

Rule 2 Stakeholder Workgroup

2023 Triennial Review



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HOUSEKEEPING

- ✓ Silence cell phones
- ✓ Please state your name and speak into a microphone
- ✓ Only one conversation at a time
- ✓ Participation limited to seated panel
- ✓ Bathrooms are behind the elevators
- ✓ Coffee and water are in the back
- ✓ Emergency exit on the west opposite the door

PURPOSE OF WORKGROUP

To assist DEQ by providing feedback on proposed revisions. We will do this by:

- ✓ Offering unique perspectives of water interests that each Stakeholder represents
- ✓ Facilitating discussion
- ✓ Working as a team to provide reasonable and achievable recommendations for proposed Rule 2 revisions



PARTICIPANT EXPECTATIONS

- ✓ Attend all Stakeholder meetings
- ✓ Respect all participants and their right to express their views
- ✓ Stay on topic

What is Rule 2?

- ✓ The Federal Clean Water Act (1972) requires each state to establish Water Quality Standards (WQS)
- ✓ WQS include designated uses and the criteria to protect those uses for Arkansas surface waters
- ✓ Standards must be reviewed every 3 years

2020 TRIENNIAL REVIEW PROCESS

Task

Estimated Timeline

Stakeholder Workgroup

March – April 2019

Governor's Office

January 24, 2020

Petition the APC&E Commission

June 26, 2020

Public Notice

July 4, 2020

Public Hearing

July 29, 2020

45-day Comment Period

July 4, 2020 – September 8, 2020

Responsive Summary

2021

Adoption by APC&E Commission

January 28, 2022

Legislative Review

April or May 2022

Submit to EPA

May or June 2022

2023 TRIENNIAL REVIEW PROCESS

Task

Stakeholder Workgroup
Governor's Office
Petition the APC&E Commission
Public Notice
Public Hearing
45-day Comment Period
Responsive Summary
Adoption by APC&E Commission
Legislative Review
Submit to EPA

Estimated Timeline

March – May 2022
Fall 2022
Winter 2022
Winter 2022 – Spring 2023
Winter 2022 – Spring 2023
Winter 2022 – Spring 2023
Spring – Summer 2023
Summer 2023
Fall 2023
Fall 2023

2.507 Bacteria

Fecal Coliform



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Remove Fecal Coliform

Contact Recreation Seasons	Criteria (col/100mL)	
<u>Primary Contact</u>	<u>Fecal Coliform</u>	
	<u>IS³</u>	<u>GM⁴</u>
ERW, ESW, NSW, Reservoirs, Lakes	400	200
All Other Waters	400	200
<u>Secondary Contact</u>		
ERW, ESW, NSW, Reservoirs, Lakes	2000	1000
All Other Waters	2000	1000

2.507 Bacteria

Primary Contact Season



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Primary Contact Recreation

USA Swimming states that water temperatures for recreational swimming and moderate exercise, 86 F (30 C) to 88 F (31.1 C) degree water is optimal.

Five-year average (2017-2021) water temperatures (F) in Arkansas

Site ID	WHI0049A	ARK0061	RED0070	OUA0189	WHI009A	LOUA020C	LWHI010B
Waterbody	Buffalo River	Mulberry River	Cossatot River	Caddo River	Kings River	Lake Ouachita	Greers Ferry Lake
March	55.4	51.8	59	64.4	53.6	53.6	
April	57.2	62.6	60.8	60.8	59	64.4	53.6
October	62.6	68	62.6	69.8	59	68	59

Primary Contact Recreation

USA Swimming states that the air temperature should be between 82 (27.8 C) and 84 (28.9 C) degrees Fahrenheit.

Five-year average air temperature in Little Rock				
Duration	Air Temperature Maximum Fahrenheit	Air Temperature Minimum Fahrenheit	Air Temperature Maximum Celsius	Air Temperature Minimum Celsius
March	66	44	19	7
April	72	49	22	10
October	75	53	24	12

Primary Contact Recreation

Surrounding States	
State	Primary Contact Season Dates
Arkansas	May 1 - September 30
Missouri	April 1 - October 31
Oklahoma	May 1 - September 30
Mississippi	May - October
Louisiana	May - October

Current

May 1 to September 30

Proposed

April 1 to October 31

2.507 Bacteria

Revision of Assessment Language



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Revision of Assessment Language

Remove:

- For assessment of Individual Sample Criteria – at least eight (8) data points.
- For calculation and assessment of Geometric Mean – calculated on a minimum of five (5) samples spaced evenly and within a thirty (30)-day period.

Edit:

- For calculation of Geometric Mean – all samples taken within a primary contact recreation season.

Bacteria Proposals Discussion



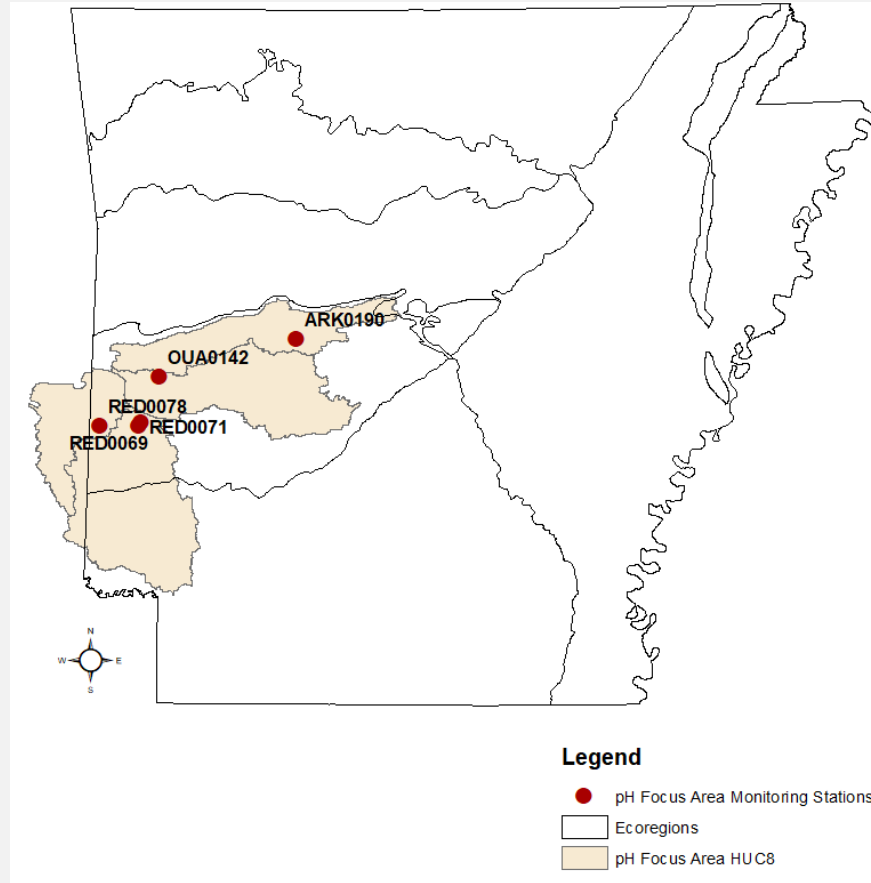
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2.504 pH Site Specific Criteria



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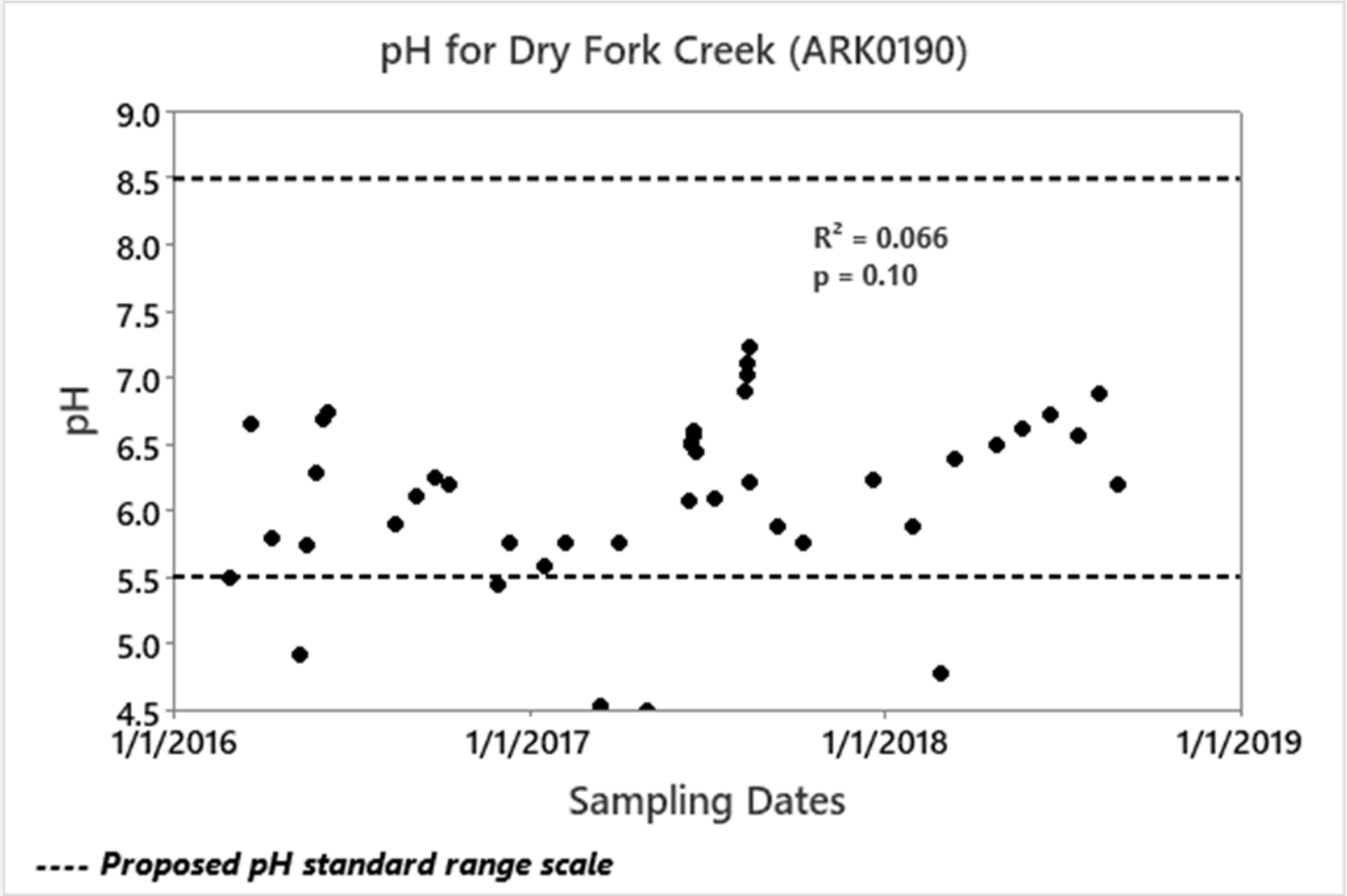
Assessment Units Locations



pH Site Specific Rationale

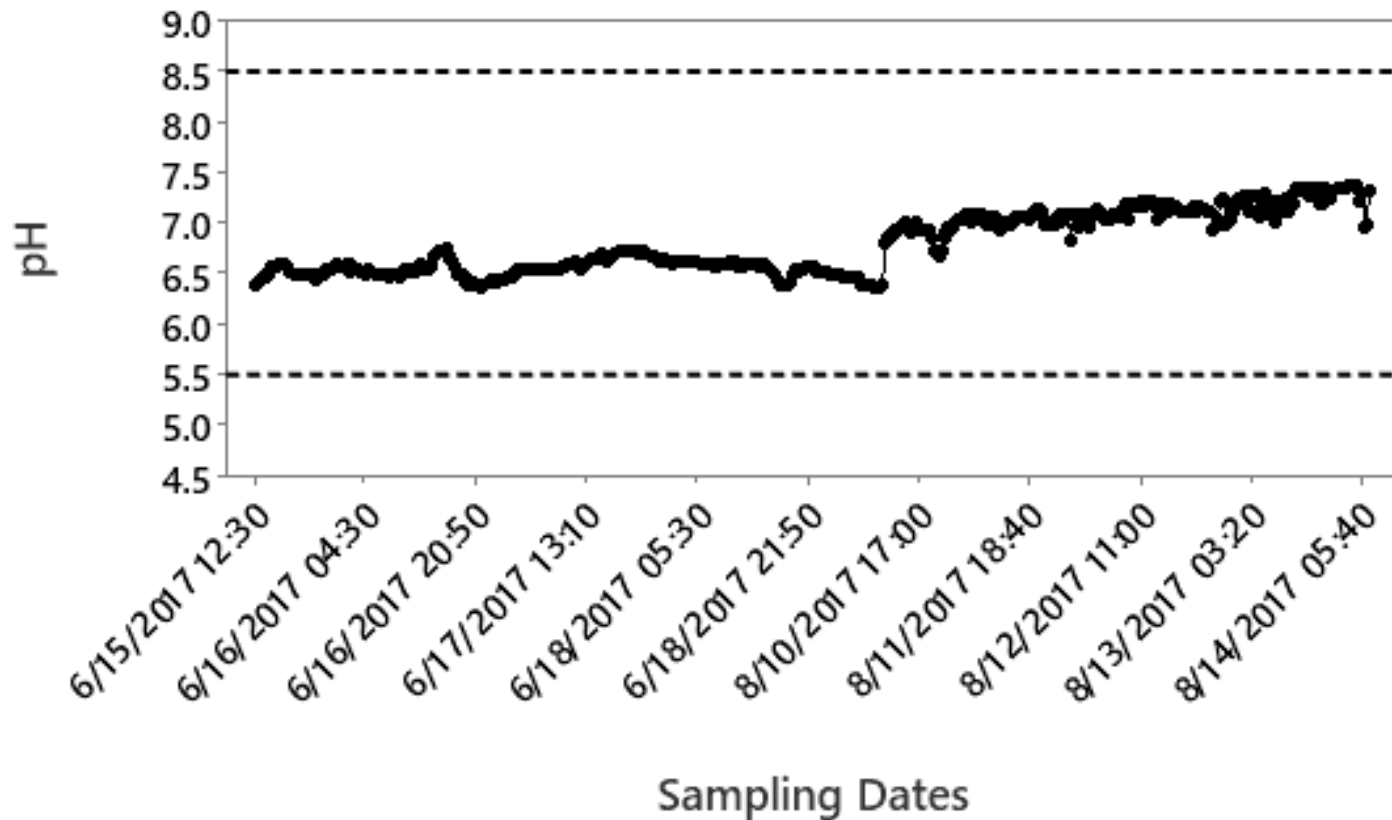
- ✓ Existing water quality data over time
- ✓ Land use/cover reflects no anthropogenic impact
- ✓ Underlying geology
- ✓ Lack of NPDES point sources
- ✓ Aquatic life use supported by biological data

Grab Sample Data



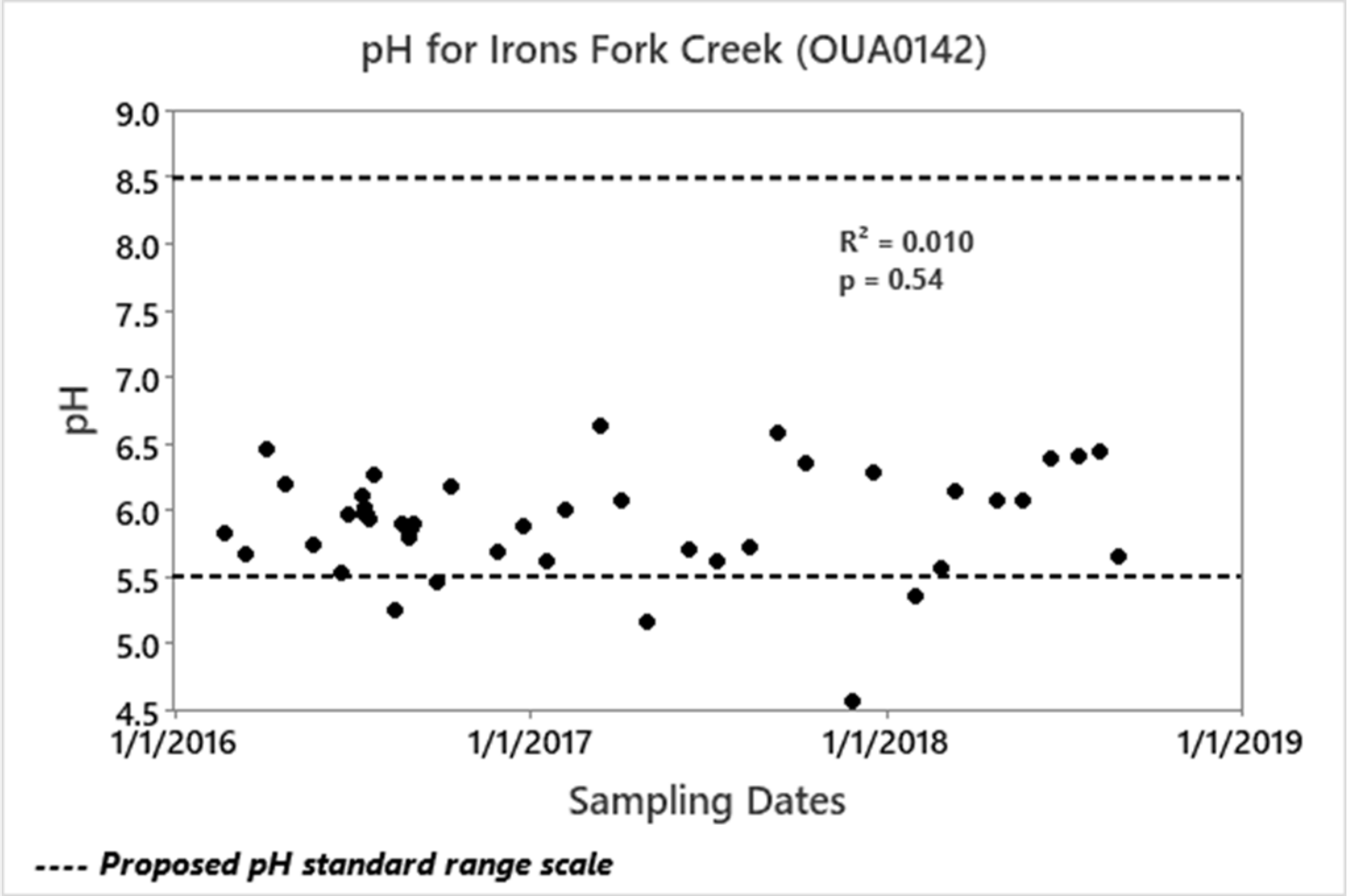
Diel Sample Data

Diel pH for Dry Fork Creek (ARK0190)

