

Oklahoma Water Resources Board 2005 Annual Report

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

OWRRB MEMBERS



Rudolf J. Herrmann, Chairman
At Large
Water Use: Industrial
Residing in Tulsa, Rudy is a retired President and CEO of Dover Resources Inc. He earned a B.S. in Industrial Engineering from Iowa State University and an MBA from the Harvard Business School. He is currently an Adjunct Assistant Professor in the Master of Science in Engineering and Technology Management Program at Oklahoma State University.

As OWRB Chairman, Rudy was asked to serve as emcee at the Annual Governor's Water Conference in November (right). Seated are OWRB Executive Director Duane Smith and ODEQ Executive Director Steve Thompson.



Jess Mark Nichols, Vice Chairman
At Large
Water Use: Irrigation



A cotton farmer from Altus, Mark is a member of the Lugert-Altus Irrigation District. He currently serves on the Board of Directors for the Oklahoma Boll Weevil Eradication Organization, Producers Oil Mill, and Southwest Technology Center. He is also Chairman of the Altus Metropolitan Area Planning Commission. A farmer since 1976, he currently serves as President of Mark Nichols Farms, which has operations focused primarily on irrigated and dryland cotton, wheat, and cattle.

Bill Secrest, Secretary
Congressional District 1
Water Use: Rural Residential



A resident and former City Manager of Broken Arrow, Bill was instrumental in the development of both the Arkansas and Verdigris River Water Treatment Plants, the latter of which was later renamed the Bill Secrest Water Treatment Facility in his honor. He was a founder of Wagoner County RWD #5 and managed the District until his retirement. He serves as President of the Oklahoma Rural Water Association (ORWA) and on the board of the National Rural Water Association (NRWA). In 2001, he received the NRWA Dell Cornell Award.

Harry Currie
At Large
Water Use: Industrial



A resident of Oklahoma City, Harry is the owner and president of a bag manufacturing firm, Bags, Inc. He is a member of the Oklahoma Community Sentencing Council and a trustee and elder of the Del City Christian Church. Harry is a graduate of Oklahoma State University and owns farming and ranching interests. He is a former two-term mayor of Del City, and has served as president of the Del City Chamber of Commerce and Kiwanis and as a member of the Midwest City Regional Medical Center Board of Trustees.

BOARD WELCOMES NEW MEMBERS IN 2005

Ed Fite
Congressional District 2
Water Use: Recreation

Since 1983, Ed Fite (Tahlequah) has been the Administrator for the Oklahoma Scenic Rivers Commission, a state agency charged with protecting and preserving the Illinois River and its tributaries. He serves on the Interagency Wild and Scenic River Coordinating Council and is a former Vice-President of the National Association of State and Local River Conservation Programs. He is a member of the Solid Waste Institute of Northeast Oklahoma and Chairman of the Cherokee Nation Environmental Protection Commission. Ed has received recognition from many organizations over the years, including the Wildlife Federation and Sierra Club, and he was presented with a Lifetime Achievement Award from Keep Oklahoma Beautiful. Ed lives on a ranch and has a small cattle operation.



Kenneth K. Knowles
Congressional District 3
Water Use: Soil Conservation

A third generation farmer and rancher, Kenny Knowles (Arnett) also serves as President of the Northwestern Electric Cooperative located in Woodward, Chairman of the Oklahoma Wildlife and Prairie Heritage Alliance, and Secretary of High Plains Resource Conservation and Development. In 2001, Kenny was named the Oklahoma Department of Wildlife Conservation's Landowner Conservationist of the Year due to his ongoing efforts to enhance wildlife habitat on his 11,000 acre ranch in Ellis County. Kenny has also been recognized for playing an integral role in prairie chicken restoration efforts by traveling to Washington, New Mexico, and Mexico to share his knowledge, experience, and support of the Lesser Prairie Chicken Interstate Working Group with policy makers and other ranchers and conservationists.



Lonnie Farmer
Congressional District 5
Water Use: Agriculture



An Oklahoma City resident, Lonnie is a retired bank president and the former mayor of Davidson. A founder and former Board member of the Oklahoma Rural Water Association (ORWA), he drove formation of the Tillman County Water Development Authority, and the creation of a regional water supply system to share the costs of blending water purchased from area lakes with lower quality groundwater. This system became a model of ingenuity, cooperation, and perseverance for other Oklahoma communities.

