



ARKANSAS DEPARTMENT OF HEALTH

ADH Tools for Watershed Protection

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Source Water Protection

Middle Fork Little Red, Clinton's Watershed; photo by R. Hutto





Today's Presentation

- What is a watershed?
- How does ADH define them?
- What is Watershed Planning?
- What are ADH tools to improve your intake's protection?
- What are your next steps?

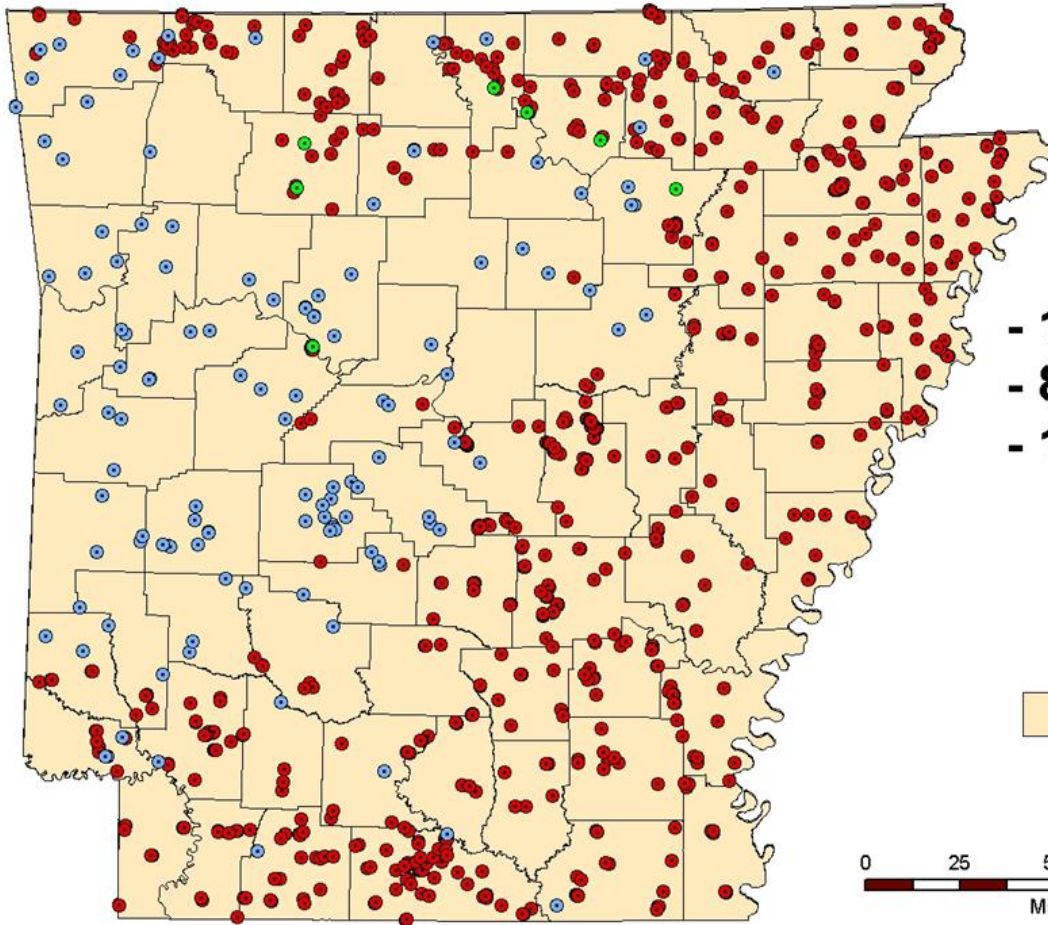


AR Public Water Systems

- Approximately 62% Arkansans drinking surface water, mostly from lakes (2015)

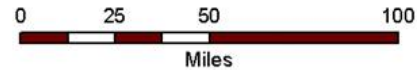
Population of AR	2,978,204
Population served by PWS	2,842,343
Population served by surface	1,844,371
Population served by groundwater	850,418
Percent population served by Community PWS	95.4%
Percent served by private wells or other source	4.6%

