

OKLAHOMA Water News

4th Quarter 2009

Inside

Governor's Water
Conference & Research
Symposium

2009 Water Pioneer
Awards

OWRB 2009 Annual Report

OWRB Initiates Annual
Water Use Reporting
Survey

President Appoints New
EPA Regional Leader

OWRB/OCS Establish Sixth
Well

OCWP Update

Drought Update

30th Annual Conference Features Robert Glennon

Following a warm and insightful welcome from Lieutenant Governor Jari Askins, nearly 500 attendees at the 30th Annual Oklahoma Governor's Water Conference were treated to a colorful and enlightening presentation by Robert Glennon, University of Arizona Law Professor and author of *Unquenchable: America's Water Crisis and What to Do About It*. Glennon began by defining the crisis: put simply, the majority of Americans, including many individuals in decision-making roles, are in denial about the nation's fresh water being a limited, finite resource. He offered vivid examples of this denial in Las Vegas, Atlanta, and several other locations across the country.



Glennon then addressed conventional approaches, such as building new dams and massive pipelines or pumping more and more groundwater, as no longer effective ways to manage the crisis, emphasizing that we should focus on more innovative methods to meet the crisis head on, such as reclamation, conservation, harvesting, and recycling, as well as promoting a new attitude among consumers by raising the cost of water. Glennon repeatedly emphasized that the major impetus for the crisis is the fact that Americans continue to undervalue water. This is not to be unexpected, he pointed out, when we pay nothing for the water itself, but only for its delivery and treatment.

Glennon also highlighted the wastefulness of our urban water systems. He said that as much as 32 percent of indoor water was literally going down the toilet, one flush at a time. Additionally, our sewer systems combine storm runoff and sewage, requiring unnecessary treatment for much of the water. Only 10 percent of the water we use in our homes is for consumption and cooking, and yet we treat it all to potable standards.

With a growing population, depleted groundwater supplies, and the threat of more intense droughts due to climate change, Glennon argued that new development must be regulated

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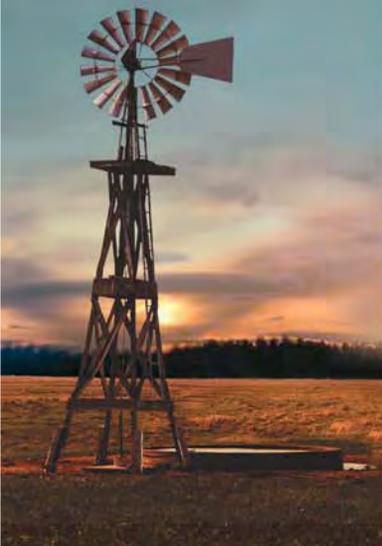
From the Director

There's never been a more exciting time to be a member of Oklahoma's water community, whether you're in government, academia, or the private sector. This was certainly reflected at the Governor's Water Conference, which celebrated its 30th year in November. In particular, the past three Conferences have provided an opportunity for citizens and decision makers alike to learn about, discuss, and influence the Oklahoma Comprehensive Water Plan update process. What we learn from these vital annual meetings, along with valuable public and technical input, provides us with the information we need to adjust our planning goals in accordance with the state's long-term social, economic, and environmental interests.

(continued on page 4)



Duane A. Smith, Executive Director
Oklahoma Water Resources Board





It doesn't really matter what part of the State you are from: water is important to you. Water is important whether you have it or you don't... The ability to provide clean and sufficient water is going to be absolutely critical to many areas in the State of Oklahoma for us to be able to grow. Whether you are talking about tourism, agriculture, or public water supply, this water plan is important.



Lt. Gov. Jari Askins

We have the opportunity at the national level to see what all the states are doing. Believe me, the Oklahoma Comprehensive Water Plan is the right way to do things. The public participation and technical evaluation approach really is cutting edge water resources planning within the United States.



Steve Stockton, Director of Civil Works, USACE

In Oklahoma, as in other places, there is a struggle regarding groundwater and surface water interaction and the right thing to do, whether it is a water quality or water quantity issue. The decisions we make will echo for years.



Mike Ryan, Regional Director, Bureau of Reclamation

There are so many more people out there that need to be engaged and you are the ones who can make that happen. It's going to take you talking to your colleagues, your legislators, your coffee groups, and everyone else.



Senator Susan Paddock

To make sure our Comprehensive Water Plan is successful, it's going to take all of us to put good, sound public policy in place that's going to have sustainability.

There are different water issues depending on what part of the state you're from and what industry you're in, but one consistent fact is that for our economic well being and also for our quality of life, we have to pay attention to this precious resource and plan for the future.



Senator Glenn Coffee



Duane Smith with students from Jefferson Elementary School in Norman, who were exhibiting the school's OCWP-funded water conservation project.



