ARKANSAS DEPARTMENT OF AGRICULTURE
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Asa Hutchinson
Governor
Wes Ward
Secretary of Agriculture

Arkansas Department of Agriculture Natural Resources Division

Development of Illinois River Watershed Management Plans First Stakeholder Meeting – October 11, 2022 Summary of Meeting

The Arkansas Department of Agriculture Natural Resources Division (NRD) and the Oklahoma Conservation Commission (OCC) jointly held a stakeholder meeting as part of the development of watershed management plans for the Illinois River watershed. The meeting was held in the afternoon in Siloam Springs, AR (First Baptist Church Fellowship Hall). A total of 63 individuals attended the meeting, 37 in person and 26 online. Attendees included farmers, landowners, and business owners, as well as individuals from interest groups, and employees from state and federal agencies. A list of specific organizations represented at the meetings is included as Attachment 1.

The meeting was facilitated by Tate Wentz, NRD, Water Quality Section Manager and Shanon Phillips, OCC, Water Quality Division Director. The agenda for the meeting is shown on page 1 of Attachment 2. The meeting was also presented and recorded using Zoom. The recording of the meeting can be viewed on the OCC YouTube site: https://www.youtube.com/watch?v=uxCgbWhbHvM.

Tate Wentz opened the meeting and presented basic information on watershed management plans and the process for updating the plans for the Illinois River watershed. Mr. Wentz noted that OCC and NRD are preparing separate updated plans for the watershed using a joint, collaborative approach.

Leif Kindberg, Executive Director of the Illinois River Watershed Partnership (IRWP), then presented information on his organization, challenges we are facing in the Illinois River watershed, programs of IRWP and others working to address the challenges, success stories, and opportunities for the future. In the past, IRWP worked only in Arkansas, but within the last five years has also begun working in Oklahoma.

The next presentation was made by Philip Massirer of FTN Associates, Ltd. (FTN). FTN is an environmental consulting firm headquartered in Arkansas that is under contract to NRD to assist with development of the watershed management plan for the Arkansas portion of the Illinois River watershed. Mr. Massirer presented a summary of water quality data from the watershed (Arkansas and Oklahoma) including maps of impaired waters, average macroinvertebrate diversity scores, and median concentrations of total phosphorus, total nitrogen, E. coli, turbidity, and total suspended solids (TSS). Mr. Massirer also presented results from trend analyses of total phosphorus, total nitrogen, and TSS in Arkansas, and total phosphorus in Oklahoma.

Shanon Phillips of OCC presented information about the history of OCC's work in the Illinois River watershed and current efforts. Ms. Phillips started her presentation by encouraging stakeholders to think of themselves not as Arkansans or Oklahomans, but as residents of the Illinois River watershed working together to improve and protect conditions in the watershed and water quality. She stressed that both states have been working in the watershed a long time and put in a lot of resources, the importance of long term water quality monitoring, and the importance of partnerships in getting the work done.

After Ms. Phillips' presentation, Mr. Massirer gave a brief overview of the expected schedule and topics for future meetings. The next public meeting is being planned for January 2023, with up to four additional meetings to be scheduled every other month. The meeting ended with Mr. Wentz and Ms. Phillips thanking all for attending and pledging to set a date for the January public meeting and prepare and distribute a detailed agenda for that public meeting within four weeks or so. They encouraged those at the meeting to spread the word and invite others to the public meetings, and to provide contact information on the sign-in sheets if they want to receive a summary of this meeting and notice about future meetings.

Attendees were encouraged by the presenters to contact NRD or OCC at any time with questions or comments about the watershed management plan or suggestions of others who would be interested in the plan and/or the meetings. Contact information for NRD and OCC project personnel was provided and is shown below. Copies of the slides for each of the presentations is provided with this summary (Attachment 2).

There were question and answer sessions after each presenter. Questions raised during the meeting, with answers, are listed in Attachment 3.

For additional information, contact:

- Tate Wentz, Arkansas Department of Agriculture Natural Resources Division, Tate.Wentz@agriculture.arkansas.gov, (501) 682-3914
- Shanon Phillips, Oklahoma Conservation Commission, Shanon.Phillips@conservation.ok.gov, (405) 522-4728
- Greg Kloxin, Oklahoma Conservation Commission, Greg.Kloxin@conservation.ok.gov, (405) 522-4737

Attachment 1 Attendees

ATTACHMENT 1

Illinois River Watershed Management Plan
First Stakeholder Meeting – October 11, 2022

Meeting Attendance Summary

Organization / Category	Number of attendees
Arkansas Game and Fish Commission	1
Arkansas Dept. of Agriculture Natural Resources Division	3
Interested citizens	1
FTN Associates	3
Oklahoma Conservation Commission	4
Save the Illinois River (STIR)	2
Cherokee County RWD12	1
Journalists	3
BioX Design	1
Grand River Dam Authority	3
Oklahoma Rural Water Association	1
Citizens Advocating a Safe Environment (CASE)	2
Jacobs/WRRF	1
Breweries	2
Oklahoma Water Resources Board	1
Arkansas Department of Health	1
OK Foods	1
Camp/Canoe Operators	2
Illinois River Watershed Partnership	1
Edgewater Coaching and Consulting	1
Tyson	1
Conservation Coalition of Oklahoma Foundation	1

Attachment 2 Meeting Presentations

Voluntary, Non-Regulatory Watershed Management Plan for the Illinois River Watershed

1st Stakeholder Meeting
Siloam Springs, AR
October 11, 2022

Today's Agenda

- Introduction to the Watershed Management Planning (WMP) Process
- Review of current AR/OK WMP's and successes
- Review of current water quality issues in watershed
- Review of conservation practices in the watershed
- Illinois River WMP Meeting Schedule and Next Steps

Watershed Management Plan

- Three Key Features:
  1. Water quality emphasis
  2. Nonpoint sources – non-regulatory
  3. Voluntary participation

Watershed Planning Process

- Six Steps
  1. Building partnerships
  2. Characterizing the watershed
  3. Management goals, practices, measures, actions
  4. Design implementation program
  5. Implement the Watershed Management Plan
  6. Measure progress – adaptive management

Benefits of a Watershed Management Plan

- Holistic WS assessment identifying areas with greatest ROI
- Document/demonstrate conservation doesn't cost; it pays
  - Increased landowner profitability
  - Improved soil health
- Restore/sustain fishable, swimmable, drinkable water uses
  - Increased recreational opportunities
  - Increased tourism
  - Improved aesthetics/enjoyment
- Cumulative/Synergistic Benefits

Points of Contact

Tate Wentz, NRD
Tate.Wentz@agriculture.arkansas.gov
(501) 682-3914

Philip Massirer, FTN
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(501) 225-7779

Shanon Philips, OCC
Shanon.Phillips@conservation.ok.gov
(405) 522-4728

Greg Kloxin, OC
Greg.Kloxin@conservation.ok.gov
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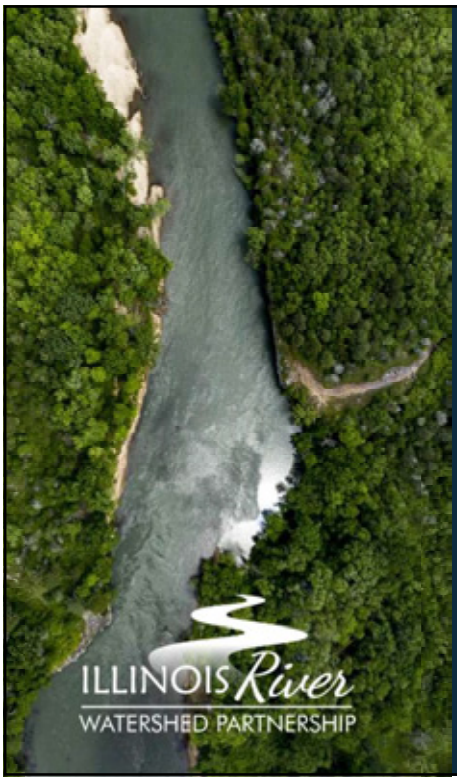
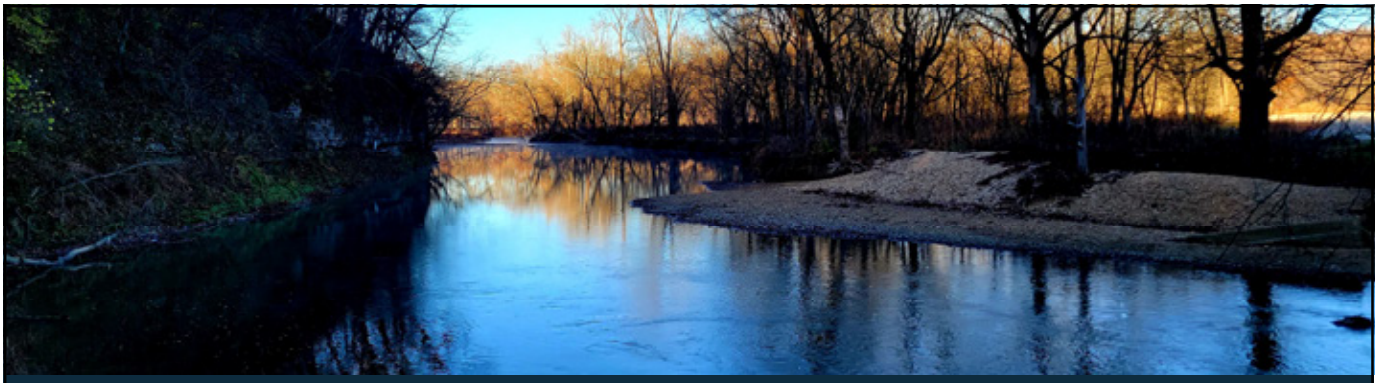


ILLINOIS RIVER WATERSHED PARTNERSHIP

FIRST PUBLIC MEETING FOR ILLINOIS RIVER WATERSHED MANAGEMENT PLAN



IRWP works to improve the integrity of the Illinois River through public education, community outreach, and implementation of conservation and restoration practices throughout the watershed.

