

In This Issue

2002-2003 Bump Report Available

**EPA Approves Phosphorus Standard
for Oklahoma's Scenic Rivers**

Nichols Joins Board

**Science Group Asks for Cloud Seeding
Research**

**Former OWRB Chairman Kerr
Memorialized**

**OWRB Asks Landowners to Watch for
Staff in Field**

**Thunderbird and Hefner Set for
Oklahoma Lake Sweep**

**Oklahoma Water Watch Implements
QCA! Plus Sessions**

**Howard Named Employee of the
Quarter**

Oklahoma Drought Monitor

OKLAHOMA Water News

Bimonthly Newsletter of the Oklahoma Water Resources Board

From the Director



*Duane A. Smith
OWRB Executive Director*

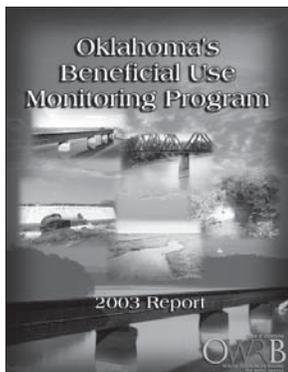
A record 1,750 bills were introduced as the second session of Oklahoma's 49th Legislature convened on February 2. While many bills dealing with various aspects of water management have already fallen by the wayside, our state leaders continue to wrestle with how to get water to those Oklahomans most in need, especially in rural areas. Legislation relating to the state's water sale moratorium, floodplain management, and of course, the Arbuckle-Simpson aquifer, are all still under consideration at the State Capitol. At least two water planning bills remain alive, including Senate Bill 903, a critically important piece of legislation that directs establishment of 11 regional planning entities to create plans detailing each area's unique water issues and water needs throughout the next 50 years. The Water Board

See From the Director, Page 2

2002-2003 Bump Report Available

The 2002-2003 Report of the Beneficial Use Monitoring Program (BUMP) is now available for the public on the OWRB Web site (www.owrb.state.ok.us). Citizens may also call the OWRB at 405-530-8800 to request a copy of the Report on compact disc.

The BUMP report is an annual summary of physical, chemical, and biological data collected from 130 designated lakes, each with at least four monitoring sites, and 99 stream sites. Providing data to help identify waters experiencing impairments, as well as the cause of declining water quality, is a primary role of BUMP. By determining whether the beneficial uses assigned to a water body are being supported, the BUMP report is also extremely valuable to the development and refinement of Oklahoma's Water Quality Standards.



For the first time, this year's report will include bathymetric maps for thirteen lakes: Atoka, Eucha, Frederick, Hefner, Hugo, McGee Creek, Murray, Overholser, Sardis, Spavinaw, Stanley Draper, Thunderbird, and Wister. The OWRB's bathymetric mapping team is currently working on projects at Grand, Walters, Lawtonka, and Ellsworth Lakes.



OWRB staff member Allyson Childress navigates the OWRB's survey vessel at Grand Lake using GPS technology to collect preliminary bathymetric mapping data.

would then compile these plans into a statewide plan outlining the state's future water requirements, public policy concerns, community infrastructure needs, and various other strategies to get water where it is needed most. As is evident through Senate Bill 903 and other recent legislation, water concerns now closely rival those related to education, transportation, and other issues in the eyes of Oklahoma citizens.

At its March meeting, the nine-member Water Board considered revised agency rules dealing with dam safety, licensing of water well drillers and pump installers, and groundwater use. Our legal and permitting staff have done an excellent and meticulous job of integrating provisions of Senate Bill 288, passed last year to protect springs and streams in the Arbuckle-Simpson region, into the OWRB's groundwater rights administration process. More than ever before, the agency is taking a proactive stance in how we interpret evolving water laws and implement those laws through our rule-making procedures. Through public meetings, forums, and other lines of communication, we have established a system through which citizens can bring their concerns to the Water Board. We have an obligation to involve the public in the rulemaking process and we will never employ the "it's the law--live with it" approach. For this reason, our proposed rule that would allow aquifer recharge to be considered in the future maximum annual yield calculation of the

Arbuckle-Simpson aquifer has been withdrawn to allow more time to meet with local citizens and resolve differences surrounding the issue. Similarly, a proposed rule amendment that would remove protection for "culturally significant waters" from Oklahoma's Water Quality Standards will be delayed and reassessed as a result of intense public interest.

I want to publicly welcome Mark Nichols, appointed in January by Gov. Henry to the OWRB. As a cotton farmer from Altus and member of the Lugert-Altus Irrigation District, Mark is understandably a proponent of the wise use and protection of Oklahoma's water resources. Unfortunately, we must say goodbye to Richard McDonald, who has opted to leave the Board and concentrate entirely on business ventures in and around Walters. Richard was a dedicated representative of his southwest Oklahoma constituents and his advanced knowledge of water issues will be hard to replace.

Finally, it is with great sadness that I, members of the Board, and agency staff acknowledge the passing of former OWRB Chairman Bob Kerr. One of Oklahoma's exemplary "water people," Mr. Kerr's tenacious support of water issues, especially establishment of financial assistance for community water/wastewater infrastructure needs, belied his kind and gentle demeanor. He will be greatly missed, both personally and professionally.

EPA Approves Phosphorus Standard for Oklahoma's Scenic Rivers

On December 29, the U.S. Environmental Protection Agency formally approved Oklahoma's 2002 Water Quality Standards, including the new 0.037 milligram per liter criteria for phosphorus in northeast Oklahoma's Illinois River and the other five designated Scenic Rivers in the state.

In a letter to OWRB Executive Director Duane Smith, Miguel Flores, EPA Region 6 Director of Water Quality Protection, commended the efforts of the OWRB in revising standards to protect Oklahoma's water quality. The EPA also determined that the total phosphorus criterion of 0.037 mg/L is sufficient to protect the designated uses of the affected rivers and is consistent with the requirements for water quality standards established by the federal Clean Water Act.

In addition to its review of Oklahoma's Water Quality Standards justification documents, the EPA independently considered other sources of data and information related to the OWRB's determination of the recommended phosphorus limit. Citing one such source, a report published last year by the U.S. Geological Survey, EPA stated that "reported

[phosphorus] values corroborate that Oklahoma's adopted criterion is scientifically defensible and protective."

The EPA also commended the Board's provision allowing point source dischargers 10 years (until June 30, 2012) to come into compliance with effluent

(continued)



Flint Creek, one of Oklahoma's six scenic rivers.

limitations based on the phosphorus criterion: “Given the complexity of the issue, the amount of data yet to be gathered and the costs involved, EPA believes the compliance schedule provision... augments rather than undercuts the 0.037 mg/L standard by allowing dischargers the additional time to comply if it is needed.”

Specifically, the compliance schedule incorporates a “tiered approach” that requires the larger municipal dischargers in the Illinois River watershed to obtain federal discharge permits with an initial 1 milligram per liter phosphorus limit. Five



Mountain Fork at Smithville

municipalities in northwest Arkansas—Rogers, Springdale, Siloam Springs, Fayetteville, and Bentonville—are responsible for a large share of the phosphorus contributed to the basin. The compliance schedule allows the OWRB to work with the cities, rather than against them, which is vital to achieving long-term health for the Illinois River.

In late December, environmental officials from Oklahoma and Arkansas entered into an agreement that directs both states to work together to coordinate watershed monitoring and develop joint watershed plans, including both voluntary and mandatory measures, to substantially reduce phosphorus and achieve other water quality goals in the Illinois watershed by 2012. The pact hinges upon anticipated formal agreements with the five northwest Arkansas cities, which alone is expected to result in a 75-percent reduction in point-source phosphorus contributions. Officials also hope to develop similar nutrient reduction agreements with poultry integrators and smaller cities in Arkansas who reside and do business in the basin.

Although the agreement is a vital and necessary step, the OWRB is prepared for the next phase—comprehensive and persistent monitoring of the water quality in the Illinois River to ascertain our progress and identify areas needing additional attention.

Nichols Joins Board

On January 26, Governor Brad Henry announced the appointment of Jess Mark Nichols to the Oklahoma Water Resources Board to replace resigning member Richard McDonald. Senate confirmation is required. Nichols is a cotton farmer from Altus and a member of the Lugert-Altus Irrigation District.

Nichols currently serves on the Board of Directors for the Oklahoma Boll Weevil Eradication Organization, Producers Oil Mill, and Southwest Technology Center. He is also Chairman of the Altus Metropolitan Area Planning Commission.

Nichols earned a B.A. in Business Administration from the University of Devonshire in 2000. A farmer since 1976, he currently serves as President of Mark Nichols Farms, which has operations focused primarily on irrigated and dry-land cotton, wheat, and cattle.