PUBLIC WATER SOURCES IN ARKANSAS

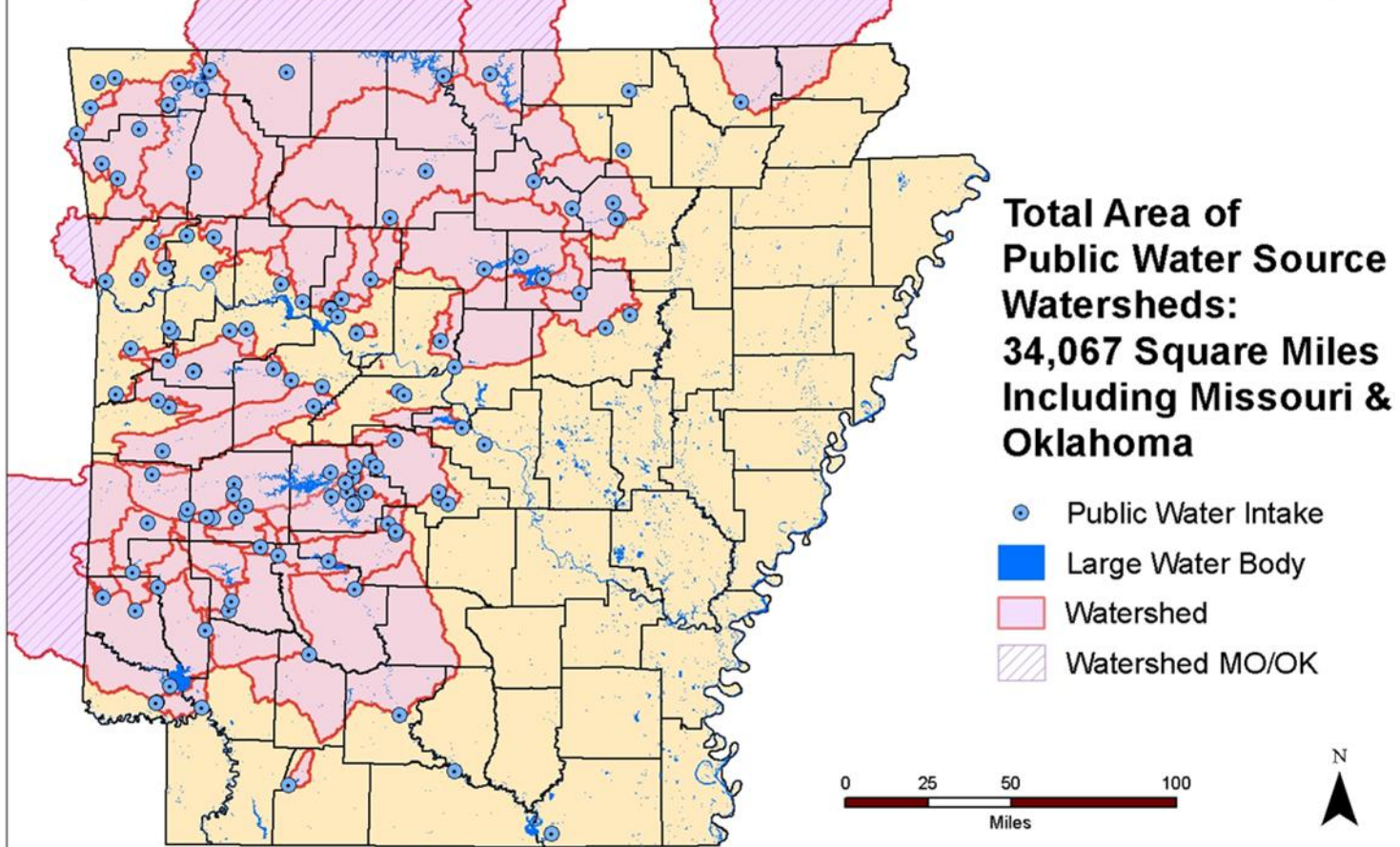


- 131 Surface Intakes
- 830 Wells
- 11 GWUDI

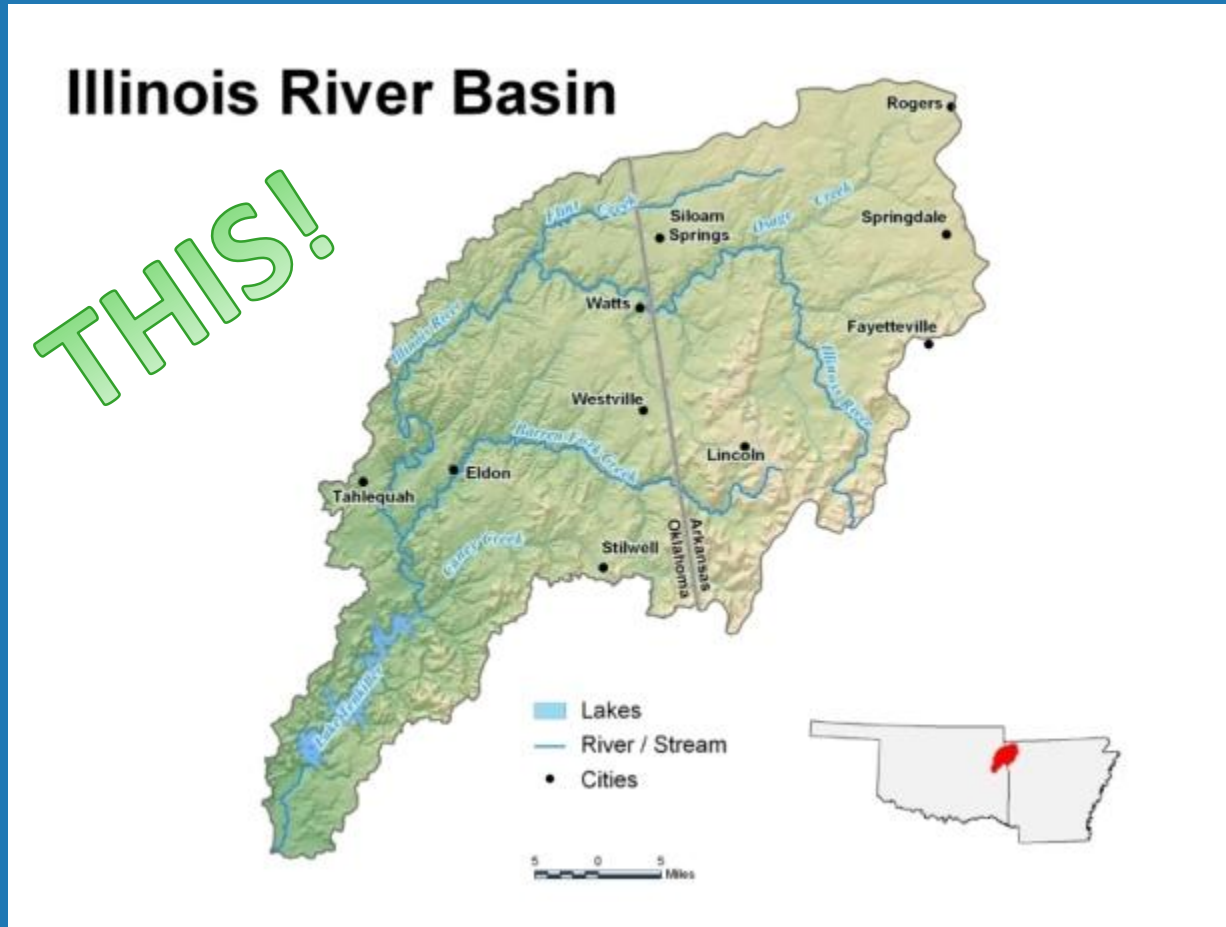
- Surface Water Intakes
- Wells
- GWUDI
- Counties



SURFACE WATER SUPPLIES IN ARKANSAS



What is a Watershed?



What is a Watershed?

- A pretty cool “water shed,” but not a watershed



NOT THIS!

A watershed is hydrologically defined

- Your system's watershed is all the water and land upslope that drain to your specific public water intake.
- Watersheds are also called drainage basins.
- A watershed is a geographic area near your intake

A watershed is hydrologically defined

Watersheds are influenced by human and natural conditions.

- Land use
- Population density and distribution
- Climate
- Geology
- Ecology
- Topography

