

OKLAHOMA Water News

1st Quarter 2015

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Water for 2060 Grants Awarded

Three Water for 2060 grants were approved in February for Boise City, Fort Supply, and Shattuck for water system improvement projects that will save these rural communities more than 17 million gallons of water each year.

Governor Mary Fallin presented ceremonial checks to representatives from the communities during Water Appreciation Day at the Capitol on March 11. District legislators Senator Bryce Marlatt and Representative Casey Murdock also attended the ceremony to support the infrastructure investment and continued drought management efforts.

Later that day, during the OWRB's March meeting, a fourth Water for 2060 Grant was approved for the Frontier Development Authority in Butler, Oklahoma, for system improvements that will save the community 6.5 million gallons of water per year.

In a press release, Governor Fallin pointed out that the state is entering its fifth year of drought, and that communities, agricultural producers, and industries all need help in dealing with current shortages and preparing for future droughts.

"Responsible use of water remains the most immediate, direct, and cost-effective way to accomplish these goals," said Fallin.

All four projects will focus on water use efficiency through water loss reduction.

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From left: Rick Schlegel, Cardinal Engineering; Ford Drummond, OWRB Member; Sam Hamilton, Town of Shattuck; Representative Casey Murdock; Governor Mary Fallin; J.D. Strong, OWRB Executive Director; Senator Bryce Marlatt; Linda Lambert, OWRB Vice-Chairman; Rudy Herrmann, OWRB Chairman; Ed Fite, OWRB Member; Joe Freeman, OWRB; Bob Drake, OWRB Member; Mary Schooley, OWRB; and Jerri Hargis, OWRB

From the Director

The rainy season is upon us, yet the state has unfortunately entered into year five of drought. To put this timeline in perspective, Oklahoma's worst drought on record measured approximately seven years during the 1950s—a sobering thought as nearly three million Oklahomans and many communities across the western half of the state continue to struggle with current or imminent water shortages. Without doubt, current drought conditions painfully remind Oklahoma's citizens, public officials, and water planners about the need to plan ahead, to conserve more water, to manage the water we have more efficiently, to focus on badly needed infrastructure improvements, and to educate our fellow Oklahomans on our respective roles in overcoming these water challenges.

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J. D. Strong, Executive Director
Oklahoma Water Resources Board



Water for 2060 Grants (continued)

The Town of Shattuck, which provides water for a population of 1,190, received a Water for 2060 grant for \$500,000. This funding, supplemented by a Rural Economic Action Plan (REAP) grant and local funding, will be used to replace 12,000 feet of water lines that have been experiencing nearly 60% water loss due to age and deterioration. The project will result in an estimated savings of 12.3 million gallons of water per year. Sam Hamilton, Shattuck's Town Administrator, accepted the ceremonial check from Governor Fallin on March 11.

Boise City, located near the middle of Cimarron County, received a Water for 2060 Grant for \$135,000. This funding will be used to replace 2,275 feet of water lines that have been experiencing nearly 50% water loss due to age and deterioration. This project will result in an estimated savings of 1.1 million gallons of water per year. City Council Member

Eldon Soell accepted the ceremonial check from Governor Fallin.

Fort Supply, located in Woodward County, provides water purchased from the City of Woodward for a population of 350. A Water for 2060 Grant for \$397,700 will be used in conjunction with a REAP Grant to replace 10,150 feet of water lines that have been experiencing around 60% water loss to age and deterioration. This project will result in an estimated savings of 3.7 million gallons of water per year. Fort Supply Mayor Mike Lowden accepted the ceremonial check from Governor Fallin.

During the OWRB meeting on March 11, one additional Water for 2060 grant was approved for the Frontier Development Authority in Butler, located in Custer County. The system serves a population of 373 with water purchased from the City of Hobart through its Foss Master Conservancy District allotment. The \$467,300 grant will be used for

(continued on page 3)

From the Director (continued)

With spring also comes the state legislative session, and it is indeed a busy time at the Capitol. While a few water policy issues continue to simmer, one of the most important issues facing the OWRB this legislative session will be the finalization of the state budget, which will ultimately dictate the agency's operating budget for the coming fiscal year. As they do continually throughout the year, each OWRB program coordinator is reviewing opportunities to garner any available savings and efficiencies to address looming budget challenges. Our team continues to meet with legislative leaders and committees to discuss the OWRB's ongoing efforts to provide the best possible service to Oklahomans regardless of budgetary circumstances, as well as the growing importance of our efforts given the current drought conditions faced by more than two-thirds of the state. We also remind legislators that even if the state weren't facing a fifth year of crippling drought, Oklahoma communities would continue to seek our water planning expertise, resource data, and infrastructure financial assistance.

...Oklahoma's worst drought on record measured approximately seven years during the 1950s—a sobering thought as nearly 3 million Oklahomans and many communities across the western half of the state continue to struggle with current or imminent water shortages.

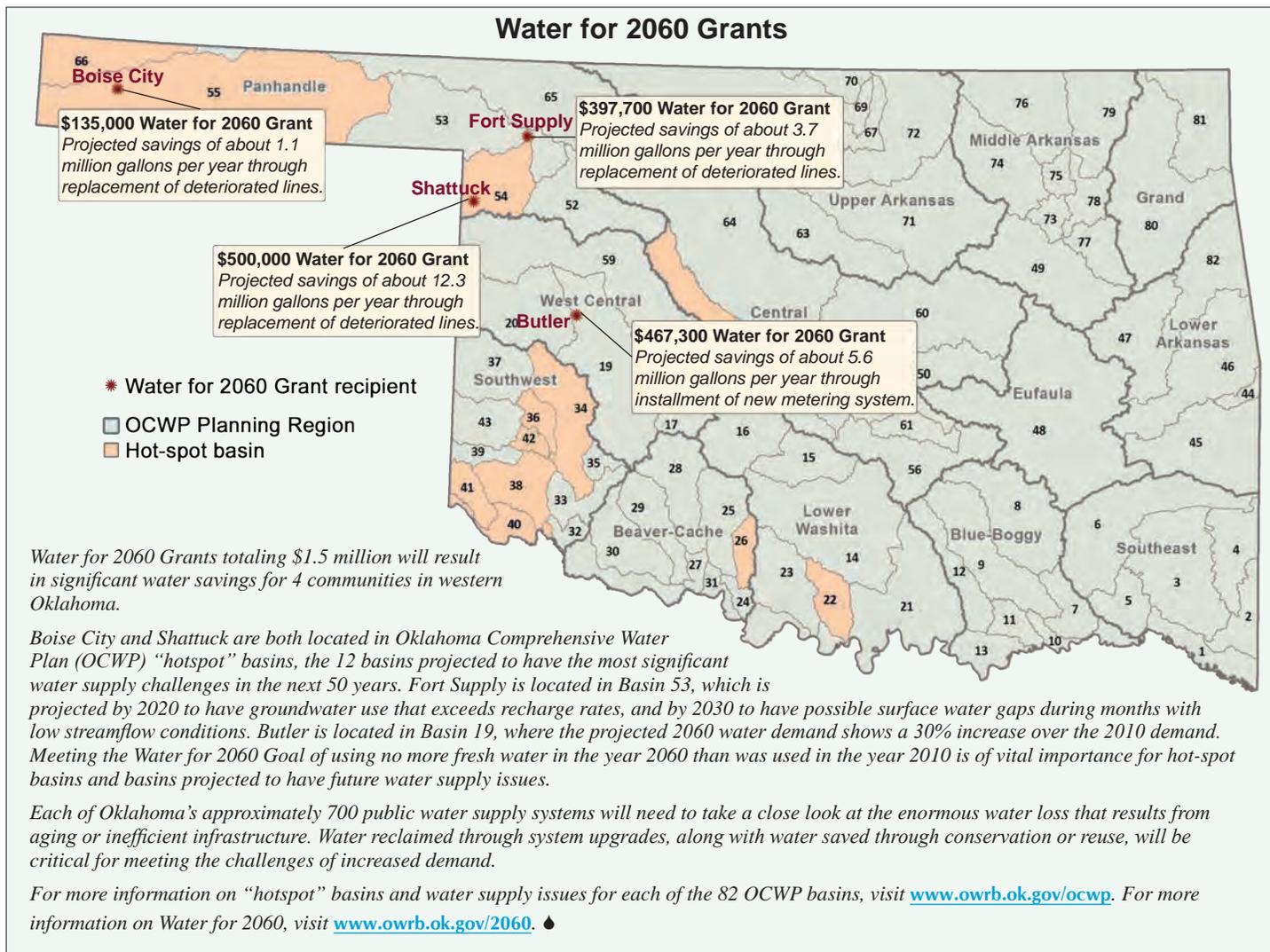
Beyond the budget, most water legislation proposed at the beginning of the session is now dormant after failing to meet deadlines. We continue to follow HB 1116, an attempt to get badly needed water to a rural water district adjacent to the Lexington Correctional Facility, as well as HB 1420, which repeals several outdated and unused sections of the Weather Modification Act. Furthering the goals of Oklahoma's Water for 2060 initiative, HB 1826 seeks to expand the use of gray water, while HJR 1013 expresses the legislature's opposition to

the new "Waters of the United States" regulation proposed by the EPA and Corps of Engineers.

At the national level, I recently visited Washington, D.C., with my colleagues on the Western States Water Council to meet with key congressional members, committee staff, and federal agency partners. It was also a great opportunity to discuss Oklahoma water issues with our delegation, all of whom are to be commended for their hard work and commitment to Oklahoma's water resources. During the meetings, I was accompanied by the OWRB's new Director of Federal and Congressional Affairs, Britnee Preston. Britnee comes to the OWRB from Congressman Markwayne Mullin's office where she served as Deputy Chief of Staff and Legislative Director. It is evident that she is well-respected in Washington, D.C. Her proven ability to navigate the complexities of Congress and the federal government is invaluable, and the OWRB is fortunate to have Britnee on the team.

In addition to legislative initiatives, the OWRB and partners recently hosted the 10th annual Water Appreciation Day at the State Capitol on March 11. During the event, Governor Mary Fallin honored us by presenting to local representatives from Shattuck, Fort Supply, and Boise City recently authorized Water for 2060 Drought Grant checks. Throughout the day and during the check presentation, we sought to showcase the significant impact that conservation and efficient infrastructure can make by saving several million gallons of water annually in rural, drought-impacted communities that don't have the resources to address their water infrastructure needs.

Personally, I enjoy Water Appreciation Day most because of the opportunity to showcase the many groups and agencies that collaborate every day to ensure that all Oklahomans have continued access to safe, reliable water supplies to use and enjoy in a multitude of ways. The event also serves as an important reminder that even as we endure our fifth year of drought, the OWRB and many other Oklahomans remain committed to developing drought-proof strategies in the near term and formulating long-term planning solutions to prepare for inevitable droughts of the future. ♦



the replacement of all current meters with automatic radio read metering systems, hand-held drive-by units, software, laptops, and other necessary hardware, as well as the replacement of the master meter. The transition to automatic meters will make it much easier to detect and locate leaks, and will lead to greater customer conscientiousness and responsibility. These improvements are expected to save the system more than 6.5 million gallons per year.

All Water for 2060 grant recipients submitted project plans demonstrating water efficiency and drought resiliency, documenting percent efficiency to be achieved with the project.

The Water for 2060 Act, passed in 2012, established a bold, statewide goal of consuming no more fresh water in 2060 than was consumed in 2010 while preserving Oklahoma's population growth and economic development goals.

Appointees to the Water for 2060 Advisory Council are currently studying a wide range of innovative conservation measures, incentives, and related project financing options to solidify Oklahoma's water future. The Council's report will be finalized and presented to Fallin and state legislative leaders by the end of 2015. ♦

Standards Revision Update

On February 19, the OWRB approved the following revisions to Oklahoma's Water Quality Standards (OAC 785:45 and OAC 785:46): (1) a Water Effect Ratio and Dissolved Translator for use in calculating permit limits for copper and zinc for the Broken Bow OPDES permit related to discharge of wastewater to a tributary of Yanubbe Creek, and (2) several amendments to clarify language associated with dissolved oxygen criteria.

In order to allow for further evaluation and consideration of the comments received during the public comment period, staff did not recommend for approval the previously proposed portions of OAC 785:45 related to Water Quality Standards for wetlands.

As noted in the draft agenda that was posted for the OWRB's monthly board meeting, the agency opted to pull the wetlands water quality standards proposal at this time for further work with concerned stakeholders.

The OWRB is committed to the open and constructive rule-making process. The decision to spend additional time on this proposal and the consideration and incorporation of suggestions offered by the public demonstrates the effectiveness of this process. ♦

RiskMAP Activities Expanded Through Partnerships

Through its participation in the Federal Emergency Management Agency (FEMA) RiskMAP program, the OWRB's Floodplain Management team has assisted in facilitating flood studies for several Oklahoma communities.

Risk Mapping, Assessment, and Planning (RiskMAP) is a FEMA program that provides communities with flood information and tools they can use to enhance their mitigation plans and take action to better protect their citizens. Through more precise flood mapping products, risk assessment tools, and planning and outreach support, RiskMAP strengthens local ability to make informed decisions about reducing risk.

OWRB participation has resulted in Physical Map Revisions (PMRs) to Flood Insurance Studies and maps for communities in Tulsa, Wagoner, and Rogers Counties. An additional PMR is currently underway in the City of Tulsa.

Support from local communities for Cooperating Technical Partnership (CTP) projects remains very high, with local cost match contributions meeting or exceeding 25% of total project funding. All studies completed within the City of Tulsa have employed existing topographic data (provided by the local community at no cost to FEMA), resulting in project savings estimated between \$50,000 and \$75,000. Total FEMA and local community support as of 2014 exceeds \$2.3 million.

New topographic information (NRCS LiDAR coverage) exists for a significant portion of the State, and the majority of urban communities have acquired their own topographic information. LiDAR topographic data availability has allowed the OWRB to include additional studied stream miles and new mapping for communities that otherwise would have been cost prohibitive. The OWRB is actively engaging various Federal partners to acquire additional LiDAR data throughout the state.

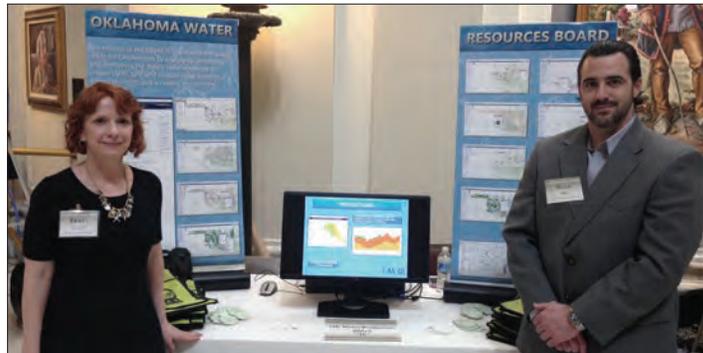
Building on the continued success and partnerships with FEMA and local communities, the OWRB is seeking to implement a multi-hazard, risk focused approach for mitigation actions statewide through its 2015-2020 RiskMAP business plan, which includes the following strategies:

- Expand digital mapping to all NFIP participating communities;
- Provide initial flood risk analysis to non-studied communities;
- Increase mitigation actions in deployed communities; and
- Advance Coordinated Needs Management Strategy deployment statewide, orienting study priorities to local needs.