Col Anthony Funkhouser



Lindsay Robertson, OU



Rep. Dale DeWitt



Steve Thompson, DEQ



Chuck Dumars



Will Focht, OWRI



John Rehring, CDM



John Feaver, Academy



Ryan McMullen, USDA



Scott Christenson, USGS



Understanding Oklahoma Water

Oklahoma Governor's Water Conference & Research Symposium

2009 Water Pioneer Awards

For their wisdom in developing Oklahoma's great rivers and groundwaters, and for preserving the integrity and beauty of the state's waters for future generations, individuals are honored with Oklahoma Water Pioneer Awards each year at the Governor's Water Conference. Following are this year's recipients:

Jon Craig

As the Director of the Water Quality Division of the Oklahoma Department of Environmental Quality, Jon oversees water programs, including those delegated to the state by EPA. These include the Safe Drinking Water Program, permitting and regulation of municipal and industrial wastewater dischargers, reuse and disposal of municipal and industrial sludge, the drinking water revolving loan program, and state programs, such as operator certification, water quality planning, technical assistance, and project planning and design review.

Jon has been a member, served on the governing boards, and served as an officer in such national professional organizations as the Ground Water Protection Council, Association of State and Interstate Water Pollution Control Administrators, Association of State Drinking Water Administrators, National Water Quality Monitoring Council, American Water Works Association, and others.



Gene Whatley

Gene has been with the Oklahoma Rural Water Association for over 31 years. He started as training director for the Association in 1978 where he conducted classes throughout the state for the benefit of water and wastewater operators. In 1979, he was named Executive Director. Under his leadership, the Association now provides training and technical assistance to water and wastewater systems across the state.

His vision and dedication has helped Oklahoma grow by helping bring quality potable water to rural residents of the state. He helped unify rural water and laid a solid foundation for current training and technical assistance programs. He has helped create unique and innovative training and technical assistance programs that were later used by the National Rural Water Association as a model for similar programs in other states. Gene is respected at the state and national level for his honesty, integrity, and dedication to promote water resources for future generations.



Steven Moore

Steve Moore formerly worked as the state's assistant attorney general, representing the Oklahoma Water Resources Board in the Watchorn Basin case. He handled the case so well that he was recruited by the general counsel of OG&E.

In 1995, he became the company's president and, one year later, was named the company chairman, president and CEO. Under Moore, OG&E made regular appearances on Forbes magazine's list of the nation's best-managed companies.

Steve was a long time member of the Water Law Advisory Committee which provided guidance to the OWRB on rules, regulations and statutory revisions. He personally made sure that industry's voice was heard by all three branches of government on water matters of statewide concern. Steve always recognized the importance of both energy and water to Oklahoma's economic development potential, promoting initiatives that recognized the integral connection between them.



Steve's wife, Nancy Moore, accepts the posthumous Pioneer Award from Duane Smith.

James Barnett

Jim Barnett has worked extensively in matters involving the EPA, OWRB, and ODEQ. Mr. Barnett served as the Executive Director of the Oklahoma Water Resources Board from 1977 to 1991.

During his tenure, he successfully managed passage of numerous water and environmental bills, including the Oklahoma Floodplain Management Act, Red River Compact, and the Constitutional amendment and legislation implementing the state's Financial Assistance Program. He also oversaw the completion of the first statewide Comprehensive Water Plan and initiated the first Governor's Water Conference in 1980. He also served as the first Oklahoma Secretary of Natural Resources.

In August 1991, Mr. Barnett helped establish the Environmental Federation of Oklahoma--a non-profit organization formed to give Oklahoma companies a voice in the formation and implementation of environmental laws and regulations--serving as the president, general counsel, and legislative lobbyist of EFO since its creation.



Conference Features Robert Glennon (continued)

in such a way that addresses dwindling supplies of water. Currently, water law varies from state to state, but as Glennon pointed out, systems were not set up to recognize the market value of water. If current water rights become transferable (and thus marketable), and new water rights become more difficult to obtain, Glennon believes that anyone with a current water right will automatically begin to value it more. Farmers, for instance, may begin looking for better ways to conserve water so that more of their allotted amount would be available for sale.

In conclusion, Glennon advocated the following reforms:

- Encouraging creative conservation;
- Using price signals;
- Creating market incentives;
- Reexamining how we dispose of human waste;
- Requiring developers to pay their own way;
- Reconsidering the location of wastewater plants;

- Separating storm water from sewer water;
- Creating infrastructure with dual pipes to supply potable and reclaimed water;
- Abandoning business as usual (more dams, diversions and wells);
- Recognizing the link between water and energy
- Appreciating the critical role played by water in the economy;
- Removing barriers to water transfers while providing for government oversight of them;
- Creating incentives for homeowners and others to harvest water;
- Stimulating alternative waste disposal technologies;
- Metering water use; and
- Securing water for the environment. ♦

From the Director (continued)

At this year's Conference, we learned from keynote speaker Robert Glennon, a renowned water author and attorney, that the challenging water issues facing Oklahoma are not so very different than those dealt with in other states. But while in Oklahoma we continually strive to manage our water resources in a more responsible manner, our general appreciation of water often seems to exceed that elsewhere in the U.S., even in more arid regions of our country.