All influence the character & health of watersheds

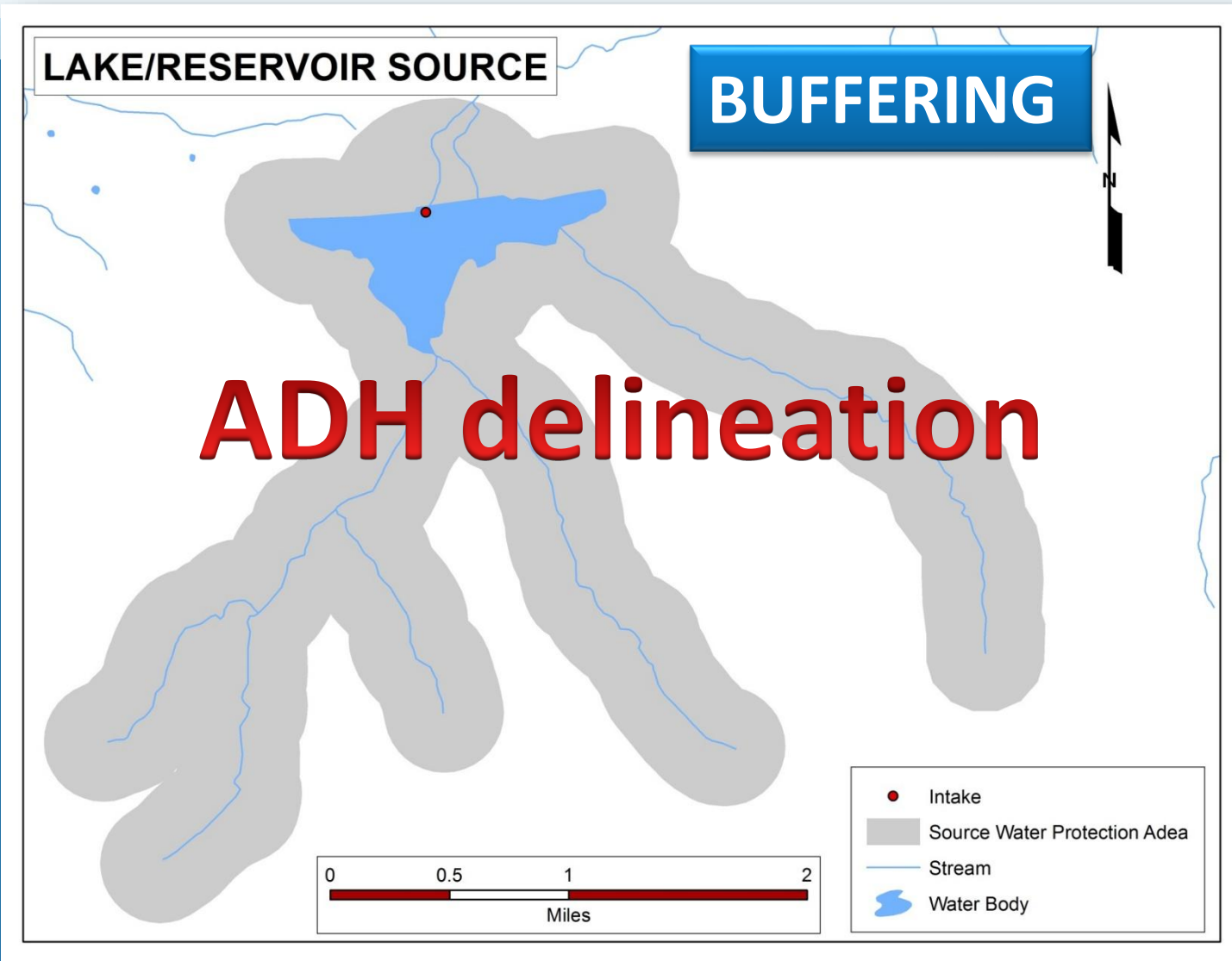
What is Watershed Planning?

Three aspects:

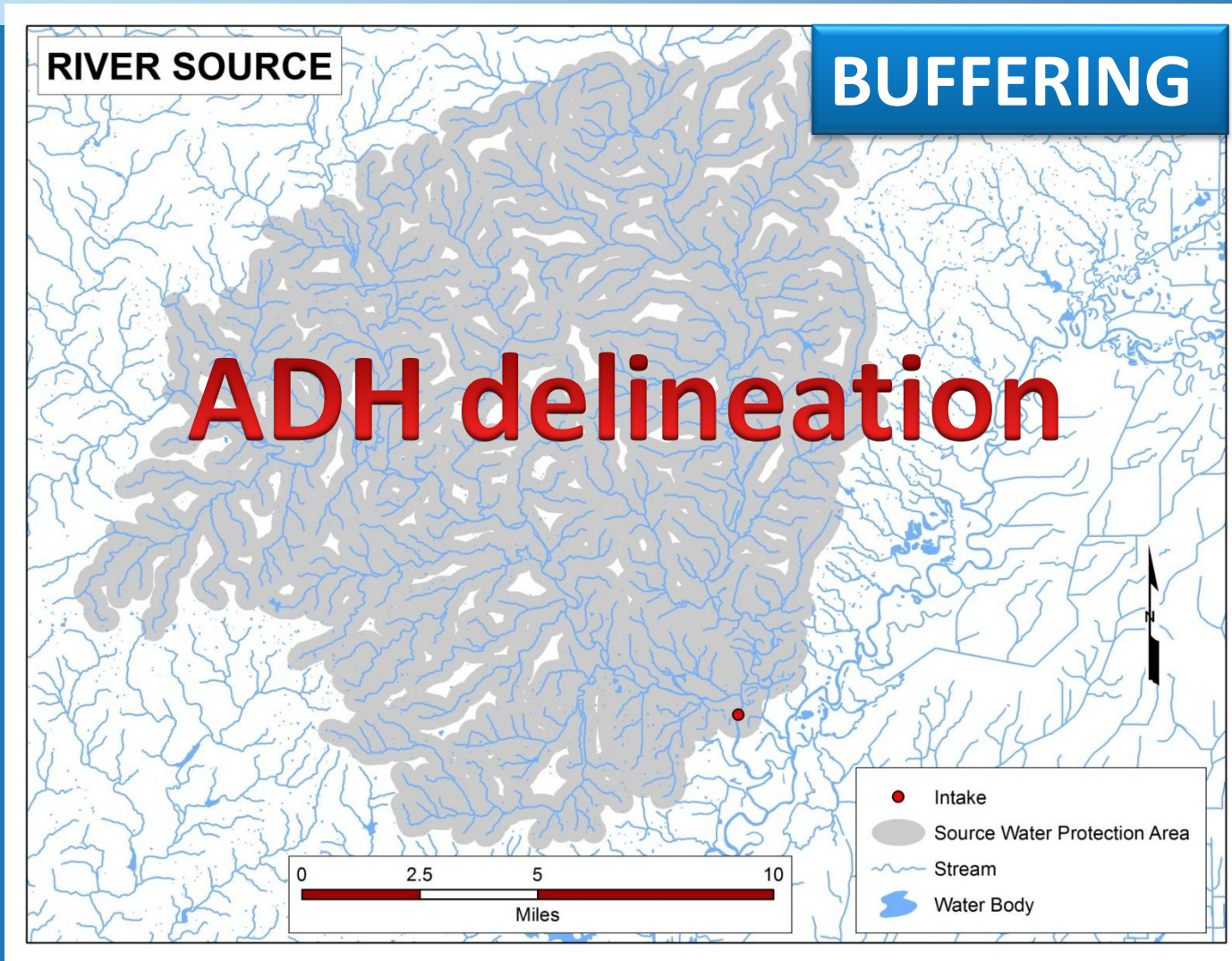
1. Define your Watershed (ADH does this for you)
2. Involve all stakeholders
3. Develop a watershed protection plan

