

OKLAHOMA Water News

1st Quarter 2007



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New Bartlesville Plant Serves Northeast Oklahoma

While Bartlesville city leaders explore future sources to supplement existing drinking water supplies at Lakes Hulah and Hudson, the community is quickly establishing itself as a model regional water supplier for northeast Oklahoma.

To meet prospective growth in the region, the City's new state-of-the-art drinking water treatment plant—dedicated last September—currently serves 55,000 customers and is designed to meet the projected needs of numerous surrounding communities, including Dewey, Ramona, Ochelata, five rural water districts, and private water companies in the area, through at least the next 40 years. A \$44.5 million dollar loan through the Water Resources Board's Drinking Water State Revolving Fund program, the agency's largest loan ever to an Oklahoma community, and more than \$2.3 million in local funds enabled construction of the facility, which is named after former Mayor and project champion Ted D. Lockin.



The new Ted D. Lockin Water Treatment Plant is designed to treat 26,000,000 gallons per day.

The low interest rate of the OWRB loan, fixed at 3 percent throughout its 20-year life, will save Bartlesville and its water customers more than \$13 million in finance costs. Interest on the loan will bring the total project cost to about \$62 million. Three annual water rate increases already in place will provide the revenue for repayment.

In addition to setting the standard for regional water systems throughout the state, the Bartlesville facility is the first in Oklahoma and one of just a few in the United States to employ an "Actiflow"

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From the Director

Another legislative session is underway, and once again, water is a dominant theme. The many filed bills address familiar water-related subjects, including modification of the existing moratorium on out-of-state water sales, establishment of citizen/lake advisory committees, priorities of water use, expansion of Water Board membership, and of course water planning and infrastructure financing. If there is a common thread running through this and related environmental legislation it would most certainly be "sustainability."

Never before in the state's history have citizens—the constituents of Oklahoma legislators—conveyed such a strong and unified message concerning the

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**Duane A. Smith, Executive Director
Oklahoma Water Resources Board**



Bartlesville (continued from page 1)

process, which can treat a much larger volume of water in a much shorter time-frame than conventional systems. The plant also recycles all of the water used in the treatment process, resulting in significant water savings and reduced production of wastewater.

This project clearly demonstrates how regional systems, where customers from many towns and water districts are served by a common source, can provide the most efficient, economical and reliable water supply. Through economy of scale, where an increase in the number of partners results in a decrease in the average cost required of each member, regionalization helps alleviate funding constraints and minimizes the potentially devastating impacts posed by increasingly stringent water quality regulations that result in higher treatment costs. Through the State Public Water System Assessment, a crucial aspect of the ongoing update of the Oklahoma Comprehensive Water Plan, and increasingly strong financing incentives, the state is positioning itself as the primary facilitator of regional planning projects. This first-ever broad inventory of Oklahoma's water system infrastructure will identify those areas and systems that could benefit most from unified system operation, maintenance, and administration.

Where system densities, service area size, and geographic factors prove advantageous, projects identified through the Water Plan will stand a greater chance of receiving priority funding for implementation through financing programs offered by the OWRB and other state and federal agencies.

OCWP Local Input Meetings Begin in April

The future is now for Oklahomans who live in and near Beaver County as they will be the first state residents to have an opportunity to share their opinions about what should be included in Oklahoma's upcoming 50-year water plan.

The first of approximately 40 meetings across Oklahoma will begin at 6:30 p.m., Thursday, April 12, at the Beaver County Fairgrounds Pavilion.

"Oklahoma's future depends in large part on the availability of clean water," says Mike Langston, assistant director of the Water Research Institute. "Our government leaders need to know the concerns Oklahomans have about the state's water resources."

The Oklahoma Legislature mandates that the OWRB develop and periodically update a comprehensive water plan. The OWRB, in conjunction with the Army Corps of Engineers and other organizations, is also conducting technical studies of projected water demands and water supply infrastructure needs.

The Water Research Institute, located at Oklahoma State University but serving all of Oklahoma, is assisting the Board with the planning process. The Institute is focusing on two major thrusts: citizen input and research to investigate identified water issues and concerns.

"As a state, we're facing difficult decisions on a variety of water-related issues that will affect us, our kids, and their kids," Langston says. "We strongly encourage all citizens to attend at least one meeting in their area. This is their opportunity to set the agenda for the water plan."

Though the ultimate responsibility for writing the Oklahoma Comprehensive Water Plan lies with the OWRB, Langston said the WRI promises that every issue raised, concern expressed, question asked, and suggestion offered will be faithfully communicated to the OWRB.

More information on the planning process is available at <http://environ.okstate.edu/owri/waterplan>. For specific information about the upcoming Local Input Meetings, contact Jeri Fleming by e-mail at waterplan@okstate.edu or by phone at 405-744-9994.

Scheduled OCWP Local Input Meetings (to date):

April 12, Beaver
 April 19, Goodwell
 April 26, Woodward
 May 3, Alva
 May 8, Sayre
 May 15, Lawton
 May 17, Weatherford
 May 31, Altus
 June 19, Enid
 June 21, El Reno
 June 28, Kingfisher
 August 7, Shawnee
 August 23, Kellyville

Water Appreciation Day

9:00 a.m. to 4:00 p.m.

May 8, 2007

Water Appreciation Day represents a unique opportunity for over 25 state, federal, and local organizations to gather and demonstrate the importance of Oklahoma's water resources and provide information on their water management, conservation, and educational programs.

State of Oklahoma
OWRB
 WATER RESOURCES BOARD
 the water agency

DID YOU KNOW?

Oklahoma is underlain by 23 major groundwater basins containing 320 million acre-feet of water in storage, though only one-half of that amount may be recoverable.

Irrigation is the number one use of groundwater in Oklahoma. The approximate total allocated groundwater use in Oklahoma is 3.2 million ac-ft/year.

Oklahoma contains approximately 1,120 square miles of water area in its lakes and ponds and approximately 78,578 miles of rivers/streams.

The number one use of the state's surface water is public water supply. The approximate total allocated stream water use in Oklahoma is 2.6 million ac-ft/year.

An estimated 34 million acre-feet of water flows out of the state each year through Oklahoma's two major river basins, the Red and Arkansas.

From the Director (continued from page 1)

protection of our water resources. The current drought and increased competition for water resources are most certainly important factors in this renewed focus on environmental stewardship, but citizens are also better informed and proposed water uses are undergoing tremendous public scrutiny. The state's water resources belong to the people of Oklahoma, and ultimately, they will decide how our waters are best utilized.

A primary legislative priority for the OWRB this session is removing the cap on Gross Production Tax revenues to the Water Projects Fund, the source of OWRB funding for updating the Oklahoma Comprehensive Water Plan and related implementation of identified projects through the Financial Assistance Program. Removing the cap could double the amount of available funds for the Board to accomplish its planning mandate. The additional funds would accelerate completion of the Water Plan update process, anticipated in 2011, and enable a more accurate and comprehensive assessment of water supply and infrastructure needs in the state. Just as important, additional monies for the Revolving Fund would allow immediate implementation of priority planning projects, many of which came to light during the dog days of last summer's drought. We can expect more of the same this summer.

Another important legislative pursuit is funding for the OWRB's water rights administration program. Currently, the sole funding source for the program consists of assessment of modest fees to holders of stream water rights. The ongoing drought, increased competition for limited water resources, greater scrutiny of proposed water uses, including more protests, and the need for more comprehensive hydrologic studies to accurately identify and appropriate available water make it necessary for the OWRB to seek out additional resources through which to manage water rights.

As chairman of the Western States Water Council, the water arm of the Western Governors Association, I have been

advocating several initiatives to enhance water programs in the western U.S. The Rural Water Supply Act, contained in S. 895, seeks to help the country's rural communities obtain reliable water service. Recently passed by the U.S. Senate but pending President Bush's approval, the bill directs the Bureau of Reclamation to establish a program to plan, design, and construct rural water supply projects. Specifically, it authorizes \$15 million a year for planning new water delivery infrastructure and would establish a loan guarantee program within the Bureau to help communities finance new water projects and pay for maintenance on existing water systems. This bill is of particular interest to Oklahomans as the state's 450 rural water systems provide drinking water to 600,000 residents.

Also recently passing the Senate and awaiting the President's signature is HR 5136, which would establish a National Integrated Drought Information System (NIDIS) at the National Oceanic and Atmospheric Administration. The measure would authorize a total of \$81 million through fiscal 2012 to provide usable, reliable, and timely drought forecasts and assessments of current droughts impacting Oklahoma and the nation. Through creation of the Oklahoma Mesonet and the outstanding work of numerous weather professionals housed at the Weather Center in Norman, Oklahoma is a national and worldwide leader in climate monitoring and prediction. Now that NIDIS is authorized, attention turns to federal funding for the program.

In March, we will kick off the first of 40 public listening sessions to be held throughout the state this year to define the agenda for the recently initiated update of the Oklahoma Comprehensive Water Plan. The sessions, as well as the entire stakeholder participation process that is being accentuated as part of the update, will be facilitated by the Oklahoma Water Resources Research Institute. For meeting dates and related information, or to join the official email notification list, visit the official OCWP Web site for public participation and policy development at <http://environ.okstate.edu/owrri/waterplan/>.

Reflections

by Joe Taron
2004 Oklahoma Water Pioneer

According to Joe Taron, retired Shawnee dentist and 2004 Oklahoma Water Pioneer, regional cooperation is the key to solving Oklahoma's current water crisis, and there are growing signs that a lot of people agree with that assessment.

Taron, longtime chairman of the Pottawatomie County Development Authority (PCDA), attended the 27th annual Governor's Water Conference in Oklahoma City in November, after returning from a trip to Washington in search for ways to make water from the Wes Watkins Reservoir easier for Shawnee, and eventually maybe Tecumseh, to treat and drink.

Despite the drought, declining lake levels, and treatment problems, Taron was encouraged by the central message of the Conference, which stressed regional cooperation. "I felt like there was more of a cohesive awareness, concern and understanding of the problem and wanting to resolve it than I've ever witnessed," says Taron. It was pointed out at the conference, he adds, that more water flows out of Oklahoma every day than is used in the state. "Part of that is riparian, but some of it is just poor management and poor planning."

At the water conference, emphasis was placed on the development of the Comprehensive Water Plan to deal with Oklahoma's water problems. The Plan will be developed after an extensive set of public hearings, workshops, meetings and feedback sessions. "It's hoped that through this process, we will wind up with intelligent and well-planned decisions incorporating the best management practices," Taron says.

"The consensus that I see is that the best way to resolve these water problems is on a regional basis, not as city by city by city," says Taron. He adds that one additional advantage would be that if any grant money is available, it would be possible for a regional group to legally assume debt and employ eminent domain powers.

Taron believes that all water issues should be dealt with on a regional basis—treatment, distribution, even bringing water from Eastern Oklahoma to the west. About 350 people attended last November's Oklahoma Governor's Water Conference, and Taron was very impressed by the amount and depth of dialogue on pertinent water issues. "I've been going to them for 20 years," he says, "and I felt this was the best one."

This article is adapted from "Taron: Cooperation Holds Water Key," an article originally appearing in The Shawnee News Star, November 16-17, 2006.

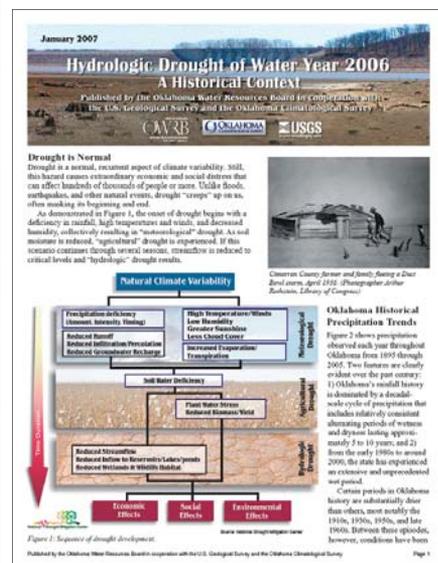
"The consensus that I see is that the best way to resolve these water problems is on a regional basis, not as city by city by city."

Joe Taron

USGS/OWRB Drought Publication Available

The OWRB and U.S. Geological Survey, with help from the Oklahoma Climatological Survey, have published a report on state drought conditions in 2006. Entitled "Hydrologic Drought of Water Year 2006: A Historical Context," the report includes discussions of historical precipitation trends in Oklahoma as well as recent streamflow and groundwater level trends focusing on the eastern reach of the Canadian River.

According to the publication, two features are clearly evident over the past century: 1) Oklahoma's rainfall history is dominated by a decadal-scale cycle of precipitation that includes relatively consistent alternating periods of wetness and dryness lasting approximately 5 to 10 years; and 2) from the early 1980s to around 2000, the state has experienced an extensive and unprecedented wet period. The report warns that Oklahoma may be experiencing the beginnings of yet another, perhaps extended, dry cycle.



Copies of the report are available through the OWRB's Web site at www.owrb.ok.gov or by calling the agency at 405-530-8800.

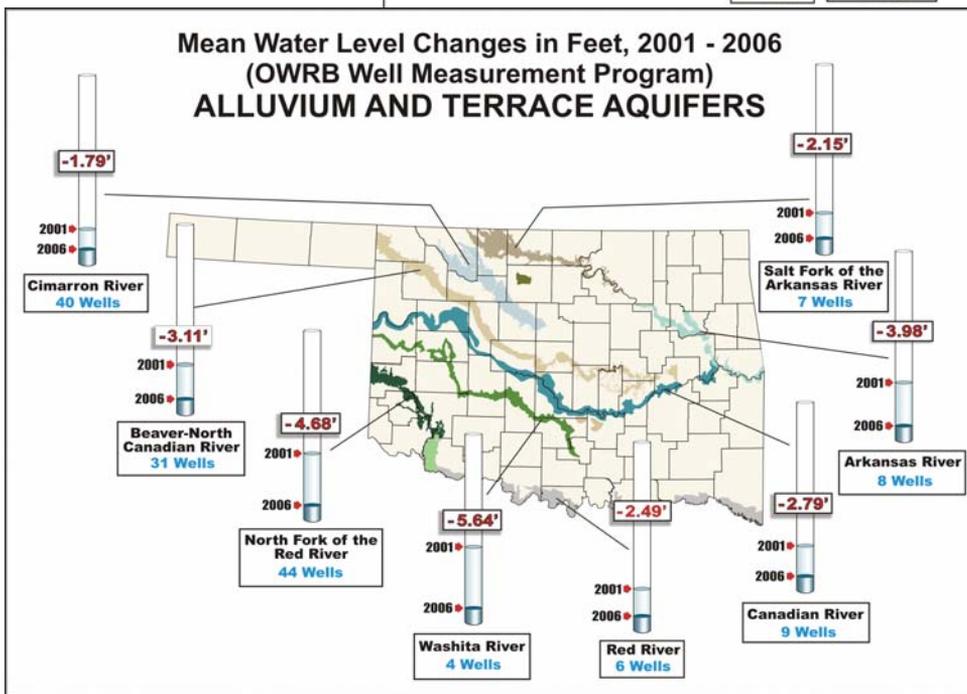
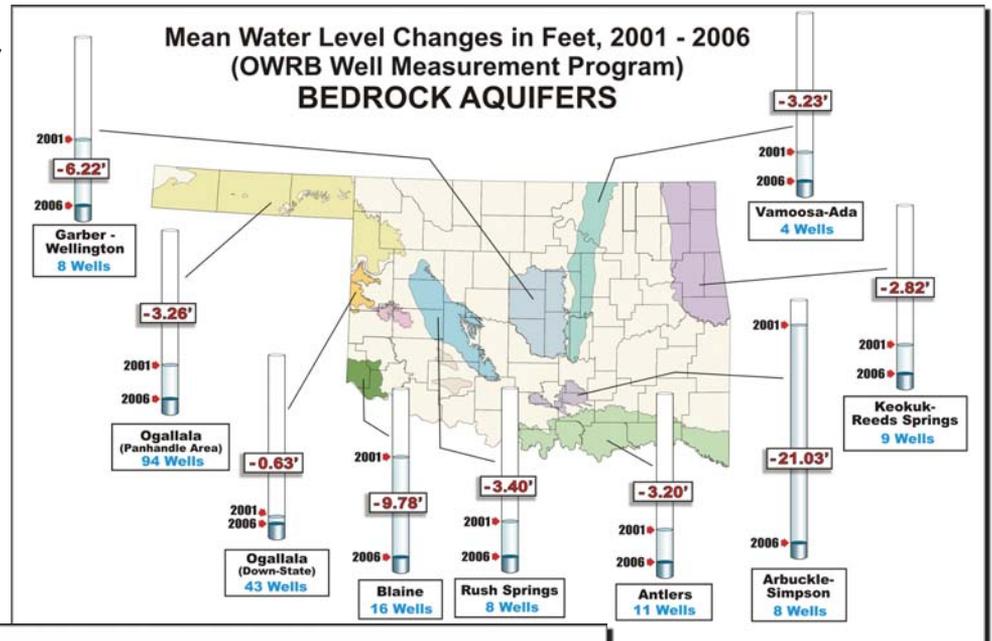
OWRB Data Offers Insight into Drought's Impacts on Groundwater

The OWRB's annual water level measurement program provides unique insight into impacts associated with the ongoing drought in Oklahoma. Data from more than 600 water wells statewide allow hydrologists to track aquifer water level fluctuations over many years, both dry and wet. According to OWRB geologist Mark Belden, who supervises the program, water levels fluctuate either as a result of varying precipitation and recharge and/or from changes in water use and groundwater pumpage. General declines in the irrigated portions of the Oklahoma Panhandle of the High Plains/Ogallala Aquifer typically range from ½ - to 1½ feet per year over the past 40 years or so. This period has been characterized by extensive withdrawals of water for irrigation, which in many areas exceed rates of recharge to the aquifer.

