RED RIVER COMPACT COMMISSION

AGENDA
RED RIVER COMPACT COMMISSION
44th ANNUAL MEETING

April 23-24, 2024
Quartz Mountain Lodge
22469 Lodge Rd., Lone Wolf, Oklahoma 73655

Tuesday, April 23, 2024 – Caddo Room

9:00 a.m. Red River Compact Commission Committee Meetings

I. Budget Committee – Ryan Benefield, Chair

II. Environmental Committee – Bill Cauthron, Chair

III. Engineering Committee – Yohanes Sugeng, Chair

IV. Legal Committee – Sara Gibson, Chair

Field Tour Departs at 2:00 p.m. to 5:00 p.m.

Evening Dinner at Commissioner Dobbs' lake house at 6:30 p.m.

Wednesday, April 24, 2024 – Caddo Room

9:00 a.m. Red River Compact Commission Annual Meeting

V. Call to Order – Chair Sue Lowry

VI. Welcome and Introductions

VII. Approval of the Agenda

VIII. Approval of the Minutes of the April 26, 2023, RRCC Annual Meeting held in Hot Springs, Arkansas

IX. Report of the Chair – Chair Sue Lowry

X. Report of the Treasurer Ryan Benefield, Arkansas

VII. Report of the Commissioners

A. Arkansas
B. Texas
C. Oklahoma
D. Louisiana

VIII. Report of the Committees

A. Budget Committee – Ryan Benefield
B. Environmental Committee – Bill Cauthron
C. Engineering Committee – Yohanes Sugeng
D. Legal Committee – Sara Gibson

IX. Federal Agency Reports

A. U.S. Army Corps of Engineers
B. Bureau of Reclamation
C. U.S. Geological Survey
D. Natural Resources Conservation Service

X. Discussion Topics

A. Approval for destruction of files from Chair Fassett
B.
C.
D.

XI. New Business

A. Annual Report – Schedule and Assignments
B. Commission Assignments to Committees
C. Election of Officers
D. Appointments or Changes to Committees
E. 45th Annual Meeting – Louisiana to host

XI. Public Comment

XIII. Adjournment

RED RIVER COMPACT COMMISSION

44th Annual Meeting

Minutes

April 24, 2024
9:00 a.m.

I. Call to Order

Madam Chair Sue Lowry called the meeting to order at 9:00 a.m. at the Quartz Mountain Lodge in Lone Wolf, Oklahoma. Chairperson Lowry asked members and guests to introduce themselves.

II. Welcome and Introductions:

Members Present:
Sue Lowry, Chair, Federal Commissioner
Chris Colclasure (proxy for Wesley Ward), Arkansas Commissioner
Daniel York, Arkansas Commissioner
Edward Knight, Louisiana Commissioner
Julie Cunningham, Oklahoma Commissioner
Charles Dobbs, Oklahoma Commissioner
Robin Phillips, Texas Commissioner
Scott Van Winkle (proxy for Kelly Keel), Texas Commissioner
Ryan Benefield, Treasurer
Tamara Lilly, Secretary

Members Absent:
No members were absent

*Madam Chair Lowry asked if any changes to the directory need to be made, please do so.

*Approval for compact minutes was discussed as well as the annual report possible being approved via email prior to the next annual compact.

Commissioner Cunnigham made a comment for a desire to strive for earlier meeting minutes.

III. Approval of the Agenda

Madam Chair Lowry requested suggestions for changes to the agenda. None were made.

Commissioner Knight made a motion to approve the minutes; Commissioner Cunningham seconded the motion, motion passed.

IV. Approval of the minutes: of April 26, 2023, Red River Compact Commission (RRCC) annual meeting held in Hot Springs, Arkansas.

Madam Chair Lowry questioned if there was a need for any changes or corrections. None were needed and Madam Chair Lowry asked for a motion; Commissioner Colclasure made a motion to approve, and chairman Moore seconded the motion; motion passed.

V. Report of the Chair

Madam Chair Lowry discussed the Resolution of support for stream gaging.

VI. Report of the Treasurer

Treasurer Ryan Benefield, Arkansas, presented the report of the treasurer. Mr. Benefield stated the account balance totals $38,708.90 to include the Centennial Bank balance and the Certificate of Deposit balance. There will be no need to increase dues at this time.

Mr. Benefield made a request to the compact to change the Centennial Bank accounts to an interest-bearing account.

Madam Chair Lowry requested a motion from the commission allowing Mr. Benefield to change bank accounts for the benefit of the compact. Commissioner Moore made a motion and Commissioner Dobbs seconded; motion passed.

*Commissioner Cunningham questioned the audit timeframe.
*Answer: Mr. Benefield stated we went from a three-year audit to a five-year audit.
*Commissioner Cunningham asked if we are missing out on interest; can we change that to an interest account? Or is that what you are attempting to do currently. So, are we authorizing you to choose these accounts? Is this something we need to move on?
*Answer: No, this is not an interest-bearing account so that is why I am wanting to move this into an interest-bearing account.
*Commissioner Cunningham again questioned if we need to authorize the treasure to choose and move these accounts.
*Madam Chair Lowry responded it depends how specific do we want this motion to be? I think the motion we just passed allows the treasurer to move these accounts.
*Multiple commissioners voiced that was the intent of the motion that just passed. *
*Madam Chair Lowry asked if the motion was defined enough?
*Commissioner Cunnigham stated that the open discussion on record is good enough.

VII. Report of the Commissioners

A. Chris Colclasure, Proxy Arkansas Commissioner, presented the Arkansas Commissioners report, highlighting the following:

- Red River monitoring
- Arkansas Nutrient Reduction Strategy (ANRS)
- Arkansas Groundwater Protection and Management
- Mississippi River Valley Alluvial Aquifer Water Levels
- Sparta aquifer water Levels
- Nacatoch Aquifer Levels
- Tokio Aquifer Water Levels
- Arkansas Water-Use Registration Program
- Groundwater quality
- Arkansas Unpaved Road Program
- Arkansas Section 319 Nonpoint Source Pollution Management Program
- Upper Saline River
- Lower Ouachita-Smackover
- Lower Litte River
- Cossatot River Sustainable Rivers Project Program (SRP)
- Southwest Arkansas Navigation Feasibility Study
- Arkansas Feral Hog Eradication Task Force
- State Water Plan Update

B. Robin Phillips, Texas Commissioner, bestowed the honor of giving the report to Scott Van Winkle. Mr. Van Winkle highlighted the following:

- Drought conditions are being reported as of April 14th, 2024, 47% in some level of drought with 10% in severe drought status. However, this is an improvement from last year when 78% of Texas was in drought.
- The Red River Basin reflects 15% is in drought conditions.
- We expect drought conditions to persist.
- 2022 Texas Water Plan and the State Water Implementation Fund Program.
- SWIFT Plan

Question: How did the SWIFT program get started, seed money come from?

Answer: It is bonds.

C. Ed Knight, Louisiana Commissioner, presented the Louisiana report. Mr. Knight highlighted the following:

- Louisiana was spared a volatile hurricane season
- Status of stream flows at AR/LA Stateline with relation to the Specifications of the Red River Compact.
- Looking to implement water management plans for the state.
- Watershed initiative/management plan
- Environmental report
- Drought report
- Water temperatures and effect on wildlife

Question: On your watershed program, you had multiple consulting firms, did that work well?

Answer: I believe it worked out well. We settled on seven different firms and the best in the country working for us. The biggest plus was the meetings and open communication of everyone together.

D. Julie Cunningham, Oklahoma Commissioner, presented the Oklahoma report. Cunningham highlighted the following:

- Climate and drought conditions
- Aquifer Decline/ Regulation of Groundwater use
- 2025 Update of Oklahoma Comprehensive Water Plan
- Statewide Flood Resiliency Plan
- Water infrastructure investments
- Water Rights Permitting
- Hydrologic investigations
- Flood Plain Management
- Dam Safety Program
- Well Driller and Pump Installer Program
- Water Assessment, Trends and Environmental Research, including Lakes Monitoring, Stream Monitoring and Data Science and management.
- Current legislation highlighting HB 3194, SB 1341 and SB 1331.

VIII. Report of the Committees

A. Budget Committee - Ryan Benefield, Arkansas Department of Agriculture, Natural Resources Division, presented a report of the Budget Committee of the Red River Compact Commission. Total funds available are $41,854.44

Madam Chair Lowry requested a motion to approve the budget. Commissioner Knight made a motion to approve the budget; Commissioner York seconded. Motion passed.

B. Environmental Committee – Bill Cauthron, Oklahoma Water Resources Board, , presented the Environmental report.

Arkansas

- Water Quality Study Area
- Impaired Waterbody Updates
- Total Maximum Daily Load Prioritization
- Nonpoint Source Management Impacts
- Nonpoint Source program Updates
- US Army Corps of Engineer Projects
- Sustainable Rivers Program
- Water Resources Development Act (WRDA) Projects

Louisiana

- Success in improving water quality
- Drought-flow levels

Oklahoma

- Oklahoma is installing a great number of real time data sensors for groundwater
- OCWP- looking at Water Quality trends
- Bulk of our data is now available online

Texas

- Zebra Mussels is an ongoing issue
- Impaired Waters impact

Question: Any other states running into an Apple Snail issue? It's a growing problem in Louisiana and they produce neuro toxins and are literally the size of apples.

Comments: Arkansas has just received their first report of apple snails; Good news on the Apple snail front, Louisiana has a bird never seen in Louisiana before here and they primarily feed on Apple Snails.

C. Engineering Committee – Chris Neel, Oklahoma Water Resources Board presented the Engineering report.

- Upper Red River project has been completed, over an eight-year period. Some evidence may suggest ground water being a player in flows into Lugert-Altus Reservoir.
- Both Arkansas and Louisiana droughts still being a major contributor to levels in several aquifers.

D. Legal Committee – Sara Gibson, Oklahoma Water Resources Board, presented the Legal report.

- Tribal settlement between the Choctaw and Chickasaw Nations has been finalized and is enforceable. This affects the way OWRB issues permits in the 22 Southeast counties which impact the Red River Basin area.
- Louisiana partnered with the Water Institute of the Gulf.
- Discussed documents/reports of the Red River Compact and we are discussing where and how to store these.
- Final minutes to be approved closer to actual meeting

*Madam Chair Lowry made comments regarding files of past Chair Fassett. She suggested that these files be destroyed and asked for comments.

Comments: Legal committee- Scan notes to legal committee. Send documents to Sara in Oklahoma.

IX. Federal Agency Reports

A. U.S. Army Corps of Engineers – Jeff Knach reported on the multiple projects along the Red River. Updated master plan on Broken Bow Lake; Received funding for Pat Mayse lake/Camp Massey WWII training facility cleanup; Swine management at Lake Texoma; Waurika Lake for fluoride control;

B. U.S. Geological Survey – Max White from Baton Rouge reported on the lower Mississippi Gulf within the Red River Compact area. Concerns within the watershed with decline of stream flow. We are proposing a project to build groundwater model to simulate conditions, discover declines and collect additional data.

C. Bureau of Reclamation – Nathan Kuhnert and Collins Balcombe reported. Upper Red River Basin study completed in seven years and cost $3.0 million dollars. New integrated groundwater-surface water models were developed; identified causes of reservoir supply shortages and solutions evaluated through modeling was a new framework for managing water rights during future periods of drought.

Madam Chair Lowry announced a break

D. Natural Resources Conservation Service – Roderick Dukes, USDA reported. In Texas, a dam within the Pine Creek watershed side slopes had eroded due to lack of armoring on the plunge basin. The plunge basin was reshaped and subsequently armored with rock and spillway pipe tail stabilized with a concrete cradle. In Oklahoma, Jeanne Hamilton was named Oklahoma State Conservationist, Ms. Hamilton is the first female state conservationist and brings over 25 years' experience.

X. Discussion Topics

A. Approval for destruction of files from Chair Fassett. * This item was moved for vote under the legal committee. *

XI. New Business

A. Annual Report- Schedule and Assignments- no new ass

B. Commission Assignments to Committees- Appointments or Changes to Committees – Commissioner Cunnigham made changes to the Engineering and Budget Committee and appointed Chris Neel; Environmental Committee appointed Lance Phillips.

C. Election of Officers – Secretary will be Scott Van Winkle

D. Appointments or changes to Committees- item covered under item B.

E. 45th Annual Meeting – Texas will host the 45th annual meeting on April 22 and 23, 2025.

XII. Public Comments

Jennifer Sheehan from AR Fish and Game made comments regarding feasibly study in the Salt River and the Washita River watershed study.

XIII. Adjournment

Chairman Lowry thanked everyone for attending and adjourned the meeting at 11:28 a.m.

X

Sue Lowry
Federal Commissioner

X

Julie Cunningham
Commissioner

X

Charles Dobbs
Commissioner

X

Robin Phillips
Commissioner

X

Kelly Keel
Commissioner

X

Wesley Ward
Commissioner

X

Edward Knight
Commissioner

X _____

John Michael Moore
Commissioner

X _____

Dan York
Commissioner

Sarah Huckabee Sanders
Governor

ARKANSAS DEPARTMENT OF AGRICULTURE

1 Natural Resources Drive, Little Rock, AR 72205
agriculture.arkansas.gov
(501) 225-1598

Wes Ward
Secretary of Agriculture

April 1, 2024

Ms. Sue Lowry
Chairman and Federal Representative
Red River Compact Commission
Avocet Consulting LLC
5721 Syracuse Road
Cheyenne, Wyoming 82001

Dear Chairman Lowry,

I regret to inform you that I am unable to participate in the 2024 annual meeting of the Red River Compact Commission to be held in Oklahoma on April 23-24, 2024 due to previous commitments. In my absence, I grant my proxy vote to Chris Colclasure, Director of the Natural Resources Division of the Arkansas Department of Agriculture.

Respectfully,

Wesley W. Ward
Secretary of Agriculture
State of Arkansas

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 9, 2024

Ms. Sue Lowry
Chairman and Federal Representative
Red River Compact Commission
Avocet Consulting LLC
5721 Syracuse Road
Cheyenne, Wyoming 82001

Dear Chairman Lowry,

I regret that I am unable to participate in the 2024 Red River Compact Commission Annual Meeting to be held April 23-24, 2024 in Oklahoma due to previous commitments. In my absence, I grant my support and proxy vote as Commissioner to Mr. Richard Scott Van Winkle, Texas Commission on Environmental Quality, Engineer Advisor to the Red River Compact Commission, who plans to attend as representative for the TCEQ.

My best wishes to the Commission for a successful meeting.

Sincerely,

Kelly Keel
Executive Director

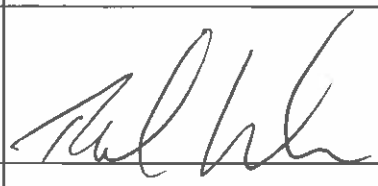
Cc: Mr. Richard Scott Van Winkle, Texas Commission on Environmental Quality, Engineer Advisor to the Red River Compact Commission

Red River Compact Commission - Committee Meeting
DATE: ~~April 24, 2024~~ April 23, 2024
TIME: 9:00 a.m.

VISITOR SIGN-IN

Please print legibly and sign

NAME	STATE/ORGANIZATION	SIGNATURE
Machelle Hall	La. / LaDOJ	Machelle Lee Hall
John Michael Moore	LA / Commissioner	John Michael Moore
Galen Roberts	TX/North Texas Municipal Water Dist.	G R
Lance Phillips	OWRB	
Robin Phillips	TX/commissioner	
jennifer sheehan	AR Game & Fish	
Morgan Rogers	LA / LA DOJ	Morgan Rogers
Fabian Heaney	Red River Authority of Texas	
Jeff Lunack	USACE, Tulsa District	

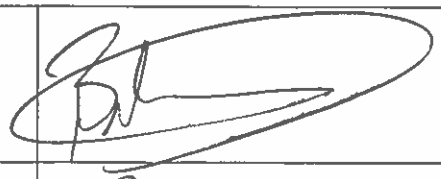
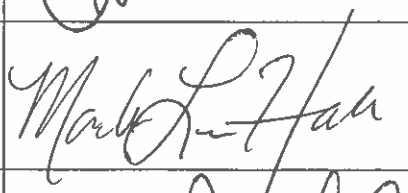
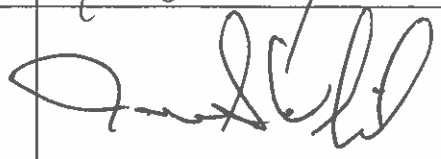
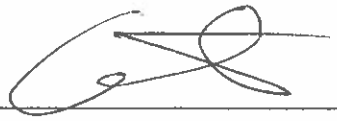
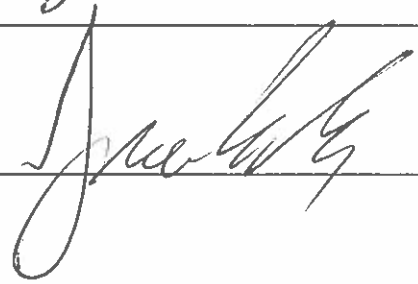
PRINT	COMPANY	SIGNATURE
Corey Seats	AR Dept. of Ag	
Tate Wentz	AR. Dept. of Ag. Natural Resources	

Red River Compact Commission
DATE: April 24, 2024
TIME: 9:00 a.m.

VISITOR SIGN-IN

Please print legibly and sign

NAME	STATE/ORGANIZATION	SIGNATURE
Corey Scott	AR Dept of Ag	
Tate Wurtz	"	
Jeanne Hamilton	USDA NRCS (OK)	
Jeff Knack	USACE, Tulsa District	
Robert Phillips	TX/Comm	
Jason Lenic	USGS	
Fabian Heaney	Red River Authority of Texas	
Roderick Dukes	USDA/NRCS OK	
Morgan Rogers	LA / LA DOJ	

PRINT	COMPANY	SIGNATURE
Billy Williamson	LaDOTD	
M. Carl Myers	Texas OAG	
Machelle Hall	La DOTD	
Jay Whisker	ADA - Natural Resources	
Galen Roberts	North TX Municipal Water Dist.	
Lyan Berchfield	ADA - Natural Resources	
jennifer sheehan	AR Game & Fish	

RED RIVER COMPACT COMMISSION

RESOLUTION
OF THE
RED RIVER COMPACT COMMISSION
REGARDING
THE FUNDING OF STREAMFLOW GAGES
April 24, 2024

WHEREAS, the Red River Compact, signed May 12, 1978, and approved by Congress, apportions the waters of the Red River basin between the States of Arkansas, Oklahoma, Texas and Louisiana;

WHEREAS, the four states have worked cooperatively together to develop and maintain the streamflow gaging network necessary to administer the provisions of the Compact;

WHEREAS, the cooperation and the establishment of this gaging network has resulted in the administration of this Compact with minimal controversy and no interstate litigation;

WHEREAS, the apportionment and calculations required to administer the Compact necessitate the maintenance of streamflow gages along the Red River and its tributaries at critical locations to measure the flow of water;

WHEREAS, it is critical for the administration of the Red River Compact that these streamflow gages be maintained;

WHEREAS, the U.S. Geological Survey (USGS) has historically entered into cost share agreements with cooperators to maintain a nationwide streamflow gaging network through the USGS Cooperative Water Program, now known as Federal Priority Streamgages (FPS), operating under the Groundwater and Streamflow Information Program (GWSIP);

WHEREAS, the USGS established goals to satisfy minimum national streamflow information needs with the intent to support these gages entirely with federal funds;

WHEREAS, a priority goal of the USGS GWSIP is to "meet legal and treaty obligations on interstate compacts and international waters;"

WHEREAS, the streamflow gages necessary to administer the Red River Compact qualify under this priority goal for full federal funding under the USGS GWSIP.

NOW, THEREFORE, BE IT RESOLVED that, the Red River Compact Commission requests that Congress fully fund the USGS GWSIP gages associated with the Red River basin and Red River Compact and the USGS place a priority on funding these gages under this program.

BE IT FURTHER RESOLVED that, federal funding for the USGS GWSIP be restored to ensure the 50/50 cost share for the jointly funded activities with localities and states and fully fund the high-priority federal streamflow gages (historically referred to as the National Streamflow Information Program).

BE IT FURTHER RESOLVED that, a copy of this resolution be sent to the members of the congressional delegations for the States of Arkansas, Oklahoma, Texas and Louisiana, the Secretary of the Interior, and the Director of the USGS.

Sue Lowry
Federal Commissioner and Chairman
Red River Compact Commission

Date Executed
April 24, 2024

Concurred to and supported by:

Scott Van Winkle
(Acting Commissioner for Texas)

Robin Phillips
Commissioner for Texas

Edward M. Knight
Commissioner for Louisiana

John Michael Moore
Commissioner for Louisiana

Charles Lynn Dobbs
Commissioner for Oklahoma

Julie Cunningham
Commissioner for Oklahoma

Wes Ward
Commissioner for Arkansas

Dan York
Commissioner for Arkansas

Red River Compact Commission
Officers and Committee Members
2024

CHAIRMAN/FEDERAL COMMISSIONER

Sue Lowry
Avocet Consult, LLC
5721 Syracuse Rd
Cheyenne, WY 82009
(307) 630-5804
avocetconsult@gmail.com

OKLAHOMA COMMISSIONERS

Julie Cunningham, Executive Director
Oklahoma Water Resources Board
3800 N. Classen Boulevard
Oklahoma City, OK 73118
(405) 530-8800
(405) 530-8900 FAX
julie.cunningham@owrb.ok.gov

Charles L Dobbs
Dobbs & Braddock Inc.
PO Box 1148
325 N Hudson
Altus, OK 73522
work (580) 482-3311
cell (580) 482-0307
charlesdobbs@sbcglobal.net

TEXAS COMMISSIONERS

Kelly Keel, Executive Director, TCEQ
P.O. Box 13087
Austin, Texas 78711
(512) 239-1000

Robin Phillips
1126 S. Crockett
Sherman, Texas 75090
(903) 814-7273
robin@robinphillipsrealtor.com

LOUISIANA COMMISSINOERS

John Michael Moore
President
Haynesville Mercantile Company
2250 Hospital Drive, Suite 220
Bossier City, LA 71111
(318) 746-2805
jmmoore@haynesvillemercantile.com

Edward Knight, P.E
LA Dept. of Transportation and Development
P.O. Box 94245, Capitol Access Rd.
Baton Rouge, LA 70804-9245
(225) 379-3015
edward.knight@la.gov

ARKANSAS COMMISSIONERS

Wes Ward, Arkansas Secretary of Agriculture
1 Natural Resources Drive
Little Rock, AR 72205

William Daniel York
2919 Highway 32 West
Foreman, AR 71836

PH: (501) 225-1598
wes.ward@agriculture.arkansas.gov

cell (903) 276-3306
office (870) 542-6196
dan@yorkpecans.com

TREASURER

Ryan Benefield, P.E., Deputy Director
Arkansas Department of Agriculture
Natural Resources Division
10421 W Markham St.
Little Rock, AR 72205
(501) 682-3962
(501) 682-3991 FAX
ryan.benefield@agriculture.arkansas.gov

SECRETARY

Edward Knight, P.E.
Louisiana Department of
Transportation & Development
P.O. Box 94245, Capitol Access Rd.
Baton Rouge, LA 70804-9245
(225) 379-3007
(225) 379-3002 FAX
edward.knight@la.gov

BUDGET COMMITTEE

Ryan Benefield, P.E., Deputy Director
Arkansas Department of Agriculture
Natural Resources Division
10421 W Markham St.
Little Rock, AR 72205
(501) 682-3962
(501) 682-3991 fax
ryan.benefield@agriculture.arkansas.gov

Chris Neel, Division Chief
Water Rights Administration Division
Oklahoma Water Resources Board
3800 N. Classen Blvd.
Oklahoma City, OK 73118
(405) 530-8800
(405) 530-8900 fax
chris.neel@owrb.ok.gov

Scott VanWinkle
Texas Comm. on Environmental Quality
P.O. Box 13087, Capitol Station, MC 160
Austin, Texas 78711-3087
Tel: (512) 239-4696
Fax: (512) 239-2214
scott.vanwinkle@tceq.texas.gov

Billy Williamson, P.E
Louisiana Department of
Transportation & Development
P.O. Box 94245, Capitol Access Rd.
Baton Rouge, LA 70804-9245
(225) 379-3023
billy.williamson@la.gov

ENGINEERING COMMITTEE

Jay Whisker, P.E., Engineer Supervisor
Arkansas Department of Agriculture
Natural Resources Division
10421 W Markham St.
Little Rock, AR 72205

Chris Neel, Chief of Water Rights
Oklahoma Water Resources Board
3800 N. Classen Blvd.
Oklahoma City, OK 73118
(405) 530-8867

(501) 682-3980/ (501) 682-3991 fax
Jay.whisker@agriculture.arkansas.gov

(405) 530-8900 fax
chris.neel@owrb.ok.gov

Scott VanWinkle
Texas Comm. on Environmental Quality
P.O. Box 13087, MC 160
Austin, TX 78711-3087
(512) 239-4696
(512) 239-2214
scott.vanwinkle@tceq.texas.gov

Billy Williamson, P.E.
Louisiana Department of
Transportation & Development
P.O. Box 94245, Capitol Access Rd.
Baton Rouge, LA 70804-9245
(225) 379-3023
(225) 379-3002 FAX
billy.williamson@la.gov

ENVIRONMENTAL AND NATURAL RESOURCES COMMITTEE

Tate Wentz, Water Quality Section Manager
Arkansas Department of Agriculture
Natural Resources Division
10421 W Markham St.
Little Rock, AR 72205
(501) 682-3979
(501) 682-3991 FAX
tate.wentz@agriculture.arkansas.gov

Lance Phillips, Programs Manager
Water Quality Programs Division
Oklahoma Water Resources Board
3800 N. Classen Blvd.
Oklahoma City, OK 73118
(405) 530-8800
(405) 530-8900 FAX
lance.phillips@owrb.ok.gov

Scott VanWinkle
Texas Comm. on Environmental Quality
P.O. Box 13087, MC 160
Austin, TX 78711-3087
(512) 239-4696
(512) 239-2214
scott.vanwinkle@tceq.texas.gov

Billy Williamson, P.E.
Louisiana Department of
Transportation & Development
P.O. Box 94245, Capitol Access Rd.
Baton Rouge, LA 70804-9245
(225) 379-3023
(225) 379-3002 FAX
billy.williamson@la.gov

LEGAL COMMITTEE

Kolton Jones, Attorney
Arkansas Department of Agriculture
1 Natural Resources Drive
Little Rock, AR 72205
(501) 225-1598
kolton.jones@agriculture.arkansas.gov

Sara Gibson
General Counsel
Oklahoma Water Resources Board
3800 N. Classen Boulevard
Oklahoma City, OK 73118
(405) 530-8800
sara.gibson@owrb.ok.gov

Wade Hodge
Chief Counsel
Arkansas Department of Agriculture
1 Natural Resources Drive
Little Rock, AR 72205
office (501) 219-6361
cell (501) 454-3071
wade.hodge@agriculture.arkansas.gov

Lesia Warren, General Counsel
Louisiana Department of Transportation
P.O. Box 94245, Capitol Station
Baton Rouge LA 70808
(225) 242-4672
lesia.b.warren@la.gov

Carl Myers
Deputy Division Chief
Office of the Attorney General
P. O. Box 12548
Austin, Texas 78711-2548
(512) 475-4089
cell (512) 596-8112
carl.myers@oag.texas.gov

Machelle Hall
Assistant Attorney General, Civil Division
Office of Attorney General Jeff Landry
P.O. Box 94005
Baton Rouge, LA 70804
(225) 326-6085
(225) 326-6099 FAX
hallm@ag.louisiana.gov

FEDERAL AGENCIES

U.S. Geological Survey
Lower Mississippi-Gulf Water
Science Center
401 Hardin Road
Little Rock, Arkansas 72211
(501) 228-3643/(501) 516-6399 cell
Drew Westerman dawester@usgs.gov

U.S. Geological Survey
Lower Mississippi-Gulf Water
Science Center
3095 West California Ave
Ruston, LA 71270
(318) 251-9630/(318) 548-1637
Aub Ward anward@usgs.gov

U.S. Geological Survey
Oklahoma-Texas Water Science
Center, Oklahoma Branch
202 NW 66th Building 7
Oklahoma City, OK 73116
(405) 810-4400/(405) 843-7712

Jason Lewis jmlewis@usgs.gov

U.S. Geological Survey
Oklahoma-Texas Water Science
Center, North Texas Branch
8802 Urbana Ave
Lubbock, TX 79424
(806) 993-0233/(806) 993-0235 fax

Gary Burke gfburke@usgs.gov

U.S. Bureau of Reclamation
5316 Hwy 290 West, Suite 110
Austin, TX 78735-8931
(512) 899-4164/(512) 899-4179 fax
Mark Trevino mtrevino@usbr.gov

U.S. Bureau of Reclamation
5924 NW 2nd, Suite 200
Oklahoma City, OK 73127
(405) 470-4800/(405) 470-4807 fax
Nathan Kuhnert nkuhnert@usbr.gov

Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302
(318) 473-7751/(844) 325-6947 fax
Chad Kacir richard.kacir@usda.gov

Natural Resources Conservation Service
100 USDA Suite 203
Stillwater, OK 74074-2655
(405) 742-1205
Jeann Hamilton Jeanne.hamilton@usda.gov
Roderick Dukes Roderick.dukes@usda.gov

Natural Resources Conservation Service
WR Poage Federal Building
101 S. Main
Temple, TX 76501
(254) 742-9800
Kristy Oates kristy.oates@usda.gov

Natural Resources Conservation Service
WR Poage Federal Building
101 S. Main
Temple, TX 76501
(254) 742-9888/(254) 223-3681 cell
Robert Ziehr robert.ziehr@usda.gov

Natural Resources Conservation Service
700 West Capitol Ave.
Room 3416
Little Rock, AR 72201
(501) 301-3100
Mike Sullivan
michael.sullivan2@usda.gov

U.S. Army Corps of Engineers
SW Division
Earle Cabell Federal Building
1100 Commerce Street, Suite 831
Dallas, TX 75242-0216
(469) 487-7007
ceswd-pa@usace.army.mil

U.S. Army Corps of Engineers,
Mississippi Valley Division
4155 E. Clay Street
Vicksburg, MS 39183
(601) 631-5741
Katy Breaux, Red River Project Manager
katy.breaux@usace.army.mil

U.S. Army Corps of Engineers
Mississippi Valley Division
1400 Walnut Street
Vicksburg, MS 39180
(601) 634-5000
cemvd-pa@usace.army.mil

U.S. Army Corps of Engineers
Tulsa District
2488 E 81st Street
Tulsa, OK 74137
(918) 669-7074/(918) 605-2033 cell
Loretta Turner, Chief of Civil Works
Branch, PPMD
loretta.j.turner@usace.army.mil

U.S. Army Corps of Engineers
Tulsa District
2488 E 81st Street
Tulsa, OK 74137
(918) 669-7660/(918) 441-1736
Jeff Knack, Chief Natural Resources &
Recreation Branch, Operations Division
jeff.knack@usace.army.mil

U.S. Army Corps of Engineers
Little Rock District
700 West Capital Ave.
Little Rock, AR 72203
(501) 340-1064
Craig Pierce, Chief DPPM
craig.r.pierce@usace.army.mil

U.S. Army Corps of Engineers
Fort Worth District
819 Taylor Street
Fort Worth, TX 76102
(817) 886-1306
Eric Verwers, DPPM
eric.w.verwers@usace.army.mil

U.S. Army Corps of Engineers
Louis W. Holstead
Red River Area OPM
Red River Area Office
351 Corps Road
Denison, TX 75020-6425
(903) 465-4990 ext. 7826/(903) 465-6571 fax
louis.holstead@usace.army.mil

USDA Farm Service Agency
700 West Capitol Ave.
Room 3416
Little Rock, AR 72201-3225
(501) 301-3000

U.S. Fish and Wildlife
110 S. Amity Road, Suite 300
Conway, AR 72032-8975
(501) 513-4470

OTHER INTERESTED PARTIES

Arkansas Game & Fish Commission
2 Natural Resources Drive
Little Rock, AR 72205
(501) 223-6356
Jennifer Sheehan
jennifer.sheehan@agfc.ar.gov

Red River Valley Association
629 Spring Street
P.O. Box 709
Shreveport, LA 71162-0709
(313) 393-6207 cell/ (318) 425-0516 fax
Rich Brontoli--consultant
Emily Mott, Executive Director
Emily cell: 318-458-7922
rrva@rrva.org

Red River Authority of Texas
P.O. Box 240
Wichita Falls, TX 76307
(940) 723-8697

Fabian Heaney Fabian.heaney@rra.texas.gov

Lugert Altus Irrigation District
P.O. Box 520
Altus, OK 73522
(580) 482-4734
Tom Buchanan, Manager
lugertaltus@gmail.com

Oklahoma Farm Bureau
Marla Peek

2300 N. Stiles
Oklahoma City, OK 73105
(405) 523-2300
marlapeek@okfb.org

North Texas Municipal Water District
R.J. Muraski (469) 626-4332
Galen Roberts (469) 626-4332
501 E. Brown Street
Wylie, TX 75098
(469) 626-4332
rmuraski@ntmwd.com
groberts@ntmwd.com

North Texas Municipal Water District
Billy George, P.E.
Deputy Director – Water and Wastewater
501 E. Brown Street
Wylie, TX 75098
O: 469-626-4330/C: 214-587-7299
bgeorge@ntmwd.com

LA Department of Environmental Quality
Max Forbes
602 N. Fifth Street
Baton Rouge, LA 70802
(225) 219-3527
max.forbes@la.gov

Tarrant Regional Water District
800 E. North Side Drive
Fort Worth, TX 76102

Tarrant Regional Water District
800 E. North Side Drive
Fort Worth, TX 76102

(817) 335-2491
Wayne Owen
wayne.owen@trwd.com

Bayou Meto Water Management District
1300 N. Center St., Suite 9
Lonoke, AR 72086
(501) 676-7420
Edward Swaim
edwardswaim@bayou-meto.org

Caddo Lake Institute
400 Edwards Street
Shreveport, LA 71101
(318) 541-6923
Laura Ashley Overdyke
lao@caddolakeinstitute.org

Herman Settemeyer, P.E.
RSAH20, LLC
16238 Ranch Road,
620 N. STE F364
Austin, TX 78717
(512) 507-4299
herman@rsah2o.com

The Nature Conservancy
601 North University Ave.
Little Rock, AR 72205
(501) 663-6699

(817) 335-2491
Robert P. Smith
rpowlsmith@sbcglobal.net

Sulphur River Basin Authority
911 N. Bishop St. # C104
Wake Village, TX 75501
(469) 321-2180 cell
Chris Hartung, Executive Director
chris@chcpublicsectorsolutions.com

Riverbend Water Resources District
228 Texas Ave., Suite A
New Boston, TX 75570
(903) 831-0091
Kyle Dooley
kyledooley@rwrd.org

Arkansas Association of
Conservation Districts
4004 McCain Blvd, Ste. 201-B
North Little Rock, AR 72116
(501) 904-5775
Debbie Moreland
debbiepinreal@aol.com

The Nature Conservancy
10425 South 82nd E. Ave., Suite 104
Tulsa, OK 74133
(918) 585-1117

The Nature Conservancy
P.O. Box 4125
Baton Rouge, LA 70821
(225) 338-1040
lafo@tnc.org

Arkansas Environmental Federation
12511 Cantrell Rd., Suite 103
Little Rock, AR 72223
Ava Roberts, Executive Director
aroberts@environmentark.org

Russell Berry
Attorney at Law
P.O. Box 381
DeWitt, AR 72042

The Nature Conservancy
3801 Kirby Drive, Suite 740
Houston, TX 77098
(281) 407-3251
texas@tnc.org

Arkansas Farm Bureau Federation
P.O. Box 31
Little Rock, AR 72203
Evan Teague, M.S.P.E.
evan.teague@arfb.com

Bradley Hardin
American Electric Power
400 W. Capitol, Suite 1610
Little Rock, AR 72201

City of Fayetteville
Greg Boetcher, P.E., City Engineer
125 W. Mountain Street
Fayetteville, AR 72701

LA Dept. of Wildlife and Fisheries
Baton Rouge, LA
Robby Maxwell
rmaxwell@wlf.la.gov

John Upton
P.O. Box 659
Lewisville, AR 72201

David Carruth
P.O. Box 91
Clarendon, AR 72029

Morgan Barranco, P.E
Louisiana
Morgan.barranco2@la.gov

Beaux Jones
The Water Inst. Of the Gulf
1110 River Rd.
Baton Rouge, LA 70802
(225) 308-7244
bjones@thewaterinstitute.org

Texas Parks and Wildlife
Laura Zebehazy
Laura.zebehazy@tpwd.texas.gov

Oklahoma Department of Wildlife Conservation
Chris Whisenhunt
Chris.whisenhunt@odwc.ok.gov

RED RIVER BASIN STREAMFLOW AND WATER QUALITY GAGES

Number	Name
07300000	Salt Fork Red River near Wellington, TX*
07300500	Salt Fork Red River at Mangum, OK
07301300	North Fork Red River near Shamrock, TX
07301410	Sweetwater Creek near Kelton, TX
07301500	North Fork Red River near Carter, OK*
07303400	Elm Fork of North Fork Red River nr Carl, OK
07308500	Red River near Burkburnett, TX*
07315500	Red River near Terral, OK*
07316000	Red River near Gainesville, TX*
07316500	Washita River near Cheyenne, OK
07331000	Washita River near Dickson, OK*
07331600	Red River at Denison Dam nr Denison, TX*
07332500	Blue River near Blue, OK
07335300	Muddy Boggy Creek near Unger, OK
07335500	Red River at Arthur City, TX
07336820	Red River near De Kalb, TX
07337000	Red River at Index, AR*
07340000	Little River near Horatio, AR ·
07344210	Sulphur River near Texarkana, TX
07344370	Red River at Spring Bank, AR
07346310	(COE) Caddo Lake at Dam near Mooringsport, LA
07348000	Twelvemile Bayou near Dixie, LA
07348500	(COE) Red River at Shreveport, LA
07350500	Red River at Coushatta, LA*
07355500	Red River at Alexandria, LA*
07362000	Quachita River at Camden, AR*
07362100	Smackover Creek near Smackover, AR
07363500	Saline River near Rye, AR
07364100	Quachita River near Arkansas-Louisiana State Line
07364150	Bayou Bartholomew near Mcgehee, AR*
07369680	Bayou Macon at Eudora, AR
07367690	Boeuf River near Arkansas/Louisiana Stateline

* Indicates water quality monitoring station

For more information see:

http://waterwatch.usgs.gov/index.php?r=ar&m=real
http://waterwatch.usgs.gov/?m=real&r=la
http://waterwatch.usgs.gov/?m=real&r=ok
http://txpub.usgs.gov/public/BasinMap/BasinMap.html?basinselect=2

Report of the Treasurer

Red River Compact Commission

April 24, 2024

The 2023 Year-end Financial Report covering July 1, 2022 through June 30, 2023.

Centennial Bank Balance on July 1, 2022		$ 27,713.15
Total Income	$ 2,200.00	
Total Expenses	$ 2,534.81	
NET TOTAL	$ -334.81	
Centennial Bank Balance June 30, 2023		$ 27,378.34
Certificate of Deposit Balance April 28, 2022		$ 11,322.95
Total Income	$7.61	
Certificate of Deposit Balance February 28, 2023		$ 11,330.56

Account Balances as of June 30, 2023

Centennial Bank Balance	$ 27,378.34
Certificate of Deposit Balance	$ 11,330.56
TOTAL	**$ 38,708.90**

Assessments for all four states are current.

RED RIVER COMPACT COMMISSION
2023 BUDGET VERSUS ACTUALS
(7/1/2022 - 6/30/2023

	ACTUAL FY - 2023 7/1/2022 6/30/2023	BUDGET FY - 2023 7/1/2022 6/30/2023	OVER/UNDER BUDGET FY - 2023 7/1/2022 6/30/2023	% OF BUDGET FY - 2023 7/1/2022 6/30/2023
Income				
State Annual Dues	$2,200.00	$2,200.00	$0.00	100.00%
Interest on Checking	$0.00	$0.00	$0.00	
Interest on Certificate of Deposit	$7.61	$0.00	$7.61	
Total Income	$2,207.61	$2,200.00	$7.61	100.35%
Expenses				
Meeting Expenses	$1,406.56	$5,000.00	$3,593.44	28.13%
Office Supplies/Expenses	$1,128.25	$2,500.00	$1,371.75	45.13%
Contingency	$0.00	$16,000.00	$16,000.00	0.00%
Total Expenses	$2,534.81	$23,500.00	$20,965.19	10.79%

Balance in Checking	**$27,378.34**	**6/30/2023**
Balance of Certificate of Deposit	**$11,330.56**	**2/28/2023**
	$38,708.90	

3/5/2024

RED RIVER COMPACT COMMISSION
TRANSACTION SUMMARY - CHECKING ACCOUNT
(7/1/2022 - 6/30/2023)

Date	Category	Payee	Purpose	Payment	Deposit	Balance
7/1/2022		Beginning Balance				$27,713.15
7/15/2022	Office Supplies/Expenses	Cenntennial Bank	Account Analysis Fee	$7.90		$27,705.25
8/11/2021	Office Supplies/Expenses	Cenntennial Bank	Account Analysis Fee	$4.59		$27,700.66
8/22/2022	Office Supplies/Expenses	Johnson-Jones Accounting	Audit	$900.00		$26,800.66
9/13/2022	Office Supplies/Expenses	Cenntennial Bank	Account Analysis Fee	$4.77		$26,795.89
10/12/2022	Office Supplies/Expenses	Cenntennial Bank	Account Analysis Fee	$2.09		$26,793.80
10/13/2022	Meeting Expenses	Degray State Lodge	Meeting Room/Refreshments	$297.76		$26,496.04
11/14/2022	Office Supplies/Expenses	Cenntennial Bank	Account Analysis Fee	$1.86		$26,494.18
2/9/2023	Office Supplies/Expenses	The Bond Exchange	Crime Bond	$180.00		$26,314.18
2/16/2023	State Annual Dues	Arkansas	State Annual Dues		$550.00	$26,864.18
3/1/2023	Meeting Expenses	Double Tree by Hilton - Hot Springs	Meeting Room/Refreshments	$900.00		$25,964.18
3/10/2023	State Annual Dues	Texas, Louisianna	State Annual Dues		$1,100.00	$27,064.18
4/10/2023	State Annual Dues	Oklahoma	State Annual Dues		$550.00	$27,614.18
4/28/2023	Meeting Expenses	Double Tree by Hilton - Hot Springs	Meeting Room/Refreshments	$208.80		$27,405.38
5/1/2023	Office Supplies/Expenses	Ryan Benefield	Office Depot Expenses	$27.04		$27,378.34
		Ending Balance		$2,534.81	$2,200.00	$27,378.34

RED RIVER COMPACT COMMISSION
2024 BUDGET VERSUS ACTUALS
(7/1/2023 - 6/30/2024

	ACTUAL FY - 2024 7/1/2023 6/30/2024	BUDGET FY - 2024 7/1/2023 6/30/2024	OVER/UNDER BUDGET FY - 2024 7/1/2023 6/30/2024	% OF BUDGET FY - 2024 7/1/2023 6/30/2024
Income				
State Annual Dues	$1,100.00	$2,200.00	($1,100.00)	50.00%
Interest on Checking	$0.00	$0.00	$0.00	
Interest on Certificate of Deposit	$25.54	$0.00	$25.54	
Total Income	$1,125.54	$2,200.00	($1,074.46)	51.16%
Expenses				
Meeting Expenses	$0.00	$5,000.00	$5,000.00	0.00%
Office Supplies/Expenses	$180.00	$2,500.00	$2,320.00	7.20%
Contingency	$0.00	$16,000.00	$16,000.00	0.00%
Total Expenses	$180.00	$23,500.00	$23,320.00	0.77%

Balance in Checking	**$28,298.34**	**3/31/2024**
Balance of Certificate of Deposit	**$11,356.10**	**12/15/2023**
	$39,654.44	

4/11/2024

RED RIVER COMPACT COMMISSION
TRANSACTION SUMMARY - CHECKING ACCOUNT
(7/1/2023 - 6/30/2024)

Date	Category	Payee	Purpose	Payment	Deposit	Balance
7/1/2023		Beginning Balance				$27,378.34
12/5/2023	Office Supplies/Expenses	The Bond Exchange	Crime Bond	$180.00		$27,198.34
3/18/2024	State Annual Dues	Arkansas and Texas	Annual Dues		$1,100.00	$28,298.34
						$28,298.34
						$28,298.34
						$28,298.34
						$28,298.34
						$28,298.34
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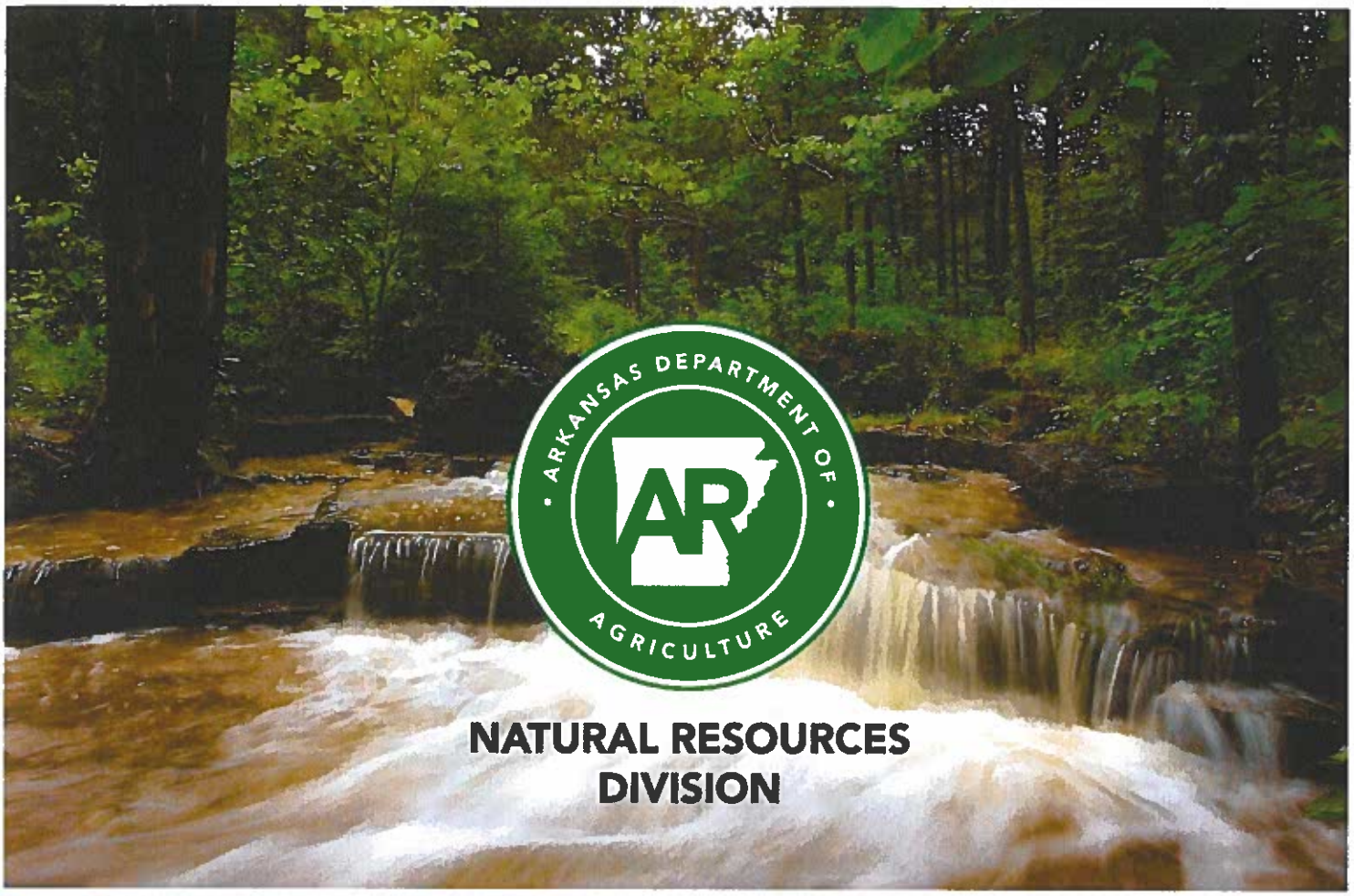
						$28,298.34
						$28,298.34
						$28,298.34
						$28,298.34
						$28,298.34
		Ending Balance		$180.00	$1,100.00	$28,298.34



2023 Arkansas Commissioners Report

Prepared for the Red River Compact Annual Meeting

Arkansas Department of Agriculture's Natural Resources Division

April 24, 2024

Table of Contents

Figures and Tables

Reach IV of the Red River Monitoring Report

The State of Arkansas continues its efforts to monitor, evaluate, and report on the four (4) rivers making up the Red River Basin: Ouachita River, Boeuf River, Bayou Macon, and Bayou Bartholomew. The Boeuf River continues to be the most monitored of the four (4) rivers. Arkansas's interpretation and policy position on compliance in Reach IV, Subbasin 2 remains unchanged. Real-time monitoring of Boeuf River flows; evaluation of weekly, seasonal, and multi-year flow patterns; and annual reporting to the Red River Compact Commission is an acceptable approach and framework to identify flow anomalies and inform compliance decision-making in Reach IV, Subbasin 2. Reporting and analyses will continue to improve as new data and more accurate methods become available.

Summary conclusions from the 2023 Arkansas Engineering Report are listed below:

- Abnormally dry and drought conditions that existed for the last several months of 2023 drastically reduced water flow in the later months of the year in all four subbasins due to very little precipitation.
- A review of the monitoring and assessment of flow and precipitation shows that the Ouachita River and Bayou Bartholomew had no occurrences of seven consecutive days of flow below compact thresholds during the primary growing season and the Bayou Macon had one (1) occurrence of seven consecutive days of 40cfs or less flow during the primary growing season (May 14-31).
- Boeuf River had two (2) occurrences of seven consecutive days of 40cfs or less flow during the primary growing season one (1) occurred at the state line and the Eudora site (May 17-June 10) and the second occurred at the state line (July 21-July 27).
- Water use registration data for 2022 shows that significant surface water use only occurs during the growing season (May to September) with limited withdrawals occurring outside this period. Despite very low flows that can be attributed to drought conditions, the four rivers consistently met or exceeded threshold discharge levels during the growing season.

The State of Arkansas should continue its efforts to monitor, evaluate, and report on the four (4) rivers making up the subbasin: Ouachita River, Boeuf River, Bayou Macon, Bayou Bartholomew. The Boeuf River continues to be the most monitored of the four (4) rivers. Arkansas' interpretation and policy position on compliance in Reach IV, Subbasin 2 remains unchanged. Real-time monitoring of River flows, evaluation of weekly, seasonal, and multi-year flow patterns and annual reporting to the Red River Compact Commission is an acceptable approach and framework to identify flow anomalies and inform compliance decision-making in Reach IV, Subbasin 2. Reporting and analyses will continue to improve as new data and more accurate methods become available.

Arkansas Nutrient Reduction Strategy (ANRS)

The Arkansas Nutrient Reduction Strategy (ANRS) was initiated by the 2014 Arkansas Water Plan update and is a response to federal initiatives to address the Gulf of Mexico Hypoxic Zone. The purpose of the ANRS is to reduce nutrient concentrations in Arkansas watersheds, providing local benefits, and helping to shrink the Gulf of Mexico Hypoxic Zone. This is accomplished by working closely with stakeholders to adaptively manage and aggressively implement relevant practices and programs to safeguard state and regional economic prosperity, environmental quality, and recreational opportunities for current and future generations.

In 2021, the Arkansas Department of Agriculture's Natural Resources Division (NRD), with the Arkansas Water Resource Center, conducted a water quality analysis of all subbasin level watersheds in the state. The goal was to prioritize watersheds based on extensive, statewide water quality monitoring data. All watersheds were classified into four tiers. Tier 1 had the greatest potential for both nitrogen and phosphorus reduction based on sufficient data. Tier 2 had the greatest need for future monitoring investments due to demonstrated nutrient reduction needs, data limitations, or both. Tier 3 and Tier 4 did not have high demonstrated nutrient reduction needs (see Figure 1 below).

The three main goals of the ANRS are:

- Goal 1: Increase or maintain downward trends for Tier 1 watersheds.
- Goal 2: Enhance water quality monitoring to inform nutrient trends for Tier 2 watersheds.
- Goal 3: Continue efforts in all watersheds.

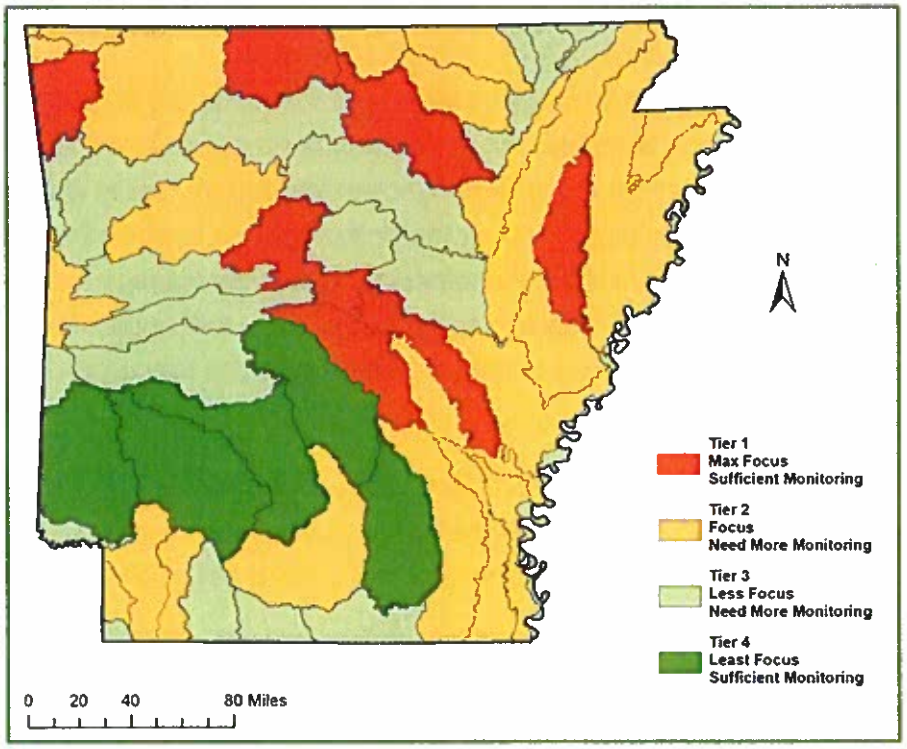


Figure 1: Arkansas Nutrient Reduction Strategy Priority Areas

Since the passing of the Bipartisan Infrastructure Law in November 2021, which included new geographic funding for the Gulf Hypoxia Program for states to implement nutrient reduction strategies, Arkansas was awarded $1,733,333 in October 2022. Those dollars will fund direct project implementation to address nutrient reduction. An additional $3.6 million will be awarded in federal fiscal year 2024 through 2026.

In 2023, NRD worked with the University of Arkansas Division of Agriculture Cooperative Extension (UADA-CES) to develop a new education and outreach workplan for Tier 1 ANRS watersheds. The UADA-CES will work to implement the Arkansas Watershed Steward and Tap Your Potential programs over a two-year period within the focal watersheds. These programs will work with interested stakeholders and producers to engage on local level watershed information campaigns to promote water quality awareness and conservation practices.

Arkansas also hosted the 38th Mississippi River/Gulf of Mexico Hypoxia Task Force Public Meeting on December 6, 2023, in Fayetteville, Arkansas. The program supported US EPA summary reports and key message on the 2023 Report Congress, updates from federal and state partners, and public comments.

Arkansas Groundwater Protection and Management

Groundwater Monitoring

Groundwater quantity data is collected for aquifers in the Red River Basin through a collective effort between the Arkansas Department of Agriculture's Natural Resources Division (NRD), United States Geological Survey (USGS), Union County Conservation Board, and the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS). Synoptic water level measurements are collected annually in the Mississippi River Valley alluvial and Sparta aquifers during the spring and at various times throughout the year. Other aquifers in the watershed are measured every three years and include the Cockfield, Wilcox, Tokio, and Nacatoch aquifers. In 2023, synoptic water levels were collected for the Mississippi River Valley alluvial, Sparta, Nacatoch, and Tokio aquifers.

Mississippi River Valley Alluvial Aquifer Water Levels

Synoptic water level measurements were collected from 47 wells in the Mississippi River Valley alluvial aquifer spring survey of 2023 within the Red River Basin. These measurements were used to calculate the potentiometric surface of the aquifer which is shown as depth to water in feet below ground surface (Figure 2), and as the percent of the aquifer thickness that is saturated (Figure 3). These data were compared with data from the same wells during previous years in one, five, and ten-year increments to evaluate the changes in the aquifer levels over time. All but 8 wells had declining water levels in the one-year (2022 to 2023) comparison throughout the region, with 5 of the 8 wells with rising water levels being located in Lincoln County. In the ten-year comparison only 5 of the 23 wells compared showed declining water levels. Water level change data from the Beouf-Tensas Study Area is presented as Figure 4 and Figure 5.