Board members at the February 10 meeting: (bottom row left to right) Jess Mark Nichols, Glenn Sharp, Grady Grandstaff, Ervin Mitchell, Harry Currie, (top row left to right) Bill Secrest, Lonnie Farmer, Richard Sevenoaks, Jack Keeley, Executive Director Duane Smith, Executive Secretary Mary Schooley

Science Group Asks for Cloud Seeding Research

Concluding its assessment of the future viability of weather modification research in the U.S., the National Research Council has recommended a sustained coordinated national effort to verify the technology's potential for both augmenting water supplies and reducing severe weather hazards.

The NRC report, "Critical Issues in Weather Modification Research," was released last October following two years of intensive review of past and present cloud seeding research programs. The timely report bolsters the ongoing efforts of government and university officials in Oklahoma, Texas, North Dakota and other western states who are preparing to launch a cooperative regional program to verify the effectiveness of cloud seeding. The

primary goal of the Weather Damage Mitigation Program, funded through the U.S. Bureau of Reclamation, is to evaluate the potential value of weather modification in mitigating weather-related disasters.

"The timing and conclusions of this report certainly facilitates our efforts to get this program off the ground as well as bring public attention to the need for additional research in the area of weather modification and its numerous potential benefits," states Mike Mathis, chief of the OWRB's Planning and Management Division.

The NRC report recommends that a "coordinated national program be developed to conduct a sustained research effort in the areas of cloud and precipitation microphysics, cloud dynamics, cloud modeling, and cloud seeding" The report further states that research "should be implemented using a balanced approach of modeling, laboratory studies, and field measurements designed to reduce key uncertainties."

Mathis points out the Weather Damage Mitigation Program will rely heavily upon researchers from the University of Oklahoma's National Weather Center, including meteorologists with the National Oceanic and Atmospheric Administration. While several states—including Texas, North Dakota, and Kansas—currently employ operational cloud seeding programs, recent technological advances in atmospheric science have created an opportunity for researchers to seriously investigate the extent to which mankind can influence the weather. Although Oklahoma's recent cloud seeding program, initiated in 1996, was discontinued in 2001 due to lack of funding, the absence of credible research supporting the technology likely contributed to the decision.

"Previously, scientists lacked the necessary tools to conduct truly effective research programs. But over the last 10 years or so, we've experienced tremendous advances in weather and climate forecasting, modeling, and remote sensing so that such research efforts are for the first time within our grasp," Mathis emphasizes. "Results from this multi-year investigation will provide us with the information to better determine the effectiveness of current operational weather modification programs, allow us to further develop this very exciting technology, and most importantly, provide measures through which we can better safeguard citizens from the often devastating effects of severe weather events."

Former OWRB Chairman Kerr Memorialized

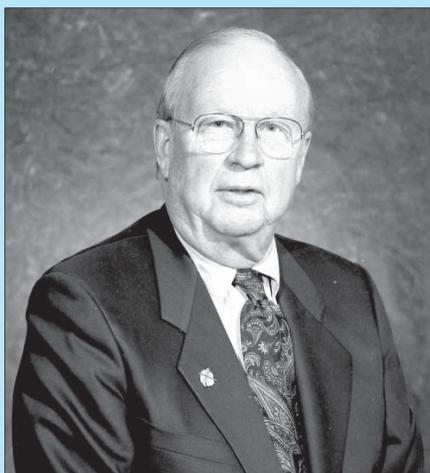
At a memorial service on February 4 in Oklahoma City, hundreds gathered to celebrate the life of former Board Chairman Robert S. Kerr, Jr. A great advocate of the OWRB and water development in Oklahoma, Mr. Kerr served as OWRB Chairman from 1988 to 1994, providing leadership and direction during critical years of development of the Board's financial assistance programs.

Kerr was named an Oklahoma Water Pioneer, was inducted into the Oklahoma Hall of Fame, and received a Citation from Governor David Walters in 1994 noting his leadership and service to the citizens of Oklahoma as a steward of our most precious natural resource, water.

As president of the Water Development Foundation of Oklahoma, Mr. Kerr campaigned for the Central Oklahoma Project, a plan that envisioned navigation up the Deep Fork River and worked for fresh water for the growing central Oklahoma counties. As president of Oklahoma Water Inc., Kerr pressed for a statewide water development plan. Phase 1 for the state's southern 33 counties was completed in 1975, and Phase II was released in 1980.

He served as a trustee of the Kerr Foundation at its inception in 1963 and later served as chief executive and president. The Kerr Foundation has supported many educational and cultural institutions, and Mr. Kerr was responsible for more than \$27 million in grants for projects in education, health, cultural activities, human services, and the arts.

The Kerr family suggests that memorials be made to the Robert S. Kerr Jr. Chair in Environmental Law at Oklahoma City University and the Robert S. Kerr Jr. Chair in Cancer Research at the Oklahoma Medical Research



Robert S. Kerr, Jr.

OWRB Asks Landowners to Watch for Staff in Field

Field crews from the OWRB will visit rivers and streams throughout western Oklahoma over the next several months as part of the final phase of a statewide water quality assessment effort. The agency's water quality specialists will conduct biological assessments (bioassessments) of state surface waters as part of a statewide effort involving collection of biological samples and evaluation of individual stream characteristics.



OWRB staff collecting fish for Use Attainability Analysis from Boley Creek in Okfuskee County

Biological assessments are crucial tools for measuring the health of water bodies and protecting aquatic life. The condition of a water body can be evaluated using surveys and other direct measurements of aquatic life—aquatic vegetation and algae, fish, insects, and other organisms. Resulting data are used by the OWRB and other state environmental agencies to develop criteria for defining the desired biological condition of a water body and establishing narrative and numerical standards integral to the maintenance and restoration of water quality.

Typically, Board crews will access targeted streams near highway bridge crossings, and assessments and collection of biological and water samples will be conducted on the immediate banks and within 300 yards of the road. Field staff are at all times required to wear marked clothing and carry appropriate credentials. OWRB vehicles also are marked with the agency's logo on both sides.

Landowners or other citizens encountering OWRB staff in the field should ask for identification and an explanation of what they are doing. If for any reason landowners wish to deny OWRB staff access to their property, staff will promptly leave the premises.

The OWRB is always looking for prime sampling locations. Landowners should contact the agency if they know about an accessible site that is inundated or wet during the spring season for possible inclusion in future sampling efforts. The OWRB's ongoing bioassessment effort will conclude next year in western Oklahoma, including the Panhandle region.

Thunderbird and Hefner Set for Oklahoma Lake Sweep

Volunteers will comb the shores of two Oklahoma City lakes this spring as part of Oklahoma Lake Sweep, a volunteer-driven beautification effort aimed at various state lakes of particular recreational importance. Local citizens are encouraged to attend the two weekend events, which will be held at Lake Thunderbird on March 27 and at Lake Hefner on April 24. Both will begin at 9 a.m.

Each year, more than 100 volunteers respond to Lake Sweep's appeal for beautification in the metropolitan Oklahoma City area. Oklahoma Lake Sweep fosters citizen pride and public awareness while accentuating the recreational and related benefits of Oklahoma's reservoirs and municipal lakes. The effort is a component of Oklahoma Water Watch, a community-based volunteer water quality monitoring program directed by the Oklahoma Water Resources Board.

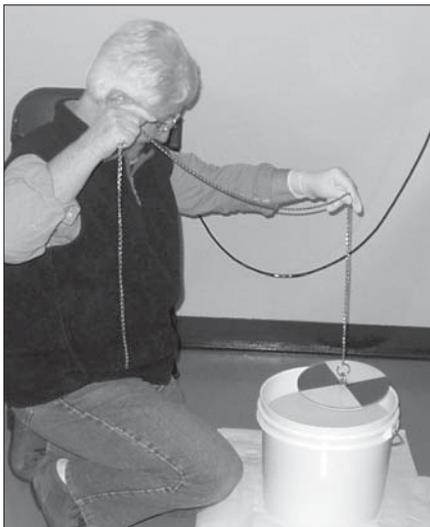
The Thunderbird Lake Sweep will kick off at the Thunderbird Boat House and wrap up by noon with a hot dog lunch provided by Country Boy Market. Volunteers from the University of Oklahoma's annual "Big Event" will be on hand to assist with the clean up. Big Event is Oklahoma University's official day of community service, where volunteers including students, faculty, and staff disperse to hundreds of job sites in central Oklahoma to perform various types of community service. Official sponsors of Thunderbird Lake Sweep include the OWRB, Oklahoma Clean Lakes and Watersheds Association (OCLWA), Thunderbird Sailing Club, and Thunderbird State Park.