For more information on the OWRB's Floodplain Management Program, visit www.owrb.ok.gov. For information on RiskMAP, visit www.fema.gov/media-library/assets/documents/18274. ♦

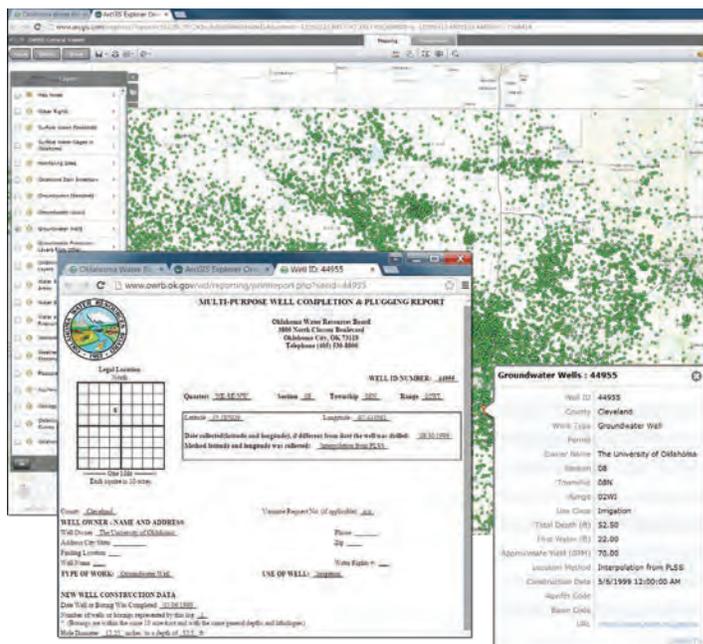
OWRB Map Viewers Showcased at Capitol

OWRB Geographic Information Systems (GIS) specialists provided demonstrations and information about the agency's interactive map viewers at the capitol on March 12 during GIS Day. The OWRB currently maintains 13 viewers available to the public at www.owrb.ok.gov/viewers.



OWRB GIS staff Tracy Scopel and Ryan Self provided demonstrations and information about the agency's thirteen map viewers and the wealth of water-related data available to the public through the OWRB website.

The latest viewer added to the collection is the OWRB General Viewer, which replaces the Water Information Mapping System (WIMS). The General Viewer allows users to create custom maps utilizing more than 20 layers of water information, including background layers, such as surface water features and aquifer boundaries, and informational layers, such as the Groundwater Wells layer, which is "clickable" and links to the OWRB's well log database (shown below).



The Groundwater Wells layer on the OWRB General Viewer allows users to select any well and access information about it, such as the Well Completion and Plugging Report.

The map viewers are updated continuously, providing a user-friendly and flexible means for the public to access the latest OWRB and partner agency data. ♦

Catch the Big Drips

Tips for Creating a Sustainable and Drought Resilient Landscape

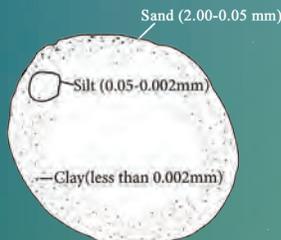
Adapted from A Guide to Saving Water in the Home Landscape, developed by the Oklahoma Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources, Oklahoma State University

Determine your soil texture.

Sandy soil feels gritty and will not stay in a ball. Water drains quickly from this type of soil due to its large pore spaces.

Loam soil feels partly gritty and partly smooth. This type of soil forms a ball that breaks easily when squeezed and has a high water holding capacity.

Clay soil feels smooth and sticky. This type of soil drains water more slowly than sandy soils.



Relative size of sand, silt, and clay particles



Knead soil between your fingers to determine texture.



www.oces.okstate.edu

Check soil moisture before watering.



Screwdriver does not easily pass through dry soil.

Use a screwdriver to check soil moisture before watering; if it goes in easily, do not water. Soil may appear dry on the surface but moisture may be sufficient throughout the soil profile.

Choose the right turfgrass.

Select a turfgrass that is well adapted to Oklahoma's variable temperature and moisture. Selecting the appropriate turfgrass will reduce soil erosion and save water.

TURFGRASS	REGION	SUN REQUIREMENTS	DROUGHT RESISTANCE	HEAT TOLERANCE	IRRIGATION REQUIREMENTS
Warm-Season Turfgrass					
Bermudagrass	Statewide ¹	Full sun	Excellent	Excellent	Low
Buffalograss	Central, Western	Full sun	Excellent	Excellent	Low
St. Augustinegrass	Southern along Red River	Full sun to light shade	Good	Excellent	Medium
Zoysiagrass	Central, Eastern	Full sun to light shade	Very good	Excellent	Medium
Cool-Season Turfgrass					
Kentucky Bluegrass	Northern, Eastern	Full sun to shade ²	Good	Fair	High
Perennial Ryegrass	Northern, Eastern	Full sun to shade	Poor	Fair	High
Tall Fescue	Statewide	Full sun to shade	Good	Good	High

¹ May be susceptible to winter kill in Northern areas

² Recommended for lightly shaded areas in Oklahoma, requires more irrigation in full sun

Irrigate efficiently.

Do a regular maintenance check on your irrigation system, check for leaks, and repair or replace broken sprinkler heads. Avoid watering frequently and lightly. Water based on need and weather conditions, not on a regular schedule.

Mulch properly.

Mulching properly can reduce soil moisture loss. Add mulch to a depth of 2-3 inches; adding too much can harm plants by reducing water and air infiltration into the soil. Avoid mounding mulch around plants and trees because it can cause trunk rot.

Mow correctly.

Increasing the mowing height to 2-3 inches for warm season grass and 3-4 inches for cool-season grass during the summer will help conserve soil moisture.

Reduce thatch.

Excessive thatch can reduce water, air, and nutrient movement, leading to shallow root development. If thatch is thicker than 0.5 inches, the yard would benefit from a dethatching.

Aerate your lawn.

Aerating reduces soil compaction and increases water infiltration.



TYPE OF SPRINKLER HEAD	BEST USE
Micro-spray	Containers, shrubs, trees, flower beds
Bubbler	Trees, shrubs, flower beds
Matched Precipitation (MP) Rotator	Large turf areas
Spray head	Medium to small sized turf areas



Public Forum Held for Instream Flow Pilot Study

A public meeting focused on the Illinois River Instream Flow (ISF) Pilot Study was held in January in Tahlequah, Oklahoma. Instream (or environmental) flows are those necessary to support water-related recreation (such as fishing, hunting, swimming, and boating) and tourism, as well as provide for a healthy ecosystem.

OCWP Priority Recommendation on Instream Flows

The meeting opened with a presentation by John Rehring, Carollo Engineers, about instream flow (ISF) issues in Oklahoma, and the priority recommendation in the 2012 update of the Oklahoma Comprehensive Water Plan (OCWP) to develop and implement a process to ascertain the suitability and structure of an ISF program.

The Instream Flow Advisory Group was formed as part of the 2012 Update of the OCWP and continues to meet regularly to define whether and how an ISF program might be implemented in Oklahoma. Technical support has been provided by the OWRB and US Army Corps of Engineers through a contract with CH2M Hill and Carollo Engineers.

History and Background of Instream Flows in Oklahoma

Derek Smithee, OWRB Water Quality Programs Division Chief, presented information about the history and background of instream flows in Oklahoma. Smithee pointed out that instream flow uses are considered nonconsumptive in nature and do not necessarily have to conflict with consumptive water needs, such as public water supply and irrigation.

Two instream flow studies have already been completed in Oklahoma. The 2000 Barren Fork study by Dr. William Fisher of Oklahoma State University focused on the impacts of reductions in streamflow to the smallmouth bass population. Results showed that a minimum instream flow between 30 and 75 cubic feet per second (cfs) was necessary to protect the species. In 2003, OWRB rules were modified to require suspension of all future permitted withdrawals from the Barren Fork when the flow is less than 50 cfs.

The second ISF study took place in springs and streams that overlie the Arbuckle-Simpson Aquifer. Researchers were looking at how groundwater withdrawals in the aquifer would affect spring-dependent fish species. Results of this study were used to help determine the maximum annual yield of the aquifer for groundwater permitting purposes.

Instream Flow Assessment of the Scenic Illinois River

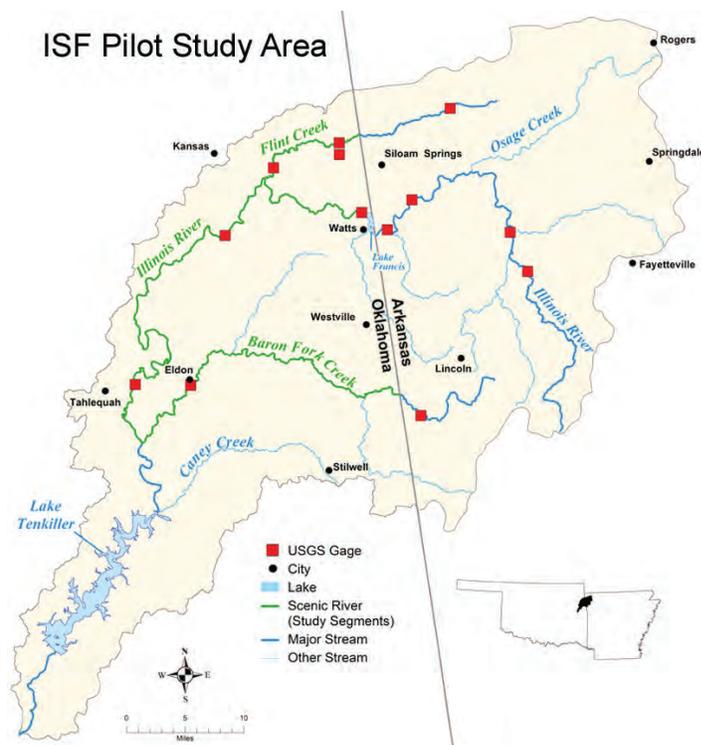
Forrest Olson, CH2M HILL, presented information focusing on the primary goals of the pilot study:

1. Develop seasonal instream flow recommendations for the Illinois River including Baron Fork and Flint creeks.
2. Gain a better understanding of the implications of a process to deal with instream flow issues consistent with the overall goal of managing water resources in Oklahoma for multiple uses. The study would help define a conceptual framework and study process that could be used statewide.



The Technical Study Work Group includes the OWRB, US Army Corps of Engineers, CH2M HILL, Oklahoma Department of Wildlife Conservation, Oklahoma Conservation Commission, Oklahoma Scenic Rivers Commission, US Geological Survey, US Fish and Wildlife Service, and The Nature Conservancy.

Throughout the study, the team will conduct outreach with interested parties to identify and document concerns and issues.

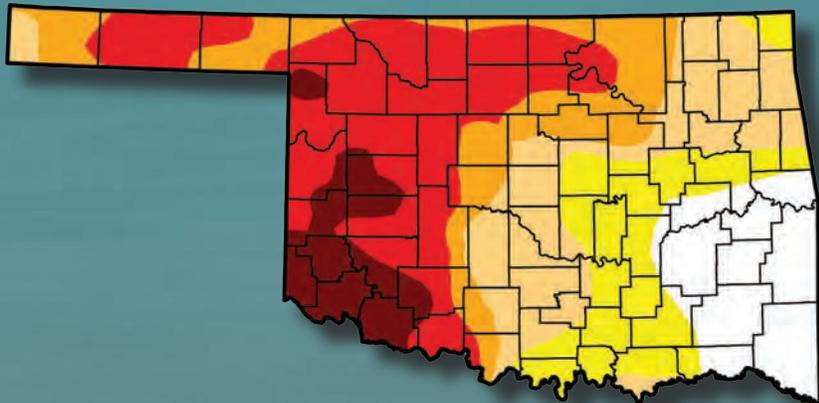


A detailed study plan is currently being developed along with a review of background information. The team will begin data collection in May or June, 2015. The initial phase of the study is estimated to be completed by the end of the year.

The meeting concluded with the opportunity for public comment. A summary of the comments and other Instream Flow Advisory Group information is available at www.owrb.ok.gov/ISF. For questions about the Instream Flow Pilot Study, contact Derek Smithee at 405-530-8800 or derek.smithee@owrb.ok.gov.

Drought Update

U.S. Drought Monitor
 March 24, 2015

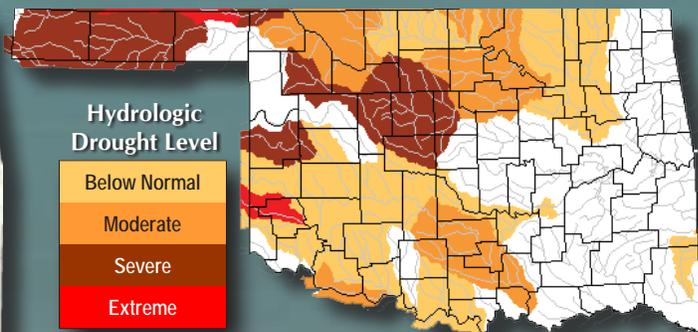


Abnormally Dry	95.95
Moderate Drought	77.48
Severe Drought	50.67
Extreme Drought	24.03
Exceptional Drought	8.61

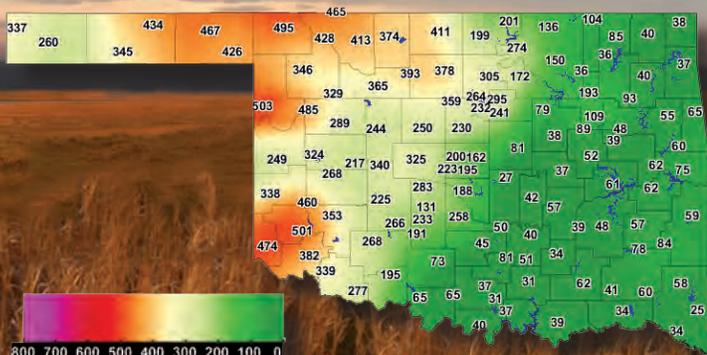
Reservoir Storage
 March 23, 2015



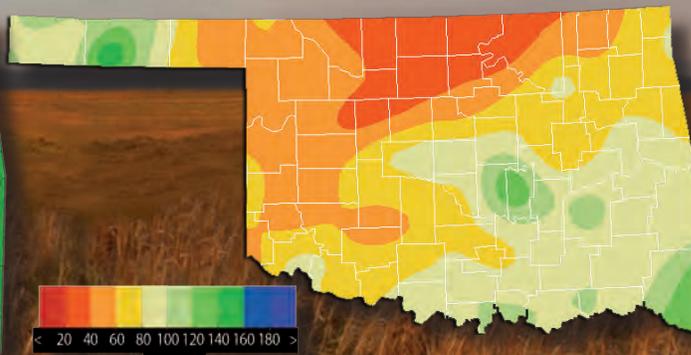
Streamflow (7-Day Average)
 March 25, 2015



Keetch-Byram Drought Index
 March 26, 2015



Percent of Normal Precipitation
 Last 90 Days (January 2, 2015, through April 1, 2015)



Data obtained from the National Drought Mitigation Center, US Geological Survey, US Army Corps of Engineers and Oklahoma Climatological Survey. For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, visit www.drought.ok.gov.