Jack W. Keeley
Congressional District 4
Water Use: Municipal



A registered professional engineer, Jack served as the Director of Research for the Environmental Protection Agency's Robert S. Kerr Environmental Research Laboratory from 1984 to 1988. He previously served as Chief of the Groundwater Research Branch and Engineering and Systems Analysis Section for the facility, which he joined in 1965. He currently provides private consulting services. Among numerous professional affiliations, honors and appointments, he is a member of the Harvard Engineering Society and National Water Well Association.

Richard Sevenoaks
At Large
Water Use: Municipal



A Tulsa resident, Richard is the owner of Leake Auction Company of Tulsa, and formerly worked in sales and management for television stations in San Juan, Puerto Rico, and Tulsa. He is a graduate of the University of Arizona. Richard serves on the Tulsa Metropolitan Utility Authority, Tulsa Utility Board, and Regional Metro Utility Board, and he is a former member of the Water Quality Advisory Council of the Oklahoma Department of Environmental Quality.

In 2005, the OWRB continued its mission of effectively and efficiently managing and protecting the water resources of the state and planning for Oklahoma's long-range water needs in a responsive, innovative, and professional manner. Here are some selected highlights:

Water Information Mapping System

During 2005, OWRB staff completed development of the Water Information Mapping System (WIMS), an Internet- and Geographic Information System-based map server that enables agency Web site visitors to build and view custom-made maps containing water resource and related information for Oklahoma. WIMS is the product of more than two years of development and currently includes numerous map layers of common interest to the public, including surface and groundwater resources, political boundaries, geology, and aerial images.

CWSRF Loan Program Receives EPA Award

The OWRB's financial assistance program, which has funded the infrastructure needs of the state's water and wastewater systems since 1983, was recognized by the U.S. Environmental Protection Agency with its first ever Pisces Award. The award, given to one state from each of the 10 EPA regions, recognizes states that have exhibited the most innovative and effective financial performance in advancing EPA's goals through the Clean Water State Revolving Fund (CWSRF) Loan Program. The OWRB was recognized for overall program performance and more specifically for factors related to efficient water use, utilizing watershed strategies, creative use of technologies, leveraging practices, innovative partnerships and lending practices, and program uniqueness.



Arbuckle-Simpson Study Progresses

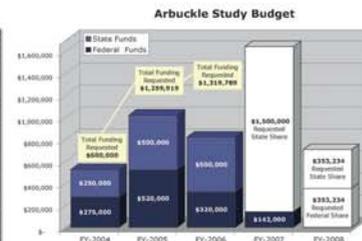
During the second year of the investigation, the Arbuckle-Simpson Hydrology Study steadily progressed as cooperators and researchers from various agencies and disciplines collaborated to gain a better understanding of the Arbuckle-Simpson aquifer's geology and hydrology. Aggressive stream water and groundwater monitoring continue to provide critical information on the aquifer and its interrelated surface waters. Data on the region's water quality, streamflow, past and present climate, habitat, and other characteristics will be utilized to develop hydrologic models and subsequent management options aimed at protecting springs and streams in the region.

In cooperation with the Oklahoma Climatological Survey (OCS), in May the OWRB commissioned a Mesonet weather recording station near Pittsford. In addition to transmitting conventional real-time Mesonet climate data over the Internet, the site is providing information that will be essential to the understanding of the Arbuckle-Simpson aquifer and how it responds to variations in precipitation and other factors. An observation well has also been drilled at the site to provide local groundwater level data.

The Surface Water Subcommittee of the Arbuckle-Simpson Technical Peer Review Team has been created to evaluate surface water needs and impacts to flows in the study area. Among various tasks assigned to the group is the investigation of potential instream flow regimes that could be implemented to minimize impacts to the springs and streams. The Subcommittee will seek to balance legal and public policy considerations with technical findings of the ongoing Arbuckle-Simpson Study. Chaired by the OWRB, the Subcommittee also includes representatives of the U.S. Geological Survey (USGS), Oklahoma Department of Environmental Quality, Department of Wildlife Conservation, U.S. Fish and Wildlife Service, Oklahoma State University, and area landowners.