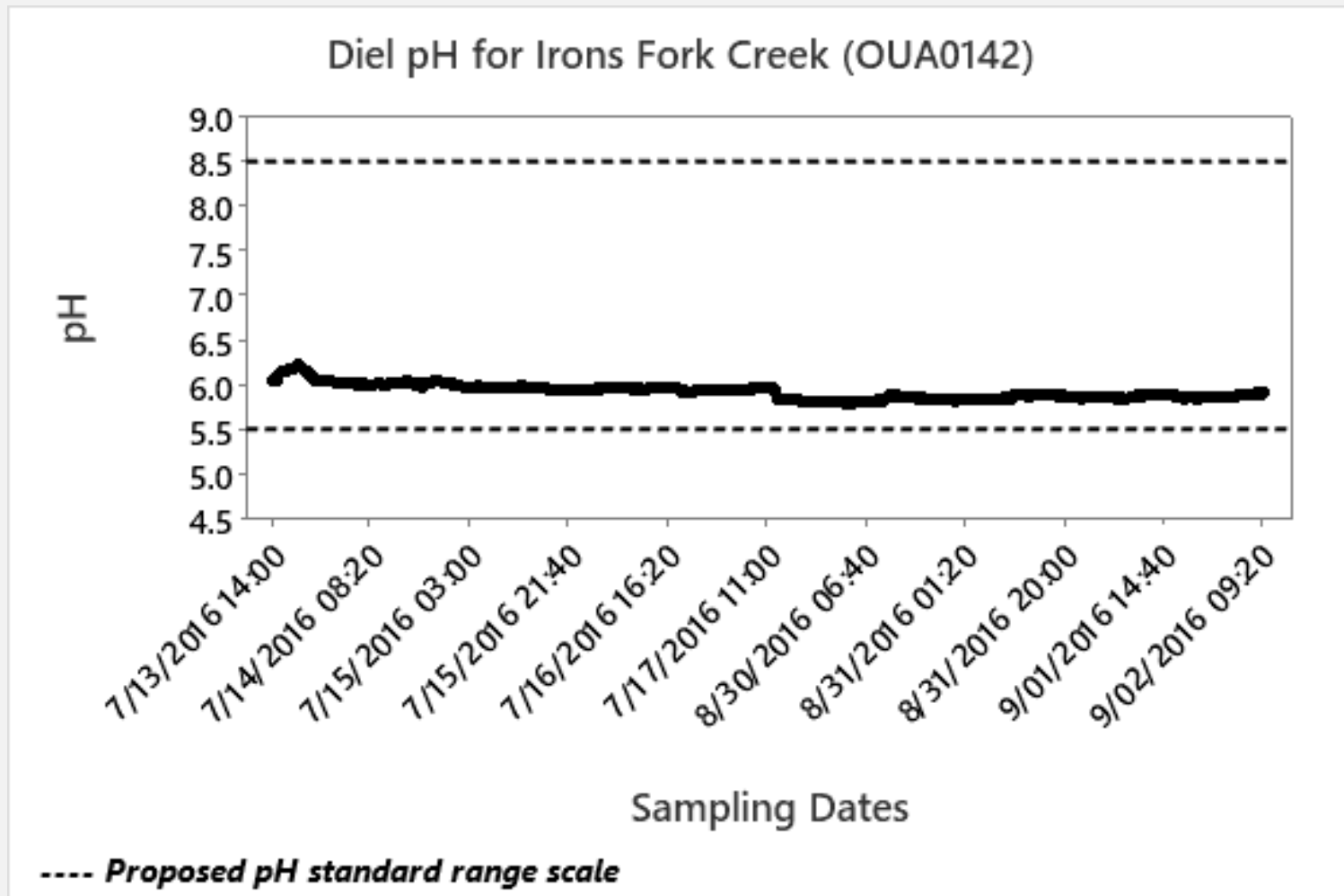


---- Proposed pH standard range scale

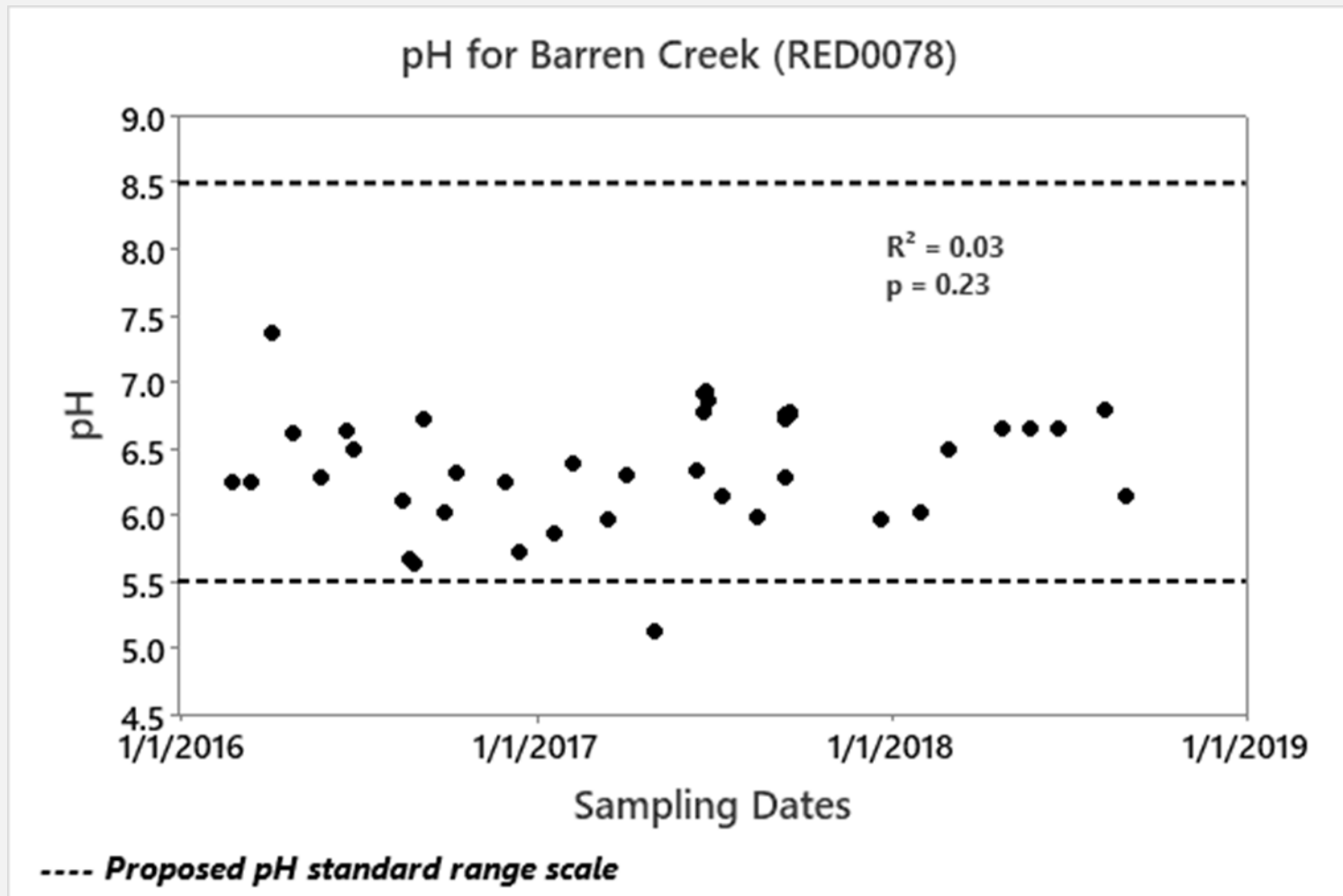
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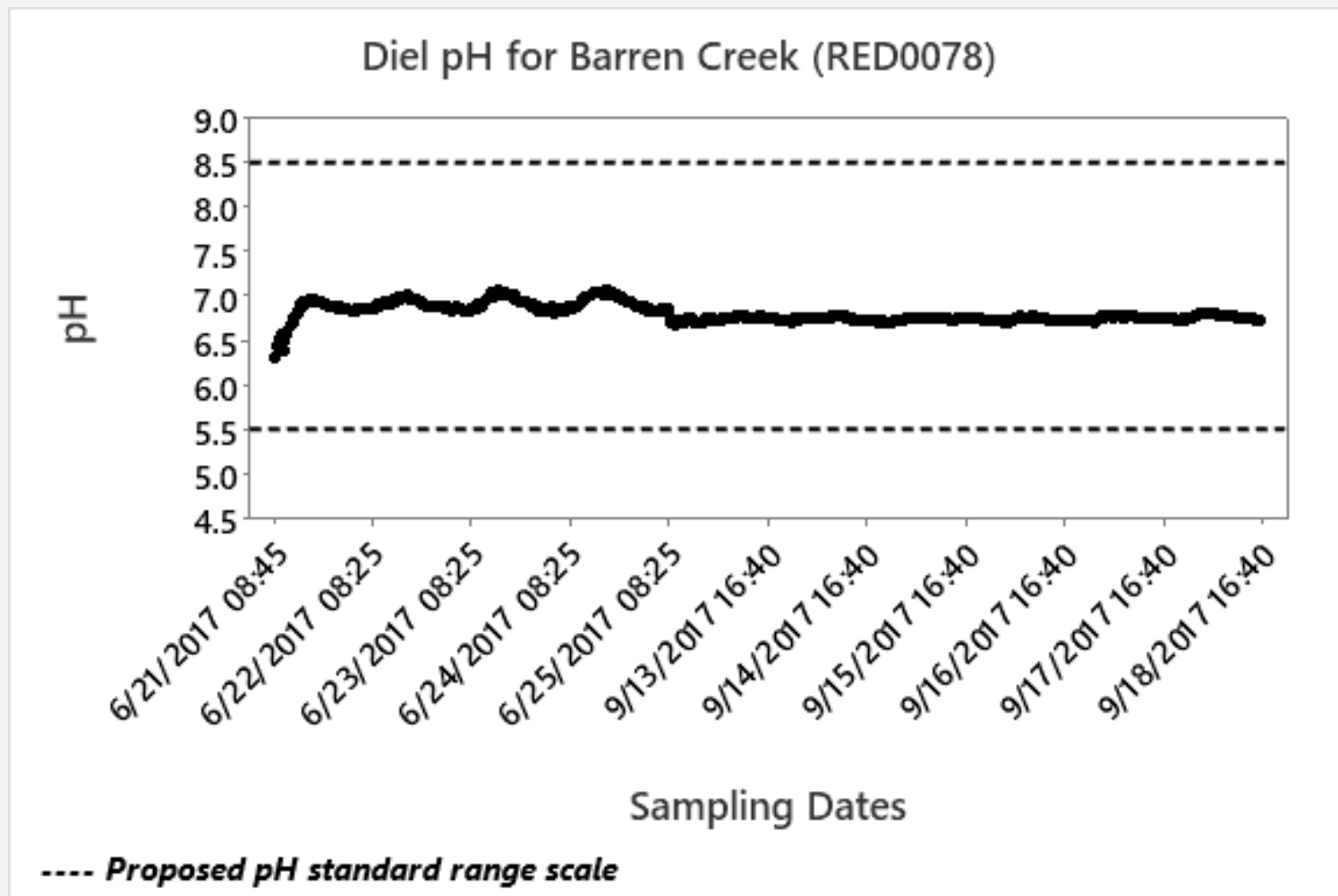
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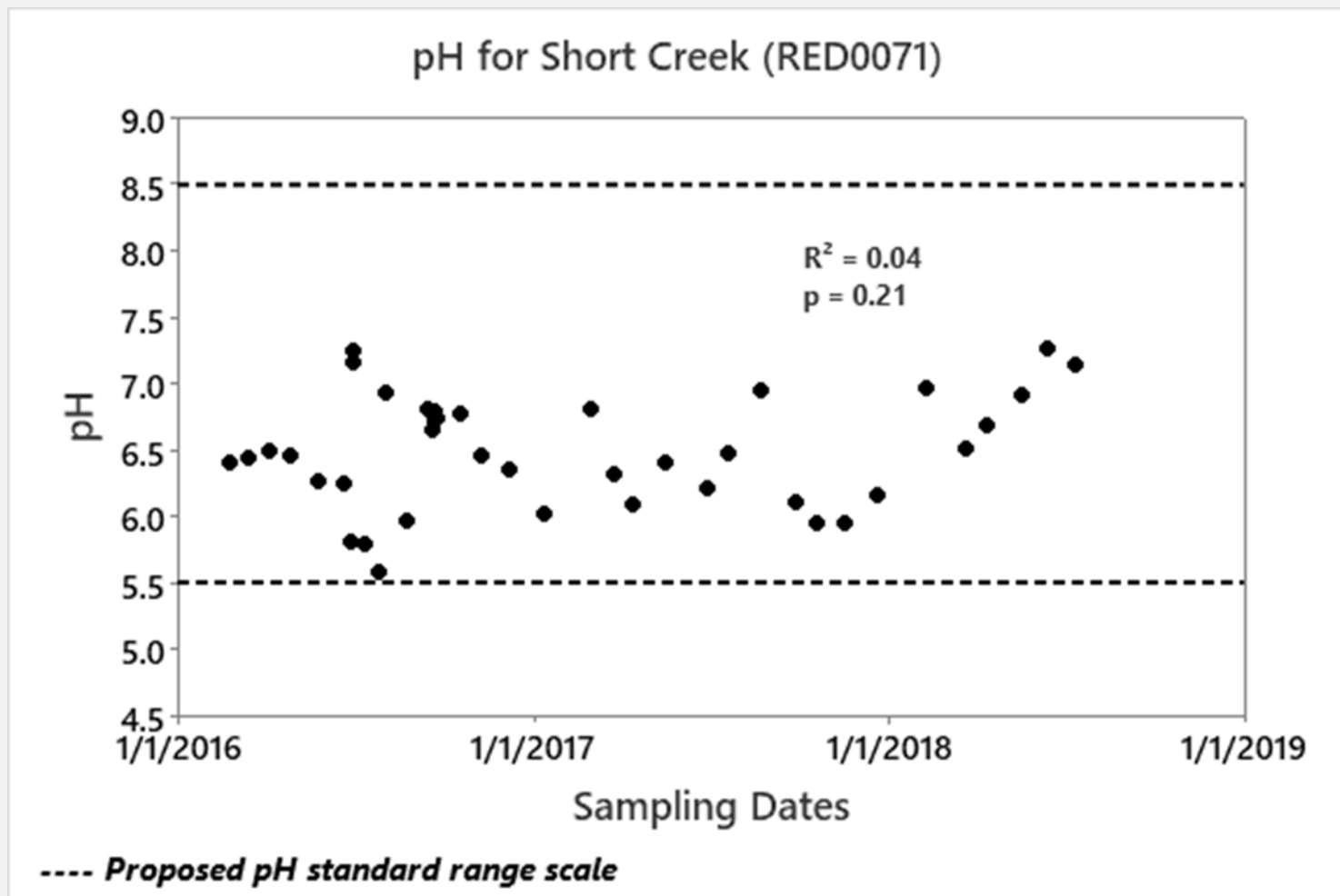
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Diel Sample Data

