.35	93.10%			14.20			4.62
Lee	02N01E23BAA2	34.775000	-90.971389	202.00	137	3/28/2019	57.97	156.48	98.51	62.95%		56.86			-1.11	
Lee	02N01E29AA1	34.762050	-91.018692	194.00	130	3/28/2019	55.18	144.10	88.92	61.71%						
Lee	02N02E07BB1	34.797778	-90.903333			3/28/2019	55.41	152.00	96.59	63.55%						
Lee	02N02E08ADC1	34.801944	-90.893889	201.00	120	3/28/2019	49.82	155.40	105.58	67.94%		49.30	48.40		-0.52	-1.42
Lee	02N02E21ABC1	34.772222	-90.899444	200.00	120	3/26/2019	42.35	152.00	109.65	72.14%			41.60			-0.75
Lee	02N03E08AAD1	34.802778	-90.810278	211.00	100	3/28/2019	44.47	158.00	113.53	71.85%			49.00			4.53
Lee	03N01W10DCC1	34.866944	-91.081944	205.00		3/28/2019	78.39	160.00	81.61	51.01%						
Lee	03N02E13BBA1	34.876944	-90.851944	212.00	65	3/28/2019	51.93	139.00	87.07	62.64%		52.74	51.50		0.81	-0.43
Lee	03N03E32CAB1	34.825556	-90.823889	204.00	116	3/28/2019	49.32	159.00	109.68	68.98%		51.48	53.82		2.16	4.50
Lee	03N05E14DDA1	34.863333	-90.534167	193.00	120	3/28/2019	8.11	147.53	139.42	94.50%		13.29	13.20		5.18	5.09
								Average % Saturated:		**70.03%**		**Wells in Decline:**		**0**	**2**	**3**
								Min % Saturated:		**51.01%**		**Total Wells:**		**0**	**5**	**7**
								Max % Saturated:		**94.50%**		**Average Change:**			**1.30**	**2.31**
Lincoln	07S06W03CCA2	34.141111	-91.687222	190.00	116	3/26/2019	13.00	114.30	101.30	88.63%		21.00	18.00		8.00	5.00
Lincoln	07S07W36CBD1	34.069722	-91.758056	183.00	123	3/27/2019	37.80	116.20	78.40	67.47%	37.60	43.00	40.00	-0.20	5.20	2.20
Lincoln	08S04W06ABD1	34.061389	-91.521111	171.00	95	4/1/2019	15.00	101.50	86.50	85.22%	15.00	17.00	12.00	0.00	2.00	-3.00
Lincoln	08S04W08BBB2	34.058889	-91.537778	171.00	65	3/20/2019	11.95	100.00	88.05	88.05%						
Lincoln	08S04W29ABC1	34.005833	-91.512222	176.00	100	3/26/2019	49.50	154.00	104.50	67.86%	49.20	46.00		-0.30	-3.50	
Lincoln	08S04W31CBA1	33.982778	-91.531667	161.90	99	3/20/2019	35.49	158.00	122.51	77.54%			39.90			4.41
Lincoln	08S05W12AAD1	34.046111	-91.537222	165.00	83	4/1/2019	14.70	109.90	95.20	86.62%	14.80	23.00		0.10	8.30	
Lincoln	08S05W21DCD1	34.007500	-91.592500	169.00	120	3/26/2019	34.60	129.70	95.10	73.32%	34.00	32.00	38.00	-0.60	-2.60	3.40
Lincoln	08S05W32DCC1	33.977778	-91.612222	172.00	100	3/27/2019	48.80	137.30	88.50	64.46%	47.20	55.00	47.00	-1.60	6.20	-1.80
Lincoln	08S07W05DDD1	34.500000	-91.817222	190.00	97	3/20/2019	29.42	110.00	80.58	73.25%	31.05	31.34	37.40	1.63	1.92	7.98
Lincoln	09S05W14ABC1	33.929167	-91.576389	172.50	98	3/26/2019	46.07	148.00	101.93	68.87%	44.08	43.39	46.60	-1.99	-2.68	0.53
Lincoln	09S05W17BCB1	33.930833	-91.638889	171.00	97	3/26/2019	42.77	133.00	90.23	67.84%	42.42		39.30	-0.35		-3.47
Lincoln	09S05W19CCC1	33.907778	-91.661389	171.00	110	3/27/2019	36.30	131.00	94.70	72.29%	35.60	37.00		-0.70	0.70	
Lincoln	09S05W34BBD1	33.888611	-91.602778	171.00	100	3/26/2019	38.98	138.00	99.02	71.75%						
Lincoln	09S06W04BCD1	33.972500	-91.729167	181.00	63	3/20/2019	44.50	119.00	74.50	62.61%	44.26	44.87	43.40	-0.24	0.37	-1.10
Lincoln	09S06W04BDD1	33.966389	-91.726389	178.00	100	3/27/2019	45.00	122.90	77.90	63.38%	44.00	43.00	39.00	-1.00	-2.00	-6.00
Lincoln	10S05W04BBB1	33.875833	-91.623611	170.00		3/26/2019	33.31	136.00	102.69	75.51%						
Lincoln	10S05W05BCB1	33.924722	-91.642222	172.00		3/26/2019	29.35	133.00	103.65	77.93%			30.17			0.82
Lincoln	10S05W06DCC1	33.865278	-91.652222	175.00	65	3/26/2019	29.58	133.00	103.42	77.76%	29.32	31.39	35.80	-0.26	1.81	6.22
								Average % Saturated:		**74.23%**		**Wells in Decline:**		**10**	**4**	**5**
								Min % Saturated:		**62.61%**		**Total Wells:**		**13**	**13**	**13**
								Max % Saturated:		**88.63%**		**Average Change:**		**-0.42**	**1.82**	**1.17**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Lonoke	01N07W04DD1	34.732489	-91.754131	221.00	182	4/2/2019	137.43	140.00	2.57	1.84%						
Lonoke	01N07W09DA1	34.719931	-91.753450	226.00	180	4/2/2019	134.53	136.00	1.47	1.08%						
Lonoke	01N07W27AAD1	34.684167	-91.736111	220.00	148	4/11/2019	132.86	137.00	4.14	3.02%	131.73	135.69	133.70	-1.13	2.83	0.84
Lonoke	01N09W13DAB1	34.709722	-91.921389	226.00	150	4/30/2019	86.78	98.00	11.22	11.45%	85.07	86.72	87.80	-1.71	-0.06	1.02
Lonoke	01N10W11BBD1	34.732222	-92.056111	240.00	100	4/8/2019	25.98	126.00	100.02	79.38%			28.50			2.52
Lonoke	01S06W31ABB1	34.583056	-91.691944	200.00	120	4/16/2019	83.53	117.00	33.47	28.61%	81.26	81.82		-2.27	-1.71	
Lonoke	01S07W19DDB1	34.602500	-91.796111	206.00		4/30/2019	89.29	116.00	26.71	23.03%		89.66	87.02		0.37	-2.27
Lonoke	01S08W24CDD1	34.601389	-91.820000	210.00	127	4/30/2019	85.13	115.00	29.87	25.97%	85.46	86.50	82.90	0.33	1.37	-2.23
Lonoke	01S09W36CCC1	34.576389	-91.938611	220.00	95	4/30/2019	63.31	115.00	51.69	44.95%	64.05	65.52	64.90	0.74	2.21	1.59
Lonoke	01S10W01ACB1	34.657222	-92.037500	236.00		4/30/2019	44.58	120.00	75.42	62.85%	42.12	44.39		-2.46	-0.19	
Lonoke	02N08W16ABC1	34.801667	-91.853611	230.00	128	4/8/2019	134.37	146.00	11.63	7.97%		130.98	124.90		-3.39	-9.47
