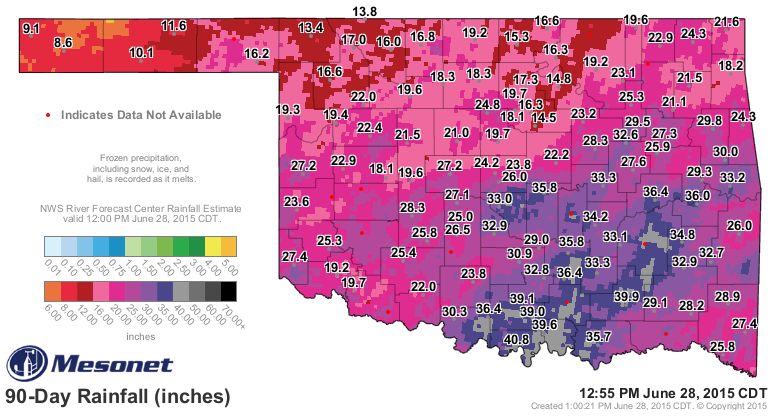
OKLAHOMA
Water News
2nd Quarter 2015

Inside

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.

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 the 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

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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.

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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 lead 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

Stephen B. Allen

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.

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.

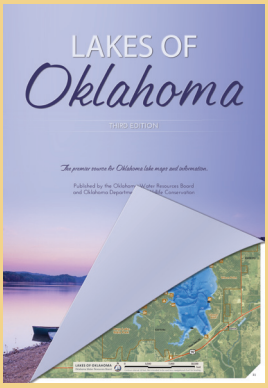
The CWSRF loan program was established under amendments to the 1987 Clean Water Act to provide a renewable financing source for statewide wastewater infrastructure and polluted runoff control needs while protecting Oklahoma's surface water and groundwater resources. Launched by $14.5 million in state 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



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

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.

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.

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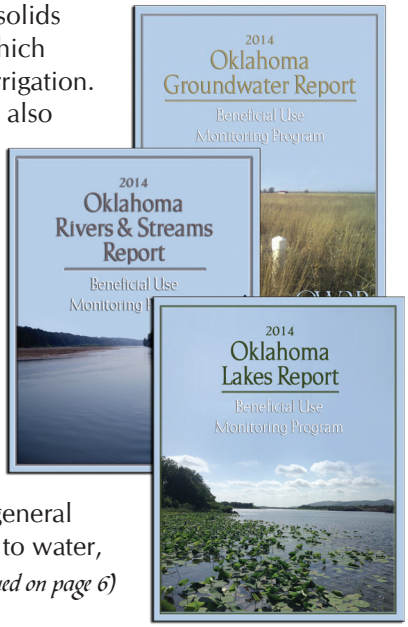
Monitoring Reports (continued)

