

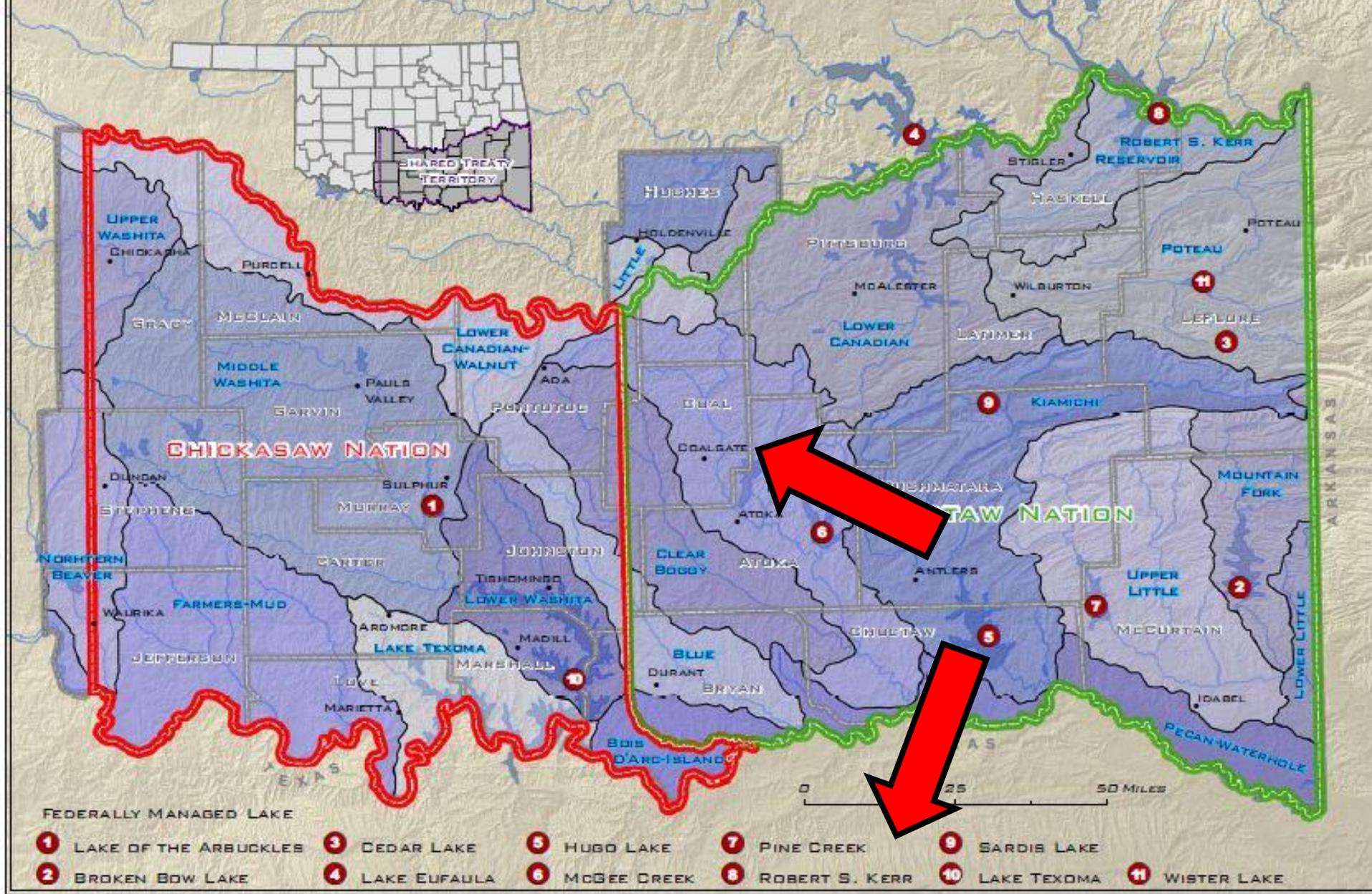
Arbuckle-Simpson Aquifer Drought Contingency Plan



INSTREAM FLOW COUNCIL
FLOW 2018
SCIENCE • LAW • POLICY • PUBLIC DIALOGUE

Barney Austin

April 26, 2018
Fort Collins, CO



WATERSHEDS AND FEDERAL LAKES WITHIN THE CHICKASAW AND CHOCTAW NATIONS

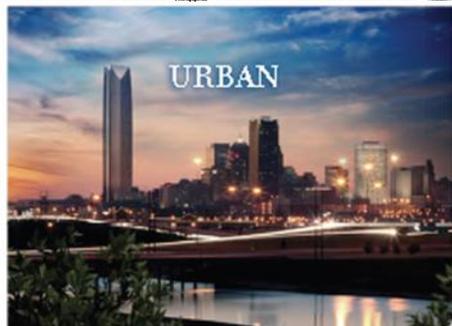
MAP BY: COREY DILLON / MAHERD BAYLES / THE CHICKASAW NATION / DIVISION OF HOUSING & TRIBAL DEVELOPMENT
 DEPARTMENT OF GEO SPATIAL INFORMATION JULY 20, 2010 SOURCE: TIGER FILES, DWRW WATERSHEDS
 PROJECTION: NAD 1983, UTM ZONE 14N MAP CODE: CNR12_2009_R_3_11

GEO SPATIAL INFORMATION





The Seven Essentials



URBAN

ESSENTIAL: Urban Oklahoma's water needs must be met. Our cities drive prosperity for the whole state, and they can't prosper without water.



ESSENTIAL: The water needs of the growing towns of rural Oklahoma must be met for their potential to be realized.



TOWNS AND RURAL



ESSENTIAL: Tourism is Oklahoma's third-largest industry, and water recreation must be maintained and developed statewide.



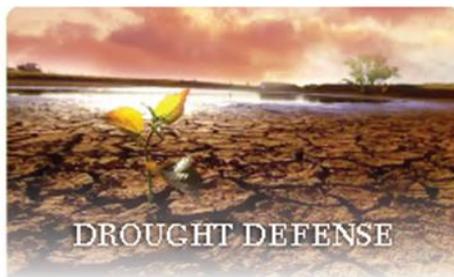
Q & A
Why did you see a need for The Essentials?

A There is so much misinformation—and understandable anxiety—surrounding a topic as vital as water; we felt it urgent to clearly articulate the needs we see that must be met. We also identify the necessary steps to be able to balance the long-term health and productivity of precious resources—i.e., their *sustainability*, with economic development statewide.



AGRICULTURE

ESSENTIAL: Agriculture, which includes ranching, is Oklahoma's second-largest industry, and requires access to expanding water distribution.



DROUGHT DEFENSE

ESSENTIAL: Drought defense means putting Oklahoma first and preparing for the worst.



UNITY

ESSENTIAL: A sense of unity and cooperation, not confrontation. Oklahomans win when we stick together.

Q & A
One of The Essentials is the sustainable management of water resources, which Oklahoma law—thus the state plan—doesn't require. What's the disconnect?

The choice is a plan based on sustainability versus one confined to a utilization mentality (i.e., planning only for water consumption, not "non-consumptive" uses such as tourism and sustainability).

Oklahoma is out of step with western states, federal entities, water scientists and other experts on this. To bridge the gap, we've partnered with the U.S. Army Corps of Engineers and others to acquire more data and analysis.