In addition to picking up litter and other refuse, the Hefner Lake Sweep will feature a fishing clinic for both adults and children, a water-based obstacle course, and a short-course on boating safety provided by the Oklahoma City Police Department's Lake Patrol. In addition, door prizes will be given away courtesy of Tracker Marine and Bass Pro Shops. The event will culminate at 1 p.m. with a hot dog lunch provided by local sponsors, which include the OWRB, OCLWA, City of Oklahoma City Parks, Water and Public Works Departments, Oklahoma City Beautiful, Tracker Marine, and Bass Pro Shops.

All Oklahoma Lake Sweep participants should wear sturdy shoes and bring work gloves, a trash pick-up stick, insect repellent, sunscreen, and bottled water. For more information or to volunteer for either Oklahoma Lake Sweep event, contact Juli Ridgway, OCLWA President and Lake Sweep Coordinator, at 405-530-8800.

Oklahoma Water Watch Implements QCA Plus! Sessions

In order to retain certification, Oklahoma Water Watch (OWW) volunteer monitors must attend and pass at least one QCA (Quality Control Assessment) Session per year. Currently, OWW staff offer two QCA Sessions per year for each chapter. During a QCA session, volunteers run four repetitions on spikes of known values, record



A GLA volunteer practices using a Secchi Disc, a round, flat disc with alternating black and white quadrants that can be lowered into the lake to measure water clarity.

the results on a datasheet, and return the results to OWW staff to check for accuracy and precision.

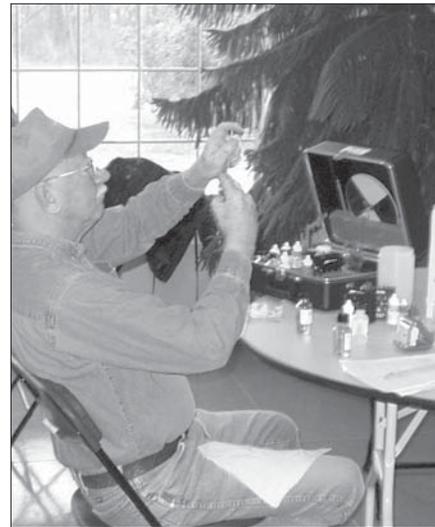
Successful completion of the yearly session validates volunteer-collected data by accounting for accuracy, precision, and usability of all data. Accuracy measurements for pH, dissolved oxygen, nitrate nitrogen, ammonia nitrogen and ortho-phosphate are obtained using spike

samples provided by the OWRB lab. Precision analyses are performed using pH and nutrient spike samples in the same manner and at the same time as accuracy analyses. Monitor precision is calculated by comparing the standard deviation between replicate samples to an acceptable deviation.

To supplement the QCA Sessions, QCA Plus! Sessions will now be held every other year for each chapter (unless more sessions are needed). During a QCA Plus! Session, volunteers are trained to clean all field equipment before proceeding with the QCA session. The equipment is decontaminated by a series of acid baths using a 10% Hydrochloric Acid solution and then put through a series of rinses with tap water and distilled water.

On December 4, 2003, OWW staff held the first implemented QCA Plus! Session for the Grand Lake OWW Chapter. After receiving positive feedback from volunteers, OWW staff now look forward to conducting routine QCA Plus! Sessions for all OWW chapters. Please visit the OWW Web page on the OWRB Web site for more information about the program.

www.owrb.state.ok.us/oww



GLA volunteer Don Roderick performs a Dissolved Oxygen (D.O.) test.

Howard Named Employee of the Quarter

Scott Howard, Environmental Programs Specialist in the Water Quality Programs Division, was selected as OWRB/OSE Employee of the Quarter in December. A May 2003 graduate of the University of Central Oklahoma with a Bachelors Degree in Biology, Howard was nominated for his exceptional work ethic and dedication to his job and fellow employees. Howard consistently meets division goals and time deadlines, even if it means arriving early, staying late, or working on weekends. He has also demonstrated an uncommon level of devotion and concern for his fellow employees, whether it is assisting with purchasing paperwork, equipment maintenance, and field work, or offering moral and financial support. Scott has earned a reputation as one of the agency's most generous employees.



Scott Howard assisting the Oklahoma Water Watch program by using Hydrochloric acid to wash all glass and plastic containers used for sampling

Oklahoma Drought Monitor

Reservoir Storage

Although lakes in southwest Oklahoma continue to suffer from very low levels, lake storage elsewhere remains generally good. As of February 24, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.8 percent full, a 1.4 percent increase from that recorded on January 26, according to information from the U.S. Army Corps of Engineers (Tulsa District). Seventeen reservoirs have experienced lake level decreases since that time. Fourteen reservoirs are currently operating at less than full capacity (compared to 15 four weeks ago). Two reservoirs—Lugert-Altus, only 22.1 percent full; and Tom Steed, 51.5 percent—remain below 80 percent capacity.

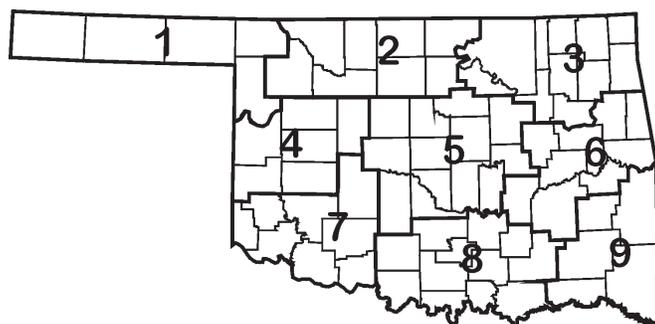
Storage in Selected Oklahoma Lakes & Reservoirs

As of February 24, 2004

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	420,480	420,463	100.0
Northeast	3,710,194	3,621,291	97.6
West Central	276,790	261,575	94.5
Central	154,225	139,840	90.7
East Central	2,968,683	2,687,280	90.5
Southwest	301,810	149,842	49.6
South Central	2,795,156	2,470,886	88.4
Southeast	1,464,929	1,464,929	100.0
State Totals	12,092,267	11,216,106	92.8

Drought Indices

According to the latest Palmer Drought Severity Index (January 24, below), no region in Oklahoma is currently experiencing drought conditions and only three of Oklahoma's nine climate divisions have undergone a PDSI moisture decrease since January 24. The greatest decrease occurred in the Northeast climate division.



The latest monthly Standardized Precipitation Index (through January, below) continues to indicate some long-term dryness in southern and eastern Oklahoma, although conditions have recently improved. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), only “moderately dry” conditions are indicated in the South Central and Southeast climate divisions throughout the last 12-month period. Considering longer periods (through six years), southern and eastern Oklahoma regions indicate dryness at various periods over the past 36 months. In particular, the Southeast is “very dry” over the past 15 and 18 months.

Palmer Drought Severity Index

Climate Division (#)	Current Status 2/21/2004	Value		Change In Value
		2/21	1/24	
NORTHWEST (1)	NEAR NORMAL	-0.14	0.20	-0.34
NORTH CENTRAL (2)	MOIST SPELL	1.51	1.40	0.11
NORTHEAST (3)	MOIST SPELL	1.43	1.88	-0.45
WEST CENTRAL (4)	INCIPIENT MOIST SPELL	0.77	0.86	-0.09
CENTRAL (5)	INCIPIENT MOIST SPELL	0.59	0.57	0.02
EAST CENTRAL (6)	INCIPIENT MOIST SPELL	0.69	0.47	0.22
SOUTHWEST (7)	INCIPIENT MOIST SPELL	0.65	0.38	0.27
SOUTH CENTRAL (8)	INCIPIENT MOIST SPELL	0.60	0.13	0.47
SOUTHEAST (9)	INCIPIENT MOIST SPELL	0.72	0.57	0.15

Standardized Precipitation Index

Through January 2004

	3-Month	6-Month	9-Month	12-Month
NORTHWEST (1)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NORTH CENTRAL (2)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NORTHEAST (3)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
WEST CENTRAL (4)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
CENTRAL (5)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
EAST CENTRAL (6)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTHWEST (7)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTH CENTRAL (8)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
SOUTHEAST (9)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY

Financial Assistance Program Update

Loans/Grants Approved as of February 10, 2004

FAP Loans—292 totaling \$504,055,000

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 extremely competitive low-interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—153 totaling \$514,153,717

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—36 totaling \$136,383,789

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—390 totaling \$33,767,263

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—504 totaling \$29,513,702

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

Total Loans/Grants—1,375 totaling \$1,217,873,471

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.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

Grady Grandstaff, *Chairman*; Glenn A. Sharp, *Vice Chairman*; Ervin Mitchell, *Secretary*

Harry Currie, Lonnie L. Farmer, Jack W. Keeley, Jess Mark Nichols, Bill Secrest, Richard C. Sevenoaks

Brian Vance, *Writer/Editor* • Darla Whitley, *Writer/Layout* • Barry Fogerty, *Photography*

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OKLAHOMA Water News

Bimonthly Newsletter of the Oklahoma Water Resources Board

In This Issue

Middle East Seeks Peace, Water

FLOOD CURRENT:

Education Efforts Abundant and Fruitful

Spring Floodplain Workshops

'McReady' for Floods

May is Flood Awareness Month in Oklahoma

Flood Safety Tips

Victims Remembered

Water for Sale

OWRB Displays GIS Capabilities at Capitol

Mesonet Celebrates 10th Anniversary

Nominations Sought for Environmental Award

Oklahoma Drought Monitor

From the Director



*Duane A. Smith
OWRB Executive Director*

I recently attended the Interstate Council on Water Policy Annual Washington, D.C., Roundtable in Washington D.C. and Western States Water Council Quarterly meeting in Las Vegas. Oklahoma's participation in these organizations is extremely beneficial to the state as we work to influence critically important water policy decisions at the federal level. Not only does our involvement provide a forum to network with other state governments and share information about common water problems and issues, it allows Oklahoma to promote its water interests before Congress and relevant federal agencies. Like our surface and groundwater resources, our state's water concerns obviously extend well beyond our borders.

