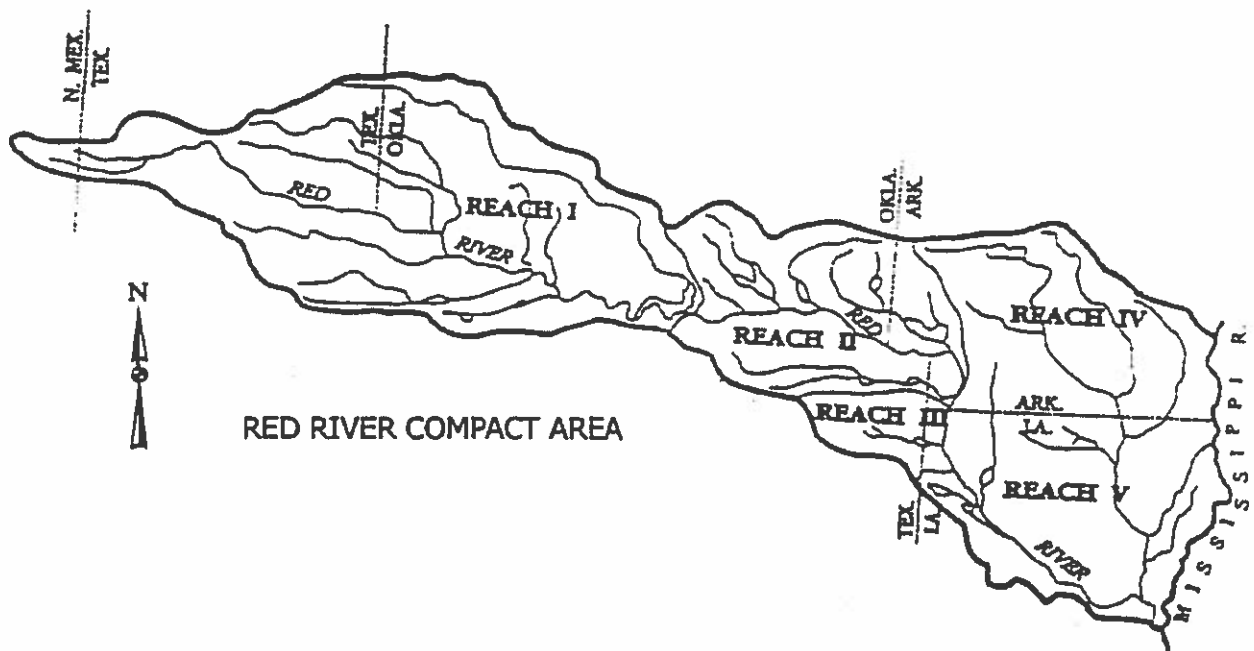
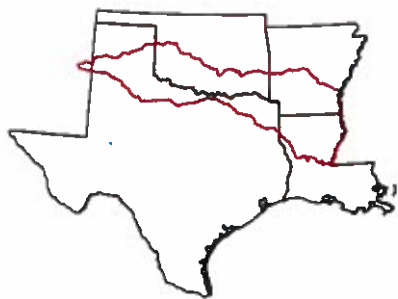


**REPORT**  
OF THE  
**RED RIVER**  
**COMPACT COMMISSION**  
**2019**



Published  
**2021**





# RED RIVER COMPACT COMMISSION

March 17, 2021

The President  
United States of America

The Honorable Asa Hutchinson, Governor  
State of Arkansas

The Honorable John Bel Edwards, Governor  
State of Louisiana

The Honorable J. Keven Stitt, Governor  
State of Oklahoma

The Honorable Greg Abbott, Governor  
State of Texas

Dear Mr. President and Governors:

The Red River Compact is an interstate agreement entered into by the States of Arkansas, Louisiana, Oklahoma, and Texas, with the consent of Congress, dealing with the water resources of the Red River Basin.

Pursuant to Section 10.02 paragraphs (d) and (e) of the Red River Compact and as directed by the Red River Compact Commission (RRCC), the interstate body overseeing the Compact, the Compact at its thirty-ninth annual meeting submitted the report of the RRCC, together with an account of all funds received and expended in the conduct of its work for FY 2018 and a budget covering the anticipated expenses of the Commission for Fiscal Year 2018-2019.

The State of Oklahoma hosted the Thirty-ninth Annual Meeting on April 30, 2019, in Oklahoma City, Oklahoma.

Pursuant to the previous agreements to rotate the office of Vice-Chairman and Secretary in connection with the rotation of the annual meeting host state, the State of Texas accepted the responsibility for both offices for FY 2020. The Office of Treasurer remained with the State of Arkansas.

Sincerely,

A handwritten signature in cursive script that reads "Sue Lowry".

Sue Lowry  
Chairman and Federal Commissioner

**ARKANSAS**

**LOUISIANA**

**OKLAHOMA**

**TEXAS**



**REPORT  
OF THE  
RED RIVER  
COMPACT COMMISSION  
2019**

**ARKANSAS**

**OKLAHOMA**

**LOUISIANA**

**TEXAS**

**PUBLISHED**

**2021**



**RED RIVER COMPACT COMMISSION**  
**39<sup>TH</sup> ANNUAL MEETING**  
**APRIL 30, 2019**  
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Officers and Committee Members  
2019**

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**FINAL AGENDA**

**RED RIVER COMPACT COMMISSION  
39<sup>th</sup> ANNUAL MEETING  
Oklahoma Water Resources Board  
Oklahoma City, OK  
April 30, 2019  
8:30 A.M.**

- I. Call to Order – Chairman Sue Lowry
- II. Welcome and Introductions
- III. Approval of the Agenda
- IV. Approval of the Minutes of the 2018 RRCC Annual Meeting held in Hot Springs, AR on April 24, 2018
- V. Report of Chairman-- Sue Lowry
- VI. Report of the Treasurer – Ryan Benefield, Arkansas
- VII. Report of the Commissioners
  - A. Oklahoma
  - B. Texas
  - C. Louisiana
  - D. Arkansas
- VIII. Report of Committees
  - A. Budget Committee – Kent Wilkins
  - B. Legal Committee – Sara Gibson
  - C. Engineering Committee – Yohanes Sugeng
  - D. Environmental and Natural Resources Committee – Bill Cauthron
- 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. Updates and Discussion Topics

- A. Feasibility Study of Navigation Extension into SW Arkansas—Richard Brontoli

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. 40th Annual Meeting – Texas to host
  - Appointment of Vice-Chair and Secretary

XII. Public Comment

XIII. Adjournment









Office of the Secretary  
PO Box 94245 | Baton Rouge, LA 70804-9245  
ph: 225-379-1200 | fx: 225-379-1851

John Bel Edwards, Governor  
Shawn D. Wilson, Ph.D., Secretary

April 26, 2019

Ms. Sue Lowry, Chairman  
Red River Compact Commission  
Avocet Consult, LLC  
5721 Syracuse Rd,  
Cheyenne, WY 82009

Dear Ms. Lowry:

I regret that I am unable to participate in the 2019 annual meeting of the Red River Compact Commission on April 30, 2019 at the Oklahoma Water Resources Board, Oklahoma City, OK due to previous commitments. In my absence, I grant my support and proxy vote as Commissioner of the Compact Commission for any considerations of the Commission to Edward Knight, DOTD Dam Safety Engineer, Public Works and Water Resources Program, who plans to attend as representative for the Louisiana Delegation.

My best wishes to the Commission for a successful meeting. I look forward to working with you on future Commission issues.

Sincerely,

A handwritten signature in blue ink that reads "Patrick J. Landry". The signature is written in a cursive, flowing style.

Patrick J. Landry, P.E., Deputy Assistant Secretary  
LaDOTD/Public Works and Water Resources Program  
Commissioner, Red River Compact Commission

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Jon Niemann, *Chairman*  
Emily Lindley, *Commissioner*  
Toby Baker, *Executive Director*

## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

March 26, 2019

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 2019 annual meeting of the Red River Compact Commission to be held April 30, 2019 in Oklahoma City 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,



Toby Baker  
Executive Director

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

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**Minutes of the**  
**RED RIVER COMPACT COMMISSION**  
**39th Annual Meeting**

**Oklahoma Water Resources Board**  
**Oklahoma City, Oklahoma**  
**April 30, 2019**  
**8:30 a.m.**

**I. CALL TO ORDER and II. WELCOME**

The 39<sup>th</sup> Annual Meeting of the Red River Compact Commission was called to order at 8:30 a.m. on April 30, 2019, at the meeting room of the Oklahoma Water Resources Board, located at 3800 N. Classen Boulevard, Oklahoma City, Oklahoma. Ms. Sue Lowry of Cheyenne, Wyoming, presided as Federal Commissioner and Chairman. She recognized there was a quorum of members present, thanked Oklahoma for hosting the meeting, and asked each person in attendance to make a self-introduction. Julie Cunningham, Oklahoma Commissioner, welcomed everyone to the meeting as well.

**Red River Compact Commissioners**

Sue Lowry, Federal Chairman, Wyoming  
Julie Cunningham, Oklahoma  
Richard Scott Van Winkle, Texas (proxy for Toby Baker)  
Clyde Siebman, Texas  
John F. Gibson, Arkansas  
Bruce Holland, Arkansas  
Edward Knight, Louisiana (proxy for Patrick J. Landry)  
John Michael Moore, Louisiana

**Commissioners Absent**

Charles Dobbs, Oklahoma

**Representatives, Federal Agencies and Guests from Oklahoma**

Kent Wilkins, Oklahoma Water Resources Board, Oklahoma City, OK (OWRB)  
Mary Schooley, OWRB, Oklahoma City, OK  
Sara Gibson, OWRB, Oklahoma City, OK  
Bill Cauthron, OWRB, Oklahoma City, OK  
Julie Chambers, OWRB, Oklahoma City, OK  
Nathan Kuhnert, Bureau of Reclamation, Oklahoma City, OK (USBOR)  
Jason Lewis, US Geological Survey, Oklahoma City, OK (USGS)  
Richard Lane, US Department of Agriculture, Natural Resources Conservation Service,  
Stillwater, OK (USDA, NRCS)  
Marla Peek, Oklahoma Farm Bureau, Oklahoma City, OK (OKFB)  
Mike Abate, US Army Corps of Engineers, Tulsa, OK (USCOE)

**Representatives, Federal Agencies and Guests from Arkansas**

Ken Brazil, Arkansas Natural Resources Commission, Little Rock, AR (ANRC)  
Crystal Phelps, ANRC, Little Rock, AR  
Ryan Benefield, ANRC, Little Rock, AR  
Shawn Jackson, ANRC, Little Rock, AR  
Jen Sheehan, Arkansas Game & Fish Commission, Little Rock, AR

**Representatives, Federal Agencies and Guests from Texas**

Heather Hunziker, Office of the Texas Attorney General, Austin, TX  
Randy Whiteman, Red River Authority, Wichita Falls, TX  
Trent Gay, Texas Council on Environmental Quality, Austin, TX

**Representatives, Federal Agencies and Guests from Louisiana**

Harry Vorhoff, Office of the Louisiana Attorney General, Baton Rouge, LA

**III. APPROVAL OF THE AGENDA**

Chairman Lowry asked if there were requests to add items to the agenda that has been circulated; there were none. (Attachment 1)

Chairman Lowry recognized the official proxy notifications which had been received from Mr. Ed Knight, representing Patrick J. Landry of Louisiana, and Mr. Scott Van Winkle, representing Toby Baker of Texas. The letters will be included in the meeting record. (Attachment 2)

**IV. APPROVAL OF THE MINUTES OF THE APRIL 2018 MEETING**

Chairman Lowry stated the draft minutes of the 2018 Meeting of the Red River Compact Commission, held April 24, 2018, in Hot Springs, AR, had been previously distributed. She asked if there were any edits to the minutes.

There being no amendments, Commissioner Holland moved to approve the minutes, and Commissioner Moore seconded. Chairman Lowry called for the vote, and the motion was unanimously approved. Chairman Lowry thanked Ms. Laura Brown of Arkansas for preparing the meeting minutes.

**V. REPORT OF THE CHAIRMAN**

Chairman Lowry said her report is brief, as the Commission only meets once a year in the Spring, but there is some communication throughout the year, and she noted the Committees will report their work. She stated if the Commission would like more communication other than a mid-year check in, she would be happy to do that. She will compare the attendance and email list; however, she invited the states to please add invitees.

Chairman Lowry asked Acting Commissioner Scott Van Winkle to speak to the matter of the resolutions circulated. Mr. Van Winkle said the first resolution recognizes Ms. Suzy Valentine who spent eight years as the Texas advisor to the Red River Compact Commission, directing distribution by the Chairman. He read the resolution. Chairman Lowry stated the Commission would act separately on each resolution. The reading by Acting Commissioner Van



Winkle served as the motion to approve the resolution, and Commissioner Cunningham seconded the motion. The resolution was approved unanimously.

Acting Commissioner Van Winkle stated the second resolution of the Red River Compact Commission dated April 30, 2019, regarded the funding of stream flow gages. Mr. Van Winkle read the resolution naming the four states' cooperation to support the stream flowing gaging network along the Red River and its tributaries, and expressing support to maintain the gages as critical to the administration of the Compact. The resolution requests that Congress fully fund the USGS GWSIP gages located in the Red River basin, and restore 50/50 cost share. The resolution will be distributed to the Congressional Delegations of the four states, Secretary of Interior, and Director of the USGS. Chairman Lowry stated the reading of the resolution is presented as a motion; Commissioner Moore seconded. The motion passed unanimously.

Chairman Lowry instructed the original resolution will reside with her office, and Acting Commissioner Van Winkle will distribute the resolution to the states to forward to their respective delegation. (Attachment 3) (Report of the Chairman followed item VI.)

## **VI. REPORT OF THE TREASURER**

Chairman Lowry asked for the report of the Treasurer. She introduced Mr. Ryan Benefield, ANRC, who is now Treasurer and thanked Mr. Ed Swaim for his many years of service; he has taken a position with an Arkansas irrigation district.

Mr. Benefield addressed the members and said the Commission has come under budget by 95% -- the Commission has a large budget but spends very little. He said the big expenses are the bank charges and annual audit which has been conducted and was very clean; other expenses are meeting expenses for the 2018 meeting. Mr. Benefield stated the Commission maintains a bond in the event there is theft of the funds. To date, expenses total \$902.00 and any expenses from the 2019 meeting. Currently, the balance of the compact account stands at \$35,452.17; \$11,000 is in a Certificate of Deposit. Mr. Benefield concluded the report of the Treasurer. (Attachment 4)

## **VII. REPORT OF THE COMMISSIONERS**

**A. Oklahoma** – Commissioner Julie Cunningham welcomed everyone and noted the distributed report of the Oklahoma Commissioners. Beginning with the climate graph, she updated the Commission on the implementation of the Water for 2060 initiatives which are guiding principles following the adoption of the 2012 Comprehensive Water Plan and establishes a net zero gain in water use from 2010-2060 through conservation measures and the use of marginal water. Staff is beginning the scoping process for the required 10-year update of the Water Plan; the next update will focus on economic development. The agency continues to work toward completion of groundwater basin studies establishing the allowable withdrawal rate or equal proportionate share requiring increased funding and staffing, as well as partnering with the USGS. Oklahoma's Governor established the Produced Water Working Group in response to increased earthquakes due to produced water injection; the group is tasked to find a use for the produced water. The Water for 2060 Advisory Group recommended establishment of a recognition program of individuals and entities that make significant contributions in water efficiency; the awards are presented at the annual water conference. And, the agency continues work in water quality monitoring, mapping, and water quality standards and recently announced the release of the agency's 2018 Beneficial Use Monitoring Program (BUMP) report providing data on 1,300 streams, lakes, and groundwater well sites across the state. The 2012 Water Plan

recommended creating a groundwater mapping program monitoring 750 well in 21 major aquifers monitoring water levels and water quality, and this year promulgated rules for water quality standard variance and use support protocols for consistent implementation.

Commissioner Cunningham highlighted the OWRB's work conducting three studies in the Red River Basin in collaboration with the USBOR to investigate impacts to the Lugert-Altus Irrigation District (Lugert-Altus Reservoir), and Mountain Park Master Conservancy District (Tom Steed Reservoir) regarding upstream water use on the Upper Red River Basin; the study is scheduled for completion in 2019. The Upper Red River Basin encompasses over 4,000 square miles in all or part of nine counties in southwest Oklahoma and includes tributaries to the Red River--the North Fork, the Salt Fork, and the Elm Fork. Approximately 48,000 acres of land and 45,000 people depend on the reservoirs for water supply. She also reviewed the Floodplain Management Program, Dam Safety Program, and Well Driller program activities, and updated the Commission on the state's \$4.2 billion dollar water infrastructure financing program administered by the OWRB.

Commissioner Cunningham concluded her report speaking to the state's historic water right agreement between the State, City of Oklahoma City, and Choctaw and Chickasaw nations resolving the state's debt to the Federal Government on Sardis Lake, ensuring reliable water supply for the City, as well as protection of the water in southeastern Oklahoma. The state and the tribes are meeting to discuss water planning initiatives. There were no questions by the Commissioners. (Attachment 5)

**B. Texas** – Acting Commissioner Scott Van Winkle referred to the distributed report of the Texas Commissioners. He reviewed data regarding drought conditions across the state, saying there is improvement over last year's situation at this same time, and NOAA predicts above normal seasonal total precipitation for most of Texas and the Red River Basin for the next three months. He updated the Commission on the status of the Texas Sunset Advisory Commission review of the Red River Authority of Texas in 2018. The Texas Legislature had introduced two measures to address the TSAC recommendations regarding development of an asset management plan, and a feasibility study on the expansion of navigation on the Red River between Texarkana and Denison. He noted there are a total of 102 Groundwater Conservation Districts covering all or part of 108 of the State's 254 counties; eight districts are located within the Red River Basin.

Acting Commissioner Van Winkle discussed the Red River Boundary Commission of Texas saying that in January of 2019, US Senator Cornyn and Congressman Thornberry reintroduced measures for the purpose of surveying the gradient boundary along the Red River in Texas and Oklahoma to end decades of confusion over the true boundary and bring certainty to landowners along the river. The 2017 Texas Water Plan remains in effect, and the state anticipates a 70-percent increase in population between 2020 and 2070, with reliable water supplies decreasing by 11 percent. The 5,500 water management strategies recommended in the plan would provide 3.4 million acre-feet per year in additional water supplies in 2020 and 8.5 million acre-feet in 2070. Acting Commissioner Van Winkle concluded the report with an updated on the State Water Implementation Fund for Texas (SWIFT) program; established in 2013; through fiscal year 2018, SWIFT has committed over \$8.2 billion for projects across Texas.

Chairman Lowry asked if the RRCC has or should weigh in on the boundary issues. Ms. Sara Gibson, RRCC Legal Committee Chair, responded that the matter is related to existing Texas boundary property owners and the federal government -- it does not impact Oklahoma or the Compact Commission. Commissioner Cunningham asked if the SWIFT fund is keeping up with funding the identified projects and the timing of those projects. Mr. Van Winkle answered, it is, and there are certain requirements that must be met, including if the project is included in the 2017 Water Plan. The funding is provided through legislative appropriations. (Attachment 6)

**C. Louisiana** – Acting Commissioner Ed Knight presented the report of the Louisiana Commissioners, and referred to the distributed report. He said in follow up to previous reports, Louisiana remains concerned with the deficient stream flows on some streams at the Arkansas/Louisiana Stateline -- defined as Reach IV, as stipulated in the Compact in sections 7.02 and 7.03. He said there had been a wet season and flows were good but the problem could reoccur the next year. He said Louisiana remains concerned until steps that are in place regarding how the computations are determined, and Louisiana requests that Arkansas take affirmative steps to regulate diversions and runoff originating or flowing into Reach IV, and to notify Louisiana. He said as more discussion regarding diversion from the Arkansas and Mississippi Rivers occur; Louisiana requests the RRCC Legal Committee to determine what necessary steps Arkansas should have in place to enforce the compact requirements in noncompliance situations.

Acting Commissioner Knight reported that flood events of 2016 put a focus on the need for watershed-based management, and Louisiana has committed \$120 million over the next 3-5 years to model all eight HUC watersheds. Louisiana will begin modeling efforts for the most impacted Parishes and based on the availability of the new LiDAR, which can be reliably close, the northeast part of the state is currently being validated by the USGS. He said this effort, in combination with the MAP program, will provide opportunities for multi-agency state coordination to resolve issues in the subbasin IV area, and the state is encouraged and looks forward to moving forward in cooperation with the partnering states.

Acting Commissioner Knight concluded the report, requesting the Commission's Engineering Committee work toward finding a reasonable accounting method, and to review and make recommendations of any potential proposals for accounting methods, conduct a review and make recommendations. They are encouraged by the report yesterday and will continue to look into that method as well as others. Additionally, Louisiana requests any and all well data and registration from Arkansas regarding Reach IV. (Attachment 7)

Chairman Lowry stated she noted the requests for the Legal and Engineering Committees, and asked if there were any questions before discussion later regarding committee reports. There were no questions.

**D. Arkansas** – Commissioner Holland presented the report for the State of Arkansas. He referred to the distributed report saying most of the contents are updates from the previous year. Arkansas experienced two rain events during the Winter -- one lasting 45 days, the next lasting 37 days-- which has been a challenge to the agriculture industry in harvesting crops in the Fall and Winter, and preparing fields and planting before deadlines. The Legislature met this year, and the Governor transformed state government, consolidating 42 agencies into 14; the Natural Resources Commission will join the Department of Agriculture, and will function as it has historically. The change is that the agency will report to the Secretary of Agriculture and then the Governor, rather than directly to the Governor. The transformation identified that the unpaved roads program (housed in Rural Services) could be included in their programs and along with the 319 funding would leverage more dollars. A task force was created to address feral hog eradication and a line-item appropriation was approved; they are now identifying funding-- perhaps through the new Farm Bill--which goes to the producer, however, and not the state for a trapping program. Legislation was approved \$1 million to continue the feasibility study on the Red River for navigation to Texarkana; the budget will determine if there is funding. Efforts are underway with the Hypoxia Task Force, of which Mr. Ryan Benefield is a member, to investigate ways to improve water quality in that basin. Commissioner Holland concluded the Arkansas Commissioners' Report. (Attachment 8)

Commissioner Cunningham asked about Arkansas's unpaved program and the 319 program. Commissioner Holland answered stated appropriations go to that program that can be

leveraged against the 319 money. She asked if the state is able to use all the 319 dollars. Mr. Benefield stated the agency turned down \$1 million in requests this year that could not be funded. The funds are used approximately one-half for monitoring and one-half in actual streams projects, for example, RCP practices and stream bank restoration. Chairman Lowry asked about the funding process for the navigation feasibility study and Commissioner Holland explained the legislative funding process whereby the appropriation is authorized by the legislature and the Governor divides the funds, but in order to receive funding, the appropriation has to have been approved.

Chairman Lowry noted the Red River Valley Association report is available in the meeting materials, and provides an update on the status of the Southwest Arkansas Navigation Feasibility Study. Mr. Rich Brontoli is attending to family issues and unable to attend the meeting.

There were no questions or other discussion concerning the state reports.

## **VIII. REPORT OF COMMITTEES**

**A. Budget Committee** – Mr. Kent Wilkins, OWRB Chair, addressed the Commissioners and stated the Committee met on the previous day and discussed the Treasurer's report and the budget for 2018-2019 fiscal year. He asked Mr. Benefield to discuss the bank account levels and the state's dues. Mr. Benefield explained each state pays \$550, which is about double what is spent on an annual basis. Meeting expenses depend upon the location, but can be about \$1,000.00. There is \$35,000 in the bank, funds can be used to fund a stream gage if needed, but the balance will continue to increase without expenses. The Committee was not suggesting cutting the fees, but just as a matter of information, wanted the Commission to be aware of the balance.

Commissioner Cunningham asked if the Commission should ask the Engineering Committee to identify projects such as stream gages or other areas that could be studied. Commissioner Holland commented that amount of funds may not have much of an impact. Chairman Lowry said as a result of the Engineering Committee meeting discussion yesterday, there could be bigger efforts happening the Commission could assist in some aspect. Commissioner Holland stated the project should benefit the full Commission.

There was no other discussion regarding the Budget Committee Report.

(Attachment 9)

Chairman Lowry asked that at the end of the meeting, the committee members be identified.

**B. Legal Committee** – Ms. Sara Gibson, OWRB Chair, stated to the Commission the Legal Committee did not have an assignment from last year. The Committee will continue to provide assistance to the other committees as necessary, or as directed by the Commission.

There were no questions by the Commission.

**C. Engineering Committee** - Mr. Kent Wilkins, OWRB, presented the Engineering Committee Report on behalf of Mr. Yohanes Sugeng, Chair, who was unable to attend the meeting. Mr. Wilkins stated the Committee met for approximately two hours and considered three items, including having received a presentation and engaged in lengthy discussions. The first item regarded Mr. Scott Van Winkle representing the State of Texas on the Committee. Secondly, the Committee entertained a presentation from The Nature Conservancy on behalf of the State of Louisiana, and he invited Acting Commissioner Ed Knight to speak to the

Commission about the presentation. Mr. Knight said the presentation regarded a numeric-based model and one which Louisiana believed is a basis to move forward and sees the need to do that type of work regardless of the basin. He said Louisiana looked forward to working with TNC, and Arkansas USGS; he questioned whether the model reached the level of detail everyone is comfortable with, is it accurate enough, and can the calculations be done on a weekly basis that everyone has access to.

Mr. Wilkins said the third item considered by the Committee was a report by the State of Arkansas, and he invited Mr. Ken Brazil to present that report to the Commission. Mr. Brazil stated the report is about the flow analysis of the 2018 season on the Boeuf River. At last year's compact, Arkansas committed to do an annual report on Boeuf River flows to determine if there had been a recurrence of the below 40 cfs and how often that occurred, basically during the agricultural growing season. The report is included in the Arkansas Commissioners' Report. He said the Engineering Committee did not have the time to fully discuss the report but will do so in detail over the next few months, along with The Nature Conservancy model that was presented. The report looks at how often there are flows below 40 cfs which is the trigger in the Compact that Arkansas will take affirmative steps. He said the Compact does not state Arkansas will provide a minimum flow at the Stateline, but that if there is a flow below 40 cfs, if there is diversion to be regulated, Arkansas will take affirmative steps to regulate diversion such that a percentage of weekly runoff will cross the Stateline. Mr. Brazil proposed last year that it be reviewed annually how often this actually occurs for seven consecutive days as a realistic starting point, and to review administratively, as the Compact states, a weekly runoff flow below 40 cfs. He said he is committed to report again next year.

Mr. Wilkins added that following the State of Louisiana's presentation, the State of Arkansas agreed to check back and review the information by June 3, and then report to the Committee.

There were no questions by the Commissioners regarding the Engineering Committee Report.

**D. Environmental and Natural Resources Committee** – Mr. Bill Cauthron, OWRB Chair, addressed the Commissioners and stated the Environmental and Natural Resources Committee did not have an assignment from the previous year. He said, however, the Committee produced a number of documents detailing water quality in the Red River watershed which are quite voluminous and are posted on the OWRB website, Red River Compact page, to be reviewed at their leisure. The reports concern waters from the States' 303(d) list that are not meeting their beneficial use designations.

Mr. Cauthron said there was discussion at the committee meeting about generating a map of long-term water quality monitoring stations in the basin which he believed would be timely as well as beneficial. The OWRB has been conducting a Beneficial Use Monitoring Program for 20 years and is currently conducting a holistic evaluation of the program. He was not anticipating any Red River Basin sites coming out of the program but for planning purposes, it would be beneficial to have the sites mapped.

Commissioner Cunningham stated the OWRB program has rotational sites, and Mr. Cauthron said that is being considered rather than every site, i.e., for short term projects that do not need to be included. The Committee will make recommendations to the Commission what sites should be on the map, i.e., critical to the Commission's decision-making. Chairman Lowry stated there are other compacts that have water quality concerns, and mapping the sites now may be forward thinking if issues arise in the future.

There were no other questions or comments related to the Committee reports.

Chairman Lowry announced a 10-minute break (9:39 a.m.-10:50a.m.)

## **IX. FEDERAL AGENCY REPORTS**

Chairman Lowry invited representatives of the federal agencies to make comments to the Commissioners about the work their agency is performing in the basin. The following agencies presented a written report and submitted copies for distribution.

**A. U.S. Army Corps of Engineers** - Mr. Mike Abate, Chief Civil Works Branch, discussed the Red River area re-organization that is now divided into two areas offices: the Texoma Area and the Hugo Area. There are 11 structures located in the two areas. He said all of the reservoirs are slightly in flood pool, with the highest being Tom Steed, actually a Bureau of Reclamation Lake that is at 74% flood pool. He conducted a "virtual tour" and reviewed Tulsa District COE projects including highlights that Denison Dam is a hydroelectric plant and has been in operation 74 years, the Estelline Springs chloride control project is estimated to keep 240 tons of salt daily from the Red River Basin, Pat Mayse Lake provides water for the Campbell Soup company, a dam safety project completed at Pine Creek Lake dam, Truscott Brine Lake's inflatable dam and 22-mile pipeline that keep 170 tons of chloride out of the basin daily, Sardis Lake and landmark legislation between the Tribes and Oklahoma, and the Waurika Lake Master Conservancy District completed a dredging project and installation of a floating intake. Mr. Abate discussed the value of the Tulsa District COE to the Nation, included providing \$23 billion in flood damage prevention, 18 million recreational visitors, over 50% of contracted water supply contracts (35% in Oklahoma, and 20% in Kansas) are located in the district, 22 units at 8 locations provide hydropower, and the district is actively rehabilitating \$232 million in construction projects.

Regarding the FY2018-2020 Civil Works Budget, Mr. Abate reviewed the FY2018 allocations of \$3.2 million in investigations--including \$3 million for the west Tulsa Levee-- and \$133 million in Operations and Maintenance (O&M), the FY2019 allocations of \$97 million in O&M, and the FY2020 President's Budget of \$93.8 million in O&M. The FY 2019 allocation was the first time in 20 years Congress passed a budget, and the COE received \$2.2 billion in extra dollars. Additionally, he provided information for the COE budget for the Red River projects; the average age of projects is about 47 years old and dollars are allocated for "non-routine" maintenance which is large repairs. Mr. Abate reviewed the ongoing projects in the District including the Trailrace Hollow Jet Valve, Lake Texoma Automated Fee Station, Hugo Area FY19 goals for the five lakes, and concluded his report with a message of water safety--14 people died from flood events in the Tulsa District, none were wearing a life vest. (Attachment 10)

Chairman Lowry asked about private concessionaires utilizing leased areas and Mr. Abate explained at 238 of the 510 recreation areas 5-year leases include marinas, etc.

**B. U.S. Bureau of Reclamation** - Mr. Nathan Kuhnert, Field Representative for the Oklahoma-Texas Area/Oklahoma City office, updated the Commission on projects in the Oklahoma-Texas Area. He said the Bureau of Reclamation (BuREC) has over 600 reservoirs in the 17 western states which are organized into five regions. The Oklahoma-Texas Area Office is located within the Great Plains Region, and within its jurisdiction operates 11 reservoirs and irrigation projects in the southern one-half of Kansas, all of Oklahoma, and most of Texas. He said the BuREC is far more than an infrastructure-based agency, but also performs planning functions as well as distributes grant monies for water planning. He referred to the document, "Summary of Current and Recently Completed Activities" in the Oklahoma-Texas Office under

the Planning, Constructions Assistance, and Grant Programs. He said he has been involved in two large basin studies. The Upper Red River Basin, initiated in 2014 and expected to be completed within a year and includes Lugert-Altus Reservoir and Tom Steed Reservoir -- the BuREC has been partnering with the OWRB and the US Geological Survey on this study, a large collaborative effort with outcomes complementing the Oklahoma Comprehensive Water Plan in determining water availability in the Red River Basin and throughout the State. He also distributed a fact sheet, "Reservoir Operations Pilot" on the Washita Basin Project using paleo data and tree ring data during drought episodes which will become an important tool for reservoir operators to better plan and to adapt to changes in climate. Mr. Kuhnert also reviewed the distributed, Title XVI Fact Sheet regarding WaterSmart program projects that include wastewater treatment, recycling water, impaired water and industrial water, and he directed attention to the links for obtaining grants. He invited attendees to send business contact information to him to be included in future communications. (Attachment 11)

Mr. Kuhnert mentioned that the BuREC will be meeting with the OWRB on the Red River Basin Study after countless hours of modeling and will be laying out strategies that will alleviate potential risks to water supply for the reservoirs in the basin. Commissioner Cunningham added it is a multi-agency, multi-million dollar, multi-year study and the different modeling shows results of cooperation and we can now test scenarios involving the master conservancy district, the reservoir, and irrigation district. Mr. Kuhnert stated it has been an open vetting process, and the BuREC will provide structure, but ultimately will listen to the stakeholders regarding potential strategies. Commissioner Gibson asked if the Dust Bowl era was reflected in graph, and Mr. Kuhnert responded the tree ring study covered several hundred years which included the Dust Bowl, which for many years was considered a drought of record. He said it was eye-opening to use paleo data which aids in forecasting what could be more severe and longer drought periods in the future. Chairman Lowry suggested Mr. Kuhnert could present an update at next year's meeting.

There was discussion that there is no BuREC office in Louisiana, there could be other agencies conducting similar programs, and that WaterSmart Program funding is available for drought contingency planning in all 50 states.

**C. U.S. Geological Survey -** Mr. Jason Lewis, Director, Oklahoma Water Science Center, expressed appreciation for the Commission's resolution for continued support for funding the stream gaging program, and stated there were no changes in gages in the states and the gages will continue as is. He said the Jennifer Wilson of the Texas Center is in the fourth year of Red River Priority Focus Area Study which includes water use from 2010-2015, groundwater model of the Upper Red River at Texoma, a whole basin PRMS stream flow model, and ecological flow studies resulting in an interactive webpage which hopefully the data can be presented at the next Compact meeting.

Commissioner Cunningham stated the Commission supports the stream gage program, but are there other unfunded areas the Commission could support. Mr. Lewis responded the goal is to fund 4,500 priority stream gages that include the gages along the Red River, and the agency has cooperative matching program that is slightly cut each year and is used as seed money to get projects started.

Chairman Lowry added that the Compact Commissions signed off on a multi-state letter to the House and Senate on Interior funding and which was delivered at the first of April and available on the Interstate Council on Water Policy website. The letter supported three areas: two stream gage programs mentioned -- priority stream gage and cooperative program, and the next generation water observation program, which Congress has taken an interest in. Mr. Lewis commented the Red River will be included in the regional models.

**D. Natural Resource Conservation Service** - Mr. Rick Lane, Acting Assistant State Conservationist for water resources in Oklahoma, presented a PowerPoint presentation highlighting the activities of the NRCS in the Red River Basin. He explained the \$65 million in 2018 appropriation and anticipated 2019 funding for the NRCS through the Farm Bill. The EQUIP is a major program, and in the Arkansas the Red River Watershed RCPP is a major program providing agricultural and technical assistance to farmers with a focus on water quality, soil erosion, irrigation quality and quantity, and fish and wildlife habitat. The program has eight contracts working on \$1,800 acres -- in Louisiana, the Shittail Canal covering 26,000 acres, and in the Texas, the Red River Valley Conservation Initiative, an irrigation program in the Ogallala Aquifer. The USDA Small Watershed Program involves private and local interests for watershed restoration under the Oklahoma Conservation Commission. In the dam rehabilitation program, Oklahoma and Texas have the highest percentage of low hazard dams with several projects that will be completed this year, which he described. The Louisiana Red Bayou Project involves a 10,000 acre watershed cooperative grant program with 2017 dollars for the Grant Parrish Watershed. There are ten projects in Oklahoma, including a new dam in Love County.

Mr. Lane reviewed the Field Office Structure in Oklahoma and addressed the staffing levels which are limited for program implementation. Zone Teams are assigned to coordinate review of operations and determine the needs of the projects, and to identify the specific details to implement the plan. The teams looked at inconsistencies in staffing levels, and looked at other states' programs to develop a team model to have a presence in every county. Then, the teams developed a plan for responsibilities, evaluated equipment, conducted training with assistance with the Conservation Districts field office, and developed a description for each division. He provided a map depicting staffing levels in each county--generally 5-11 people of resource engineers, conservationist, technicians, foresters, and clerical--making sure there is someone who can handle the issues unique to each county, and a training package was put together for each area with a team leader and other specialists identified as a point of contact when needed.

Chairman Lowry asked about dam rehabilitation PL 534 which Mr. Lane explained regards flood protection through the construction of dams, dikes and channel work, and to a lesser extent through the relocation, elevation, and flood-proofing of property and vital infrastructure, which was enacted in the Washita River watershed in 1935 following flood events with loss of lives and property. Commissioner Cunningham asked about the percentage of watershed rehabilitation and restoring capacity, and Mr. Lane replied changing of hazard classification is in response to development and potential for future development which drives the rehabilitation program; Oklahoma has 350 high hazard dams which are being reviewed, which also considers rehabilitation to increase water supply. Commissioner Siebman noted that Texoma is 70 years old, and asked if there is a sediment problem, and Mr. Lane responded the NRCS work conducted upstream helped to retain 80-85% of the lake's capacity.

There were no other questions, and no other federal agency reports.

## **X. UPDATES and DISCUSSION TOPICS**

### **A. Feasibility Study of Navigation Extension into SW Arkansas - Richard Brontoli.**

Chairman Lowry noted her comments earlier about the report by Mr. Brontoli that has been distributed to the Commission. (Attachment 12)

She stated she was not aware of any other Discussion Topics, and there were no requests or comments by the Commissioners.



## XI. NEW BUSINESS

**A. Annual Report** - Chairman Lowry said the 2017 report has been approved and will be distributed by Louisiana, by both printed and digital means. Arkansas will produce the 2018 report, and the Oklahoma Water Resources Board will publish the 2019 report (with a draft available at the 2020 meeting).

The states discussed the number of reports that should be provided and determined each state will inform the publishing state the number of hard copies and digital copies needed in addition to the President, Federal Chair, Governors, and Commissioners in addition to state requirements. The OWRB provides access to the most current report on its the website, and a copy is provided to the USGS that maintains the RRCC file.

**B. and D. Commission Assignments to Committees and Appointment to Committees** – Chairman Lowry stated the States are familiar with the rotation of committee responsibilities. Below are the member assignments to the Committees:

1. Budget Committee: Ed Knight (Louisiana), Cynthia Bearden (Arkansas), Kent Wilkins (Oklahoma), and Scott Van Winkle (Texas);

2. Environmental and Natural Resources: Bill Cauthron (Oklahoma), Scott Van Winkle (Texas), Shawn Jackson (Arkansas), and Ed Knight (Louisiana)

3. Engineering Committee: Ken Brazil (Arkansas), Yohanes Sugeng (Oklahoma), Scott Van Winkle (Texas), and Ed Knight (Louisiana)

4. Legal Committee: Heather Hunzicker (Texas), Sara Gibson (Oklahoma), Crystal Phelps (Arkansas), and Harry Vorhoff (Louisiana)

**D. Regarding Committee Assignments, the Commission approved the following:**

Chairman Lowry reviewed the items mentioned under the Committee reports: Louisiana had suggestions for both Legal and Engineering Committees, the Engineering Committee itself agreed to the June 3 review (Boeuf River flow report and the Nature Conservancy model); and the Environmental Committee agreed to develop a map of long-term water quality monitoring stations in the basin.

Acting Commissioner Knight stated Louisiana would like to see the well data and geographic locations (regarding Reach IV) which is a direct request (not Engineering Committee assignment), and Mr. Benefield indicated he could provide a link to the state well commission website that houses that data. Mr. Knight asked for a copy of the data base, and Mr. Benefield explained there are restrictions on the type of information that can be provided from the data base, i.e., personal information, but locations are available on the link; well logs have not been entered for all locations as yet.

Regarding the Legal Committee, Acting Commissioner Knight requested Arkansas begin the process of searching legal means to enforce the compact should there be a situation that needs to be remedied, there will be a process forward. Chairman Lowry said the request in the Louisiana report (3rd paragraph) can be the assignment to the Legal Committee, and she read, "...the Legal Committee begin to determine what mechanisms Arkansas has in place and would need to enact in order to sufficiently enforce noncompliance with the terms of the Compact." She said it is more complex than a minimum flow requirement. There were no questions by the Legal Committee regarding the assignment.

Chairman Lowry stated the assignment to the Engineering Committee is (1) the accounting method Arkansas will be in discussion with the USGS, and (2) the check back on June 3rd after the USGS is able to review the model. Additionally, (3) the Committee will review and possibly identify needs the Commission can expend \$20-30,000, which is in the budget.

### **C. and E. Election of Officers and 40<sup>th</sup> Annual Meeting**

Chairman Lowry said traditionally the host state will serve as Vice Chairman for the next year's meeting. Commissioner Clyde Siebman agreed to serve as Vice Chairman, and his Executive Assistant Andrea Williams McCoy, will serve as Secretary. Oklahoma will provide the membership information to Texas.

Commissioner Siebman announced the 2020 meeting will be held on April 27-28, 2020, and anticipated a social activity and a tour of the resources of the area. The meeting location will be Sherman-Denison, Texas.

There was no other New Business for the Commission's consideration.

### **XII. PUBLIC COMMENT**

Chairman Lowry noted that usually Mr. Rich Brontoli will make comments regarding the Red River Valley Association, and there are copies of his report available and includes budget information for the COE Civil Works.

Ms. Jennifer Sheehan, Arkansas Fish and Wildlife Commission, addressed the Commission and updated the members on the Sulphur River State Wildlife Management Area that is experiencing severe channel incising on 10 miles of the Sulphur River and impacts the Red River. They have requested funding through the 1135 program from the Vicksburg District Office, and will be working with the Fort Worth District Office to coordinate with the Texas Fish and Wildlife Commission and is moving forward with a feasibility study from I-49 to the Texas border. She stated they are happy to visit with Louisiana if they are interested.

There was no other public comment.

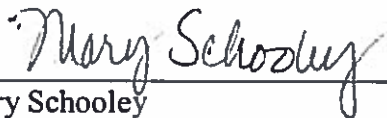
### **XIII. ADJOURNMENT**

There being no further business, Commissioner John Michael Moore moved to adjourn the meeting, and Commissioner Clyde Siebman seconded. Chairman Lowry adjourned the 39th Annual Meeting of the Red River Compact Commission at 11:35 a.m., April 30, 2019.



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Sue Lowry, Chairman



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Mary Schooley  
Oklahoma Water Resources Board  
2019 Secretary to Commission

*Approved by unanimous vote at the 2020 Annual Meeting held June 30, 2020.*







Resolution of Appreciation  
Red River Compact Commission  
April 30, 2019

WHEREAS, *Suzy Valentine served the Red River Compact Commission from 2010 to 2018, where she held the position of Engineer Advisor for the last six years; and*

WHEREAS, *during that time, Ms. Valentine did conscientiously and competently carry out her responsibilities to the overall benefit of the Red River Compact Commission; and*

WHEREAS, *Ms. Valentine's expert knowledge of the hydrology of the Red River Basin and her passion and commitment to the practice of sound scientific principles, helped guide the Red River Compact Commission; and*

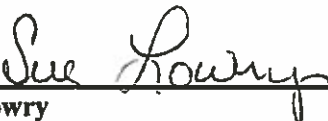
WHEREAS, *during her tenure as Engineer Advisor, Ms. Valentine encouraged fellowship and effective coordination between the participating states, and supported the successful administration of the Red River Compact; and*

WHEREAS, *Ms. Valentine's diligence and integrity will be missed by all the members of the Red River Compact Commission; and*

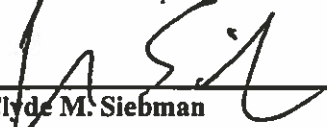
NOW, THEREFORE, BE IT RESOLVED that the Red River Compact Commission assembled at its 39<sup>th</sup> Annual Meeting held in Oklahoma City, Oklahoma, acknowledges the outstanding service of Suzy Valentine to the people of the Red River Basin and extends to Ms. Valentine its best wishes for a prosperous and enjoyable future.

