

OKLAHOMA Water News

2nd Quarter 2016

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Planning Software Provides Support for Infrastructure Investment Decisions

The OWRB's Financial Assistance Division has launched the Oklahoma Advantages Assessment and Scoring for Infrastructure Solutions (OASIS) planning tool and is introducing it to Oklahoma communities. The tool was created to quantify the environmental, social, and economic benefits of wastewater infrastructure investment. As information about potential wastewater projects is entered into OASIS, the tool generates customized summaries of the benefits that could be achieved by project implementation. These summaries contain cost-benefit information for a variety of scenarios, providing invaluable assistance to community leaders who are considering multiple options to meet their wastewater system's short and long-term goals.

Projects that can be analyzed by the OASIS tool include wastewater treatment system upgrades and expansion, stormwater management, and nonpoint source pollution control. These types of projects often involve unseen infrastructure, making it difficult for officials to articulate the importance of investment to constituents. Because of this, OASIS summaries generate text that can easily be understood by the public, highlighting the impacts of the project in key areas such as economic growth, quality of life, sustainability, interest rate savings, property values, reducing health risks, and increasing recreation values, as well as the inflationary cost of delay.

The tool has been under development for the last few years through collaboration with the US Environmental Protection Agency (EPA), the University of Oklahoma (OU), and private cooperators. The project began with an intensive review of existing research to identify multiple economic, environmental, and social benefits that result from wastewater infrastructure investment. Researchers

(continued on page 2)



OWRB staff meet with officials from the City of Altus to explain the benefits of using OASIS, a new planning software designed to provide customized summaries of the environmental, economic, and social benefits associated with wastewater system investments.

From the Director

Yet another session of the Oklahoma Legislature is in the books, and it's a perfect time to highlight some of the major legislative developments for water resource management and the OWRB. Those legislative highlights include the extension of the agency's use of Gross Production Tax (GPT) proceeds for critical water planning and monitoring, approval of three OWRB Rule updates related to water quality and financial assistance, approval of legislation to foster aquifer storage and recovery (ASR) efforts in Oklahoma, and a resolution to the Federal government to reform water wasting requirements within its crop insurance program.

Despite this progress, most of the legislative session focused on keeping state programs afloat in the face of significant revenue failure. Similar to many other agencies, the OWRB experienced both a reduction in our FY

(continued on page 2)



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



Planning Software (continued)

interviewed local officials from several communities with recently completed projects to collect real-world input on the projects' impacts in a number of areas. Interview topics included job creation, savings in facility operations, support of outdoor recreation, reduction of dangerous algal blooms and protection of wildlife, increased ability to meet present and future capacity needs, and other subjects. The data collected through these interviews were invaluable for the tool's development.

OWRB staff continue to meet with wastewater systems and local officials to demonstrate the free tool and share ways it can

OASIS promotes planning through a holistic approach, encouraging community involvement and creating a livable community through water efficiency, energy efficiency, and the protection of natural resources.

benefit systems and communities. The tool is also being refined for dual use as a part of the OWRB's loan application process.

For more information, contact the OWRB's Financial Assistance Division or visit www.owrb.ok.gov/oasis. ♦

From the Director (continued)

2016 funding, as well as two additional mid-year reductions, resulting in about 12% less funding than we had to work with in FY 2015. Additional budget cuts for FY 2017 will add another 5% to that deficit, making it extremely challenging to maintain our mission to ensure reliable water supplies for Oklahomans facing the droughts to come. Despite this unfortunate reality, each of our agency's divisions have done an admirable job reallocating both staff and resources to make certain that we are accomplishing the OWRB's core missions and critical priorities found in the 2012 Update of the Oklahoma Comprehensive Water Plan (OCWP).

Fortunately, with passage of HB 2623, the OWRB's authorization to use GPT revenues was extended through 2019 by the Legislature and Governor. These GPT funds have been the lynchpin in our ability to implement a multitude of OCWP priority recommendations. Both the Governor and Legislative leadership recognized the importance of continuing this work on vital water infrastructure, critically needed water supply studies, expanded groundwater monitoring, and more.