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ILLINOIS River
WATERSHED PARTNERSHIP

Local Stakeholders

Lead to consensus-based solutions

Business
- Tyson
- Simmons
- Denali

Agriculture
- Local producers
- AR Farm Bureau
- OK Farm Bureau

Conservation
- AGFC
- ANRD
- Quantified Ventures

Construction
- Burns & McDonnell
- Crafton Tull

Technic, Res & Ed
- AR Water Resources Center
- NWAMN
- OK Conservation Commission

Government
- Springdale Water Utilities
- Cherokee Nation
- GRDA

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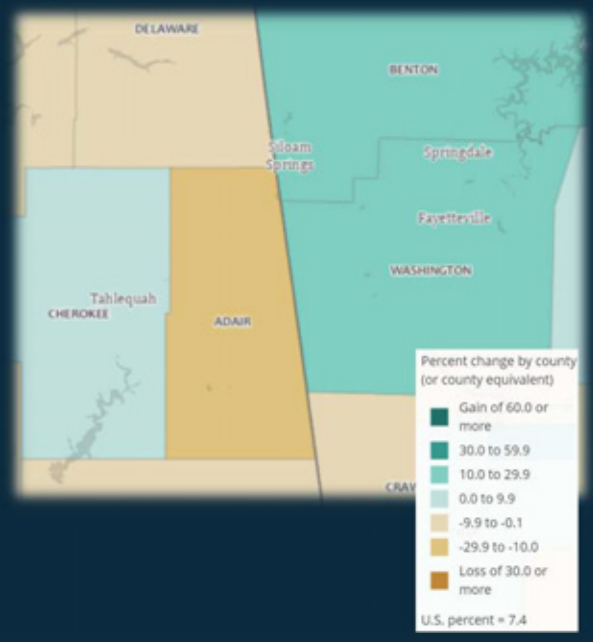
ILLINOIS River WATERSHED PARTNERSHIP

A COMPLEX REGION

- 145 miles long and drains approximately 1,645 square miles in Arkansas and Oklahoma
- Over 2,000 miles of streams in AR and OK
- Two states, one tribal nation
- Mostly private land
- Largest cities in NWA depend on Beaver Lake for water and discharge wastewater effluent into IRW
- Economically important and changing land uses
- Ecologically important and karst topography in much of the watershed
- Thirty-nine municipalities

ILLINOIS River WATERSHED PARTNERSHIP



POPULATION GROWTH

	2010	2020	Percent Change
Cherokee	46,987	47,078	0.2
Adair	22,683	19,495	-14.1
Washington	203,065	245,871	21.1
Benton	221,339	284,333	28.5

Projected Population of NWA in 2045: 1 million

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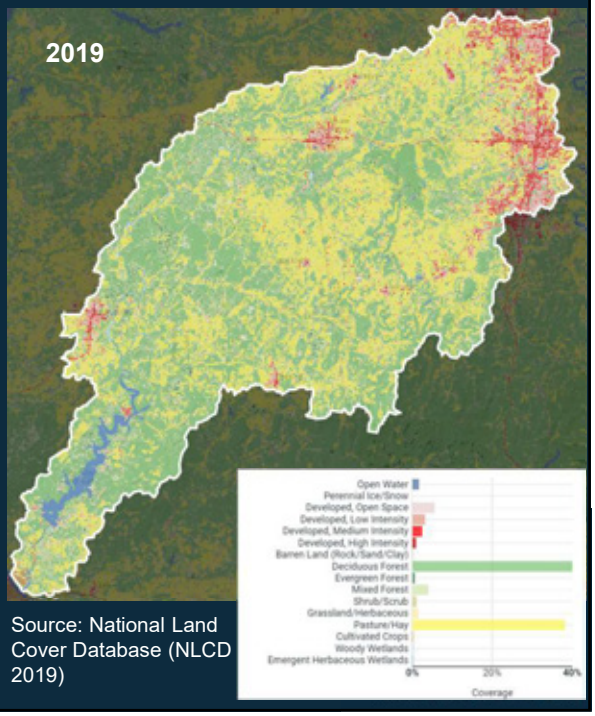
Land Cover Change

Rapid Growth in Impervious Surface

		2001		2019		
	NLCD Type Code	Area (km²)	Coverage (%)	Area (km²)	Coverage (%)	Change (%)
Less Than 20% Impervious	21	224.4	5.25	236.5	5.53	5%
20%-49% Impervious	22	109.8	2.57	134.9	3.16	23%
50%-79% Impervious	23	54.13	1.27	104.6	2.45	93%
80%-100% Impervious	24	21.25	0.5	38.05	0.89	78%



Source: National Land Cover Database (NLCD 2019)

WATER QUALITY

- Many streams which do not meet designated use thresholds
- Clear Creek delisting

Subwatershed	Impairment
Little Osage Creek	E. coli
Moore's Creek	Sulfates
Lower Muddy Fork	Sulfates
Illinois River	E. coli; Turbidity
Baron Fork	Sulfates
Sager Creek	Ammonia-N
Trib. to Brush Creek	Dissolved Oxygen
Lake Fayetteville	pH
Flint Creek (OK)	Dissolved Oxygen
Illinois River (OK)	Phosphorus, Turbidity., Bacteria
Pumpkin Hollow Creek (OK)	Dissolved Oxygen
Tyner Creek (OK)	Dissolved Oxygen
Barron Fork (OK)	Phosphorus
Caney Creek (OK)	Bacteria
Lake Tenkiller (OK)	Chlorophyll-a
Elk Creek (OK)	Dissolved Oxygen

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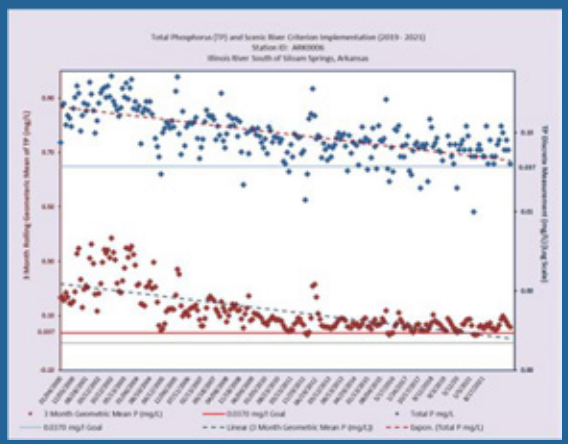
TOTAL PHOSPHORUS



- Total Phosphorus has steadily dropped due to the implementation of best management practices in the watershed
- But there are still segments of the river which are impaired for TP

We can make big changes when we put our minds to it

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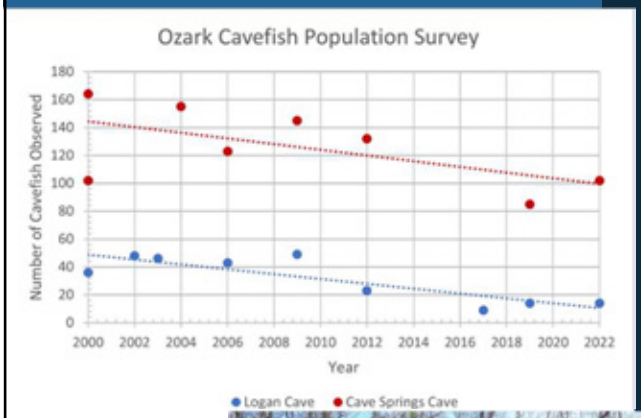
Federally Listed Threatened and Endangered Species



19 endangered, and 27 threatened species

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Required Watershed Plan Elements

1. The identification of causes, sources of pollution, and extent of water quality impairment
2. Expected load reductions once management actions are implemented
3. A description of nonpoint source pollution management actions that stakeholders can participate in and help to implement, especially in critical areas
4. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon
5. Education and outreach strategies to encourage stakeholders to learn more about selecting, designing and implementing management actions
6. A schedule for implementing identified management measures
7. A description of measurable milestones along the way to a fully implemented vision
8. A set of criteria that can be used to determine if water quality is improving towards attaining water quality standards
9. A monitoring component to determine if implemented management actions are really improving water quality

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MY OBSERVATINS ON AR AND OK WBP

Arkansas, November 2012

- 9-element plan funded by 319 and WFF
- Developed by IRWP with consortium of partners
- Criteria: nitrate, pathogens, and sediment
  - Phosphorus not a priority for this watershed management plan; addressed in the TMDL
- Does not set percent reduction for pathogens or other contaminants
- Recommends voluntary, non-regulatory practices
- Success: watershed implementation plan; percentage of exceedances for pathogen and turbidity from 2008 303(d) list (no other constituents)

Oklahoma, December 2010

- 9-element plan, organized a little differently
- Developed by OCC in collaboration with partners
- Criteria: Phosphorus, bacteria, and sediment priorities of the plan
- Non-regulatory approach
- Riparian protection and streambank stabilization prioritized
- Ultimate goal of reducing TP by approximately 80% per year, as well as reduce the pathogen and sediment loads to achieve aesthetics and designated use thresholds