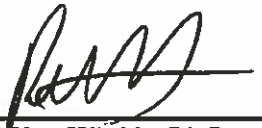
BE IT FURTHER RESOLVED, that the Chairman of the Red River Compact Commission is hereby directed to furnish a copy of this resolution to Suzy Valentine on behalf of the Red River Compact Commission.

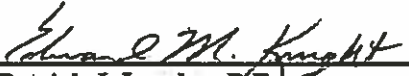
Unanimously approved at the 39<sup>th</sup> Annual Meeting of the Red River Compact Commission in Oklahoma City, Oklahoma, on April 30, 2019.

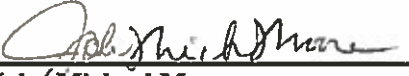
  
\_\_\_\_\_  
Sue Lowry  
Federal Commissioner and Chairman  
Red River Compact Commission

30 April, 2019  
\_\_\_\_\_  
Date


  
\_\_\_\_\_  
Clyde M. Siebman  
Commissioner for Texas

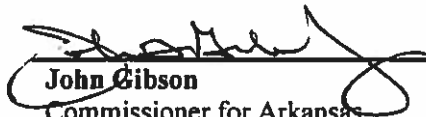
  
\_\_\_\_\_  
Scott Van Winkle, Ph.D.  
Acting Commissioner for Texas


  
\_\_\_\_\_  
Patrick J. Landry, P.E.  
Commissioner for Louisiana

  
\_\_\_\_\_  
John Michael Moore  
Commissioner for Louisiana

Absent  
\_\_\_\_\_  
Charles Lynn Dobbs  
Commissioner for Oklahoma

  
\_\_\_\_\_  
Julie Cunningham  
Commissioner for Oklahoma

  
\_\_\_\_\_  
John Gibson  
Commissioner for Arkansas

  
\_\_\_\_\_  
Bruce Holland  
Commissioner for Arkansas



# RED RIVER COMPACT COMMISSION

## RESOLUTION OF THE RED RIVER COMPACT COMMISSION REGARDING THE FUNDING OF STREAMFLOW GAGES April 30, 2019

**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

30 April 2019

Date Executed  
April 30, 2019

Concurred to and supported by:



**Clyde M. Siebman**  
Commissioner for Texas



**Scott Van Winkle, Ph.D.**  
Acting Commissioner for Texas



**Patrick J. Landry, P.E.**  
Commissioner for Louisiana



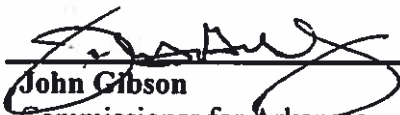
**John Michael Moore**  
Commissioner for Louisiana

Absent

**Charles Lynn Dobbs**  
Commissioner for Oklahoma



**Julie Cunningham**  
Commissioner for Oklahoma



**John Gibson**  
Commissioner for Arkansas



**Bruce Holland**  
Commissioner for Arkansas

## RED RIVER BASIN STREAMFLOW AND WATER QUALITY GAGES

Station Number	USGS Gage Name
<u>07300000</u>	Salt Fork Red River near Wellington, TX
<u>07300500</u>	Salt Fork Red River at Mangum, OK
<u>07301300</u>	North Fork Red River near Shamrock, TX
<u>07301410</u>	Sweetwater Creek near Kelton, TX
<u>07301420</u>	Sweetwater Creek near Sweetwater, OK
<u>07303400</u>	Elm Fork of North Fork Red River near Carl, OK
<u>07308500</u>	Red River near Burkburnett, TX
<u>07315500</u>	Red River near Terral, OK
<u>07316000</u>	Red River near Gainesville, TX
<u>07316500</u>	Washita River near Cheyenne, OK
<u>07331000</u>	Washita River near Dickson, OK
<u>07331600</u>	Red River at Denison Dam near Denison, TX
<u>07332500</u>	Blue River near Blue, OK
<u>07335300</u>	Muddy Boggy Creek near Unger, OK
<u>07335390</u>	(COE) Pat Mayse Lake near Chicota, TX
<u>07335500</u>	Red River at Arthur City, TX
<u>07336820</u>	Red River near De Kalb, TX
<u>07337000</u>	Red River at Index, AR
<u>07340000</u>	Little River near Horatio, AR
<u>07344210</u>	Sulphur River near Texarkana, TX
<u>07344370</u>	Red River at Spring Bank, AR
<u>07346310</u>	(COE) Caddo Lake at Dam near Mooringsport, LA
<u>07348000</u>	Twelvemile Bayou near Dixie, LA
<u>07348500</u>	(COE) Red River at Shreveport, LA
<u>07350500</u>	Red River at Coushatta, LA
<u>07355500</u>	Red River at Alexandria, LA
<u>07362000</u>	Quachita River at Camden, AR
<u>07362100</u>	Smackover Creek near Smackover, AR
<u>07363500</u>	Saline River near Rye, AR
<u>07364100</u>	Quachita River near Arkansas-Louisiana State Line
<u>07364150</u>	Bayou Bartholomew near Mcgehee, AR
<u>07369680</u>	Bayou Macon at Eudora, AR
<u>07367690</u>	Boeuf River near Arkansas/Louisiana Stateline
<u>07366200</u>	Little Corney Bayou near Lillie, LA
<u>07367005</u>	Ouachita River at West Monroe







**Red River Compact Commission  
Treasurer's Report  
April 30, 2019**

**July 1, 2018 – March 31, 2019**

**Centennial Bank Balance as of 7/1/2018** **\$22,549.39**

**RECEIPTS**

Member Assessments	\$ 2,200.00
Dividend Income	<u>\$ 00</u>
TOTAL	<b>\$ 2,200.00</b>

**EXPENSES**

Bank Charges	\$ 39.35
Audit	\$ 275.00
Meeting Expenses	\$ 342.21
Printing Report	\$
Bond	<u>\$ 246.00</u>
TOTAL	<b>\$ 902.56</b>

**Centennial Bank Balance as of March 31, 2019** **\$24,189.04**

**Simmons First National Bank  
Certificate of Deposit Balance as of 12/17/2018** **\$11,263.13**

**TOTAL TO DATE March 31, 2019** **\$35,452.17**

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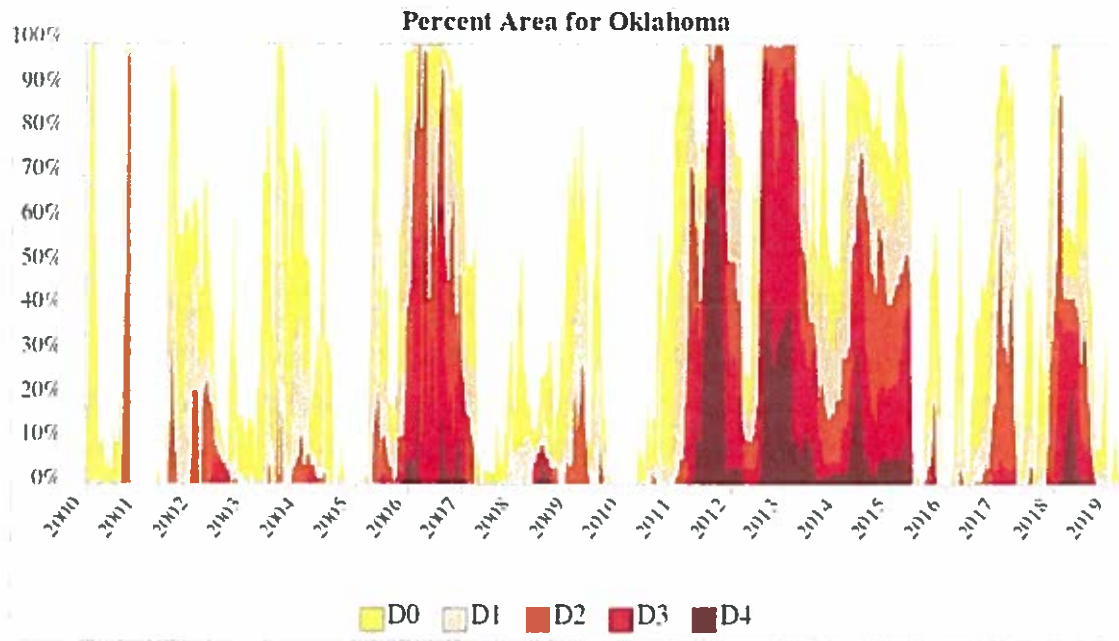
# OKLAHOMA COMMISSIONERS' REPORT

Red River Compact Commission  
 Oklahoma City, Oklahoma  
 April 30, 2019



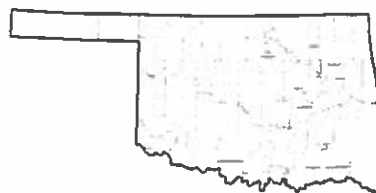
## CLIMATE

The northern and central Great Plains remain drought-free. This marks the second period of time this year that Oklahoma has been free of even dry conditions. According to the current seasonal drought outlook, increased precipitation this spring has led to little chance for drought development during the next 3 months.



### U.S. Drought Monitor Oklahoma

April 23, 2019  
 (Released Thursday, Apr 25, 2019)  
 Valid 9 a.m. EDT



Year	2018	2019
Area in D0	0.0%	0.0%
Area in D1	0.0%	0.0%
Area in D2	0.0%	0.0%
Area in D3	0.0%	0.0%
Area in D4	0.0%	0.0%
Total Area in D0-D4	0.0%	0.0%

**PRECIP.**  
 Yellow: 0.01-0.099 inches  
 Orange: 0.1-0.99 inches  
 Red: 1.0-4.99 inches  
 Dark Red: 5.0-9.99 inches  
 Purple: 10.0+ inches

## ATTACHMENT 5

## IMPLEMENTATION OF WATER FOR 2060

Since completion of the Water for 2060 Final Report in November 2015, the Oklahoma Water Resources Board (OWRB) has been working with partners on several of the recommendations found within the report. This work has included laying the necessary legislative and regulatory framework to expand the State's options for both reuse of treated waters and the use of marginal waters in the state.

Water Reuse - The OWRB and ODEQ, during 2017 and 2018, promulgated rules necessary for indirect potable reuse. In May 2018, a Work Group was convened to begin development of a framework for *direct* potable reuse over the coming years.

Marginal Quality Water - Use of marginal or brackish waters was authorized in 2018 by HB 3405 to give the OWRB authority to permit water well drillers to complete their wells in the brackish zones. Such waters could be substituted in the O&G industry for hydro-fracking wells, potentially saving millions of ac-ft of fresh water over the next decade. Additionally, as demand rises and technologies bring down the cost of desalination, brackish water will transition to a more realistic option for WTP upgrades in the future. Updating the state's base of treatable water maps with more detailed information on the 3,000 and 5,000 ppm TDS zones could assist both O&G as well as local communities to find suitable water. The OWRB has submitted updated rules regarding well construction standards for these types of wells which are being considered by the Legislature and Governor during the spring 2019 session.

Supply Reliability - Part of the Water for 2060 initiative was to promote conservation of water while still growing the state's economy. Across Oklahoma, as the OWRB steadily completes its statutorily required groundwater basin studies, the resulting allowable withdrawal rate, or "Equal Proportionate Share" (EPS), calculated on a "fully developed" scenario, often goes down by 50% or more. Such results can be seen as burdensome in most basins where actual overall in-basin development is only 5% to 10%. SB 1294, enacted in 2018, will allow landowners to *phase-in* their EPS or continue using their default EPS until development within the basin reaches a certain percentage. SB 1294 further provides that the OWRB's well spacing regulations will apply statewide, regardless of whether the Maximum Annual Yield (MAY) and EPS have been determined for the various groundwater basins of the state.

Regional Water & Drought Planning - In addition to policy related work, the OWRB's Planning & Management Division has continued efforts to foster increased regional water planning in portions of Oklahoma where Regional Water Plans or similar guiding documents have yet to be developed. Drought contingency and drought resilience is a key part of water planning and fits well with the Water for 2060 platform as communities develop strategies for using, conserving, and sharing resources in concert to better meet future demands. WestFAST, a collection of federal environmental agencies, are working closely with Oklahoma and the Southwest Water Action Team around Altus, OK, to find ways they can assist that region. More groups such as this have formed and more are expected to begin in the near future throughout Oklahoma.



Produced Water Working Group - The Governor's Water for 2060 Produced Water Working Group has continued its efforts in support of the Governor's goal of reducing the amount of produced water injection through the establishment of other economically viable solutions. The group completed its phase 1 study to determine the nexus between produced water generation and potential large-scale end users, as well as report and summarize the current status of all the challenges related to produced water in the State. Findings from this study that may be relevant to the Compact Area revealed two feasible options in the near-term and subsequently evolved into a WaterSMART Feasibility Study from the USBOR. First, a pipeline network for transporting several hundred thousand barrels of PW from the water-rich Mississippi-Lime play serve as frack water for the nearby water-quantity poor STACK play. Such a move would both reduce the current injection volumes, potentially saving billions of gallons of fresh water reserves annually in counties located in the STACK play. The second option involved assessing various evaporation technologies and their economic and environmental viability as a long-term solution. A more in depth look at these ideas began in mid-September and workshops with industry were held in January 2018. A full report is expected in the spring of 2019. More information including the 2017 preliminary study can be found here: [www.owrb.ok.gov/pwwg](http://www.owrb.ok.gov/pwwg).

Water for 2060 Work Group - In 2017, a new 2060 Work Group has formed, made up of state agencies, large cities, and NGO's, to take on the challenge of making water conservation and the Water For 2060 initiative into a statewide movement. While still in the very early stages, the Work Group is looking at ways to focus existing programs and efforts in the area of conservation it into a broader, more far-reaching water conservation campaign. More information on Water for 2060, including a PDF of the Final Report, can be found here: [www.owrb.ok.gov/2060](http://www.owrb.ok.gov/2060).

Water for 2060 Excellence Awards - The OWRB hosted the second annual Oklahoma Water for 2060 Excellence Awards Ceremony during the opening session of the 39th Annual Oklahoma Governor Water Conference in December 2018. The award recognizes individuals and entities that make exceptional contributions to the promotion and implementation of water use efficiency and conservation. The winners were the Fort Sill U.S. Army Installation Water Reuse Project, the Waurika Lake Master Conservancy District's Water Intake Channel Maintenance Dredging and Resiliency Project, and Fred Fischer of Flatland Farms.

Aquifer Storage And Recovery - In 2016, the Oklahoma Legislature and Governor Mary Fallin approved SB 1219 to authorize the OWRB and ODEQ to establish a process for citizens or communities to construct ASR projects. A working group, consisting of state regulators, consulting engineers, scientists, and community leaders, has studied the issue since the summer of 2015 while holding informal public meetings on recommendations for groundwater quality standards.

In 2017, the OWRB and Governor approved a proposed package of rule amendments to Oklahoma's Water Quality Standards (WQS), which would provide distinct protection for domestic use of untreated groundwater supplies; provide both narrative criteria to be applied to all uses and numeric criteria (primary and secondary MCLs from Safe Drinking Water Act and other human health criteria) specifically applicable to water supply groundwater that will utilize ASR.

Also in 2017, the State legislation was approved allowing for Limited Scale Pilot studies. A water planning group based in the Arbuckle Simpson aquifer region has embarked on a pilot study. In 2018, the OWRB and ODEQ promulgated rules for the permitting of ASR facilities, which are approved and are in place. This innovative water-management tool will offer alternate options to increase storage capacity in the state and secure reliable water supplies for decades to come.

## WATER QUALITY MONITORING, MAPPING AND WATER QUALITY STANDARDS

The OWRB water monitoring staff announced the release of the agency's 2018 Beneficial Use Monitoring Program (BUMP) reports providing detailed physical, chemical, and biological water data from approximately 1,300 stream, lake, and groundwater well sites across Oklahoma. Created in 1998, BUMP provides data necessary for water quality management decisions by identifying impairments to the "beneficial uses" of Oklahoma's water resources, as well as determining causes for those water quality impairments. The water data contained in the OWRB's annual BUMP report is collected from about 130 lakes and 100 stream segments at approximately 600 sites throughout Oklahoma. For additional information, visit [www.owrb.ok.gov/bump](http://www.owrb.ok.gov/bump).

The Groundwater Monitoring and Assessment Program, added to BUMP in 2012, consists of a network of approximately 750 wells in Oklahoma's 21 major aquifers, where the OWRB monitors both water levels and water quality. Groundwater assessment is achieved through both a baseline monitoring network and a long-term (trend) network within each of the state's 21 major aquifers. This provides information on individual aquifer characteristics as well as a more general assessment of the Oklahoma's groundwater.

Revision topics for the 2018-2019 Interim Rulemaking included changes to Oklahoma's General Provisions rules related to Water Quality Standard Variance (785:45-1-2, 785:45-5-4 and 785:5-5), Site-Specific Criteria (785:45-5-7) and Use Support Assessment Protocols (785:46-15-3 and 786:46-15-10). Amendments will become effective in September 2019. For information, visit [http://www.owrb.ok.gov/util/rules/wqs\\_revisions.php](http://www.owrb.ok.gov/util/rules/wqs_revisions.php). Changes of note include:

- Revisions to existing water quality standard variance language (OAC 785:45-1-2 and 785:45-5-5). The revision was pursued so that Oklahoma's variance language would mirror federal language and allow for potential variance activities to occur as needed in an overall water quality management program. Existing variance language before the proposed changes was extremely difficult to implement in an effective and holistic manner.
- Changes to the 765:46-15 Use Support Protocols were made to introduce additional clarity to the existing language such that individuals determining use support for a waterbody to do so effectively thus ensuring that all parties would be implementing the rules in the same and consistent manner. Some minor changes were made to the existing nutrient dichotomous key to further clarify the existing language as well as enhance the ease of use.

Work began in 2018 as part of the 2018 National Rivers and Streams Assessment Study to assess wadeable and non-wadeable streams over a two year cycle. Sampling on numerous rivers and streams

across Oklahoma will continue this year and should be completed by the end of the calendar year as it is a two year project. Data collected is used to assess environmental integrity of the waters of the nation.

The OWRB's groundwater monitoring team assessed Licensed Managed Feeding Operations compliance in an additional 550 wells through a continuing partnership with the Oklahoma Department of Agriculture, Food and Forestry.

Staff continues data migration into the AQUAMS database and enhancement to allow greater public access and to provide tools that streamline the in-house data assessment process. Data migration work is expected to be completed by the end of the 2019 calendar year.

Staff with the OWRB Water Quality Programs Division met in Durant with representatives from the Choctaw and Chickasaw Nations to discuss ongoing water quality and quantity monitoring initiatives. Future cooperative efforts were discussed to maximize resource use in the southeastern Oklahoma quadrant. Follow-up informal discussions have since occurred and staff from all entities look forward to having biannual meetings in the future.

## WATER RIGHTS PERMITTING

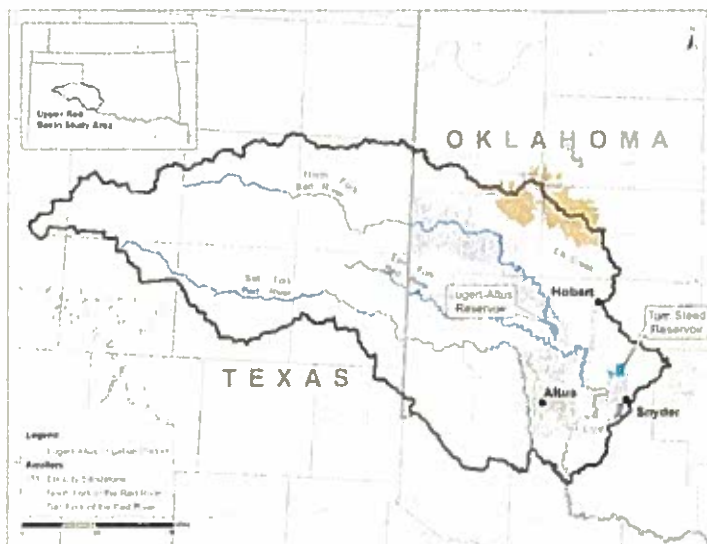
The OWRB appropriates fresh water resources as directed by Oklahoma statutes. Currently, there are 13,288 active long-term permits for more than 6.83 million acre-feet per year. The OWRB's permitting staff issued 75 groundwater permits in 2018 totaling 27,853 acre-feet, and 64 stream water permits totaling 106,996 acre-feet, along with 1,461 provisional temporary permits totaling 71,000 acre-feet for oil and gas producers and others in need of a temporary source of water. To support water rights administration, the agency conducted surface water allocation modeling and availability analyses, coordinated statewide water use reporting, and responded to public complaints.

## HYDROLOGIC INVESTIGATIONS

The OWRB conducts hydrologic investigations as directed by Oklahoma Statutes to determine the amount of fresh groundwater available for appropriation. A priority recommendation of the OCWP focused on addressing the backlog of the required Maximum Annual Yield (MAY) studies and overdue twenty-year updates of the state's groundwater basins. This work is now underway.

### Red River Basin

The OWRB is also collaborating with the USBR, Lugert-Altus Irrigation District (Lugert-Altus



Reservoir), and Mountain Park MCD (Tom Steed Reservoir) on the Upper Red River Basin Study, scheduled for completion in 2019.

The Upper Red River Basin encompasses over 4,000 square miles and all or part of nine counties in southwest Oklahoma. The region includes tributaries to the Red River, the largest being the North Fork, the Salt Fork, and the Elm Fork of the Red River. The basin contains two Reclamation reservoirs, Tom Steed and Lugert-Altus Reservoirs. These two reservoirs provide 99 percent of the surface water supply sources in the study area to almost 45,000 people and irrigation water for 48,000 acres of land. The OWRB is also conducting a hydrologic investigation on the Salt Fork of the Red River through a contract with the USGS.

### Statewide

The OWRB completed the Rush Springs Aquifer study in 2018, along with a companion report by the US Geological Survey (USGS) on the Rush Springs Aquifer groundwater flow model. The OWRB is currently conducting twenty-year updates of the Elk City Sandstone, Vamoosa-Ada, and the Gerty Sand aquifers, as well as investigations on the Cimarron Alluvium and Terrace and Blaine aquifers.

The OWRB is also conducting investigations on the Roubidoux, Boone, Washita River Reach 1, and the Salt Fork of Arkansas River aquifers through contracts with the USGS. The OWRB continues collaborative work with the US Bureau of Reclamation (USBR), Foss Reservoir Master Conservancy District (MCD), and Fort Cobb MCD on the Upper Washita Basin Study, scheduled for completion in 2020.

The OWRB completed dependable yield studies of three sole-source supply lakes for the communities of Hominy, Langston, and McAlester Army Ammunition Plant in 2018. The OWRB performed bathymetric studies (lake floor contours) to get an accurate volume of the lakes at any water level. CH2M engineers, funded in part by the US Army Corps of Engineers Planning Assistance to States grant, used this data and OWRB historical use reports to estimate the amount of water these communities can rely upon in the worst drought on record to plan their future projects accordingly. The OWRB will meet with these water systems in 2019 to discuss study results.

## **FLOODPLAIN MANAGEMENT**

The OWRB acts as the State Floodplain Board and the National Flood Insurance Program coordinating agency as directed by the Oklahoma Floodplain Management Act. The OWRB assists communities in reducing costly flooding risks to life and property by updating flood maps through FEMA programs and providing opportunities for training and accreditation of local floodplain administrators.

The OWRB worked closely with communities throughout the state in 2018 to identify flood risks and update flood maps through FEMA's Cooperating Technical Partners program. OWRB staff conducted 10 new Community Assistance Visits (CAVs) and 50 Community Assistance Contacts, successfully closed 31 outstanding CAVs and doubled the local floodplain administrator accreditation rate.

## DAM SAFETY PROGRAM

The OWRB ensures the safety of more than 4,700 dams across the state as directed by the Oklahoma Dam Safety Act. Additionally, OWRB staff maintain Oklahoma's portion of the National Inventory of Dams, oversee approval for construction or modification of structures, coordinate breach inundation mapping, inspect low hazard-potential dams, and provide public outreach and training.

In 2018, the OWRB approved six applications to construct, repair, or modify dams. The OWRB and Oklahoma Real Estate Commission partnered to increase dam safety awareness in the real estate community by adding new language in the real estate disclosure form. OWRB dam safety workshops were attended by more than 100 real estate agents, local officials, dam owners, and engineers. OWRB staff provided breach inundation maps and inspection reports to 20 dam owners.

## WELL DRILLER AND PUMP INSTALLER PROGRAM

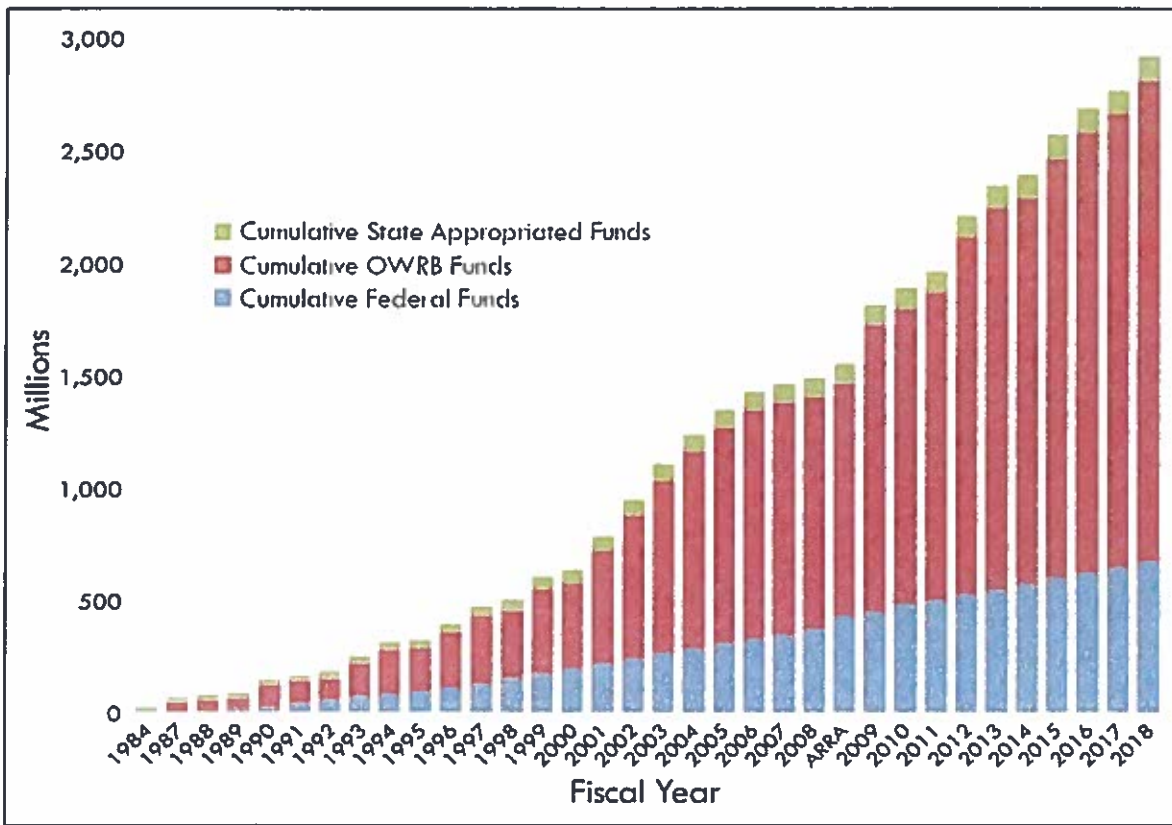
The OWRB protects Oklahoma's groundwater from contamination by ensuring the integrity of water well construction through the licensing of well drillers and pump installers as directed by Oklahoma Statutes. Currently there are 308 active well drillers and 378 pump installers licensed by the OWRB. The OWRB frequently assists drillers with required well log reporting; more than 190,000 well logs are available to the public online.

In 2018, the OWRB cooperated with the Oklahoma Ground Water Association to conduct 14 continuing education training sessions for drillers to meet licensing requirements. The OWRB continues to work with the Well Driller Advisory Council and stakeholders to develop, update, and advance water well drilling rules.

## WATER INFRASTRUCTURE FINANCING

The OWRB administers the State Financial Assistance Program, backed by the Statewide Water Development Revolving Fund, which awards loans and grants for the construction and improvement of public water and sewer facilities. Through five loan and grant programs, over \$4.2 billion in financing has been provided for water and sewer projects in Oklahoma with a total estimated savings of more than \$1.4 billion to Oklahoma communities. In 2018, the OWRB approved 32 loans and 15 grants totaling \$286.2 million to fund public water/wastewater infrastructure improvements with an estimated savings of \$22.4 million as compared to traditional financing. So far in 2019, the OWRB has approved

PROGRAM	NUMBER AND AMOUNT
FAP Loans	391 for \$ 1,215,385,000
CWSRF Loans	334 for \$1,587,259,227
DWSRF Loans	207 for \$1,276,308,800
REAP Grants	690 for \$60,362,051
Emergency Grants	581 for \$34,366,720
Drought Response Grants	6 for \$418,848
Special Purpose	8 for \$2,625,000
<b>TOTAL (as of 04/24/19)</b>	<b>2,217 for \$4,293,304,642</b>



*Cumulative investments in OWRB infrastructure financing. Since 1984, the OWRB has leveraged \$114 million in state funds and \$640 million in federal funds with \$2.15 billion in bonds to expand available financing for infrastructure projects in Oklahoma communities.*

## HISTORIC WATER RIGHTS AGREEMENT

In August 2016, the State of Oklahoma, City of Oklahoma City, and Choctaw and Chickasaw nations announced a historic water rights settlement agreement that settles longstanding lawsuits involving water rights in south central and southeastern Oklahoma.

The settlement, which was approved by Congress and signed by President Barack Obama in January 2017, resolves long-standing questions over water rights ownership and regulatory authority over the waters of the Choctaw and Chickasaw nations' historic treaty territories, an area that spans approximately 22 counties in south-central and southeastern Oklahoma. Under the agreement, the state remains the authority to manage and protect water resources in Oklahoma. This way, existing uses of water remain secure, and it provides certainty for future development.

The agreement also gives the Choctaw and Chickasaw nations a voice in specific proceedings addressing water resources within their treaty territories. It also fully resolves the state's debt to the federal government for the construction of Sardis Lake, ensuring Oklahoma City has a reliable water supply while providing a standard to protect lake levels in Sardis, which all agreed is very important. A mechanism is in place to collaboratively address any possible out-of-state water use if out-of-state water use is ever authorized by the Legislature. It provides protections for the source basin and region while ensuring the entire state benefits.

With this agreement, the rural communities and recreational and ecological values of south-central and southeastern Oklahoma are preserved and protected. And Oklahoma City has a path to obtain access to sufficient water to secure the economic posterity of central Oklahoma for generations to come. Without this agreement, existing water rights – for urban, agricultural, industrial uses – and development for future uses and needs would have remained uncertain.

The agreement protects existing rights and provides certainty for the development of future water uses both in and outside southeastern Oklahoma. More information about the agreement can be found by visiting [www.waterunityok.com](http://www.waterunityok.com).

In 2019, representatives from the OWRB and the Chickasaw and Choctaw Nations began a series of collaborative meetings to help assist with the ongoing management of the water settlement. This effort is an important part of ensuring tribal and regional stakeholders have an opportunity to gather updates and offer input.

### **ADDITIONAL MATTERS**

Jackson v. OWRB and Oklahoma City, Case No. CV-2017-32, District Court of Pushmataha County – Pursuant to the state’s tribal water rights settlement in August of 2016, the City of Oklahoma City applied to the OWRB for a stream water permit to divert water from Sardis Lake and the Kiamichi River in southeastern Oklahoma for municipal uses. After a week-long water rights hearing process, the OWRB approved Oklahoma City’s application. The appeal of OWRB’s decision to approve that application is pending before the District Court of Pushmataha County pursuant to Oklahoma’s Administrative Procedures Act.

OCWP Instream Flow Workgroup - First commissioned in 2009, the Oklahoma Comprehensive Water Plan (OCWP) Instream Flow Workgroup conducted independent technical, legal, and policy analysis and developed a process to ascertain the suitability and structure of an instream flow program for Oklahoma. Further consideration of an Instream Flow program became a priority recommendation of the 2012 OCWP Update. A public meeting was held in November 2018 in the ongoing effort to conduct an Instream Flow Pilot Study on the Illinois River basin.

This June, the ISF team expects to present the completed IFIM Pilot Process with its recommendations to the Advisory Work Group for feedback. A final report on this Pilot Study will follow including analyses of what was learned in the workshops and this meeting.

2019 Legislative Updates – Even though the Oklahoma Legislature’s 2019 session is slated to end on May 25, a number of water-related measures have already been approved and signed into law. A few of these are items that impact the OWRB’s operations directly, and others that have been implemented on general water issues.

- HB 1852 – The legislation reauthorizes the OWRB’s apportionment of Oklahoma Gross Production Tax revenue to continue funding the OWRB’s Hydrologic Investigations work through 2022.

- HB 2474 – Public Notice – The legislation adds greater transparency to the state’s water permitting process by requiring additional notice requirements for water right applicants and the OWRB.
- SB 998 – Marginal Water Use – This bill continues the 2018 effort at increasing the responsible use of marginal quality water while fresh groundwater resources. It allows the Board to promulgate regarding well-spacing and allocation of the marginal quality water.
- HB 2471 – Arbuckle Simpson Mining Permit Moratorium – Establishes a temporary moratorium on certain mining permits issued by Oklahoma Department of Environmental Quality, the Oklahoma Department of Mines, and the OWRB until the completion of the Arbuckle Simpson Phase 2 Study.
- SB 568 – Phase 2 Arbuckle-Simpson Hydrology Study Revolving Fund – This legislation establishes a funding mechanism for the completion of the Phase 2 study.

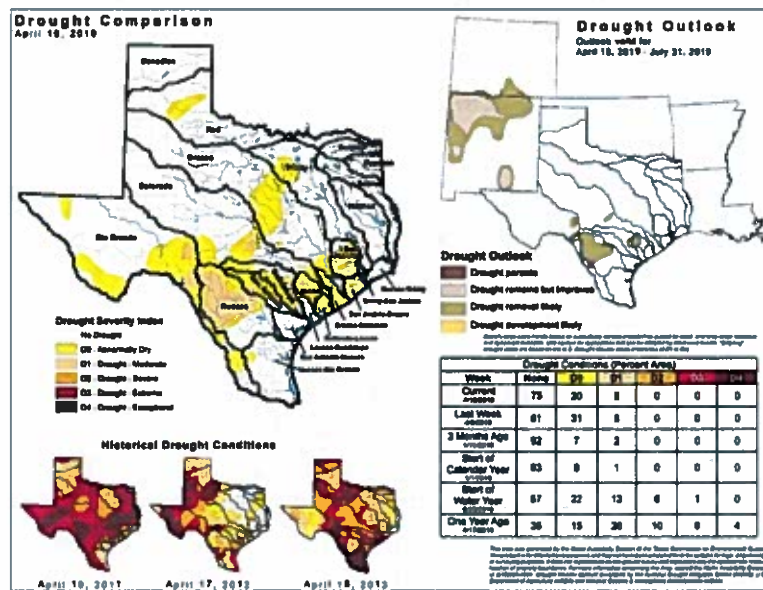


# Red River Compact Commission Texas Commissioners' Report April 30, 2019

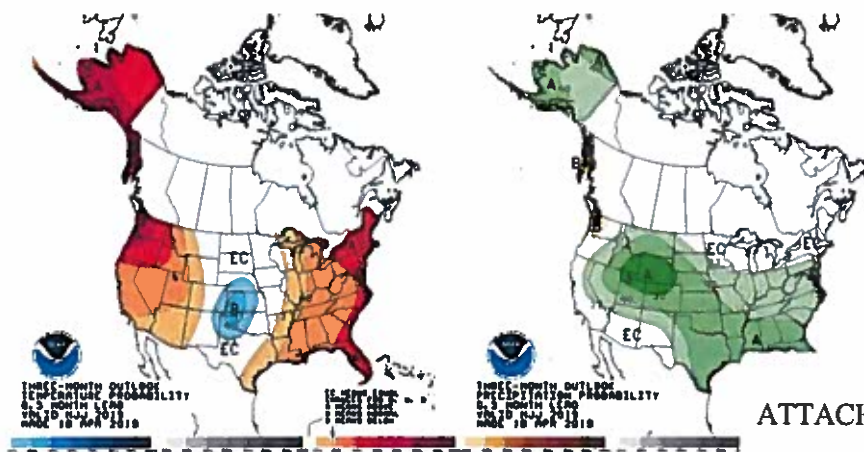
## Weather and Drought Conditions

As of April 16, 2019, the United States Drought Monitor shows about 25% of Texas in some level of drought conditions and with about 5% in moderate drought conditions. This is an improvement from a year ago when 65% of the state was in some level of drought condition and nearly 50% of the state was experiencing moderate to exceptional drought conditions.

Currently, 10% of the Red River Basin is experiencing drought conditions; the drought condition is limited to abnormally dry conditions and is only affecting the upper reaches of the basin. In comparison, the eastern reaches of the Red River, as well as the Sulphur River and the Cypress Creek basins have zero drought conditions.



The NOAA Climate Prediction Center's Seasonal Outlook is predicting above normal seasonal total precipitation for most of Texas and all the Red River Basin. The area is also predicted to have equal chances for normal seasonal temperatures for most of the basin and below normal seasonal mean temperatures in the panhandle. According to the ENSO diagnostic discussion issued April 18, 2019, weak El Niño conditions are continuing in the Pacific Ocean. El Niño conditions are expected to continue the remainder of 2019 with contrasting model results ranging from continuing weak El Niño conditions to strengthening conditions later in the year.



ATTACHMENT 6

## **Texas Sunset Advisory Commission Review**

The Red River Authority of Texas is an agency created by the Texas Legislature to provide for the orderly conservation, reclamation, protection, and development of the water resources throughout the Red River Basin for the benefit of the public. It is authorized to conduct a broad range of activities, including planning, resource conservation and management, reclamation, development and environmental protection, pollution control, flood control, stream bank stabilization and sponsorship of local water and wastewater projects designed to further economic development in the



Red River Basin. The Red River Authority's jurisdiction includes the whole of 43 Texas counties lying wholly or in part within the watershed of the Red River and its tributaries upstream from the northeast corner of Bowie County.

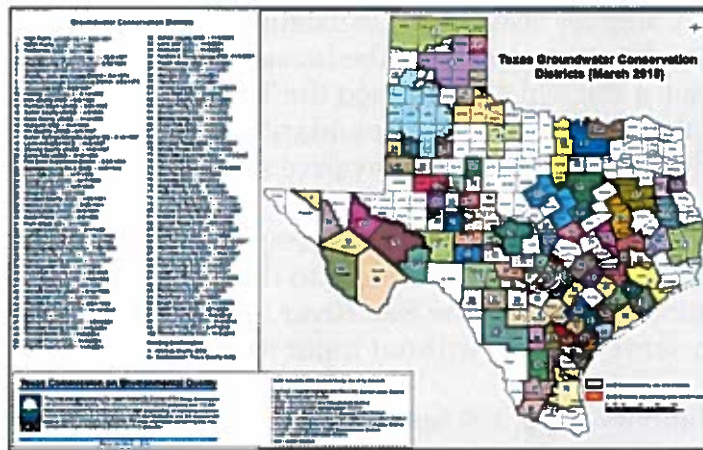
In 2018, SB 627 was introduced to the Texas Legislature to address the recommendations of the Texas Sunset Advisory Commission regarding their 2018 review of the Red River Authority of Texas (RRA). This bill, if passed, will require the RRA to: develop and maintain a comprehensive asset management plan, adopt a policy to ensure meaningful public input on significant changes, inform customers of their right to appeal rate changes, and document and regularly update its key duties and procedures, to better meet the needs of the Basin.

In addition to the Sunset Advisory recommendations, HB 4166 was introduced to the Texas Legislature. If passed, this bill would require the Red River Authority to provide a study of the feasibility of the expansion of navigation on the Red River between Texarkana and Denison by completing the navigation system of locks and dams or other means. A report would need to be submitted no later than January 1, 2012 on the findings of the study.

Red River Commissioners' Report for Texas  
April 30, 2019

**Groundwater**

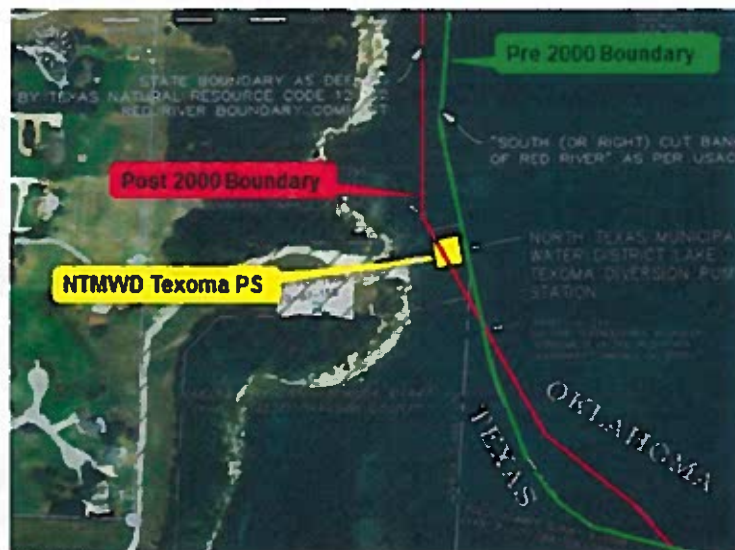
In Texas, a landowner owns the groundwater below the surface of the landowner's land, subject to regulation by groundwater conservation districts (GCDs), as recognized by the Texas Legislature in 2011. The GCDs enact rules and regulations, including requiring permits, metering, and limitations on the amount of water that may be withdrawn in their area.



As of February 2019, a total of 102 GCDs have been created, covering all or part of 180 of the State's 254 counties. There are currently eight GCDs in the Red River Basin in Texas.

**Red River Boundary Commission of Texas**

In 2000, the states of Texas and Oklahoma signed the Texoma Area Boundary Agreement which established the states' boundary in the Lake Texoma reach and located the boundary on a set of USGS topographic quadrangle maps. Subsequently, a portion of the pump station which had been constructed by the North Texas Municipal Water District (NTMWD) in 1989, was shown to be located within the state of Oklahoma.



In 2009, the invasive zebra mussels were found in Lake Texoma and caused the NTMWD to curtail pumping at the intake facility to prevent the interstate transfer of the mussels per the federal Lacey Act. In 2013, the Texas Legislature re-established the Red River Boundary Commission of Texas to work with representatives of the State of Oklahoma to redraw the boundary between Texas and Oklahoma in the Lake Texoma reach to ensure that it complies with the intent of the Red River Boundary Compact and the Lacey Act. In addition, the bill requires that there is no net loss of property between either state to ensure that the redrawn boundary does not increase the political power or influence of either state.

## Red River Commissioners' Report for Texas April 30, 2019

In 2014, the Texas and Oklahoma governors signed a Memorandum of Understanding agreeing on the operation of the NTMWD facility in Lake Texoma. In 2013 and 2014, U.S. Congress also passed legislation to exempt NTMWD from certain provisions of the Lacey Act for purposes of the invasive zebra mussels. In 2017, the Texas Legislature passed a bill which continued the Texas Commission's efforts through 2021 to work with Oklahoma to redraw the boundary and eliminate any future impacts to the Lake Texoma facilities due to potential invasive species transfers or other issues.

In March of 2018, President Trump signed the Natural Resources Management Act that included \$1 million of funding to the Bureau of Land Management (BLM) for a gradient boundary survey of the Red River. This allows for the BLM to survey the area with its own surveyors and without input from the states.