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,

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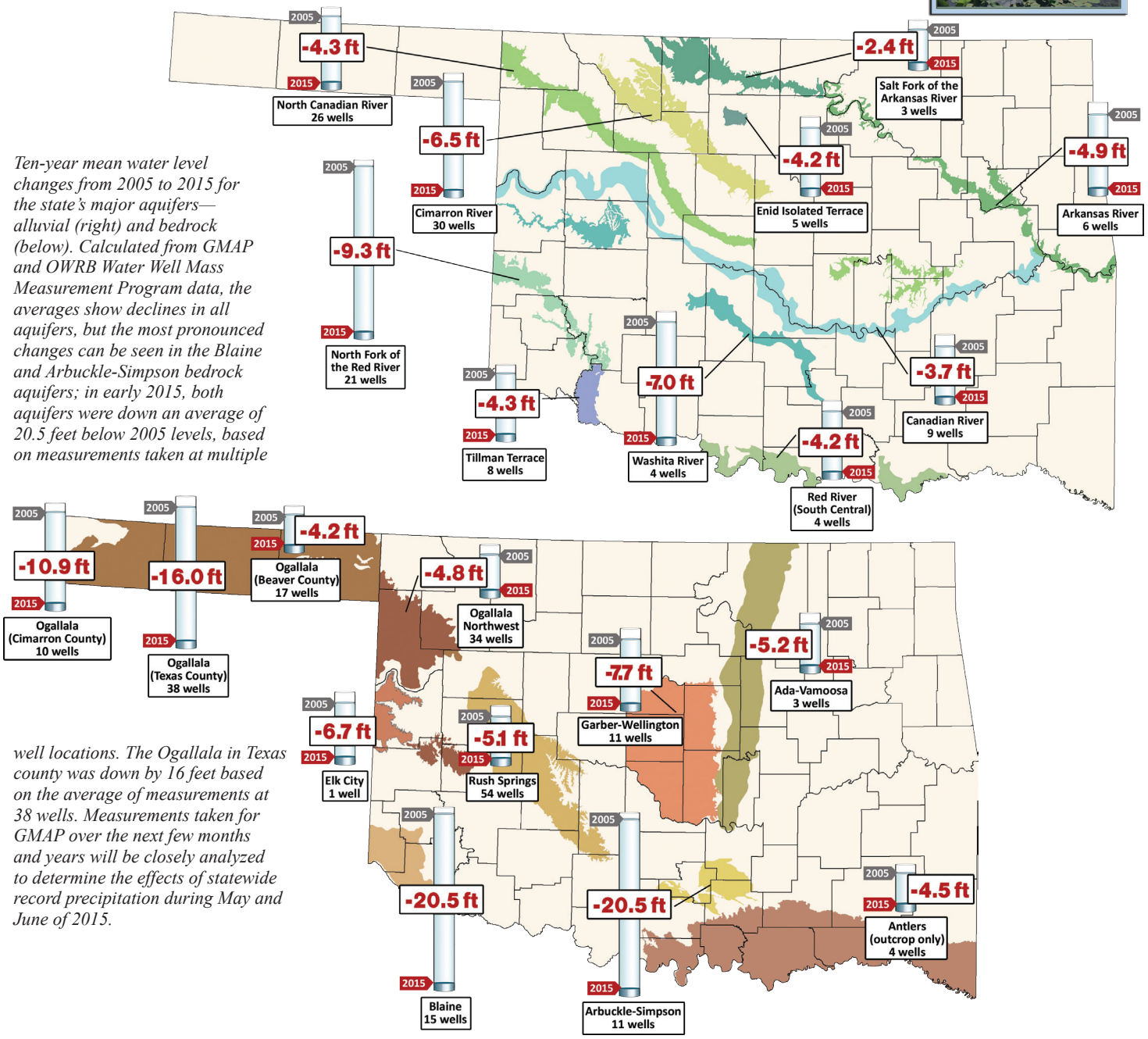


Ten-year mean water level changes from 2005 to 2015 for the state's major aquifers—alluvial (right) and bedrock (below). Calculated from GMAP and OWRB Water Well Mass Measurement Program data, the averages show declines in all aquifers, but the most pronounced changes can be seen in the Blaine and Arbuckle-Simpson 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.

WATER FOR 2060
EFFICIENCY • CONSERVATION • RECYCLING • REUSE

SAVE 13,000 GALLONS

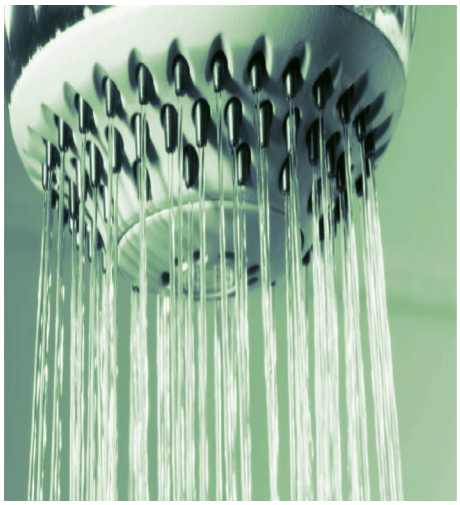
of water each year by updating an older toilet that uses 6 gpf with a low flow toilet that uses only 1.28 gpf.

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

OWRB
the water agency

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.

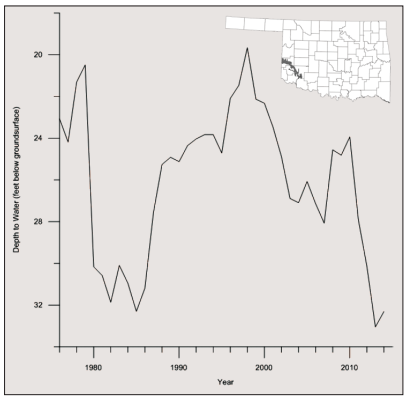
Monitoring Reports (continued)

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.