While in the nation's capital, I had the fortunate opportunity to meet with several members of Oklahoma's Congressional delegation and staff and brief

See From the Director, Page 2

Middle East Seeks Peace, Water

As state officials grapple with allocating Oklahoma's water resources, as well as preserving and protecting surface and groundwaters for future generations, inherent obstacles and controversies frequently complicate matters. Urban versus rural, east versus west, environment versus development, state versus state, and groundwater versus stream water, are just a few of the conflicting interests about which the use of water has been intensely debated. Drought, an all-too-common event in this region of the country, and related water supply shortages make such problems even more difficult to resolve.

While many of the water issues facing Oklahomans are not so different from those in other areas of the world, conflicts over water use are of an even more delicate nature in arid regions where millions of people must rely on meager supplies. In the Middle East, where oil reserves exist in abundance, water is becoming the region's most valuable commodity.

It is this particular situation that prompted recent

establishment of Middle East Water Working Groups (WWG), sponsored by the University of Oklahoma's Center for Peace Studies. By bringing together the key players in this complicated situation—namely Israel, Palestine, and



Duane Smith (right) in Amman, Jordan, with Dr. Edward J. Perkins (left) and Jordan's Prince Hassan

Jordan, all highly dependent upon surface and groundwater resources in the Jordan River Basin—the WWGs are providing a forum to develop long-term solutions to regional water scarcity.

As a diplomatic community of scholars and advisors,

See Middle East, Page 2

From the Director . . . Continued from page 1

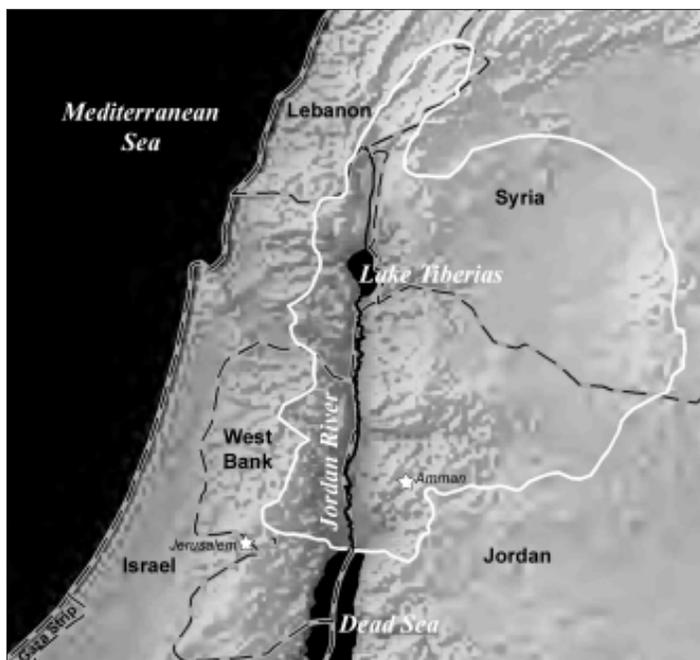
them on water issues facing the state. Specifically, I spoke with Senator Inhofe about funding in the federal Water Resources Development Act (WRDA) bill for monitoring in Oklahoma's scenic rivers, especially in the Illinois River Basin of Oklahoma and Arkansas, where we continue to work with state, municipal, and industrial officials in developing an efficient interstate water quality monitoring plan. I also spoke with Congressman Cole about the Arbuckle-Simpson study and the need to continue this very

Middle East . . . Continued from page 1

the Center for Peace Studies seeks to induce a positive influence on international relations and policy development through encouragement of multidisciplinary discussions of conflicts among societies, cultures, and political entities. The Center is currently concentrating on the Arab-Israeli peace process, in particular the disputes that stand in the way of lasting peace in the Middle East.

A WWG representing southern governments in the area consists primarily of faculty from the University of Oklahoma, Bethlehem University (Palestine), Haifa University (Israel), and the Horizon Center for Studies and Research (Jordan). Water professionals, community leaders and university students from the Middle East are also involved, as are facilitators/observers from the United States. A parallel group, including Syria, Lebanon, Iraq, and Turkey, represents the interests of northern tier countries.

While water supply is the consortium's prominent goal, establishment of trust among participants will likely be the determinant of success, according to former U.S.



The Jordan River watershed is delineated in white (left). Most of the river's flow is contributed upstream of Lake Tiberias. Many residents of the lower Jordan River Basin rely upon large aquifers underlying much of the West Bank region.

important investigation. I am continually impressed with our representatives in Washington and appreciate their willingness to be active for Oklahoma in support of our water resource programs.

We were very saddened to learn of Glenn Sharp's resignation from the Water Board. We greatly appreciate Glenn's service to the agency and its programs and we extend our best wishes to him and his family. Thanks Glenn!

Ambassador Edward J. Perkins.

"We've gone to great lengths to construct an open and non-threatening environment at these meetings," emphasizes Perkins, who is responsible for overall administration of the Center for Peace Studies. "So far, I believe this strategy has been enormously beneficial to the process. We have established an atmosphere of trust and honesty that will foster the conception of realistic solutions to future water crises in the Middle East," he points out, referring to the WWG's initial meeting last June in Cyprus and follow up meeting at the Dead Sea, near Amman, Jordan, in December.

Among the American contingent at the Jordan meeting was Duane Smith, OWRB Executive Director, who was invited by Ambassador Perkins to serve as a working group facilitator. Smith accompanied Perkins and Ed Corr, an O.U. colleague who has served as U.S. Ambassador to three separate countries, to the Dead Sea meeting.

"I feel very honored to have had the opportunity to participate in the Center's effort to resolve water issues in the Middle East," Smith says. "It was certainly an eye-opening experience, both from a personal and professional perspective."

The Jordan River Basin represents one of the world's most critical regions of current and future water scarcity. With one of the lowest per capita water availabilities worldwide and an extremely high population growth, food production is stretched to its limit and demand for water continues to increase at an alarming rate. Agriculture and irrigation consume more than two-thirds of the regional water resources, most of which are located in the river's upper basin, where large amounts of water are exported for use elsewhere. Projections indicate that by 2025 the region's domestic requirements for freshwater will leave no available supplies for agricultural purposes, a dire prognosis for Middle Eastern economies and governments. Aggravating this situation are frequent disputes erupting from the intermingling of Israeli and Palestinian settlements, including intense disagreement over the borders of the two states and status of refugees. Political tension in the region has predictably spilled over into water use and control.

Originating in the anti-Lebanon Mountains, the 200-mile-long Jordan River flows southward through the drained Hula Valley Basin into Lake Tiberias, also

known as the Sea of Galilee. Lake Tiberias, which covers 64 square miles and is the only freshwater lake in the Middle East, derives 75 percent of its inflow from the Jordan River. Only a small percentage of the lake's inflow is released to the lower Jordan River, and much of the discharge from the Yarmouk River, a primary tributary, is diverted for water supply before its confluence with the Jordan River south of the lake. The salinity of the Jordan River greatly increases downstream of Lake Tiberias as it forms the Jordan/Israel (West Bank) border and flows to its terminus at the Dead Sea. Irrigation return flows combined with natural chlorides from saline springs along the lower Jordan severely limit the water's beneficial use.

The median annual flow of the Jordan River is approximately 490 million cubic meters (almost 400,000 acre-feet per year)—the approximate mean annual flow of the Chikaskia River, near Blackwell, Oklahoma. The average annual flow of the Kiamichi River, near Antlers, is approximately three times that of the Jordan River, upon which some 12 million people rely for the most fundamental of daily needs. Surface waters in the basin supply the country of Jordan with 75 percent of its total water needs. Basin waters supply Israel and Palestine with about 30 percent of their needs due to large aquifers that greatly supplement local water requirements.

