OKLAHOMA
Water News
1st Qtr. 2018

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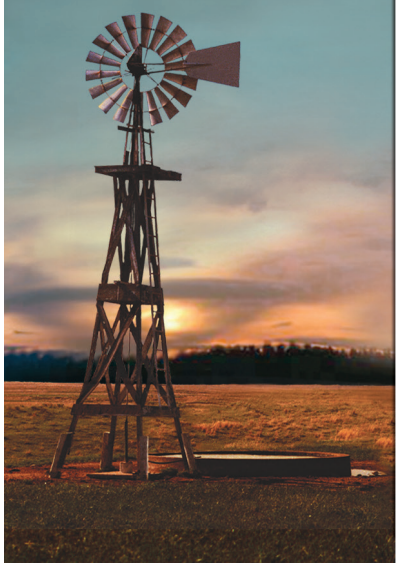


OWRB Monitoring Program Celebrates 20 Years of Protecting Oklahoma's Water

Since before statehood, Oklahomans have recognized the need to protect water resources from pollution. Although many early state and local laws were enacted with the intention of reducing or eliminating water pollution or providing for remediation, major legislation for the state was not passed until the 1955 Oklahoma Water Pollution Control Act.

OWRB biologists Chris Hargis and Josh Bailey collect stream habitat and macroinvertebrate data on the Illinois River. Data from BUMP stream sites provide an early warning system for any issues that may affect water quality.

The Act stated that polluting waters of the state was a crime, and that it was the policy of the Act to prevent pollution of existing water and the proper treatment of water being discharged. In 1957, upon its creation, the Oklahoma Water Resources Board (OWRB) was placed in charge of planning, financing, and enforcing the Act through comprehensive programs for the prevention, control, and abatement of water pollution and through the adoption and promulgation of water quality standards.

In 1965, the OWRB and other agencies were given the responsibility of coordinating state water quality control activities in accordance with the Federal Water Quality Act. The first Oklahoma Water Quality Standards (WQS) were completed in 1968.

From the late 1980s through the 1990s, the OWRB was actively involved in lake studies through the Clean Water Act (CWA) Section 314 Clean Lakes Program and conducted special studies and remediation on lakes. In 1993, through the Oklahoma Environmental Quality Act, the legislature redistributed and clarified the powers, duties, and responsibilities of the newly created Oklahoma Department of Environmental Quality (ODEQ), the OWRB, and other environmental agencies. Along with its other responsibilities, the OWRB remained in charge of Oklahoma's WQS, their accompanying use support assessment protocols, anti-degradation policy and implementation, and other policies generally affecting WQS application and implementation.

By 1996, state legislators had begun discussing the need for centralized, long-term, defensible water quality data for policy-making. During the 1998 legislative session, lawmakers recognized the vital economic and environmental importance of Oklahoma's water resources and reaffirmed their confidence in the OWRB by appropriating $1 million for a beneficial use monitoring program (BUMP), a critically needed component of the WQS and state water management processes to ensure that beneficial uses assigned to streams and bodies of water were protected and maintained. The program was assigned by statute to the OWRB in 1999.

(continued on page 2)

Monitoring Program Celebrates 20 years (continued)

The strategy set out by the OWRB for the new program included extensive sampling at lake and stream sites for general water quality parameters, nutrients, pesticides and bacteria; fixed station load monitoring in cooperation with the USGS and others; developing standardized groundwater monitoring methods with the ODEQ; intensive monitoring at any site identified as impaired; and the prioritization of sites for remediation. (See pages 4-5 for a more detailed look at BUMP monitoring sites and special projects that have been leveraged through the program.)

Since inception of the program, data collected at these sites have been invaluable to the development and refinement of Oklahoma's WQS. Stakeholders have utilized the data to identify waters experiencing impairments as well as the cause of declining water quality. If a designated beneficial use of a waterbody is identified by the program as being impaired, threatened or compromised, BUMP data provide the necessary scientifically defensible impetus for action to be taken.

Through the 2012 Oklahoma Comprehensive Water Plan, the importance and usefulness of water quality and quantity information provided by the program was again recognized, and the OWRB was given additional funding to meet rising costs of continuing the program and add a groundwater component. This led to the creation of the Groundwater Monitoring and Assessment Program (GMAP), a network comprising approximately 650 wells in Oklahoma's 22 major aquifers. Groundwater data from these sites, accessed via voluntary cooperation by hundreds of private landowners, provide Oklahoma with information on individual aquifer characteristics, seasonal changes, and/or changes due to usage over time.

Due to the success and reputation of the program, the OWRB has been able to become involved with multiple other projects and opportunities for the state, such as the National Lake and Rivers and Streams Assessments, which bring in federal money and allow the OWRB to enhance and modernize the program through federal funding. These projects lead to opportunities for local engineers, scientists, laboratories, and other resources that positively impact Oklahoma's economy.

2017-18 Status Report on Water Quality Monitoring in Oklahoma Now Available Online

Across Oklahoma, water quality monitoring activities are conducted 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 (2017-18)." 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, ODEQ, 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 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 report is available for download at **www.owrb.ok.gov/quality/monitoring/StatusReport.pdf**.

Canton Public Works Authority Receives Wastewater System Loan

The Canton Public Works Authority (Authority) received approval for a $399,000 loan in February to improve the Authority's wastewater infrastructure. Construction of upgrades and improvements to the wastewater system will be financed by the Oklahoma Clean Water State Revolving Fund (CWSRF).

The Authority will be using funds for constructing a new lift station with a wet well, submersible pumps, emergency generator, and boring under Minnehaha Creek to replace the 6-inch force main and 12-inch sewer line. Minnehaha Creek is on the state's list of impaired waterbodies where water quality and habitat are not adequately supporting local fish populations. This project will prevent further degradation to the impaired creek.

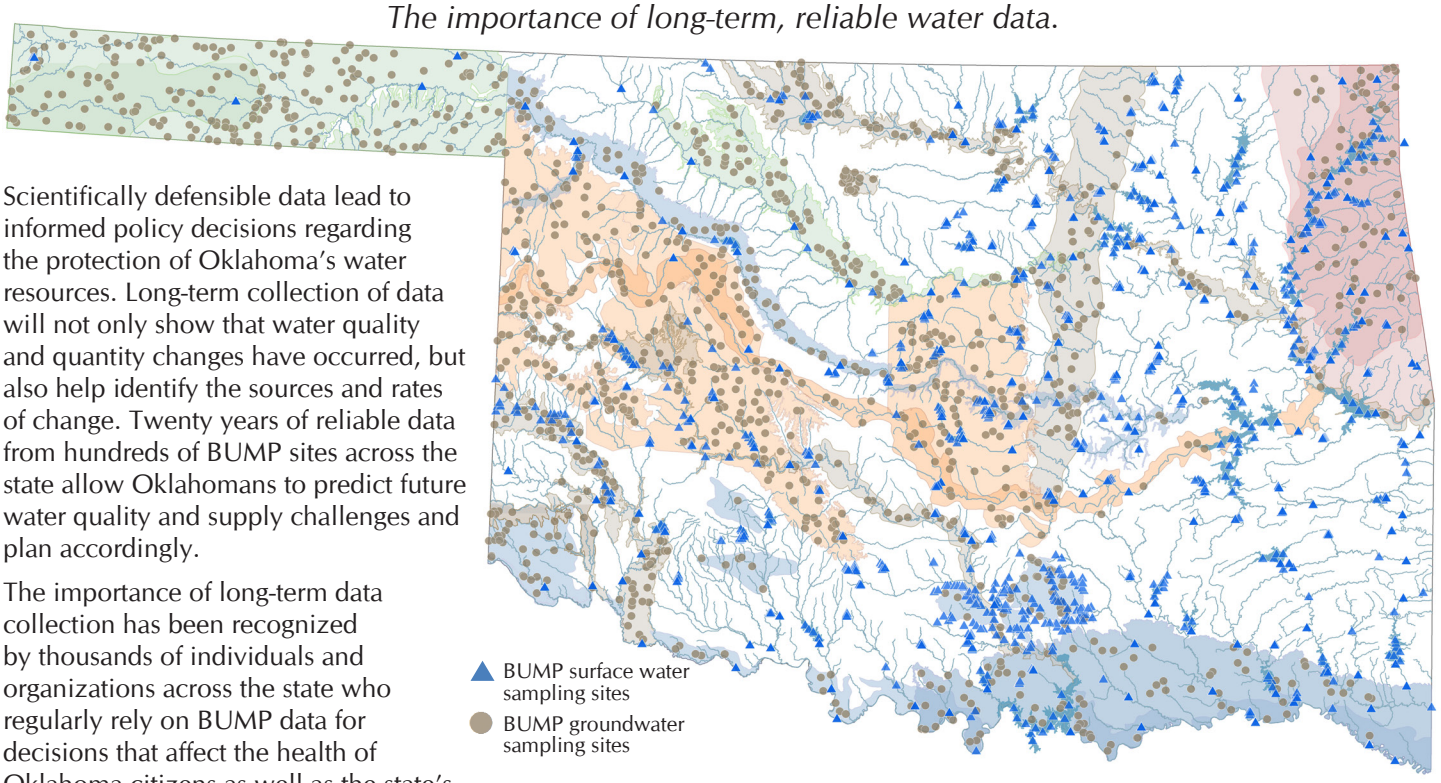
Through this loan, the Authority's customers will save an estimated $77,000 over the life of the 20-year loan compared to traditional financing. The CWSRF loan will be secured with a lien on the revenues of the Authority's water and sewer systems.

The CWSRF program is administered by the OWRB with partial funding from the EPA. Oklahoma utilizes the CWSRF to provide communities the resources necessary to maintain and improve the infrastructure that protects our valuable rivers and lakes statewide.

Since 1983, the OWRB has approved more than $3.9 billion in loans and grants for water and wastewater infrastructure improvements throughout Oklahoma.

OWRB Beneficial Use Monitoring Program

The importance of long-term, reliable water data.