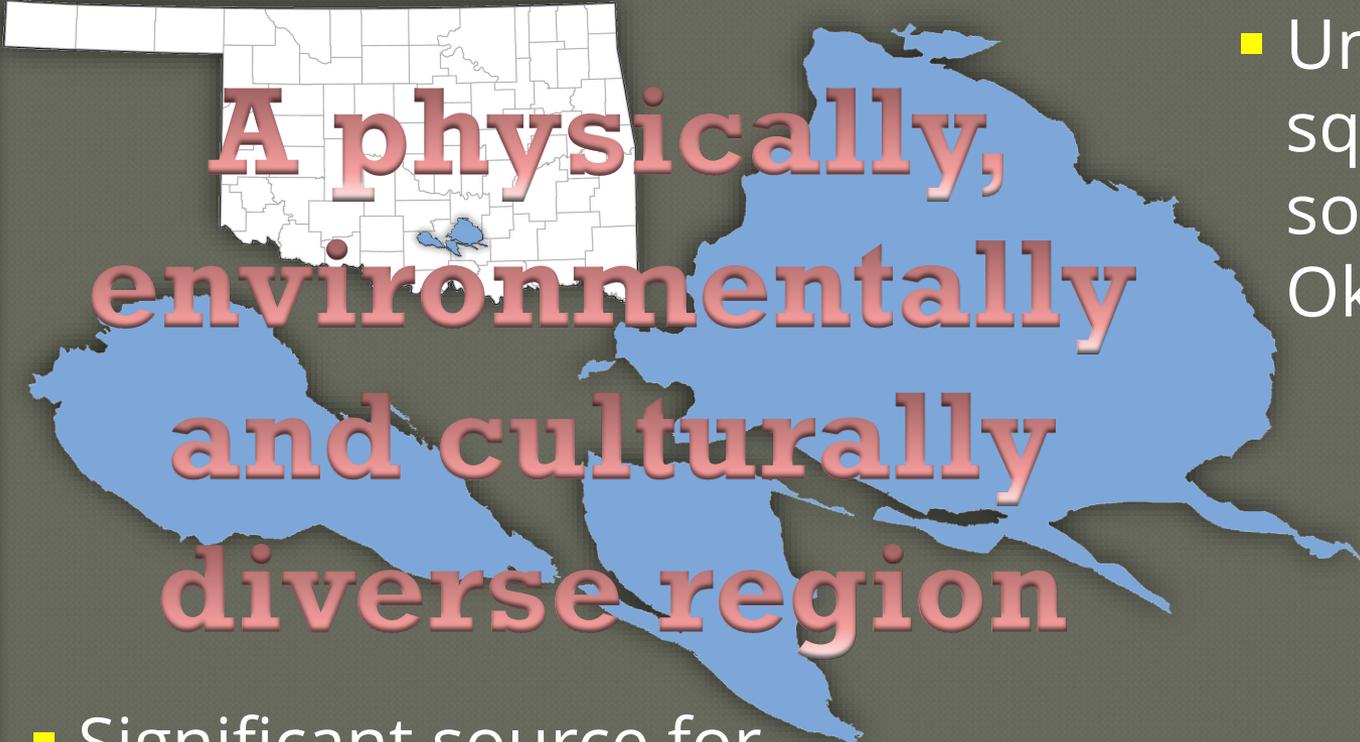
Water creates jobs. But without ensuring the environmental health of our lakes, rivers and streams, Oklahoma's water future may be compromised.



SUSTAINABILITY

ESSENTIAL: The sustainability—or long-term health—of our water resources depends on science-based environmental stewardship.

About the Arbuckle-Simpson...



**A physically,
environmentally
and culturally
diverse region**

- Significant source for municipal/industrial, mining, irrigation and other water uses
- Recreational and cultural resource

- Underlies ~500 square miles in south central Oklahoma
- Outcrops in 5 counties:
 - Johnston
 - Pontotoc
 - Murray
 - Carter
 - Coal

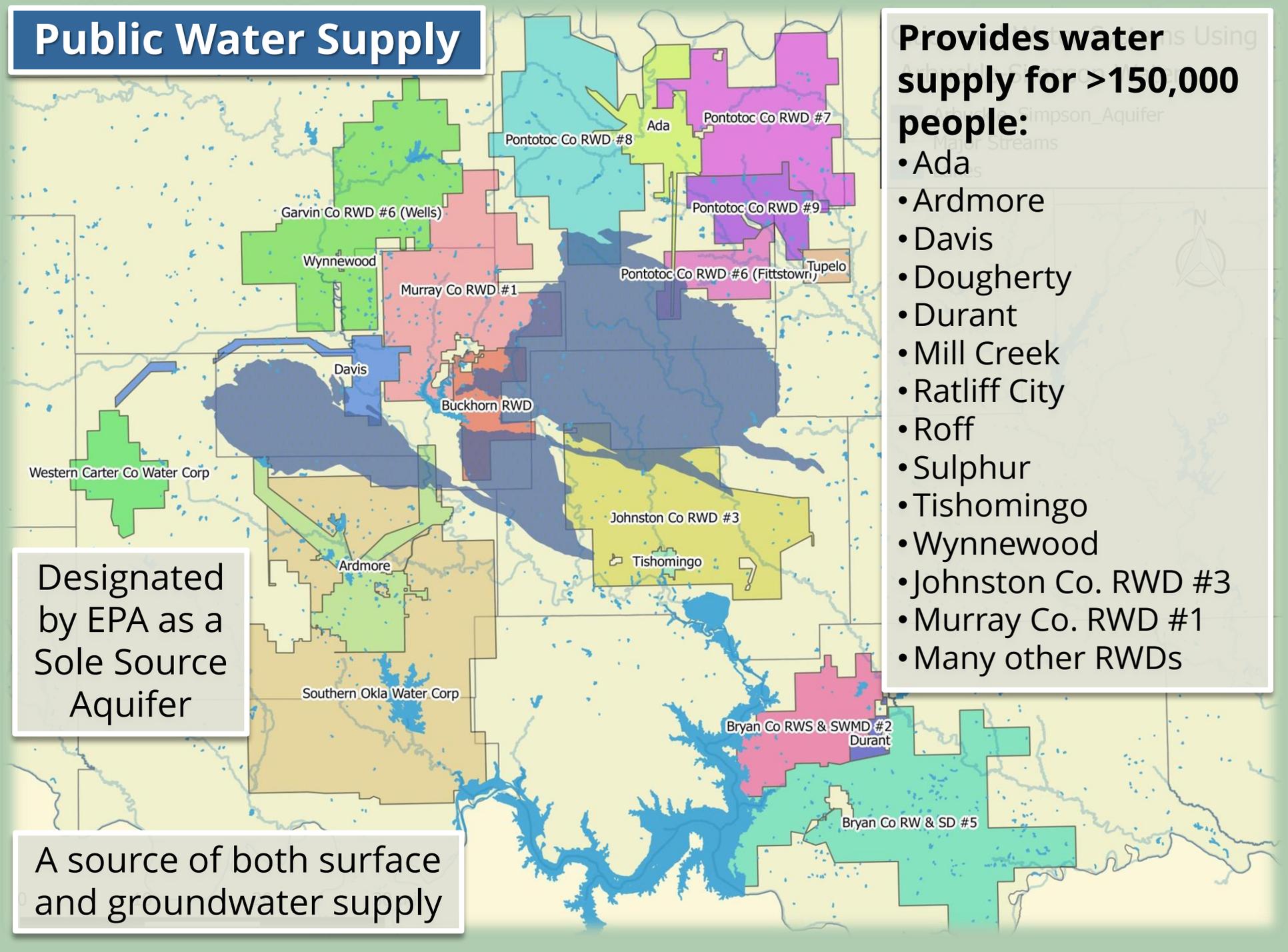
Public Water Supply

Provides water supply for >150,000 people:

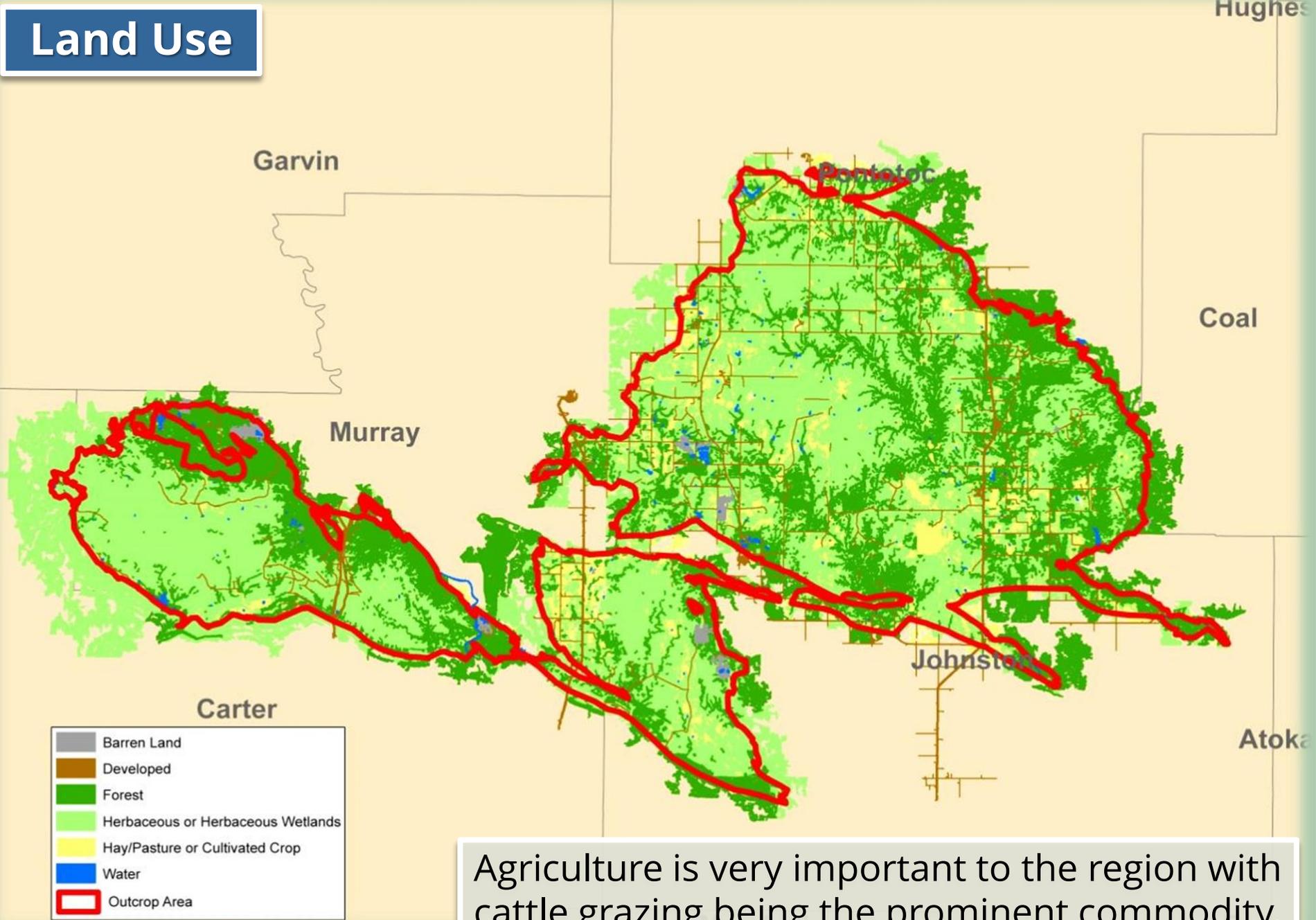
- Ada
- Ardmore
- Davis
- Dougherty
- Durant
- Mill Creek
- Ratliff City
- Roff
- Sulphur
- Tishomingo
- Wynnewood
- Johnston Co. RWD #3
- Murray Co. RWD #1
- Many other RWDs

Designated by EPA as a Sole Source Aquifer

A source of both surface and groundwater supply



Land Use



Agriculture is very important to the region with cattle grazing being the prominent commodity.