In most other aquifers and areas of Oklahoma, water level changes can be directly related to shifting climate patterns. Rising and falling water well levels typically reflect corresponding wet and dry periods, although measurement data may not reflect those events for a period of months or even years for deeper formations and wells. In general, there has been little significant change in groundwater storage for the majority of the state's aquifers in

the past three decades. However, the ongoing drought in Oklahoma, which climatologists say generally began around 2002 in some areas, is having a measurable effect upon aquifer levels, as shown in Table 1.

Data summarized in the table reflect mean water level changes over recent times for Oklahoma's major aquifers at 5 year (2001-2006) intervals. The data is grouped by aquifer type (bedrock or alluvium and terrace) and indicates the number of wells on which the mean is based. All listed aquifers experienced water level declines for the period of record (5 years), which is likely attributable, at least in part, to the current drought in Oklahoma.



The OWRB's annual water level measurement program has been in place for almost 30 years. Data gathered through the comprehensive network of observation wells enable OWRB hydrologists to observe water level fluctuations over a period of years or even decades.

Tulsa Receives EPA Award

The Environmental Protection Agency has awarded the City of Tulsa with a Pisces Award for its proactive approach and innovation in addressing citywide wastewater system management.

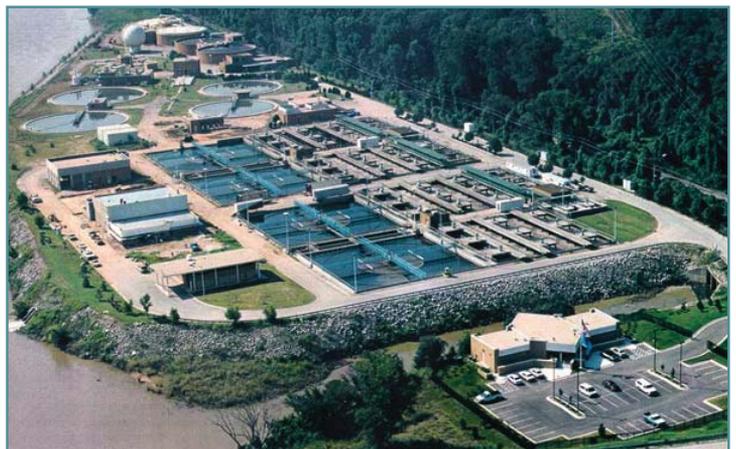
The Tulsa Metropolitan Utility Authority (TMUA) is the single largest borrower under the OWRB's Clean Water State Revolving Fund (CWSRF) loan program. Since the program's inception in 1990, Tulsa has been awarded more than \$250 million to help correct inadequacies in its sewage system brought about by recent community growth. In addition to the environmental benefit of Tulsa's CWSRF projects, the loans have collectively saved Tulsa residents about \$105 million due to the program's extremely low interest rate.

Combined with OWRB bond loan money, EPA grants, and various local funds, CWSRF loans to Tulsa have been used largely to respond to several consent orders issued by the EPA and Oklahoma Department of Environmental Quality for hydraulic overloading of the treatment plants. The city has since taken all necessary corrective actions. As Tulsa has repaid its CWSRF loans, tens of millions of dollars have been accumulated in second round funds that the OWRB has loaned out again, primarily to small Oklahoma communities. Tulsa's responsiveness in retiring the debt has also greatly enhanced the city's credit rating and has contributed to the OWRB's excellent AAA bond rating.

Utilizing an annual budget of approximately \$60 million, TMUA owns and operates four publicly owned treatment works having a combined capacity of 103 million gallons per day (mgd). The entire wastewater system includes 1,870 miles of pipeline, more than 40,000 manholes, 53 lift stations, 400 miles of force mains, and an average flow of 64.4 mgd.

Fiscal Year Expenditures Oklahoma Water Resources Board

Fund Name	FY 2005 Expended	FY 2006 Expended	FY 2007 Budgeted
General Appropriations	4,318,448	0	4,544,617
Weather Modification	0	3,946,855	0
Drillers & Installers Indemnity Fund	2,800	0	63,080
Rural Economic Action Plan (REAP) Fund	691,419	0	1,206,751
Water Resources Revolving Fund	513,218	909,562	422,021
Drillers & Installers Regulation Fund	23,719	274,274	26,643
Water Infrastructure Development Fund	0	536	524,447
CMIA Disbursing Fund	0	0	0
Federal Funds-OWRB	1,669,698	0	2,498,483
Federal Funds-OSE	7,786,321	1,193,173	9,232,270
USGS Cooperative Agreement	298,050	333,568	303,700
Stripper Well-Oil Settlement	0	232,652	0
Interagency Reimbursement Fund	1,341,531	0	1,586,772
DW Loan Administration Fund	104,188	8,010,066	769,834
CW Loan Administration Fund	753,094	152,414	1,024,269
Emergency Grant Fund	0	700,789	0
CW Loan Fund	0	0	373,735
DW Loan Fund	0	0	0
Total Expenditures/Budgeted	17,502,486	15,753,889	22,576,622
Activity Name			
Administration	2,431,073	2,319,401	2,490,384
Water Quality	3,024,492	2,427,918	3,794,310
Financial Assistance	1,580,219	1,389,803	2,800,000
Planning & Management	2,510,895	2,310,778	4,068,498
Weather Modification	0	0	0
Secretary of Environment	7,955,807	7,305,989	9,423,430
Total Expenditures/Budgeted	17,502,486	15,753,889	22,576,622



Tulsa Southside Wastewater Treatment Plant

Drought Update

Reservoir Storage

As of March 1, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see right) are approximately 95.1 percent full, a 0.1 percent decrease from that recorded on January 30, according to information from the U.S. Army Corps of Engineers (Tulsa District). Nineteen reservoirs have experienced lake level decreases since that time; 15 reservoirs are currently operating at less than full capacity. Seven reservoirs are now below 80 percent capacity.

Palmer Drought Severity Index

According to the latest Palmer Drought Severity Index (December 30, right), state drought conditions remain steady. No climate divisions are currently experiencing drought. Five of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since January 27.

Standardized Precipitation Index

The latest monthly Standardized Precipitation Index (through January, right) reflects improving moisture conditions throughout Oklahoma. Among the selected time periods (3-, 6-, 9- and 12-month SPIs), "moderately" dry conditions are present only in North Central Oklahoma during the past 9 to 12 months. No other climate divisions are currently experiencing dry conditions.

For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, go to www.owrb.ok.gov/supply/drought/drought_index.php.



Storage in Selected Oklahoma Lakes & Reservoirs
(as of March 1, 2007)

CLIMATE DIVISION	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Storage (acre-feet)
North Central (2)	505,170	503,877	99.7
Northeast (3)	3,698,902	3,433,641	92.8
West Central (4)	276,790	194,110	70.1
Central (5)	154,225	112,124	72.7
East Central (6)	2,968,683	2,968,683	100.0
Southwest (7)	301,810	137,089	45.4
South Central (8)	2,843,684	2,803,370	98.6
Southeast (9)	1,464,929	1,464,929	100.0
State Totals	12,214,193	11,617,823	95.1

Palmer Drought Severity Index

CLIMATE DIVISION	Current Status 2/24/2007
Northwest (1)	Unusual Moist Spell
North Central (2)	Near Normal
Northeast (3)	Incipient Moist Spell
West Central (4)	Unusual Moist Spell
Central (5)	Moist Spell
East Central (6)	Unusual Moist Spell
Southwest (7)	Unusual Moist Spell
South Central (8)	Unusual Moist Spell
Southeast (9)	Unusual Moist Spell

Standardized Precipitation Index
(through January 2007)

CLIMATE DIVISION	3-month	6-month	9-month	12-month
Northwest (1)	Very Wet	Very Wet	Near Normal	Near Normal
North Central (2)	Near Normal	Near Normal	Moderately Dry	Moderately Dry
Northeast (3)	Moderately Wet	Near Normal	Near Normal	Near Normal
West Central (4)	Very Wet	Moderately Wet	Near Normal	Near Normal
Central (5)	Moderately Wet	Near Normal	Near Normal	Near Normal
East Central (6)	Very Wet	Moderately Wet	Near Normal	Near Normal
Southwest (7)	Moderately Wet	Moderately Wet	Near Normal	Near Normal
South Central (8)	Very Wet	Moderately Wet	Near Normal	Near Normal
Southeast (9)	Very Wet	Very Wet	Near Normal	Near Normal

www.owrb.ok.gov

*Rudy Herrmann, Chairman • Mark Nichols, Vice Chairman • Bill Secrest, Secretary
Ford Drummond • Lonnie Farmer • Ed Fite • Jack W. Keeley • Kenneth K. Knowles • Richard Sevenoaks*

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.



1st Quarter 2007

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FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of March 13, 2007

FAP Loans—320 totaling \$628,085,000

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, averaging approximately 4.762 percent since 1986.

CWSRF Loans—180 totaling \$632,620,922

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to draw upon 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—67 totaling \$304,448,920

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and Oklahoma Department of Environmental Quality 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—465 totaling \$40,726,337

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

Emergency Grants—529 totaling \$31,019,692

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

Drought Response Program Grants—3 totaling \$300,000

Through the OWRB's Drought Response Program, limited 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 funds to establish the Program.

Total Loans/Grants: 1,564 totaling \$1,637,200,871

Estimated Savings: \$511,926,560

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.state.ok.us/financing.

OKLAHOMA Water News

2nd Quarter 2007



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**Oklahoma Drought
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OCWP Local Meetings Give Voice to Public

In April, the first of 42 Oklahoma Comprehensive Water Plan (OCWP) local input meetings took place in Beaver, facilitated by the Oklahoma Water Resources Research Institute (OWRRI), with 14 additional meetings held throughout April, May, and June in Goodwell, Woodward, Alva, Sayre, Lawton, Hobart, Weatherford, Altus, Tonkawa, Chickasha, Duncan, Enid, El Reno, and Kingfisher. The meetings, which have been well-attended in every city, will continue through the end of the year, providing citizens across the state with the opportunity to identify issues they believe should be considered in the OCWP update. As was envisioned, citizens are utilizing this forum to voice concerns about existing and potential water problems and contribute possible solutions. Already, the comments of these citizens have helped state water planners better understand what issues are important to the public.

According to Mike Langston, Assistant Director of the OWRRI and facilitator of the OCWP public meetings, which have so far primarily been held in western Oklahoma, citizens have raised a variety of issues, some general and others specific to their respective regions. Some of the more common topics for western Oklahomans have included water conservation and education, support for building more reservoirs and flood control structures, and sediment removal from existing structures to increase storage. Current water law and the protection of water rights have frequently been the focus of discussion as citizens consider whether or not Oklahoma's groundwater and surface water laws require review.

"Many participants have told us how much they appreciate that we are making the effort to listen to the rural parts of the state, which are too often forgotten," says Langston. "Several people have also said they were glad to see that the legislature appropriated funds for water planning and think it should be continued indefinitely."

(continued on page 2)



Local input meeting in Beaver on April 12 with 103 local citizens in attendance.

From the Director

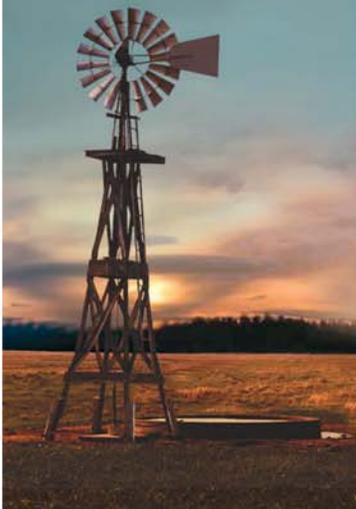
Water Plan public input meetings, designed to gather citizen viewpoints on Oklahoma's most pressing water issues, are well underway. The meetings have been extremely well attended and the comments to OWRB representatives and Water Research Institute staff, who are facilitating this phase of the OCWP update, have been both honest and insightful. To read reports on the meetings, including a comprehensive and categorized list of comments for each, visit OWRRI's Web site at www.okwaterplan.info.

While the recent long-term drought and the even more recent flood problems in Oklahoma have been popular topics at these meetings, one particular area of public concern surrounds climate change and its impacts on water resource

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**Duane A. Smith, Executive Director
Oklahoma Water Resources Board**



From the Director (continued from page 1)

availability and management. To learn more about this subject, we asked Dr. Ken Crawford, State Climatologist for Oklahoma and Director of the Oklahoma Climatological Survey (OCS), to address agency managers at our strategic planning session in June. As one of the persons principally responsible for creation of the Oklahoma Mesonet, the state's unparalleled network of environmental monitoring stations, Dr. Crawford presented an extremely interesting—as well as somewhat alarming—view on the future of state water management in light of our warming climate system evident from observed increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising average sea level. According to Dr. Crawford, paleoclimate information indicates that the warmth of the last half-century or so is unusual compared to the previous 1300 years. Looking forward, climate models project decreased annual precipitation throughout at least the southwestern United States, especially during the summer. While winters will become shorter and milder, spring will start earlier, and growing seasons will be longer. Furthermore, since warmer temperatures lead to increased evapotranspiration (i.e., “wetter air”) and less soil moisture, we can expect more frequent and severe droughts. In Oklahoma, “ordinary” droughts could be comparable to those experienced in the 30s and 50s, Dr. Crawford warned. The risk and intensity of wildfires will also increase.