By session's end, the OWRB also received approval for our proposed updates to Chapters 45, 46, and 50 of our agency Rules. The approved changes include several technical updates to Oklahoma's Water Quality Standards, mostly focused on laying the regulatory groundwork for expanding water reuse projects in the state. The other amendments were administrative updates to the agency's REAP grant program, which provides smaller, rural communities and water districts critical funding for water infrastructure improvements.

In our last newsletter, I highlighted the passage of SB 1219, which authorizes the OWRB and Oklahoma Department



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OWRB Welcomes New Administrative Services Division Chief

In May, the OWRB welcomed Cleve Pierce as the new Administrative Services Division Chief. Pierce will be responsible for coordinating the agency's budget and managing staff involved with purchasing, human resources, geographic information systems, public information, and information technology.

Pierce has worked for the State of Oklahoma since 1999. He formerly served as the director of finance and interim director of administration at the Corporation Commission, budget analyst and auditor at the Department of Tourism, and business manager at the Department of Corrections. ♦

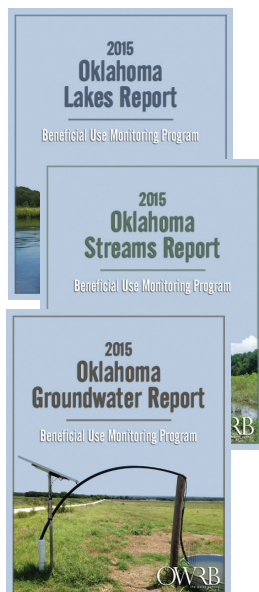
of Environmental Quality (ODEQ) to establish a process for Oklahoma citizens or communities to construct ASR projects. I believe that ASR will be an important factor in helping us secure water and better drought-proof our communities for decades to come. I am happy to report a working group of interested stakeholders will be launched soon to gain valuable input as we build the state's ASR program. Early this summer, several OWRB and ODEQ personnel toured an ASR project operated by Wichita, KS to gather further insight into the size and scope of these projects.

Legislators also showed their support for the recommendations recently released by the state's Water for 2060 Advisory Council by passing Senate Concurrent Resolution 33. Heeding the advice of the Council, SCR 33 urges the Federal government to reform its crop insurance rules and practices that cause producers to waste water on obviously failed crops. As the Council solicited input from Oklahomans on ways to improve water conservation and meet the Water for 2060 goal of consuming no more fresh water in 2060 than was consumed in 2012, agriculture producers frequently cited these Federal crop insurance requirements as a major source of waste.

I'm excited to announce that we have finalized the dates and location for the 37th Annual Governor's Water Conference and Research Symposium. This year's conference will be held October 11-12 at the Embassy Suites Convention Center Hotel in Norman, OK. Already, we are booking an exciting lineup of speakers and looking forward to another great conference with our fellow Oklahomans. ♦

BUMP Reports Provide Water Quality Data for 2015

The Oklahoma Water Resources Board's 2015 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 84 stream sites throughout the state, including 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.

Data gathered in the 2014-2015 sample year indicate that the major water quality concerns of Oklahoma

lakes continue to be excess nutrients and turbidity. Data also indicate that 16% of the lakes sampled in 2015 were "hyper-eutrophic," which means they contain an excessive amount of nutrients that could lead to taste and odor problems (see map on page 4). In improving order of quality, about 59% of lakes sampled in 2015 were considered eutrophic, 22% were mesotrophic, and 3% were oligotrophic (waters relatively low in nutrients).

The vast majority of streams sampled within the past year were suitable for uses related to public and private water supply. The Fish and Wildlife Propagation beneficial use was mainly affected by high inorganic turbidity and elevated metals levels. Inorganic turbidity is typically caused by sediments from runoff. Bacteria levels were the major concern for recreation that involves primary and secondary 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.

The Groundwater Report contains summaries of aquifers sampled through the Groundwater Mapping and Assessment

(continued on page 4)



Jet Stine collects a BUMP water sample from Skiatook lake.

SAVE THE DATE

Oklahoma Governor's Water Conference
..... and Research Symposium

October 11-12, 2016

..... Embassy Suites, Norman, OK

Water Returns to the Beaver River

The Beaver River BUMP site near Beaver, OK, was scheduled for 7 site visits by OWRB staff during 2015. For almost all the visits, the site was either completely dry or had pools of water but no flow. Finally, by the November visit, the river was flowing again.