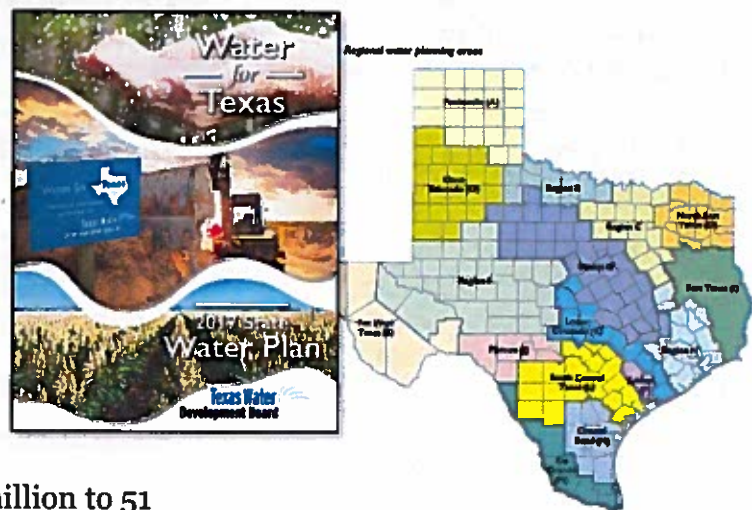
In January 2019, US Senator John Cornyn and US Representative Mac Thornberry from Texas re-introduced identical bills, Senate Bill 41 and H.R. 346, respectively, from a previous session of Congress. The bills, titled "Red River Gradient Boundary Survey Act," were introduced for the purpose of surveying the gradient boundary along the Red River in the States of Texas and Oklahoma to end decades of confusion over the true boundary and bring certainty to landowners along the Red River. The bills have numerous cosponsors, including Oklahoma Representative Tom Cole. This bill would require the survey to be conducted by an independent third-party surveyor selected by the Secretary, in consultation with, the Texas General Land Office, the Oklahoma Commissioners of the Land Office, and affected federally recognized Indian Tribes.

### Texas Water Plan of 2017

Texas' state water plans are based on future conditions that would exist in the event of a recurrence of the worst recorded drought in Texas' history—known as the "drought of record"—a time when, generally, water supplies are lowest and water demands are highest.

Texas' population is expected to increase more than 70 percent between 2020 and 2070, from 29.5 million to 51 million, with over half of this growth occurring in Regions C and H. However, Texas' existing water supplies—those that can already be relied on in the event of drought—are expected to decline by approximately 11 percent between 2020 and 2070, from 15.2 million to 13.6 million acre-feet per year.

Approximately 5,500 water management strategies recommended in this plan would provide 3.4 million acre-feet per year in additional water supplies to water user groups in 2020 and 8.5 million acre-feet per year in 2070. The estimated capital cost to design,





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## RED RIVER COMPACT COMMISSION

### State of Louisiana Report Commissioner's Report Oklahoma Water Resources Board Oklahoma City, Oklahoma

April 30, 2019

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#### STATUS OF STREAM FLOWS AT AR/LA STATELINE WITH RELATION TO THE SPECIFICATIONS OF THE RED RIVER COMPACT

As a follow up to our previous reports, the Louisiana contingent of the Compact Commission remains concerned with deficient stream flows on some streams at the AR/LA Stateline. The streams are Ouachita River, Boeuf River, Bayou Bartholomew and Bayou Macon, all of which are part of Reach IV as stipulated in the Compact. The portion of the Compact dealing with Reach IV- ARKANSAS and LOUISIANA, (specifically Sections 7.02 and 7.03) defines the stream flow requirements for these streams at the Stateline. For these streams, the Compact mandates that 40% of the weekly runoff flowing below the last major dam site in Arkansas should cross into Louisiana.

We are pleased to report that in calendar year 2016, the Ouachita River and Bayou Bartholomew had no flow insufficiency. The Red River flow across the AR/LA Stateline met the compact requirement as well, with the exception of a minor four-week period of flows between 1,000 and 3,000 cfs. Bayou Macon had a slight increase in days below 40 cfs from last year with a one-week period below 40 cfs. In the same period the Boeuf River flows have experience a decrease in deficient flows. The number of days when the Boeuf River flow was less than 40 cfs this year decreased from 104 to 49 days with three-week periods below compact requirements..

The Louisiana contingent continues to be concerned that future demands for water are likely to produce more serious flow deficiencies at the Stateline. Therefore, we again request that Arkansas implement effective and real-time withdrawal control measures to provide the "equitable apportionment of such waters" at the Stateline. We request that Arkansas take affirmative steps to regulate the diversions of runoff originating or flowing into Reach IV as described in Section 7.03(b) and notify Louisiana of what steps are employed. As more discussions of diversions from Arkansas and Mississippi Rivers occur, I recommend that the Legal Committee begin to determine what mechanisms Arkansas has in place and would need to enact in order to sufficiently enforce noncompliance with the terms of the Compact.

The flooding events of 2016 put a focus on the need for watershed-based flood control measures. A necessary step to accomplish watershed based management will be to model all of Louisiana's HUC 8 watersheds. Louisiana will begin that effort in the next few months. The modeling effort will be driven by the most impacted parishes from the 2016 flooding events and based on availability of new LiDAR. DOTD in conjunction with USGS/NRCS has begun the

ATTACHMENT 7

process of re-flying the LiDAR statewide. Much the northeast part of the state has already been captured, processed, or is being reviewed for acceptance into the USGS 3DEP program. Louisiana will begin advertising modeling contracts in the next week or two. Louisiana believes that the modeling effort in combination with the MAP program will provide a unique opportunity for collaboration and data sharing. There is great potential to determine an effective means of quantifying flows along the Louisiana-Arkansas border.

We request that the Commission continue to have the Engineering Committee work towards finding a reasonable accounting method and to review and make recommendations of any potential proposals for accounting methods. Lastly, Louisiana again requests any and all well data and registration information that Arkansas has within the Reach IV watershed.





## AR COMMISSIONER REPORT Red River Compact Commission



### ■ SUBBASIN II COMPACT COMPLIANCE

The Arkansas Natural Resources Commission (ANRC) continued to monitor Boeuf River flow the past year at Eudora and near the state boundary for occurrences of 40 cfs or less. It was recommended in ANRC's 2018 *Boeuf River Report* that an annual report describing Boeuf River flow be submitted each year to the Engineering Committee at regularly scheduled compact meetings. The annual report was submitted to the Engineering Committee at the April 2019 Compact meeting. Based on ANRC's analyses of Boeuf River flows this year, Arkansas has made the following determinations regarding compact compliance in Subbasin II:

- There is no requirement to maintain a minimum flow at the Arkansas-Louisiana state boundary.
- ANRC's monitoring, analyses, and annual reporting of Boeuf River flows at Eudora and near the state boundary is adequate to identify annual occurrences and durations of low flows which could justify further *deliberation* regarding compact compliance.
- Arkansas continues to take affirmative steps through ANRC's monitoring and assessment to ensure Louisiana is receiving its apportionment from the Boeuf River watershed.
- Arkansas has found no evidence during the past year to contradict ANRC's previous conclusion that Louisiana is receiving its apportionment from the Boeuf River watershed as specified in Subbasin II provisions. A multitude of unknown effects from hydrologic manipulation and alteration, surface and groundwater interaction, and instantaneous diversion and runoff persist. These factors prevent determination of a direct "cause-and-effect" between water use in Arkansas and Boeuf River flows near the state boundary.

### ■ 2019 Arkansas General Assembly

The Arkansas General Assembly concluded its regular session in April 2019. Legislators passed several initiatives which affect programs and duties of the ANRC. Most importantly, the General Assembly passed the Transformation and Efficiencies Act of 2019 which authorizes Governor Hutchinson's strategic plan to reorganize state government. Under transformation, all state agencies will be consolidated into fifteen newly created cabinet-level departments which report directly to the Governor. The ANRC agency will become part of The Department of Agriculture but will retain its existing Commission board to continue current duties and responsibilities.



Arkansas' unpaved roads program will be transferred from the Arkansas Economic Development Commission to ANRC. This program provides support to counties for projects that reduce erosion and runoff from unpaved roads. \$300,000 will be transferred (annually) from fees collected by the Arkansas Department of Environmental Quality directly to the Arkansas Unpaved Roads Fund.

The General Assembly authorized up to \$3,000,000 for ANRC to implement a new "hog eradication" program. It is unclear exactly how the program is to be implemented at this time. A Task Force will determine general goals and guidelines before ANRC begins implementation of the program.

\$1,000,000 from the Develop and Enhancement Fund for ANRC was appropriated for the Red River Navigational Feasibility Study. If funded this would continue Corps of Engineers navigation studies on the Red River.

### Arkansas Water Plan

Since Arkansas' abundance of water supports many economy-driven local and regional enterprises across diverse and unique ecoregions, ANRC is purposed with optimizing statewide use of Arkansas' surface and groundwater resources to ensure affordable and reliable water is available to meet all Arkansas' citizen and environmental water needs. The Arkansas Water Plan (AWP) identifies ANRC's state water planning goals, priorities, and needs through the year 2050.



**Arkansas Drought Contingency Network** One of ANRC's ongoing effort has been the establishment of an Arkansas Drought Contingency Network among state, regional, local, and federal agencies, drinking water utilities, and the private sector. This forum will allow coordinated release of information and alerts to the public and public entities responsible for drought management. A meeting was held in March 2019 to coordinate a Drought Response Council and web portal for providing information to the public.

**Little River Basin (PAS) Corps of Engineers Study** ANRC partnered with the Little Rock District to facilitate a Drought Contingency Group (DCG) in the Little River Basin. The DCG identified conditions used in other states to issue drought declarations. This pilot study effort evaluates several drought scenarios and results are intended to guide an update to the Corps of Engineers Drought Contingency Plan for the Little River Basin.





**Bayou Bartholomew Water Quality Monitoring** ANRC continues to support water quality monitoring on Bayou Bartholomew through the Section 319 nonpoint pollution program. Bayou Bartholomew remains a priority watershed in Arkansas' Nonpoint Source Pollution Management Plan due to impairment from sediment.

**Red River Navigation Study** The US Army Corps of Engineers, in cooperation with the Arkansas Red River Commission, is studying the economic feasibility of extending navigation upstream from Shreveport, Louisiana. The Arkansas General Assembly appropriated \$1,000,000 through ANRC to continue Corps of Engineers feasibility study.

**Arkansas Nutrient Reduction Strategy** Arkansas continues to participate on the Environmental Protection Agency's Gulf of Mexico Hypoxia Task Force. The existing state nutrient strategy is to concentrate and reallocate limited resources more intensely in select watersheds. This concentration of resources will help verify water quality improvements realized through targeted nutrient reduction activities. The new strategy priority includes an emphasis on the establishment of monitoring requirements, baseline conditions, and tools for reporting success and tracking progress. Mechanisms for success and implementation in the new strategy include:

- 319 Priority Watershed Designations
- Watershed Based Plans
- Water Quality Technicians – NMP Adoption
- CW RLF Nutrient Reduction Incentives NRCS NWQI Projects and Designations
- NRCS RCPP, CSP, AWEF, EQIP, WRE Projects
- Nutrient Surplus Area Designations
- Point Source Monitoring & Reporting
- Watershed Group Establishment and Support
- Discovery Farms/Watershed Planning
- Septic Tank Replacement Grant/Loan Program



For point source reduction, the new strategic framework will be used across all programs and includes nitrogen and phosphorus monitoring at major WWTPs, nitrogen and phosphorus limits at major WWTPs, and state point source loading metrics using the EPA Loading Tool. Arkansas is one of only two states in the greater Mississippi River basin to be chosen for a pilot project funded by the Walton Family Foundation and led by University of Illinois researchers. Project goals include development of an Arkansas measurement framework and consensus on BMP nutrient reduction efficiencies. Additional efforts by ANRC include a project with the University of Arkansas' Water Resources Center to complete a comprehensive assessment of water quality trends across the state of Arkansas.



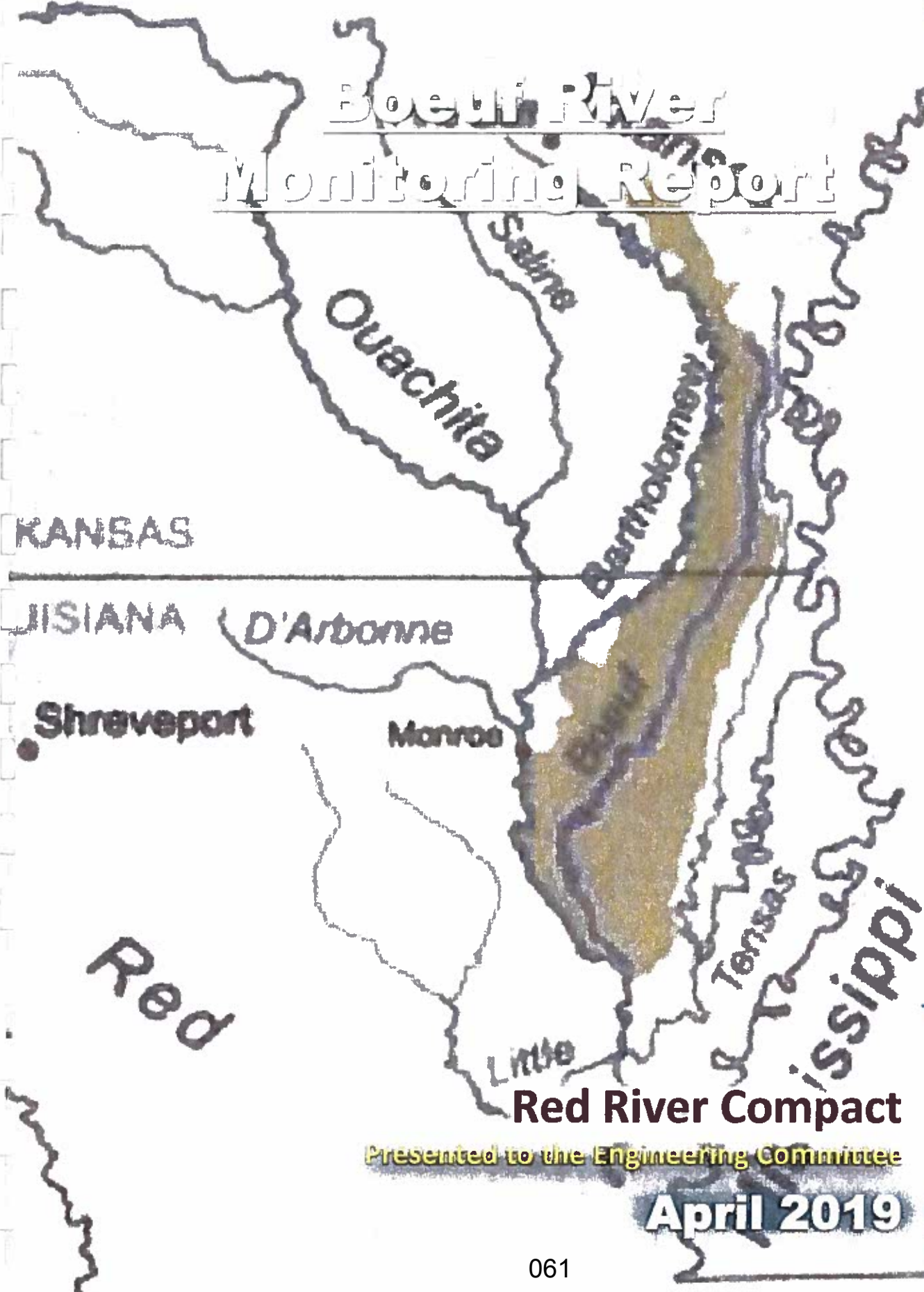
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Little Rock



# Boeuf River Monitoring Report

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**Red River Compact**

Presented to the Engineering Committee

**April 2019**



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## REPORT OVERVIEW

For several years Arkansas and Louisiana have had ongoing discussions regarding compact compliance in the Boeuf River watershed. ANRC has initiated and completed several investigations on stream flow, instream structures, hydrologic alterations, and historical development in the watershed. These efforts are summarized in ANRC's 2018 Boeuf River Report which was presented to the Engineering Committee and Red River Compact Commission at the April 2018 compact meeting in Hot Springs, Arkansas. The 2018 Boeuf River Report recommended all occurrences of 40 cfs or less with durations lasting at least seven consecutive days near the Arkansas-Louisiana state boundary be assessed annually to determine if (reoccurring) conditions exist in the Boeuf River watershed which warrant compliance deliberation and discussion. To complete these assessments ANRC recommended the following activities be conducted on an ongoing annual basis:

- Monitor real-time data from USGS gage #07367690 near the Arkansas-Louisiana state boundary during the months of May and June.
- Document occurrences of 40 cfs or less flow durations of at least seven consecutive days.
- Summarize 40 cfs or less flow and duration data and present to the Engineering Committee at regularly scheduled Red River Compact meeting.
- Continue coordination efforts on the Engineering Committee to review, discuss, and assess research studies and projects which use new or advanced runoff methods.

The 2019 Boeuf River Monitoring Report describes ANRC's 2018 assessment and evaluation of Boeuf River flow at Eudora, Arkansas and near the Arkansas-Louisiana state boundary in Louisiana. The period for this assessment was January 2018 through December 2018. Precipitation from one reporting station at Eudora was used to represent generalized rainfall in the Boeuf River watershed and was assumed to occur uniformly over both upstream Eudora and downstream Arkansas-Louisiana state boundary gage locations.



## REPORT CONCLUSIONS

ANRC's assessment of 2018 flow data from the Eudora and Arkansas-Louisiana state boundary gages is consistent with previous findings regarding Arkansas' position (April 2018 Compact Commission meeting) on compact compliance in Reach IV, Subbasin II. Many factors affect Boeuf River flow fluctuations at the Arkansas-Louisiana state boundary and there was no verifiable data to indicate water diversions in Arkansas were significantly altering Boeuf River flow fluctuations at the state boundary. Comparison of 2018 Boeuf River flow and precipitation data from Eudora and state boundary locations did not yield a quantifiable correlation between flow and precipitation beyond intuitive inferences.

There were two occurrences of 40 cfs or less flow at the state boundary gage with durations of at least seven consecutive days. These flows durations lasting at least seven consecutive days occurred on May 9-22 and June 7-20. Null values (data gaps), non-uniform precipitation over Eudora and state boundary locations, and rapid fluctuations in recorded Boeuf River flows complicated identification of discernable, recurrent flow patterns between the two gages. This prevented estimation of expected flows at the state boundary based on readings at the Eudora gage. Further detail on ANRC's assessment can be found in subsequent sections of this report.

## REPORT RECOMMENDATIONS

Based on finding in the *2018 Boeuf River Monitoring Report*, ANRC recommends the following:

1. Continue Engineering Committee's monitoring & assessment of Boeuf River flows in 2019.
2. Evaluate 2018 water use (when available) & compare with 2018 flow & precipitation data.
3. Complete 2019 Boeuf River Monitoring Report & submit to Compact Commission in 2020.





## ASSESSMENT

The goal of this assessment was to determine if correlation between recorded flows at Eudora and Arkansas-Louisiana state boundary, precipitation, and water use in Arkansas could be established from data for the period January 2018 through December 2018. Data was evaluated for different flow conditions, i.e. periods when 40 cfs or less (low) flow and higher flow durations occurred. Both high and low flow conditions were contemplated in the assessment to determine how factors such as instream structures, precipitation, water diversion, lag time between gages, and individual gage configuration were influencing recorded flows at Eudora and state boundary gages.

Tables containing average daily, seven-day rolling average, and comparative flow and precipitation data for the Eudora and state boundary gages are included in data section of this report. One prominent artifact of the average daily flow data is the frequency of Null values recorded at the state boundary gage during high flows. These Null values are likely related to configuration of the gage and the proximity of Louisiana instream structures immediately upstream of the gage. This should be confirmed and further elaborated on by Louisiana USGS personnel. Comparison of high flows at both gages is important to understanding (unrestricted) flow conditions and lag time between the gages when instream structure and water diversion impacts are minimized. General observation of the data shows there are no direct numeric relationships between weekly precipitation and corresponding flow values. Intuitively, higher weekly average precipitation values tend to result in corresponding increases in recorded flow at the gages. But, similar weekly precipitation amounts recorded at different times of the year do not produce replicable (corresponding) flows at the gages. The lack of a direct numeric relationship between precipitation and corresponding flow values is indicative of a multitude of unquantifiable factors affecting Boeuf River flow fluctuations. For Eudora and state boundary gages, occurrences of 40 cfs or less flow durations lasting at least seven consecutive days are shown in Figure 1. The periods of occurrence, May 9-22 and June 7-20, at the state boundary gage are highlighted



and outlined yellow in the figure below. These periods of occurrence are also superimposed over the Eudora gage data in Figure 1. for comparison.

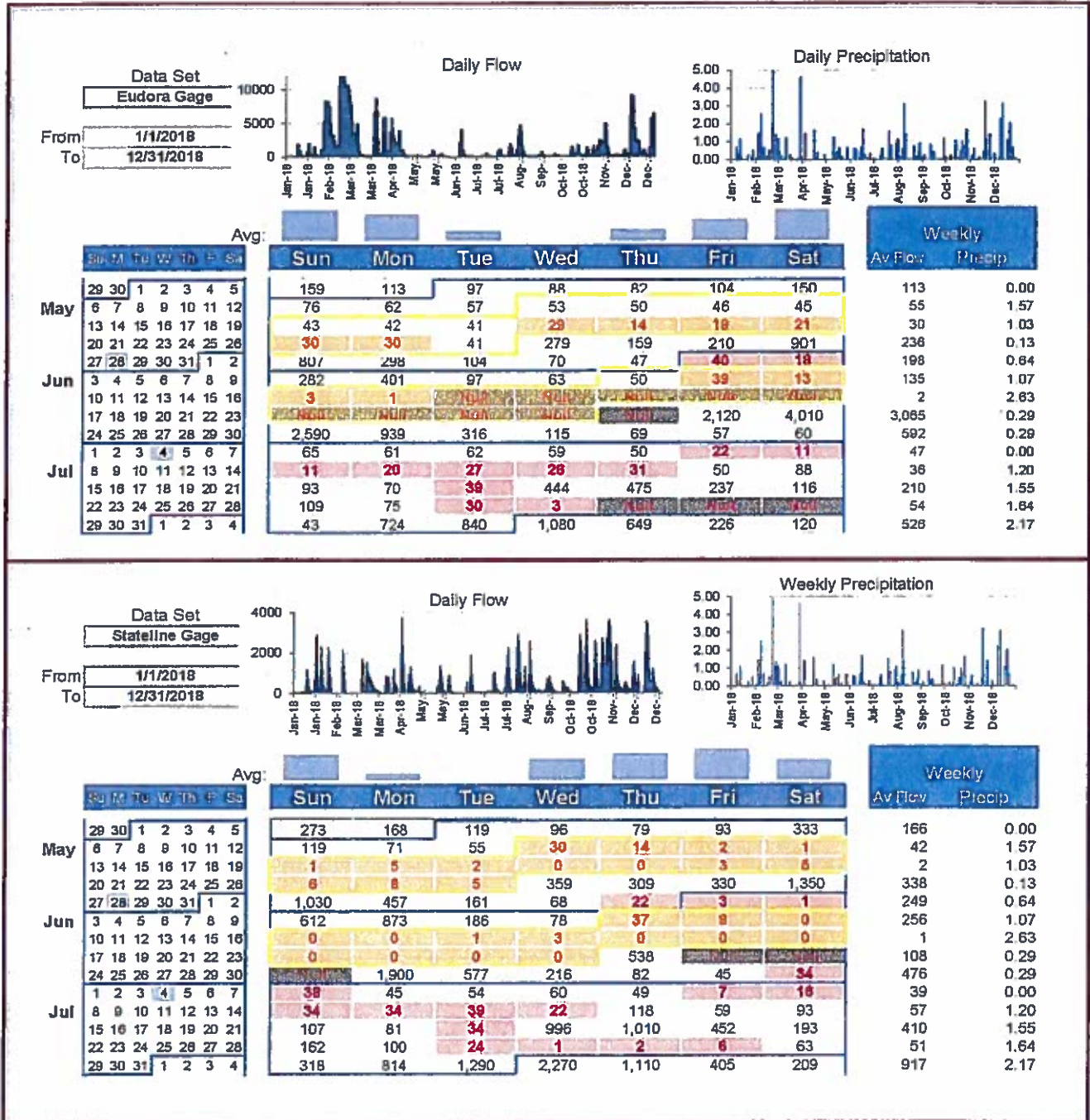


Figure 1. Eudora & Stateline Flow & Precipitation Data



Most days below 40 cfs at the state boundary correspond to days below 40 cfs at Eudora. There were days when flow at Eudora exceeded 40 cfs and flow at the state boundary was less than 40 cfs. There were also days when flows at the state boundary were greater than flows at Eudora, probably caused by precipitation which occurred downstream of the Eudora gage. One limitation of data from both gages was the number of Null values recorded. These data gaps occurred randomly throughout the year without particularity to high or low flow conditions at the gages. In general terms, significant increases in daily flows were assumed a result of substantial weekly precipitation. However, flows varied widely and drastically and did not always correlate well to weekly precipitation averages. Often, high and low flow values recorded at the beginning of the week would completely flipflop by the middle or end of the week, adding further complexity to evaluating weekly flow requirements and to determining when and if administrative processes would be warranted to satisfy Subbasin II provisions. Data inconsistencies and non-replicable variances resulted in ANRC's inability to identify any recurrent pattern of numeric similarity between flow and precipitation values. Even at higher flows during the non-growing season, correlations between Eudora and state boundary flows were inconclusive.

2018 surface water use data was not available for ANRC's assessment in this report. Previous years' data made available to ANRC (from USGS) was cursorily reviewed for general understanding of changes in yearly reported usage. Changes in the number and location of diversions and reported use from year to year was attributed to differing water needs associated with normal crop rotations in the watershed. The total volume of annual use, reported in Arkansas as acre-feet, was meniscal compared to Boeuf River flows for the months of April through August. While the annual reported use didn't reflect a daily condition, it was important context for developing "real-world" scenarios which more accurately reflect possible causes of Boeuf River flow fluctuations in Arkansas and Louisiana. Further evaluation of surface water data will be included in ANRC's 2019 Boeuf River Monitoring Report effort in cooperation with the Engineering Committee.



**BOEUF RIVER DATA**

The following pages contain tables and graphs of Boeuf River watershed data used in ANRC’s assessment described previously in this report. **Figures 2-7** contain 12-month average daily flow, seven-day rolling average, daily precipitation, and weekly flow and precipitation data for the Eudora and Arkansas-Louisiana state boundary gages. Null values for Boeuf River flows are highlighted and shown as **Null** in these figures. **Figures 7-12** contain similar flow and precipitation data displayed in discrete 2-month period graphical area plots. Null values in these plots are shown as non-shaded or white areas on the graph. **Figures 13** shows the most recent available 2016 (reported) monthly surface water use in Chicot County, Arkansas. Data for the months of May and June are highlighted and outlined in yellow.



Eudora Gage Data 2018

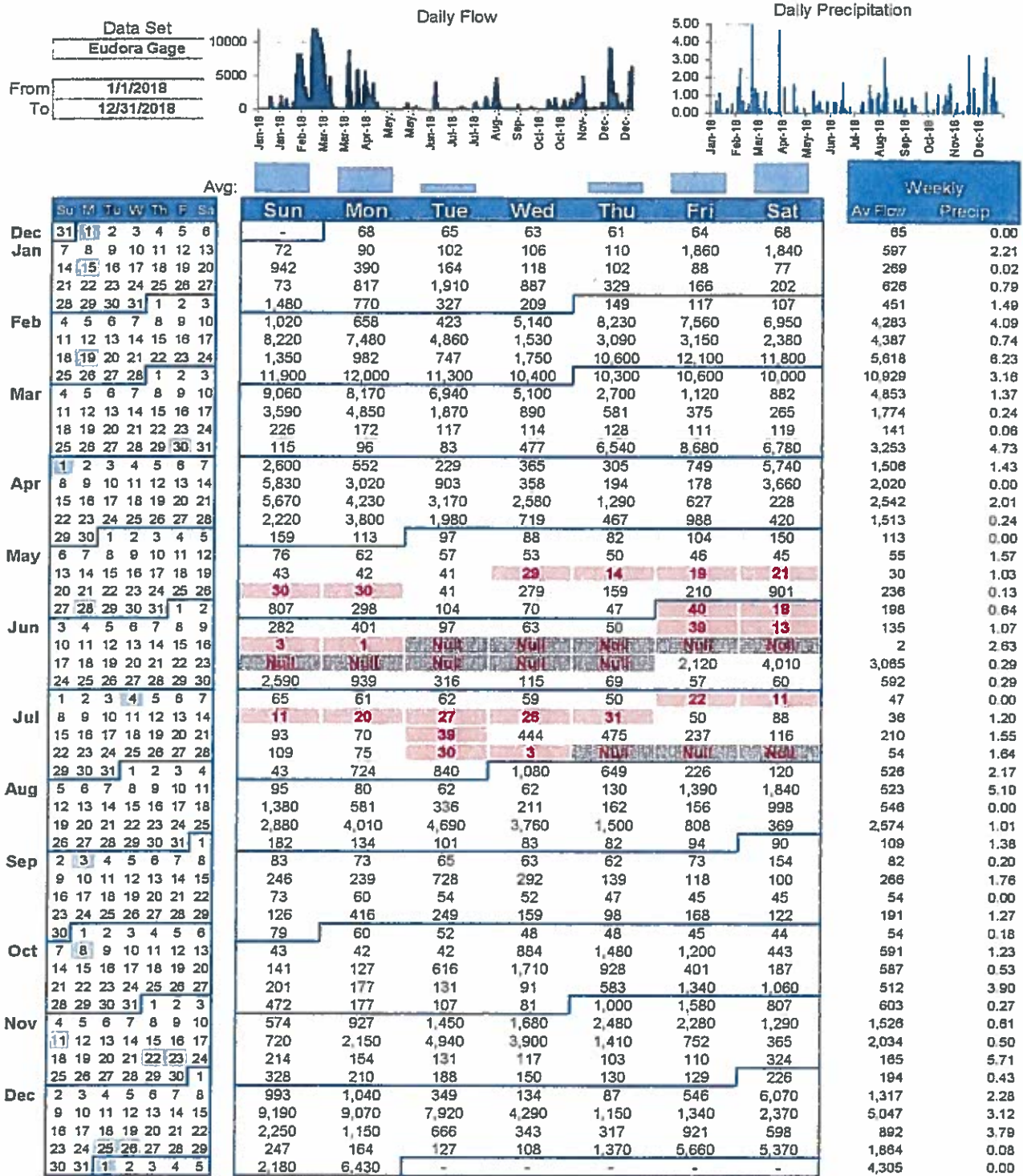


Figure 2. Eudora/State Boundary/ Precipitation Comparison



Eudora Gage 7-Day Rolling Average 2018

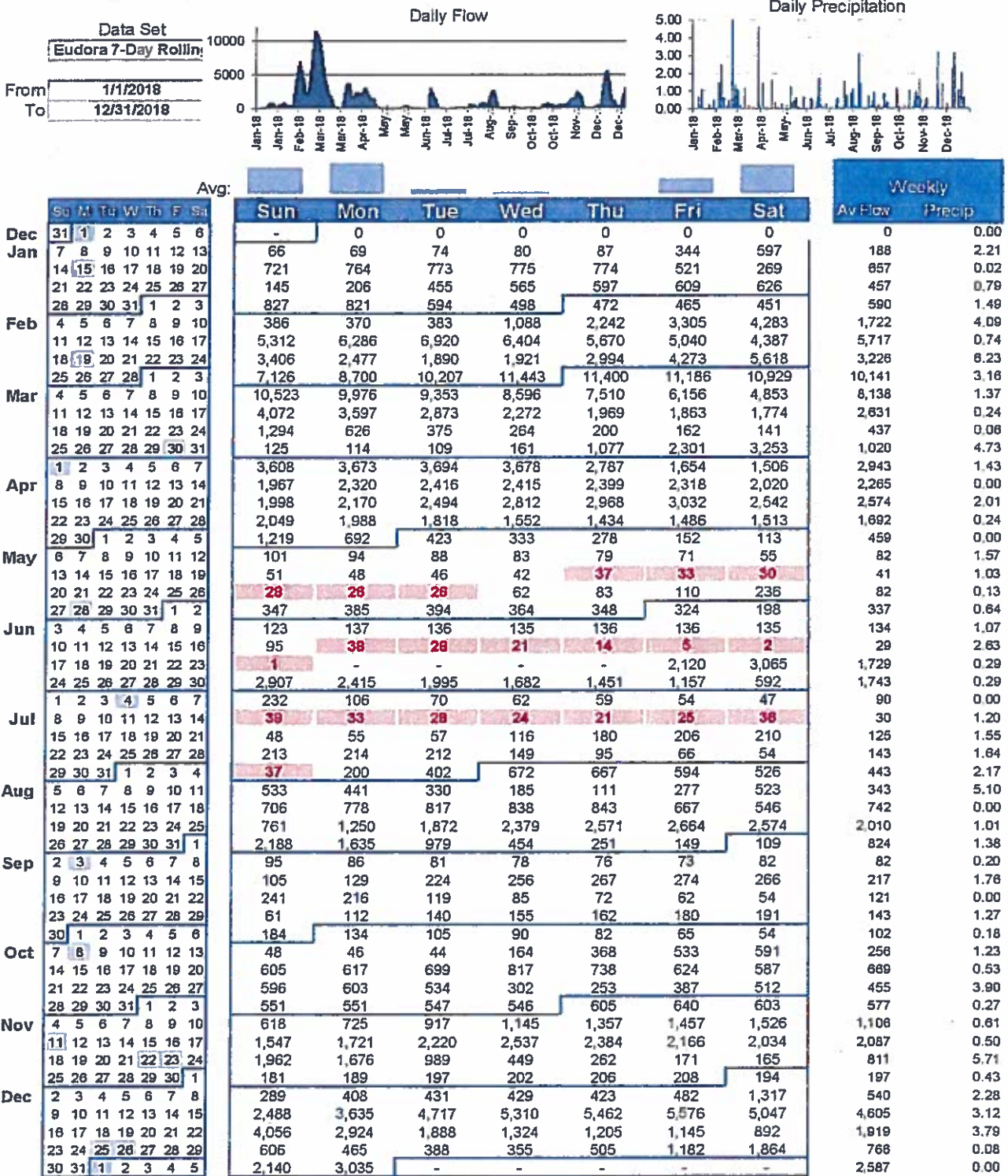
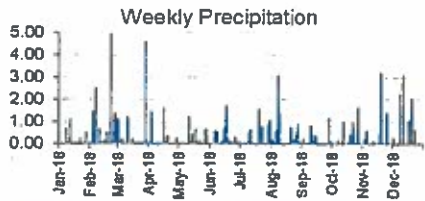
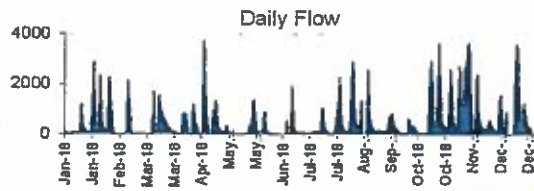


Figure 3. Eudora/State Boundary/ Precipitation Comparison



Stateline Gage Data 2018

Data Set  
 Stateline Gage  
 From: 1/1/2018  
 To: 12/31/2018



Month	Day	Avg. Daily Flow							Weekly	
		Sun	Mon	Tue	Wed	Thu	Fri	Sat	Av Flow	Precip
Dec	31	-	55	44	35	30	27	28	36	0.00
Jan	7	28	42	52	55	55	82	71	46	2.21
	14	1,170	477	255	141	99	82	71	328	0.02
	21	64	941	2,870	1,040	401	220	191	818	0.79
Feb	28	2,320	998	442	291	199	136	112	643	1.49
	4	2,260	1,070	838	NOI	NOI	NOI	NOI	1,389	4.09
	11	NOI	NOI	NOI	NOI	NOI	NOI	NOI	#DIV/0!	0.74
Mar	18	2,150	1,290	807	NOI	NOI	NOI	NOI	1,416	6.23
	25	NOI	NOI	NOI	NOI	NOI	NOI	NOI	#DIV/0!	3.16
	4	NOI	NOI	NOI	NOI	NOI	NOI	1,680	1,680	1.37
Apr	11	NOI	NOI	NOI	1,540	1,090	881	749	1,065	0.24
	18	642	528	366	293	225	177	156	341	0.06
	25	118	94	69	NOI	NOI	NOI	NOI	94	4.73
May	1	NOI	822	448	835	472	NOI	NOI	644	1.43
	8	NOI	NOI	1,200	534	363	312	NOI	602	0.00
	15	NOI	NOI	NOI	3,720	2,050	765	379	1,729	2.01
Jun	22	NOI	NOI	NOI	955	563	1,320	555	848	0.24
	29	273	168	119	96	79	93	333	166	0.00
	6	119	71	55	30	14	2	1	42	1.57
Jul	13	1	5	2	0	0	3	5	2	1.03
	20	6	8	5	359	309	330	1,350	338	0.13
	27	1,030	457	161	68	22	3	1	249	0.64
Aug	3	612	873	186	78	37	8	0	256	1.07
	10	0	0	1	3	0	0	0	1	2.63
	17	0	0	0	0	538	NOI	NOI	108	0.29
Sep	24	NOI	1,900	577	215	82	45	34	476	0.29
	1	38	45	54	60	49	7	18	39	0.00
	8	34	34	39	22	118	59	93	57	1.20
Oct	15	107	81	34	996	1,010	452	193	410	1.55
	22	162	100	24	1	2	6	63	51	1.64
	29	318	814	1,290	2,270	1,110	405	209	917	2.17
Nov	5	139	99	67	72	249	2,170	2,900	814	5.10
	12	2,210	708	482	351	281	252	1,310	799	0.00
	19	NOI	NOI	NOI	NOI	2,560	1,090	576	1,409	1.01
Dec	26	348	254	178	127	116	145	144	187	1.38
	3	128	109	85	87	83	97	417	144	0.20
	10	725	412	828	508	305	226	185	456	1.76
Jan	17	112	75	55	47	37	28	27	54	0.00
	24	107	603	439	318	255	320	243	326	1.27
	31	135	84	60	48	42	38	28	62	0.18
Feb	7	23	19	15	1,870	2,940	2,100	654	1,089	1.23
	14	276	212	1,170	3,620	1,970	717	374	1,191	0.53
	21	368	298	227	142	987	2,580	1,720	903	3.90
Mar	28	672	342	199	126	1,690	2,720	1,150	986	0.27
	5	805	1,480	2,710	2,770	3,630	3,580	2,220	2,456	0.61
	12	946	NOI	NOI	NOI	2,390	994	570	1,225	0.50
Apr	19	399	300	244	203	169	167	437	274	5.71
	26	548	335	268	212	159	133	162	260	0.43
	3	1,310	1,580	536	257	148	893	NOI	787	2.28
May	10	NOI	NOI	NOI	NOI	NOI	2,630	3,560	3,095	3.12
	17	3,410	1,840	830	550	514	1,220	798	1,309	3.79
	24	461	327	252	212	NOI	NOI	NOI	313	0.08
Jun	31	NOI	NOI	-	-	-	-	-	#DIV/0!	0.00

Figure 4. Eudora/State Boundary/ Precipitation Comparison



Stateline Gage 7-Day Rolling Average 2018

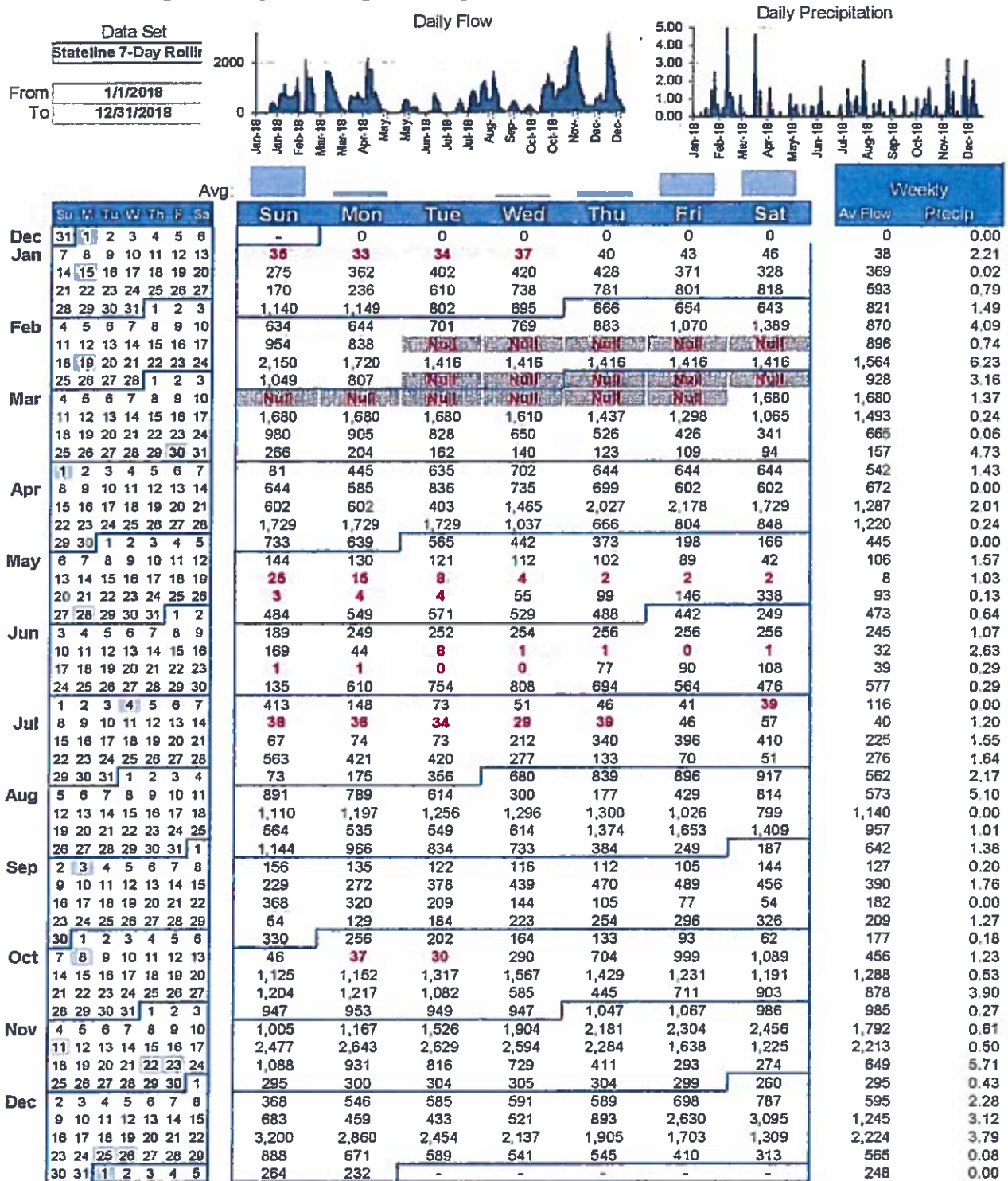


Figure 5. Eudora/State Boundary/ Precipitation Comparison





Precipitation 2018

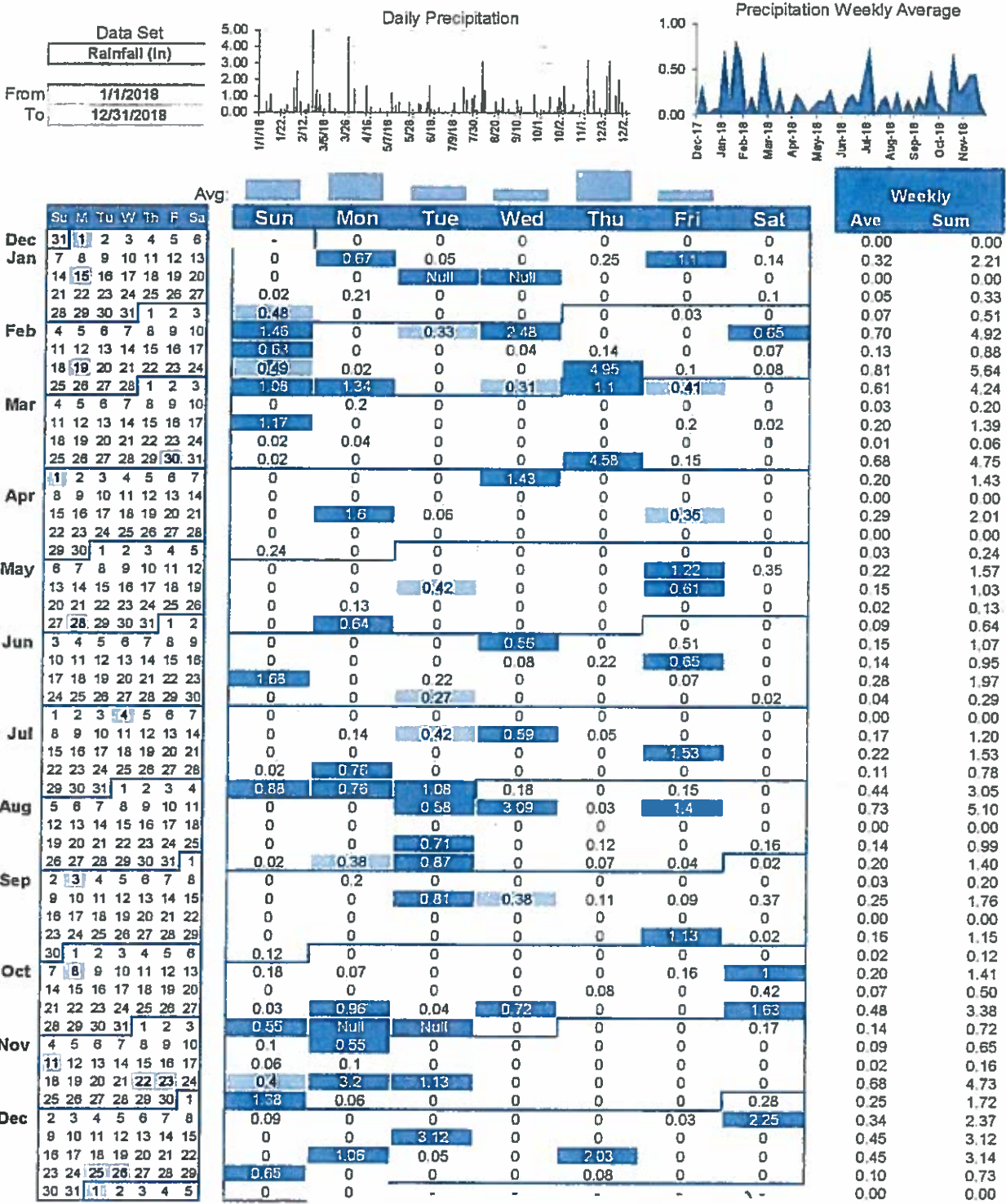


Figure 6. Eudora Precipitation



2018 Data Comparison

Eudora Gage		Eudora 7-Day Rolling		Stateline Gage		Stateline 7-Day Rolling	
Data Start		Data Start		Data Start		Data Start	
	1/1/2018		1/1/2018		1/1/2018		1/1/2018
Max	12,100.00	Max	11,442.86	Max	3,720.00	Max	3,200.00
60%	457.80	60%	668.93	60%	344.40	60%	644.25
Med	227.00	Med	505.00	Med	226.00	Med	488.27
Avg	1,369.47	Avg	1,344.55	Avg	565.51	Avg	651.94
40%	149.00	40%	284.91	40%	145.60	40%	339.51
Min	0.52	Min	0.52	Min	0.00	Min	0.03