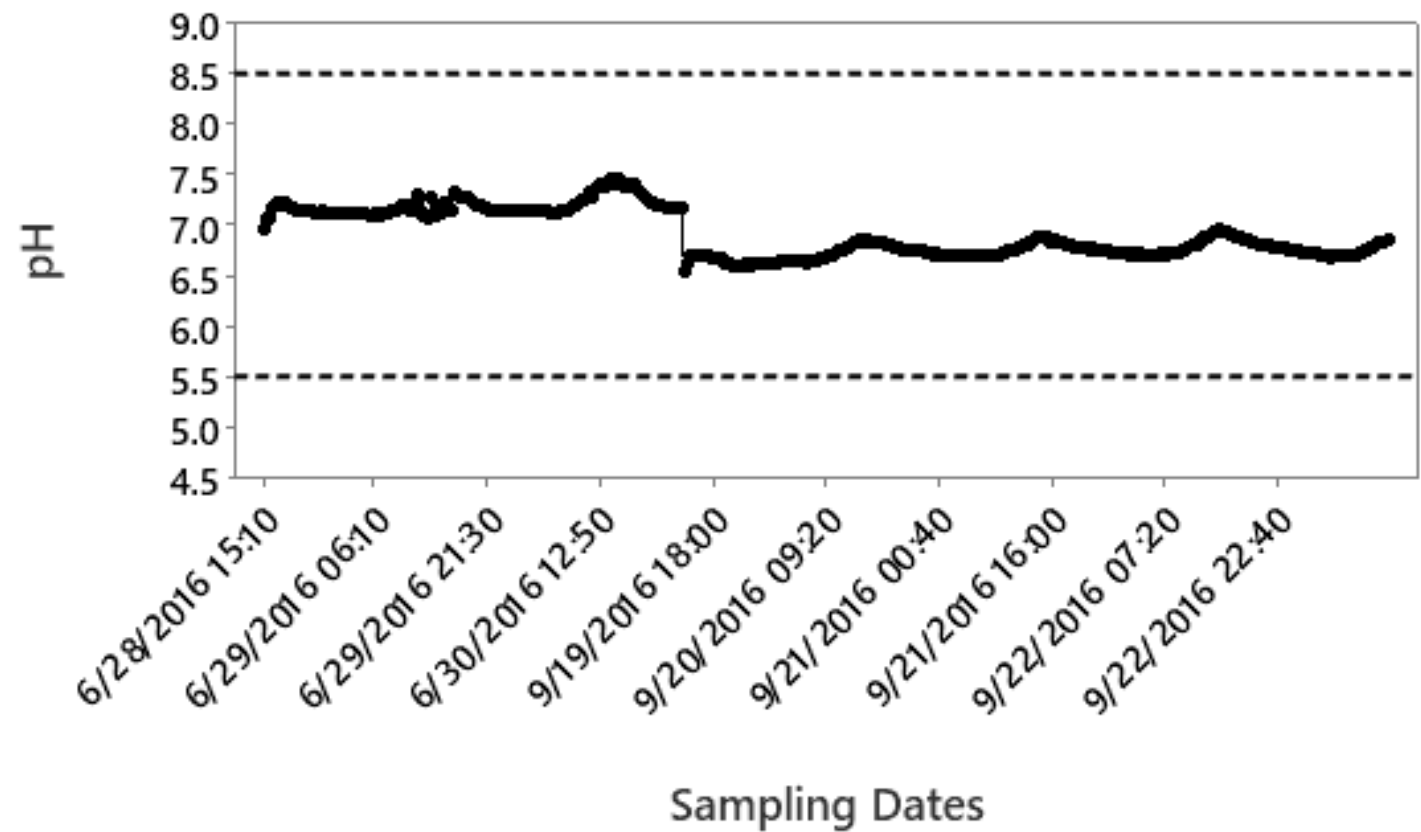


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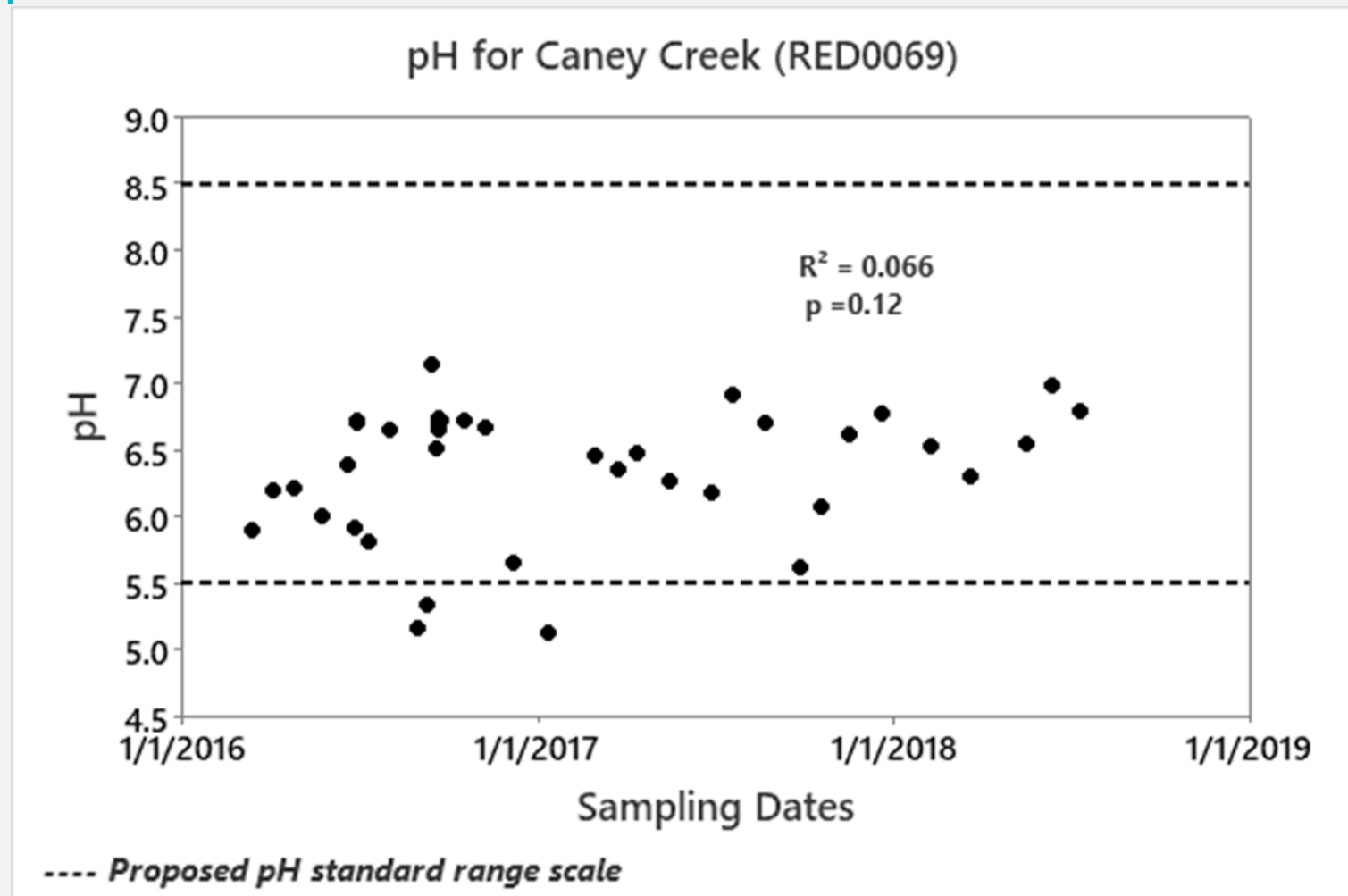
Diel Sample Data

pH for Short Creek (RED0071)

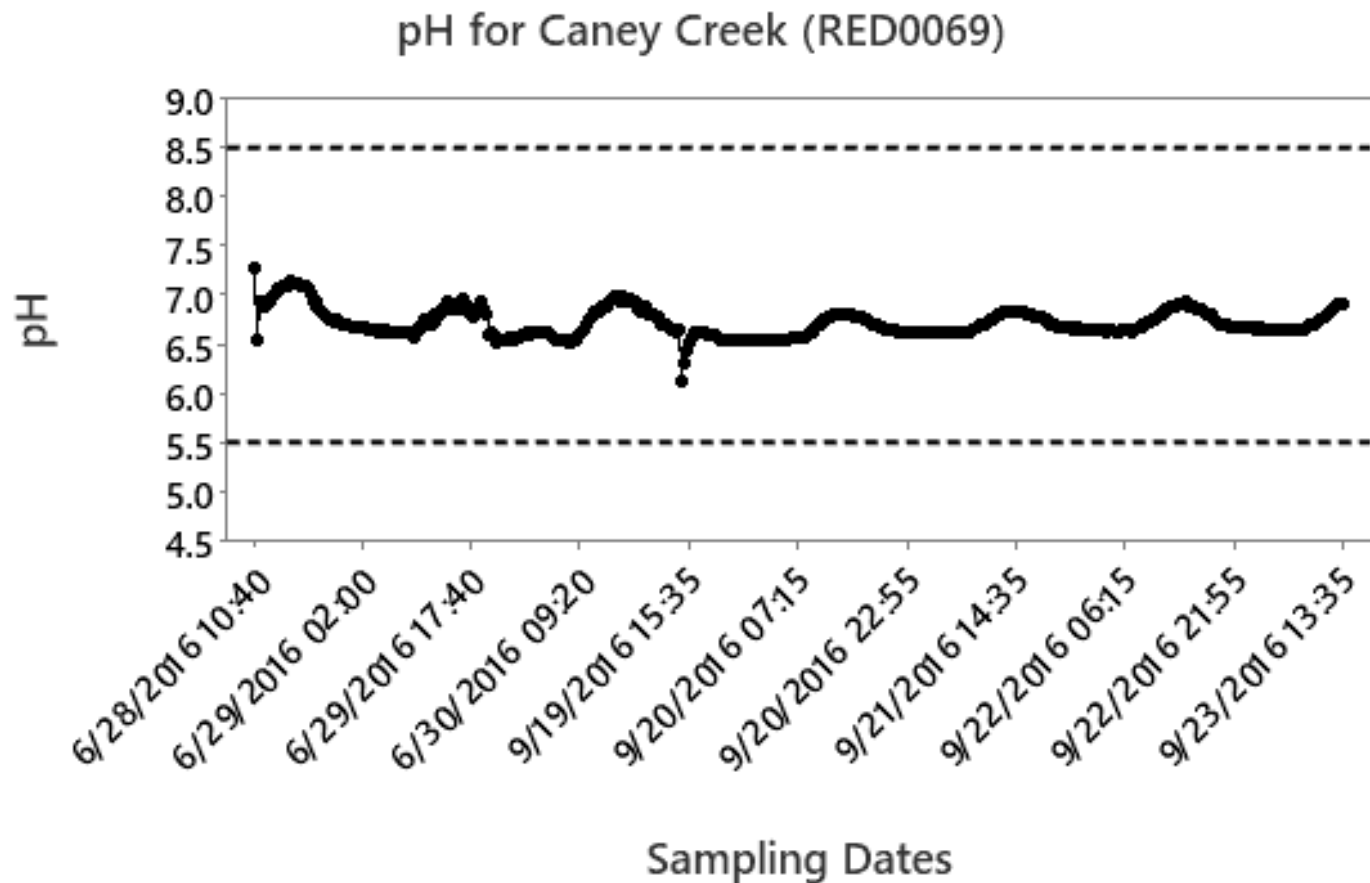


---- *Proposed pH standard range scale*

Grab Sample Data



Diel Sample Data



---- Proposed pH standard range scale

Land Use Data

Stream Name	Forest	Pasture	Cultivated land	Urban	Wetland	Grass/Shrubs	Barren/Open land	Water
Dry Fork Creek	82.39	0.57	0	5.63	0.07	10.73	0	0.61
Irons Fork Creek	79.5	10.73	0	2.29	0.13	5.91	0.18	1.26
Barren Creek	62.18	20.36	0	5.77	0	11.31	0.12	0.27
Short Creek	91.85	1.2	0	2.21	0	4.65	0.04	0.04
Caney Creek	91.85	1.2	0	2.21	0	4.65	0.04	0.04

Assessment Units Bio-Assessment

Hilsenhoff Biotic

Index scale

0.00 - 3.75 Excellent

3.76 - 4.25 Very Good

4.26 - 5.00 Good

5.01 – 5.75 Fair

5.76- 6.50 Fairly poor

6.51-7.25 Poor

7.26- 6.0 Very poor

Fish Biocriteria Score

25 - 32 Mostly Similar

17 - 24 Generally Similar

9 - 16 Somewhat Similar

< 9 Not Similar

Waterbody	Hilsenhoff Biotic Index	Fish Biocriteria Score
Dry Fork Creek	3.10	
Irons Fork Creek		22
Barren Creek	4.97	22
Short Creek	3.10	20
Caney Creek	3.98	28

pH Proposals Discussion



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Trout Lakes



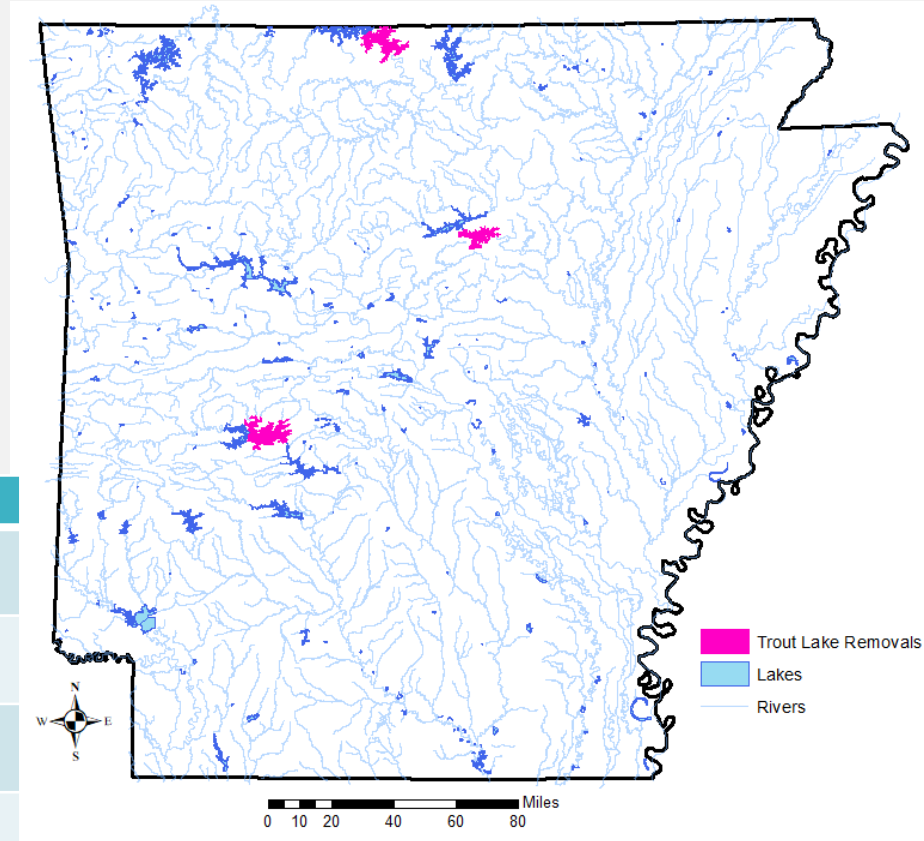
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Trout Use Removal

AGFC no longer stocks or manages trout in the following lakes:

- Bull Shoals Reservoir
- Greers Ferry Reservoir
- Lake Ouachita

	<u>Current Standards</u>		<u>Updated Standards</u>	
Lake	Temperature °C	DO mg/L	Temperature °C	DO mg/L
Bull Shoals Reservoir	20	6	32	5
Greers Ferry Reservoir	20	6	32	5
Lake Ouachita	20	6	32	5



Trout Lakes Proposal Discussion



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Unnamed Tributary to Lake June



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Unnamed Tributary to Lake June Site Specific Temperature Criteria

Remove: "Unnamed tributary of Lake June below Entergy Couch Plant to confluence with Lake June – maximum water temperature 95 degrees F (limitation of 5 degrees above natural temperature does not apply) (GC-1, #30)."

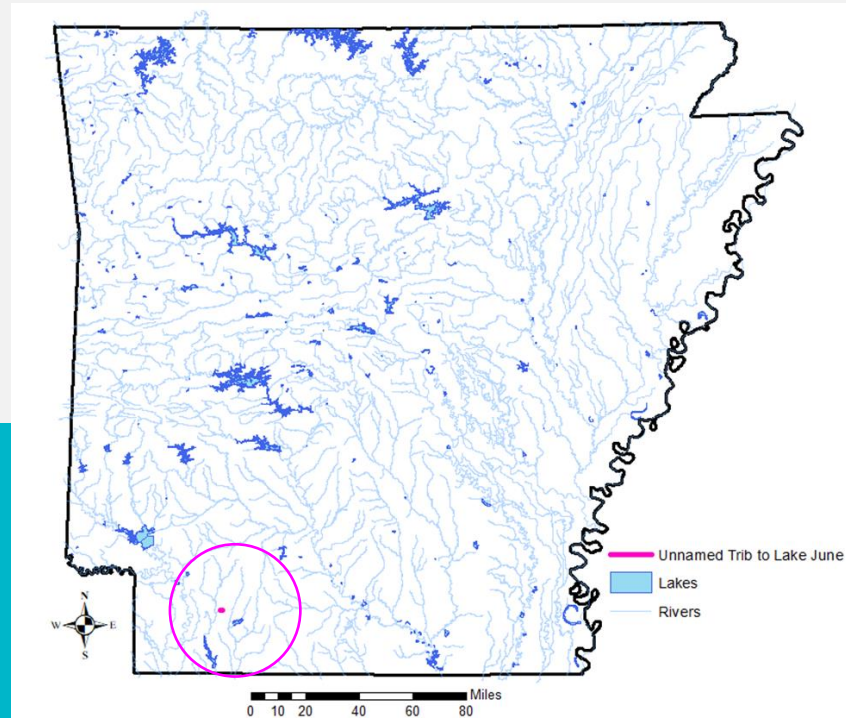
- Entergy Couch Plant closed in 2017
- Higher temperature no longer discharged

