

# MAKING DATA ACCESSIBLE THROUGH INTERACTIVE WEB APPS

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TANNER SENTI AND EDDY WILD  
ACWA WATER QUALITY STANDARDS WORKSHOP  
4/21/2026



**ARKANSAS**  
ENERGY & ENVIRONMENT

Name	Date modified
USGS profiles	8/24/2010 11:19 AM
ARK profiles.xls	2/18/2026 7:41 AM
DOTEST.xls	8/23/2004 12:26 PM
MIS profiles.xls	4/1/2005 3:15 PM
Oua profiles.xls	4/1/2005 3:46 PM
RED profiles.xls	4/1/2005 12:01 PM
WHITE profiles.xls	4/1/2005 12:03 PM
who the heck knows.xls	9/21/2004 11:09 AM

???

Name	Date modified
fishdata - web_jw_11.05.2020.mdb	7/3/2023 10:47 AM
FISHDATA.ldb	4/5/2023 12:11 PM
FISHDATA.MDB	4/5/2023 12:11 PM
fishdata-7-10-15.mdb	7/3/2023 10:46 AM
fishdata05052022.mdb	5/5/2022 12:43 PM
fishdata06152015.mdb	6/15/2015 10:57 AM
Water_FishData_web.mdb	5/10/2022 8:52 AM

???

# THE CHALLENGE

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## LARGE AMOUNTS OF MESSY & INACCESSIBLE DATA

- Many forms of data collected, often stored in different locations
- Some data not readily available to the public

## LEADS TO:

- Time consumption – cleaning & formatting
- Repeated data requests
- Difficulty with interpretation
- Lost data or improper quality control checks



# OUR GOAL

- Reduce time managing messy data
- Increase accessibility for internal and external use

# OUR APPROACH

- Utilize free, open-source tools
- Interactive R Shiny web app



# APP OVERVIEW

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## LAKE VERTICAL PROFILES DASHBOARD

- Purpose: Provide lake vertical profile data in a ready to use form for both ourselves and the public

## WATER QUALITY DATA EXPLORER

- Purpose: Instantly visualize any of our water quality data and simplify obtaining specific subsets of data

## BIOLOGICAL DATA APP

- Purpose: Efficiently access, map, and download all fish, macroinvertebrate, and habitat data

# Lake Vertical Profiles Dashboard



**ARKANSAS**  
ENERGY & ENVIRONMENT

# Water Quality Explorer



**ARKANSAS**  
ENERGY & ENVIRONMENT

# Biological Data App



**ARKANSAS**  
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# KEY TAKEAWAYS

**IMPROVED ACCESSIBILITY**

**REDUCED TIME SPENT ON DATA  
REQUESTS**

**MORE SUSTAINABLE, LONG-TERM  
DATA ACCESS**

**EMPOWERS USERS TO EXPLORE DATA**

# KEEP IN TOUCH



## ARKANSAS E & E – DIVISION OF ENVIRONMENTAL QUALITY

5301 Northshore Drive  
North Little Rock, AR, 72118



## TANNER SENTI

[tanner.senti@arkansas.gov](mailto:tanner.senti@arkansas.gov)



## EDDY WILD

[edward.wild@arkansas.gov](mailto:edward.wild@arkansas.gov)

## Biological Data App



<https://eddywild28.shinyapps.io/AllADEQFish/>

## Lake Vertical Profiles



<https://www.adeq.state.ar.us/apps/lake-profiles>

## Water Quality Explorer



<https://www.adeq.state.ar.us/apps/water-quality-explorer>

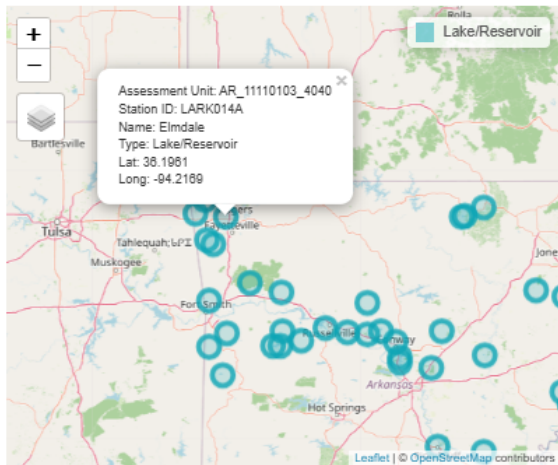


Show User Guide

Map

Table

Click a site to display plots



Profile data table:

SiteID	Lake_Name	Date	Depth	DO (mg/L)	pH	Temp (°C)
29575	LARK014A	Elmdale	2026-02-23	0.22	11.19	8.28
29576	LARK014A	Elmdale	2026-02-23	0.23	11.18	8.28

Individual profiles

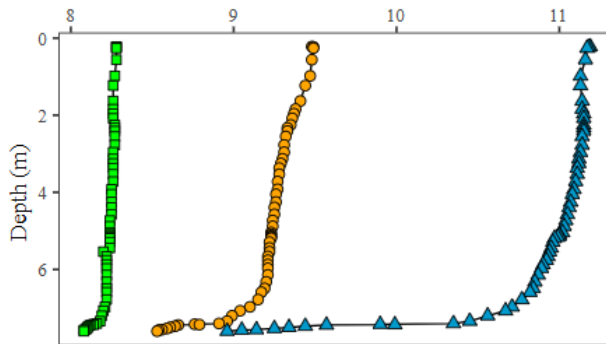
Site profiles (all dates)

Site profiles by year

Profile date:

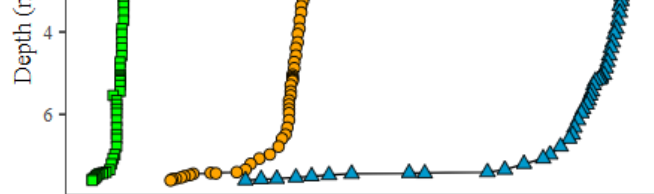
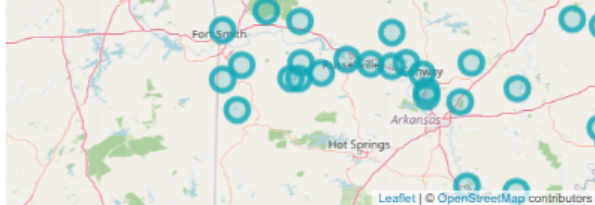
2026-02-23

### LARK014A - Elmdale (2026-02-23)



- ▲ Dissolved Oxygen (mg/L)
- pH
- Temperature (°C)

Download Plot



- ▲ Dissolved Oxygen (mg/L)
- pH
- Temperature (°C)

[Download Plot](#)

Profile data table:

SiteID	Lake_Name	Date	Depth	DO (mg/L)	pH	Temp (°C)
29575	LARK014A	Elmdale	2026-02-23	0.22	11.19	8.28
29576	LARK014A	Elmdale	2026-02-23	0.23	11.18	8.28
29577	LARK014A	Elmdale	2026-02-23	0.26	11.17	8.28
29578	LARK014A	Elmdale	2026-02-23	0.56	11.16	8.28
29579	LARK014A	Elmdale	2026-02-23	0.98	11.13	8.27
29580	LARK014A	Elmdale	2026-02-23	1.23	11.13	8.26
29581	LARK014A	Elmdale	2026-02-23	1.63	11.14	8.26
29582	LARK014A	Elmdale	2026-02-23	1.84	11.14	8.26
29583	LARK014A	Elmdale	2026-	1.96	11.15	8.26

Showing 1 to 59 of 59 entries

[Download CSV](#)

Individual profiles

Site profiles (all dates)