*Rudy Herrmann, Chairman • Linda Lambert, Vice Chairman • Tom Buchanan, Secretary
Bob Drake • Ford Drummond • Marilyn Feaver • Ed Fite • Jason Hitch • Richard Sevenoaks*

Protecting and enhancing the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of March 11, 2015

FA Loans—365 totaling \$935,065,000

The OWRB's Financial Assistance Program (FAP), created by the State Legislature in 1979, provides loans for water and wastewater system improvements in Oklahoma. The tremendous popularity of the bond loan program is due, in part, to extended payoff periods of up to 30 years at very competitive interest rates.

CWSRF Loans—285 totaling \$1,296,094,392

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to use for their wastewater infrastructure needs. The CWSRF program is Oklahoma's largest self-supporting wastewater financing effort, providing low-interest loans to communities in need.

DWSRF Loans—174 totaling \$ 916,958,300

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and ODEQ to assist municipalities and rural water districts in the construction and improvement of drinking water systems. These projects are often mandated for communities to obtain compliance with increasingly stringent federal standards related to the treatment of drinking water.

REAP Grants—631 totaling \$56,021,356

The Rural Economic Action Plan (REAP) Program was created by the State Legislature in 1996. REAP grants, used for water/wastewater system improvements, primarily target rural communities with populations of 7,000 or less, but priority is afforded to those with fewer than 1,750 inhabitants.

Emergency Grants—568 totaling \$33,822,821

Emergency grants, limited to \$100,000, are awarded to correct situations constituting a threat to life, health, or property and are an indispensable component of the agency's financial assistance strategy.

Drought Response Program Grants—10 totaling \$1,543,848

Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of \$300,000 is diverted from existing OWRB Emergency Grant proceeds to fund the Program.

Water for 2060 Grants—4 totaling \$1,500,000

Through the Water for 2060 Grant Program, funding is available for municipalities, counties, water/sewer districts and other public entities for projects that highlight the responsible use of water.

Total Loans/Grants Approved: 2,037 totaling \$3,240,360,734

Estimated Savings: \$1,108,740,257

Applicants eligible for water/wastewater project financial assistance vary according to the specific program's purpose and requirements, but include towns and other municipalities with proper legal authority, various districts established under Title 82 of Oklahoma Statutes (rural water, master/water conservancy, rural sewage, and irrigation districts), counties, public works authorities, and/or school districts. Applications for agency financial assistance programs are evaluated individually by agency staff. Those meeting specific program requirements are recommended by staff for approval at monthly meetings of the nine-member Water Board. **For more information, call (405) 530-8800 or go to www.owrb.ok.gov/financing.**

OKLAHOMA
**Water
News**

1st Quarter, 2015

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OKLAHOMA Water News

2nd Quarter 2015

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Relief from Drought

Allen Appointed to OWRB

Nicoma Park Development
Authority Receives CWSRF
Loan

Coming Soon: Lakes of
Oklahoma, 3rd Edition

Oklahoma Water
Monitoring Reports
Available

CWSRF Green Stormwater
Management Projects

Drought Update

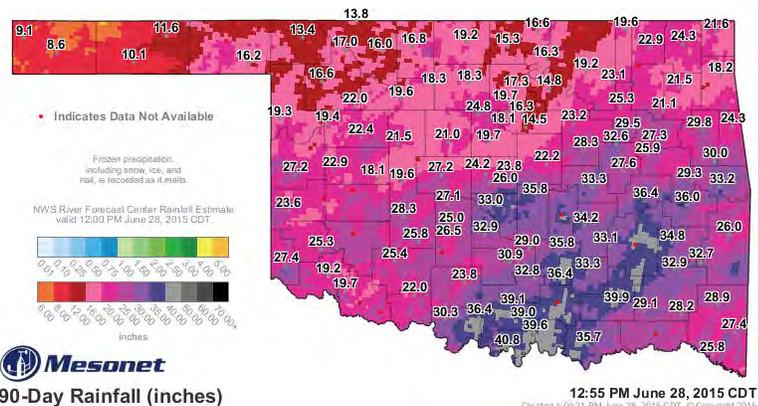
Record Rains Bring Reprieve from Drought

According to the Oklahoma Climatological Survey, historic rains during May eliminated nearly five years of drought in Oklahoma. Statewide average rainfall for the month was 14.4 inches—9.58 inches above normal—setting a new record for any month in the state's history. Twenty-two Mesonet stations recorded at least 20 inches of rain, and 54 recorded at least 15 inches.

The U.S. Drought Monitor for Oklahoma reported that the number of Oklahomans affected by drought (category D1-D4) was at zero by the end of June. At this time last year, more than 78% of the state was suffering from drought with more than 10% experiencing exceptional drought (D4). Just three months ago, more than 85% of the state was affected by drought. At the end of May, 23% of the state was reported to still be experiencing abnormally dry conditions (D0), but by the end of June, that number was down to less than 2%, and included about half of Cimarron county and a small portion of Texas county.

Proof of drought recovery can easily be seen in Oklahoma's lakes. Real-time lake gages monitored by the U.S. Army Corps of Engineers and U.S. Geological Survey show that most of the state's largest lakes have remained at greater than 100% of normal pool storage capacity throughout the month of June.

According to the U.S. Seasonal Drought Outlook released by the National Weather Service Climate Prediction Center, from mid-June through the end of September, none of the state's climate regions are likely to develop drought conditions, which is also the case for Oklahoma's neighboring states in all directions. However, Utah, Arizona, Nevada, Idaho, and all states along the west coast are expected to experience persistent or intensifying drought. ♦



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From the Director

After historic levels of rain throughout May and early June, nearly five years of drought have been virtually eliminated across Oklahoma, at least for the time being. Given historical precipitation patterns and forecasts for the future, we know that more, possibly even more significant droughts are on the way.

Unfortunately, historically significant drought ended in equally significant flooding, and with it came a tragic loss of life and property damage. I'd like to thank Oklahoma's first responders and emergency management personnel for their dedication to keeping Oklahomans safe during the flood events. The OWRB's Floodplain Management staff continues to work with both FEMA and National Flood Insurance Program (NFIP) participant



(continued on page 2)

J. D. Strong, Executive Director
Oklahoma Water Resources Board



From the Director (continued)

communities throughout Oklahoma on data collection and damage assessments.

While we acknowledge the dangers of flooding, we must also be thankful for the benefits the heavy rain brought, including the filling of many near-empty reservoirs across western Oklahoma. This respite, however brief, gives us a great opportunity to redouble our efforts to prepare for the next prolonged drought we'll undoubtedly face. Water officials and planners, agricultural producers, industrial water users, and many other Oklahomans must continue to conserve water, plan for the worst, and improve infrastructure for the inevitable time when flood waters are a distant memory.

Water officials and planners, agricultural producers, industrial water users, and many other Oklahomans must continue to conserve water, plan for the worst, and improve infrastructure for the inevitable time when flood waters are a distant memory.

In addition to record-breaking precipitation, May also saw the end of another session of the Oklahoma State Legislature and the release of the Environmental Protection Agency's (EPA) and U.S. Army Corps of Engineers' (COE) final "Waters of the United States" (WOTUS) rule. First, the 2015 legislative session was largely devoted to budget concerns. With the exception of a 5.5% cut in state appropriations to the OWRB, the session was mostly positive. Importantly, the Legislature ultimately approved the OWRB's proposed rules, including updates to Oklahoma's water quality standards and the OWRB's financial assistance programs. Governor Fallin signed the OWRB's proposed rules on June 8, and they are expected to take effect later this fall.

Secondly, the EPA and COE announced their final rule for defining WOTUS under the Clean Water Act (CWA) on May 27. It was published in the Federal Register on June 29, which means it will be the law of the land on August 28. My biggest concern has always been that the final rule effectively cuts off states as co-regulators and ends warranted debate on myriad practical and scientific concerns with the proposed definition of WOTUS. Unfortunately, the absence of productive consultation with State regulators has led to a final rule that will be difficult, if not impossible, to implement. If the final



State employee bombing survivors, including many from the OWRB, were honored by Governor Fallin and the Oklahoma State Senate at the capitol on April 16.

rule and its forthcoming implementation don't make the already fuzzy line of Federal jurisdiction more clear, then we can expect an onslaught of litigation and confusion that does nothing to protect our waters.

The spring was not solely devoted to state and federal policy-making. On April 19th, the citizens of Oklahoma gathered for the 20th anniversary of the Oklahoma City bombing to honor and remember the victims, survivors, rescuers and all who were affected by the "worst home-grown act of terrorism on American soil." As many know, the Oklahoma Water Resources Board family was physically, emotionally, and tragically impacted by the unfathomable violence perpetrated that day. As we do every year, the OWRB participated in a number of events related to the remembrance of all those affected or lost that tragic day—including the OWRB's own Trudy Rigney and Bob Chipman. In addition to holding the annual remembrance vigil and ribbon ceremony on the OWRB's grounds, it was inspiring to see the agency enter 31 runners for various events in the Oklahoma City Memorial Marathon.

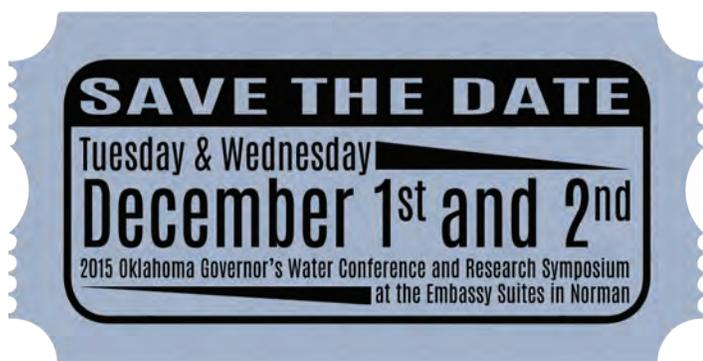
In conclusion, I'm excited to announce that we have finalized the dates and location for the 36th Annual Governor's Water Conference. This year's conference will be held December 1-2 at the Embassy Suites Convention Center Hotel in Norman, OK. We are looking forward to another great conference this year. ♦

Allen Appointed to OWRB

On April 29, Governor Mary Fallin appointed Stephen B. Allen to the OWRB to represent industrial water use interests and OWRB region seven. Mr. Allen resides in Jenks, OK, and is the vice president and associate general counsel for ONEOK, Inc. He specializes in the areas of mergers and acquisitions, commercial law, corporate technology, business organizations, and securities. Allen received his Juris Doctor degree from Vanderbilt University School of Law in Nashville, TN. Allen serves on the Metro Christian Academy Board of Trustees and is an advisory trustee on the Oklahoma Baptist University Board of Trustees. Allen's term will expire in May 2021. ♦



Stephen B. Allen



Nicoma Park Development Authority Receives CWSRF Loan

At its monthly meeting in May, the OWRB approved a Clean Water State Revolving Fund (CWSRF) loan to the Nicoma Park Development Authority for \$4,120,000.

Nicoma Park is located about 14 miles east of Oklahoma City. The system, currently serving 494 sewer customers, will use the loan proceeds to add an anticipated 300 customers.

System expansion includes the installation of approximately 5 miles of 8-inch PVC sewer line, 1.4 miles of 10-inch PVC line, and 166 sewer system manholes. The project will also include the removal of three lift stations, asphalt paving and repair, traffic control, and erosion control. Wastewater will continue to be conveyed to the Choctaw treatment plant after project completion.



Presentation of a ceremonial check to Nicoma Park Development Authority. Pictured from left: Mark Cochell, Mayor of Nicoma Park; Beverly McManus, City Clerk; Joe Freeman, OWRB Financial Assistance Division Chief; and Matthew Sellers, OWRB Loan Analyst.

By utilizing the CWSRF loan program through the OWRB, the Nicoma Park Development Authority is estimated to save \$1,935,000 over the life of the 30-year loan compared to traditional financing. The CWSRF loan will be secured with a lien on the revenues of the Authority's water and sewer systems, as well as the proceeds of a one cent sales tax.

The CWSRF loan program was established under amendments to the 1987 Clean Water Act to provide a renewable financing source for statewide wastewater infrastructure and polluted runoff control needs while protecting Oklahoma's surface water and groundwater resources. Launched by \$14.5 million in state appropriated seed monies and \$402.9 million in subsequent state match notes and revenue bonds, the program has capitalized more than \$318 million in federal grant funds to commit more than \$1 billion in low-interest construction and refinancing loans since 1990.

Since 1983, the OWRB has approved more than \$3.1 billion in loans and grants for water and wastewater infrastructure improvements across the state through the agency's financial assistance loan and grant programs. For more information, visit www.owrb.ok.gov/financing. ♦

Coming Soon! Lakes of Oklahoma Third Edition

The OWRB is pleased to announce that the third edition of *Lakes of Oklahoma* is currently in production and will be available to the public in late summer, 2015. High resolution maps for 146 Oklahoma lakes include recreation features and fish attractor locations. This edition features lake bottom contour elevations for 58 lakes where bathymetric studies have been performed by the OWRB and its partner agency, the Oklahoma Department of Wildlife Conservation (ODWC). Third edition maps will also include GPS coordinates, state fish records, estimated depth, and water quality information.



Published by the OWRB and ODWC, Lakes of Oklahoma, 3rd Ed. will be available to the public in late summer, 2015.

A U.S. Fish and Wildlife Service Sports Fish Restoration Program grant has been obtained by the ODWC to cover the cost of printing the atlas. To more than triple the number of copies that can be printed and decrease the weight of the atlas by more than half, this edition features half-page maps for lakes with 15 miles of shoreline or less. All maps can be printed from high resolution pdf versions available on the OWRB's website.

The atlas will be offered to the public free of charge at several OWRB and ODWC locations, or individual copies can be mailed by the OWRB for a small shipping and handling fee.

Visit www.owrb.ok.gov to check availability status or follow the OWRB on twitter @OKWaterBoard. ♦

Oklahoma Water Monitoring Reports Available

The Oklahoma Water Resources Board's Beneficial Use Monitoring Program (BUMP) annual reports of statewide water quality data for lakes, streams, and groundwater are now available online at www.owrb.ok.gov/BUMP.

The BUMP Lakes and Streams reports feature summaries of physical, chemical, and biological data obtained through sampling at approximately 130 lakes and 100 stream sites throughout the state, and include an assessment of beneficial use impairments or threats for each site. The online version contains summary pages listed by stream site or lake site with links to downloadable data. Agency monitoring staff sample rivers in the network annually and lakes on a three-year rotation.

