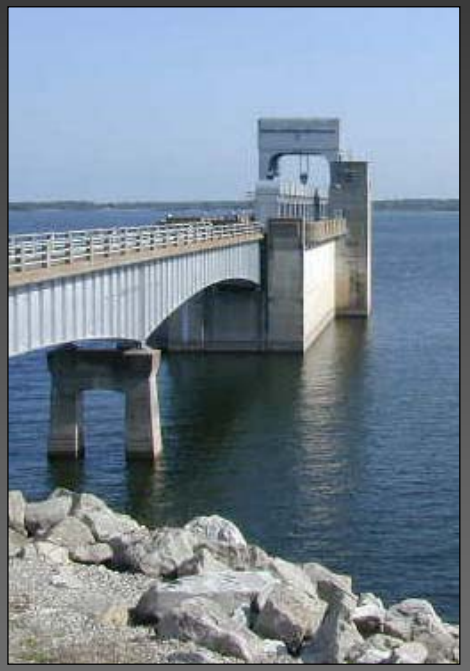
Update of the Oklahoma Comprehensive Water Plan

Duane Smith, Executive Director
Oklahoma Water Resources Board

The Oklahoma Comprehensive Water Plan

Meeting Oklahoma's future water challenges…



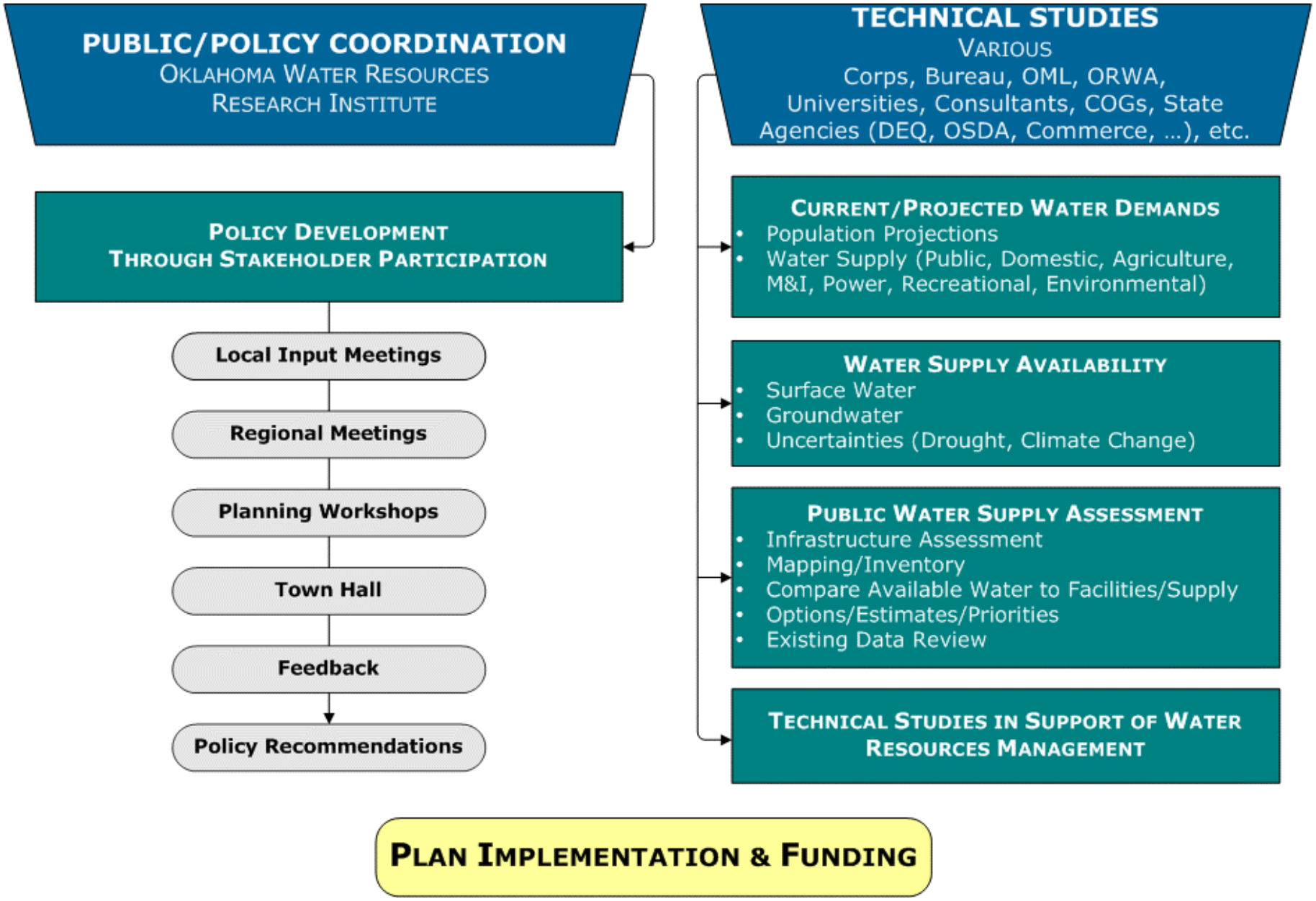
- Population growth
- Future water needs
- Competing water interests
- Vulnerability to drought/flooding
- Environmental protection
- Economic development

Water Plan Goals

- *Provide safe and dependable water supply for all Oklahomans while improving the economy and protecting the environment.*

- *Provide information so that water providers, policy-makers, and water users can make informed decisions concerning the use and management of Oklahoma's water resources.*

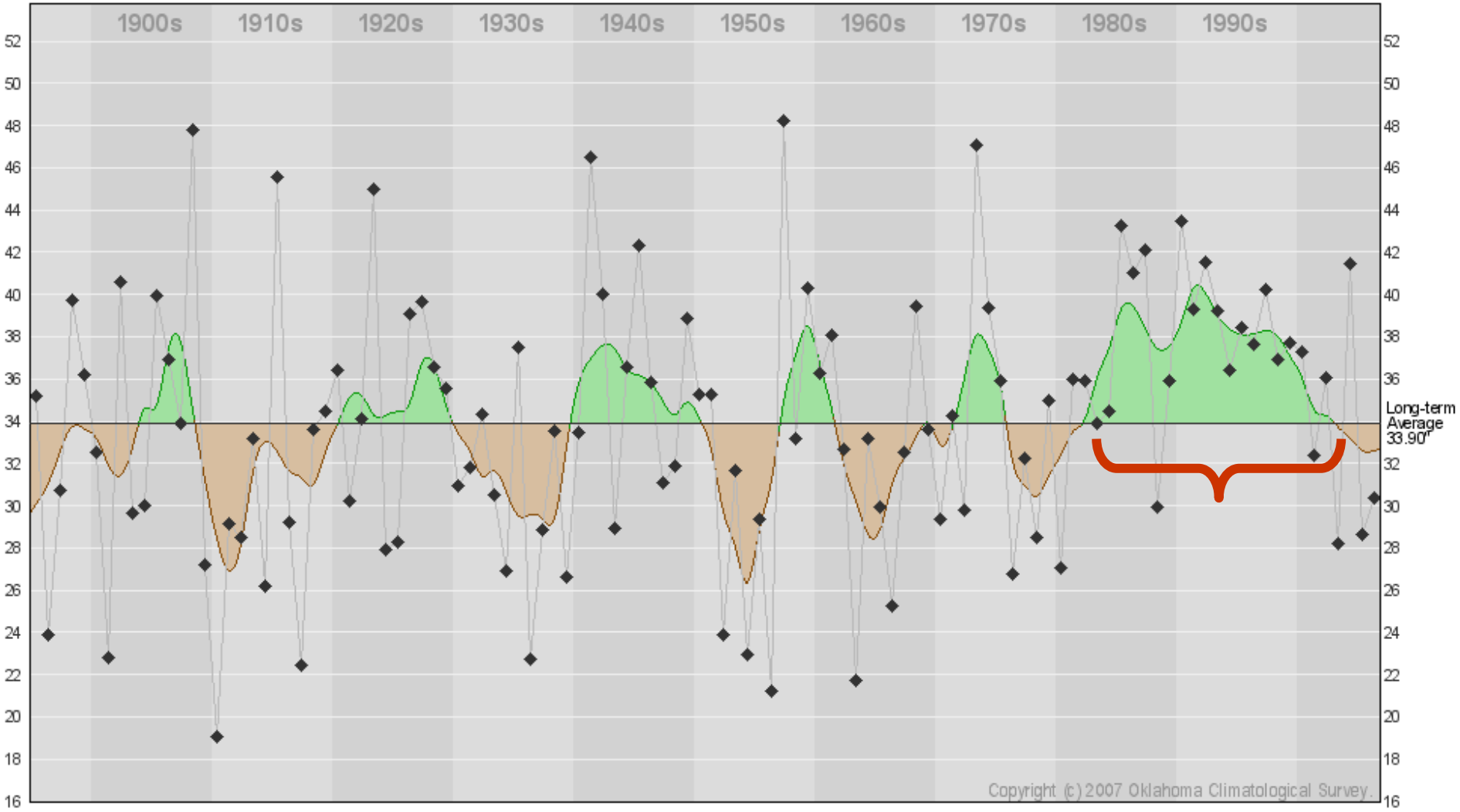
Oklahoma Comprehensive Water Plan
Process



