OCWP

Oklahoma Comprehensive Water Plan

OCWP Implementation

Year 1 Review

OWRB Meeting

June 18, 2013

J. D. Strong

Executive Director

State of Oklahoma

OWRB

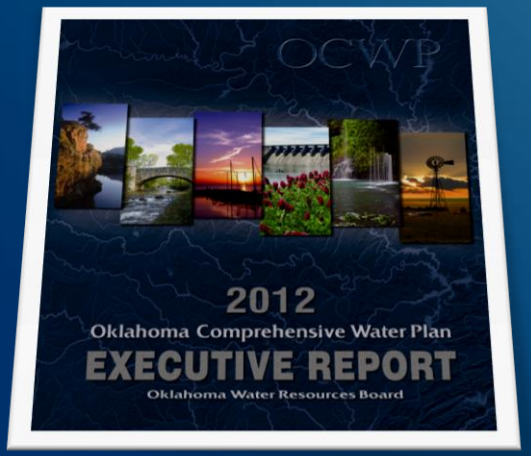
WATER RESOURCES BOARD

the water agency

Goals of the 2012 OCWP Update

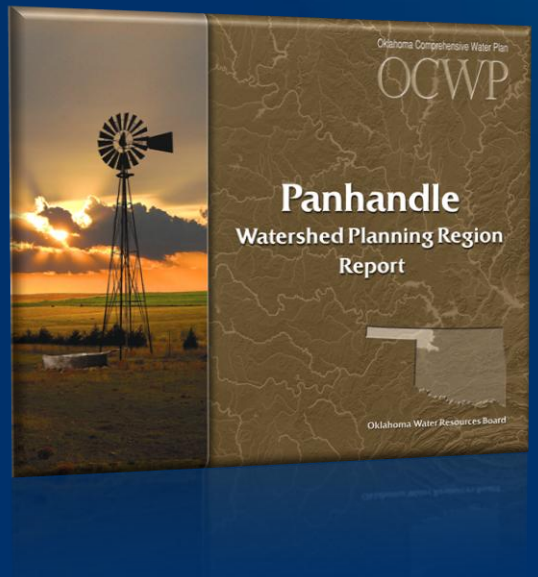
1. Characterize **demands** by water use sector.
2. Identify **reliable supplies** to meet forecasted demands.
3. Perform **technical studies** to evaluate emerging water management issues.
4. **Engage stakeholders** to tell us how they want Oklahoma's water resources managed.
5. Ensure water resources management programs that **create reliability**.
6. Make **"implementable" recommendations** based upon technical evaluations and stakeholder input.

Most Comprehensive and Vetted Water Plan in State History



Executive Report:

- Synthesis of OCWP technical studies and results
- Water policy recommendations



13 Watershed Planning Region Reports:

- Results of OCWP technical analyses, including options to address identified water shortages

OCWP Foundational Tasks

1. Demand Projections
2. Water Supply and Gaps/Depletions
3. Water Supply Alternatives
4. Public Participation and Policy Development

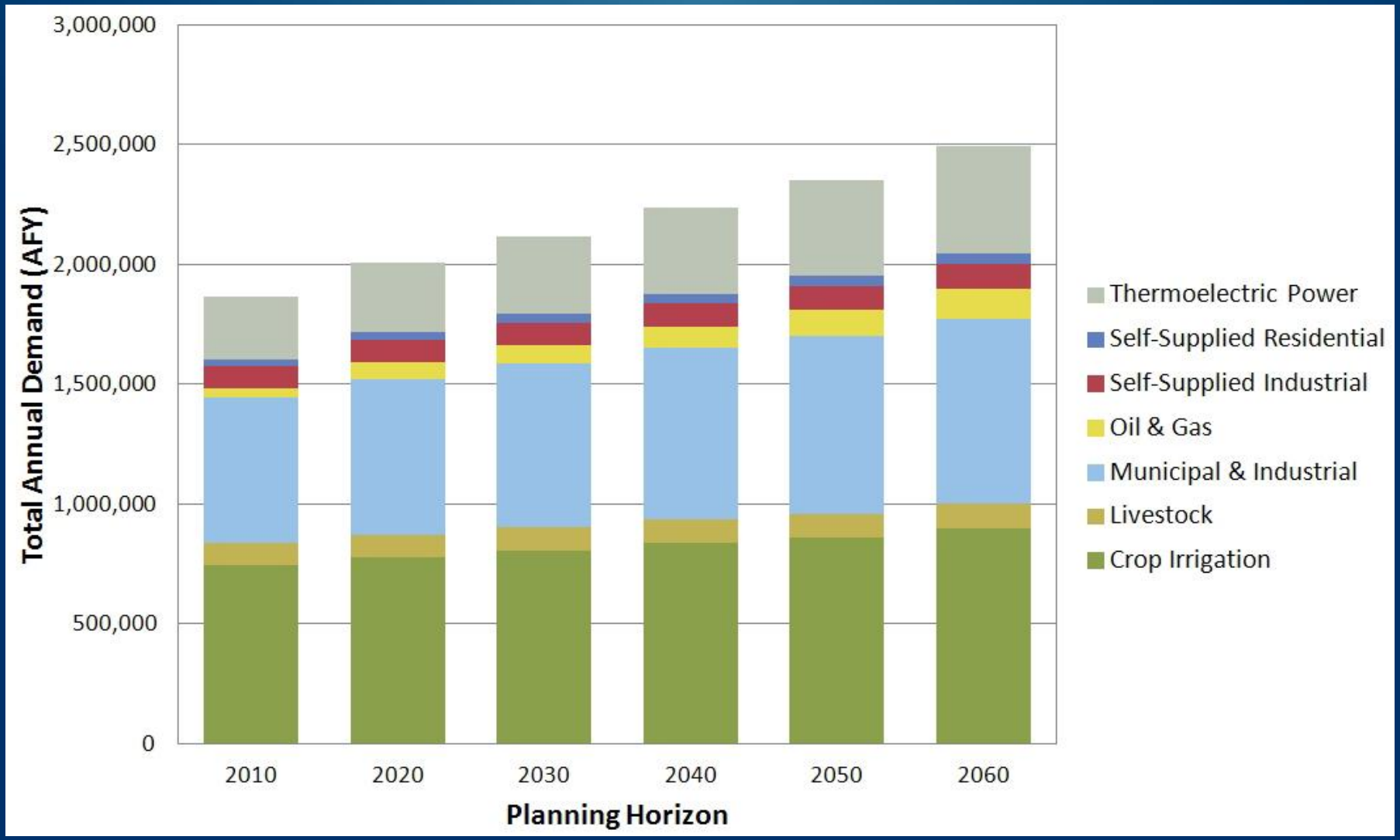
OCWP Foundational Tasks
Demand Projections

- Statewide projections of demand for all major water users through 2060:
  - Crop Irrigation
  - Municipal & Industrial
  - Thermoelectric Power
  - Oil & Gas
  - Self -Supplied Industrial
  - Self-Supplied Residential
  - Livestock
- Down to provider level
- Non-consumptive needs unquantified

- **Stakeholder workgroups**
- **Conservation Analysis**
- **Assessment of Climate Change Impacts**