(continued on page 4)

Monitoring Reports (continued)

Data gathered in 2014 indicate that the major water quality concerns of Oklahoma lakes continue to be excess nutrients and turbidity. Data also indicate that 30% of the lakes sampled in 2014 were “hyper-eutrophic,” which means they contain an excessive amount of nutrients that could lead to taste and odor problems. In improving order of quality, about 35% of lakes sampled in 2014 were considered eutrophic, 32% were mesotrophic, and 3% were oligotrophic (waters relatively low in nutrients).

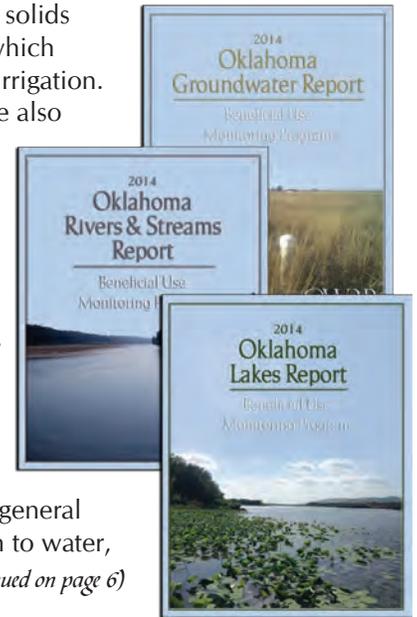
The vast majority of streams sampled within the past two years were suitable for uses related to public and private water supply. However, inorganic turbidity caused by sediments from runoff was the primary detriment to fish and wildlife propagation. Bacteria were the major concern for recreation that involves primary body contact with the water. A small number of sampled streams had problems

associated with dissolved solids (chlorides and sulfates), which limits their suitability for irrigation. A number of streams were also identified as having high levels of phosphorus and chlorophyll-a.

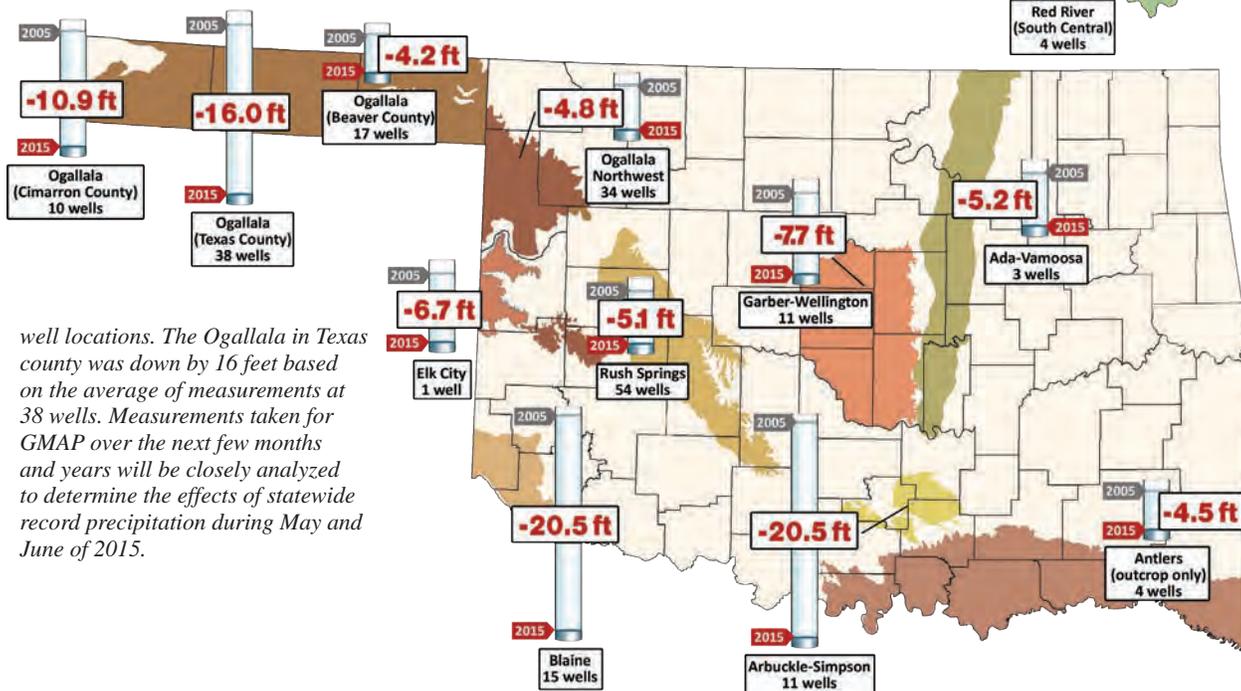
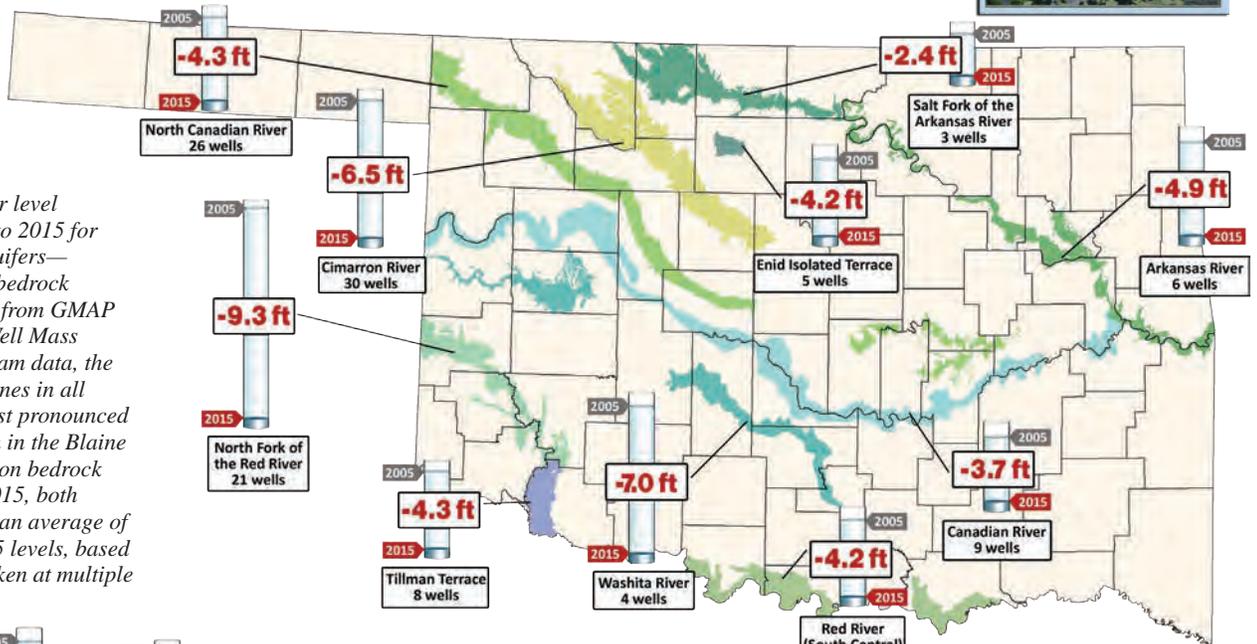
The Groundwater Report contains summaries of aquifers sampled through the Groundwater Mapping and Assessment Program (GMAP).

The summaries show nutrient, mineral, and metal statistics as well as general parameters, such as depth to water,

(continued on page 6)



Ten-year mean water level changes from 2005 to 2015 for the state's major aquifers—alluvial (right) and bedrock (below). Calculated from GMAP and OWRB Water Well Mass Measurement Program data, the averages show declines in all aquifers, but the most pronounced changes can be seen in the Blaine and Arbuckle-Simpson bedrock aquifers; in early 2015, both aquifers were down an average of 20.5 feet below 2005 levels, based on measurements taken at multiple



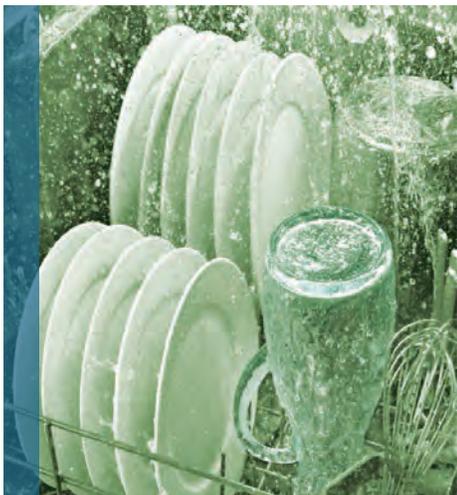
well locations. The Ogallala in Texas county was down by 16 feet based on the average of measurements at 38 wells. Measurements taken for GMAP over the next few months and years will be closely analyzed to determine the effects of statewide record precipitation during May and June of 2015.

Four Simple Ways to SAVE LOTS OF WATER



DID YOU KNOW?

The average household could save about \$170 per year by retrofitting with water-efficient fixtures and incorporating water-saving practices. How much money you save will depend on the cost of water where you live, but it makes sense that using less water lowers your utility bill. More importantly, using less water preserves this limited resource for generations to come.



SAVE 13,000 GALLONS

of water each year by updating an older toilet that uses 6 gpf with a low flow toilet that uses only 1.28 gpf.

That's enough to fill an above-ground swimming pool!



SAVE 700 GALLONS

of water each year by updating standard faucets and aerators that use 2.2 gpm with low flow fixtures that use just 1.5 gpm.

That's 40 5-minute showers!



SAVE 2,900 GALLONS

of water each year by updating standard shower heads that use 2.5 gpm with low flow fixtures that use just 2.0 gpm.

That's 725 dishwasher loads!



SAVE 8,800 GALLONS

of water each year by installing irrigation controllers that tailor water schedules to local weather and landscape conditions.

That's 628 loads of clothes in a washing machine!



Clean Water State Revolving Fund (CWSRF)

Oklahoma Water Resources Board
Financial Assistance Division



Green Infrastructure for Stormwater Management

Pavement, rooftops, and other impervious surfaces prevent stormwater from naturally soaking into the ground. Stormwater management infrastructure has traditionally been “gray,” using materials such as concrete, pipes, and inlets to convey water off site. This can cause a number of environmental problems, such as downstream flooding, stream bank erosion, increased turbidity, increased nutrients, and habitat destruction. Integrating green infrastructure components into stormwater management can significantly reduce or eliminate these problems.

Some examples of green infrastructure projects include the installation of permeable/porous pavements, green roofs, tree boxes, vegetated swales, vegetated median strips, cisterns and rain barrels, and riparian buffers. Other eligible projects are focused on construction and conservation of parks and greenways, wetlands, and rain gardens, or implementation of bio-infiltration practices.



Bio-retention roundabout in Bixby funded through the CWSRF

The benefits of these types of projects are numerous—cleaner water, increased groundwater recharge, source water protection, increased drought tolerance, improved floodplain management, reduced urban temperatures, and protection of aquatic habitats.

Many green infrastructure projects are eligible for funding under the Clean Water State Revolving Fund (CWSRF) loan program. The CWSRF provides below market interest rate loans to public entities. For more information about the CWSRF program, visit www.owrb.gov/CWSRF or call the OWRB at (405) 530-8800. ♣

Monitoring Reports (continued)

alkalinity, hardness, and total dissolved solids (TDS). GMAP was established in 2013 as the state’s first comprehensive groundwater quality and quantity monitoring program. A network of approximately 750 wells in Oklahoma’s 21 major aquifers will be phased in by 2016 and sampled on a four-year rotation.

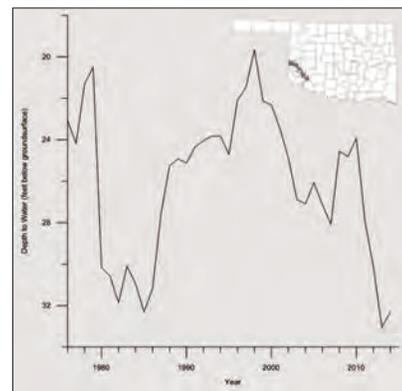


Groundwater specialist Kevin Kilhoffer records the water level at a GMAP network well.

Data from phase two of GMAP sampling, which includes the Vamoosa-Ada, Salt Fork of the Arkansas River, Arkansas River, North Fork of the Red River, Salt Fork of the Red River, Tillman Terrace, and Washita River alluvial and bedrock major aquifers, is highlighted in this year’s report. Summaries for each aquifer in the GMAP network give an overview of the aquifer’s geology and focus on water quality constituents that are of primary concern. Groundwater level hydrographs show depth to water over the longest period of record.

Data provided by the program will play an important role managing state water resources. It is estimated that Oklahoma’s aquifers store approximately 386 million acre-feet of groundwater, which supplies thousands of municipalities, rural water districts, industrial facilities, and agricultural operations. According to the 2012 OCWP, groundwater represents 43 percent of the total water used in the state each year. ♣

This hydrograph, featured in the 2014 GMAP report, reflects average groundwater levels in the North Fork of the Red River aquifer. Though fluctuation in alluvial aquifers is normal due to their sensitivity to use and climate, sustained drought in the region over the last five years is reflected in water levels that have declined an average 10.45 feet (2010-2015). Water level measurements in this aquifer have been recorded annually since 1976. A baseline groundwater level network



of 43 wells was implemented in July-August 2014; 38 wells have been incorporated into a trend network. Hourly measurements of depth to water are now being collected from continuous water level recorders installed last April in Beckham and Kiowa counties. These recorders are more sensitive to detecting seasonal changes (brought on by drought or variable climate conditions) than can be obtained by annual measurements.

Drought Update

U.S. Drought Monitor
June 23, 2015



Abnormally Dry	1.72
Moderate Drought	0
Severe Drought	0
Extreme Drought	0
Exceptional Drought	0

Reservoir Storage
June 22, 2015



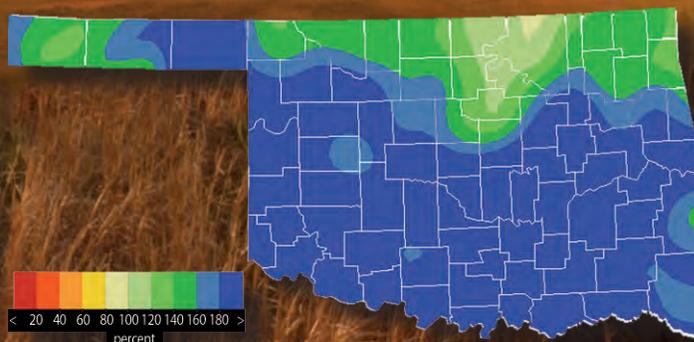
Streamflow (7-Day Average)
June 27, 2015



Keetch-Byram Drought Index
June 26, 2015



Percent of Normal Precipitation
Last 90 Days (March 30, 2015, through June 27, 2015)



Data obtained from the National Drought Mitigation Center, US Geological Survey, US Army Corps of Engineers and Oklahoma Climatological Survey. For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, visit www.drought.ok.gov.

www.owrb.ok.gov

*Linda Lambert, Chairman • Ford Drummond, Vice Chairman • Jason Hitch, Secretary
Stephen Allen • Tom Buchanan • Bob Drake • Marilyn Feaver • Ed Fite • Richard Sevenoaks*

Protecting and enhancing the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of June 9, 2015

FA Loans—365 totaling \$958,885,000

The OWRB's Financial Assistance Program (FAP), created by the State Legislature in 1979, provides loans for water and wastewater system improvements in Oklahoma. The tremendous popularity of the bond loan program is due, in part, to extended payoff periods of up to 30 years at very competitive interest rates.