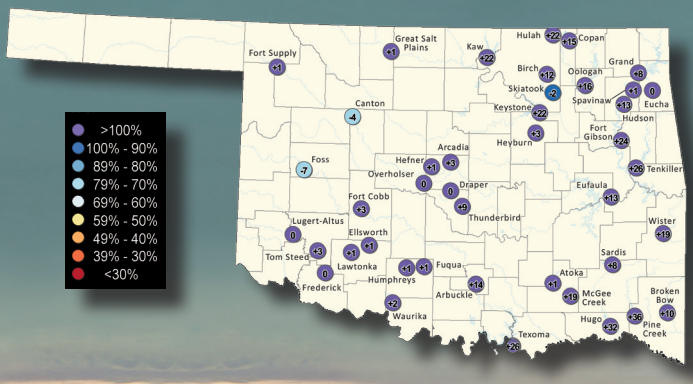
This hydrograph, featured in the 2014 GMAP report, reflects average groundwater levels in the North Fork of the Red River aquifer. Though fluctuation in alluvial aquifers is normal due to their sensitivity to use and climate, sustained drought in the region over the last five years is reflected in water 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

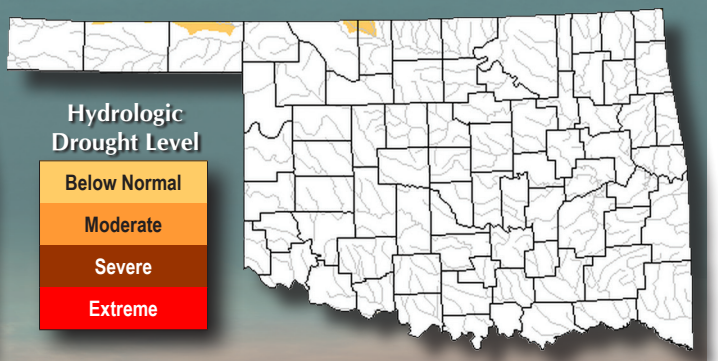
U.S. Drought Monitor
June 23, 2015

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

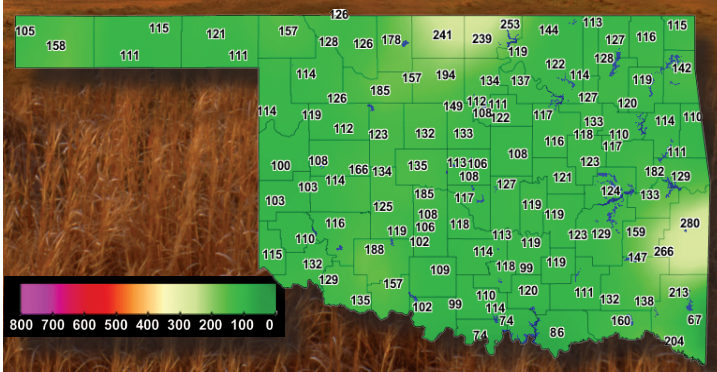
Reservoir Storage
June 22, 2015



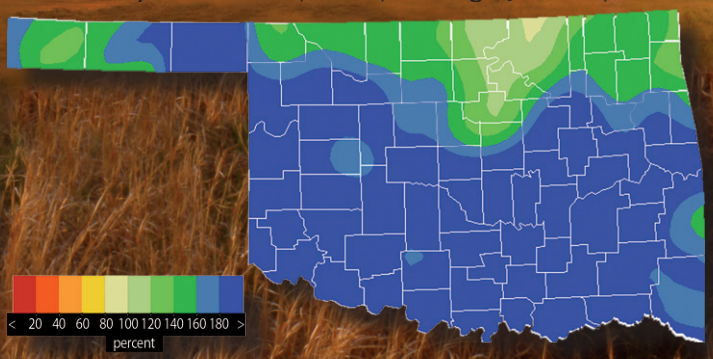
Streamflow (7-Day Average)
June 27, 2015



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**.

Oklahoma Water News
Oklahoma Water Resources Board
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www.owrb.ok.gov

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 $958,8855,000
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

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