Current Standards

35 °C

Updated Standards

30 °C



Lake June Proposal Discussion



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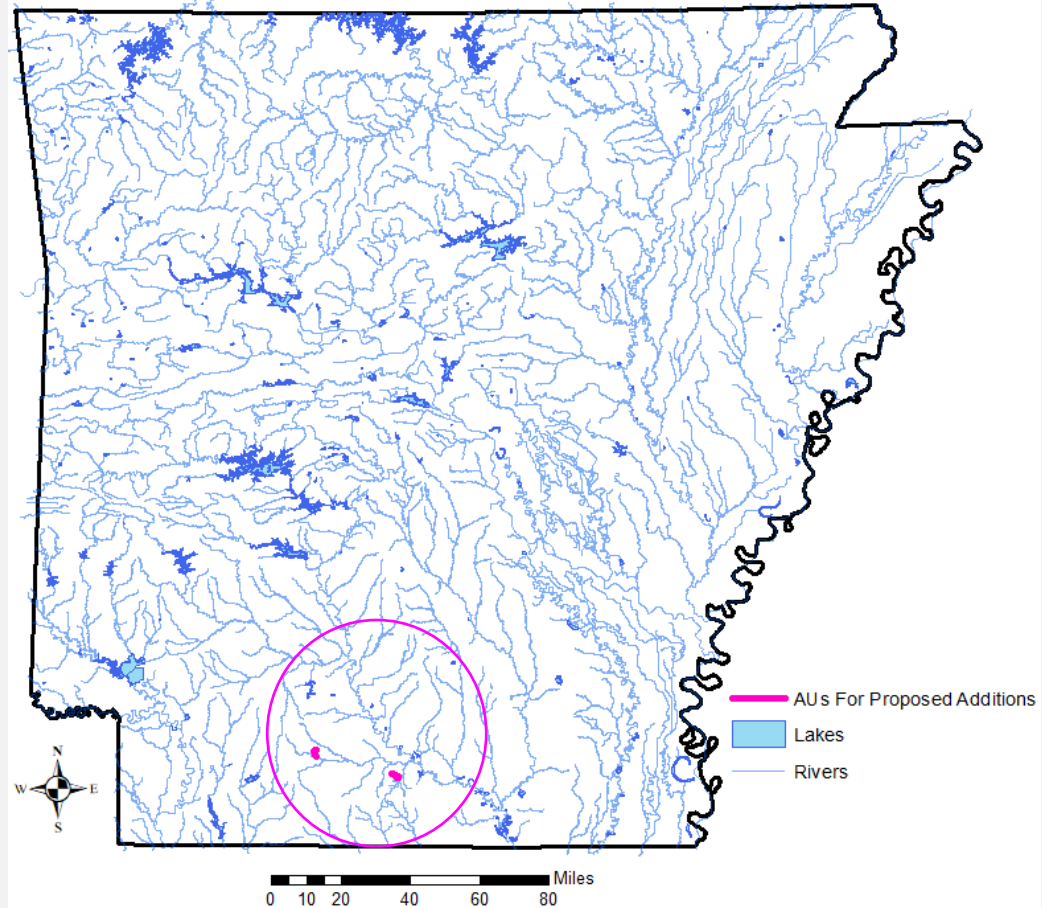
Fishable/swimmable uses for two waters



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Proposed Additions of Fishable/Swimmable Uses

- Unnamed tributary to Smackover Creek
- Unnamed tributary to Flat Creek



Unnamed Tributary to Smackover Creek

Current Standards	Updated Standards
Year round 2 mg/L	Primary season 5 mg/L Critical season 2 mg/L

- **UAA Date: October 1986**
- **No fish or macroinvertebrate data collected during the study**
- **Watershed size: 1.88 mi²**
- **NPDES status: No active individual NPDES permit**
- **Proposed Rule 2 revisions: remove current Rule 2 language “Unnamed tributary to Smackover Creek - no fishable/swimmable uses (GC-2, #4)”. This will then add seasonal aquatic life and secondary contact recreation. Remove site specific criteria “Year-round DO 2 mg/L”.**

Unnamed Tributary to Flat Creek

Current Standards	Updated Standards
Year round 2 mg/L	Primary season 5 mg/L Critical season 2 mg/L

- **UAA Date: October 1986**
- **No fish or macroinvertebrate data collected during the study**
- **Watershed size: 1.32 mi²**
- **NPDES status: One active NPDES individual permit.**
- **Proposed Rule 2 revisions: remove current Rule 2 language “Unnamed tributary to Flat Creek - no fishable/swimmable uses (GC-2, #2)”. This will then add seasonal aquatic life and secondary contact recreation. Remove site specific criteria “Year-round DO 2 mg/L”.**

Fishable/swimmable Use Proposals Discussion



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ESW Species Additions

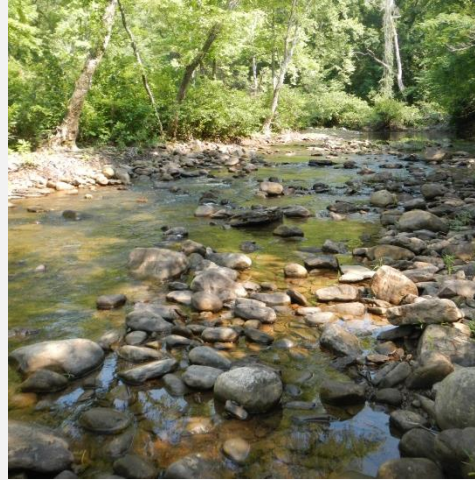
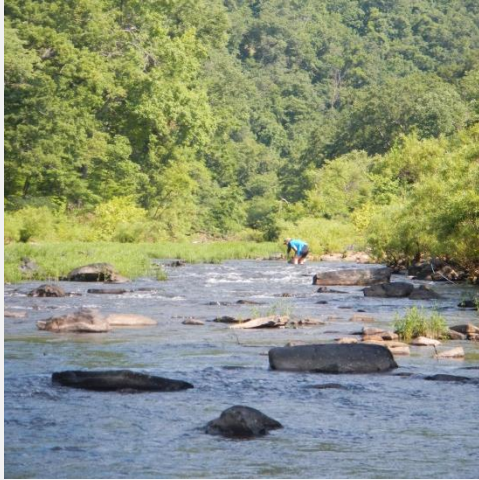


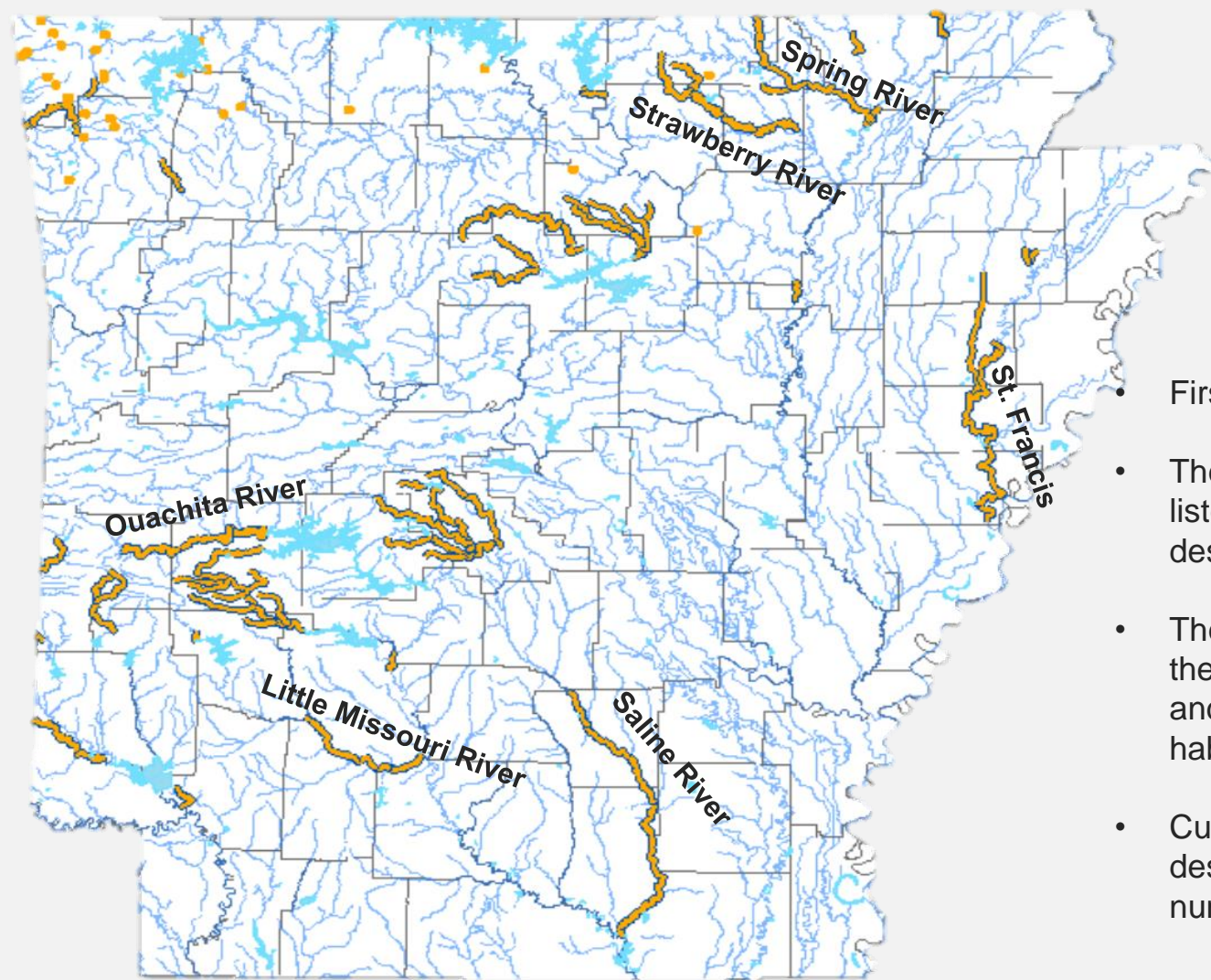
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Ecologically Sensitive Waterbody - This beneficial use identifies segments known to provide habitat within the existing range of threatened, endangered or endemic species of aquatic or semi-aquatic life forms.

Federal Status (Listed Endangered, Listed Threatened), State Rank (S1 – Critically imperiled, S2- Imperiled, S3 – Vulnerable), and endemism of species are evaluated

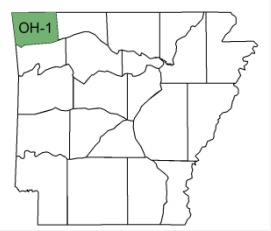
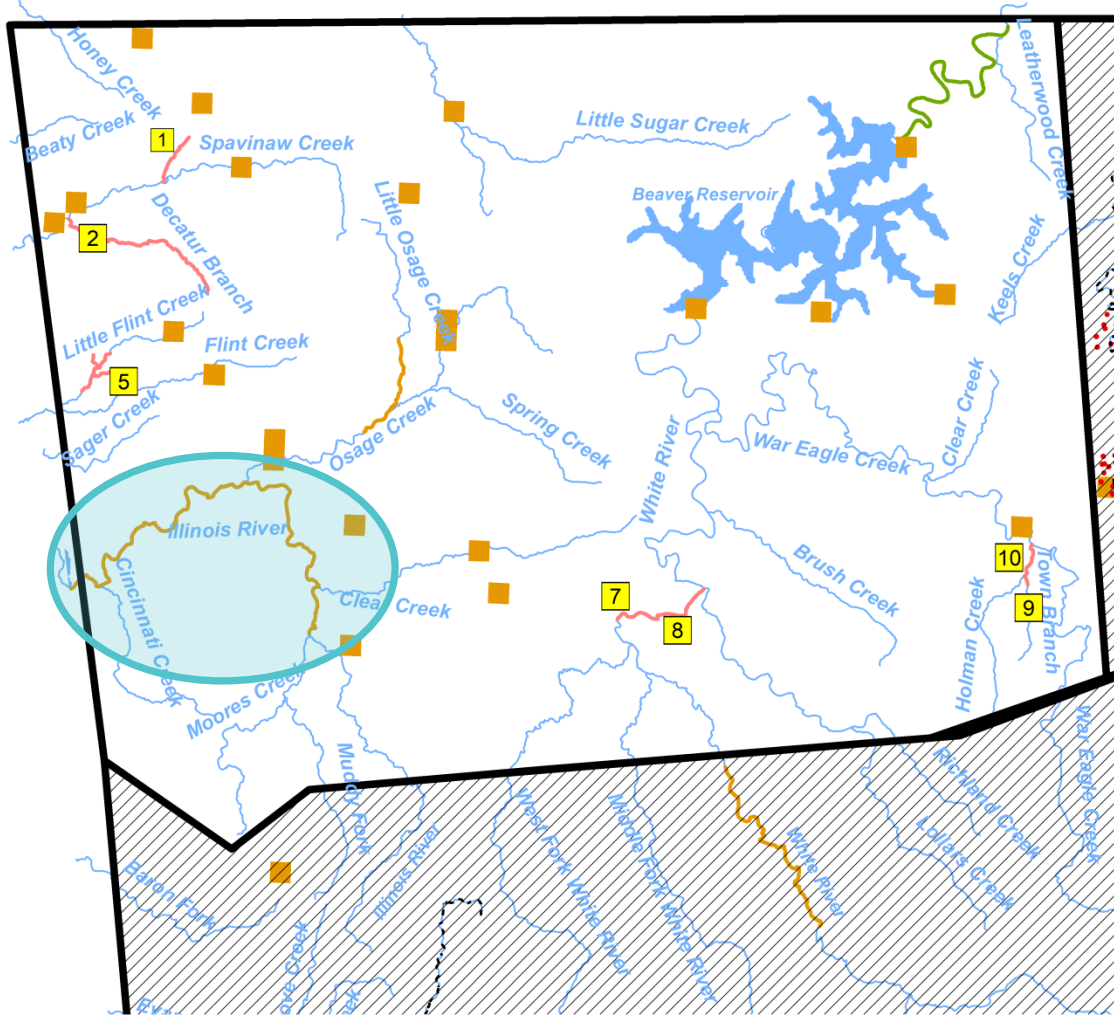
Updated list of species documented in currently designated ESWs





- First designations ~ 1987
- These efforts are a review of species listed in Appendix A in support of ESW designations
- These updates include NO changes to the waterbodies designated as ESW and NO expansions of designated habitat
- Currently ~ 40 rivers and streams designated as ESW in addition to numerous caves and springs

Plate OH-1 Ozark Highlands

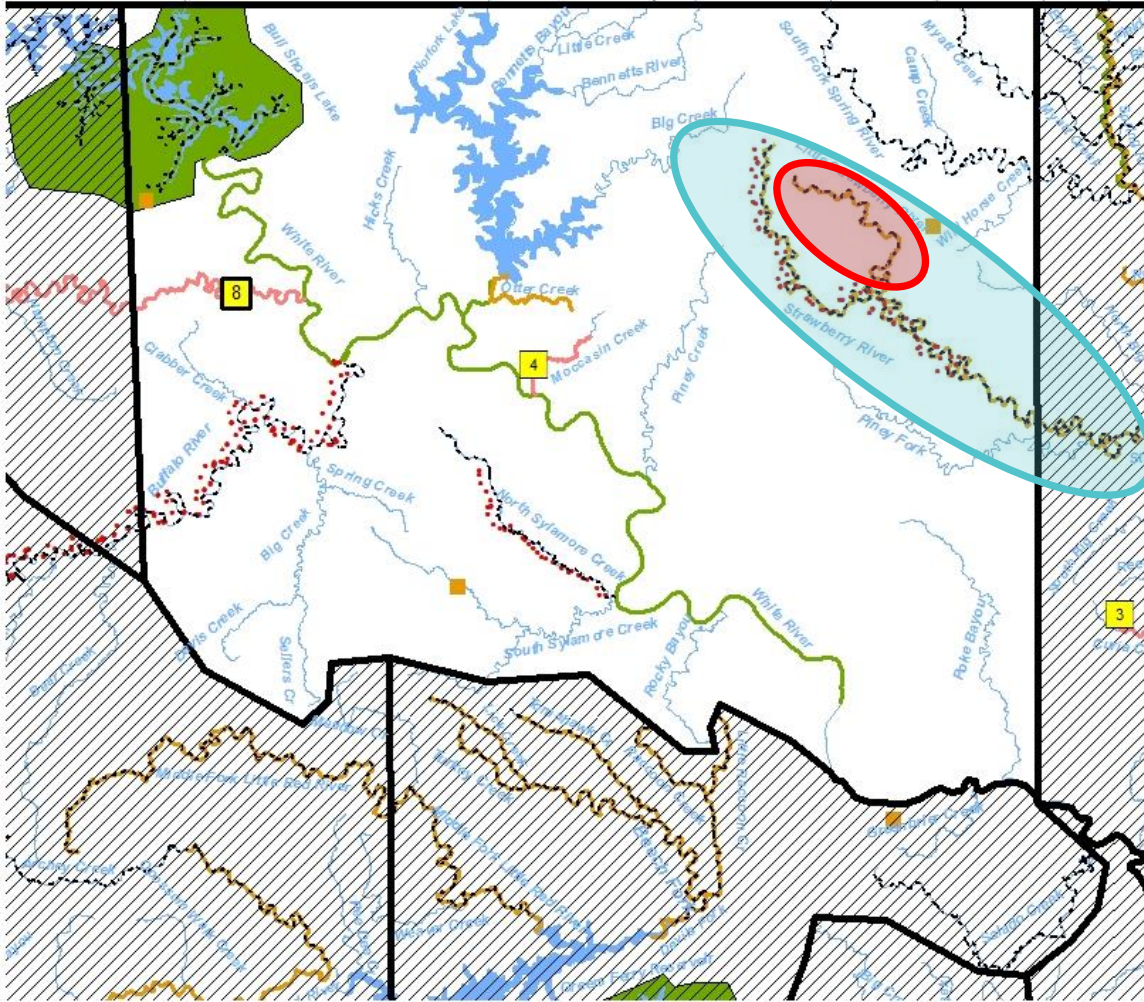


LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Illinois River – 5 fish,
11 mussels