Lonoke	02N09W02BDB1	34.831944	-91.978333	251.00	140	4/16/2019	106.78	166.00	59.22	35.67%			122.50			15.72
Lonoke	02N10W23BCA1	34.790278	-92.056111	240.35		4/8/2019	16.92	132.00	115.08	87.18%						
Lonoke	02S07W10CCB1	34.546111	-91.756667	201.00		4/30/2019	67.00	112.00	45.00	40.18%	66.93			-0.07		
Lonoke	02S08W34DBB1	34.500556	-91.863611	214.00		4/30/2019	63.65	119.00	55.35	46.51%	61.63	68.27	64.50	-2.02	4.62	0.85
Lonoke	03N07W08BDB1	34.901667	-91.777222	250.00	125	2/21/2019	99.37	162.00	62.63	38.66%	99.80	101.63		0.43	2.26	
Lonoke	03N07W29ADA1	34.857778	-91.766111	234.00	120	2/21/2019	98.95	152.70	53.75	35.20%	98.10	95.18		-0.85	-3.77	
Lonoke	03N07W35CDC2	34.832500	-91.725556	232.00		4/11/2019	121.37	145.00	23.63	16.30%		118.50	117.55		-2.87	-3.82
Lonoke	03N08W03BAA1	34.921667	-91.848056	260.00	162	2/22/2019	105.54	194.00	88.46	45.60%	104.36	103.33		-1.18	-2.21	
Lonoke	03N08W03CCC1	34.908056	-91.856389	260.00	162	2/21/2019	112.26	180.00	67.74	37.63%	111.04	109.60		-1.22	-2.66	
Lonoke	03N08W08ABA1	34.907222	-91.879722	258.00	150	2/22/2019	102.68	194.00	91.32	47.07%	102.14	100.59		-0.54	-2.09	
Lonoke	03N08W10ACB1	34.903889	-91.847778	250.00	150	2/21/2019	99.26	180.00	80.74	44.86%	99.07	97.05		-0.19	-2.21	
Lonoke	03N08W10ADD1	34.900278	-91.839444	250.00	165	2/21/2019	107.06	182.00	74.94	41.18%	100.70	98.70		-6.36	-8.36	
Lonoke	03N08W11ACA1	34.903333	-91.826111	256.00	144	2/21/2019	109.42	172.00	62.58	36.38%	107.90	106.29		-1.52	-3.13	
Lonoke	03N08W29BBB1	34.863056	-91.892222	249	152	2/22/2019	115.08	188.00	72.92	38.79%	114.62	115.00		-0.46	-0.08	
Lonoke	03N08W32ABB1	34.849167	-91.882500	250		2/21/2019	122.69	189.20	66.51	35.15%	121.91	121.90		-0.78	-0.79	
Lonoke	03N08W32ABB3	34.849444	-91.881944	250.00	170	4/8/2019	53.91	186.00	132.09	71.02%		50.61			-3.30	
Lonoke	04N08W16DCC1	34.965833	-91.865000	225.00	155	2/22/2019	49.76	163.00	113.24	69.47%	49.77	49.55		0.01	-0.21	
Lonoke	04N08W19BBB1	34.956389	-91.908611	300.00	34	2/22/2019	2.21	34.00	31.79	93.50%	5.00	3.85		2.79	1.64	
Lonoke	04N08W28CCC1	34.937222	-91.873611	240.00	137	2/22/2019	66.94	178.00	111.06	62.39%	67.01	65.86		0.07	-1.08	
Lonoke	04N08W33ABD1	34.916833	-91.850083	258.00		2/22/2019	94.45	194.00	99.55	51.31%	93.51	93.42		-0.94	-1.03	
Lonoke	04N08W33ADB1	34.916833	-91.856944	257.00		2/22/2019	101.21	194.00	92.79	47.83%		102.87			1.66	
Lonoke	04N08W33ADD1	34.929722	-91.850194	265.00		2/22/2019	107.22	184.00	76.78	41.73%	106.23	105.71		-0.99	-1.51	
Lonoke	04N08W36DBB1	34.927778	-91.820556	259.00	130	2/22/2019	98.40	184.00	85.60	46.52%	97.56	97.09	92.78	-0.84	-1.31	-5.62
								Average % Saturated:		**41.18%**		**Wells in Decline:**		**18**	**20**	**5**
								Min % Saturated:		**1.08%**		**Total Wells:**		**24**	**28**	**11**
								Max % Saturated:		**93.50%**		**Average Change:**		**-0.88**	**-0.89**	**-0.08**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Mississippi	10N08E22ABA2	35.480556	-90.220000	224.00	100	4/17/2019	24.09	150.74	126.65	84.02%		25.66	27.17		1.57	3.08
Mississippi	11N09E34BBB1	35.536944	-90.124167	235.00	94	4/10/2019	17.59	190.78	173.19	90.78%	17.60	19.17	20.20	0.01	1.58	2.61
Mississippi	12N08E08BCB1	35.680556	-90.266389	225.00	120	4/10/2019	7.24	134.35	127.11	94.61%	7.90	8.04	10.30	0.66	0.80	3.06
Mississippi	12N08E27ACA1	35.647500	-90.184444	225.00		4/10/2019	23.53	147.00	123.47	83.99%			24.30			0.77
Mississippi	13N09E013DDA1	35.743611	-90.073611	232.00		4/10/2019	4.12	142.00	137.88	97.10%			7.50			3.38
Mississippi	14N12E05DCB1	35.859444	-89.826389	250.00		4/17/2019	8.49	146.00	137.51	94.18%			12.50			4.01
Mississippi	15N08E08DBC2	35.935000	-90.257500	236.00	120	4/16/2019	7.17	179.10	171.93	96.00%		8.89			1.72	
Mississippi	15N10E27AAA1	35.900556	-90.213056			4/16/2019	3.60	165.00	161.40	97.82%						
Mississippi	16N11E23AAD1	35.996944	-89.875833	255.00		4/17/2019	8.79	155.40	146.61	94.34%		11.22			2.43	
								Average % Saturated:		**92.54%**		**Wells in Decline:**		**0**	**0**	**0**
								Min % Saturated:		**83.99%**		**Total Wells:**		**2**	**5**	**6**
								Max % Saturated:		**97.82%**		**Average Change:**		**0.34**	**1.62**	**2.82**
Monroe	01N01W15DBC1	34.694167	-91.095000	185.00		3/25/2019	54.09	149.00	94.91	63.70%						
Monroe	01N02W12CBC1	34.711667	-91.175278	182.00	110	3/25/2019	45.12	147.31	102.19	69.37%		44.30	42.20		-0.82	-2.92
Monroe	01N03W24BBB1	34.693056	-91.280833	185.00	125	3/25/2019	24.72	137.10	112.38	81.97%		28.90	28.50		4.18	3.78
Monroe	01N04W33BBB2	34.667222	-91.445833	218.00		3/26/2019	97.69	154.16	56.47	36.63%	100.72			3.03		
Monroe	01S01W13CDD1	34.602778	-91.061111	178.00		3/26/2019	21.94	146.19	124.25	84.99%		24.48	22.00		2.54	0.06
Monroe	01S01W18DCD1	34.604722	-91.146944	178.00	110	3/26/2019	25.38	148.85	123.47	82.95%		25.49	24.60		0.11	-0.78
Monroe	01S02W20BBB1	34.603889	-91.247500	170.00	100	3/26/2019	4.98	138.87	133.89	96.41%		11.79	11.40		6.81	6.42
Monroe	01S04W01BAB1	34.651667	-91.388056	210.00	160	3/26/2019	74.16	154.67	80.51	52.05%	73.90	76.10	76.70	-0.26	1.94	2.54