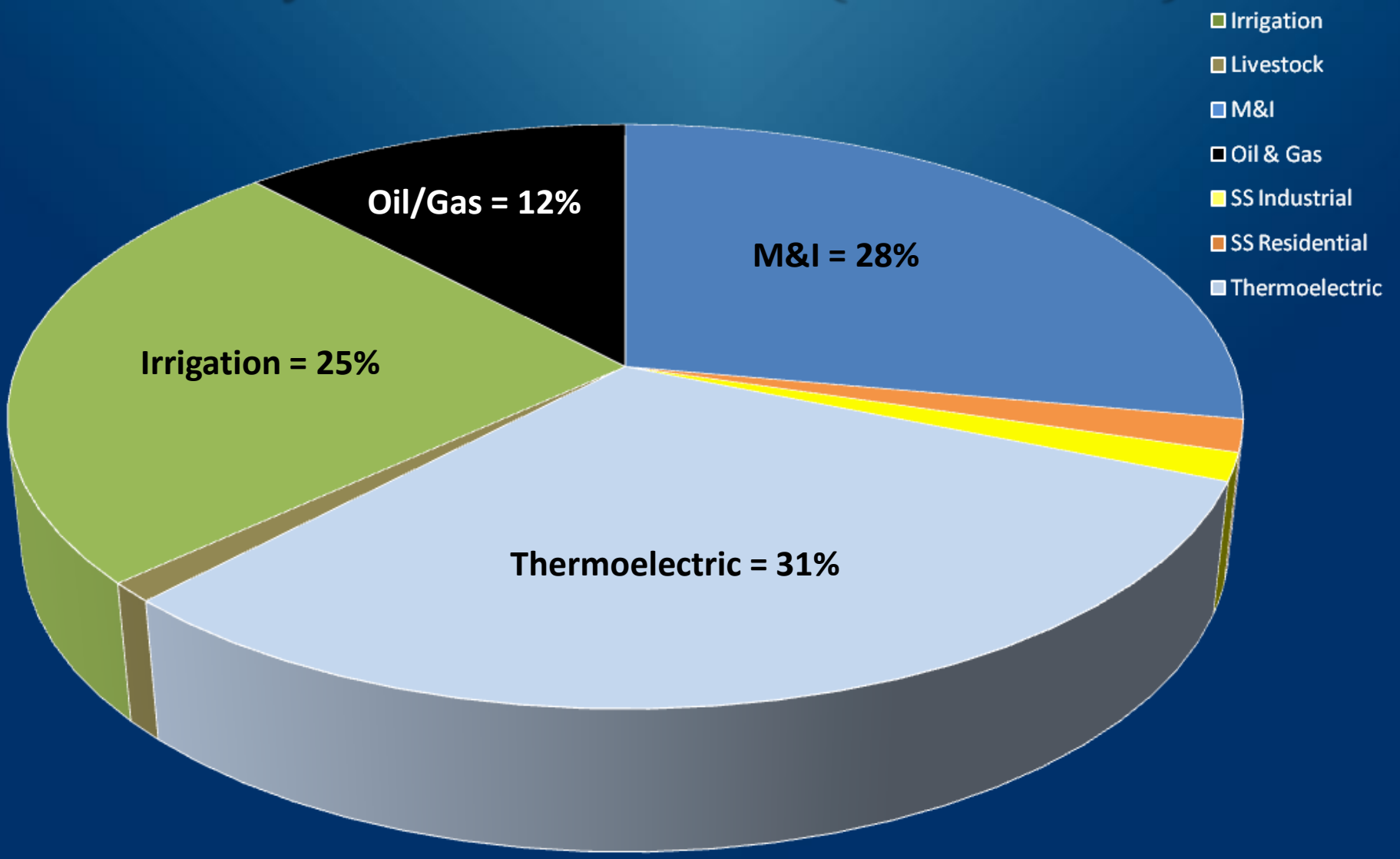
Demand Projections

Total Water Demands (2010-2060)



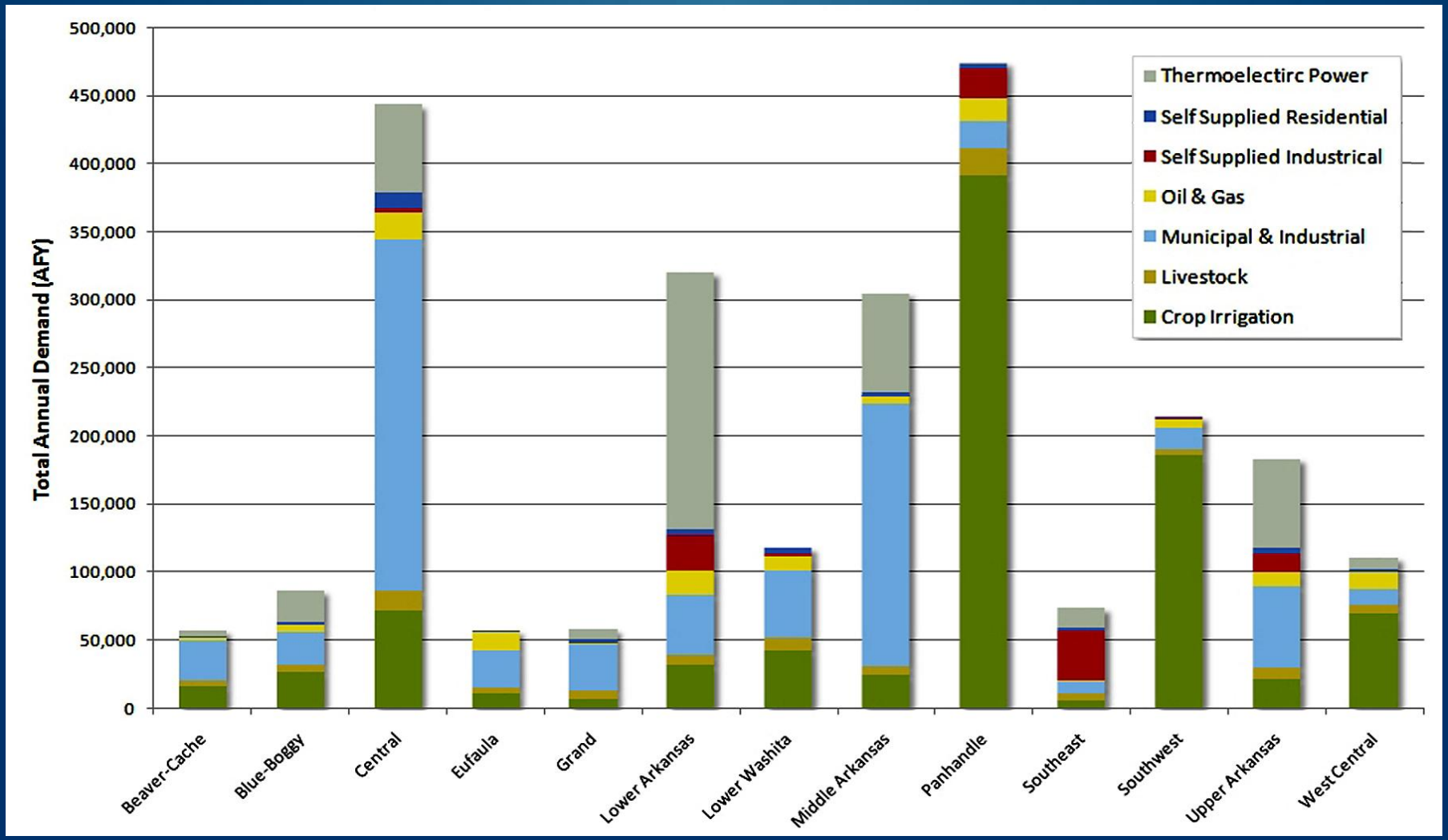
Demand Projections

Growth by Water Use Sector (2010-2060)



Demand Projections

2060 Total Water Demands By Region



OCWP Foundational Tasks

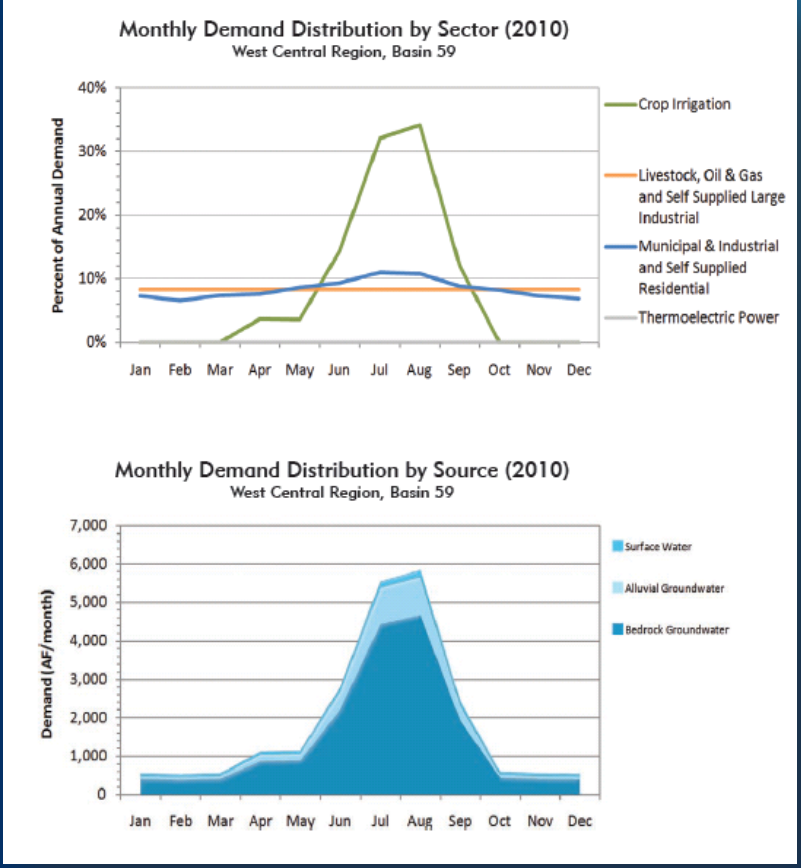
Water Supply and Gaps/Depletions

- Characterize statewide water supply availability
- Compare supply projections with demand projections
- Quantify anticipated deficits in supply
- Infrastructure constraints