Recreation Areas, Parks & WMAs

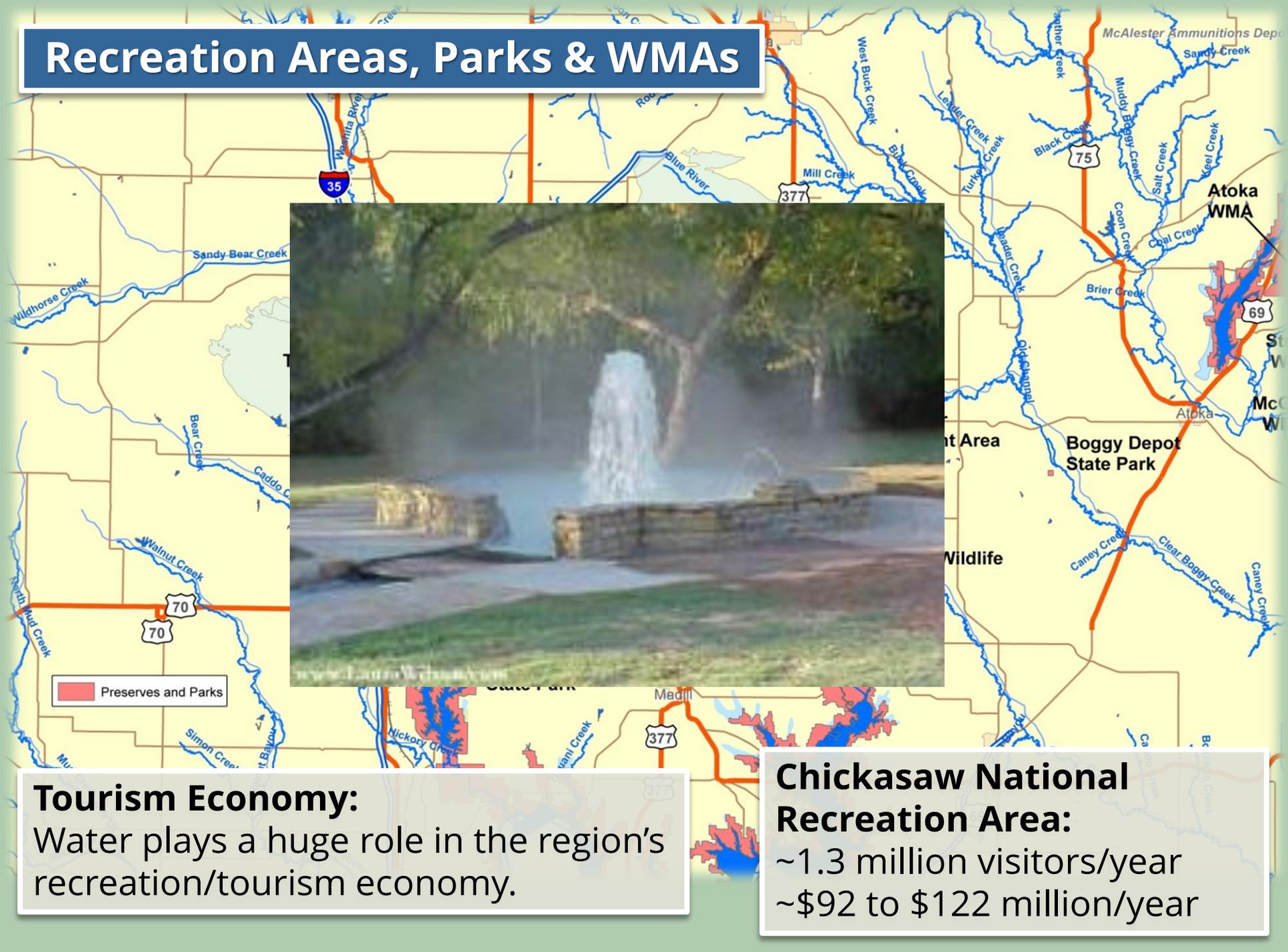


Tourism Economy:

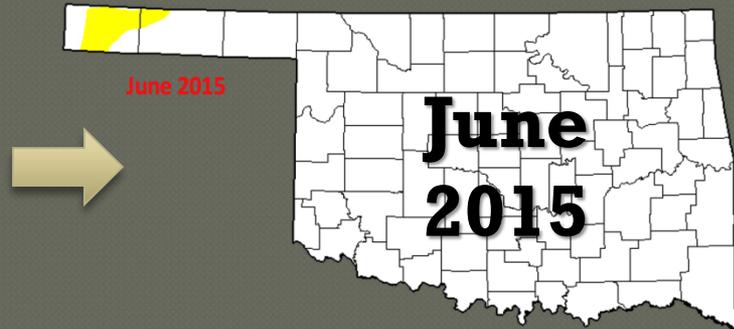
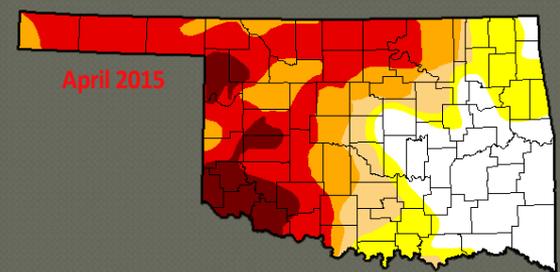
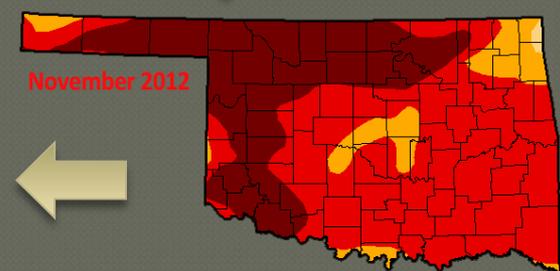
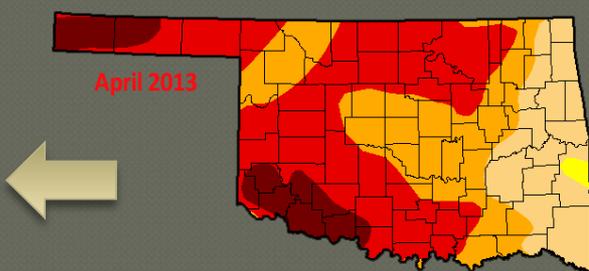
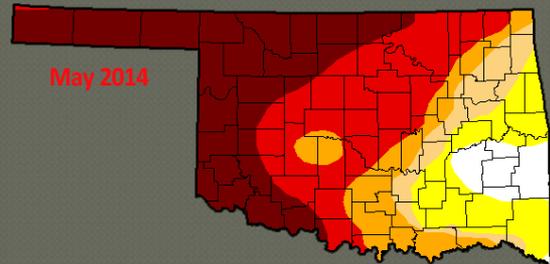
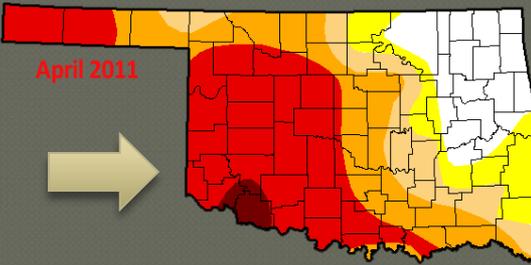
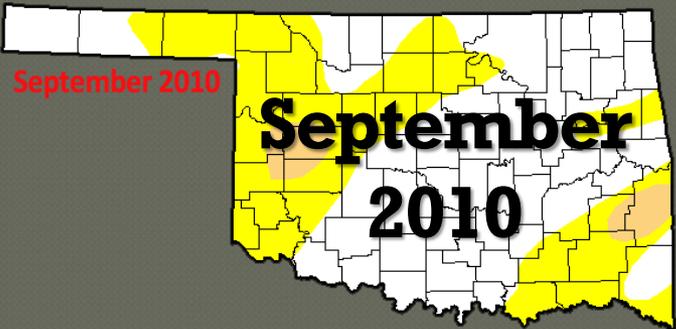
Water plays a huge role in the region's recreation/tourism economy.

Chickasaw National Recreation Area:

~1.3 million visitors/year
~\$92 to \$122 million/year



Oklahoma Drought (2010-15)