In short, Dr. Crawford emphasized that in the near future Oklahomans will likely be faced with enormous water-related stress. Less rainfall but more severe rainfall events mean reduced aquifer recharge and more runoff and flash flooding, which will result in more sedimentation of our water bodies and a subsequent reduction in usable supply. Longer growing seasons will lead to increased water requirements for our crops. Shrinking water supplies will lead to more water quality problems. Also, if the market for biofuels takes off, and the fuel of choice is a derivative of corn, our groundwater supplies could be mined at an unprecedented rate.

So how will we cope with this increasing stress, especially small water districts that provide supply to individual handfuls of rural residents across the state? While the answer to that question remains largely unclear at this time, our changing climate will unquestionably have a significant impact on water management in Oklahoma.

Regardless of whether these changing precipitation and temperature patterns are human-induced or part of a natural cycle, we must now find more creative ways to manage our water resources. Certainly, through studies conducted to supplement our revised Water Plan, due in 2012, we will seek aggressive measures to mitigate the problem. In the interim, the OWRB plans to partner with the OCS and other agencies that are part of our incomparable weather community in Oklahoma to begin planning for climate change by reviewing the wealth of available water and weather data. This is the necessary first step in identifying trends that can better prepare us for future water problems and provide decision makers with feasible options to fight this impending water crisis.

While Oklahoma celebrates its centennial, the OWRB is celebrating its 50th year as Oklahoma's water agency. To mark the occasion, as well as to promote the Water Plan update, we have joined with the Oklahoma Water Resources Research Institute to organize the 2007 Governor's Water Conference and Symposium, the state's most prominent annual gathering of state and national water officials to be held October 23-25 at the Cox Convention Center in Oklahoma City. To recognize the agency's birthday, on Wednesday evening, October 24, the OWRB will host a very special banquet highlighting Water Board accomplishments throughout the past half-century. We have invited former state governors, OWRB directors, legislators, and others who laid the groundwork for Oklahoma's robust water development and protection programs. It should be a grand event and an appropriate one as we prepare a new water plan for Oklahoma's next century.

OCWP Meetings (continued from page 1)

Comments can be made in person at the meetings or online at www.okwaterplan.info, where the OWRRI has provided reports from each meeting and a searchable database of all the issues that have been raised. The Web site also includes information on meeting dates and locations.

“We've been so impressed with the thoughtfulness and diversity of the comments,” adds Langston. “Clearly, many citizens are very engaged in the water planning process. We believe that this is just the beginning of a long-term discussion about how we can better manage our water resources.”

After the local meetings are completed, there will be a series of regional meetings to provide area citizens the opportunity to consolidate and prioritize the comments in each region. For more information, contact the OWRRI at (405) 744-9994 or by e-mail at waterplan@okstate.edu. Information packets,

Oklahoma Comprehensive Water Plan Update UPCOMING LOCAL INPUT MEETINGS

July 12—Okla. City; County Extension Auditorium

July 17—Sulphur; Murray County Expo Center

July 19—Norman; Cleveland County Fairgrounds

July 24—Chandler; Lincoln County Fairgrounds

July 30—Stillwater; Payne County Expo Center

July 31—Ardmore; Ardmore Convention Center

August 7—Shawnee; Gordon Cooper Vo Tech

August 23—Kellyville; Creek County Fairgrounds

comment cards, and nomination forms are also available at Oklahoma County Extension Offices.

Bill Secrest Honored

After completing his final term as OWRB Secretary during his 24th year on the Board, Bill Secrest retired in May. At the June 12 meeting, members of the State Legislature, Office of the Governor, Oklahoma Rural Water Association (ORWA), and many other friends and colleagues appeared to honor Secrest, who has been involved in community and rural water projects and planning for many years. Sen. Mary Easley (Tulsa) and Rep. Wade Rousselot (Wagoner) presented Secrest with a copy of SCR 35, which honors Bill Secrest and designated May 8, 2007, "Bill Secrest Day" at the Capitol.



Left to right: Rep. Rousselot, Governor's Liaison Jeannette Nance, Bill Secrest, Duane Smith, Sen. Easley, ORWA Executive Director Gene Whatley

WRDA Bill Advocates State Water Projects

On May 18, Senator James Inhofe announced Senate passage of the Water Resources Development Act (WRDA), which includes several critical provisions for Oklahoma. Following the bill's passage, by a vote of 91-4, a press release by Senator Inhofe pointed out that water resources are "one of Oklahoma's greatest assets." The last WRDA legislation was passed in 2000.

According to Duane Smith, Senator Inhofe's tremendous leadership has been instrumental in obtaining WRDA consideration for Oklahoma projects. Specifically for Oklahoma, the bill provides funds for the statewide Comprehensive Water Plan as well as several vital water projects that have been on hold for some time. The bill provides \$6.5 million to update the Oklahoma Comprehensive Water Plan (OCWP), administered by the OWRB. While the funds appropriated for the OCWP by the Oklahoma State Legislature go a long way toward the overall planning effort, according to Smith, federal matching dollars will be particularly valuable in underwriting technical studies and accessing related engineering resources available through the U.S. Army Corps of Engineers. Federal funding will enable planners to focus on the enormous tasks of establishing long-term plans for Oklahoma's water systems, providing the necessary infrastructure and water supply for future growth, and

through various studies, discovering potential solutions to the state's most imminent water problems and issues.

The WRDA bill also specifically includes funding for water and wastewater projects across the state that are within the scope of the OCWP for the communities of Ada, Norman, Bethany, Woodward, Durant, Ardmore, Midwest City, Guymon, Bartlesville, Mustang, and several others. Some of the other provisions include the creation of a lake advisory committee at Lake Eufaula, removing restrictions on local development plans at Lake Texoma, and encouraging recreational development on all of Oklahoma's Corps lakes through public-private partnerships. For southwest Oklahoma, in particular, the legislation includes \$5 million for improving water management and conservation plans at Lugert-Altus Irrigation District.

Additionally, the bill clarifies that operation and maintenance of chloride control projects on the Red River in Oklahoma will be at full federal expense, which is consistent with the operation and maintenance of similar projects in Texas. The goal of these ongoing projects is to reduce chlorides contributed through upstream tributaries to improve water quality for drinking and agricultural irrigation uses in the area.

Until September 21, a limited number of hotel rooms are available at a special group rate of \$179 per night (single or double) at the Renaissance Hotel, 10 N. Broadway, 1-800-559-6877. A limited number of additional tickets for guests wishing only to attend the OWRB Banquet on Oct. 24 will be available after Oct. 1. Please call the OWRB at 405-530-8800 for more information or check the OWRB Web site at www.owrb.ok.gov for an updated event schedule and information.



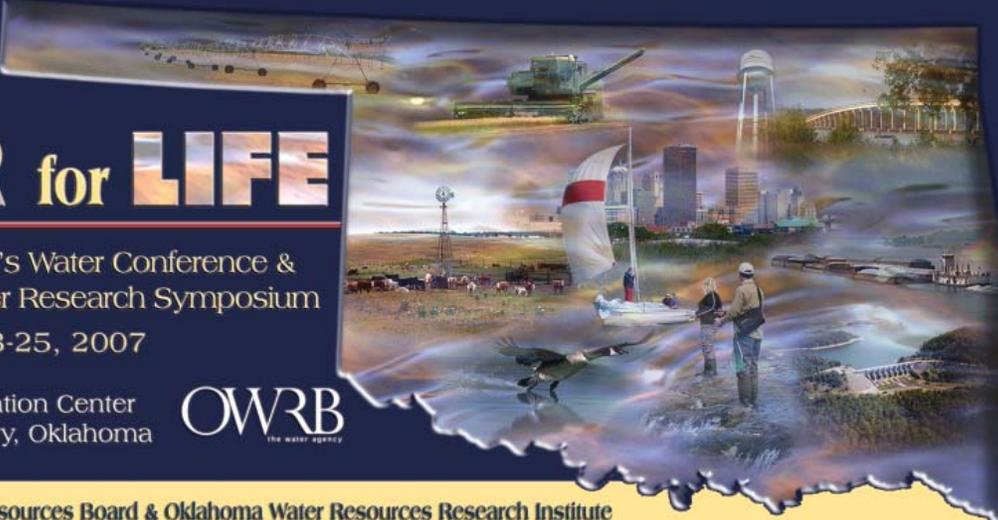
WATER for LIFE

28th Annual Governor's Water Conference &
5th Annual OWRRI Water Research Symposium

October 23-25, 2007

Cox Convention Center
Oklahoma City, Oklahoma



Hosted by the Oklahoma Water Resources Board & Oklahoma Water Resources Research Institute

Linda Lambert Joins Board

The OWRB's newest member is Linda Lambert of Oklahoma City, President of LASSO Corp., a diversified investment corporation with concentration in the field of oil and gas development. Lambert is also the President of ENERTREE, L.L.C., oil and gas investments, Director of OGE Energy Corp., and Director of InvesTrust. Lambert is the Vice Chairman of the Oklahoma City Public Schools Trust, Chairman of the Board of Mercy Health Center, and serves on the Oklahoma Energy Resources Board and Oklahoma City National Memorial Foundation. She is a member of the Oklahoma Academy and a Board member of the Oklahoma Foundation for Excellence. Lambert will serve as an At Large member representing industrial water use interests.



OWRB Names Nichols Chairman

At its monthly meeting in June, the OWRB elected Jess Mark Nichols (Altus) as the new Chairman, current Board Chairman Rudy Herrmann (Tulsa) as Vice Chairman, and Ford Drummond (Bartlesville) as Secretary.

Representing irrigation interests, Nichols is a cotton farmer and a member of the Lugert-Altus Irrigation District. He has served on the Board since May 2004 and has been the Vice Chairman for the last two years. Nichols replaces Rudy Herrmann, whose term as Chairman ended in June after a two-year rotation period.



Mark Nichols
OWRB Chairman

According to Duane Smith, OWRB Executive Director, during the past two years the leadership and support of Rudy Herrmann, as Chairman, and Mark Nichols, as Vice Chairman, have been instrumental in obtaining funding for the Oklahoma Comprehensive Water Plan (OCWP), and the two have worked vigorously to promote and support the plan throughout the past year in Oklahoma and in Washington D.C.

Incoming Secretary, Ford Drummond, represents agricultural water use interests and is currently the owner and operator of a large family ranch in Osage county. Drummond joined the Board in 2006.

OWRB and GRDA Partner in Grand River Basin

In May, a multiple-species aquatic plant nursery was established in cooling ponds at the Grand River Dam Authority's (GRDA) complex in Chouteau. The GRDA and OWRB will relocate plants at Hudson and Grand Lakes, where they are expected to grow and spread to enhance aquatic habitat and reduce erosion. The new plants will supplement an existing 15-acre pilot colony at Grand Lake. This partnership between the OWRB and GRDA is one of three recently-developed water quality initiatives in the Grand River Basin.



Pilot site for aquatic plants at Grand Lake

In March, the two agencies partnered to address decreased levels of dissolved oxygen (D.O.) in the areas just below the Pensacola (Grand) and Robert S Kerr (Hudson) dams. The data collected by the OWRB will assist GRDA in quantifying the relationship between flow releases and D.O. concentrations.

The third initiative, now underway, entails a water quality education and outreach program with the Grand Lake Water Watch (GLWW) Chapter and the newly formed Lake Hudson Association Chapter. The OWRB and GRDA will use volunteer-collected data in the resource management process to establish baseline water quality parameters. The OWRB will also foster educational sessions for all area stakeholders regarding water quality data collection.



5th Annual OWRRRI Water Research Symposium Registration Form 28th Annual Oklahoma Governor's Water Conference

OWRRRI Research Symposium
Oct. 23, 8:00-5:00 (including lunch)
Oct. 24, 8:00-12:00

Governor's Water Conference
Oct. 24, 12:00-5:00 (including lunch)
Oct. 25, 8:00-12:00

OWRB 50th Anniversary Banquet
Oct. 24, 6:30-9:00

Please enclose check, money order, or purchase order payable to the OWRRRI and mail to
OWRRRI
003 Life Sciences East
Stillwater, OK 74078
or pay online with VISA/MasterCard at
<http://environ.okstate.edu/OKWATER/2007>.

Early Registration (on or before Sept. 30)
____ \$175 OWRRRI Research Symposium,
Governor's Water Conference, & OWRB Banquet
____ \$100 OWRRRI Research Symposium & OWRB Banquet
____ \$100 Governor's Water Conference & OWRB Banquet

Late Registration (on or after Oct. 1)
____ \$225 OWRRRI Research Symposium,
Governor's Water Conference, & OWRB Banquet
____ \$150 OWRRRI Research Symposium & OWRB Banquet
____ \$150 Governor's Water Conference & OWRB Banquet

I will attend Oct. 23 luncheon Oct. 24 luncheon Oct. 24 banquet
 Oct. 23 reception (5:30-7:00 pm) Oct. 24 reception (5:30-6:30 pm)

Name: _____
Organization: _____
Address: _____
City/State/Zip: _____
Phone: _____ E-mail: _____

OCS Notes End to Drought

From "Our Cup Runneth Over"

(OK Climatological Survey (OCS) Press Release on May 30)

After two years of severe drought, Mother Nature turned the spigots on in relief but seems to have forgotten to shut them off. Consequently, flooding has become the hazard of choice during the past three months. Oklahoma's statewide average precipitation total for the year thus far ranks as the 19th wettest since 1921, 1.40 inches above normal. Much of that bounty is buoyed by the northwestern half of the state. The north central, central and west central regions are all experiencing year-to-date totals ranked within the top-ten wettest. The last 90 days have been particularly wet, with the state enjoying its 13th wettest such period. West central, central, and north central totals are all ranked in the top-six wettest during that same time frame.



Flooded road in Walters on June 25

No Records Broken Yet!

According to the Oklahoma Climatological Survey (OCS), as of mid-June, 2007 is the only 17th wettest year on record statewide, with an average total rainfall of 20.09 inches. However, North Central Oklahoma is experiencing the 3rd wettest year on record, averaging 20.98 inches. Go to <http://climate.ocs.ou.edu/drought/> for the latest regional rainfall statistics.

Not all areas of the state are sharing in the moisture surplus, however. The eastern third of the state has continued to dry out over similar periods. The southeast and east central sections of the state are nearly three inches below normal since the beginning of the year to rank as the 26th- and 29th-driest on record, respectively. The two-year precipitation

statistics reflect the just-broken drought with virtually the entire state, save for the west central section, showing precipitation deficits. May 2005-May 2007 for southeastern Oklahoma is the driest such period on record.

It's somewhat standard for Oklahoma's severe drought episodes to end with a deluge instead of a trickle. The state's most notable droughts, the 1930s Dust Bowl and the 1950s, were both broken in a spectacularly wet fashion. The Dust Bowl episode was whittled away in early 1941 before being blasted from existence by a statewide average rainfall of 11.32 inches in October, the wettest Oklahoma month on record. The 1952-57 drought, considered the state's worst statistically, ended rather abruptly in May 1957 with heavy rains and major flooding on the state's largest river systems. That year still stands as the wettest in Oklahoma history at 48.21 inches.

2007 Legislative Wrap-Up

Following last year's success in obtaining dedicated funds to update the Oklahoma Comprehensive Water Plan (OCWP) and recapitalize the Financial Assistance Program, the OWRB had hoped to make additional progress by removing the cap and other limitations on the REAP Gross Production Tax Water Projects Fund, the source of that funding. Unfortunately, proposed legislation to deal with that issue was not heard in the House of Representatives. In addition, no additional funding was allocated to the OWRB to continue priority water studies, including the completion of the Arbuckle-Simpson Hydrology Study.