CWSRF Loans—287 totaling \$1,303,511,392

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to use for their wastewater infrastructure needs. The CWSRF program is Oklahoma's largest self-supporting wastewater financing effort, providing low-interest loans to communities in need.

DWSRF Loans—174 totaling \$ 916,958,300

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and ODEQ to assist municipalities and rural water districts in the construction and improvement of drinking water systems. These projects are often mandated for communities to obtain compliance with increasingly stringent federal standards related to the treatment of drinking water.

REAP Grants—635 totaling \$56,396,370

The Rural Economic Action Plan (REAP) Program was created by the State Legislature in 1996. REAP grants, used for water/wastewater system improvements, primarily target rural communities with populations of 7,000 or less, but priority is afforded to those with fewer than 1,750 inhabitants.

Emergency Grants—569 totaling \$33,863,163

Emergency grants, limited to \$100,000, are awarded to correct situations constituting a threat to life, health, or property and are an indispensable component of the agency's financial assistance strategy.

Drought Response Program Grants—10 totaling \$1,543,848

Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of \$300,000 is diverted from existing OWRB Emergency Grant proceeds to fund the Program.

Water for 2060 Grants—4 totaling \$1,500,000

Through the Water for 2060 Grant Program, funding is available for municipalities, counties, water/sewer districts and other public entities for projects that highlight the responsible use of water.

Total Loans/Grants Approved: 2,047 totaling \$3,272,658,073

Estimated Savings: \$1,119,052,494

Applicants eligible for water/wastewater project financial assistance vary according to the specific program's purpose and requirements, but include towns and other municipalities with proper legal authority, various districts established under Title 82 of Oklahoma Statutes (rural water, master/water conservancy, rural sewage, and irrigation districts), counties, public works authorities, and/or school districts. Applications for agency financial assistance programs are evaluated individually by agency staff. Those meeting specific program requirements are recommended by staff for approval at monthly meetings of the nine-member Water Board. **For more information, call (405) 530-8800 or go to www.owrb.ok.gov/financing.**

OKLAHOMA
*Water
News*

2nd Quarter, 2015

The Oklahoma Water News is published quarterly by the Oklahoma Water Resources Board as authorized by J.D. Strong, Executive Director. Eighty-eight hundred copies of this issue have been printed by University Printing Services at an approximate cost of 32 cents each. Copies have been deposited at the Publications Clearinghouse of the Oklahoma Department of Libraries.

The Water News is available online at www.owrb.ok.gov. Follow us on twitter @OKWaterBoard for publication notification. If you no longer wish to receive a copy by mail, or have comments or article submissions, please contact Darla Whitley, Editor, at pubinfo@owrb.ok.gov or (405) 530-8800.

OKLAHOMA Water News

3rd Quarter 2015

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Drought Update

Financial Assistance Program Update

Altus Commended for Drought-Proofing Investment

Earlier this year, for the first time ever, the City of Altus had to enact stage-three water rationing. With daily average water use of about four million gallons and record low rainfall totals since about 2010, the city had been in stage one and stage two water rationing off and on for several years, but the situation was growing dire. Stage-three restrictions included limiting outside watering to one day a week, prohibiting the filling of swimming pools, and shutting down car washes one day a week, among other drastic measures.

Fortunately for the city, historic rains brought desperately needed relief to the area beginning last spring. In fact, April 28 to May 27 ranked the wettest on record for the Southwest climate region, which received 372% of normal rainfall. However, this relief quickly proved to be temporary. In a matter of months, extremely dry conditions were back. Data for the period between August 29 and September 27 show the region at only 34% of normal rainfall, ranking it the 18th driest for this period on record.

Before the rains, Altus officials were putting together plans to make their community more drought resilient by applying for financial assistance through the Emergency Drought Relief (EDR) grant program and Oklahoma's Drinking Water State Revolving Fund (DWSRF) loan program. On September 26, state officials gathered near Altus to present ceremonial checks and commend the city for doing their part to invest in drought-proofing through a \$575,000 EDR grant and a \$2.3 million DWSRF loan to fund the construction of several miles of

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(continued on page 2)



Ceremonial check presentation in Altus (left to right): Andy Allen, OWRB; Jim Reese, Secretary of Agriculture, Food & Forestry; Trey Lamb, Conservation Commission Executive Director; Matt Wojnowski, Assistant City Manager; J.D. Strong, OWRB Executive Director; Chris Ribble, City Councilman; Dwayne Martin, City Councilman; Jack Smiley, Mayor; Jason Winters, City Councilman; Scott Thompson, ODEQ Executive Director; Representative Charles Ortega; Senator Mike Schultz; Jerri Hargis, OWRB.

From the Director

What a difference a year makes! It's hard to imagine that at this time last year, approximately three-fourths of Oklahoma was covered by drought with one-fifth of the state in the most extreme category. At that time more than two million Oklahomans, or over half the state's population, were affected by drought conditions. The impacts were dire at many of Oklahoma's western reservoirs, and even some lakes and streams in the eastern half of the state were increasingly showing the effects. Other less visible but equally significant impacts included stressed public water supplies and infrastructure, agriculture production losses, added industrial costs, and limits on recreational use, to name a few.



(continued on page 2)

*J. D. Strong, Executive Director
Oklahoma Water Resources Board*



Altus Commended for Drought-Proofing (continued)

new water line that will bring groundwater to the city to supplement existing surface water supplies and increase distribution capacity. This additional water supply source is expected to yield about one-third of the city's daily use.

Preparing for and combating drought by connecting to an additional water supply source, whether surface water or groundwater, is a strategy recommended for many basins in the 2012 update of the Oklahoma Comprehensive Water Plan (OCWP). The City of Altus recognized that this strategy was a viable option and took advantage of available funding. This "drought-proofing" project will provide much needed relief both now and during future droughts, giving the city a means to minimize the economic hardships that are the inevitable result of long-term water shortages. ♦

From the Director (continued)

It's equally hard to imagine that after the historic rains this past spring, which were largely credited with ending our five-year drought, drought conditions are again creeping back into the state. Beginning several weeks ago in southeastern Oklahoma and spreading west, regions of the state that surpassed their entire annual average rainfall before summer began are now witnessing the unwelcome return of drought conditions. Water planners, agriculture producers, public water system managers, and other water practitioners never really doubted that drought would return. Oklahoma's precipitation history is littered with both wet and dry periods that extend through multiple years and seasons. Following the historic rains this summer, the question was not if, but when drought would return. The goal for Oklahoma's most pragmatic water users and communities must be to continue conserving and diversifying their water resources and not let up in their efforts to plan for the inevitable droughts ahead.

The goal for Oklahoma's most pragmatic water users and communities must be to continue conserving and diversifying their water resources and not let up in their efforts to plan for the inevitable droughts ahead.

Importantly, drought-proofing Oklahoma is not merely a goal; it's the key to the future viability our state. Perhaps most central to this mission is water conservation. Though water is a resource that we cannot create, we can increase its availability through its wise and efficient use. During Oklahoma's recent five-year drought, many regions and communities made significant strides both on near-term drought management and on careful long-term planning, infrastructure improvement, and new approaches to local water management. Unfortunately, just as many communities did not make such strides and in some instances quickly returned to the types of wasteful practices that exacerbated the recent drought and led to the need for more drastic and costly measures to confront it.

The OWRB is pleased and humbled to have led development of the 2012 Update of the Comprehensive Water Plan (OCWP) and to coordinate the efforts of the Water for 2060 Advisory Council, all made possible by the support

DROUGHT-PROOFING
OKLAHOMA

REGISTER ONLINE
www.owrb.ok.gov/gwc
**2015 Oklahoma Governor's Water
Conference and Research Symposium**
December 1-2
Embassy Suites, Norman, OK

of our Governor, State Legislature and multiple partners. In October, the Advisory Council will submit its final report of recommendations for meeting the bold, statewide goal of consuming no more fresh water in 2060 than was consumed in 2010, while at the same time supporting Oklahoma's continued economic growth and prosperity.

With both of these plans as our guide, we will continue highlight the most overlooked, and without a doubt cheapest source of water—conserved water. Water conservation, recycling, and reuse are no longer catch phrases, but rather real strategies for local communities to deploy in order to withstand the inevitable dry years to come. Innovative measures such as wastewater reuse, use of marginal quality waters, innovative stormwater practices, low impact development, and other water and energy efficiency measures are just a few of the pioneering concepts that will ensure more efficient use of our shared, finite water resources.

I look forward to exploring with you many of these issues regarding Oklahoma's water resources at the upcoming 36th Annual Oklahoma Governor's Water Conference and Research Symposium. The theme for this year's conference highlights our continued focus and resolve—"Drought-Proofing Oklahoma." For more details on this year's conference, which will be held December 1-2 at the Embassy Suites Conference Center in Norman, OK, please check the OWRB's conference page regularly for updates. As always, we will have a great line-up of speakers, presentations, and discussions featuring a wide range of water-related topics. For more details or to register, visit our website at www.owrb.ok.gov/GWC or call us at 405-530-8800. ♦

Hydrologic Investigations Underway on Five Major Aquifers

The OWRB is currently conducting hydrologic investigations on five state aquifers. For two of these aquifers—the Rush Springs and Cimarron River—this will be the first Maximum Annual Yield (MAY) study ever completed.

The MAY is a determination of the amount of water that may be withdrawn from an aquifer (groundwater basin) by permitted water users in a year. Once the MAY has been established and approved by the Board, the amount of water allocated to each permit applicant will be proportionate to the amount of land owned or leased by that applicant. This is referred to as the landowner’s “equal proportionate share” or EPS. Until then, temporary permits will continue to be issued for these aquifers at 2 acre-feet per acre per year (ac-ft/ac/yr). Temporary permits must be reissued on an annual basis.

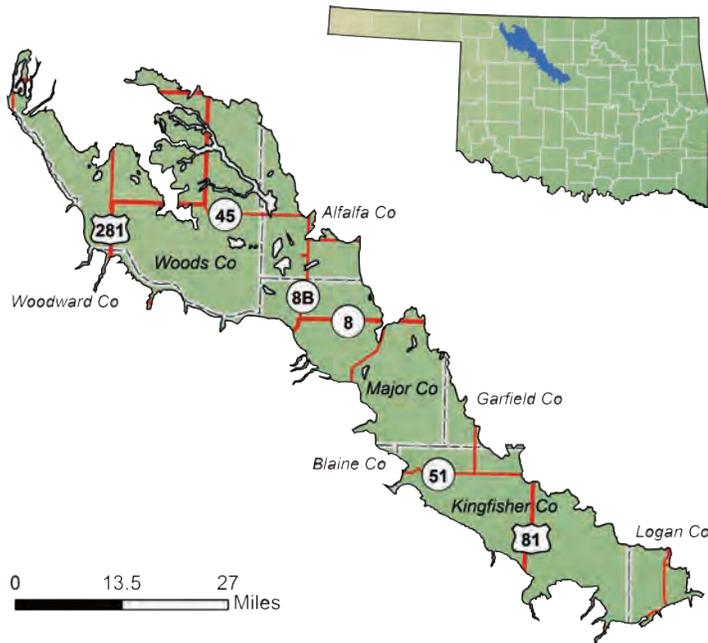
Maximum Annual Yield Determination Process



Certain factors must be considered in the determination of the maximum annual yield of a major groundwater basin, including total land area overlying the basin, the amount of water in storage in the basin, the rate of recharge to the basin and total discharge from the basin, transmissivity of the basin, and the possibility of pollution from natural sources.

Cimarron River Alluvial Aquifer Hydrologic Study

The Cimarron River hydrologic study was initiated in September 2015. The aquifer underlies portions of Woods, Alfalfa, Major, Woodward, Blaine, Garfield, Kingfisher, and Logan counties and is composed of alluvium and terrace



deposits that occur along or around the Cimarron River. Wells in the aquifer yield about 150 gallons per minute (gpm) on average. Agriculture is the primary land use in the aquifer area, making the aquifer highly vulnerable to nitrate contamination, according to the USGS. Currently, temporary permits for the aquifer are issued for 224,028 acre-feet per year (ac-ft/yr), 64% of which is used for irrigation and 27% for municipal supply. Goals of the study include characterization of the aquifer in terms of geological setting, aquifer boundaries, hydraulic properties, water levels, groundwater flow, and water budget. Altogether this information will facilitate the determination of the MAY based on proposed management scenarios.

Rush Springs Aquifer Hydrologic Study

The Rush Springs hydrologic study was initiated in 2011 and is nearing completion. The Rush Springs is located in west-central Oklahoma, underlying portions of Woodward, Dewey, Custer, Blaine, Washita, Caddo, and Grady counties. Temporary permits for the aquifer are currently issued for 502,696 ac-ft/yr, 86% of which is used for irrigation.



During the study, OWRB hydrologists took synoptic water-level measurements to determine aquifer boundaries, map the elevation of the water table, and determine hydraulic gradients. Pumping tests were conducted in observation wells to determine drawdown and estimate hydraulic properties. Continuous water-level recorders were installed in eight wells. The climatological history of the area was reviewed, along with an analysis of surface water and water use from the aquifer. Currently, the Rush Springs study team is constructing a hydrologic model and testing management scenarios. The final report is expected to be completed by the end of this year.

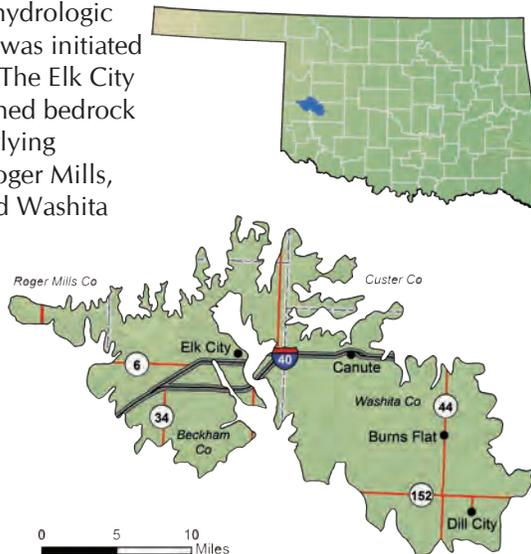
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Hydrologic Studies Underway (continued)

Three other aquifers are currently being studied to update original MAY studies from the 1980s: the Elk City, Enid Isolated Terrace, and Gerty Sand.

Elk City Aquifer Hydrologic Update Study

The Elk City hydrologic update study was initiated in late 2014. The Elk City is an unconfined bedrock aquifer underlying portions of Roger Mills, Beckham, and Washita counties. Wells in the aquifer commonly yield 25 to 300 gpm. The original study of the aquifer was completed



Above: OWRB geologists on the Elk City study team examine the formation at a road cutting, looking for irregularities, such as in the sample above, which are indicators of porosity, among other things, and helpful in determining aquifer recharge rates. Left: Geologist Kyle Spears takes a water level measurement in the Gerty Sand.

