

WATER RESILIENCY UNDER DROUGHT CONDITIONS

Financing and Development of Water Infrastructure Solutions



Joe Freeman, Chief

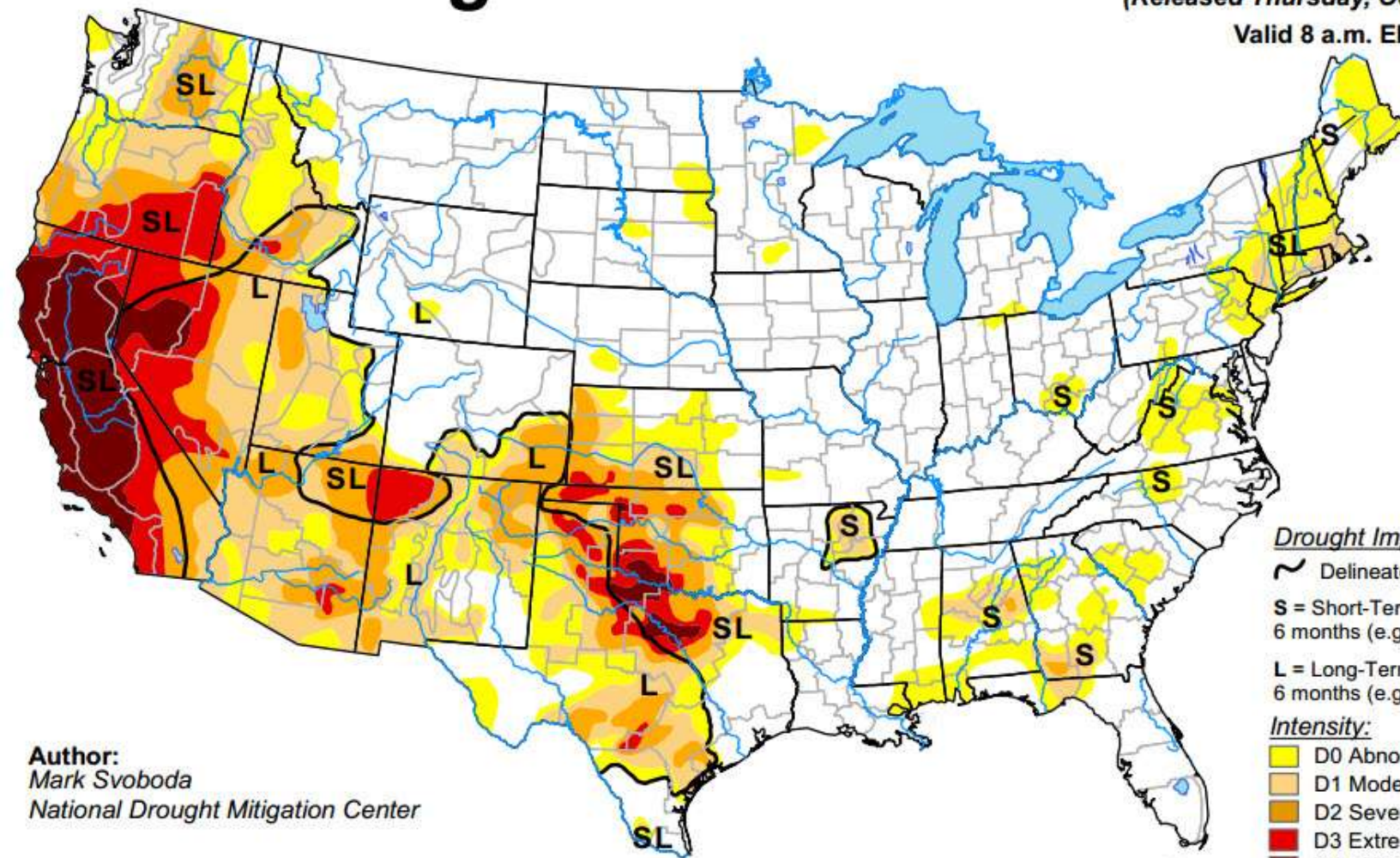
Financial Assistance Division
Oklahoma Water Resources Board

U.S. Drought Monitor

October 14, 2014

(Released Thursday, Oct. 16, 2014)

Valid 8 a.m. EDT



Author:
Mark Svoboda
National Drought Mitigation Center

Drought Impact Types:

~ Delineates dominant impacts

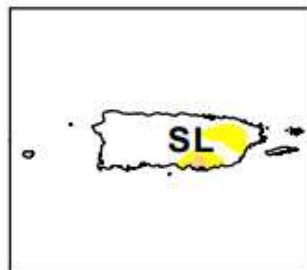
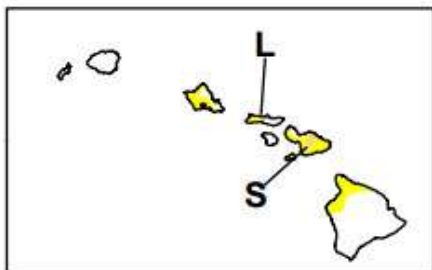
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl.edu/>

Top 10 U.S. Disasters*

(damage in billions)

1980-2013

1. Hurricane Katrina (2005) = \$148.8
- 2. Drought (1988) = \$ 78.8**
3. Hurricane Sandy (2012) = \$ 65.7
- 4. Drought (1980) = \$ 56.4**
5. Hurricane Andrew (1992) = \$ 44.8
6. Midwest Flooding (1993) = \$ 33.8
- 7. Drought (2012) = \$ 30.3**
8. Hurricane Ike (2008) = \$ 29.2
9. Hurricane Wilma (2005) = \$ 19.0
10. Hurricane Rita (2005) = \$ 19.0

*<http://www.ncdc.noaa.gov/billions>; cost adjusted to 2013 CPI

U.S. Drought Monitor Oklahoma

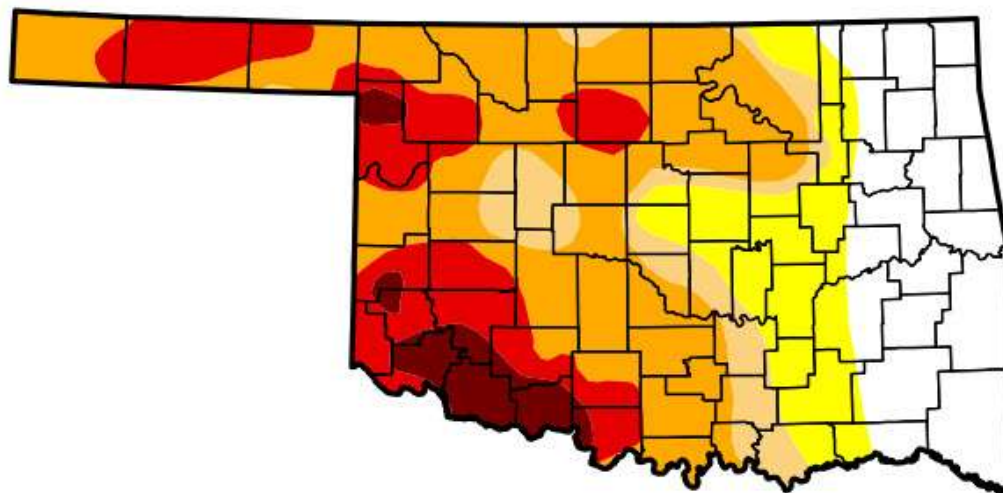
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Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.08	77.92	64.49	55.44	20.87	4.84
Last Week <i>10/7/2014</i>	8.55	91.45	73.44	58.20	21.00	4.84
3 Months Ago <i>7/15/2014</i>	9.86	90.14	79.57	62.93	29.37	6.43
Start of Calendar Year <i>12/31/2013</i>	50.84	49.16	38.17	18.99	4.84	2.40
Start of Water Year <i>9/30/2014</i>	8.55	91.45	73.31	58.13	20.92	4.64
One Year Ago <i>10/15/2013</i>	41.83	58.17	36.85	14.90	4.42	1.45