The General Appropriations Bill, Senate Bill 334, appropriates \$6.8 million from FY'08 General Revenues to the OWRB and includes some funding to assist with last year's employee pay raise, but it does not provide the necessary money to complete the Arbuckle-Simpson Study, continue the Red River chloride control study, or other important studies. This funding was also not provided in House Bill 1105, the \$140 million Rainy Day Spillover bill.

The OWRB appropriation bill, SB 296, directs how the \$6.8 million is to be budgeted. It specifies \$2.2 million for use by the REAP Grant Program and \$301,000 for contractual services with the Oklahoma Rural Water Association to provide technical assistance and training to rural water and wastewater system operators or board members. The remainder of the funding is to be used for agency operations.

Water programs received only a small percentage of the state budget. Education received 53.1 percent of total appropriations, followed by health and social services with 16.1 percent, public safety with 10.9 percent, human services with 9.9 percent, and government and transportation with 5.5 percent. Natural Resources received only 2.2 percent, and includes agencies such as the Department of Commerce, Historical Society, Department of Labor, Department of Tourism and Recreation, Corporation Commission, and Department of Agriculture, which devote very little of their resources to water-related activities.

Second Water Appreciation Day Draws Crowd

Heavy rainfall in Oklahoma City made for a wet second annual Water Appreciation Day on May 8 at the State Capitol. Hosted by the OWRB, the day presented a unique opportunity for agencies and organizations to demonstrate the importance of Oklahoma's water resources to state legislators and other government officials.

To mark the occasion, the Water Board held a press conference, which featured remarks from OWRB Executive Director Duane Smith, OWRB Chairman Rudy Herrmann, Secretary of the Environment Miles Tolbert, House Speaker Lance Cargill, Representative Guy Liebmann, and Senator Charlie Laster.

Herrmann noted that Water Appreciation Day in 2007 coincides with the 50th Anniversary of the OWRB, which was created in 1957 with the original charge of identifying water problems and proposing policies for fair and equitable water laws. The OWRB now directs staff in many areas, including the administration of permits for the beneficial use of stream and groundwater, studies of the quality and quantity of surface and groundwaters, oversight of state dam safety and floodplain management programs, administration of loans and grants to communities to assist in the construction of water and wastewater facilities, development of Oklahoma Water Quality Standards, and many other programs. Late last year, the OWRB also initiated the update of the Oklahoma Comprehensive Water Plan (OCWP), which will be completed in 2011.

Herrmann also noted that last year at this time, the OWRB was responding to drought and severe water shortages. Even though it looks like drought has been at least temporarily alleviated in many areas by all the heavy rainfall, Herrmann urged state planners not to lose the sense of urgency to continue the water planning and even accelerate the OCWP's timeline. Herrmann then recounted how the recent relocations of a Google data center and a Gatorade facility to Pryor can be attributed to the presence of solid water infrastructure.



Exhibitors in the rotunda



Duane Smith at the press conference



The Board approved a \$70,000 emergency grant to Harrah for wastewater treatment plant repairs. Above (left to right): Bill Lisbey, Council Member; Alice Davis, City Clerk; District 96 Representative Lance Cargill; Earl Burson, City Manager; Jeannette Nance, Office of the Governor; Duane Smith, OWRB Executive Director.

OWRB member Ford Drummond (right) congratulates Rep. Scott BigHorse (Pawhuska) on helping secure a \$2.95 million DWSRF loan to Osage Co. Rural Water District #15 for water treatment facility improvements.



Sen. Charles Laster, D-Shawnee, added that he too hopes the Legislature will not sit back and be complacent about water planning just because it is raining.

The OWRB would like to thank all who participated in making the second Annual Water Appreciation Day such a success. Exhibitors included the following:

- Oklahoma Water Resources Research Institute
- Oklahoma Floodplain Managers Association
- OSU Extension
- Oklahoma Scenic Rivers Commission
- Oklahoma Rural Water Association
- United States Geological Survey
- Sierra Club
- Oklahoma Waterways Advisory Board
- US Bureau of Reclamation
- Oklahoma Department of Environmental Quality
- US Army Corps of Engineers
- Oklahoma Department of Mines
- Oklahoma Department of Commerce
- Oklahoma Association of Conservation Districts
- Conservation Commission
- Oklahoma Corporation Commission
- Nature Conservancy
- Oklahoma Climatological Survey
- Natural Resources Conservation Service
- Oklahoma Ground Water Association
- USDA Rural Development
- Oklahoma Geological Survey
- Oklahoma Municipal League

Drought Update



Reservoir Storage

As of June 12, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see right) are approximately 99.9 percent full, a 0.2 percent increase from that recorded on May 14, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-two reservoirs have experienced lake level decreases since that time; only 1 reservoir is currently operating at less than full capacity. No reservoirs are below 80 percent capacity.

Palmer Drought Severity Index

According to the latest Palmer Drought Severity Index (June 9, right), state drought conditions have improved significantly. No climate divisions are currently experiencing drought conditions although the East Central and Southeast regions are in "incipient drought." Eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since May 12.

Standardized Precipitation Index

The latest monthly Standardized Precipitation Index (through May, right) reflects vastly improved moisture conditions throughout Oklahoma. Among the selected time periods (3-, 6-, 9- and 12-month SPIs), no regions report dry conditions.

For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, go to www.owrb.ok.gov/supply/drought/drought_index.php.

Storage in Selected Oklahoma Lakes & Reservoirs
(as of June 12, 2007)

CLIMATE DIVISION	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Storage (acre-feet)
North Central (2)	505,170	505,170	100.0
Northeast (3)	3,698,902	3,698,902	100.0
West Central (4)	276,790	276,790	100.0
Central (5)	154,225	154,225	100.0
East Central (6)	3,183,243	3,183,243	100.0
Southwest (7)	301,810	299,490	99.9
South Central (8)	3,118,676	3,118,676	100.0
Southeast (9)	1,561,859	1,561,859	100.0
State Totals	12,800,675	12,798,355	99.9

Palmer Drought Severity Index

CLIMATE DIVISION	Current Status 6/9/2007
Northwest (1)	Very Moist Spell
North Central (2)	Unusual Moist Spell
Northeast (3)	Moist Spell
West Central (4)	Extreme Moist Spell
Central (5)	Unusual Moist Spell
East Central (6)	Incipient Drought
Southwest (7)	Very Moist Spell
South Central (8)	Moist Spell
Southeast (9)	Incipient Drought

Standardized Precipitation Index
Through May 2007

CLIMATE DIVISION	3-month	6-month	9-month	12-month
Northwest (1)	Near Normal	Very Wet	Very Wet	Moderately Wet
North Central (2)	Very Wet	Very Wet	Near Normal	Near Normal
Northeast (3)	Near Normal	Moderately Wet	Near Normal	Near Normal
West Central (4)	Very Wet	Very Wet	Very Wet	Moderately Wet
Central (5)	Very Wet	Very Wet	Moderately Wet	Moderately Wet
East Central (6)	Near Normal	Near Normal	Near Normal	Near Normal
Southwest (7)	Moderately Wet	Moderately Wet	Moderately Wet	Near Normal
South Central (8)	Near Normal	Moderately Wet	Moderately Wet	Near Normal
Southeast (9)	Near Normal	Near Normal	Moderately Wet	Near Normal

Mark Nichols, Chairman • Rudy Herrmann, Vice Chairman • Ford Drummond, Secretary
Lonnie Farmer • Ed Fite • Jack W. Keeley • Kenneth K. Knowles • Linda Lambert • Richard Sevenoaks

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.



2nd Quarter 2007

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FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of June 12, 2007

FAP Loans—320 totaling \$628,085,000

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, averaging approximately 4.762 percent since 1986.

CWSRF Loans—182 totaling \$644,440,922

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to draw upon 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—69 totaling \$312,140,542

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and Oklahoma Department of Environmental Quality 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—471 totaling \$42,469,026

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

Emergency Grants—530 totaling \$31,089,692

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

Drought Response Program Grants—3 totaling \$300,000

Through the OWRB's Drought Response Program, limited 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 funds to establish the Program.

Total Loans/Grants: 1,575 totaling \$1,658,525,181

Estimated Savings: \$521,094,101

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.state.ok.us/financing.**

OKLAHOMA Water News

3rd Quarter 2007



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28th Annual Water Conference

The 28th Annual Oklahoma Governor's Water Conference and Water Research Symposium was held October 23-25 at the Cox Convention Center in Oklahoma City. The meeting, cohosted by the OWRB and Oklahoma Water Resources Research Institute, attracted more than 450 people interested in the state's most pressing water issues.

The Conference banquet, held the evening of October 24, featured former Governors George Nigh and David Walters, as well as past OWRB Directors Jim Barnett and Patty Eaton, who recognized the Water Board's 50th anniversary and provided a retrospective of state water development and management.

Also at the Conference, three Oklahomans were recognized as 2007 Oklahoma Water Pioneers. Honored with the award at the October 24 Conference luncheon were Ken Crawford, director of the Oklahoma Climatological Survey and cocreator of the Oklahoma Mesonet; Don Kiser, the OWRB's long-time bond counsel and a key advocate in creation of the state's primary water and sewer project financing program; and Jerry Johnston, municipal leader and current mayor of Braman, Oklahoma.

Since its inception in 1985, more than 100 Oklahomans have been honored with the Water Pioneer award, selected each year by sponsors of the Water Conference. The honor is conferred to those individuals who have made lifetime contributions to the planning, development, management, and conservation of Oklahoma's water resources.

WRDA Bill Passed

On November 8, the U.S. Senate voted to override a presidential veto, clearing the way for a bill authorizing \$23 billion in new water projects.

The Water Resources Development Act (WRDA), the subject of a similar vote two days prior, provides Oklahoma with numerous project authorizations and policy improvements that are vital to the state and the nation's economy, public safety and environment, according to Senator Jim Inhofe, Chairman of the Environment and Public Works Committee.

The legislation authorizes \$6.5 million to update the Oklahoma Comprehensive Water Plan as well as specific funding for associated water and wastewater projects for the cities of Ada, Norman, Bethany, Woodward, Durant, Ardmore, Midwest City, Guymon, Bartlesville, Mustang and other communities. The bill also specifies \$5 million for water-related infrastructure improvement projects at the Lugert-Altus Irrigation District.

It had been more than seven years since Congress passed a major water resources bill.

From the Director

This year's Governor's Water Conference, held October 23-25, was perhaps the most memorable one ever as we celebrated the OWRB's 50th year as Oklahoma's water agency as well as the state's centennial. Combining the meeting with the Water Research Institute's annual symposium provided us with an opportunity to present excellent and varied perspectives on both technical issues and policy, which go hand-in-hand in the water management arena.

At the Conference banquet, numerous speakers, including Governors Nigh and Walters and past agency directors Jim Barnett and Patty Eaton, recalled the events that have shaped the agency's current role in managing Oklahoma's water resources. And we recognized the many Oklahomans who have dedicated

(continued on page 2)



Duane A. Smith, Executive Director
Oklahoma Water Resources Board



From the Director (continued from page 1)

their talents and resources to utilize, promote, and protect our waters for us, our children, and grandchildren.

As a special part of the banquet, we formally released the Centennial Edition of the *Oklahoma Water Atlas*. The *Atlas*, which also represents the first work product created under the umbrella of the ongoing Water Plan update, features more than 150 detailed, large-format maps of the state's lakes, rivers/streams, and aquifers. It also includes a fascinating history of Oklahoma water development. As we look back, it becomes evident that episodic weather events, such as those associated with the Dust Bowl, have done much to shape development and use of our water resources, and undoubtedly, these alternating cycles of flood and drought will also shape Oklahoma's water future. Many individuals have also greatly influenced Oklahoma water development. The *Water Atlas* is dedicated to the memory of two such persons, Governor and Senator Robert S. Kerr and his son, former OWRB Chairman Robert S. Kerr, Jr. At the banquet, I enjoyed reminiscing with Lou Kerr, wife of the late Robert S. Kerr, Jr., as well as other important Oklahoma "water people."

Following adjournment of the Water Conference, I accompanied Bureau of Reclamation Commissioner Robert Johnson, a Conference speaker, and other officials to the Lugert-Altus Irrigation District in southwest Oklahoma. Mr. Johnson is the first Bureau commissioner to tour the reservoir and water delivery system since it was completed in 1946. Not surprisingly, Commissioner Johnson came away very impressed by the project, which provides irrigation water to more than 46,000 acres primarily dedicated to cotton.

Earlier in October, Commissioner Johnson also addressed the Western States Water Council (of the Western Governor's Association) conference held in Salt Lake City. The purpose of the meeting was to further develop action items consistent with last year's WGA/WSCW report, "Water Needs and Strategies for a Sustainable Future." Through technical/policy sessions, presentations, and small group discussions, participants

reviewed the unprecedented demands for water, especially in the western U.S., and focused on the renewed need for intelligent planning, water conservation, infrastructure rehabilitation, good science and data, environmental and economic water needs, and water-related impacts associated with climate change. EPA Administrator Steven Johnson was also present at the meeting to discuss relevant issues of water quality. Each meeting represents a new and unique opportunity to explore innovative solutions to water problems and issues with the nation's most knowledgeable water experts. I'm honored to serve as chairman of the WSWC, which has represented the water interests of western states since 1965.



Bureau of Reclamation Commissioner Robert Johnson at the 2007 Water Conference



With EPA Administrator Steven Johnson, who presented at the WSWC's meeting in Salt Lake City, is Duane Smith and Joan Card, Water Quality Division Chief for the Arizona Department of Environmental Quality.

Freeman Testifies Before Congress

On September 20, OWRB Financial Assistance Division Chief Joe Freeman appeared before the Senate Environment and Public Works (EPW) Committee to present testimony about water infrastructure challenges facing Oklahoma and the nation. Freeman testified on behalf of the Council of Infrastructure Financing Agencies (CIFA), on which he represents the OWRB as Vice President.

CIFA is the national organization of state officials involved in the financing of water and wastewater pollution control projects. CIFA members are responsible for management of the Clean Water and Drinking Water State Revolving Funds.

Senator Jim Inhofe, who is Ranking Member of the EPW Committee, publicly thanked Freeman for his testimony before the Subcommittee on Transportation Safety, Infrastructure Security, and Water Quality hearing titled, "Meeting America's Wastewater Infrastructure Needs in the 21st Century."

"I was pleased to welcome Mr. Freeman before the Senate Environment and Public Works Committee today," Senator Inhofe said. "Mr. Freeman provided the EPW Committee valuable perspective regarding the challenges facing water infrastructure systems in Oklahoma and across the nation. He expressed the importance of the Revolving Loan Fund to Oklahoma's communities and explained to the Committee the financial benefits municipalities get from using the SRF. He also emphasized the need to maintain a program free of too many extra requirements that make the program too complicated for towns, particularly small towns, to use.

"These issues are important to me," Sen. Inhofe added, "because Oklahoma has projected \$586 million in clean water related needs over the next 20 years. Further, in the last drinking water needs survey, Oklahoma's reported needs were \$4.8 billion over the next 20 years. Importantly, \$107 million of that need is known to be a direct result of

(continued on page 6)



Recent Developments

- At its September meeting, the OWRB approved an agreement with the Bureau of Reclamation to fund a portion of Water Plan-related projects.
- The OWRB continues work on technical assessments and studies through agreements with the Corps of Engineers. The Corps has subcontracted with the engineering firm of Camp Dresser & McKee, Inc., to help coordinate elements of the work plan and assess methodologies for water supply and demand projections as well as potential strategies to conduct the statewide Public Water Supply Assessment. Water Plan technical/engineering studies will be accomplished with assistance from various local, state and federal agencies and organizations, as well as consultants.
- The last of 42 public input meetings was held on November 15 in Idabel, Oklahoma. Final reports on all meetings will be available on OWRRI's Web site by late November. Citizen comments concerning any of the public meetings will be accepted until December 31 through the Web site, comment cards handed out at the meetings, e-mail, or phone.