Plate OH-3 Ozark Highlands



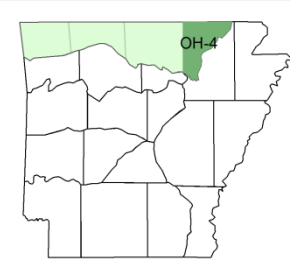
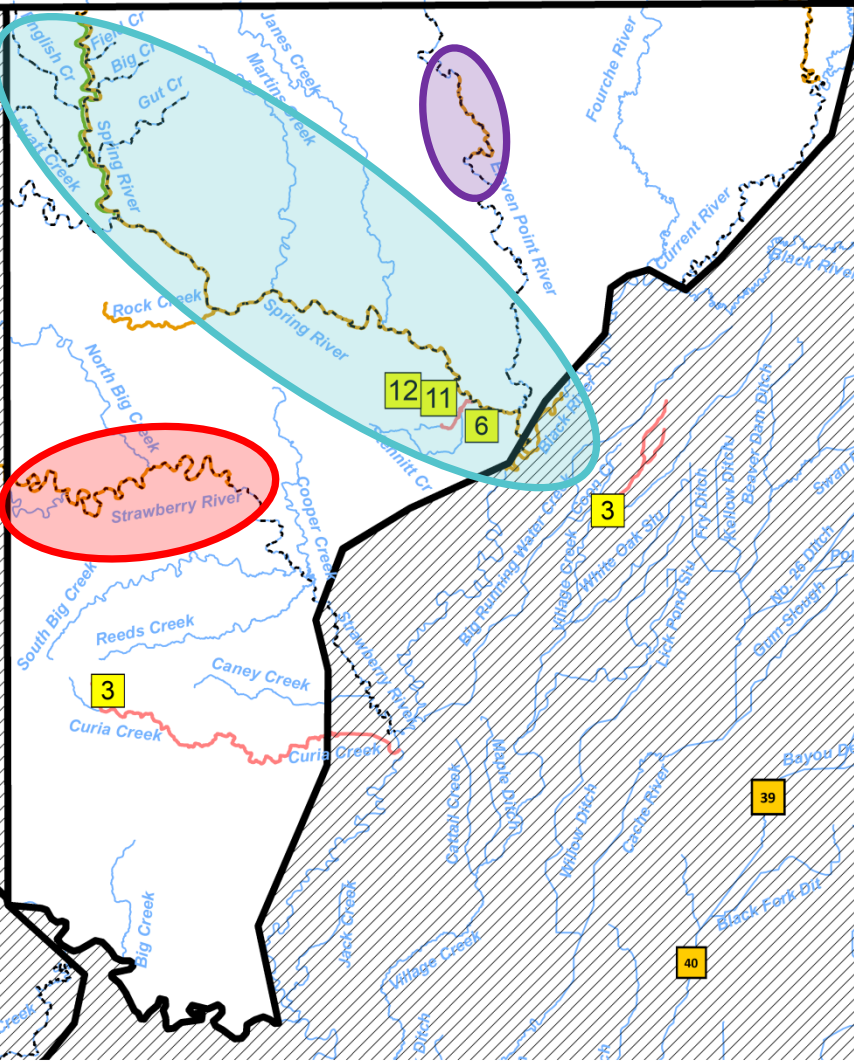
LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA 8
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Little Strawberry River –
1 Fish, 12 Mussels

Strawberry River –
6 Fish, 17 Mussels

Plate OH-4 Ozark Highlands



LEGEND

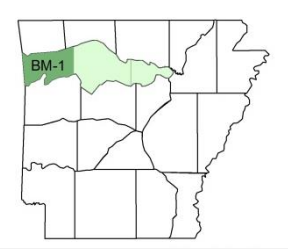
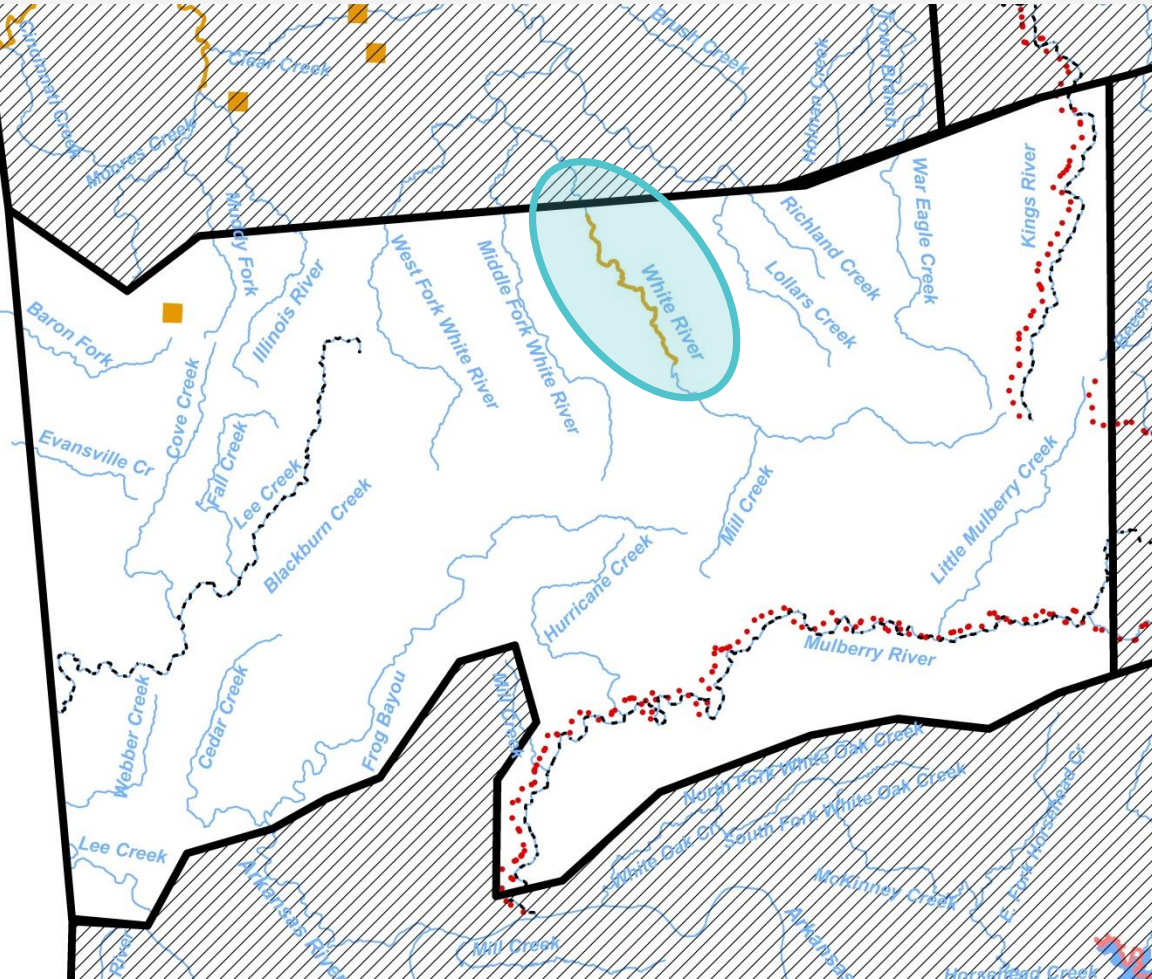
- - Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA [Yellow Square]
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Strawberry River – 6 Fish, 17 Mussels

Spring River – 11 Fish, 19 Mussels

Eleven Point River – 4 Fish, 13 Mussels

Plate BM-1 Boston Mountains

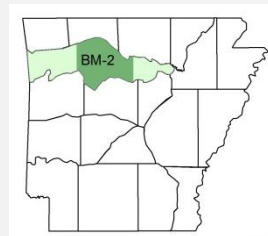
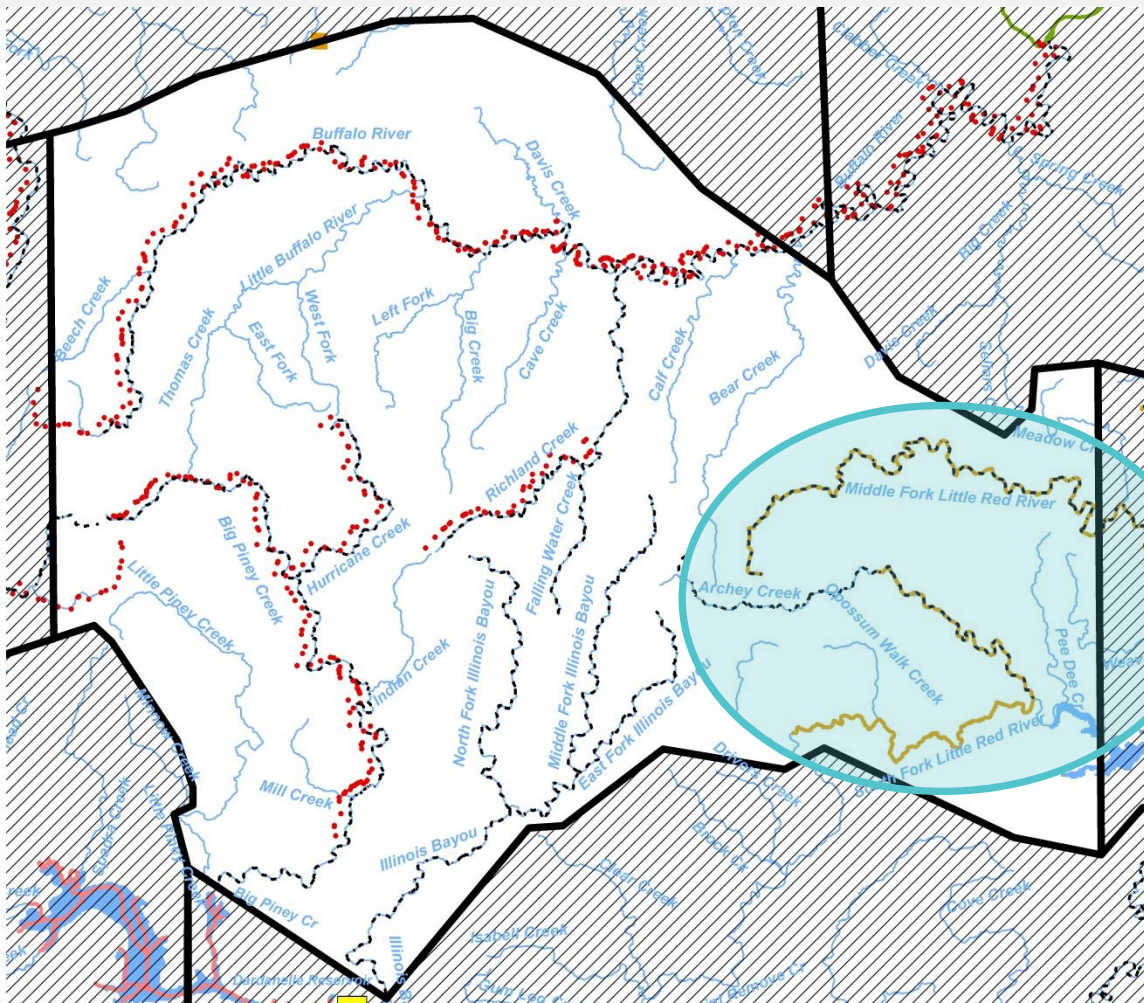


LEGEND





- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout Waters

White River – 2 Fish,
7 Mussels

Plate BM-2 Boston Mountains

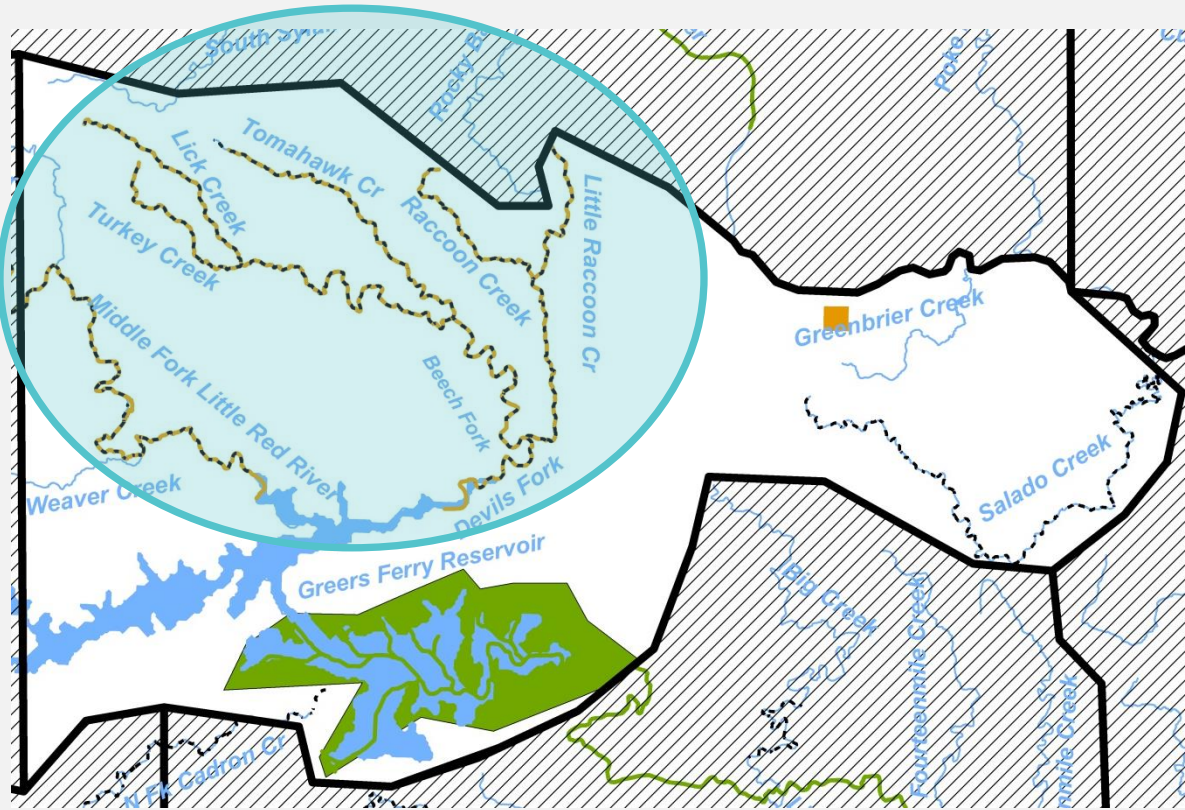


LEGEND


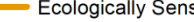
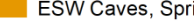
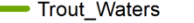
- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA 
-  Ecologically Sensitive Waterbodies
-  ESW Caves, Springs, and Seeps
-  Trout Waters

Forks & Tributaries of
Little Red River – 2 Fish,
16 Mussels

Plate BM-3 Boston Mountains

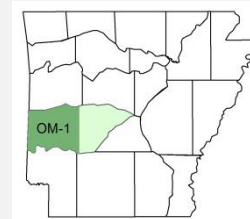


LEGEND

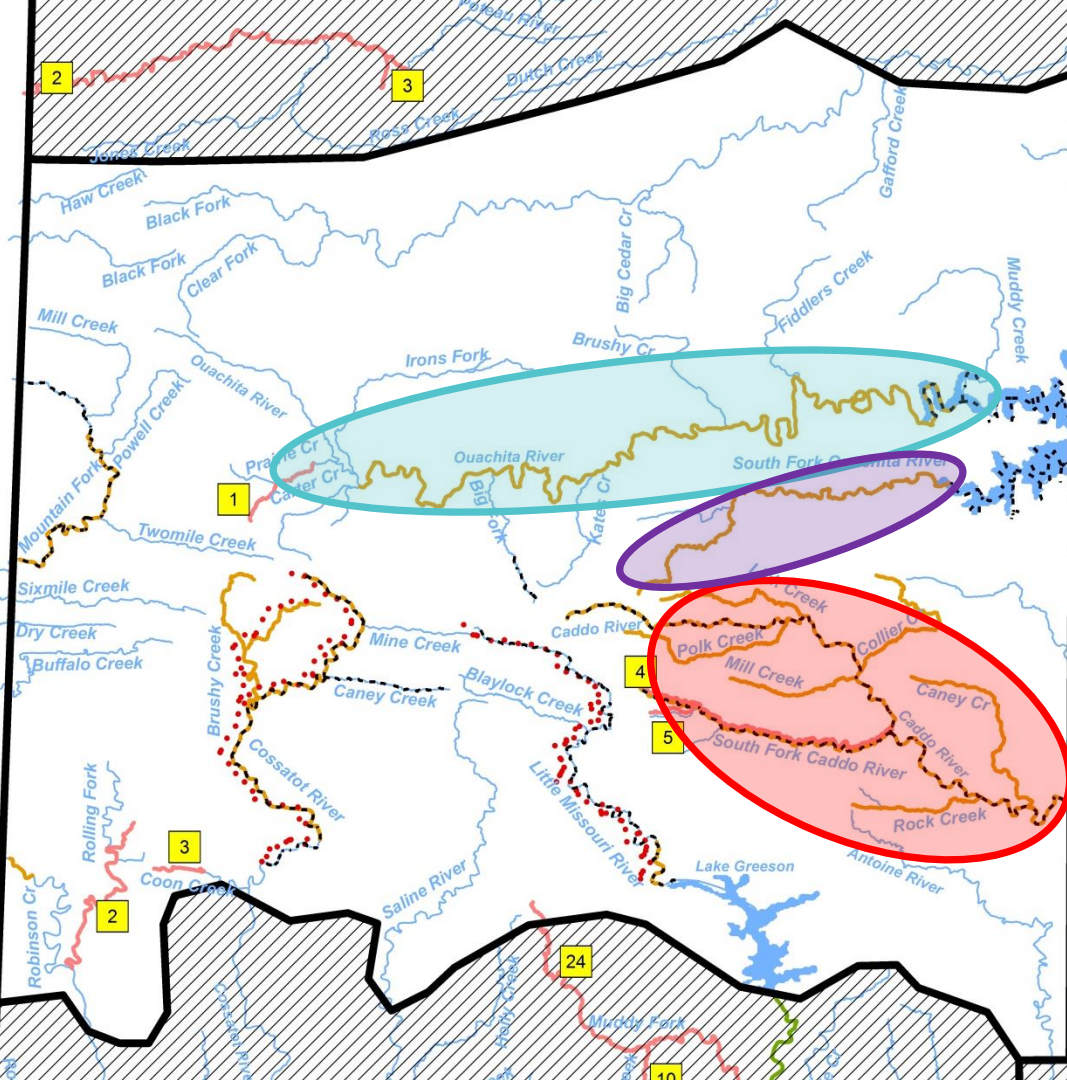
- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA 
- Ecologically Sensitive Waterbodies 
- ESW Caves, Springs, and Seeps 
- Trout_Waters 