- **Stakeholder workgroups**
- **“Wet” water availability**
- **Legal/Permit availability (water rights)**
- **Water Allocation Modeling and OKH2O Tool**
- **Statewide Surface Water Quality Trend Analysis**

Water Supply Gaps/Depletions

Seasonal Deficits



Surface Water Gaps by Season (2060 Demand)

West Central Region, Basin 59

Months (Season)	Maximum Gap [1]	Median Gap	Probability
	AF	AF	Percent
Dec-Feb (Winter)	100	100	29%
Mar-May (Spring)	100	90	14%
Jun-Aug (Summer)	60	60	47%
Sep-Nov (Fall)	100	60	34%

1 Amount shown represents largest amount for any one month in season indicated.

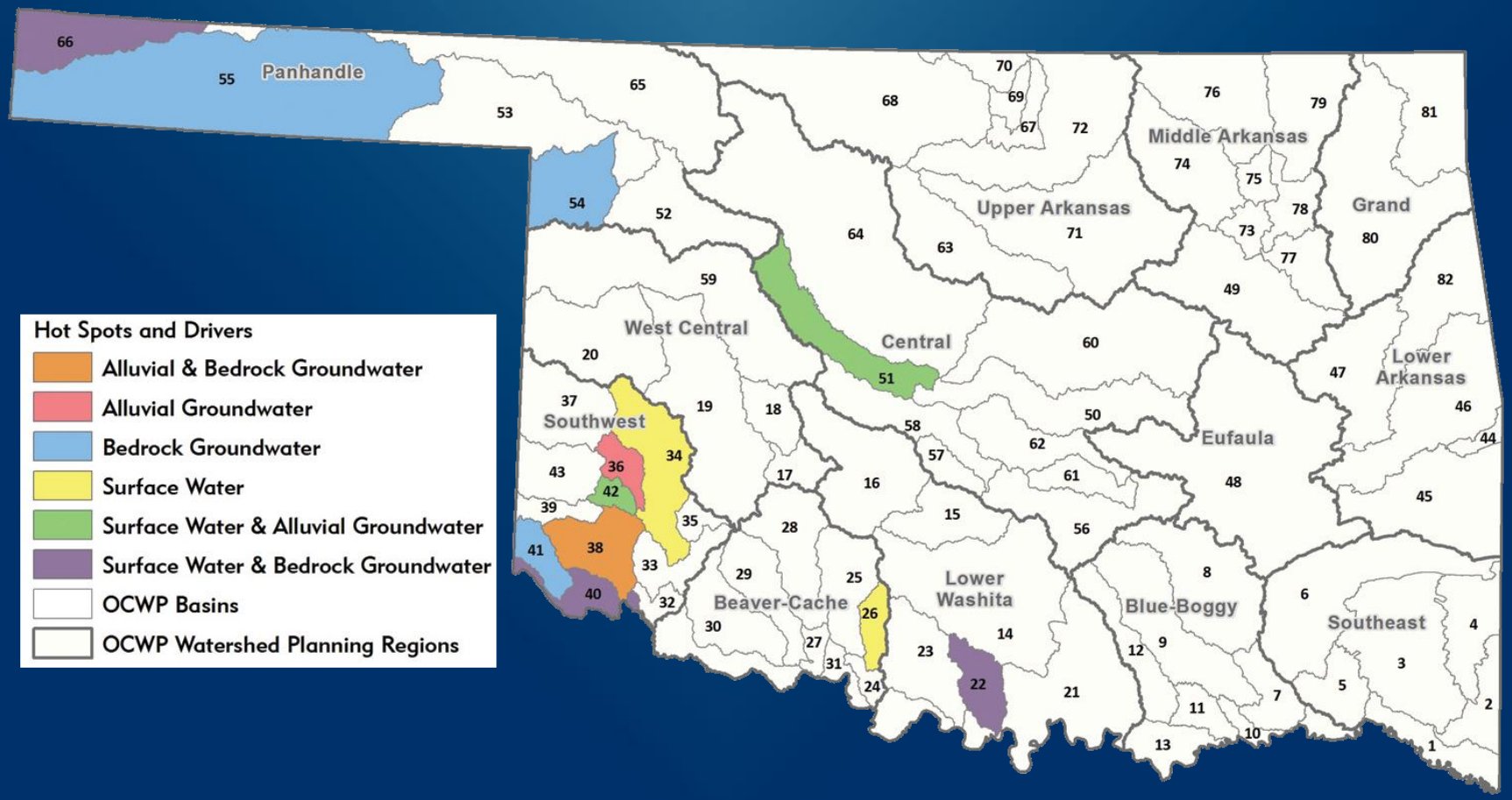
Magnitude and Probability of Annual Gaps and Storage Depletions

West Central Region, Basin 59

Planning Horizon	Maximum Gaps/Storage Depletions			Probability of Gaps/ Storage Depletions	
	Surface Water	Alluvial Groundwater	Bedrock Groundwater	Surface Water	Alluvial Groundwater
	AF			Percent	
2020	110	280	0	50%	53%
2030	280	490	0	53%	53%
2040	470	710	0	53%	53%
2050	660	990	20	55%	55%
2060	920	1,340	290	57%	57%

Water Supply Gaps/Depletions

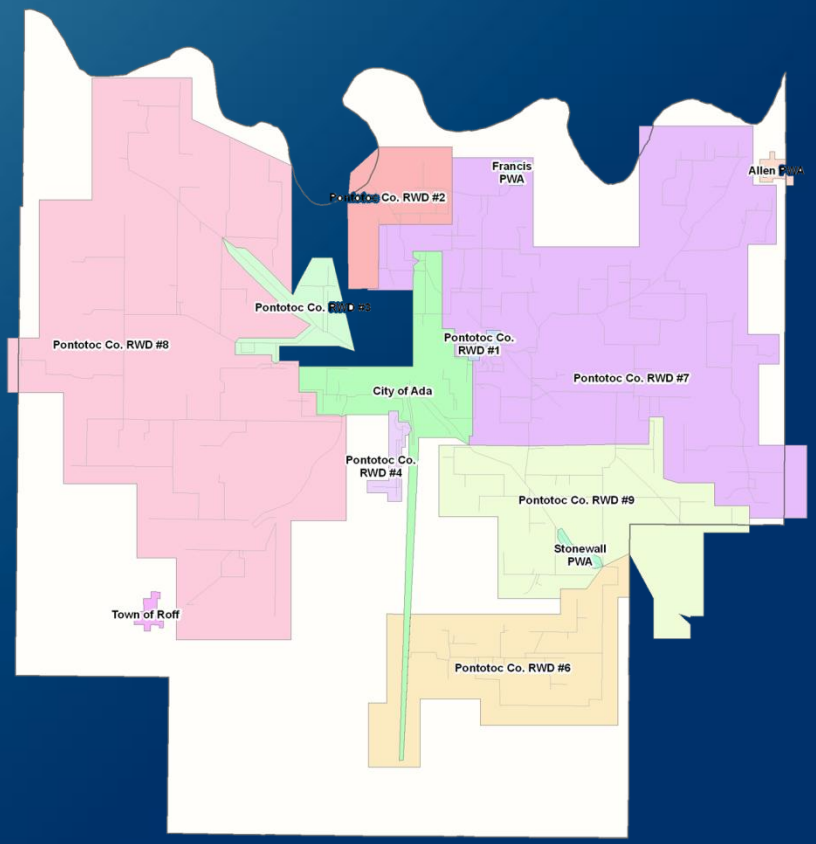
Hot Spots: 12 most significant problem areas



Water Supply Gaps/Depletions

Infrastructure

- Drinking Water Infrastructure Assessment (CDM/First Southwest)
- Infrastructure Community Impact Assessment
- Public Water Supply System Survey (OML/ORWA)
- Infrastructure Mapping Pilot Project



OCWP Foundational Tasks

Water Supply Options/Alternatives

- Analysis of Fundamental Options:
  - Demand Management
  - Out-of-Basin Supplies
  - Reservoir Use
  - Increasing Reliance on SW or GW
- Conservation Analysis
- Aquifer Recharge Study and Workgroup
- Marginal Quality Water Study and Workgroup
- Reservoir Viability Study

OCWP Foundational Tasks

Public/Stakeholder Participation and Policy Development:

- Hundreds of stakeholder and citizen meetings to fine-tune study results as well as develop solutions to Oklahoma's most pressing water issues.