By May of 2016, scientists were able to collect biological samples, including four fish species (pictured below).

The total number of species and percent of tolerant/intolerant species of both fish and aquatic insects is an important indicator of health of the stream and helps determine if it supports the fish and wildlife propagation beneficial use.

Every two years, support status for all beneficial uses are reviewed for BUMP sites and recommendations are made for the state's 303d list of impaired waters.



During spring and summer sampling in 2015, the Beaver River site at Beaver was either dry (top) or contained isolated pools of water but no flow (middle). By November, the river was flowing again, and by May 2016 (bottom), several fish species had returned.



Four fish species were collected in May of 2016 (shown clockwise from upper left): plains killfish, western mosquito fish, common carp, and green sunfish.

BUMP Reports (continued)

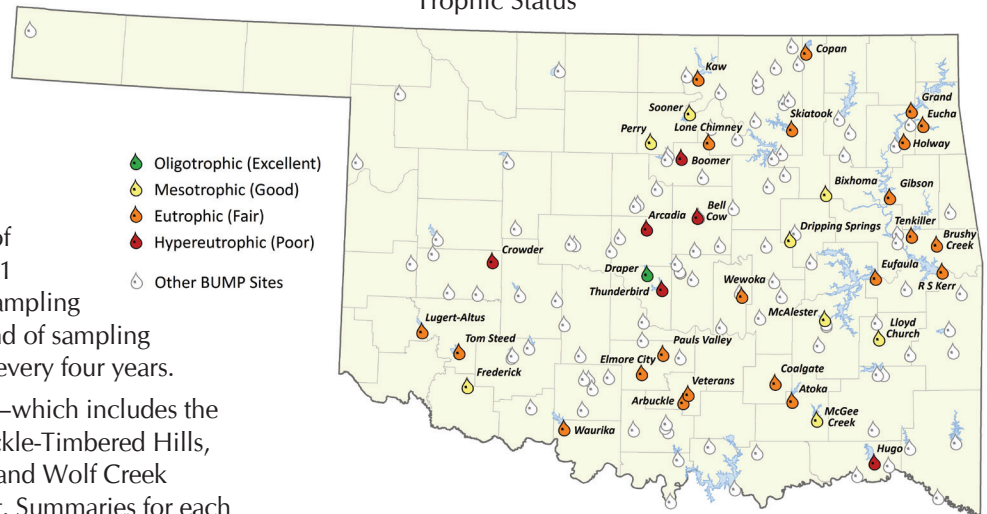
Program (GMAP). The summaries show nutrient, mineral, and metal statistics as well as general parameters, such as depth to water, alkalinity, hardness, and total dissolved solids (TDS). GMAP was established in 2013 as the state's first comprehensive groundwater quality and quantity monitoring program. A network of approximately 750 wells in Oklahoma's 21 major aquifers will be sampled by 2017 sampling 5-6 aquifers each year. After this first round of sampling is complete each aquifer will be sampled every four years.

Data from phase three of GMAP sampling—which includes the Antlers outcrop, Arbuckle-Simpson, Arbuckle-Timbered Hills, Blaine, North Canadian River, Red River, and Wolf Creek 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 average 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. ♣

Lakes Sampled by BUMP in 2015

Trophic Status



Trophic status of lakes sampled by BUMP in 2015. Trophic status is a measure of biological productivity, a major determinant of water quality. Excessive levels of nutrients can lead to low dissolved oxygen and algal growth, which can cause taste and odor problems.

“Oligotrophic” lakes have low primary productivity and/or low nutrient levels, “mesotrophic” lakes have moderate primary productivity and nutrient levels, “eutrophic” lakes have high primary productivity and nutrient levels, and “hypereutrophic” lakes have excessive primary productivity and nutrient levels.

Status of Water Quality Monitoring in Oklahoma

Water quality monitoring activities are conducted across the state for various reasons, including the identification of pollution sources, regulatory compliance, and determining the effectiveness of Best Management Practices (BMPs).