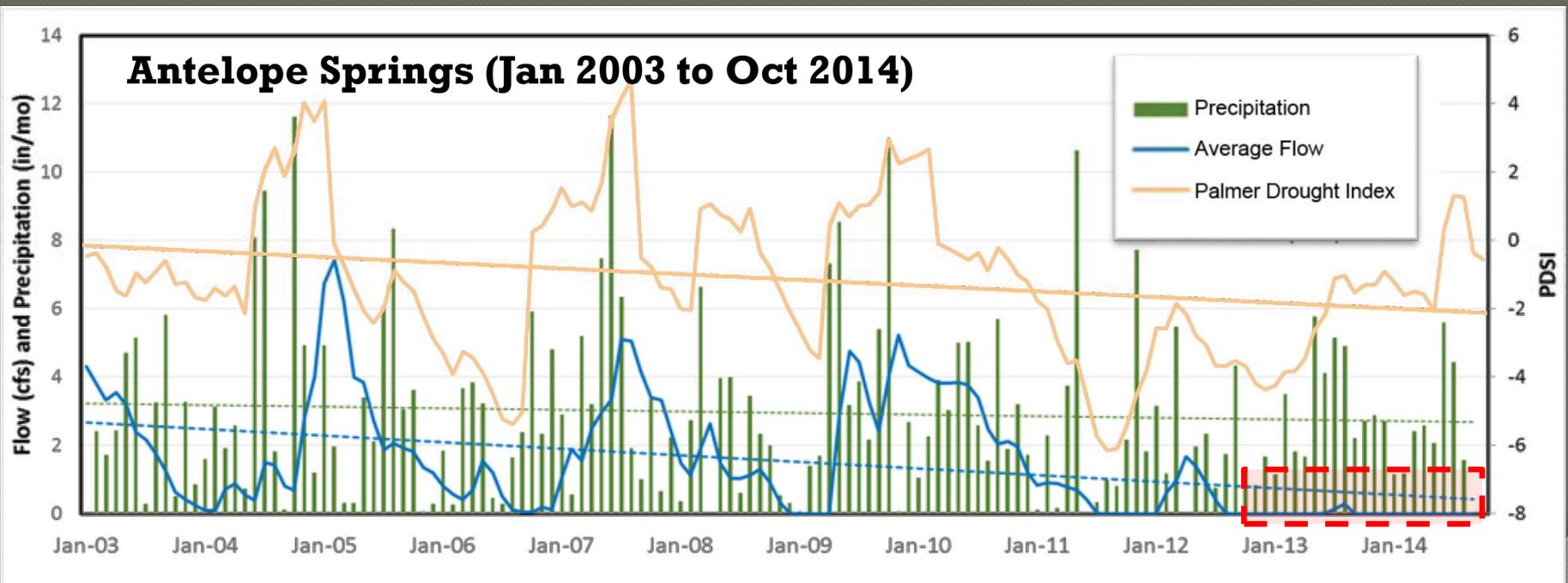
U.S. Drought Monitor



Oklahoma Drought (2010-15)

Impacts in the Arbuckle-Simpson Region

- Chickasaw National Recreation Area:
 - Antelope Springs [flows into Travertine Creek] stopped flowing from mid-2012 to May 2015 (Severe/Extreme Drought); swimming areas closed



Protecting the Arbuckle-Simpson Aquifer

SB 288:

- New state regulation reduces Arbuckle-Simpson allocations by 90 percent
- Improves aquifer's long-term sustainability, but also compels many water providers to secure additional land and water rights to maintain existing supply

Arbuckle-Simpson Aquifer Drought Contingency Plan



The ASA region requires a plan to mitigate future drought events and identify strategies that will enhance water supply reliability and protect other interests dependent upon the aquifer.

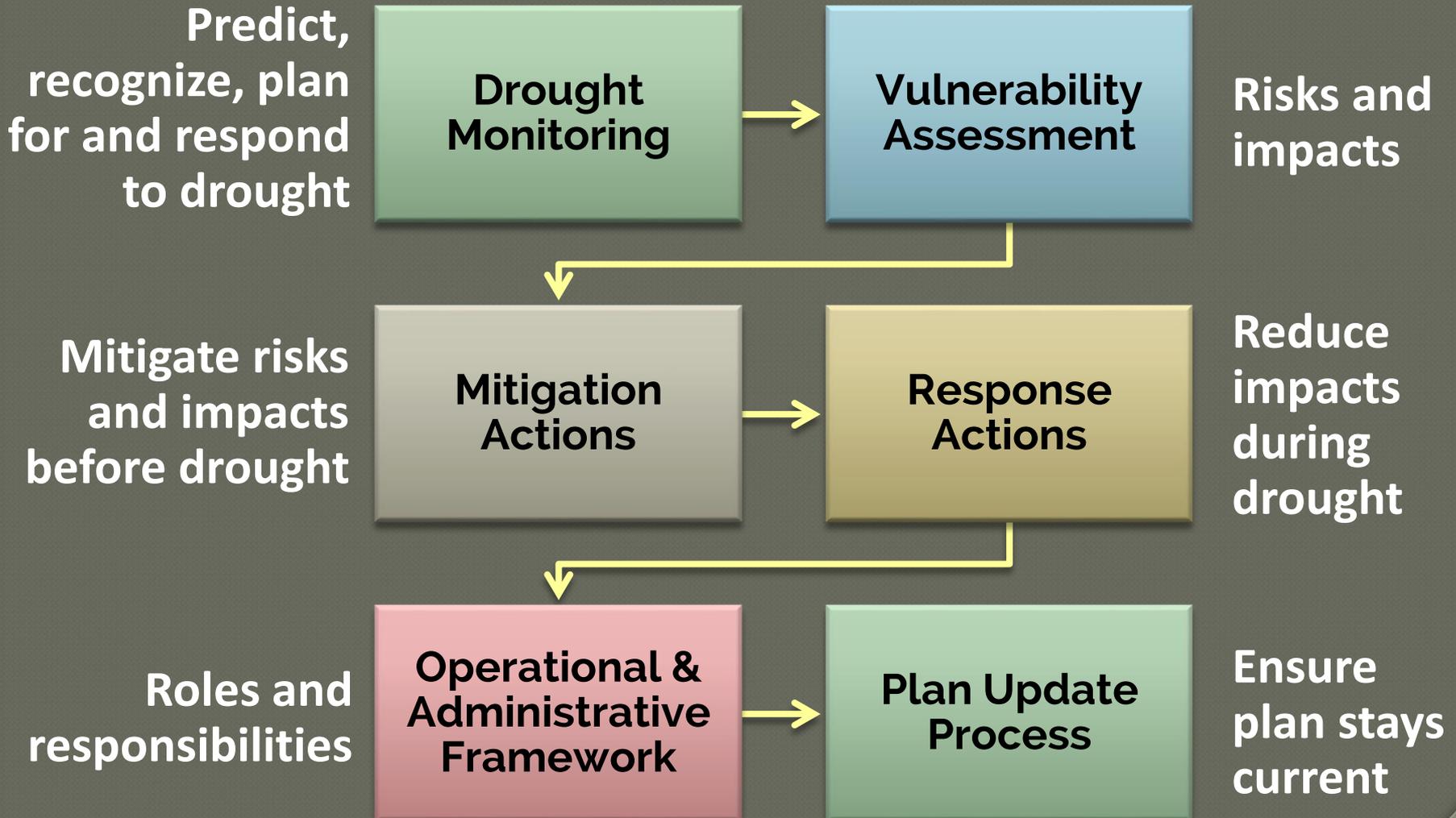
ASA Regional Drought Contingency Plan Funding & Support



- USBR & the Choctaw and Chickasaw Nations (\$400k)
- Financial/technical assistance for water management entities to develop plans to mitigate future drought episodes