The OWRB's vital federal partners at the Corps of Engineers and Bureau of Reclamation spoke about the fruitful relationship between state and federal governments that has not only clarified, but unified, mutual water development initiatives. Our close cooperation with these and other federal and state agencies is imperative as we address emerging water issues related to our aging infrastructure, energy, the environment, biodiversity, and climate change.

Also at the Conference, three of our supporters in the State Legislature—Sen. Glenn Coffee, Rep. Dale DeWitt, and Sen. Susan Paddock—demonstrated their commitment to sensible water planning. Sen. Paddock went so far as to demand a collective oath from the 500 people in attendance to be advocates for water and to wholeheartedly support the Water Plan process. Without these and other leaders who know first-hand the importance of water, Oklahoma's water future would be very cloudy, to say the least.

From CDM, our primary engineering firm and technical partner in the Water Plan update, conferees heard an overview of cutting-edge planning tools developed specifically for the OCWP. The water supply/demand gap tool, reservoir yield model, and climate demand model provide us with powerful and flexible technology as we investigate seemingly countless water supply and management scenarios. We also heard the latest on the

Arbuckle-Simpson study—highlighted by four years of ground-breaking work by the most authoritative minds in the water field. From the U.S. Geological Survey, we learned about yet another multi-year investigation that seeks to address water quantity and quality concerns related to sudden heavy usage of central Oklahoma's Garber-Wellington aquifer. Experts from the Climatological Survey talked about how temperature and precipitation directly impact water resource management, especially considering climate change assumptions. In addition to a current Water Plan-funded study on evapotranspiration, the Survey is working to downscale global climate change models for use in Oklahoma. Expertise and data provided by CDM, the USGS, OCS, and our other cooperators will provide much-needed confidence to the OWRB, legislature, and others as we make vital decisions about the future use of both our surface and groundwaters.

The Water Resources Research Institute, which directs the policy development and public participation phase of the Water Plan process, summarized draft water resource management. Representatives of the Oklahoma Academy of State Goals described the upcoming Town Hall, scheduled May 23-26, which will be used to obtain consensus on the many proposed water policy initiatives formally recommended in the final Water Plan document. Transparency and broad citizen involvement are vital to public acceptance of the OCWP.

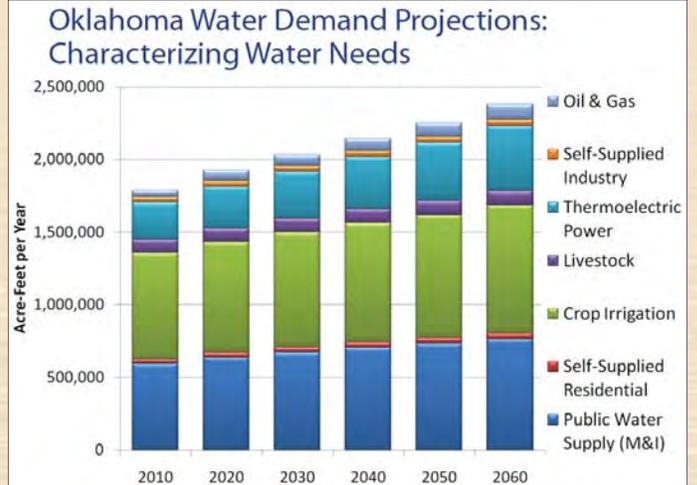
Over the next two years, we will complete the Water Plan and develop implementation strategies. I encourage all Oklahomans to join us next fall at the 2010 Governor's Water Conference and again in 2011 as we formally set in motion a renewed and optimistic water future for Oklahoma. ♦

Oklahoma Water Resources Board 2009 Annual Report

Oklahoma Comprehensive Water Plan

Final water demands by water use sector and basin have been completed. Related to the supply/demand phase of the OCWP, CDM is correlating weather impacts on municipal use, downscaling demands to the water system/provider level, and assessing conservation measures. Also in 2009, CDM completed "Instream Flows in Oklahoma and the West," a report that examines the existing policy framework employed by Oklahoma and other western states related to instream flows, those non-consumptive uses of water required for recreational and environmental needs. The Oklahoma H₂O supply/demand gap tool, developed to identify areas of potential water shortages through 2060 in each of the 82 OCWP stream systems, continues to be modified to account for potential climate change impacts, legal constraints, and other nontraditional planning considerations. In 2009, a reservoir yield model was developed along with specific water allocation models for the Kiamichi and Little River watersheds. Work continued on the Water Quality Trends Analysis, and members of the OCWP Artificial Recharge and Marginal Quality Water Resources Technical Work Groups held several meetings to address those specific planning issues.

The Basic Water Science Seminar, held in May, was attended by about 200 OCWP participants who learned about technical subjects pertaining to water planning. Three Planning Workshops were held in Oklahoma City during June, August, and October. Workshop discussants formulated and refined draft water resource management strategies to address issues that were identified in previously held input meetings. Those strategies will be finalized during the May 2010 Town Hall.