The OWRB water quality division has developed and published the latest “Status of Water Quality Monitoring in Oklahoma: Surface Water Monitoring Strategy Document (2015-16).” The report provides a synopsis of current statewide water monitoring, including summaries of activities performed by each state and federal monitoring agency. Additionally, the report serves as a tool for the coordination of future monitoring activities by recommending modifications or improvements to water quality monitoring initiatives.

Numerous environmental agencies, including the Oklahoma Conservation Commission, Oklahoma Department of Environmental Quality, and OWRB, now collect water quality data to identify baseline conditions across Oklahoma. However, a lack of historical baseline information still exists for many state waters. This information is absolutely essential for the identification of “abnormal” water quality conditions.

The status report underscores the importance of focusing resources in areas where adverse water quality impacts are

The report underscores the importance of focusing resources in areas where adverse water quality impacts are greatest or where our most outstanding water resources are threatened.

greatest or where our most outstanding water resources are threatened. Further improvements to statewide monitoring efforts are emphasized to ensure that the best available data is collected to assist decision makers in managing, protecting, and improving Oklahoma's water resources. The following recommendations were highlighted:

- Monitoring additional Oklahoma rivers and stream segments;
- Expansion of biological monitoring in Oklahoma lakes to enhance use support determinations;
- Development of new Use Support Assessment Protocols (USAP) and refinement of new protocols;
- Expansion of diurnal dissolved oxygen monitoring;
- Expansion of ambient sampling for metals and organics; and
- Enhanced partnerships between state and federal agencies.

The report is available for download at www.owrb.ok.gov/quality/monitoring/StatusReport.pdf. ♣

INVESTING IN WATER-SMART LANDSCAPING

Judging by our water use and consumption practices, many Americans take water for granted.

ABOUT 30% OF ALL HOUSEHOLD WATER USE IN THE U.S. OCCURS OUTDOORS.

More and more individuals are demonstrating their water smarts indoors by retrofitting their homes with WaterSense-labeled products. But outdoors, especially in the summer, the amount of water a household uses can exceed the amount used for all other purposes in an entire year. Gardening and lawn care account for the majority of this seasonal increase. Of the estimated 29 billion gallons of water used daily by households in the U.S. more than 8.5 billion, or 30 percent, is devoted to outdoor water use.

KEY STEPS FOR SAVING WATER OUTSIDE

TIMING IS EVERYTHING. Know how much water your landscape actually needs before you set your sprinkler. Your local water utility can offer recommendations and best times to water.

LOOK FOR THE LABEL. WaterSense-labeled irrigation controllers use local weather data to water only when needed. If your system uses a clock timer, consider upgrading to this smart technology.

GO WITH A PRO. Contractors certified through a WaterSense-labeled program can audit, install, or maintain your system to ensure water isn't wasted. Ask for credentials!

CONSERVE AND PROTECT. Mulching helps conserve and extend available water, protects the soil from erosion, reduces competition by suppressing weeds, and moderates temperature extremes.

MULCHING BASICS

Mulch is simply a protective layer of a material that is spread on top of the soil. Mulches can either be organic, such as grass clippings, straw, bark chips, and similar materials, or inorganic, such as stones, brick chips, and plastic. Both organic and inorganic mulches have numerous benefits. Understanding when, what type, and how much mulch to spread is critical.

Match plants to mulch type. Some drought-tolerant plants do not tolerate moist soils. Avoid using organic mulching with these plants. Gravel and shell mulches increase heat around plants potentially causing stress conditions. Other common mistakes include applying a mulch layer that is too thick and mounding a mulch "volcano" around shrub and tree trunks. Overmulching with more than about 3 to 4 inches of organic mulch can cause a variety of problems.



PROBLEMS CREATED BY OVERMULCHING

- Overmulching can create an anaerobic (low or no oxygen) environment that allows fungal diseases to develop in plant stems and roots (some are toxic to humans).
- Mulching too early in the spring can create water-logged soils that may kill drought-tolerant plants.
- In the fall, mulch applied too deeply can create a home for rodents which may feed on plant stems and trunks throughout the winter.
- Roots may grow into the mulch and not the soil.
- Slugs and other insects may colonize thick mulch.
- Thick layers of sawdust and grass clippings compact easily and may prevent water from penetrating the soil.