Scientifically defensible data lead to informed policy decisions regarding the protection of Oklahoma's water resources. Long-term collection of data will not only show that water quality and quantity changes have occurred, but also help identify the sources and rates of change. Twenty years of reliable data from hundreds of BUMP sites across the state allow Oklahomans to predict future water quality and supply challenges and plan accordingly.

The importance of long-term data collection has been recognized by thousands of individuals and organizations across the state who regularly rely on BUMP data for decisions that affect the health of Oklahoma citizens as well as the state's economy.

Identifying Impaired Waters

The OWRB analyzes BUMP data collected to identify if waterbodies are meeting their assigned beneficial uses. If a waterbody is not meeting its beneficial use, it is submitted for inclusion on the EPA's 303d list, which is updated every two years. Waterbodies with improving conditions are reviewed and removed from the 303d list. The latest EPA approved 303d list of impaired waters can be found on the ODEQ website at www.deq.state.ok.us.

OWRB Stream Gaging Network

The OWRB's stream gage network, in partnership with the USGS Cooperative Stream Gaging program, provides data for administration of water rights and compliance with Oklahoma's delivery of water per four federal interstate stream compact agreements. Stream gage data directly guide the day-to-day management of local and regional public water supplies, including flood and drought planning, early warnings, and emergency operations.

Special Studies

Due to the longevity of BUMP and the reliability of the data that the program has provided over the years, the OWRB is a trusted source for specialized contract work for municipalities and rural water districts. For example, the ODEQ has contracted the OWRB to map the bathemetry of waterbodies that are listed as impaired for dissolved oxygen. OWRB staff are also frequently involved in sediment removal, oxygenation, shoreline revegetation, and erosion control projects.

Bathymetric Mapping

The OWRB's bathymetric program has grown significantly over the years, providing valuable information for numerous purposes, including dam breach/flood analysis, watershed monitoring and management, assisting municipalities in determining the amount of water a lake can yield during drought, providing estimates of lake volume for chemical rehabilitation projects and vegetation control, assisting fisheries managers, and providing information for recreational fishing.

BUMP Data USERS:

- Municipalities
- Industries
- Economists
- Consultants
- Academia
- Rural Water Districts
- Lake Managers
- Sub-state planning districts
- Conservancy Districts
- Interstate commissions & compacts
- Fishing enthusiasts

BUMP Data USES:

- Waste discharge permitting
- Water quality assessment
- TMDLs
- 303(d) impaired list
- 305(b) water quality status report
- Water quality standards
- Water planning
- Non-point source management
- Public health decisions
- Work/funding prioritization
- Research
- Model development
- Resource and supply management
- Prioritizing state and federal resources for problem areas

Financial Assistance Program Update

Loans & Grants Approved as of March 31, 2018

FA Loans—384 totaling $1,051,865,000
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—320 totaling $1,550,989,377
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—194 totaling $1,228,083,300
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—675 totaling $59,799,640
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.

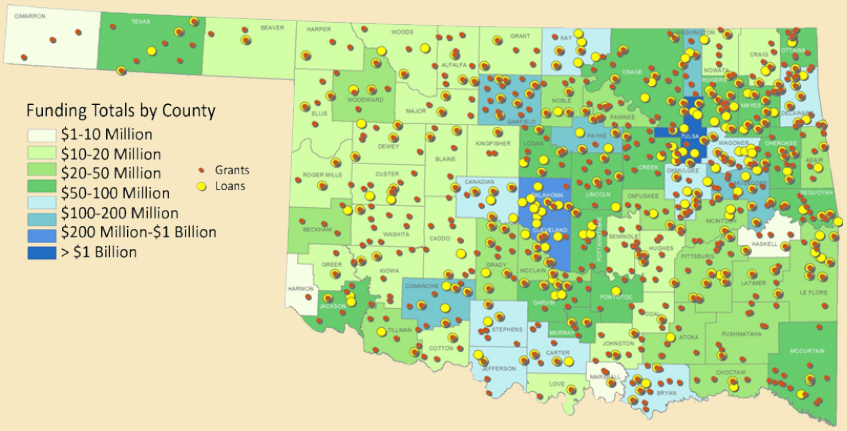
Drought Response Program Grants—6 totaling $418,848
Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of $300,000 is diverted from existing OWRB Emergency Grant proceeds to fund the Program.

Emergency Grants—576 totaling $34,224,955
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.

Water for 2060 Grants—4 totaling $1,500,000
Through the Water for 2060 Grant Program, funding was available in 2015 for municipalities, counties, water/sewer districts and other public entities for projects that highlight the responsible use of water.

Emergency Drought Relief Grants—4 totaling $1,125,000
Through the Emergency Drought Relief Grant Program, funding was provided in 2013 by the Legislature via the Emergency Drought Relief Commission to address severe drought issues in specific Oklahoma counties.

OWRB Financial Assistance Program
Loan and Grant Recipient Status by County



Total Loans/Grants Approved: 2,163 totaling $3,928,006,119 Estimated Savings: $1,324,004,500

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.

OWRB
the water agency

Oklahoma Water Resources Board

Ford Drummond, Chairman
Jason Hitch, Vice-Chairman
Stephen Allen, Secretary
Tom Buchanan
Charles Darby
Bob Drake
Linda Lambert
Robert Melton
Robert Stallings

The Oklahoma Water Resources Board defines policy and conducts the state's water business through a nine-member Board appointed by the Governor. The Board meets regularly to oversee the management of the state's water resources and implementation of the Oklahoma Comprehensive Water Plan. The agency assists the Board in implementing its mission with a professional staff of 100 scientists, engineers, financial analysts, water policy experts, attorneys, and support personnel.

The mission of the OWRB 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.

OWRB meetings are open to the public. Visit www.owrb.ok.gov for meeting dates, times, locations, and agendas.

OKLAHOMA Water News

1st Quarter, 2018

Published online at www.owrb.ok.gov.

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The Oklahoma Water News *is published quarterly by the Oklahoma Water Resources Board as authorized by Julie Cunningham, Executive Director.*

For questions, comments, or article submissions, please contact Darla Whitley, Editor, at pubinfo@owrb.ok.gov or (405) 530-8800.

OKLAHOMA Water News

2nd Quarter 2018

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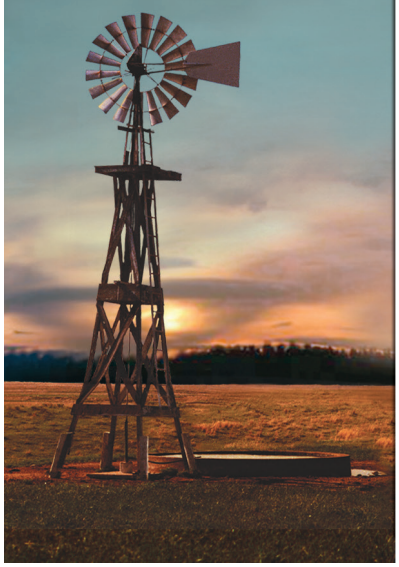
Water for 2060: Addressing Nonpoint Source Pollution

FAP Update



2017 Beneficial Use Monitoring Program Reports Now Available

The OWRB's 2017 Beneficial Use Monitoring Program (BUMP) 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 2016-17 sample year indicate that the major water quality concerns of Oklahoma lakes continue to be excess nutrients and turbidity. Data also indicate that 23% of the lakes sampled in 2016-17 were "hyper-eutrophic," which means they contain an excessive amount of nutrients that could lead to taste and odor problems (see map on page 2). In improving order of quality, about 49% of lakes sampled in 2016-17 were considered eutrophic, 26% were mesotrophic, and 2% were oligotrophic (waters relatively low in nutrients).

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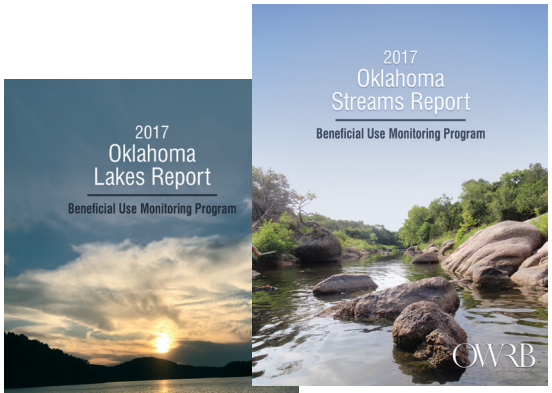
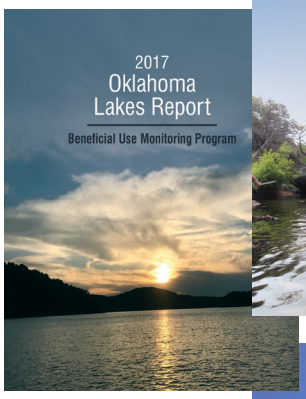
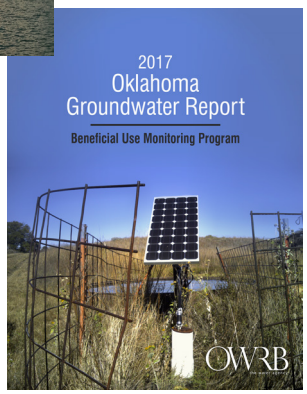




The 2017 BUMP Streams and Lakes reports feature summaries of physical, chemical, and biological data obtained through sampling at 84 stream sites and 130 lakes across the state.



The 2017 BUMP Groundwater Report features water level and water quality information for the state's 22 major aquifers.

From the Director

I am extremely pleased to report that Oklahoma's water future looks even brighter thanks to the leadership of Governor Fallin, the state Legislature, local and private interests, our Board, and our hard-working staff. Several significant pieces of legislation recently signed into law will allow the permitting of marginal waters for beneficial use, establish greater flexibility in water supply management and delay potential expenditures by groundwater users, protect existing water wells from encroachment by new well construction, and allow the use of aquifers to store water for later use.