2060 Water Demands

FY 2009 Expenditures & FY 2010 Budget

Activity Name	FY09 Expended	FY10 Budgeted
Administration	\$2,802,825.74	\$3,299,843.00
Water Quality	3,515,687.00	3,642,938.00
Financial Assistance	1,927,829.57	3,557,056.00
Planning & Management	3,829,695.89	5,640,748.00
Secretary of Environment	9,053,999.93	11,994,276.00
Totals	\$21,130,038.13	\$28,134,861.00
Fund Name		
General Appropriations	\$4,655,983.08	\$4,398,920.00
Drillers & Installers Indemnity Fund		50,000.00
Rural Economic Action Plan Fund	99,172.81	10,000.00
Water Resources Revolving Fund	521,137.19	527,645.00
Drillers & Installers Regulation Fund	10,493.55	45,324.00
Water Infrastructure Dev. Fund	1,538,078.89	3,131,139.00
Federal Funds--OWRB	1,837,265.39	2,817,036.00
Federal Funds--OSE	8,861,468.87	11,250,466.00
Environmental Remediation Fund	14,232.00	46,792.00
USGS Cooperative Agreement	530,234.54	455,450.00
Interagency Reimbursement Fund	1,443,442.43	1,701,818.00
ARRA Fund	0.00	1,225,115.00
DW Loan Administration Fund	505,601.71	815,194.00
CW Loan Administration Fund	977,870.07	1,258,130.00
CW Loan Fund	135,057.60	401,832.00
Totals	\$21,130,038.13	\$28,134,861.00

Southwest Water Tour

In September, the OWRB teamed up with other state and federal agencies to host a bus tour of southwest Oklahoma for legislators as part of an interim study to examine area water needs. Attending were numerous legislators, congressional delegation representatives, and staff from various state and federal agencies.



The two-day event included stops at Lake Humphreys, Waurika Lake, Hackberry Flat Wildlife Management Area, Medicine Park, and Lugert-Altus Irrigation District. Along the way, experts provided demonstrations of stream gaging and water quality and biological sampling, and responded to many local water supply issues.

Arbuckle-Simpson Hydrology Study

The Arbuckle-Simpson Hydrology Study, begun in 2003 and completed in 2009, was conducted to obtain information necessary to determine how much water can be withdrawn from the Arbuckle-Simpson aquifer while protecting area springs and streams. This year the investigation was highlighted by development of a groundwater-flow model for the aquifer, which was developed using hydrogeologic information collected as part of the investigation. The model enables the OWRB to predict the consequences of groundwater withdrawal on streamflow. The results of the Arbuckle-Simpson Study provide the necessary information for decision makers and stakeholders to make informed, science-based decisions regarding management of the aquifer's water resources.

On August 18, the OWRB held an informal public meeting in Ada to present study results and solicit input on management strategies.

The five-hour meeting was attended by more than 300 citizens, including landowners, legislators, municipalities, special interest groups, and federal, state, and local agencies. Utilizing this informed input, OWRB staff will make recommendations to the Board on a proposed maximum annual yield and other management strategies. The Board will then issue a Tentative Order for the maximum annual yield followed by at least one formal public hearing to be held in the aquifer region and subsequent issuance of a Final Order determining the maximum annual yield of the basin.



Garber-Wellington Water Management Study

The Garber-Wellington Water Management Study was initiated in June 2008 to address growing concerns about the future of water availability in central Oklahoma. The investigation is funded through a 50/50 cost-share agreement with the Bureau of Reclamation and OWRB (through Water Plan funding) and involves comprehensive data collection and characterization of the Garber-Wellington aquifer. In addition, a groundwater-flow model will be developed to predict the impacts of long-term groundwater withdrawals on the aquifer as well as simulate water management strategies. The OWRB will use information obtained from the investigation to determine the maximum annual yield of the aquifer.

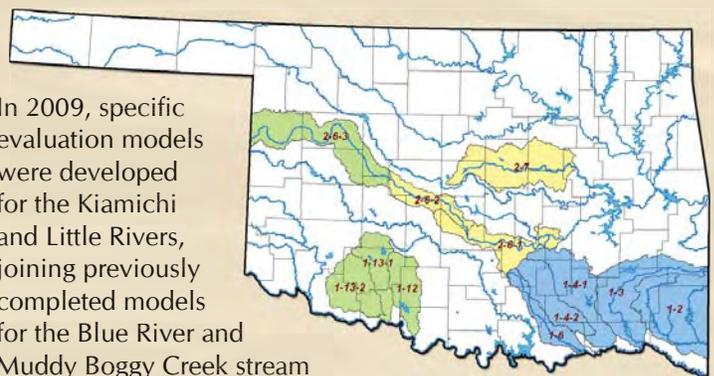
Current efforts are focused on developing the geohydrologic framework and water budget. In February and March, 2009, USGS and OWRB staff measured approximately 280 shallow water wells across the aquifer to compare with water level information collected in 1986-87. Results will determine how the aquifer's storage has changed over the past 20 years.

The study is being conducted in cooperation with the USGS, Association of Central Oklahoma Governments, Bureau of Reclamation, Oklahoma Geological Survey, and Tinker Air Force Base.