Efforts by Middle Eastern states to stretch limited supplies have met with varying degrees of success. In particular, Israel has pioneered innovations in irrigation, including implementation of drip irrigation systems, which have reduced agricultural water consumption by 40 percent since the mid-1950s. Jordan and other nations have followed suit. However, key decision-makers—including Jordan's Prince Hassan bin Talal, who participated in the WWG's Dead Sea meeting—realize that regional-scale water management schemes must become a reality to reduce the likelihood of future massive water shortages.

"It was obvious that Prince Hassan places great importance on the cooperative development and sharing of water resources to peace among the Arab and Jewish people. Overall, he was very hopeful about the future of the Middle East," says Duane Smith.

Recently, Middle Eastern governments have been more receptive to arrangements, such as large-scale desalinization projects and trans-boundary water transfers, which largely disregard political boundaries. The Water Working Groups have targeted infrastructure development as an absolute necessity due to the absence of adequate water supply facilities, especially in Palestinian-controlled areas. Regional education and water conservation—such as micro-scale conservation at the individual/community level, water pricing, metering, water recycling and reuse, and agricultural conservation—have all been identified by the WWGs as crucial to alleviating future water shortages. And it has become evident that groundwater supplies—primarily residing in aquifers beneath the occupied West Bank and Gaza Strip in Israel, which account for 40 percent of Israel's water supply—must also be utilized

and protected. Recognizing that strategies for sustainable management of the region's water resources must not only be based on collaboration between the various regional stakeholders, but on sound scientific knowledge, the WWGs have also emphasized the importance of accurate data concerning water use, supply, and quality.

"During the Dead Sea meeting, it struck me that these are many of

the same water issues that Oklahomans have struggled with over the years, and many of the issues we still face today," Smith points out. "Development of water and wastewater infrastructure certainly stands out as an area of need in Oklahoma and water transfer projects have been utilized in the past while others have been proposed to move water to areas in need. We've studied chloride control and related methods to remove natural pollutants from potential water supplies. And institution of various conservation methods, especially in the agricultural sector, have had a profound effect on preservation of Oklahoma's water supplies and furtherance of our economy."

In addition to the betterment of the Middle East's social and economic welfare, water and fair access to it may well be the major determinant in negotiation of a fair and equitable peace settlement. "Much work lies ahead, but I witnessed a tremendous amount of optimism among the working group members. While political barriers have largely prevented ratification of a regional water management plan to date, the open dialogue established through the WWG project could prove invaluable to eventual resolution of the situation," Smith says, "and I really believe that if the Arab and Israeli states can come to terms with water shortages and equitable access to supplies in the region, they may also be able to resolve age-old political and social differences."



Tremendous agricultural development is evident around and immediately downstream of Lake Tiberias (above). The flow of the Jordan River is barely discernible in this NASA satellite image.

FLOOD CURRENT



Education Efforts Abundant and Fruitful



Mike Mathis
State Floodplain Coordinator, OWRB

Last January, the OWRB hosted an extremely successful week-long workshop for state floodplain officials entitled "Managing Floodplain Development Through the NFIP." Held in Norman under the tutelage of instructors Ken Morris, of the OWRB, and Lonnie Ward, with the Federal Emergency Management Agency, the classes culminated in a two-hour examination for 31 local officials seeking to become Certified Floodplain Managers (CFMs). The CFM program, established by the Association of State Floodplain Managers, recognizes continuing education and professional development that enhance the knowledge and performance of local, state, federal, and private-sector floodplain managers. I'm happy to report that all 31 individuals who took the test passed, attesting to their advanced knowledge of NFIP standards and procedures and the Oklahoma Floodplain Management Act. I'd like to thank the members of the Oklahoma Floodplain Management Association, our partners in this effort, for making this workshop our most successful ever, as well as the OWRB's Rhonda Bowers, who reviewed the CFM applications and class enrollment procedures.

The OWRB's annual Floodplain 101 Workshops represent extremely beneficial training exercises. This year's sessions, held throughout the state in May, featured a Natural Resource Conservation Service (NRCS) representative who presented a short-course on the agency's Wetlands Restoration Program. Wetlands are just one of the many important benefits provided through Oklahoma's vital floodplain areas.

Through a proclamation signed recently by Gov. Henry, Oklahomans once again observed Flood Awareness Month in May, and Flood Insurance Month was celebrated in March. Each year, these proclamations provide critical assistance to the OWRB and our floodplain management partners in "getting the word out" about wise development and the persistent dangers posed by floodwaters.

Through a grant from Oklahoma Emergency

Management, the OWRB is compiling a database of repetitive loss structures in Oklahoma. Among associated tasks, staff will verify addresses, take digital photos, and obtain longitudes and latitudes of these structures. This information will prove vital in mitigating future flooding disasters, especially in securing funds to remove these structures from harm's way. On a related note, OWRB staff are revising the Guidebook for Local Floodplain Ordinance Administrators and working to develop Oklahoma's Floodplain Management 101 Textbook. These educational materials can be used as a home study course, CFM study guide, and textbook for the OWRB's Floodplain Management 101 workshops.

In April, the Governor signed legislation establishing accreditation standards for Oklahoma's floodplain administrators. The OWRB will administer the training accreditation provisions of the new law, House Bill 2284, which was introduced this session by Representative Thad Balkman and Senator Bruce Price. The bill will play a vital role in floodplain management



Severe flooding from more than five inches of rainfall on March 4 damaged some 278 residences, businesses, and other structures in the Town of Kingfisher. Water rose to nearly five feet in some areas of the community.

Spring Floodplain Workshops

The OWRB's floodplain administrator workshops, held each spring, are key aspects of the Board's continuing education and public information effort through the National Flood Insurance Program (NFIP) and are a primary focus of Oklahoma's annual statewide flood awareness campaign.

The five workshops held throughout Oklahoma (in McAlester, Lawton, Woodward, Bartlesville, and Midwest City) in May 2004 not only serve to provide community officials with the latest information concerning the operation and benefits of the NFIP, they point out the extreme importance of annual training to the local floodplain manager. Such training heightens confidence in the enforcement and administration of local flood ordinance and are key ingredients in the OWRB's goal of establishing ownership at the local level.

'McReady' for Floods

The McDonald's Corporation, Governor Brad Henry, and state emergency management officials and organizations are teaming up to increase awareness of severe weather preparedness in the state. To prepare Oklahomans for future weather emergencies, "McReady Oklahoma" will feature displays, brochures, and related educational materials at more than 140 McDonald's restaurants throughout the state. The brochures will convey information on floods, tornadoes, lightning, and other emergencies as well as measures to protect citizens and their families from those dangers. April was declared McReady Oklahoma Family Preparedness Month by Governor Henry.

"Over the years, we've seen more than our share of destruction caused by tornados and severe weather," said Governor Henry. "But many of us have also learned that being prepared and knowing what to do before the storm hits— saves lives. That's what this campaign is all about."

"We are honored to be part of this groundbreaking program," said Albert Ashwood, Director of Oklahoma Department of Emergency Management (ODEM), another McReady Oklahoma partner. "We've known for years that preparedness is the key to saving lives when it comes to severe weather. The McReady program allows us to drive the message home and better prepare families and entire communities." Other McReady partners include the American Red Cross, National Weather Service, Oklahoma Citizen Corps, Oklahoma Emergency Management Association, Oklahoma Floodplain Management Association, OG&E Electric Services, R.D. Flanagan & Associates, The Salvation Army, and Tulsa Mayor's Citizen Corps/Tulsa Partners, Inc.

May is Flood Awareness Month in Oklahoma

Flood Safety Tips

- Avoid walking through floodwater. Water only six inches deep can sweep you off your feet if it is moving swiftly.
- Do not drive into a flooded street. Cars can be swept away by two feet of moving water. If you come to a flooded area, turn around and go another way. Most flood-related deaths are caused by people driving through high water.
- Watch out for fire hazards. Be aware of broken or leaking gas lines, flooded electrical circuits, electrical appliances, and flammable materials coming from upstream.

After the Flood:

- Take care of yourself first. Protect yourself and your family from stress, fatigue, and health hazards that follow a flood.
- Dry out your home. Floodwaters damage materials, leave mud, silt and unknown contaminants, and promote the growth of mildew.
- Restore the utilities. Cleaning up after the flood will be much easier if you have heat, electricity, clean water, and sewage disposal.
- Clean up. The walls, floors, closets, shelves, contents and other flooded areas of your home should be thoroughly washed and disinfected.
- Rebuild and flood proof. Take time to rebuild correctly and make improvements that will protect your building from future floods.
- Prepare for the next flood. Protect yourself with flood insurance, a flood response plan, and community flood protection programs.