OCWP Local Input Meetings

April—November 2007
42 meetings

Annual Trends in Statewide Averaged Rainfall (1895 Through 2006)



Annual Rainfall History with 5-yr Weighted Trends

Climate Division OK-ST (Oklahoma Statewide): 1895-2006

Wetter historical periods

Drier historical periods

Water Use Permitting in Oklahoma

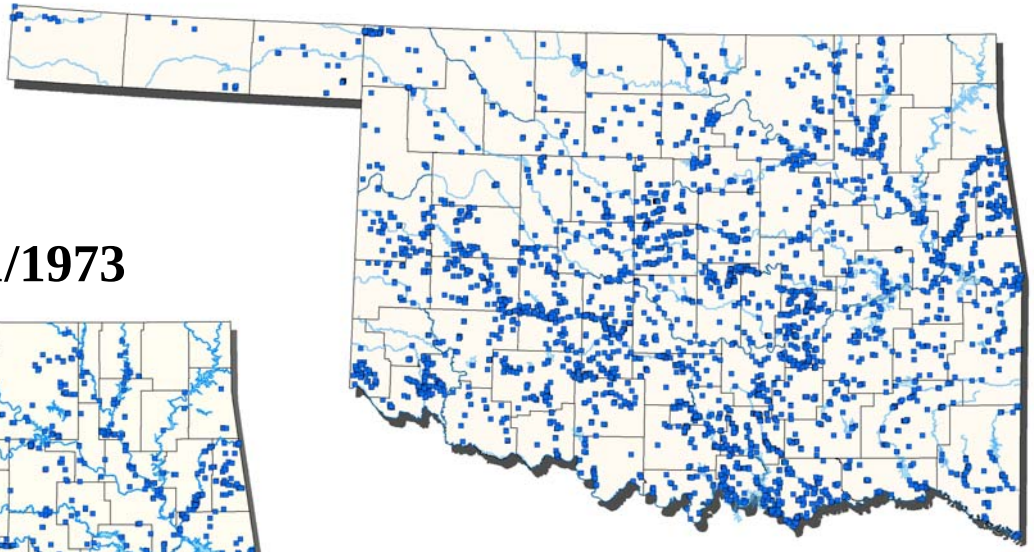
- Stream Water:
  - water in a “definite stream” (a watercourse in a definite, natural channel, with defined beds and banks, originating from a definite source or sources of supply);
  - may be intermittent or irregular flow
- Groundwater:
  - fresh water under the surface of the earth regardless of the geologic structure in which it is standing or moving outside the cut banks of any definite stream
- Domestic/household uses exempt
- <u>No priority of uses</u>.

Overview
Oklahoma Stream Water Law

- Stream water is considered to be publicly-owned and subject to appropriation by the OWRB:
  - water use permits approved by 9-member Water Board
- "First in time, first in right":
  - first person to apply for the water right establishes a right superior to later appropriators
- <u>"Beneficial use is basis and limit of the appropriation right"</u>

Permitted Surface Water Rights

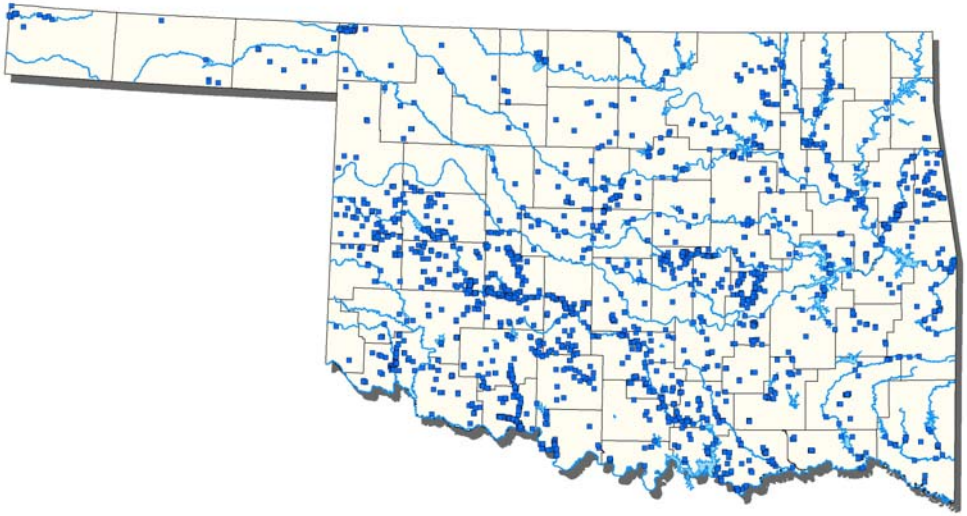
2007



2,680 - Active Surface Water Permits
2,748,342 - AF/Y Permitted Surface Water

Purpose	Total Amount (AF/YR)
Irrigation	424,020
Public Water	1,622,718
Other	701,604