Monroe	02N01W19BBA1	34.779167	-91.153333	191.00	75	3/25/2019	57.64	147.01	89.37	60.79%		57.70	55.60		0.06	-2.04
Monroe	02S02W11DAC1	34.535556	-91.183333	164.00	110	3/26/2019	3.11	122.75	119.64	97.47%		9.00	8.50		5.89	5.39
Monroe	03N01W20ABA1	34.866944	-91.122500	189.00		3/25/2019	55.40	144.94	89.54	61.78%	49.80	56.60	49.00	-5.60	1.20	-6.40
Monroe	03N02W31ADC1	34.832778	-91.246111	190.00	95	3/25/2019	39.78	137.28	97.50	71.02%		40.18			0.40	
Monroe	03N03W36AAA1	34.839167	-91.263056	176.00	120	3/25/2019	18.49	124.43	105.94	85.14%		20.85	20.40		2.36	1.91
Monroe	04N02W27CDD3	34.927500	-91.197222	200.00	181	3/25/2019	46.94	151.28	104.34	68.97%	45.46	47.03	48.60	-1.48	0.09	1.66
								Average % Saturated:		**72.37%**		**Wells in Decline:**		**3**	**1**	**4**
								Min % Saturated:		**36.63%**		**Total Wells:**		**4**	**12**	**11**
								Max % Saturated:		**97.47%**		**Average Change:**		**-1.08**	**2.06**	**0.87**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Phillips	01S01E20DDB1	34.591389	-91.016111	185.00	114	3/14/2019	37.00	154.59	117.59	76.07%	34.80		25.00	-2.20		-12.00
Phillips	01S02E09CBB1	34.621667	-90.909167	185.00	110	3/26/2019	8.38	142.79	134.41	94.13%		16.90	13.30		8.52	4.92
Phillips	01S02E32BCC1	34.563889	-90.923889	200.00	120	3/14/2019	40.42	180.13	139.71	77.56%	44.00			3.58		
Phillips	01S03E02ADD1	34.637222	-90.753056	200.00	120	4/9/2019	11.00	129.80	118.80	91.53%	14.60		11.00	3.60		0.00
Phillips	01S03E02CBB1	34.635833	-90.767778	200.00		3/27/2019	10.01	139.00	128.99	92.80%			13.00			2.99
Phillips	01S03E10ABB1	34.628056	-90.776111	205.00	120	4/24/2019	10.16	140.80	130.64	92.78%	15.00		14.00	4.84		3.84
Phillips	01S03E20BDD1	34.592500	-90.812778	210.00	120	3/13/2019	16.50	151.00	134.50	89.07%	18.30			1.80		
Phillips	01S03E26BB1	34.587778	-90.753056	220.00	120	3/27/2019	32.42	153.00	120.58	78.81%						
Phillips	01S04E05DCD1	34.633889	-90.697500	230.00	120	3/27/2019	42.33	146.90	104.57	71.18%	46.00	55.11	52.20	3.67	12.78	9.87
Phillips	02S01E23CAC1	34.501111	-90.978333			3/26/2019	15.86	148.00	132.14	89.28%						
Phillips	02S01E28CCB1	34.487778	-91.016111	174.00	108	3/26/2019	15.46	143.50	128.04	89.23%		19.27			3.81	
Phillips	02S02E29DDD1	34.483611	-90.912222	180.00	125	4/9/2019	19.58	150.65	131.07	87.00%	23.70		22.00	4.12		2.42
Phillips	02S03E15ACD1	34.482778	-90.779444		115	2/20/2019	8.99	150.65	141.66	94.03%	12.05			3.06		
Phillips	02S03E34BCD1	34.492222	-90.667222	179.00	175	3/18/2019	18.92	122.44	103.52	84.55%	19.30		8.60	0.38		-10.32
Phillips	02S04E27AAC1	34.478056	-90.711389	175.00	120	3/27/2019	6.59	85.78	79.19	92.32%						
Phillips	03S03E02DDD1	34.451667	-90.751111	175.00		3/27/2019	21.35	120.60	99.25	82.30%			23.10			1.75
Phillips	03S03E04DAA1	34.459722	-90.786111	171.00		3/27/2019	19.03	120.17	101.14	84.16%		21.62	20.70		2.59	1.67
Phillips	03S04E02CAA1	34.414444	-90.710000		104	3/27/2019	8.08	121.81	113.73	93.37%	9.00			0.92		
Phillips	04S01E01AAD1	34.377222	-90.950000	156.00	120	4/9/2019	11.33	120.00	108.67	90.56%	12.90		12.00	1.57		0.67
Phillips	04S01E14CDD1	34.337222	-90.976944	155.00	120	4/24/2019	7.83	117.42	109.59	93.33%	10.00		10.50	2.17		2.67
Phillips	04S02E01DBB1	34.372222	-90.848056	163.00		4/24/2019	15.50	118.73	103.23	86.95%	15.50		11.50	0.00		-4.00
								Average % Saturated:		**87.19%**		**Wells in Decline:**		**1**	**0**	**3**
								Min % Saturated:		**71.18%**		**Total Wells:**		**13**	**4**	**13**
								Max % Saturated:		**94.13%**		**Average Change:**		**2.12**	**6.93**	**0.34**
Poinsett	10N06E11AAA1	35.512500	-90.416944	212.00	108	4/18/2019	10.51	97.90	87.39	89.26%			16.70			6.19
Poinsett	11N01E17DDC1	35.576944	-91.004167	230.00	100	4/10/2019	86.88	142.52	55.64	39.04%	85.00	84.68	85.60	-1.88	-2.20	-1.28
Poinsett	11N01E26AA1	35.560556	-90.948333	236.00	140	4/10/2019	105.92	140.02	34.10	24.36%		103.26	107.45		-2.66	1.53
Poinsett	11N02E36BB1 A-2	35.540019	-90.840550	239.00	150	4/17/2019	121.85	141.00	19.15	13.58%						
Poinsett	11N03E19CD1 A-11	35.570175	-90.811569	243.00	0	1/4/2019	116.41	127.00	10.59	8.34%						
Poinsett	11N03E26DA1 A-1	35.557039	-90.840350	240.00	160	4/17/2019	117.98	140.00	22.02	15.73%						
Poinsett	11N07E22ADD1	35.563611	-90.322778	218.00		4/18/2019	22.91	115.90	92.99	80.23%	23.87		30.10	0.96		7.19
Poinsett	12N01E07CDA1	35.680833	-91.028333	236.00	120	4/10/2019	54.93	124.00	69.07	55.70%		56.13	64.05		1.20	9.12
Poinsett	12N05E34ABA1	35.634444	-90.541944	215.00	100	4/11/2019	3.33	86.00	82.67	96.13%		8.88			5.55	
Poinsett	12N07E04BAA1	35.700278	-90.350000	223.00	60	4/17/2019	2.09	112.80	110.71	98.15%		8.86	10.50		6.77	8.41
								Average % Saturated:		**52.05%**		**Wells in Decline:**		**1**	**2**	**1**
								Min % Saturated:		**8.34%**		**Total Wells:**		**2**	**5**	**6**
								Max % Saturated:		**98.15%**		**Average Change:**		**-0.46**	**1.73**	**5.19**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Prairie	01N05W02BB1	34.743989	-91.514481	218.00	150	5/28/2019	123.65	145.00	21.35	14.72%						
Prairie	01N06W05CCB1	34.731111	-91.680278	220.00	155	4/9/2019	119.19	157.04	37.85	24.10%	118.22	120.91	119.00	-0.97	1.72	-0.19