In September, the USGS began drilling a deep test well near the Blue River, west of Connerville. The well was drilled to collect much-needed information on the lower portion of the Arbuckle-Simpson aquifer. The plan was to drill to a maximum depth of 3,000 feet and collect water samples at varying depths. Information on the deeper portion of the aquifer, the depth generally ranging from 1,000 to 4,000 feet, is needed to understand the full extent of the fresh-water zone and the volume of water in storage in the aquifer. The enormous volume of water produced by the well—estimated at up to 1,200 gallons per minute—caused numerous unexpected delays in the project, exhausting budgeted funds at a depth of 1,820 feet. Researchers remain hopeful of future funding and partnering opportunities to complete the well and conduct planned geochemical sampling of groundwater deep within the Arbuckle-Simpson.



Amount	Community	Affected Waterbody
\$2,314,000	Sand Springs*	Arkansas River**
\$17,000,000	Ardmore*	Sand Creek**
\$10,815,000	Lawton*	East Cache Creek**
\$7,900,000	Tulsa*	Bird Creek**
\$1,700,000	Stroud*	Salt Creek
\$900,000	Pauls Valley*	Wildhorse Creek**
\$1,985,700	Chouteau*	Chouteau Creek**
\$810,000	Tishomingo*	Pennington Creek
\$210,000	Glencoe*	Oak Creek
\$2,250,000	Sand Springs*	Arkansas River**

*Required by ODEQ Consent Order or Enforceable NPDES Permit Schedule
**303d listed stream

Water Quality Standards

In March, the OWRB received final approval from EPA for 2003-2004 Triennial revision, including the designation of Tenkiller Reservoir as a High Quality Water, which prohibits new point source discharges and increased load from existing dischargers in the watershed. Biocriteria were promulgated for the Central Great Plains, completing a seven-year research project to develop biocriteria for the whole state. Also promulgated was a Use Support Assessment Protocol for Nutrients in Scenic Rivers, which specifies methods used to determine if Scenic Rivers are supporting their assigned Aesthetics beneficial use. Additionally, several major revisions to the Water Quality Standards were proposed, including seven new Nutrient Limited Watershed designations; a new chlorophyll-a criterion designed to protect Sensitive Water Supplies from taste and odor problems; a narrative criterion to protect Fish and Wildlife beneficial use from impairment by suspended and bedded sediments; and beneficial use assignments for specific groundwaters.



Bathymetric Mapping and Dam Breach Analysis

During 2005, bathymetric maps were created for Ellsworth, Lawtonka, Okemah, and Dave Boyer (Walters) lakes. In December, OWRB staff presented maps for emergency planning in Comanche County, specifically regarding Lake Lawtonka, to representatives from Ft. Sill, the City of Lawton, the medical response community, and several state and federal agencies.

Floodplain Management Legislation

As a result of legislation passed in 2005, the OWRB initiated a mandatory floodplain manager certification program. The new program, bolstered by regular OWRB training sessions, emphasizes education and training of local floodplain officials. Already, more than 130 administrators have received state accreditation.



Annual Conference Focuses on Groundwater

Robert Glennon, author of *Water Follies: Ground Water Pumping and the Fate of America's Fresh Waters*, served as keynote speaker for the Groundwater Symposium at the Annual Governor's Water Conference in November. Focusing on the alarming increase in the nation's groundwater use over the last 50 years, Glennon pointed out that groundwater constitutes more than 25 percent of the U.S. water supply, with more than one-half of the population relying on underground sources for drinking water. According to Glennon, groundwater laws built around the concepts of capture and reasonable use allow overdrafting or "mining" of the resource, consequently leading to the inevitable exhaustion of our groundwater supplies, and drying up our rivers and streams. Glennon recommended breaking the cycle of unlimited access, requiring conservation measures, facilitating water transfers from low to higher value uses, and recognizing the economic value of water supply by increasing water rates. The two-day Conference program also included updates on various Oklahoma water issues from numerous state and federal water officials.