**Forks & Tributaries of
Little Red River – 2 Fish,
16 Mussels**

Plate OM-1 Ouachita Mountains



LEGEND	
- -	Extraordinary Resource Waters
• •	Natural and Scenic Waterways
—	Variation by UAA
—	Ecologically Sensitive Waterbodies
—	ESW Caves, Springs, and Seeps
—	Trout_Waters

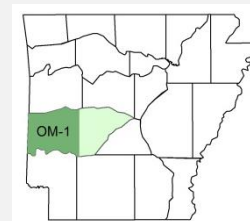
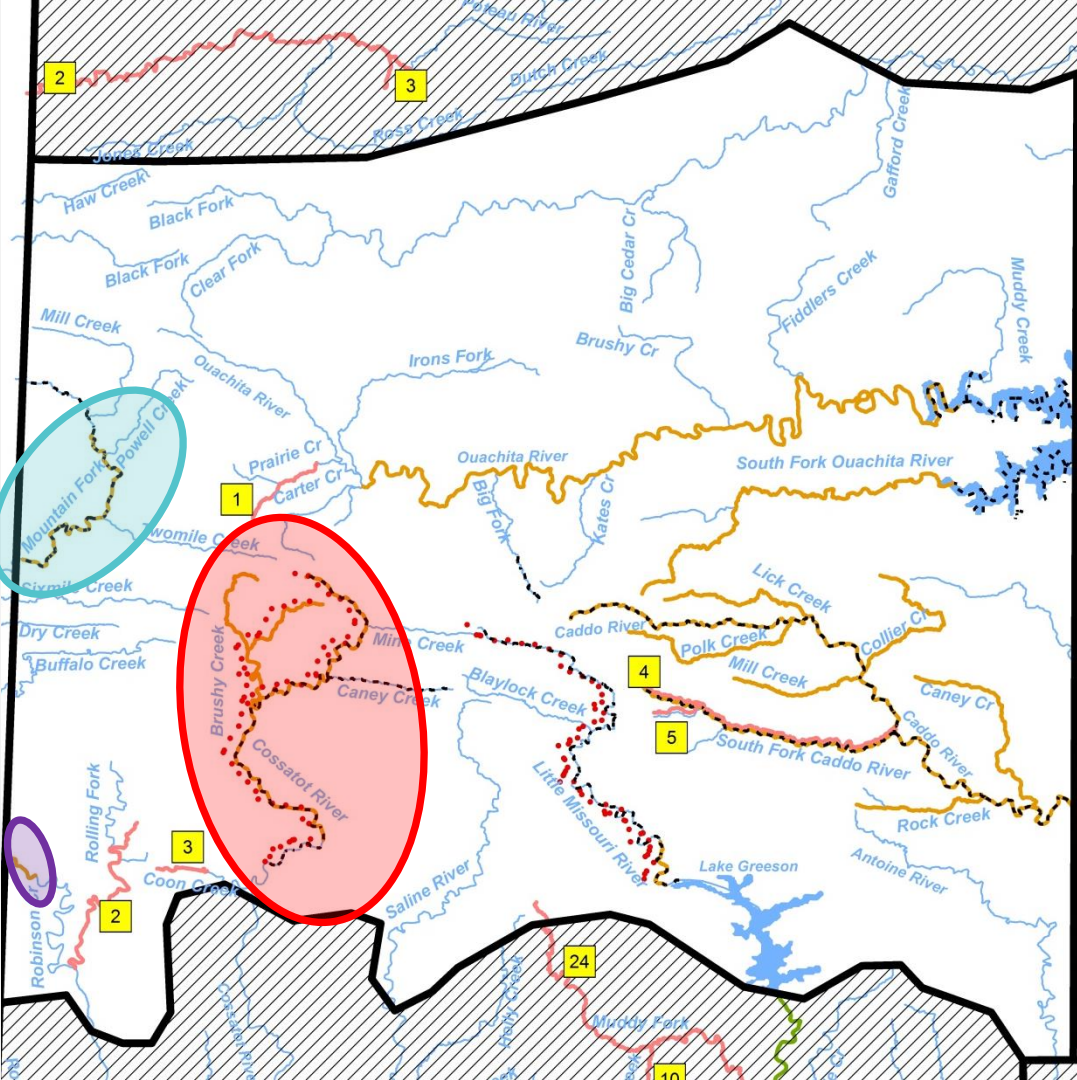


Ouachita River above Lake Ouachita – 4 Fish, 5 Mussels

South Fork Ouachita River – 3 Fish, 4 Mussels

Caddo River above DeGray Reservoir – 1 Fish, 9 Mussels

Plate OM-1 Ouachita Mountains



LEGEND

- - Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout Waters

Mountain Fork River —

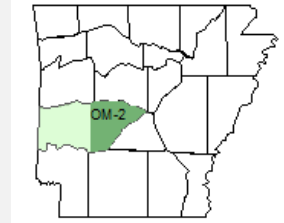
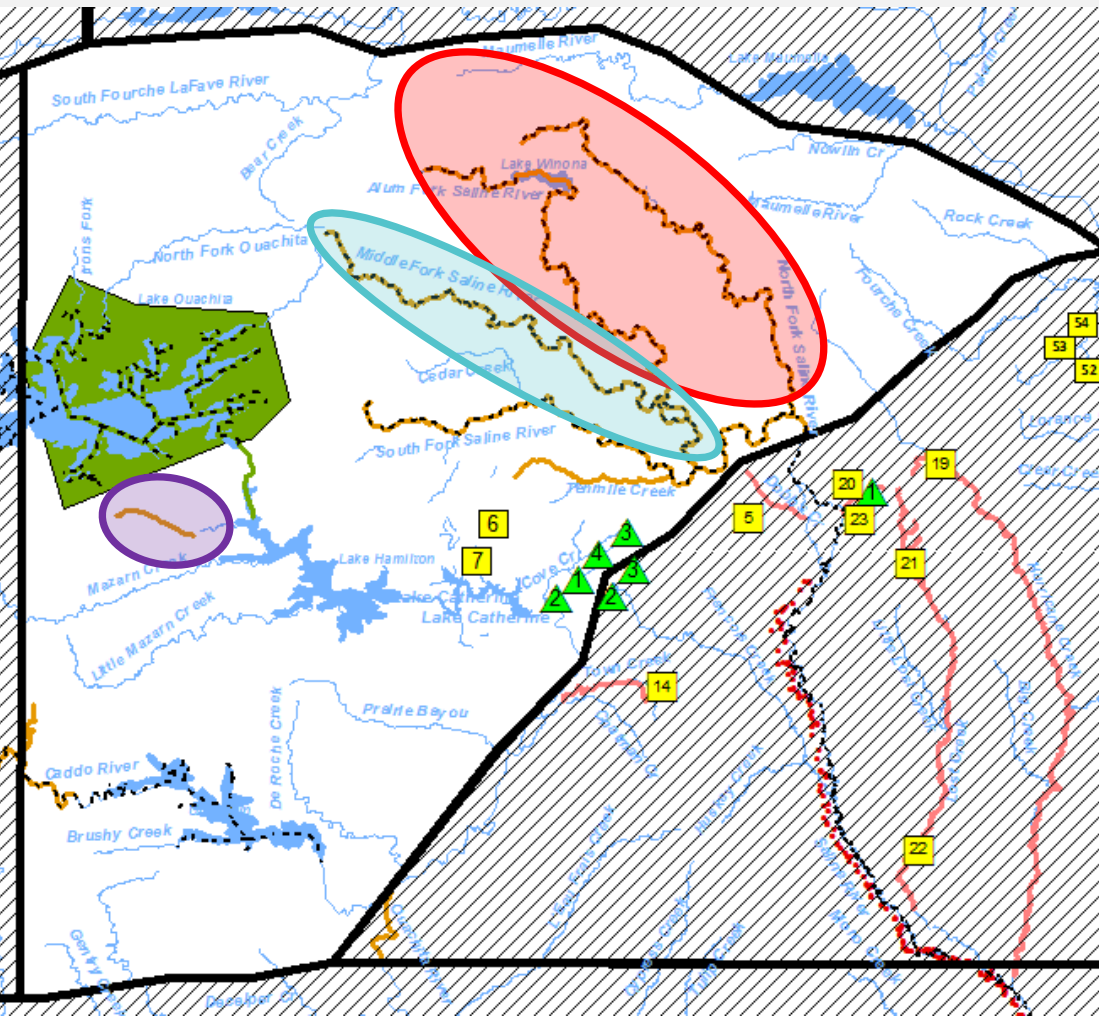
1 Fish, 5 Mussels

Cossatot River — 2 Fish,

10 Mussels

Robinson Creek — 7 Mussels

Plate OM-2 Ouachita Mountains



LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

North and Alum Fork – 1 Fish

Middle Fork – 1 Fish

**All Saline Forks and Ten Mile
Creek – 11 Mussels**

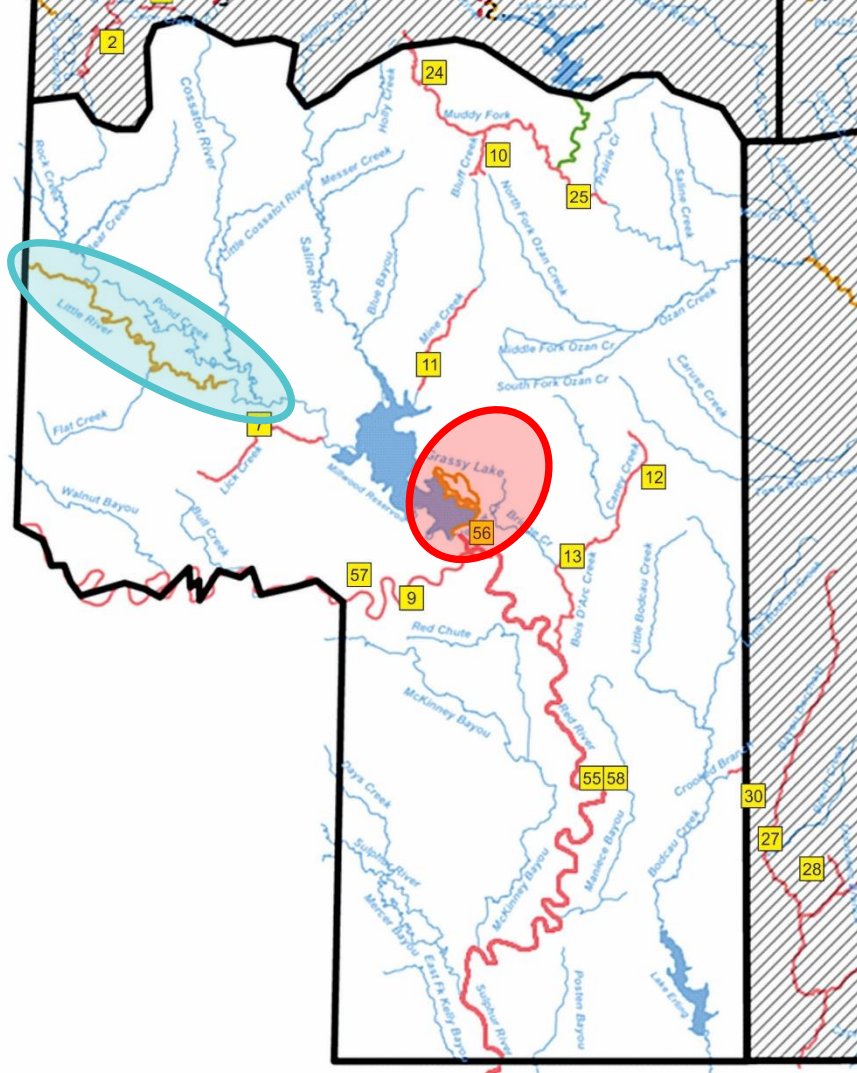
Mayberry Creek – 4 Mussels

Plate GC-1 Gulf Coastal Plain



LEGEND

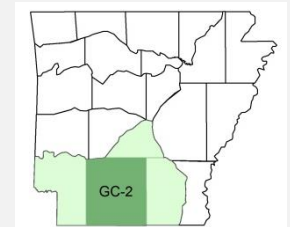
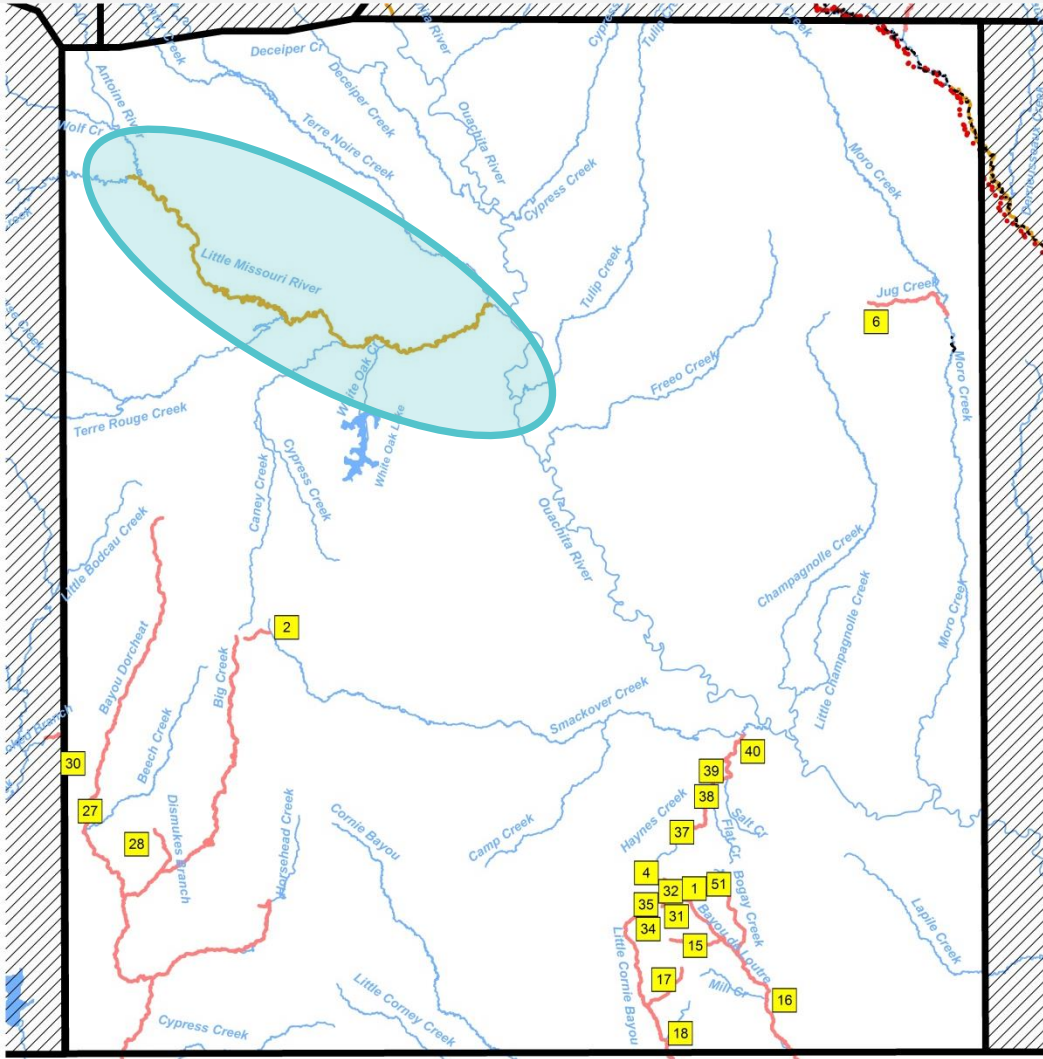
- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters



Little River above Millwood Reservoir – 3 Fish, 9 Mussels

Grassy Lake and Yellow Creek – 2 Fish, 6 Mussels

Plate GC-2 Gulf Coastal Plain

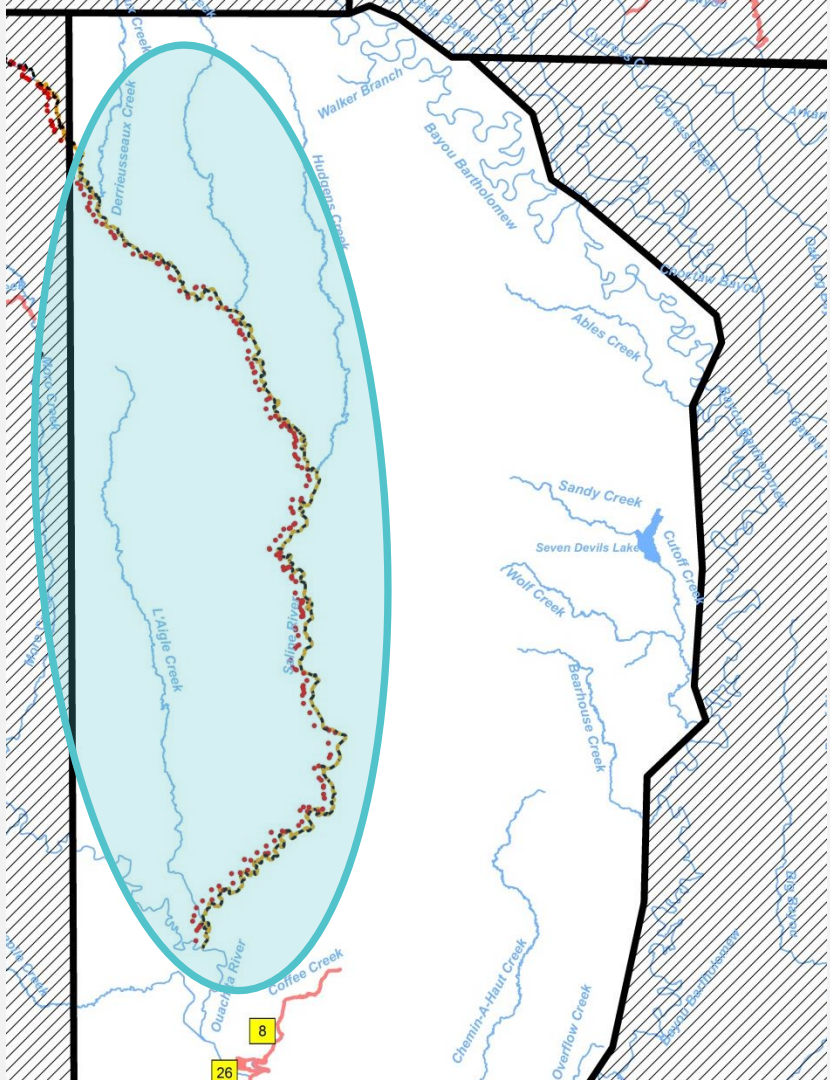


LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Lower Little Missouri River
– 5 Fish, 6 Mussels

Plate GC-3 Gulf Coastal Plain

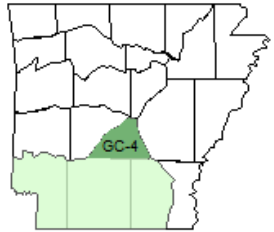
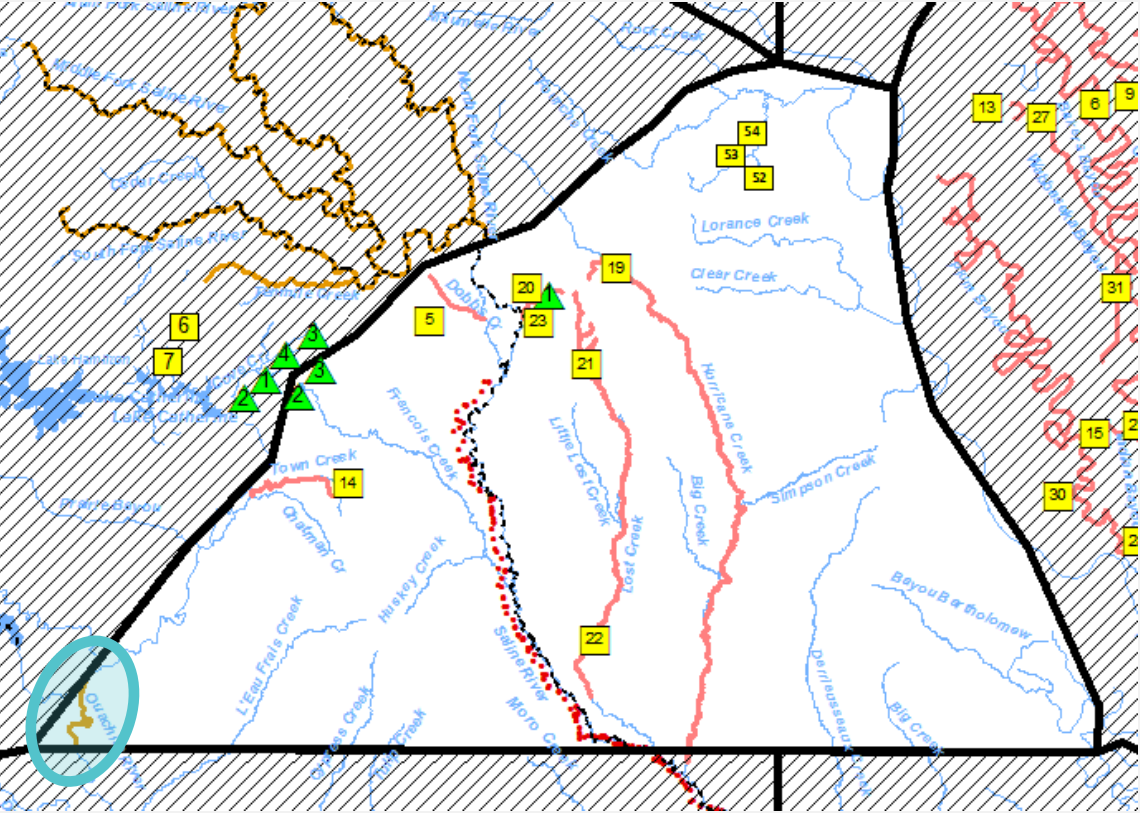


LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Lower Saline River – 3 Fish,
10 Mussels

Plate GC-4 Gulf Coastal Plain

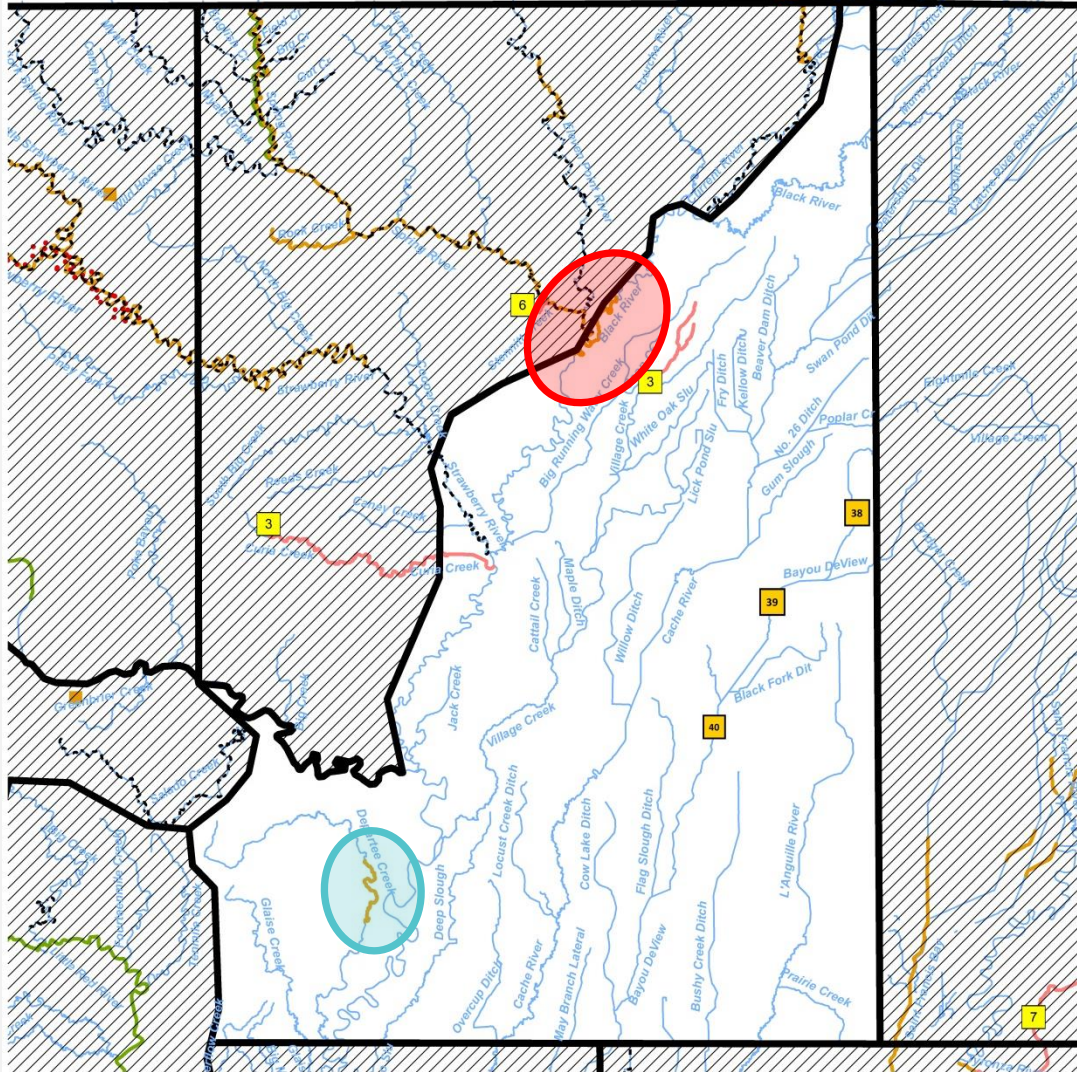


LEGEND


- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Ouachita River Near Arkadelphia – 5 Fish, 8 Mussels

Plate D-1 Delta



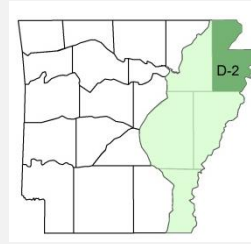
LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA 
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters


**Black River at mouth of
Spring River** – 2 Fish,
8 Mussels

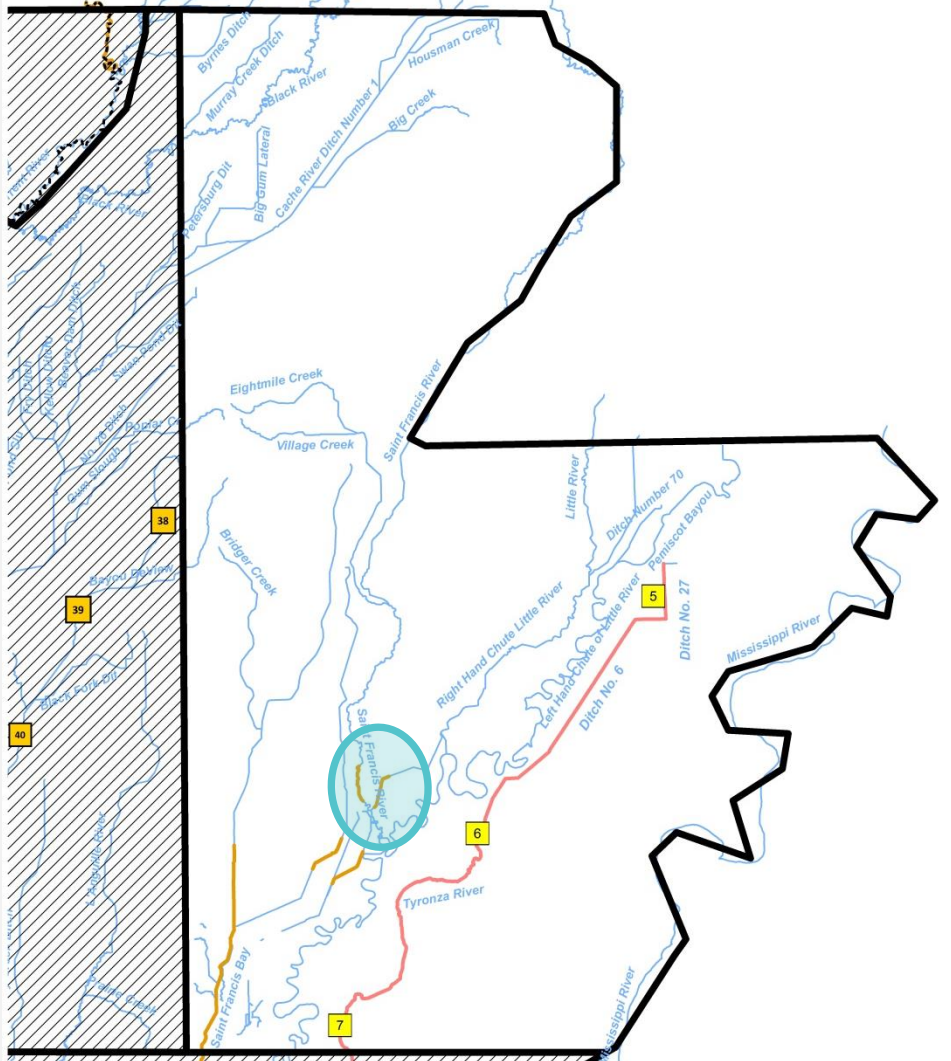
Departee Creek –
9 Mussels

Plate D-2 Delta



LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA 
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters



Right Hand Chute at
Confluence w/St.
Francis River – 8 Mussels

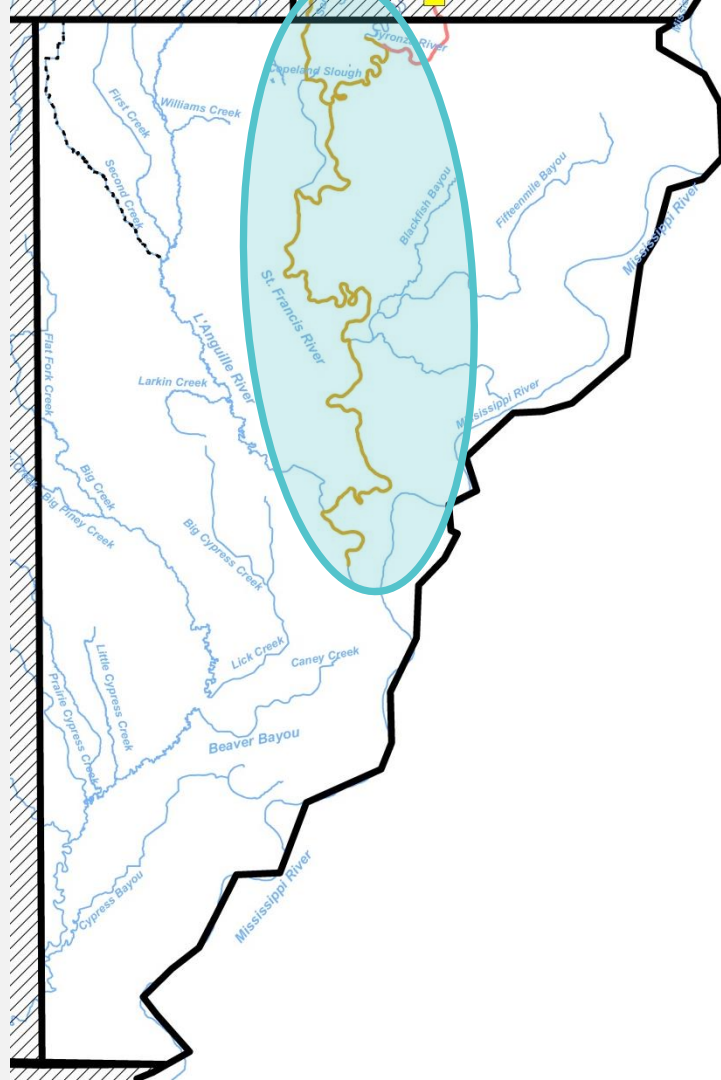
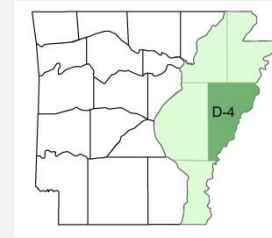


Plate D-3 Delta



LEGEND

- - Extraordinary Resource Waters
- • Natural and Scenic Waterways
- Variation by UAA
- Ecologically Sensitive Waterbodies
- ESW Caves, Springs, and Seeps
- Trout_Waters

Lower St. Francis River and lower 10 miles of Straight Slough – 4 Fish, 10 Mussels