Important Opportunities to Achieve our Water Quality Goals

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STREAMBANK EROSION

- IRWP has led a long-term study since 2017 on 15 sites

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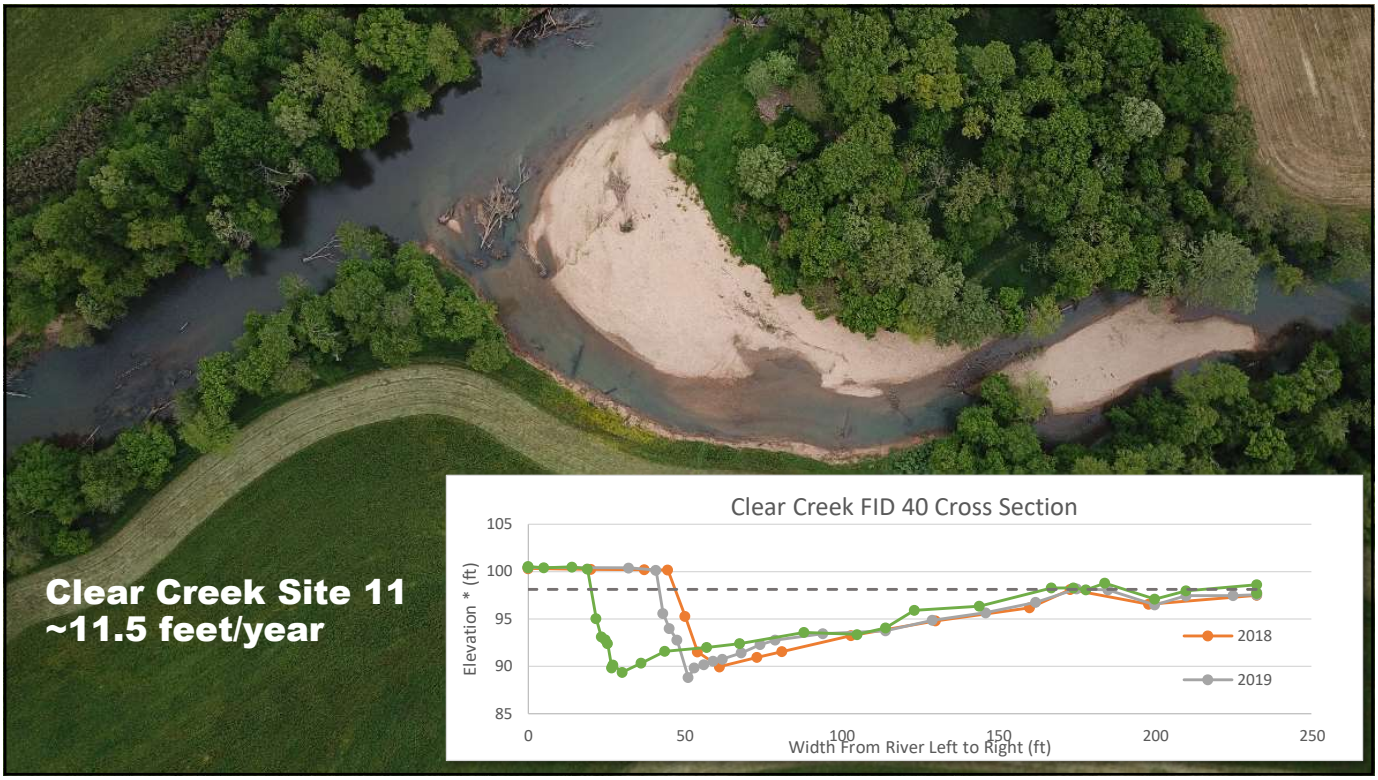

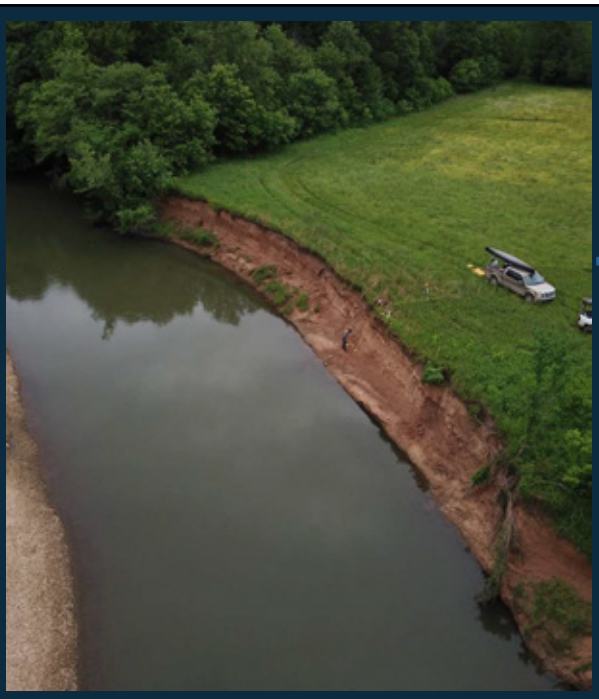

WHY IS IT IMPORTANT?

- Loss of productive lands - 1.01 feet/year (~20 acres) and introducing 102,822 tons of sediment
- Sediment and nutrient loading - 154,233 lbs of phosphorus to the watershed annually:
  - Expensive to treat, impacts fish and wildlife, difficult to meet OK standard
- Safety hazard to people and livestock

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CAUSES

- Increased average annual precipitation
- Increasing streamflow
- Higher runoff rates and sustained flow
- Construction in the floodplain
- Debris jams
- Gravel deposits from upstream bank erosion
- Deforestation of the riparian corridor
- Past attempts at altering the stream channel

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Work IRWP and Other Stakeholders are Doing

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IRWP GREEN INFRASTRUCTURE PROJECTS

- 2015 – 2018: EPA 319, 15 BMPs servicing 7.7 acres, $374,059
- 2019 – 2024: ANRD/WFF RRP, 20 miles of stream restored, two sq miles of rotational grazing, 48 conservation plans, $2.8m
- 2019 – 2022: WFF Blue Cities/Blue Neighborhoods, $250,000
- 2020 – 2023: STRP, $2.1m, 38 projects $405k since March 2021
- 2019 – 2022: USFWS, Water quality improvement practices, $87,000
- 2019 – 2022: ANRD Benton County Unpaved Roads, $275k

ILLINOIS River WATERSHED PARTNERSHIP

SEPTIC TANK REMEDIATION PROGRAM

BACKGROUND

$1.2 million in funding available to Benton and Washington County

- Focused on replacing or repairing failing septic systems and promoting proper maintenance of existing systems
- Three year program; plus establishment of revolving loan fund for future
- Up to $30,000 per project
- Grant funding (sliding scale based on income) and/or zero-interest loan

PROJECT GOALS

- Repair or replace 15-20 systems per year
- Improve water quality and public health, particularly for low- and medium-income homeowners
- Raise awareness of the importance of maintaining septic systems

38 projects; $405k since March 2021!

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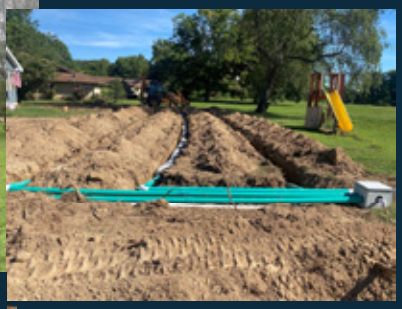

Hutcheck Family, $17,350 design and installation, 90% grant

ILLINOIS River WATERSHED PARTNERSHIP

UNPAVED ROADS

- Working with Benton County in 2021-2022 to demonstrate Best Management Practices; $275k
- PROJECT GOALS:
  - Reduce non-point source sediment loads in the Illinois River
  - Work with Benton County to design, budget and install projects
  - Reduce Benton County Roads Department road maintenance costs
  - Support awareness of BMP opportunities, site selection, BMP selection, and maintenance requirements

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BEFORE: Water flowing unimpeded down roadbed, picking up velocity and sediment, causing EXTREME ditch erosion and sediment pollution into Little Osage Creek.

AFTER: Broad based dip intercepts approximately 1,500 feet of flow and directs it into wooded area to be dissipated.

Municipal and Privately Led Initiatives

- Wastewater Treatment Plant Upgrades
  - Noland and Westside plant upgrades ($180.7m); SWU sludge dryer and clarification/headworks projects ($67m); NACA pipeline upgrades ($42m); Siloam Springs Biological Nutrient Removal ($17.5m); Rogers sludge drying ($31.2m)
- Large-scale Urban Stormwater Management
  - Pinnacle under-street detention using Permeable Interlocking Concrete Pavement (PICP) on 30 acres saving the developer ~$500K
  - Streamside Protection Ordinance, Fayetteville, AR
- Nutrient Management Plans
  - 1.59 millions tons of poultry litter exported since 2005 (47,798,348 lbs of phosphorus)
- City of Fayetteville Stormwater Utility Feasibility Study
- AR and OK Stormwater Studies funded by Cherokee Nation, ANRD, and USACE

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OUTREACH

- Average of two major Illinois River targeted awareness raising events/activities per month
- Not doing it alone – NRCS, BWA, GRDA, OCC, UAEX, cities, and others
- General awareness vastly improved!

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Youth Education

- Field trips to IRWP 28 acre indoor/outdoor education facility
  - Watershed Pollution and Solutions, Bioindexing Macroinvertebrates, Watershed Exploration, Mobile Learning Labs
- Thousands of students since 2011
- 3,000+ students in 2022

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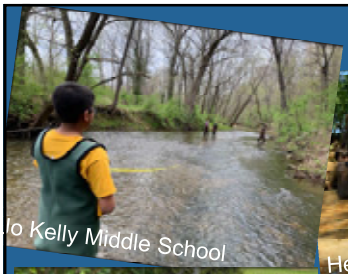
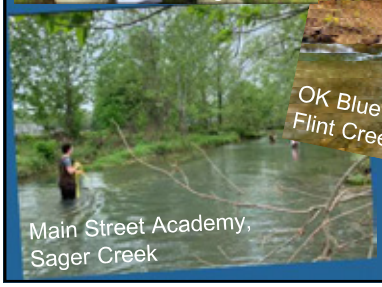
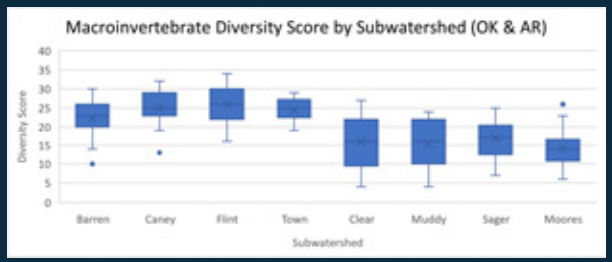
ECOASSESSMENT

- Macroinvertebrate diversity was most related to components of the streambed.
- Diversity was positively related to the presence of cobbles and gravel in the streambed and negatively related to the presence of silt, clay, and mud in the streambed.