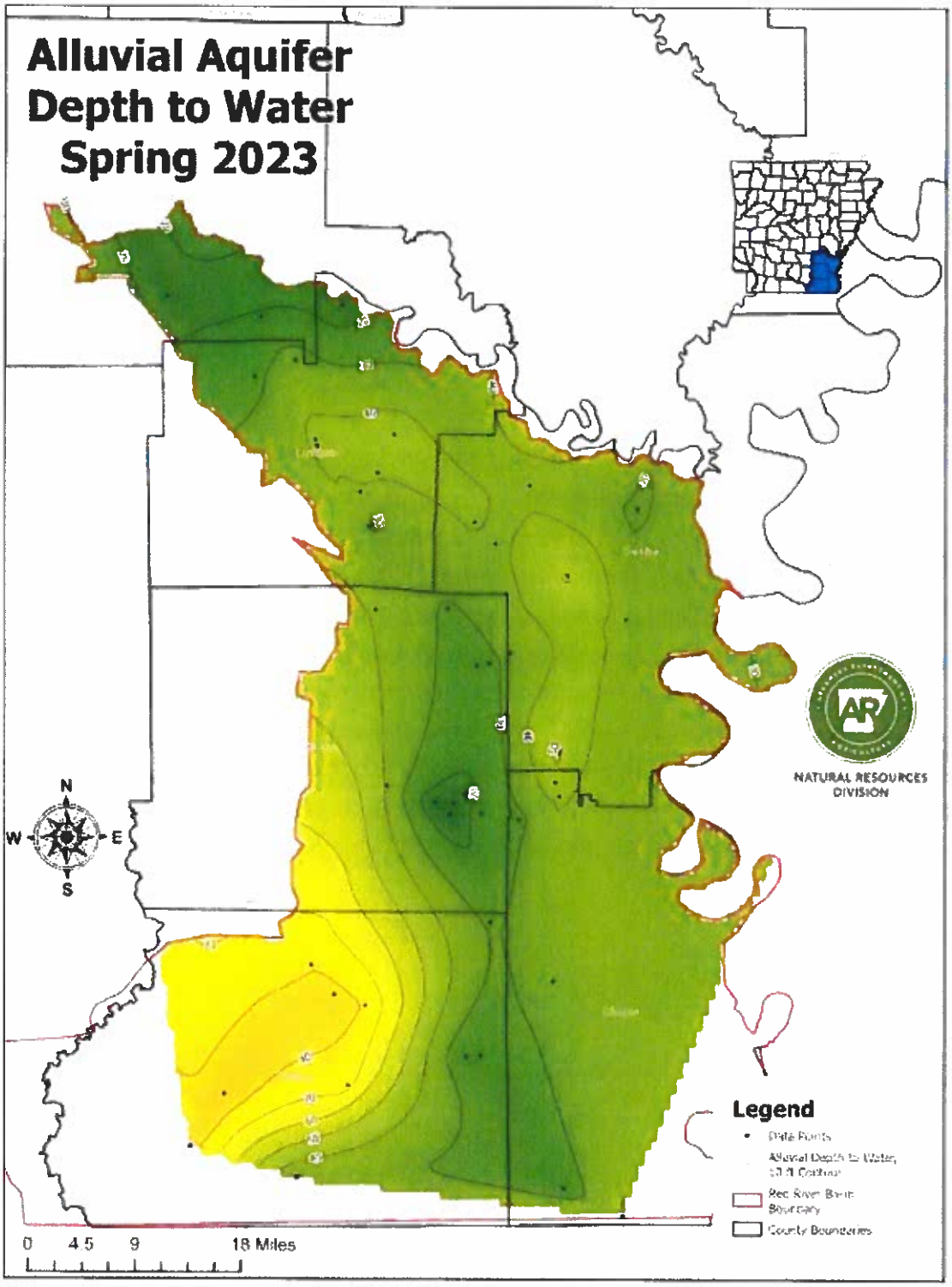


Figure 2. Spring 2023 measurements of the potentiometric surface of the Mississippi River Valley alluvial aquifer shown as depth to water in feet below ground surface.

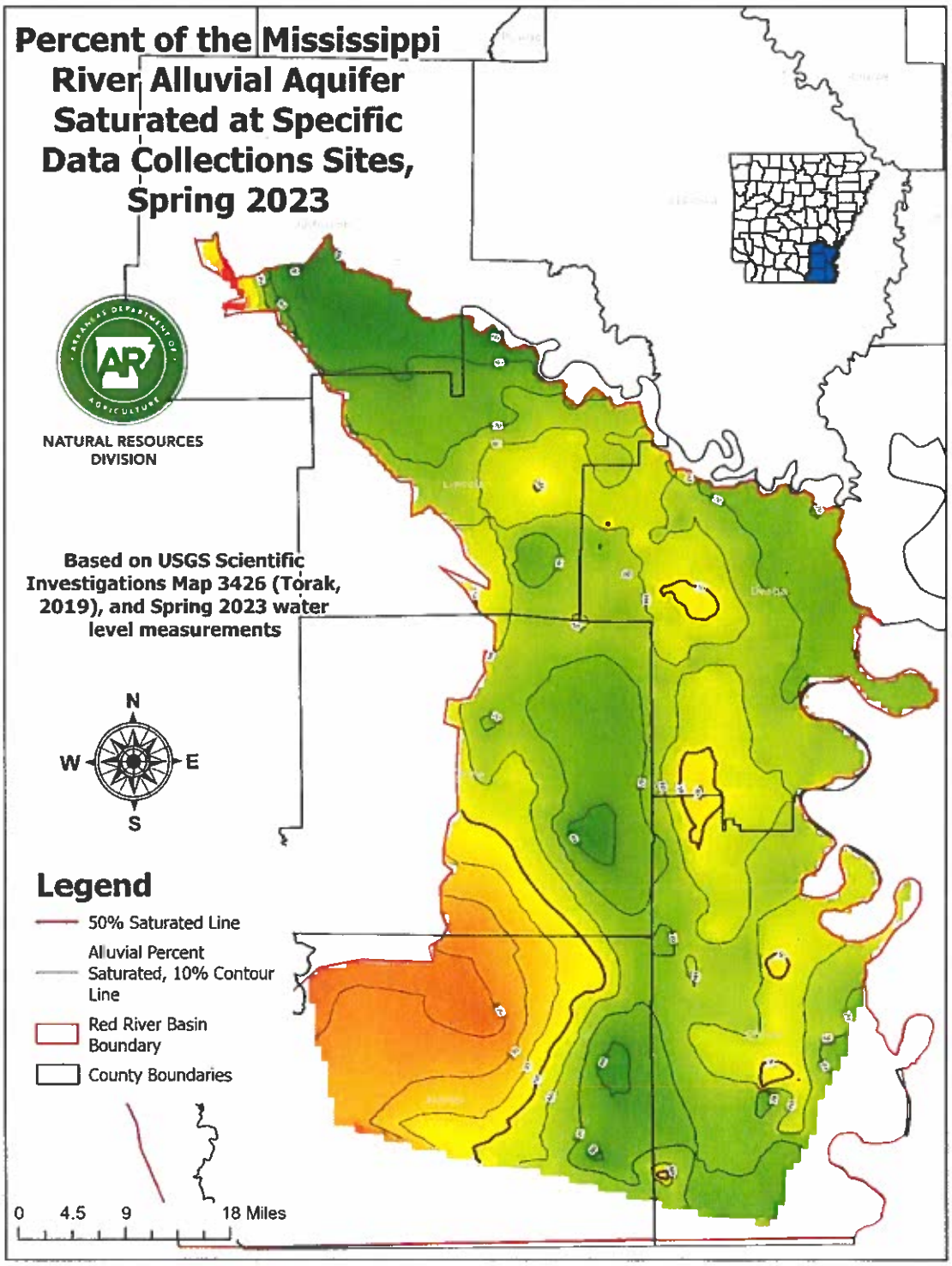
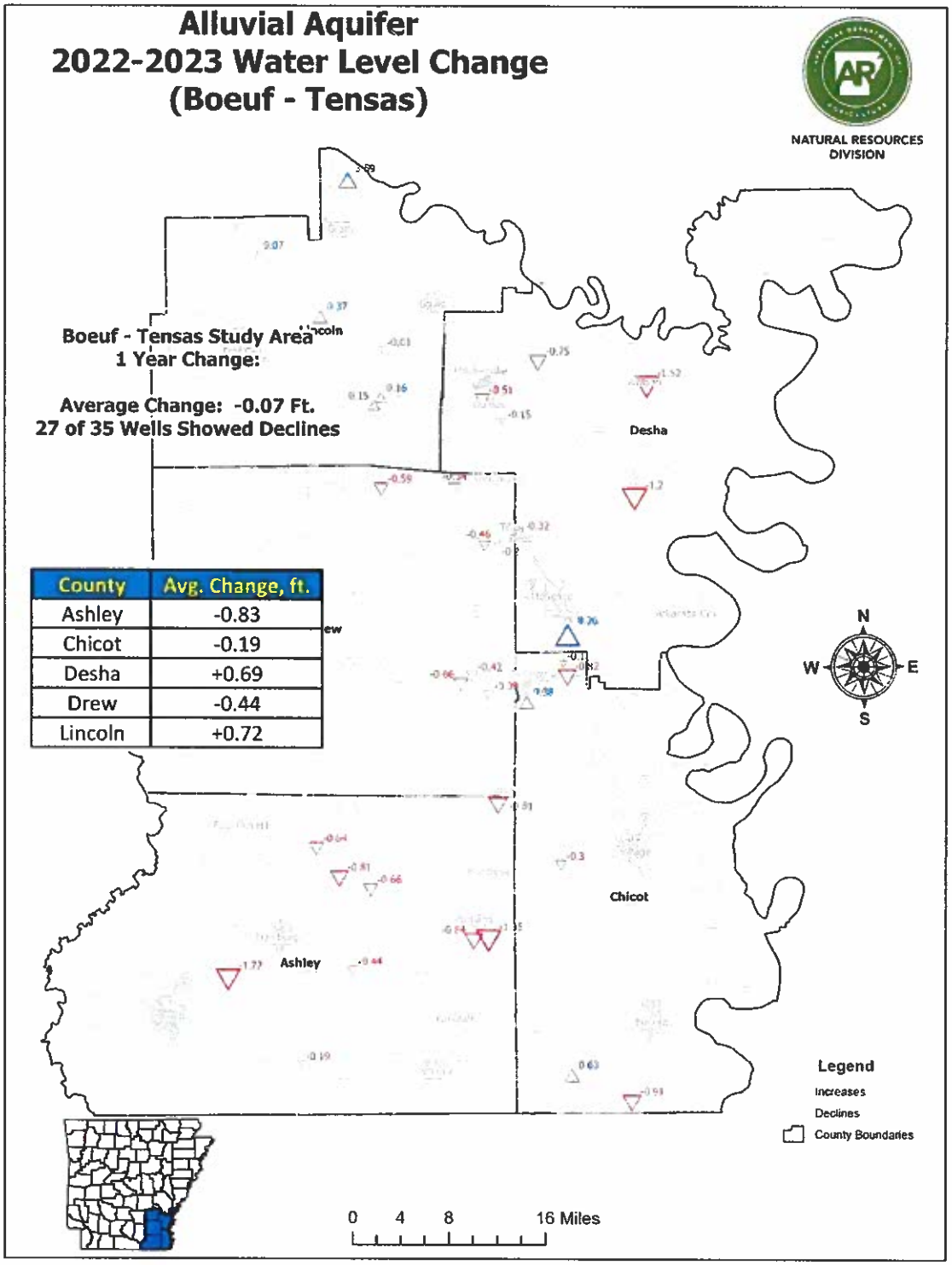


Figure 3. Spring 2023 measurements of the potentiometric surface of the Mississippi River Valley alluvial aquifer shown as the estimated percent of the aquifer that is saturated.



County	Avg. Change, ft.
Ashley	-0.83
Chicot	-0.19
Desha	+0.69
Drew	-0.44
Lincoln	+0.72

Figure 4. Feet of water level change in alluvial aquifer wells measured in 2023 compared with previous year measurements.

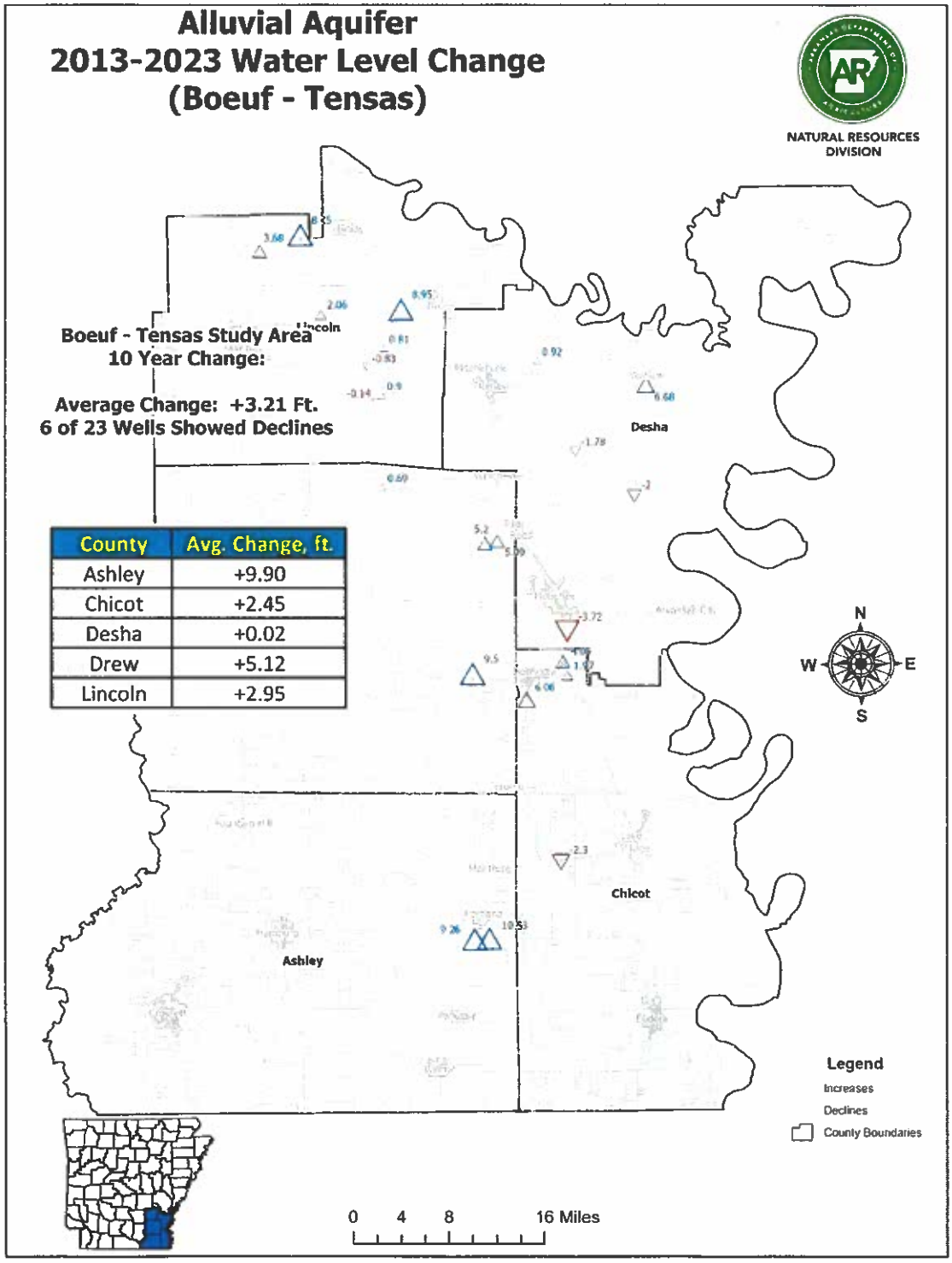


Figure 5. Feet of water level change in alluvial aquifer wells measured in 2023 compared with 2013.

Sparta Aquifer Water Levels

The Sparta aquifer within the Red River Basin has experienced significant historical water level declines resulting in two prominent cones of depression, or areas where the potentiometric surface remains at a lower elevation than would exist in the aquifer under natural conditions. Due to aquifer depletion, Bradley, Calhoun, Columbia, Ouachita, and Union counties were designated as Critical Groundwater Areas by the State of Arkansas in 1996. In 2009, Jefferson County was designated as a Critical Groundwater Area for the Sparta aquifer. The adoption of surface water conversion projects, most notably the Ouachita River diversion project in Union County, and other groundwater conservation projects, has reduced the groundwater demand from the Sparta aquifer within the Red River Basin. Recent trends indicate notable aquifer recovery where aquifer depletion has been the most significant throughout the area.

In the spring of 2023, 127 wells in the Sparta aquifer were measured within the Red River Basin. The water level expressed as the altitude in feet above mean sea level is presented in Figure 6 and the depth to water in feet below ground surface is presented in Figure 7.

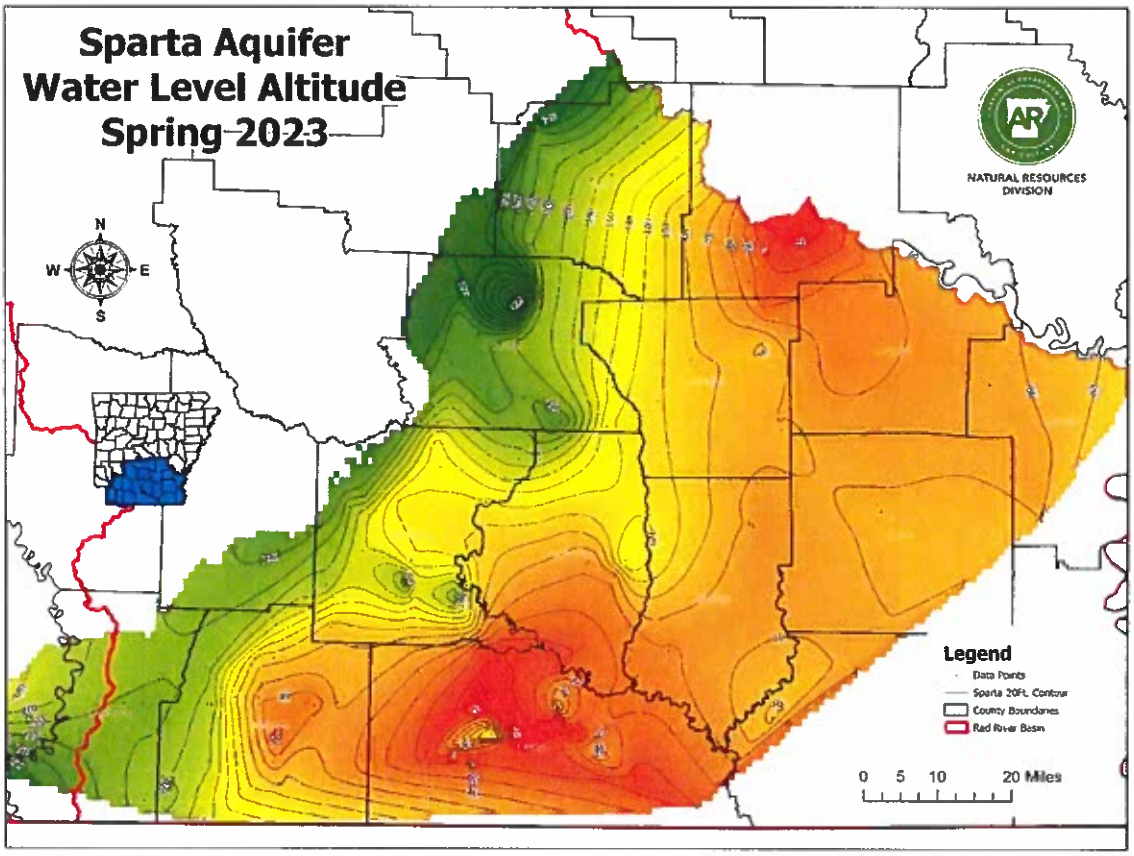


Figure 6: Spring 2022 water level measurements of the potentiometric surface of the Sparta aquifer presented and as water level altitude in feet above mean sea level

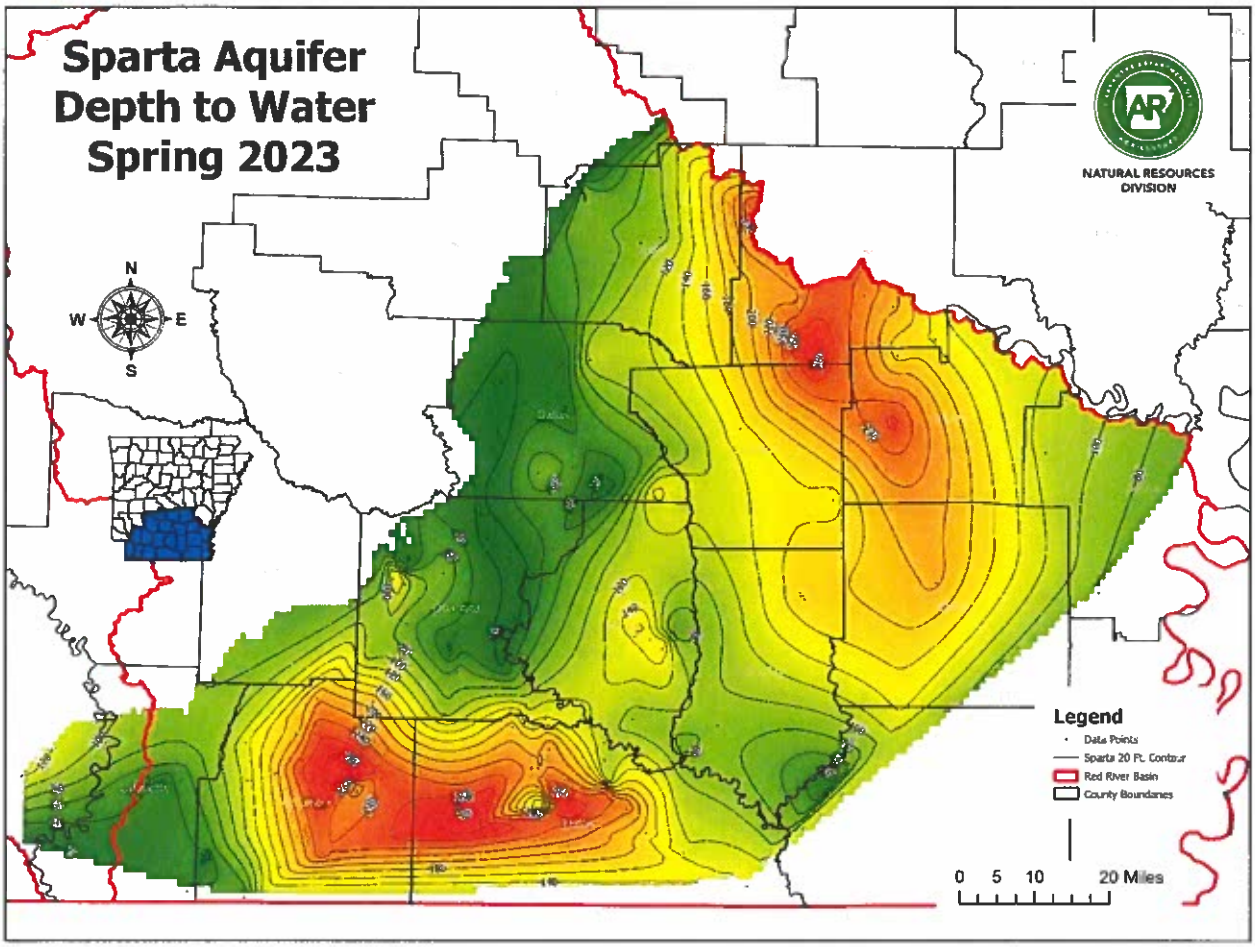


Figure 7. Spring 2023 water level measurements of the potentiometric surface of the Sparta aquifer presented as feet below ground surface.

As with the Mississippi River Valley alluvial aquifer data, the Sparta aquifer data has been compared with data from the same wells in years prior in one, five, and ten-year comparisons. Overall average change values are positive indicating that the water levels are increasing over time in this area, and that the aquifer is recovering. This is particularly notable in the ten-year comparison. The one-year data is presented in Figure 8 and the ten-year data is presented in Figure 9.

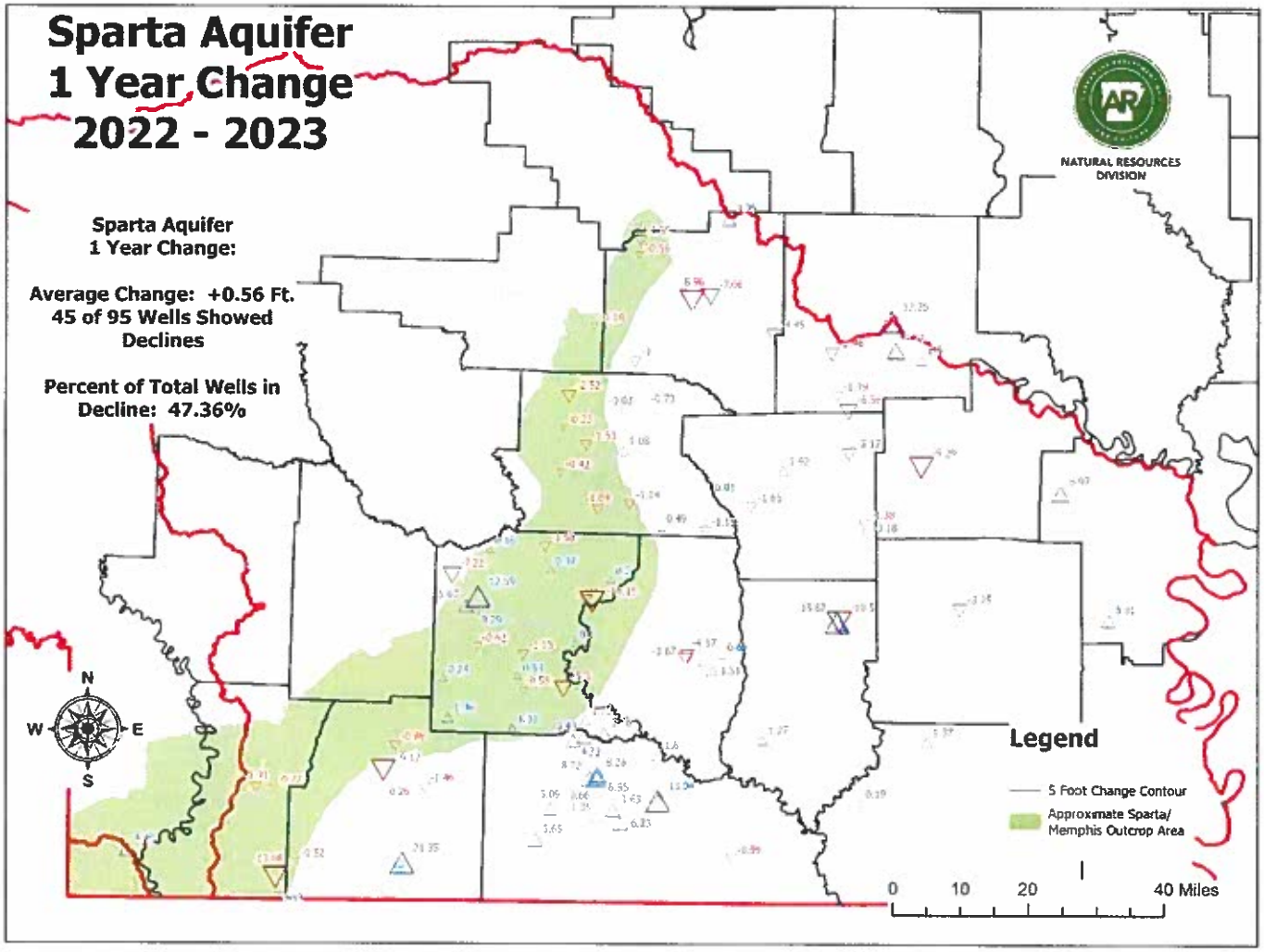


Figure 8. Feet of water level change in the Sparta aquifer wells measured in 2023 compared with previous year.