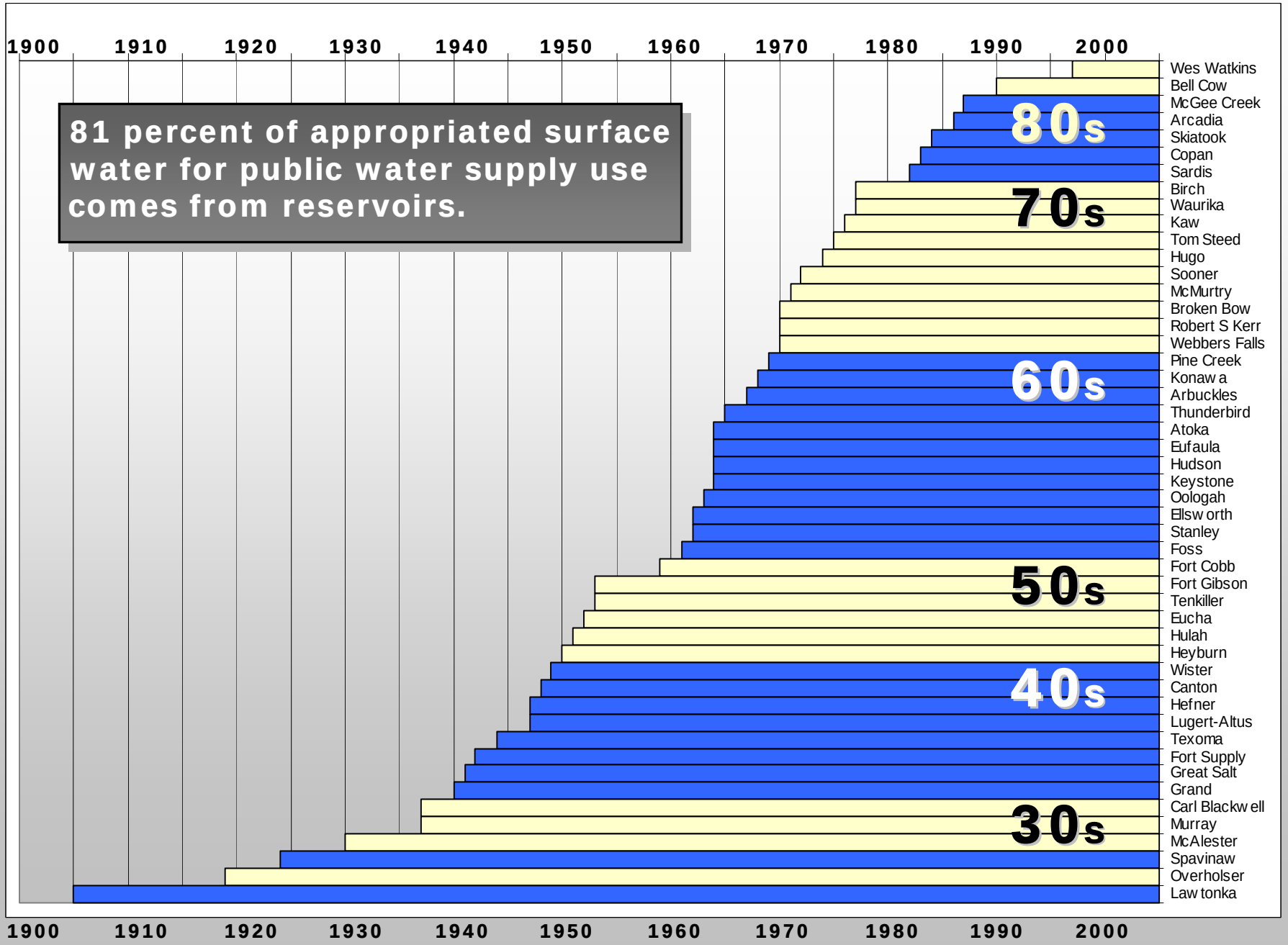
Prior to 07/01/1973



1,867 - Active Surface Water Permits
1,357,646 - AF/Y Permitted Surface Water

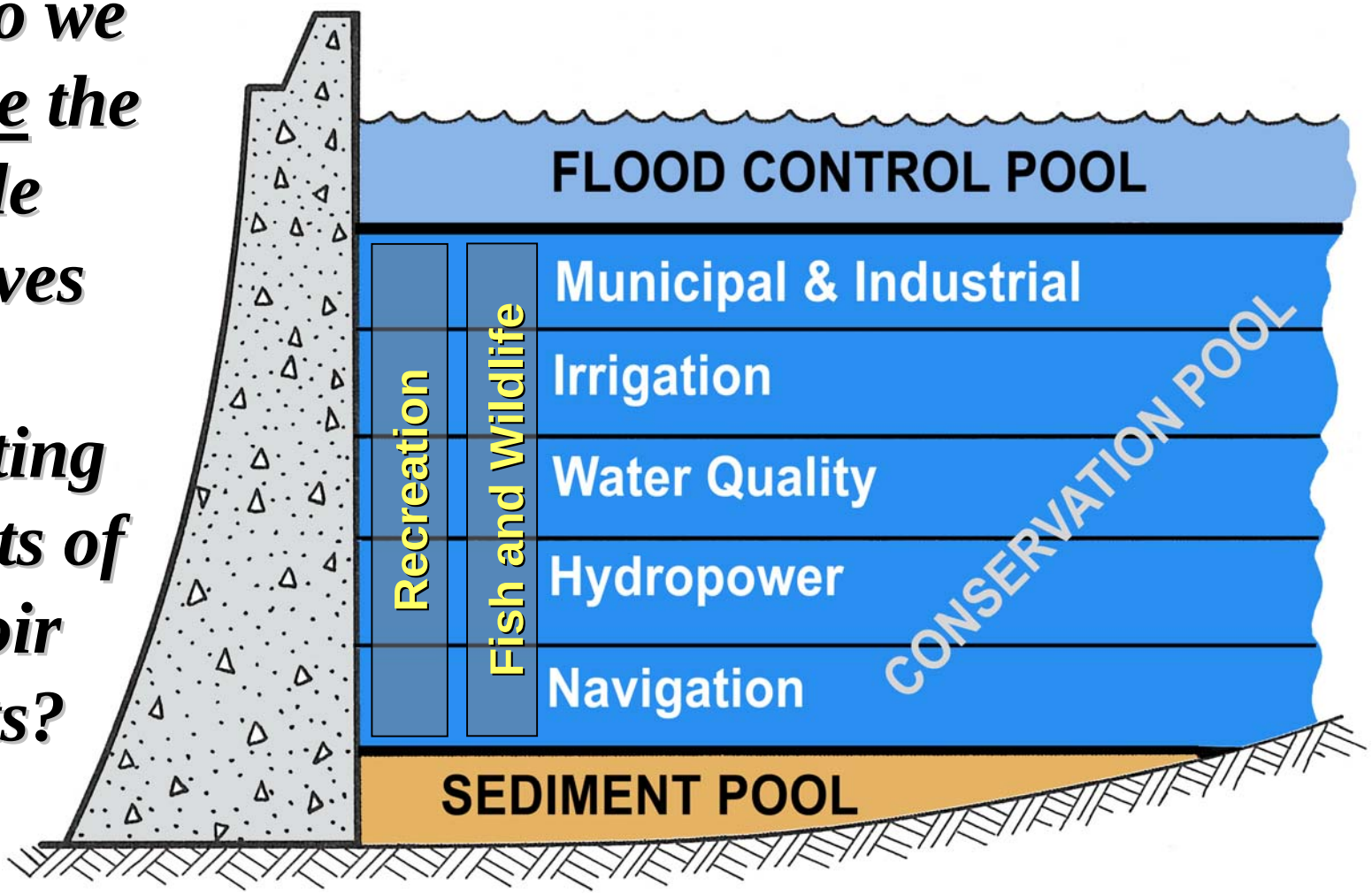
Purpose	Total Amount (AF/YR)
Irrigation	218,950
Public Water	825,916
Other	312,780

Oklahoma Water Development—Major Reservoirs



One Reservoir—Many Benefits

How do we <u>balance</u> the multiple objectives and competing interests of reservoir projects?