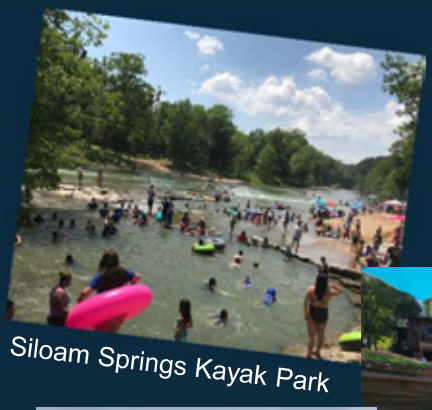


EPA Volunteer Stream Monitoring: A Methods Manual (publication number EPA 841-B97-003). Stream Habitat Walk and Streamside Biosurvey

ILLINOIS River WATERSHED PARTNERSHIP

RECREATION

- In Arkansas and Oklahoma the Illinois River and its major tributaries are a multi-million dollar recreational amenity.
  - Illinois River is only a ½ hour drive from much of NWA
  - OK Scenic River is a regional and national draw
- Very limited public access in AR with significant demand and impact on water quality in AR and OK
- Ecological and water quality impacts likely to become more important


Siloam Springs Kayak Park


Illinois River below Chewey


WOKA Whitewater Park

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RECOMMENDATIONS

- Greater focus on stormwater in WMPs
- Priority constituents:
  1) TP conformance to Oklahoma standard
  2) Bacteria: non-impairment
  3) Sediment
- Incentivize connection to larger sewage treatment facilities, disincentivize STEP systems
  - Gravity line planning consider flood risk
- Budget to the nutrient and sediment reduction goals
- Alternative ways to achieve 75% forested riparian buffer
  - Termed and permanent easements
- Complete an integrated monitoring network
- Recreation is an important part of the watershed management plan
- Take a fresh look at where we need to work in the watershed
- Continue to focus on putting conservation on the ground
- Organize management plans following same 9 element approach
- Consider factors outside the Illinois River Watershed (e.g., recreation brings tens of thousands of people in, interbasin transfer, invasives)
- Consider the significantly adverse consequences of construction in the floodplain

It's amazing what you can accomplish when you do not care who gets the credit.

Pres. Harry S. Truman

ILLINOIS River WATERSHED PARTNERSHIP

THANK YOU

director@irwp.org

irwp.org

Leif Kindberg
Executive Director
479-422-5676

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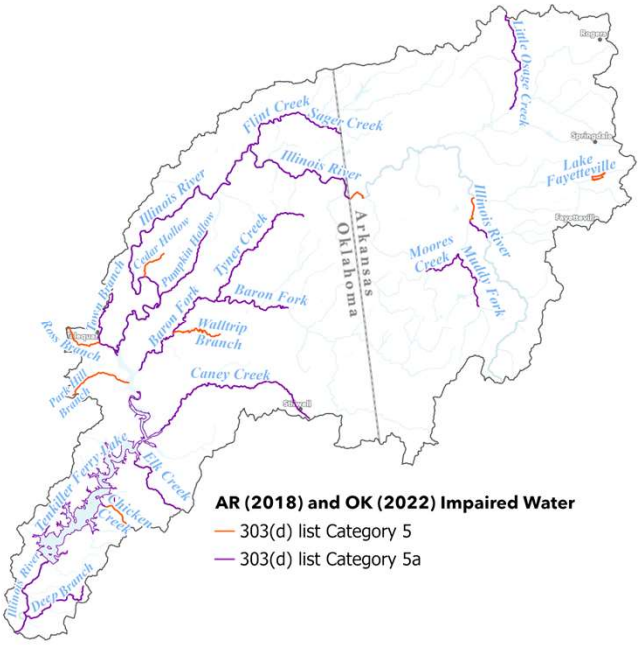
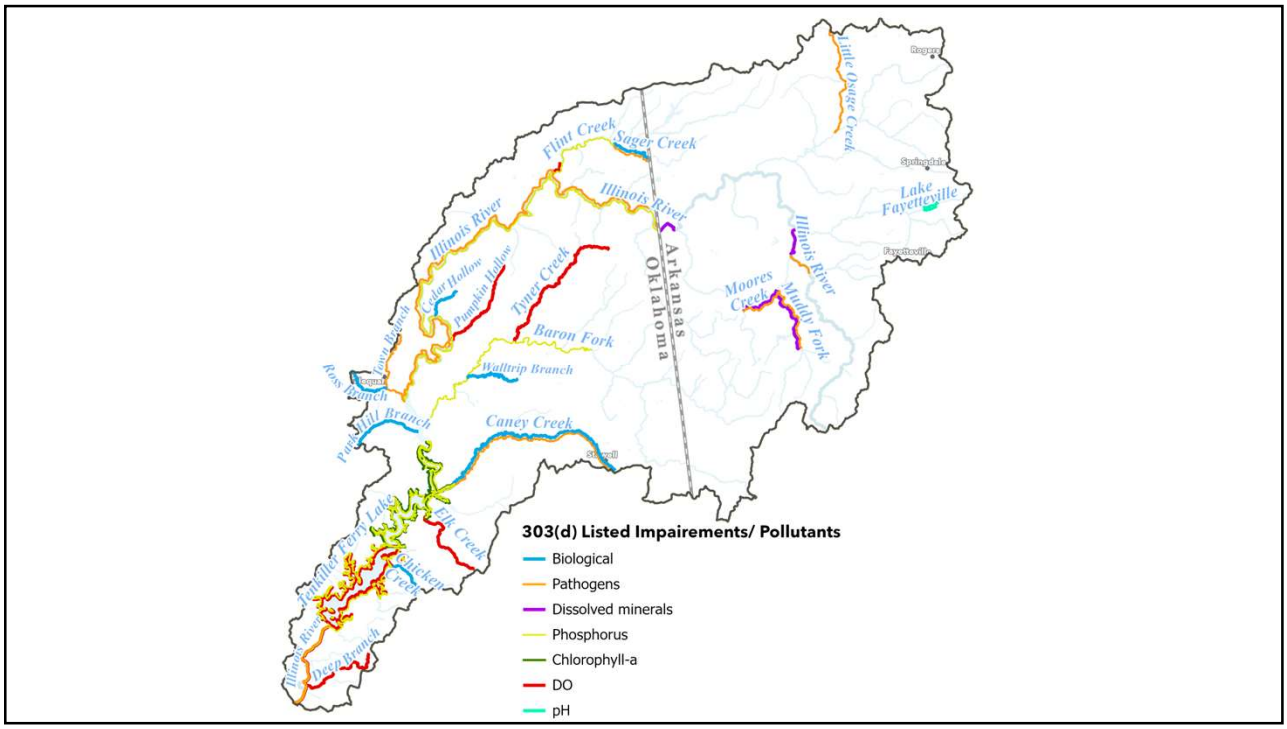
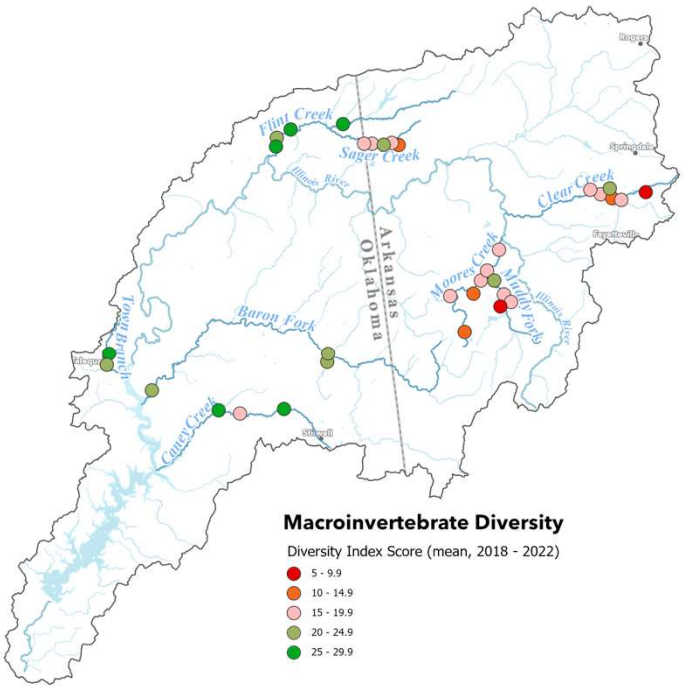
Overview of Water Quality Conditions for the Illinois River Watershed