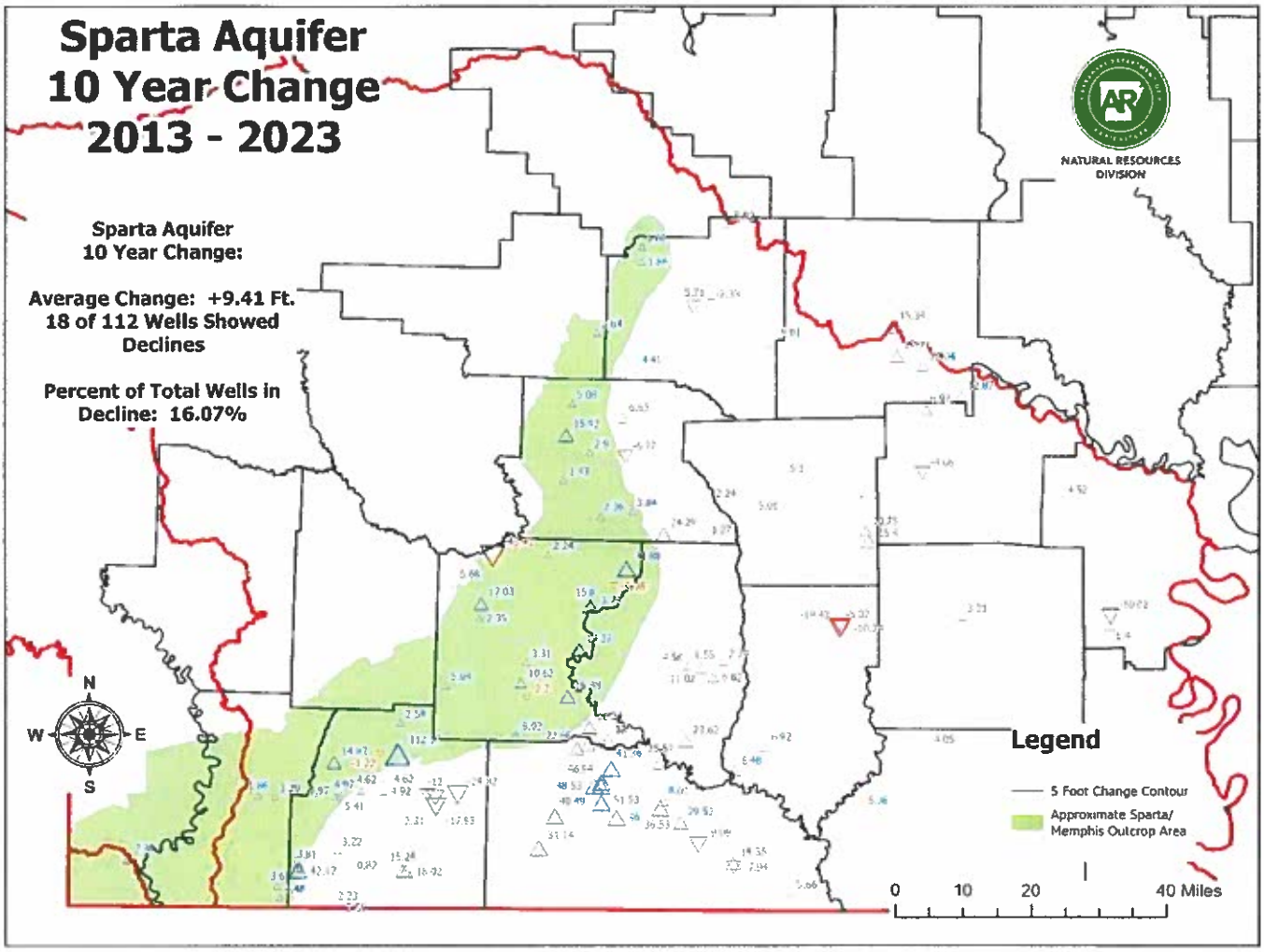


Figure 9. Feet of water level change in the Sparta aquifer wells measured in 2023 compared with 2013

Nacatoch Aquifer Water Levels

The Nacatoch aquifer is a prominent formation within the Gulf Coastal Plain that has regional significance within the Red River Basin. The aquifer outcrops through Little River, Montgomery, Nevada, and Clark counties and then plunges steeply to the southeast. Most usage from this aquifer occurs near the outcrop in this area as the formation reaches great depth quickly, inhibiting its usefulness for wells and impacting its water quality. The Nacatoch aquifer is monitored every three years through a cooperative effort with the USGS. In 2023, data was collected from 30 wells within the Red River basin. The potentiometric surface follows the structure of the formation being shallow near the outcrop area and a deepening with depth of the formation, see Figure 10 below. Water levels collected in 2023 were compared with levels measured in the same wells in 2011, the values from this comparison are presented as Figure 11.

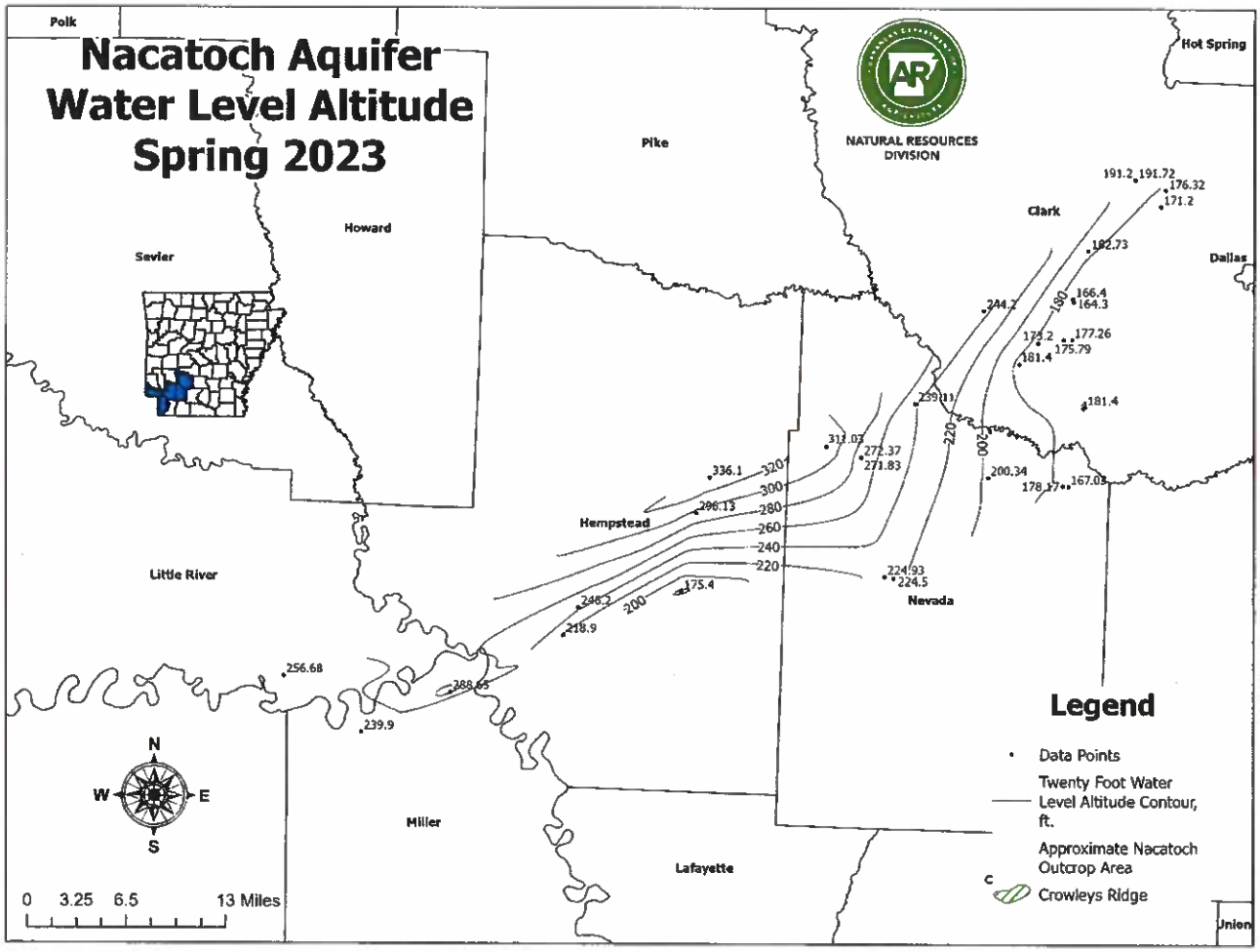


Figure 10. Outcrop area and water level altitude of measurements collected in the Nacatoch aquifer, 2023.

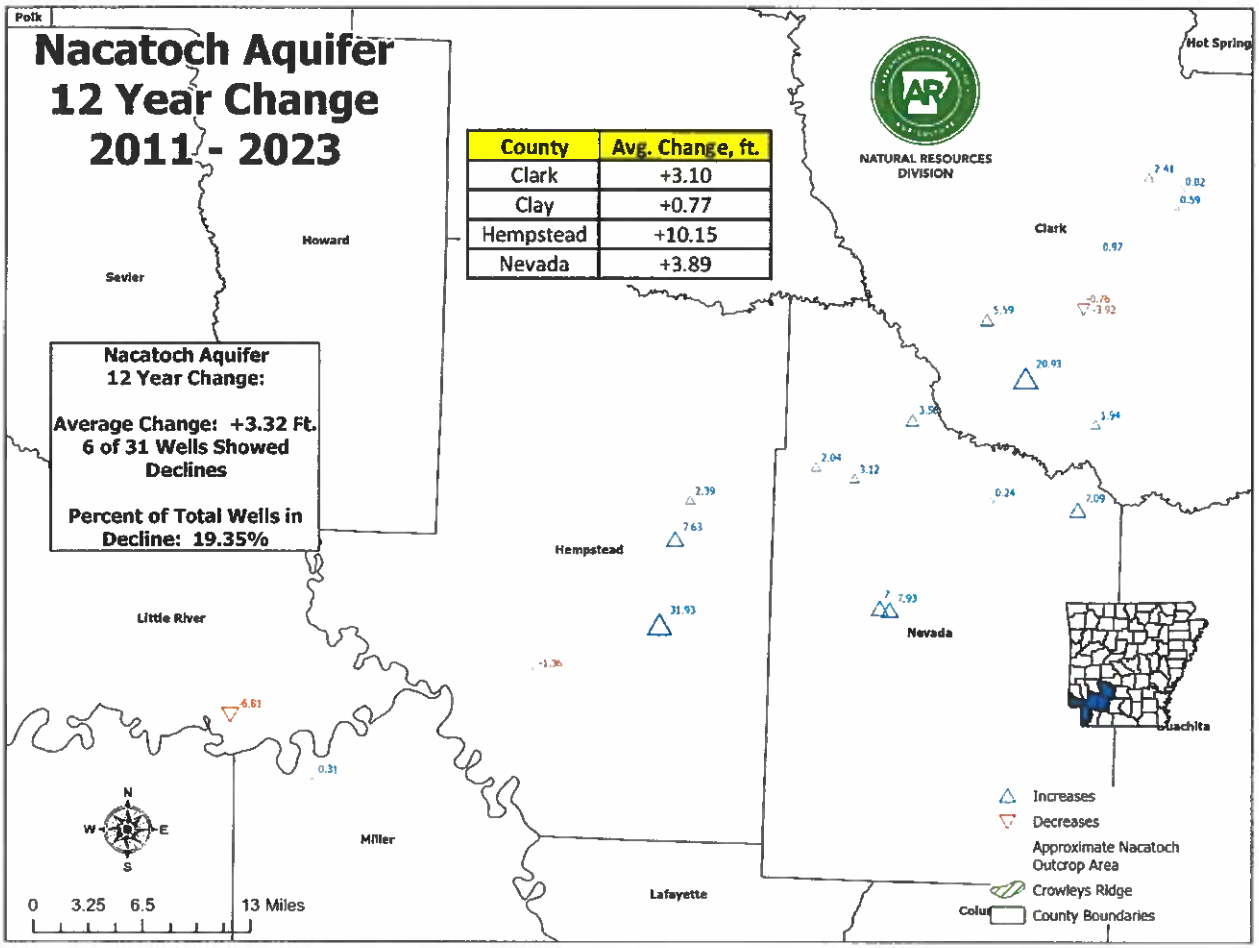


Figure 11. Water level change in wells measured in 2023 and 2011 in the Nacatoch aquifer.

Tokio Aquifer Water Levels

The Tokio formation of the Gulf Coastal Plain is another regionally significant aquifer like the Nacatoch. The Tokio formation outcrops through north Little River, south Sevier, Howard, Pike, and west Clark counties and plunges to the south and southeast toward the axis of the Mississippi Embayment. It is used primarily for industrial and public water supply. Wells in the Tokio are measured every three years in partnership with the USGS. In 2023, 36 wells were measured; the potentiometric head measured is presented as Figure 12. Figure 13 presents the 2023 data as compared with 2011 measurements from the same wells. Water level declines were observed in throughout the area, but appear mostly in wells furthest from the outcrop, and recharge, area.

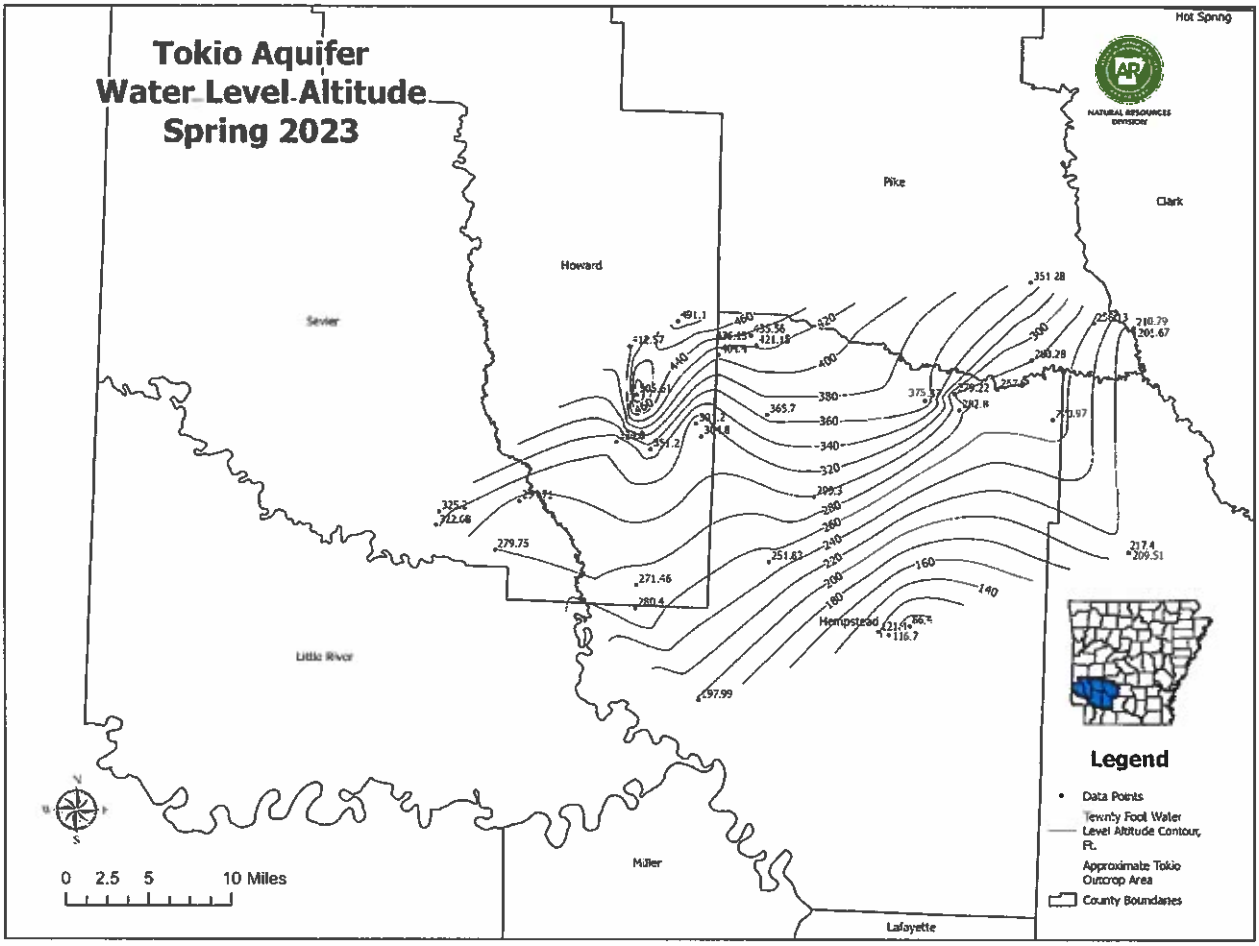


Figure 12. Outcrop area and water level altitude of measurements collected in the Tokio aquifer, 2023.

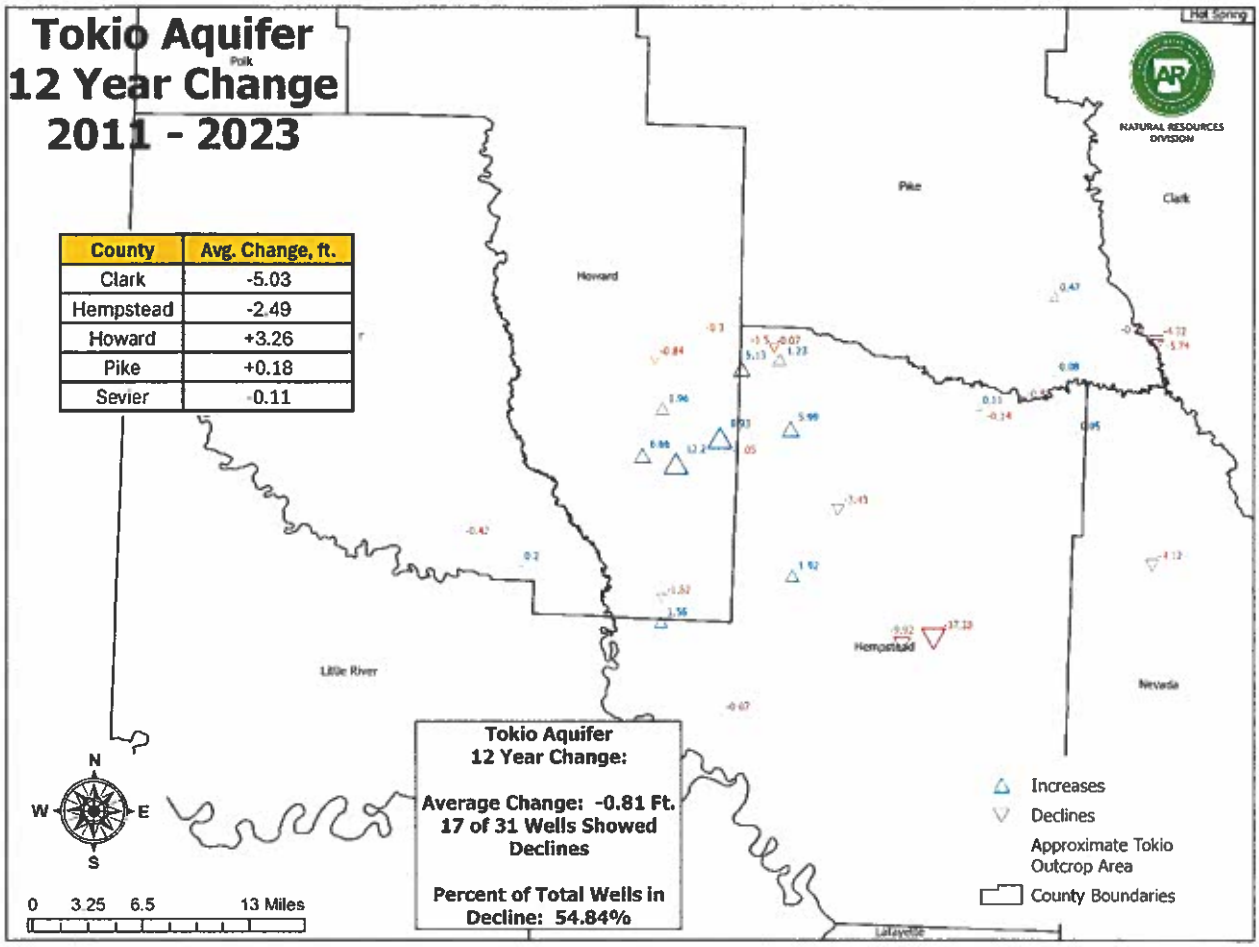


Figure 13. Water level change in wells measured in 2023 and 2011 in the Tokio aquifer.

Arkansas Water-Use Registration Program

The Arkansas Water-Use Registration Program collects water-use data throughout the state on an annual basis. There are two main classifications of water-use data: agricultural and non-agricultural use. Agricultural water use is primarily water used for irrigating row crops and for watering livestock, while non-agricultural use includes municipal supply, commercial, and industrial uses. Several counties in the Red River Basin report their agricultural water use through local water use districts, a cooperative program between the NRD and the Arkansas Association of Conservation Districts. Non-agricultural users and agricultural outside of these counties report directly to the NRD. Presented below as Figure 10 are the general locations of withdrawal sites reported for 2022 water use registration. The 2022 dataset is the most complete and most recent dataset that NRD has at the time of this report. The 2022 dataset has the following number of reported sites per water use code: Commercial - 47, Industrial - 422,

Mining - 9, Power Facility - 4, Water Supply - 862, and Agriculture (irrigation) - 18,552. For more information regarding this data, please inquire with the ADA-NRD.

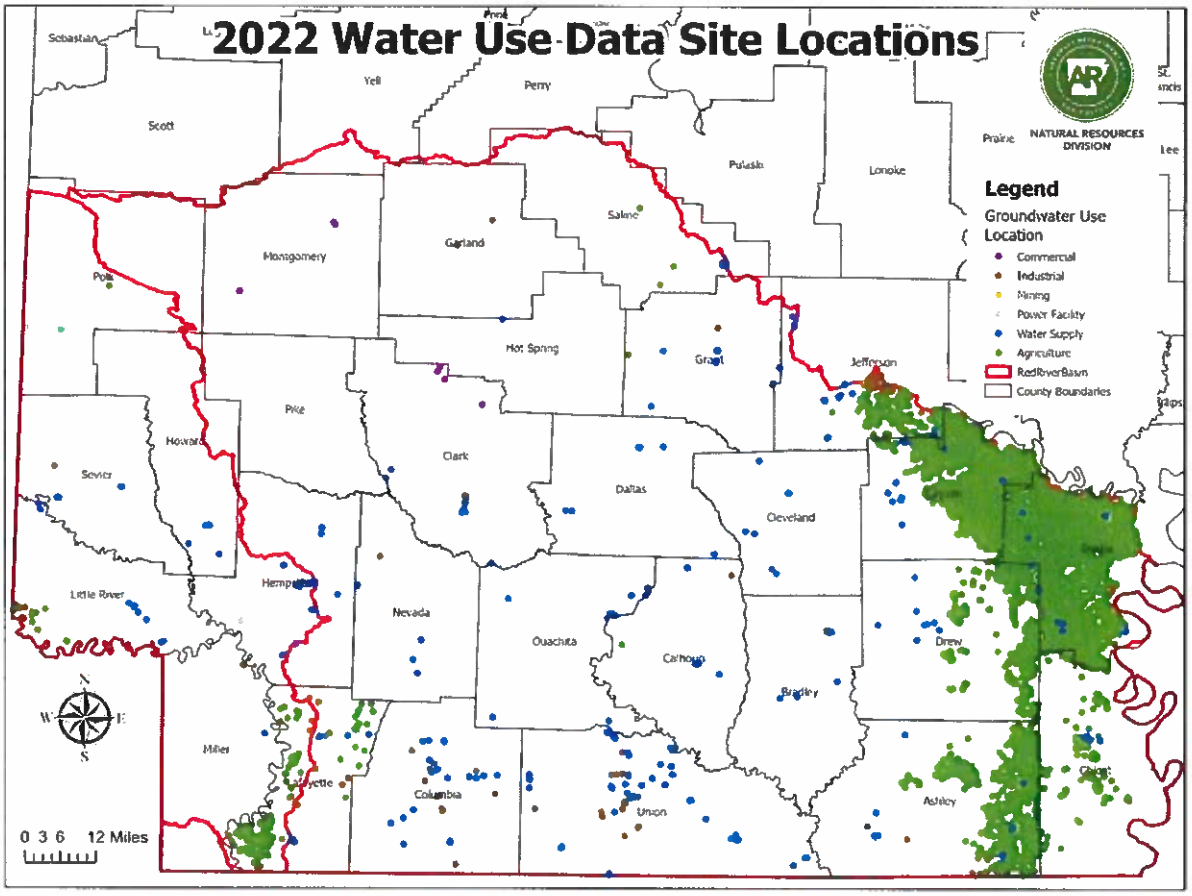


Figure 14. Agricultural water-use reported in water-use districts in the Red River Basin for year 2022.

Groundwater Quality

Groundwater quality sampling throughout the Red River Basin is done through two partnership programs with the United States Geological Survey (USGS): the Groundwater Salinity Program and the Arkansas Masterwell Program. The Groundwater Salinity Program is an annual sampling program that conducts sampling on 25 wells annually in the Mississippi River Valley alluvial aquifer and the Sparta aquifer and is focused on chloride and bromide levels. The Arkansas Masterwell Program samples five different wells per year for various constituents in several different aquifers on a rotational basis throughout the state.

In 2023, sixteen wells in the Sparta aquifer within the Red River Basin were sampled as a part of the Groundwater Salinity Program. For the Arkansas Masterwell Program, sampling was done conducted at two wells in 2023, one in the Mississippi River Valley alluvial aquifer, and one in the Cockfield aquifer. The general locations of these sampling sites are presented below as

Figure 11. The results of the Groundwater Salinity Program sampling are presented as Table 1, and the Masterwell Network sampling results are presented as Table 2.

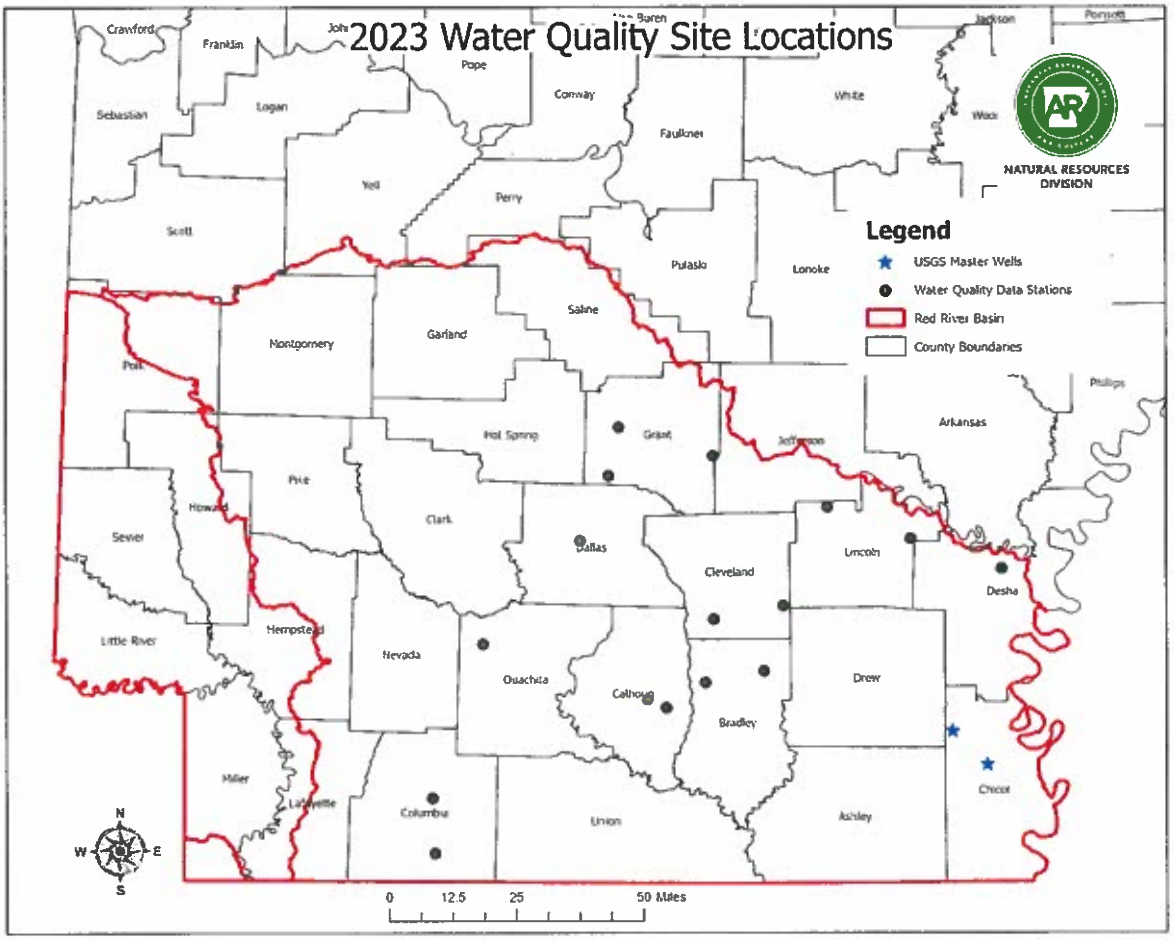


Figure 15. General locations of 2023 Water Quality Sites

Site ID	County	Coordinates	Aquifer	Temp C	Specific Conductance	Hydrogen ion	pH	Hardness	Calcium	Magnesium	Sodium	SAR	Chloride
16S02W04BAC1	Chicot	33°20'27.37", 91°18'57.43"	Cockfield	21.8	937	0.00002	7.8	29.8	8.34	2.06	185	14.9	142
14S03W32CDB2	Chicot	33°26'13.47", 91°25'51.45"	MRVA	19.5	533	0.00021	6.7	195	55.7	13.4	24.7	0.77	39

Site ID	County	Coordinates	Aquifer	Sulfate	Silica	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper
16S02W04BAC1	Chicot	33°20'27.37", 91°18'57.43"	Cockfield	<0.10	16.9	<0.10	74.4	<0.010	541	<0.030	<0.50	0.034	<0.40
14S03W32CDB2	Chicot	33°26'13.47", 91°25'51.45"	MRVA	15.5	38.3	0.26	214	<0.010	32	<0.030	<0.50	0.063	<0.40

Site ID	County	Coordinates	Aquifer	Iron	Lead	Manganese	Thallium	Molybdenum	Nickel	Silver	Strontium	Vanadium	Zinc
16S02W04BAC1	Chicot	33°20'27.37", 91°18'57.43"	Cockfield	54.2	0.055	24.2	<0.040	0.281	<0.20	<1.00	341	<0.10	2.6
14S03W32CDB2	Chicot	33°26'13.47", 91°25'51.45"	MRVA	12000	<0.030	624	<0.040	0.378	0.72	<1.00	303	<0.10	<2.0

Site ID	County	Coordinates	Aquifer	Antimony	Aluminum	Lithium	Selenium	Uranium	Bromide	Specific Conductance
16S02W04BAC1	Chicot	33°20'27.37", 91°18'57.43"	Cockfield	<0.060	<2	15	<0.05	<0.030	1.06	935
14S03W32CDB2	Chicot	33°26'13.47", 91°25'51.45"	MRVA	<0.060	<2	7.92	<0.05	<0.030	0.162	487

Table 1. Arkansas Masterwell Program sampling results, 2023.