One way to preserve our future fresh water supplies is to increase the safe and responsible use of marginal quality water when economically feasible. Representative Weldon Watson authored legislation that could greatly expand the use of these waters in lieu of fresh water. House Bill 3405 adds marginal quality waters (groundwater with 5,000 to 10,000 ppm of total dissolved solids) to Oklahoma Groundwater Law. This will provide the oil

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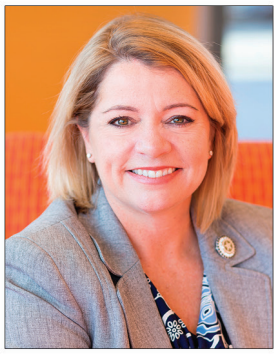
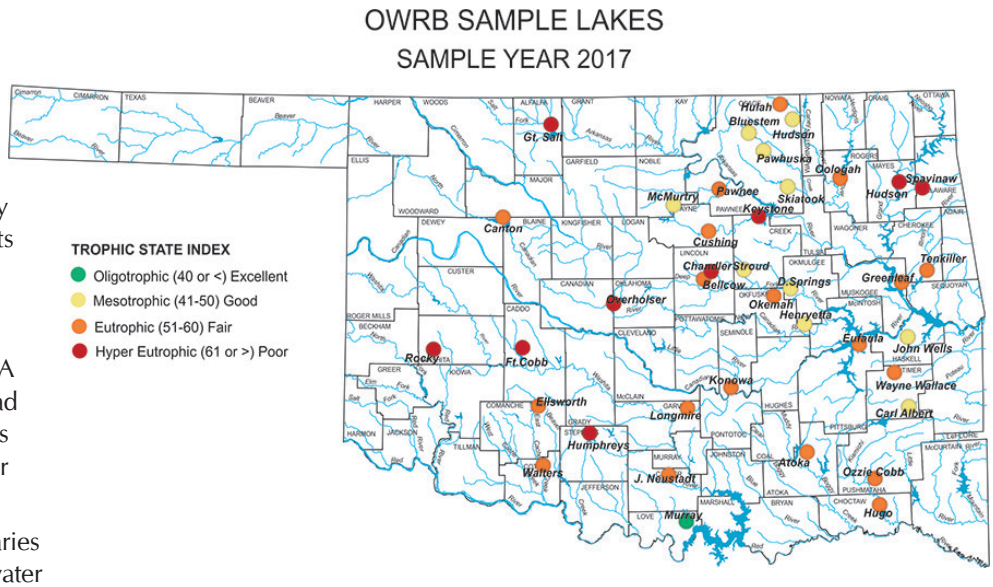


Julie Cunningham, Executive Director
Oklahoma Water Resources Board

2017 BUMP Reports (continued)

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 increased sediments loads from runoff and highly erodible banks. Bacteria levels were the major concern for the Primary and Secondary Body Contact Recreation beneficial use. A small number of sampled streams also had problems associated with dissolved solids (chlorides and sulfates), which limits their suitability for irrigation.



Trophic status of lakes sampled by BUMP in 2017. 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.

The Groundwater Report contains summaries of aquifers sampled through the Groundwater Monitoring and Assessment Program (GMAP). GMAP was established in 2013 as the state's first comprehensive groundwater quality and quantity monitoring program. A network of approximately 660 wells in Oklahoma's 22 major aquifers was sampled over five years for baseline assessment along with approximately 65 wells in associated minor aquifers. 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). Groundwater level hydrographs show average depth to water over the longest period of record.

Information provided by the program plays an important role in supporting the management of 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.

From the Director (continued)

and gas and power generation industries, as well as irrigators and others, the opportunity to tap into these supplies while offsetting their use of fresh water. The OWRB will commence a rule-making process this fall to update the state's water well construction standards for these types of marginal quality wells so that fresh water zones are protected.

The Legislature and Governor also approved legislation that provides OWRB planners with greater flexibility in appropriating groundwater basin supply management. Senate Bill 1294, authored by Senator Roland Pederson, grants the OWRB the flexibility to delay or gradually phase in a Maximum Annual Yield determination when the amount of water allocated from a basin is 25% or less of the total amount of water in the basin. The new law also extends well spacing protections to all existing water wells.

In addition to these legislative initiatives, significant changes to OWRB rules were successfully promulgated this session. Among other rule amendments, the OWRB proposed a new chapter, OAC 785, Chapter 32, Aquifer Storage and Recovery, which sets out requirements to obtain a permit to conduct aquifer storage and recovery activities and details procedures for determining the amount of stored water that may be later recovered. This is another critical step in continuing the state's work on a comprehensive aquifer storage and recovery program. Also of note, OAC 785, Chapter 50 was amended to make it easier for applicants to find and review the emergency grant rules.

I would like to extend my appreciation to Legislative leaders, Governor Fallin, Secretary Teague, and the many citizen stakeholders for their collaboration and input on these measures. Without the input of a broad and diverse group of policy makers, industry leaders, and our colleagues at the ODEQ and other sister agencies, none of these successes would have been possible.

Turning to internal matters, at the May Board meeting, we welcomed new Board members Jennifer Castillo, an attorney with Oklahoma Gas & Electric Company, and Matt Muller, a farmer in Jackson and Greer counties. Chairman Drummond also recognized the successes of retiring Board members, Linda Lambert and Tom Buchanan. Former Chairman Lambert, who was in attendance, thanked the board and staff and reminded us that our work is a calling. She underscored the importance of major legislation passed during her time on the Board,

(continued on page 3)

From the Director (continued)

particularly the passage of the Water for 2060 Act, and urged us continue making water conservation a priority.

In June, the Board elected a new slate of officers. Jason Hitch will serve as Chairman, Stephen Allen will serve as Vice Chairman, and Robert Stallings will serve as Secretary. I also announced the appointment of Sara Gibson as our permanent General Counsel. Sara has served the OWRB since 2013 as Assistant General Counsel. Her diverse knowledge and experience with administrative law and state water programs have served the OWRB well and we look forward to her leading our legal team.

Finally, the 39th Annual Governor's Water Conference will be held on December 5-6 at the Reed Conference Center in Midwest City, Oklahoma. Please mark your calendar and plan to attend this event. We are putting together an exciting agenda with a special focus on projects to further the state's Water for 2060 goal. We are planning a special plenary forum to kick off a state-wide awareness campaign for Water for 2060. This will include the second annual Water for 2060 Excellence Awards ceremony. To kick off the networking reception, a fun speed-mentoring session is in the works. It will be a wonderful opportunity to discover and share all the many efforts that are being made across the state to conserve and protect our water resources for future generations.

SAVE THE DATE

39th Annual Oklahoma Governor's Water Conference and Research Symposium

December 5-6, 2018

Reed Conference Center
Midwest City, Oklahoma

Sara Gibson Appointed as OWRB General Counsel

Sara Gibson, who has been serving as the Interim OWRB General Counsel, was permanently appointed to the position in July. Sara is a 2004 graduate of Oklahoma City University School of Law. She joined the OWRB in 2013 as Assistant General Counsel. Her duties at the agency have included acting as hearing examiner on behalf of the OWRB, advising the agency on the development of Water Quality Standards, and rulemaking. Prior to joining the OWRB, Sara served as an attorney for the Oklahoma Department of Environmental Quality and the Oklahoma Tourism and Recreation Department.

Water for 2060 is Oklahoma's statewide goal of using no more fresh water in 2060 than was used in 2010. In addition to conserving and reusing our water to meet this goal, this also means protecting our fresh water supplies from pollution.

Nonpoint Source Pollution

The porous and varied terrain of natural landscapes like forests, wetlands, and grasslands traps rainwater and snowmelt and allows them to filter slowly into the ground. In contrast, impervious (nonporous) surfaces like roads, parking lots, and rooftops prevent rain and snowmelt from infiltrating, or soaking, into the ground. Most of the rainfall and snowmelt remains above the surface, where it runs off rapidly in unnaturally large amounts.

Urbanization increases the variety and amount of pollutants carried into streams, rivers, and lakes. These pollutants can include the following:

- **Sediment;**
- **Oil, grease, and toxic chemicals from motor vehicles;**
- **Pesticides and nutrients from lawns and gardens;**
- **Viruses, bacteria, and nutrients from pet waste and failing septic systems;**
- **Road salts;**
- **Heavy metals from roof shingles, motor vehicles, and other sources;**
- **Thermal pollution from dark impervious surfaces such as streets and rooftops.**

These pollutants can harm fish and wildlife populations, kill native vegetation, foul drinking water supplies, and make recreational areas unsafe and unpleasant.

For more information, visit www.epa.gov/nps or www.epa.gov/npdes/stormwater.

Did you know that because of impervious surfaces like pavement and rooftops, a typical city block generates more than 5 times more runoff than a woodland area of the same size?

10 Things You Can Do To Prevent Stormwater Runoff Pollution

1. **Use fertilizers sparingly and sweep driveways, sidewalks, and roads instead of using the hose.**
2. **Never dump anything down storm drains.**
3. **Vegetate bare spots in the yard.**
4. **Compost yard waste instead of throwing it away.**
5. **Avoid pesticides in favor of integrated pest management (IPM).**
6. **Direct downspouts away from paved surfaces.**
7. **Take cars to the car wash instead of washing in the driveway.**
8. **Check cars for leaks and recycle motor oil and antifreeze when changing fluids.**
9. **Inspect and pump septic tanks regularly.**
10. **Pick up pet waste.**

WATER FOR 2060

EFFICIENCY · CONSERVATION · RECYCLING · REUSE

Financial Assistance Program Update

Loans & Grants Approved as of June 30, 2018

FA Loans—387 totaling $1,079,880,000
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DWSRF Loans—198 totaling $1,250,308,800
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—681 totaling $60,362,051
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Water for 2060 Grants—4 totaling $1,500,000
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Emergency Drought Relief Grants—4 totaling $1,125,000
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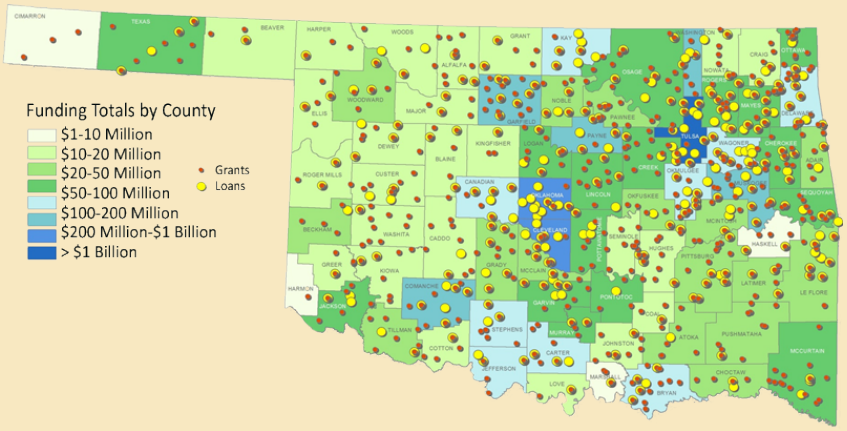
OWRB Financial Assistance Program
Loan and Grant Recipient Status by County



Total Loans/Grants Approved: 2,181 totaling $4,013,855,795 Estimated Savings: $1,350,815,667

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.
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OKLAHOMA Water News

2nd Quarter, 2018

Published online at www.owrb.ok.gov.