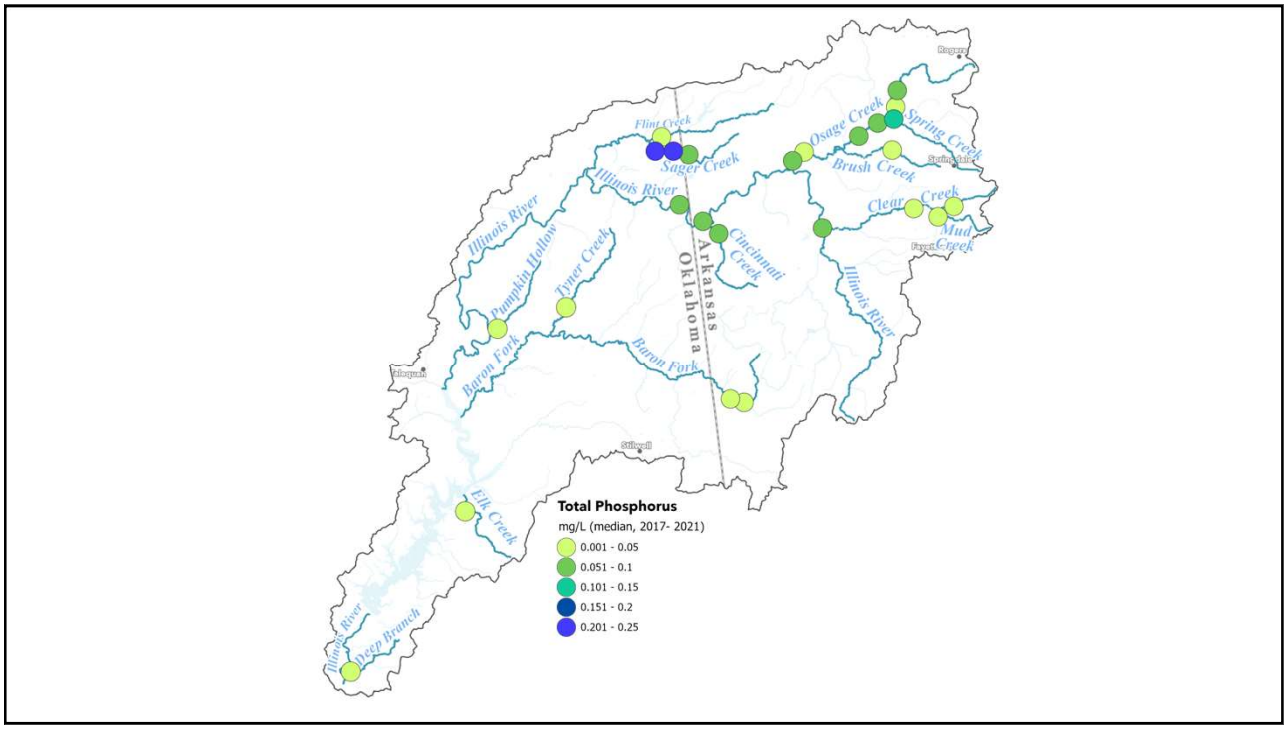


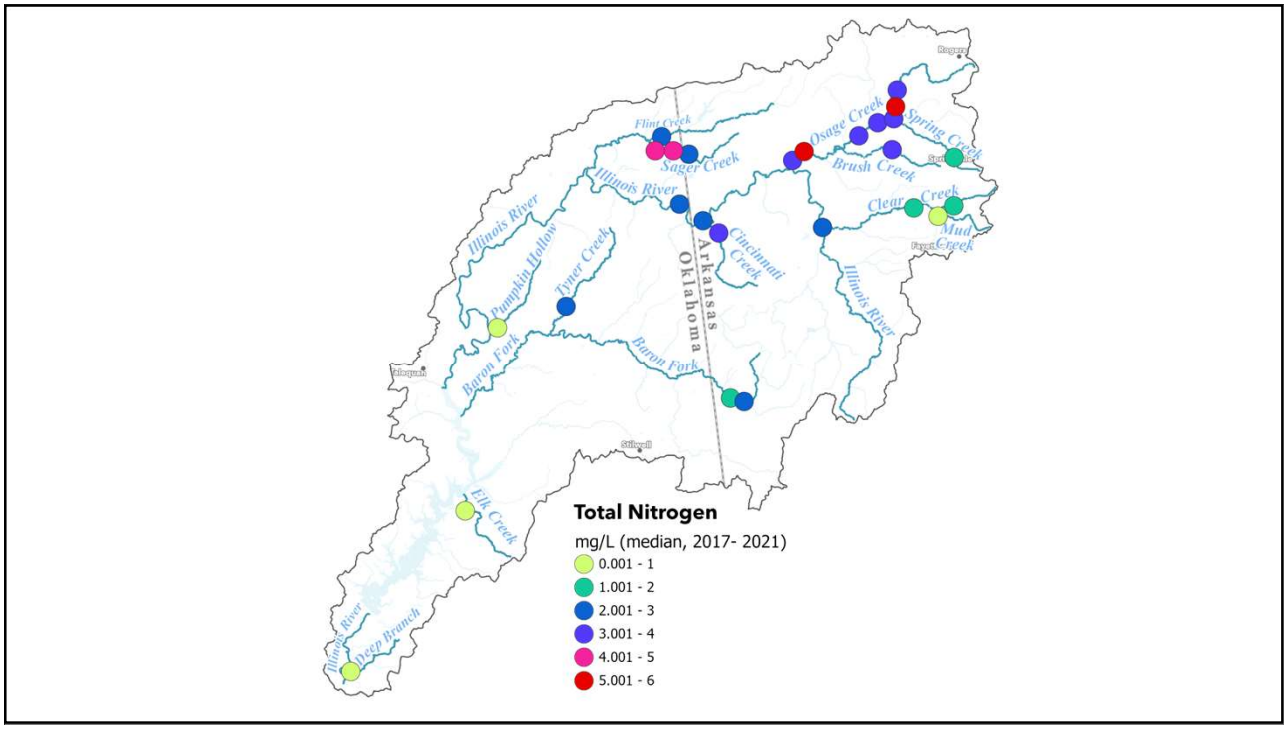
Illinois River Watershed Impaired Waters

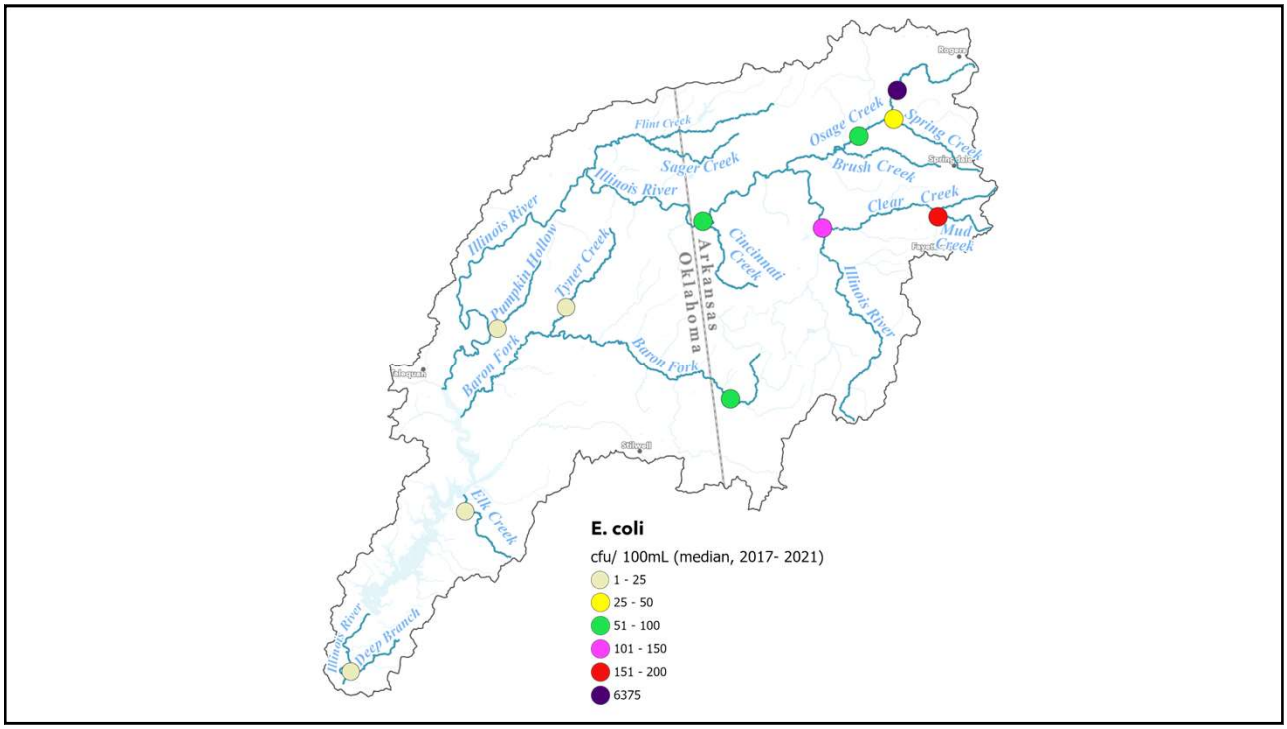
Constituent	Extent of Impaired Waters
Phosphorus	94.7 miles (streams) and 5,032 acres (Tenkiller Ferry)
Pathogens	151.3 miles
Turbidity/Sediment	19.8 miles
Biological	71.5 miles
Dissolved Oxygen	26.8 miles
Dissolved Minerals	25.2 miles
pH	171 acres (Lake Fayetteville)
Chlorophyll a	5,032 acres (Tenkiller Ferry)

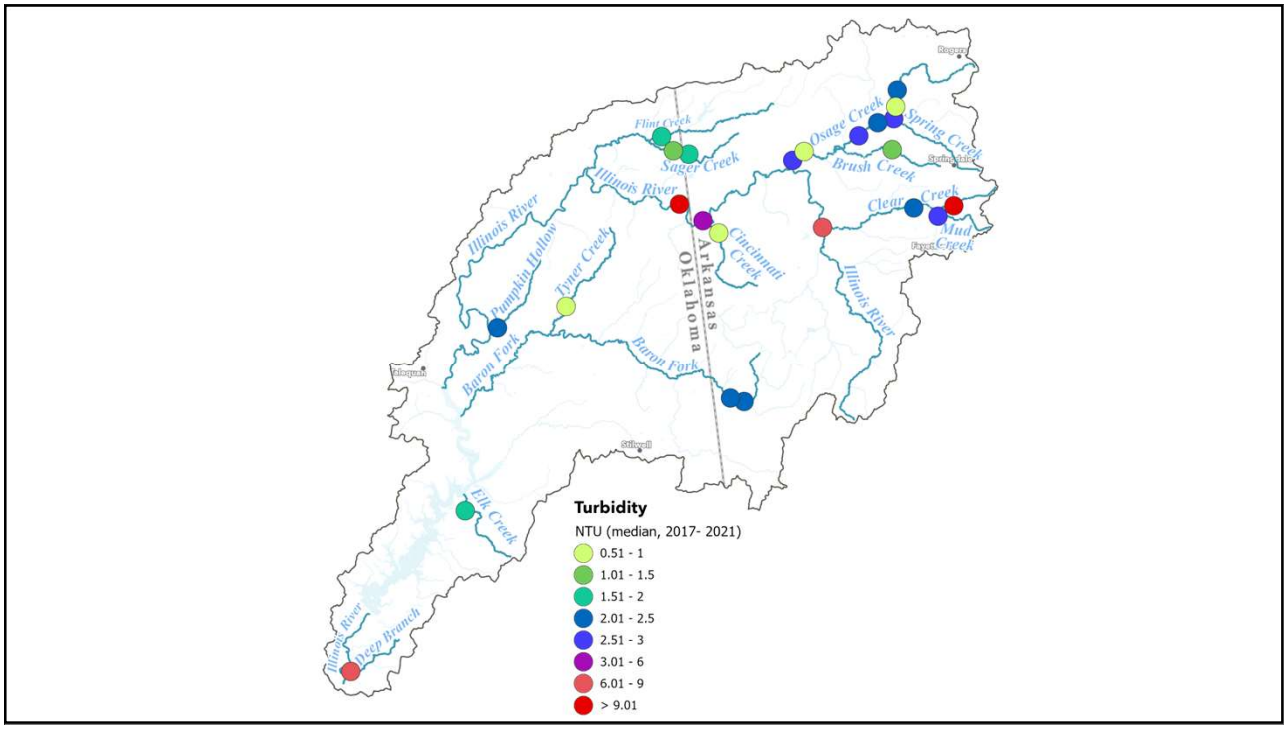


Source: Ecological Assessment of the Illinois River Watershed, Illinois River Watershed Partnership, February 2022.