Site ID	County	Coordinates	Aquifer	Temp C	Specific Conductance	Hydrogen ion (mg/L)	pH	Chloride (mg/L)	Bromide (mg/L)
333453092160701 13S11W17BCD1	Bradley	33°34'53.65", 92°16'07.25"	Sparta/Memphis	24.3	437	M	8.5	14.6	0.074
333649092040601 13S09W06BDC1	Bradley	33°36'49.09",92°04'06.24"	Sparta/Memphis	28.4	356	0.00001	7.8	10.9	0.079
333040092240301 14S13W12CCB1	Calhoun	33°30'40.05", 92°24'03.54"	Sparta/Memphis	25.2	451	M	8.5	14.5	0.094
333204092280301 14S13W05BBD1	Calhoun	33°32'06.66", 92°28'01.55"	Sparta/Memphis	25.2	440	M	8.5	12.5	0.086
334543092142201 11S11W16AAB1	Cleveland	33°45'43.01", 92°14'23.47"	Sparta/Memphis	25.6	366	0.00001	7.9	5.7	0.037
334758091595701 10S09W35ACD1	Cleveland	33°47'57.93", 91°59'57.13"	Sparta/Memphis	25	230	0.00002	7.8	2.25	0.015
330555093112801 19S20W09CBD1	Columbia	33°05'55.38", 93°11'28.72"	Sparta/Memphis	22.4	228	0.00001	8	3.13	0.018
331519093115901 17S20W17CDA1	Columbia	33°15'19.76",93°12'00.69"	Sparta/Memphis	22.2	387	0.00001	8.1	5.57	0.034
335916092413701 08S15W36BDA1	Dallas	33°59'16.40", 92°41'36.86"	Sparta/Memphis	29.9	336	0.00024	6.6	42.1	0.239
335341091152201 09S02W26AAC1	Desha	33°53'46.00", 91°15'20.82"	Sparta/Memphis	22.3	245	M	8.9	9.49	0.074
341024092354501 06S15W26ACA1	Grant	34°10'21.99", 92°35'37.59"	Sparta/Memphis	20.6	56	0.00782	5.1	3.2	0.018
341341092141401 06S11W05ACD1	Grant	34°13'40.82", 92°14'13.01"	Sparta/Memphis	28.1	135	0.00027	6.6	2.22	0.018
341841092332001 05S14W06DCC1	Grant	34°18'42.50", 92°33'26.69"	Sparta/Memphis	21.1	90	0.00096	6	4.68	0.027
335907091333301 08S05W35ACC1	Lincoln	33°59'06.60", 91°33'37.26"	Sparta/Memphis	24.6	243	M	8.4	6.38	0.06
340444091504201 07S07W30CDC1	Lincoln	34°04'43.93", 91°50'42.86"	Sparta/Memphis	28.7	212	0.00001	8.1	1.46	< 0.010
334137093013401 12S19W13BBC1	Ouachita	33°41'37", 93°01'34"	Sparta/Memphis	18.9	29	0.00401	5.4	2.27	0.018

Table 2. Groundwater Salinity Program sampling results, 2023.

Arkansas Unpaved Roads Program

The Arkansas Unpaved Roads Program (AURP) is administered by the Arkansas Department of Agriculture's Natural Resources Division (NRD). The AURP is funded annually at $300,000. Unpaved roads in the state are the transportation backbone for rural communities and provide access for hunting, fishing, boating, hiking, and recreational activities. Erosion of these unpaved roads has negative effects on the state's economy, tourism, and natural resources. The AURP provides incentives to counties for maintaining and improving select low-volume, unpaved public roads in Arkansas. Eligible activities include demonstration, training, promotion, and use of best management practices in construction and maintenance of unpaved roads near lakes, rivers, and streams.

Within the compact area for 2023, a total of three counties received $265,976 of state and federal funds with counties providing a 1:1 match to improve unpaved roads. All projects elevated roadbeds and improved drainage by increasing size and frequency of culverts to alleviate seasonal flooding. Proposed projects for 2024 include six counties totaling over $350,000 worth of funding requests.

2023	State/Federal Award	Match	2024 (Proposed)	State Request	Match
Calhoun County	$89,476	$89,476	Calhoun County	$75,000	$75,000
Hot Spring County	$101,500	$101,500	Columbia County	$33,240	$32,221
Polk County	$75,000	$89,587	Desha County	$75,000	$75,000
			Drew County	$31,445	$31,445
			Lincoln County	$69,197	$73,090
			Sevier County	$75,000	$90,492

Table 1. 2022 approved and 2023 proposed unpaved roads projects in the Red River Basin.

Arkansas Section 319 Nonpoint Source Pollution Management Program

The implementation of voluntary nonpoint source (NPS) best management practices has been effective in reducing pollutants entering Arkansas's portions of the Red and Ouachita rivers. Leading these efforts, the Arkansas Department of Agriculture's Natural Resources Division (NRD) has partnered with landowners in these watersheds to provide education, demonstration projects, technical assistance/expertise, and financial assistance to implement and install voluntary best management practices which improve water quality.

The 2018-2023 NPS Pollution Management Plan identifies several priority watersheds which lie within the Red River Compact Area in southern Arkansas.

Upper Saline River

NPS pollution efforts in the Upper Saline River watershed include an update of a 2006 watershed management plan in partnership with The Nature Conservancy (TNC) and the Saline River Watershed Alliance. The efforts will include organizing four stakeholder engagement opportunities and several landowner workshops to identify conservation practices that have the highest potential to improve water quality. The watershed management plan is slated for completion by 2025. A second project with TNC and Saline County is identifying and improving unpaved roads and aquatic organism passage, which will be completed by the end of calendar year 2024.

Lower Ouachita-Smackover

A partnership with the Southwest Arkansas Planning and Development District will develop a new watershed-based management plan for the Lower Ouachita-Smackover 8-digit hydrologic unit code (HUC). Project partners will work to evaluate sub-watersheds at the 12-digit HUC scale for significant contributions of sediment, nutrients, and pathogens (*E. coli*). Additional water quality monitoring is also being supported through a partnership with Equilibrium. Their efforts will continue to support on-going projects and development of the watershed-based plan. A new partnership with the Arkansas Department of Agriculture's Forestry Division with support from The Nature Conservancy improved over 3,000 linear feet of unpaved roads and replaced three undersized culverts that were causing erosion as well as improved aquatic organism barriers in Poison Springs State Forest.

Lower Little River

The Arkansas Department of Agriculture's Natural Resources Division (NRD) is excited about two new projects funded in October 2022 for the Lower Little River 8-digit HUC. The first project is a partnership with the University of Arkansas System Division of Agriculture Cooperative Extension Service, which will implement the 2016 watershed-based management plan. The project is scheduled for three years and will organize education and outreach events, water quality demonstration projects, and landowner field days. The second project is a partnership with the Arkansas Game and Fish Commission (AGFC) and Weyerhaeuser to inventory, assess, and improve unpaved roads to prevent sediment loss and improve aquatic organism passage from road crossings. During 2023, AGFC and Weyerhaeuser removed two structures on the Saline River (Howard Co.) that reconnected over 25 miles of stream and reduced instream channel instability. The project will continue through 2025.

Cossatot River Sustainable Rivers Project Program (SRP)

The United States Army Corps of Engineers (USACE) and The Nature Conservancy (TNC) along with several sponsors in the state, including the Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, Arkansas Department of Agriculture's Natural Resources Division, and the Arkansas Department of Energy and Environment Division of Environmental Quality, have joined efforts in order to recommend a dam reoperation plan for Gillham Dam through the Sustainable Rivers Project Program (SRP). In 2020, the Cossatot River was added to the SRP. During the 2021 calendar year, personnel across all partners worked to assimilate all available physical, chemical, and biological data for the Cossatot River. Additional data was collected including channel and bank stability, fish and mussel assemblage, and water quality.

During calendar year 2023, the USACE had the first releases following environmental flow recommendations. These releases include two pulses in June to meet ecologically beneficial recommendations. Limitations of the dam preclude meeting other recommendations for the report, however, precipitation events throughout the 2023 year met requirements for channel restructuring, spring seed dispersal, mussel recruitment, and flushing flows.

Southwest Arkansas Navigation Feasibility Study

The Arkansas Department of Agriculture's Arkansas Red River Commission has obtained the funding necessary to complete a study to determine the feasibility of extending navigation along the Red River above Shreveport and Bossier City into southwest Arkansas. The State of Arkansas is partnering with the Red River Waterway Commission, Bossier Parish Police Jury, Caddo Parish, Caddo Levee District, Bossier Levee District, City of Shreveport, Bossier City, and the Caddo-Bossier Port Commission to complete the study.

A 2018 study concluded that completion of navigation on the Red River would generate a 1:8 benefit to cost ratio should two lock and dams be added extending navigation to Garland, Arkansas and a 1:2 benefit to cost ratio should three locks be added extending navigation to Index, Arkansas. Extension of navigation on the Red River from its current terminus at Shreveport, Louisiana into southwest Arkansas will enhance economic development within the region and will provide transportation costs savings to local businesses and the nation. Once completed, the project could potentially provide significant additional benefits to the region including additional water supply, power generation, flood control, and recreation.

The feasibility study will be completed using the process authorized by Section 203 of the Water Resources Development Act for submission to the Secretary of Army for review. It is estimated that the Section 203 Study will cost approximately $3 million dollars. The State of Arkansas has a signed Memorandum of Agreement with the Louisiana partners and has

procured an engineering consultant to complete the study. A committee of the group has selected Freese and Nichols Engineering Firm. We have had a scoping meeting with the committee, the consultant and the US Army Corps of Engineers. Charettes for both Arkansas and Louisiana are being planned for June for public input.

Arkansas Feral Hog Eradication Task Force

The Arkansas Feral Hog Eradication Task Force (Task Force) was established to develop and implement statewide feral hog control plans to reduce populations through the development and implementation of effective legislative, policy, management, control, and communication efforts. Furthermore, the feral hog program was also established to assist with development and implementation of United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) farm bill grants related to feral swine control projects. Two of the four USDA-NRCS feral swine control pilot projects are located within the compact area. In 2023, the Arkansas Feral Hog Task Force removed 14,160 feral hogs. A total of 6,857 feral hogs were removed in the Red River Compact area.

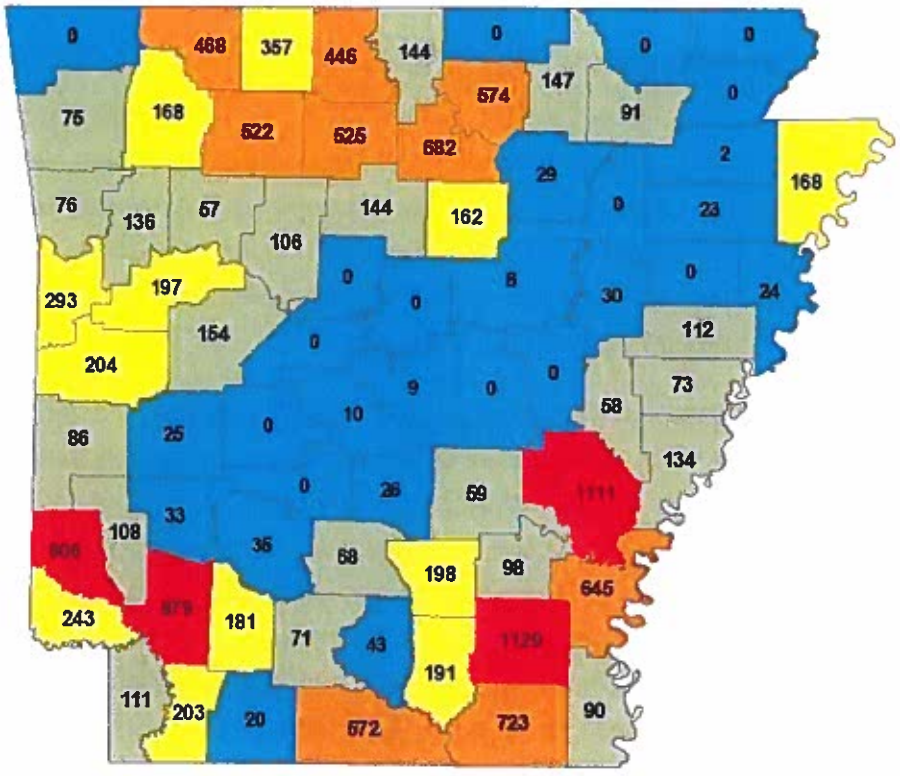


Figure 17. Feral swine removed during calendar year 2023 by the Arkansas Feral Hog Task Force.

State Water Plan Update

On August 21st of 2023, Governor Sanders, through Executive Order, directed the Arkansas Department of Agriculture to update the State Water Plan. The EO detailed a multi-phase process. Phase 1 of the Water Plan Update is a review of the most recent Arkansas Water Plan to determine areas of significant change which shall be reevaluated or updated, including a review of the visions, goals, and objectives of the plan, the policy recommendations, and a review of the available water use demands and projections. The EO required Phase I to be completed within 365 days of this Order (August 20, 2024). The required outcome of Phase I will be a Final Programmatic Work Plan, Schedule, and Anticipated Cost to complete Phase II of the update to the Arkansas Water Plan.

Since the hiring of Micheal Baker International and FTN & Associates in January, we have begun stakeholder engagement. The first stakeholder meetings were held on March 26, 2024(Little Rock) and March 27, 2024(Fayetteville). The next round of stakeholder meetings will occur the week of May 6 to May 10 including a meeting on May 8, 2024 – 10:00 a.m.- 3:00 p.m., at the Donald W. Reynolds Campus & Community Center in Magnolia, Arkansas.

OKLAHOMA COMMISSIONERS' REPORT

Red River Compact Commission

April 24, 2024

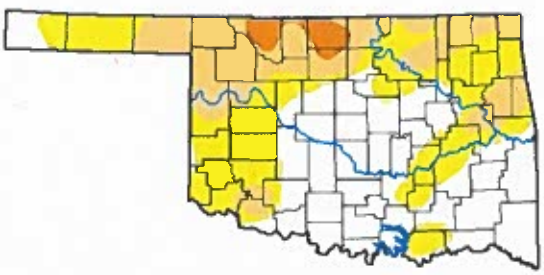
CLIMATE

For the past 365 days, the Southwest region has had 99% normal rainfall, the South-Central region has had 87% normal rainfall, and the Southeast region has had 95% normal rainfall.

Currently, nearly 27% of the state is in drought, mostly in the northern half of the state, which is an improvement over conditions at this time last year. However, conditions in Kansas into Oklahoma are seeing rapid deterioration and short-term dryness, bringing concerns about flash drought conditions in the near future. NOAA's longer term seasonal outlook for the state shows overall drought improvement through the summer months.

U.S. Drought Monitor

Oklahoma



April 16, 2024

(Released Thursday, Apr. 18, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	41.12	58.88	26.70	3.05	0.00	0.00
Last Week 04-09-2024	49.79	50.21	15.41	0.00	0.00	0.00
3 Months Ago 01-16-2024	65.81	34.19	15.01	1.67	0.00	0.00
Start of Calendar Year 01-02-2024	55.32	44.68	21.64	3.08	0.00	0.00
Start of Water Year 09-26-2023	34.29	65.71	46.76	30.93	12.91	0.00
One Year Ago 04-18-2023	36.43	63.57	54.07	49.87	43.03	20.62

Intensity

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author

Lindsay Johnson

National Drought Mitigation Center

droughtmonitor.unl.edu

2025 UPDATE OF OKLAHOMA COMPREHENSIVE WATER PLAN

The OWRB is responsible for coordinating updates of the Oklahoma Comprehensive Water Plan (OCWP) and managing recommended initiatives, studies, and projects. The OCWP provides projections of water demands and shortages over a 50-year period. It also includes an inventory of infrastructure needs and strategies to identify and address key challenges for all 13 planning regions.

The 2025 planning team has updated water demand and availability forecasts for all consumptive water use categories through 2075 for surface water, bedrock groundwater and alluvial groundwater. The team also identified water quality trends and thresholds for lakes and streams. Physical and legal (permits) water supply gaps and depletion projections are now complete and basin by basin water management strategies assessments can be made.

Responses continue to be received on the Public Input Survey and data for local infrastructure projects and programs lists. Responses on the Clean Watersheds Needs Survey and Water Supply and Infrastructure Needs Survey are currently being analyzed to create regional estimates of funding and financing water infrastructure needs.

Round 2 meetings held in December 2023 focused on local input focused on local infrastructure needs, potential for collaboration between local entities to tackle water needs, and policy considerations specific to the region. Round 3 public input meetings will be held in April and May 2024 to present the findings on supply and demand gaps, depletions, and other findings that will be open for discussion.

Technical/policy work groups are ongoing and address collaboration between agencies and organizations, municipalities, and others on: Water Reuse, Source Water Protection, Irrigation Challenges in Western Oklahoma, and Water Workforce.

STATEWIDE FLOOD RESILIENCY PLAN

Oklahoma Senate Bill 1269, a request bill from the OWRB, directs the agency to develop a Statewide Flood Resiliency Plan. Phase 1 is at completion. 210 projects with a cost of $709 million have been identified. Of Oklahoma's 76,000 structures located in high-risk flood zones there are less than 10,000 NFIP flood insurance policies in force. Work on Phase 2, including project

development and community engagement will begin in 2024. Identified project areas include Tulsa County, Muskogee County and Moffett, OK.

The OWRB has also coordinated with FEMA on new county-wide flood mapping projects. In early 2024, new maps are available for adoption in Haskell, Johnston, Murray, Coal, Choctaw, Harper, Latimer, Love and Pushmataha counties, some of which had never been previously mapped. Other areas with new map data include Woods, and Alfalfa Counties.

WATER INFRASTRUCTURE INVESTMENTS

Since 1983, the OWRB Financial Assistance Division has approved 2,690 loans and grants, totaling over $7.3 billion, for water and wastewater infrastructure improvements across Oklahoma. Through OWRB's five standard loan and grant programs and its administering of Oklahoma's American Rescue Plan Act (ARPA) programs, state communities have saved an estimated $2.2 billion over traditional funding to maintain and improve the infrastructure that protects our valuable water resources. In calendar year 2023, the OWRB approved loans for 76 water and wastewater projects totaling nearly $645 million and 83 grant projects totaling nearly $327 million. Approved projects within the Red River Compact totaled $404.4 million, as listed below.

-

Borrower/Grantee	County	Approved Amount
Hobart Public Works Authority	Kiowa	$1,000,000.00
Pittsburg County RWS #20	Pittsburg	$3,430,867.25
Town of Tatums	Carter	$1,153,846.00
Davis Municipal Authority	Murray	$750,000.00
Lawton Water Authority	Comanche	$30,000,000.00
Newcastle Public Works Authority	McClain	$3,300,000.00
Durant City Utilities Authority	Bryan	$23,000,000.00
Town of Talihina	LeFlore	$1,000,000.00
Minco Municipal Authority	Grady	$1,000,000.00
Newcastle Public Works Authority	McClain	$51,819,143.58
Davis Municipal Authority	Murray	$17,250,000.00
Healdton Municipal Authority	Carter	$541,721.00
Thomas Public Works Authority	Custer	$68,423.08
Caddo Public Works Authority	Bryan	$50,000.00
Wright City Public Works Authority	McCurtain	$99,000.00
Idabel Public Works Authority	McCurtain	$870,700.00
Hugo Municipal Authority	Choctaw	$1,276,941.23
Minco Municipal Authority	Grady	$370,516.50
Talihina Public Works Authority	LeFlore	$99,999.00
Duncan Public Utilities Authority	Stephens	$4,105,000.00
Comanche County Rural Water District #2	Comanche	$1,040,000.00
Altus Municipal Authority	Jackson	$5,100,000.00
Vici Public Works Authority	Dewey	$99,990.00
Geronimo Public Works Authority	Comanche	$747,111.00
Carnegie Public Works Authority	Caddo	$243,080.00
Fletcher Public Works Authority	Comanche	$999,999.00
Hollis Public Works Authority	Harmon	$383,623.82
Temple Utilities Authority	Cotton	$1,000,000.00

Borrower/Grantee	County	Approved Amount
Lawton Water Authority	Comanche	$27,000,000.00
Fort Cobb Public Works Authority	Caddo	$944,146.00
Mountain Park Public Works Authority	Kiowa	$99,999.00
Frederick Public Works Authority	Tillman	$900,000.00
Clinton	Custer	$1,262,382.00
Comanche Public Works Authority	Stephens	$1,000,000.00
Lawton Water Authority	Comanche	$1,000,000.00
Lone Grove Water & Sewer Trust Authority	Carter	$336,732.98
Longtown Rural Water & Sewer District #1	Pittsburg	$1,000,000.00
Bryan County RWS & SWMD #2	Bryan	$4,600,000.00
Talihina Public Works Authority	LeFlore	$2,646,450.00
Lugert-Altus Irrigation District	Jackson	$25,000,000.00
Waurika Lake Master Conservancy District	Jefferson	$18,564,000.00
Arbuckle Master Conservancy District	Murray	$1,409,648.00
Temple Utilities Authority	Cotton	$500,000.00
Comanche County Rural Water District #2	Comanche	$800,000.00
Altus Municipal Authority	Jackson	$2,500,000.00
Duncan Public Utilities Authority	Stephens	$8,911,860.45
Chickasha Municipal Authority	Grady	$69,824,786.50
Lawton Water Authority	Comanche	$49,996,241.95
Sayre Public Works Authority	Beckham	$785,489.51
Cheyenne Utility Authority	Roger Mills	$739,702.62
Mangum Utility Authority	Greer	$618,135.00
Lawton Water Authority	Comanche	$30,000,000.00
Seiling Public Works Authority	Dewey	$2,761,342.61
Thomas	Custer	$420,901.46

HYDROLOGIC INVESTIGATIONS

The OWRB conducts statutorily mandated hydrologic investigations to determine the amount of fresh groundwater available for appropriation. During the past year, the United States Bureau of Reclamation (USBR), the OWRB, Lugert-Altus Irrigation District (Lugert-Altus Reservoir), and Mountain Park MCD (Tom Steed Reservoir) completed and published the Upper Red River Basin Study. The goal of the study was to provide information on potential drought thresholds that could help better manage water within those watersheds. The study has potential to change water management strategies that are currently administered state-wide. Additionally, a Hydrologic Investigation Report of the Ogallala–Roger Mills aquifer was published by the OWRB and a Scientific Investigation Report on the hydrogeology and simulated groundwater availability of Reaches 3 and 4 of the Washita River alluvial aquifer was published by the USGS in cooperation with the OWRB. Several additional investigations are underway in the Red River basin:

The OWRB is nearing completion of a study on the Red River alluvial aquifer from southwest Oklahoma to Lake Texoma and is continuing work on a study of the Blaine aquifer in southwest Oklahoma. The USGS has a report on the Antlers aquifer in review and scheduled to be published in 2024 and is finishing up work on the Red River alluvial aquifer from Lake Texoma to southeast Oklahoma; both projects are in cooperation with the OWRB. The OWRB, United States Bureau of Reclamation (USBR), and Lynker have begun work on the Upper Washita Basin Study, which will be similar to the Upper Red River Basin project published in 2023 and will focus on Fort Cobb and Foss reservoirs and upstream areas and will provide information on potential drought thresholds to better manage water within the basins.

WATER RIGHTS PERMITTING

The OWRB appropriates fresh and marginal quality water resources as directed by Oklahoma statutes, coordinates statewide water use reporting, and responds to public complaints. There are currently 11,226 active long-term groundwater permits totaling 4.02 million acre-feet per year (AFY) and 2,191 active long-term stream water permits totaling 2.93 million AFY, for a combined total of 6.95 million AFY of authorized water use per year, statewide. During FY-2023 the OWRB issued 66 long-term groundwater permits totaling 33,815 AFY, 5 long-term stream water permits totaling 1,189 AFY, and approved 27 groundwater permit amendments and 2 stream water permit amendments. OWRB also approved 202 provisional temporary groundwater permits and 451

provisional temporary stream water permits. Within the Compact watershed, one (1) long-term stream water permit totaling 200 AFY and 21 long-term groundwater permits totaling 7,577 AFY were issued.

FY-2023 also saw the implementation of agency rules, which were approved the previous year, for a "Notice of Intent-to-Drill" program within the OWRB's Water Rights Administration Division. Any well drilling contractor who intends to drill a groundwater well for non-domestic use must apply for authorization and receive approval prior to drilling. OWRB launched an online portal in April 2023 for well drillers to submit notice. The program has provided a consistent method to help groundwater permit applicants and existing permit holders meet well spacing requirements and target groundwater basins prior to the construction and/or use of wells for activities that require a groundwater permit.

FLOODPLAIN MANAGEMENT

The OWRB acts as the State Floodplain Board and NFIP coordinating agency, as directed by the Oklahoma Floodplain Management Act. The agency partners with FEMA for the Community Assistance Program (CAP) and the Cooperating Technical Partners Program (CTP).

Currently ten active floodplain mapping or Discovery projects are in progress. Completed Phase II mapping projects are generally referred to FEMA for Flood Insurance Rate Map updates. Information gathered by both the CAP and CTP Programs is used to guide decision making in the development of the state flood plan.

DAM SAFETY PROGRAM

Of the 4,778 regulated dams in the state, there are 2,451 in the Red River Compact Commission Area. There are 2,380 dams in the commission area that are regulated by Oklahoma; 1,434 of these are operated by local conservation districts through partnership with USDA-NRCS, and 946 are directly regulated by OWRB, which includes 21 high hazard potential structures. The remaining 71 dams are Federally operated.

Seven-hundred and seventy-five Oklahoma-regulated dams have a normal storage of 100 acre-feet or more within the compact area. These dams create a total normal storage of almost 753,000 acre-feet, and nearly 1.2M acre-feet of available flood storage.

In 2023, the Dam Safety Program received inspections reports for 98% of high hazard potential dams. New condition assessment guidelines that better define condition classifications were adopted and applied to last year's inspections. For the state, 69% of state-regulated high hazard potential dams are rated as either satisfactory or fair condition. In the Red River compact area, 71% of the high hazard potential dams are in either satisfactory or fair condition, 14% are in poor condition, and 15% are in unsatisfactory condition.

To utilize FEMA's High Hazard-Potential Dam Rehabilitation Grant (HHPD), OK Dam Safety Program has been working closely with owners of 7 eligible dams within the Red River Compact Commission Area. Three of these dams were selected for federal funding. For these, one design project has been completed, two engineering studies are underway, and one construction project has been approved. In collaboration with the OWRB Financial Assistance Division, Dam Safety staff has assisted several other high hazard-potential dam owners to either obtain loans or pursue other funding opportunities to rehabilitate their dams and correct deficiencies that threaten public safety. Finally, through the US Treasury's American Rescue Plan Act, OWRB has allocated $12 million for two high hazard dam owners in the Red River Compact Commission Area for their dam rehabilitation projects.

Within the Red River compact area in Oklahoma, funding for dam rehabilitation projects through the ARPA and HHPD programs has been allocated to five high hazard dam design and construction projects. Over $13.2 million in Federal funding has been awarded to these communities for dam rehabilitation.

WELL DRILLER AND PUMP INSTALLER PROGRAM

There are approximately 370 well drilling and pump contracting firms and 670 individual operators licensed and certified by the OWRB. As an important service, the OWRB provides technical assistance for water well drillers, pump contractors, and the public. The OWRB also assists drillers with required well log reporting, and to date, over 227,000 well logs are available to the public online. Work is in progress on modernizing databases and providing online services for drillers and the public. Additionally, the OWRB continues to work with the Well Driller Advisory Council and stakeholders to develop, update, and advance groundwater well drilling rules. The latest changes, effective last fall, updated the requirements for well completion reports to improve data collection and better appropriate groundwater in the state.