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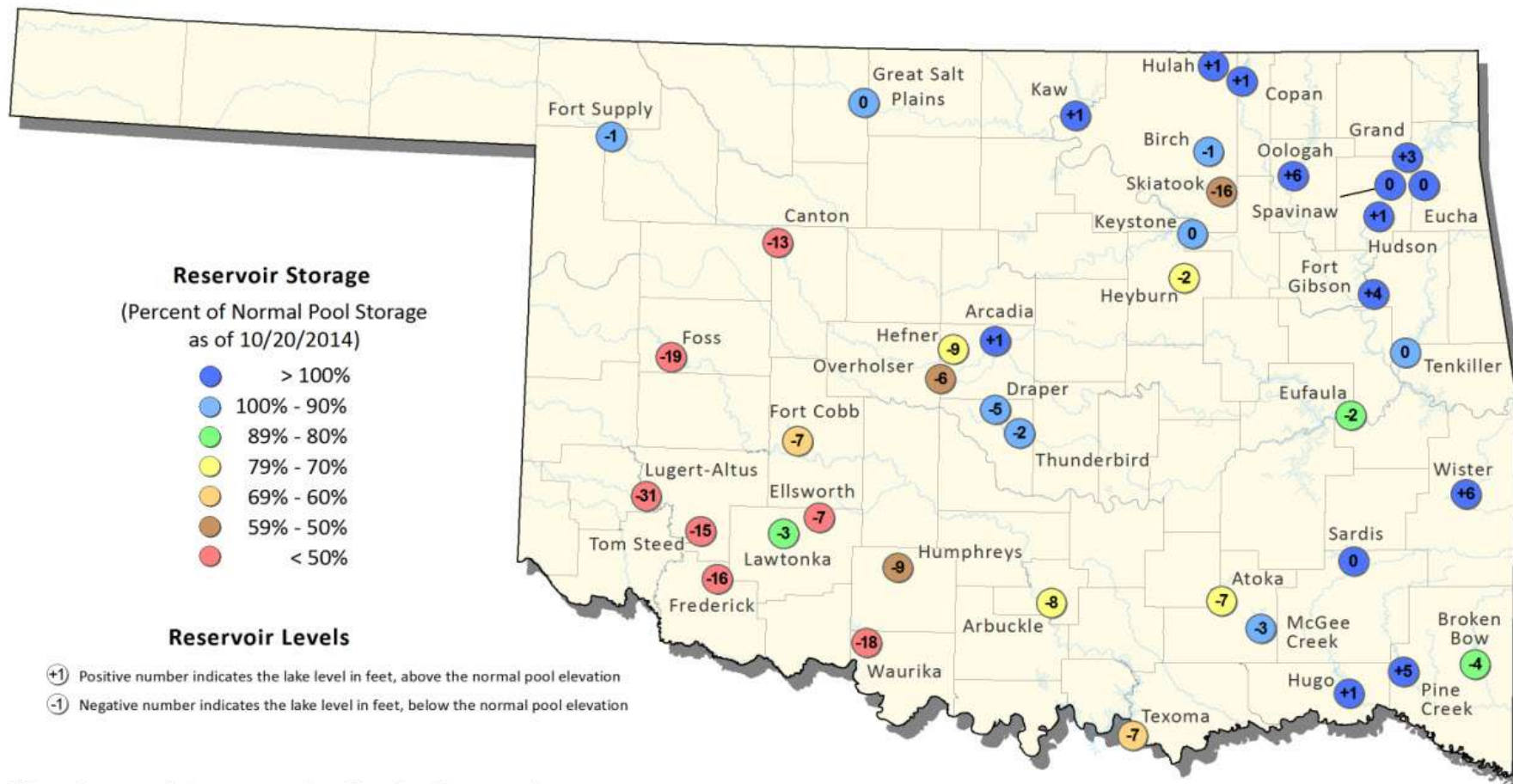
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Oklahoma Surface Water Resources