Regional Input Meetings: The Next Step

Regional Input Meetings, the next phase of the Water Plan's public participation process, will be held during the second half of 2008 in each of the 11 Councils of Oklahoma Governments (COG) regions. The purpose of these meetings is to ensure that the full range of Oklahoma's water issues are identified and important regional differences are incorporated into the statewide plan. Issues will be consolidated into logical categories and prioritized for the OCWP planning workshops, to be held later.

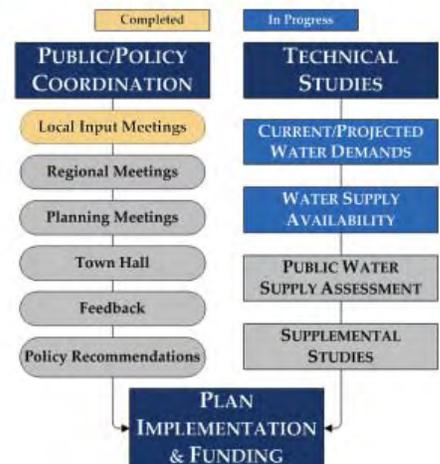
Nominations for representatives of each region have been submitted by the public at the input meetings. However, nominations for prospective participants may still be submitted through OWRRI's Web site, mailing a nomination form, or calling 405-744-9994. Selections will be based on knowledge of water issues, willingness to engage in respectful and reflective deliberation, and commitment to the process. Meetings will be open to the public; statewide, regional and issue-themed reports will be produced.



Jeri Fleming and Mike Langston of the OWRRI solicit and record public comments at the Idabel public input meeting on November 15. This meeting, the final of 42 meetings held across the state since last April, had more than 160 participants.

The Oklahoma Comprehensive Water Plan, published and continuously updated by the Oklahoma Water Resources Board, establishes guidelines for the present and future use of the state's water resources and outlines policy recommendations for water resources management.

Oklahoma Comprehensive Water Plan Process



Goals of the OCWP Update

- To provide safe and dependable water supply for all Oklahomans while improving the economy and protecting the environment.
- To provide information so that water providers, policy-makers, and water users can make informed decisions concerning the use and management of Oklahoma's water resources.

For questions or comments about the Oklahoma Comprehensive Water Plan or the public participation process, contact the Water Research Institute at 405-744-9994, by e-mail at waterplan@okstate.edu, or go to <http://okwaterplan.info>.

2007 Oklahoma Governor's Water Conference



Left: Noel Osborn, OWRB geologist, provides an update on the Arbuckle-Simpson Study. Joining her on the panel are Scott Christenson, Dr. Baxter Vieux, and Dr. Todd Halihan.



Right: Miles Tolbert, Oklahoma Secretary of the Environment



Duane Smith, OWRB Executive Director, explains holistic water management. Seated are Secretary Tolbert; Mark Nichols, OWRB Chairman; and Ken Crawford, State Climatologist and 2007 Water Pioneer.



U.S. Army Corps of Engineers Floodplain Model



Consultant Shawn Leopard; Julie Bisbee, The Oklahoman; Duane Smith; and Brian Vance, OWRB



Oklahoma Attorney General Drew Edmondson provides a legal update.



Above: Rudy Herrmann, OWRB Vice Chairman, with Col. Anthony Funkhouser, Tulsa District Engineer, USACE



Left: Ed Fite, OWRB member and Director of the OK Scenic Rivers Commission, with Billie Brown, Conservation Organizer, Sierra Club of Oklahoma



Mike Melton, OWRB, with Rep. R. C. Pruett and Scott Dewald, Oklahoma Cattlemen's Association



Above: Ken Crawford with Steve Thompson, Executive Director of the Oklahoma Department of Environmental Quality



Left: Andy Comer of the USACE flips through the new Water Atlas. Above: Terry Peach, Oklahoma Secretary of Agriculture, joins Wednesday's Water Plan panel. Seated are Ron Stahl, OK Dept. of Tourism & Recreation, and Dr. John Luthy.



Left: John Paul Woodley, USACE



Above: Ron Jarman and James Barnett of the Environmental Federation of Oklahoma with Derek Smithee, OWRB



Left: Jerry Barnett, OWRB; Don Kiser, Water Pioneer; Walid Maher, OWRB

OWRB 50th Anniversary Banquet



Gov. George Nigh shares his unique and entertaining perspective on the importance of water to Oklahoma's past, present, and future, including significant Water Board accomplishments over the past 50 years. During his administration, Gov. Nigh was instrumental in establishing the OWRB's State Financial Assistance Program.



Left: Jim Barnett, the fourth Executive Director of the OWRB (1976 to 1991), provides a retrospective of his tenure. Patty Eaton, who followed as director, also contributed remarks on the banquet program. Below: Governor David Walters with Ms. Eaton and Duane Smith.



Left: Several past Oklahoma Water Pioneers attended the Water Conference Banquet, including (front row) Phil Lorenz, Mae Cooper, Bill Secrest, Ervin Mitchell, (back row) Robert Johnson, R. K. Johnson, Phillip Klutts, Wes Watkins, Cliff Younger, Joe Taron, and Ken Crawford.

Essay Contest Winners Announced

In conjunction with the ongoing update of the Oklahoma Comprehensive Water Plan, the OWRB, Oklahoma Water Resources Research Institute, and 4-H Clubs of Oklahoma asked the state's junior high and high school students to write essays describing new and innovative ways to conserve Oklahoma's water. More than 140 entries were received. Prizes for the contest—MP3 players and Savings Bonds—were donated by the Sierra Club of Oklahoma and Chesapeake Energy. Lt. Gov. Jari Askins recognized the winners at the Conference Banquet.



OWRB Chairman Mark Nichols, Gov. George Nigh, Lt. Gov. Jari Askins, Gov. David Walters, and Duane Smith



Lt. Gov. Jari Askins (center) and OWRB Chairman Mark Nichols (right) with the 2007 Water Conservation Essay Contest winners (left to right) Amber Bolinger, Michael Stith, Chase Harris, Jo Eike, Allie Barton, Kelsey Bowen, Jani Hawkey, McKenzie LaValle and Kim Derby (accepting for Aaron Jackson)

2007 Oklahoma Water Pioneers



Dr. Ken Crawford



Jerry Johnston



Don Kiser

Westville Treatment Plant Goes Online

On September 14, Town of Westville officials gathered to celebrate both their new state-of-the-art wastewater treatment plant and the fact that they are now in compliance with state and federal water quality regulations.

The Westville Municipal Authority, whose water and sewer system serves 827 customers in Adair County, had been under a consent order with the Oklahoma Department of Environmental Quality because its discharge violated Oklahoma's water quality standard for phosphorus. The new standard establishes more stringent criteria for communities discharging into the Illinois River watershed. Similar violations were discovered in

Stilwell and Tahlequah. The facility, which was completed in August, cost \$3.54 million. Funding was provided through the U.S. Department of Agriculture's Rural Development, Cherokee Nation, and



Dedication ceremony for Westville's new, state-of-the-art wastewater treatment plant

OWRB (specifically through a REAP grant of \$99,969 and emergency grant of \$100,000). The project, which began construction in July 2006, was completed on time and under budget.

"Without outside assistance, a project of this magnitude would likely never come to fruition," says Joe Freeman, chief of the OWRB's Financial Assistance Division. "Perhaps the most important feature of state and federal water and wastewater financing programs is their ability to assist communities, like Westville, whose population base is too small to underwrite typically very expensive infrastructure projects."

The Westville plant is capable of treating 0.28 million gallons per day of wastewater with a sequential batch reactor process, followed by



OWRB Member Ed Fite (Tahlequah), Director of the Oklahoma Scenic Rivers Commission, addresses the crowd at the plant's dedication, thanking city officials for taking the initiative to ensure that Westville's municipal waste would not be a threat to water quality in the Illinois River basin.

disc filtration, and final treatment with ultraviolet disinfection. Effluent produced at the plant has consistently outperformed that required under the facility's discharge permit by producing less than one-half the mandated phosphorus level of 1.0 mg/L.

Freeman Testifies (continued from page 2)

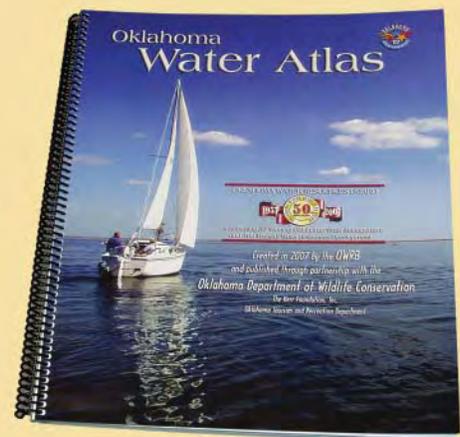
federal drinking water requirements. Without providing sufficient federal funds to help cities to meet those requirements, they become not just requirements, but federal unfunded mandates."

Among other testimony, Freeman told the Committee, "Since 1999, Oklahoma has made over \$324 million available in DWSRF funding. Our DWSRF loan to Bartlesville, used to construct a 26 million gallon per day treatment plant, allowed the city to realize cost savings of almost \$14 million, nearly a third of the total project cost. The Lawton Water Authority will experience similar savings as it constructs a water treatment plant with a capacity of 40 million gallons per day. Our largest borrower is the City of Tulsa, which is using the CWSRF program to implement a Comprehensive Wastewater Plan to rehabilitate aging infrastructure, meet capacity needs and comply with discharge permit requirements. By using the CWSRF, it is estimated Tulsa will save \$59 million over five years. As these projects illustrate, the State Revolving Funds are playing a vital role in helping Oklahoma communities improve water quality."

Information provided by Oklahoma Publishing Today

Updated Oklahoma Water Atlas Now Available

The 2007 update of the *Oklahoma Water Atlas* is now available. For a free copy, please visit the Oklahoma City office of the OWRB or to receive a copy of the *Atlas* by mail, please send \$6.00 for postage and handling (check or money order) to the OWRB, 3800 N. Classen Blvd., Oklahoma City, OK 73118. The large-format book contains more than 150 maps as well as information on the state's surface and groundwater resources.



Drought Update

Reservoir Storage

As of November 6, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see right) are approximately 97.0 percent full, a 2.9 percent decrease from that recorded on June 12, according to information from the U.S. Army Corps of Engineers (Tulsa District). Ten reservoirs are currently operating at less than full capacity. One reservoir (Lugert-Altus, at 65.2 percent) is below 80 percent capacity.

Palmer Drought Severity Index

According to the latest Palmer Drought Severity Index (November 3, right), state drought conditions have improved significantly since last summer. No climate divisions are currently experiencing drought conditions. Only one of Oklahoma's nine climate divisions has undergone a PDSI moisture category decrease since June 9.

Standardized Precipitation Index

The latest monthly Standardized Precipitation Index (through October, right) reflects a slight deterioration in overall moisture conditions, particularly in the Panhandle and southern Oklahoma. Among the selected time periods (3-, 6-, 9- and 12-month SPIs), the Northwest and South Central regions report "moderately dry" conditions.

For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, go to www.owrb.ok.gov/supply/drought/drought_index.php.



Storage in Selected Oklahoma Lakes & Reservoirs (as of November 6, 2007)			
CLIMATE DIVISION	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Storage (acre-feet)
North Central (2)	439,308	439,308	100.0
Northeast (3)	3,698,902	3,560,620	96.3
West Central (4)	276,790	273,183	98.7
Central (5)	154,225	154,225	100.0
East Central (6)	2,968,683	2,968,683	100.0
Southwest (7)	301,810	254,100	84.2
South Central (8)	3,078,236	2,940,390	95.5
Southeast (9)	1,464,929	1,419,270	96.9
State Totals	12,382,883	12,009,779	97.0

Palmer Drought Severity Index	
CLIMATE DIVISION	Current Status 11/3/2007
Northwest (1)	Near Normal
North Central (2)	Very Moist Spell
Northeast (3)	Unusual Moist Spell
West Central (4)	Extreme Moist Spell
Central (5)	Extreme Moist Spell
East Central (6)	Extreme Moist Spell
Southwest (7)	Very Moist Spell
South Central (8)	Unusual Moist Spell
Southeast (9)	Unusual Moist Spell

Standardized Precipitation Index Through October 2007				
CLIMATE DIVISION	3-month	6-month	9-month	12-month
Northwest (1)	Moderately Dry	Moderately Dry	Near Normal	Near Normal
North Central (2)	Near Normal	Very Wet	Extremely Wet	Extremely Wet
Northeast (3)	Near Normal	Very Wet	Very Wet	Very Wet
West Central (4)	Near Normal	Extremely Wet	Extremely Wet	Extremely Wet
Central (5)	Moderately Wet	Exceptionally Wet	Extremely Wet	Extremely Wet
East Central (6)	Very Wet	Very Wet	Moderately Wet	Very Wet
Southwest (7)	Near Normal	Very Wet	Very Wet	Very Wet
South Central (8)	Moderately Dry	Very Wet	Moderately Wet	Very Wet
Southeast (9)	Near Normal	Very Wet	Near Normal	Very Wet

www.owrb.ok.gov

*Mark Nichols, Chairman • Rudy Herrmann, Vice Chairman • Ford Drummond, Secretary
Lonnie Farmer • Ed Fite • Jack W. Keeley • Kenneth K. Knowles • Linda Lambert • Richard Sevenoaks*

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.



3rd Quarter 2007

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FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of November 13, 2007

FAP Loans—321 totaling \$629,870,000

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, averaging approximately 4.762 percent since 1986.

CWSRF Loans—184 totaling \$652,022,629

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to draw upon 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—72 totaling \$330,340,542

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and Oklahoma Department of Environmental Quality 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—477 totaling \$43,118,924

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

Emergency Grants—534 totaling \$31,339,017

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

Drought Response Program Grants—3 totaling \$300,000

Through the OWRB's Drought Response Program, limited 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 funds to establish the Program.

Total Loans/Grants: 1,591 totaling \$1,686,991,112

Estimated Savings: \$530,724,228

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

**For more information, call 405-530-8800
or go to www.owrb.ok.gov/financing.**

OKLAHOMA Water News

4th Quarter 2007



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Water Atlas order form

Oklahoma Drought Update

OWRB Delivers in 2007

The OWRB concludes a very productive and noteworthy year. Among events of note were the second annual Water Appreciation Day, held on May 8 at the State Capitol, which served as the kick-off for 42 public input meetings held across the state as part of the Oklahoma Comprehensive Water Plan, and the October Governor's Water Conference, where attendees were treated to a special 50th Anniversary Banquet and given the first copies of the new Centennial Edition *Oklahoma Water Atlas*.