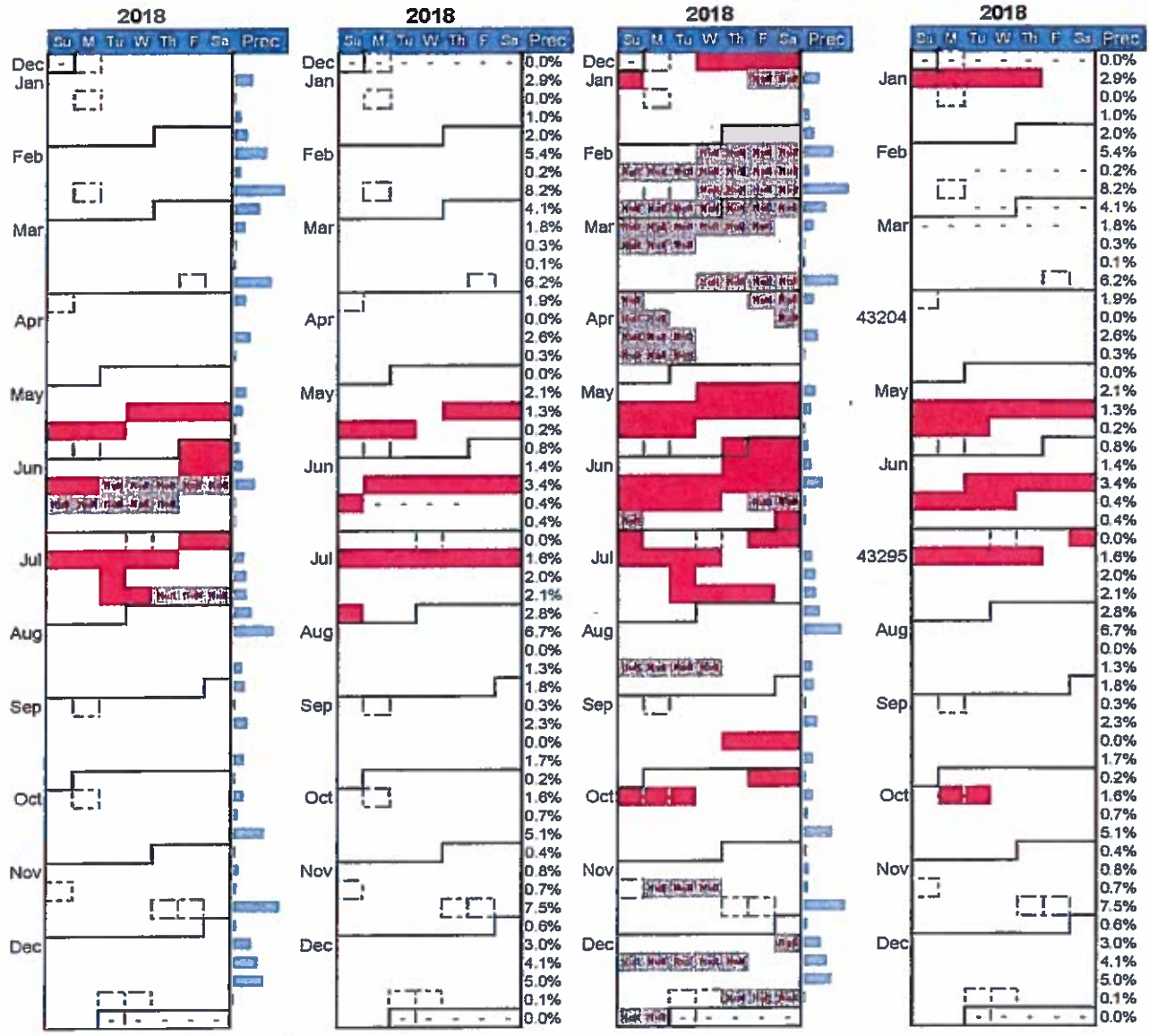
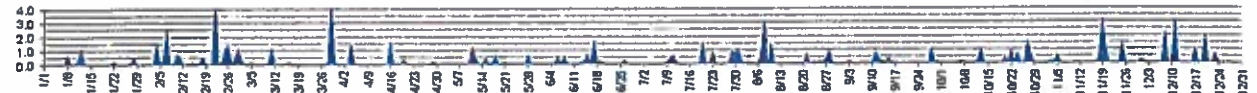


Figure 7. 2018 Eudora & Stateline Data Comparison



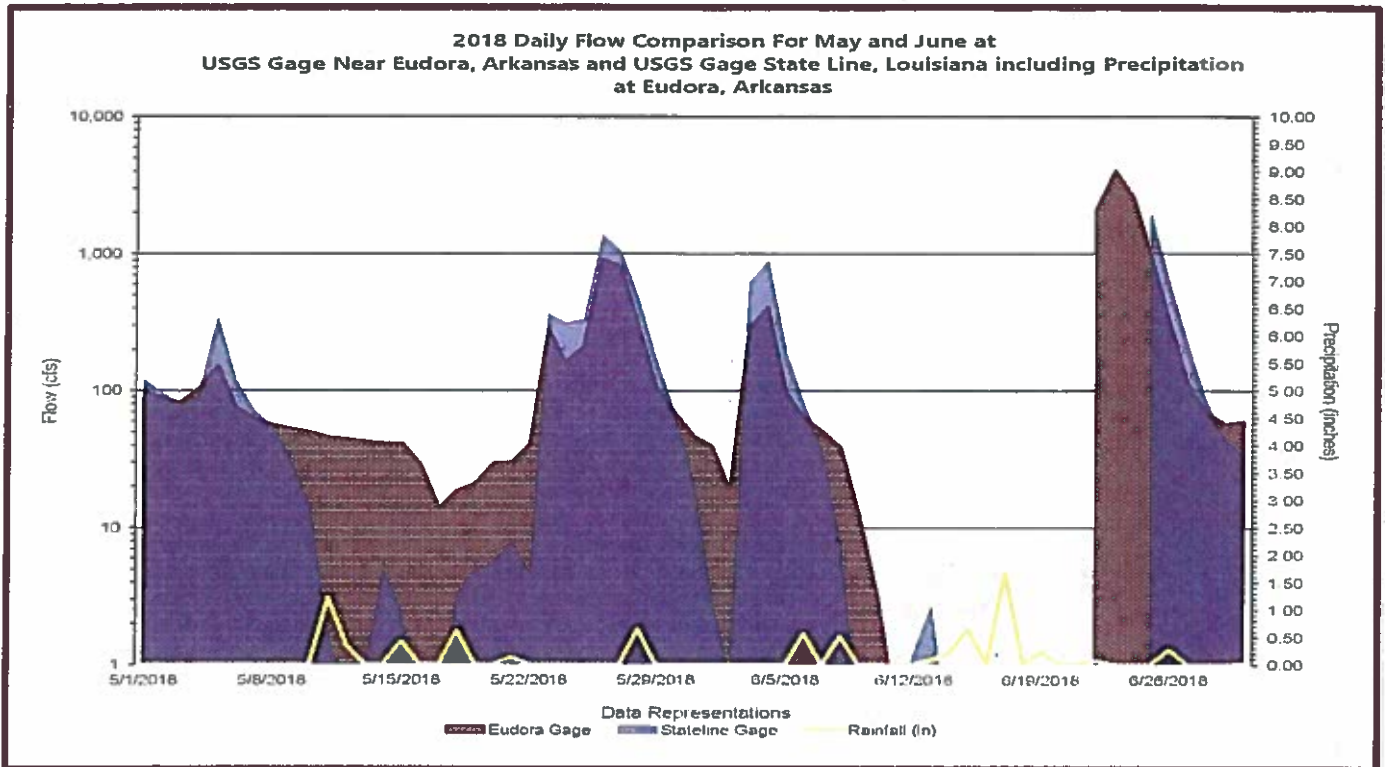


Figure 8. May-June 2018: Eudora/State Boundary Flow & Precipitation Plot

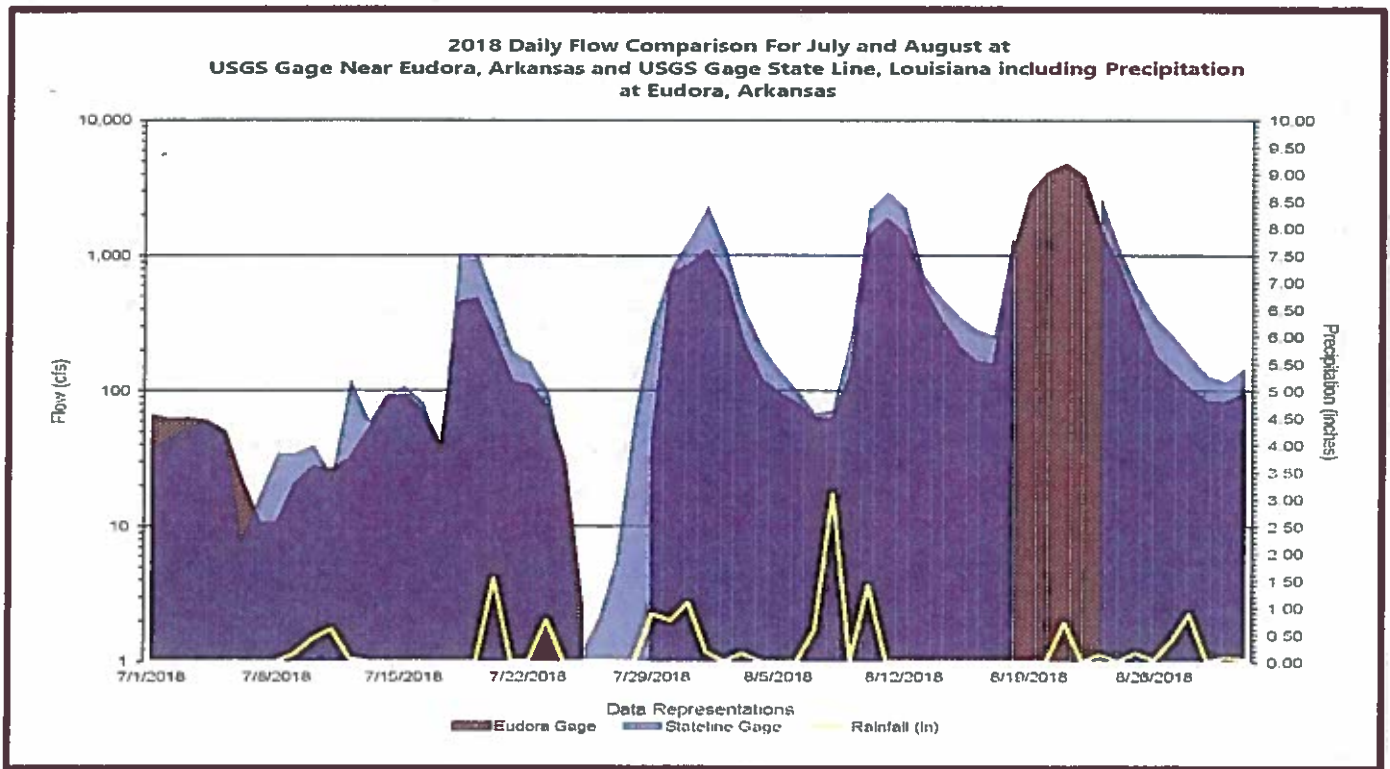


Figure 9. July-August 2018: Eudora/State Boundary Flow & Precipitation Plot



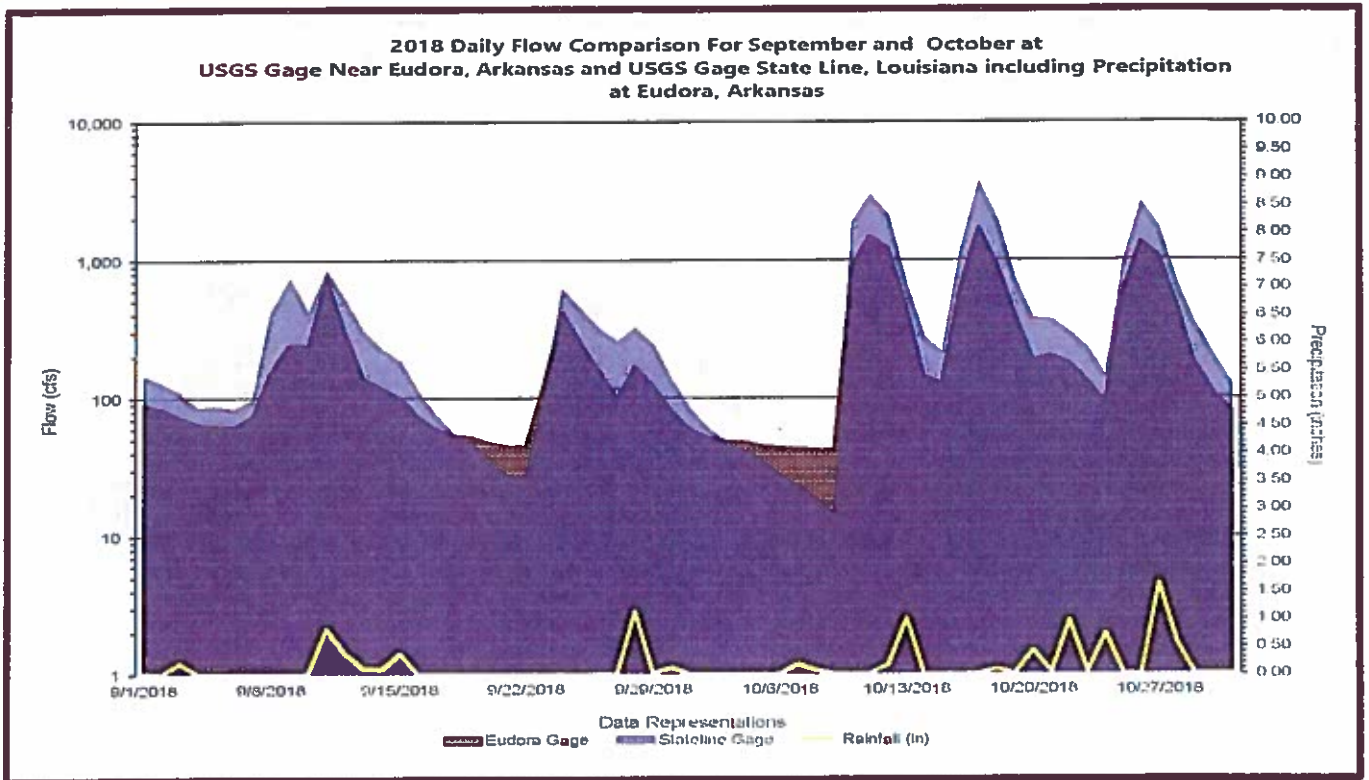


Figure 10. Sept-October 2018: Eudora/State Boundary Flow & Precipitation Plot

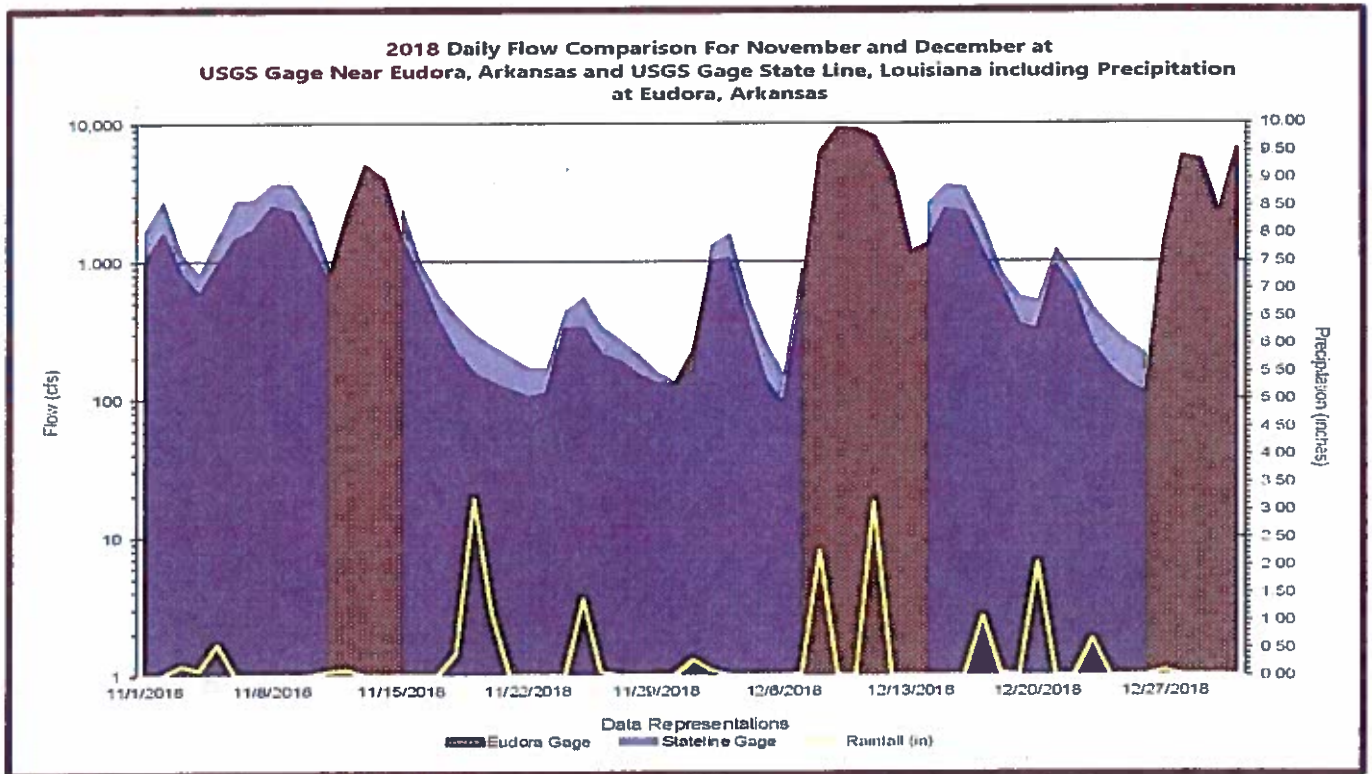


Figure 11. Nov-December 2018: Eudora/State Boundary Flow & Precipitation Plot



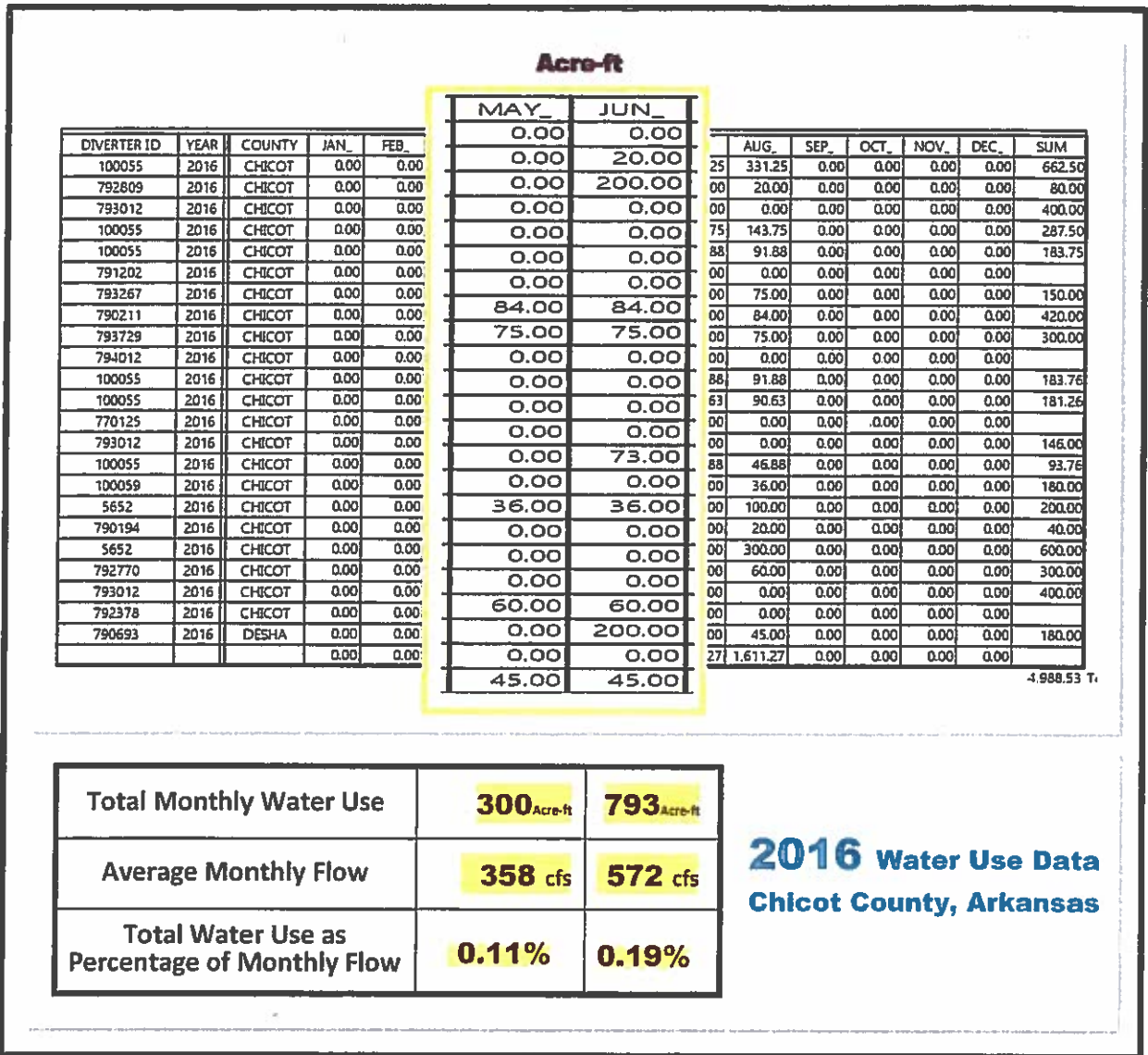


Figure 12. 2016 Water Use Reported in Chicot County, Arkansas



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**Red River Compact Commission  
FY – 2018 and 2019 Budgets**

FY 2018: July 1, 2017 – June 30, 2018  
FY 2019: July 1, 2018 – June 30, 2019

Meeting Expenses*	<u>FY 2018</u> \$5,000.00
Office Supplies/Expenses	\$2,500.00
Contingency	<u>\$16,000.00</u>
<b>TOTAL</b>	<b>\$23,500.00</b>

Meeting Expenses*	<u>FY 2019</u> \$5,000.00
Office Supplies/Expenses	\$2,500.00
Contingency	<u>\$16,000.00</u>
<b>TOTAL</b>	<b>\$23,500.00</b>

State Assessments

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 2018 and 2019 assessments are \$550.00 per state.

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

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# RED RIVER COMPACT COMMISSION 39<sup>TH</sup> ANNUAL MEETING CORPS OF ENGINEERS UPDATE TULSA DISTRICT (SWT)

Mike Abate  
Chief Civil Works Branch, PPMB  
30 April 2019  
Oklahoma Water Resource Board, Oklahoma City, OK.

Interagency and  
International  
Support



Multipurpose  
Reservoirs



MKARNS



Hydropower



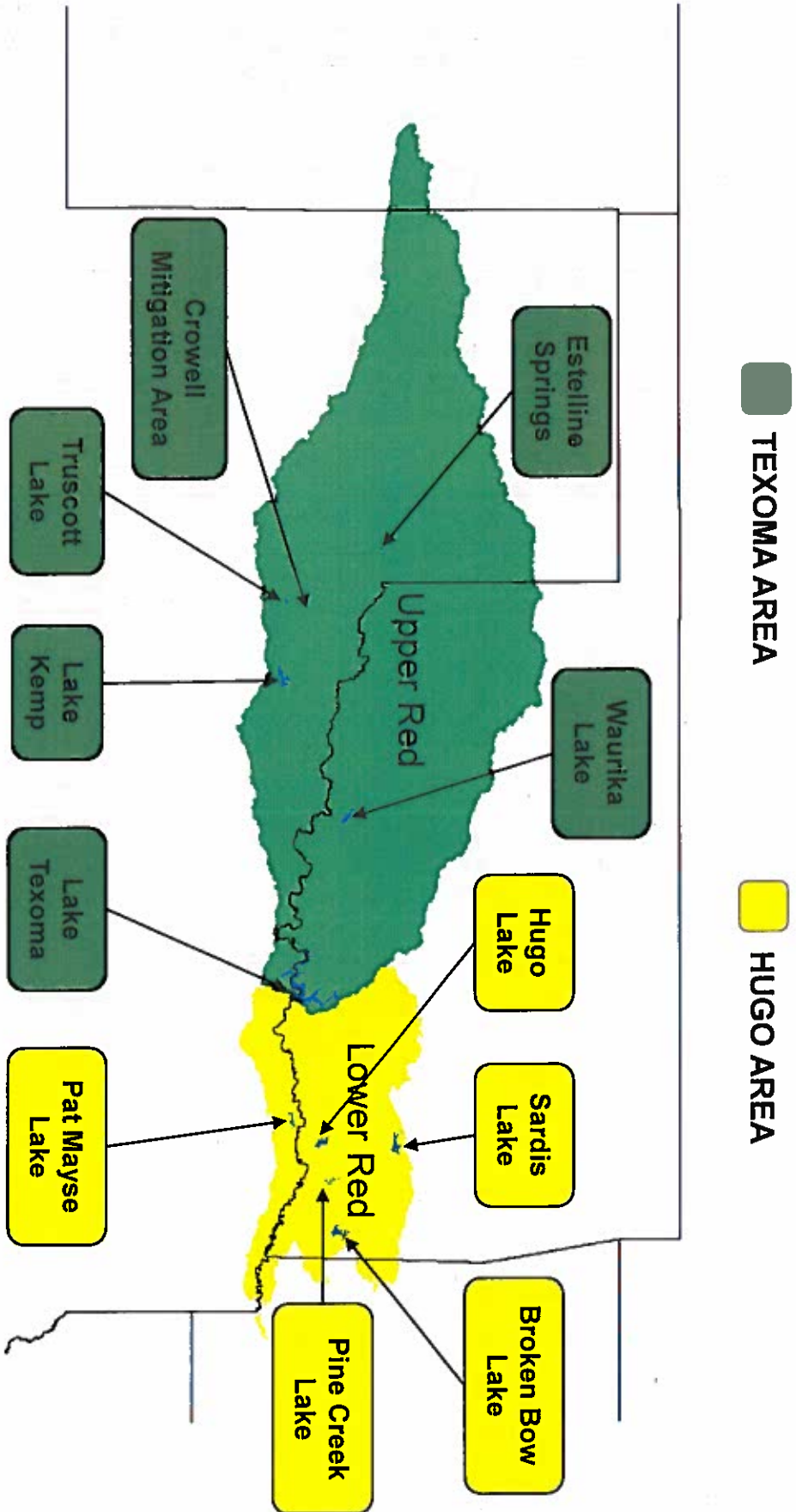
Military

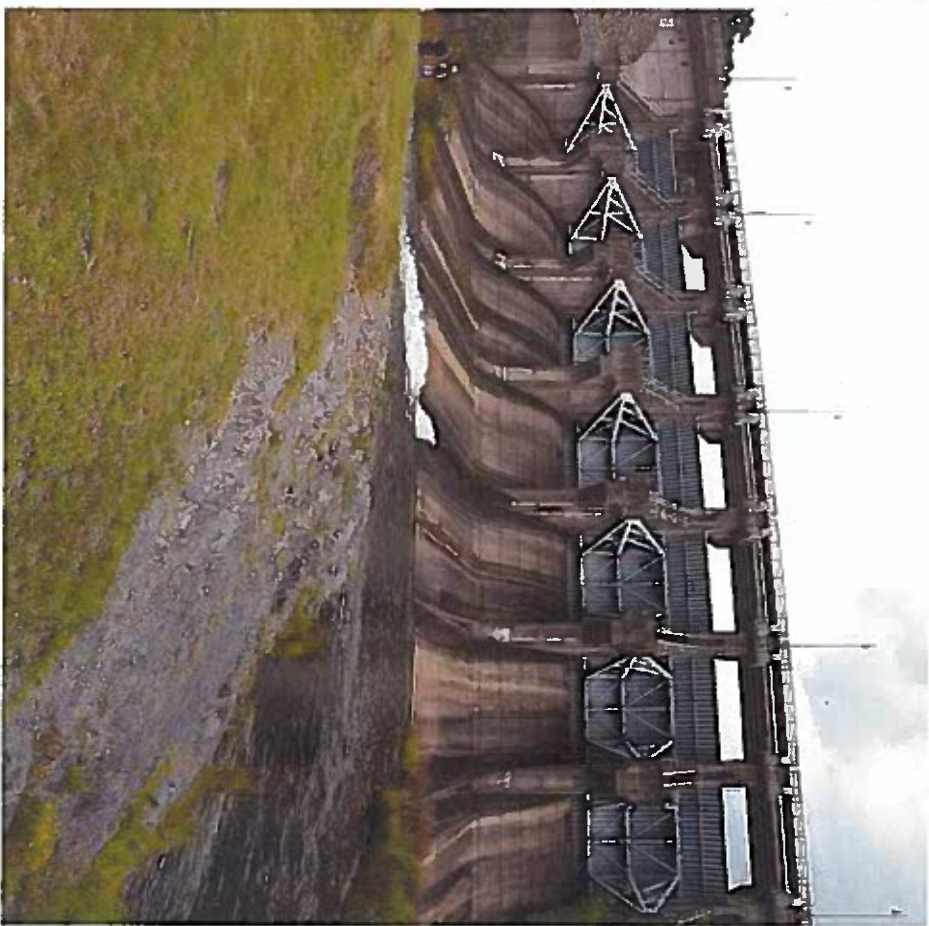


*"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."*



# Red River Area Re-organization





**Broken Bow Lake spillway and tainter gates,  
looking upstream**



**Aerial view of Denison Dam, Lake Texoma,  
outlet works and hydropower plant, looking  
upstream**

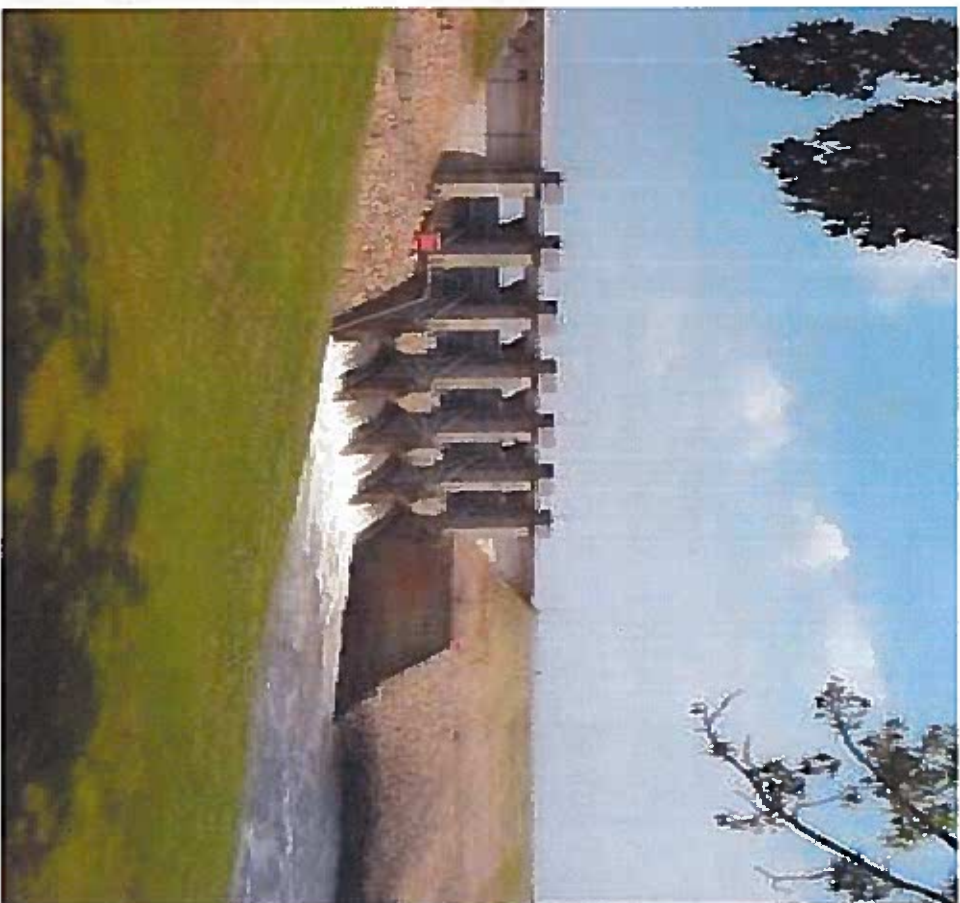


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of Engineers**





**Aerial view of Estelline Springs project showing earthen ring dike surrounding the salt spring**



**Hugo Lake dam and spillway, looking upstream**



**US Army Corps of Engineers**







**Rocky shoreline at Lake Kemp, TX**



**Fishing near the embankment, Pat Mayse Lake, TX.**

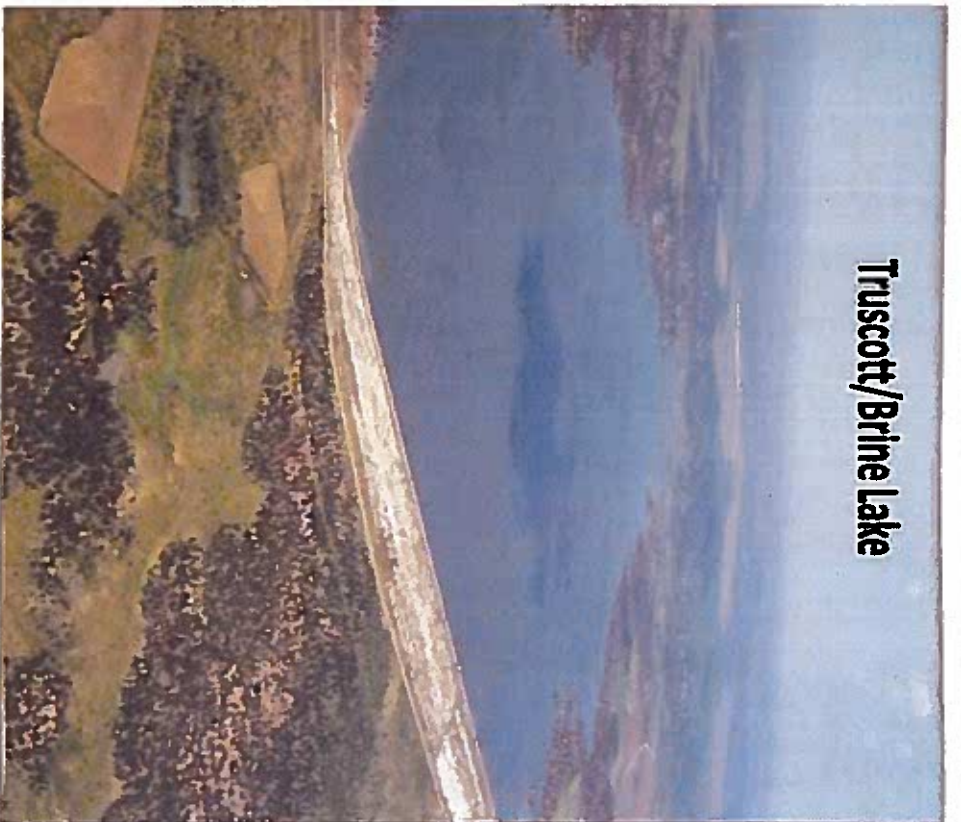


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of Engineers**





**Completed work on the dam embankment undertaken as part of the Pine Creek Lake dam safety project.**



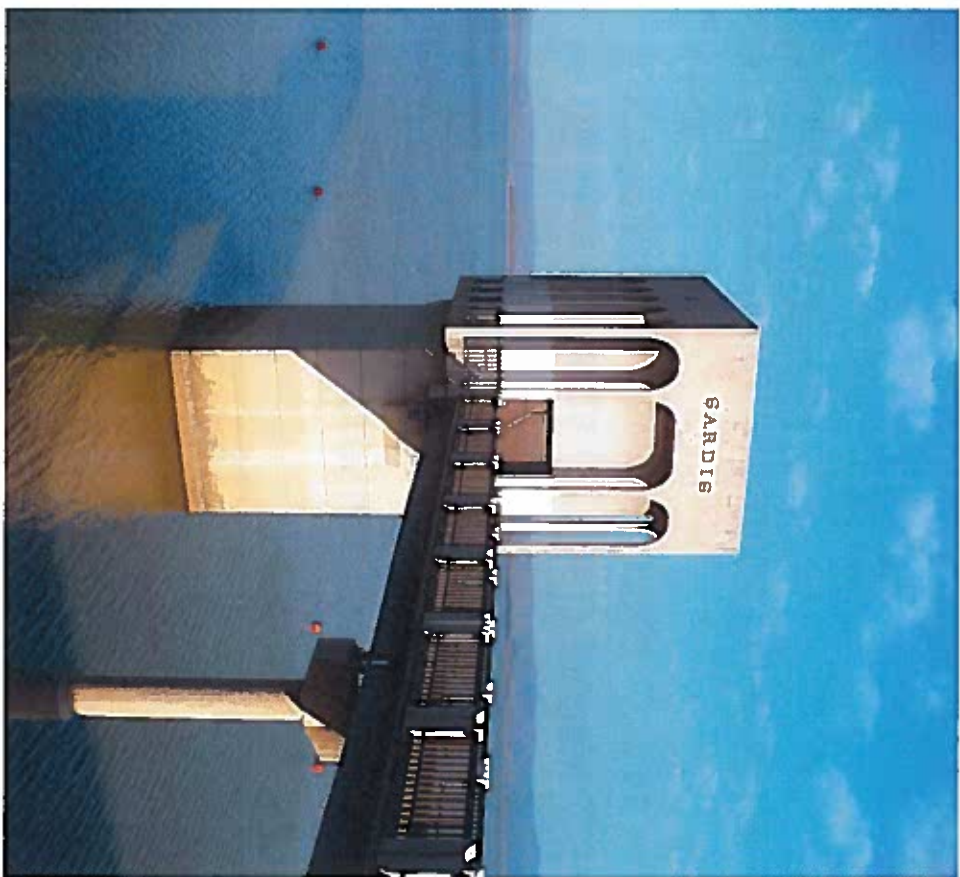
**Truscott/Brine Lake**

**Aerial view of the Truscott Brine Lake, Red River Chloride Control Area VIII, TX**

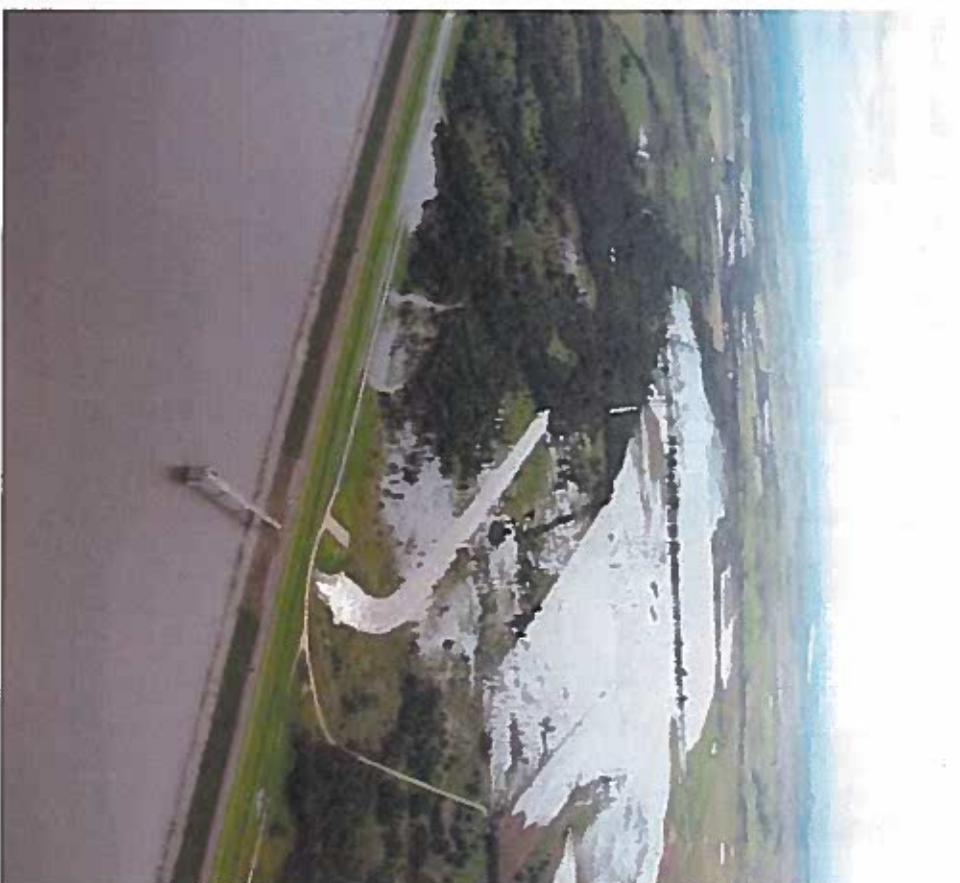


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**Service bridge and gate tower at Sardis Lake, OK.**



**Aerial view downstream of Waurika Lake during flood stage discharge. Note large flooded areas downstream of the outlet channel**



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# Tulsa District Value to the Nation

## Flood Risk Management

- Projects have provided more than \$23B in flood damages prevented through FY2018
- \$403,527,000 in additional flood damages prevented during May-June 2015 flood event alone

## Navigation

- 5 locks and dams on the McClellan-Kerr Arkansas River Navigation System (high use system)
- \$243M maintenance backlog (\$232M critical)
- Tonnage estimate (OK portion only): 3,259,437 short tons
- NED benefit estimate: \$49,999,700

## Recreation

- 18,283,000 recreation visits (4<sup>th</sup> in USACE)
- \$611,287,000 visitor trip spending (4<sup>th</sup> in USACE)
- 38 lake projects (2<sup>nd</sup> in USACE)
- 1,129,858 fee owned acres (2<sup>nd</sup> in USACE)
- 510 recreation areas (238 leased – 1<sup>st</sup> in USACE)

## Water Supply

- 28 of 37 O&M projects have water supply as a project purpose
- More than 160 active water supply contracts – 2.1M acre-feet under contract
- Provide 35% of potable water supply for Oklahoma, 20% for Kansas
- \$18.1M in revenue (FY18)
- \$1.39B NED benefit estimate

All data from FY2016 unless otherwise noted



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# TULSA DISTRICT HYDROPOWER VALUE TO THE NATION

## DENISON POWERHOUSE: PAST & PRESENT



2018 – Major Rehabilitation

**SWT Hydropower**  
22 units at 8 locations in Oklahoma  
and northern Texas  
584.1 MW total capacity  
\$50.5M NED benefit estimate in  
FY2014  
Three active planning/rehab  
construction projects (\$232M)



1944 – Construction in Progress



# Tulsa District FY 2018 – FY 2020 Civil Works Budget

## FY 2018 Allocations

- Investigations - \$3,235,000
- Regular Appropriation : \$235,000
- Bipartisan Budget Act: \$3,000,000
- Construction - \$0
- O&M - \$133,223,000
- Regular Appropriation: \$127,723,000
- Flood Supplemental: \$5,500,000
- Plan to obligate \$44,514,000 on non-routine maintenance (33% of budgeted funds)

## FY 2019 Allocations

- Investigations - \$0
- Construction - \$0
- O&M - \$97,732,960
- Regular Appropriation: \$88,212,960
- Work Plan: \$9,520,000
- Plan to obligate \$18,544,000 on non-routine maintenance (18.9% of budgeted funds)

## FY 2020 President Budget

- Investigations - \$0
- Construction - \$0
- O&M - \$93,804,400
- Regular Appropriation: \$93,804,000
- Plan to obligate \$3,625,000 on non-routine maintenance (3.86% of budgeted funds)

The addition of Work Plan amounts by Congress to the fiscal year appropriation allows the Corps of Engineers to fund activities that have become more important or critical since submission of the budget request. Tulsa District received an additional \$5.5M in flood supplemental funding in FY 2018. In FY 2019 we received \$9.56M in the Work Plan funding.