Choctaw & Chickasaw
REGIONAL WATER PLANNING TEAM

Drought Contingency Plan: Components



Workplan Task: Assemble Arbuckle-Simpson Aquifer Stakeholders

City of Ada

Town of Roff

**City of
Sulphur**

**Murray
County RWD
#1**

**Town of Mill
Creek**

**Johnston
County
RWD#3**

**City of
Tishomingo**

**City of
Durant**

**Choctaw
Nation**

**Chickasaw
Nation**

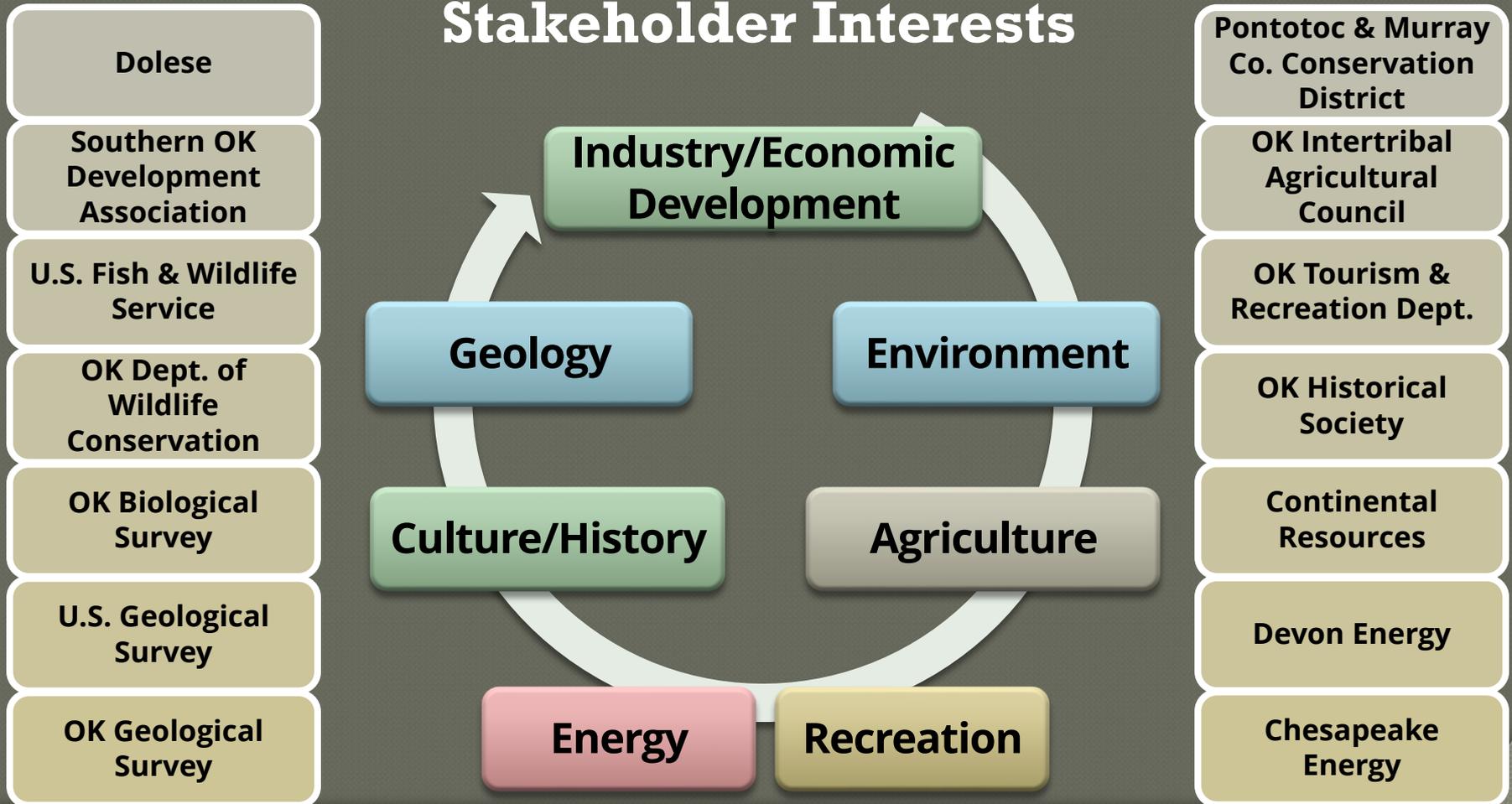
**Arbuckle Master
Conservancy
District**

Advisors:

- Bureau of Reclamation
- OWRB
- National Park Service
- ODEQ
- Rural Development
- Nature Conservancy
- SC Climate Science Center
- Southern Climate Impacts Planning Program

Workplan Task: Assemble Arbuckle-Simpson Aquifer DCP Task Force

Stakeholder Interests



ASA DCP Task Force Responsibilities

1. Provide input:

- Workplan
- Mitigation/Response strategies

2. Contribute information:

- Supply/Demand
- Infrastructure

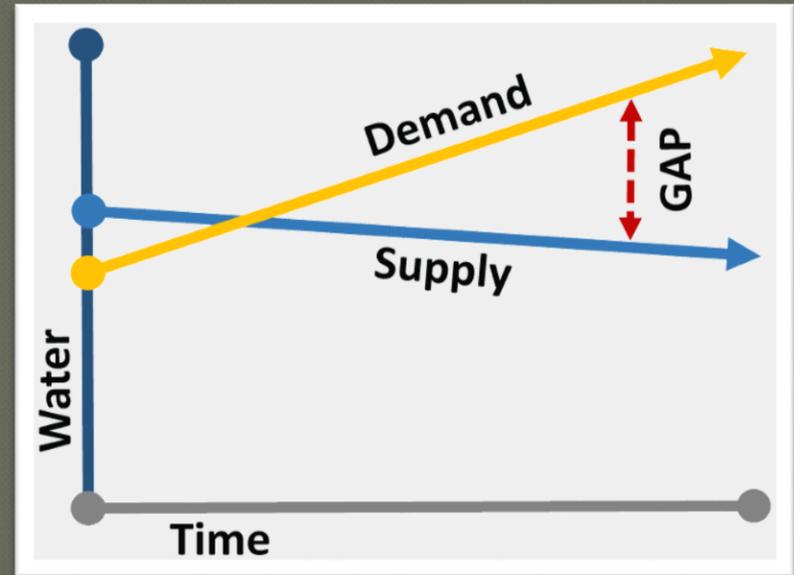
3. Ensure implementation:

- Permanent organization
- Meet regularly now and into the future

*An Active Role in
the Planning &
Implementation
Process*

Gather Data

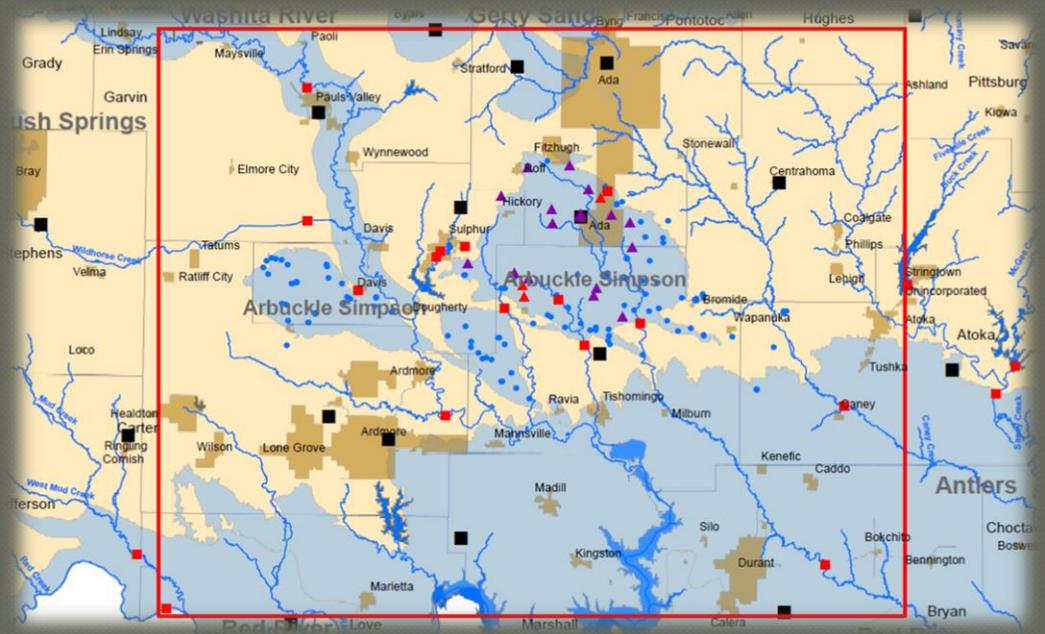
- Existing water supplies
- Infrastructure
- Water demand
- Conservation activities
- Water monitoring
- Existing studies
- Regulatory...