ESW Species Proposal Discussion



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Ecoregion Boundary Updates



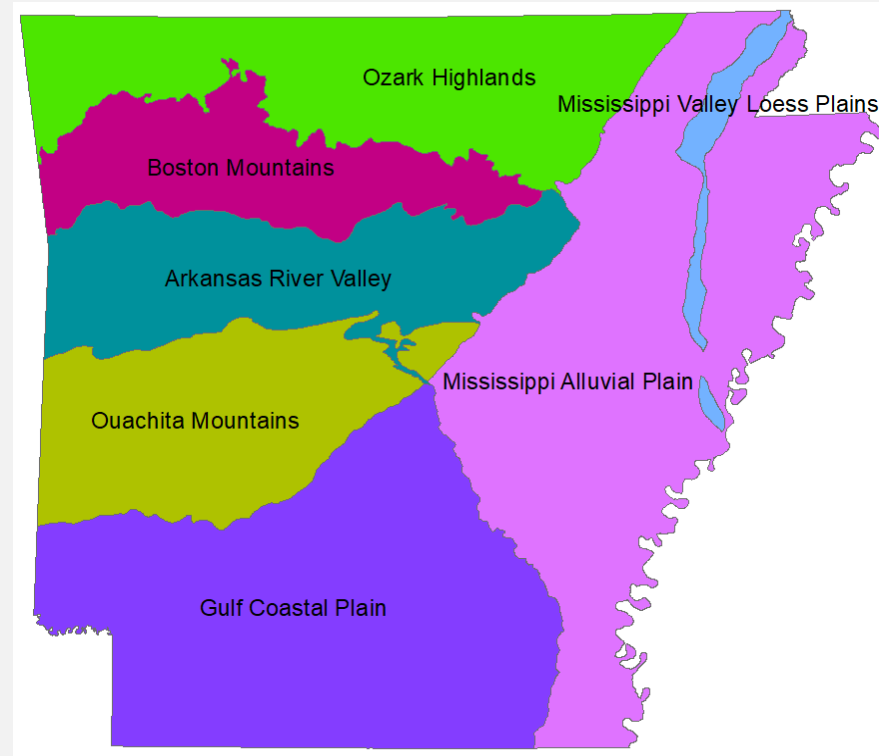
ARKANSAS
ENERGY & ENVIRONMENT

Ecoregion Boundary Updates

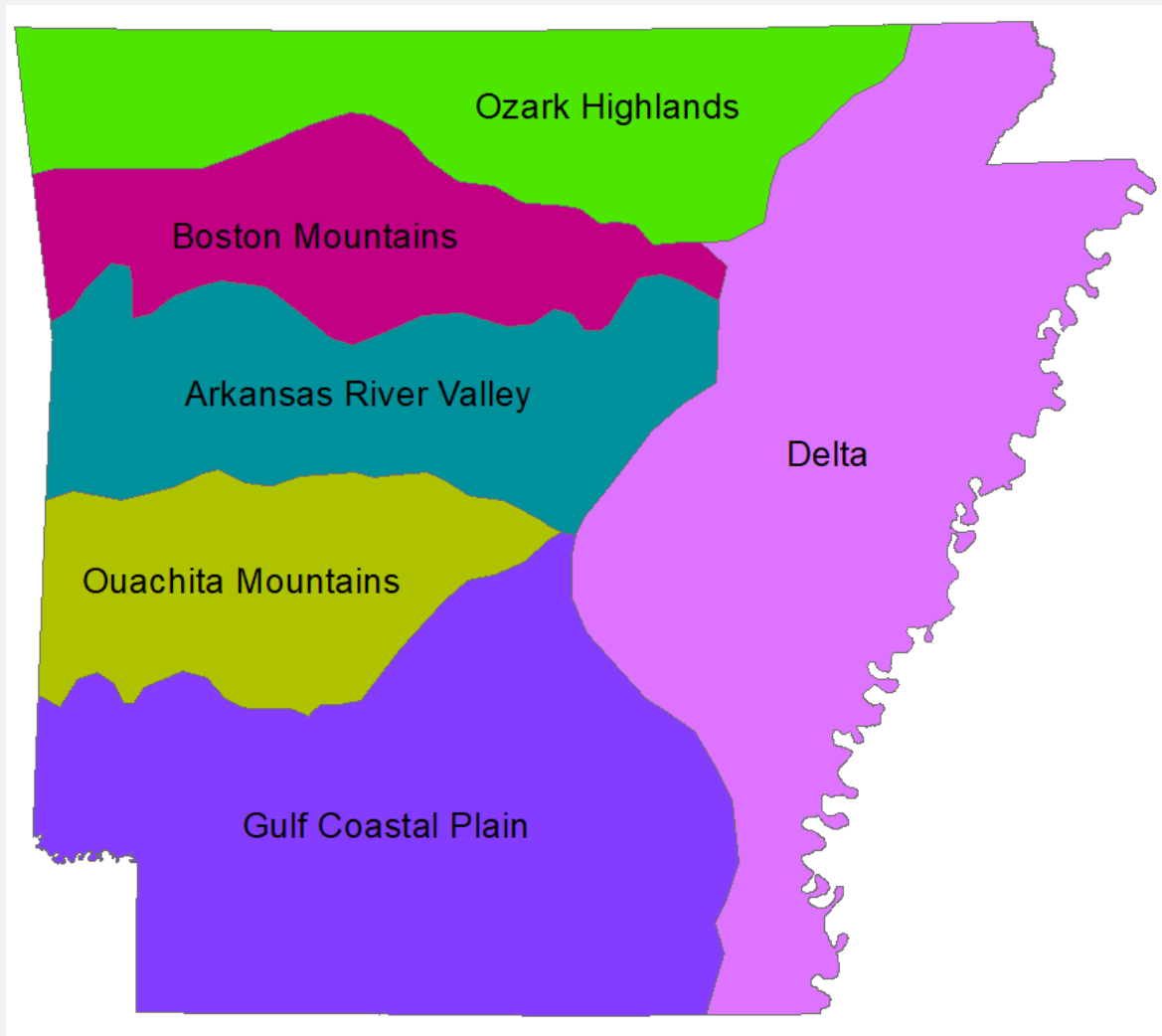
- Current Arkansas Ecoregions were delineated in the mid 1980s using land surface forms, natural vegetation, soil types and land use
- Higher quality spatial data and analysis tools have allowed the USEPA to increase the resolution of ecoregion boundary lines
- Characteristics considered now include geology, physiography, climate, soils, land use, wildlife, hydrology, vegetation and more
- New Arkansas Ecoregion lines have higher resolution to better reflect the true geographical boundaries of our 7 distinct ecoregions

Ecoregion Boundary Updates

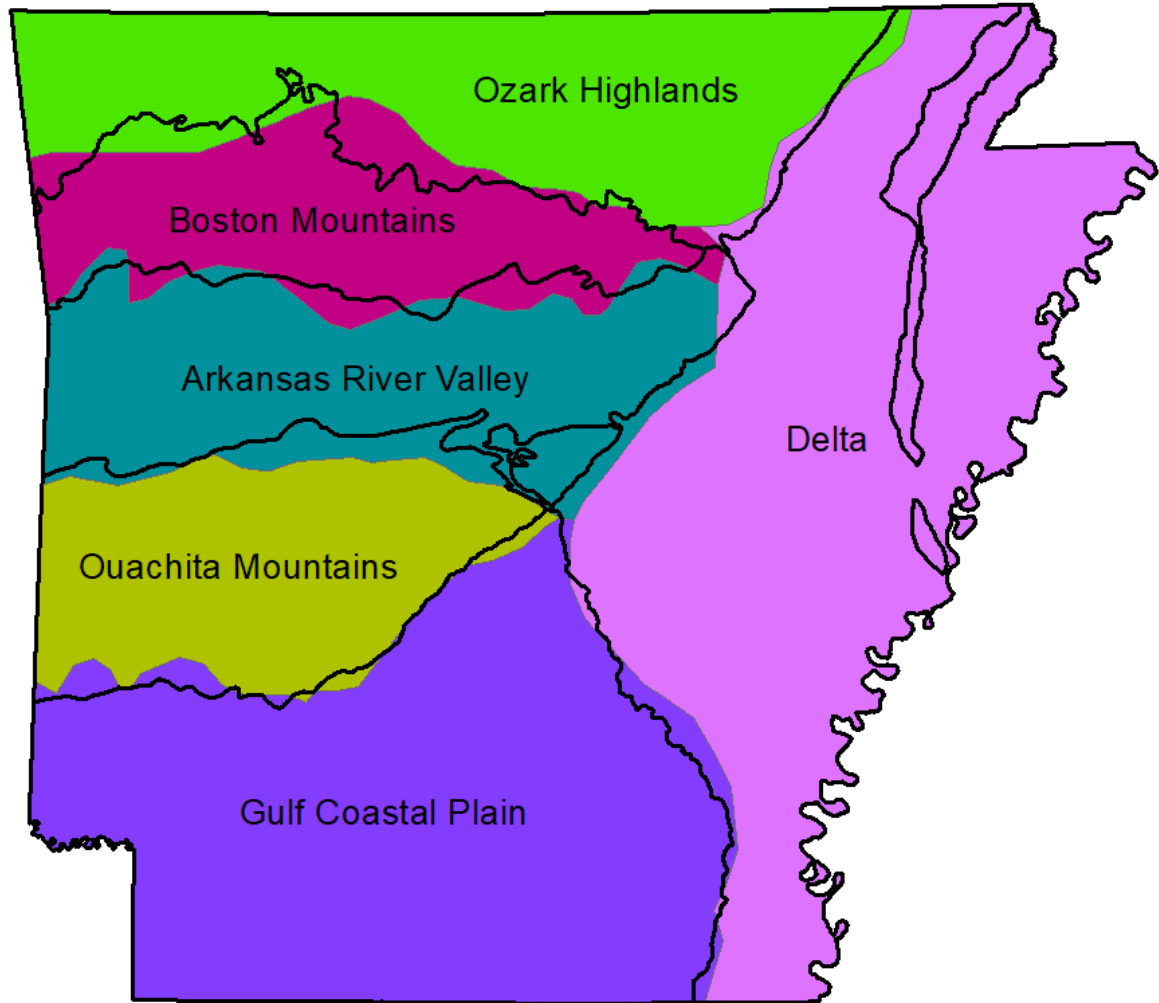
Current Rule 2 Ecoregions	New Omernik Ecoregion Names
Arkansas River Valley	Arkansas River Valley
Boston Mountains	Boston Mountains
Delta	Mississippi Alluvial Plain
	Mississippi Valley Loess Plains
Gulf Coastal Plain	South Central Plains
Ouachita Mountains	Ouachita Mountains
Ozark Highlands	Ozark Highlands



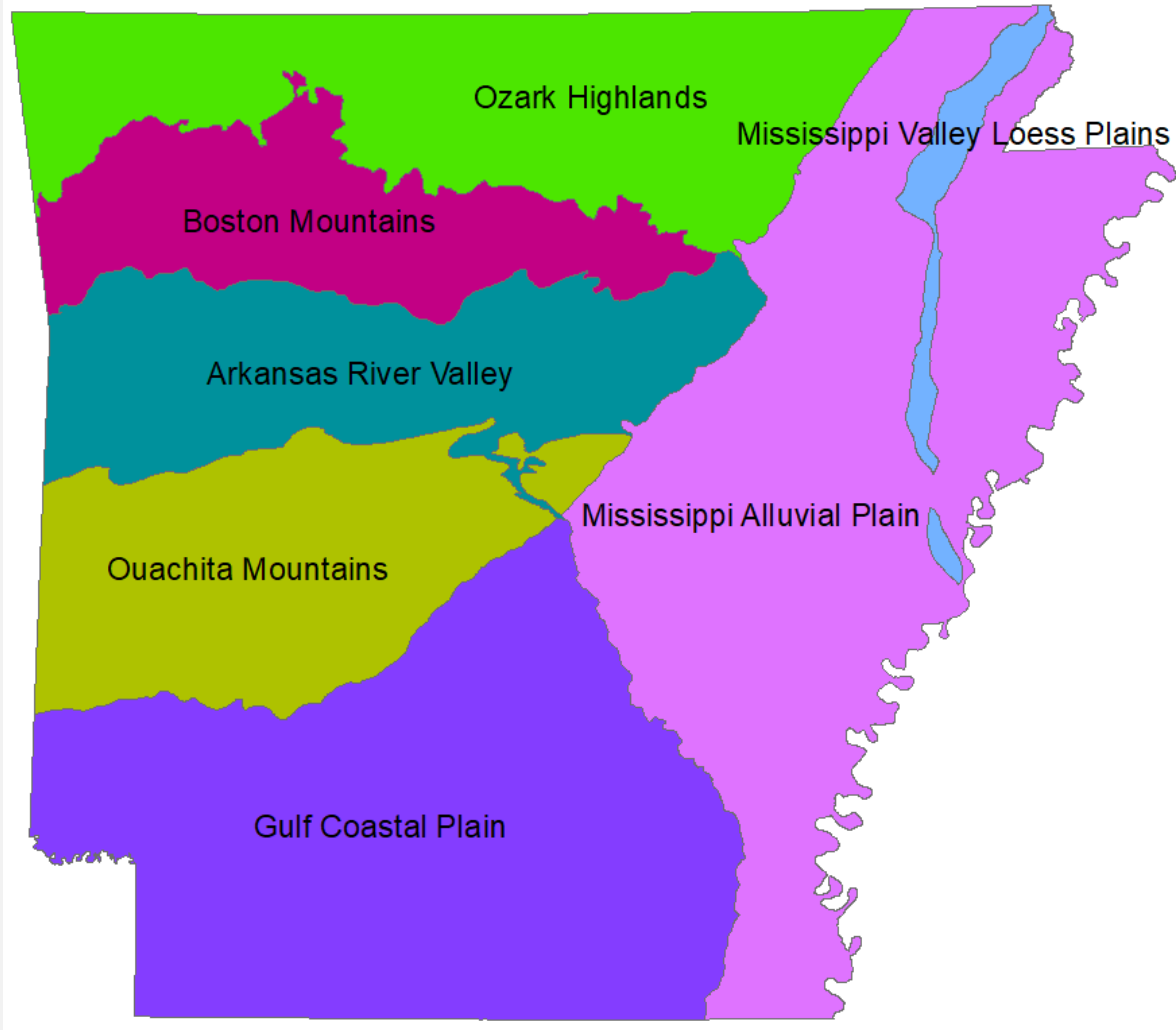
Current Rule 2 Ecoregion Boundaries



Revised Omernik Ecoregion Lines

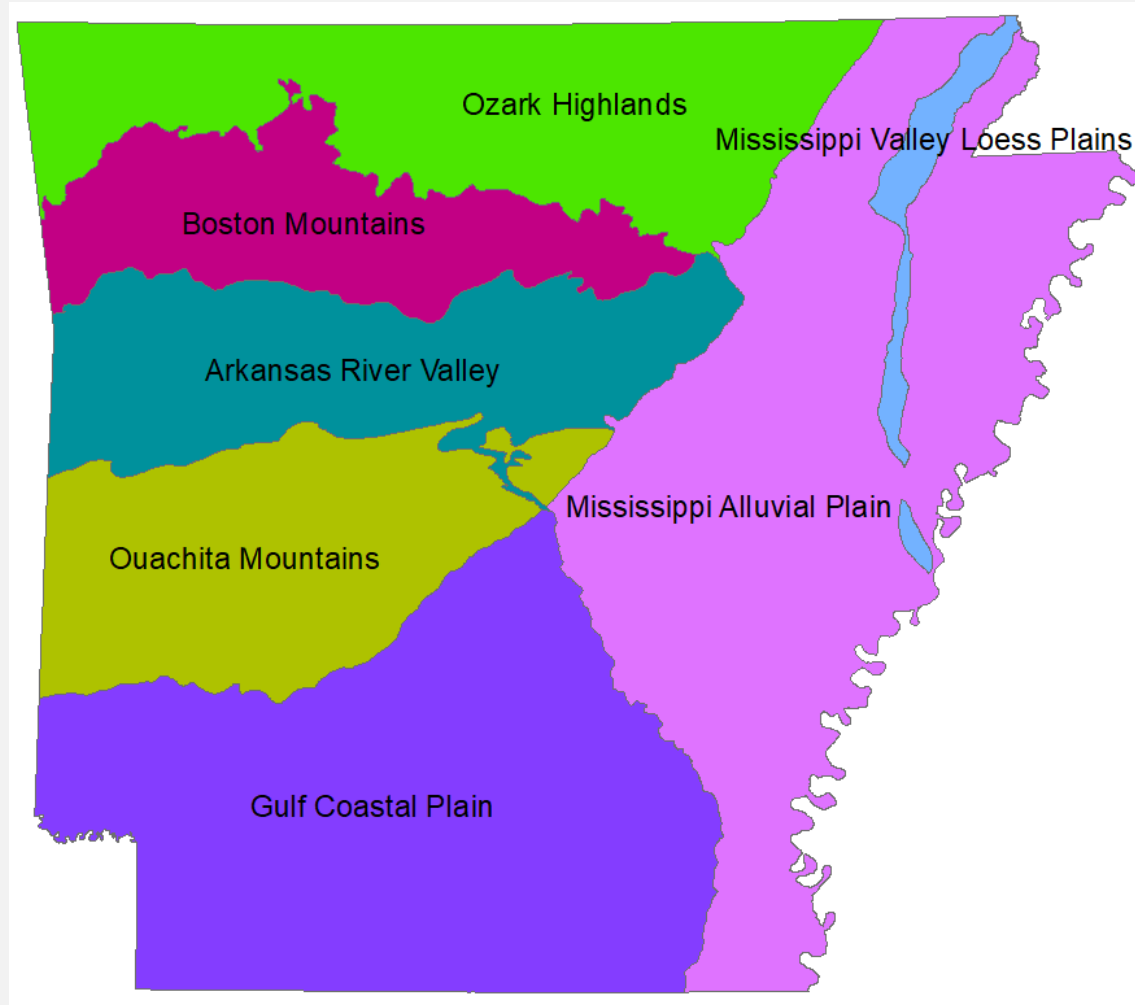


Revised Omernik Ecoregions



How many ambient water monitoring stations and permitted facilities will switch to a different ecoregion?

- **Ambient Water Monitoring Stations: 27**
- **Permitted Facilities: 78**



Ecoregion Line Proposal Discussion



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Tentative Plan for Next Meeting

- ✓ May 19th 10:00 – 3:00 at E&E Headquarters
- ✓ Criteria addition proposals
- ✓ More site specific criteria proposals
- ✓ Status of current studies

KEEP IN TOUCH



E&E-DEQ-OWQ

5301 Northshore Drive
North Little Rock, AR 72118



PHONE

501.682.0744



EMAIL

Rule_2_Comments@adeq.state.ar.us



WEBSITE

[https://www.adeq.state.ar.us/water/planning/
reg2/triennial/2023/](https://www.adeq.state.ar.us/water/planning/reg2/triennial/2023/)



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