Victims Remembered



Mary Nell Brueggen places a memorial ribbon on one of the two ash trees planted by OWRB staff in memory of Trudy Rigney and Bob Chipman, who were killed during the Oklahoma City bombing in 1995. OWRB staff members gather for a brief memorial service on April 19 each year in their honor.

Water for Sale

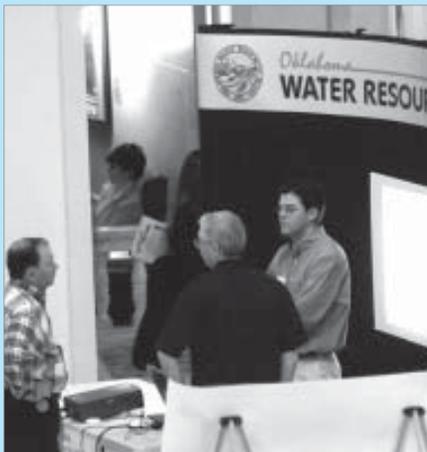
In answer to the ongoing drought impacting much of the western U.S., the Water Strategist Community—a Web site that reports on key legislation and other events shaping water resources in the west—has established an online marketplace for the buyers and sellers of water, water rights and land.

“While the western drought is easing in some areas, many areas remain dry and we wish to facilitate the exchange of information between those irrigation districts, municipalities, and individuals who have adequate supplies and those who may be seeking to purchase or lease water and water rights,” says Lisa Hahn, publisher of the Web site’s newsletter.

The service, entitled “e-water classifieds,” is available at www.waterstrategist.com/ewater.htm. Interested parties may also contact Lisa Hahn at lisahahn@waterstrategist.com or (909) 981-7808.

OWRB Displays GIS Capabilities at Capitol

GIS Specialist Mike Sughru represented the OWRB during GIS Day, held March 3, 2004, at the State Capitol. This annual event allows various state and federal agencies, as well as vendors, to showcase their Geographic Information System products and capabilities.



Mesonet Celebrates 10th Anniversary

Oklahoma’s cutting-edge weather monitoring system celebrated its 10th anniversary with a special ceremony at the State Capitol on March 11. The Oklahoma Mesonet, the first and only environmental monitoring network of its scope and size in the world, is composed of 116 monitoring stations that observe about 20 environmental variables above and below the ground.

The event’s keynote speaker, Chancellor of Higher Education Dr. Paul Risser, provided a synopsis of the network’s evolution over the past decade, including Mesonet’s many climate monitoring and research endeavors, and outreach programs in agriculture, K-12 education, and emergency management. Gov. Henry Bellmon provided the funding to initiate the Mesonet in 1991.

Each county in Oklahoma hosts at least one Mesonet station that provides measurements of precipitation, air temperature, wind speed and direction, barometric pressure, relative humidity, and other variables every five minutes. About half of the Mesonet stations are located on private lands. Other stations are located on university, city, or federal lands. All landowners—including several who traveled to Oklahoma City to participate in the 10th Anniversary celebration—provide a 10-meter by 10-meter plot of land for the station at no cost to the Mesonet.

The Mesonet is a joint project of Oklahoma State University and the University of Oklahoma. It is funded by the Oklahoma State Legislature through the Oklahoma State Regents for Higher Education. Since 1994, Mesonet has recorded approximately three billion pieces of environmental information.

Nominations Sought for Environmental Award

For the 14th consecutive year, Keep Oklahoma Beautiful (KOB) will select the best of the best among voluntary efforts to beautify and improve Oklahoma’s environment. The prestigious Environmental Excellence competition has just opened with a statewide call for nominations.

Award categories are open to businesses, individuals, schools, nonprofit organizations, the media, communities, youth, and government entities. Projects dealing with environmental improvement, education and promotion or beautification and landscaping are eligible for nomination. Nominations for KOB special awards are also being sought. One Lifetime Achievement Award and one First Lady’s award will be presented later this year.

Entry guidelines, award criteria and entry forms are available online at the KOB website at www.keepoklahomabeautiful.com, or by calling 405-844-6543. The deadline for nominations is August 2. Keep Oklahoma Beautiful is a nonprofit, statewide organization dedicated to fighting litter, beautifying communities and preserving Oklahoma’s environment.

Oklahoma Drought Monitor

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of April 20, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.3 percent full, a 1.5 percent decrease from that recorded on March 22, 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 12 reservoirs are currently operating at less than full capacity (compared to seven four weeks ago). Two reservoirs—Lugert-Altus, only 43.5 percent full; and Tom Steed, 56.3 percent—remain below 80 percent capacity.

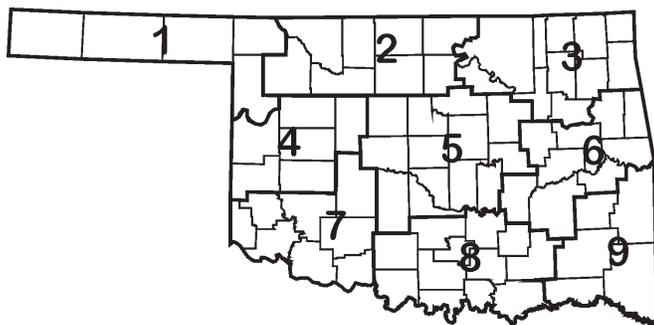
Storage in Selected Oklahoma Lakes & Reservoirs

As of April 20, 2004

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	451,860	451,860	100.0
Northeast	3,710,194	3,577,834	96.4
West Central	276,790	269,279	97.3
Central	154,225	147,355	95.5
East Central	2,968,683	2,968,683	100.0
Southwest	301,810	187,813	62.2
South Central	2,795,156	2,726,747	97.6
Southeast	1,533,824	1,532,020	99.9
State Totals	12,192,542	11,861,591	97.3

Drought Indices

According to the latest Palmer Drought Severity Index (April 17, below), only one region in Oklahoma (South Central, “mild drought”) is currently experiencing drought conditions. However, eight of Oklahoma’s nine climate divisions have undergone PDSI moisture decreases since March 20. The greatest decrease occurred in the Southeast climate division.



The latest monthly Standardized Precipitation Index (through March, below) continues to indicate some long-term dryness in southern and eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), “moderately dry” conditions are indicated in the Southeast over the past 9 months and in the Southeast, South Central and East Central climate divisions throughout the last 12-month period. Considering longer periods (through six years), southern and eastern Oklahoma regions indicate moderate dryness at various periods over the past 30 months.

Palmer Drought Severity Index

Climate Division (#)	Current Status 4/17/2004	Value		Change In Value
		4/17	3/20	
NORTHWEST (1)	MOIST SPELL	1.02	1.47	-0.45
NORTH CENTRAL (2)	MOIST SPELL	1.95	2.27	-0.32
NORTHEAST (3)	MOIST SPELL	1.70	1.93	-0.23
WEST CENTRAL (4)	MOIST SPELL	1.96	1.93	0.03
CENTRAL (5)	NEAR NORMAL	0.07	1.09	-1.02
EAST CENTRAL (6)	INCIPIENT DROUGHT	-0.67	0.55	-1.22
SOUTHWEST (7)	MOIST SPELL	1.00	1.77	-0.77
SOUTH CENTRAL (8)	MILD DROUGHT	-1.03	0.26	-1.29
SOUTHEAST (9)	INCIPIENT DROUGHT	-0.97	0.45	-1.42

Standardized Precipitation Index

Through March 2004

	3-Month	6-Month	9-Month	12-Month
NORTHWEST (1)	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NORTH CENTRAL (2)	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
NORTHEAST (3)	VERY WET	MODERATELY WET	MODERATELY WET	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)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
SOUTHWEST (7)	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTH CENTRAL (8)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
SOUTHEAST (9)	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY

Financial Assistance Program Update

Loans/Grants Approved as of April 13, 2004

FAP Loans—301 totaling \$523,865,000

The OWRB's Financial Assistance Program (FAP), created by the State Legislature in 1979, provides loans for water and wastewater system improvements in Oklahoma. The tremendous popularity of the bond loan program is due, in part, to extended payoff periods of up to 30 years at extremely competitive low-interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—155 totaling \$516,657,040

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—39 totaling \$160,869,795

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—392 totaling \$34,003,762

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—506 totaling \$29,713,702

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

Total Loans/Grants—1,393 totaling \$1,265,108,299

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.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

Grady Grandstaff, *Chairman*; Glenn A. Sharp, *Vice Chairman*; Ervin Mitchell, *Secretary*

Harry Currie, Lonnie L. Farmer, Jack W. Keeley, Jess Mark Nichols, Bill Secrest, Richard C. Sevenoaks