Site profiles by year

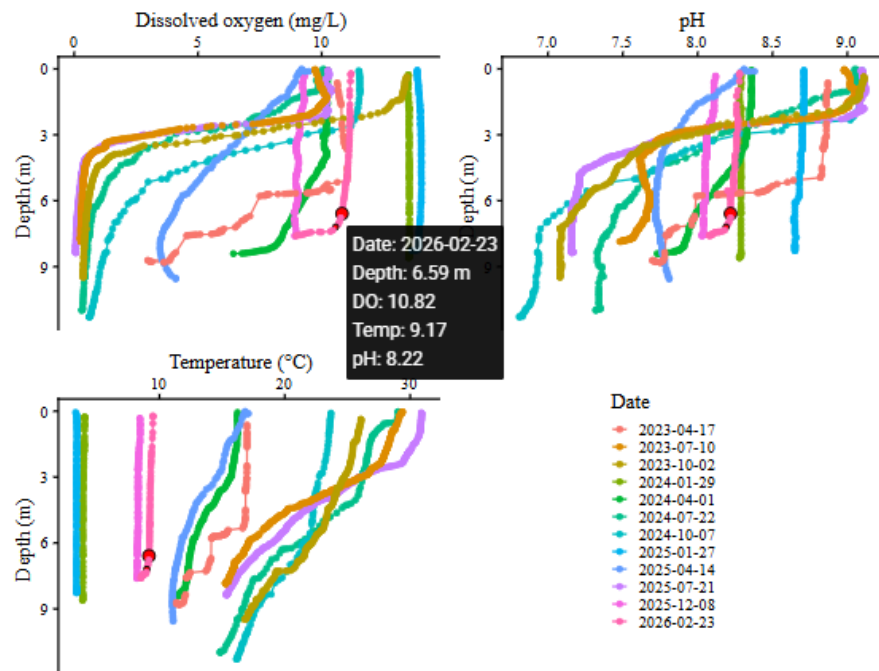
Start date:

End date:

2023-04-17

2026-02-23

LARK014A - Elmdale



Download Plots

Individual profiles

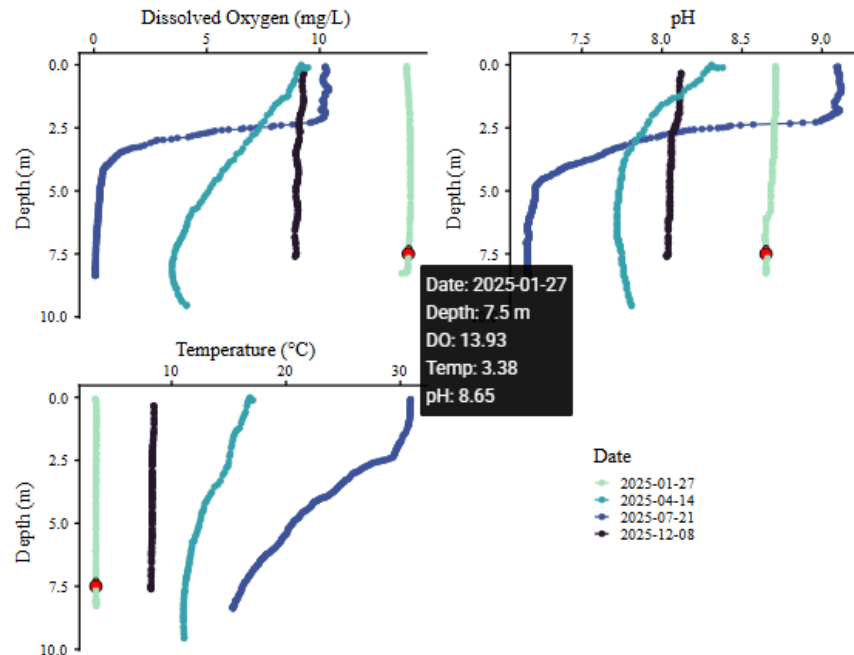
Site profiles (all dates)

Site profiles by year

Year:

2025

### LARK014A - Elmdale



Download Yearly Plots




Data available between 09-04-1990 and 01-13-2026

**Select Sites:**

**Search by Description:**

**Choose parameters:**

 **Display Data**

[Click here for the Water Quality Monitoring Data webpage and details about qualifiers](#)



Data available between 09-04-1990 and 01-13-2026

**Select Sites:**

LARK014A

**Search by Description:**

Lake Elmdale - Southeast of  
Elm Springs AR.

**Choose parameters:**

total pho

Total Recoverable Phosphorus  
(mg/L)

Total Phosphorus, mixed forms  
(mg/L)