Stream Water Allocation Modeling

OWRB water allocation models have become invaluable water management tools that facilitate day-to-day permitting decisions. Each stream system model involves the integration and analysis of unique water rights, water use, and streamflow data that allow the OWRB to do the following:

- Determine potential interference of proposed stream water permit applications with existing water rights;
- Assess potential conflict between existing stream water diversions and downstream water rights holders;
- Evaluate impacts of seasonal streamflow variability;
- Identify watersheds susceptible to shortages during periods of drought; and
- Assess management strategies and gap analysis of water availability for the Water Plan.



In 2009, specific evaluation models were developed for the Kiamichi and Little Rivers, joining previously completed models for the Blue River and Muddy Boggy Creek stream systems. The Upper Canadian River, Cache Creek, and Beaver Creek models are currently under development. Models are planned for the Deep Fork and remainder of the Canadian.

Water Rights Reductions and Cancellations

Nearing completion, the agency's comprehensive review of state stream water permits continued through 2009. So far, pending completion of the process in the Panhandle and northwest, approximately 400 stream water rights have been cancelled allowing for the return of almost 441,000 acre-feet of additional surface water for prospective users in the state. About 250 water rights either received water use corrections or were granted allowances for acceptable causes of non-use.

The project's final phase, beginning with the mailing of notices and subsequent hearings early in 2010, will address potential reductions in permitted surface water amounts. As with the cancellation phase, this process will begin in southeast Oklahoma.

Water Quality Programs

Again in 2009, the OWRB's Water Quality Division focused on building partnerships to address the state's water data needs, especially related to the Oklahoma Cooperative (Stream Gaging) Program between the OWRB and USGS. The program, which provides streamflow and related technical information crucial to state water quality and quantity management, is especially important now as Oklahoma updates the OCWP.



Through a successful partnership with the Grand River Dam Authority, the OWRB continued dissolved oxygen monitoring on both Grand Lake and Lake Hudson to support Federal Energy Regulatory Commission re-licensing. The OWRB's efforts to enhance habitat and water quality in Oklahoma lakes continue through projects to introduce aquatic plants in Stanley Draper Lake, Grand Lake, Hudson Lake, and a new cooperative project at Lake Atoka. The Draper project is maintained by the OWRB through funding provided by Oklahoma City.

As part of the OWRB's Beneficial Use Monitoring Program (BUMP), 36 lakes were sampled during the 2008-2009 period. The agency completed work, funded through an EPA grant, to conduct monitoring for dissolved metals on selected lakes where little or no previous toxics data existed. Also, the OWRB completed its implementation assistance to the Corps of Engineers as part of an ongoing federal chloride control project in southwest Oklahoma. Monitoring activities this year include an update to the state's Status of Water Quality Monitoring Document, further integration of probabilistic sampling into lake and stream sampling programs, and analysis of trends in water quality for Oklahoma waters as part of the OCWP update.

The triennial revision of the Water Quality Standards, initiated in 2009, proposes specific language that enables the determination of naturally occurring conditions as well as criteria at natural concentrations when they exceed promulgated criteria. New human health criteria have been proposed for phenol and acrolein and the applicability of numerical water color criteria will be modified. Informal public meetings on the proposed revisions were held in 2009 while the formal rulemaking process was initiated late in the year. Staff also initiated development of a standards component for the Water Plan.

Floodplain Management

The OWRB continues to assist communities in adopting new Flood Insurance Rate Maps through FEMA's Map Modernization program, which ended in 2009. Updated maps are still in development for the 41 targeted counties in Oklahoma.

The OWRB continues to train local Floodplain Administrators throughout the state. Annual accreditation is required of officials in Oklahoma's 381 NFIP communities. With assistance from the Oklahoma Floodplain Managers Association, the OWRB conducted 18 training sessions.



Dam Safety Program

The OWRB completed its imaging of agency dam safety files, including development of a new dam inventory database. Both projects greatly improve accessibility to information and staff efficiency.

The OWRB participated in a study, directed through passage of HB 1884, to review existing state and federal laws and regulations related to the classification of high-hazard dams in Oklahoma. A specific goal of the study is to develop recommendations aimed at reducing the number of low- or significant-hazard dams that are reclassified as high-hazard dams, which require heightened regulation and associated costs. The group also explored opportunities to enhance funding for maintenance and rehabilitation, expand mapping of breach inundation areas, and improve education on the safety risks associated with downstream development.