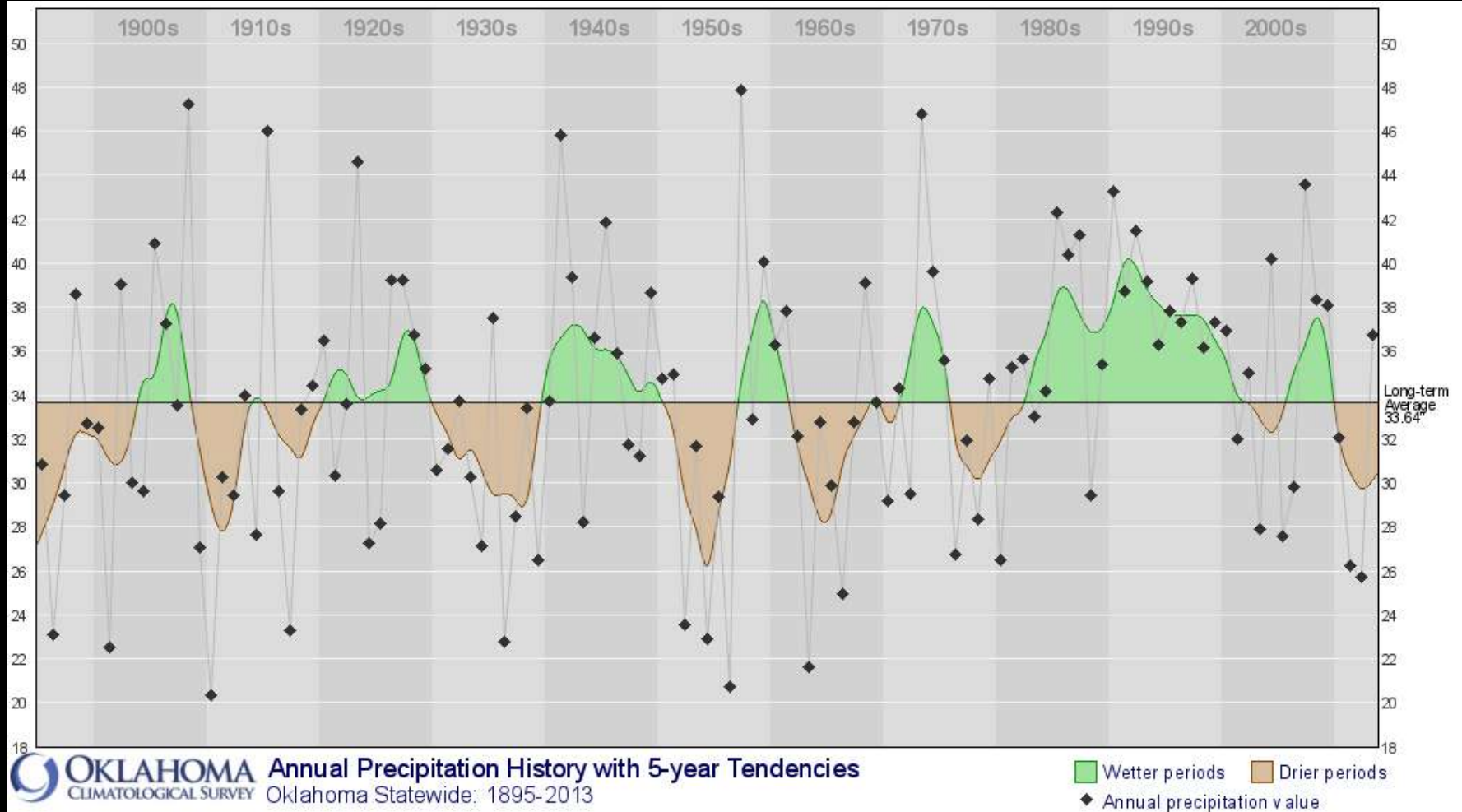
Reservoir Levels and Storage as of 10/20/2014



This map shows reservoir storage as a percentage of normal pool storage capacity. The source information was collected from real-time lake gages monitored by the U.S. Army Corps of Engineers (http://www.swt-wc.usace.army.mil/old_resv rept.htm), and the U.S. Geological Survey (http://waterdata.usgs.gov/ok/nwis/current/?type=lake&group_key=basin_cd). For more information please visit the OWRB's website at: (<http://www.owrb.ok.gov>)



Historical Precipitation Trends



Addressing Drought

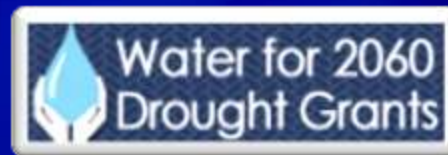
- OK Comprehensive Water Plan



- Water For 2060



- Loans/Grants



- Oklahoma Drought Tool



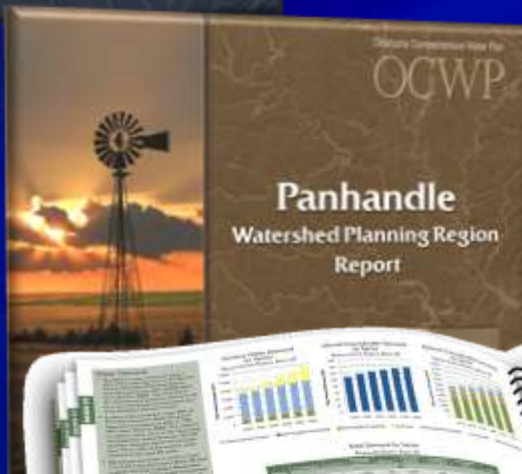
- Water Loss Audits



2012 Update of the Oklahoma Comprehensive Water Plan



- Submitted to Governor and Legislature in 2012
- Most technically sound, extensively vetted Plan
- Executive Report &
- 13 Watershed Planning Region Reports



Overriding goal to provide safe, reliable water supplies to meet needs of all Oklahomans.