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# Tulsa District FY 2018 – FY 2020 Civil Works Budget Red River Projects

## FY 2018 Allocations

- Investigations - \$0
- Construction - \$0
- O&M - \$25,064,000
  - Regular Appropriation: \$26,298,000
  - Plan to obligate \$6,417,000 on non-routine maintenance (24.4% of budgeted funds)

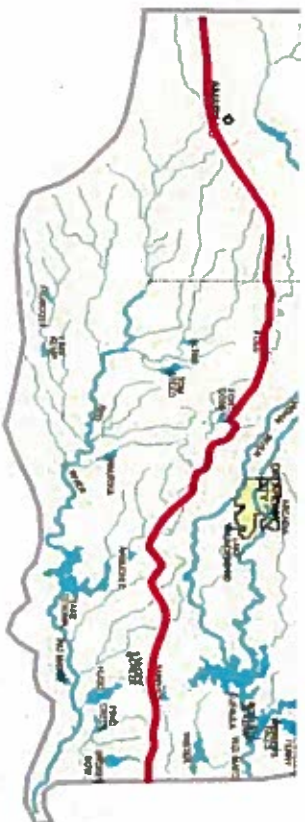
## FY 2019 Allocations

- Investigations - \$0
- Construction - \$0
- O&M - \$20,908,000
  - Regular Appropriation: \$20,908,000
  - Plan to obligate \$1,533,000 on non-routine maintenance (7.3% of budgeted funds)

## FY 2020 President Budget

- Investigations - \$0
- Construction - \$0
- O&M - \$23,682,000
  - Regular Appropriation: \$23,682,000
  - Plan to obligate \$950,000 on non-routine maintenance (4.01% of budgeted funds)

## SWT Civil Works Boundary Red River Basin



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U.S. ARMY

# Tailrace Hollow Jet Valve

## Status Update:

Valve delivered

- October 2018

Structural Design

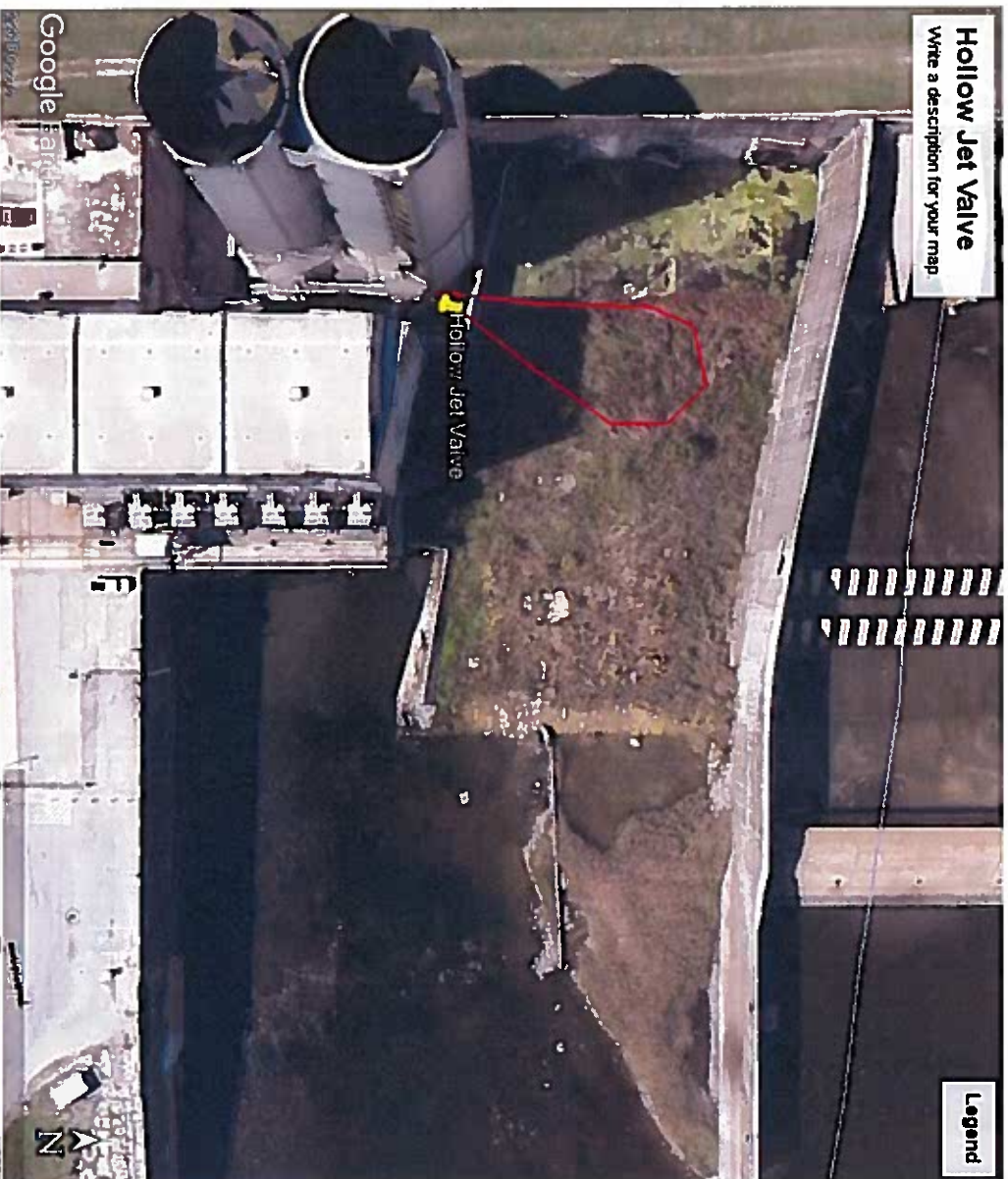
- 100% - 15 Nov 2018

Final Review

- 16 Nov – 7 Dec 2018

Construction

- Starts next week
- Should be completed by end of May 2019



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U.S. ARMY



# LAKE TEXOMA AUTOMATED FEE STATION

## East Burns Run Dayuse

- Implement May 2019
- Coins
- Cash
- Credit Card
- Accepts GA Cards



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# HUGO AREA FY19 GOALS

Hugo Lake – Pine Creek Lake – Pat Mayse Lake – Broken Bow Lake – Sardis Lake

- Design/Construction of new bulkhead and storage facilities at Hugo and Broken Bow.
- Design/Construction of gable metal roof at Hugo Project Office.  
-Project funded and design in progress.
- \$1.1 Million Scheduled to repair conduit joints and embankment toe drain at Sardis Lake.
- Complete work on Broken Bow Sluice Gate Rehab.  
-Emergency gate completed FY18  
-Service gate completed last week.



  
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# Pine Creek Lake Forestry Program

- FY17 and FY18 Timber Harvest proceeds of \$193K used to perform cultural, re-bedding, seeding of cuthinned area along with marking and cruising of new tract.
- FY19 Marking and timber cruise contract complete, working on timber sale of an estimated \$200k worth of timber.
- Proceeds will support the future of the forestry program along with the addition of a GS-11 Forester – Tulsa District (Hugo Area)

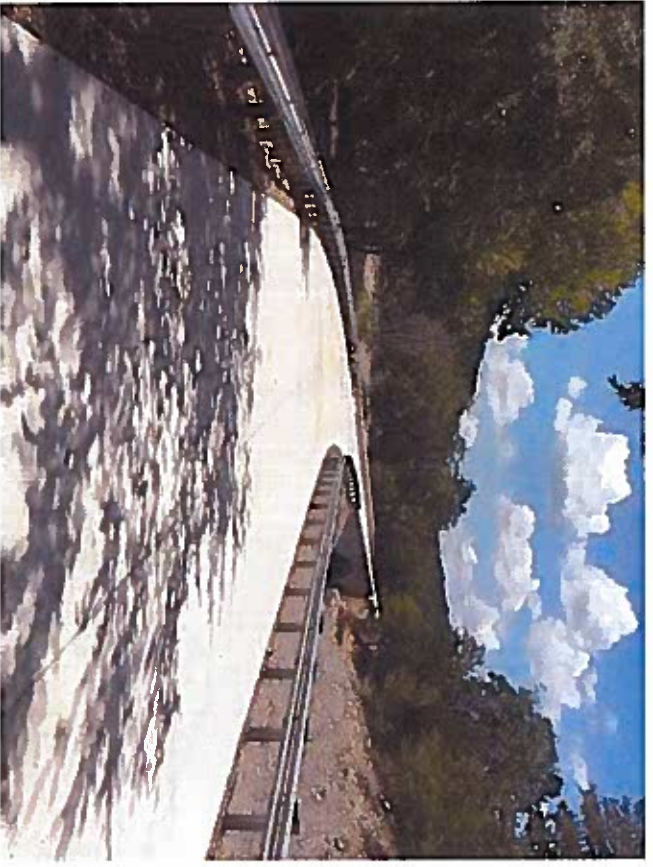


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# Broken Bow Lake

Lower Mountain Fork River – Cold Hole Bridge



Constructed by OTRD with the support of partners such as USACE, McCurtain County Commissioners, ODWC, USFWS and many other local stakeholders





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# RECLAMATION

*Managing Water in the West*

## **Summary of Current and Recently Completed Activities**

**Planning, Construction Assistance, and Grant Programs  
Oklahoma-Texas Area Office**

## **Mission Statements**

The mission of the *Department of the Interior* is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the *Bureau of Reclamation* is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



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# Introduction

The Bureau of Reclamation (Reclamation) is an agency within the Department of the Interior with a primary mission designated to manage, develop, and protect water and related resources in an environmentally and economically sound manner within the 17 western states. The Oklahoma-Texas Area Office (OTAO) is responsible for administering 11 reservoir projects and associated water distribution systems in southern Kansas, Oklahoma, and Texas. The combined water delivery is more than 680,000 acre-feet (ac-ft) of Municipal and Industrial (M&I) water annually to approximately three million water users, providing additional fish and wildlife, recreation, and flood control benefits. The OTAO supports two Irrigation Districts, one in Oklahoma and one in Texas.

Reclamation works in conjunction with other Federal and state agencies, Indian Tribes, and local entities in performing these responsibilities. Significant areas of activity include providing oversight of operations and maintenance of existing facilities and water resources planning along with construction assistance.

The purpose of this activity report is to provide a summary of current and recently completed activities under the Planning, Construction Assistance, and Grant Programs.

## Native American Affairs Program

The Native American Affairs Program, which is a formal program funded through the Native American Affairs line item in Reclamation's budget, is small but integral part of the overall Native American Program. The Native American and International Affairs Office in the Commissioner's Office serve as the central coordination point for the Native American Affairs Program and lead for policy guidance for Native American issues in Reclamation.

Two new projects were recently awarded in FY 18 totaling \$375,869 in Federal funding:

- **Cherokee Nation**  
Hydraulic and Water Loss Assessment of Cherokee Rural Water District #2
- **Chickasaw Nation**  
Davis to Sulphur Pipeline Feasibility Study

Four projects were awarded in FY 17 totaling \$277,900 in Federal funding:

- **Chickasaw Nation**  
Additional Water Supply for the City of Tishomingo
- **Choctaw Nation**  
Improvements for Failing Water/Wastewater Treatment Plants in Choctaw Territory

- **Kickapoo Tribe of Oklahoma**  
Establishing Reference Conditions for the Northern Cross Timbers EcoRegion Using Macroinvertebrate Assemblages
- **Miami Tribe of Oklahoma**  
Water Assessment of Tribal Land

Two projects were awarded in FY 16 totaling \$55,000 in Federal funding:

- **Muscogee Creek Nation**  
Groundwater Study
- **Cherokee Nation**  
Cherokee Rural Water District #8 Hydraulic and Water Loss Assessment

Three projects were initiated in FY 15 totaling \$180,000 in Federal funding:

- **Cherokee Nation**  
Hydraulic and Water Loss Study of Adair County Rural Water District #1
- **Cherokee Nation**  
Viability Assessment for Regionalization of Rural Water Systems in Western Cherokee County, OK
- **Peoria Tribe of Indians of Oklahoma**  
Potential for Utilization of Contaminated Portions of the Boone Aquifer

## **Water Conservation Field Services (WCFS) Program**

One new project was awarded in FY 17 totaling \$100,000 in Federal funding:

- **Central Oklahoma Master Conservancy District (COMCD)**  
Evaluate the Effectiveness of Floating Wetland/Breakwater Unit Designs to Reduce the Energy of Wave Action before Contacting the Lake's Shoreline

Two projects were initiated in FY 16 totaling \$432,504 in Federal funding:

- **City of Norman, OK**  
Test-Pilot Hexavalent Chromium (Cr6) Removal Technologies to Address Cr6 Groundwater Occurrence and Potentially Reduce Stress on Lake Thunderbird (COMCD) Water Supply and Improve Drought Resiliency
- **City of Garden City, KS**  
Installation of a Subsurface Drip Irrigation System at Clint Lightner Field Subsurface Irrigation to Demonstration Effluent Reuse

Two projects were initiated in FY 17 totaling \$115,433 in Federal Funding

- **City of Wichita Falls, TX**  
Implement Water and Energy Conservation Measures for the Operations, Management, and Use of Water within the District

- **Texas Water Development Board**  
Development of Methodologies to Evaluate the Environmental, Financial and Social Benefits of Water Reuse Projects (Triple Bottom Line)

## **WaterSMART Program**

Reclamation's WaterSMART (Sustain and Manage America's Resources for Tomorrow) Program aims to leverage Federal (up to 50 percent cost-share) and non-Federal funds to improve water management, increase energy efficiency in water delivery, facilitate water marketing projects, protect threatened and endangered species, and carry out activities to address potential climate-related impacts on water resources. Eligible entities include irrigation and water districts, river authorities, tribes, states and other entities with water or power delivery authority.

## **Basin Study Program**

This program addresses water needs on a basin-wide scale through development of future supply/demand projections that include state-of-the-art data on climate variability; an analysis of how infrastructure and operations will perform in the face of changing realities; and development of mitigation strategies and management solutions. Studies are cost-shared on a 50/50 basis with willing state, tribal, and local partners and generally take two years to complete. Reclamation's share of study costs are used to support work done by Reclamation or its contractors.

### **Upper Washita Basin Study**

A Basin Study on the Upper Washita Basin in Oklahoma was awarded \$350,000 in FY 12 Federal funds to partner with the Oklahoma Water Resources Board (OWRB) and Fort Cobb and Foss Reservoir Master Conservancy Districts to identify sustainable solutions to infrastructure issues and existing and projected imbalances between water supply and demand. To date, including both Federal and non-Federal cost-share contributions from partners, the total cost is \$3,279,120 and is expected to be completed by December 31, 2020.

OWRB is in the process of completing the Washita River Alluvium groundwater model and the Rush Springs Aquifer groundwater model has been completed. Also, the calibration for the Surface Water Allocation Model (SWAM) is complete. Completion of these models is critical toward being able to evaluate the reliability of existing infrastructure and options under current and future climate conditions, as well as evaluating adaptation and mitigation strategies. A legal review of adaptation strategies is currently in progress. The Fort Cobb Reservoir Master Conservancy District has been working closely with Reclamation to develop conveyance alternatives to address aging infrastructure issues. Designs and cost estimates are under development.

## Upper Red River Basin Study

A Basin Study on the Upper Red River Basin in Oklahoma was awarded \$640,000 in FY 14 Federal funds to partner with the OWRB, Lugert-Altus Irrigation District, and Mountain Park Master Conservancy District to identify sustainable solutions to infrastructure issues and existing and projected imbalances between water supply and demand. The study will evaluate infrastructure and permitting options complimented by a legal review of adaptation strategies that will help ensure long-term reliability of water supplies during critical drought periods. To date, including both Federal and non-Federal cost-share contributions from partners, the total cost is approximately \$2,237,617. The study is expected to be completed by January 31, 2020.

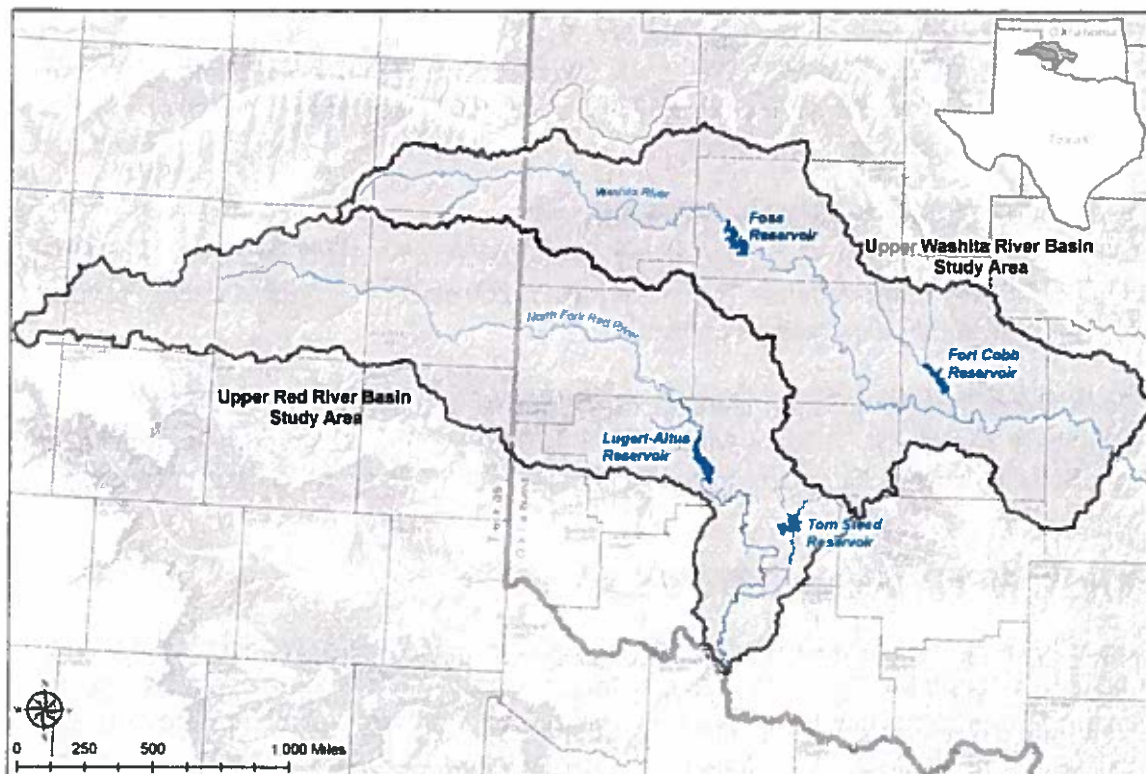


Figure 1: Upper Washita and Upper Red River Basin Study area map.

## Water and Energy Efficiency Grants

This program seeks to conserve and use water more efficiently, increase the use of renewable energy, improve energy efficiency, benefit endangered and threatened species, facilitate water markets, carry out activities to address climate-related impacts on water or prevent any water-related crisis or conflict. Since 2010, Reclamation has awarded about \$12.3 million to 35 projects in Texas and Oklahoma with a cumulative project cost of \$46,464,182 million. The estimated total amount of water saved or better managed is about 32,314 acre-feet per year. The following 5 WEEG projects totaled over \$4.29 million in FY 18:

### **Cameron County Irrigation District #2 (CCID2), TX**

CCID2 was awarded a total of \$1,697,986 in FY 18 comprised of three separate projects comprised of conversion of open canals to pipelines and slip gate upgrades. Water savings of 3,440 ac-ft per year and energy savings of 55,950 kilowatt hours per year is expected.

### **Delta Lake ID, TX**

Delta Lake ID was awarded \$1,000,000 in FY 18 comprised of canal conservation and reliability improvements. Water savings of 1,644 ac-ft per year is expected.

### **Hidalgo County Irrigation District No. 2, TX**

Hidalgo County Irrigation Dist. No. 2 was awarded \$1,000,000 in FY 18 comprised of lining of a lateral. Water savings of 1,110 ac-ft per year and energy savings of 158,400 kilowatt hours per year is expected.

### **Sharyland Water Supply Corporation, TX**

Sharyland Water Supply Corp, was awarded \$300,000 in FY 18 comprised of treatment plant efficiency improvements. Water savings of 269 ac-ft per year and energy savings of 1,655 kilowatt hours per year is expected.

### **Southwest Kansas Groundwater Management District No. 3, KS**

Southwest Kansas GMD No. 3 was awarded \$300,000 in FY 18 comprised of installation of a SCADA system and ditch lining. Water savings of 498 ac-ft per year is expected.

## **Small-Scale Water Efficiency Grants**

Since 2017, six Small-Scale Water Efficiency Projects (SWEP) have been awarded in Oklahoma and in FY 18, for the second straight year, SWEP funding opportunities for small improvements that have been identified through previous planning efforts were awarded. Eligible projects include installation of flow measurement or automation in a specific part of a water delivery system, lining of a section of canal to address seepage, small rebate programs that result in reduced residential water use, or other similar projects that are limited in scope.

### **City of Durant, OK**

The City of Durant in Oklahoma was awarded \$75,000 in FY 18 for a project to purchase and install 300 Smart Meters that will serve subdivisions and an apartment complex, assisting in reducing significant water loss currently experienced within the distribution system.

### **Thomas Public Works Authority, OK**

Thomas Public Works Authority in Oklahoma was awarded \$75,000 in FY 18 for a project to purchase and install 12 Smart Meters at important city-owned locations. The new meters will allow TPWA to effectively monitor water loss and identify areas of concern.

### **City of Tishomingo, OK**

The City of Tishomingo in Oklahoma was awarded \$75,000 in FY 18 for a project to purchase and install 27 Automatic Meter Reading (AMR) water meters and the associated software throughout the distribution system in order to address the significant water loss, promote water conservation and inform future water planning.

## **Water Marketing**

This program provides assistance to states, tribes, and local governments to conduct planning activities to develop water marketing strategies that establish or expand water markets or water marketing activities between willing participants, in compliance with state and Federal laws. Reclamation awarded \$1.3 million to seven projects in FY 18 and one of those projects was in Oklahoma.

In FY 18, the Chickasaw Nation was awarded \$149,288 to establish a water bank framework for the Arbuckle-Simpson Aquifer (AS) that will allow for voluntary, market-based transfers of groundwater pumping rights across the region. The Arbuckle-Simpson Aquifer covers approximately 500 square miles and is the principal source of water for more than 100,000 people, supplies water for mining and irrigation, and is the source for nearly 100 known springs that are culturally important. In response to Oklahoma's groundwater regulatory changes, this water marketing strategy will allow landowners in the ASA to deposit water rights, while allowing permitted groundwater users to withdraw those water rights.

## **Cooperative Watershed Management Program**

This program contributes to the WaterSMART strategy by providing funds to watershed groups to encourage diverse stakeholders to form local solutions to address their water management needs. Reclamation is promoting the sustainable use of water resources and improving the ecological resilience of rivers and streams using collaborative conservation efforts. Funding is provided for: 1) Development of Watershed Groups (Phase I) and 2) Implementation of Watershed Management Projects (Phase II). Two CWMPs have been awarded since 2016.

In FY 18, Grand River Dam Authority (GRDA) was awarded \$100,000 to develop a stakeholder group and restore the Lake O' the Cherokees Sub-Watershed.

FY 16, Chickasaw Nation was awarded \$53,921 to establish the Lake of the Arbuckles Watershed Association that created a restoration plan to evaluate BMPs to improve water quality upstream of Arbuckle Lake.

## **Title XVI - Water Reclamation & Reuse Program**

Title XVI of P.L. 102-575, as amended (Title XVI), provides authority for Reclamation's water recycling and reuse program, titled "Title XVI." Through the Title XVI program, Reclamation identifies and investigates opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water in the 17 Western States and Hawaii. Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects, on a project specific basis, in partnership with local governmental entities. In FY 17, Reclamation announced three separate categories of funding opportunities including Authorized Project, Feasibility Studies and Research Studies. In previous years Reclamation has had sufficient funding for two categories: up to \$150,000 for relatively small studies and up to \$450,000 for larger, regional scale studies. To date, approximately \$2.5 million has been awarded to 17 studies within the Oklahoma-Texas Area Office (OTAO).

In FY 17, six entities from all three states (Kansas, Oklahoma and Texas) within OTAO were awarded federal grants totaling over \$786,000 to conduct both feasibility and research studies.

### **Oklahoma Water Resources Board**

The Oklahoma Water Resources Board was awarded a \$150,000 grant in FY 17 for a feasibility study of potential impacts of select alternative produced water management and reuse scenarios. This study responds to both of Oklahoma Governor Mary Fallin's recent mandates to the OWRB to search for ways to use produced water as a benefit to the state as part of the Water for 2060 Initiative and to find solutions that deep-well injection volumes and thereby reduce the threat of seismicity within the state.

### **City of Ada, OK**

The City of Ada, Oklahoma was awarded a \$136,193 grant in FY 17 for a feasibility study within the "Assessment of the Potential for Recycled Water Development to Offset Potable Water Demands with Non-Potable Supply and Reducing Negative Water Quality Impacts in the Receiving Streams within Tribal Territory" Phase II Reuse Study. This study will provide the City with the means to continue down the path of a sustainable water supply future.

### **City of Bartlesville, OK**

The City of Bartlesville, Oklahoma was awarded a \$150,000 grant in FY 17 for a feasibility study to augment Bartlesville water supply with drought-resilient reclaimed water. This feasibility study will determine the environmental, technical and cost viabilities of reclaiming wastewater effluent by relocating the existing Caney River effluent discharge approximately 5 to 7 miles upstream, which places the effluent

### **City of Garden City, KS**

The City of Garden City, Kansas was awarded a \$65,369 grant in FY 17 for a feasibility study to gather information regarding the current state of the fragile water supply and



long-term supply outlook with eminent reuse opportunities. The scope of the study will provide the City with information to develop or enhance several policies including enhancing the most cost effective method to reuse the maximum quantity of water with the lowest cost impact and maximum benefit for long-term water availability.

#### **North Alamo Water Supply Corp. (NAWSC), TX**

North Alamo Water Supply Corporation in Texas was awarded a \$90,000 grant in FY 17 for a feasibility study of energy-effluent alternatives for brackish groundwater desalination. This study will build on work recently completed by Reclamation, the Lower Rio Grande Regional Water Planning Group (region M), the Texas Water Development Board and the Rio Grande Regional Water Authority.

#### **Kansas Water Office**

The Kansas Water Office (KWO) was awarded a \$199,175 grant in FY 17 for a research study to pilot test produced water near Hardtner, Kansas. The project will involve the treatment of produced oil field water to a quality standard acceptable for agricultural irrigation and the watering of livestock.

#### **Projects awarded in FY 15:**

##### **City of Lubbock, Texas – Potable Water Reuse Implementation Feasibility Study**

The City of Lubbock, Texas was awarded a \$150,000 grant for a feasibility study of Potable Water Reuse. The following potable reuse options to be evaluated in this study will focus on the three main categories of potable reuse identified in their 2013 Strategic Water Supply Plan:

1. Indirect potable reuse (IPR) – surface water augmentation;
2. Indirect potable reuse (IPR) – groundwater augmentation; and
3. Direct potable reuse (DPR).

##### **City of Hudson Oaks, Texas – Feasibility of Water Reclamation and Reuse in Hudson Oaks**

City of Hudson Oaks, Texas was awarded \$147,600 to exam the feasibility of three potential alternatives for water reclamation and reuse, including: 1) Constructing a wastewater treatment plant in the City of Hudson Oaks to treat and reuse local effluent; 2) Collecting and utilizing stormwater runoff for reuse and distribution in the community, as well as for an added environmental habitat and recreation amenity; and 3) Pumping treated wastewater from the City of Weatherford Wastewater Treatment Plant to Hudson Oaks for reuse.

##### **City of McAllen, Texas – Water Reuse Study**

The City of McAllen, Texas was awarded \$150,000 to perform a comprehensive feasibility evaluation of brackish and wastewater to develop a strategic plan that provides the best and highest use of the available water sources for McAllen Public Utility. The study will build on previous efforts and will consider indirect potable reuse via surface water and groundwater augmentation, direct potable reuse, and use of brackish groundwater. As appropriate, this study would coordinate with regional water supply studies and initiatives.

## **Drought Response Program**

Reclamation's Drought Response Program aims to provide competitive grants for drought contingency planning, as well as mitigation actions that build long-term drought resiliency. This program focuses on leveraging Reclamation funds to avoid drought-related crises in the short term, while laying a foundation for climate resiliency in the long term. Over the last three fiscal cycles, over \$3.1 million in funding was provided to support four drought contingency plans and eight drought resiliency projects in Oklahoma and Texas.

### **Drought Resiliency**

#### **Projects awarded in FY 18:**

Mountain Park Master Conservancy District was awarded \$300,000 in FY 18 to build a well field and tie in directly to existing infrastructure to pipe directly to a water treatment plant. This project will increase the amount of water available to District customers during all-to-frequent episodes in southwest Oklahoma. This supplemental and redundant supply, acquired through proposed development of alluvial groundwater immediately below Mountain Park dam, will be relied upon during drought, thus slowing inevitable lake level declines and augmenting yield.

#### **Projects awarded in FY 16:**

##### **Altus City Reservoir East Basin Improvements for Drought Preparedness**

The City of Altus in Oklahoma was awarded \$300,000 in FY 17 to redirect available raw water from Tom Steed Reservoir, a Reclamation project and the City's principal source of supply, to Altus City Reservoir, a largely unused municipal supply originally constructed in 1940. This two-year project also includes the installation of sluice gates and weirs and renovation of the original pump station, built almost 80 years ago but currently unused.

##### **Little Elm Improvements for Drought Preparedness**

The Town of Little Elm, Texas was awarded \$200,000 in FY 16 to construct a 100,000-gallon water reuse storage tank adjacent to their wastewater treatment plant. This two-year project will provide a consistent supply of treated wastewater available for irrigation and other uses during times of drought, saving the imported potable water supply for culinary purposes. This project is also supported by the city's drought plan, which specifically identifies the expanded reuse of treated effluent as a drought mitigation action.

#### **Projects awarded in FY 15:**

##### **City of Duncan, Clear Creek Lake Improvements Project**

The City of Duncan, Oklahoma was awarded \$300,000 to install 1,520 linear feet of pipeline to allow the City to access up to 1,596 acre-feet per year from Clear Creek Lake

to prevent water shortages during drought. The City will also upgrade the existing pump station with pumps having variable frequency drives and a Supervisory Control and Data Acquisition System. The City, which provides treated water to approximately 30,000 people, experienced severe drought conditions in 2015 and is in one of 12 basins identified in the Oklahoma Comprehensive Water Plan as having the most significant water challenges over the next 50 years. The City has reduced water consumption by 40% from 2011 to 2014 through mandatory and voluntary conservation measures. This project is supported by the City's drought plan and was identified by the City Council as a top priority to build resiliency to future droughts.

### **Waurika Lake Master Conservancy District, Waurika Lake Water Intake Channel Improvement Project**

The Waurika Lake Master Conservancy District in southwestern Oklahoma was awarded \$300,000 to install an extension intake pipe to the lowest point in Waurika Lake and add a floating intake to access water at more points, including the lake's lowest elevations. It will also improve its intake gates to reduce entry of debris and protect fish. The lower intake will enable the District to access an additional 25,000 acre-feet during drought conditions. The District provides water to 6 cities and 250,000 people in an area that had been in drought for 5 years prior to 2015.

### **Southmost Regional Water Authority, Well Field Monitoring Project**

Southmost Regional Water Authority, a consortium of six water conservation and reclamation entities in Brownsville, Texas, was awarded \$300,000 to develop a monitoring and management program for brackish groundwater wells that are part of a desalination treatment facility which provides a reliable supply of water for approximately 50,000 people, decreasing dependence on the Rio Grande River. This project will: (1) implement a system for monitoring water levels and water quality in the local aquifer; (2) develop a groundwater flow model to forecast responses and changes in the aquifer; and (3) upgrade the pump in one well within the existing brackish wellfield. This project will build drought resiliency by increasing the reliability of water production during stress periods, monitoring aquifer health, and increasing production capacity in an area that is drought-prone and where brackish groundwater provides an important alternative to fluctuating surface water supplies. This project is supported by the Lower Rio Grande Basin Study that identified brackish groundwater desalination as the best option for meeting long-term water needs and deficits exacerbated by climate change.

### **Texas Water Development Board, Early Warning Drought Tool**

The Texas Water Development Board was awarded \$144,763 to modify their existing drought prediction tool to provide more accurate probabilistic forecasts of average May-July rainfall, reservoir levels, and reservoir storage, by county, for the State of Texas. Water user groups in Texas are required to have a strategy for reducing Final Draft water use when water sources reach certain drought response trigger levels. By providing early warning of drought probability, early response measures may be taken to mitigate the impacts of drought and to reduce the need for more severe use restrictions. The forecasts will be updated on a bi-weekly basis and made accessible to water managers across the state through the Water Data for Texas website. Texas has recently come out of a four-year drought, which is described as the second worst on record.

## **Drought Contingency Plans**

### **Projects awarded in FY 16:**

#### **Gulf Coast Water Authority Drought Contingency Plan Update**

The Gulf Coast Water Authority was awarded \$148,250 in FY 16 to prepare a Drought Contingency Plan.

### **Projects awarded in FY 15:**

#### **Chickasaw and Choctaw Nations, Regional Drought Contingency Plan for the Arbuckle Simpson Aquifer Region**

The Choctaw and Chickasaw Nations were awarded \$187,081 to prepare a Regional Drought Contingency Plan for their homeland in south-central Oklahoma. The Arbuckle Simpson Aquifer covers approximately 500 miles and is the principal source of water for more than 100,000 people, supplies water for mining and irrigation, and is the source for nearly 100 known springs that are culturally important and generate approximately \$100 million in tourism revenues per year. The area experienced an exceptional drought from 2010 until the spring 2015, causing significant economic hardship and requiring emergency actions, such as hauling water and drilling emergency wells. A wide range of regional stakeholders, representing numerous sectors supported the drought planning process that wrapped up in the fall of 2017 with the completion of the Plan that the plan identified mitigation and response actions to be implemented at the local and regional levels.

#### **Foss Reservoir Master Conservancy District, Drought Contingency Plan**

The Foss Reservoir Master Conservancy District was awarded \$200,000, to develop and implement a drought contingency plan for west-central Oklahoma that focuses on the water supply needs of communities that rely upon the Foss Reservoir Master Conservancy District, a Bureau of Reclamation project. Reclamation's Foss and Fort Cobb Reservoirs provide 90-percent of the surface water supplies for the region, including municipal water to 40,000 people and two power generation facilities. The Drought Contingency Plan that was completed in the fall of 2017 built on the existing Upper Washita Basin Study and evaluated several additional sources of water supply not evaluated in the Basin Study to address drought. The area recently came out of experiencing a five-year extended drought, with Foss Reservoir being declared "effectively out of water". Recent climate studies predict future droughts will be longer-lasting and more severe.

#### **McLennan County, McLennan County Drought Contingency and Water Supply Resiliency Plan**

McLennan County, Texas was awarded \$75,000 to prepare a regional drought contingency plan that addressed drought impacts to the Trinity Aquifer, including intensified arsenic contamination in the aquifer and problems created by zebra mussels in certain surface waters. The County partnered with the McLennan County Water Resources Group (Group) to conduct the plan. The Group included cities, water supply corporations, the Brazos River Authority, a groundwater conservation district, and local

citizen and business interests. The Trinity Aquifer is the primary source of water for many of the towns and cities in the planning area, and also provides water for industrial, agricultural, manufacturing, and mining operations. Recent drought conditions resulted in historically low water levels in the aquifer. As a result, pumping costs increased, water supplies declined, and the demand on surface sources expanded. The drought plan incorporated a “conjunctive use” approach to improve the efficient use of both groundwater and surface water sources.

# Research and Development Program

Reclamation's R&D Program provides technical and financial assistance to internal and external research projects that help Reclamation accomplish its mission of developing water supplies in a sustainable manner.

## Science and Technology Program

Internal research is funded under Reclamation's Science and Technology (S&T) Program. Through S&T, Reclamation can investigate new and innovative solutions on important issues where there may be a unique or unknown risk and for which capital investment may not occur otherwise. Recent research priorities have focused on addressing challenges associated with climate change, invasive zebra/quagga mussels, and advanced water treatment. Over the last seven years, the R&D program has awarded \$50 million to more than 800 research projects. To date, about nearly \$1 million has been awarded to research activities in Texas and Oklahoma. Active projects are listed below:

### **Cost Modeling of Membrane Desalination Process (Foss Reservoir)**

This project will focus on improving Reclamation's Water Treatment Estimation Routine (WaTER) so that it can be used to better understand the costs associated with implementing water treatment technologies and to be able to quantify the cost/benefit of R&D advancements in the field of water treatment. Partnering with Texas A&M and the OTA0 on a recent DWPR project that evaluated the fouling control and water quality improvements of an electrocoagulation (EC) and microfiltration (MF) process compared to MF alone as pre-treatment to Nanofiltration (NF) on brackish surface will further enhance this project.

### **Investigating Biochar as a Water Treatment Filtration Media for Adsorption and Biological Reduction of Dissolved Metals and Fluoride**

As climate change and drought continue to negatively impact freshwater availability and quality in the western US, impaired water sources are becoming more attractive to supplement existing freshwater supplies. However, these water sources can be expensive to treat, highlighting the need for more economical forms of treatment. Biochar is gaining attention as a less expensive and more sustainable alternative to granular activated carbon (GAC) for use as an adsorbent and biological filtration (biofilter) media. This project will focus on three case studies in the Mid-Pacific and Great Plains Regions and the use of biochar for the treatment of waters within these Regions contaminated by selenium, metals, and fluoride. Partners include Reclamation Regional Offices. Please use the following link for additional information:

<https://www.usbr.gov/research/projects/detail.cfm?id=1785>

### **Research Opportunities to Treat Impaired Water Sources Associated with Reclamation Projects: A Case Study in the Great Plains Region**

By using a survey-based approach to gather information on water quantity and quality challenges associated with Reclamation projects, can we better inform future investments under programs such as the Title XVI and Research & Development that address core, mission-related needs involving treatment of impaired water sources? This activity has been identified as a high-priority need by the Regional Director for the Great Plains Region. Please use the following link for additional information:

<https://www.usbr.gov/research/projects/detail.cfm?id=1715>

### **Beneficial Reuse and Waste Minimization of Hexavalent Chrome Ion Exchange Brine**

Hexavalent chromium occurrence in potable water sources is of concern to water utilities due to undetermined human carcinogenicity and toxicological effect. EPA is currently reviewing health assessments to determine if new federal standards need to be set for chromium. Minimizing the brine waste generated by ion exchange processes for beneficial purposes through membrane filtration with and without additional chemical addition allows for simpler regeneration processes and decreased operator expertise requirements. The research question to be answered is: Can a system that is simple to operate and inherently contains multiple barriers to chrome release be used to address chromium contamination in potable water sources? Please use the following link for additional information: <https://www.usbr.gov/research/projects/detail.cfm?id=9085>

### **Refining Interpretation Techniques for Determining Brackish Aquifer Water Quality**

This project will define specific research areas required to support geophysical log interpretation for water quality in brackish aquifers. The project will build on the state of practice and methods outlined in the previous scoping level effort by delineating the confounding factors identified by that work and presenting research topics to resolve those factors. This work will be a collaborative effort supported and enhanced by key stakeholders identified in the scoping level effort, including the USGS, Texas Water Development Board, Brackish Water Work Group, and other state and federal agencies. The report produced by this project is intended to supplement the Reclamation S&T Advanced Water Treatment Roadmap and to aid stakeholders in securing funding for and directing future research efforts. Please use the following link for additional information: <https://www.usbr.gov/research/projects/detail.cfm?id=2924>

### **Development of Methodologies to Evaluate the Environmental, Financial and Social Benefits of Water Reuse Projects**

The TWDB's Texas Water Reuse Research Agenda (2011) identified "triple bottom line" analyses as a top priority research area for Texas. Both water providers and rate payers alike often question whether reuse is worth the financial investment relative to other strategies. In fact, many water reuse projects in Texas have been halted due to a lack of funding or inability to justify the required capital expenditures. Reclamation is coordinating with TWDB and other state and local water suppliers to evaluate the state-of-the-science of TBL analyses, and to develop a clear, well-defined economic and financial evaluation approach that can be used by entities to evaluate the merits of water reuse projects. Please use the following link for additional information:

<http://www.usbr.gov/research/projects/detail.cfm?id=4180>.

### **Concentrate Management Toolbox and Selected Case Studies**

Concentrate management is an important component driving the cost and feasibility of desalination. The understanding necessary to optimize inland desalination facilities and associated concentrate management solutions is still being improved through detailed assessments, especially as technology advances and provides more flexibility in treatment. A wide variety of concentrate management methodologies exist, and many water purveyors are overwhelmed when considering which technology is the best for their situation. This Concentrate Management Toolbox will inventory existing technologies and identify practical and economical strategies to optimize concentrate management based on various feed water quality parameters, so water planners can more rapidly assess concentrate management options. Reclamation is partnering with the North Texas Municipal Water District in Texas and the Eastern Municipal Water District in California to then apply the Toolbox to a set of site-specific saline source waters and recommend an optimal array of concentrate management technologies. Please use the following link for additional information:

<http://www.usbr.gov/research/projects/detail.cfm?id=5239>.