- **Local and Regional Input Meetings**
- **Water Law/Science Seminars**
- **Stakeholder Meetings**
- **Planning Workshops**
- **Legislative Workgroups**
- **Tribal Water Issues/Liaison**
- **Academy Town Hall**
- **Feedback/Implementation Meetings**

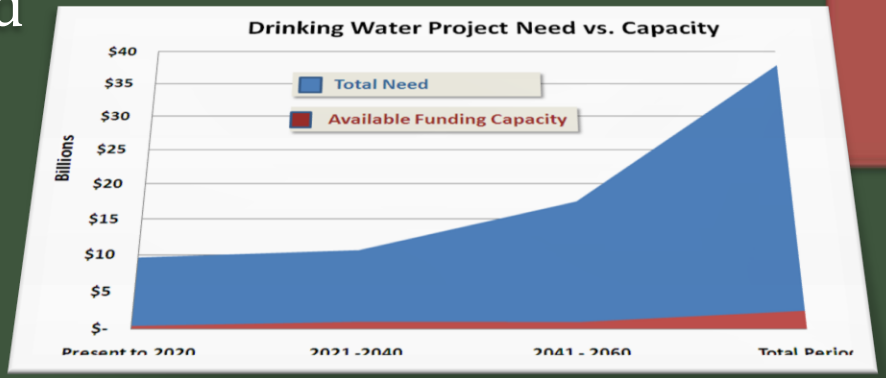
OCWP Priority Recommendations

- Water Project & Infrastructure Funding
- Regional Planning Groups
- Excess & Surplus Water
- Instream & Environmental Flows
- State/Tribal Water Consultation & Resolution
- Water Conservation, Recycling & Reuse
- Water Supply Reliability
- Water Quality & Quantity Monitoring

OCWP Priority Recommendation

Water Infrastructure Funding:

- Address Oklahoma's projected **$82+ billion** water and wastewater infrastructure need by 2060.
- OWRB's 5 successful grant & loan programs can only satisfy 4-9% of this need



Water Infrastructure Credit Enhancement Reserve Fund created through SQ 764.

HB 2193 sets procedures (beginning Nov. 1) for OWRB to administer WICERF.

OCWP Priority Recommendation

Conservation, Efficiency, Recycling & Reuse:

- Identify innovative solutions to forecasted water shortages
  - **Voluntary** programs/policies, financial incentives, and education.

Water for 2060 Act sets statewide goal of consuming no more fresh water in 2060 than we consume today.

Advisory Council (supported through Corps PAS funding) will make recommendations:

- **Members named**
- **Meetings pending**

Conservation, Recycling & Reuse

OCWP Conservation Analysis: Water Savings

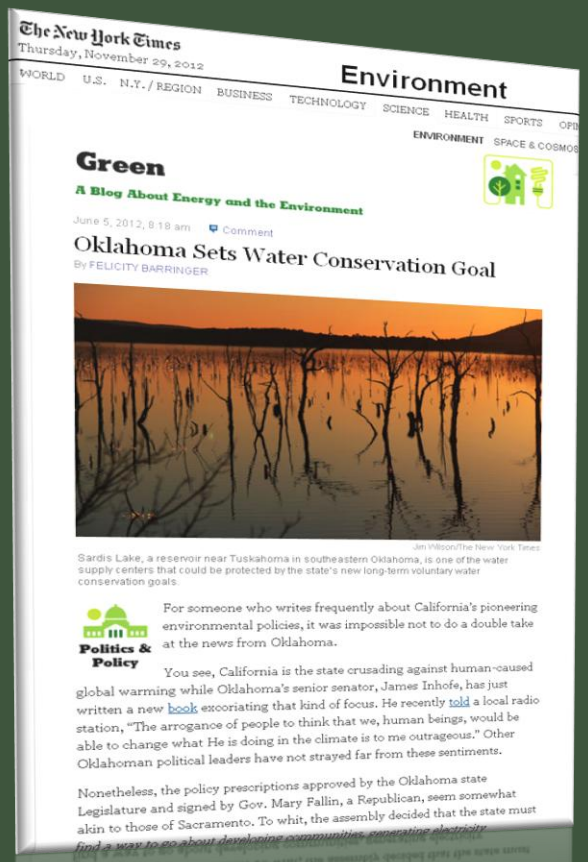
	M&I and Agriculture Statewide Demand Projections & Water Savings for Conservation Scenarios (AFY)					
	2010	2020	2030	2040	2050	2060
Baseline	**1,377,318**	1,455,309	1,523,273	1,587,406	1,642,069	1,711,392
Scenario I	N/A	1,301,816	1,332,781	1,388,603	1,435,807	**1,496,643**
Scenario II	N/A	1,155,397	1,170,248	1,209,372	1,244,123	**1,295,569**

Conservation, Recycling & Reuse

Water for 2060 Advisory Council

Members:

- J.D. Strong, Chairman
- Jim Bachmann (Tulsa)
- Lauren Brookey (Tulsa)
- Tom Buchanan (Altus)
- Bob Drake (Davis)
- Danny Galloway (Stillwater)
- Roger Griffin (Broken Bow)
- Charlette Hearne (Broken Bow)
- Mark Helm (OKC)
- Nathan Kuhnert (OKC)
- Phil Richardson (Minco)
- Kevin Smith (Enid)
- Trent Smith (Choctaw)
- Joe Taron (Shawnee)
- Jerry Wiebe (Hooker)


The New York Times
Thursday, November 29, 2012

Environment

WORLD U.S. N.Y./REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPI
ENVIRONMENT SPACE & COSMOS

Green

A Blog About Energy and the Environment

June 5, 2012, 8:18 am Comment

Oklahoma Sets Water Conservation Goal

By FELICITY BARRINGER

Jim Wilson/The New York Times

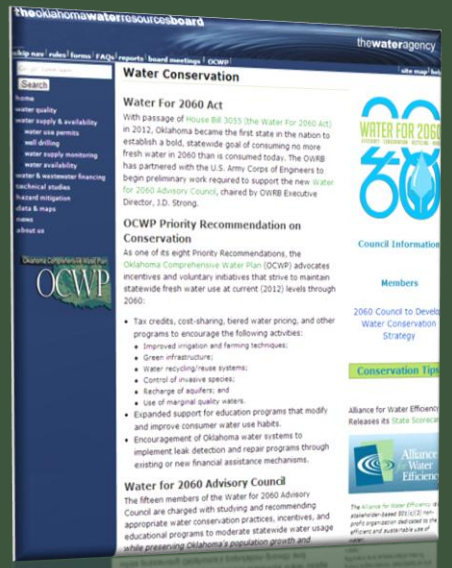
Sardis Lake, a reservoir near Tuskahoma in southeastern Oklahoma, is one of the water supply centers that could be protected by the state's new long-term voluntary water conservation goals.

Politics & Policy

For someone who writes frequently about California's pioneering environmental policies, it was impossible not to do a double take at the news from Oklahoma.

You see, California is the state crusading against human-caused global warming while Oklahoma's senior senator, James Inhofe, has just written a new book excoriating that kind of focus. He recently told a local radio station, "The arrogance of people to think that we, human beings, would be able to change what He is doing in the climate is to me outrageous." Other Oklahoman political leaders have not strayed far from these sentiments.

