

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.

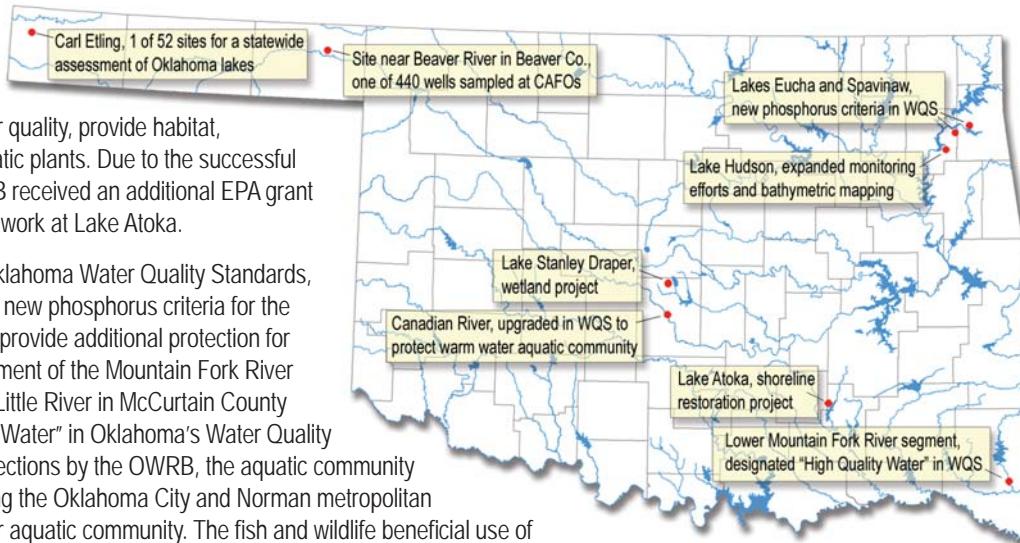
The OWRB partnered with Oklahoma City's Water and Wastewater Utilities, EPA, and the Oklahoma Department of Wildlife Conservation for a multi-year, federally funded wetland project at Lake Stanley Draper to enhance water quality, provide habitat, and beautify the lake by introducing aquatic plants. Due 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.

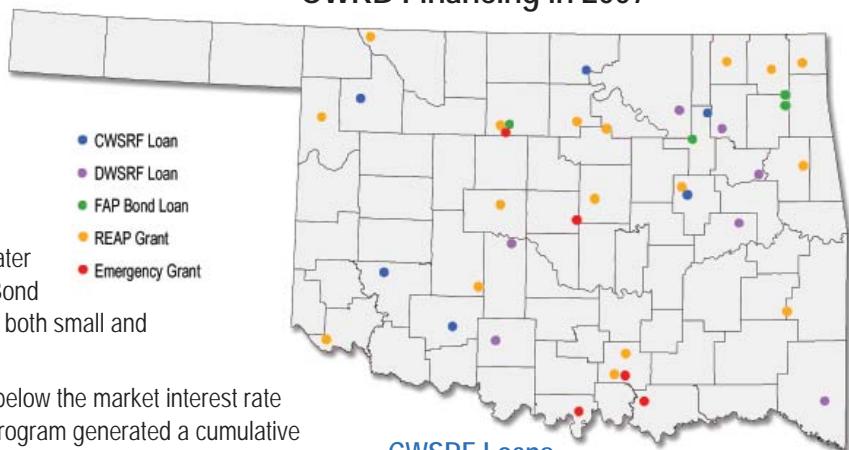
Through CWSRF and DWSRF loans approved in 2007, \$26.1 million and \$13.1 million, respectively, will be used to construct wastewater and water system improvements required to comply with Oklahoma Department of Environmental Quality and US Environmental Protection Agency (EPA) permit orders to eliminate 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.



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.

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. RWSGSWMD #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

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

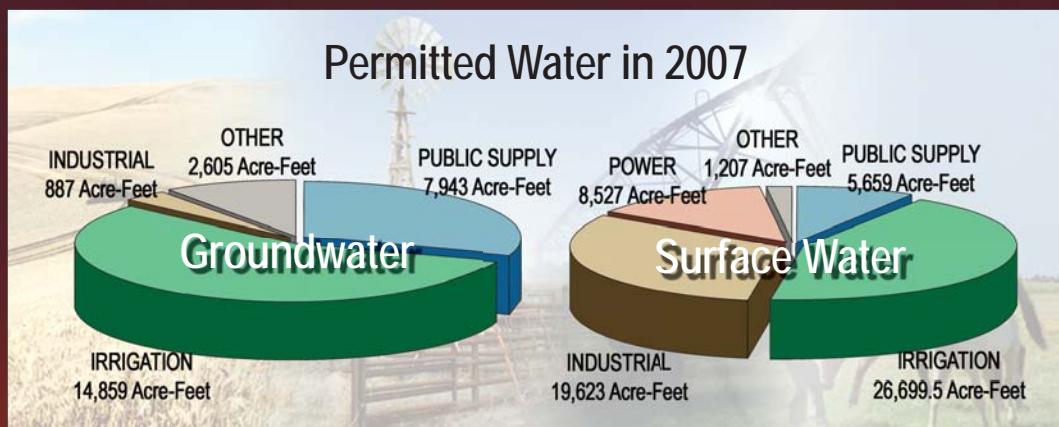
Sardis Lake Litigation

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



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.