A special insert is included in this issue (pages five through eight) with a look back at agency accomplishments and programs in 2007, including the following:

- Agency Expenditures and Budget*
- Permitted Water Totals*
- Legal Issues Update*
- Oklahoma Comprehensive Water Plan*
- Arbuckle-Simpson Hydrology Study*
- Water Quality Programs*
- Financial Assistance Program*
- Dam Safety Program*
- Well Drillers Program*
- Floodplain Management Program*



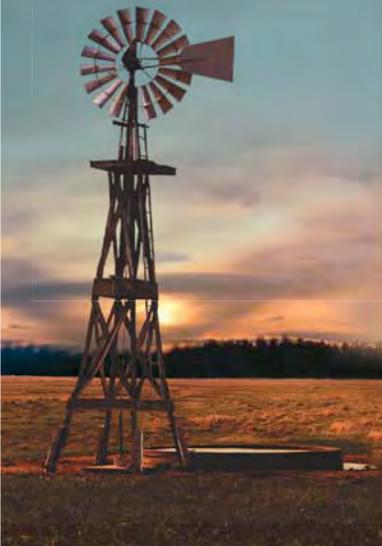
From the Director

Water planning and a special celebration highlighted a landmark year at the Water Resources Board. In 2007, the OWRB concluded its first year of updating the Oklahoma Comprehensive Water Plan and the agency received a vote of confidence through reauthorization of the Water Resources Development Act, which included \$6.5 million for Water Plan development. Of course, crucial to passage of this vital legislation was the enthusiastic support of Senator Jim Inhofe, Ranking Member of the Senate Environment and Public Works Committee.



OWRB Chairman Mark Nichols, Sen. Jim Inhofe, and OWRB Executive Director Duane Smith

(continued on page 2)



From the Director (continued from page 1)

Not only was 2007 Oklahoma's Centennial but the OWRB also celebrated 50 years as a state agency. The extended three-day Governor's Water Conference, which included a banquet "birthday party" of sorts, was a huge success. We cohosted the event along with the Water Resources Research Institute, our partner in the Water Plan update.

The Conference also provided both agencies with an opportunity to update Oklahomans on accomplishments made during the first full year of Plan development, including 42 meetings held throughout the state to gather public opinion on the state's most important water issues. Also, the Centennial Update of the *Oklahoma Water Atlas* was officially released at the Water Conference. We've received tremendous feedback from the public on the publication's quality, professionalism, and wealth of information on Oklahoma's water resources.

Our Financial Assistance Program, celebrating its 25th year in 2007, continues to be the major player behind water and wastewater project construction and improvements in

Oklahoma. Responsible for nearly \$1.7 billion in financing to date, the OWRB provides approximately 65 percent of the state's total water/wastewater financing needs. It is estimated that the FAP has been directly responsible for the creation of almost 68,000 jobs in Oklahoma with a \$41-dollar direct return on investment for every dollar appropriated to the program.

As the OWRB begins its next half-century, 2008 promises to be another ground-breaking year. On tap for the Water Plan are Regional Input Meetings. We will also develop water supply and demand projections as well as conduct preliminary water supply and engineering studies that will figure heavily in how we use and manage Oklahoma's water supplies. We will continue to wrestle with important issues, such as increasingly stringent drinking water standards, shrinking funding for water/wastewater infrastructure, aging dams and water supplies, and Texans' growing thirst for Oklahoma water. However, we proceed with both enthusiasm and confidence as we face these water management challenges.

WRDA's Oklahoma Provisions

Information from Oklahoma Publishing Today

The federal Water Resources Development Act, which became law in November, authorizes funding for many important water projects in Oklahoma, including the following:

- \$6.5 million for the ongoing update of the Oklahoma Comprehensive Water Plan.
- Arcadia Lake–Edmond has been in a dispute with the U.S. Army Corps of Engineers (USACE) over whether the city owes additional money as interest on water payments related to its water storage contract. The WRDA clarifies that Edmond is not liable for interest during the period when the city was not exercising its future use water supply from Lake Arcadia, saving the city nearly \$10 million. Edmond has no further obligations to pay the federal government under the water storage contract after 2008.
- Arkansas River Corridor–The WRDA authorizes \$50 million for the ecosystem restoration, recreation, and flood damage reduction components of the Arkansas River Corridor Master Plan in coordination with Tulsa County, surrounding communities, and the Indian National Council of Governments.
- Lake Eufaula–The WRDA creates a lake advisory committee that will let citizens give recommendations to the (USACE) regarding the operations of the lake and authorize a reallocation study.
- Lake Texoma–Local plans for more recreational development on land previously conveyed to the state by the (USACE) at Lake Texoma are being hindered by reversionary interest language included in that conveyance. The WRDA removes that language, allowing local development plans to move forward.
- Oklahoma Lake Demonstration–The WRDA creates a program that encourages recreational development on (USACE) lakes through public-private partnerships.
- Ottawa County, Tar Creek–WRDA authorizes \$30 million

- to complete the relocation assistance for residents in the Tar Creek communities of Picher, Cardin, and Hockerville at risk from subsidence and environmental contamination. In addition, the WRDA bill provides the authority EPA requires to re-evaluate remediation plans at Tar Creek to conduct both remediation and resident assistance. Finally, it preserves the legal claims the Quapaw Tribe is pursuing on behalf of its members. This bill also immediately makes available to the state \$3.5 million dollars in previously appropriated funds to be used for relocation assistance.
- Red River Chloride Control Project–The WRDA clarifies that operation and maintenance of Oklahoma chloride control projects at the Red River will be at full federal expense. The Red River Chloride Control Project is authorized to identify and implement measures to reduce naturally occurring brine emissions into several sub-basins within the Red River Basin in northern Texas and southern Oklahoma. The project's primary purpose is to improve water quality for municipal, industrial and agricultural uses along the Red River within Oklahoma, Texas, Arkansas, and Louisiana.
- Waurika Lake Project–Section 3082 of the WRDA eliminates the obligation of the Waurika Project Master Conservancy District to pay its outstanding debt related to the construction of a water conveyance project. Because of an accounting error, the (USACE) inadvertently undercharged the district for costs associated with a land purchase related to the water project in the early 1980s. Under terms of the construction contract, the district is required to pay all costs associated with building the project, including the full cost of the land purchases. The section would eliminate the requirement for the district to pay the difference between the full cost of the property and the initial (undercharged) amounts. The Congressional Budget Office estimates enacting this section would cost the federal government less than \$200,000 a year over the 2008-2017 period. Waurika Lake provides water supply to the communities of Comanche, Lawton, Duncan, Temple, Walters, Waurika, and several rural water districts.



Recent Developments

In cooperation with the Oklahoma Water Resources Research Institute (OWRRI) at Oklahoma State University, the OWRB has completed the first phase of the public input portion of the planning process. This well-received and exhaustive effort involved holding 42 local listening sessions across the state from April to November in 2007. Participation at the Public Input Meetings was excellent. As a result, over 2,000 comments have been received.

As a part of a Planning Assistance to States grant from the US Army Corps of Engineers, the technical studies track of the OCWP has commenced with efforts underway to outline the fundamental work plan for the OCWP, including the delineation of OCWP Goals and Objectives, the establishment of a common technical platform to evaluate supply and demand, and the development of a programmatic work plan that includes an outline of work to be performed.

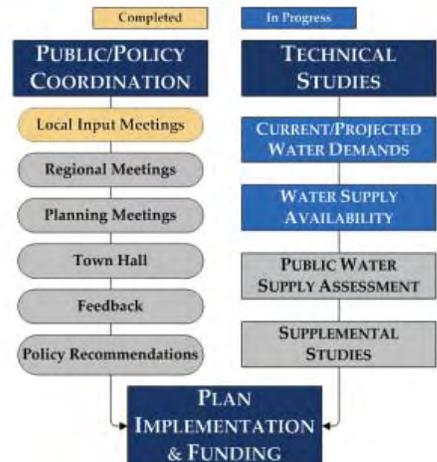
Upcoming

Based upon the comments received at the local listening sessions, the OWRRI is preparing eleven regional issues reports, one for each of the eleven sub-state planning districts (see below), and a statewide issues report to be distributed to regional team members prior to their respective regional meetings. Each regional team will consist of 30 representatives of all water-related interests. The teams will review the findings of the listening sessions, validate regional issues and concerns, consolidate issues into categories based upon their similarity, and suggest priorities for further consideration in the planning process.

Meeting dates and locations will be posted on OWRRI's Web site as soon as they have been determined. The meetings will be open to the public and comments will be recorded.

The Oklahoma Comprehensive Water Plan, published and continuously updated by the Oklahoma Water Resources Board, establishes guidelines for the present and future use of the state's water resources and outlines policy recommendations for water resources management.

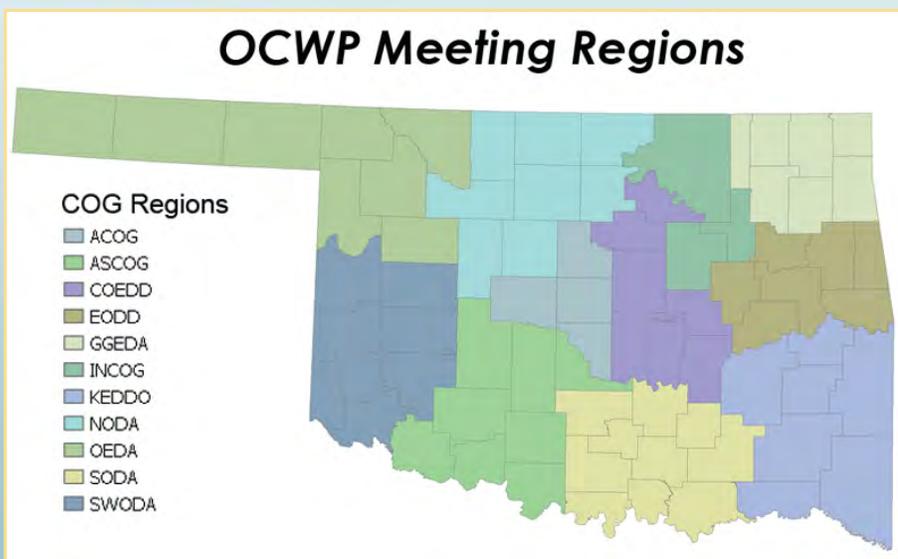
Oklahoma Comprehensive Water Plan Process



Goals of the OCWP Update

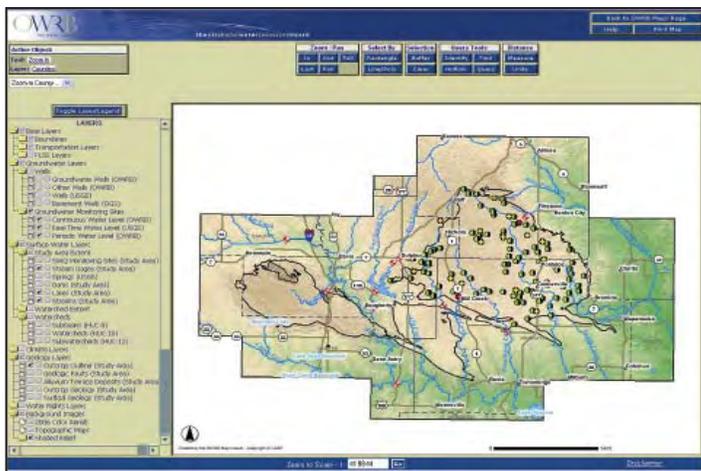
- To provide safe and dependable water supply for all Oklahomans while improving the economy and protecting the environment.
- To provide information so that water providers, policy-makers, and water users can make informed decisions concerning the use and management of Oklahoma's water resources.

For questions or comments about the Oklahoma Comprehensive Water Plan or the public participation process, contact the Water Research Institute at 405-744-9994, by e-mail at waterplan@okstate.edu, or go to <http://okwaterplan.info>.



Online Map Viewer Created for Arbuckle Study Data

The OWRB has created a customized Arbuckle-Simpson Hydrology Study map viewer for study participants and the public to use to examine and download data collected for the study. To access the viewer, go to the OWRB's Water Information Mapping System (WIMS) page at www.owrb.ok.gov/maps/server/wims.php. The initial view consists of a map of the study area that users can customize by selecting an area of interest and one or more of the 45 currently



Arbuckle-Simpson Hydrology Study map viewer. One example of the viewer's available layers is "Periodic Water Level," which maps the locations of area wells measured for water levels. By clicking on a well with the "identify" tool, measurement data can be viewed and downloaded.

available map layers to display, including groundwater and surface water monitoring sites, gages, geology, watersheds, springs, weather stations, surface and groundwater permits, and roads and highways.

Data from the study's monitoring sites, including real-time stream gage data and groundwater level information from the USGS and OWRB, can also be viewed and retrieved from the site. Also available for download are GIS layers associated with the Arbuckle-Simpson Hydrology Study. Datasets in ESRI shapefile format are available through the OWRB Data page at www.owrb.ok.gov/maps/data/owrbdata.php. Additional layers and datasets will be added as they become available.

Arbuckle-Simpson Hydrology Study

The Arbuckle-Simpson aquifer in south-central Oklahoma is the source of a number of important springs and headwater streams in the region. The OWRB initiated the five-year Arbuckle-Simpson Hydrology Study in 2003 to acquire an understanding of the region's hydrology to enable development and implementation of an effective water resource management plan that protects the region's springs and streams. A multidisciplinary team of scientists is conducting a variety of studies to obtain information on the climate, geology, groundwater, and streamflow of the system. In addition, the researchers are employing several methods to assess the consequences of ground and surface water withdrawals on the environment and water users.

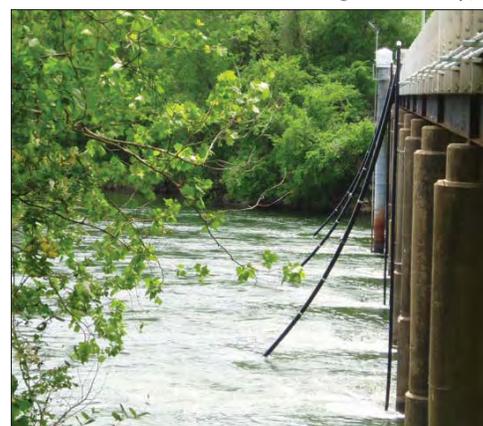
Agreement Clears Way for Additional GRDA Projects

Beginning in February, through a new contract with the Grand River Dam Authority (GRDA), the OWRB will begin bathymetric mapping at Grand, W. R. Holway, and Fort Gibson Lakes. According to the project time line, OWRB Water Quality Division staff will complete bathymetric mapping at Grand Lake around April 2009, and at W. R. Holway and Fort Gibson by September of that year. In



cooperation with the U.S. Army Corps of Engineers, a second component of this project will result in updated dependable yield determinations for these three lakes and Lake Hudson, another GRDA impoundment that was mapped in 2007 as part of a separate contract.

The existing partnership between the OWRB and GRDA also includes several other water quality projects. Since 2004, the OWRB has led successful efforts at Grand Lake to revitalize shoreline habitat and reduce erosion by introducing native aquatic plants. Shoreline habitat restoration work is also underway at Lake Hudson. Joint support of Oklahoma Water Watch volunteer monitoring in the Grand River Basin includes Grand Lake and a new monitoring group at Lake Hudson. In addition, the OWRB is also providing detailed real-time dissolved oxygen monitoring below Grand and Hudson Lakes and flow release testing below Hudson to support Federal Energy Regulatory Commission (FERC) relicensing. Currently, there are three dissolved oxygen probes below Grand and one below Hudson, each collecting data from March through October on 15 minute intervals.



Dissolved Oxygen probe at Grand Lake

OKLAHOMA WATER RESOURCES BOARD

Oklahoma Comprehensive Water Plan

In 2007, the OWRB signed a five-year contract with the Oklahoma Water Resources Research Institute (OWRRI) at Oklahoma State University to coordinate the public input activities for the update of the Oklahoma Comprehensive Water Plan (OCWP). From April through November, 42 public input meetings were held across the state. More than 2,200 Oklahomans attended these meetings and submitted more than 2,000 comments about water in Oklahoma - - what they thought was important, what they would like to see changed, what they would like to see remain the same, and where they think Oklahoma should be 50 years from now. The OWRB and OWRRI are currently planning and assembling teams for the next phase of public participation, regional input meetings that will be held in each of Oklahoma's 11 substate planning regions.