GENERAL RULES OF THUMB FOR APPLYING MULCH

- Do not exceed about 3 inches in depth depending on type (coarse organic mulch can be applied more thickly than fine mulch).
- Avoid compacting fine organic mulches.
- Avoid applying organic mulch too early in the spring or fall.
- Inorganic mulches should be used with appropriate designs such as xeriscape, rock gardens, and Japanese gardens.
- Place mulch a few inches away from the base of plants, not mounded up around it (particularly trees).

By following some simple rules, mulch can be an effective way to conserve water, add organic matter to the soil, and keep annual weeds from germinating.

Sources: USDA, USEPA

TAKING THE GUESSWORK OUT OF WATERING



WaterSense-labeled irrigation controllers are a type of "smart" irrigation control technology that uses local weather data to determine whether your sprinkler system needs to turn on. With proper installation, programming, and adjustments, these controllers can help consumers save water, time, and money when compared to use of a conventional controller.



CWSRF Intended Use Plan Now Available Online



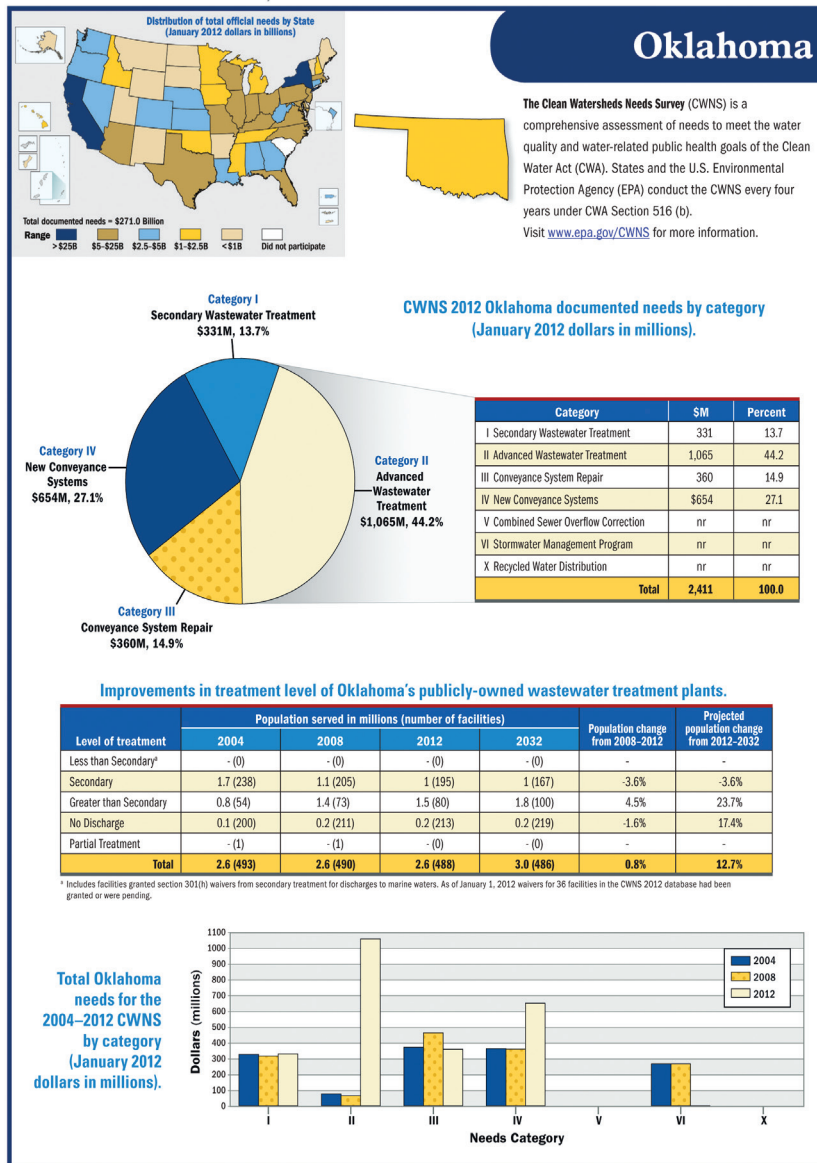
The OWRB's Clean Water State Revolving Fund (CWSRF) 2017 Intended Use Plan (IUP) is now available online at www.owrb.ok.gov/CWSRF. As administrator of the Clean Water State Revolving Fund, the OWRB develops the IUP annually for