OCWP Primary Recommendations

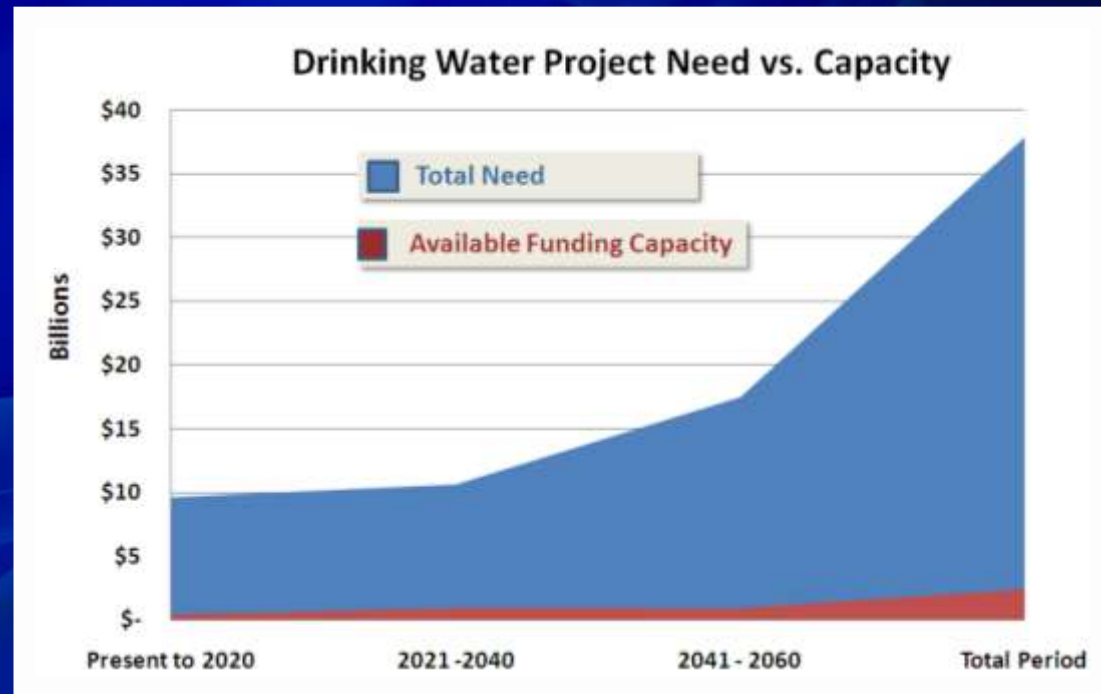
- Infrastructure Funding
- Regional Planning Groups
- Water Supply Reliability
- Water Quality and Quantity Monitoring
- Water Conservation and Reuse
- Excess and Surplus Water
- Instream Environmental Flows
- State/Tribal Resolution



2012 Update of the OCWP Infrastructure Funding

OCWP
Priority

- Address Oklahoma's projected **\$82+ billion** water and wastewater infrastructure need by 2060
- OWRB's successful ("AAA") loan & grant programs can only satisfy 4-9% of this need



2012 Update of the OCWP Infrastructure Funding

OCWP
Priority

SQ 764 (57%Y -43%N)

Water Infrastructure Credit
Enhancement Reserve Fund

STANDARD & POOR'S
RATINGS SERVICES

RatingsDirect

Oklahoma Water Resources Board; State Revolving Funds/Pools

Credit Profile

Oklahoma Wtr Resources Brd	AAA/Stable	Upgraded
Long Term Rating		

Rationale

Standard & Poor's Ratings Services has raised its rating on Oklahoma Water Resources Board's (OWRB) state loan program revenue bonds to 'AAA' from 'AA+'. The upgrade reflects the board's access to the newly created Water Infrastructure Credit Enhancement Reserve Fund (WICERF). The board now has the ability to issue bonds supported by a state general obligation (GO) pledge in an amount up to \$300 million. This additional support effectively lowers the financial risk score assigned to the state loan program and allows for Standard & Poor's to raise the rating to 'AAA'. The ability to issue state GO bonds is contingent on Oklahoma retaining strong market access. With the high current rating on the state, we do not believe this is a concern; however, should Oklahoma's access to the bond market become less certain, the enhancement provided by access to the WICERF could be diminished.