Read more about water quality in the Elk City, Enid Isolated Terrace, Gerty Sand, and Rush Springs aquifers in the latest Groundwater Monitoring and Assessment Program (GMAP) report at www.owrb.ok.gov/GMAP.

in 1982, resulting in an EPS of 1 ac-ft/ac/yr. A total of 20,821 AFY is currently permitted from the aquifer, 53% of which is for irrigation and 36% for municipal supply. The study will provide updated information to determine if the MAY of the aquifer has changed and if the EPS is still set at an appropriate amount. The study is expected to be completed by late 2017.

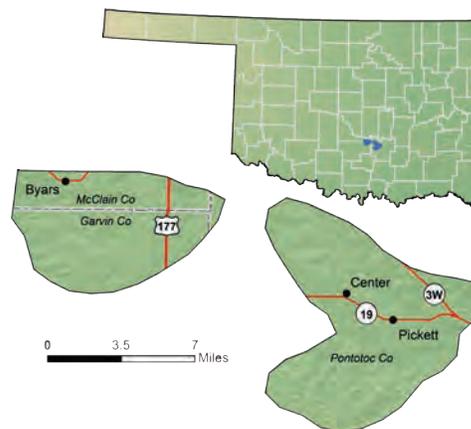
Enid Isolated Terrace Hydrologic Update Study

The Enid Isolated Terrace (EIT) hydrologic update study was initiated in 2013 and is nearing completion. The EIT, located in north central Oklahoma and underlying Garfield County, is termed an “isolated” terrace aquifer because it is separated from the Cimarron River aquifer by erosion. The original study of the Enid Isolated Terrace was completed in 1982, resulting in an EPS of .5 ac-ft/ac/yr. A total of 5,843 AFY is currently permitted from the aquifer, 52% of which is used for municipal supply and 36% for irrigation. The study will provide updated information to determine if the MAY of the aquifer has changed and if the EPS is still set at an appropriate amount.



Gerty Sand Aquifer Hydrologic Update Study

The Gerty Sand hydrologic update study was initiated in late 2014 and is expected to be completed next spring. Located in south central Oklahoma and underlying portions of Garvin, McClain, and Pontotoc counties, the Gerty Sand is also an “isolated” terrace aquifer, separated from the Canadian River by erosion. The original study of the aquifer was completed in 1989, resulting in an EPS of 1 acre-foot per acre. A total of 3,110 AFY is currently permitted from the aquifer, 51% of which is for irrigation and 49% for municipal use. The study will provide updated information to determine if the MAY of the aquifer has changed and if the EPS is still set at an appropriate amount. 💧



CONSERVING WATER NOW TO PREPARE FOR THE FUTURE

While population and demand on freshwater resources are increasing, supply will always remain constant. And although it's true that the water cycle continuously returns water to Earth, it is not always returned to the same place or in the same quantity and quality.

Droughts happen somewhere in the country every year, and climate change has the potential to increase stress on water resources. In order to create a more sustainable water future, cities and states are coming together to encourage water conservation as a way to reduce demand.

COMMUNITIES FACE CHALLENGES

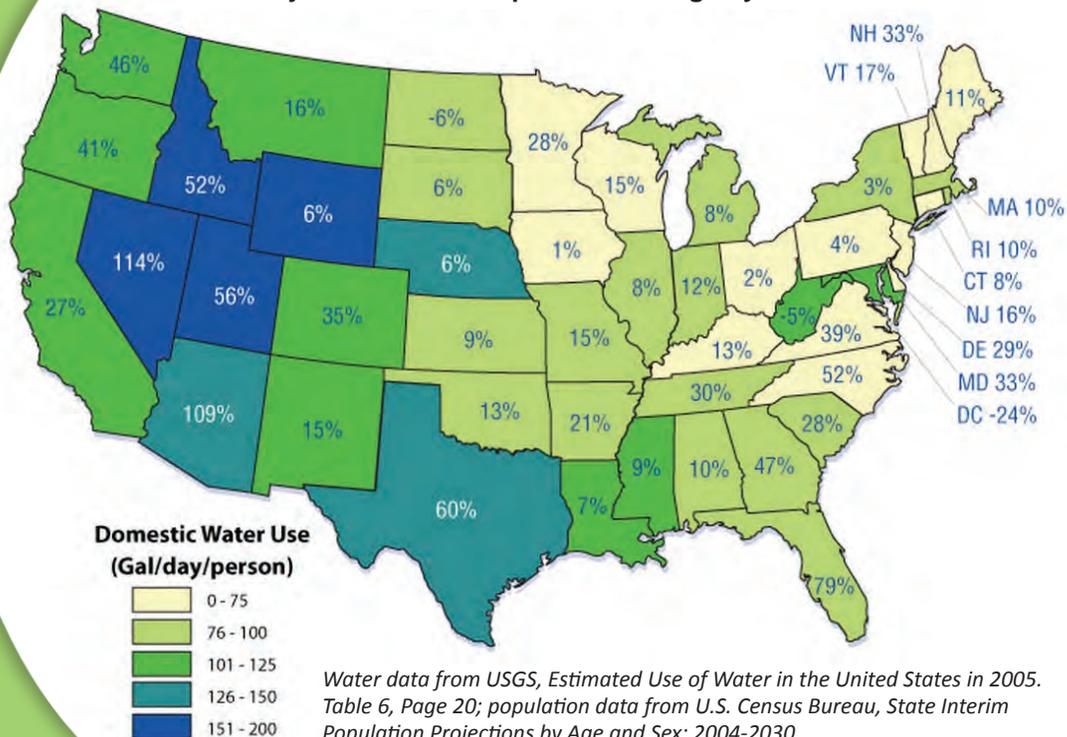
Managing water is a growing concern in the United States.

Communities across the country are starting to face challenges regarding water supply and a need to update aging water treatment and delivery systems, sometimes referred to as "water infrastructure." Many of the states that have higher projected population growth also have higher per capita water use and can expect increased competition for water resources.

Strains on water supplies and our aging water treatment systems can lead to a variety of consequences for communities:

- Higher water prices to ensure continued access to a reliable and safe supply;
- Increased summer watering restrictions to manage shortages;
- Seasonal loss of recreational areas like lakes and rivers when the human demand for water conflicts with environmental needs; and
- Expensive water treatment projects to transport and store freshwater when local demand overcomes available capacity.

Domestic Water Use in Gallons per Day per Person and Projected Percent Population Change by 2030



CONSIDER THESE AT-HOME WATER SAVING TECHNIQUES

FOLLOW THE RULES

Your water utility must ensure water is available to fight fires and meet other critical needs, so help your community by following the rules. They will be lifted when water shortages end.

LOOK FOR LEAKS

The last thing you want to do during a drought is waste water through leaks. Look for leaks indoors and out, and if you find them, fix them.

TAKE A SPRINKLER BREAK

Outdoor water use can put a lot of stress on local water supplies. You can be water-smart by letting your grass grow longer and making other maintenance adjustments. Grass doesn't need to be green year-round—you can cut back on watering and the green will return when rains return. WaterSense has lots of water-saving tips for drought resilient landscapes.

Adapted from EPA WaterSense

CONSIDER AN UPGRADE

If you have been thinking about a bathroom makeover, a drought is a great time to get busy. You will help your utility with immediate savings and save yourself money on future bills. WaterSense labeled products are a great way to save!

GO THE EXTRA MILE

If you want to go above and beyond in water savings, think about reusing water. You can collect water in a bucket while waiting for the shower to warm up or when washing pots, and use it to water container plants or flower beds. Use your imagination to come up with creative ways to save water!



WATER FOR 2060
EFFICIENCY • CONSERVATION • RECYCLING • REUSE

Perkins Receives Loan for Water Efficiency Project

In September, the Perkins Public Works Authority (PWA) received a \$545,000 loan from the OWRB's Clean Water State Revolving Fund (CWSRF) program to replace current water meters with meters containing encoded registers compatible with Automated Meter Reading (AMR) functionality and a "drive-by" receiver installed in a vehicle.

The new meters will allow the Perkins PWA to detect leaks, reduce waste and unintended flows to their wastewater system, and track customer usage more accurately.

The CWSRF loan program, administered by the OWRB with partial funding from the Environmental Protection Agency (EPA), provides low interest funding for water projects. By utilizing CWSRF funding, the Perkins PWA is expected to save an estimated \$380,000 over the life of the loan repayment period compared to traditional financing.

Water efficiency projects, such as the purchase and installation of AMR devices, are now eligible for CWSRF funding to help the state meet its Water for 2060 goal of using no more fresh water in 2060 than was used in 2010.



Lori Johnson, Assistant Chief of the OWRB's Financial Assistance Division (far left), and Connie Guinn, OWRB Financial Loan Analyst (far right), present a ceremonial check to the Perkins PWA for a \$545,000 CWSRF loan to purchase new automated meter reading units for their customers. Also pictured (left to right) are Board members Brian Norton, Robert Johnson (Chairman), Jason Shilling, David Lara, and Angela Johnston.

Other eligible Water for 2060 projects include stormwater management, green infrastructure, and water reuse projects. For more information on Water for 2060 or CWSRF funding, visit www.owrb.ok.gov.

Smithee Honored with Service and Leadership Awards



The Association of Clean Water Administrators (ACWA) honored Derek Smithee of the OWRB with the Environmental Statesman Award last August during organization's 54th annual conference in Minneapolis, MN. This award is the ACWA's highest honor for individuals who have demonstrated outstanding

service and leadership over a multi-year period. Smithee has served the ACWA for many years, promoting public education and dialog with public agencies and officials to advance the goal of protecting and improving water quality across the nation. His knowledge and experience are of tremendous value to the organization, and he is one of only 34 recipients of the award since it was established in 1979.

Smithee has served as Chief of the OWRB's Water Quality Programs Division since 1995. In addition to overseeing statewide water quality monitoring and lake restoration activities, Smithee is in charge of the ongoing development of Oklahoma's Water Quality Standards (WQS), including the promulgation of WQS Implementation rules.

A second award was given to Smithee on September 26 at the annual meeting of Save the Illinois River (STIR), an organization dedicated to protecting and preserving the Illinois River, its tributaries, and Tenkiller Lake. Smithee was inducted into the Scenic River Hall of Fame for his current and previous work

on projects to develop limits on phosphorus loads into the Illinois River to impede algae growth. Excessive amounts of algae can lead to depleted oxygen levels and taste and odor problems, while damaging or destroying wildlife and their habitats and limiting opportunities for recreation, such as fishing and swimming.

In 2013, Smithee was appointed by Governor Mary Fallin to lead the Scenic Rivers Joint Study Committee, charged with determining the total phosphorus threshold response level at which algae production results in undesirable or harmful conditions in Oklahoma's scenic rivers. Prior to the study, Smithee had actively participated in efforts to limit nutrient loading into scenic rivers since 2002, when he played a pivotal role in the OWRB's historic WQS promulgation of a total phosphorus criterion of 0.037 mg/L for all Oklahoma scenic rivers. ♦

Oklahoma's Scenic Rivers



Drought Update

U.S. Drought Monitor
September 28, 2015

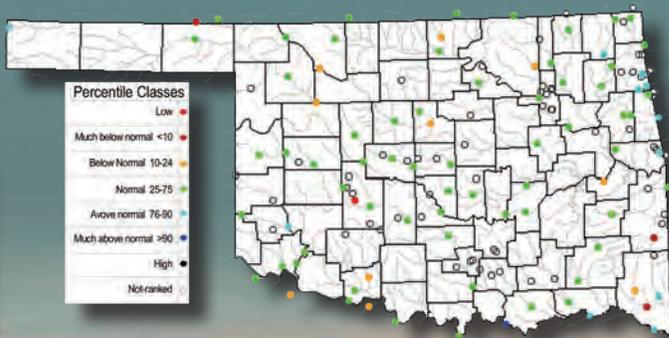


Abnormally Dry	47.2%
Moderate Drought	10.85%
Severe Drought	3.3%
Extreme Drought	.69%
Exceptional Drought	0%

Reservoir Storage September 28, 2015



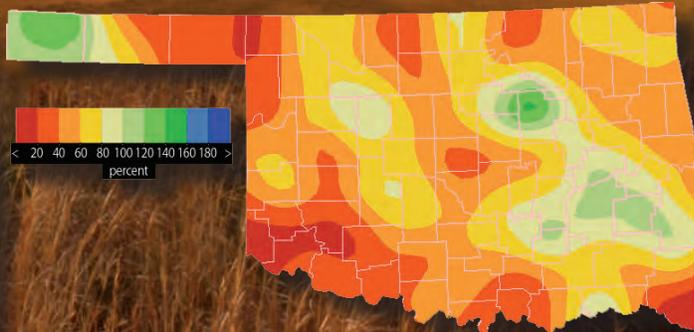
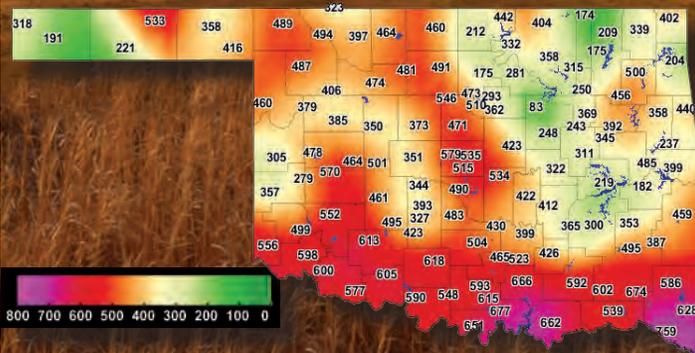
Monthly Streamflow Average September 2015*



*compared to the historical average for the month

Keetch-Byram Drought Index September 28, 2015

Percent of Normal Precipitation Last 30 Days (Aug. 29, 2015, through Sept. 27, 2015)



Data obtained from the National Drought Mitigation Center, US Geological Survey, US Army Corps of Engineers and Oklahoma Climatological Survey. For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, visit www.drought.ok.gov.

*Linda Lambert, Chairman • Ford Drummond, Vice Chairman • Jason Hitch, Secretary
Stephen Allen • Tom Buchanan • Bob Drake • Marilyn Feaver • Ed Fite • Richard Sevenoaks*

Protecting and enhancing the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of September 30, 2015

FA Loans—368 totaling \$958,885,000

The OWRB's Financial Assistance Program (FAP), created by the State Legislature in 1979, provides loans for water and wastewater system improvements in Oklahoma. The tremendous popularity of the bond loan program is due, in part, to extended payoff periods of up to 30 years at very competitive interest rates.

CWSRF Loans—289 totaling \$1,306,171,392

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to use for their wastewater infrastructure needs. The CWSRF program is Oklahoma's largest self-supporting wastewater financing effort, providing low-interest loans to communities in need.

DWSRF Loans—175 totaling \$ 942,958,300

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and ODEQ to assist municipalities and rural water districts in the construction and improvement of drinking water systems. These projects are often mandated for communities to obtain compliance with increasingly stringent federal standards related to the treatment of drinking water.