the Environmental Protection Agency (EPA) in accordance with requirements of the Clean Water Act. Loans provided by the CWSRF program are used for the construction of wastewater infrastructure improvements, green infrastructure projects, water efficiency projects, non-point source projects, stormwater activities, subsurface remediation, planning and design, refinancing of eligible existing debt, and many other projects.

According to the report, during 2017 the OWRB will continue to play a significant role in helping finance solutions identified in the Water for 2060 Advisory Council's final report for recommendations for encouraging efficient water use across all of Oklahoma's major water use sectors. Additionally, the OWRB will continue to provide public education and outreach to encourage conservation, reuse, sustainability, planning, conservation pricing, consolidation, and system cooperation while accomplishing sound financing and unparalleled environmental protection.

Since 1983, the OWRB has provided approximately 65% of all the financing for Oklahoma's water and wastewater infrastructure needs. To date, the agency has funded over \$3.4 billion in projects with its loan and grant programs which in turn have led to savings of over \$1 billion for Oklahoma communities and rural districts. 💧

Clean Watersheds Needs Survey 2012



The Clean Water Needs Survey (CWNS) of 2012, an assessment of capital investment needed nationwide for publicly-owned wastewater collection and treatment facilities to meet the water quality goals of the Clean Water Act, was finalized in January of 2016, documenting a \$2.4 billion need in Oklahoma. The OWRB Financial Assistance team is dedicated to helping communities meet this need, while focusing on new challenges set forth by the state goals of the Water for 2060 Act and the new eligibilities that came out of the Water Resources Reform and Development Act (WRRDA) of 2014.

LAKES OF OKLAHOMA

MAIL ORDER FORM

Please mail this form to the Oklahoma Water Resources Board (OWRB) along with a check or money order payable to the OWRB for **\$10 per requested copy.***



Mailing Address:
Oklahoma Water Resources Board
3800 N. Classen Blvd.
Oklahoma City, OK 73118

Number of copies requested: _____

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Phone (optional): _____

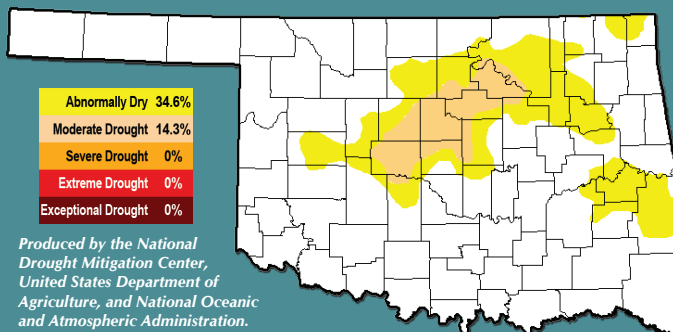
**The \$10 fee is for shipping. Copies may be picked up free of charge from the OWRB main office during normal business hours.*

The new *Lakes of Oklahoma* atlas includes 148 detailed maps with recreational features, topography, lake contours, access points, and other important information.

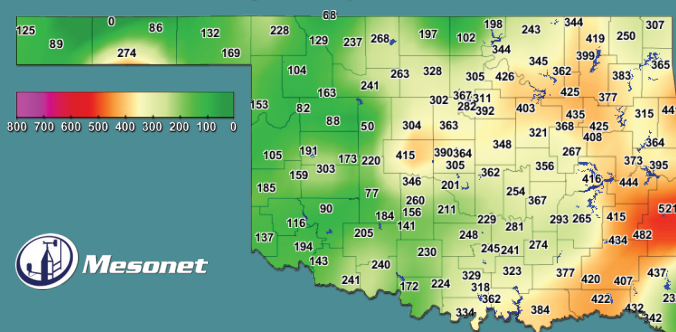
Order yours today!