Also in 2007, the OWRB entered into a cost-share agreement with the US Army Corps of Engineers (USACE) through the Planning Assistance to States (PAS) program to begin the technical studies portion of the OCWP process. Through this agreement, the USACE has contracted with the engineering firm of Camp Dresser McKee (CDM) to develop a fundamental work plan that includes delineation of goals and objectives, a common technical platform to evaluate supply and demand, and a programmatic workplan. To facilitate these developments, OWRB and CDM have met with several key partners to

receive feedback. Through the PAS agreement, the OWRB and others will also be working with CDM on the development and distribution of a survey to provide baseline information for characterizing existing conditions and future supply and infrastructure needs of individual water providers. Additionally, a water system infrastructure mapping pilot project will be completed for Pontotoc County with the hope the effort can be extended to the majority of water systems in Oklahoma.



In late 2007, the Water Board received welcome news regarding passage of the Water Resources Development Act (WRDA) of 2007. This federal legislation, crucial to the development and completion of a truly comprehensive water plan for Oklahoma, contains authorization of up to \$6.5 million to be used specifically for the OCWP. Also, the 2008 federal omnibus appropriations bill included money for studies to be performed as a part of the OCWP process, including the Southeast Study, Washita Study, and Planning Assistance to States.

Arbuckle-Simpson Hydrology Study

The five-year Arbuckle-Simpson Hydrology Study remains on schedule for completion by the end of 2008. While the first three years of the study were devoted to monitoring efforts and conducting field investigations, the primary focus of the fourth year (2007) was developing methods to assess impacts of groundwater withdrawals on streamflow. Several noteworthy accomplishments were made in 2007:

- An instream flow assessment was initiated to quantify fish habitat in spring runs of the Blue River and Pennington Creek.
- A river-basin network model was developed to assess the impact of groundwater withdrawals on downstream surface water rights.
- A three-dimensional geologic framework model was developed to gain a better understanding of the hydrologic connectedness of the water-bearing units across fault zones and provide the geologic framework for groundwater flow models.
- Rainfall-runoff modeling of the Blue River and Clear Boggy Creek watersheds was conducted to identify components of the hydrologic water balance, especially streamflow and recharge. The model results, which simulate the runoff component of the stream hydrograph, will be coupled with the groundwater flow model to simulate the total streamflow hydrograph.
- Digital groundwater flow models of the eastern portion of the aquifer were developed to test our understanding of the aquifer and predict the consequences of aquifer-scale groundwater withdrawals on streamflow.
- A 300-year tree-ring chronology was developed and used to reconstruct streamflow, precipitation, and temperature of the region.
- Several geophysical techniques (including gravity and magnetic surveys, seismic testing, electrical resistivity imaging, and helicopter electromagnetic surveys) were used to characterize the subsurface

geology and evaluate groundwater flow through the highly faulted, structurally complex, carbonate aquifer.

- An investigation of the geochemistry of the Arbuckle-Simpson aquifer was completed. Analysis of water samples collected from 32 wells and springs were used to characterize the groundwater in the aquifer and to improve understanding of the groundwater flow system.
- Potentiometric surface maps of the aquifer were created from water level measurements. Subsurface watersheds (the area within the aquifer that contributes groundwater to a certain point) were then delineated from the potentiometric maps, revealing that some subsurface watersheds are substantially different from the surface watersheds.

The last year of the investigation will be devoted to writing reports, conducting computer simulations, evaluating various water management options, disseminating information, and soliciting input from stakeholders. After reviewing the study results, OWRB staff will submit management recommendations to OWRB members for determination of the allocation of water rights. As directed by SB 288, the Board must approve a maximum annual yield that will not reduce the natural flow of water from springs or streams emanating from the aquifer.

For more information about the Arbuckle-Simpson Hydrology Study, visit the Study's Web page: http://www.owrb.ok.gov/studies/groundwater/arbuckle_simpson/arbuckle_study.php.

Annual Report 2007

Water Quality Programs

The OWRB continued to refine water quality monitoring in 2007 to address emerging water quality issues. This involved integrating biological sampling into the Beneficial Use Monitoring Program (BUMP) in order to more fully implement a holistic monitoring program for Oklahoma. Additionally, stream gaging increased greatly to address use support questions and provide needed information on water quality and quantity issues. Further improvements to agency gaging activities are expected to continue into 2009 and beyond.

A three-year successful partnership with the Grand River Dam Authority (GRDA) continues to grow as OWRB staff now begin working at Lake Hudson. With bathymetric mapping of the lake nearing completion, the OWRB is also providing detailed dissolved oxygen monitoring to support FERC relicensing. Additionally, Oklahoma Water Watch has been contracted to assist at Lake Hudson with volunteer monitoring.

During the summer of 2007, 52 randomly selected Oklahoma lakes were sampled by the OWRB in partnership with the EPA as part of a statewide assessment of Oklahoma Lakes. The data collected will also contribute to EPA's regional and national assessment of lake conditions.

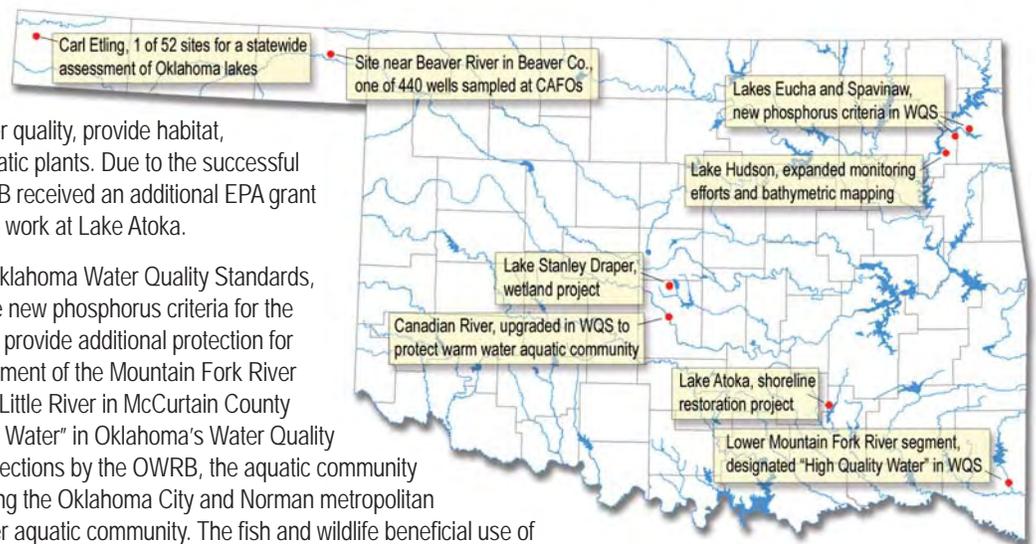
The OWRB partnered with Oklahoma City's Water and Wastewater Utilities, EPA, and the Oklahoma Department of Wildlife Conservation for a multi-year, federally funded wetland project at Lake Stanley Draper to enhance water quality, provide habitat, and beautify the lake by introducing aquatic plants. Due to the successful partnership at Stanley Draper, the OWRB received an additional EPA grant award to perform similar lake restoration work at Lake Atoka.

Included in the triennial revision of the Oklahoma Water Quality Standards, approved by the EPA in November, were new phosphorus criteria for the waters in Lakes Eucha and Spavinaw to provide additional protection for the City of Tulsa's water supply. The segment of the Mountain Fork River extending from State Highway 70 to the Little River in McCurtain County was given a designation of "High Quality Water" in Oklahoma's Water Quality Standards. As a result of routine fish collections by the OWRB, the aquatic community of the Canadian River segment bracketing the Oklahoma City and Norman metropolitan area was shown to support a warm water aquatic community. The fish and wildlife beneficial use of the Canadian river was consequently upgraded in Oklahoma's Water Quality Standards to provide protection appropriate for the warm water aquatic community.

As part of an ongoing partnership with the EPA, the Office of the Secretary of the Environment, and the Oklahoma Department of Agriculture, Food, and Forestry, the OWRB sampled 440 groundwater wells in 2007 at Concentrated Animal Feeding Operations (CAFOs) to assure that groundwater and surface water are not being contaminated by waste.

2007 Expenditures & 2008 Budget

Fund Name	FY 2007 Expended	FY 2008 Budgeted
General Appropriations	\$4,545,149.31	\$4,609,796.00
Drillers & Installers Indemnity Fund	4,905.00	50,000.00
Rural Economic Action Plan (REAP) Fund	764,020.07	475,201.00
Water Resources Revolving Fund	335,451.63	458,140.00
Drillers & Installers Regulation Fund	25,924.78	14,841.00
Water Infrastructure Development Fund	291,192.60	2,082,594.00
Federal Funds-OWRB	1,618,611.62	2,539,867.00
Federal Funds-OSE	8,384,993.65	9,531,774.00
Environmental Remediation Fund		18,000.00
USGS Cooperative Agreement	564,413.00	278,800.00
Interagency Reimbursement Fund	1,219,001.87	1,359,892.00
DW Loan Administration Fund	341,331.94	729,936.00
CW Loan Administration Fund	1,021,574.14	987,888.00
CW Loan Fund	61,048.30	350,000.00
	19,177,617.91	23,486,729.00
Activity Name		
Administration	2,350,702.24	2,594,857.00
Water Quality	3,717,660.94	3,591,708.00
Financial Assistance	1,669,867.36	2,610,088.00
Planning & Management	2,885,441.22	4,950,446.00
Secretary of Environment	8,553,946.15	9,739,630.00
	\$19,177,617.91	\$23,486,729.00



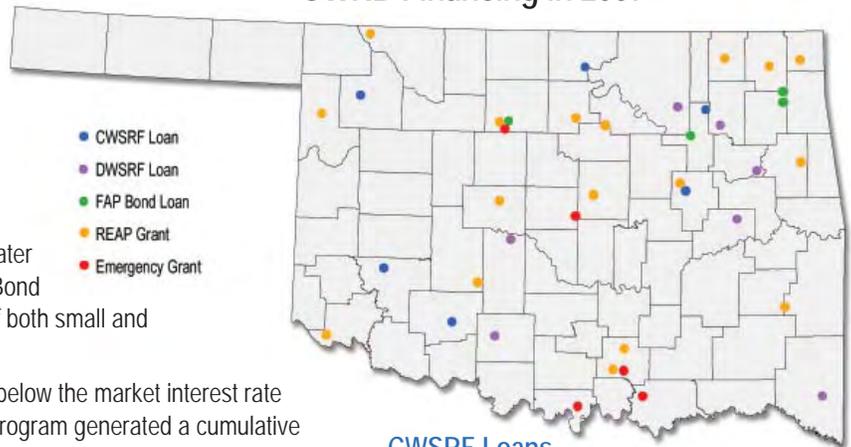
Financial Assistance Program

During 2007, the OWRB's Financial Assistance Division provided approximately \$68.6 million in loans and \$2 million in grants to Oklahoma communities for water and wastewater infrastructure projects, bringing the total for all OWRB financing to almost \$1.7 billion since 1985. Five programs, including Emergency and Rural Economic Action Plan (REAP) grants, Clean Water (CWSRF) and Drinking Water State Revolving Fund (DWSRF) loans, and State Revenue Bond loans, feature diverse financing options to meet the needs of both small and large communities and rural districts.

The OWRB's loan programs provide financing at up to 40% below the market interest rate with up to a 30-year repayment term. In 2007, the CWSRF program generated a cumulative return of \$2.32 for every federal dollar expended. It is anticipated that the State Revenue Bond Loan (FAP) program will continue to provide market rate funding and the CWSRF and DWSRF will continue to provide loans at 40% and 30% below the market rate, respectively, through continued leveraging of federal capitalization dollars and revolving financing structures.

Through CWSRF and DWSRF loans approved in 2007, \$26.1 million and \$13.1 million, respectively, will be used to construct wastewater and water system improvements required to comply with Oklahoma Department of Environmental Quality and US Environmental Protection Agency (EPA) permit orders to eliminate contaminants discharged into state waters as well as to comply with human health criteria. \$16.6 million will go toward the treatment of discharge into priority stream segments, which are provided additional protection under Oklahoma's water quality standards, to ensure adequate treatment levels to safeguard high quality or highly vulnerable waters.

OWRB Financing in 2007



CWSRF Loans

Tulsa MUA	\$5,131,177
Collinsville MA	\$1,370,000
Beggs PWA	\$2,170,000
Hobart PWA	\$1,040,000
Woodward MA	\$1,400,000
Lawton WA	\$10,420,000
Ponca City UA	\$5,565,000

DWSRF Loans

Osage Co. RWMD #15	\$2,953,170
Tuttle PWA	\$3,400,000
Wagoner Co. RWD #7	\$1,850,000
McCurtain Co. RWD #8	\$4,806,000
Rogers Co. RWD #5	\$4,700,000
Duncan PUA	\$7,755,000
Checotah PWA	\$5,360,000

FAP Loans

Tulsa MUA	\$8,800,000
Garfield Co. RWSD #5	\$200,000
Langley PWA (2 loans)	\$1,785,000

REAP Grants

Garfield Co. RWSD #5	\$99,999
Talihina PWA	\$99,999
Cement PWA	\$89,999
Eldorado PWA	\$97,300
Beggs PWA	\$150,000
Woods Co. RWD #2	\$30,900
Canadian Co. RWSSWMD #4	\$100,000
Delaware PWA	\$99,990
Lincoln Co. RWD #3	\$79,999
Cherokee Co. RWD #8	\$99,999
Lone Chimney WA	\$99,990
Ravia PWA	\$79,999
Craig Co. RWD #1	\$150,000
Ellis Co. RWD #1	\$150,000
Noble Co. RWD #2	\$99,999
Ottawa Co. RWSSWMD #6	\$70,000
Johnston Co. RWSSWMD #4	\$99,900

Emergency Grants

Harrah	\$70,000
Marietta PWA	\$29,325
Tishomingo MA	\$65,000
Garfield Co. RWSD #5	\$100,000
Bryan Co. RWSSWMD #2	\$55,000



During 2007, progress was made in expanding project eligibility to polluted runoff control, source water protection, and water conservation and reuse activities and infrastructure. During the year, the Oklahoma Conservation Commission promulgated emergency rules for reviewing proposed CWSRF projects for consistency with the State's Nonpoint Source Management Program and the EPA issued draft guidance outlining expanded uses of the fund.

As a result of these actions, the City of Tulsa requested \$1.25 million in funding to purchase permanent conservation easements from landowners along streambanks in the Lake Eucha/Spavinaw basins, the city's primary drinking water source, as a means to lessen the amount of pollutants entering contributing waterways and thus reduce drinking water treatment costs. These loan funds, combined with state funds, will also be considered as required matching funds and will allow the state, through the Conservation Commission, to access an estimated \$9.77 million in federal dollars to establish the Conservation Reserve Enhancement Program in Oklahoma.

Dam Safety Program

This year's near record-setting rains caused damage to several dams in Oklahoma. Some dams suffered damage to the earthen embankment and spillways, whereas other dams collapsed. Dam Safety Program staff of the OWRB travelled to numerous sites to offer assistance and advice.

One example of an affected dam was SCS-Sugar Creek Site L44, a high hazard dam in Caddo County. When floodwaters began to overtop the dam, causing a collapse of a downstream portion of the earthen embankment, Natural Resources Conservation Service personnel forced a controlled breach of the dam in an effort to save it from a total collapse. Area residents downstream from the dam were alerted and evacuated in order to alleviate possible flooding and loss of life.