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OKLAHOMA
Water News
3rd Quarter 2018

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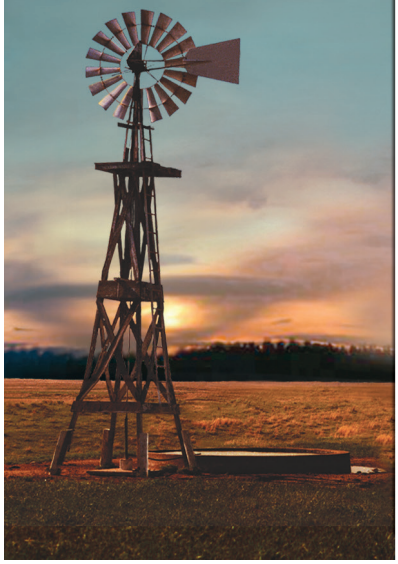
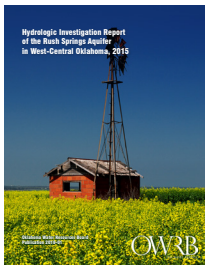


OWRB Publishes Report on Rush Springs Aquifer

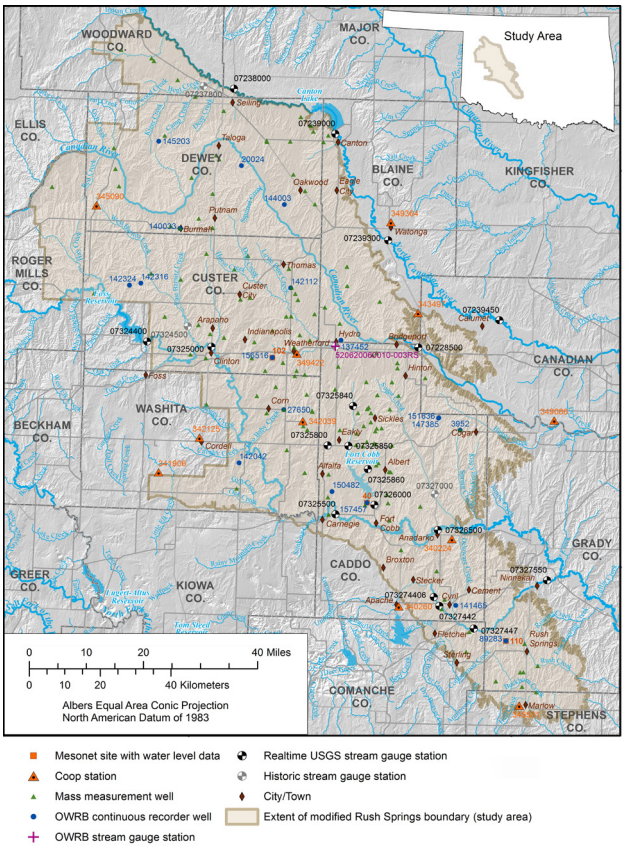
As part of its statutory obligation to conduct hydrologic investigations of the state's groundwater basins to determine maximum annual yield and equal-proportionate share, the OWRB has completed an investigation report of the Rush Springs Aquifer. This report provides information for constructing a groundwater-flow model to allow the OWRB to simulate various withdrawal and management scenarios.



The Rush Springs aquifer underlies 4,692 square miles of land in west-central Oklahoma. Predominantly used for irrigation and municipal purposes, the aquifer is one of the most utilized groundwater sources in the state.

According to the Oklahoma Comprehensive Water Plan, several planning basins overlying the Rush Springs aquifer are projected to experience significant groundwater depletion by 2060 at current rates of use. One of these planning basins is located upstream from Fort Cobb Reservoir, where groundwater

(continued on page 2)



The Rush Springs aquifer underlies 4,692 square miles of west-central Oklahoma.

From the Director

The summer of 2018 ended with enough significant rainfall to pull most of the state out of drought conditions. We closed out the period at about 130% of normal rainfall statewide. Drought coverage dropped from more than 50 percent of the state at the beginning of July to less than 10 percent by the end of September. All but the Northeast region were well above normal rainfall for the quarter, which meant welcome relief for farmers, lake managers, and many others. The Oklahoma Mesonet site at Fittstown recorded 14.2 inches of rain on Sept. 21, the highest total in the 25-year history of the Mesonet. The rain totals that day represent a greater than 1,000-year 24-hour event, according to the Oklahoma Conservation Commission and USDA-Natural Resources Conservation Service.

Preparations are well underway for the annual Governor's Water Conference and Research Symposium, which will be held December 5-6

(continued on page 2)

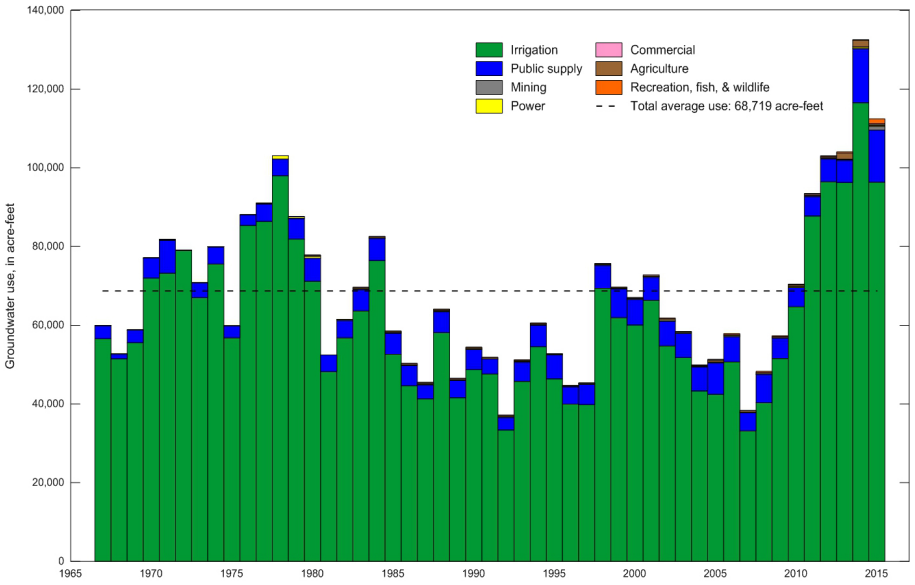
Julie Cunningham, Executive Director
Oklahoma Water Resources Board

Rush Springs Report (continued)

depletions could cause a decline of base flow into the reservoir.

Reported average annual groundwater use for 1967–2015 was 68,719 acre-feet per year. Irrigation accounted for 91 percent, and public water supply accounted for 7.8 percent. Annual water-level measurements collected by the OWRB since the 1950s were analyzed for long-term trends. Water-level trends from 54 wells were determined to fluctuate primarily with climate trends, showing declining water levels during drought periods and increasing water levels during wet periods.

The full report and datasets are available for download on the OWRB website at **www.owrb.ok.gov/studies/groundwater**.



Reported groundwater use by type for the Rush Springs Hydrologic Study area from 1967–2015.

From the Director (continued)

at the Reed Conference Center in Midwest City. This event is co-hosted by the OWRB and OSU's Oklahoma Water Resources Center. OWRB Chairman Jason Hitch and Governor Mary Fallin will kick off the event, followed by a presentation of the second round of Water for 2060 Excellence Awards. After publication of the Oklahoma Comprehensive Water Plan (OCWP) update in 2012, the Oklahoma Legislature and Governor Fallin enacted the Water for 2060 Act, which set the stage for broad water infrastructure efficiency and development of untapped marginal water supplies to meet future population, economic, and environmental demands. Recognition for excellence in helping to meet the statewide Water for 2060 goal was a recommendation of the Water for 2060 Advisory Council Report, published in 2015.

From support for development of the OCWP, continued funding for the implementation of priority recommendations, passage of the Water for 2060 Act and other recent key pieces of legislation, and creation of the Produced Water Working Group, to support for water monitoring networks that inform policy and spending decisions, Governor Fallin and the Oklahoma Legislature have demonstrated time and again their forward-thinking commitment to the management and protection of Oklahoma's vital water resources. It will be an honor during the conference to thank them for their service.

Throughout the conference, attendees will hear from industry experts, members of Oklahoma's congressional and state legislative delegations, agency partners, and researchers. The first concurrent session of the Water Conference, "Opportunities for Marginal Quality Water Use," will highlight recent policy allowing for use of untapped sources, followed by success stories on the development of produced water, stormwater, treated effluent, and brackish groundwater from the Groundwater Protection Council, Oklahoma Water Survey, Texas Water Development Board, and Fort Sill Army Base.

The luncheon will feature a legislative update and presentation of the prestigious Oklahoma Water Pioneer awards. The afternoon session will focus on "Innovations in Agriculture Water Use," including presentations on conservation and soil health by Oklahoma farmers, the Noble Research Institute, and Oklahoma State University. During the afternoon plenary session, Darren Thompson with the San Antonio Water System will share how the city met unprecedented population growth by diversifying its water sources.