Leverage data and studies associated with development of the Choctaw-Chickasaw Regional Water Plan.

Identify Drought Monitoring Network

- Current SW/GW monitoring and climate sites
- Needs for additional monitoring points & infrastructure.
- Options for monitoring real-time drought trends



Assess Vulnerabilities

Workshops!



Vulnerabilities

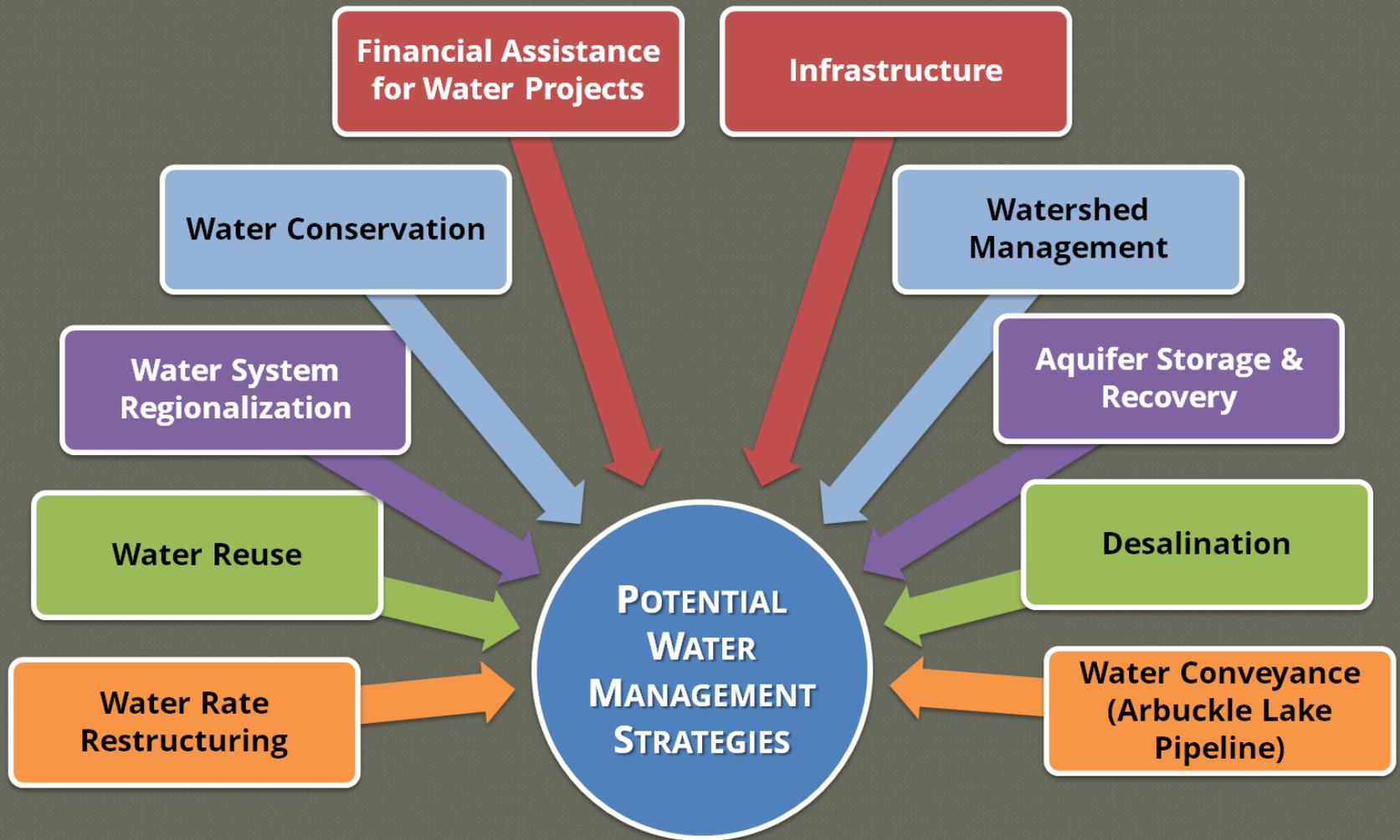
Drinking Water Supply Shortages

Water Quality Concerns

Economic Impacts to Agriculture & Recreation/Tourism Industries

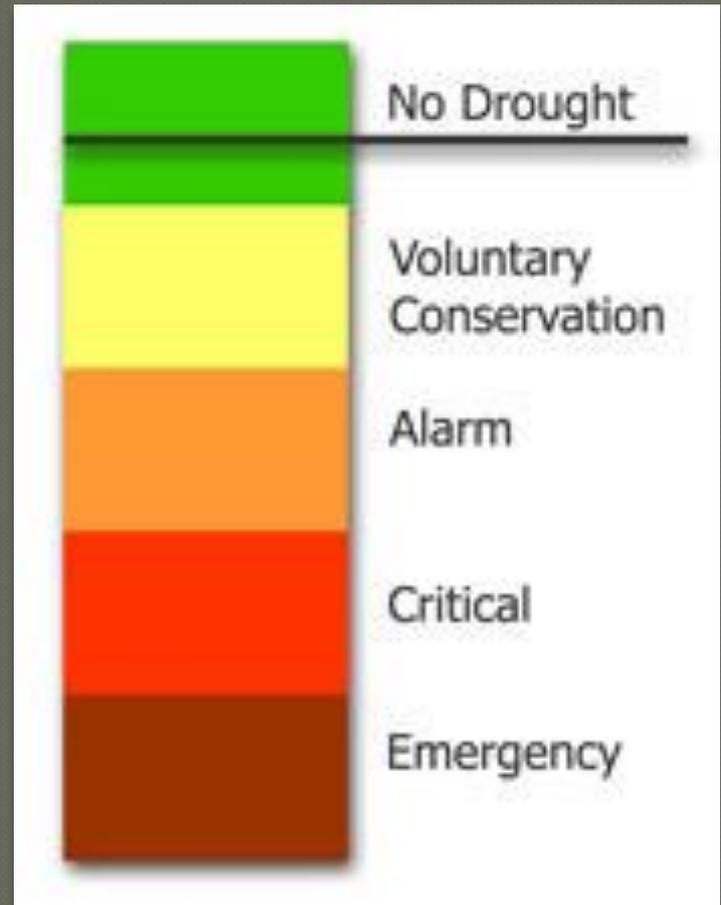
Environmental Issues

Develop Mitigation Actions



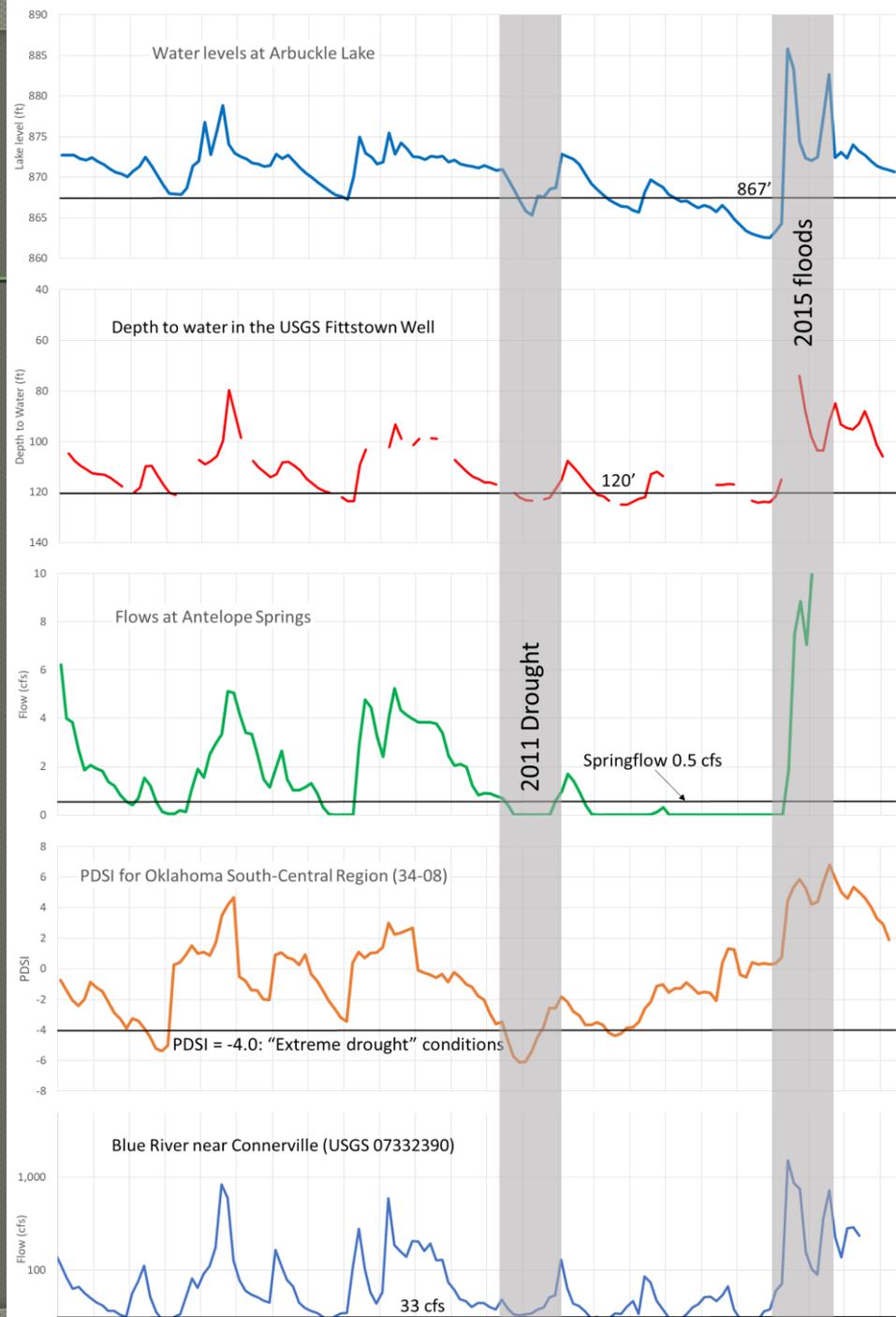
Identify Response Actions

- Appropriate triggers and other actions to reduce drought impacts
- Specific for each community/provider



Drought Triggers

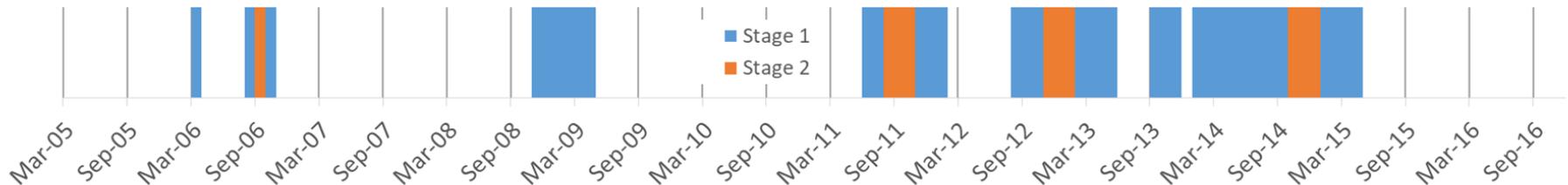
- Arbuckle Lake < 867'