Flint Creek
Sager Creek
Osage Creek
Spring Creek
Brush Creek
Clear Creek
Mud Creek
Illinois River
Pumpkin Hollow
Tyner Creek
Cincinnati Creek
Arkansas
Oklahoma
Baron Fork
Elk Creek
Total Phosphorus
mg/L (median, 2017- 2021)
0.001 - 0.05
0.051 - 0.1
0.101 - 0.15
0.151 - 0.2
0.201 - 0.25


Flint Creek
Sager Creek
Osage Creek
Spring Creek
Brush Creek
Clear Creek
Mud Creek
Illinois River
Pumpkin Hollow
Tyner Creek
Cincinnati Creek
Arkansas
Oklahoma
Baron Fork
Elk Creek
Total Nitrogen
mg/L (median, 2017- 2021)
0.001 - 1
1.001 - 2
2.001 - 3
3.001 - 4
4.001 - 5
5.001 - 6


Flint Creek
Osage Creek
Spring Creek
Sager Creek
Brush Creek
Illinois River
Clear Creek
Mud Creek
Cincinnati Creek
Illinois River
Pumpkin Hollow
Tyner Creek
Arkansas
Oklahoma
Baron Fork
Baron Fork
Elk Creek
Illinois River
Deep Branch
E. coli
cfu/ 100mL (median, 2017- 2021)
1 - 25
25 - 50
51 - 100
101 - 150
151 - 200
6375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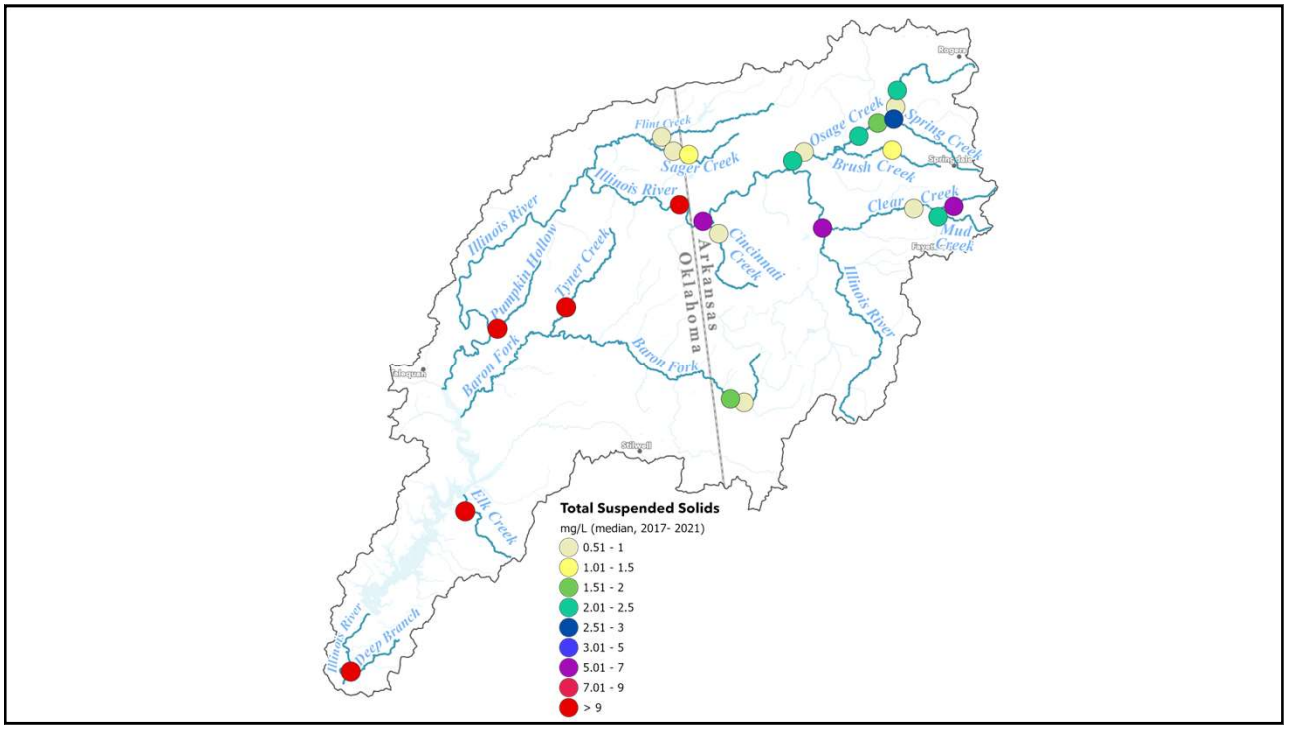
Osage Creek
Spring Creek
Sager Creek
Brush Creek
Illinois River
Clear Creek
Mud Creek
Cincinnati Creek
Illinois River
Pumpkin Hollow
Tyner Creek
Arkansas
Oklahoma
Baron Fork
Baron Fork
Elk Creek
Illinois River
Deep Branch
Turbidity
NTU (median, 2017- 2021)
0.51 - 1
1.01 - 1.5
1.51 - 2
2.01 - 2.5
2.51 - 3
3.01 - 6
6.01 - 9
> 9.01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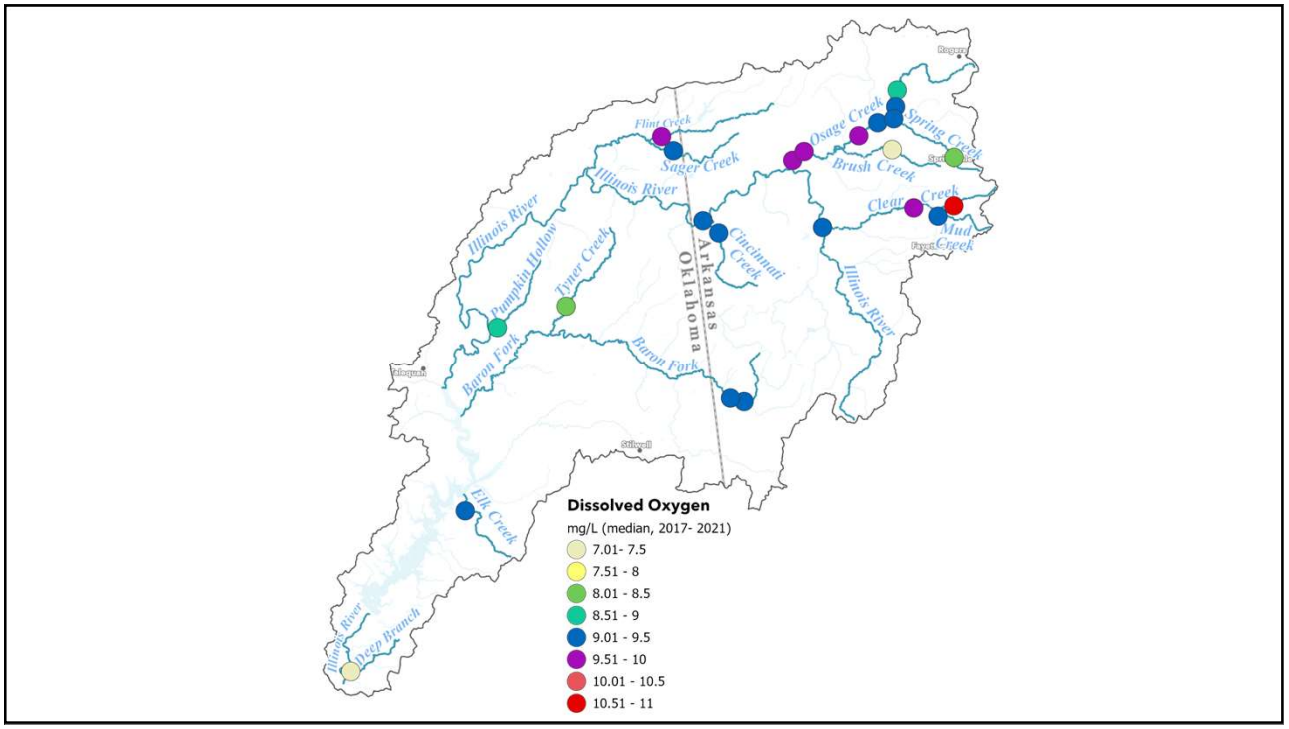
Clear Creek
Mud Creek
Illinois River
Pumpkin Hollow
Tyner Creek
Baron Fork
Cincinnati Creek
Arkansas
Oklahoma
Elk Creek
Total Suspended Solids
mg/L (median, 2017- 2021)
0.51 - 1
1.01 - 1.5
1.51 - 2
2.01 - 2.5
2.51 - 3
3.01 - 5
5.01 - 7
7.01 - 9
> 9


Flint Creek
Sager Creek
Osage Creek
Spring Creek
Brush Creek
Clear Creek
Mud Creek
Illinois River
Pumpkin Hollow
Tyner Creek
Baron Fork
Cincinnati Creek
Arkansas
Oklahoma
Elk Creek
Dissolved Oxygen
mg/L (median, 2017- 2021)
7.01- 7.5
7.51 - 8
8.01 - 8.5
8.51 - 9
9.01 - 9.5
9.51 - 10
10.01 - 10.5
10.51 - 11

Arkansas Water Quality Trends

Location	Period	Total Phosphorus % Change/yr	Total Nitrogen % Change/yr	TSS % Change/yr
Illinois River at Savoy	Jul. 2009 – Sep. 2018	NT	-1.7	NT
Spring Creek at State Hwy. 112	Feb. 2012 – Sep. 2018	-4.4	-1.6	5.2 ↑
Osage Creek near Elm Springs	Jul. 2009 – Sep. 2018	-1.3*	-1.5	-2.4*
Illinois River at State Hwy. 59	Jul. 2009 – Sep. 2018	-1.6	-1.1	NT
Illinois River near Watts	Jul. 2009 – Sep. 2018	-1.4	-0.7	2.1 ↑
Sager Creek at Siloam Springs	Jul. 2011 – Sep. 2018	NT	-1.7	NT
Baron Fork at Dutch Mills	Jul. 2009 – Sep. 2018	-3.0	NT	-3.9

Seasonal Kendall results shown here

NT = No significant trend
* = Marginally significant trend

Source: Scott, E.E., and B.E. Haggard. 2019. "Constituent Loads and Trends in the Upper Illinois River Watershed and Upper White River Basin: 2015 October through 2018 September". Arkansas Water Resources Center Publication MSC387.