Collaborative & Comprehensive

Watershed Definition



Watershed Definition



Your First Task

- Show your stakeholders what you are protecting
- Very few maps of watersheds or sources on websites for AR utilities or partner agencies
- ADH can help (USEPA-approved methods)!
- Other resources: EPAs' map my watershed, EPA's Watershed Academy

Watershed planning includes all stakeholders

Incorporate a broad range of

- Public sector (federal, state, and local governments) &
- Private sector (business, residents)

Arkansans will participate when you provide a coordinating framework for local community-based watershed planning.

A Strategic Watershed Protection Plan

A watershed protection plan strategically addresses priority water resource goals:

- Drinking water quality protection or improvement
- Ecological health/habitat restoration
- Recreation
- Multiple designated uses

Water supply lake vs. USCOE Lake

Why monitor raw water quality?

- PROTECTION OF PUBLIC HEALTH
- Most monitoring is for finished water
- Total organic carbon (TOC)
 - friend of disinfection byproducts (DBPs)
- Turbidity
 - particles entrain pathogens
- Pathogens
 - E. coli*, *Cryptosporidium sp.*, *Giardia lamblia*



A Strategic Watershed Protection Plan

Focus not to forbid certain activities:

1. Identify what activities or conditions pose the highest risks to water quality
2. & Reduce those risks

SWAP Reports are about to update for all surface systems

Land Use Land Cover (LULC) and Source Water Assessment Area



Land Use Types

-  Corn
-  Rice
-  Soybeans
-  Fallow/Idle Cropland
-  Open Water
-  Developed/Open Space
-  Developed/Low Intensity
-  Developed/Med Intensity
-  Developed/High Intensity
-  Barren
-  Deciduous Forest
-  Evergreen Forest
-  Mixed Forest
-  Shrubland
-  Grassland Herbaceous
-  Pasture/Hay
-  Woody Wetlands
-  Herbaceous Wetlands
-  Source Water Assessment Area

A Strategic Watershed Protection Plan

Integrate multiple programs:

- Regulatory (point sources) &
- Voluntary (non-point sources)

Must always be:

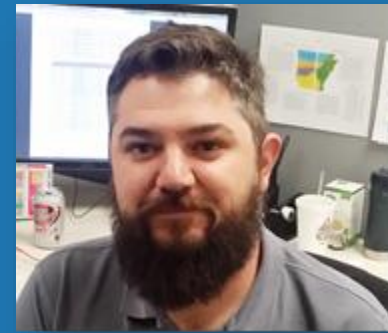
Based on sound science

Adaptive

Collaborative



New GIS Staff



Ben Gilley, Tyler Couch, & Richard Norwood have joined the Source Water Protection Program