Well Driller and Pump Contractor Program

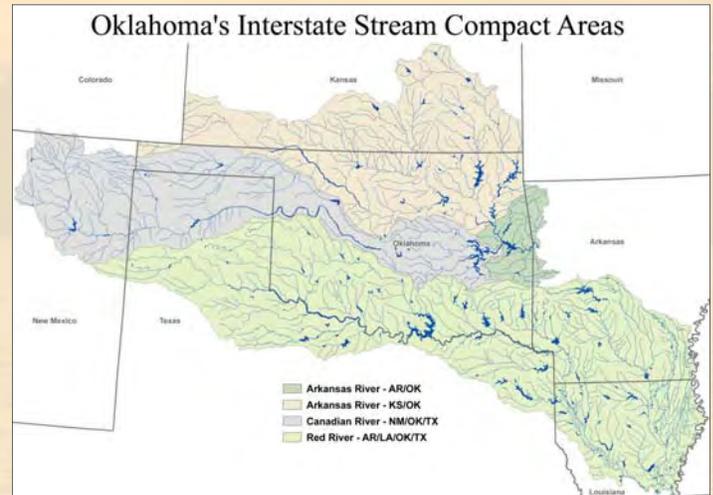
During 2009, the OWRB Well Driller and Pump Installer staff maintained licenses for 345 licensed Well Drilling and Pump Installer firms and 600 licensed operators. The OWRB licensed 36 new firms and 61 new operators during this period. The OWRB in association with the Oklahoma Ground Water Association also provided continuing education training for 322 licensed individuals.

The OWRB also received well reports for 2,754 new water wells, 3,034 new monitoring wells/geotechnical borings and 561 new heat exchange wells. Staff maintains a well log database that currently has over 120,000 well records accessible to the public.

State Water Rights Legislation

In 2009, the State Legislature passed House Bill 1483, the most consequential water legislation in years. Sponsored by Rep. Dale DeWitt with strong support from the OWRB, the bill provides additional protection for Oklahoma's water interests by declaring that no out-of-state water permit shall impair the state of Oklahoma from meeting its obligations under interstate compacts with other states. Proponents of HB 1483 cite its assurances that Oklahoma's future water supply needs will now take precedence over out-of-state water sales.

Subsequently, in late November, the federal district court ruled that the complaint by Tarrant Regional Water District (TRWD) seeking to clear the way for its application to divert more than 400,000 acre-feet of water from tributaries of the Red River in Oklahoma should be dismissed. The court determined that the plaintiffs were seeking water already apportioned by the Red River Compact between Oklahoma, Texas, Arkansas, and Louisiana.

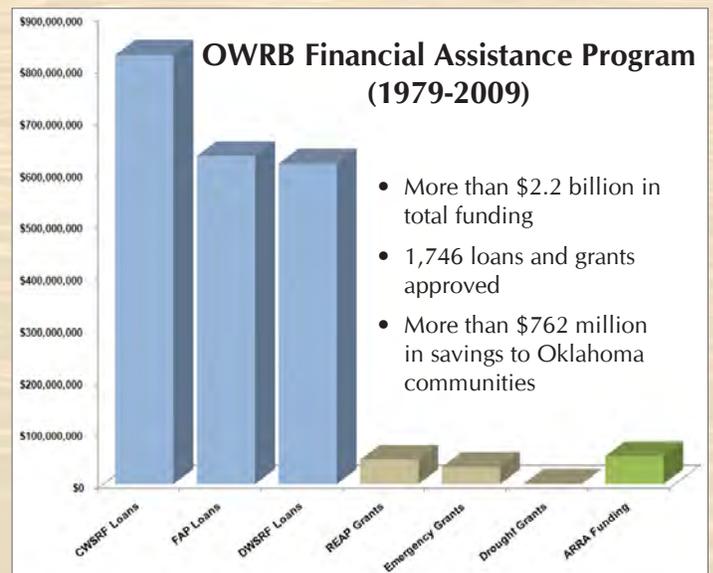


Financial Assistance Program

The OWRB's FAP surpassed the \$2 billion funding level in 2009. In addition, an agency bond issue of \$2.8 million, which provided financing and substantial savings for two Oklahoma communities, brings the total bond amount to more than \$782 million since inception of the Board's Financial Assistance Program in 1985.

The OWRB expanded its general water and wastewater infrastructure financing duties through administration of \$62 million in federal American Recovery and Reinvestment Act (ARRA) funds. Through aggressive financing measures, the agency was able to leverage these funds with approximately \$175 million in standard OWRB loans to underwrite construction of 55 water and wastewater projects—all well in advance of Congress's deadline. The OWRB's ARRA program resulted in more than \$158 million in interest rate savings to Oklahoma communities and water/wastewater systems.

Also last year, the OWRB initiated a project with EPA and the University of Oklahoma to identify the often overlooked social, environmental and public health benefits of water and sewer projects. Investment in environmental infrastructure yields significant direct and indirect economic, social, and "quality of life" benefits that contribute to job creation, aesthetics, recreation, industry, and other facets of life. Results of the study will be used to help communities justify and implement future projects.



In 2009, through Oklahoma's Clean Water and Drinking Water State Revolving Fund programs, the Board committed approximately \$62 million in ARRA funds and approximately \$175 million in loans for 55 water and wastewater projects listed on the OWRB's and DEQ's Priority Funding Lists.

Through the OWRB's conventional (non-ARRA) financing programs, the agency approved 12 loans and 25 grants for \$85.4 million.