The second day will open with a technology showcase featuring presentations by Oklahoma State University's Mechanical and Aerospace Engineering Professor Jamey Jacob and the Trinity River Authority's GIS team, Monique Nava and Chad Holton.

Session three, "Maximizing Storage Capacity," will highlight aspects of maintaining Oklahoma's critical water storage reservoirs that provide flood control and drought relief, watershed dam rehabilitation, larger-scale lake dredging, and nonpoint source management, by the Natural Resources Conservation Service, Waurika Lake Master Conservancy District, and Oklahoma Conservation Commission.

Chad Pregracke, founder of the internationally renowned nonprofit river clean-up organization, Living Lands and Waters, will present the lunch address on December 6th. His story of humble beginnings on the Mississippi River, and the difference one person can make, is genuine and moving.

The final session, "Leveraging Partnerships for Water Solutions," will showcase successful partnerships to meet water challenges through cooperation presented by East Central University's Oka' Institute and Chickasaw Nation, the Walton Foundation, and the US Bureau of Reclamation.

I especially want to thank our generous sponsors and presenters without whom Governor's Water Conference and Research Symposium would not be possible. I encourage everyone to join us for this informative and engaging event and look forward to seeing you there. Go to **www.owrb.ok.gov/gwc** to register or to view the **draft agenda**.

CNN Hero of the Year Chad Pregracke to Keynote Water Conference

As the founder of America's only "industrial strength" river clean-up organization, Chad Pregracke will share a compelling, uplifting, and inspiring story about growing up on the river and how his river experiences led to his unique vision to clean up the Mississippi River and start an internationally recognized not-for-profit, Living Lands & Waters.

For the last 20 years, Chad, his crew, and over 100,000 volunteers have removed almost 10 million pounds of garbage out of 23 rivers in 20 states. Chad was recognized by former President George W. Bush as a national "Point of Light" and received a standing ovation at the Kennedy Center from all four living former U.S. Presidents for his inspirational message on dreaming big, taking action, persevering, leading, and collaborating. Chad was also recognized as the 2013 CNN Hero of the Year.

Chad will speak at 11:30 a.m. on Dec. 6 during the Governor's Water Conference and Research Symposium at the Reed Conference Center in Midwest City.

OWRB Staff Emphasize Importance of Water Quality Standards to State

At the September Board meeting, OWRB staff presented an overview of Oklahoma's Water Quality Standards (WQS) as part of an education series presented to Board members and attendees.

Oklahoma's WQS are contained in Oklahoma Administrative Code, Title 785, Chapter 45 (Oklahoma's WQS) and 46 (Implementation of Oklahoma's WQS). The WQS provide the fundamental foundation for the state's ability to protect and improve its water resources, including lakes, streams, and groundwater. Multiple state agencies utilize the WQS for a variety of purposes and WQS are necessary to implement their programs. For example, one of the many roles of WQS is to enable the Department of Environmental Quality, through wastewater permitting programs, to ensure that wastewater discharged back into a waterbody is of a quality that will protect the beneficial uses and not cause an impairment to water quality.

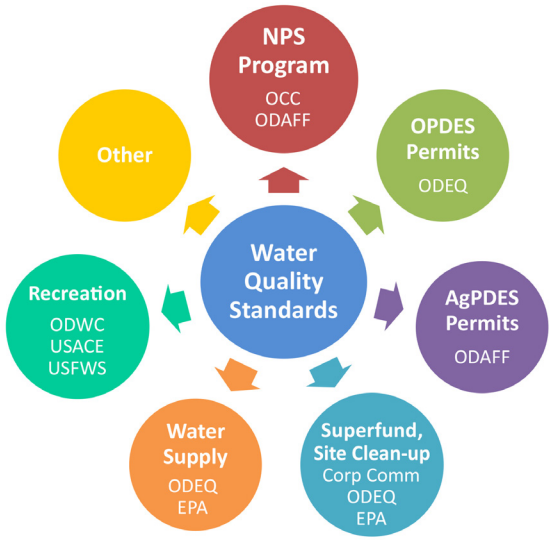
The WQS have three components—beneficial uses, criteria to protect those uses, and the Antidegradation Policy. Designated beneficial uses include Public and Private Water Supply, Fish and Wildlife Propagation, Agriculture, Body Contact Recreation (such as swimming or boating), Navigation, and Aesthetics. Criteria protect the beneficial uses by setting numeric limits on a pollutant(s) or by describing an expected waterbody condition. The Antidegradation Policy protects existing water quality when it is better than necessary to meet beneficial uses. This policy also provides a framework to lower existing water quality when necessary, while still protecting beneficial uses and ensuring that water quality is preserved whenever possible.

The OWRB continually reviews the latest science and policy regarding WQS, engaging in a planning and technical process that includes reviewing standards, identifying and prioritizing issues to be addressed, and developing and adopting amendments. During this process, the agency works with stakeholders through workgroups and public stakeholder meetings, providing the public with fact sheets and technical reports, and instituting an open-door policy for discussion of questions and concerns.

Four foundational principles that guide the OWRB's WQS team include collaboration and cooperation, proactive implementation, an understanding of the evolving nature of science and rules, and consideration of statewide priorities, which include the protection and use of the state's water resources.

Current WQS projects include updating the selenium aquatic life criterion to protect the Fish and Wildlife Propagation beneficial use. Selenium is an essential nutrient for life but toxic in excess amounts. Because of selenium's bioaccumulative nature, one criterion is being proposed that will be expressed as both a water column and a fish tissue value. A second WQS project underway is an update to human health criteria, which protects both the Public and Private Water Supply and Fish Consumption beneficial uses. These criteria have not been comprehensively updated in 27 years in Oklahoma. An important outcome of this work will be setting limits on toxic chemicals known to have a human health risk.

Role of Oklahoma's Water Quality Standards



Recent projects have included an update to Oklahoma's Antidegradation Policy and implementation rules, as well as actions to support water reuse in Oklahoma.

More information about Oklahoma's WQS can be found online at www.owrb.ok.gov/standards.

Financial Assistance Program Update

Loans & Grants Approved as of September 30, 2018

FA Loans—389 totaling $1,147,685,000
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—328 totaling $1,587,307,827
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—201 totaling $1,276,308,800
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—682 totaling $60,462,050
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.

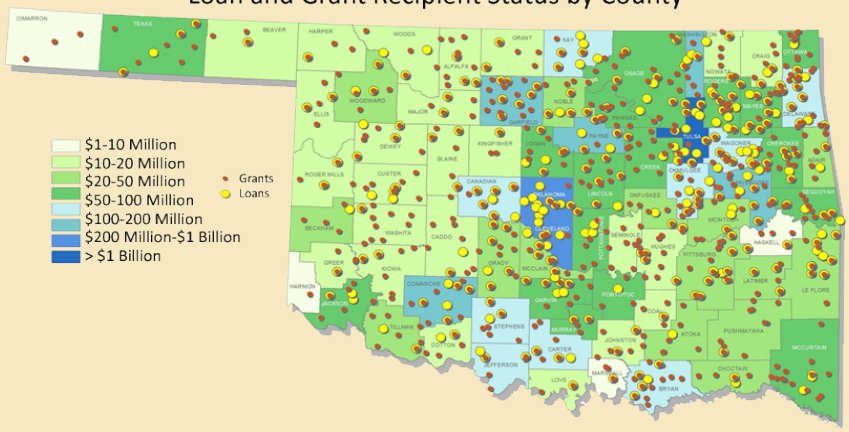
Drought Response Program Grants—6 totaling $418,848
Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of $300,000 is diverted from existing OWRB Emergency Grant proceeds to fund the Program.

Emergency Grants—578 totaling $34,366,720
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.

Water for 2060 Grants—4 totaling $1,500,000
Through the Water for 2060 Grant Program, funding was available in 2015 for municipalities, counties, water/sewer districts and other public entities for projects that highlight the responsible use of water.

Emergency Drought Relief Grants—4 totaling $1,125,000
Through the Emergency Drought Relief Grant Program, funding was provided in 2013 by the Legislature via the Emergency Drought Relief Commission to address severe drought issues in specific Oklahoma counties.

OWRB Financial Assistance Program
Loan and Grant Recipient Status by County



Total Loans/Grants Approved: 2,192 totaling $4,109,174,244 Estimated Savings: $1,379,561,200
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.***

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OKLAHOMA Water News

4th Quarter, 2018 Oklahoma Water Resources Board

2018 Annual Report of OWRB Programs and Initiatives

Throughout 2018, the OWRB continued its mission of managing and improving the Oklahoma's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment. The agency remained committed to furthering implementation of Oklahoma Comprehensive Water Plan (OCWP) priority recommendations.

Governor Mary Fallin addresses a full house during the 2018 Oklahoma Governor's Water Conference, touting the successes of the OCWP, Water for 2060, the Tribal settlement, and the Produced Water Working Group, and challenging the crowd to keep water a priority for all Oklahomans. Seated left to right: Secretary Jim Reese, Secretary Michael Teague, OWRB Chairman Jason Hitch, OWRB Executive Director Julie Cunningham, and Fred Morgan, President & CEO of the Oklahoma State Chamber.

Working closely with Governor Fallin and the state legislature, the OWRB developed new rules to increase available groundwater and water storage options. House Bill 3405 authorizes the state to issue permits for well construction and withdrawal of marginal quality groundwater. The definition of "groundwater" was expanded to include water with greater concentrations of total dissolved solids (TDS), and a new definition was added for "marginal water," which includes water that has 5,000 or greater and less than 10,000 parts per million TDS.

The OWRB enacted new rules for implementing the agency's authorized regulation of Aquifer Storage and Recovery (ASR) activities. All ASR activities are now to be conducted pursuant to a site-specific plan approved by the OWRB. Following the issuance of an ASR permit, the OWRB will require annual reporting by the permit holder. The OWRB can suspend or cancel ASR permits for non-compliance.

The Produced Water Working Group, coordinated by the OWRB, continued to identify regulatory, technical, and economic options to allow and promote the reuse of produced water. The group is currently considering ways to characterize and inventory brackish water production zones. Industry partners have agreed to contribute data for a pilot project in Kingfisher County.