Nonetheless, the policy prescriptions approved by the Oklahoma state Legislature and signed by Gov. Mary Fallin, a Republican, seem somewhat akin to those of Sacramento. To whit, the assembly decided that the state must find a way to go about developing communities, generating electricity


theoklahomawaterresourcesboard

thewateragency

Water Conservation

Water For 2060 Act

With passage of House Bill 3055 (the Water For 2060 Act) in 2012, Oklahoma became the first state in the nation to establish a bold, statewide goal of consuming no more fresh water in 2060 than is consumed today. The OWRB has partnered with the U.S. Army Corps of Engineers to begin preliminary work required to support the new Water for 2060 Advisory Council, chaired by OWRB Executive Director, J.D. Strong.

OCWP Priority Recommendation on Conservation

As one of its eight Priority Recommendations, the Oklahoma Comprehensive Water Plan (OCWP) advocates incentives and voluntary initiatives that strive to maintain statewide fresh water use at current (2012) levels through 2060:

- Tax credits, cost-sharing, tiered water pricing, and other programs to encourage the following activities:
  - Improved irrigation and farming techniques;
  - Green infrastructure;
  - Water recycling/reuse systems;
  - Control of invasive species;
  - Recharge of aquifers; and
  - Use of marginal quality waters.
- Expanded support for education programs that modify and improve consumer water use habits.
- Encouragement of Oklahoma water systems to implement leak detection and repair programs through existing or new financial assistance mechanisms.

Water for 2060 Advisory Council

The fifteen members of the Water for 2060 Advisory Council are charged with studying and recommending appropriate water conservation practices, incentives, and educational programs to moderate statewide water usage while preserving Oklahoma's population growth and

Council Information

Members

2060 Council to Develop Water Conservation Strategy

Conservation Tips

Alliance for Water Efficiency Releases its State Scorecard

www.owrb.ok.gov/2060

OCWP Priority Recommendation

Water Quality & Quantity Monitoring:

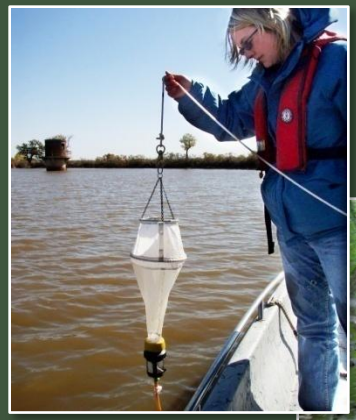
- Better data for **improved decision-making**.
- Restore funding for statewide water quality and quantity monitoring program.
- Create the first comprehensive groundwater monitoring program.

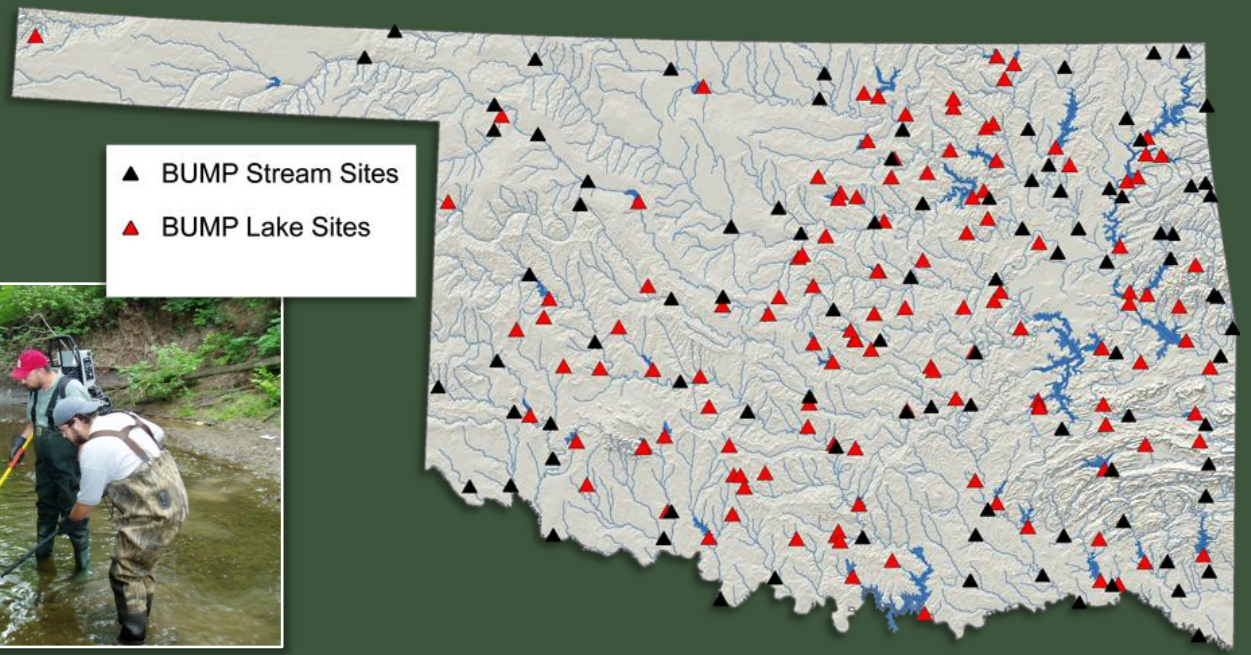
$1.5 Million appropriation for enhanced, permanent statewide GW/SW monitoring network.

Water Quality/Quantity Monitoring

Surface Water Monitoring

- 89 total stream sites (includes BUMP sites, Coop USGS Network, and new OCWP gages at the terminus of all 82 planning basins)
- ~130 total lakes sampled (35-40 lakes annually)
- More frequent site visits (similar to the original 1998 regime)
- More parameters sampled (similar to the original 1998 regime)

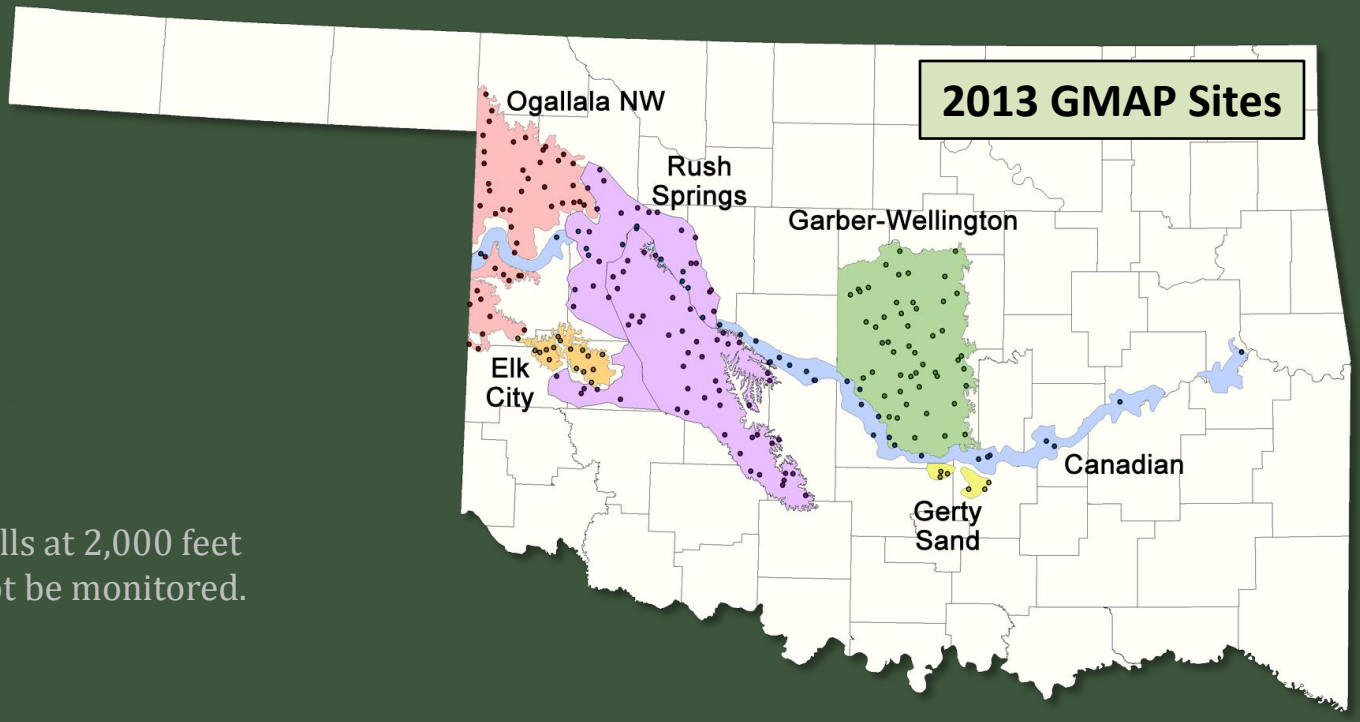




Water Quality/Quantity Monitoring

Groundwater Monitoring & Assessment Program

- As many as 1,200 wells will eventually comprise the statewide network with coverage of every major aquifer in the state.*
- Both quality and quantity parameters
- First of four phases underway in 2013



*Arbuckle-Timbered Hills at 2,000 feet deep will most likely not be monitored.