Well Driller & Pump Installer Program

The OWRB licensed 28 new drilling/pump installation firms and 56 new operators in 2007, and processed license renewals for 180 existing firms. Approximately 7,700 new well reports were entered into the OWRB well log database and maintained by OWRB staff. In cooperation with the Oklahoma Ground Water Association, the OWRB cohosted five regional workshops and a two-day trade show and conference, which provided continuing education credits for approximately 325 licensed operators.

OWRB Legal Issues Update

Sardis Lake Litigation

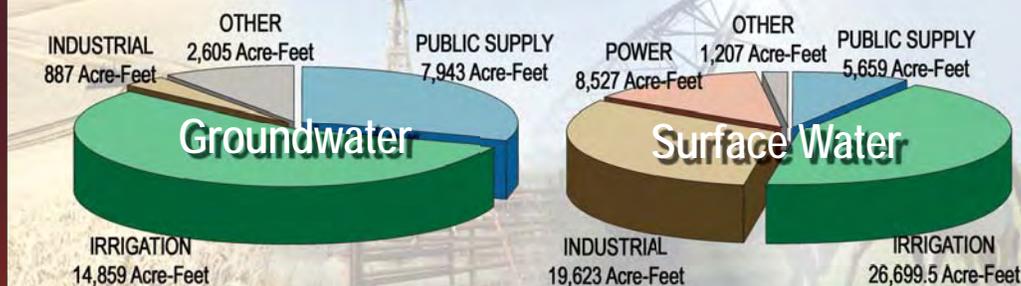
On January 5, 2007, the U.S. denied review of a federal 10th Circuit Court of Appeals' decision involving Sardis Lake. In July 1998, the U.S. filed a lawsuit in the federal district court in Tulsa, claiming that the State of Oklahoma had breached a 1974 contract with the Corps of Engineers calling for the repayment of the costs of water supply storage in Sardis Lake, located in Pushmataha County. The State of Oklahoma made several annual payments after the lake was completed in 1983, but then the State Legislature decided to take advantage of a provision in the 1974 contract which indicated that the contract did not obligate the Legislature to appropriate funds. In May 2005, the federal district court in Tulsa determined that the 1974 contract was valid and enforceable. On appeal to the 10th Circuit court, the court affirmed the district court's order. The U.S. Supreme Court refused to review the case.

In ongoing discussions with the federal Department of Justice, the state has agreed to seek funding to make a one-time lump sum payment for the present use storage costs, now estimated to be approximately \$38 million.

Tarrant Regional Water District Litigation

Also in January 2007, the Tarrant Regional Water District, located in north Texas, filed applications to divert 460,000 acre-feet of water from three different stream systems through diversion points in Oklahoma. In 2002, the Oklahoma Legislature enacted a moratorium against the sale or use of water from Oklahoma in another state. The Tarrant Regional

Permitted Water in 2007



Floodplain Management Program

FEMA has recognized nine disaster declarations in Oklahoma this year, leaving California as the only State to have more. Record rainfall in parts of Oklahoma lead to flooding in most counties with Ottawa County and the City of Miami hit the hardest. More than 800 homes sustained flood damage in Ottawa County with over 600 of those in Miami alone. Local officials assessed damages and mitigated many of the structures located in the floodplain, trying to break the cycle of repetitive flood loss in this area.

The OWRB continues to educate local Floodplain Administrators (FPAs) through its Accreditation and Training Program. With 378 Oklahoma communities participating in the National Flood Insurance Program (NFIP), the state's training cadre works diligently to assure all FPAs are accredited on an annual basis.

Water District filed a lawsuit in the federal district court in Oklahoma City against named members of the OWRB asking the court to declare that Oklahoma's moratorium was unconstitutional because it restricted interstate commerce relating to water. The Oklahoma Attorney General decided to represent the Board members.

In October 2007, the federal district judge denied the Board members' motion to dismiss. The Attorney General filed an appeal of the district court's decision with the 10th Circuit Court of Appeals.

Meridian Aggregates Groundwater Permit Litigation

In July 2007, the Murray County District Court issued an order affirming most of the findings of fact, conclusions of law and order issuing a permit to Meridian Aggregates in 2006. The district court determined that the Board's order was supported by the evidence and law, except on one point. The court interpreted the exemption in the Oklahoma Groundwater Law to apply to the quarry pit being mined by Meridian Aggregates. Accordingly, the court decided that the Board's order requiring Meridian Aggregates to obtain a groundwater permit before using water from the quarry pit was not supported by the law. Meridian Aggregates, local municipalities, a master conservancy district and the Water Resources Board appealed the district court's ruling to the Oklahoma Supreme Court.

Water Conservation Essay Emphasizes Xeriscaping

The Oklahoma Water Resources Research Institute, the Oklahoma Water Resources Board and 4-H Clubs of Oklahoma would like to thank all of the students who participated in the Oklahoma Comprehensive Water Plan Water Conservation Essay Contest. The 141 essays that were submitted had several innovative ideas as well as new takes on old ideas that will be submitted to the OWRB as part of the state's Comprehensive Water Plan. Winners were recognized in October at the OWRB 50th Anniversary Banquet.

Jo Eike of Fargo, Oklahoma, was the first place winner for 9-10th grade. Her essay is presented below:

Drought

I watched our pastures turn brown. We sold part of the cattle herd and struggled to keep the remaining cows watered and fed. Then range fires; when we went to town we wondered if our home would still be there when we returned. Finally, the rains came and almost overnight the grasses turned green and the wildflowers began blooming. It was a beautiful sight.

While we cannot control the weather, management of our water and plant resources is crucial to our survival. I enjoy visiting my grandparents' old homestead and I have noticed the plants and trees that they used to beautify and shade their home. Their heirloom varieties of iris, roses, lilacs and fruit trees are still surviving in Oklahoma's climate with no special care. People take pride in a beautifully landscaped home.

However, the plant choices we make can impact our land and water use for decades. That is why it is so important that people know how to use the best plants and grasses for our climate. Since it is estimated that over 50 percent of residential water use is for landscape watering, there is tremendous potential for water conservation, if we can combine the use of native and drought-tolerant plants and grasses, with minimal irrigation for urban and residential landscaping. As our state becomes more urban, the demands on Oklahoma's water will be even greater.

A wealth of information on xeriscaping, native grasses and irrigation technology is readily available. The problem is that the information on the importance of water conservation is not being effectively communicated to the citizens of Oklahoma. And even when citizens want to conserve water, they may not know what steps they personally need to take. By creating an education program, we can get the information on the importance of water conservation to all of our citizens and show them how to landscape with drought tolerant plants and grasses, and use irrigation efficiently.

This education program must include Oklahoma's schools. Our future leaders need to know how to conserve our water and how to landscape properly for our climate. Schools can also set a good example for water-efficient landscaping and other conservation measures, so that our education dollars won't be spent wasting water. Oklahomans enjoy an outstanding quality of life, but continuing to use water guzzling turf grass varieties and exotic plants will strain our water resources. We must develop a program to educate our citizens on how to conserve and protect our precious water resources for future generations.



Jo Eike (Fargo), first place winner of OCWP essay contest

2007 Centennial Edition of the Oklahoma Water Atlas

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Oklahoma City, OK 73118

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Tulsa - State Agencies Building, 440 S. Houston, Room 2; 918-581-2924

McAlester - 321 S. 3rd St. Suite 5; 918-426-5435

Woodward - 2411 Williams Avenue, Suite 116; 580-256-1014

Aquatic Nuisance Species Threaten Oklahoma Waters

The threat posed by non-native invasive aquatic species to the ecological integrity of Oklahoma lakes and streams is both real and immediate. Many of these species look harmless, and may even be considered attractive or desirable, but they can upset an entire ecosystem by choking out native plants, reducing fish habitat, decreasing water flow, stressing oxygen levels, out competing native species for limited food supplies, fouling beaches, producing harmful by-products, including nutrients, and a variety of other means that are damaging to the environment.

Non-indigenous aquatic organisms that have invaded and colonized Oklahoma waters include a variety of species. According to the Oklahoma Department of Wildlife



Conservation (ODWC), fish kills caused by **golden algae** (*Prymnesium parvum*) have occurred in the Red River and in Lake Texoma. Left unchecked, golden algae are capable of decimating fisheries.



Alligator weed (*Alternanthera philoxeroides*) is an aquatic mat-forming perennial that may sprawl along shorelines or cover the water surface, preventing flow, blocking up drainage channels and potentially increasing flood damage. Weed mats can also reduce oxygen exchange, which poses a threat to native organisms and reduces water quality.

In recent years, Alligator weed has made its way into residential ponds and lakes in the Metropolitan Oklahoma City area.

Eurasian Water Milfoil (*Myriophyllum spicatum*), a submersed, rooted perennial with branching stems, inhabits reservoirs, lakes, and ponds, and closely resembles native "coontail". It can quickly grow into dense mats that shade out native plants, reduce fish habitat, and limit recreational use. It is present in Oklahoma in several reservoirs, including Fuqua and Longmire.



Curly Pondweed (*Potamogeton crispus*) grows profusely until mid summer before dying off and providing a large crop of food for bacteria, which stress oxygen levels and release nutrients for algae growth.



Hydrilla (*Hydrilla verticillata*) causes major problems with water use by greatly reducing flow and causing clogging, which can result in flooding and damage to canal banks, structures, and pumps. Hydrilla, which can also interfere with boating, water skiing, and swimming, is known to occur in Arbuckle, Murray, and Sooner Lakes.

A complete list of these and other declared noxious aquatic plant species is available at <http://www.wildlifedepartment.com/aquaticplants.htm>.

In addition to these plants, aquatic nuisance species include many fish and invertebrates. **Zebra mussels** (*Dreissena polymorpha*) currently inhabit several systems in northeast Oklahoma and new infestations are being found annually. Zebra mussels can reduce aquatic productivity, foul beaches with their sharp shells, and clog pipelines, locks and dams, and outboard motors.

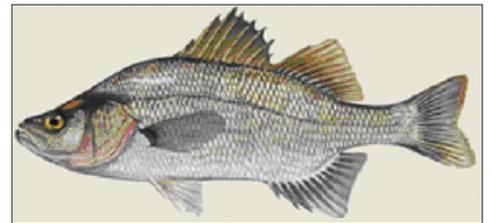


A more recent invader to Oklahoma is the **Bighead carp** (*Hypophthalmichthys nobilis*), which has been found in the Neosho River, Red River, and Grand Lake. This species has the potential to deplete zooplankton populations,



leading to reductions in populations of native species that rely on plankton for food. The ODWC has information on this fish and other Asian carp species in Oklahoma and what to do at <http://www.wildlifedepartment.com/asiancarp.htm>.

Also causing great concern is the **White perch** (*Morone americana*), which can quickly become the dominant species in freshwater lakes and is associated with declines in both walleye and white bass populations. The species is now established in Kaw Lake and populations have spread into Sooner and Keystone Lakes with continued migration downstream throughout the Arkansas River basin.



These are only a few of the many species that are a concern in Oklahoma. To learn more, visit the ODWC Aquatic Nuisance Species Web page at <http://www.wildlifedepartment.com/nuisancespecies.htm>.

Drought Update

Reservoir Storage

As of January 2, 10 reservoirs (of 31 selected major federal reservoirs across Oklahoma, see right) are operating at less than full capacity, according to information from the U.S. Army Corps of Engineers (Tulsa District); 10 reservoirs have experienced lake level decreases since December 3.

Palmer Drought Severity Index

According to the latest Palmer Drought Severity Index (November 3, bottom), state drought conditions continue to improve. No climate divisions are currently experiencing drought conditions. Only one of Oklahoma's nine climate divisions has undergone a PDSI moisture category decrease since December 1.

Standardized Precipitation Index

The latest monthly Standardized Precipitation Index (through November, bottom) reflects slight dryness in the Panhandle and southern Oklahoma. Among the selected time periods (3-, 6-, 9- and 12-month SPIs), the Northwest, Southwest, and South Central regions report dry conditions.



Storage in Selected Oklahoma Lakes & Reservoirs (January 3, 2008)

LAKE	Change in Elevation (feet) 12/3/07-1/3/08	Current Flood Control Storage (acre-feet)
North Central (2)		
Fort Supply	-0.04	338
Great Salt Plains	0.10	3,273
Kaw	1.97	7,679
Northeast (3)		
Birch	0.48	57
Copan	0.34	3,575
Fort Gibson	2.83	32,900
Grand	-0.09	-134,560
Hudson	0.62	10,276
Hulah	1.92	13,536
Keystone	2.16	43,555
Oologah	2.31	95,586
Skiatook	0.39	-6,961
West Central (4)		
Canton	-0.04	1,826
Foss	-0.11	-3,474
Central (5)		
Arcadia	0.25	818
Heyburn	0.23	284
Thunderbird	0.55	4,514
East Central (6)		
Eufaula	0.94	-48,219
Tenkiller	-0.11	8,515
Southwest (7)		
Fort Cobb	-0.10	2,959
Lugert-Altus	1.29	-38,611
Tom Steed	-0.12	-4,766
South Central (8)		
Arbuckle	-0.10	-951
McGee Creek	0.18	-1,334
Texoma	-0.17	-89,722
Waurika	0.26	4,055
Southeast (9)		
Broken Bow	-1.43	-25,316
Hugo	2.64	66,254
Pine Creek	3.14	13,214
Sardis	0.65	6,103
Wister	2.56	19,657

Standardized Precipitation Index (through November 2007)

Palmer Drought Severity Index

CLIMATE DIVISION	3-month	6-month	9-month	12-month	December 29, 2007
Northwest (1)	Very Dry	Moderately Dry	Near Normal	Near Normal	Near Normal
North Central (2)	Near Normal	Moderately Wet	Very Wet	Very Wet	Very Moist Spell
Northeast (3)	Near Normal	Moderately Wet	Very Wet	Very Wet	Moist Spell
West Central (4)	Near Normal	Very Wet	Extremely Wet	Extremely Wet	Extreme Moist Spell
Central (5)	Near Normal	Extremely Wet	Extremely Wet	Extremely Wet	Extreme Moist Spell
East Central (6)	Near Normal	Moderately Wet	Near Normal	Near Normal	Moist Spell
Southwest (7)	Moderately Dry	Very Wet	Very Wet	Very Wet	Very Moist Spell
South Central (8)	Moderately Dry	Moderately Wet	Moderately Wet	Very Wet	Moist Spell
Southeast (9)	Near Normal	Moderately Wet	Near Normal	Moderately Wet	Unusual Moist Spell

For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, go to www.owrb.ok.gov/supply/drought/drought_index.php.

www.owrb.ok.gov

*Mark Nichols, Chairman • Rudy Herrmann, Vice Chairman • Ford Drummond, Secretary
Lonnie Farmer • Ed Fite • Jack W. Keeley • Kenneth K. Knowles • Linda Lambert • Richard Sevenoaks*

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.



4th Quarter 2007

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FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of December 11, 2007

FAP Loans—321 totaling \$629,870,000

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, averaging approximately 4.762 percent since 1986.

CWSRF Loans—184 totaling \$652,022,629

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to draw upon 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—72 totaling \$330,340,542

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and Oklahoma Department of Environmental Quality 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—477 totaling \$43,118,924

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

Emergency Grants—534 totaling \$31,339,017

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

Drought Response Program Grants—3 totaling \$300,000

Through the OWRB's Drought Response Program, limited 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 funds to establish the Program.

Total Loans/Grants: 1,591 totaling \$1,686,991,112

Estimated Savings: \$530,724,228

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.**