### **Desalination and Water Purification Research**

External research is funded under Reclamation's Desalination and Water Purification Research Program (DWPR). DWPR was established to facilitate partnerships with academia, private industry, and local communities to develop more cost-effective, technologically efficient means by which to desalinate water. Over the past three fiscal cycles (FY 15-17), six new research projects totaling nearly \$500,000 dollars were funded.

#### **Pilot Testing a Fixed-Bed Biological Treatment System for Efficient Hexavalent Chromium Removal**

Carollo Engineers, Inc. in partnership with City of Norman to pilot tested a fixed-bed biological treatment system for efficient hexavalent chromium removal. A potential also exists for this method to be cost-effective in removing arsenic and other metals.

#### **Advanced Pretreatment for Nanofiltration of Brackish Surface Water: Fouling Control and Water Quality Improvements**

Texas A&M University in partnership with Foss Reservoir Master Conservancy District performed a research/laboratory study evaluating the use of electrocoagulation as an advanced pretreatment method for nanofiltration of brackish surface water for fouling control and water quality improvements. This technology may help the District reduce high TDS levels at Foss Reservoir.

#### **Fouling-Resistant, Self-Decontaminating Membranes for Effective Desalination of Oily Saline Wastewater**

The University of Kansas Center for Research will be conducting the research.

#### **Thermoplasmonic Membrane Desalination**

The University of Tulsa will be conducting the research.



**Development of Inorganic Membrane Systems for Treatment of Produced Water**

Oklahoma State University will be conducting the research.

**Emerging Ion Concentration Polarization for Brackish Desalination**

Texas Tech University will be conducting the research.

# Summary of Programs and Funding Opportunities

All Reclamation program Funding Opportunity Announcements (FOAs) for Grants or Cooperative Agreements to utilize Reclamation funding are posted on the Grants.gov website: <http://www.grants.gov/>

The following is a list of specific weblinks for each of the Reclamation programs mentioned above:

Native American Affairs Program: <http://www.usbr.gov/native/>

Water Conservation Field Services Program: <http://www.usbr.gov/waterconservation/>

WaterSMART Program:

Drought Response Program: <http://www.usbr.gov/drought/>

Water and Energy Efficiency Grants: <http://www.usbr.gov/watersmart/weeg/>

Small-Scale Water Efficiency Grants:  
<https://www.usbr.gov/watersmart/swep/index.html>

Cooperative Watershed Management Program:  
<https://www.usbr.gov/watersmart/cwmp/index.html>

Water Marketing Strategy Grants:  
<https://www.usbr.gov/watersmart/watermarketing/index.html>

Title XVI: <http://www.usbr.gov/watersmart/title/index.html>

Basin Studies: <http://www.usbr.gov/watersmart/bsp/>

Research and Development:

Science and Technology Program: <https://www.usbr.gov/research/st/index.html>

Desalination and Water Purification Research Program:  
<https://www.usbr.gov/research/dwpr/>

Water Prize Challenges: <http://www.usbr.gov/research/challenges/>

## Contact Information

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**RECLAMATION**  
*Managing Water in the West*

# RECLAMATION

## *Managing Water in the West*

### WaterSMART

**Title XVI and Desalination WIIN Act Programs**  
*Oklahoma-Texas Area Office (OTAO)*

**FACT SHEET**

### Overview

The Water Infrastructure Improvements for the Nation Act (WIIN), P.L. 114-322, was enacted in 2016 to address water resources infrastructure that is critical to the Nation’s economic growth, health, and competitiveness. Two important components of the WIIN Act affect the Title XVI Program:

Section 4009(c) of Subtitle J of WIIN amends Reclamation’s Title XVI Water Reclamation and Reuse Program (Title XVI), originally established by P.L. 102-575 in 1992. Prior to the enactment of WIIN, funding for water recycling project construction could only be provided for congressionally authorized Title XVI projects. The WIIN amendments now provide Reclamation with blanket authority to fund any new eligible **“WIIN Title XVI Project”**

Section 4009(a) of Subtitle J of WIIN includes amendments to the Water Desalination Act of 1996 and authorizes Reclamation to provide funding for **“Desalination Projects”**, both ocean and brackish.

### Eligible Activities

Activities include planning, design, and/or construction of activities supporting a project that involves the treatment of an impaired water source for beneficial use purposes. Impaired source water may include treated effluent emanating from agriculture, municipal, or industrial operations; storm water; or other sources impaired by naturally occurring contaminants such as radionuclides, heavy metals, etc. Beneficial uses may include potable drinking water or non-potable uses such as

landscape irrigation. Desalination activities include planning, design, and/or construction of an ocean or brackish water desalination project.

### Eligible Applicants

States, Indian tribes, irrigation districts, water districts, or other organizations with water or power delivery authority located in the western United States are eligible to apply under the program. Applicants must have a completed Title XVI Feasibility Study that Reclamation has reviewed and found to meet all of the requirements of Reclamation Manual Release WTR 11-01: <https://www.usbr.gov/recman/wtr/wtr11-01.pdf>

### Cost-Share and Funding

The Federal share of any WIIN Title XVI and Desalination Project cannot exceed 25 percent of the total Project cost. Non-federal sponsors pay 100 percent of O&M costs. The maximum Federal funding any project can receive is \$20 million.

In Fiscal Year (FY) 2018, Federal appropriations for WIIN Title XVI projects totalled \$34 million. In FY 2017 and 2018, Federal appropriations for Desalination Projects totalled \$18 million.

### Selection Process



## Scoring Criteria

Applications are scored by a Reclamation team based on a set of criteria (Tables 1 & 2).

Applications are ranked in accordance with their score. If an applicant is seeking funds for one phase or component of a bigger project, the criteria apply to the project as a whole.

Table 1: WIIN Title XVI Scoring Criteria

Criterion	Points
Water Supply	35
Economic Benefits versus Costs	35
Environment and Water Quality	12
Department of Interior Priorities	10
Watershed Perspective	10
Reclamation's Obligations; Benefits to Rural or Economically Disadvantaged Communities	8

Table 2: Desalination Scoring Criteria

Criterion	Points
Water Supply	35
Economic Benefits versus Costs	35
Environment and Water Quality	12
Department of Interior Priorities	10
State Funding; International Partners	10
Reclamation's Obligations; Benefits to Rural or Economically Disadvantaged Communities; Watershed Perspective	8

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## FAQs

**Q: Can I use my existing planning document to meet WTR 11-01 Title XVI feasibility study requirements?**

A: Yes, you can tier off of existing planning studies that you have already completed, as long as all of the elements of WTR 11-01 are addressed.

**Q: Is there a limit to the amount of Federal funding I can request in any given year?**

A: No, as long as the request is under the \$20 million Federal funding cap. See FOA for details.

**Q: Can in-kind contributions count towards my non-Federal cost-share?**

A: Yes, see FOA for details.

**Q: Can I receive funding for costs that have already been incurred?**

A: Yes, see FOA for details.

**Q: Can I reapply multiple times?**

A: Yes, but the Federal cost-share cap is \$20 million.

**Q: What are the Federal reporting requirements?**

A: Reporting requirements are minimal; if selected for funding, a brief financial report and performance report is required every six months.

**Q: Does NEPA documentation have to be completed?**


A: If you are selected to receive funding for construction, then yes, NEPA documentation is required. The level of documentation will be case specific, but most projects require only a categorical exclusion or an EA/FONSI.

**Q: What if my project scope changes and is different than the scope included in my approved Title XVI feasibility study?**

A: If the scope change is substantive, then a supplemental Title XVI feasibility study may be needed; if the change is minor, no action may be necessary.

**Q. Who can I contact if I have questions and/or want to discuss a specific project?**

A. See contact information below. A local representative from Reclamation is ready to answer your questions.



**Contact Information**  
**Collins K. Balcombe**  
 Manager, Planning & Project Development  
 Oklahoma-Texas Area Office, Austin, Texas  
 512-899-4162  
[cbalcombe@usbr.gov](mailto:cbalcombe@usbr.gov)

**WIIN Title XVI Website**  
<https://www.usbr.gov/watersmart/title/index.html>

**Desalination Website**  
<https://www.usbr.gov/watersmart/desalination/index.html>

# RECLAMATION

*Managing Water in the West*

## A New Approach using Paleohydrology from Tree Rings to Manage Risks and Reservoir Firm Yield

A Reservoir Operations Pilot Study on the Washita Basin Project, Oklahoma

### FACT SHEET

#### Need

A significant challenge facing water resource managers in the arid western U.S. is preparing for and responding to drought. Determining how to best manage water to prepare for drought requires assessing risks and having a better understanding of the reservoir's "firm yield," i.e., the amount of water a reservoir can reliably supply during a repeat of the observed worst drought on record. Opportunities exist to build upon the science and further improve the tools that are available to predict reservoir yield, both in the near-term and long term. For example, a reconstruction of the PDSI<sup>1</sup> shows us how the duration and intensity of droughts observed in west-central Oklahoma during the 90-year period of record are far less variable than so called "mega-droughts" (i.e., "paleo-droughts") that are known to have occurred (but not directly observed) over centuries based on data collected from tree rings (Figure 1).

#### Objectives

1. Develop a method of converting tree ring data into new inflow datasets that can be incorporated into Reclamation's Firm Yield model. By extending the historical period, we would capture a greater range of variation. This would help inform long-term planning efforts and better prepare for the next drought (i.e., enhanced drought preparedness).
2. Develop a method of using the new Firm Yield model supply calculations created under No. 1 to make enhanced near-term projections, while also accounting for actual water use.
3. Use the "Enhanced" Firm Yield model created under No. 2 to evaluate "what if" demand management scenarios and identify the associated risks of the reservoir going dry based on the type of drought you may (or may not) be experiencing (i.e., enhanced drought response).

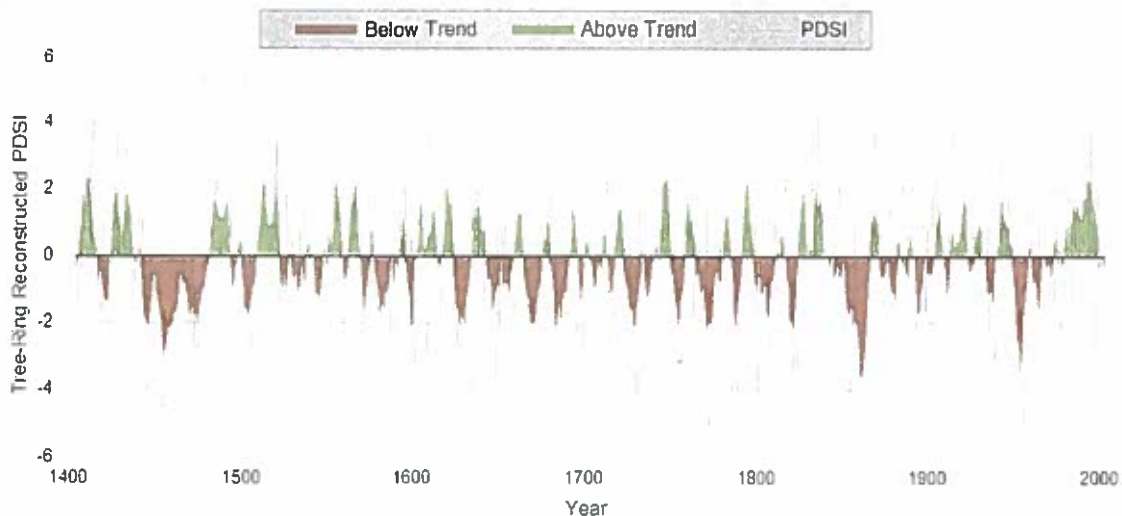


Figure 1 PDSI over a 600-year period that has been reconstructed using tree ring data near the study area<sup>2</sup>.

<sup>1</sup> The Palmer Drought Severity Index (PDSI) uses temperature and precipitation data to estimate relative dryness on a ten point scale {-10 (dry) to +10 (wet)}, and it has been reasonably successful at quantifying long-term drought.

<sup>2</sup> Cook, E.R., et al. 2004. North American Summer PDSI Reconstructions, IGBP PAGES/World Data Center for Paleoclimatology Data Contribution Series # 2004-045, NOAA/NGDC Paleoclimatology Program, Boulder CO; URL to access data, <ftp://ftp.ncdc.noaa.gov/pub/data/paleo/drought/pdsi2004/>.

## Methods

We developed and utilized published methodologies to translate tree ring-based hydroclimate data into new reservoir inflow datasets for Foss and Fort Cobb Reservoirs. We then evaluated the impacts of a large number of (1,000+) "paleo" droughts on reservoir firm yield. In addition to the two most severe droughts observed since record keeping, we selected five of the 1,000+ "paleo" drought scenarios to provide a low risk window of Foss and Fort Cobb Reservoirs going dry. In the full report, we provide step-by-step instructions on the development and use of the Enhanced Drought Response Reservoir Operations (EDRRO) model, a tool that can be used to

plan for and respond to these drought scenarios using real-time water use data. We performed several test runs of the EDRRO model at Foss and Fort Cobb Reservoirs. Results from seven modeling scenarios are presented, beginning with "No Action" scenarios which reflect the extent to which supply shortages would exist if no measures are taken to curtail demands of reservoir users during any of the seven drought scenarios. We then used the EDRRO model to evaluate the effectiveness of reservoir customer demand curtailments that can be triggered at different reservoir elevation thresholds to prevent supply shortages. A sample of results is provided below in Figure 2.

## A Sample of Results

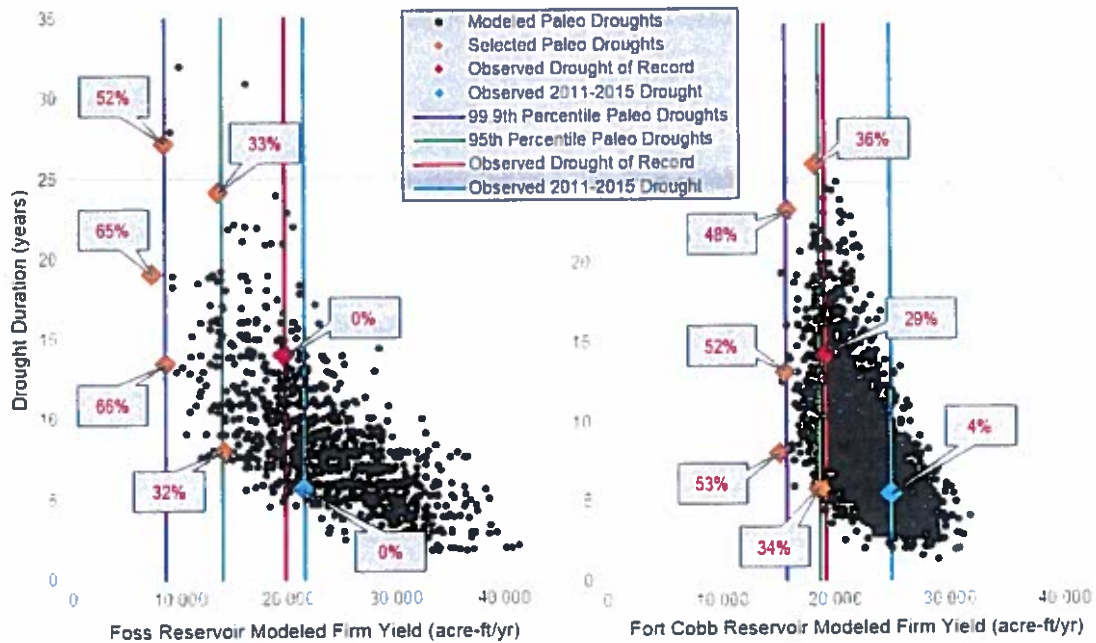
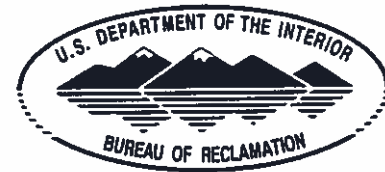


Figure 2 Percent demand curtailments needed under the Maximum Demand scenario for Foss Reservoir (left) and Maximum Demand 50 percent base flow reduction scenario for Fort Cobb Reservoir (right) to prevent water shortages under seven drought scenarios simulated using the EDRRO model. Orange diamonds depict five of the 1000+ "paleo" drought scenarios selected for the analysis; the red and blue triangles depict the observed drought of record and the observed 2011-2015 drought, respectively.

### Contact Information:

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 The Full Report can be accessed at this link:  
<https://www.usbr.gov/watersmart/pilots/>



# RED RIVER VALLEY ASSOCIATION

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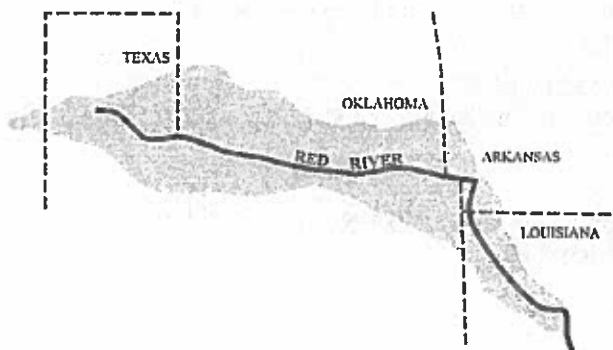
April 30, 2019

To: Red River Compact Commission  
FM: Richard Brontoli, Executive Director, [rrva@rrva.org](mailto:rrva@rrva.org)

RE: Update on SW Arkansas Navigation Feasibility Study

Following is information pertaining to navigation on the Red River from Shreveport, LA to Index, AR (Hwy 71 bridge). It is intended to provide a brief overview of the federal process and consideration for a non-federal project. One of the major decisions will be if this initiative should be a fully funded federal project or non-federal private/public venture. This decision must consider the will of Congress to approve and fund the required studies, construction and post project operations & maintenance. The other major factor is the political 'clout' of the region to influence Congress to act in a timely manner.

- 1. Existing Navigation:** There is operational navigation from the Mississippi River (through Old River Lock) and directly from the Atchafalaya River. The navigation project is 234 river miles (RMs) to the I-220 bridge just north of Shreveport-Bossier City. Commercial navigation currently terminates at the Caddo-Bossier Port at RM 212. This reach of the Red River has been congressionally named the J. Bennett Johnston Waterway (JBJ). There is a local sponsor, Red River Waterway Commission (RRWC), for the State of Louisiana.
- 2. Feasibility Study into Arkansas:** There is an authorized, federal feasibility study being conducted by the U.S. Army Corps of Engineers, Vicksburg District, at this time. This study is investigating the feasibility for navigation from Shreveport-Bossier City to Index, Arkansas (US Hwy 71/59 Bridge). The Index Reach, 142 RMs, is located about nine (9) land miles north of downtown Texarkana, Arkansas/Texas. The current Administration, in Washington D.C., has not provided funding for this study in eight years and the 'no earmark' policy has prevented congressional adds. The State of Arkansas has appropriated \$1 million to the local sponsor, Arkansas Red River Commission (ARRC). The ARRC has provided \$750,000 of these funds to the Corps of Engineers, Vicksburg District, to determine if the benefits justify a project. In February 2019 the Corps announced that the benefits identified exceed the cost and they approve resuming to complete the feasibility study. The ARRC is considering completing the study through a Section 203, using State funds with Corps 'technical advice' to ensure all study requirements and standards are met.
- 3. Cost Share Funding:** Navigation is a federal responsibility and all previous navigation projects have been at full federal funding, to include construction and post project operations & maintenance (O&M).



1

A FOUR STATE ASSOCIATION DEDICATED TO THE DEVELOPMENT OF THE LAND AND WATER RESOURCES

ATTACHMENT 12

a. The RRWC, in the State of Louisiana, had the funding responsibility for land, easements and right-of-ways for the JBJ Waterway during the construction phase. All construction was federally funded and all Operations & Maintenance is at full federal expense through annual appropriations from the federal government; which includes the navigation system, the pools and locks & dams. Construction for recreation features is cost shared 50%/50% between federal and RRWC funds. All recreation Operations & Maintenance is the responsibility of the RRWC. Annual funding for the RRWC comes from a property tax of all residents and businesses in the 7 Parishes that border the Red River.

b. The State of Arkansas agreed to a 50%/50% cost share, with the federal government, for the feasibility study to continue navigation into Arkansas. The Arkansas Red River Commission (ARRC) had been providing its 50% share for the feasibility study from the State of Arkansas' Red River Trust Fund (funded at the state-level by the State of Arkansas through legislative set-aside funds from its state treasury). The feasibility study is proceeding with 100% State funding.

c. Current policy for construction of new navigation projects to be cost shared between federal appropriations and the Inland Waterway Trust Fund (IWTF). This trust fund is a fuel tax collected from the towing industry. The construction of a federal navigation project from Shreveport-Bossier City to Index, AR would be at no cost to the States of Louisiana or Arkansas for the Index Reach. Where the State of Texas picks up on the south side of the Red River would be where the currently-envisioned Index Reach (extension) of the Red River Navigations System would end. From that point upriver, the State of Texas would have to be playing the lead role. Louisiana's RRWC would take the extension to the Arkansas/Louisiana state line, whereupon Arkansas' ARRC would be responsible for extending the reach through southwestern Arkansas up to the state line with Oklahoma.

#### 4. Federal Process:

a. Feasibility Study: Navigation feasibility studies have hitherto been at full federal expense, except for the Index Reach from the Port of Shreveport to Index Bridge of U.S. 71/59) north of Texarkana. The current feasibility study for navigation into Arkansas has been ongoing for over 19 years and \$8 million (\$4 million federal and \$4 million ARRC). The Water Resources Reform and Development Act of 2014 (WRRDA), of the federal government, has attempted to streamline the feasibility process by placing limits of 3 years and \$3 million for each study. A local sponsor would have to be identified and must be a political entity.

b. Authorization: A project must exceed the 1.0 benefit to cost ratio (BCR) to be considered for authorization. A civil works navigation project would then be authorized in a WRDA Bill of the federal government.

c. Appropriations for Construction: Each year the U.S. Congress would have to appropriate funding for construction, which would be 50%/50% between federal funds and the Inland Waterway Trust Fund (IWTF). The local sponsor would have the responsibility for the cost of providing the Corps of Engineers with the lands, easements and right-of-ways necessary for its construction features. The IWTF is used for new construction and major rehabilitation of the nation's inland waterway systems. Currently, there is a large backlog of major rehabilitation for lock & dams on the Ohio and upper Mississippi Rivers impacting the priority for funding a new project.

d. Operations & Maintenance: Once the project is operational, it is a federal responsibility for all post project O&M funding.



e. Non-Navigation Features: Responsibility for other features of the project, such as recreation facilities, will be determined during the feasibility study phase and as agreed to by the local sponsor.

5. Project Benefits: A navigation project must be justified (benefit to cost ratio greater than 1.0) only by transportation savings. Only then can benefits be added from water supply (municipal, agricultural & industrial), recreation, hydropower, bank stabilization, flood reduction and eco-system enhancement for fish & wildlife.

6. Non-Traditional Benefits: The following benefits have not been included in a federal Benefit Cost Ratio (BCR) Analysis, but can be considered for regional benefits: reduced highway congestion, reduced highway accidents, reduced air and noise pollution, as compared to local and regional rail and truck movements.

7. Project Costs: The main features of a navigation project include: lock & dams, revetments, dikes, channel realignment, purchase of inundated lands, easements, relocations, engineering & design, construction management, mitigation and equipment. Local land-owners would be able to replace relinquished properties with cash buyout or like-kind properties using sections of the Internal Revenue Code governing tax-deferred exchanges of like-kind and similar properties in purposes and uses without enduring adverse tax consequences.

8. Water Compelled Rates: A navigable waterway is the only competition to long haul rail, but has far less environmental consequences and usually lower rates. The presence of an operational waterway provides leverage for companies when negotiating transportation rates.

9. Red River Valley Association (RRVA) Involvement: The RRVA has been a proponent for federal civil works projects and its expertise is in the federal process. It has not been involved in non-federal projects, except to provide assistance for federal permits. For a non-federal project, the RRVA contribution would be to provide guidance to insure studies include the required information to obtain the necessary federal permits. The RRVA will participate in any capacity the lead organization deems appropriate.

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Red River Valley Association  
Major Projects & Initiatives  
Red River Compact Meeting, April 30, 2019

1. **Appropriations:** At the end of this update are comparisons of the FY 2019 enacted and FY 2020 President's Budget. Additional FY 2019 funding received from 'supplemental' funds and 'additional funding pots' are shown in red. Congress passed and the President signed the FY 2019 Appropriations before 1 October, we hope that occurs this year. The President's FY 20 Budget: \$4.872 Billion (\$2.406 Billion reduction from FY 2019 enacted)
2. **Navigation FY 2020 O&M:** The FY 2019 Appropriations has \$11,881,000, for O&M for the J. Bennett Johnston Waterway. Even though this meets the basic annual level required, it does NOT. Dredging is reduced by \$1,400,000 and is used for the scheduled dewatering and inspection of L&D 2. This shortfall was added from 'additional' funds.
3. **CR Emergency Supplemental Funds:** The initial CR had Emergency Supplemental funds available for the Corps. We provided our delegation with Construction General (CG) and O&M needs due to impacts from the 2015 and 2016 floods. We did receive \$12,200,000 for dredging, dike marker repair, revetment repair, repair to lock & dams, Hydraulic Model & Sediment Survey, design for repair of the Garland Levee near Garland City and a levee in Red River Parish on Loggy Bayou. Contracts for the levee rehabilitations are expected to be executed by December 2018. Current indications are that supplemental funds will NOT be provided for construction of the Arkansas levees, but has been provided for the Louisiana, Loggy Bayou levee.
4. **J. Bennett Johnston Waterway 12' Navigation Channel:** The Corps provide an annual report to Congress of reports, proposed feasibility studies, and proposed modifications to authorized water resources development projects and feasibility studies. We submitted a request for a 12' channel study for the J. Bennett Johnston Waterway and it was included in the Corps Annual Report, March 2017. We were successful to get the study authorized in the 2018 WRDA Bill signed into law by the President. The next step is to get a feasibility study funded in the FY 2020 appropriation bill. We are investigating conducting this study by Section 203.
5. **WRDA 2018:** We had 3 items for the WRDA bill. 1) Authorize the analysis for a 12' Navigation Channel for the J. Bennett Johnston Waterway (included). 2) Place Caddo Levee, Cherokee Park segment, into the authorized project; Red River Below Denison Dam. 3) Place Bowie County Levee into the authorized project; Red River Below Denison Dam. The levee items, #2 & #3, were not included in the Senate or House markup. The House requested that the Cherokee Park Levee item be submitted to the Corps through WRRDA Sec. 7001 and be included in the 2019 Annual Report to Congress. This was submitted.
6. **Degraded Dikes and Revetments:** The major floods of 2015, 2016 and 2018, as well as time, have degraded dikes and revetments. Many have degraded to a point of losing their effectiveness in maintaining a 9' channel, thus requiring additional dredge funds each year. Some are identified as critical and if not repaired, could result in losing the navigation channel in another major flood. Most repairs can be accomplished with O&M funds. We request an additional annual \$5,000,000 in O&M funds for "Channel Improvement" projects.
7. **IMTS Reduced Lock Service Mandate:** After an analysis of our CY 2019 justification submission, by the Vicksburg staff, Col Cross decided to allow our locks to remain operating 24/7/365 for CY 2016. We know there will be a re-evaluation each year and we must show increased activity. There was consideration for the 2015 flood, in which Lock 5 was closed for 36 days. In addition to lock closures the waterway was under tow horsepower restrictions and only daylight operations most of the year. In January 2019 the RRWC & RRVA submitted a request to maintain 24/7 operations for CY 2019. It was noted that the commercial lockages for Locks 4 & 5 have

increased. The Vicksburg District announced 24/7/365 operations for 2019. We will coordinate with the RRWC to submit a justification, in January 2010.

8. **Flood Technical Committee**: A Flood Technical Committee was formed with representation from Caddo & Bossier Parishes, Bossier City, City of Shreveport, Caddo & Bossier Levee Districts, Caddo-Bossier Port, Red River Watershed Management Institute, Red River Waterway Commission and Red River Valley Association (Chair). Meetings have been held with the Vicksburg District, FEMA & NWS to discuss issues to assist the community leadership and emergency management responders to prepare for the next potential flood event. The Vicksburg District indicated that it is not possible to determine the reasons for these discrepancies without a Sedimentation Survey and Hydraulic Model. The 2 year, \$1.5 million study would be authorized under the existing J. Bennett Johnston Waterway Project, Construction General (CG) account. FEMA indicated that they cannot determine new BFEs without this information. In FY 2016 \$250,000 had been appropriated. The remaining funds were received from Emergency Supplemental funds; however, these funds can be withdrawn for another emergency. The Committee met with the Corps to provide modifications and changes made by the local agencies that will impact the available flood storage and flood plain models. The Flood Technical Committee has met with the Texas A&M students who conducted a Capstone Grant Project on the 2015-2016 flood event. This group also conducted a public meeting on their findings. The RRVA office has their report if any Board member would like a copy. The Corps has collected the required data and is now analyzing it.

9. **Navigation into Arkansas Feasibility Study**: The Arkansas Legislators took all the funds from the Arkansas Red River Commission trust funds in 2014. The State Legislative session reinstated \$1 million, to the Red River Trust Fund. These funds will be provided for the Corps of Engineers to get the feasibility study to a decision point if the project should continue or be terminated. The Vicksburg District has contracted with GEC to conduct a way bill analysis and conduct industry surveys. The analysis has been completed for tonnage and cargo moving in and out of the region. Visits were made to companies and economic development organizations the week of 6 – 10 February. Additional companies were visited the week of 3 - 5 May. More visits are being scheduled. The completed surveys have been provided to the University of Tennessee for analysis. The Corps has determined that the benefits exceed the cost and agree to resume and complete the feasibility study. The Arkansas Red River Commission is considering completing the feasibility study by Section 203.

10. **Levee Meetings**: We continue to work with the Arkansas levee districts and Bowie County Levee District to get rehabilitation funding through the authorized project; Red River Below Denison Dam. Joint Levee & drainage meetings were held in Arkansas & Louisiana in January 2019 with the Corps.

11. **Chloride Control Project**: The Administration will not fund this project. Construction on the Wichita River will not resume until the earmark ban is changed. GEM has had several meetings with the Corps and Red River Authority of Texas to move their solar pond project.

12. **Index to Denison Dam Navigation**: North Texas Council of Governments is willing to put up \$500,000 to conduct a study to determine if navigation is possible from an engineering perspective. They first want the Texas legislators to pass a bill that commits them to complete a feasibility study and EIS, if the engineering study is positive. The Texas legislators have a bill in their current session, so we await if it gets passed.

13. **Red River Studies**:

a. **Corps of Engineers, Wright Patman/Sulphur River**: There is an active study to consider re-evaluate the water use in Wright Patman Reservoir. The study will evaluate reducing flood control storage and reallocate it for municipal use. The top of flood pool is 259.5', which currently provides 30.86' of flood storage. The study proposes three new conservation pool elevations and reduced flood pool capacity for consideration; 232.5' (27' flood pool), 235.0' (24.5' flood pool) and 242.5' (17' flood pool). It appears that raising the lake elevation to 232.5' msl would not create more downstream flooding and have no impact on navigation. Any elevations higher

than 232.5 ft. msl increases the probability, during an intense rain event, of the occurrence of uncontrolled flows over the emergency spillway at elevation 259.5 ft. msl.

b. Bureau of Reclamation, Upper Red River Basin Study, OK: A grant for a 3 year study of water use in the upper reaches of the Red River in the Lugert-Altus region (FY 2014 – FY 2017). This study is cost shared with the Oklahoma Water Resources Board, Lugert-Altus Irrigation District, Mountain Park MCD; \$640,000 (Federal) + \$860,000 (non-Federal) = \$1,500,000

c. Bureau of Reclamation, Upper Washita Basin Study, OK: The study is cost shared with Oklahoma Water Resources Board, Foss Reservoir MCD & Fort Cobb Reservoir MCD; \$250,000 (Federal) + \$450,000 (non-Federal) = \$900,000.

d. USGS, Red River Basin Study: USGS also has a BOR WaterSMART grant to study the quantity of water available in the Red River, four state watershed. This will be a 5 year study effort, expected to be completed in 2019.

e. Choctaw & Chickasaw Indian Nations are conducting a water study for the Red River watershed in OK.

f. Bureau of Land Management Red River land issue. The BLM is in the process of updating its Resource Management Plan (RMP) for lands managed by the BLM, which includes a 116 mile stretch, an estimated 90,000 acres (since cut to 30,000) that may be considered public domain along the Red River on the border between Texas and Oklahoma in Wilbarger, Wichita, and Clay counties. - See more at:

<http://thornberry.house.gov/redriver/#sthash.3y4XXQ78.dpuf>.

14. Waters of the US (WOTUS): EPA and the Corps of Engineers have proposed new guidelines that re-define 'waters of the US'. The new definition would drastically increase the jurisdiction for permits and have a negative impact in development. The RRVA has submitted comments in objection to this proposal, which is on our Association web site. Comments have been made by the Corps that they do not agree with the science and decision provided by EPA. The Sixth U.S. Circuit Court of Appeals in Cincinnati issued an order granting a request by 18 states to stay the Waters of the U.S. rule while the court considers its legality. Previously, a U.S. District Court in North Dakota had blocked the rule for 13 states included in a petition filed before that court. The 6th Circuit ruling blocks the rule nationwide pending judicial review.

15. Federal Flood Risk Management Standards (FFRMS): The National Waterways Conference submitted detail comments and RRVA signed on to their submission. These comments can be found on our web site under 'Position Papers & Briefings'. To ensure that Federal actions to manage flood risk support our national security interests and prudent stewardship of taxpayer dollars, the Consolidated Appropriations Act of 2016 temporarily prohibits the application of Executive Order 13690 to any component of the Department of Defense. While improving the resiliency of federal investments to floods and other hazards has merit, compelling government agencies to spend taxpayer dollars to further mitigate against undefined threats deserves greater scrutiny. Section 750 [of the Act] has a clear aim, which is to provide the American public and their elected officials the opportunity to better understand the risk, benefits and other impacts of the standard prior to its implementation.

16. America's Watershed Initiative (AWI): I attended the workshop at Tulsa, OK for the Arkansas/Red watersheds. I also attended a conference for the whole Mississippi Valley Watershed in Louisville, KY. AWI intends to create a 'report card' of the Mississippi River and tributaries by the spring of 2015. Information will be disseminated as it is developed. It is uncertain that this effort would have any impact on our efforts. The final report card can be found at: <http://americaswater.wpengine.com/>.

#### 17. Other Initiatives:

a. Bowie County Levee, TX: Transfer from Tulsa District to Vicksburg District and start rehab process.

b. Caddo Lake / Big Cypress / Lake o' Pines: Gate structure in Caddo Dam for eco-flows.

**RED RIVER VALLEY ASSOCIATION  
FY 2020 APPROPRIATIONS (\$000)  
CIVIL WORKS**

<b><u>I. Studies (General Investigations, GI)</u></b>	<b>FY 19 Enacted</b>	<b>RRVA FY 20 Request</b>	<b>Pres FY 20 Budget</b>	<b>Local Sponsor Requirements</b>
1. Navigation into SW Arkansas: Feasibility	-0-	-0-	-0-	ARRC - \$1 m Contributed Funds
2. Red River Waterway, LA – 12’ Channel, Recon <b>Approved in WRDA 2018</b>	-0-	1,500	-0-	(RRWC)
<del>3. Bossier Parish, LA</del>	-0-			(Bossier Levee)
<del>4. SE Oklahoma Water Resource Study: Feasibility</del>	-0-			(OWRB)
<del>5. Washita River Basin, OK</del>	-0-			(OWRB)
<del>6. SW Arkansas Ecosystem Restoration: Recon Study</del>	-0-			(ANRC / AR Game & Fish)
<del>7. Cypress Valley Watershed, TX</del>	-0-			(NETWD)
8. Sulphur River Basin, TX	-0-	-0-	-0-	(Sulphur Authority)
<del>9. Wichita River Basin above Lake Kemp, TX: Recon</del>	-0-			(L)
<del>10. Red River Above Denison Dam, TX &amp; OK: Recon</del>	-0-			(L)
<del>11. Red River Waterway, Index, AR to Denison Dam</del>	-0-			(?)
<del>12. Mountain Fork River Watershed, OK &amp; AR, Recon</del>	-0-			(?)
<del>13. Walnut Bayou, Little River, AR</del>	-0-			(ANRC)
<del>14. Little River County/Ogden Levee, AR, Recon</del>	-0-			(ANRC)
<del>15. Red River Waterway, Index to Denison, Bendway</del>	-0-			(?)
<b><u>II. Construction General (CG)</u></b>				
1. Red River Waterway: J. B. Johnston Waterway, LA	-0-	12,910	-0-	(RRWC)
2. Chloride Control Project, TX & OK Texas - 7,500 / Oklahoma - 800	-0-	7,750	-0-	N/A
3. Red River Below Denison Dam; AR & LA a. Bowie County Levee, TX	-0-	6,300	-0-	(Levee Districts)
4. Red River Emergency Bank Protection	-0-	19,600	-0-	(Levee Districts)
5. McKinney Bayou, AR, PED	-0-	50		(?)

**NOTES:** Local Sponsor Column – Sponsor indicated in ( ); (?) indicates No Sponsor identified and need one to continue  
(L) indicates Sponsor not required now but need one for feasibility; N/A – No Sponsor required.

**NOTE:** Crossed through studies and projects are not currently active, due to lack of a local sponsor and funding.

**NOTE:** Additional funds received from the FY19 ‘additional funds’ indicated by **+xxxx**.

**Total CG Additional FY 2019 Funds: \$0**

**Civil Works Budget – Nation Wide**

**Congress enacted in FY 2019: \$7.278 Billion**

**President’s FY 2020 Budget: \$4.872 Billion (\$2.406 Billion reduction from FY 2019 enacted)**

RED RIVER VALLEY ASSOCIATION

CIVIL WORKS PROJECTS

OPERATIONS AND MAINTENANCE (O&M)

FY2020 (\$000)

Project	Enacted FY19	RRVA Request	President FY20
DeQueen Lake, AR	1,433 <b>+136</b>	2,800	1,579
Dierks Lake, AR	1,506	2,200	1,410
Gillham Lake, AR	1,305 <b>+100</b>	2,160	2,545
Millwood Lake, AR	4,335 <b>+200</b>	4,630	3,245
Bayou Bodcau Reservoir, LA	1,289 <b>+425</b>	2,976	1,209
Bayou Pierre, LA	33	53	33
Caddo Lake, LA	208	234	218
Wallace Lake, LA	245 <b>+80</b>	383	267
J. Bennett Johnston Waterway, LA	11,881 <b>+3,254</b>	22,556	8,436
Broken Bow Lake, OK	2,074	2,788	3,897
Hugo Lake, OK	2,524	3,352	1,939
Pine Creek Lake, OK	1,671	1,700	1,455
Sardis Lake, OK	1,285	889	2,528
Waurika Lake, OK	1,859	2,411	1,604
Chloride Control, Area VIII, TX	1,799	2,000	1,797
Denison Dam & Lake Texoma, TX	7,980	11,000	9,053
Estelline Springs, TX	39	40	39
Lake Kemp, TX	280	300	268
Pat Mayse Lake, TX	1,397	1,400	1,102
Jim Chapman Lake, TX	1,895 <b>+93</b>	2,000	2,072
Lake of the Pines, TX	4,159 <b>+503</b>	8,985	3,643
Wright Patman Dam & Lake, TX	5,418 <b>+251</b>	5,971	4,389

**NOTE:** Additional funds received from the FY19 Appropriation Bill ‘additional funds’ indicated by **+xxxx**.  
**Total O&M Additional FY 2019 Funds for Red River Valley: \$5,042,000**

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PLEASE WRITE CLEARLY AND FURNISH COMPLETE MAILING ADDRESS

ATTENDANCE

MEETING: 39th Annual Meeting of the Red River Compact Commission

LOCATION: Oklahoma Water Resources Board Room  
Oklahoma City, Oklahoma

DATE: April 30, 2019

TIME 8:30 a.m.

NAME	MAILING ADDRESS/email	REPRESENTING
Scott Van Winkle	scott.van.winkle@tceq-texas.gov	TCEQ
Trent Gay	trent.gay@tceq-texas.gov	TCEQ
Mike Abate	mike.R.Abate@USACE.ARMY.MIL	COE
JOHN F. GIBSON	jfgibson@sbcglobal.net	ARK
Jen Sheehan	jennifer.sheehan@agfc.ar.gov	AR Game & Fish Commission
Nathan Kuhnert	nkuhnert@usbr.gov	BOR
Crystal Phelps	crystal.phelps@arkansas.gov	ANRC
Sara Gibson	sara.gibson@owrb-ok.gov	DWRB
Randy Whitman	Randy.whitman@RRA.Texas.gov	RRA
Rick Lane	Richard.Lane@USDA.GOV	NRCS
Heather Hunziker	Heather.Hunziker@oag.texas.gov	TX OAG
John Michael Moore	johnmichaelmoore@bellsouth.net	LA Commissioner
Ed Knight	edward.knight@la.gov	LA DOTD -PW

PLEASE WRITE CLEARLY AND FURNISH COMPLETE MAILING ADDRESS

ATTENDANCE

MEETING: 39th Annual Meeting of the Red River Compact Commission

LOCATION: Oklahoma Water Resources Board Room  
Oklahoma City, Oklahoma

DATE: April 30, 2019

TIME 8:30 a.m.

NAME	MAILING ADDRESS/email	REPRESENTING
Harry Vorhoff	Vorhoffh@ag.louisiana.gov	Louisiana
Clyde Siebman		Texas
Ryan Benefield	RYAN.Benefield@ARKANSAS.GOV	ARKANSAS
Sharon Jackson	sharon.jackson@arkansas.gov	AMRC
Jason Lewis	jmlewis@usgs.gov	USGS





**RED RIVER COMPACT**

**ARKANSAS-LOUISIANA-OKLAHOMA-TEXAS**

**MAY 12, 1978**

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## PREAMBLE

The States of Arkansas, Louisiana, Oklahoma, and Texas, pursuant to the acts of their respective Governors or Legislatures, or both, being moved by considerations of interstate comity, have resolved to compact with respect to the water of the Red River and its tributaries. By Act of Congress, Public Law No. 346 (84th Congress, First Session), the consent of the United States has been granted for said states to negotiate and enter into a compact providing for an equitable apportionment of such water; and pursuant to that Act the President has designated the representative of the United States.

Further, the consent of Congress has been given for two or more states to negotiate and enter into agreements relating to water pollution control by the provisions of the Federal Water Pollution Control Act (P.L. 92-500, 33 U.S.C. §§ 1251 et seq.).

The Signatory States acting through their duly authorized Compact Commissioners, after several years of negotiations, have agreed to an equitable apportionment of the water of the Red River and its tributaries and do hereby submit and recommend that this Compact be adopted by the respective Legislatures and approved by Congress as hereinafter set forth:

## **RED RIVER COMPACT**

### **ARTICLE I Purposes**

**SECTION 1.01.** The principal purposes of this Compact are:

(a) To promote interstate comity and remove causes of controversy between each of the affected states by governing the use, control and distribution of the interstate water of the Red River and its tributaries;

(b) To provide an equitable apportionment among the Signatory States of the water of the Red River and its tributaries;

(c) To promote an active program for the control and alleviation of natural deterioration and pollution of the water of the Red River Basin and to provide for enforcement of the laws related thereto;

(d) To provide the means for an active program for the conservation of water, protection of lives and property from floods, improvement of water quality, development of navigation and regulation of flows in the Red River Basin; and

(e) To provide a basis for state or joint state planning and action by ascertaining and identifying each state's share in the interstate water of the Red River Basin and the apportionment thereof.

### **ARTICLE II General Provisions**

**SECTION 2.01.** Each Signatory State may use the water allocated to it by this Compact in any manner deemed beneficial by that state. Each state may freely administer water rights and uses in accordance with the laws of that state, but such uses shall be subject to the availability of water in accordance with the apportionments made by this Compact.