Oklahoma Total Phosphorus Trends

Location	Period	Total Phosphorus Change/year
Illinois River near Watts	1999 – 2019	-0.008 mg/L
Flint Creek near Kansas	1999 – 2019	-0.006 mg/L
Illinois River near Tahlequah	1999 – 2019	-0.004 mg/L
Baron Fork near Eldon	1999 – 2019	-0.0004 mg/L

Trends were computed using assessment geometric means with Seasonal Kendall analysis.

Source: Arkansas River Compact Commission 2020 Report

Questions on Water Quality Data?

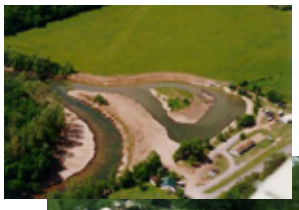
Oklahoma Illinois River Nonpoint Source Pollution Projects and Programs

Stakeholder Meeting

September 11, 2022

Historical Oklahoma Illinois River Projects

- Designing water quality monitoring programs to detect effects of conservation practices
- Prioritizing subwatersheds based on nutrient loading
- Trashbags and restrooms for canoers
- Subwatershed conservation demonstration programs
- Education programs for farmers/ranchers, citizens, loggers, recreation users
- Streambank stabilization
- Clean Lakes Study
- Onsite capture and recycling of nursery effluent
- Poultry litter transfer outside of watershed
- Monitoring, Monitoring, Monitoring



Basinwide Comprehensive Management Plan

- 1999- Oklahoma's first attempt to characterize watershed-wide challenges and recommend solutions
- Estimated approximately $9.6 million necessary to install nonpoint source-focused conservation practices


COMPREHENSIVE BASIN MANAGEMENT PLAN

FOR THE ILLINOIS RIVER BASIN

IN OKLAHOMA

Prepared by

Shannon Hanaughty
Technical Writer
Water Quality Division
Oklahoma Conservation Commission
May 1999

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1999 Illinois River and Barron Fork Watershed Implementation Project

- 177 Cooperators
- $1,335,860 in conservation practice funds
- 1,300 acres of riparian area protection (approx. 50 miles)
- Off-site water- 78 ponds, 132 tanks, 11 miles of pipeline
- 3 access lanes
- 28 winter feeding facilities
- 11 lagoon cleanouts, 3 lagoons, 6 poultry cakeout/cleanout storage
- 56 miles cross-fencing
- 21 septic tanks replaced

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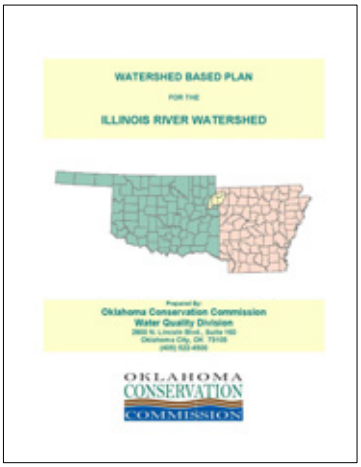
NRCS

2010 OK Illinois River Watershed Based Plan

- Begun in 2009, completed and accepted by EPA in early 2011
- Plan developed for watershed improvement in Oklahoma
- Plan used a local watershed advisory group to devise strategies
- https://www.ok.gov/conservation/documents/Illinois%20River%20Watershed-based%20plan%20approved%202_11_%202011.pdf



Implementing the 2010 OK Watershed Plan

- 2010-2015 NPS Projects:
  - Implementation
    - 300+ cooperators
    - 122 septic tank replacement
    - 4,478 acres or approx. 110 miles riparian protection
    - 102.48 miles of riparian and cross-fencing
    - 42 ponds, 250 tanks, 10.58 miles of pipeline
    - 15 new lagoons or lagoon cleanouts, 5 litter storage/cakeout houses, 46 winter feeding facilities, 85 heavy use areas
    - Streambank stabilization projects
  - Education
  - WQ Monitoring (includes OCC (small watershed monitoring) and OWRB, USGS, and OSRC/GRDA (larger watershed monitoring)
  - Funding from US EPA, US NRCS, State, Landowners, etc. = approx. $17.7 million

Water Quality Monitoring Results from 2010-2015 Projects

- Paired Watershed Methods
  - Indicated a 37.18% reduction in total phosphorus when comparing Flint Creek (treatment) to Saline Creek(control); no significant trend at Barren Fork
  - Indicated a 75 % nitrate-nitrogen reduction in Barren Fork (between upper (stateline- control) and lower (treatment), but significant increase in Total Nitrogen in Flint Creek
  - No significant trend in E coli loading

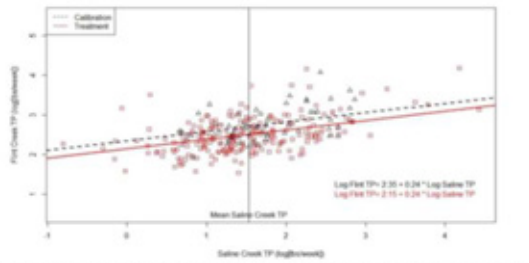
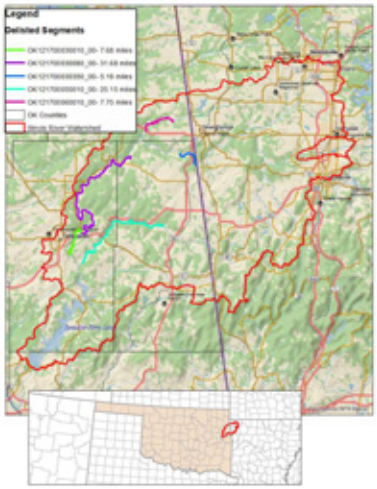
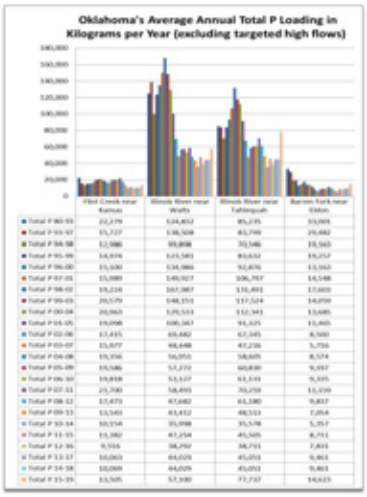


Figure 12. Results of the ANCOVA for total phosphorous (TP) loading in the Flint Creek watershed. The dotted black line represents the regression for the calibration period, while the solid red line represents the regression for the treatment period. LSMEAN TP values were calculated for the calibration and treatment period at Flint Creek using the overall TP mean at Saline Creek (represented by a vertical black line). Regression equations are presented for the calibration period (black), and the treatment period (red).

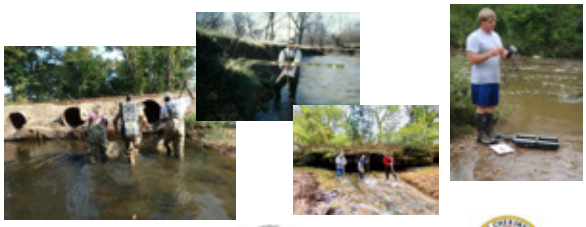
NPS Success Story- 4 stream segments delisted for *E. coli*, 1 stream segment delisted for *Enterococcus*

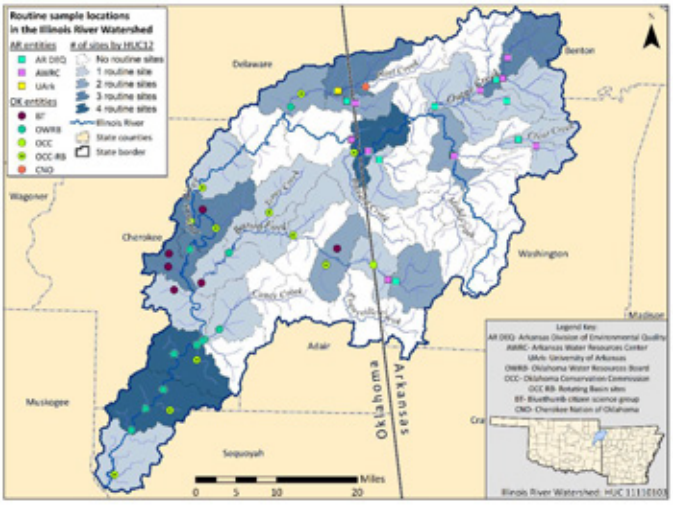




Ongoing OK Efforts in the Illinois River Watershed

- Monitoring:
  - 7 lake monitoring sites
  - 22 stream/river monitoring sites
    - 13 of which are primarily NPS pollution sites
  - USGS, GRDA, OCC, OWRB, CN, and volunteer monitoring sites



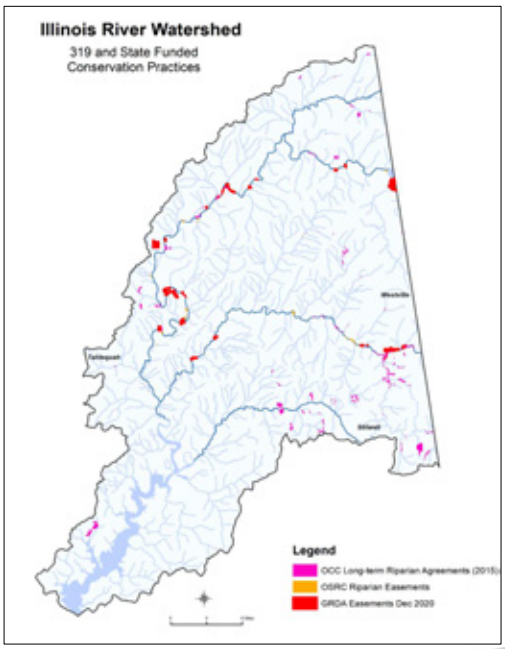


Ongoing Efforts Continued: Education

- GRDA
- Blue Thumb
- Cherokee Nation
- OK Association of Conservation Districts
- City of Tahlequah
- IRWP

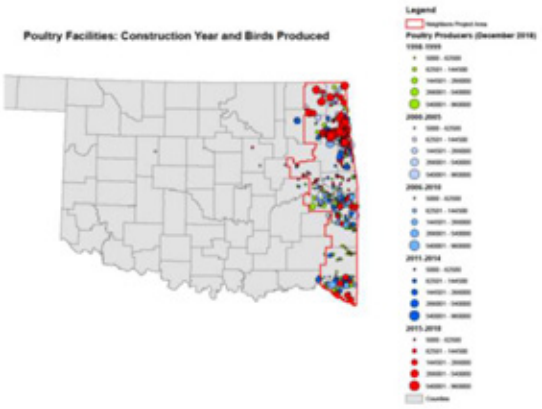
Ongoing Efforts Cont.: Long-term Riparian Protection