Stream Gage
CAVALRY
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20
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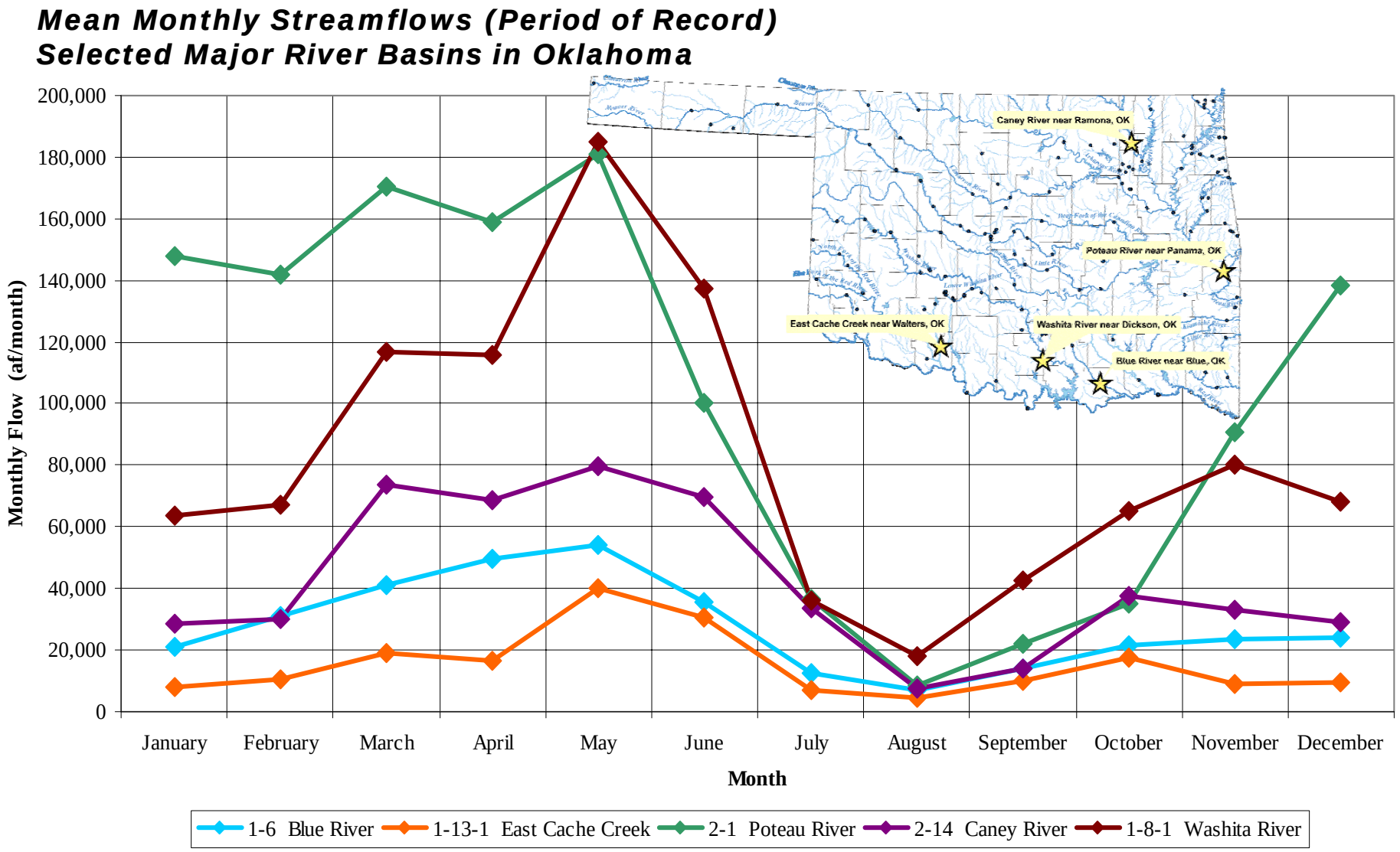
Water Use Management Issues

Seasonal Variations of Water Availability

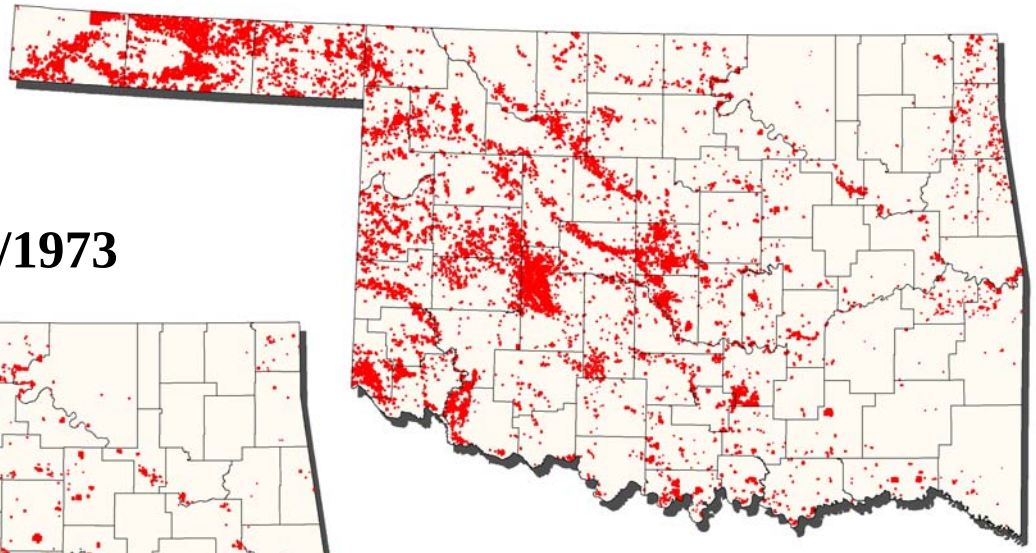


Overview
Oklahoma Groundwater Law (1972)

- Groundwater is considered private property that belongs to the overlying surface owner, although it is subject to reasonable regulation by the OWRB.
- The Oklahoma Groundwater Law is a utilization statute:
  - Promotes development and growth.

Permitted Groundwater Rights

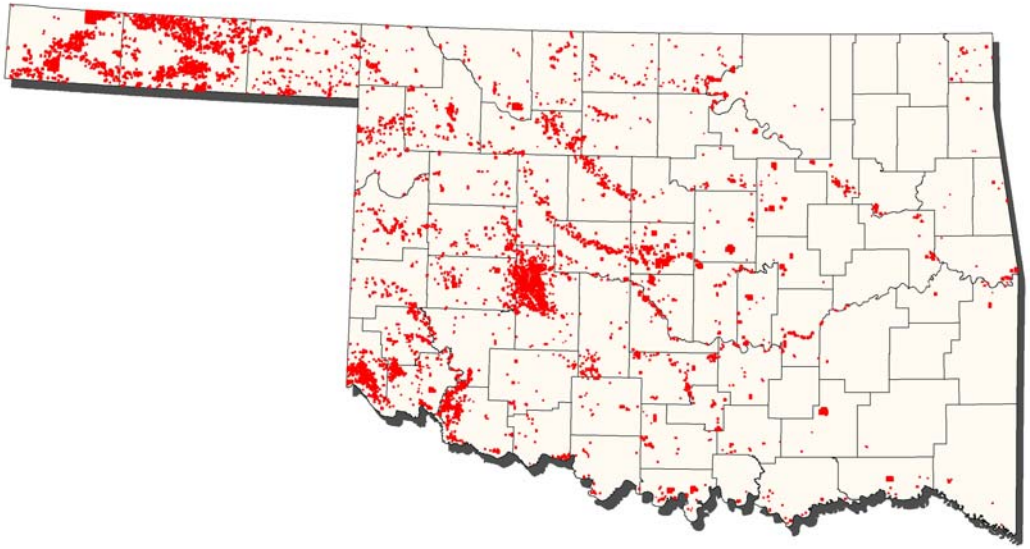
2007



10,462 - Active Groundwater Permits
3,428,115 - AF/Y Permitted Groundwater

Purpose	Total Amount (AF/YR)
Irrigation	2,515,562
Public Water	652,028
Other	260,985