OCWP Priority Recommendation

Water Supply Reliability:

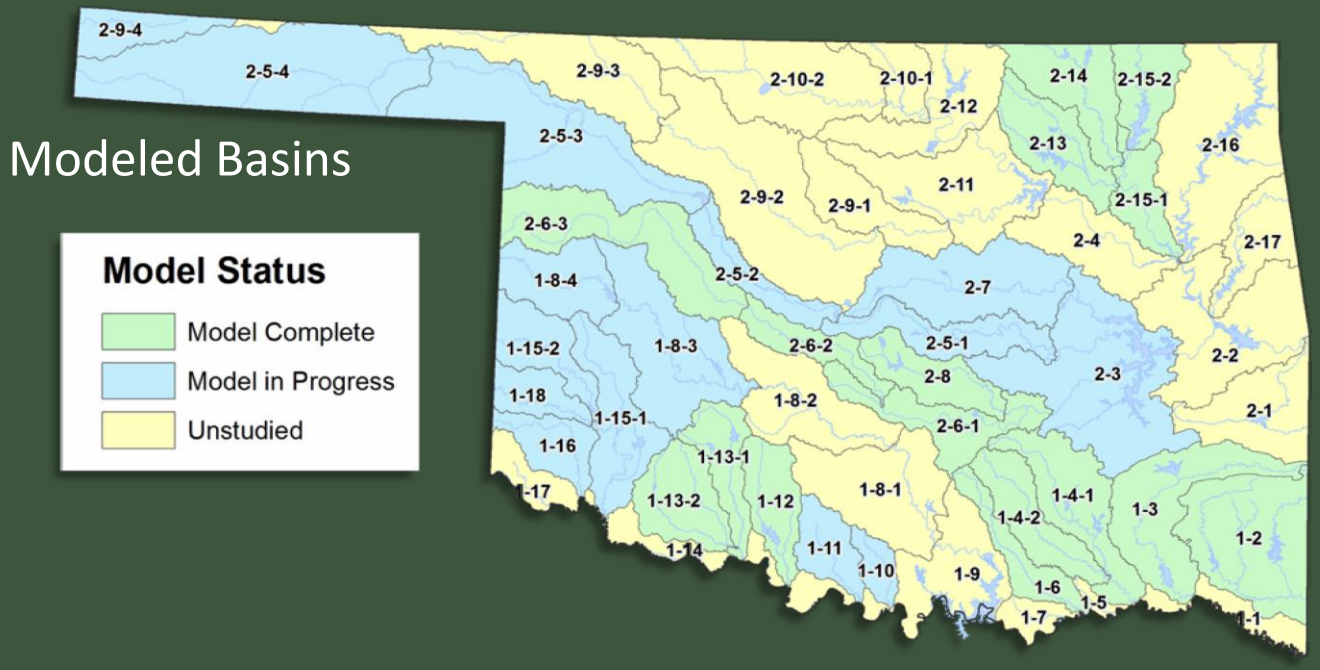
- Ensure water availability for future growth through **fair and sustainable water allocation:**
  - **aquifer yield studies**
  - **stream water allocation models**
  - Further analysis of groundwater-surface water interactions, seasonal permitting, and conservation-oriented permitting approaches

Utilization of $1.3 million/year in Gross Production Tax proceeds for OCWP implementation through FY-2016.

Water Supply Reliability

Stream Water Allocation Models

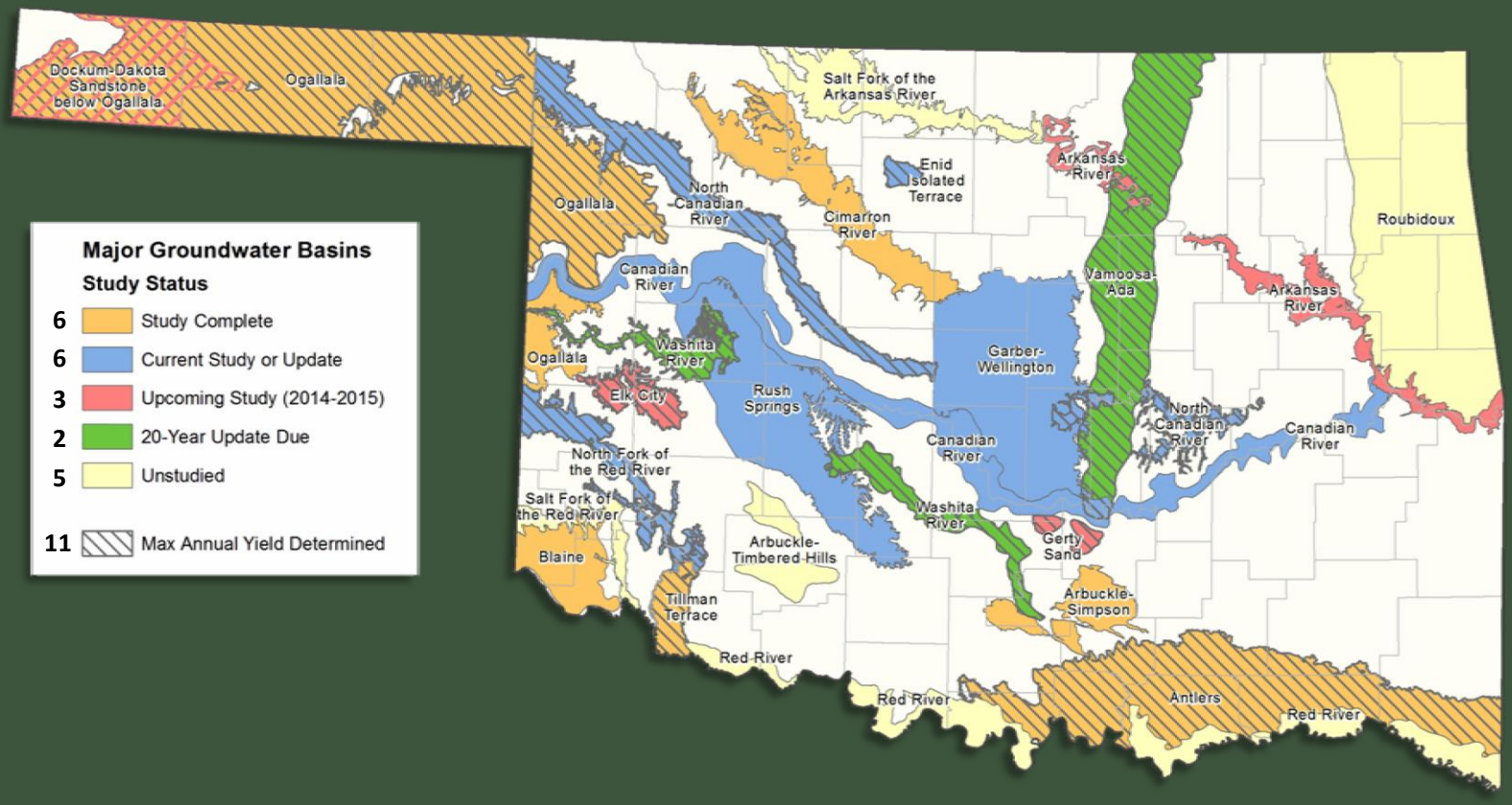
- 16 stream system Models completed; 51 stream systems unstudied, 15 currently in progress
- Prioritize systems reaching full allocation
- Prioritize OCWP "Hot Spot" Basins
- Complete allocation models by 2017 (5 years early!)