Drought Update

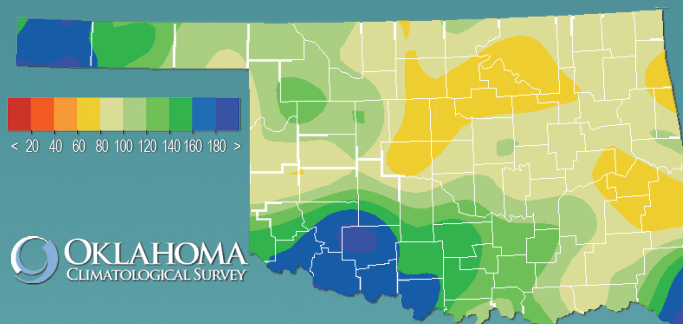
U.S. Drought Monitor June 28, 2016



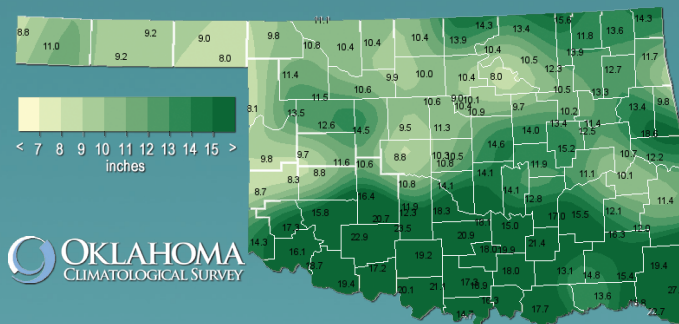
Keetch-Byram Drought Index June 30, 2016



Percent of Normal* Precipitation Last 90 Days (Apr. 1, 2016 - Jun. 29, 2016)

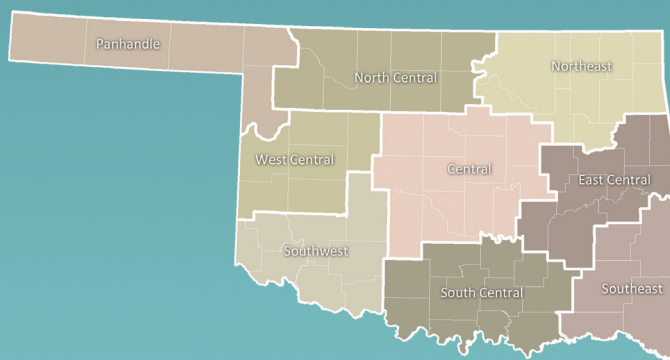


Total Precipitation Last 90 Days (Apr. 1, 2016 - Jun. 29, 2016)



Rainfall Summaries by Climate Division Last 90 Days (Apr. 1, 2016 - Jun. 29, 2016)

Climate Division	Total Rainfall	Departure from Normal	Driest on Record	Wettest on Record
Panhandle	9.15"	+1.80"	2.44" (2011)	14.46" (2015)
N. Central	11.15"	-0.45"	4.22" (1933)	27.01" (1957)
Northeast	12.11"	-2.64"	5.65" (1963)	31.13" (1957)
W. Central	10.84"	+0.37"	3.69" (1933)	20.97" (2015)
Central	12.25"	-0.98"	7.14" (1931)	28.79" (1957)
E. Central	13.25"	-1.42"	4.66" (1936)	31.66" (2015)
Southwest	17.21"	+6.32"	3.96" (1998)	25.00" (2015)
S. Central	18.10"	+4.33"	5.11" (1931)	35.21" (2015)
Southeast	16.56"	+1.34"	6.35" (1936)	29.78" (1935)
Statewide	13.32"	+0.85"	6.97" (1998)	25.38" (1957)



Developed by the OWRB. Data provided by the US Army Corps of Engineers and US Bureau of Reclamation.

For more drought information 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 June 30, 2016

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—295 totaling \$1,345,297,392

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—180 totaling \$1,044,128,300

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—656 totaling \$58,043,834

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—571 totaling \$33,957,413

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 Relief 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: 2,084 totaling \$3,443,489,488

Estimated Savings: \$1,172,914,490

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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