Addressing Drought

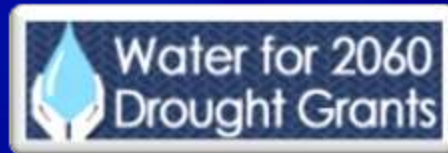
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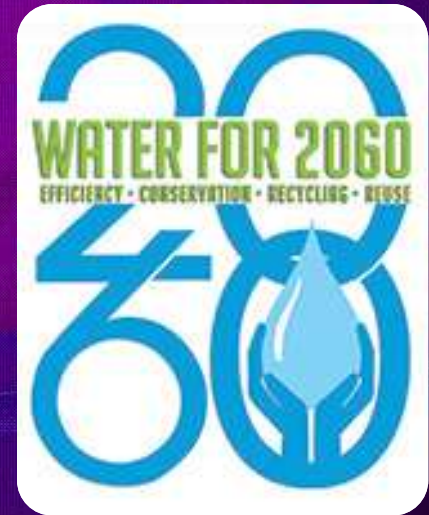


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Water for 2060 Initiative

- Ambitious **GOAL** of consuming no more *freshwater* in 2060 than we consume today



Water for 2060 Initiative

- Advisory Council's 15 members from various sectors investigate ways to incentivize conservation:
 - Infrastructure Financing
 - Public Water Supply
 - Agriculture
 - Industry, Oil and Gas
- Meeting quarterly
- Recommendations are due to Governor in 2015



Addressing Drought

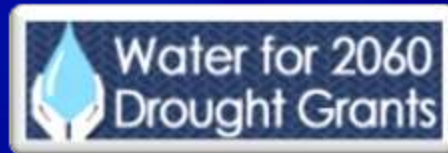
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Financing for the Future

- Programs for water and wastewater infrastructure that assist with drought related projects
 - Emergency and Emergency Drought Grants
 - Rural Economic Action Plan Grants
 - Emergency Drought Relief
 - Water for 2060 Drought Grants - **New! \$1.5 M**
 - Financial Assistance Loan Program
 - Clean Water State Revolving Fund
 - Drinking Water State Revolving Fund

Emergency Drought Relief

- Emergency Drought Relief Fund provides funding for drought mitigation
- Eligible drought responses include pond cleanup and construction; water conservation; water for livestock; fire suppression; red cedar eradication; soil conservation; emergency infrastructure conservation
- \$1.125 million made available to four drought-stricken communities for water infrastructure projects
- Projects include:
 - Developing additional well field and associated infrastructure
 - Additional wells for reliable water
 - Locate and develop additional groundwater sources

Water for 2060 Drought Grant

- Point Based grant program designed to demonstrate water efficiency and support drought resiliency within the community or water/wastewater system
- Water Efficiency is the use of improved technologies and practices to deliver equal or better services with less water.
- Documentation of the percent efficiency to be achieved must be included in the planning document.

Eligible Project Examples

- Water efficient devices in public buildings
- Water meters in previously unmetered areas
- Automatic water meters
- Replacing existing malfunctioning water meters
- Leak detection and associated repairs within distribution systems
- Water audit and water conservation plans
- Recycling and water reuse to replace potable sources with non-potable sources
- Public landscape irrigation systems

Addressing Drought

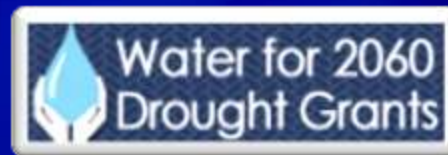
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The purpose of this Tool is to help water resource and utility professionals meet the challenge of providing emergency water supplies to communities under the influence of severe drought.

The objective of the Tool is to assist in planning for water shortages by familiarizing users with alternative sources, treatment processes, distribution options, short term equipment solutions for treatment, and regulatory processes related to emergency situations.