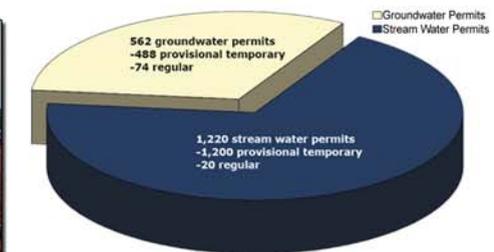
2005 Expenditures and 2006 Budget

Fund Name	FY 2005 Expended	FY 2006 Budgeted
General Appropriations	4,318,447.62	4,398,526.00
Weather Modification	0.00	0.00
Drillers & Installers Indemnity	2,800.00	5,000.00
Rural Economic Action Plan (REAP)	691,418.61	1,277,590.00
Water Resources Revolving	513,217.96	391,140.00
Drillers & Installers Regulation	23,719.42	11,183.00
Federal (OWRRB)	1,669,697.99	2,463,697.00
Federal (OSE)	7,786,320.95	8,282,455.00
USGS Cooperative Agreement	298,050.00	353,950.00
Interagency Reimbursement	1,341,531.30	1,481,873.00
DWSRF Administration	104,188.28	366,916.00
CWSRF Administration	753,093.74	909,221.00
Emergency Grant	0.00	0.00
DWSRF Loan	0.00	500,000.00
CWSRF Loan	0.00	0.00
	\$17,502,485.87	\$20,441,551.00

Activity Name	FY 2005	FY 2006
Administration	2,431,073.37	2,484,887.00
Water Quality	3,024,491.61	3,164,671.00
Financial Assistance	1,580,218.96	2,555,861.00
Planning & Management	2,510,894.86	3,772,126.00
Secretary of Environment	7,955,807.07	8,464,006.00
	\$17,502,485.87	\$20,441,551.00

Water Use Permitting

In 2005, the OWRB issued 1,220 stream water permits for approximately 19,577 acre-feet of water per year, and 562 groundwater permits for approximately 80,707 acre-feet of water per year. Eighteen groundwater permit applications were protested. OWRB staff optically imaged 20,095 documents for storage and use as part of the agency's water rights database now consisting of 1,022,887 individual files. The nine-member Board reduced or cancelled 69 individual water allotments, freeing up a total of 93,917 acre-feet of additional water for appropriation to Oklahomans. Staff also processed 284 water rights records that changed ownership during the year. The OWRB currently administers 2,659 active stream water (for 2,709,256 ac-ft) and 10,374 groundwater permits (for 3,360,117 ac-ft) authorizing the total use of 6,069,373 ac-ft of water in Oklahoma. Total water reported used in 2005 by Oklahoma's water rights community was 1,442,697 ac-ft (almost an even split between surface and groundwater), or about 1,284 million gallons per day.



The OWRB issued permits for a total of 100,284 acre-feet of water per year in 2005.

Wise Management Equals Wise Use

The mission of the Oklahoma Water Resources Board is to manage and protect the water resources of the state and plan for Oklahoma's long-range water needs in a responsive, innovative and professional manner to ensure that all Oklahomans have adequate quantities of good water.

As Oklahoma's water management agency, the Water Resources Board is responsible for administering the use of both surface and groundwater in the state. Each month, water use permit applications are considered for approval by the nine-member Water Board. The OWRB currently has more than 13,000 water rights permits on file for more than 7 million acre-feet of water.