Prior to 07/01/1973

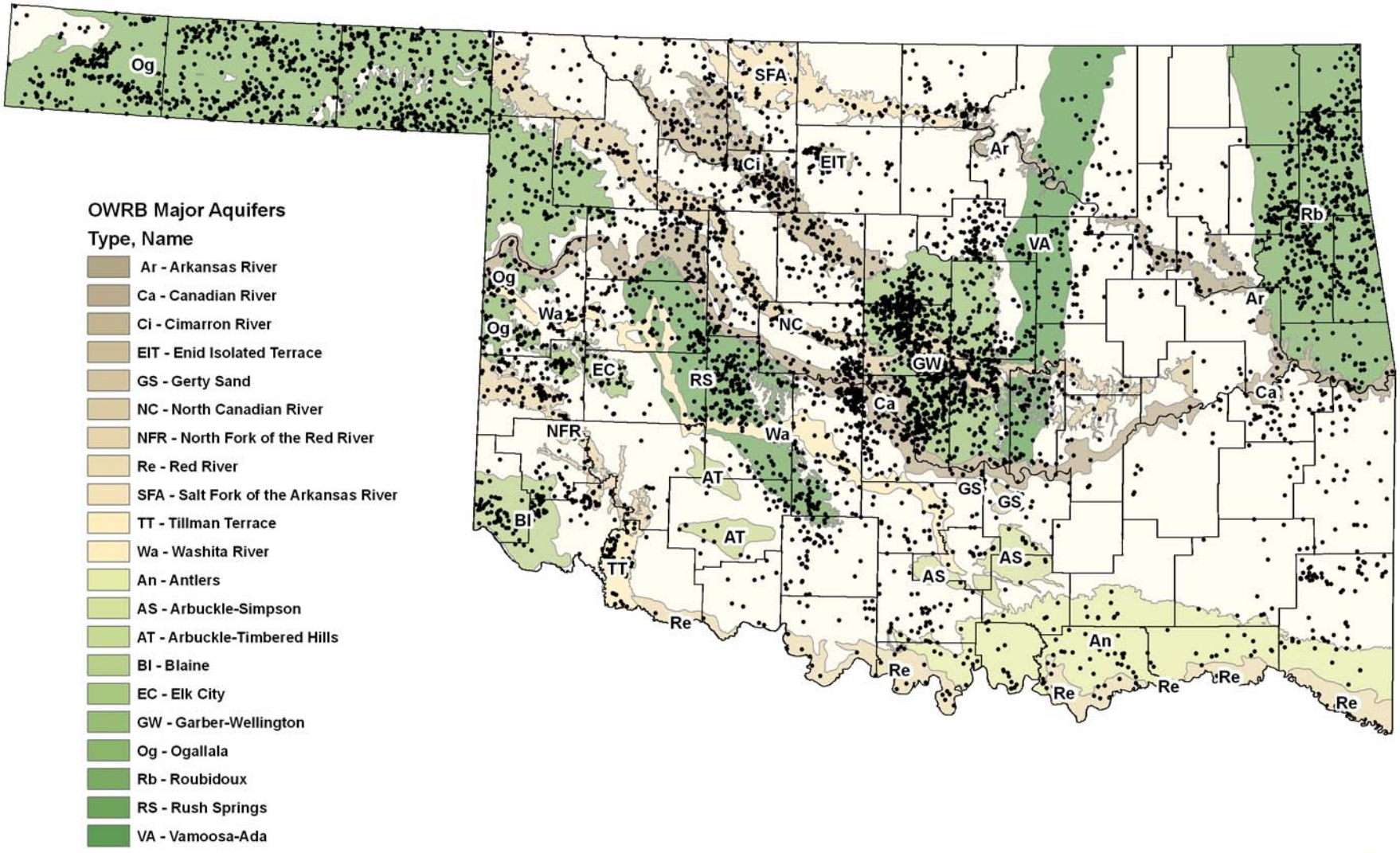


4,953 - Active Groundwater Permits
1,407,298 - AF/Y Permitted Groundwater

Purpose	Total Amount (AF/YR)
Irrigation	1,103,669
Public Water	204,371
Other	99,258

Locations of Reported Groundwater Wells

Prior to 1972 - (6,035 Wells)



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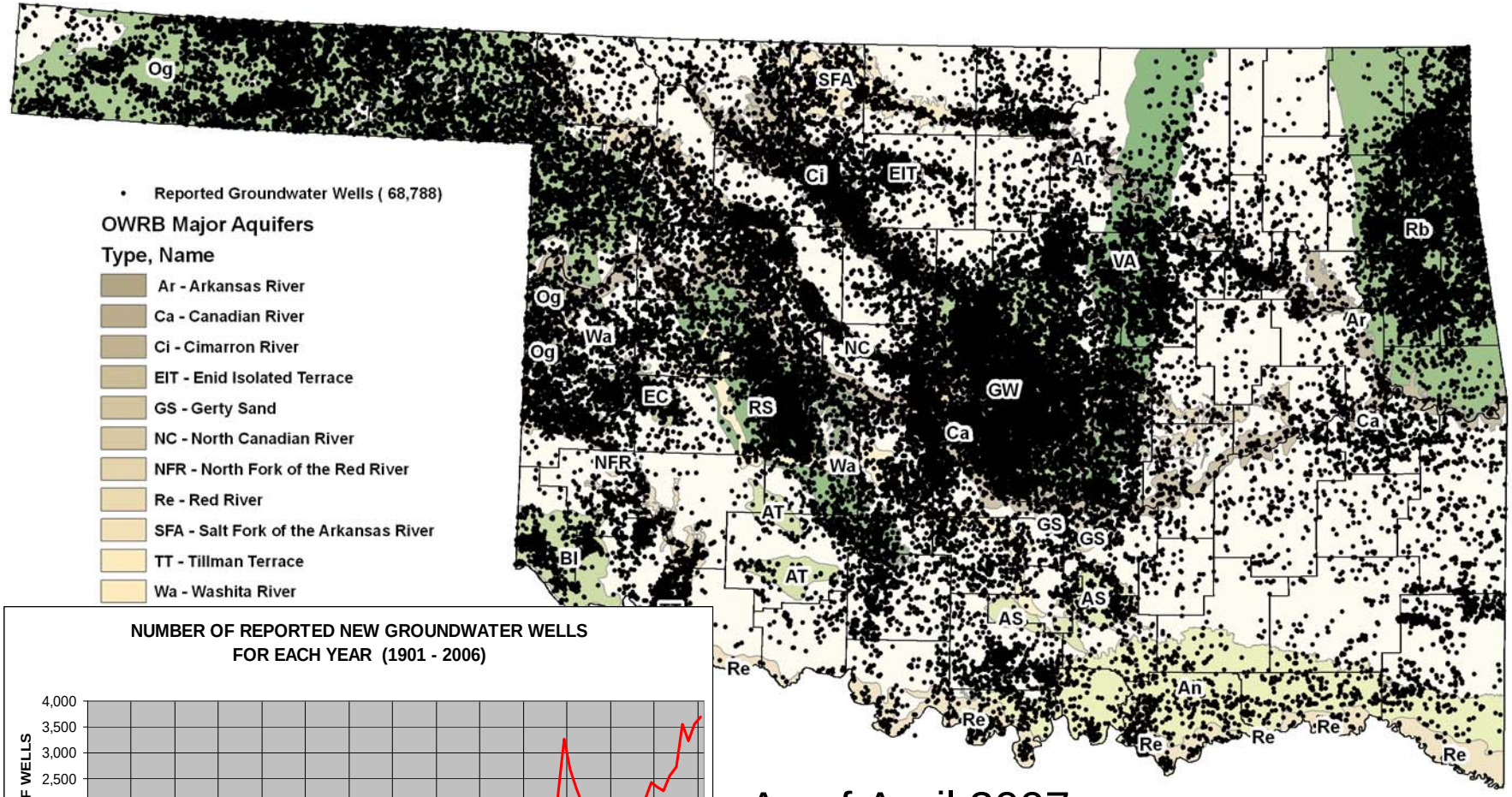
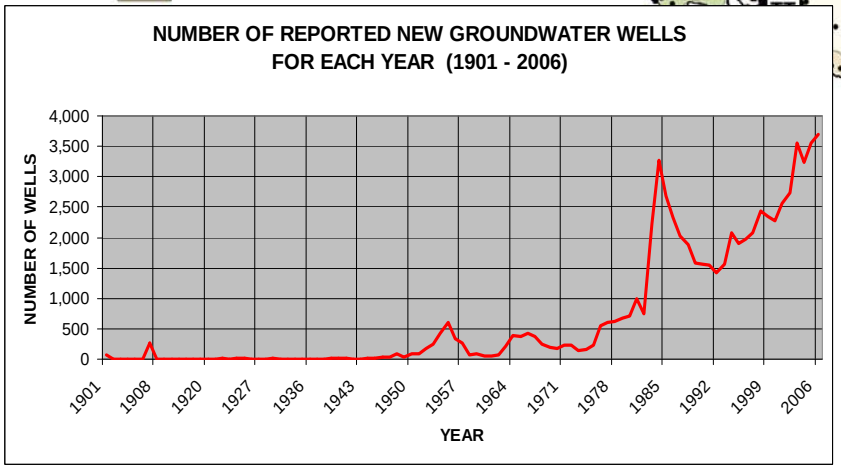
State of Oklahoma
OWRB
Water Resources Board
the water agency