- Fittstown < 120'
- Antelope Springs < 0.5 cfs
- Blue River Connerville < 33 cfs
- PDSI Climate Region 8 < -4.0



Triggering of Drought Stages

Stage 1 – Any of these thresholds reached

Stage 2 – Any 4 of these thresholds reached



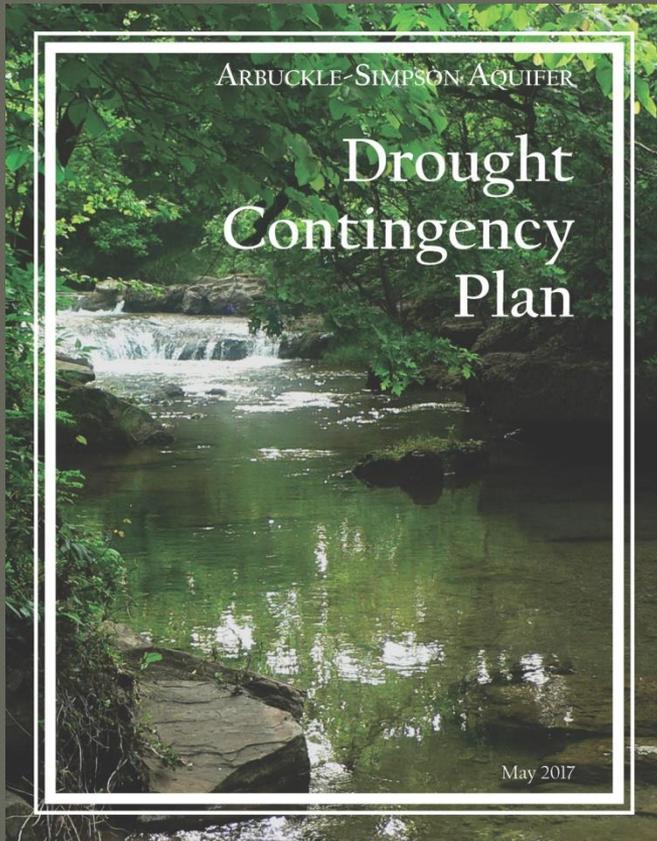
Implementation of Proposed Drought Stages Based on Historical Data

Specific Response Actions

- Education/voluntary conservation
- Even/Odd watering
- Irrigation of public areas
- Limitations on car washes

- We are not regulatory!
- Lost revenue is an issue
- Implementation of Response Actions may be cheaper than developing new supplies

Final Plan: Contents



1. Executive Summary
2. Introduction
3. Drought Vulnerability Assessment [All Sectors]
4. Climate Variability Assessment
5. Drought Monitoring, Measures & Triggers
6. Implementation: Phased Drought Mitigation & Response Strategies