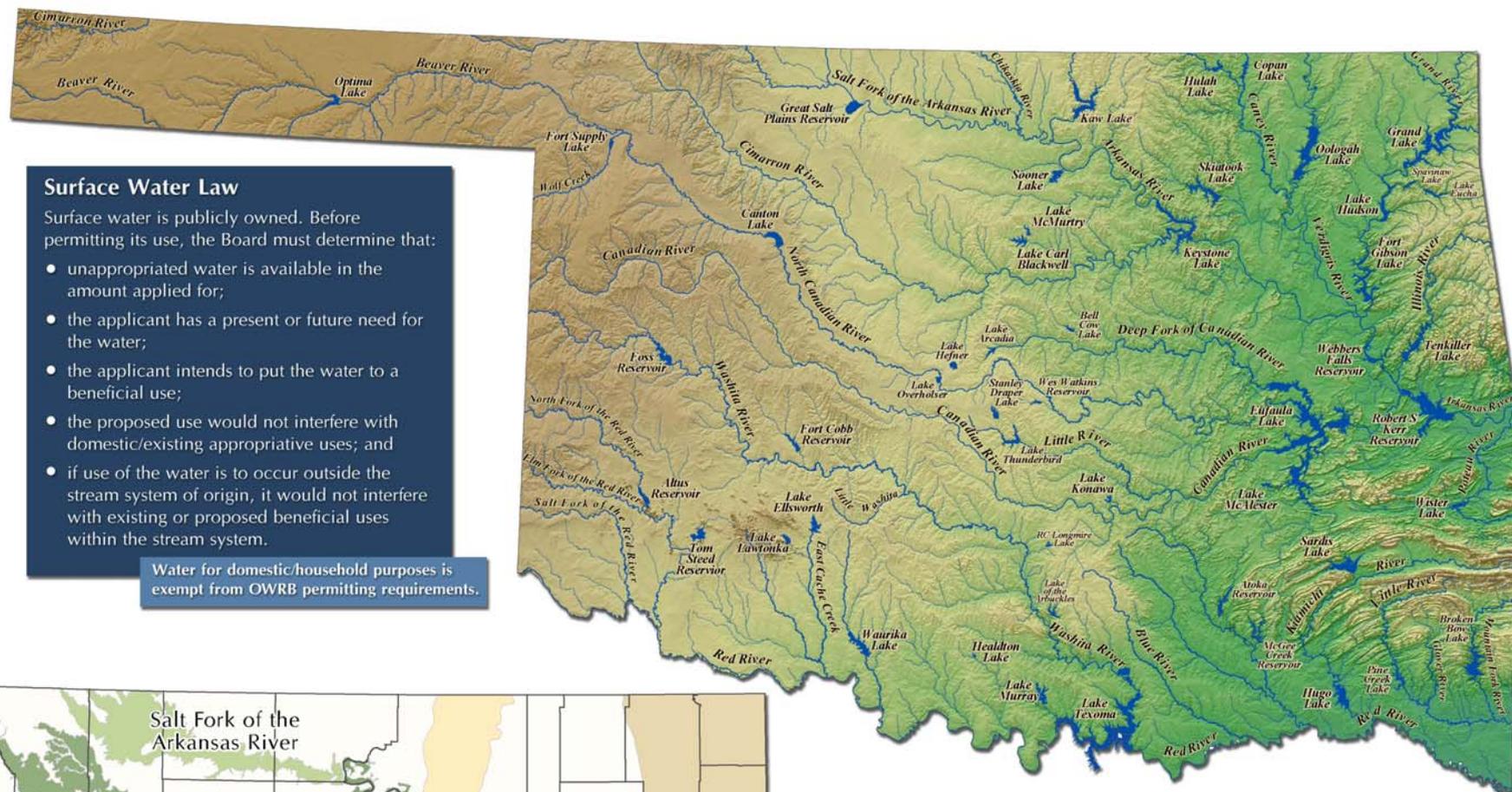
Accurate technical and scientific information is required to make sound planning and management decisions concerning the state's water resources. To determine amounts of water that may be reasonably withdrawn while reserving supplies for future use, the Board's hydrologists and geologists conduct and update studies of the state's 49 stream systems and 71 groundwater basins.



Duane Smith
OWRB Executive Director

OWRB Goals

- Develop comprehensive plans to meet Oklahoma's water resource needs.
- Maintain and improve water quality.
- Ensure the fair and orderly use of Oklahoma's water resources through programs that include identification, assessment, allocation, and evaluation.
- Promote sound water policies to protect lives, property, and Oklahoma's water resources.
- Maintain and enhance financial assistance programs to fund eligible public water supply and wastewater treatment projects.
- Enhance the working environment and facilitate a healthy and safe workplace through management, administrative, and legal practices that support personnel and programs.