Locations of Reported Groundwater Wells





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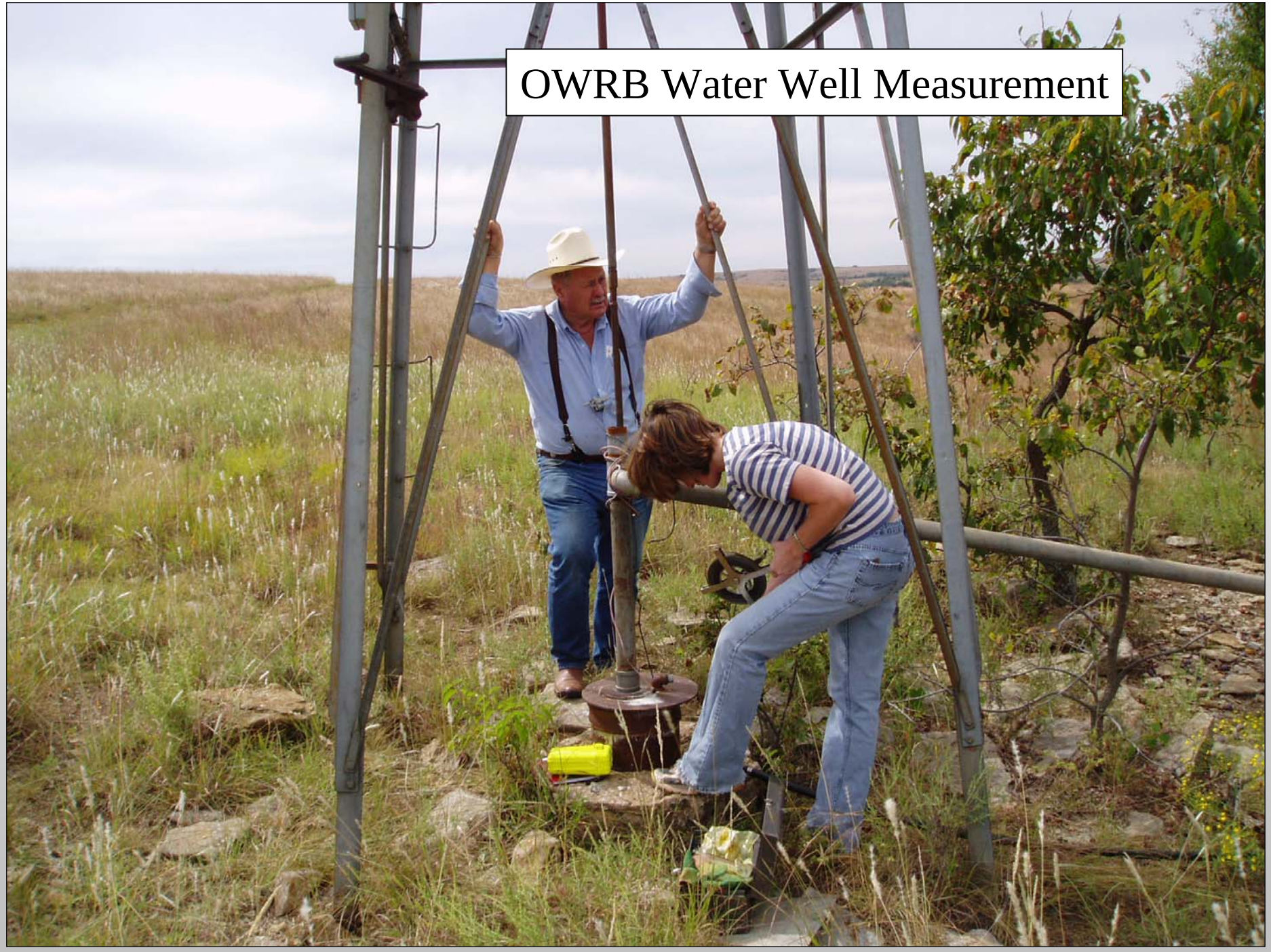
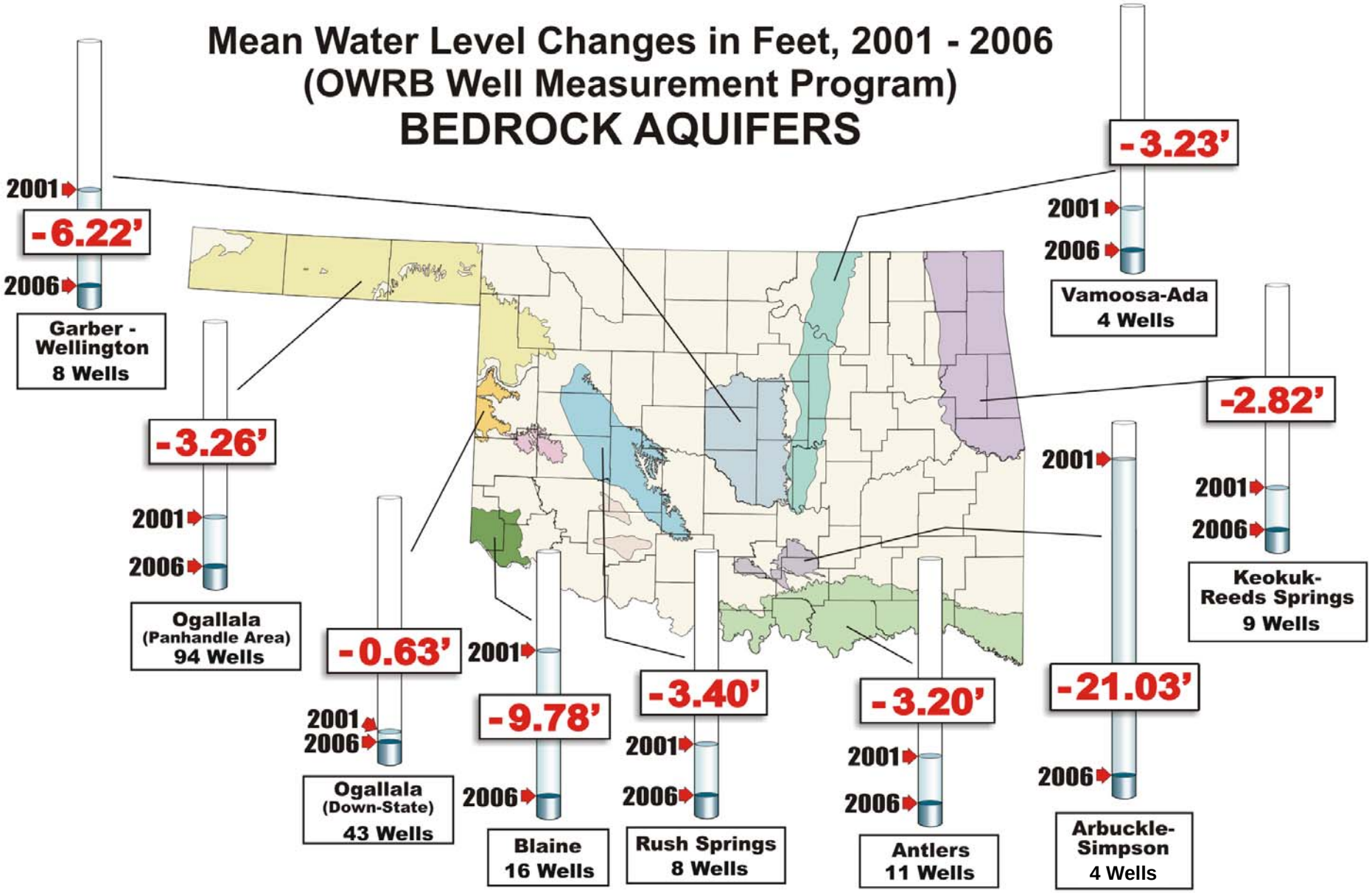
As of April 2007:

- 69,921 total wells (49,038 domestic)

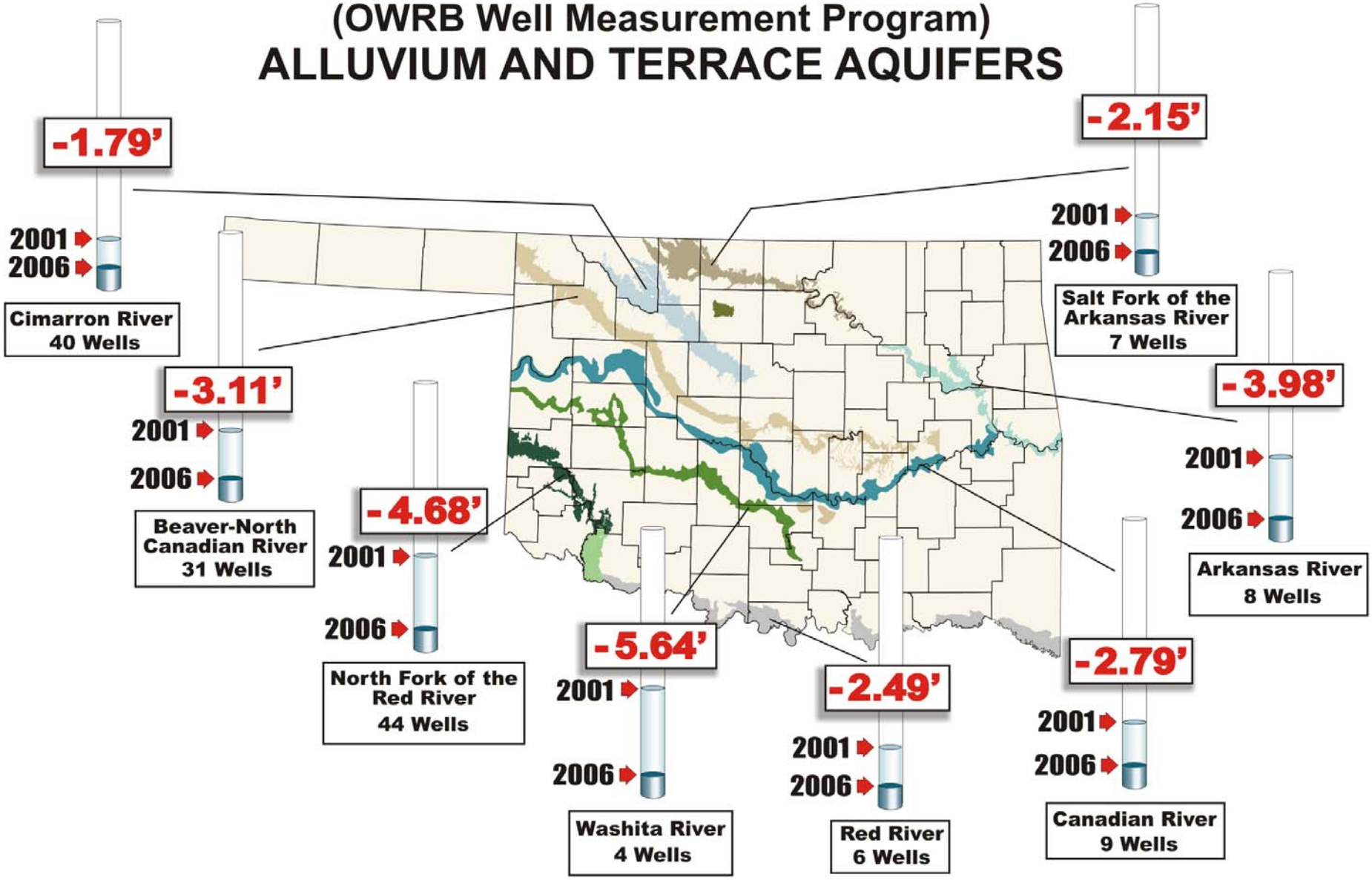
State of Oklahoma OWRB Water Resources Board the water agency