Water Supply Reliability

Major Groundwater Basin Studies

- 5 major basins unstudied; 2 major basins overdue
- Complete all unstudied and overdue GW basins by 2022



OCWP Priority Recommendation

Instream/Environmental Flows:

- Recognize nonconsumptive water needs and **supporting recreational and local economic interests.**
- Assess the suitability and structure of a potential instream flow program for Oklahoma.

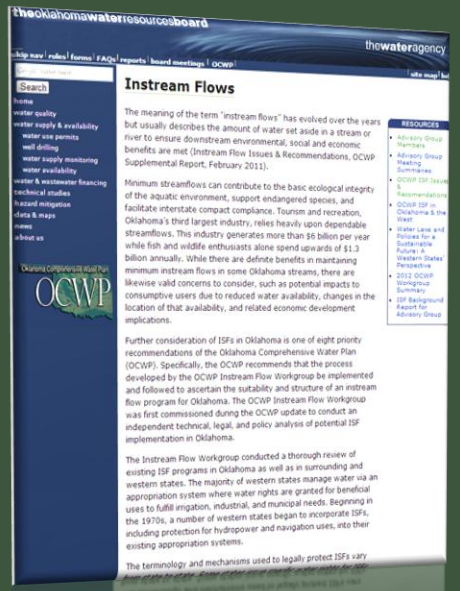
Instream Flow Advisory Group reconvened in March 2013:

- **Two meetings to date**

Instream/Environmental Flows:
ISF Advisory Workgroup

Members:

- Jim Reese (ODAFF)
- Mark Derichsweiler (ODEQ)
- Barry Bolton (ODWC)
- Tom Creider (OTRD)
- Arnella Karges (State Chamber)
- Brooks Tramell (OKCC)
- Tyler Powell (OSE)
- Marsha Slaughter (OKC)
- Kevin Stubbs (USFWS)
- Shannon Brewer (USGS)
- Jeff Tompkins (Reclamation)
- Tom Elkins (Cherokee Nation)
- Marla Peek (Farm Bureau)
- James Gammill (ORWA)
- Diane Pedicord (OML)
- Brian Woodard (OIPA)
- Scott Dewald (Cattlemen's)
- Jim Barnett (EFO)
- Mike Mathis (Chesapeake)
- Mike Fuhr (Nature Conservancy)
- Angie Burckhalter (Devon)
- Bud Ground (PSO)
- Charlette Hearne (ORWP)
- David Ocamb (Sierra Club)

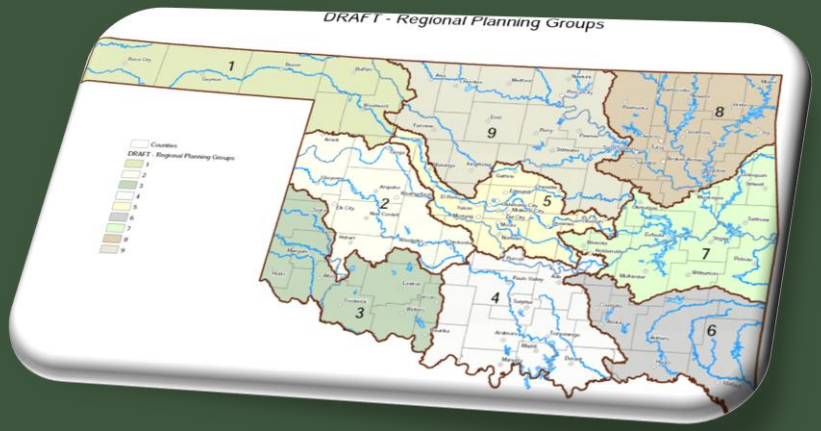


www.owrb.ok.gov/ISF

OCWP Priority Recommendation

Regional Planning Groups:

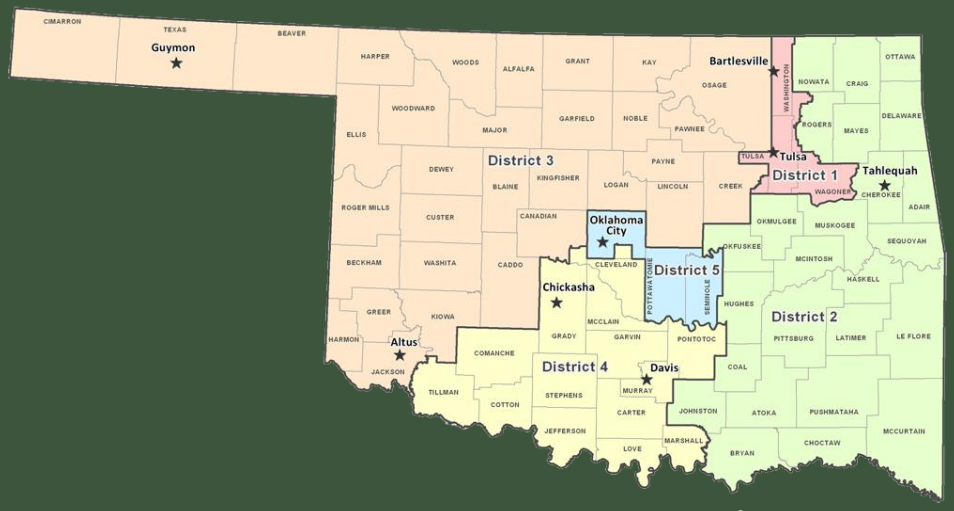
- Most popular recommendation
- Create **non-regulatory** Regional Planning Groups to assist in planning and implementing OCWP initiatives at the regional level.
- Consist of local stakeholders representing unique interests of each region.
- No formal progress to date.



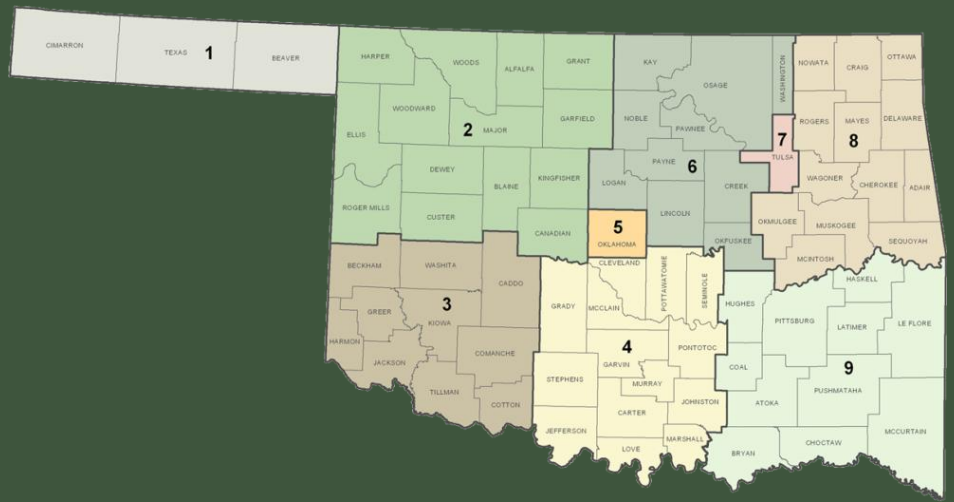
New Board Member Regions

Per Senate Bill 965, 2013 Session

- Transitions nine-member OWRB Board from Congressional District and at-large representation to regional scheme
- Loosely mirrors 1995 OCWP planning regions (plus Panhandle and metro counties)
- Takes effect in 2014