Prairie	01N06W26CDD1	34.670556	-91.618611	218.00	105	4/9/2019	105.86	142.97	37.11	25.96%	104.23	105.44	99.70	-1.63	-0.42	-6.16
Prairie	01S04W28BDB1	34.589444	-91.441389	205.00	112	4/9/2019	97.90	137.33	39.43	28.71%	97.22	98.45	98.00	-0.68	0.55	0.10
Prairie	01S05W14BBC1	34.622778	-91.518889	211.00	118	4/9/2019	109.16	150.17	41.01	27.31%	109.17	108.90		0.01	-0.26	
Prairie	01S05W31DDA1	34.571111	-91.575278	206.00	120	4/9/2019	100.17	137.31	37.14	27.05%	99.86	93.36		-0.31	-6.81	
Prairie	01S06W12BAB1	34.640556	-91.603611	228.00		4/9/2019	116.56	156.88	40.32	25.70%	117.07	118.38	119.17	0.51	1.82	2.61
Prairie	02N05W24BCA3	34.783056	-91.493611	225.00		4/10/2019	89.30	144.00	54.70	37.99%		92.28			2.98	
Prairie	02N05W24CBB1	34.777911	-91.496569	225.00	140	5/28/2019	99.57	144.00	44.43	30.85%						
Prairie	02N05W35DB1	34.750711	-91.506689	220.00	165	5/28/2019	112.28	145.00	32.72	22.57%						
Prairie	02N06W22BCD1	34.781389	-91.636667	234.00	127	2/20/2019	114.35	153.00	38.65	25.26%	114.40	114.61		0.05	0.26	
Prairie	02N06W24CAA1	34.780833	-91.597500	233.00		4/9/2019	118.45	148.00	29.55	19.97%		118.99	120.51		0.54	2.06
Prairie	02S06W14BBB1	34.536944	-91.624722	201.00	105	4/9/2019	78.05	116.00	37.95	32.72%			65.00			-13.05
Prairie	03N05W03BDD2	34.912222	-91.520833	207.00	110	4/10/2019	62.31	108.00	45.69	42.31%	61.20		64.20	-1.11		1.89
Prairie	03N05W03CB1	34.910369	-91.528850	200.00	110	5/28/2019	91.11	115.00	23.89	20.77%						
Prairie	03N06W10CB1	34.896608	-91.635400	216.00	120	5/28/2019	75.17	113.00	37.83	33.48%						
Prairie	04N04W07ADC1	34.980833	-91.458889	195.00	110	4/16/2019	17.60	92.00	74.40	80.87%		22.78	23.10		5.18	5.50
Prairie	04N05W07CDC2	34.978397	-91.578106	211.00	115	4/10/2019	79.13	108.97	29.84	27.38%						
Prairie	04N05W31DDC1	34.920278	-91.568056	206.00	104	4/10/2019	78.69	115.94	37.25	32.13%		79.81			1.12	
								Average % Saturated:		**30.52%**		**Wells in Decline:**		**5**	**3**	**3**
								Min % Saturated:		**14.72%**		**Total Wells:**		**8**	**11**	**8**
								Max % Saturated:		**80.87%**		**Average Change:**		**-0.52**	**0.61**	**-0.90**
Pulaski	01N10W29DC1	34.680339	-92.102050	246.00	90	5/15/2019	11.98	121.00	109.02	90.10%						
Pulaski	01S10W19CDC1	34.608489	-92.130739	239.00	91	5/15/2019	14.72	102.00	87.28	85.57%						
Pulaski	01S11W22AB1	34.619989	-92.181608	233.00	120	5/15/2019	17.10	97.00	79.90	82.37%						
								Average % Saturated:		**86.01%**		**Wells in Decline:**		**0**	**0**	**0**
								Min % Saturated:		**82.37%**		**Total Wells:**		**0**	**0**	**0**
								Max % Saturated:		**90.10%**		**Average Change:**				

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
Randolph	18N01E34AAC1	36.161667	-90.958056	266.00		4/30/2019	18.17	54.00	35.83	66.35%	19.83	18.75	18.20	1.66	0.58	0.03
Randolph	18N02E22DCD1	36.179167	-90.851111	273.00	110	4/30/2019	42.71	150.40	107.69	71.60%		42.18	41.90		-0.53	-0.81
Randolph	20N02E01ADD2	36.406667	-90.803056	280.00	65	4/30/2019	7.69	25.00	17.31	69.24%		8.89	13.54		1.20	5.85
Randolph	20N03E28BA1	36.353611	-90.760278	276.00		4/30/2019	8.76	137.24	128.48	93.62%	10.21	10.56	12.70	1.45	1.80	3.94
								Average % Saturated:		**75.20%**		**Wells in Decline:**		**0**	**1**	**1**
								Min % Saturated:		**66.35%**		**Total Wells:**		**2**	**4**	**4**
								Max % Saturated:		**93.62%**		**Average Change:**		**1.56**	**0.76**	**2.25**
St. Francis	04N01W17CBC1	34.955000	-91.097778	200.00		3/26/2019	64.68	149.00	84.32	56.59%						
St. Francis	04N01W28CDD1	34.974167	-90.748889	350.00		3/28/2019	76.41	158.46	82.05	51.78%						
St. Francis	04N02E19BBB1	34.932222	-90.909722	212.00		3/28/2019	67.62	155.00	87.38	56.37%			60.00			-7.62
St. Francis	05N01E15BCB1	35.026389	-90.991111	209.00		3/26/2019	73.48	142.07	68.59	48.28%	72.30	74.23	70.80	-1.18	0.75	-2.68
St. Francis	05N01E27BBA1	35.078333	-90.887222	219.00		3/26/2019	76.58	144.55	67.97	47.02%		74.23	70.80		-2.35	-5.78
St. Francis	05N02E20ADC1	35.058889	-90.813056		120	3/28/2019	61.78	131.91	70.13	53.17%						
St. Francis	05N03E20AAA2	35.016667	-90.814167	221.00		3/28/2019	101.50	165.00	63.50	38.48%	101.90			0.40		
St. Francis	05N05E01BB1	35.074444	-90.525278	201.00	114	3/26/2019	34.16	136.00	101.84	74.88%						
St. Francis	05N05E19DCA1	35.028889	-90.580000	203.00	120	3/26/2019	29.60	141.00	111.40	79.01%						
St. Francis	05N06E34CAB1	35.008056	-90.449444	200.00	110	3/26/2019	22.14	136.00	113.86	83.72%	23.75	26.19	28.30	1.61	4.05	6.16
St. Francis	06N01E33AD1	35.098692	-90.995258	210.00	146	4/17/2019	68.40	140.00	71.60	51.14%						
St. Francis	06N02E13DCA1	35.136667	-90.833889	231.00		3/26/2019	80.90	155.37	74.47	47.93%		80.20	81.80		-0.70	0.90
St. Francis	06N02E15BDD1	35.145000	-90.879722	214.64	75	3/26/2019	66.95	139.94	72.99	52.16%		66.67	65.40		-0.28	-1.55
St. Francis	06N05E24CD1	35.115000	-90.517222	204.00	105	3/26/2019	36.73	136.00	99.27	72.99%						
St. Francis	06N06E20ABB2	35.129722	-90.478056	200.00	150	3/27/2019	36.85	136.00	99.15	72.90%		37.11			0.26	