The OWRB conducted a water planning meeting with Chickasaw and Choctaw representatives to discuss federal funding opportunities and the coordination of technical staff and advisory teams. The OWRB will host a field training session for new Tribal field personnel in the summer of 2019.

The OWRB continued to assist the Grand River Dam Authority with its multi-year regional water plan to improve water management in the region and increase access to water for public water supply, irrigation, recreation, wildlife habitat, and hydropower uses.

Hydrologic Investigations

The OWRB conducts hydrologic investigations as directed by Oklahoma Statutes to determine the amount of fresh groundwater available for appropriation. A priority recommendation of the OCWP focused on addressing the backlog of the required Maximum Annual Yield (MAY) studies and overdue twenty-year updates of the state's groundwater basins. This work is now underway.

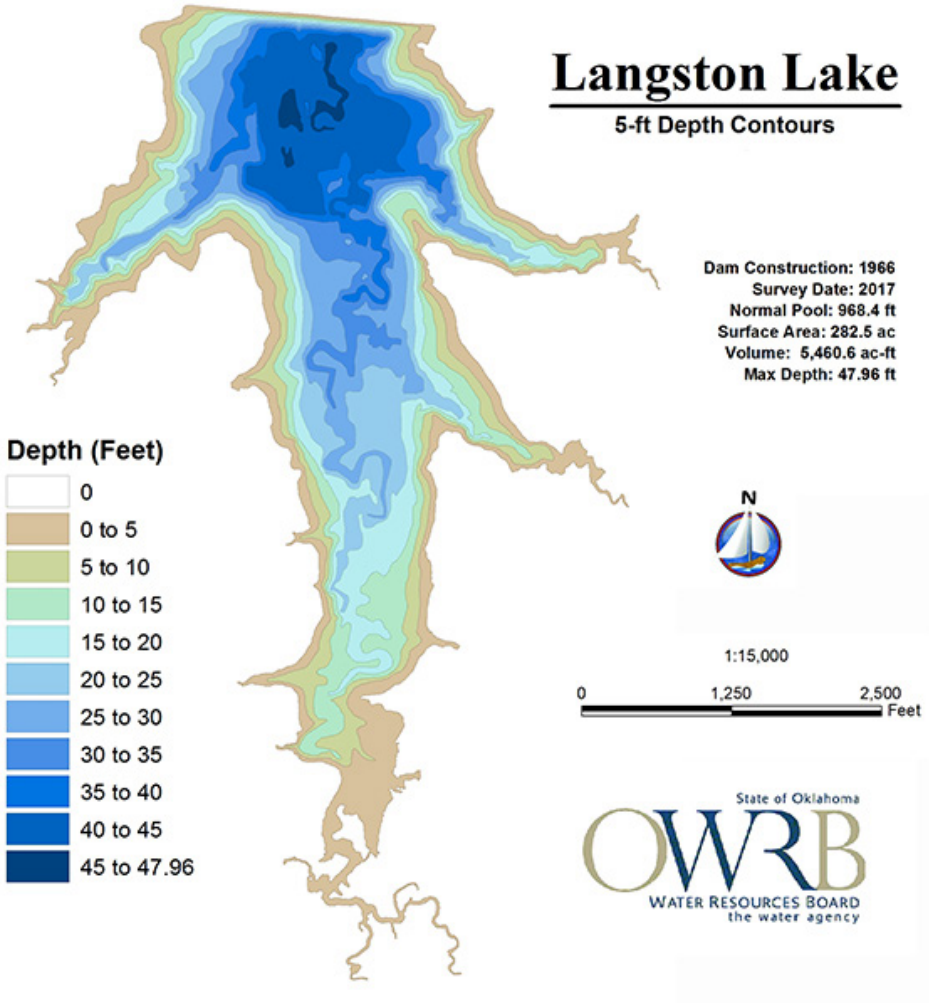
The OWRB completed the Rush Springs Aquifer study in 2018, along with a companion report by the US Geological Survey (USGS) on the Rush Springs Aquifer groundwater flow model. The OWRB is currently conducting twenty-year updates of the Elk City Sandstone, Vamoosa-Ada, and the Gerty Sand aquifers, as well as investigations on the Cimarron Alluvium and Terrace and Blaine aquifers.

The OWRB is conducting investigations on the Roubidoux, Boone, Salt Fork of the Red River, Washita River Reach 1, and the Salt Fork of Arkansas River aquifers through contracts with the USGS..

To allow for flexibility in implementing MAY and Equal Proportionate Share (EPS) for groundwater basins, Senate Bill 1294 modified Oklahoma Groundwater Law, giving the OWRB discretion to delay or to gradually implement annual withdrawal limits when it determines MAY and EPS if 25% or less of the MAY has been allocated. Any delayed or gradual implementation of withdrawal limits will be accomplished through temporary permits and will not affect regular groundwater permits. Additional changes include authorization of the OWRB to enact well spacing rules over a groundwater basin prior to setting a MAY and EPS, which adds protection for existing domestic and permitted wells. Finally, new language states that subsequent or updated hydrologic surveys on already-studied groundwater basins will not affect previously-issued regular permits for groundwater use.

The OWRB continues collaborative work with the US Bureau of Reclamation (USBR), Foss Reservoir Master Conservancy District (MCD), and Fort Cobb MCD on the Upper Washita Basin Study, scheduled for completion in 2020. The OWRB is also collaborating with the USBR, Lugert-Altus Irrigation District (Lugert-Altus Reservoir), and Mountain Park MCD (Tom Steed Reservoir) on the Upper Red River Basin Study, scheduled for completion in 2019.

Dependable yield studies of three sole-source supply lakes were completed for the communities of Hominy, Langston, and McAlester Army Ammunition Plant in 2018. The OWRB performed bathymetric studies (lake floor contours) to get an accurate volume of the lakes at any water level. CH2M engineers, funded in part by the US Army Corps of Engineers Planning Assistance to States grant, used this data and OWRB historical use reports to estimate the amount of water these communities can rely upon in the worst drought on record to plan their future projects accordingly. The OWRB will meet with these water systems in the spring to discuss study results.



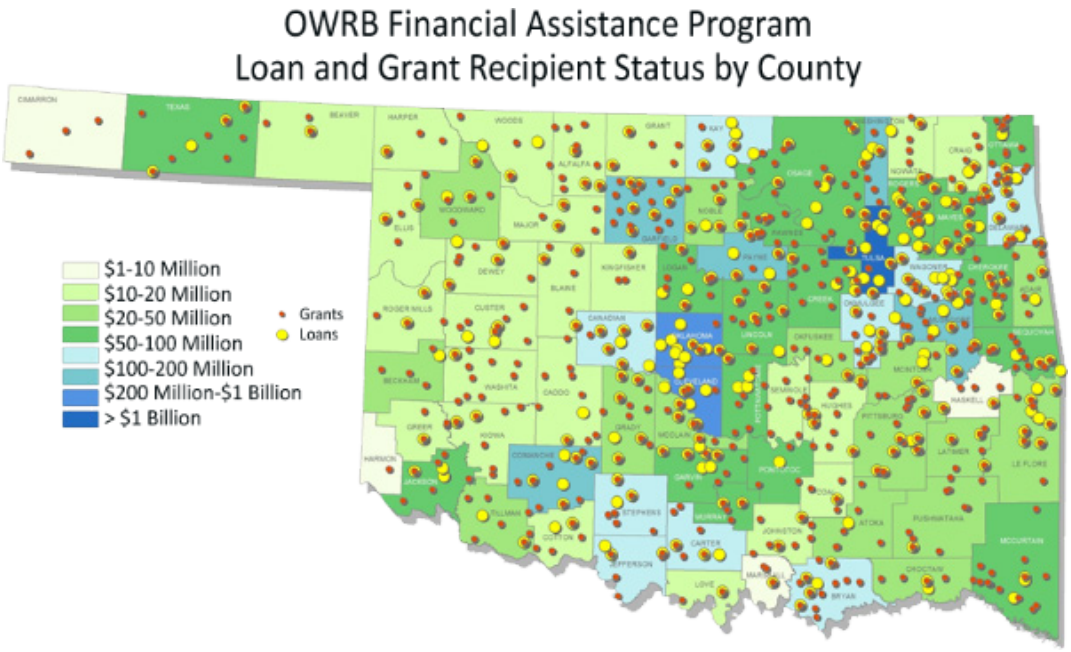
Water Rights Administration

The OWRB appropriates fresh water resources as directed by Oklahoma statutes. Currently, there are 13,288 active long-term permits for more than 6.83 million acre-feet per year. The OWRB's permitting staff issued 75 groundwater permits in 2018 totaling 27,853 acre-feet, and 64 stream water permits totaling 106,996 acre-feet, along with 1,461 provisional temporary permits totaling 71,000 acre-feet for oil and gas producers and others in need of a temporary source of water.

To support water rights administration, the agency conducted surface water allocation modeling and availability analyses, coordinated statewide water use reporting, and responded to public complaints.

Water & Wastewater System Financing

As the State's primary water and wastewater infrastructure financing agency, the OWRB has provided over $4.1 billion in financing to Oklahoma communities, rural water districts, schools, and other authorities at an estimated savings of $1.3 billion over conventional bond financing.