Goals for Users



- ✓ Knowledge of drought planning resources.
- ✓ An estimate of emergency water supply requirements.
- ✓ Knowledge of potential sources of emergency water.
- ✓ Knowledge of how those sources need to be treated, waste that will be generated, and how to manage that waste.
- ✓ Ideas for distribution of emergency water.
- ✓ A clear plan for navigating the regulatory process.
- ✓ Knowledge of sources of equipment.
- ✓ Strategies for involving the public.
- ✓ Knowledge of potential sources of funding.



Addressing Drought

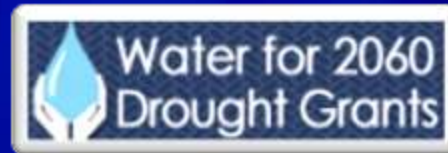
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Water Loss Audits



- Pilot Program anticipating to evaluate 15 – 30 water systems with dwindling water supplies
- Funded thru DWSRF Source Water Protection Set-Asides
- Currently sending state-wide survey to identify potential systems for the pilot
- Dual purpose is to determine how to better promote the use of water loss audits
- Contracting with NM EFC to conduct training using AWWA's methodology

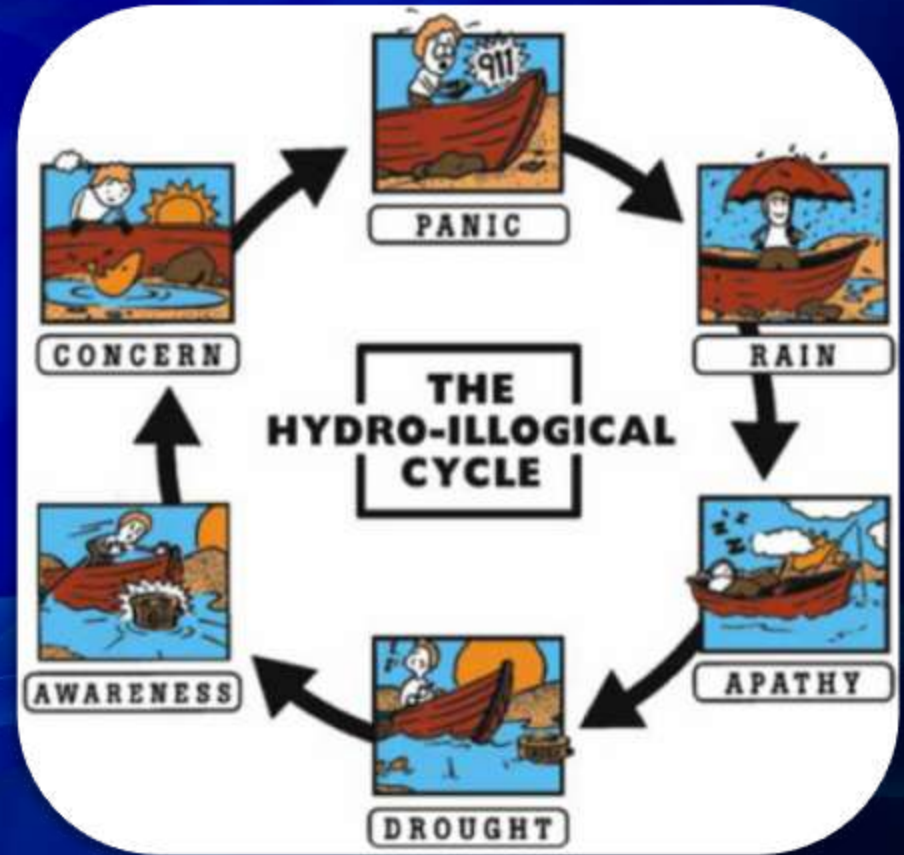
Water Loss Audits



- ODEQ will conduct the audits, gather the information and assess the results
- Results of the audits will be used to determine the kind of improvements the system can implement including the possibility of the State developing water conservation plans
- More information contact - Patty Thompson, ODEQ
patty.thompson@deq.ok.gov

Hydro-LOGICAL Cycle

- **Plan** ahead, and plan for the worst
- **Conserve** as if we're always in drought
- **Reuse/recycle** as much as possible
- **Innovate** – look for alternatives to freshwater for meeting every need
- **Minimize cost**, both fiscal and political



Questions?

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www.owrb.ok.gov/drought