								Average % Saturated:		**59.10%**		**Wells in Decline:**		**1**	**3**	**4**
								Min % Saturated:		**38.48%**		**Total Wells:**		**3**	**6**	**6**
								Max % Saturated:		**83.72%**		**Average Change:**		**0.28**	**0.29**	**-1.76**

Mississippi River Valley Alluvial Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID Number	Latitude	Longitude	Altitude of Land Surface	Well Depth	Meas. Date	2019 DTW (ft)	Aquifer Thickness (ft)	2019 Saturated Thickness (ft)	% Saturated	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('18 to '19)	5 Year Change ('14 to '19)	10 Year Change ('09 to '19)
White	05N07W09AAA1	35.079722	-91.744722	205.00	30	3/21/2019	4.06	76.00	71.94	94.66%	10.11	10.76	13.00	6.05	6.70	8.94
White	05N07W10CCC1	35.066944	-91.743056	203.00	80	3/21/2019	7.85	97.00	89.15	91.91%	7.82	8.22	10.00	-0.03	0.37	2.15
White	06N06W04AAD1	35.176944	-91.644167	217.00		3/21/2019	23.27	89.00	65.73	73.85%			41.40			18.13
White	06N06W18BBC1	35.147500	-91.697500	210.00		3/21/2019	7.52	15.00	7.48	49.87%	9.18	10.95	15.20	1.66	3.43	7.68
White	06N07W17DCC1	35.139167	-91.776111	217.00	90	3/21/2019	6.62	51.00	44.38	87.02%	8.80	9.48		2.18	2.86	
White	06N08W13ABA1	35.151944	-91.807222	228.00	60	3/21/2019	5.15	50.00	44.85	89.70%		6.45	9.90		1.30	4.75
White	07N05W32BAB1	35.193611	-91.566111	213.00	80	3/21/2019	22.16	112.00	89.84	80.21%		26.83	27.20		4.67	5.04
								Average % Saturated:		81.03%		Wells in Decline:		1	0	0
								Min % Saturated:		49.87%		Total Wells:		4	6	6
								Max % Saturated:		94.66%		Average Change:		2.47	3.22	7.78
Woodruff	04N03W03AB1	35.005556	-91.305278	185.00	100	4/16/2019	6.88	92.00	85.12	92.52%		11.60	20.60		4.72	13.72
Woodruff	05N01W13DCC1	35.045000	-91.053056	210.00	190	4/17/2019	82.30	143.00	60.70	42.45%			77.50			-4.80
Woodruff	05N02W20DCB1	35.035278	-91.232222	192.00		4/16/2019	12.12	96.00	83.88	87.38%		13.95			1.83	
Woodruff	05N04W12DBA1	35.073889	-91.369722	186.00	92	4/17/2019	2.99	86.00	83.01	96.52%		4.08	4.20		1.09	1.21
Woodruff	06N01W11AAB1	35.162222	-91.065000	215.00		4/17/2019	68.54	137.00	68.46	49.97%		66.65			-1.89	
Woodruff	07N03W19AAA1	35.226389	-91.340278	202.59	100	4/23/2019	4.21	109.00	104.79	96.14%		9.42	11.30		5.21	7.09
Woodruff	08N01W06DDD1	35.341111	-91.129722	218.00		4/23/2019	47.00	131.00	84.00	64.12%		45.25	48.00		-1.75	1.00
Woodruff	08N02W31DDD1	35.269722	-91.236389	194.55	40	4/23/2019	-1.03	110.00	111.03	100.94%		3.06	8.10		4.09	9.13
Woodruff	08N03W04BBB1	35.357778	-91.321944	221.00		4/23/2019	12.19	125.00	112.81	90.25%		16.57	18.70		4.38	6.51
Woodruff	09N03W29AAD1	35.382778	-91.322500	220.00		4/23/2019	16.12	120.00	103.88	86.57%						
								Average % Saturated:		80.68%		Wells in Decline:		0	2	1
								Min % Saturated:		42.45%		Total Wells:		0	8	7
								Max % Saturated:		100.94%		Average Change:			2.21	4.84

Total Wells in Decline:	77	63	58
Total Wells:	165	198	205
Percent of Total Wells in Decline:	46.67%	31.82%	28.29%
Total Average Change:	0.28	1.40	2.24

Appendix B

Sparta/Memphis Aquifer Water Level Monitoring Data

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Arkansas	02S04W06CDB1	124SPRT	34.553056	-91.480278	212	840	151.73	151.1	174.6	160.98	-0.63	22.87	9.25
Arkansas	02S04W23DAA1	124SPRT	34.512222	-91.398333	208	790	138.05	135.85	150.7	141.41	-2.20	12.65	3.36
Arkansas	02S04W33BBB1	124SPRT	34.489444	-91.450556	205	781	154.3	167.1	177.8	166.79	12.80	23.50	12.49
Arkansas	02S05W34ABC1	124SPRT	34.490278	-91.529722	216	758	171.03	176.65	185.3		5.62	14.27	
Arkansas	02S05W35AAB1	124SPRT	34.491667	-91.509444	216	761	165.49	171.33		176.73	5.84		11.24
Arkansas	03S04W02CCB1	124SPRT	34.463056	-91.416111	202	721	145.2		155.2	149.71		10.00	4.51
Arkansas	03S04W33BAA1	124SPRT	34.401667	-91.443611	201	878	146.97	146.95	164.5		-0.02	17.53	
Arkansas	03S05W02AAB1	124SPRT	34.478333	-91.509167	210	801	162.27	165.25	176.1	174.79	2.98	13.83	12.52
Arkansas	03S05W13BDC1	124SPRT	34.441944	-91.501111	210	910	158.98		178.6	174.57		19.62	15.59
Arkansas	03S05W15CBB1	124SPRT	34.442500	-91.541389	206	760	163.4	162.9	176.4	176.86	-0.50	13.00	13.46
Arkansas	03S05W18CAB1	124SPRT	34.441389	-91.590000	196	819	155.41		172.3	161.94		16.89	6.53
Arkansas	03S05W28DAB1	124SPRT	34.413056	-91.544444	204	832	158.33		176.8	173.68		18.47	15.35
Arkansas	04S04W11BCC1	124SPRT	34.365556	-91.416944	198	836	143.27	143.95	154.3	155.82	0.68	11.03	12.55
Arkansas	04S04W19CBB1	124SPRT	34.334167	-91.491111	195	1048	149.96	158.79	164.1	157.76	8.83	14.14	7.80
Arkansas	04S04W22DAA1	124SPRT	34.335000	-91.420833	195	800	145.48	145.9	161.5	158.64	0.42	16.02	13.16
Arkansas	04S05W01BAA1	124SPRT	34.389444	-91.498889	196	929	153.28	180.08	181.7	168.16	26.80	28.42	14.88
Arkansas	04S05W15AAA1	124SPRT	34.358889	-91.525833	201	791	157.06	166.01	179.4	169.79	8.95	22.34	12.73
Arkansas	04S05W36DCC1	124SPRT	34.297778	-91.500833	196	880	151.72	154.26		158.02	2.54		6.30
									No. Wells in Decline:		**4**	**0**	**0**
									Total Wells:		**14**	**16**	**16**
									Average Change:		**6.82**	**17.54**	**11.42**