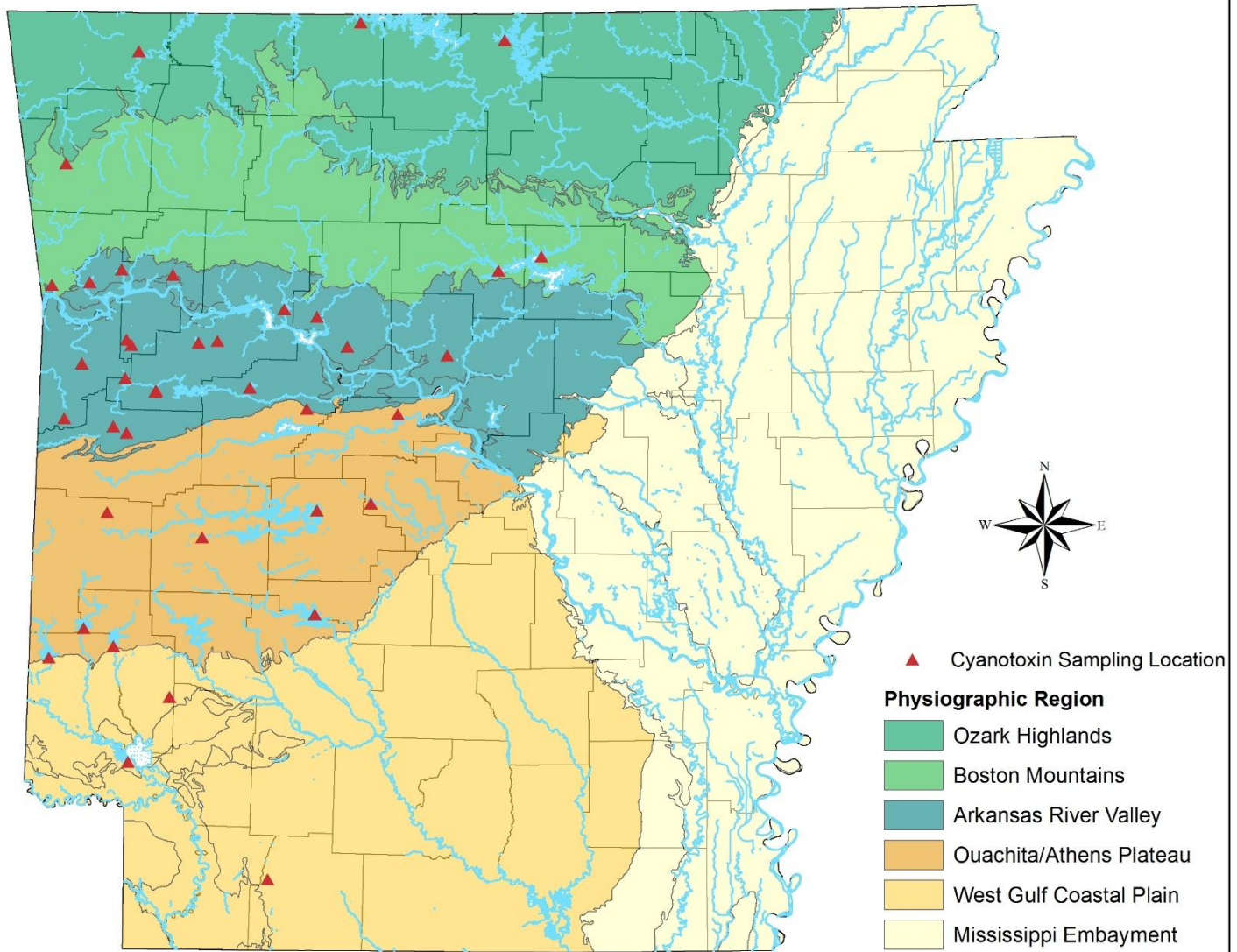
Current ADH Projects

Watershed partnerships to preserve or improve drinking water supplies

- Drinking Water & Forestry Forum/Collaboration
- HABs workgroup
- ADH technical assistance Summer intern
- Baseline sampling N, P & cyanotoxins



2017 Cyanotoxin Sampling Locations





Current ADH Projects

GIS Tools for ranking vulnerability to contamination:
SWAP GIS Model updates

New GIS staff and interns (time permitting) will
complete the Wellhead Deficiency surveys

Ben Gilley, Tyler Couch & Richard Norwood have joined
the SWPP as GIS experts and have things moving
forward again.



Other Resources

EPA's online Watershed Academy

- <https://www.epa.gov/watershedacademy>.