Water Board Initiates Annual Water Use Reporting Survey

As part of an annual process, in January the OWRB will mail water use report forms to every holder of a water right in Oklahoma.

According to Julie Cunningham, chief of the OWRB's Planning and Management Division, information provided through these forms is vital to the fair and efficient appropriation of water both to current and future users throughout the state.

"Much like a person tracks spending and balances his or her checkbook to determine how much money is available for withdrawal when needed, we ask citizens, municipalities, and businesses to account for their water usage," she explains. Resulting data not only provides collective information on the amount of water currently used for various purposes, but it helps determine how much is available to future users.

"As the OWRB continues its ongoing update of the Water Plan, which will include 50-year projections of water use,

this information is critical to addressing future water needs and accomplishing the state's economic development goals," Cunningham says.

Oklahoma law requires the OWRB to review stream water rights for non use and cancel a water right if the water is not actually placed to beneficial use.

State law requires all reports to be completed and returned to the Board—in addition to a required annual file maintenance fee (for stream water users only)—within 30 days of receipt. The agency encourages water rights holders to fill out the forms as accurately and completely as possible, including a current mailing address. Because many users don't use meters or possess other means to account for their usage accurately, each form includes detailed instructions on how to estimate water use for a specific purpose. Failure to submit the form is considered to be "non use" of a water right in that particular year.

In Oklahoma, stream water is considered a public resource while groundwater belongs to the land surface owner. This unique difference makes groundwater permit holders subject to a separate set of rules, although both surface and groundwater users are required to submit annual usage reports. ♦

President Appoints New EPA Regional Leader

Dr. Alfredo "Al" Armendariz has been appointed by President Obama as the new Region 6 Administrator for the U.S. Environmental Protection Agency.

Armendariz is an Associate Professor at Southern Methodist University in Dallas, Texas, where he has taught

environmental and civil engineering. Previously, he worked as a research assistant at the MIT Center for Global Change Science at their Atmospheric Chemistry Laboratory in Massachusetts, later joining Radian Corporation in North Carolina as a chemical engineer. Armendariz received his S.B. in chemical engineering from the Massachusetts Institute of Technology, his M.E. in Environmental Engineering from the University of Florida, and his Ph.D. in Environmental Engineering from the University of North Carolina at Chapel Hill.

Armendariz succeeds Richard Green. Region 6 encompasses Oklahoma, Texas, Louisiana, Arkansas, New Mexico, and 66 Tribal Nations. ♦



Al Armendariz, EPA Region VI Administrator

OWRB/OCS Establish Sixth Well

In November and December, the OWRB and Oklahoma Climatological Survey completed their fifth and sixth cooperative groundwater observation wells, near Chickasha and Spencer, in conjunction with the Oklahoma Mesonet. Observation wells at Mesonet sites are equipped with water-level recorders that provide continuous groundwater-level data. Such monitoring can provide insights on short-term variability and long-term trends in groundwater levels, and can help in determining the effects of drought and climatic variability on groundwater resources.

In 2004, as part of a pilot project, observation wells and equipment were established at the Acme and El Reno Mesonet stations. In 2005, an entirely new station was commissioned at Fittstown as part of the Arbuckle-Simpson Hydrology Study to provide researchers with information essential to understanding the aquifer and how it responds to variations in precipitation, evaporation, and other factors. This year, members of the Oklahoma Ground Water Association—specifically, Loman Drilling Inc., Harmon Water Well Service, and Vannoy and Son Drilling Co.—donated their services to drill observation wells at the Shawnee, Chickasha, and Spencer Mesonet stations. OWRB staff maintain and calibrate the water-level recorders and conduct quality assurance checks on the data. OCS staff manage the electronic data and provide water-level graphs on the Mesonet website. The Shawnee and Spencer stations are providing data for the Garber-Wellington Water Management Study.

Real-time daily water-level measurements and hydrographs are available on the Mesonet website at www.mesonet.ou.edu. ♦



Chickasha Mesonet well, drilled November 19



Oklahoma Comprehensive Water Plan

OCWP

Recent Developments

- The OCWP Marginal Quality Water workgroup met in December; the Recharge workgroup is scheduled to meet in January.
- Chaired by OWRB Water Quality staff, an OCWP multi-agency workgroup was formed to address water quality programs, current status and future Water Plan recommendations. The workgroup's initial meeting was held in December.
- Regional- and basin-level water resource planning fact sheets, a centerpiece of the Water Plan effort, are currently being developed. Among other benefits, these publications will include detailed information and data to assist public water supply providers in planning for their 50-year future.
- As a result of extensive work and cooperation between the OWRB and U.S. Army Corps of Engineers, the final federal FY-2010 appropriation for the OCWP amounted to \$904,000.
- The OCWP Water Research Advisory Board (WRAB), which also serves as the Water Resource Research Institute's funding coordination group, will meet in January to evaluate three research projects for funding in 2010. The OCWP will utilize the results of these and other research projects in recommending feasible water management and planning options for Oklahoma. The OWRB and other Water Plan cooperators actively support and advance water-related research through matching research funds.
- The OWRB is working with the University of Oklahoma, Northbridge Environmental Consultants, and four diverse Oklahoma communities to study how citizens value potential economic, social, and environmental benefits resulting from local water infrastructure investments.