REAP Grants—644 totaling \$57,019,562

The Rural Economic Action Plan (REAP) Program was created by the State Legislature in 1996. REAP grants, used for water/wastewater system improvements, primarily target rural communities with populations of 7,000 or less, but priority is afforded to those with fewer than 1,750 inhabitants.

Emergency Grants—569 totaling \$33,863,163

Emergency grants, limited to \$100,000, are awarded to correct situations constituting a threat to life, health, or property and are an indispensable component of the agency's financial assistance strategy.

Drought Response Program Grants—10 totaling \$1,543,848

Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of \$300,000 is diverted from existing OWRB Emergency Grant proceeds to fund the Program.

Water for 2060 Grants—4 totaling \$1,500,000

Through the Water for 2060 Grant Program, funding is available for municipalities, counties, water/sewer districts and other public entities for projects that highlight the responsible use of water.

Total Loans/Grants Approved: 2,059 totaling \$3,301,941,265

Estimated Savings: \$1,128,772,239

Applicants eligible for water/wastewater project financial assistance vary according to the specific program's purpose and requirements, but include towns and other municipalities with proper legal authority, various districts established under Title 82 of Oklahoma Statutes (rural water, master/water conservancy, rural sewage, and irrigation districts), counties, public works authorities, and/or school districts. Applications for agency financial assistance programs are evaluated individually by agency staff. Those meeting specific program requirements are recommended by staff for approval at monthly meetings of the nine-member Water Board. **For more information, call (405) 530-8800 or go to www.owrb.ok.gov/financing.**

OKLAHOMA
*Water
News*

3rd Quarter, 2015

The Oklahoma Water News is published quarterly by the Oklahoma Water Resources Board as authorized by J.D. Strong, Executive Director. Eighty-eight hundred copies of this issue have been printed by University Printing Services at an approximate cost of 32 cents each. Copies have been deposited at the Publications Clearinghouse of the Oklahoma Department of Libraries.

The Water News is available online at www.owrb.ok.gov. Follow us on twitter @OKWaterBoard for publication notification. If you no longer wish to receive a copy by mail, or have comments or article submissions, please contact Darla Whitley, Editor, at pubinfo@owrb.ok.gov or (405) 530-8800.

OKLAHOMA Water News

4th Quarter 2015

Inside

Water for 2060 Advisory Council Report Now Available

Report of OWRB Activities for 2015

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OWRB Status Report

Drought Update

Financial Assistance Program Update

Water for 2060 Advisory Council Publishes Findings

The Water for 2060 Advisory Council submitted its final report to Governor Fallin and the state legislature in late October. The report was developed to provide assistance in achieving the statewide goal of consuming no more fresh water in 2060 than was consumed in 2012.

The Advisory Council made 12 key recommendations in the report—the product of collaborative dialogue with water users across Oklahoma to determine approaches that can effectively promote water efficiency efforts by all Oklahomans. The recommendations were based on best practices in use in Oklahoma and incentive programs in place in other states. Information was supplemented with an analysis of data from the 2012 Oklahoma Comprehensive Water Plan (OCWP) and estimates of the cost-effectiveness of various measures for enhancing water use efficiency and the use of alternative sources of supply.

According to J.D. Strong, OWRB Executive Director and chairman of the advisory council, conservation will be key to meeting Oklahoma's long-term water needs because it remains the cheapest and quickest way to preserve Oklahoma's water resources for future generations. "Meeting the Water for 2060 goal will require effort and participation from all water users," says Strong, "from changing daily behaviors at home to developing innovative technologies and practices in the crop irrigation, energy production, and industry sectors."

More information on the Water for 2060 initiative and final report can be found at www.owrb.ok.gov/2060.

All Sectors	Develop public education and outreach materials, a statewide resources conservation campaign, and an Oklahoma water efficiency portal.
Public Water Supply	Develop an Oklahoma public water supply system water efficiency best practices guide. Develop a state recognition and rewards program for highly efficient public water supply systems. Develop an Oklahoma water system loss reduction best practices guide. Provide state funding and financing for water system loss reduction. Encourage regionalization and supply sharing.
Crop Irrigation	Apply state financing programs to water-efficient crop irrigation equipment conversion and practices. Develop an Oklahoma crop irrigation best practices guide. Actively support federal crop insurance reform.
Energy & Industry	Facilitate increased sharing of information and supplies between energy and industry water users. Develop an energy and industry water use best practices guidance and recognition program. Promote industrial use of marginal quality waters.

Twelve key recommendations detailed in the Water for 2060 Advisory Council Report available at www.owrb.ok.gov/2060.

From the Director

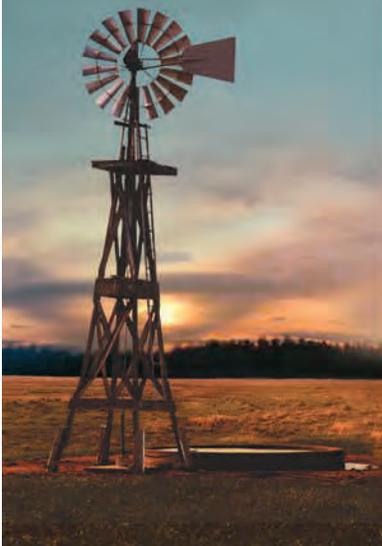
We've closed the chapter on another productive year at the Oklahoma Water Resources Board, and on behalf of our staff I wish each of you a rewarding 2016. While statewide record rainfall hit headlines across the state in 2015, water resources managers remained dedicated to planning for future water supply shortages. The Water for 2060 Advisory Council published their recommendations in a report to state officials, and other efforts to implement Oklahoma Comprehensive Water Plan (OCWP) priority recommendations remained on course.

The 36th Annual Oklahoma Governor's Water Conference & Research Symposium was a resounding success. I'd like to thank attendees, sponsors, staff,

(continued on page 2)



J. D. Strong, Executive Director
Oklahoma Water Resources Board



From the Director (continued)

and especially Governor Mary Fallin and the other presenters who continue to make this conference the state’s premier water policy and research event. Conference presentations are available online at www.owrb.ok.gov/waterconference.

Congratulations to Bill Sims and Richard Seybolt, who were named 2015 Oklahoma Water Pioneers during the conference. Bob Chipman and Trudy Rigney, the OWRB employees tragically lost in the Oklahoma City Bombing, were also honored with the Pioneer Award in a brief ceremony that included many former and current OWRB employees.



Survivors who worked for the OWRB at the time of the Oklahoma City Bombing accept honorary Water Pioneer Awards for fallen colleagues Bob Chipman and Trudy Rigney.

The commemorative ceremony was one of many events held in 2015 to acknowledge the 20th anniversary of the bombing. The OWRB family continues to gather in remembrance at an annual ribbon ceremony and participate in many other activities as well, including the OKC Memorial Marathon, which was entered by more than 30 OWRB employees last April.

A special thanks to our OWRB staff for another year of giving and community involvement. Whether it is volunteering for educational programs like Sciencefest and H2Oklahoma, surpassing our goals in the United Way State Charitable Campaign, volunteering for organizations such as Positive Tomorrows and the Salvation Army, or participating in the United Way’s Pacesetter Campaign, our staff gives back with impressive generosity. I’m extremely fortunate to work with so many individuals who make giving back a priority.

We’ve also encouraged employee wellness at our agency through activities such as fitness walks, sports leagues, educational seminars, and much more.

For these reasons and many more, we were again named a winner of The Oklahoman’s “Top Oklahoma Workplaces Award.” Thanks to the anonymous input of our employees, we are the only state agency to have received this distinction for three consecutive years. Commending the OWRB for this well-deserved recognition, Governor Mary Fallin called the OWRB “a great example of efficient and responsive state government of which the citizens of Oklahoma can be proud.”

Finally, I’d like to recognize the contributions of the following dedicated public servants who retired last year: Wilma Beagle, Gavin Brady, Lou Klaver, Robert Lindenberger, Terri Sparks, and Rick Wicker. Each of you helped shape the OWRB into an agency that serves the public with distinction and commitment. 💧

Report of OWRB Activities for 2015

Throughout 2015, the OWRB fulfilled its mission of enhancing the quality of life for Oklahomans by managing, protecting, and improving the state’s water resources to ensure clean, safe, and reliable water supplies, a strong economy, and a healthy environment.

Since inception, OWRB financial assistance programs have provided funding for 2,067 loans and grants totaling more than \$3.3 billion and saving communities across Oklahoma nearly \$1.5 billion over traditional financing options. In 2015, 19 loans were funded totaling \$128,945,156, and 17 grants totaling \$1,388,546 were approved by the Board.

As the state’s designated water management agency, in 2015, the OWRB issued 146 regular permits and 1,260 provisional temporary permits for 92,014 acre-feet and 94,014 acre-feet, respectively. OWRB staff currently track water use and maintain more than 13,000 permits for approximately 2.7 million acre-feet of surface water per year and 3.8 million acre-feet of groundwater per year.

OWRB FY15 Expenditures and FY16 Budget

Activity Name	FY15 Expended	FY16 Budgeted
Administration	\$2,403,114	\$2,814,242
Water Quality	4,041,951	3,675,103
Financial Assistance	2,972,468	5,119,700
Planning & Management	4,078,810	4,068,743
Information Technology	789,442	1,103,169
Totals	\$14,285,785	\$16,780,957
Fund Name		
General Appropriations	\$5,340,878	\$4,855,770
Drillers & Installers Indemnity Fund	-	50,000
OWRB Revolving Fund	1,809,445	2,536,440
Water Resources Revolving Fund	1,067,214	1,219,255
Drillers & Installers Regulation Fund	31,774	25,000
Water Infrastructure Development Fund	1,349,260	1,695,559
Federal Funds - OWRB	1,903,618	1,249,416
USGS Cooperative Agreement	275,275	312,275
DW Loan Administration Fund	456,357	2,418,229
CW Loan Administration Fund	2,051,964	2,019,013
CW Loan Fund	-	400,000
Totals	\$14,285,785	\$16,780,957

Consistent with state law, the OWRB continued several ongoing hydrologic studies during 2015 to determine amounts of water that may be withdrawn from Oklahoma’s groundwater basins by permitted water users. The Rush Springs aquifer study, initiated in 2011 in support of the Upper Washita River Basin project, is scheduled to be completed by mid 2016. A 20-year update of the Enid Isolated Terrace aquifer hydrologic investigation is nearing completion as well. Hydrologic investigations of the Elk City Sandstone and Gerty Sand aquifers are now underway. Through a contract with the US Geological Survey (USGS), the OWRB is also conducting hydrologic investigations on the North Canadian River, Canadian River, North Fork of the Red River, and Salt Fork of the Red River aquifers.

(continued on page 7)



Oklahoma Water Resources Board

STATUS REPORT

MISSION

The mission of the Oklahoma Water Resources Board is to protect and enhance the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

GOALS

- Developing, implementing, and promoting sound water policies, programs, and plans to protect lives, property, and Oklahoma's water resources.
- Building partnerships and increasing public awareness to encourage responsible stewardship of Oklahoma's water resources.
- Improving service to the public by maximizing agency efficiency and innovation, and through promotion of a healthy, safe, productive, and inclusive working environment.

VISION

- Resolving Oklahoma's increasingly complex water issues through leadership, innovation, and sound science.
- Partnering with citizens and other stakeholders in planning and balancing multifaceted, long-range water needs.
- Being the recognized experts in our field and known for our exemplary service to the public.



WHAT WE DO

The primary duties and responsibilities of the OWRB include water appropriation and permitting, water monitoring and establishing standards of quality, financial assistance for water/wastewater systems, dam safety, floodplain management, water supply planning, technical studies, and water resource mapping.



PLANNING FOR OKLAHOMA'S WATER FUTURE

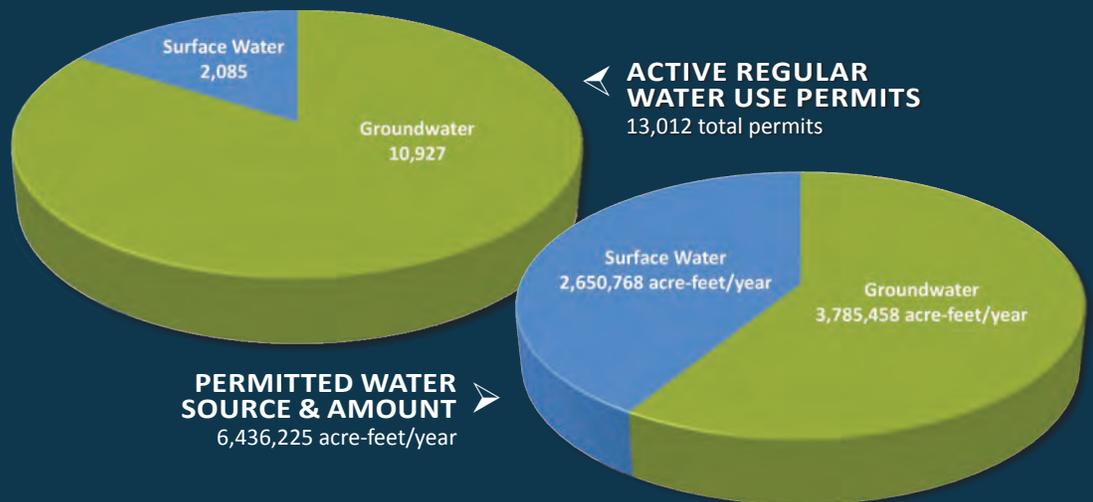
- Ensuring the long-term reliability of water supplies through proactive studies and collaborating with water users, providers, and other partners to develop and implement local and regional plans.
- Assisting in the "Water for 2060" statewide initiative to formulate water conservation practices, incentives, and programs to moderate Oklahoma's water usage while preserving growth and development goals.



According to the Oklahoma Comprehensive Water Plan (OCWP), at current rates of use statewide water demand will increase by more than 33% from 2010 to 2060. For more information, visit www.owrb.ok.gov/OCWP.

MANAGING WATER USE

- Allocating water rights through 13,012 permits for the beneficial use of more than 6.4 million acre-feet of surface and groundwater each year.
- Determining water availability and management options through hydrologic and special studies and a suite of modeling tools.
- Administering four federal stream water compacts to ensure the equitable sharing of water with neighboring states.
- Protecting Oklahomans from loss of life and property through regular maintenance and inspection of more than 4,500 dams and guiding intelligent land use consistent with local floodplain requirements.
- Preventing groundwater pollution through enforcement of regulations governing the responsible drilling, construction, and plugging of water wells.



MONITORING & PROTECTING WATER QUALITY

- Monitoring water quality at more than 600 lake and stream sites and overseeing Oklahoma's first comprehensive groundwater quality and quantity monitoring network that will eventually comprise as many as 2,000 wells covering every major aquifer in the state.
- Developing and establishing standards to ensure water quality protection across the state.
- Curbing pollution of lakes, rivers, and streams and restoring their water quality benefits.