Distance-learning self-paced

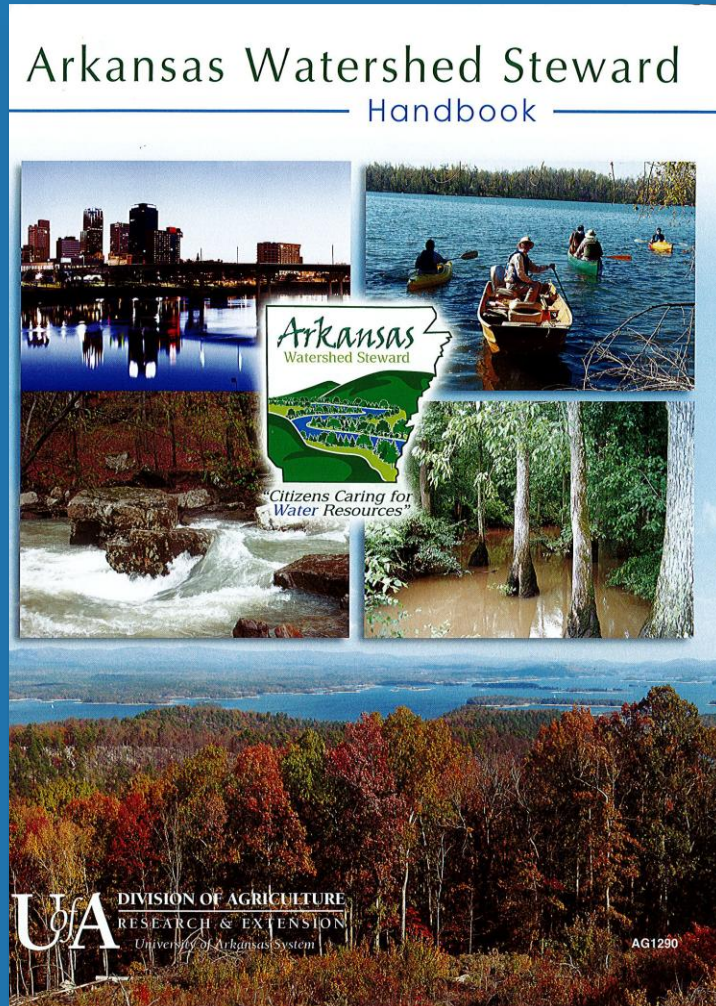
UAEX Arkansas Watershed Stewards program