Bradley	12S09W31CCB1	124SPRT	33.619722	-92.078889	231	846	187.69	182.3	185.8	196.99	-5.39	-1.89	9.30
Bradley	13S09W06ACA1	124SPRT	33.613056	-92.076944	201	953	162.95	154.27	163.5	207.48	-8.68	0.55	44.53
Bradley	13S09W06DBD1	124SPRT	33.606944	-92.068611	227		176.75	173.97	184.8		-2.78	8.05	
Bradley	13S11W17BCD1	124SPRT	33.581389	-92.268611	250	680	194.19	185.75	193.1	204.04	-8.44	-1.09	9.85
Bradley	15S11W31DDD1	124SPRT	33.361667	-92.272500	131		96.38	97.36	100.2		0.98	3.82	
Bradley	16S12W21CAA1	124SPRT	33.310833	-92.347778	100	457	70.74	71.56	75.98	81.12	0.82	5.24	10.38
									No. Wells in Decline:		**4**	**2**	**0**
									Total Wells:		**6**	**6**	**4**
									Average Change:		**-3.91**	**2.45**	**18.52**

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Calhoun	11S14W12CAC3	124SPRT	33.775000	-92.490833	313	460	140.49	158.8	98.2	123.3	18.31	-42.29	
Calhoun	13S12W31DAA1	124SPRT	33.542500	-92.373333	200	465	38.45	57.08	57.55		18.63	19.10	
Calhoun	13S13W32CDA1	124SPRT	33.440556	-92.461389	208	450	170.99	181.25	185	194.38	10.26	14.01	23.39
Calhoun	14S13W12CCB1	124SPRT	33.511111	-92.400833	205	613	167.42	158.08	161.4	177.48	-9.34	-6.02	10.06
Calhoun	15S13W20BDC1	124SPRT	33.402222	-92.468333	108	475	23.6		24.76	25.4		1.16	1.80
										No. Wells in Decline:	**1**	**2**	**0**
										Total Wells:	**4**	**5**	**3**
										Average Change:	**9.47**	**-2.81**	**11.75**
Cleveland	09S11W11CDB1	124SPRT	33.939444	-92.213889	233	585	157.79	161.34	160.1	162.19	3.55	2.31	4.40
Columbia	16S21W14CBB1	124SPRT	33.346944	-93.254722	281	498	194.26	185.78	207.9	199.86	-8.48	13.64	5.60
Columbia	16S21W20CDC1	124SPRT	33.328611	-93.304167	350		243.4	250	263.1		6.60	19.70	
Columbia	16S22W22CCD1	124SPRT	33.329722	-93.373611	340		132.09	132.03	140.7	138.34	-0.06	8.61	6.25
Columbia	17S19W15ABD1	124SPRT	33.260278	-93.057778	325	516	265.62	253.5	259.3	267.38	-12.12	-6.32	1.76
Columbia	17S19W30ABB1	124SPRT	33.235556	-93.114167	248	501	211.44	207.67	206.7	217.72	-3.77	-4.74	6.28
Columbia	17S21W01BBC1	124SPRT	33.295278	-93.239722	305	548	254.06	248.6	250	255.4	-5.46	-4.06	1.34
Columbia	17S21W11DCC2	124SPRT	33.269167	-93.246944	303	428	267.37	269.66	268.1	273.21	2.29	0.73	5.84
Columbia	18S20W06DDC1	124SPRT	33.195000	-93.213333	300	502	298.96	287.9	317.3	295.65	-11.06	18.34	-3.31
Columbia	18S22W27DDD1	124SPRT	33.142778	-93.366111	312	516	129.32	130.67		135.31	1.35		5.99
Columbia	19S20W08DAB1	124SPRT	33.099444	-93.198889			253.1	256.56	261.2		3.46	8.10	
Columbia	19S20W09CBD1	124SPRT	33.098611	-93.191111	332	623	243.12	261.89	260.6	264.02	18.77	17.48	20.90
Columbia	19S20W34BDD1	124SPRT	33.044167	-93.175000	290	360	201.99	202.7	207.4	201.72	0.71	5.41	-0.27
Columbia	19S21W16DBB1	124SPRT	33.088056	-93.290278	284	422	170.12	171.09	171.11	174.38	0.97	0.99	4.26
Columbia	19S23W11CDA2	124SPRT	33.102500	-93.461944	248	385	48.65	50.33	52.2	52.54	1.68	3.55	3.89
Columbia	19S23W11DDB1	124SPRT	33.101111	-93.456111	246	361	49.48	50.9	52.46	53.76	1.42	2.98	4.28
										No. Wells in Decline:	**6**	**3**	**2**
										Total Wells:	**15**	**14**	**13**
										Average Change:	**-0.25**	**6.03**	**4.83**

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Craighead	13N05E22BAD1	12405MP	35.746944	-90.545278	227		8.9	12.32			3.42		
Crittenden	09N07E21BBB1 near Heafer	12405MP	35.394783	-90.358514	216	604	24.39	25.36	25.69	26.17	0.97	1.30	1.78
Dallas	07S15W33DAC1	124SPRT	34.067222	-92.631111	475		21.15		26			4.85	
Dallas	07S16W20CAB1	124SPRT	34.099722	-92.761389	322	37.6	21.63	24.2	27.9	26.95	2.57	6.27	5.32
Dallas	08S15W34BDC1	124SPRT	33.981389	-92.616111	240	35.5	7.37	26.73		26.32	19.36		18.95
Dallas	08S16W27DDD1	124SPRT	33.993056	-92.718611	272	154	31.24	32.19	32.7	33.29	0.95	1.46	2.05
Dallas	09S13W35CCD1	124SPRT	33.885833	-92.403611	200	401	70.49			71.47			0.98
Dallas	09S16W19CAA1	124SPRT	33.934722	-92.783611	260	28.2	4.71	5.8	7.9	7.25	1.09	3.19	2.54
Dallas	10S13W34ACA2	124SPRT	33.808056	-92.415833	272	888	148.6	151.01	151.9	151.08	2.41	3.30	2.48
Dallas	10S15W18BCC1	124SPRT	33.855278	-92.688889	328	167	75.21	75.51	77.9	76.44	0.30	2.69	1.23
									No. Wells in Decline:		**0**	**0**	**0**
									Total Wells:		**6**	**6**	**7**
									Average Change:		**4.45**	**3.63**	**4.79**
Grant	03S13W12AAA1	124SPRT	34.479444	-92.351667	361	200	128.79		131.3	134.47		2.51	5.68
Grant	05S13W07ADB1	124SPRT	34.302778	-92.446944	270	452	77.75			79.53			1.78
									No. Wells in Decline:			**0**	**0**
									Total Wells:			**1**	**2**
									Average Change:			**2.51**	**3.73**
Hot Spring	05S16W35ACA1	124SPRT	34.249722	-92.697500	342	54.5	31.85		36.45	35.47		4.60	3.62
Jefferson	05S08WADB1	124SPRT	34.247867	-91.911167	197	753	268.51	273.52	281.57	269.14	5.01	13.06	0.63

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Lonoke	01N07W03BCC1	124SPRT	34.740278	-91.750833	223	285	138.41	137.57	138.21	131.94	-0.84	-0.20	-6.47
Lonoke	01N07W04BBB1	124SPRT	34.746531	-91.768969	224	280	146.62						