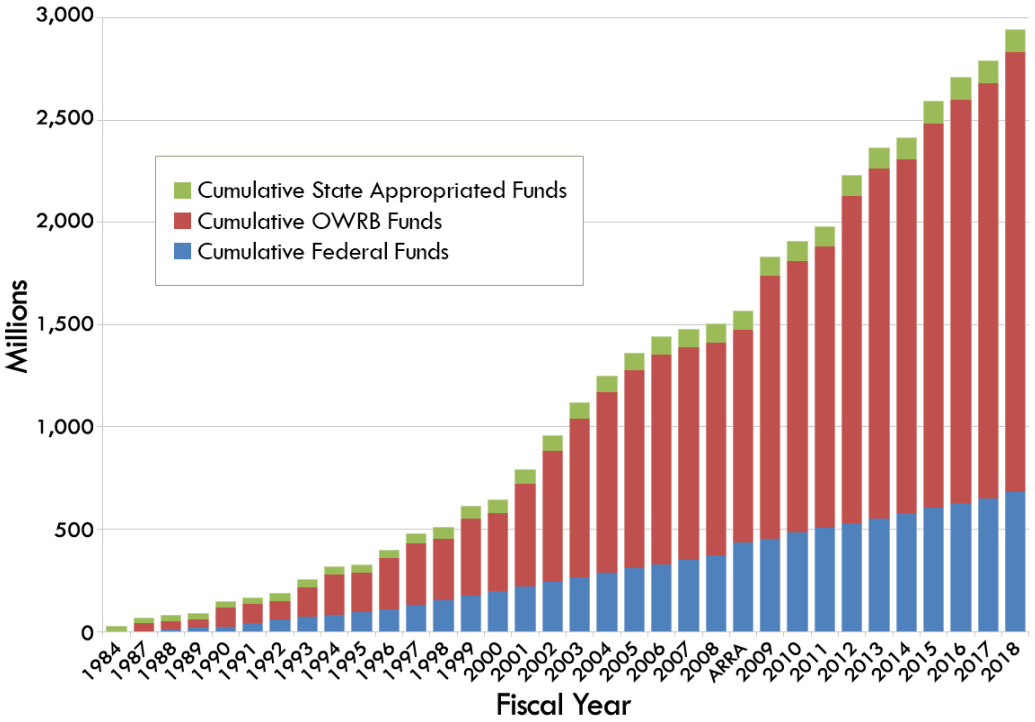


The success of the program is due to the continued achievement of AAA bond ratings, an extremely strong loss coverage score, management and oversight of the program, and a long history of borrower repayment.

The programs protect the health and safety of Oklahomans by providing funding to meet the critical need for safe drinking water supplies and adequate wastewater treatment.

In 2018, the OWRB approved 32 loans and 15 grants totaling $286.2 million to fund public water/wastewater infrastructure improvements with an estimated savings of $22.4 million as compared to traditional financing.

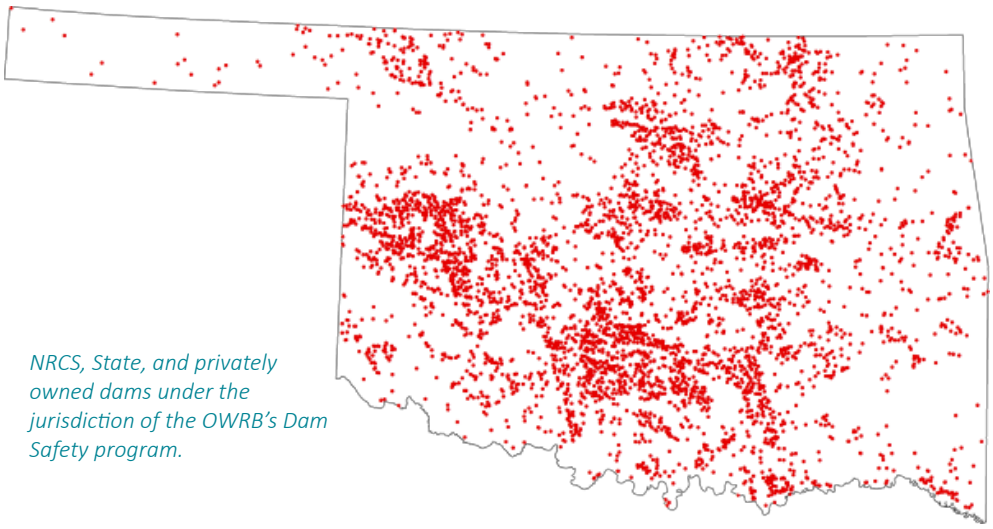
In cooperation with the Oklahoma Rural Water Association (ORWA), the OWRB provided 62 training sessions and 154 technical assistance visits to communities. Additionally, through partnerships with the ORWA and Oklahoma Department of Environmental Quality, the OWRB assisted with long-range system planning for three communities.



Cumulative investments in OWRB infrastructure financing. Since 1984, the OWRB has leveraged $114 million in state funds and $640 million in federal funds with $2.15 billion in bonds to expand available financing for infrastructure projects in Oklahoma communities.

Dam Safety

The OWRB ensures the safety of more than 4,700 dams across the state as directed by the Oklahoma Dam Safety Act. Additionally, OWRB staff maintain Oklahoma's portion of the National Inventory of Dams, oversee approval for construction or modification of structures, coordinate breach inundation mapping, inspect low hazard-potential dams, and provide public outreach and training.



NRCS, State, and privately owned dams under the jurisdiction of the OWRB's Dam Safety program.

In 2018, the OWRB approved six applications to construct, repair, or modify dams. The OWRB and Oklahoma Real Estate Commission partnered to increase dam safety awareness in the real estate community by adding new language in the real estate disclosure form. OWRB dam safety workshops were attended by more than 100 real estate agents, local officials, dam owners, and engineers. OWRB staff provided breach inundation maps and inspection reports to 20 dam owners.

Floodplain Management

The OWRB acts as the State Floodplain Board and the National Flood Insurance Program coordinating agency as directed by the Oklahoma Floodplain Management Act. The OWRB assists communities in reducing costly flooding risks to life and property by updating flood maps through FEMA programs and providing opportunities for training and accreditation of local floodplain administrators.

The OWRB worked closely with communities throughout the state in 2018 to identify flood risks and update flood maps through FEMA's Cooperating Technical Partners program. OWRB staff conducted 10 new Community Assistance Visits (CAVs) and 50 Community Assistance Contacts, successfully closed 31 outstanding CAVs and doubled the local floodplain administrator accreditation rate.

Well Driller & Pump Installer Licensing

The OWRB protects Oklahoma's groundwater from contamination by ensuring the integrity of water well construction through the licensing of well drillers and pump installers as directed by Oklahoma Statutes. Currently there are 308 active well drillers and 378 pump installers licensed by the OWRB. The OWRB frequently assists drillers with required well log reporting; more than 190,000 well logs are available to the public online.

In 2018, the OWRB cooperated with the Oklahoma Ground Water Association to conduct 14 continuing education training sessions for drillers to meet licensing requirements. The OWRB continues to work with the Well Driller Advisory Council and stakeholders to develop, update, and advance water well drilling rules.

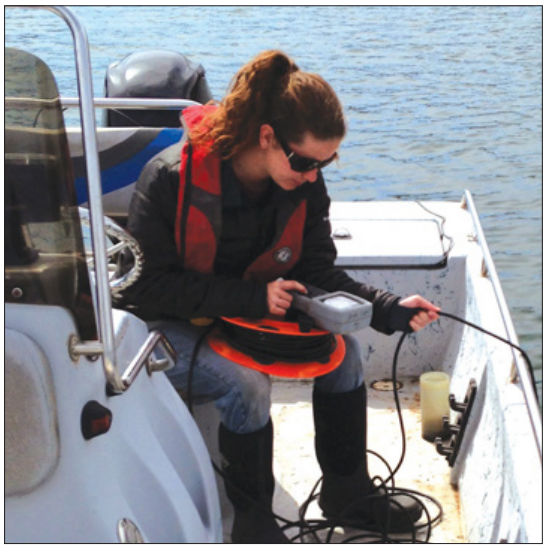
Water Quality Standards

The OWRB promulgates Oklahoma's Water Quality Standards (WQS) as directed by Oklahoma Statutes. The WQS have been developed in accordance with the federal Clean Water Act. In 2018, proposed amendments to Oklahoma's WQS included a comprehensive revision of Oklahoma's antidegradation implementation guidance. The guidance updated implementation for all waterbody tiers. Additionally, the OWRB created implementation rules for designating waters for Sensitive Water Supply–Reuse.

To begin implementing the recommendations from the recently completed Second Joint Study on the Illinois River Watershed, Oklahoma and Arkansas signed a Memorandum of Agreement outlining measures necessary to protect scenic river designations and overall stream health. As part of this agreement, the states will develop a Monitoring and Assessment Workgroup. Additional partners include the Oklahoma Secretary of Energy and Environment, Oklahoma Conservation Commission, Oklahoma Department of Environmental Quality, Grand River Dam Authority, and Cherokee Nation.

Water Monitoring & Lake Restoration

The OWRB administers the statewide beneficial use monitoring program (BUMP) as directed by Oklahoma Statutes, and acts as the lead agency for administering a statewide program for assessing, monitoring, studying, and restoring Oklahoma lakes. The OWRB submits a biennial report to the Oklahoma Legislature, also directed by Oklahoma Statutes, discussing the status of water quality monitoring in Oklahoma.



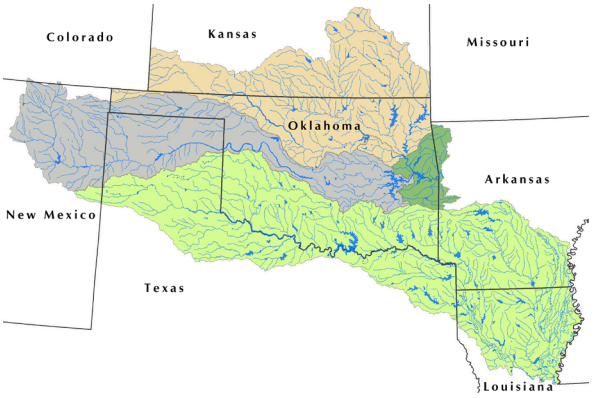
The OWRB partners with the USGS to manage Oklahoma's Cooperative Stream Gaging program; these data are used to meet compliance with four federal interstate stream compact agreements and to guide the management of local and regional public water suppliers, including flood and drought planning, early warnings, and emergency operations.

In 2018, the OWRB conducted monitoring on 40 lakes, 84 stream sites, and more than 1,000 groundwater wells across the state. Additional monitoring projects during the year included the assessment of baseline characteristics of riverine and oxbow lakes, watershed stormwater monitoring at Lake Thunderbird, watershed and in-lake monitoring at Lake Arcadia, bathymetric mapping of lakes across the state, and real-time monitoring in the Grand/Neosho River Watershed.