Brian Vance, *Writer/Editor* • Darla Whitley, *Writer/Layout* • Barry Fogerty, *Photography*

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In This Issue

Legislature Sets OWRB Agenda for Coming Year

Water Board Welcomes Herrmann

Board Elects New Officers

Clean Water Fund Plan Subject of June Meeting

Artesian Well Sites Needed for Arbuckle Study

Arbuckle-Simpson Study Update

Bartlesville Loan Closing Largest Ever

Grand Lake Project Underway

Benefits of Native Aquatic Plant Life to Lakes

Brueggen Honored with Employee Award

Oklahoma Drought Monitor

From the Director



*Duane A. Smith
OWRB Executive Director*

In June, the OWRB's Leadership Team conducted our semi-annual review of the agency's Strategic Plan, including identification of successes over the past year. Among highlights identified by the group were the excellent ratings achieved on our Financial Assistance Program's two bond issues, receipt of funding for the Beneficial Use Monitoring Program in the agency's base appropriation, creation of an online well log application system, initiation of the Arbuckle-Simpson Hydrology Study, establishment of the 0.037 milligram per liter criteria for phosphorus in Oklahoma's Scenic Rivers, and finalization of an agreement with Arkansas on multi-state implementation of the new criteria that will reduce the amount of harmful nutrient contributions to those very important watersheds. These and other accomplishments have not only furthered the

See From the Director, Page 2

Legislature Sets OWRB Agenda for Coming Year

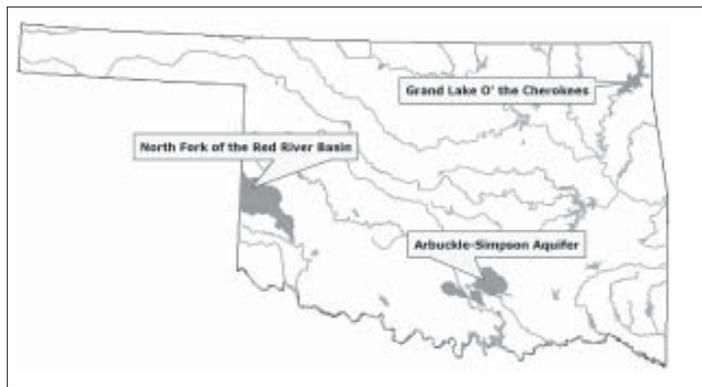
As usual, the legislative session in 2004 was eventful for the Water Resources Board. A number of important bills will influence agency activities and policies during fiscal year 2005 and beyond. The Oklahoma State Legislature adjourned sine die on May 28.

Concerning appropriations, House Bill 2007 provides \$4,122,345 for the OWRB from the state's general revenue. The amount is approximately \$100,000 more than that granted last year. HB 2007 also appropriates \$2.2 million to the OWRB's Rural Economic Action Plan (REAP) grant program, which provides financial assistance to smaller Oklahoma communities in need of water and sewer project improvements.

Senate Bill 1031 appropriates \$191,632 from the REAP Water Projects Fund, established through proceeds from the state's gross production tax, for the North Fork of the Red River Study and an investigation of algae impacts at Oklahoma lakes. The Water Board is in the second year of its North Fork study, a cooperative assessment between the OWRB and Bureau of Reclamation of water quality, quantity, and base flow hydrology on Sweetwater Creek and the North Fork of the Red River watersheds, with a particular focus on Lugert-Altus Reservoir. The

second phase of the study will determine the potential effects of groundwater withdrawals in the basins and include development of models to evaluate the augmentation of Lugert-Altus Reservoir's dependable yield. The reservoir is a vital irrigation source for the cotton

See Legislature, Page 2



Major OWRB studies for which the State Legislature granted funding in fiscal year 2005. The investigation of algae problems at Grand Lake is the first in a statewide effort to study that issue in targeted lakes throughout Oklahoma.

From the Director . . . Continued from page 1

agency's mission and our status as Oklahoma's water agency but also have provided Oklahoma citizens with better protection and management of their precious water supplies.

The team also revisited and updated our "high priority" projects through 2009. We again emphasized the need to update the Oklahoma Comprehensive Water Plan, expand our efforts to study and evaluate the state's surface and groundwater resources, recapitalize the dwindling Statewide Water Development Revolving Fund to meet future community water and wastewater infrastructure needs, further develop and fine-tune our water quality monitoring programs, improve implementation of Oklahoma's Water Quality Standards (including establishment of standards for groundwater), and improve the way we manage our growing database of water-related information for both the public and Water Board staff. For the revised OWRB Strategic Plan, the group determined that the agency should pursue additional strategies to deal with Tribal water claims, review state water law, and expand public outreach.

Of course, another reliable measure of this agency's success can be determined by progress made in furthering Oklahoma's water policies during the State Legislative session. Initially, as we reviewed both the high and low points of the session from the Board's perspective, the

Legislature . . . Continued from page 1



This February 2004 photo of an exposed dock at Lugert-Altus Reservoir (only 22 percent full at the time) demonstrates the lake's chronically low water level, an important aspect of the OWRB's current study of the North Fork of the Red River Basin. (Photo courtesy Oklahoma Climatological Survey.)

industry in southwest Oklahoma. The second study will investigate the impact of algae on public water supply and aquatic life at several lakes in the state, beginning with Grand Lake O' the Cherokees, in northeast Oklahoma.

SB 1031 also authorizes \$500,000 in REAP (gross production tax) funds for the Arbuckle-Simpson Hydrology Study and authorizes the OWRB to assist the South

most obvious disappointment surrounded the defeat of Senate Bill 903. The bill, as last amended, would have provided much-needed funding for the Revolving Fund and State Financial Assistance Program as well as for the Water Plan update. Although other state needs took precedent in 2004, we made significant headway in educating newer members of both the House and Senate about local water/sewer project needs and potential shortfalls in revenue to make required improvements. And I believe we have bipartisan support in the State Legislature for a statewide water planning effort, which would be required to identify and fund those projects. Similarly, the State Legislature restated its confidence in the OWRB and staff in providing direct support for several important technical water studies and projects, including phase two of the North Fork of the Red River study, which includes potential augmentation of water supply at Lake Lugert-Altus, and initiation of a revegetation and wildlife habitat project at Grand Lake.

So on closer inspection of our achievements during the past year, I view the Water Board's glass as definitely half full. While it's true that much work lies ahead to reach the lofty goals we have set for ourselves and this agency, with continued dedication and the technical expertise and professionalism possessed by our staff, it remains only a matter of time.

Pittsburg County Water Supply Trust Authority in providing water to their member communities.

House Bill 2284, an amendment to the Oklahoma Floodplain Management Act, directs the OWRB to establish and administer accreditation standards for community floodplain managers in the state. The bill strengthens Oklahoma's overall floodplain management program and will play a vital role in floodplain management and flood damage mitigation in Oklahoma.

House Bill 2440 extends the existing moratorium on out-of-state water sales, passed in 2002, from three to five years; the prohibition was scheduled to expire next year. Beginning November 1, the moratorium remains in effect unless otherwise directed by the Legislature or until a comprehensive study of statewide water resources is completed. [The OWRB is currently preparing for its decennial (10-year) update of the *Oklahoma Comprehensive Water Plan*.] The legislation does not apply to sales or other exportation of less than eight million gallons of water each month. Also exempt is water contained in agricultural crops, animal and dairy products, beverages, or processed or manufactured products, as well as products transported in cans, bottles, packages, kegs, or barrels.

Senate Bill 1259 changes the name of a seven-mile segment of the North Canadian River flowing through downtown Oklahoma City to the "Oklahoma River." The City is currently in the final stage of a \$54 million project to rehabilitate the waterway and accentuate its potential tourism benefits.

Board Elects New Officers

At their June 8 meeting, the Oklahoma Water Resources Board elected new officers: Ervin Mitchell, Chairman; Lonnie Farmer, Vice Chairman; and Bill Secrest, Secretary. Former Board Chair, Grady Grandstaff, had previously announced that upon expiration of his term at the end of May 2004, he would not be returning to the Board. Currently, the Board is operating with eight members, with a vacancy for District 2, representing recreational water use.

Water Board Welcomes Herrmann



Rudolf John Herrmann (Tulsa) represents irrigation water use interests. He is a retired President and CEO of Dover Resources Inc. He earned a B.S. in Industrial Engineering from Iowa State University and an MBA from the Harvard Business School. He is currently an Adjunct Assistant Professor in the Master of Science in Engineering and Technology Management Program at Oklahoma State University. Mr. Herrmann is an at-large member and his term will expire in May 2007.