FINANCING WATER & WASTEWATER INFRASTRUCTURE

- Providing grants and low-interest loans for water and wastewater infrastructure improvements.
- Providing more than \$3.3 billion in financial assistance to cities, towns, and rural water districts, saving them more than \$1.1 billion over conventional financing options.

Type of Funding	Number	Amount
Financial Assistance Loan	368	\$958,885,000
Clean Water State Revolving Fund Loan	294	\$1,338,731,092
Drinking Water State Revolving Fund Loan	178	\$948,578,300
Emergency Grant	569	\$33,863,163
REAP Grant	644	\$57,019,562
Drought Grant	10	\$1,543,848
Water for 2060 Grant	4	\$1,500,000
Total Amount Approved	2,067	\$3,340,120,965
Total Estimated Savings:		\$1,140,226,149

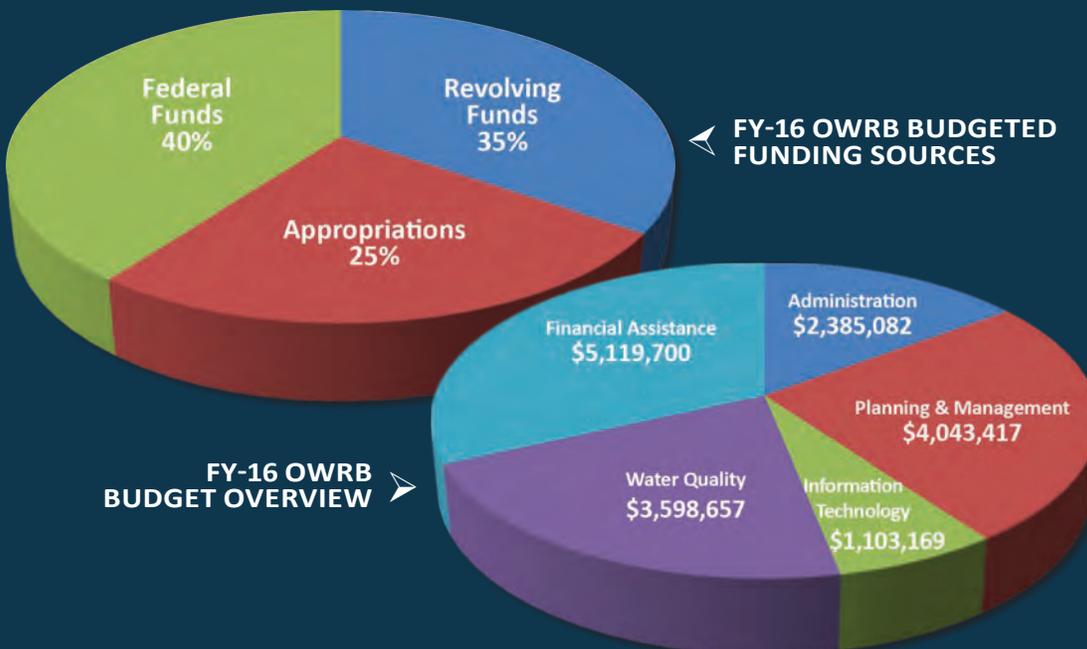
Through continued modernization and efficiency initiatives, the OWRB refines its business processes to reduce expenditures while maximizing transparency and improving service to citizens and the water user community.

CUSTOMER SERVICE & EFFICIENCIES

- The OWRB's continuing document imaging initiative has greatly enhanced staff productivity through improved access to critical information, streamlining workflow, and providing significant savings of both time and money. Imaging also helps the agency provide the public with unprecedented access to current and archived agency records and documents through the OWRB's website.
- The OWRB and partners have developed the Oklahoma Advantages Assessment and Scoring for Infrastructure Solutions (OASIS) system, a computer-based model that quantifies the social, economic, and environmental benefits of a community's water and wastewater infrastructure investments. OASIS assists Oklahoma communities in making smarter choices regarding the services that they provide to citizens.
- The OWRB's web-based provisional temporary permit program provides enhanced convenience to Oklahoma water users, supporting the state's energy industry and saving a considerable amount of staff time. Provisional temporary permits, primarily utilized for oil and gas exploration activities, are the most common type of permit administered by the OWRB.
- The OWRB's Geographic Information Systems (GIS) department continues to improve the agency's online mapping tools, including, to date, more than a dozen interactive map viewers with state water resource information that can be customized through a user-friendly graphical interface.



AGENCY BUDGET



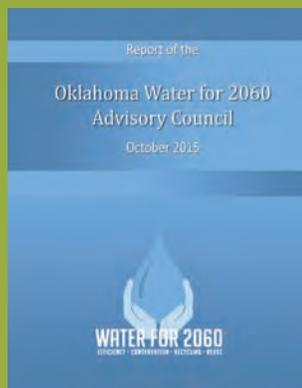
WATER FOR 2060

With the Legislature's passage of the Water for 2060 Act in 2012 (prompted by a priority recommendation of the OCWP), Oklahoma has become the first state in the nation to establish a statewide goal of consuming no more fresh water in 2060 than was consumed in 2012. To meet this ambitious goal, the Water for 2060 Advisory Council was convened in 2013 to begin formulating conservation practices, incentives, and educational programs that could accordingly moderate statewide water usage. Chaired by OWRB Executive Director J.D. Strong, the Council included 15 members appointed by the Governor, Speaker, and President Pro Tempore. The members were tasked with studying and recommending appropriate water conservation practices, incentives, and educational programs to moderate statewide water usage while supporting Oklahoma's population growth and economic development goals.

The Water for 2060 Advisory Council Report was submitted to the Governor, Speaker of the House, and President Pro Tempore in late 2015, and is available online at

www.owrb.ok.gov/2060.

The report contains 12 key recommendations—the product of collaborative dialogue with water users across Oklahoma to determine approaches that can effectively promote water efficiency efforts by all Oklahomans.



2016 GOALS

The OWRB will continue to focus on “drought-proofing” Oklahoma through implementation of the 2012 Update of the Oklahoma Comprehensive Water Plan (OCWP):

- Promoting more widespread adoption of water conservation, reuse and recycling—the cheapest, most feasible alternatives for resolving future water shortages—by seeking adoption of the Water for 2060 Advisory Council's final recommendations and through other efforts;
- Tackling Oklahoma's \$82 billion future water and wastewater infrastructure needs through agency Financial Assistance loan programs, providing below-market interest rates to communities by leveraging federal grants and Oklahoma's new Water Infrastructure Credit Enhancement Reserve Fund;
- Allocating and managing water resources more accurately by creating stream water allocation models and reducing the backlog of statutorily required groundwater basin studies and 20-year updates;
- Detecting and assessing threats to Oklahoma's water resources by efficiently operating the state's most comprehensive surface and groundwater monitoring program;
- Considering tourism, recreation, and ecological water needs within Oklahoma's overall water management framework through lessons learned from the Illinois River Instream Flow Pilot Study;
- Encouraging and working closely with local and regional stakeholders to develop and execute long-range water plans to prevent future water shortages;
- Supporting the Governor and Legislature in working to resolve the water rights and needs of Oklahoma-based tribal nations; and
- Improving agency efficiency and transparency through continued development of online applications, forms, databases and mapping tools.



The OWRB received its third consecutive “Top Workplaces” award in 2015. The Top Workplaces program recognizes Oklahoma's best employers based entirely on employee opinions gathered through anonymous surveys.

Oklahoma Water Resources Board
3800 N. Classen Blvd.
Oklahoma City, OK 73118
405.530.8800
www.owrb.ok.gov
@OKWaterBoard



Report of 2015 Activities (continued)

The OWRB continued its work during 2015 on the Upper Washita Basin Study, an ongoing project conducted in collaboration with the Bureau of Reclamation, Foss Reservoir Master Conservancy District, and Fort Cobb Master Conservancy District.

OWRB staff are currently working with the Waurika Lake Master Conservancy District to conduct a bathymetric survey of the water intake area of the lake. OWRB staff are collecting data on multiple waterbodies that serve as sole source water supplies to update firm yield estimates.

The OWRB continued its joint participation in a study of phosphorus levels in Oklahoma's scenic rivers to determine the total phosphorus threshold response level at which algae production results in undesirable or harmful conditions. Several public meetings were held in 2015, and the next meeting is scheduled for the spring of 2016.

OWRB staff are receiving input and finalizing the 2015-16 proposed amendments to Oklahoma's Water Quality Standards, including creation of a new antidegradation classification called Sensitive Water Supply-Reuse (SWS-R), revisions to the numeric aquatic life criteria for certain priority pollutants listed in Appendix G, revisions to several waterbodies listed in Appendix A and their designated uses and revisions to Appendix B, Tables 1 and 2.

OWRB staff continued to work cooperatively with Oklahoma City and the Department of Wildlife Conservation at Lake Stanley Draper to develop beneficial aquatic plants and control the invasive plant, *Phragmites*.

Staff continued to work cooperatively with the Central Oklahoma Master Conservancy District (COMCD) to monitor and improve water quality in Lake Thunderbird, where an innovative system to oxygenate lake water has been installed.

Through the Beneficial Use Monitoring Program (BUMP), lake sampling was conducted quarterly at 37 lakes across Oklahoma in 2015 (as part of a five-year rotation for the 130 lakes included in the program). Stream sampling was conducted at 84 stations on a 6-week rotation. The physical, chemical, and biological data collected at these sites are used to identify water quality trends, document impairments to beneficial uses, and identify sources of pollution.

Sampling has been completed for year three of the Groundwater Monitoring and Assessment Program (GMAP), the OWRB's statewide groundwater quality and quantity monitoring program. Staff visited more than 140 quality monitoring sites during the year and collected data from more than 1,000 sites for water-level measurements.

In 2015, the Geographic Information Systems (GIS) department began managing a pilot project to map water, wastewater, storm water, and water reuse infrastructure for small public water and wastewater systems. The data will be incorporated into the OWRB's public water supply systems dataset and map viewer. It also will be made available to the systems at a more detailed level via a separate, secure map viewer. The project goal is to provide systems with a tool to help them operate and manage their infrastructure more efficiently and to plan

for the future. GIS staff also created a new GMAP viewer and refreshed existing map viewers with additional layers and an updated format.

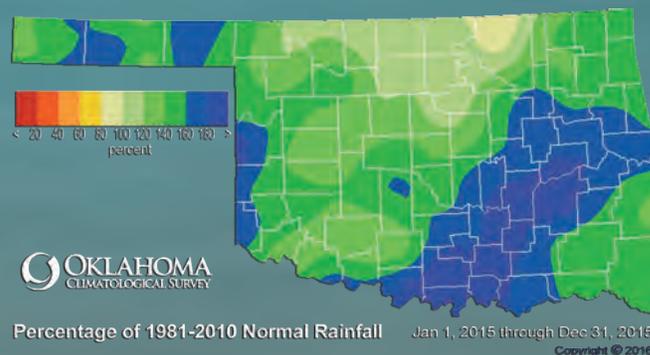
OWRB staff licensed 34 new Well Drilling and Pump Installer firms and 53 new operators in 2015. The OWRB received more than 7,706 well completion, boring, geothermal, and plugging reports for the year. There are currently more than 170,706 records in the OWRB's well log database, accessible to the public via the OWRB website.

The OWRB continues to train and accredit floodplain administrators in Oklahoma's 398 participating National Flood Insurance Program member communities. OWRB floodplain management staff conducted 18 Community Assistance Visits and 43 Community Assistance Contacts and enrolled 4 communities into the NFIP during the year.

In 2015, OWRB staff completed 25 low hazard-potential dam inspections and provided inspection reports with breach inundation maps to dam owners at no cost. Staff are conducting more detailed analyses for several dams that have potential to be reclassified. Breach inundation maps of 13 high hazard-potential dams were developed, provided to dam owners at no cost, and integrated into site-specific Emergency Action Plans to assist emergency managers in the event of dam failure. 💧

Drought Update

As of December 31, the U.S. Drought Monitor indicated that no climate regions in Oklahoma were experiencing abnormally dry conditions or drought.



According to the Oklahoma Climatological Survey, 2015 was ranked the 1st wettest year on record for Oklahoma with an average of 52.96 in. across the state. The year was ranked 3rd wettest on record for the contiguous United States, according to NOAA, averaging 34.47 in. across all climate regions.

To obtain up-to-date information on Oklahoma's drought and moisture conditions, visit www.drought.ok.gov.



*Linda Lambert, Chairman • Ford Drummond, Vice Chairman • Jason Hitch, Secretary
Stephen Allen • Tom Buchanan • Bob Drake • Marilyn Feaver • Ed Fite • Richard Sevenoaks*

Protecting and enhancing the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

Clean Water State Revolving Fund (CWSRF)
Oklahoma Water Resources Board
Financial Assistance Division

Call for Projects

The Oklahoma Water Resources Board (OWRB) is currently identifying eligible wastewater projects and other pollution control/water quality activities for possible funding through the Clean Water State Revolving Fund (CWSRF) during state fiscal years 2017-2021.

Eligible projects include the following:

- wastewater system projects,
- urban stormwater and landfill pollution control,
- abandoned "brownfield" site clean-up,
- nonpoint source,
- green infrastructure,
- energy and water efficiency and conservation,
- aquifer recharge,
- innovative green projects,
- subsurface drainage and wastewater remediation,
- habitat protection and restoration practices,
- source water protection activities, and
- planning/assessment and monitoring activities.

Projects with recycling and water reuse components and projects that mitigate stormwater runoff using green methods will be awarded additional ranking points and if funds are available may be eligible for subsidization in the form of principal forgiveness.

Interested entities should download and submit a Programmatic Application Packet from www.owrb.ok.gov/CWSRF by March 1, 2016. Completed documents can be emailed to Lindy Clay at lindy.clay@owrb.ok.gov or faxed to her attention at 405.530.8898. ♡

FINANCIAL ASSISTANCE PROGRAM UPDATE *Loans & Grants Approved as of December 31, 2015*

Financial Assistance Loans: 368 totaling \$958,885,000
Clean Water State Revolving Fund (CWSRF) Loans: 294 totaling \$1,338,731,092
Drinking Water State Revolving Fund (DWSRF) Loans: 178 totaling \$948,578,300
Rural Economic Action Plan (REAP) Grants: 644 totaling \$57,019,562
Emergency Grants: 569 totaling \$33,863,163
Drought Response Program Grants: 10 totaling \$1,543,848
Water for 2060 Grants: 4 totaling \$1,500,000
Total Loans/Grants Approved: 2,067 totaling \$3,340,120,965
Estimated Savings: \$1,140,226,149

Applicants eligible for water/wastewater project financial assistance vary according to the specific program's purpose and requirements, but include towns and other municipalities with proper legal authority, various districts established under Title 82 of Oklahoma Statutes (rural water, master/water conservancy, rural sewage, and irrigation districts), counties, public works authorities, and/or school districts. Applications for agency financial assistance programs are evaluated individually by agency staff. Those meeting specific program requirements are recommended by staff for approval at monthly meetings of the nine-member Water Board. **For more information, call (405) 530-8800 or go to www.owrb.ok.gov/financing.**

OKLAHOMA Water News

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