Recently, the OWRB began partnering with the National Ground Water Association University (NGWAU), powered by Oklahoma State University, to approve training curriculums designed to turn drillers into true groundwater professionals. The training can be used by professionals to satisfy experience requirements for licensure and be applied as continuing education credits to maintain a license.

WATER ASSESSMENT, TRENDS AND ENVIRONMENTAL RESEARCH

Lakes Monitoring & Assessment Program: The OWRB Lakes Monitoring and Assessment section has historically monitored 49 reservoirs from the Red River Basin, with 32 of these reservoirs retained in the program as part of our redesigned long-term trends initiative. Data collected through this monitoring is used to assess the overall health of these systems and can be found online in our Lakes Beneficial Use Monitoring Program reports. The program continues to utilize special studies to perform more in-depth evaluations of certain reservoirs as well. Our bathymetric program has surveyed 23 lakes in the basin providing accurate volumes and contour maps, all of which can be found and downloaded off our website[1]. The board also has multiple ongoing projects updating large regions of the current National Wetlands Maps[2]. This data is available through the OWRB and U.S. Fish and Wildlife Service.

Streams Monitoring and Assessment Program: Two years ago, the OWRB modified our streams Water Quality and Quantity Monitoring Program to address more effectively our 21st century data needs. A program redesign has been implemented that moves the network toward a holistic trend and condition monitoring program. Using more advanced technology, the program evaluates trends in loading and concentration at 55 sentinel stations through integrated data collection platforms. The program has continued implementation of a statewide network to evaluate long term changes in water quality condition. Finally, the program will continue to perform special studies.

Data Science and Management: Our Data Science team continues to migrate our extensive data set into the Ambient Water Quality Monitoring System (AWQMS) database. In additional our real-time data collection efforts continue to expand with that information available in our Aquarius database. This past year much of our data is now available on the OWRB webpage for download or review. We are also in the process of making our real-time data available to the public, industry and academia via the web.

LEGISLATION

Several bills are currently making their way through the legislative process, including bills that would implement metering or measuring for permitted well within the state and create a revolving fund for water infrastructure projects.

The legislature has committed more than $43 million to date for the Emergency Drought commissions Cost-Share Program for practices related to water well drilling, pipeline, pumping plant and water facilities.

Bills of note this session:

- HB 3194 (Rep. Newton) Would implement Metering/monitoring to all permitted wells within the state.
- SB 1341 (Howard) Establishes requirements for basins within a critical groundwater management area including metering and monitoring for permitted well.
- SB 1331 (S. Bullard) Water Infrastructure Investment Revolving Fund and Grant/Loan program currently with $125 million in proposed funding.

Report of the Budget Committee

Red River Compact Commission

April 24, 2024

The 2025 Proposed Budget covering July 1, 2024 through June 30, 2025.

Anticipated Cash Balance – July 1, 2024	**$ 28,298.34**
Certificate of Deposit – December 15, 2023	**$ 11,356.10**
PROPOSED BUDGETED RECEIPTS	
Annual Dues – Arkansas, Louisiana, Oklahoma, and Texas ($550/State)*	$ 2,200.00
Total Gross Receipts	**$ 2,200.00**
TOTAL FUNDS AVAILABLE	**$41,854.44**
PROPOSED BUDGETED EXPENDITURES	
Meeting Expenses	$ 5,000.00
Office Supplies/Expenses**	$ 2,500.00
Contingency	$16,000.00
Total Expenditures	**$23,500.00**
TOTAL	**$18,354.44**

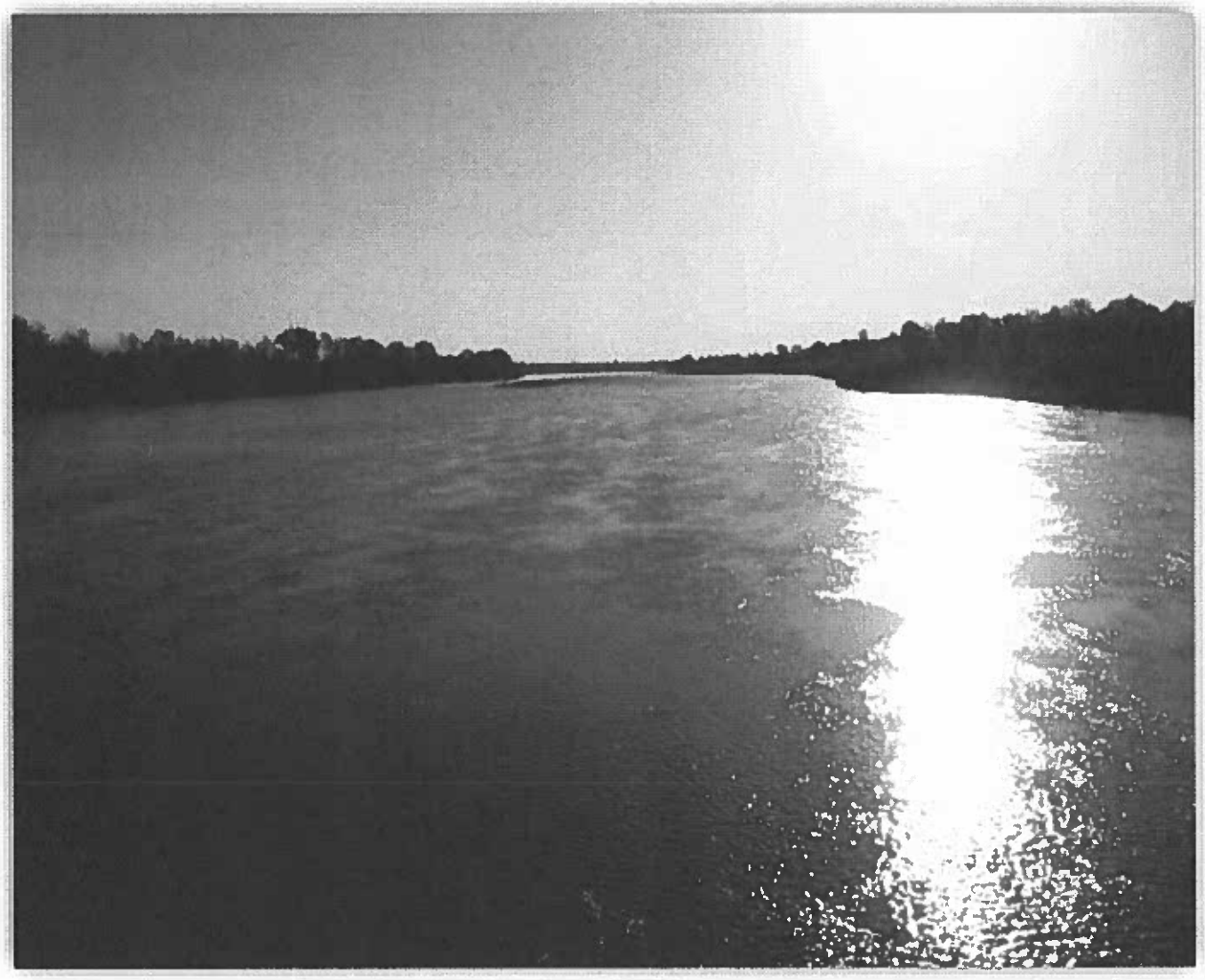
*In accordance with Article IX, Section 9.04.C, of the Compact the amount of such budget shall be borne equally by the signatory states in an equal amount. Therefore, the FY 2023 assessments are $550.00 per state.

**Includes Personnel Services, Office Expenses, Rent, Travel, and Audit items (4-22-2014).

State of Oklahoma

OKLAHOMA Water Resources Board

the water agency



Red River Compact

Quartz Mountain - Oklahoma 2024

Contents

Environmental and Natural Resources Committee Report

Red River Compact

April 23rd and 24th 2024

EXECUTIVE SUMMARY

It is the intent of all Oklahoma Water Resources Board (OWRB) monitoring activities to advance concepts and principles of the Oklahoma Comprehensive Water Plan (OCWP). Consistent with a primary OCWP initiative, OWRB monitoring initiatives provide invaluable data crucial to the ongoing management of Oklahoma's water supplies as well as the future use and protection of the state's water resources. Oklahoma's decision-makers rely upon this information to address specific water supply, quality, infrastructure, and related concerns. Maintained by the OWRB and updated every 10 years, the OCWP serves as Oklahoma's official long-term water planning strategy. Recognizing the essential connection between sound science and effective public policy, incorporated in the Water Plan are a broad range of water resource development and protection strategies substantiated by hard data – such as that contained in this report – and supported by Oklahoma citizens.

The Beneficial Use Monitoring Program (BUMP) exists because of the vital economic and social importance of Oklahoma's lakes, streams, wetlands, and aquifers and the associated need for their protection and management. The data contained in this report is scientifically defensible and has been collected and analyzed following procedures outlined in Oklahoma's Use Support Assessment Protocols (USAP). Specifically, USAPs establish a consistent method to determine if beneficial uses assigned for individual waters through Oklahoma Water Quality Standards (WQS) are being supported. If the OWRB BUMP report indicates that a designated beneficial use is impaired, threatened, or otherwise compromised, measures must be taken to mitigate or restore the water quality.

Traditionally, the State of Oklahoma has utilized numerous water monitoring programs conducted by individual state and federal agencies. In general, each environmental agency designs and implements its own program with only limited participation with other state, municipal, or federal entities. These programs collect information for a specific purpose or project (e.g., development of Total Maximum Daily Loads, WQS process, lake trophic status determination, water quality impact assessments from nonpoint and point source pollution, stream flow measurement, assessment of best management practices, etc.). Therefore, the information is specific to each project's data quality objectives (DQOs) and is often limited to a very small geographic area.

The specific objectives of BUMP are to detect and quantify water quality trends, document and quantify impairments of assigned beneficial uses, and identify pollution problems before they become a pollution crisis.

Beneficial Use Monitoring Program Components

Monitoring Rivers & Streams - The OWRB is currently monitoring approximately 84 stations on a 6-week rotation. Fixed station monitoring is based largely upon the 84 planning basins as outlined in the Oklahoma Comprehensive Water Plan (OCWP). In general, at least one sample station is located at the terminal end of each of the planning basins. The OWRB also conducts on-going special studies as well as 25-30 probabilistic monitoring stations annually.

Fixed Station Load Monitoring – The OWRB is currently working with several partners including the United States Geological Survey (USGS), US Army Corps of Engineers (USACE), Grand River Dam Authority (GRDA) and National Weather Service to conduct flow monitoring on all our fixed station sites that are not part of the State of Oklahoma/USGS Cooperative Gaging Network. This cooperative effort will allow for loadings to be calculated, trends to be assessed statewide and provide much needed data for the Use Support Assessment process.

Fixed Station Lakes Monitoring – As part of BUMP, the OWRB conducts sampling on lakes and reservoirs across the State of Oklahoma. To accomplish this task, the OWRB has taken a fixed station approach for the lakes monitoring program. This design allows the state's objectives to be met as well as ensure various sized waterbodies are represented adequately. The survey population includes all lakes above 50 surface acres, which encompasses approximately 206 different waterbodies. The population is then stratified into two groups – lakes greater than 500 surface acres and those below 500 surface acres. The greater than 500 surface acres group includes 68 lakes, of which approximately one-fifth are monitored annually (quarterly samples). They are then monitored again during a subsequent year in the 5-year rotation, so that each lake greater than 500 surface acres is sampled 2 non-consecutive years during each 5 year rotation. The lakes managed by our Federal partners, the USACE and Bureau of Reclamation (BOR) are included in the 68 large multipurpose lakes. Additionally, ten lakes of less than 500 surface acres are sampled annually (quarterly samples) over the 5 year sample frame. All lakes monitored have either the PPWS or SWS designation. Many of these smaller lakes have not been sampled historically through BUMP and include small municipal water supplies.

The OWRB works with other agencies, such as the USACE, for inclusion of additional information when possible on waterbodies managed by the Corps. Data collected consists primarily of water chemistry, nutrients, and chlorophyll-a information. In general, a minimum of three to five stations per reservoir are sampled depending on the size of the reservoir. Stations are located such that they represent the lacustrine, transitional, and riverine zones of the lake. On many reservoirs, additional sites are monitored, including major arms of the reservoir as appropriate. Water quality parameters have been added to the lakes sampling effort over the years to enhance program ability to make use support determinations.

Groundwater Monitoring (GMAP) – This program was made possible as result of the increase in funding received from the Oklahoma Legislature for water quality/quantity monitoring based on recommendations of the 2012 Update of the Oklahoma Comprehensive Water Plan. These additional monies were utilized to restore funding levels of the Beneficial Use Monitoring Program as well as to implement the new groundwater program. The program prioritizes efforts on Oklahoma's 22 major

groundwater aquifers, with the baseline phase completed at the conclusion of 2017 and long-term trend monitoring beginning in 2020. The baseline period focused on 4-6 aquifers per year, beginning in 2013, and assessed concentrations of nutrients, metals and major ion species. Sample size was predicated upon and proportional to the surface area of the aquifer with a general goal of 30 wells per aquifer. Some of the state's larger aquifers exceeded the goal and some of the smaller aquifers were represented by fewer wells (Table 1). At the conclusion of the baseline sampling period there were 695 wells sampled from major aquifers in the statewide groundwater quality network, with an additional 31 wells in minor aquifers. In addition, the OWRB's annual groundwater level measurement program nearly doubled in capacity from around 530 to 900 wells and has been spatially redistributed. Over the 5-year baseline period, the OWRB installed 33 continuous water level recorders to obtain daily or hourly measurements that are more sensitive to detecting seasonal changes (brought on by drought or variable climate conditions) than can be obtained by annual measurements.

Table 1. Sample Networks Based on Aquifer Areal Extent.

Areal Extent Category	Sample Site Well Density	Sample Sizes Generated
> 5000 km^2	1 well per 150 km^2 (6 Aquifers)	37 – 89
3001 – 5000 km^2	1 well per 100 km^2 (5 aquifers)	33 – 48
1501 – 3000 km^2	1 well per 75 km^2 (6 aquifers)	25 – 33
751 – 1500 km^2	1 well per 50 km^2 (2 aquifers)	16 – 19
≤ 750 km^2	2 aquifers	6 – 10

Program History/Overview

Sampling of the numerous lakes, streams, and rivers across this state was initiated in the summer and fall of 1998. Lake sampling in connection with BUMP began in July of 1998. Sampling on numerous streams and rivers began in earnest in November of the same year. The two sampling programs, one for lakes and one for streams, had separate starting dates for a number of reasons. First, the OWRB had been conducting a lake-sampling program during the warmer summer months since 1990 as part of the Federal Clean Lakes Program. This historical lake sampling program was funded through federal dollars with the express purpose of determining lake trophic status. The trophic status of a lake ranges from oligotrophic (low biological productivity) to hypereutrophic (excessive biological productivity). In general, the more productive a lake is the more water quality problems it is likely to experience. Federal dollars to fund this trophic state assessment of our state's lakes were discontinued in 1994. At that time, the OWRB searched for other funding sources, and through working with the Secretary of the Environment and the Oklahoma Conservation Commission, the OWRB was able to obtain a one-time federal CWA 319 nonpoint source grant to continue the lake trophic state assessment program. The OWRB subsequently initiated a

quarterly lake sampling program in the spring of 1998 and was able to roll the existing lake program into BUMP.

The OWRB utilizes USAPs for lakes and streams, which are essential if the state is to be consistent in identifying waters that are not meeting their assigned beneficial uses or are threatened. The state must follow consistent procedures for listing waters as impaired. Using the Use Support Assessment Protocols, it has been possible for OWRB staff to assess whether threats or impairments are present in our waterways. With continued funding, identification of impaired waters will be accomplished on additional waters.

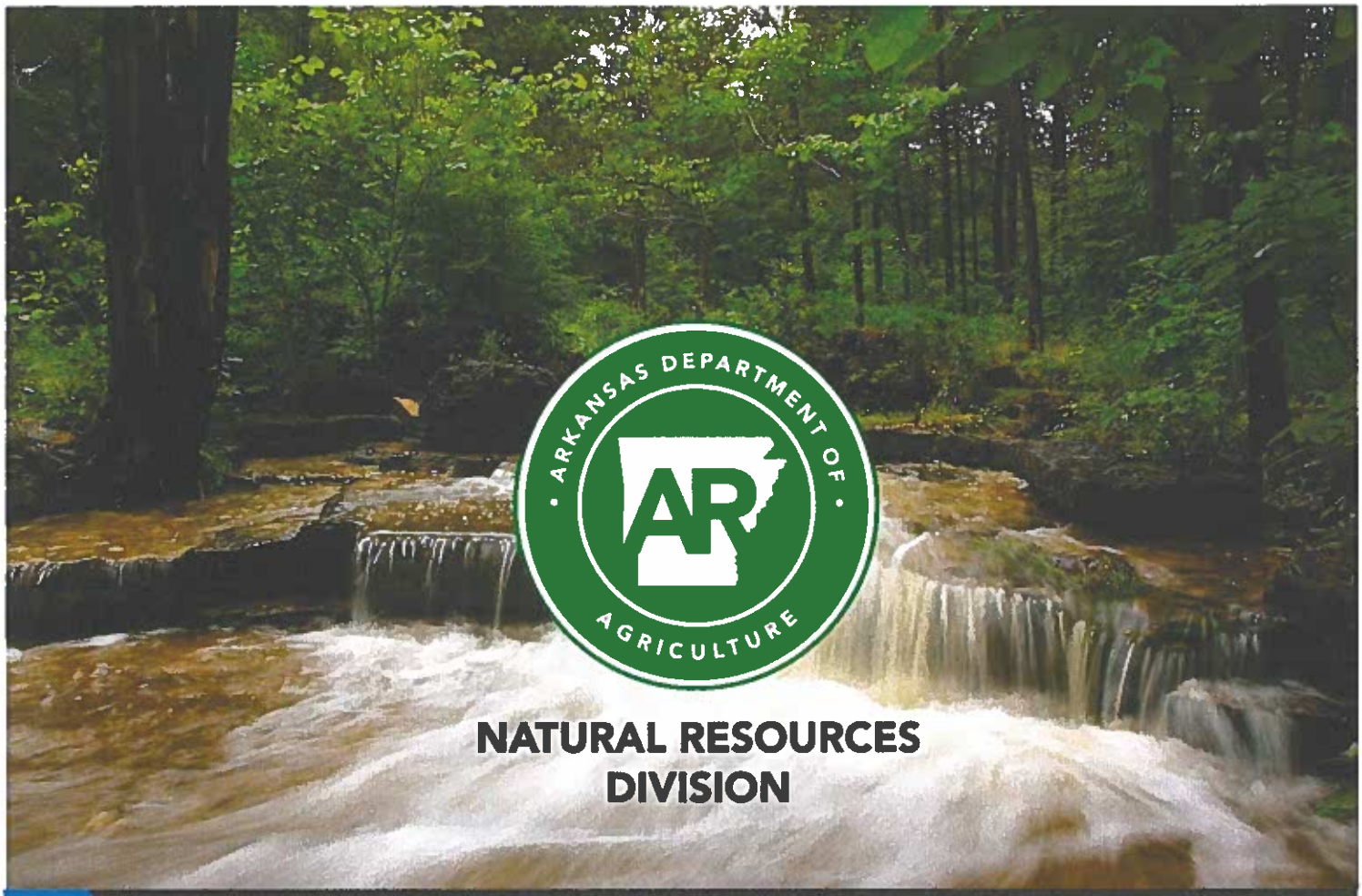
Results of Sampling Efforts

Every two years, the OWRB analyzes data collected by BUMP and that data is used to identify if the waters of the state are meeting their assigned beneficial uses. If the stream/river segment is not meeting its beneficial use it is submitted for inclusion on the EPA's 303d list. The latest EPA approved 303d list of impaired waters can be found on the Oklahoma Department of Environmental Quality's website. Data Presented in this Report can be found at several links. Included in this report are the lakes and rivers monitored by the BUMP and the pertinent stream segments listed in the Oklahoma 303(d) List as not supporting their assigned beneficial uses.

APPENDIX A – OKLAHOMA 303(d) LISTINGS IN RED RIVER WATERSHED

APPENDIX B – OKLAHOMA WATER RESOURCES BOARD'S LAKES SAMPLING RESULTS IN RED RIVER WATERSHED

APPENDIX C – OKLAHOMA WATER RESOURCES BOARD'S STREAMS SAMPLING RESULTS IN RED RIVER WATERSHED



2023 Arkansas Environmental Report

Prepared for the Red River Compact Annual Meeting

The Arkansas Department of Agriculture's Natural Resources Division

April 23-24, 2024

2023 Arkansas Environmental Report

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Tables and Figures

2023 Arkansas Environmental Report

Introduction

Water is an essential resource for Arkansas and throughout the Red River Compact area. Accurate information on water quality and quantity is necessary to ensure long-term availability and sustainability of water that is safe for drinking and recreation, and is suitable for industry, irrigation, and fish and wildlife. Abatement of degradation and improvement in water quality throughout the Red River Compact Area is a continuing effort and remains a priority for the state.

Clean Water Act Section 303(d) requires all states to identify waters which do not meet or are not expected to meet applicable water quality standards. The Arkansas Department of Energy and Environment Division of Environmental Quality (DEQ) manages water quality monitoring networks for surface and groundwater; and conducts routine monitoring activities and intensive investigations of the physical, chemical, and biological characteristics of watersheds and/or aquifers. Data generated from these activities, as well as readily available data from other sources, such as the Arkansas Department of Agriculture's Natural Resources Division (NRD) Nonpoint Pollution Prevention and Abatement Program, is used to prepare the biennial Integrated Water Quality Monitoring and Assessment 305(b) Report, the Impaired Waterbodies 303(d) list, and to develop total maximum daily loads (TMDLs). This data is used to evaluate designated use attainment and to prioritize restoration and remediation activities. DEQ develops the 305(b) report and 303(d) list every two years and submits to the United States Environmental Protection Agency (EPA) for acceptance and approval.

Water quality degradation, impairment, and improvement are influenced by both point and nonpoint pollution sources. While DEQ is the state's primary authority to regulate point source discharge through the implementation of the National Pollutant Discharge Elimination System (NPDES) Program and to administer other regulatory responsibilities, the NRD is responsible for addressing nonpoint source pollution through implementation of voluntary conservation and best management practices which improve water quality and reduce degradation. The NRD nonpoint source pollution management and reduction efforts are prioritized to:

- increase collaborative and innovative conservation partnerships,
- enhance cooperation among government agencies and non-governmental groups, and
- demonstrate effective nutrient management and reduction practices that best contribute to water quality improvement.

Some of NRD's collaborative partners include the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Arkansas Department of Energy and Environment, University of Arkansas System Division of Agriculture Cooperative Extension Service, The Nature Conservancy, Arkansas Department of Commerce, Discovery Farms,

Arkansas Association of Conservation Districts, and many other entities which are involved in nonpoint source pollution reduction activities and stakeholder issues. These partnerships are longstanding and vital to sustaining successful nonpoint-nutrient reduction and water quality improvement.

In 2019, DEQ commenced an extensive sampling project throughout the South Central Plains ecoregion. The study collected water chemistry, biological, habitat, and flow data on approximately 60 streams throughout the ecoregion with varying levels of disturbance. The data collected during this project will update indices used for determining biological and stream health as well as revising water quality standards. Data were collected on many streams that are not part of DEQ's ambient monitoring network, but due to the duration of the study, met assessment requirements. The increased amount of data collected in that area corresponds to the increased number of impairments. However, collecting such robust datasets affords the opportunity to determine if a water quality standards change is needed. DEQ is currently evaluating all the data collected in the South Central Plains ecoregion for this purpose.

Water Quality Study Area

Arkansas's drainage area for the Red River Compact encompasses nearly half of the state and includes 20 individual 8-digit hydrologic units (HUC), which DEQ aggregates into larger planning segments (Figure 1, Table 1). These areas overlap with the Red River Compact's Subbasin I and II.

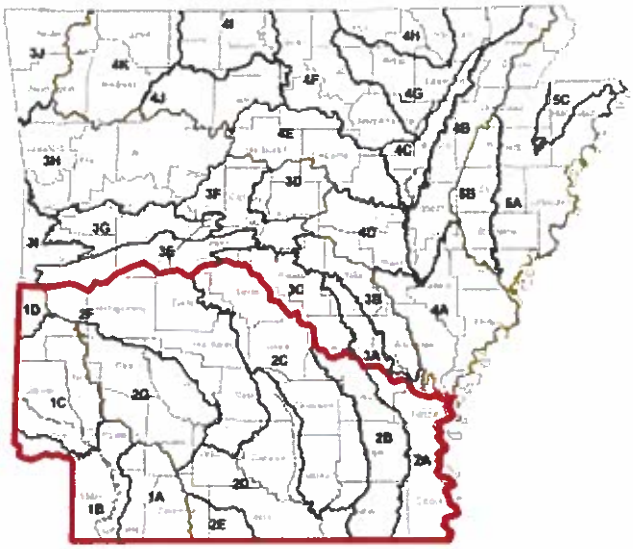


Figure 1: Red and Ouachita River Basins and DEQ planning segments

Impaired Waterbody Updates

This report contains data and information from the DEQ's 2016, 2018, 2020, and 2022 Integrated Water Quality Monitoring and Assessment Report and NRD's Nonpoint Source Pollution Management Plan. Included are summaries of DEQ's 2016, 2018, 2020 (draft), and 2022 (draft) 303(d) list of impairments within the Red River Compact Area in Arkansas and a description of NRD's voluntary conservation and nonpoint pollution efforts to combat these impairments.

The Integrated Water Quality Monitoring and Assessment Report identifies waterbody impairments into five categories: Category 1 (attains all water quality criteria and supports all designated uses and can be subsequently subcategorized by TMDL existence or not for one or more constituents); Category 2 (available data indicate that some, but not all designated uses are supported); Category 3 (insufficient data available to make a use support determination); Category 4 (water quality standards are not attained for one or more designated uses, the development of a TMDL is not required due to existing TMDL, alternative management plans, or non-support is not caused by a pollutant); and Category 5 (waterbody is impaired, or one or more water quality standards are not attained). Category 5 waterbodies are subsequently prioritized as high, medium, and low (Table 2). In the development of the 303(d) list, the unsupported designated use, identified criteria exceeded, source of contaminant (if known), and cause (if known) are published (Table 3).

The 2020 and 2022 Integrated Water Quality Monitoring and Assessment Report and 303(d) list have not been approved by EPA and are still considered a draft. Therefore, an exhaustive table summary of 2018 to 2022 for individual impaired waters was not established. Preliminary summaries of impaired miles and pollutant pairs were prepared comparing approved 2016 and 2018, and the draft 2020 and 2022 303(d) lists (Tables 5-6).

Table 1: List of DEQ planning segments (PS) in the Red River Compact Area

PS	Red River Basin	PS	Ouachita River Basin
1A	Dorcheat Bayou & Bodcau Bayou	2A	Boeuf River & Tributaries
1B	Red River, Sulfur River, & McKinney Bayou	2B	Bayou Bartholomew & Tributaries
1C	Little River & Tributaries	2C	Saline River & Tributaries
1D	Mountain Fork & Tributaries	2D	Lower Ouachita River & Tributaries
		2E	Lower Cornie Bayou & Tributaries
		2F	Ouachita River & Tributaries: Headwaters to Little Missouri River
		2G	Little Missouri River & Antoine River

Table 2: DEQ Category 5 designations for prioritization of waterbody remediation

Category 5	The waterbody is impaired, or one or more water quality standard may not be attained. Waterbodies in Category 5 will be prioritized as:
High	Truly impaired; develop a TMDL or other corrective action(s) for the listed parameter(s).
Medium	Waters currently not attaining standards but may be de-listed with future revisions to the Arkansas Pollution Control & Ecology Commission's Rule No. 2, the state water quality standards; or waters which are impaired by point source discharges and future permit restrictions are expected to correct the problem(s).
Low	Waters currently not attaining one or more water quality standards, but all designated uses are determined to be supported; or there is insufficient data to make a scientifically defensible decision concerning designated use attainment; or waters DEQ assessed as unimpaired but were assessed as impaired by EPA.