Water Resource Mapping

The OWRB uses standard and customized GIS applications to create, analyze, and display water-related spatial data and make it available to the public.

In 2018, OWRB staff began using web-based GIS applications to record water level measurements and other data in the field, improving efficiency and reducing the chance for errors. OWRB GIS specialists developed and refined automated workflows to assist in the water rights permitting process. The OWRB continued to map water, wastewater, stormwater, and water reuse infrastructure for small public water and wastewater systems, making the data available to the systems on secure map viewers.



Interstate Stream Compact Commissions

The OWRB represents Oklahoma's interests on four separate interstate stream compact commissions regarding all the surface waters that flow into or out of the state. The compacts are written agreements among or between Oklahoma's neighboring states that have been approved by the US Congress, enacted in Federal statutes, and enacted in the statutes of each state.

TOP WORK PLACES 2013-18 THE OKLAHOMAN

Top Workplace

In 2018, the OWRB received its third consecutive Certified Healthy Business Award and its sixth consecutive Top Workplaces Award (based on anonymous employee surveys).

OWRB Modernization & Efficiency Priorities

The OWRB prioritizes its efforts to improve agency services by updating technology, streamlining application processes, and increasing partnerships and customer outreach.

Document Imaging

Nearly 100% of agency documents have been digitized and stored in an electronic filing system, improving staff productivity by streamlining workflows, and saving money by minimizing equipment needs and office space requirements.

Permitting and Licensing Applications

An online application system allows the OWRB to expedite temporary water use permits for energy production and other short-term uses. Web-based applications are under development that will allow well drillers and pump installers to apply for or renew their licenses and water rights holders to file annual water use reports.

Infrastructure Solutions and Financing Software

The Oklahoma Advantages Assessment and Scoring for Infrastructure Solutions (OASIS) tool helps municipalities plan for future needs and communicate infrastructure investment opportunities to constituents and decision-makers. Infrastructure Financing Software (IFS) tracks the agency's complex funding system, including more than $4.1 billion in approved projects to date.

GIS-Based Data Collection and Customized Map Viewers

OWRB staff perform investigations more efficiently and accurately with GIS-based applications and tools. Online mapping tools provide customers with mobile-friendly map viewers and downloadable data.

Customer Service and Public Outreach

The OWRB conducts numerous focus groups and public meetings through partnerships with public and private interest groups with the goal of improving customer service.

Savings Through Web-Based Training

The OWRB saves money and travel expenses by utilizing free and low-cost online training opportunities. The OWRB now hosts online webinars to educate the public on specific programs, saving additional money on training space rental fees.

Leveraging Funds

The OWRB leverages federal and local funding partnerships for state programs to continue implementation of the Oklahoma Comprehensive Water Plan recommendations. Funding partners include the USEPA, USGS, USDA NRCS, USBR, USACE, FEMA, Groundwater Protection Council, ODEQ, Oklahoma Conservation Commission, Grand River Dam Authority, multiple Tribal partners, and many others.

OWRB Presents 2nd Annual Water for 2060 Excellence Awards

American Water Enterprises

American Water Enterprises (AWE) received an award for the Fort Sill U.S. Army Installation Water Reuse Project. As Fort Sill's water and wastewater service provider, AWE determined that the high quality effluent produced by the Fort Sill Wastewater Treatment Plan could be reused in several areas of the base where potable quality water was not required. With the support of Fort Sill leadership, the Oklahoma Department of Environmental Quality (ODEQ), and engineering consultants, AWE implemented a water reuse system to provide water for geothermal units, cooling towers, irrigation systems, and fill points throughout base.

Fort Sill also received the State's first ever Category 2 Reuse Permit from the ODEQ, which allows unrestricted irrigation of Fort Sill's polo fields, the Cemetery, and the Horse Corral with reclaimed water. To date, AWE has installed more than four miles of reuse piping, a purple elevated storage tower, and a pump station to support the program.

Elevated storage tower with purple (reclaimed water) pipe and irrigation of Fort Sill's polo fields.

By decreasing demand on Fort Sill's water supply provider, the City of Lawton, this project provides the added benefit of improving the system's drought resiliency. The project is an excellent example of meeting existing water needs through innovative thinking to decrease fresh water use.

Waurika Lake Master Conservancy District

The Waurika Lake Master Conservancy District won an award for the Waurika Lake Water Intake Channel Maintenance Dredging and Resiliency Project. Built in 1977 by the US Army Corps of Engineers for flood control and public water supply, Waurika Lake has become a critical regional surface water supply lake in southwest Oklahoma. The lake directly serves six cities in four counties and indirectly serves up to eleven counties via cities and rural water districts.

Waurika Lake Intake Channel Maintenance Dredging and Resiliency Project.

During the recent multi-year drought period, the lake experienced severe water level declines. By the summer of 2013, the bottom third of the lake was unavailable for water supply due to sedimentation deposits, and the top third of the lake was rapidly becoming unavailable due to evaporation and deteriorating water quality at the static intake.

To combat these problems and greatly expand the lake's ability to meet growing demand, the project included installation of an innovative floating intake that can withdraw up to 30 million gallons per day, which gave the water system access to the entire conservation pool, including the highest quality water in the lake. The project also included removal and replacement of all six intake structure slide gates, dredging sediment in the intake channel, and extending the lower intake structure gates into the middle of the lake. This project directly provided more than 25,000 acre-feet of water supply that was blocked by the sediment deposits at the static intake, which is water supply that would have had to come from other sources. As a result, Waurika Lake is now sustainable throughout a drought cycle.

Fred Fischer, Flatland Farms

An award was presented to Fred Fischer of Flatland Farms, a wheat, milo, and corn production farm just west of Hooker. During the past several decades, the farm has been a part of a shift toward using new technology to improve irrigation practices and ultimately make better use of the water drawn from the Ogallala aquifer.

Mr. Fischer has implemented many practices to reduce waste and improve the ratio of grain produced to water consumed. In 2011, sprinkler monitoring devices were installed on all pivots with GPS integration and variable rate technology, allowing remote control of the basic functions of pivots, including alerts when a system malfunctions. In 2012, sub-surface drip irrigation was installed in several areas, allowing water to be released 18 inches below the surface, a practice that proved to increase water efficiency by significantly reducing evaporation.

Installation of drip irrigation system at Flatland Farms.

Multiple years of data from yield maps were combined with mapping of soils and topography across the farm in 2014. These data were used to implement variable rate fertilizing, as well as variable rate seeding, which increased yield without increasing water consumption. Improvements and enhancements to the system are ongoing and have been vital to saving water and reducing production costs. According to university studies, the use of these technologies have led to water savings of approximately 40%. More bushels of grain are produced with the same amount of water, benefiting the aquifer as well as local and state economies.

In 2014, Mr. Fischer gave a presentation to the Water for 2060 Advisory Council, discussing ideas for inclusion in their report. Later that year, members were given a tour of his farm to see his irrigation technology in person. Mr. Fischer is one of many Panhandle farmers who have significantly reduced water use by using the latest technologies, and continue to be excellent stewards of their water resources to ensure supplies are available for future generations.

The OWRB would like to congratulate all the winners and thank all who participated in this year's Award ceremony.

Rudy Herrmann & Arthur Wayne "Dub" Sloan Named Oklahoma Water Pioneers

Rudy Herrmann

Rudy Herrmann was appointed to the Oklahoma Water Resources Board (OWRB) in 2004 and served for eleven years, including six years as chairman. Mr. Herrmann adamantly supported the OWRB's efforts to obtain funding for the Oklahoma Comprehensive Water Plan update, complete the multi-year plan as designed and on time, and implement its priority recommendations, including passage of the Water for 2060 Act, which will benefit the citizens of Oklahoma today and for generations to come. Mr. Herrmann also was instrumental in the passage of the Maximum Annual Yield determination for the Arbuckle-Simpson Aquifer and obtaining a favorable ruling by the US Supreme Court in the Tarrant Regional Water District v. Herrmann case.

Mr. Herrmann was known for being fair and decisive, patiently ensuring that all parties were heard, strictly adhering to the statutes governing the Board, and maintaining a clear vision and devotion to the proper use and protection of Oklahoma's water. He provided unwavering support for OWRB staff, and his strong leadership and experience in strategic planning proved to be invaluable for the agency.

Julie Cunningham, Deb Herrmann, Rudy Herrmann, and Jason Hitch.

Arthur Wayne "Dub" Sloan

Arthur Wayne "Dub" Sloan of Gore devoted his lifelong career in agriculture to responsible stewardship through water and soil conservation efforts. In the 1950s, he recognized that his farm was using lots of water that could be reduced by installing center pivots.

By the mid-1990s, Mr. Sloan became the first farmer in the area to practice no-till farming, and he has since remained 100% no-till for soybeans and winter wheat. Mr. Sloan also became the first in the area to adopt precision-guided tractors and yield monitors. Buffer strips have been applied between washes to prevent erosion and nutrient run-off. Furthermore, cover crops have been implemented on his farm to retain nutrients.

Because of the excessive rain in 2015, Mr. Sloan was one of the first in the state to install tile drainage. The Sloans utilize the drainage to address excess standing water and eliminate excessive runoff from the top of the field.

Mr. Sloan has partnered with the Sequoyah National Wildlife Refuge for many decades to plant crops, and he leaves a portion standing for the wildlife to graze. He has been described by many as a well-respected leader and mentor who is at the forefront of change, most notably change that centers on the more responsible use of water. His legacy and ideas continue to make farming more efficient in the region and help others reach his goal of leaving the land and water resources "better than we find them" for future generations.

Front: Arthur and Phyllis Sloan; back: Julie Cunningham, Jason Hitch, and Sec. Jim Reese.

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The OWRB defines policy and conducts the state's water business through a nine-member Board appointed by the Governor.

Jason Hitch (Chairman), Stephen Allen (Vice Chairman), Robert Stallings (Secretary), Jennifer Castillo, Charles Darby, Bob Drake, Ford Drummond, Robert L. Melton, Matt Muller

The mission of the OWRB 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.

Julie Cunningham, Executive Director