Current Board Regions



Future Board Regions

OCWP Priority Recommendation

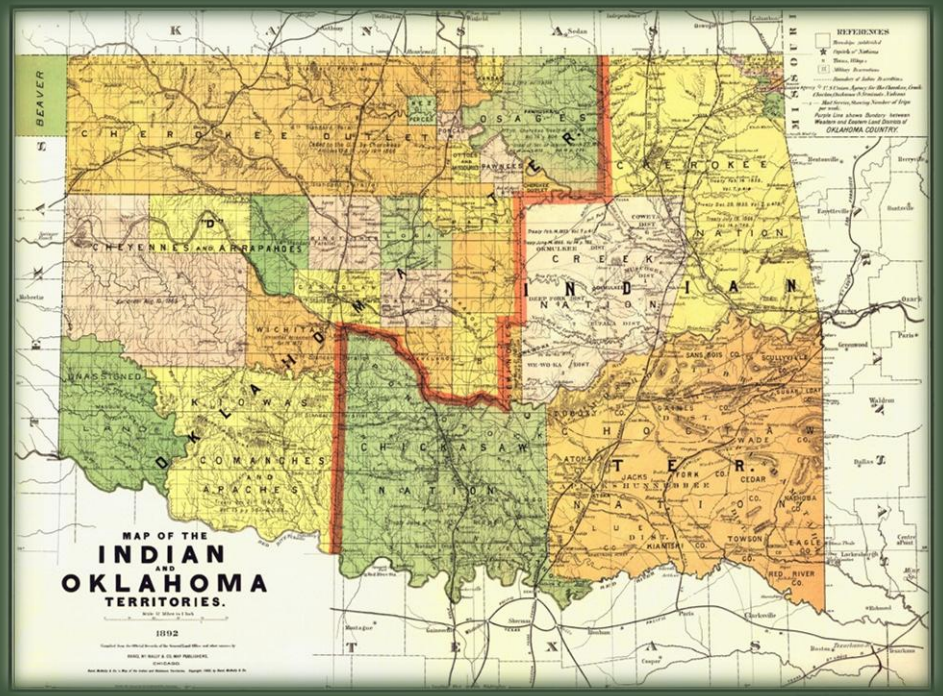
Excess & Surplus Water:

- Protect local water needs while addressing statewide demands.
- Definition and procedure required by statute.
- Ensure that the area of origin (planning basins) will never be made water deficient.

OCWP Priority Recommendation

State/Tribal Consultation & Resolution:

- Build cooperation to **avoid future conflict** and remove uncertainties to water use.
- Governor, State Legislature & Tribes should **make formal consultation a high priority**.



OCWP Supporting Recommendations & Initiatives

- Nonpoint Source Pollution
- Maximizing & Developing Reservoir Storage
- Water Management & Administration
- Dam Safety & Floodplain Management
- Water Quality Management
- Navigation
- Interstate Water Issues
- Source Water Protection
- Water Emergency & Drought Planning
- Water Supply Augmentation
- Water-Related Research
- Agricultural Water Research
- Climate & Weather Impacts on Water Management

2012 OCWP Update
Funding

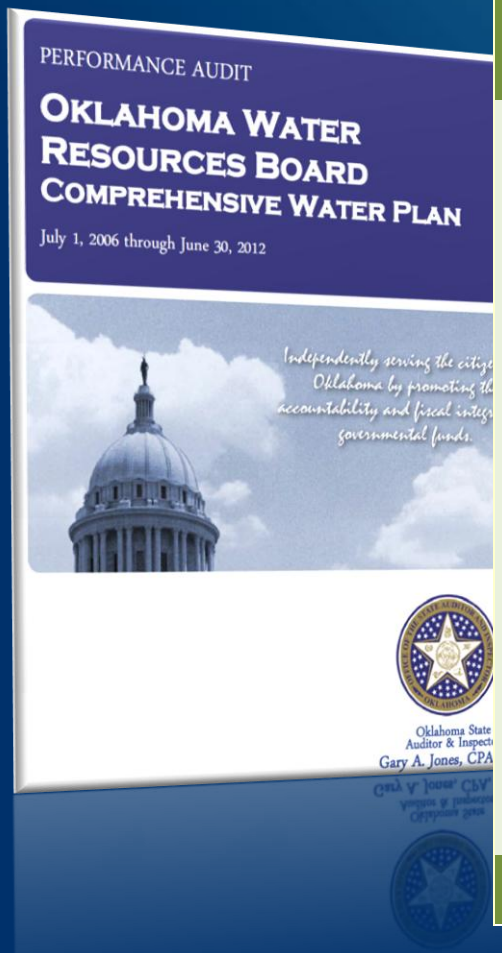
OCWP Funding (FY 2007-2013):

- State Appropriations
- Leverage state appropriations with federal funds through federal authorities:
  - Federal:
    - Corps of Engineers
    - Bureau of Reclamation
    - USGS
  - State:
    - OK Water Resources Research Institute
    - State Gross Production Tax

2012 OCWP Update
Funding

Planning Partners

2012 OCWP Update
State Auditor & Inspector Report



OCWP Expenditures		
Expenditure Category	**Expenditure Detail**	**Expenditure Amount**
State	Contractual	$6,754,988
	Salary & Fringe	$2,146,960
	Travel	$49,939
	Supplies	$48,541
	Equipment	$67,968
	Other	$234,094
	Adjustment I	$421,015
	Adjustment II	-$118,040
	Subtotal, State	**$9,605,465**
Federal		**$3,768,399**
Other		**$2,932**
Total Expenditures		**$13,376,796**

2012 OCWP Update: Expenditures

State Contractors			
DEQ	PWS system evaluations	$	126,874
	WQ lab analyses for trend monitoring		
ODAFF	Ag Water Issues & Recommendations	$	50,000
OU	Impacts of Climate & Weather Variability	$	353,921
	Community Impact project		
	Printing (Water Atlas, reports, brochures)		
OSU	Public participation process	$	3,147,899
	Water Resources Research Grants		
	Water Policy & Related Recommendations		
		Subtotal	**$3,678,695**

2012 OCWP Update: Expenditures

Federal Contractors			
USACE	Water Demand Forecast (& addenda)	$	3,889,992
	Physical Water Supply Availability		
	Water Supply Hotspots		
	Approach for statewide reservoir yield analysis		
	Regional Drinking Water Needs Assessment		
	Water Supply Permit Availability		
	Provider Survey Summary		
	Conjunctive Water Management in OK & Other States		
	River Basin Water Allocation Modeling (AMEC)		
	Climate Change Impacts on Stream Flow (AMEC)		
	Executive Report, 13 Regional Planning Reports, PWS Planning Guide		
		Subtotal	**$3,889,992**

2012 OCWP Update: Expenditures

Federal Contractors			
BOR	Modernization of OWRB database	$	345,000
	Establish baseline water demands		
	Method to evaluate changes in climate & land cover		
USGS	Water Use in Oklahoma (1950-2005)	$	1,228,157
	Hydrologic Drought of Water Year 2011		
	Statistical Summaries of Streamflows in OK		
	Trends in Baseflow in Oklahoma		
	Garber-Wellington Study (partial)		
		Subtotal	**$1,573,157**

2012 OCWP Update: Expenditures

Other Contractors			
CDM	Artificial Aquifer Recharge	$	469,147
	Marginal Quality Water		
	Regional Wastewater Infrastructure Needs		
	Incorporating Climate Change into Planning		
Guernsey	Reservoir Viability Study	$	379,656
	Water Conveyance Study		
Intera	Instream Flow Issues & Recommendations	$	102,932
Robertson	Tribal Water Issues & Recommendations	$	27,345
OML	2008 Water Provider Survey	$	57,500
ORWA	2008 Water Provider Survey	$	47,000
Sparks	Project Management and Review (5-years)	$	285,962
		Subtotal	**$1,369,542**

2012 OCWP Update: Expenditures

OWRB Expenditures		
Salary, fringe, travel, equipment, supplies for technical studies, bathymetric mapping, etc.	$	2,865,410
Subtotal		**$2,865,410**

Total Expenditures	
State Contractors (DEQ, ODAFF, OU, OSU)	$3,678,695
Federal Contractors (USACE, BOR, USGS)	$5,463,149
Other Contractors (engineers, consultants, orgs)	$1,369,542
OWRB Expenditures	$2,865,410
GRAND TOTAL	**$13,376,796**

OCWP Success
Water for ALL Oklahomans through 2060 & beyond

- The Plan is for all Oklahomans so all Oklahomans must take ownership.
- Constructive solutions; build upon the Plan.
- Increased unity among water user groups.
- More partnerships between federal, state, local and tribal governments.
- Willingness to make tough choices.

State of Oklahoma
OWRB
WATER RESOURCES BOARD
the water agency