Table 3: Abbreviations used in Category 5 descriptions

Designated Use Not Supported		Sources of Contamination
AI = Agricultural/Industrial Water Supply	ALU=Aquatic Life Use	AG = Agriculture Activities
DW = Domestic Water Supply	PC = Primary Contact	HP = Hydropower
FC = Fish Consumption	SC = Secondary Contact	IP = Industrial Point Source
Water Quality Standard Non-Attainment		MP = Municipal Point Source
Al = Aluminum	PO = Priority Organics	SE= Surface Erosion
AM = Ammonia	Se = Selenium	UN = Unknown
Be = Beryllium	SO4 = Sulfates	UR = Urban Runoff
Cl = Chlorides	Tb = Turbidity	RE = Resource Extraction
Cu = Copper	TDS =Total Dissolved Solids	Cause
DO = Dissolved Oxygen	Tm = Temperature	HG = Mercury
NO3 = Nitrate Nitrogen	Tox = Toxicity	NU = Nutrients
PA = Pathogen Indicator Bacteria	TP = Total Phosphorus	SI = Siltation
pH = pH	UN = Unknown	
Pb = Lead	Zn = Zinc	
PCB = Polychlorinated Biphenyl	Hg = Mercury	

Table 4: Comparison of the US EPA approved 2016, 2018, and draft 2020 and 2022* DEQ 303(d) lists*

2022 Impaired No. of Segments and Miles by Pollutant

PS	DO	pH	Tm	Tb	Cl	SO4	TDS	Cu	Pb	Zn
1A	-	4 (65.2)	-	2 (21.4)	-	-	-	-	2 (19.2)	-
1B	9 (119.6)	2 (28.1)	-	11 (222.0)	1 (36.4)	-	1 (8.4)	-	-	-
1C	5 (53.3)	13 (146.1)	2 (23.4)	1 (16.7)	-	-	-	1 (21.1)	-	-
1D	3 (34.6)	5 (71.3)	1 (11.3)	1 (11.6)	-	-	-	-	-	-
2A	-	-	-	-	2 (61.1)	-	-	-	-	-
2B	8 (164.8)	-	-	4 (114.3)	1 (29.2)	-	-	-	5 (206.8)	-
2C	10 (142.5)	12 (139.8)	1 (60.2)	2 (77.6)	-	-	-	-	-	-
2D	8 (199.7)	11 (166.5)	-	15 (308.1)	1 (0.9)	1 (0.9)	1 (0.9)	6 (24.4)	10 (232.0)	4 (12.7)
2E	1 (55.1)	1 (55.1)	-	1 (55.0)	-	-	-	-	4 (30.8)	-
2F	16 (224.0)	18 (213.9)	-	3 (57.1)	-	2 (3.1)	4 (3)	2 (4.9)	3 (26.4)	2 (4.9)
2G	4 (32.1)	11 (167.1)	-	4 (99.2)	-	-	-	-	-	-

2020 Impaired No. of Segments and Miles by Pollutant

PS	DO	pH	Tm	Tb	Cl	SO4	TDS	Cu	Pb	Zn
1A	1 (26.5)	-	-	2 (21.4)	-	-	-	-	-	-
1B	2 (28.7)	-	-	6 (135.7)	-	-	-	-	-	-
1C	6 (96.5)	6 (75.0)	2 (11.7	-	-	-	-	3 (24.1)	-	-
1D	1 (11.7)	5 (71.3)	1 (11.3)	1 (11.7)	-	-	-	-	-	-
2A	-	-	-	-	2 (61.1)	-	-	-	-	-
2B	6 (149)	1 (5.3)	1 (97.0)	2 (36.3)	1 (8.3)	-	-	-	6 (198.3)	-
2C	9 (170.7)	6 (137.6)	1 (60.2)	2 (70.4)	-	-	-	-	1 (60.2)	-
2D	3 (94.1)	11 (157.0)	-	16 (310.1)	1 (3.3)	1 (3.3)	1 (3.3)	-	12 (262.1)	3 (23.0)
2E	1 (55.1)	1 (55.1)	-	1 (55.1)	-	-		-	5 (97.8)	-
2F	12 (172.3)	6 (78.4)	1 (17.5)	2 (23.2)	-	1 (0.7)	1 (0.7)	-	-	-
2G	1 (15.1)	2 (62.4)	-	1 (26.0)	-	-	-		-	-

2018 Impaired No. of Segments and Miles by Pollutant

PS	DO	pH	Tm	Tb	Cl	SO4	TDS	Cu	Pb	Zn
1A	1 (26.5)	-	-	1 (11.6)	-	-	-	-	-	-
1B	2 (28.7)	-	-	6 (135.7)	-	-	-	-	-	1 (17.6)
1C	2 (52.2)	2 (15.3)	1 (4.9)	-	-	-	-	-	1 (11.3)	-
1D	-	2 (24.0)	-	-	-	-	-	-	-	-
2A	-	-	-	-	2 (61.1)	-	-	-	-	-
2B	7 (185.4)	-	-	1 (28.0)	1 (8.3)	1 (8.3)	-	-	5 (163.9)	-
2C	4 (102.7)	3 (75.7)	1 (60.2)	1 (10.2)	-	-	-	-	1 (48.7)	-
2D	6 (217.9)	8 (137.9)	-	8 (208.4)	-	1 (3.3)	1 (3.3)	1 (8.5)	10 (221.5)	3 (23.0)
2E	-	1 (55.1)	-	1 (55.1)	-	-		-	5 (97.8)	-
2F	8 (86.4)	4 (54.9)	-	-	-	1 (0.7)	1 (0.7)	-	-	-
2G	-	2 (62.4)	-	1 (26.0)	-	-	-		-	-

2016 Impaired No. of Segments and Miles by Pollutant

PS	DO	pH	Tm	Tb	Cl	SO4	TDS	Cu	Pb	Zn
1A	1 (19.5)	-	-	-	-	-	-	-	-	-
1B	2 (29.3)	-	-	5 (93.1)	-	-	-	-	-	-
1C	1 (6.2)	-	1 (4.0)	-	-	2 (13.9)	1 (9.1)	-	-	-
1D	-	-	1 (11.0)	1 (11.0)	-	-	-	-	-	-
2A	-	-	-	-	2 (199.1)	-	-	-	-	-
2B	6 (100.7)	-	-	2 (24.5)	1 (9.9)	-	-	-	4 (96.4)	-
2C	-	1 (10.0)	-	2 (19.4)	-	-	-	-	-	-
2D	4 (64.7)	3 (47.2)	-	-	1 (3.3)	4 (53.2)	4 (53.2)	1 (5.2)	7 (163.7)	3 (49.9)
2E	-	-	-	1 (15.0)	-	-		-	-	-
2F	3 (15.1)	3 (8.3)	-	-	-	3 (6.2)	2 (4.0)	-	-	1 (2.5)
2G	-	2 (47.0)	-	1 (14.5)	-	-	-		-	-

Table 5: Total miles of impairments from the EPA approved 2016, 2018, and draft 2020 and 2022* 303(d) lists*

For each pollutant, dissolved oxygen (DO), pH, temperature (Tm), turbidity (Tb), chloride (Cl), sulfate (SO4), total dissolved solids (TDS), copper (Cu), lead (Pb), and zinc (Zn).

	DO	pH	Tm	Tb	Cl	SO4	TDS	Cu	Pb	Zn
2016	235.5	112.5	15.0	177.5	132.3	73.3	66.3	8.5	260.1	52.4
2018	699.8	425.3	65.1	484.8	69.4	12.3	4.0	5.2	543.2	40.6
2020	711.7	737.3	259.2	634.9	72.7	4.0	4.0	24.1	636.0	23.0
2022	1025.7	1053.0	94.9	983.5	127.8	4.2	43.5	50.5	515.1	17.7

Table 6: Comparison of total miles per DEQ planning segment

PS	Total Impaired Miles			
	2016	**2018**	**2020**	**2022**
1A	19.5	205.0	47.9	105.8
1B	122.4	100.6	182.0	414.6
1C	33.2	38.1	73.2	260.6
1D	11.0	0.0	52.8	128.8
2A	119.1	56.0	61.1	61.1
2B	212.1	457.3	423.3	515.3
2C	29.4	167.6	393.3	420.2
2D	214.2	258.4	491.9	933.7
2E	15.0	0.0	100.2	195.9
2F	25.6	2.8	155.4	563.7
2G	61.5	0.0	105.3	298.5

*2020 and 2022 303(d) listings are draft and have not been approved by the EPA at the time of this report; therefore, a summary of the number and mileage of draft de-listings and new impairments is provided.

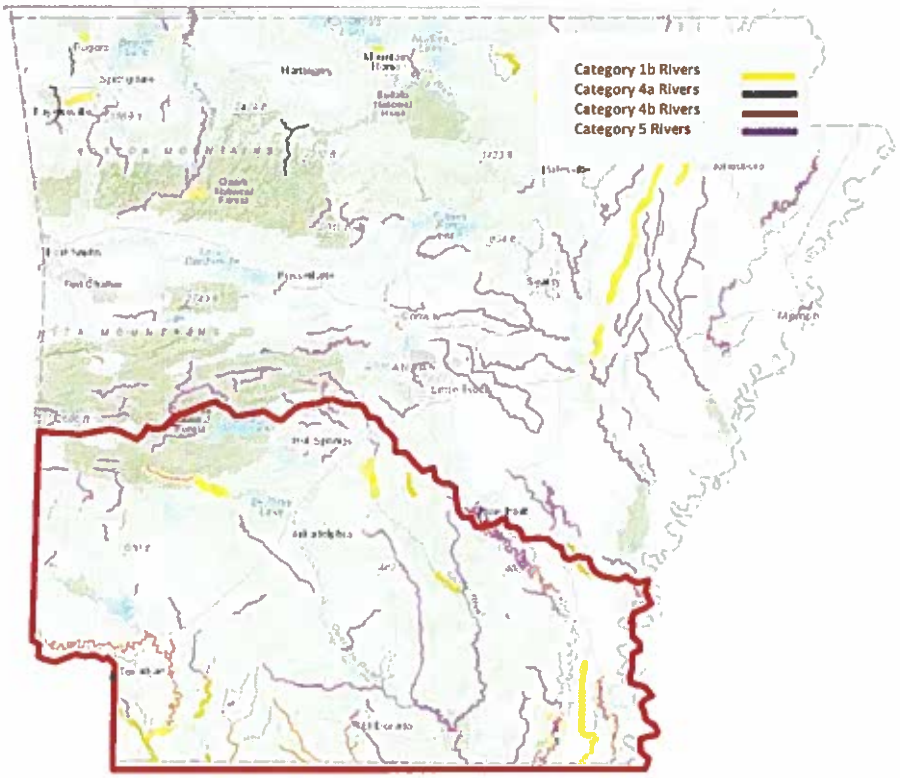


Figure 2: Map of 2018 303(d) impairment categories

Total Maximum Daily Load (TMDL) Prioritization

DEQ has developed a "Long-Term Vision for Assessment, Restoration, and Protection" under the Clean Water Act 303(d) Program to comply with measures set forth by the EPA. DEQ and NRD work cooperatively to direct available and limited resources to priority watersheds which are identified through stakeholder, risk, and science-based inclusive processes. Nine of ten watersheds identified through these processes were prioritized for TMDL development. DEQ's most recent update to the EPA Vision 2022-2032 aims to address turbidity TMDLs as well as correct existing TMDLs with outdated parameters, e.g. fecal coliform. DEQ also plans to use data collected from ecoregion studies to take a closer at dissolved oxygen impairments to determine if listings are being driven by pollution or natural conditions.

2023 Arkansas Environmental Report

Nonpoint Source Management Impacts

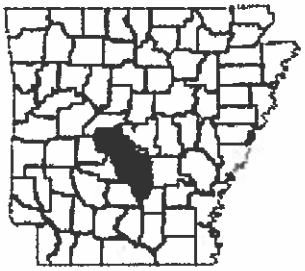
Implementation of voluntary nonpoint source best management practices are effective in reducing pollutants entering Arkansas's portions of the Red and Ouachita rivers. Leading these efforts, NRD has partnered with landowners in these watersheds to provide education, demonstration projects, technical assistance, expertise, and financial assistance to implement and install voluntary best management practices which improve water quality. Results from these activities has been a reduction in contaminant levels enough to remove the waterbodies from the 303(d) impaired waters list. Table 7 shows waterbodies that were removed from the 303(d) as a result of NRD nonpoint pollution efforts in these watersheds. Information on these projects can be viewed on EPA's website: epa.gov/nps/nonpoint-source-success-stories-arkansas.

Table 7: Success story example of waterbody attainment due to nonpoint source practices

Constituent	NRD Efforts	Waterbody Removed
Turbidity	Public education and outreach Financial assistance Demonstration projects Technical assistance Best management practices	Days Creek

Nonpoint Source Program Updates

The 2018-2023 Nonpoint Source Pollution Management Plan identifies several priority watersheds which lie within the Red River Compact Area in southern Arkansas. Projects ongoing during 2023 are described in the following sections.

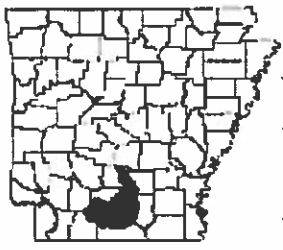


The Upper Saline River watershed is a priority for Arkansas's nonpoint pollution management effort in the Red River Compact Area. The Upper Saline River watershed has experienced significant increases in commercial, industrial, residential, and recreational development. Urban growth was identified by The Nature Conservancy (TNC) in 2008 as a major contributor to increases in nutrient and sediment loadings

in the watershed. Nonpoint grant 20-1000, initiated in October 2020 and continuing through winter 2024, will include monitoring efforts in the Alum Fork, Big Creek, and Saline River to assess water quality impairment by turbidity and pH levels and determine the effectiveness of implemented management practices. Samples are being analyzed for total suspended solids, turbidity, total phosphorus, Total Kjeldahl Nitrogen, nitrate-nitrogen, ammonia-nitrogen, chloride, sulfate, dissolved oxygen, specific conductance, pH, and temperature. Trends in water quality parameter concentrations, monthly loading estimations, and unit area loading estimations will be based on water quality data collected at five water quality monitoring stations.

Also initiated in October 2020 was a new project (20-900) which will support improved road crossings, restore aquatic habitat, reduce sedimentation, and communicate water quality data results with partners, stakeholders, and local communities in the watershed. This project, "Restoring Aquatic Connectivity and Reducing Sedimentation in the Upper Saline River Watershed," is managed by TNC and will educate the general public on how and why to implement best management practices on stream barriers and riparian zones. In conjunction with the Saline County Road Department, TNC will develop three sites in the North Fork and Alum Fork sub-watersheds near Paron, Arkansas, to demonstrate road/stream crossing design, riparian zone planting, and other water quality improvement techniques. These sites will be used to engage and educate stakeholders, partners, and the public, and encourage adoption of best management practices to reduce sediment loading and other impairment in the Upper Saline River watershed.

TNC is seeking to restore aquatic connectivity and reduce sedimentation in the Upper Saline River. This will be completed by improving stream crossings restoring in-stream habitat. As these practices are sedimentation reduction projects the sites will serve as demonstration sites within the watershed and provide educational opportunities for local communities and stakeholders. The project's success will be based on the replacement of two high-priority road stream crossings and executing four volunteer events for the public. This project was initiated in October 2020 and is currently scheduled to conclude in Spring 2024.



The Lower Ouachita-Smackover watershed is a priority for Arkansas's nonpoint pollution management effort in the Red River Compact Area. The watershed is generally rural and is predominately 83 percent forested. However, several urban areas, including the towns of Bearden, Camden, El Dorado, Fordyce, Hampton, and Smackover, are located within the watershed. Impairment exists on 16 streams due to ammonia, chloride, copper, lead, mercury, nitrogen (nitrates), pH, sulfates, total dissolved solids, and turbidity concentrations. The current project in HUC 08040201 (Lower Ouachita-Smackover

watershed) was initiated in 2016 to collect, analyze, and report water quality and discharge data from 10 monitoring stations established at or near the outfalls of the following 12-digit HUCs: Bryant Creek, Lost Creek, Headwaters Lloyd Creek, Holmes Creek, Sandy Creek, Sloan Creek, Gum Creek, Cypress Creek, Cordell Creek, and Little Two Bayou. The initial project was completed in 2020 and the final report was submitted in January 2021. Data from 2,532 samples showed decreasing total suspended solids, turbidity, and total nitrogen concentrations at several sites in the project area. Data was entered into the EPA Water Quality Portal data warehouse and was provided to DEQ for evaluation and Clean Water Act assessment for the 2022 Integrated Water Quality Monitoring and Assessment Report. A second phase of this project was initiated in October 2022 and will expand monitoring in ten new 12-digit HUCs, including: Mill Creek, Sloan Creek, Beech Creek, Gum Creek, Holly Creek, Brushy Creek, Wolf Creek, Taylor Creek, Black Lake, and Dry Branch. Monitoring will be completed in 2025.

New nonpoint source projects in the Lower Ouachita-Smackover watershed include the Arkansas Department of Agriculture's Forestry Division nonpoint source grant to implement unpaved road best management practices in Poison Springs State Forest/Wildlife Management Area. The project area will primarily encompass the Upper White Oak Lake (080401030904). Sediment is the largest pollutant by volume to the waters of Arkansas. Unpaved roads are the second leading cause of nonpoint source pollution that impacts Arkansas's rivers, lakes, and municipal water sources (Arkansas Unpaved Roads Administrative Manual). Unpaved roads and their ditches generate sediment and collect dirt-laden runoff from adjacent land uses. It is estimated that the project will improve nearly 3,000 linear feet of unpaved roads and restore aquatic connectivity to 15 miles of stream network. The project was initiated in October 2021 and is anticipated to be completed by September 2024.

Two nonpoint projects were initiated in 2022 for the Lower Little River watershed (11140109) in southwest Arkansas. The Lower Little River is an Arkansas Nonpoint Source Priority Watershed for 2018-2023. The first project is a partnership with the University of Arkansas System Division of Agriculture, which was awarded a project to implement the 2016 Lower Little River Watershed-Based Management Plan. Key watershed outreach activities include newsletters, water quality improvement programs, landowner site visits, and water quality demonstration projects. The project began in October 2022 and is scheduled for completion in 2025.

The second project is a partnership with the Arkansas Game and Fish Commission (AGFC) and Weyerhaeuser. As a significant landowner in the watershed, Weyerhaeuser expressed interest to the AGFC about improved aquatic connectivity and reduced sediment from unpaved road

infrastructure. This project will inventory second through fourth order streams located on Weyerhaeuser property, remove up to three aquatic organism passage barriers, and improve sediment loss from unpaved roads.

United States Army Corps of Engineers Projects

Sustainable Rivers Program

The United States Army Corps of Engineers (USACE) and The Nature Conservancy (TNC) and several sponsors in the state of Arkansas have joined efforts in order to recommend a dam reoperation plan for Gillham Dam, an impoundment of the Cossatot River in southwest Arkansas, through the Sustainable Rivers Project Program (SRP). Other parties include the AGFC, Arkansas Natural Heritage Commission (ANHC), NRD, and DEQ

In 2020, the Cossatot River was added to the SRP. This report details the current available data and literature for the Cossatot River to identify flow-dependent fish, mussels, and other species in the river; examine changes in these species over time; and look at alterations in the flow regime that potentially could have caused these changes. As with other SRP projects, once the degree of flow alterations has been determined and experts have developed recommendations to restore eco-hydrological function, the USACE will examine possibilities for reservoir management modifications, within the range of authorized reservoir releases, that would meet expert recommendations to benefit the Cossatot River ecosystem and biota.

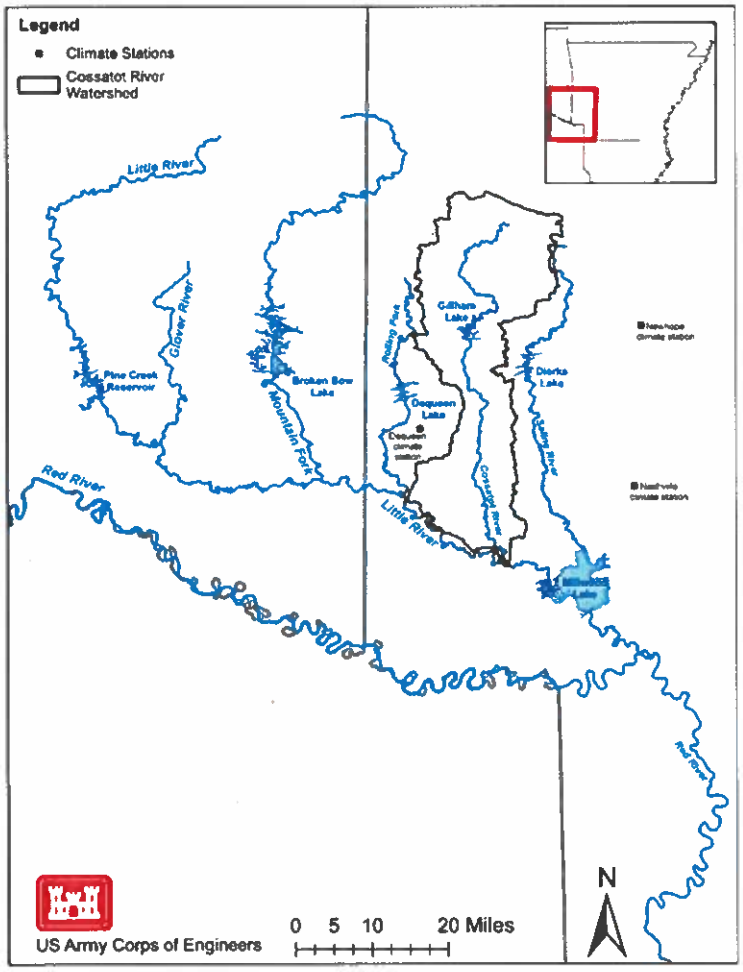
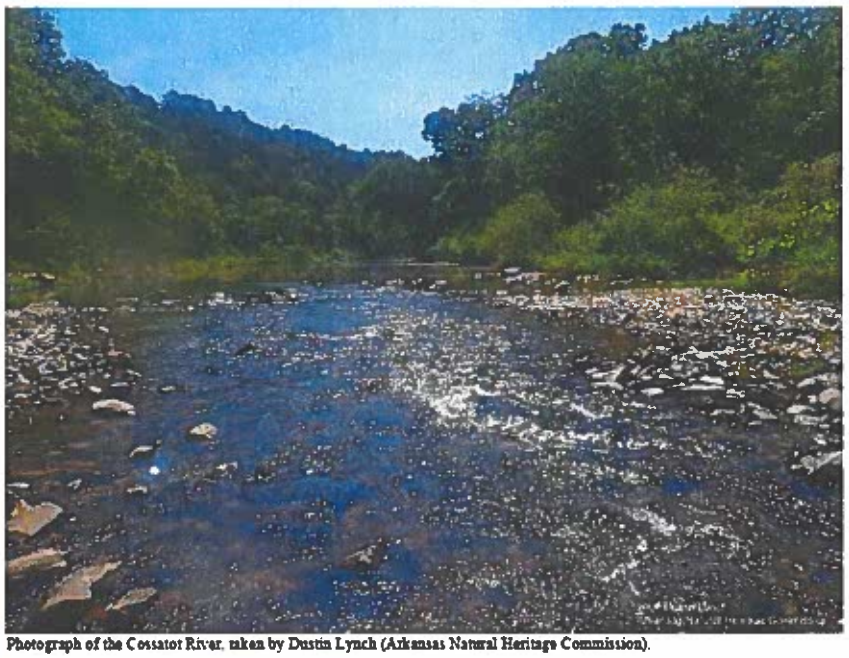


Figure 3: Map of study area and location of climate stations

During the 2022 calendar year, personnel across all partners worked to assimilate all available physical, chemical, and biological data for the Cossatot River. Additional data was collected including channel and bank stability, fish and mussel assemblage data, and water quality data.

On June 7, 2022, representatives from interested parties met for two days to evaluate available data and discuss environmental flow recommendations (Figure 4). Flow recommendations included increased flow pulse variability during low flow periods. These pulses during typical summer months would increase thermal refugia and reduce hydrograph flatness. Recommendations also included timing and velocities to maximum fisheries assemblage benefits. Additionally, recommendations were included for oxbow and floodplain connectivity during winter and early spring, high flow months.

During calendar year 2023, the USACE had the first releases following environmental flow recommendations. These releases include two pulses in June to meet ecologically beneficial recommendations. Limitations of the dam preclude meeting other recommendations for the report, however, precipitation events throughout the 2023 year met requirements for channel restructuring, spring seed dispersal, mussel recruitment, and flushing flows (Figures 5-6).



Photograph of the Cossatot River, taken by Dustin Lynch (Arkansas Natural Heritage Commission).

COSSATOT RIVER AND GILLHAM LAKE, ARKANSAS, FLOW RECOMMENDATIONS AND WORKSHOP SUMMARY

Sustainable Rivers Program 2022

Hart, R.M.[1], Quinn, J.[2], Lynch, D.[3], Moles, K.[2], Posey, W.[2], Davidson, C.[4], Wentz, T.[5], Fore, J.[6], Keen, N.[1], and Bostwick, D.[1]

[1]U.S. Army Corp of Engineers; [2]Arkansas Game and Fish Commission; [3]Arkansas Natural Heritage Commission; [4]U.S. Fish and Wildlife Service; [5]Arkansas Department of Agriculture - Natural Resource Division; [6]The Nature Conservancy

Figure 4. Cover page of the Cossatot River and Gillham Lake, Arkansas Sustainable Rivers Report. Accessed: https://www.hec.usace.army.mil/sustainablerivers/publications/docs/Cossatot%20-%20Environmental%20flows%20workshop%20report.pdf

Implementation

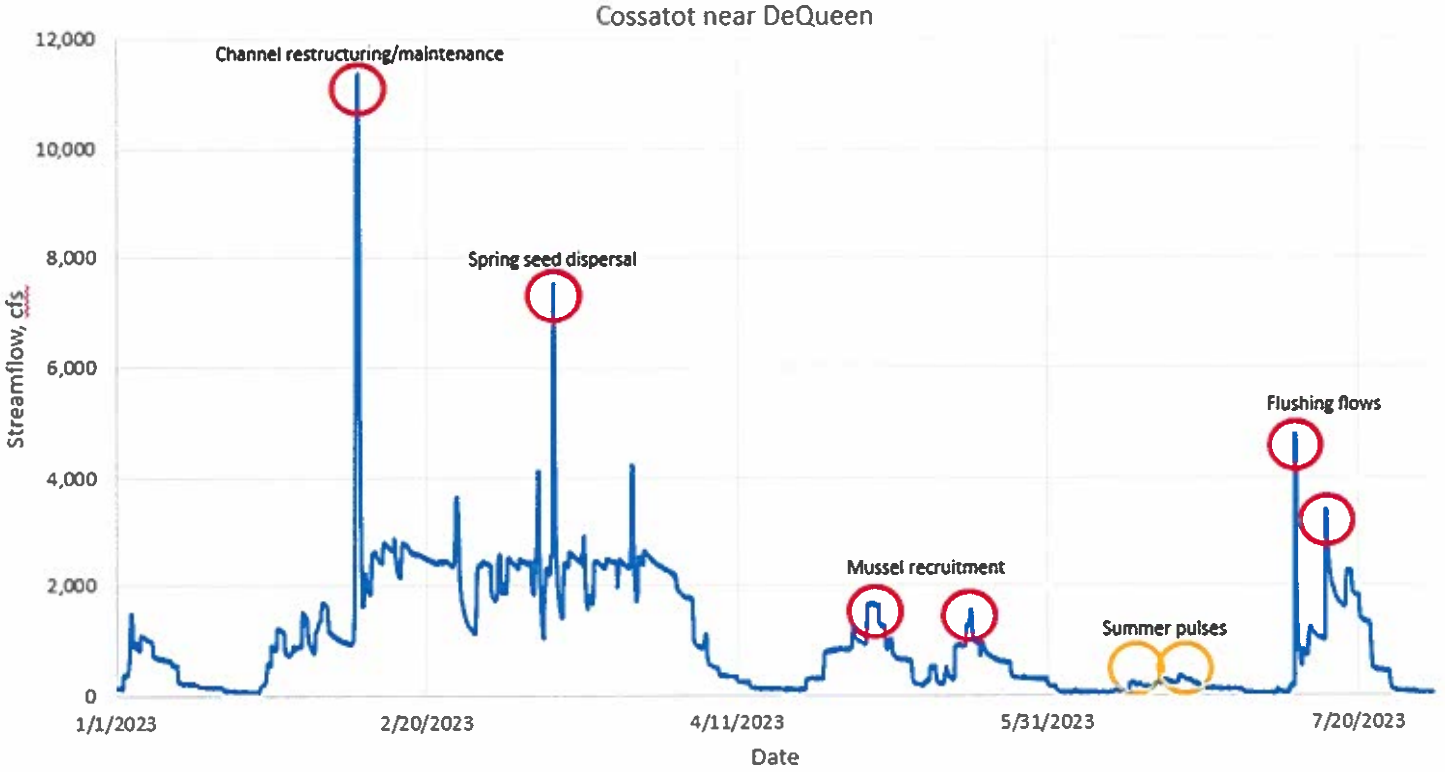


Figure 5. Cossatot River at Gillham Dam hydrograph for 2023 with SRP flow recommendations and key ecological events indicated by red circles. Yellow circles indicate USACOE flow releases to meet SRP recommendations.