- <http://www.uaex.edu/environment-nature/water/docs/ag1290.pdf>

Source Water Collaborative

- <http://sourcewatercollaborative.org/>

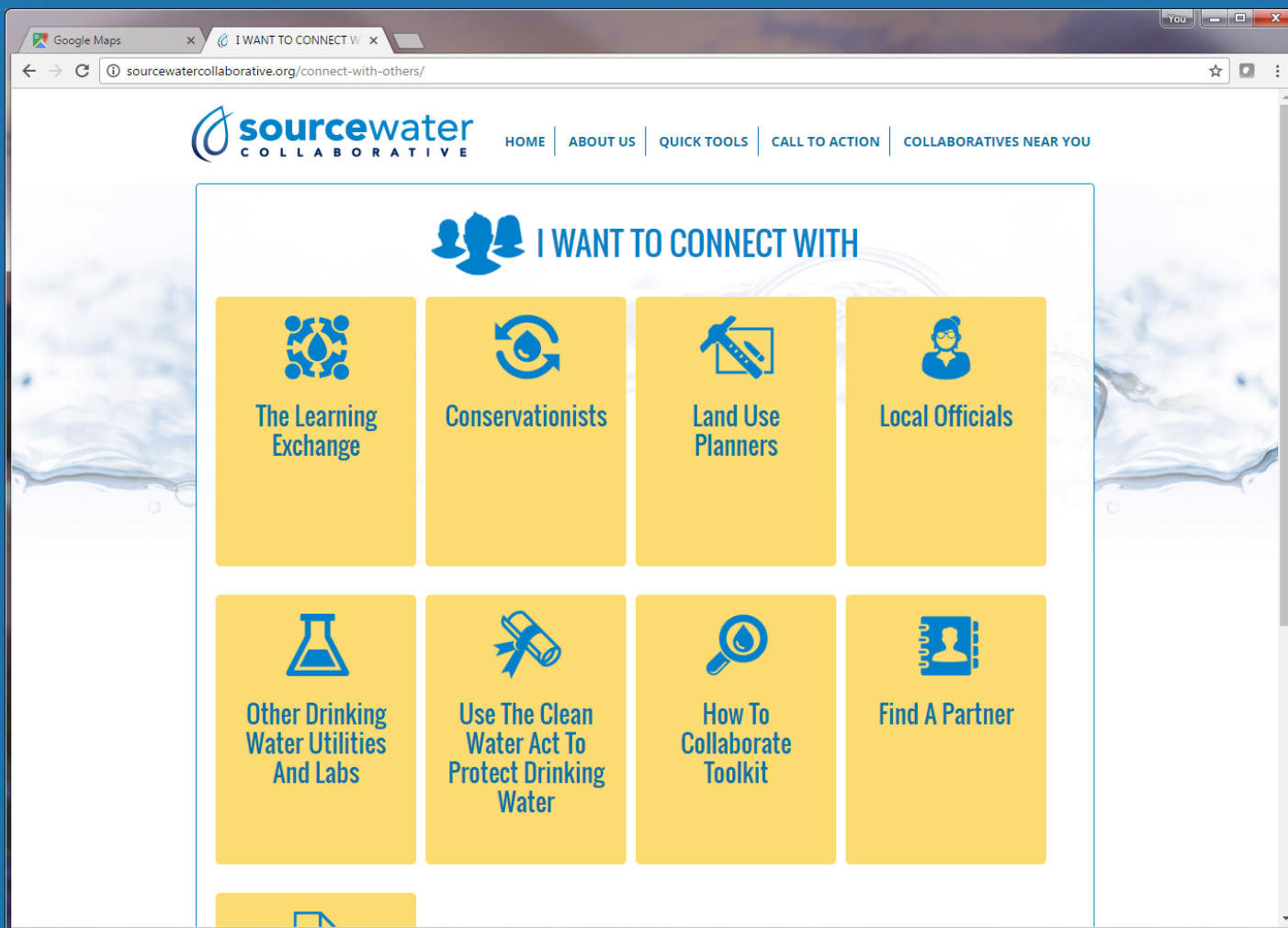
Arkansas Watershed Stewards



Source Water Collaborative

The screenshot displays the Source Water Collaborative website. At the top, the navigation menu includes: HOME | ABOUT US | QUICK TOOLS | CALL TO ACTION | COLLABORATIVES NEAR YOU. The 'QUICK TOOLS' menu is expanded, listing: THE LEARNING EXCHANGE, INNOVATION CHALLENGE, SOURCE TO TAP, MAPS, DATA, HOW TO COLLABORATE, FIND FUNDING, PREPARE MY UTILITY, and EMERGENCY RESPONSE. The main banner features a farm scene with the text 'SOURCE WATER PROTECTION is keeping your farm healthy' and a 'LEARN MORE >>' button. Below the banner, the text reads 'THE SOURCE WATER COLLABORATIVE CAN HELP YOU.' followed by four service tiles: 'Assess & Protect Drinking Water Sources' (shield icon), 'Connect With Others' (people icon), 'Respond To An Emergency' (warning sign icon), and 'Learn About Source Water Collaborative' (water drop icon).

Source Water Collaborative



Source Water Collaborative

The screenshot shows a web browser window with the URL yourwateryourdecision.com. The page features a navigation bar with links for Home, About Us, FAQ, and Contact. Below the navigation bar is a logo for 'Your Guide. YOUR WATER. YOUR DECISION.' and a brief description: 'Our customizable guide can help you move local policymakers from awareness to action.' Two buttons are visible: 'CREATE GUIDE' and 'TIPS FOR USING GUIDE'.

The main content area is divided into two columns. The left column features an image of a brochure titled 'YOUR WATER. YOUR DECISION.' with a woman's face on the cover. Below the image is the heading 'Start a local conversation about drinking water protection.' followed by two paragraphs of text. The right column has the heading 'Create a customized Your Water. Your Decision. guide for your local policymakers.' followed by a sub-heading 'With our easy online tool, it takes just a few minutes to make a custom guide that can:' and a bulleted list of features. Below the list is a prominent orange 'GET STARTED' button. At the bottom of the right column, there is a quote from John Barndt, Manager of Delaware DNREC, praising the guide's links.

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At the bottom of the page, there are social media icons for Facebook, Twitter, LinkedIn, YouTube, and Instagram, along with a plus sign for more options.

Upcoming Events ADH

- Education and Public Outreach for watershed partnerships—leverage CWA Section 319 funding
- Forestry and Drinking Water Forums SW/River Valley
 - Training for PWS for public involvement
 - Development of forest management plans for PWS
 - Collaboration
- Data updates for the SWAP Model
 - Wellhead Deficiency Surveys for all PWS wells



What Next?

- If stakeholders understand the value of their source water, they will work to protect it.
- We all need to provide a framework so that will happen.
- Let's do it for them





Questions?

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