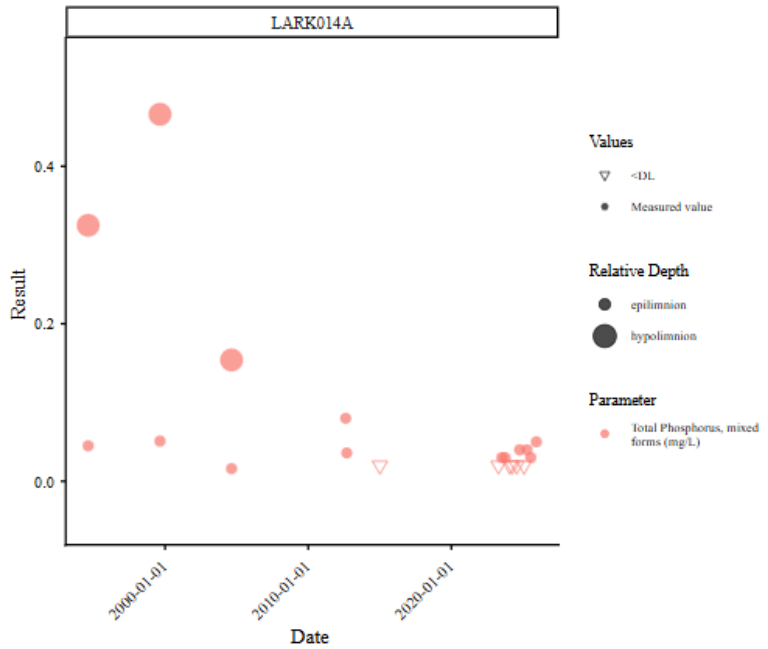
Display Data

**Select Sites:**

**Search by Description:**

**Choose parameters:**

[Display Data](#)



**Plot Options**

**Filter by date:**

**Start:**

**End:**

**Group plots by:**

- Site
- Parameter
- LOESS trend line

[Download Plot](#)

Select Sites:

LARK014A LNEO001A

Search by Description:

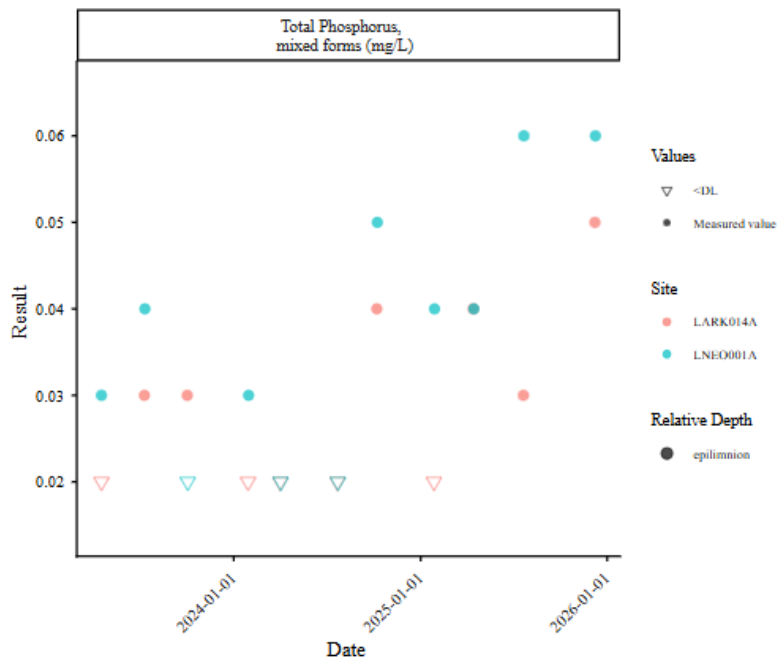
Lake Elmdale - Southeast of Elm Springs AR.

Crystal Lake - 1 mi. N of Decatur just S. of boat ramp.

Choose parameters:

Total Phosphorus, mixed forms (mg/L)

Display Data



« September 2020 »

Su Mo Tu We Th Fr Sa

30 31 1 2 3 4 5

6 7 8 9 10 11 12

13 14 15 16 17 18 19

20 21 22 23 24 25 26

27 28 29 30 1 2 3

4 5 6 7 8 9 10

Plot

Filter

Start: 2020-09-04

End: 2025-12-09

Group plots by:

Site

Parameter

LOESS trend line

Download Plot

[Download CSV](#)Show  entries

Site	Parameter	Date	Result	Detection Limit	Qualifiers	Relative Depth
LARK014A	Total Phosphorus, mixed forms (mg/L)	2023-04-17	0.02	<DL	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2023-07-10	0.03	Measured value	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2023-10-02	0.03	Measured value	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2024-01-29	0.02	<DL	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2024-04-01	0.02	<DL	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2024-07-22	0.02	<DL	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2024-10-07	0.04	Measured value	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2025-01-27	0.02	<DL	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2025-04-14	0.04	Measured value	None	epilimnion
LARK014A	Total Phosphorus, mixed forms (mg/L)	2025-07-21	0.03	Measured value	None	epilimnion