**SECTION 2.02.** The use of water by the United States in connection with any individual Federal project shall be in accordance with the Act of Congress authorizing the project and the water shall be charged to the state or states receiving the benefit therefrom.

**SECTION 2.03.** Any Signatory State using the channel of Red River or its tributaries to convey stored water shall be subject to an appropriate reduction in the amount which may be withdrawn at the point of removal to account for transmission losses.

**SECTION 2.04.** The failure of any state to use any portion of the water allocated to it shall not constitute relinquishment or forfeiture of the right to such use.

**SECTION 2.05.** Each Signatory State shall have the right to:

(a) Construct conservation storage capacity for the impoundment of water allocated by this Compact;

(b) Replace within the same area any storage capacity recognized or authorized by this Compact made unusable by any cause, including losses due to sediment storage;



(c) Construct reservoir storage capacity for the purposes of flood and sediment control as well as storage of water which is either imported or is to be exported if such storage does not adversely affect the delivery of water apportioned to any other Signatory State; and

(d) Use the bed and banks of the Red River and its tributaries to convey stored water, imported or exported water, and water apportioned according to this Compact.

**SECTION 2.06.** Signatory States may cooperate to obtain construction of facilities of joint benefits to such states.

**SECTION 2.07.** Nothing in this Compact shall be deemed to impair or affect the powers, rights, or obligations of the United States, or those claiming under its authority, in, over and to water of the Red River Basin.

**SECTION 2.08.** Nothing in this Compact shall be construed to include within the water apportioned by this Compact any water consumed in each state by livestock or for domestic purposes; provided, however, the storage of such water is in accordance with the laws of the respective states but any such impoundment shall not exceed two hundred acre-feet, or such smaller quantity as may be provided for by the laws of each state.

**SECTION 2.09.** In the event any state shall import water into the Red River Basin from any other river basin, the Signatory State making the importation shall have the use of such imported water.

**SECTION 2.10.** Nothing in this Compact shall be deemed to:

(a) Interfere with or impair the right or power of any Signatory State to regulate within its boundaries the appropriation, use, and control of water, or quality of water, not inconsistent with its obligations under this Compact;

(b) Repeal or prevent the enactment of any legislation or the enforcement of any requirement by any Signatory State imposing any additional conditions or restrictions to further lessen or prevent the pollution or natural deterioration of water within its jurisdiction; provided nothing contained in this paragraph shall alter any provision of this Compact dealing with the apportionment of water or the rights thereto; or

(c) Waive any state's immunity under the Eleventh Amendment of the Constitution of the United States, or as constituting the consent of any state to be sued by its own citizens.

**SECTION 2.11.** Accounting for apportionment purposes on interstate streams shall not be mandatory under the terms of the Compact until one or more affected states deem the accounting necessary.

**SECTION 2.12.** For the purposes of apportionment of the water among the Signatory States, the Red River is hereby divided into the following major subdivisions:

(a) Reach I -- the Red River and tributaries from the New Mexico-Texas State boundary to Denison Dam;

(b) Reach II -- the Red River from Denison Dam to the point where it crosses the Arkansas-Louisiana state boundary and all tributaries which contribute to the flow of the River within this reach;

(c) Reach III -- the tributaries west of the Red River which cross the Texas-Louisiana state boundary, the Arkansas-Louisiana state boundary, and those which cross both the Texas-Arkansas state boundary and the Arkansas-Louisiana state boundary;

(d) Reach IV -- the tributaries east of the Red River in Arkansas which cross the Arkansas-Louisiana state boundary; and

(e) Reach V -- that portion of the Red River and tributaries in Louisiana not included in Reach III or in Reach IV.

**SECTION 2.13.** If any part or application of this Compact shall be declared invalid by a court of competent jurisdiction, all other severable provisions and applications of this Compact shall remain in full force and effect.

**SECTION 2.14.** Subject to the availability of water in accordance with this Compact, nothing in this Compact shall be held or construed to alter, impair or increase, validate, or prejudice any existing water right or right of water use that is legally recognized on the effective date of this Compact by either statutes or courts of the Signatory State within which it is located.

### **ARTICLE III Definitions**

**SECTION 3.01.** In this Compact:

(a) The States of Arkansas, Louisiana, Oklahoma, and Texas are referred to as "Arkansas," "Louisiana," "Oklahoma," and "Texas," respectively, or individually as "State" or "Signatory State," or collectively as "States" or "Signatory States."

(b) The term "Red River" means the stream below the crossing of the Texas-Oklahoma state boundary at longitude 100 degrees west.

(c) The term "Red River Basin" means all of the natural drainage area of the Red River and its tributaries east of the New Mexico-Texas state boundary and above its junction with Atchafalaya and Old Rivers.

(d) The term "water of the Red River Basin" means the water originating in any part of the Red River Basin and flowing to or in the Red River or any of its tributaries.

(e) The term "tributary" means any stream which contributes to the flow of the Red River.

(f) The term "interstate tributary" means a tributary of the Red River, the drainage area of which includes portions of two or more Signatory States.

(g) The term "intrastate tributary" means a tributary of the Red River, the drainage area of which is entirely within a single Signatory State.

(h) The term "Commission" means the agency created by Article IX of this Compact for the administration thereof.

(i) The term "pollution" means the alteration of the physical, chemical, or biological characteristics of water by the acts or instrumentalities of man which create or are likely to result in a material and adverse effect upon human beings, domestic or wild animals, fish and other aquatic life, or adversely affect any other lawful use of such water; provided, that for the purposes of this Compact, "pollution" shall not mean or include "natural deterioration."

(j) The term "natural deterioration" means the material reduction in the quality of water resulting from the leaching of solubles from the soils and rocks through or over which the water flows naturally.

(k) The term "designated water" means water released from storage, paid for by non-Federal interests, for delivery to a specific point of use or diversion.

(l) The term "undesignated water" means all water released from storage other than "designated water."

(m) The term "conservation storage capacity" means that portion of the active capacity of reservoirs available for the storage of water for subsequent beneficial use, and it excludes any portion of the capacity of reservoirs allocated solely to flood control and sediment control, or either of them.

(n) The term "runoff" means both the portion of precipitation which runs off the surface of a drainage area and that portion of the precipitation that enters the streams after passing through the portions of the earth.

#### **ARTICLE IV Apportionment of Water – Reach I Oklahoma – Texas Subdivision of Reach I and apportionment of water therein.**

Reach I of the Red River is divided into topographical subbasins, with the water therein allocated as follows:

##### **SECTION 4.01. Subbasin 1 -- Interstate streams -- Texas.**

(a) This includes the Texas portion of Buck Creek, Sand (Lebos) Creek, Salt Fork Red River, Elm Creek, North Fork Red River, Sweetwater Creek, and Washita River, together with all their tributaries in Texas which lie west of the 100th Meridian.

(b) The annual flow within this subbasin is hereby apportioned sixty (60) percent to Texas and forty (40) percent to Oklahoma.

##### **SECTION 4.02. Subbasin 2 -- Intrastate and interstate streams -- Oklahoma.**

(a) This subbasin is composed of all tributaries of the Red River in Oklahoma and portions thereof upstream to the Texas-Oklahoma state boundary at longitude 100 degrees west, beginning from Denison Dam and upstream to and including Buck Creek.

(b) The State of Oklahoma shall have free and unrestricted use of the water of this subbasin.

##### **SECTION 4.03. Subbasin 3 -- Intrastate streams -- Texas.**

(a) This includes the tributaries of the Red River in Texas, beginning from Denison Dam and upstream to and including Prairie Dog Town Fork Red River.

(b) The State of Texas shall have free and unrestricted use of the water in this subbasin.

##### **SECTION 4.04. Subbasin 4 -- Mainstem of the Red River and Lake Texoma.**

(a) This subbasin includes all of Lake Texoma and the Red River beginning at Denison Dam and continuing upstream to the Texas-Oklahoma state boundary at longitude 100 degrees west.

(b) The storage of Lake Texoma and flow from the main stem of the Red River into Lake Texoma is apportioned as follows:

(1) Oklahoma 200,000 acre-feet and Texas 200,000 acre-feet, which quantities shall include existing allocations and uses; and

(2) Additional quantities in a ratio of fifty (50) percent to Oklahoma and fifty (50) percent to Texas.

**SECTION 4.05. Special provisions.**

(a) Texas and Oklahoma may construct, jointly or in cooperation with the United States, storage or other facilities for the conservation and use of water; provided that any facilities constructed on the Red River boundary between the two states shall not be inconsistent with the Federal legislation authorizing Denison Dam and Reservoir project.

(b) Texas shall not accept for filing, or grant a permit, for the construction of a dam to impound water solely for irrigation, flood control, soil conservation, mining and recovery of minerals, hydroelectric power, navigation, recreation and pleasure, or for any other purpose other than for domestic, municipal, and industrial water supply, on the main stem of the North Fork Red River or any of its tributaries within Texas above Lugert-Altus Reservoir until the date that imported water, sufficient to meet the municipal and irrigation needs of Western Oklahoma is provided, or until January 1, 2000, whichever occurs first.

**ARTICLE V Apportionment of Water -- Reach II Arkansas, Oklahoma, Texas and Louisiana.**

Subdivision of Reach II and allocation of water therein. Reach II of the Red River is divided into topographic subbasins, and the water therein is allocated as follows:

**SECTION 5.01. Subbasin 1 -- Intrastate streams -- Oklahoma.**

(a) This subbasin includes those streams and their tributaries above existing, authorized or proposed last downstream major damsites, wholly in Oklahoma and flowing into Red River below Denison Dam and above the Oklahoma-Arkansas state boundary. These streams and their tributaries with existing, authorized or proposed last downstream major damsites are as follows:

<u>Stream</u>	<u>Site</u>	<u>Ac-ft</u>	<u>Location Latitude</u>	<u>Longitude</u>
Island-Bayou	Albany	85,200	33°51.5'N	96°11.4'W
Blue River	Durant	147,000	33°55.5'N	96°04.2'W
Boggy River	Boswell	1,243,800	34°01.6'N	95°45.0'W
Kiamichi River	Hugo	240,700	34°01.0'N	95°22.6'W

(b) Oklahoma is apportioned the water of this subbasin and shall have unrestricted use thereof.

**SECTION 5.02. Subbasin 2 -- Intrastate streams -- Texas.**

(a) This subbasin includes those streams and their tributaries above existing authorized or proposed last downstream major damsites, wholly in Texas and flowing into Red River below Denison Dam and above the Texas-Arkansas state boundary. These streams and their tributaries with existing, authorized or proposed last downstream major damsites are as follows:

<u>Stream</u>	<u>Site</u>	<u>Ac-ft</u>	<u>Location Latitude</u>	<u>Longitude</u>
Shawnee Creek	Randall Lake	5,400	33°48.1'N	96°34.8'W
Brushy Creek	Valley Lake	15,000	33°38.7'N	96°21.5'W
Bois d' Arc Creek	New Bonham Reservoir	130,600	33°42.9'N	95°58.2'W
Coffee Mill Creek	Coffee Mill Lake	8,000	33°44.1'N	95°58.0'W
Sandy Creek	Lake Crockett	3,900	33°44.5'N	
				95°55.5'W
Sanders Creek	Pat Mayse	124,500	33°51.2'N	95°32.9'W
Pine Creek	Lake Crook	11,011	33°43.7'N	95°34.0'W
Big Pine Creek	Big Pine Lake	138,600	33°52.0'N	95°11.7'W
Pecan Bayou	Pecan Bayou	625,000	33°41.1'N	94°58.7'W
Mud Creek	Liberty Hill	97,700	33°33.0'N	94°29.3'W
Mud Creek	KVW RanchLakes	3,440	33°34.8'N	94°27.3'W

(b) Texas is apportioned the water of this subbasin and shall have unrestricted use thereof.

**SECTION 5.03. Subbasin 3 -- Interstate streams -- Oklahoma and Arkansas.**

(a) This subbasin includes Little River and its tributaries above Millwood Dam.

(b) The States of Oklahoma and Arkansas shall have free and unrestricted use of the water of this subbasin within their respective states, subject, however, to the limitation that Oklahoma shall allow a quantity of water equal to 40 percent of the total runoff originating below the following existing, authorized or proposed last downstream major damsites in Oklahoma to flow into Arkansas:

<u>Stream</u>	<u>Site</u>	<u>Ac-ft</u>	<u>Location Latitude</u>	<u>Longitude</u>
Little River	Pine Creek	70,500	34°06.8'N	95°04.9'W
Glover Creek	Lukfata	258,600	34°08.5'N	94°55.4'W
Mountain ForkRiver	Broken Bow	470,100	34°08.9'N	94°41.2'W

(c) Accounting will be on an annual basis unless otherwise deemed necessary by the States of Arkansas and Oklahoma.

**SECTION 5.04. Subbasin 4 -- Interstate streams -- Texas and Arkansas.**

(a) This subbasin shall consist of those streams and their tributaries above existing, authorized or proposed last downstream major damsites, originating in Texas and crossing the Texas-Arkansas state boundary before flowing into the Red River in Arkansas. These streams

and their tributaries with existing, authorized or proposed last downstream major damsites are as follows:

<u>Stream</u>	<u>Site</u>	<u>Ac-ft</u>	<u>Location Latitude</u>	<u>Longitude</u>
McKinney BayouTrib. 94°06.2'W	Bringle Lake	3,052	33°30.6'N	
Barkman Creek	Barkman Reservoir	15,900	33°29.7'N	94°10.3'W
Sulphur River 94°09.6'W	Texarkana	386,900	33°18.3'N	

(b) The State of Texas shall have the free and unrestricted use of the water of this subbasin.

**SECTION 5.05. Subbasin 5 -- Mainstem of the Red River and tributaries.**

(a) This subbasin includes that portion of the Red River, together with its tributaries, from Denison Dam down to the Arkansas-Louisiana state boundary, excluding all tributaries included in the other four subbasins of Reach II.

(b) Water within this subbasin is allocated as follows:

(1) The Signatory States shall have equal rights to the use of runoff originating in subbasin 5 and undesignated water flowing into subbasin 5, so long as the flow of the Red River at the Arkansas-Louisiana state boundary is 3,000 cubic feet per second or more, provided no state is entitled to more than 25 percent of the water in excess of 3,000 cubic feet per second.

(2) Whenever the flow of the Red River at the Arkansas-Louisiana state boundary is less than 3,000 cubic feet per second, but more than 1,000 cubic feet per second, the States of Arkansas, Oklahoma, and Texas shall allow to flow into the Red River for delivery to the State of Louisiana a quantity of water equal to 40 percent of the total weekly runoff originating in subbasin 5 and 40 percent of undesignated water flowing into subbasin; provided, however, that this requirement shall not be interpreted to require any state to release stored water.

(3) Whenever the flow of the Red River at the Arkansas-Louisiana state boundary falls below 1,000 cubic feet per second, the States of Arkansas, Oklahoma, and Texas shall allow a quantity of water equal to all the weekly runoff originating in subbasin 5 and all undesignated water flowing into subbasin 5 within their respective states to flow into the Red River as required to maintain a 1,000 cubic foot per second flow at the Arkansas-Louisiana state boundary.

(c) Whenever the flow at Index, Arkansas, is less than 526 c.f.s., the states of Oklahoma and Texas shall each allow a quantity of water equal to 40 percent of the total weekly runoff originating in subbasin 5 within their respective states to flow into the Red River; provided however, this provision shall be invoked only at the request of Arkansas, only after Arkansas has ceased all diversions from the Red River itself in Arkansas above Index, and only if the provisions of Sub-sections 5.05 (b) (2) and (3) have not caused a limitation of diversions in subbasin 5.

(d) No state guarantees to maintain a minimum low flow to a downstream state.

**SECTION 5.06. Special Provisions.**

(a) Reservoirs within the limits of Reach II, subbasin 5, with a conservation storage capacity of 1,000 acre feet or less in existence or authorized on the date of the Compact pursuant to the rights and privileges granted by a Signatory State authorizing such reservoirs, shall be

exempt from the provisions of Section 5.05; provided, if any right to store water in, or use water from, an existing exempt reservoir expires or is cancelled after the effective date of the Compact the exemption for such rights provided by this section shall be lost.

(b) A Signatory State may authorize a change in the purpose or place of use of water from a reservoir exempted by subparagraph (a) of this section without losing that exemption, if the quantity of authorized use and storage is not increased.

(c) Additionally, exemptions from the provisions of Section 5.05 shall not apply to direct diversions from Red River to off-channel reservoirs or lands.

## **ARTICLE VI Apportionment of Water -- Reach III Arkansas, Louisiana, and Texas**

Subdivision of Reach III and allocation of water therein. Reach III of the Red River is divided into topographic subbasins, and the water therein allocated, as follows:

### **SECTION 6.01. Subbasin 1 -- Interstate streams -- Arkansas and Texas.**

(a) This subbasin includes the Texas portion of those streams crossing the Arkansas-Texas state boundary one or more times and flowing through Arkansas into Cypress Creek-Twelve Mile Bayou watershed in Louisiana.

(b) Texas is apportioned sixty (60) percent of the run-off of this subbasin and shall have unrestricted use thereof; Arkansas is entitled to forty (40) percent of the runoff of this subbasin.

### **SECTION 6.02. Subbasin 2 -- Interstate streams -- Arkansas and Louisiana.**

(a) This subbasin includes the Arkansas portion of those streams flowing from Subbasin 1 into Arkansas, as well as other streams in Arkansas which cross the Arkansas-Louisiana state boundary one or more times and flow into Cypress Creek-Twelve Mile Bayou watershed in Louisiana.

(b) Arkansas is apportioned sixty (60) percent of the runoff of this subbasin and shall have unrestricted use thereof; Louisiana is entitled to forty (40) percent of the runoff of this subbasin.

### **SECTION 6.03. Subbasin 3 -- Interstate streams -- Texas and Louisiana.**

(a) This subbasin includes the Texas portion of all tributaries crossing the Texas-Louisiana state boundary one or more times and flowing into Caddo Lake, Cypress Creek-Twelve Mile Bayou, or Cross Lake, as well as the Louisiana portion of such tributaries.

(b) Texas and Louisiana within their respective boundaries shall each have the unrestricted use of the water of this subbasin subject to the following allocation:

(1) Texas shall have the unrestricted right to all water above Marshall, Lake O' the Pines, and Black Cypress damsites; however, Texas shall not cause runoff to be depleted to a quantity less than that which would have occurred with the full operation of Franklin County, Titus County, Ellison Creek, Johnson Creek, Lake O' the Pines, Marshall, and Black Cypress Reservoirs constructed, and those other impoundments and diversions existing on the effective date of this Compact. Any depletions of runoff in excess of the depletions described above shall be charged against Texas' apportionment of the water in Caddo Reservoir.

(2) Texas and Louisiana shall each have the unrestricted right to use fifty (50) percent of the conservation storage capacity in the present Caddo Lake for the impoundment of water for

state use, subject to the provision that supplies for existing uses of water from Caddo Lake, on date of Compact, are not reduced.

(3) Texas and Louisiana shall each have the unrestricted right to fifty (50) percent of the conservation storage capacity of any future enlargement of Caddo Lake, provided, the two states may negotiate for the release of each state's share of the storage space on terms mutually agreed upon by the two states after the effective date of this Compact.

(4) Inflow to Caddo Lake from its drainage area downstream from Marshall, Lake O' the Pines, and Black Cypress damsites and downstream from other last downstream dams in existence on the date of the signing of the Compact document by the Compact Commissioners, will be allowed to continue flowing into Caddo Lake except that any man-made depletions to this inflow by Texas will be subtracted from the Texas share of the water in Caddo Lake.

(c) In regard to the water of interstate streams which do not contribute to the inflow to Cross Lake or Caddo Lake, Texas shall have the unrestricted right to divert and use this water on the basis of a division of runoff above the state boundary of sixty (60) percent to Texas and forty (40) percent to Louisiana.

(d) Texas and Louisiana will not construct improvements on the Cross Lake watershed in either state that will affect the yield of Cross Lake; provided, however, this subsection shall be subject to the provisions of Section 2.08.

**SECTION 6.04. Subbasin 4 -- Intrastate streams -- Louisiana.**

(a) This subbasin includes that area of Louisiana in Reach III not included within any other subbasin.

(b) Louisiana shall have free and unrestricted use of the water of this subbasin.

**ARTICLE VII Apportionment of Water -- Reach IV Arkansas and Louisiana**

Subdivision of Reach IV and allocation of water therein. Reach IV of the Red River is divided into topographic subbasins, and the water therein allocated as follows:

**SECTION 7.01. Subbasin 1 -- Intrastate streams -- Arkansas.**

(a) This subbasin includes those streams and their tributaries above last downstream major damsites originating in Arkansas and crossing the Arkansas-Louisiana state boundary before flowing into the Red River in Louisiana. Those major last downstream damsites are as follows:

<u>Stream</u>	<u>Site</u>	<u>Ac-ft</u>	<u>Location Latitude</u>	<u>Longitude</u>
Ouachita River	Lake Catherine	19,000	34°26.6'N	93°01.6'W
Caddo River	DeGray Lake	1,377,000	34°13.2'N	93°06.6'W
Little Missouri River	Lake Greeson	600,000	34°08.9'N	93°42.9'W
Alum Fork, Saline River	Lake Winona	63,264	32°47.8'N	92°51.0'W



**(b)** Arkansas is apportioned the waters of this subbasin and shall have unrestricted use thereof.

**SECTION 7.02. Subbasin 2 -- Interstate streams -- Arkansas and Louisiana.**

**(a)** This subbasin shall consist of Reach IV less subbasin 1 as defined in Section 7.01 (a) above.

**(b)** The State of Arkansas shall have free and unrestricted use of the water of this reach subject to the limitation that Arkansas shall allow a quantity of water equal to forty (40) percent of the weekly runoff originating below or flowing from the last downstream major damsites to flow into Louisiana. Where there are no designated last downstream damsites, Arkansas shall allow a quantity of water equal to forty (40) percent of the total weekly runoff originating above the state boundary to flow into Louisiana. Use of water in this subbasin is subject to low flow provisions of subparagraph 7.02(b).

**SECTION 7.03. Special Provisions.**

**(a)** Arkansas may use the beds and banks of segments of Reach IV for the purpose of conveying its share of water to designated downstream diversions.

**(b)** The State of Arkansas does not guarantee to maintain a minimum low flow for Louisiana in Reach IV. However, on the following streams when the use of water in Arkansas reduces the flow at the Arkansas-Louisiana state boundary to the following amounts:

- (1)** Ouachita -- 780 cfs
- (2)** Bayou Bartholomew -- 80 cfs
- (3)** Boeuf River -- 40 cfs
- (4)** Bayou Macon -- 40 cfs

the State of Arkansas pledges to take affirmative steps to regulate the diversions of runoff originating or flowing into Reach IV in such a manner as to permit an equitable apportionment of the runoff as set out herein to flow into the State of Louisiana. In its control and regulation of the water of Reach IV any adjudication or order rendered by the State of Arkansas or any of its instrumentalities or agencies affecting the terms of this Compact shall not be effective against the State of Louisiana nor any of its citizens or inhabitants until approved by the Commission.

**ARTICLE VIII Apportionment of Water -- Reach V**

**SECTION 8.01.** Reach V of the Red River consists of the main stem Red River and all of its tributaries lying wholly within the State of Louisiana. The State of Louisiana shall have free and unrestricted use of the water of this subbasin.

**ARTICLE IX Administration of the Compact**

**SECTION 9.01.** There is hereby created an interstate administrative agency to be known as the "Red River Compact Commission," hereinafter called the "Commission." The Commission shall be composed of two representatives from each Signatory State who shall be designated or appointed in accordance with the laws of each state, and one Commissioner representing the United States, who shall be appointed by the President. The Federal Commissioner shall be the Chairman of the Commission but shall not have the right to vote. The failure of the President to appoint a Federal Commissioner will not prevent the operation or effect of this Compact, and the eight representatives from the Signatory States will elect a Chairman for the Commission.

**SECTION 9.02.** The Commission shall meet and organize within 60 days after the effective date of this Compact. Thereafter, meetings shall be held at such times and places as the Commission shall decide.

**SECTION 9.03.** Each of the two Commissioners from each state shall have one vote; provided, however, that if only one representative from a state attends he is authorized to vote on behalf of the absent Commissioner from that state. Representatives from three states shall constitute a quorum. Any action concerned with administration of this Compact or any action requiring compliance with specific terms of this Compact shall require six concurring votes. If a proposed action of the Commission affects existing water rights in a state, and that action is not expressly provided for in this Compact, eight concurring votes shall be required.

**SECTION 9.04. (a)** The salaries and personal expenses of each state's representative shall be paid by the government that it represents, and the salaries and personal expenses of the Federal Commissioner will be paid for by the United States.

**(b)** The Commission's expenses for any additional stream flow gauging stations shall be equitably apportioned among the states involved in the reach in which the stream flow gauging stations are located.

**(c)** All other expenses incurred by the Commission shall be borne equally by the Signatory States and shall be paid by the Commission out of the "Red River Compact Commission Fund." Such fund shall be initiated and maintained by equal payments of each state into the fund. Disbursement shall be made from the fund in such manner as may be authorized by the Commission. Such fund shall not be subject to audit and accounting procedures of the state; however, all receipts and disbursements of the fund by the Commission shall be audited by a qualified independent public accountant at regular intervals, and the report of such audits shall be included in and become a part of the annual report of the Commission. Each state shall have the right to make its own audit of the accounts of the Commission at any reasonable time.

## **ARTICLE X Powers and Duties of the Commission**

**SECTION 10.01.** The Commission shall have the power to:

**(a)** Adopt rules and regulations governing its operation and enforcement of the terms of the Compact;

**(b)** Establish and maintain an office for the conduct of its affairs and, if desirable, from time to time, change its location;

**(c)** Employ or contract with such engineering, legal, clerical and other personnel as it may determine necessary for the exercise of its functions under this Compact without regard to the Civil Service Laws of any Signatory State; provided that such employees shall be paid by and be responsible to the Commission and shall not be considered employees of any Signatory State;

**(d)** Acquire, use and dispose of such real and personal property as it may consider necessary;

**(e)** Enter into contracts with appropriate State or Federal agencies for the collection, correlation and presentation of factual data, for the maintenance of records and for the preparation of reports;

**(f)** Secure from the head of any department or agency of the Federal or State government such information as it may need or deem to be useful for carrying out its functions and as may be available to or procurable by the department or agency to which the request is addressed; provided such information is not privileged and the department or agency is not precluded by law from releasing same;

**(g)** Make findings, recommendations or reports in connection with carrying out the purposes of this Compact, including, but not limited to, a finding that a Signatory State is or is not in violation of any of the provisions of this Compact. The Commission is authorized to make such investigations and studies, and to hold such hearings as it may deem necessary for said purposes. It is authorized to make and file official certified copies of any of its findings, recommendations or reports with such officers or agencies of any Signatory State, or the United States, as may have any interest in or jurisdiction over the subject matter. The making of findings, recommendations, or reports by the Commission shall not be a condition precedent to the instituting or maintaining of any action or proceeding of any kind by a Signatory State in any court or tribunal, or before any agency or officer, for the protection of any right under this Compact or for the enforcement of any of its provisions; and

**(h)** Print or otherwise reproduce and distribute its proceedings and reports.

**SECTION 10.02.** The Commission shall:

**(a)** Cause to be established, maintained, and operated such stream, reservoir and other gauging stations as are necessary for the proper administration of the Compact;

**(b)** Cause to be collected, analyzed and reported such information on stream flows, water quality, water storage and such other data as are necessary for the proper administration of the Compact;

**(c)** Perform all other functions required of it by the Compact and do all things necessary, proper and convenient in the performance of its duties thereunder;

**(d)** Prepare and submit to the governor of each of the Signatory States a budget covering the anticipated expenses of the Commission for the following fiscal biennium;

**(e)** Prepare and submit an annual report to the governor of each Signatory State and to the President of the United States covering the activities of the Commission for the preceding fiscal year, together with an accounting of all funds received and expended by it in the conduct of its work;

(f) Make available to the governor or to any official agency of a Signatory State or to any authorized representative of the United States, upon request, any information within its possession;

(g) Not incur any obligation in excess of the unencumbered balance of its funds, nor pledge the credit of any of the Signatory States; and

(h) Make available to a Signatory State or the United States in any action arising under this Compact, without subpoena, the testimony of any officer or employee of the Commission having knowledge of any relevant facts.

## **ARTICLE XI Pollution**

**SECTION 11.01.** The Signatory States recognize that the increase in population and the growth of industrial, agricultural, mining and other activities combined with natural pollution sources may lead to a diminution of the quality of water in the Red River Basin which may render the water harmful or injurious to the health and welfare of the people and impair the usefulness or public enjoyment of the water for beneficial purposes, thereby resulting in adverse social, economic, and environmental impacts.

**SECTION 11.02.** Although affirming the primary duty and responsibility of each Signatory State to take appropriate action under its own laws to prevent, diminish, and regulate all pollution sources within its boundaries which adversely affect the water of the Red River Basin, the states recognize that the control and abatement of the naturally-occurring salinity sources as well as, under certain circumstances, the maintenance and enhancement of the quality of water in the Red River Basin may require the cooperative action of all states.

**SECTION 11.03.** The Signatory States agree to cooperate with agencies of the United States to devise and effectuate means of alleviating the natural deterioration of the water of the Red River Basin.

**SECTION 11.04.** The Commission shall have the power to cooperate with the United States, the Signatory States and other entities in programs for abating and controlling pollution and natural deterioration of the water of the Red River Basin, and to recommend reasonable water quality objectives to the states.

**SECTION 11.05.** Each Signatory State agrees to maintain current records of waste discharges into the Red River Basin and the type and quality of such discharges, which records shall be furnished to the Commission upon request.

**SECTION 11.06.** Upon receipt of a complaint from the governor of a Signatory State that the interstate waters of the Red River Basin in which it has an interest are being materially and adversely affected by pollution and that the state in which the pollution originates has failed after reasonable notice to take appropriate abatement measures, the Commission shall make such findings as are appropriate and thereafter provide such findings to the governor of the state in which such pollution originates and request appropriate corrective action. The Commission, however, shall not take any action with respect to pollution which adversely affects only the state in which such pollution originates.

**SECTION 11.07.** In addition to its other powers set forth under this Article, the Commission shall have the authority, upon receipt of six concurring votes, to utilize applicable Federal

statutes to institute legal action in its own name against the person or entity responsible for interstate pollution problems; provided, however, sixty (60) days before initiating legal action the Commission shall notify the Governor of the state in which the pollution source is located to allow that state an opportunity to initiate action in its own name.

**SECTION 11.08.** Without prejudice to any other remedy available to the Commission, or any Signatory State, any state which is materially and adversely affected by the pollution of the water of the Red River Basin by pollution originating in another Signatory State may institute a suit against any individual, corporation, partnership, or association, or against any Signatory State or political or governmental subdivision thereof, or against any officer, agency, department, bureau, district, or instrumentality of or in any Signatory State contributing to such pollution in accordance with applicable Federal statutes. Nothing herein shall be construed as depriving any persons of any rights of action relating to pollution which such person would have if this Compact had not been made.

#### **ARTICLE XII Termination and Amendment of Compact**

**SECTION 12.01.** This Compact may be terminated at any time by appropriate action of the legislatures of all of the four Signatory States. In the event of such termination, all rights established under it shall continue unimpaired.

**SECTION 12.02.** This Compact may be amended at any time by appropriate action of the legislatures of all Signatory States that are affected by such amendment. The consent of the United States Congress must be obtained before any such amendment is effective.

#### **ARTICLE XIII Ratification and Effective Date of Compact**

**SECTION 13.01.** Notice of ratification of this Compact by the legislature of each Signatory State shall be given by the governor thereof to the governors of each of the other Signatory States and to the President of the United States. The President is hereby requested to give notice to the governors of each of the Signatory States of the consent to this Compact by the Congress of the United States.

**SECTION 13.02.** This Compact shall become effective, binding and obligatory when, and only when:

(a) It has been duly ratified by each of the Signatory States; and

(b) It has been consented to by an Act of the Congress of the United States, which Act provides that:

Any other statute of the United States to the contrary notwithstanding, in any case or controversy:

which involves the construction or application of this Compact;

in which one or more of the Signatory States to this Compact is a plaintiff or plaintiffs; and which is within the judicial power of the United States as set forth in the Constitution of the United States;

and without any requirement, limitation or regard as to the sum or value of the matter in controversy, or of the place of residence or citizenship of, or of the nature, character or legal status of, any of the other proper parties plaintiff or defendant in such case or controversy;

The consent of Congress is given to name and join the United States as a party defendant or otherwise in any such case or controversy in the Supreme Court of the United States if the United States is an indispensable party thereto.

**SECTION 13.03.** The United States District Courts shall have original jurisdiction (concurrent with that of the Supreme Court of the United States, and concurrent with that of any other Federal or state court, in matters in which the Supreme Court, or other court has original jurisdiction) of any case or controversy involving the application or construction of this Compact; that said jurisdiction shall include, but not be limited to, suits between Signatory States; and that the venue of such case or controversy may be brought in any judicial district in which the acts complained of (or any portion thereof) occur."

**RULES FOR THE INTERNAL ORGANIZATION**  
**of the**  
**RED RIVER COMPACT COMMISSION**

(As Amended April 25, 1984, April 30, 1991, May 4, 1993, March 24, 1994, April 29, 2003, and April 13, 2006<sup>1</sup>)

**ARTICLE I**  
**THE COMMISSION**

1.1 The Commission is the “Red River Compact Commission,” which is referred to in Article X of the Red River Compact.

1.2 The credentials of each Commissioner shall be filed with both the Chair and the Secretary of the Commission. When the credentials of a new Commissioner are received, the Secretary shall promptly notify each of the other Commissioners of the name and address of the new Commissioner.

1.3 Each Commissioner shall advise in writing the office of the Commission as to the address at which all official notices and other communications of the Commission shall be sent. Any change of address shall be promptly communicated in writing to the office of the Commission.

1.4 Persons designated to substitute for duly appointed Commissioners at meetings of the Compact Commission shall present the Commission with credentials of authority by letter, or other form of appointment acceptable to the Commission, which states the scope or limitations of the appointment together with a copy of the state or federal law or Attorney General’s opinion which authorizes the appointment.

**ARTICLE II**  
**OFFICERS**

2.1 The officers of the Commission shall be a Chair, a Vice-Chair, Secretary and a Treasurer.

2.2 The Commissioner representing the United States shall be the Chair of the Commission. The Chair or the designated representative of the Chair, shall preside at meetings of the Commission. The duties of the Chair shall be those usually imposed upon such officers and as may be assigned by these rules or by the Commission from time to time.

2.3 The Vice-Chair shall be elected at the annual meeting from the Commissioners of the host state for the coming year as reflected by the minutes, and shall hold office for a term of one year, beginning on July 1 following the election, or until a successor is elected. The Vice-Chair shall serve as Chair in the event the President of the United States fails to appoint a Federal

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<sup>1</sup> In 2015, the Red River Compact Legal Committee presented this version of the rules as a comprehensive version containing all known amendments to the Internal Rules for Internal Organization adopted by the Commission. The Commission last amended these rules on April 13, 2006.

Commissioner, or in the absence of the Federal Commissioner or the designated representative of the Federal Commissioner.

2.4 The Secretary shall be selected at the annual meeting by the Commission from the state designated to host the next annual meeting as reflected in the minutes. The Secretary shall serve for the term of one year, beginning on July 1 following the selection, and perform the duties as the Commission shall direct. In case of a vacancy in the office of the Secretary, the Commission shall select a new Secretary as expeditiously as possible.

2.5 The Treasurer shall be selected by the Commission for a term of one year, beginning on July 1 following the selection. The Treasurer shall furnish a fidelity bond, the cost of which shall be paid by the Commission. The Treasurer shall receive, hold and disburse all funds which come into the hands of the Treasurer.

2.6 The Secretary and Treasurer may be members of the Commission, and their offices may be combined by the Commission. Any one person may hold both offices.

### **ARTICLE III** **PRINCIPAL OFFICE**

3.1 The principal office the Commission shall be either the office of the Chair or the Secretary, as the Commission shall direct.

3.2 Official books and records of the Commission shall be kept at the principal office.

### **ARTICLE IV** **MEETINGS**

4.1 The annual meeting of the Commission shall be held on the last Tuesday of April of each year.

4.2 (a) Special meetings of the Commission may be called by the Chair at any time. Upon the written request of each of the Commissioners of two states setting forth the matters to be considered at such meeting, the Chair shall call a special meeting.

(b) Individual members of the Commission, consistent with laws of the respective signatory state that may apply to the individual members, may participate in special meetings of the Commission by any means of electronic or telephonic communication through which all members and other participants may simultaneously hear one another during the meeting. Members who participate in a special meeting by such means shall be considered present for all purposes, including the presence of a quorum. Such meeting shall constitute a valid special meeting of the Commission even though members participate through electronic or telephonic means, provided:

(1) The Commission complies with other applicable provisions of these rules, including quorum and voting requirements.



(2) Arrangements are made so that any member of the public desiring to attend the meeting may attend at the same location as any Commission member attending the meeting by electronic or telephonic means, and the meeting notice informs the public of the arrangements.

(3) Arrangements are made so that a member of the public attending the meeting as set forth in subparagraph (2) above may simultaneously hear the members and other participants.

(4) The Commission may not meet in executive session by electronic or telephonic means.

4.3 Reasonable notice of all special meetings of the Commission shall be sent by the Chair, to all members of the Commission by ordinary mail at least ten days in advance of each meeting and notice shall state the purpose thereof.

4.4 Emergency meetings of the Commission may be called by the Chair at any time upon the concurrence of at least two states and such meetings may be conducted by long-distance telephone conference call or other electronic means. Any such long-distance telephone conference call or other electronic communication shall be recorded and made available for public inspection in accordance with the laws of the respective signatory states. Each of the signatory states shall be represented by at least one Commissioner during such an emergency conference and each state concur in any emergency action taken during an emergency meeting. An emergency is defined as a situation involving an eminent threat of injury to persons or damage to property or eminent financial loss when the time requirements for public notice and travel to a special meeting would make such procedure and travel impractical and increase the likelihood of injury or damage or eminent financial loss.

4.5 Notice to the public shall be given of all Commission meetings. Except as otherwise provided, the Chair shall furnish notice of all meetings to the Commissioners of each signatory state, whose responsibility it shall be to give said notice to the public in accordance with the laws of their respective states. In the event of an emergency meeting held by telephone or other electronic communication, no advance notice is required. All meetings of the Commission shall be held at the principal office unless another place shall be agreed upon by the Commissioners.

4.6 Minutes of the Commission shall be preserved in suitable manner. Minutes, until approved, shall not be official and shall be furnished only to members of the Commission, its employees and committees.

4.7 Commissioners from three of the signatory states shall constitute a quorum. However, if an emergency meeting is conducted as provided for in rule 4.4, or if a proposed action of the Commission affects existing water rights in a state, and that action is not expressly provided for in the Compact, eight concurring votes shall be required. Any other actions concerned with the administration of the Compact or requiring compliance with specific terms of the Compact shall require six concurring votes.

4.8 At each regular or annual meeting of the Commission, the order of business, unless agreed otherwise, shall be as follows:

Call to Order,  
Approval of Agenda,  
Approval of the minutes,  
Report of Chairman,  
Report of Secretary,  
Report of the Treasurer,  
Report of the Commissioners,  
Report of Committees,  
Unfinished business,  
New business,  
Adjournment.

4.9 All meetings of the Commission, except executive sessions and except as otherwise provided by law in each Signatory State as it may apply to the individual members, shall be open to the public. Executive sessions shall be open only to members of the Commission and such advisers as may be designated by each member and employees as permitted by the Commission; provided, however, that the Commission may call witnesses before it when in such sessions. The Commission may hold executive sessions only for the purposes of discussing:

- (a) The employment, appointment, promotion, demotion, disciplining or resignation of a Commission employee or employees, members, advisers, or committee members;
- (b) Pending or contemplated litigation, settlement offers, and matters where the duty of the Commission's counsel, pursuant to the Code of Professional Responsibility, clearly conflicts with the public's right to know; or
- (c) The report, development, or course of action regarding security, personnel, plans, or devices.

No executive session may be held except on a vote, taken in public by a majority of a quorum of the members present. At least one Commissioner from each of the signatory states must agree to the holding of an executive session. Any motion or other decision considered or arrived at in executive session shall be voidable unless, following the executive session, the Commission reconvenes in public session and presents and votes on such motion or other decision.

4.10 In the absence of a Chair and Vice-Chair, all of the Commissioners from any two (2) states may call an emergency or a special meeting of the Compact Commission.

## **ARTICLE V** **COMMITTEES**

5.1 There may be the following standing committees:

- (a) Budget Committee,
- (b) Engineering Committee,
- (c) Environmental and Natural Resources Committee, and
- (d) Legal Committee.

5.2 The committees shall have the following duties:

- (a) The Budget Committee shall prepare the annual budget and shall advise the Commission on all fiscal matters that may be referred to it.
- (b) The Engineering Committee shall advise the Commission all engineering matters that may be referred to it.
- (c) The Environmental and Natural Resources Committee shall advise the Commission on all environmental and natural resource matters that may be referred to it.
- (d) The Legal Committee shall advise the Commission on all legal matters that may be referred to it.

5.3 Commissioners may be members of committees. The number of members of each committee shall be determined from time to time by the Commission. The Commissioners of each state shall designate the member or members on each committee representing the State, and each State shall have one vote.

5.4 The Chair may appoint a non-voting member of each committee.

5.5 The Chair of each committee shall be designated by the Commission from members of the committee; however, in the event a Chair is unable to perform assigned duties, the committee shall appoint an Interim Chair.

5.6 The Commission may from time to time create special committees and assign it tasks. The Commission may also determine the composition of the special committees.

5.7 Formal committee reports shall be made in writing and filed with the Commission.

**ARTICLE VI**  
**RULES AND REGULATIONS**

6.1 So far as is consistent with the Compact, the Commission may adopt rules and regulations and amend them from time to time. Rules and regulations to be adopted shall be presented by resolution and approved by a quorum as set out in Rule 4.7. Copies of the proposed resolutions for rule adoption shall be presented in writing to each of the Commissioners at least thirty days before the meeting upon which they are to be voted. However, at its meeting, by unanimous vote, the Commission may waive this notice requirement.

6.2 Rules and regulations of the Commission may be compiled and copies may be prepared for distribution to the public under such terms and conditions as the Commission may prescribe.

**ARTICLE VII**  
**FISCAL**

7.1 All funds of the Commission shall be deposited in a depository or depositories designated by the Commission under the name of the "Red River Compact Commission Fund".

7.2 Disbursement of funds in the hands of the Treasurer, for items included in the approved budget, shall be made by check signed by the Treasurer and the Vice-Chair or by such person as may be designated by the Commission. Disbursement of funds for non-budgeted items shall be made by check signed by the Treasurer and Vice-Chair upon voucher approved by at least six of the Commissioners, four of whom shall be from different signatory states.

7.3 At the annual meeting of each year, the Commission shall adopt a budget covering an estimate of its expenses for the following two fiscal years.

7.4 The payment of expenses of the Commission and of its employees shall not be subject to the audit and accounting procedures of the states.

7.5 All receipts and disbursements of the Commission shall be audited periodically as determined by the Commission by a qualified independent public accountant to be selected by the Commission and the report of the audit shall be included in and become a part of the annual report of the Commission.

7.6 The fiscal year of the Commission shall begin July 1 of each year and end June 30 of the next succeeding year.

**ARTICLE VIII**  
**ANNUAL REPORT**

8.1 The Commission shall make an annual report and transmit it on or before the last day of May to the governors of the signatory states to the Red River Compact and to the President of the United States.

8.2 The annual report shall contain:

- (a) Minutes of all regular, special or emergency meetings held during the year;
- (b) All findings of facts made by the Commission during the preceding year;
- (c) Recommendations for actions by the signatory states;
- (d) Statements as to any cooperative studies made during the preceding year;
- (e) All data which the Commission deems pertinent;
- (f) The budget for current and future years;
- (g) The most recent audit report or current financial statement of the Red River Compact Fund;
- (h) Name, address and phone number of each Commissioner and each member of all standing committees; and
- (i) Such other pertinent matters as the Commission may require.