Lonoke	02N07W09AAA1	124SPRT	34.818333	-91.750000	232	568	106.84	104.55	104.1	100.58	-2.29	-2.74	-6.26
Lonoke	02N07W22DBA1	124SPRT	34.780833	-91.740278	227	250	141.68	141.37	138.9	134.45	-0.31	-2.78	-7.23
Lonoke	02N07W24DAC1	124SPRT	34.783889	-91.696944	231	321	153.02		172.9	152.69		19.88	-0.33
Lonoke	02N07W32DDD1	124SPRT	34.746667	-91.771667	226	277	148.01	145.34	148.6	142.3	-2.67	0.59	-5.71
Lonoke	03N07W03CAA1	12405MP	34.912472	-91.740639	235	212	83.98	86.35	84.52	80.55	2.37	0.54	-3.43
Lonoke	03N08W22DAD2	12405MP	34.867939	-91.839964	235	310	102.43	102.35	102.05	99.48	-0.08	-0.38	-2.95
Lonoke	03N08W22DAD3	12405MP	34.867778	-91.84	235	209	111.16	100.22	100.57	97.68	-10.94	-10.59	-13.48
									No. Wells in Decline:		**4**	**3**	**5**
									Total Wells:		**4**	**5**	**5**
									Average Change:		**-1.53**	**2.95**	**-5.20**
Ouachita	11S15W27ABD1	124SPRT	33.744444	-92.623611	200	318	69	67.77	69.47	70.76	-1.23	0.47	1.76
Ouachita	11S18W20AAA1	124SPRT	33.770556	-92.966389	301	55.8	43.65	43.64	34.68	43.08	-0.01	-8.97	-0.57
Ouachita	12S15W09BBA1	124SPRT	33.705000	-92.653889	213	290	48.72	49.98	53.98	58.57	1.26	5.26	9.85
Ouachita	12S16W25BDC1	124SPRT	33.658056	-92.702778	140		24.22		29.82	34.48		5.60	10.26
Ouachita	12S16W26ABD1	124SPRT	33.662500	-92.717778	134	250	18.06	20.78	18.97	35.57	2.72	0.91	17.51
Ouachita	12S18W25CAB1	124SPRT	33.660278	-92.911389	187	160	77.7	77.6	78.35	80.41	-0.10	0.65	2.71
Ouachita	12S19W09BAB1	124SPRT	33.714167	-93.064167	290	35	6.99	10.38	12.95	10.88	3.39	5.96	3.89
Ouachita	12S19W35BDD1	124SPRT	33.650278	-93.029167	350	175	155.79	156.82	159.8	157.61	1.03	4.01	1.82
Ouachita	13S16W28ADD1	124SPRT	33.571111	-92.747222	106	190	22.56	25.17	25.53	34.19	2.61	2.97	11.63
Ouachita	13S18W06BBA1	124SPRT	33.638611	-93.001667	283		113.69	114.26	115.55	114.94	0.57	1.86	1.25
Ouachita	13S18W31BDD1	124SPRT	33.561944	-92.998889	242	228	60.13	70.62	70.7	72.04	10.49	10.57	11.91
Ouachita	14S16W32BDB1	124SPRT	33.470833	-92.777500	231	69	9.63	19.94	21.64	24.31	10.31	12.01	14.68
Ouachita	14S17W02ABB1	124SPRT	33.547778	-92.823889	120	278	16.10	19.71	17.53	17.80	3.61	1.43	1.70
Ouachita	14S17W05CAD1	124SPRT	33.543889	-92.881667	157	233	34.16	35.92	37.31	37.40	1.76	3.15	3.24
Ouachita	14S17W19DBB1	124SPRT	33.500000	-92.895833	259	99	11.20	13.06	12.56	12.71	1.86	1.36	1.51
Ouachita	14S17W32CAD1	124SPRT	33.467778	-92.880833	220	301	73.45	74.80	78.39	79.50	1.35	4.94	6.05
Ouachita	14S19W29ABB1	124SPRT	33.495000	-93.086944	280	250	87.83	88.13	90.44	89.04	0.30	2.61	1.21
Ouachita	15S15W32DBB2	124SPRT	33.375833	-92.674167	119	500	139.90	143.52	153.00	170.03	3.62	13.10	30.13
Ouachita	15S16W23DAC1	124SPRT	33.404167	-92.720278	170	493	112.42	113.84	120.80	127.23	1.42	8.38	14.81
Ouachita	15S18W36ADD1	124SPRT	33.386111	-92.910000	160	220	85.95	86.87	89.96	95.24	0.92	4.01	9.29
Ouachita	15S19W21CDD2	124SPRT	33.410278	-93.075278	280	300	185.08	186.67	188.10	199.76	1.59	3.02	14.68
Ouachita	15S16W30DBD1	124SPRT	33.392222	-92.791389	137		125.39	186.73	186.69	196.60	61.34	61.30	71.21
									No. Wells in Decline:		**3**	**1**	**1**
									Total Wells:		**21**	**22**	**22**
									Average Change:		**5.18**	**6.57**	**10.93**

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Poinsett	11N02E02AAA1	124SPRT	35.622539	-90.840561	245	284	123.35						
Poinsett	11N02E10ABB1	124SPRT	35.608519	-90.864850	245		125.33						
Poinsett	11N02E11BDC1 near Weiner	12405MP	35.601528	-90.851944	244	478	122.76	122.25	119.54		-0.51	-3.22	
Poinsett	11N02E14BBB1	124SPRT	35.592700	-90.856900	244	240	116.64						
Poinsett	Un-84 Truxno	12405MP	35.946389	-90.404722	212		251.03	251.94			0.91		
									No. Wells in Decline:		**1**	**1**	
										Total Wells:	**2**	**1**	
										Average Change:	**0.20**		
Prairie	01N05W19CDC1	124SPRT	34.686944	-91.584444	212	522	141.59	155.55		141.08	13.96		-0.51
Prairie	01N06W02ABB1	124SPRT	34.744444	-91.616111	223	431	119.35	118.06		117.17	-1.29		-2.18
Prairie	01S05W06BCB1	124SPRT	34.650833	-91.591944	220	616	150.34	163.93	168.60	154.53	13.59	18.26	4.19
Prairie	01S05W20ABB1	124SPRT	34.610833	-91.564444	220	632	151.71	159.90		152.27	8.19		0.56
Prairie	01S06W01BDD2	124SPRT	34.649722	-91.603611	226	609	156.16	162.01	165.00		5.85	8.84	
Prairie	01S06W11DBD1	124SPRT	34.630000	-91.615000	226	618	160.78	170.77	170.70	161.40	9.99	9.92	0.62
Prairie	01S06W12BAB2	124SPRT	34.640556	-91.640556	228		159.13		168.10	158.26		8.97	-0.87
Prairie	02N04W19ACB1	124SPRT	34.780278	-91.466944	211	482	50.47			58.54			8.07
Prairie	02N05W21CBB2	12405MP	34.780278	-91.550000	227	160	111.01		110.89	109.29		-0.12	-1.72
Prairie	02N06W04DBB1	12405MP	34.824444	-91.647778	234	245	107.9		117.60	101.96		9.70	-5.94
Prairie	02N06W20BCB1	124SPRT	34.785000	-91.675556	236	330	152.82	160.90	157.10	141.86	8.08	4.28	-10.96
Prairie	02N06W21DAD1	124SPRT	34.778889	-91.641389	232	314	122.84	127.82	124.90	121.35	4.98	2.06	-1.49
Prairie	02N06W22BDD1	124SPRT	34.781389	-91.633333	233	451	120.46	127.81	127.70	128.97	7.35	7.24	8.51
Prairie	02N06W24CAA2	124SPRT	34.780833	91.597500	231	535	118.02	117.96	119.23	115.10	-0.06	1.21	-2.92