OWRB Water Well Measurement

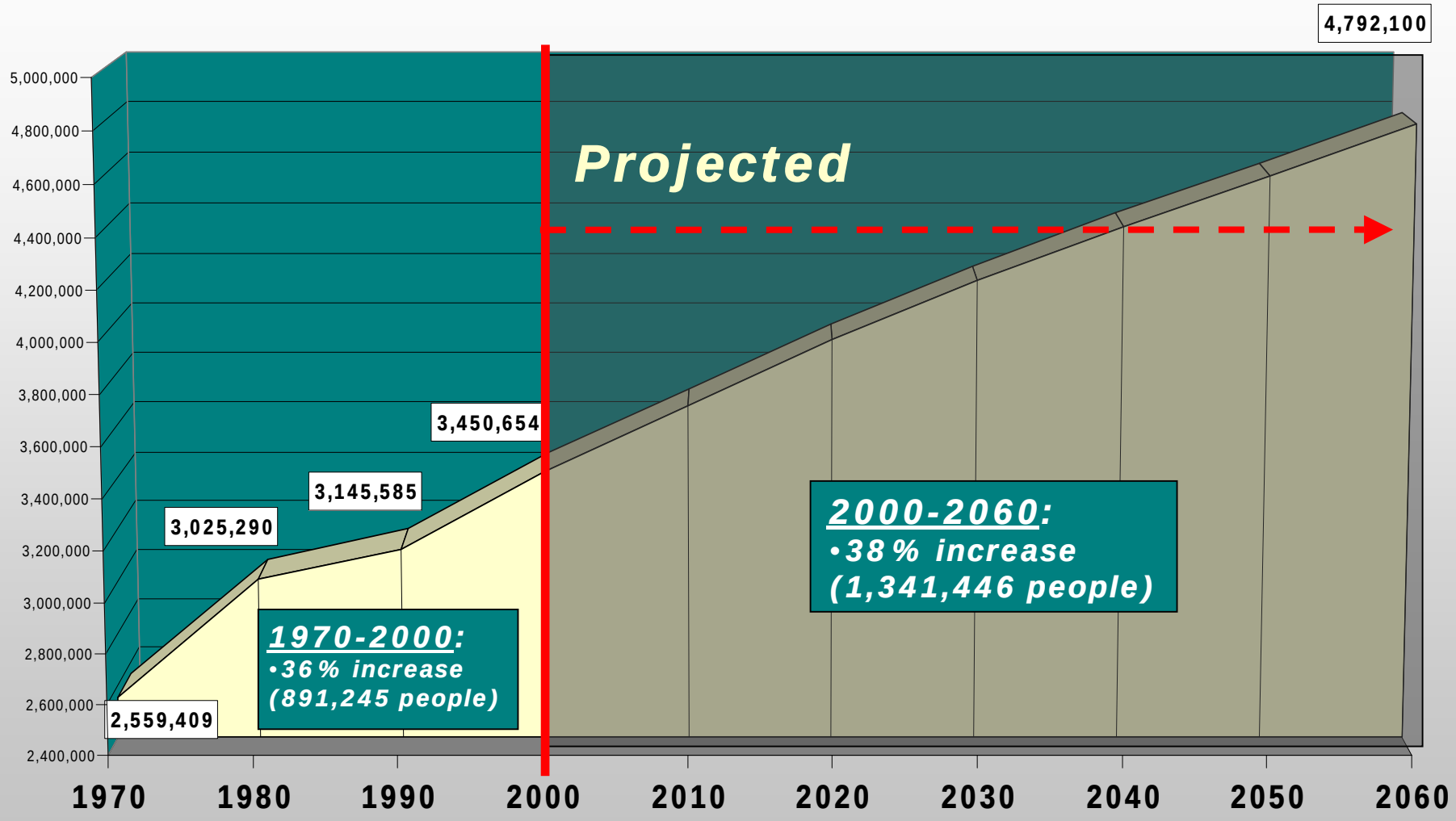
Mean Water Level Changes in Feet, 2001 - 2006
(OWRB Well Measurement Program)
BEDROCK AQUIFERS



Mean Water Level Changes in Feet, 2001 - 2006
(OWRB Well Measurement Program)
ALLUVIUM AND TERRACE AQUIFERS

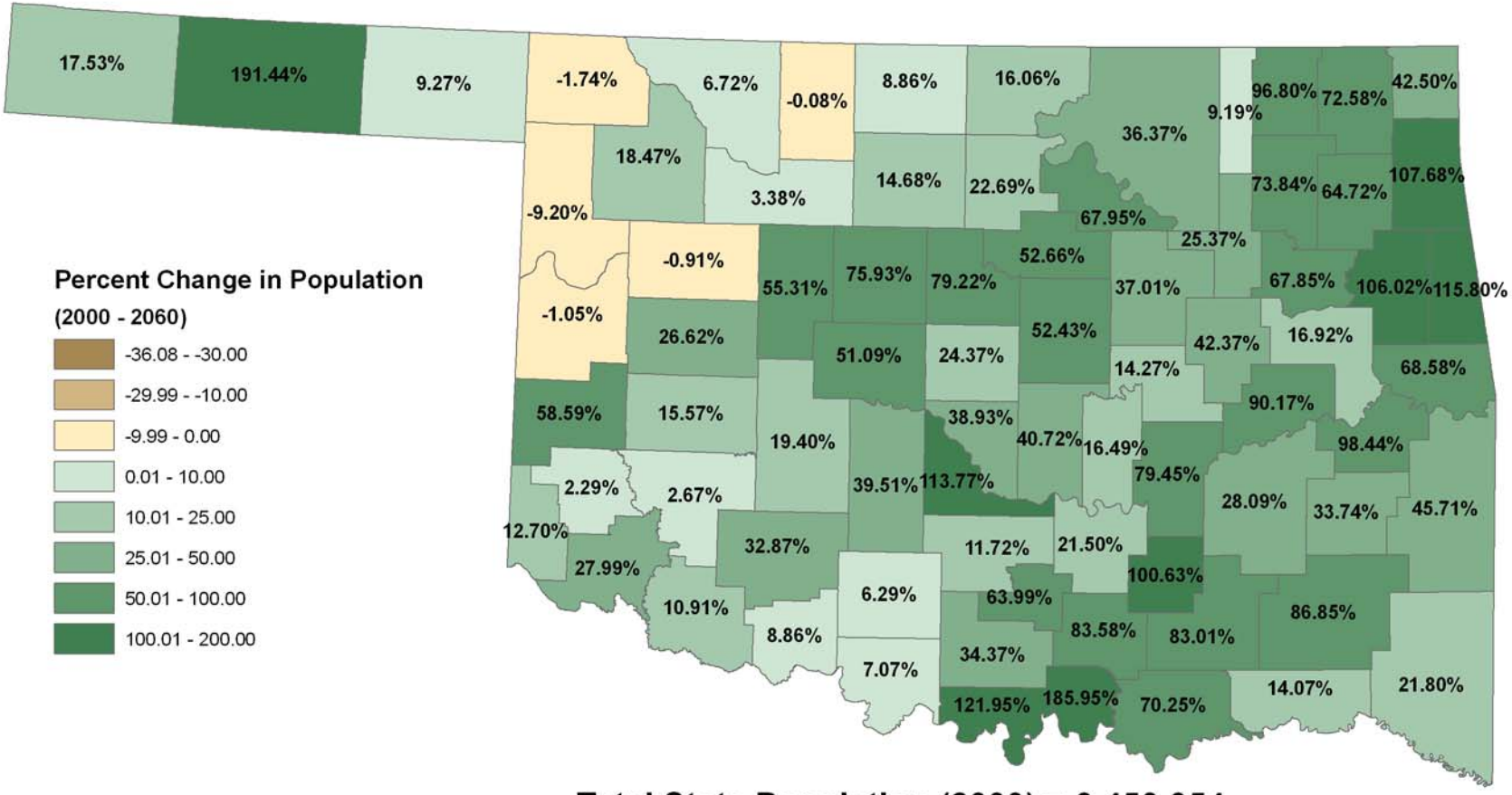


Oklahoma Population
1970-2060



Source: Oklahoma Department of Commerce

Percent Change in County Population (2000 - 2060)



Total State Population (2000) = 3,450,654

Total State Population (2060) = 4,792,000

Percent Change in State Population (2000 - 2060) = 38.9%

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Evaluation of Water Supply Alternatives & Solutions

-785 Public Community Water Systems that Supply 94% of the State's Population

Public Community Systems				
Population Served	3,357,057			
Population Ranges	# Systems	Population	% of Total	
0 - 99	29	1,507	0.04	
100 - 199	63	9,128	0.27	**412 Systems = 5%**
200 - 499	169	57,215	1.70	
500 - 999	151	105,819	3.15	
1,000 - 9,999	327	900,483	26.82	**327 Systems = 27%**
10,000 - 49,999	37	739,238	22.02	**46 Systems = 68%**
>= 50,000	9	1,543,667	45.98	
Totals	785	3,357,057	100	

Oklahoma Comprehensive Water Plan
Current/Future Issues

- Oklahoma Water Law & Water Rights Administration
- Conjunctive Use of Groundwater and Stream Water
- Protection of Instream Flows
- Optimization of Reservoir Operations
- Threatened/Endangered Species
- Utilization of Scientific/Technical Resources to Enhance Water Management:
  - Data Collection/Management
  - Modeling

State of Oklahoma

OWRB

WATER RESOURCES BOARD

the water agency

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