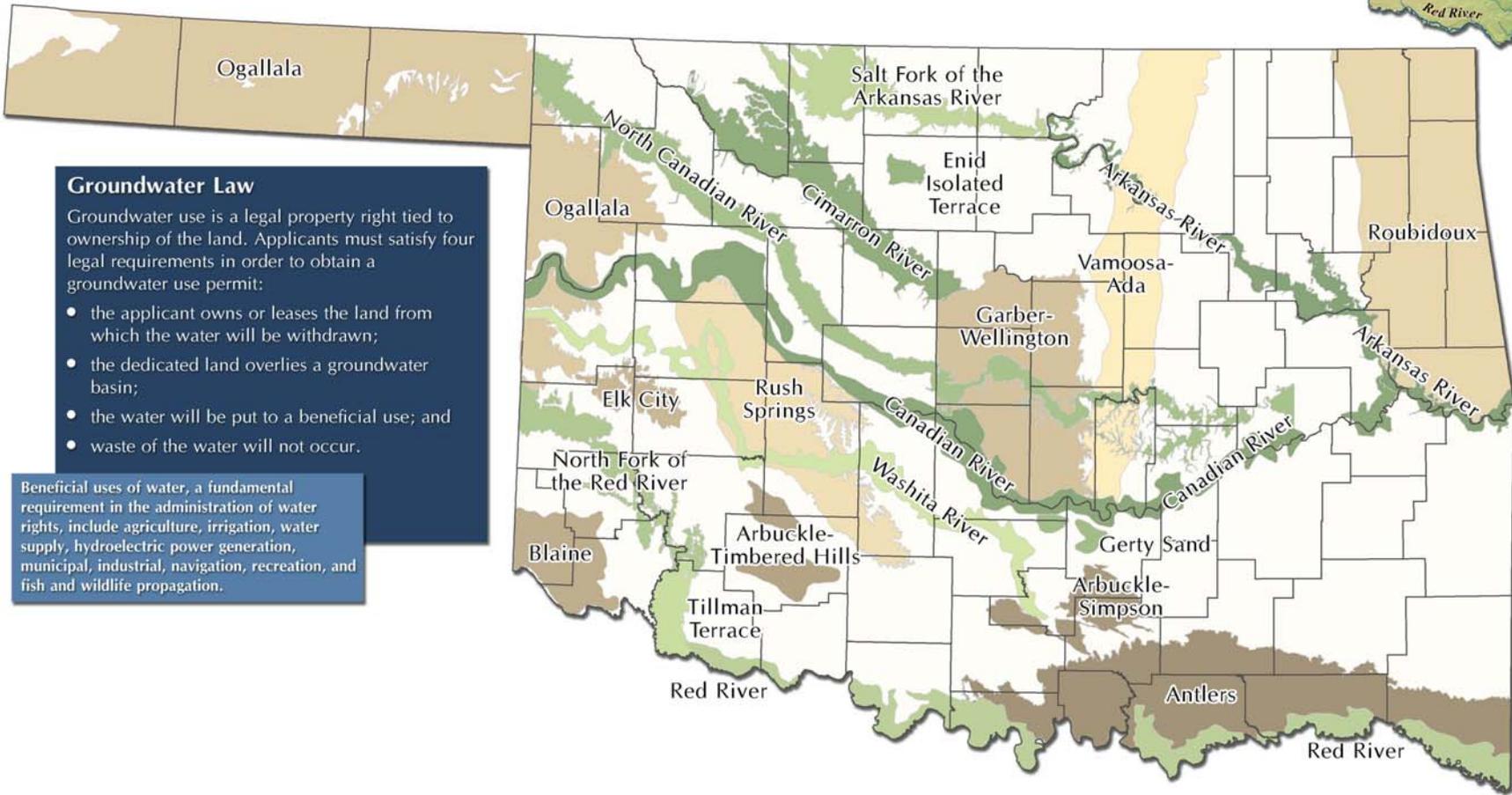


Surface Water Law

Surface water is publicly owned. Before permitting its use, the Board must determine that:

- unappropriated water is available in the amount applied for;
- the applicant has a present or future need for the water;
- the applicant intends to put the water to a beneficial use;
- the proposed use would not interfere with domestic/existing appropriate uses; and
- if use of the water is to occur outside the stream system of origin, it would not interfere with existing or proposed beneficial uses within the stream system.

Water for domestic/household purposes is exempt from OWRB permitting requirements.



Groundwater Law

Groundwater use is a legal property right tied to ownership of the land. Applicants must satisfy four legal requirements in order to obtain a groundwater use permit:

- the applicant owns or leases the land from which the water will be withdrawn;
- the dedicated land overlies a groundwater basin;
- the water will be put to a beneficial use; and
- waste of the water will not occur.

Beneficial uses of water, a fundamental requirement in the administration of water rights, include agriculture, irrigation, water supply, hydroelectric power generation, municipal, industrial, navigation, recreation, and fish and wildlife propagation.