Prairie	04N06W33ABA1	124SPRT	34.933889	91.643261	220	152	87.08						
									No. Wells in Decline:		**2**	**1**	**8**
										Total Wells:	**10**	**10**	**13**
										Average Change:	**7.06**	**7.04**	**-0.36**

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Union	16S14W15CAB1	124SPRT	33.328889	-92.538056	94	466	111.69	113.71	134.00	152.73	2.02	22.31	41.04
Union	16S14W34CBC1	124SPRT	33.283611	-92.541389	150		228.73	246.20	257.20		17.47	28.47	
Union	16S15W20DAA1	124SPRT	33.316389	-92.665833	190	603	223.30	228.70	251.30	252.98	5.40	28.00	29.68
Union	16S15W31ACC1	124SPRT	33.288056	-92.691111	168	630	217.72	219.77	243.80	259.78	2.05	26.08	42.06
Union	16S16W02ABC1	124SPRT	33.368056	-92.725000	116	552	132.20	136.07	146.80	158.63	3.87	14.60	26.43
Union	16S18W34ABC2	124SPRT	33.301389	-92.952500	248	465	201.70	194.03	208.80	211.24	-7.67	7.10	9.54
Union	17S13W31BAC1	124SPRT	33.200000	-92.487500	216	772	211.99	259.35	243.10	308.27	47.36	31.11	96.28
Union	17S14W10DCC1	124SPRT	33.248889	-92.534167	180	300	87.17	89.62	91.49	99.27	2.45	4.32	12.10
Union	17S14W15ABA1	124SPRT	33.247222	-92.533611	180	250	86.94	89.24	71.76	97.91	2.30	-15.18	10.97
Union	17S14W22BAB1	124SPRT	33.231667	-92.540000	201	607.2	251.98	255.20	272.30		3.22	20.32	
Union	17S15W06BAA1	124SPRT	33.279167	-92.692500	168	630	191.90	199.13	215.20	231.03	7.23	23.30	39.13
Union	17S15W08CDD1	124SPRT	33.251389	-92.674167	174.92	667	236.65	237.33	259.40	279.20	0.68	22.75	42.55
Union	17S15W18DBB1	124SPRT	33.243889	-92.691389	182.93	540	248.10	249.67	275.90	295.76	1.57	27.80	47.66
Union	17S15W28DBA1	124SPRT	33.212778	-92.652500	235	668	292.10	296.19	319.20	334.12	4.09	27.10	42.02
Union	17S15W28DCC1	124SPRT	33.210278	-92.655833	285	754	343.63	354.95	366.90	426.09	11.32	23.27	82.46
Union	17S15W31DCA1	124SPRT	33.195556	-92.687778	272	753	343.85	343.66	384.10	380.73	-0.19	40.25	36.88
Union	17S15W31DCB1	124SPRT	33.196958	-92.690836	258		99.47	100.66			1.19		
Union	17S15W33ABB1	124SPRT	33.206389	-92.656944	267		335.38	335.86	360.10		0.48	24.72	
Union	17S15W36BAB1	124SPRT	33.204722	-92.607778	245		306.28	320.56	329.20		14.28	22.92	
Union	17S16W01BAA1	124SPRT	33.280278	-92.708889	157		222.90	224.06	250.90	268.10	1.16	28.00	45.20
Union	17S17W25DBA2	124SPRT	33.215556	-92.810278	250	648	290.89	292.73	313.40	328.58	1.84	22.51	37.69
Union	17S17W30DCD1	124SPRT	33.216667	-92.898889	280	690	278.75	276.76	288.60	325.07	-1.99	9.85	46.32
Union	18S12W33BBB1	124SPRT	33.114444	-92.355278	112	466	127.19	122.30	140.80	136.20	-4.89	13.61	9.01
Union	18S12W33CBC1	124SPRT	33.105000	-92.353611	112		115.82	115.38	112.40		-0.44	-3.42	
Union	18S13W16ADD1	124SPRT	33.154167	-92.442778	205		181.29	183.36	177.40		2.07	-3.89	
Union	18S14W06CCD1	124SPRT	33.177778	-92.591944	225	783	294.00	280.28	340.50	339.28	-13.72	46.50	45.28
Union	18S15W03DAB2 Welcome Cen	124SPRT	33.185278	-92.633889	240		300.36	304.10			3.74		
Union	18S15W22DCD1	124SPRT	33.135410	-92.636266	188		203.32	207.37			4.05		
Union	18S15W33ADA1	124SPRT	33.116389	-92.649444	253	752	310.56	309.02	365.70	347.84	-1.54	55.14	37.28

Sparta Aquifer
Hydrologic Data 2019, 2018, 2014, 2009

County	Local Well ID	Aquifer Code	Latitude	Longitude	Land Surface Altitude (fmsl)	Well Depth	2019 DTW (ft)	2018 DTW (ft)	2014 DTW (ft)	2009 DTW (ft)	1 Year Change ('19 to '18)	5 Year Change ('19 to '14)	10 Year Change ('19 to '09)
Union	18S16W11DAC1	124SPRT	33.169722	-92.721389	270	767	347.21	337.72	377.70	401.94	-9.49	30.49	54.73
Union	18S16W12ACD1	124SPRT	33.173056	-92.706667	284	229	344.79						
Union	18S16W28BBB1	124SPRT	33.135833	-92.769722	225	636	266.45	269.02	283.00	329.26	2.57	16.55	62.81
Union	18S17W22BDD1	124SPRT	33.148611	-92.848889	285	705	304.34	306.30	320.40	331.58	1.96	16.06	27.24
Union	18S18W11ACD2	124SPRT	33.180556	-92.937500	239		235.48	243.70	245.20	261.67	8.22	9.72	26.19
Union	19S10W16CBC1	124SPRT	33.058056	-92.150833	82	652	77.30	79.18	85.59	89.87	1.88	8.29	12.57
Union	19S11W23ACA1	124SPRT	33.048611	-92.207778	142	500	143.36	144.37	148.40	152.67	1.01	5.04	9.31
Union	19S11W25AAA1	124SPRT	33.038611	-92.186667	135	529	141.12	141.35	143.20	151.75	0.23	2.08	10.63
Union	19S12W13AAA1	124SPRT	33.069722	-92.287778	180	339	165.05	155.24	165.60	159.05	-9.81	0.55	-6.00
Union	19S15W01CCA1	124SPRT	33.092778	-92.612500	182	318	31.30	30.93	21.85	68.93	-0.37	-9.45	37.63
Union	19S16W35DDC1	124SPRT	33.019167	-92.723611	175	601	190.26	194.80	220.80	219.84	4.54	30.54	29.58
Union	19S17W16BAA1	124SPRT	33.081944	-92.864444	238		239.03	241.41	251.00		2.38	11.97	
Union	19S18W14ADA1	124SPRT	33.080833	-92.935278	260	380	185.33	186.58	188.90	192.15	1.25	3.57	6.82
									No. Wells in Decline:		**10**	**4**	**1**
									Total Wells:		**41**	**38**	**31**
									Average Change:		**2.77**	**17.71**	**33.91**

Total Wells in Decline:	**35**	**17**	**17**
Total Wells:	**123**	**124**	**116**
Percent of Total Wells in Decline:	**28.46%**	**13.71%**	**14.66%**
Total Average Change:	**3.09**	**9.88**	**13.30**