Showing 1 to 10 of 22 entries

[Previous](#) [1](#) [2](#) [3](#) [Next](#)[Click here for the Water Quality Monitoring Data webpage and details about qualifiers](#)



User Guide

Fish Species Map

Fish Community Map

Macroinvertebrate Species Map

Macroinvertebrate Community Map

Habitat

Filter by Ecoregion:

All

Filter by Family:

All

Filter by Common Name:

Alabama shad

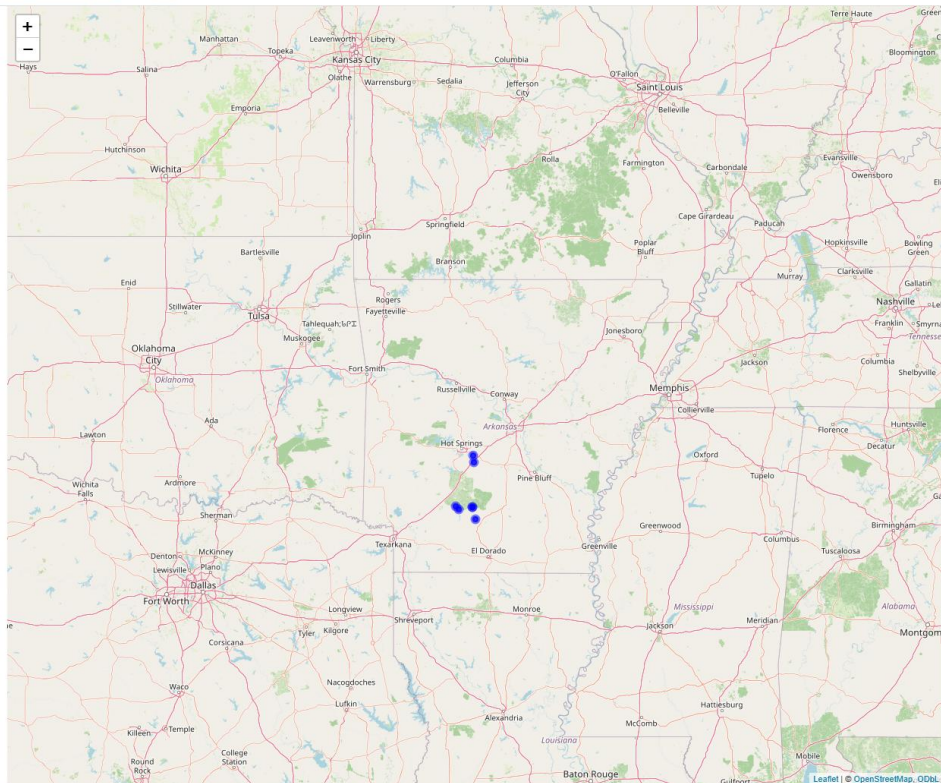
Select Collection Date Range:

1963-06-06

to

2025-09-04

Download Species Data



Show 10 entries

Search:

StationID	Sample	Collection_Date	Ecoregion	Family	Species_Name	Common_Name	Count	Location	
1	LOUA016R	251	1997-04-04	Typical South Central Plains	Clupeidae	Alosa alabamiae	Alabama shad	1	Immediately below Remmel Dam



User Guide

Fish Species Map

Fish Community Map

Macroinvertebrate Species Map

Macroinvertebrate Community Map

Habitat

Filter by Ecoregion:

All

Filter by Stream Name:

All

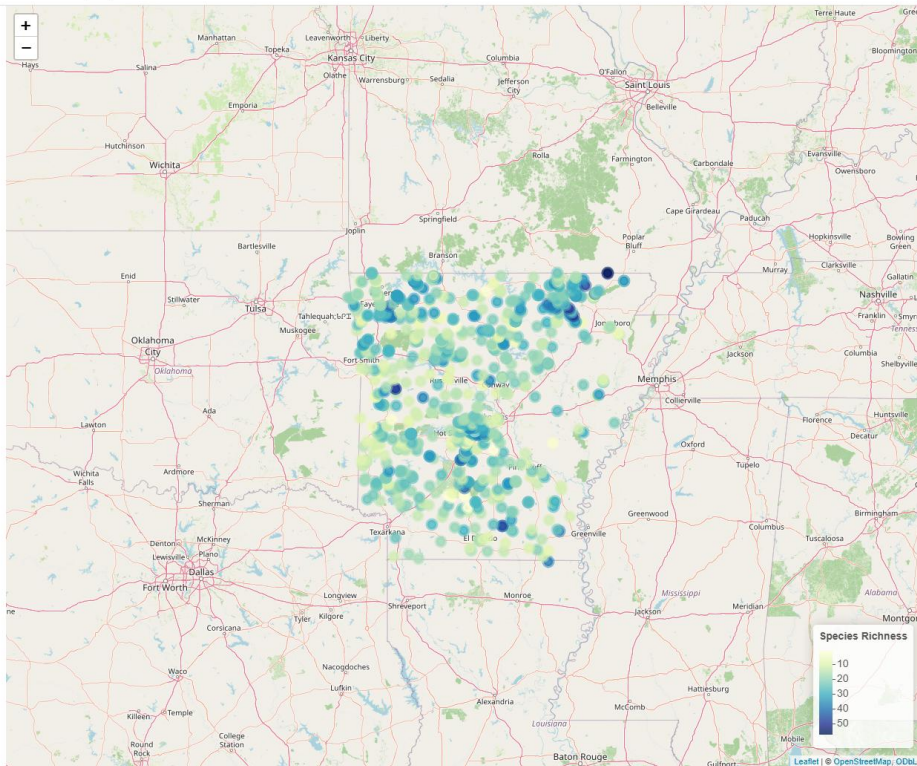
Select Collection Date Range:

1963-06-06

to

2025-09-04

Download Community Data



Show 10 entries

Search:

	Lat_Decimal	Lon_Decimal	StationID	Stream_Name	Collection_Date	Species_Richness	Species_List
1	32.990299	-91.655602	OUA0013	Bayou Bartholomew	2000-10-16	39	Bigmouth buffalo; Black crappie; Blackside...
2	33.02642	-93.5779	RED0012	Dooley Creek	2021-07-28	18	Banded pygmy sunfish; Black bullhead; Bl...



User Guide

Fish Species Map Fish Community Map Macroinvertebrate Species Map Macroinvertebrate Community Map Habitat

Filter by Ecoregion:

All

Filter by Class:

All

Filter by Order:

All

Filter by Family:

All

Filter by Genus:

All

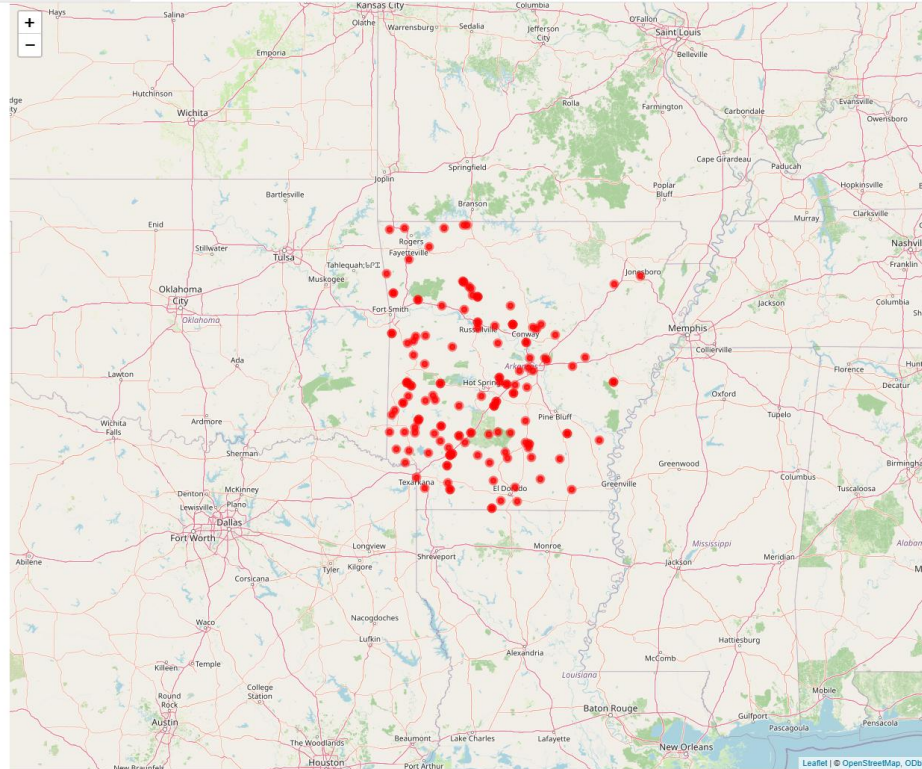
Filter by Taxa:

Abiabetesmyia

Select Collection Date Range:

1983-08-02 to 2025-01-28

Download Species Data



Show 10 entries

Search:

StationID	Collection_Date	Lat_Decimal	Lon_Decimal	Ecoregion	Stream_Name	Location	Basin
1 RED0051	1998-08-10	34.232206	-94.356092	Ouachita Mountains	Rolling Fork River	At the county rd. bridge approx. 300m...	Red f
2 RED0030	1998-08-10	34.182022	-94.403092	Ouachita Mountains	Rolling Fork River	Located in Sevier County on Rolling F...	Red f



User Guide

Fish Species Map

Fish Community Map

Macroinvertebrate Species Map

Macroinvertebrate Community Map

Habitat

Filter by Ecoregion:

All

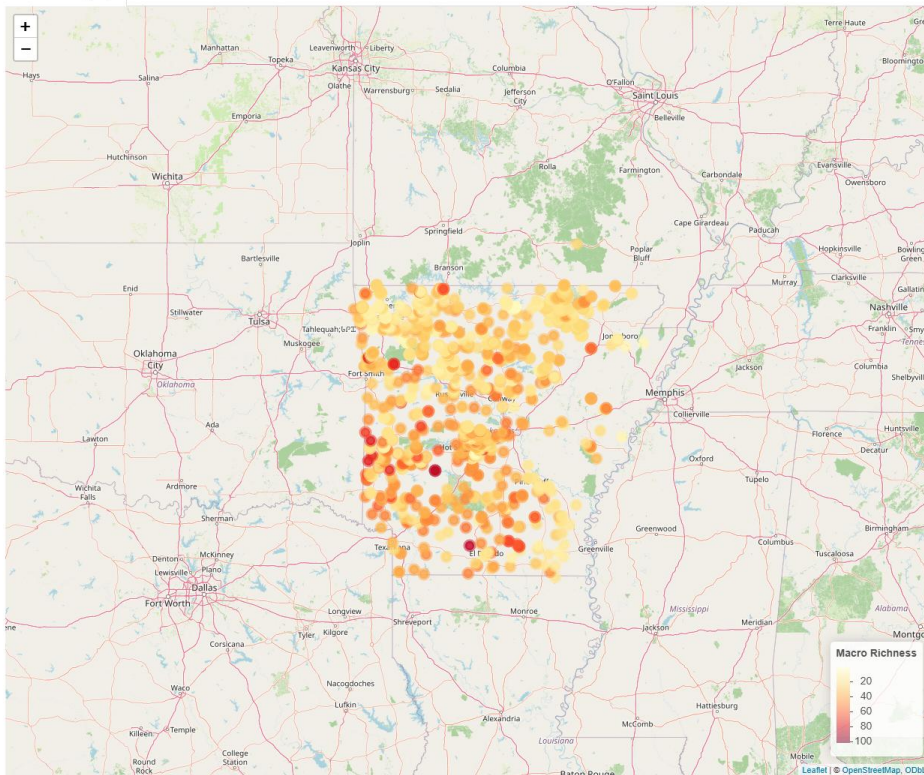
Filter by Stream Name:

All

Select Collection Date Range:

1983-08-02 to 2025-01-28

Download Community Data



Show 10 entries

Search:

	Lat_Decimal	Lon_Decimal	StationID	Stream_Name	Collection_Date	Richness	Taxa_List
1	32.99028	-91.65556	OUA0013	Bayou Bartholomew	1999-09-23	20	Ancyronyx, Argia, Atherickidae; Boyeria; Brach...
2	33.0264	-93.5799	RED0012	Dooley Creek	2021-11-22	43	Acilius; Amnicola; Amphipoda; Aulodrilus; Ca...