OWRB Initiatives for Oklahoma's Water Future

Water & Wastewater Financing

Since 1979, the OWRB has administered the largest and most popular financial assistance program for funding construction of water and wastewater infrastructure in Oklahoma. To date, the agency has issued approximately \$1.5 billion in loans and grants for system improvements and construction as part of the agency's Financial Assistance Program (FAP). The Bond Loan and Emergency Grant Programs provide low-interest loans and grants for the construction or rehabilitation of community water and wastewater projects. The OWRB also directs two separate loan programs that provide federal Clean Water Act and Drinking Water Act funds for community wastewater and water treatment/distribution projects, respectively. And the Water Board administers the Rural Economic Action Plan (REAP) grant program, specifically geared for the water/sewer project needs of Oklahoma's small towns. To date, the FAP's low-interest rates and related program benefits have resulted in an estimated \$452 million savings for Oklahoma's communities and rural water districts.

The Statewide Water Development Revolving Fund, which is the backbone of the FAP, is rapidly dwindling. This at a time when many water systems are struggling to meet even the basic needs of their citizens. During drought times, these systems often fail altogether. Increasingly stringent federal standards related to water treatment compound existing problems and many smaller facilities cannot afford the indebtedness normally associated with expensive upgrades and new construction. The Revolving Fund requires recapitalization to meet the projected \$5.4 billion funding need for those projects in Oklahoma through 2025.



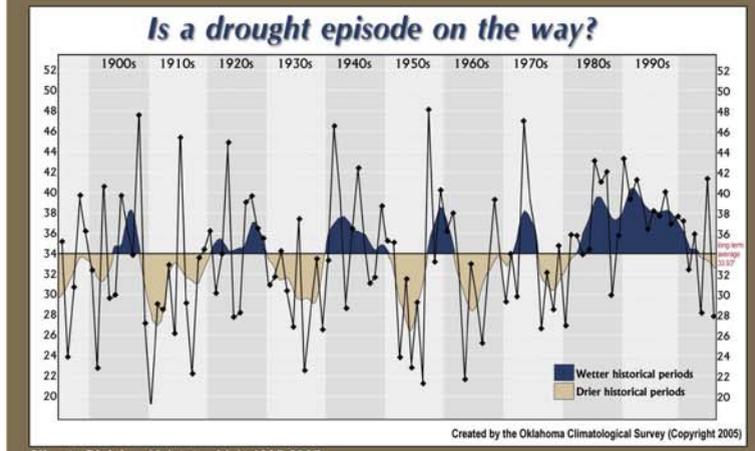
Water Planning

Under its planning authority, the Water Board is responsible for development and maintenance of the Oklahoma Comprehensive Water Plan, a long-range strategy to manage, develop and protect the state's surface and groundwater resources. The document, originally published in 1980 and updated in 1997, contains detailed inventories and projected requirements of state municipal, industrial, agricultural and power water supplies. The OCWP also offers water-related recommendations to help decision-makers enact practical policy solutions to Oklahoma's water problems and issues. The Water Board is authorized by the State Legislature to update the Water Plan every 10 years. Unfortunately, the current Water Plan does not address the specific water needs of Oklahoma's municipalities and rural areas. The state requires an updated plan that provides a broad assessment of its water treatment and distribution infrastructure needs as well as a mechanism to implement system upgrades, consolidation and expansion.

Has Oklahoma been in a wet period?

The Dust Bowl, a period characterized by severe, long-term drought and giant clouds of dust during the early to mid 1930s, ranks as one of the worst weather events in the nation's history. The era literally changed the face of the Great Plains, including western Oklahoma, where farmers plowed millions of acres of virgin grasslands and planted then-profitable wheat as never before. Fortunately, problems experienced during the Dust Bowl led to broad reform of farming practices and establishment of widespread soil and water conservation measures.

Oklahoma's dry Dust Bowl decade of the 1930s becomes apparent when reviewing the state's rainfall history, extending more than 100 years. Also evident is the cyclical nature of the state's dry and wet patterns, one following the other generally five to 10 years in length. However, perhaps the most striking feature of this climatic snap-shot is the extended wet period Oklahoma has experienced from the early 1980s through the early 2000s. Does this abundant period of above normal precipitation signal the onset of another extended drought in Oklahoma?



Climate Division 10 (statewide); 1895-2005
Annual Rainfall History with 5-year weighted trends

This report was published by the Oklahoma Water Resources Board as authorized by Duane A. Smith, Executive Director. One thousand copies have been printed at an approximate cost of \$1.20 each. Copies may be obtained free of charge by contacting the OWRB at (405) 530-8800 or by e-mail at pubinfo@owrb.state.ok.us. Additional copies have been deposited at the Publications Clearinghouse of the Oklahoma Department of Libraries.