Upcoming

- On March 29, a public input strategy seminar will be held at the Moore-Norman Technology Center to brief participants on the strategies developed in the OCWP Planning Workshops in preparation for the Town Hall.
- On May 23-26, the OCWP Town Hall will be held in Norman.

Water Plan Objectives

1. Characterize demands by water use sector.
2. Identify reliable supplies to meet forecasted demands.
3. Perform technical studies in support of the evaluation of emerging water management issues.
4. Engage comprehensive stakeholder involvement to make recommendations regarding the management of Oklahoma's water resources.
5. Make "implementable" recommendations regarding the future of water management in Oklahoma based upon technical evaluations and stakeholder input.



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 more information on the OCWP, visit the OWRB's website at www.owrb.ok.gov. For questions and comments concerning policy development and public meetings, contact the OWRRI at 405-744-9994, by e-mail at waterplan@okstate.edu, or go to <http://okwaterplan.info>.

Drought Update

Reservoir Storage

As of December 15, 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); 20 reservoirs have experienced lake level decreases since November 17.

Palmer Drought Severity Index

According to the latest Palmer Drought Severity Index (December 12, bottom), no climate divisions in Oklahoma are currently experiencing drought conditions.

Standardized Precipitation Index

The latest monthly Standardized Precipitation Index (through November, bottom) indicates near long-term dryness in the Northwest climate division.



Storage in Selected Oklahoma Lakes & Reservoirs (December 15, 2009)

LAKE	Change in Elevation (feet) 11/17/09-12/15/09	Current Flood Control Storage (acre-feet)
North Central (2)		
Fort Supply	0.41	-835
Great Salt Plains	-0.26	3,189
Kaw	0.40	-2,654
Northeast (3)		
Birch	-0.14	0
Copan	-0.28	4,256
Fort Gibson	-0.26	8,299
Grand	-2.42	1,321
Hudson	0.47	7,956
Hulah	-2.11	2,590
Keystone	0.00	39,427
Oologah	-5.06	-50,119
Skiatook	-0.25	2,735
West Central (4)		
Canton	0.09	-10,590
Foss	0.00	-11,735
Central (5)		
Arcadia	0.13	725
Heyburn	0.24	-584
Thunderbird	-0.10	793
East Central (6)		
Eufaula	-1.05	17,382
Tenkiller	-2.30	22,925
Southwest (7)		
Fort Cobb	0.15	1,752
Lugert-Altus	0.89	-96,886
Tom Steed	-0.32	-24,129
South Central (8)		
Arbuckle	-0.25	1,428
McGee Creek	0.03	5,781
Texoma	-1.97	-23,851
Waurika	-0.06	-203
Southeast (9)		
Broken Bow	-2.24	9,095
Hugo	-0.95	6,083
Pine Creek	-3.34	849
Sardis	-0.08	7,213
Wister	-6.16	6,202

CLIMATE DIVISION	Standardized Precipitation Index (through November 2009)				Palmer Drought Severity Index
	3-month	6-month	9-month	12-month	December 12, 2009
Northwest (1)	Near Normal	Moderately Dry	Moderately Dry	Moderately Dry	Near Normal
North Central (2)	Near Normal	Near Normal	Near Normal	Near Normal	Unusual Moist Spell
Northeast (3)	Moderately Wet	Near Normal	Near Normal	Near Normal	Moist Spell
West Central (4)	Near Normal	Near Normal	Near Normal	Near Normal	Moist Spell
Central (5)	Near Normal	Near Normal	Near Normal	Near Normal	Unusual Moist Spell
East Central (6)	Very Wet	Moderately Wet	Moderately Wet	Near Normal	Unusual Moist Spell
Southwest (7)	Near Normal	Near Normal	Near Normal	Near Normal	Incipient Moist Spell
South Central (8)	Moderately Wet	Moderately Wet	Very Wet	Moderately Wet	Unusual Moist Spell
Southeast (9)	Very Wet	Moderately Wet	Very Wet	Moderately Wet	Extreme 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

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

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 2009

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FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of December 8, 2009

FAP Loans—323 totaling \$632,575,000

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—224 totaling \$827,211,076

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—116 totaling \$617,924,828

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—530 totaling \$46,866,667

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—551 totaling \$32,754,146

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—2 totaling \$200,000

Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of \$300,000 is diverted from existing OWRB Emergency Grant funds to establish the Program.

American Recovery & Reinvestment Act Funding—\$53,280,907

Through the OWRB's conventional CWSRF and DWSRF loan programs, ARRA funds are utilized to provide additional subsidization to Oklahoma communities for water and wastewater infrastructure improvements as well as to provide benefits to the state's environment and create jobs for Oklahoma workers.

**Total Loans/Grants: 1,746 totaling \$2,157,531,718
Estimated Savings: \$762,495,353**

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.**