- Partnership with Conservation Districts, Landowners, GRDA, others
- Currently maintaining in the IRW
  - 1,207.3 acres of 10-15 year easements in partnership with conservation districts and 24 landowners
  - 1,590.17 acres in 45 different 30+ year easements in partnership with GRDA and 42 landowners
  - Total of 3,248 acres currently enrolled
  - Total of 50 miles of riparian habitat protected through active agreements; however, up to 68 miles have been protected through the program
  - Recently devoted $500,000 additional dollars toward signing new agreements in the IRW



Ongoing Efforts Continued: Neighbors Helping Neighbors: 2021 RCPP Project

- $2,010,000 in funding from NRCS, OCC, GRDA, Cherokee Nation, poultry integrators
- Focus on growers and close neighbors
- Conservation practices to address concerns related to living nearby large animal production area
- Education
- We'll have first signup for the program beginning in October and are working on a demonstration farm in the LeFlore County area



2022

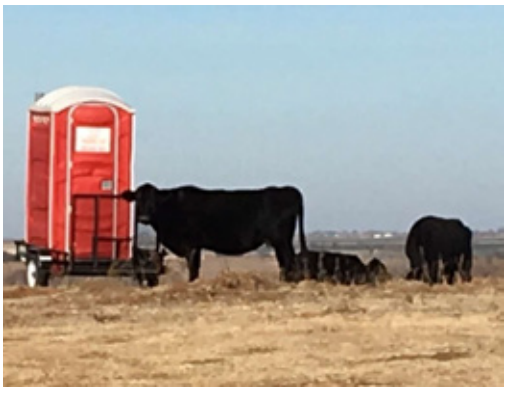


Poultry Litter Transfer

Moving litter from specific watersheds to nutrient deficient areas

13

Questions?



- Shanon Phillips
- Oklahoma Conservation Commission
- 405-522-4728
- Shanon.Phillips@conservation.ok.gov

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Attachment 3 Stakeholder Questions and Responses

ATTACHMENT 3

Illinois River Watershed Management Plan
First Stakeholder Meeting – October 11, 2022
Stakeholder Questions and Comments with Responses

Question to Mr. Kindberg: The slide you used to illustrate development in floodplains, where was that photo taken?

Answer: Mr. Kindberg did not think it was appropriate to give the specific location but did say it was on a tributary of Osage Creek in Arkansas. He also noted that while the photos were of an extreme case, the situation it illustrates is not uncommon in the developed areas of upper watershed. When asked why this development was allowed, Mr. Kindberg pointed out that the construction met minimum requirements and floodplain standards for construction. He clarified that his point is that changes need to be made to further discourage this kind of development.

Comment to Mr. Kindberg: I am glad to see people from both sides of the state line finally working together.

Question to Mr. Kindberg: What kind of response do you get from municipalities when you approach them about using low impact development?

Answer: Mr. Kindberg responded that he found representatives of the big four cities (Fayetteville, Springdale, Rogers, and Bentonville), and some smaller cities in the watershed, very interested in low impact development. However, the wheels of government move slowly, so changing the way things have always been done is a slow process. There are lots of initiatives, and city staff understand that there are challenges associated with development, for example flooding. Mr. Kindberg thinks there is a lot of progress being made. He is seeing more partnering and collaboration between developers and cities to address the common good, as opposed to the more adversarial relationships of the past.

Question to Mr. Kindberg: Do you think the watershed management plans will include recommendations for policy changes, or will they simply focus on landowner activities, e.g., conservation practices? Policies can help create conversations about needs and desires.

Answer: Mr. Kindberg asked if the question was if the plans would be taking a more regulatory or voluntary approach? He said he didn't really know and is curious what the thinking is. He thinks the cities are already doing a lot. He believes there is a greater recognition of the need for stewardship of this watershed that is so important to the region, for example as a recreation resource that contributes to the economy. Mr. Kindberg commented on the need to make locals more aware of the Illinois River as a recreation option and get them more involved in protecting it. It will probably take both policy/regulation and voluntary actions. While the cities can provide some leadership, since the majority of the watershed is privately owned, voluntary conservation by landowners is critical. Mr. Wentz added that the watershed management plans are inherently focused on voluntary, non-regulatory approaches for improving water quality. The plans won't recommend specific policy changes but will capture that there is a need for policy changes. NRD

and OCC can pass that information on to agencies and governments that would change policy, though it would not necessarily be a recommendation in the plans.

Question to Mr. Kindberg: Do you see any additional resources coming in the future to help landowners do streambank restoration?

Answer: Mr. Kindberg noted that streambank stabilization is the primary concern of landowners in the watershed that IRWP encounters. He estimated that around 70% of inquiries IRWP receives are related to streambank erosion. The challenge is that you can spend $350-$500/linear foot for streambank restoration, and there are miles of eroding streambanks. Mr. Kindberg stated that he doesn't think there will be enough resources to address streambank erosion at a large scale, due to budgetary constraints, so there is a need to identify and work in priority areas. He sees a decentralized approach as most useful. There are studies ongoing that are looking at changes in geomorphology in the watershed. He hopes these will help with prioritizing locations for streambank restoration.

Comment to Mr. Massirer: (by Mr. Kindberg) I think there are more recent total phosphorus trend analysis results from Oklahoma that could be presented. Mr. Wentz confirmed.

Question to Mr. Massirer: Which Arkansas 303(d) list will be referenced in the plan? I have heard that Arkansas DEQ expects the draft 2020 303(d) list to be approved by EPA any day now. Will the Arkansas 2020 list be able to be incorporated into the plan when it is approved? There are some differences between the 2018 and 2020 lists.

Answer: Mr. Wentz stated that policy is to use the most recent EPA-approved 303(d) list in the plans. Currently, for Arkansas, that is the 2018 303(d) list. Mr. Wentz and Mr. Massirer stated that the Arkansas 2020 303(d) list can be incorporated into the plan when it is approved. It is unlikely that the Arkansas 2022 303(d) list will be ready in time to be used in the plan.

Question to Mr. Massirer: What is the vision for the watershed management plan? Is water quality the primary goal?

Answer: Water quality is a measure of success of the plan, but attainment of water quality standards can take a long time. Therefore, the plan will also include interim measures of success or progress, for example, incremental changes in water quality, number of people participating in education programs, adding partners and funders. This is something we need help from stakeholders with, what are good, reasonable measures of success or progress.

Comment: We may want to look to the Beaver Watershed Alliance metrics for ideas to use in the Illinois River watershed.

Question to Ms. Phillips: Are there some practices that are more effective than others?

Answer: There are practices that are more effective, and times and situations where they are used more effectively. We will use the watershed models to predict where certain practices will be most effective and provide the greatest return on investment. Personally, I think riparian area protection

is a practice that is very effective in a lot of situations, but there are certainly other practices that provide benefits. The benefit of having people who live and work in the watershed making decisions, rather than people in Little Rock and Oklahoma City, is that you understand the how and the whys of what is happening in the watershed. Everybody has their ideas about what the issues are, and which should be a priority. We think of the models as tools that will help us check our assumptions and see where we can work to get the most "bang for the buck". We hope to use the models to help us make recommendations about types of practices and suites of practices we can utilize. We talked about practices that we have used in Oklahoma, with measurable success and water quality improvements. I can't say for sure that these are all the practices we are going to need to get to the next incremental level of improvement. We also need to realize that what worked in the past may not get us to where we want to be in the future.

Question to Ms. Phillips: Since most land in the watershed is privately owned, what is the most difficult aspect of getting conservation practices implemented?

Answer: As mentioned by Mr. Kindberg, anyone who lives next to stream in Oklahoma and Arkansas is very concerned about losing their land to that stream. This is the issue we get the most requests about, e.g., how can we stop it, what can we do to protect the land/stream bank? We have tried a lot of things in the past. Some worked, some didn't, for a variety of reasons. With streambank erosion, we need to help landowners understand natural movement of stream channels. Who is losing the most land? Usually people that have cleared riparian areas. We have learned that we need to work with people and their concerns and desires for their landscape. The best solution is different for each person and situation. We don't all need to be doing the same thing to benefit the resource. We need to work with individuals to understand their needs and concerns and figure out how to meet in the middle.

Question to Ms. Phillips: How can someone concerned about the Illinois River get involved?

Answer: There are a number of partners at our meeting today working in the Illinois River watershed to address a variety of concerns. We want to hear from these people as part of the watershed management plan process. People can talk to Grand River Dam Authority, county conservation districts, IRWP. Connect with them about concerns. These partners also have great education programs geared toward both groups and individuals. People need to participate in the planning meetings and process. The meeting is being recorded and will be available online. However, the most effective, helpful way is for people to be here in person. They can also contact us with concerns. The reason we have in-person meetings, instead of just asking folks to email us is because we come to better resolutions when we talk it out. If you know people who are concerned about things happening in the watershed, please encourage them to participate in this process. They don't have to come to every meeting. One of the hardest things about coming together to develop solutions is that sometimes you have to talk to people you don't think agree with you. We all recognize that there isn't any one group, or activity, or industry that has caused the challenges that we are facing in IRW, so it isn't going to be any one group that will solve it. We will all have to do our part. And if we want all the people who need to part of the solution to buy into it, they need to be part of the process. Maybe you have to invite, and talk to, people who disagree with you about what the problem is, or who the problem is, or even if there is a problem. But we aren't going to fix this if we don't all come together and talk about it.

Tate Wentz commented that attending the public meetings is going to be the best opportunity for people to provide input for the watershed management plans.

Question to Mr. Wentz and Ms. Phillips: There has been a lot of interest online. Sending out a detailed agenda before the meeting may help generate interest in attending meetings. How can people participating online be more involved?

Answer: Arkansas had done stakeholder engagement virtually. There is precedence. We will be better prepared for online participation at the next meeting. Mr. Kindberg and Greg Kloxin of OCC have been answering questions submitted online.

Comment: I think it would be good to give stakeholders a chance to share their vision for what we want to create in the Illinois River watershed.

Response: Good suggestion. It is true that water quality concerns are not what drives everyone's decisions.