Flow Recommendations

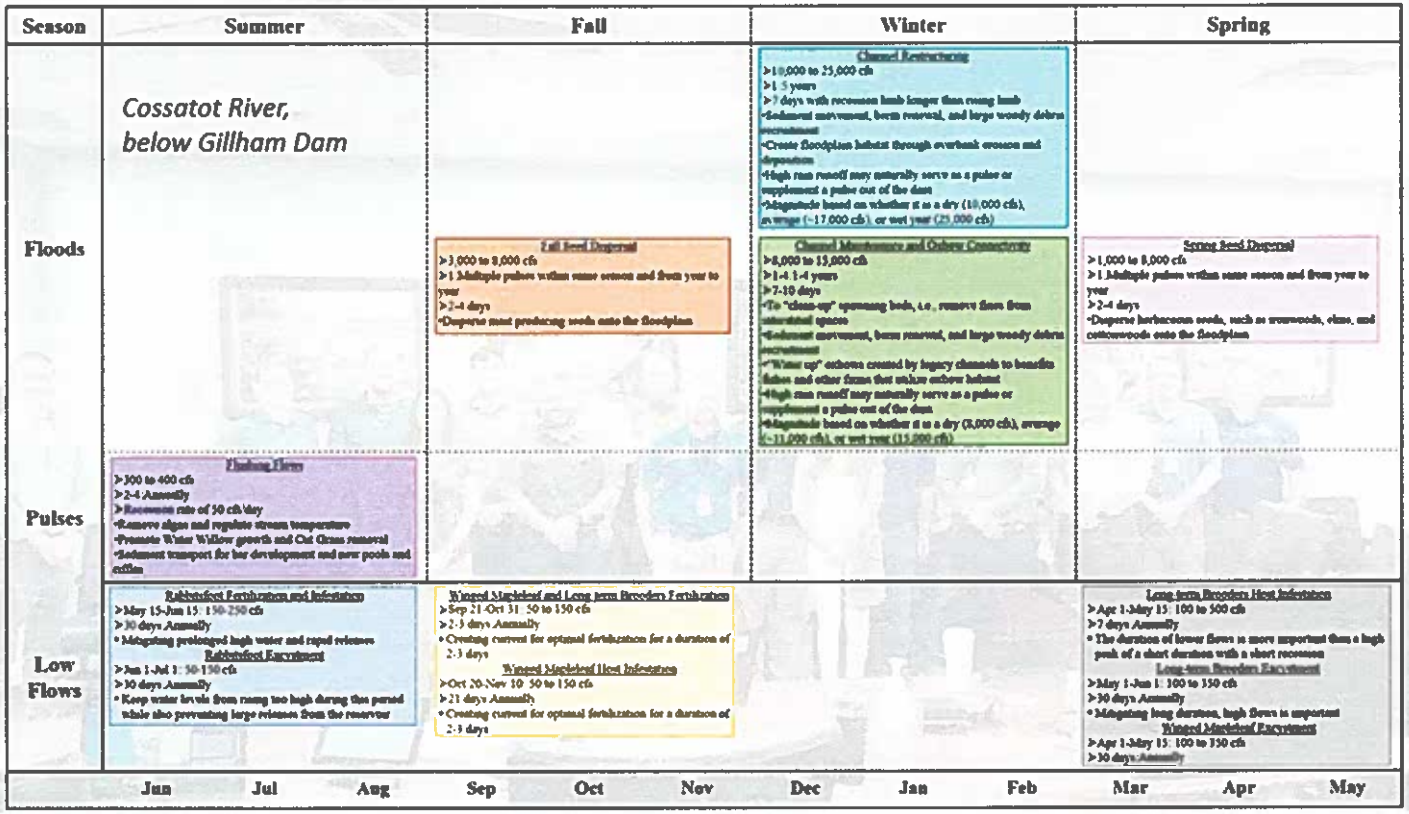


Figure 6. Summary of flow recommendations and timing for the Cossatot River and Gillham Dam Sustainable Rivers Project.

Water Resources Development Act (WRDA) Projects

In the 2020 Water Resources Development Act (WRDA), the Sulphur River, located in Arkansas and Texas, was authorized for an ecosystem feasibility study pursuant to section 7001 of the Water Resources Reform and Development Act of 2014 (33 U.S.C. 2282d). In 2022, the AGFC notified the USACE-Vicksburg District that they would assume the non-federal sponsorship for this feasibility project from Wright Patman Dam to the Red River confluence.

In the 2022 WRDA, the Secretary of the Army, acting through the Chief of Engineers, was authorized funding for review of projects in the Ouachita River watershed in Arkansas and Louisiana under Section 216 of the Flood Control act of 1970 (33 U.S.C. 549a). In April of 2023 AGFC submitted a Letter of Intent to the Vicksburg District to serve as the non-federal sponsor on a 729 study with a lot of support from partners in both Arkansas and Louisiana. The Vicksburg District continues to submit a funding request package for a Ouachita River Section 729 study each year.

BUREAU OF RECLAMATION

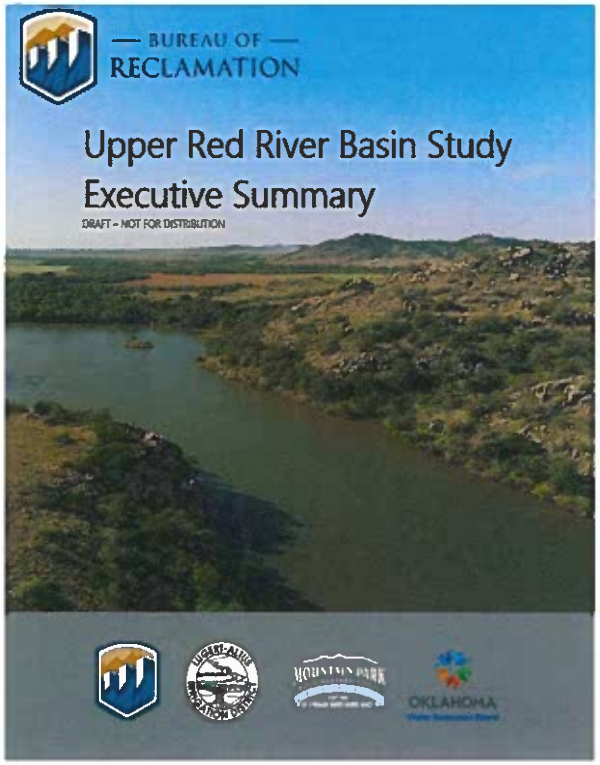
Upper Red River Basin Study, Oklahoma

Red River Compact Briefing
April 24, 2024

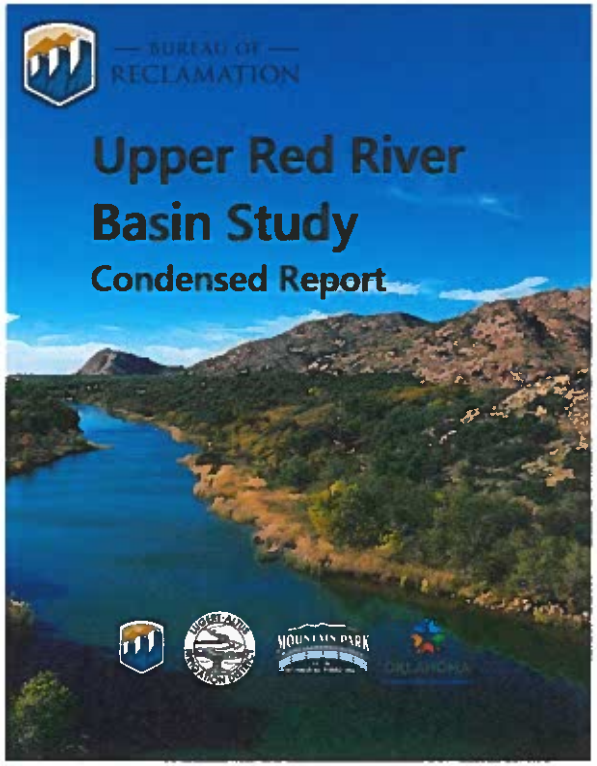
Collins Balcombe
Study Manager

Upper Red River Basin Study Body of Work

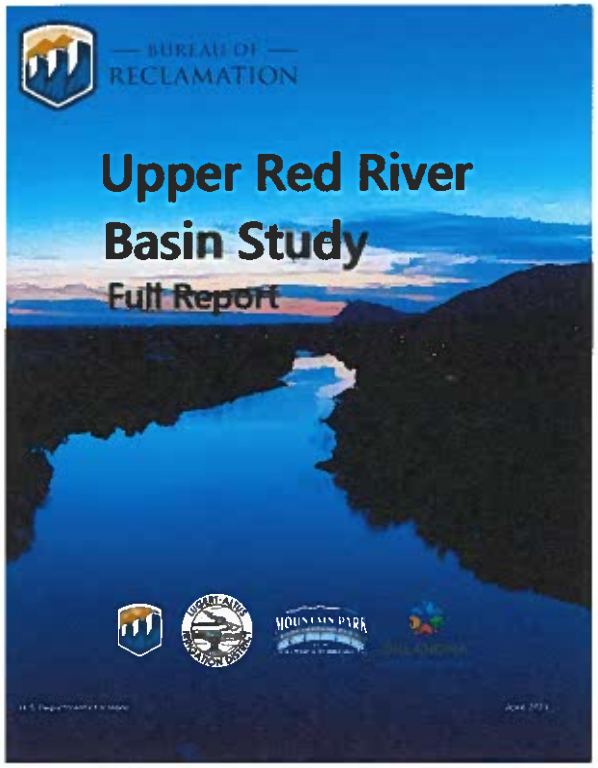
Seven years to complete, $3.0 million



Executive Summary
25 pages



Condensed Report
155 pages



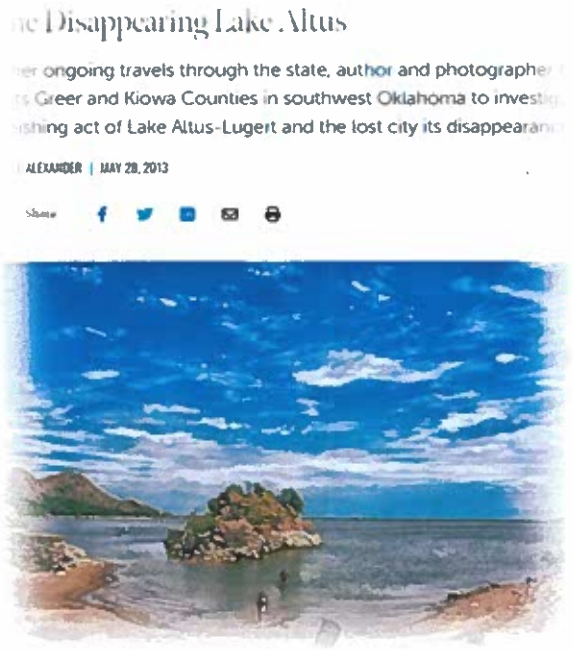
Full Report
675 pages
1,800 pages of 14 appendices

Executive Summary

After a 30-yr wet period, a record-breaking drought between 2010 and 2015 caused supply shortages at two Reclamation reservoirs in southwest Oklahoma.

The absence of science and policy to administer water rights created conflict between water users and the state of Oklahoma.

Reclamation facilitated a collaborative basin study between state and local officials to address the science gaps and help inform state water policy.



...e Disappearing Lake Altus

...er ongoing travels through the state, author and photographer ... Greer and Kiowa Counties in southwest Oklahoma to investi... ...shing act of Lake Altus-Lugert and the lost city its disappearan...

...ALEXANDER | MAY 28, 2013

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THURSDAY, APRIL 16, 2015

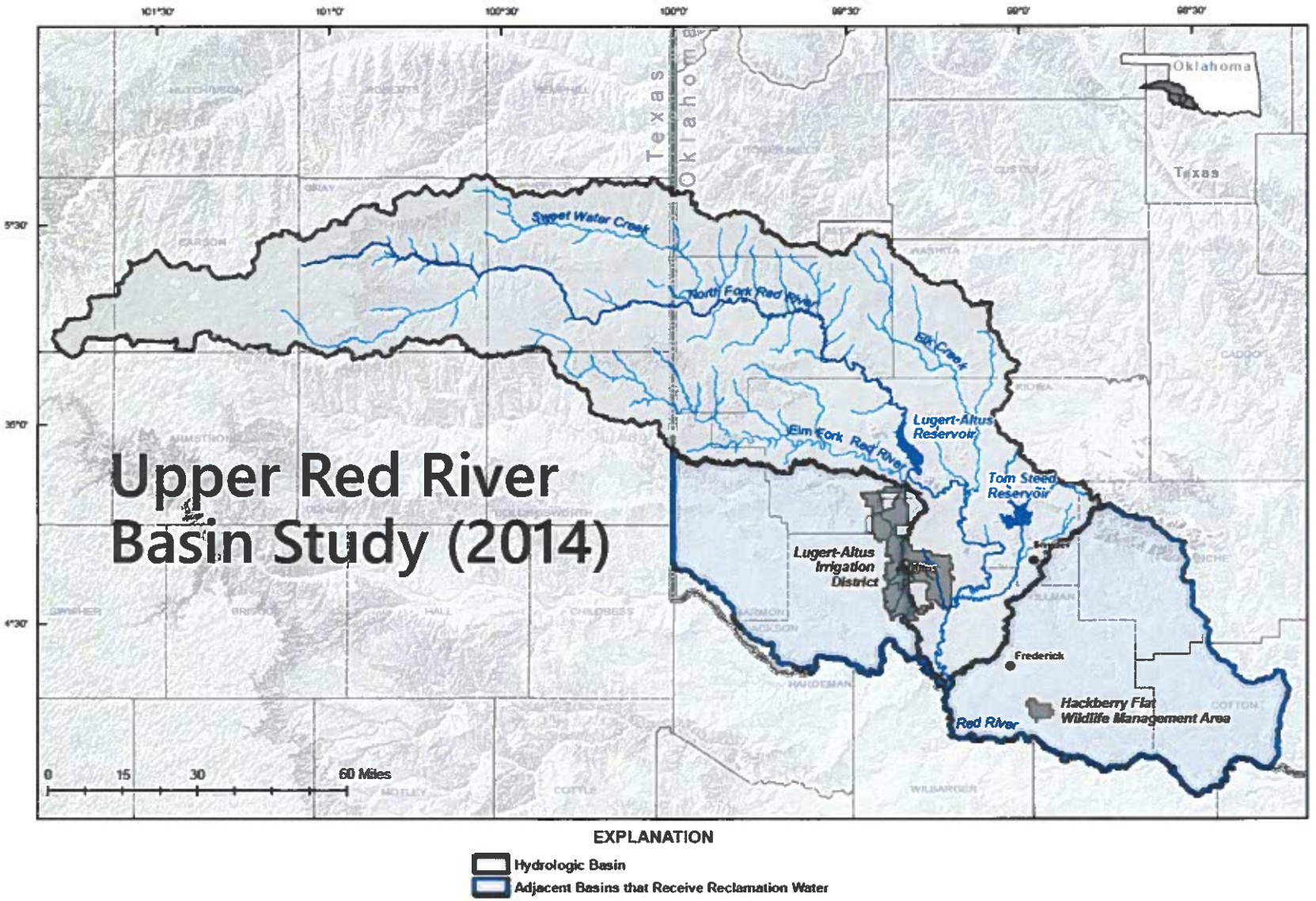
Upper Red River Basin analyzed in water study

By Mark Potter
Staff Writer
MPotter@SWOKNEWS.com

ALTUS — Officials of the Okla... homa Water Development Boar... and the Bureau of Reclamatio... presented an overview of the two... year $1,435,500 Upper Red Rive... Basin Study for development o... water resources for Western Ok... lahoma during a public meetin... Wednesday at the Southwes... Technology Center.

Vital regional resource

The Upper Red River Basi... study area encompasses 4,00... square miles in part or all of nin... Southwest Oklahoma counties in... cluding Beckham, Comanche... Greer, Harmon, Jackson, Kiowa... Roger Mills, Tillman and Washita... The study area includes severa... tributaries to the Red River in... cluding the North Fork, Salt For... and Elm Fork, along with Lake Al... tus-Lugert and Tom Steed Reser... voir, which provide 99 percent o... the surface water supply source... in the study area to nearly 45,00... people and irrigation to 48,00...



OKLAHOMA
Water Resources Board

LUGERT-ALTUS IRRIGATION DISTRICT

MOUNTAIN PARK
WATER CONSERVANCY DISTRICT

Executive Summary

New integrated groundwater-surface water models were developed.

Through the models, the causes of reservoir supply shortages were identified, which were unique to the two Reclamation reservoirs.

Among the many solutions evaluated through modeling was a new framework for managing water rights during future periods of drought to increase predictability and reliability of water supplies in the two basins.

Executive Summary

The framework is likely to inform new, state-led regulatory action on the management of junior stream-water rights.

The framework is likely to inform Districts-led legislative action on the conjunctive management of groundwater and surface water.

Determined to contain "influential" scientific information. An independent peer review was completed by outside 3rd parties.

USGS
science for a changing world

Executive Summary

Commissioned an academic legal review of adaptation strategies.

The basin study is being hailed as a legacy body of work that resulted in renewed trust and cooperation between the Districts and the state.

Reclamation and the basin study framework played a crucial role in leading and facilitating positive outcomes.

Report Package can be found here:
https://www.usbr.gov/watersmart/bsp/completed.html

Potential Future Outcomes

- OWRB-led rule making on the management of junior stream-water rights.
- Districts-led legislative action on conjunctive management.
- Reclamation is working on a video highlighting the study.
- Continued collaboration between Reclamation and study partners.
- Reclamation and OWRB working to make the statistical analysis package open source and adaptable for use across the West.

Acknowledgements

Bureau of Reclamation

Anna Hoag, P.E., Technical Lead
Civil Engineer, Oklahoma-Texas Area Office

James Allard, P.E., Technical Sufficiency
Deputy Area Manager, Oklahoma-Texas Area Office

Matt Warren, P.E., Technical Sufficiency
Supervisory Civil Engineer, Oklahoma-Texas Area Office

Subhrendu Gangopadhyay, Ph.D., P.E., Peer Review Lead
Supervisory Engineer, Technical Services Center

Regional Office Staff

Chief Engineer Staff

Oklahoma Water Resources Board

Julie Cunningham, Executive Director

Chris Neel, Technical Lead and Technical Sufficiency
Division Chief, Water Rights Administration Division

Elise Sherrod, Technical Lead and Technical Sufficiency
Hydrologist, Water Rights Administration Division

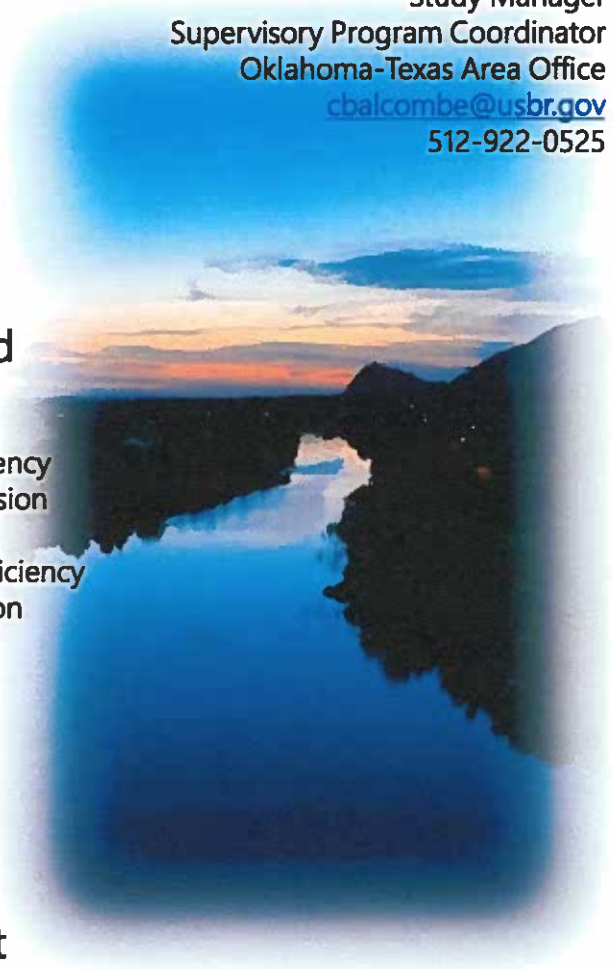
Lugert-Altus Irrigation District

Tom Buchanan, District Manager

Mountain Park Master Conservancy District

Will Archer, District Manager

Collins Balcombe
Study Manager
Supervisory Program Coordinator
Oklahoma-Texas Area Office
cbalcombe@usbr.gov
512-922-0525



USDA NRCS

Oklahoma & Texas update report

Texas Update

- Structure Site No. 18, National Inventory of Dams (NID): NID TX01856, is a single-purpose earthen dam designed in 1967 for flood prevention with the construction completed in 1970. The structure is an integral part of the Pine Creek Watershed. Site No. 18, which is located approximately 5 miles east of Powderly, Lamar County, Texas. The plunge basin side slopes had eroded considerably due to lack of armoring on the plunge basin. The plunge basin was reshaped and subsequently armored with rock. The principal spillway pipe tail pipe was stabilized with a short concrete cradle.


21 FEB 2023

Conservation Practices applied per land use

State Totals	Landuse	No. of Practices Applied	Treated Acres
	Pasture	1,980	115,089
	Crop	1,778	153,623
	Forest	122	24,986
	Farmstead	22	232
	Associated Ag Land	26	212
	Range	2,901	789,850
Grand Total		6,829	1,083,992

Conservation Practices Applied and Treated Acres per Program

State Totals	Program	No. of Practices Applied	Treated Acres
	CStwP	3,919	649,701
	CSP-GCI	1,517	149,982
	CTA-GENRL	600	55,938
	EQIP	717	222,750
	CRP	74	5,421
	ACEP	2	199
Grand Total		6,829	1,083,992

Customers Assisted per Program

State	Program	No. of Customers
	CStwP	129
	CSP-GCI	545
	CTA-GENRL	51
	EQIP	290
	ACEP	1
Grand Total		1047

Oklahoma Update

Oklahoma Update

+ Jeanne Hamilton
+ Oklahoma State Conservationist
+ Oklahoma's 1st Female State Conservationist
+ Brings 25+ years of experience across several states
  + Montana, Arizona, South Dakota, Colorado and Idaho

Oklahoma Update

Name	Title	Location	Years of WS Experience	% time dedicated to WS ops	Staff Assigned to:	Provides support to:
Diana Perry	State Conervation Engineer	Stillwater, OK	6 - 10 years	> 50%	State Engineer Staff	Oklahoma
Craig Spencer	Dam Safety Engineer	Stillwater, OK	6 - 10 years	100%	State Engineer Staff	Oklahoma
Monte Jones	Civil Engineer	Stillwater, OK	10+ years	50%	State Engineer Staff	Oklahoma
Drew Ewing	Management Analyst	Stillwater, OK	1 - 5 years	100%	State Engineer Staff	Oklahoma
Jessica Nichols	Geologist	Stillwater, OK	6 - 10 years	70 - 80%	State Engineer Staff	Oklahoma
Ivan NervarezCan	Project Engineer	Stillwater, OK	1 -5 years	100%	State Engineer Staff	Oklahoma
AJ Kennedy	Design Engineer	Stillwater, OK	6 - 10 years	100%	State Engineer Staff	Oklahoma
Dustin Livingston	Design Engineer	Stillwater, OK	6 - 10 years	100%	State Engineer Staff	Oklahoma
Andrea Lane	Civil Engineering Technician	Stillwater, OK	10+ years	100%	State Engineer Staff	Oklahoma
Kevin Dabney	Civil Engineering Technician	Stillwater, OK	6 - 10 years	100%	State Engineer Staff	Oklahoma
Roderick Dukes	Program Manager	Stillwater, OK	1 - 5 years	100%	Water Resources Staff	Oklahoma
Melissa Jones	Biologist	Stillwater, OK	1 - 5 years	100%	Water Resources Staff	Oklahoma
KC Kraft	Archeologist	Stillwater, OK	10+ years	100%	Water Resources Staff	Oklahoma
Ted Kersten	Hydraulic Engineer	Stillwater, OK	10+ years	100%	Water Resources Staff	Oklahoma
Valerie Glasgow	Planning Engineer	Stillwater, OK	10+ years	100%	Water Resources Staff	Oklahoma
Paige Hauk	Economist	Stillwater, OK	1 - 5 years	100%	Water Resources Staff	Oklahoma

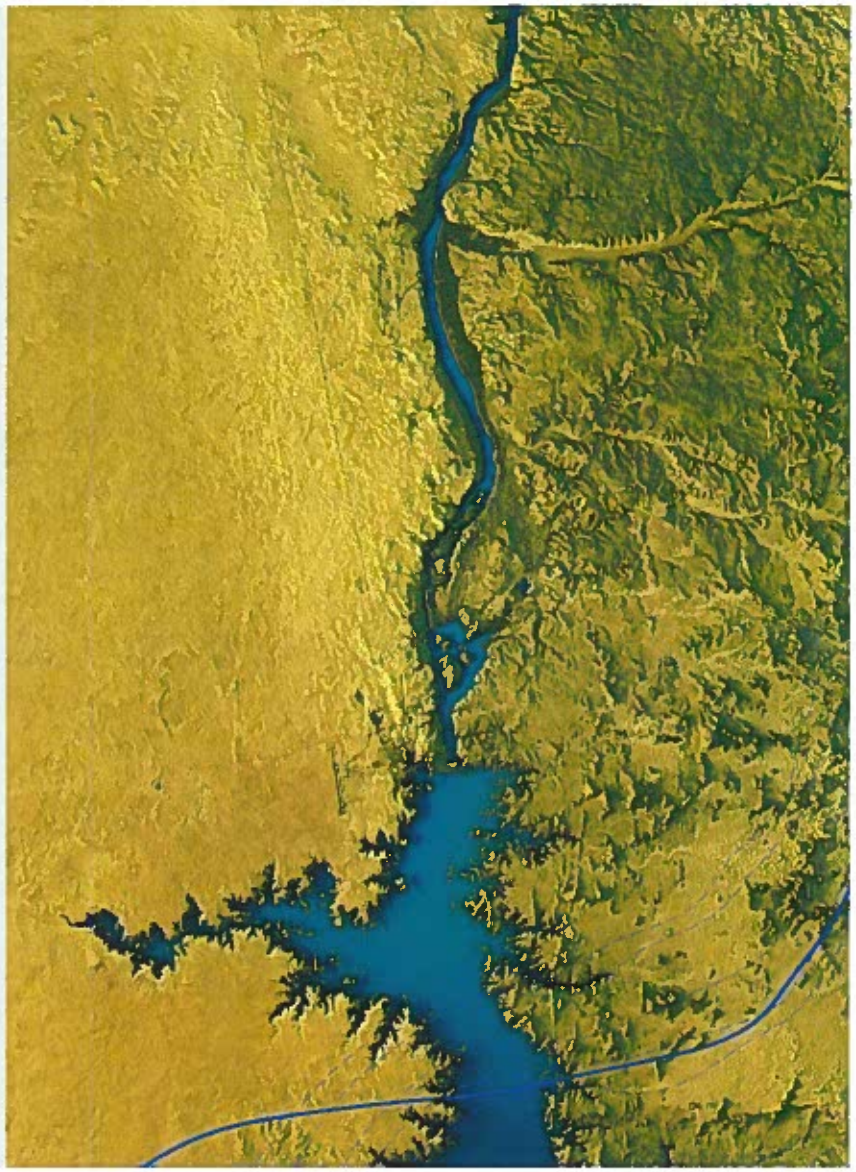
Oklahoma Update

- Planning:
  - * Little Wewoka 12
  - * Oak 5
  - * Sallisaw 13, 19 & 36
  - * Scraper Hallow 2
  - * Sugar Creek 20
  - * Upper Washita 57
  - * Uncle John 10
  - * Rock Creek 10 & 12

* 26 Assessments completed
* 2 PIFRs Completed

Oklahoma Update

+ Design:
+ *Canyon View
+ *Caston Mountain 1
+ *Caston Mountain 2
+ *Lower Bayou 12
+ *Quapaw 15M
+ *Upper Clear Boggy 26
+



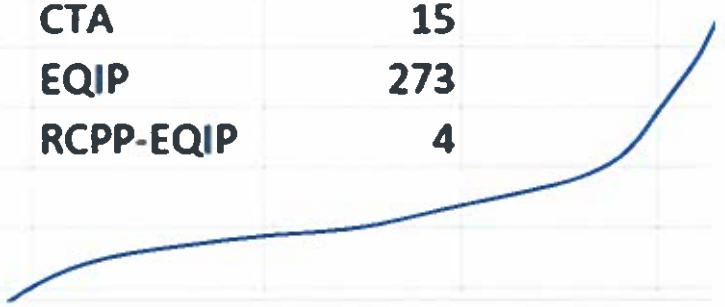
Oklahoma Conservation on the ground

Applied Practices

Land Use	No. Applied Practices	Treated Acres
Pasture	1063	66218
Cropland	672	46015
Farmstead	6	13
Forest	21	2825
Range	492	65750
AAL	9	448
Grand Total	2263	181269

Programs	No. Applied Practices	Treated Acres
CStwP	1540	116302
CTA	56	4432
EQIP	663	59573
RCPP-EQIP	4	1039
Total	2263	181269

Clients Assisted Per Program	
CStwP	103
CTA	15
EQIP	273
RCPP-EQIP	4



Questions