**HISTORICAL NOTES**  
**RULES FOR THE INTERNAL ORGANIZATION OF THE**  
**RED RIVER COMPACT COMMISSION**

**April 13, 2006 amendments:**

Section 4.2 amended:

“4.2 (a) Special meetings of the Commission may be called by the Chairman at any time. Upon the written request of each the Commissions of two states setting forth the matters to be considered at such meeting, the chairman shall call a special meeting.

(b) Individual members of the Commission, consistent with laws of the respective signatory state that may apply to the individual members, may participate in special meetings of the Commission by any means of electronic or telephonic communication through which all members and other participants may simultaneously hear one another during the meeting. Members who participate in a special meeting by such means shall be considered present for all purposes, including the presence of a quorum. Such meeting shall constitute a valid special meeting of the Commission even though members participate through electronic or telephonic means, provided:

(1) The Commission complies with other applicable provisions of these rules, including quorum and voting requirements.

(2) Arrangements are made so that any member of the public desiring to attend the meeting may attend at the same location as any Commission member attending the meeting by electronic or telephonic means, and the meeting notice informs the public of the arrangements.

(3) Arrangements are made so that a member of the public attending the meeting as set forth in subparagraph (2) above may simultaneously hear the members and other participants.

(4) The Commission may not meet in executive session by electronic or telephonic means.”

**April 29, 2003 amendments:**

Section 2.7 deleted.

**March 24, 1994 amendments:**

Section 5.1 amended:

“5.1 There may be the following standing committees:

(a) Budget Committee.

(b) Engineering Committee.

(c) Environmental and Natural Resources Committee.

(d) Legal Committee”

Section 5.2 amended:

“5.2 The committees shall have the following duties:

(e) (a) The Budget Committee shall prepare the annual budget and shall advise the Commission on all fiscal matters that may be referred to it.

(a) (b) The Engineering Committee shall advise the Commission all engineering matters that may be referred to it.

(c) The Environmental and Natural Resources Committee shall advise the Commission on all environmental and natural resource matters that may be referred to it.

(b) (d) The Legal Committee shall advise the Commission on all legal matters that may be referred to it.”

Section 8.2 amended:

“8.2 The annual report shall ~~cover activities of the commission for the preceding year, and include, among other things, the following:~~ contain:

(a) The estimated budget; Minutes of all regular, special or emergency meetings held during the year;

(b) Report of the last audit of Red River Compact Fund; All findings of fact made by the Commission during the preceding year;

(c) All hydrologic data which the commission deems pertinent; Recommendations for actions by the signatory states;

(d) Statements as to cooperative studies of water supplies made during the preceding year;

(e) All data which the Commission deems pertinent;

(f) The budget for current and future years;

(g) The most recent audit report or current financial statement of the Red River Compact Fund;

(h) Name, address and phone number of each Commissioner and each member of all standing committees;

(e) (i) Such other pertinent matters as the Commission may require."

**May 4, 1993 amendments:**

Section 1.4 amended:

"1.4 Persons designated to substitute for duly appointed Commissioners at meetings of the Compact Commission shall present the Commission with credentials of authority by letter, or other form of appointment acceptable to the Commission, which states the scope or limitations of the appointment together with a copy of the state or federal law or Attorney General's opinion which authorizes the appointment."

Section 2.2 amended:

"2.2 The Commissioner representing the United States shall be the Chairman of the Commission. The Chairman or the designated representative of the Chairman, shall preside at the meetings of the Commission. His duties shall be those usually imposed upon such officers as may be assigned by these rules or by the Commission from time to time."

Section 2.3 amended:

"2.3 The Vice-Chairman shall be elected at the annual meeting from the Commissioners of the host state for the coming year as reflected by the minutes, and shall hold office for a term of one year, beginning on July 1 following the election, or until a successor is elected. The Vice-Chairman shall serve as Chairman in the event the President of the United States fails to appoint a Federal Commissioner, or in the absence of the Federal Commissioner or the designated representative of the Federal Commissioner."

Section 2.4 amended:

"2.4 The Secretary shall be selected at the annual meeting by the Commission from the state designated to host the next annual meeting as reflected in the minutes. The Secretary shall serve for the term of one year, beginning on July 1 following the selection, and perform the duties as the Commission shall direct. In case of a vacancy in the office of the Secretary, the Commission shall select a new Secretary as expeditiously as possible."

Section 2.5 amended:

"2.5 The Treasurer shall be selected by the Commission for a term of one year, beginning on July 1 following the selection. The Treasurer shall furnish a fidelity bond, the cost of which shall be paid by the Commission. The Treasurer shall receive, hold and disburse all funds which come into his the hands of the Treasurer."

Section 2.7 added:

"2.7 Whenever there is a permanent change in the Commander of the Lower Mississippi Valley Division, Department of the Army Corps of Engineers, or its counterpart in any future reorganization of the Corps, the Vice-Chairman shall immediately request the President to appoint the new Commander as the U.S. Commissioner to the Compact Commission."

**April 30, 1991 amendments:**

Section 1.4 added:

"1.4 Persons designated to substitute for duly appointed Commissioners at meetings of the Compact Commission shall present the Commission with credentials of authority by letter, or other form of appointment acceptable to the Commission, which states the scope or limitations of the appointment together with a copy of the state law or Attorney General's opinion which authorizes the appointment."

Section 2.3 amended:

"2.3 The Vice-Chairman shall be elected at the annual meeting from among the Commissioners of the host state for the coming year as reflected by the minutes, and ~~He~~ shall hold office for a term of one year, ~~but shall continue to serve~~ or until his a successor is elected. The Vice-Chairman shall serve as Chairman in the event the President of the United States fails to appoint a Federal Commissioner, or in the absence of the Federal Commissioner."

Section 2.4 amended:

"2.4 The Secretary shall be selected at the annual meeting by the Commission from the state designated to host the next annual meeting as reflected in the minutes. ~~He~~ The Secretary shall serve for a the term and perform the duties as the Commission shall direct. In case of a vacancy in the office of the Secretary, the Commission shall select a new Secretary as expeditiously as possible."

Section 4.10 added:

"4.10 In the absence of a Chairman and Vice-Chairman, all of the Commissioners from any two (2) states may call an emergency or a special meeting of the Compact Commission."

**April 25, 1984 amendments:**

Section 4.4 amended:

"4.4 4.5 Notice to the public shall be given of all Commission meetings. Except as otherwise provided, the Chairman shall furnish notice of all meetings to the Commissioners of each signatory state, whose responsibility it shall be to give said notice to the public in accordance with the laws of their respective states. In the event of an emergency meeting held by telephone or other electronic communication, no advance notice is required."



“All meetings of the Commission shall be held at the principal office unless another place shall be agreed upon by the Commissioners.”

Section 4.5 amended:

“4.5 4.4 Emergency meetings of the Commission may be called by the Chairman at any time upon the concurrence of at least two states and such meetings may be conducted by long-distance telephone conference call or other electronic means. Any such long-distance telephone conference call or other electronic communication shall be recorded and made available for public inspection in accordance with the laws of the respective signatory states. Each of the signatory states shall be represented by at least one Commissioner during such an emergency conference and concur in the action.

“An emergency is defined as a situation involving an ~~imminent~~ eminent threat of injury to persons or damage to property or ~~imminent~~ eminent financial loss when the time requirements for public notice and travel to a special meeting would make such procedure and travel impractical and increase the likelihood of injury or damage or ~~imminent~~ eminent financial loss.”

Section 4.6 is deleted (and added to new Section 4.5):

“4.6 All meetings of the Commission shall be held at the principal office unless another place be agreed upon by the Commissioners.”

Section 4.7 is amended:

“4.7 4.6 Minutes of the Commission shall be preserved in suitable manner. Minutes, until approved, shall not be official and shall be furnished only to members of the Commission, its employees and committees.”

Section 4.8 is amended:

“4.8 4.7 Commissioners from three of the signatory states shall constitute a quorum. However, if an emergency meeting is conducted as provided for in rule ~~4.5 4.4~~, or if a proposed action of the Commission affects existing water rights in a state, and that action is not expressly provided for in the Compact, eight concurring votes shall be required. Any other action concerned with the administration of the Compact or requiring compliance with specific terms of the Compact shall require six concurring votes.”

Section 4.9 is amended:

“4.9 4.8 At each regular or annual meeting of the Commission, the order of business, unless agreed otherwise, shall be as follows:

- Call to order;
- Approval of Agenda;
- Approval of the minutes;
- Report of Chairman;
- Report of Secretary;
- Report of Treasurer;
- Report of Commissioners;
- Report of Committees;

Unfinished business;  
New business;  
Adjournment;

Section 4.10 is amended:

~~“4.10 4.9~~ All meetings of the Commission, except executive sessions and ~~meetings called under rule 4.5~~ except as otherwise provided, shall be open to the public. Executive sessions shall be open only to members of the Commission and such advisers as may be designated by each member and employees as permitted by the Commission; provided, however, that the Commission may call witnesses before it when in such sessions.

“The Commission may hold executive sessions only for the purposes of discussing;

(a) The employment, appointment, promotion, demotion, disciplining or resignation of a Commission employee or employees, members, advisers, or committee members.

(b) Pending or contemplated litigation, settlement offers, and matters where the duty of the Commission’s counsel to his client, pursuant to the Code of Professional Responsibility, clearly conflicts with the public’s right to know.

(c) The report, development or course of action regarding security, personnel, plans, or devices.

“No executive session may be held except on a vote, taken in public, by a majority of a quorum of the members present. At least one Commissioner from each of the signatory states must agree to the holding of an executive session.

“Any motion or other decision considered or arrived at in executive session shall be voidable unless, following the executive session, the Commission reconvenes in public session and presents and votes on such motion or other decision.”

Section 6.1 is amended:

“6.1 So far as is consistent with the Compact, the Commission may adopt rules and regulations and amend them from time to time. Rules and regulations to be adopted shall be presented by resolution and approved by a quorum as set out in Rule ~~4.8~~ 4.7. Copies of the proposed resolutions for rule adoption shall be presented in writing to each of the Commissioners at least thirty days before the meeting upon which they are to be voted. However, at its meeting, by unanimous vote, the Commission may waive this notice requirement.”

**RED RIVER COMPACT RULES AND REGULATIONS  
To Compute and Enforce Compact Compliance  
REACH I, SUBBASIN 1**

**(Adopted 4/30/87)**

1. **General.** These rules and regulations to be used to compute and enforce Compact compliance within Subbasin I of Reach 1, Red River Compact, are adopted subject to the following conditions and assumptions.
  - a. It is fully understood that these rules and regulations should be modified as new or improved gaging stations are constructed, whenever experience or detailed studies demonstrate the need for modification, and if the Commission should modify its interpretation of Compact provisions relating to this Subbasin.
2. **Management of Compact Compliance Computations.**
  - a. **Management Using State Centers:**
    - (1) Texas and Oklahoma representatives will establish State Computation and Control Centers.
      - (a) State representatives will gather data, exchange data and meet prior to the annual Commission meeting to check on computation results.
      - (b) The EAC will determine compliance with Compact.
  - b. **Management Period for Compact Compliance Computations:**
    - (1) Computation will be on the calendar year basis.
    - (2) Water data for a calendar year should be exchanged prior to March 15 of the following year.
    - (3) Compact Compliance Computation for a calendar year should be completed by April 15 of the following year.
3. **Enforcement of Compact Compliance Requirements.** Texas will be responsible for insuring that the sum of Texas uses does not exceed the total Texas water use authorized by the Red River Compact, and Texas will be responsible for establishing clear legal authority within Texas for enforcing the restrictions imposed by the Red River Compact.
4. **Data Reporting Procedures.**
  - a. **Streamflow Gaging Station Records:** The EAC will make arrangements with federal and State agencies, as required, to collect calendar year data as needed, and forward to the Texas and Oklahoma Computation Control Centers.

b. **Archived Records:** Records will be archived by the Commission Chairman.

5. **General Compliance Requirements of Section 4.01 Red River Compact.**

a. **SECTION 4.01. Subbasin 1 - Interstate Streams - Texas:**

(1) **The Compact prescribes:**

"(a) This includes the Texas portion of Buck Creek, Sand (Lebos) Creek, Salt Fork Red River, Elm Creek, North Fork Red River, Sweetwater Creek and Washita River, together with all their tributaries in Texas which lie west of the 100th Meridian."

"(b) The annual flow within this subbasin is hereby apportioned sixty (60) percent to Texas and forty (40) percent to Oklahoma."

**SECTION 4.01 is modified in part by SECTION 4.05. Special Provisions, as follows:**

"(b) Texas shall not accept for filing, or grant a permit, for the construction of a dam to impound water solely for irrigation, flood control, soil conservation, mining and recovery of minerals, hydroelectric power, navigation, recreation and pleasure, or for any other purpose other than for domestic, municipal, and industrial water supply, on the mainstem of the North Fork Red River or any of its tributaries within Texas about Lugert-Altus Reservoir until the date that imported water, sufficient to meet the municipal and irrigation needs of Western Oklahoma is provided, or until January 1, 2000, which ever occurs first."

(2) Pertinent extracts from the Supplemental Interpretive Comments of Legal Advisory Committee, as approved by the Red River Compact Commission on the 19th day of September 1978, are as follows:

Pages 9 and 10 " \* \* \* \* \* The flow of interstate tributaries is generally divided 60 percent to the upstream State and 40 percent to the downstream State. Because flows in Reach I are primarily from flood flows, an annual basis of accounting was adopted"

\* \* \* \* \*

"Section 4.05(b) reflects the compromise of a long-standing dispute between Oklahoma and Texas over the water of the North Fork of the Red River and Sweetwater Creek. \* \* \* \* \*"

"Under the Compromise Texas will limit development on North Fork and Sweetwater Creek to projects justified on the basis of municipal, industrial,

and domestic needs until the year 2000. However, if sufficient imported water becomes available in Western Oklahoma before 2000, Texas will be free to pursue full development of its 60% of these interstate tributaries. \* \* \* \*

(3) Until January 1, 2000 (assuming that imported water is not provided prior to that date in sufficient amounts to meet municipal and irrigation needs of Western Oklahoma) special restrictions apply to Texas water use in its North Fork Red River watershed upstream from the Lugert-Altus Reservoir. Therefore, some of the Compact compliance rules for the North Fork Red River watershed upstream from the Lugert-Altus Reservoir (para 5.f.(3) & (4) and g.(3) & (4) below) expire on January 1, 2000, if still in effect at that time.

- b. **Buck Creek Watershed in Texas:** Buck Creek watershed covers about 300 square miles in Texas. There are no existing gaging stations on Buck Creek in Texas or in Oklahoma. Since neither the Texas nor Oklahoma use of flow from Buck Creek is significant at this time, it is not required to make an annual accounting of the flow in Buck Creek. It also appears that establishing gaging stations and channel loss values so that future annual accountings could be made is not economically justified at this time. Annual accounting procedures for this watershed should be developed to provide a 60:40 apportionment whenever requested by either Oklahoma or Texas.
- c. **Sand (Lebos) Creek Watershed in Texas:** Sand Creek watershed covers about 65 square miles in Texas. There are no gaging stations on Sand Creek in Texas or in Oklahoma. Since neither Texas nor Oklahoma makes significant use of flow from Sand Creek, it is not necessary to make an annual accounting of the flow in Sand Creek, and it does not seem to be economically justified **at this time** to establish gaging stations and determine channel loss values so that future annual accountings could be made. Annual accounting procedures for this watershed should be developed to provide a 60:40 apportionment whenever requested by either Oklahoma or Texas.
- d. **Salt Fork Red River Watershed in Texas:** Salt Fork Red River watershed in Texas covers about 1,380 square miles, of which 209 are non-contributing.

The USGS streamflow gage number 07300000, Salt Fork Red River near Wellington, Texas, is about 16 miles upstream from the Oklahoma-Texas State line and measures flow from a 1,222 sq. mi. drainage area, of which 209 is probably non-contributing. The average annual discharge (1953-1966) was 52,600 AF/yr, and the average annual discharge since Greenbelt Reservoir was completed (1967-1977) has been 33,250 AF/yr.

The USGS streamflow gage 07300500, Salt Fork Red River at Mangum, Oklahoma, is about 29 miles downstream from the Oklahoma-Texas State line and measures flow from a 1,566 sq. mile drainage area, of which 209 is probably non-contributing. The average annual discharge (1937-1977) has been 62,450 AF/yr.

- (1) The actual annual delivery at the Oklahoma State line is computed as follows:
  - (a) The annual flow at the Wellington gage,
  - (b) Minus channel losses to Wellington gage flows between gage and State line (until this specific channel loss value is available, the Compact compliance calculations will be made ignoring this channel loss adjustment),
  - (c) Plus Texas' flow between Wellington gage and the State line. (This flow will be computed based on intervening drainage area between Wellington and Mangum gages adjusted for both Texas and Oklahoma man-made depletions.), and
  - (d) Minus Texas' man-made depletions downstream from the Wellington gage.
  
- (2) The scheduled annual delivery at the Oklahoma State line is 40 percent of the natural flow at State line without diversions or impoundments, and would be computed as 40 percent of the following:
  - (a) The actual annual delivery (para 5.d.(1) above),
  - (b) Plus all man-made depletions in Texas, and
  - (c) Minus the increased channel losses in Texas which would have incurred had Texas depletions not occurred (until this specific channel loss value is available, the Compact compliance calculations will be made ignoring this channel loss adjustment).
  
- (3) Compact compliance is achieved as long as actual delivery exceeds scheduled delivery.

**e. Elm Creek Watershed in Texas:** Elm Creek watershed covers about 360 square miles in Texas which includes the North Elm Creek tributary. There is no streamflow gage on Elm Creek in Texas. The USGS gage number 07303400, Elm Fork of North Fork Red River near Carl, Oklahoma, is about 6 miles downstream from the Oklahoma-Texas State line, and was used to measure flow from a 416 square mile drainage area but discharge measurements at this site were discontinued in 1980. The average annual discharge (20 years) was 30,280 AF/yr. No Compact compliance accounts can be made until the Gage near Carl has been reestablished.

- (1) The actual annual delivery at State line is computed as follows:

- (a) Flow at the State line. (This flow will be computed based on the drainage area and on the flow measured at Carl gage, adjusted for both Texas and Oklahoma depletions.), and Minus Texas' man-made depletions.
- (2) The scheduled annual delivery at State line is 40 percent of the natural flow at State line without diversions or impoundments and would be computed as 40 percent of the following:
    - (a) The actual annual delivery (para 5.e.(1) above),
    - (b) Plus man-made depletions in Texas, and
    - (c) Minus the increased channel losses in Texas which would have been incurred if Texas had not depleted the flow (until this specific channel loss value is available, the Compact compliance calculations will be made ignoring this channel loss adjustment).
  - (3) Compact compliance is achieved as long as the actual delivery exceeds the scheduled delivery.
- h. Washita River Watershed in Texas:** There is no streamflow gage on the Washita River in Texas. The USGS streamflow gage number 07316500, Washita River near Cheyenne, Oklahoma, is over 21 miles downstream from the Oklahoma-Texas State line, and measures flow from a 794 square mile drainage area, of which about 441 square miles are in Texas. The average annual discharge at the Cheyenne gage (44 years) has been 20,720 AF/yr.
- (1) The actual annual delivery at Oklahoma State line is computed as follows:
    - (a) The annual flow at the Cheyenne gage,
    - (b) Plus channel losses to the State line flow between the State line and the gage (until this specific channel loss value is available, the Compact compliance calculations will be made ignoring this channel loss adjustment),
    - (c) Minus Oklahoma's flow between the State line and Cheyenne gage. (This flow will be computed based on the drainage area upstream from the Cheyenne gage, adjusted for both Texas and Oklahoma man-made depletions.), and
    - (d) Minus Texas' man-made depletions.
  - (2) The annual scheduled delivery at State line is 40 percent of the natural flow at State line without diversions or impoundments, and would be computed as 40 percent of the following:
    - (a) The actual annual delivery at State line (para 5.h.(1) above),
    - (b) Plus man-made depletions in Texas, and
    - (c) Minus the increased channel losses which would have occurred if Texas had not made any diversions (until this specific channel loss value is available, the Compact compliance

calculations will be made ignoring this channel loss adjustment).

- (3) Compact compliance is achieved as long as the actual delivery exceeds the scheduled delivery.



**RED RIVER COMPACT INTERIM RULES AND REGULATIONS  
To Compute and Enforce Compact Compliance  
REACH II, SUBBASIN 5**

(Adopted 4/30/87)

1. These rules and regulations to be used to compute and enforce Compact compliance within Subbasin 5 of Reach II, Red River Compact, are adopted subject to the following conditions and assumptions.
  - a. It is fully understood that these rules and regulations should be modified as new or improved gaging stations are constructed, whenever experience or detailed studies demonstrate the need for modification, and if the Commission should modify its interpretation of Compact provisions relating to this Subbasin.
  - b. Definitions:
    - (1) "Diversion" as used in these rules and regulations, is the net loss to a water source from use by a diverter, and is computed as the diversion from the water source minus the part of the diversion which is returned to the water source. Normally, return flows must be measured to be considered; however, the EAC may consider and recommend exceptions. As used herein, "diversion" is equivalent to "net diversion" from a water source and to "depletion" or "consumptive use" of a water source.
2. **Management of Compact Compliance Computations**
  - a. **Management Using State Centers**
    - (1) State EAC representatives will establish State Computation Control Center
      - (a) State representatives will gather data, exchange data and meet via conference call to check on computation results, if necessary.
      - (b) EAC will determine compliance with Compact.
  - b. **Management Period for Weekly Flow and Diversions:**
    - (1) Next week's State diversions will be allocated based on last week's compliance computations.
    - (2) It is each State's responsibility to limit its total State diversion allocation among its State diverters.
    - (3) The weekly period for use and flow data will start and end at 8:00 a.m. on Tuesday of each week.
    - (4) Data collection and dissemination will be completed on Tuesday of each week.
    - (5) Computation of Compliance will be completed on Wednesday of week.
    - (6) Each State can request an update at any time.

c. **Management Improvement Studies:** The EAC will monitor the effect on accounting management of the following factors and will report thereon to the Commission whenever procedure changes appears desirable.

- (1) Errors caused by travel time.
- (2) Future restrictions computed from past week's data.
- (3) Failure to consider channel loss.
- (4) Failure to consider ungaged return flows.
- (5) Failure to consider flow trends.
- (6) Addition of needed gages.

3. **Enforcement of Compact Compliance Requirements.** Each State will be responsible for insuring that the sum of the diversions by State users does not exceed the total State diversion authorized by the Red River Compact. In this regard, each State will be responsible for establishing clear legal authority within its State for enforcing the restrictions imposed by the Red River Compact.

4. **Data Reporting Procedures.**

- a. **Streamflow Gaging Station Records:** The EAC will make arrangements with the Corps of Engineers, the U.S. Geological Survey and with States as required to collect daily and/or weekly data, as needed, and forward to the State Computation and Control Centers.
- b. **Diversion Records:** Each State will be responsible to collect daily and/or weekly data, as needed, and forward to the State Computation and Control Centers.
- c. **Archived Records:** Records will be archived by Commission Chairman.

5. **General Compliance Requirements of Section 5.05, Red River Compact.**

a. **Section 5.05 (b) (1):**

- (1) **Compact prescribes:** "The Signatory States shall have equal rights to the use of the runoff originating in subbasin 5 and undesignated water flowing into subbasin 5, so long as the flow of the Red River at the Arkansas-Louisiana state boundary is 3,000 cubic feet per second or more, provided no state is entitled to more than 25 percent of the water in excess of 3,000 cubic feet per second."
- (2) In computing the Subbasin 5 water allocation, when the flow of the Red River at the Arkansas-Louisiana State Boundary is 3,000 cfs or more and the total runoff and undesignated flow of Subbasin 5 is greater than or equal to 7,500 cfs but less than or equal to 12,000 cfs, Louisiana's allocation shall be 3,000 cfs and each of the three upstream states will equally share the runoff and undesignated flow in excess of 3,000 cfs.
- (3) When the total runoff and undesignated flow of Subbasin 5 is 12,000 cfs or more, each of the signatory states shall be entitled to 25% of the total runoff and undesignated flow.

- (4) State compliance with Section 5.05 (b) (1) does not need to be determined except when specifically requested by a Compact State.

**b. Section 5.05 (b) (2) :**

- (1) **The Compact states:** "Whenever the flow of the Red River at the Arkansas-Louisiana state boundary is less than 3,000 cubic feet per second, but more than 1,000 cubic feet per second, the States of Arkansas, Oklahoma, and Texas shall allow to flow into the Red River for delivery to the State of Louisiana a quantity of water equal to 40 percent of the total weekly runoff originating in subbasin 5 and 40 percent of undesignated water flowing into subbasin 5; provided, however, that this requirement shall not be interpreted to require any state to release stored water"
- (2) In computing the Subbasin 5 water allocation to Louisiana when flow of Red River at the Arkansas-Louisiana State boundary is less than 3,000 cfs but more than 1,000 cfs, the Subbasin 5 runoff for each of the three upstream States and the undesignated water flowing into Subbasin 5 from each upstream State totalled, and the three upstream States should allow to pass to Louisiana 40 percent of the total, or 1,000 cfs, whichever is greater.
- (3) When the Subbasin 5 runoff plus undesignated water totals at least 2,500 cfs and not more than 7,500 cfs, each of the three upstream States are allocated 60 percent of its runoff plus undesignated inflow and the other 40 percent is to be allowed to flow into the Red River for delivery to Louisiana.
- (4) When the Subbasin 5 runoff plus undesignated water totals at least 1,000 cfs but less than 2,500 cfs, the allocation to Louisiana is 1,000 cfs because of Compact Section 5.05 (b)(3). The total Subbasin 5 runoff plus undesignated water is compared to the Louisiana allocation of 1,000 cfs and a percentage is established. Each of the three upstream States will be entitled to divert and use a quantity computed using (100 percent minus the established percentage) times (the total of runoff from its Subbasin 5 areas plus undesignated water flowing into its Subbasin 5 areas).
- (5) This Compact compliance determination should be made whenever the flow of the Red River at the Arkansas-Louisiana State boundary falls below 3,000 cfs and is more than 1,000 cfs.

**c. Section 5.05 (b) (3) :**

- (1) **The Compact states:** "Whenever the flow of the Red River at the Arkansas-Louisiana state boundary falls below 1,000 cubic feet per second, the States of Arkansas, Oklahoma, and Texas shall allow a quantity of water equal to all the weekly runoff originating in subbasin 5 and all undesignated

- water flowing into subbasin 5 within their respective states to flow into the Red River as required to maintain a 1,000 cubic foot per second flow at the Arkansas-Louisiana state boundary."
- (2) In computing the Subbasin 5 allocation when the flow of the Red River at the Arkansas-Louisiana State boundary falls below 1,000 cfs, and when the Subbasin 5 runoff and undesignated water flowing into Subbasin 5 total 1,000 cfs or less, all flow must be passed to Louisiana.
  - (3) When the Subbasin 5 runoff and undesignated water flowing into Subbasin 5 total more than 1,000 cfs but less than 2,500 cfs, Louisiana is allocated 1,000 cfs. This 1,000 cfs Louisiana entitlement is compared to the total runoff plus undesignated water and a percentage is established. Each of the three upstream States will be entitled to divert and use a quantity computed using (100 percent minus the established percentage) times (its total State runoff and undesignated water inflow).
  - (4) See rules for Compact Section 5.05 (b) (2) when the Subbasin 5 runoff and undesignated water flowing into Subbasin 5 total 2,500 cfs or more up to 7,500 cfs.
  - (5) This Compact compliance determination should be made whenever the flow of the Red River at the Arkansas-Louisiana State boundary falls below 1,000 cfs.

**d. Section 5.05 (c):**

- (1) **The Compact states:** "Whenever the flow at Index, Arkansas, is less than 526 c.f.s., the states of Oklahoma and Texas shall each allow a quantity of water equal to 40 percent of the total weekly runoff originating in subbasin 5 within their respective states to flow into the Red River; provided however, this provision shall be invoked only at the request of Arkansas, only after Arkansas has ceased all diversions from the Red River itself in Arkansas above Index, and only if the provisions of Sub-sections 5.05 (b)(2) and (3) have not caused a limitation of diversions in subbasin 5."
- (2) In computing the Subbasin 5 allocation when flow of Red River at Index Arkansas is less than 256 cfs, the States of Oklahoma and Texas are to pass 40 percent of weekly runoff from respective Subbasin 5 areas.
- (3) This Compact compliance determination will be made only when requested by Arkansas, only after Arkansas has ceased all diversions from the Red River, and only if the provisions of subsections 5.05 (b)(2) and (3) have not caused a limitation of diversions in Subbasin 5.

6. **Procedures (Disregarding Designated Flows) to Compute State Runoff, Runoff plus Undesignated Inflows, and Flow of Red River at Arkansas-Louisiana State Boundary.**

a. **Oklahoma.**

- (1) **Runoff plus Undesignated Inflows of Denison Dam to DeKalb Gage:**
  - (a) Kiamichi River near Hugo, OK, Gage flow, plus Muddy Boggy Creek near Unger, OK, Gage flow plus Blue River near Blue, OK Gage flow, plus
  - (b) Fifty percent of (DeKalb Gage flow, plus Texas and Oklahoma diversions, minus gaged flows at Kiamichi River near Hugo, Ok, Muddy Boggy Creek near Unger, OK, Blue River near Blue, OK, and Sanders Creek near Chicota, Texas, streamflow Gages).
- (2) **Runoff plus Undesignated Inflows, DeKalb Gage to Oklahoma-Arkansas State line:** Fifteen and one-half (15.5) percent of (Index Gage flow, minus DeKalb Gage flow, plus Oklahoma, Texas and Arkansas diversions downstream from DeKalb Gage).
- (3) **Runoff only, Denison Dam to Oklahoma-Arkansas State line.**
  - (a) Fifty percent of (DeKalb Gage flow, minus Red River at Denison Dam Gage flow, plus Texas and Oklahoma diversions upstream from DeKalb Gage, minus Blue River near Blue, OK, Gage flow, minus Muddy Boggy Creek near Unger-Okla. Gage flow, minus Kiamichi River near Hugo-Okla. Gage flow minus Gage flow), plus
  - (b) Fifteen and one-half (15.5) percent of (Index Gage flow, minus DeKalb Gage flow, plus Oklahoma, Texas and Arkansas diversions between DeKalb and Index Gages).

b. **Texas.**

- (1) **Runoff plus Undesignated Inflows, DeKalb Gage to Index Gage:**
  - (a) Sanders Creek near Chicota Gage flow, plus
  - (b) Fifty percent of: (DeKalb Gage flow, plus Texas and Oklahoma diversions, minus gaged flows at Kiamichi River near Hugo, OK, Muddy Boggy Creek near Unger, OK, Blue River near Blue, OK, and Sanders Creek near Chicota, TX, streamflow Gages).
- (2) **Runoff plus Undesignated Inflows, DeKalb Gage to Index Gage:** Fifty (50) percent of (Index Gage flow, minus DeKalb Gage flow, plus Oklahoma, Texas and Arkansas diversions downstream from DeKalb Gage).

- (3) **Runoff plus Undesignated Inflows, Sulphur River Gage:** One hundred percent of (Sulphur River near Texarkana Gage flow) minus (Texas diversions from river below gage) plus (Texas diversions below Texarkana Dam).
- (4) **Runoff Only, Denison Dam to Index Gage:** Fifty percent of (Index Gage flow, minus Red River at Denison Dam Gage flow, plus Oklahoma and Texas and Arkansas diversions upstream from the Index Gage, minus Blue River near Blue, OK, Gage flow, minus Muddy Boggy Creek near Unger-Okla. Gage flow, minus Kiamichi River near Hugo-Okla. flow, minus Sanders Creek near Chicota-Texas Gage flow).

**c. Arkansas Runoff plus Undesignated Inflows.**

- (1) **Oklahoma-Arkansas State Line to Index Gage:** Thirty-four and one-half (34.5) percent of (Index Gage flow, minus DeKalb Gage flow, plus Oklahoma and Texas and Arkansas diversions between DeKalb and Index Gages).
- (2) **Index Gage to Hosston Gage:**
  - (a) Hosston Gage flow, plus Louisiana diversions above Hosston Gage, minus Index Gage flow, minus (Sulphur River near Texarkana Gage flow less Texas diversions from river below gage), plus Arkansas diversions downstream from Index Gage.

**d. Louisiana Streamflow at Arkansas-Louisiana State Boundary.**

- (1) **Red River flow at Arkansas-Louisiana State boundary** equals (Gage flow) plus (Louisiana diversions from Red River downstream from the State boundary and upstream from gage).
- (2) **Data needed to make interim Louisiana calculations**
  - (a) **For Red River flows up to 5,000 cfs -** Hosston Gage flow, plus Louisiana diversions from Red River upstream from Hosston Gage.
  - (b) **For Red River flows of 5,000 cfs or larger -** Shreveport Gage flow, plus Louisiana diversions from Red River upstream from Shreveport Gage, minus Twelvemile Bayou near Dixie-La Gage flow, plus Louisiana diversions from Twelvemile Bayou below Twelvemile Bayou near Dixie-La Gage.
- (3) **Effect of Flow Trends, Scheduled Change of Reservoir Releases and Other Events Certain to Significantly Change Flow at Arkansas-Louisiana State Boundary During Coming Week.**  
In addition to the Arkansas-Louisiana State boundary flow estimated based on subparagraph (2) (a) or (b) above, the EAC will also advise the

Commission of probable significant changes in State boundary flow which should result from flow trends, scheduled change of reservoir releases, and other such known events.

7. **Procedures (Using Designated Flow Data) to Compute State Runoff plus Undesignated Inflows and Flow of Red River at Arkansas-Louisiana State boundary.** Procedures outlined in paragraph 6 above will be followed except that designated inflows, designated outflows and diversion of designated flows will be accounted for whenever appropriate.





**RED RIVER COMPACT RULES AND REGULATIONS  
To Compute and Enforce Compact Compliance  
REACH III, SUBBASIN 3**

**(as amended 4/25/89)**

1. These rules and regulations to be used to compute and enforce Compact compliance within Subbasin 3 of Reach III, Red River Compact, are adopted subject to the following conditions and assumptions.
  - a. It is fully understood that these rules and regulations should be modified whenever experience or detailed studies demonstrate the need for modification, and if the Commission should modify its interpretation of Compact provisions relating to this Subbasin.
  - b. **Definitions:**
    - (1) "Diversion", as used in these rules and regulations, is the net loss to a water source from use by a diverter, and is computed as the diversion from the water source minus the part of the diversion which is returned to the water source. Normally, return flows must be measured to be considered; however, the Engineering Committee may consider and recommend exceptions. As used herein, "diversion" is equivalent to "net diversion" from a water source and to "depletion" or "consumptive use" of a water source.
    - (2) "Drawdown", as used in these rules and regulations, means that period commencing on the first day water ceases spilling over the existing Caddo Lake spillway (or the raised spillway, if Caddo Lake is enlarged), and continuing so long as the Caddo Lake surface elevation continues to fall, until the day when appreciable inflow reaches Caddo Lake, causing the Caddo Lake surface elevation to rise leading to a spill from Caddo Lake.
2. **Management of Compact Compliance Computations.**
  - a. **Management Using State Centers:**
    - (1) State Engineering Committee representatives will establish State Computation Control Centers.
      - (a) State representatives will gather data, exchange data and meet via conference call to check on computation results, if necessary.
      - (b) The Engineering Committee will compute compliance with Compact.
  - b. **Management Period for Compact Compliance Computations:**
    - (1) Next week's State diversions will be allocated based on last week's compliance computations.

- (2) It is each State's responsibility to limit its total State diversion allocation among its State diverters.
- (3) The weekly period for use and flow data will start and end at 8:00 a.m. on Tuesday of each week.
- (4) Data collection and dissemination will be completed on Tuesday of each week.
- (5) Computation of Compliance will be completed on Wednesday of each week.
- (6) Each State can request an update at any time.

**c. Management Improvements Studies:** The Engineering Committee will monitor the effect on accounting management of the following factors and will report thereon to the Commission whenever procedure changes appear desirable.

- (1) Errors caused by travel time.
- (2) Future restrictions computed from past week's data.
- (3) Failure to consider channel loss.
- (4) Failure to consider ungaged return flows.
- (5) Failure to consider flow trends.
- (6) Addition of needed gages.

**3. Enforcement of Compact Compliance Requirements.** Each State will be responsible for insuring that the sum of the diversions by State users does not exceed the total State diversion authorized by the Red River Compact Commission. In this regard, each State will be responsible for establishing clear legal authority within its State for enforcing the restrictions imposed by the Red River Compact.

**4. Data Reporting Procedures.**

- a. Streamflow Gaging Station Records:** The Engineering Committee will make arrangements with Corps of Engineers, the U.S. Geological Survey and with States as required to collect daily and/or weekly data, as needed, and forward to the State Computation and Control Centers.
- b. Diversion Records:** Each State will be responsible to collect weekly data, as needed, and forward to the State Computation and Control Centers.
- c. Archived Records:** Records will be archived by the Commission Chairman.

**5. General Compliance Requirements of Section 6.03 Red River Compact.**

**a. Section 6.03 (b) (1):**

- (1) **The Compact states:** "Texas shall have the unrestricted right to all water above Marshall, Lake O' the Pines, and Black Cypress damsites; however, Texas shall not cause runoff to be depleted to a quantity less than that which would have occurred with the full operation of Franklin County, Titus County, Ellison Creek, Johnson Creek, Lake O' the Pines, Marshall, and Black Cypress Reservoirs constructed, and those other

impoundments and diversions existing on the effective date of this Compact. Any depletions of runoff in excess of the depletions described above shall be charged against Texas' apportionment of the water in Caddo Reservoir."

- (2) Texas may use the bed and banks of the streams or tributaries available within this Subbasin to convey its developed water downstream from the aforesaid dam sites to specified authorized users. Such water would retain its identity and would not be subject to the Caddo Lake drawdown provisions of Section 5.b. of these rules until passing the designated point of diversion. Appropriate transportation losses will be approved by the Red River Compact Commission.
- (3) Until both Marshall Reservoir (with an estimated capacity of 782,300 acre-feet and yield of 325,000 acre-feet annually) and Black Cypress Reservoir (with estimated capacity of 824,400 acre-feet and yield and 220,000 acre-feet annually) have been constructed, it will be virtually impossible for Texas to deplete runoff in excess of that authorized. In the future, whenever potential Texas depletions above Marshall, Lake O' the Pines, and Black Cypress damsites become a concern to Louisiana, procedures to compute Texas depletion of runoff in excess of that authorized by Section 6.03 (b)(1) of the Compact should be developed by the Engineering Committee and presented for Commission consideration.

**b. Section 6.03 (b) (2) :**

- (1) **The Compact states:** "Texas and Louisiana shall each have the unrestricted right to use fifty (50) percent of the conservation storage capacity in the present Caddo Lake for the impoundment of water for state use, subject to the provision that supplies for existing uses of water from Caddo Lake, on date of Compact, are not reduced."
- (2) Whenever water is spilling over the existing spillway at 168.5 feet above mean sea level, each state may withdraw or divert water from Caddo Lake without restriction.
- (3) Whenever Caddo Lake is not spilling over the existing spillway at 168.5 feet above mean sea level, the total consumptive use by each state shall not exceed 8,400 acre-feet during the drawdown period, provided that neither state shall divert more than 3,600 acre-feet during any one month or 4,800 acre-feet during any two consecutive months.

**c. Section 6.03 (b) (3) :**

- (1) **The Compact states:** "Texas and Louisiana shall each have the unrestricted right to fifty (50) percent of the conservation storage capacity of any future enlargement of Caddo Lake, provided the two states may negotiate for the release of each

state's share of the storage space on terms mutually agreed upon by the two states after the effective date of this Compact."

- (2) This Compact provision requires no separate computation procedures but other rules may be changed if enlargement of Caddo Lake occurs. If enlargement of Caddo Lake is authorized in the future, the Engineering Committee should review and modify as necessary Rule 5 (b) and Rule 6.

**d. Section 6.03 (b) (4) :**

- (1) **The Compact states:** "Inflow to Caddo Lake from its drainage area downstream from Marshall, Lake O' the Pines, and Black Cypress damsites and downstream from other last downstream dams in existence on the date of the signing of the Compact document by the Compact Commissioners, will be allowed to continue flowing into Caddo Lake except that any manmade depletions to this inflow by Texas will be subtracted from the Texas share of the water in Caddo Lake."
- (2) As indicated in paragraph 5 a. (2) above, it is virtually impossible for Texas at the present time to reduce inflow to Caddo Lake below that which would occur with both Marshall and Black Cypress Reservoirs constructed and operating. However potential Texas depletions become a concern to Louisiana, procedures to compute excess depletion by Texas of inflow to Caddo Lake should be developed by the Engineering Committee and presented for Commission Consideration.

**e. Section 6.03 (c) :**

- (1) **The Compact states:** "In regard to the water of interstate streams which do not contribute to the inflow to Cross Lake or Caddo Lake, Texas shall have the unrestricted right to Divert and use this water on the basis of a division of runoff above the state boundary of sixty (60) percent to Texas and forty (40) percent to Louisiana."
- (2) The Engineering Committee will review known Texas diversion data for the previous year and report to the Commission any Texas non-compliance with Compact Section 6.03 (c).

**f. Section 6.03 (d) :**

- (1) **The Compact states:** "Texas and Louisiana will not construct improvements on the Cross Lake watershed in either state that will affect the yield of Cross Lake; provided, however, this subsection shall be subject to the provisions of Section 2.08."
- (2) The Engineering Committee will renew any known improvements on the Cross Lake watershed and report to the Commission any non-compliance with Compact Section 6.03 (d).

**6. Caddo Lake Content Accounting Procedure During Drawdown Periods.**

- a. Whenever water is spilled from Caddo Lake, both state's accounts are full and no accounting is necessary. Accounting shall start the first day of no-spill following each period of spilling and shall continue until the first day of spill in the next period of spilling. The accounting procedure for computing the quantity of water in Caddo Lake during periods of drawdown belonging to the States of Louisiana and Texas shall be as follows:
- (1) At the beginning of the drawdown, the Caddo Lake contents belong 50 percent to each state. Otherwise, begin with water ownership on Caddo Lake as shown in the most recent previous report.
  - (2) Each State shall be credited with one-half of the inflow to Caddo Lake since the previous report.
  - (3) Each State's account shall be reduced by its share of Caddo Lake evaporation losses during the period since the previous report.
  - (4) Each State's account shall be reduced by its diversions from Caddo Lake since the previous report.
  - (5) A State's account shall not exceed 50 percent of the capacity of Caddo Lake. If these accounting procedures result in a greater State content than 50 percent of the total capacity of Caddo Lake, the excess computed quantity shall be "spilled" into the other State's account as needed to bring the other State's account up, but in no case shall either State's account exceed 50 percent of the total capacity of Caddo Lake.
- b. Using a stage-area-capacity relationship concurred in by both States, the content of Caddo Lake at the end of each accounting period shall be determined and inflow for that period shall be computed as follows:
- (1) From the present content, as determined above, subtract the content determined at the end of the previous period.
  - (2) Add to the figure resulting from Step (1) the total Texas and Louisiana diversions since the end of the previous period.
  - (3) Add to the figure resulting from Step (2) the computed gross evaporation since the end of the previous period as determined in c. (2) below. This results in total inflow.
- c. **Evaporation will be computed as follows:**
- (1) The Weather Bureau's pan evaporation data shall be used to compute gross lake evaporation using a standard conversion coefficient agreed to by the engineer advisors of each State.

- (2) The average lake surface area for the accounting period shall be determined from the stage-area-capacity relationship concurred in by both States and multiplied by the gross lake evaporation as determined in Step (1) to determine the volume of evaporation for the period.
7. **Availability of Diversion Records.** Arrangements shall be made for all Texas and Louisiana diverters, during "drawdown" of Caddo Lake, to maintain daily diversion records open for inspection, and to provide weekly use data as required by Rule 2 b. (3).