Clean Water Fund Plan Subject of June Meeting

The OWRB's Financial Assistance Division hosted a public meeting on June 29 to present and receive comments on the draft *FY 2005 Clean Water State Revolving Fund (CWSRF) Intended Use Plan and Priority Project List*. The OWRB, which administers the CWSRF loan program, is responsible for preparing the annual plan, a document that establishes program goals, identifies sources and uses of funds, and provides a ranked listing of projects proposed by entities requesting to receive loan funds.

It is anticipated that approximately \$127.9 million will be available for water pollution control loans during FY 2005. To date, 30 communities have requested proposed projects to be placed on the FY 2005 Project Priority List to receive financing in the amount of approximately \$120.6 million.

Initiated by the 1987 amendments to the Federal Clean Water Act, the CWSRF loan program was established in Oklahoma to provide a renewable financing source to help Oklahoma's communities address their water pollution control needs while protecting surface and groundwater quality. The program enables eligible public sewer entities to receive low-interest financing for projects, including treatment works and urban storm water runoff



projects and nonpoint source pollution control activities. Repayments of these loans, along with annual federal and state funds and investment income, provide financing for future loans.

A copy of the draft plan is available on the OWRB's Web site at www.owrb.state.ok.us or may be obtained by contacting Julie Cunningham at (405) 530-8800. Entities wishing to be included on the State's FY 2005 Intended Use Plan should contact the OWRB and submit a pre-application form available at www.owrb.state.ok.us/forms/faforms.

An OWRB Clean Water SRF loan of almost \$9 million in December 2001 provided the financing necessary for construction of this flow equalization basin and other improvements at the City of Miami's wastewater treatment plant.

Mark Your Calendars

**25th Annual
Governor's Water Conference**

October 19-20, 2004

Cox Convention Center
Oklahoma City, Oklahoma

Artesian Well Sites Needed for Arbuckle Study

As part of the ongoing hydrology study, the OWRB is soliciting information from local citizens on flowing artesian wells in the Sulphur area of the Arbuckle-Simpson aquifer. Public assistance will be crucial in identifying the location of area wells, which hydrologists and geologists will use to establish historic trends in groundwater flow, availability, and usage. An artesian well is one that has been drilled into a pressurized aquifer, such as the Arbuckle-Simpson, where the underground pressure is great enough for the water to rise inside the well, and, in some cases, discharge to the surface without a pump.

The first flowing well drilled in the Sulphur area was the Bridgeman Well, drilled in 1889, but proliferation of flowing wells did not occur until the 1920s and 1930s. According to the U.S. Geological Survey, the total flow from artesian wells in 1987 was only about 10 percent of that reported in 1939. The Vendome Well—one of the most significant landmarks in the Chickasaw National Recreation Area, originally drilled in 1922—once flowed at an estimated 2,500 to 3,500 gallons per minute. Today, however, it yields only about 400 to 500 gallons per minute.

It has become evident that artesian flow in the aquifer has decreased drastically over time, although many artesian wells still exist and are utilized in the Arbuckle region. Because a number of these wells were drilled a generation ago, records have been lost and their locations remain a relative mystery. Once the well sites are located and flows determined, researchers

Arbuckle-Simpson Study Update

OWRB staff in the Planning and Management and Water Quality Divisions recently initiated periodic stream flow and stage height monitoring at sites on the Blue River, Pennington Creek, Mill Creek, Honey Creek, Delaware Creek, and Oil Creek. In addition, groundwater level recorders have been installed on 10 existing wells in the Arbuckle-Simpson region. In May, geology students from Oklahoma State University assisted the OWRB by measuring water levels from several water wells in the Hunton Anticline area (the aquifer's eastern region). The U.S. Geological Survey will soon install a stream gage on Honey Creek downstream of Turner Falls.

OWRB staff are currently reviewing historical precipitation records and permitted water use reports. OSU is also assisting the Water Board in a literature and data review of the region's hydrology, including an investigation of petroleum-related information to better understand the geologic and hydrologic properties of the aquifer. To gain a more accurate representation of surrounding geology, Dr. Todd Halihan of OSU has initiated electrical imaging of water wells in the region. The OWRB has also hired two graduate student researchers, Ivy Graham (OSU) and Brent Wilson (OU), to assist in the study. In particular, Wilson is currently conducting a historical review of flowing artesian wells in the Sulphur area while Graham updates information on springs emanating from the aquifer.

Other near-future activities include:

- the use of geochemistry to gain better understanding of the flow paths of Arbuckle-Simpson waters;
- utilization of fracture flow modeling to discern how the heavily fractured rocks affect the flow of groundwater through the aquifer;
- coupling of groundwater flow and rainfall-runoff models to better estimate aquifer recharge; and
- the use of tree ring analysis in reconstructing streamflow and precipitation records throughout the past 200-300 years.



The OWRB's Brent Wilson obtains the global positioning system (GPS) location of the Townsley water well in the City of Sulphur. (Photo courtesy Sulphur Times-Democrat.)

can compare current to historic flow rates, which will provide a better understanding of the dynamics of the aquifer flow system.

Specifically, OWRB researchers are seeking the following information on existing artesian wells: location, date the well was drilled, flow of the well or approximate date that flow ceased, and owner contact information.

OWRB staff will frequent the Arbuckle-Simpson area throughout the summer to inventory wells and collect other supporting data for the ongoing hydrologic study of the region's water resources. To contribute information on the location of artesian or other wells, springs, sinkholes, or caves in the Sulphur vicinity, call Brent Wilson or Noel Osborn at 405-530-8800.

Bartlesville Loan Closing Largest Ever

On April 30, the OWRB's Financial Assistance Program closed the largest Drinking Water SRF loan in the program's history--\$45,510,000. The loan was made to Bartlesville for four major projects: the construction of a new 26 million gallon per day water treatment plant with a 4-million gallon treated water reservoir, improvements to the Hulah Lake raw water pump station (including flow measurement and a SCADA system), construction of a new parallel raw water line from Hudson Lake, and construction of a new finished water transmission line from the new treatment plant to the distribution system. The new treatment plant will be a regional facility serving the water needs of Bartlesville, Dewey, Osage RWD #1, Strikeaxe, Lincoln County RWD #2, Washington County RWD #5, Leeanne Water, Bar Dew Water Association, Ocheleta, Ramona, Minnesota Water District, and Washington County RWD #1.

It is estimated that over the life of the loan, Bartlesville will save in excess of \$13 million by borrowing from the OWRB. Board member Bill Secrest joined Financial Assistance Division Chief Joe Freeman at the ceremony, which preceded the financial closing and signing of documents. Other guests included Okla. Dept. of Environmental Quality (ODEQ) officials, Tetra Tech FHC engineers, Municipal Finance officers, and local city officials.

The new plant, which will be used to treat potable water only, is necessary due to state and federal regulations passed in 1998. A pilot study completed in 2000 indicated a new plant was warranted, not only to meet the regula-

tions but to keep up with the ever-increasing demands of its customers. The city was given until 2003 to comply with the regulations passed in 1998, but received an extension on the deadline after the project faced several delays due to site location disputes. Construction on the new plant is expected to begin this summer and must be completed by June 2006. The site is located on North Sunset boulevard and Hudson Lake Road. This loan was included in the evaluation conducted last fall by Standard and Poor's, Moody's, and Fitch in determining the AAA rating on the Board's Drinking Water SRF bond issue.

Oklahoma's Drinking Water State Revolving Fund (DWSRF) Program offers low-interest loans administered cooperatively between the OWRB and ODEQ. The goal of the DWSRF is to assist communities with public water supply infrastructure construction projects to come into compliance with state and federal compliance orders by providing 70% of market interest



Bartlesville City Manager Steve Brown, Mayor Ted Lockin, OWRB member Bill Secrest and Joe Freeman, Chief of the OWRB's Financial Assistance Division

rate loans from DWSRF funds for the following drinking water categories: drinking water treatment, new intake/raw water lines, major distribution/storage system rehabilitation, new storage, and new transmission/distribution systems. All DWSRF loans have the following general terms: 3.00% fixed interest rate (70% of market interest rate on Series 2003 DWSRF Bonds), 0.50% administration fee, 20 years maximum payback period, 1.25 rate covenant factor, no reserve requirements (unless required by borrower's other outstanding debt), loan proceeds drawn down as cost are incurred, interest and administrative fees billed every six months, and principal billed every six months after construction completion.



The OWRB's Joe Freeman, Executive Director Duane Smith, and Bill Secrest break project ground with Bartlesville city officials at the ceremonial loan closing on April 30.

Grand Lake Project Underway

A new study coordinated by the Lakes and Special Studies section of the OWRB's Water Quality Division will focus on improving and increasing wildlife habitat at Grand Lake by introducing native aquatic plants. The additional plants will not only benefit wildlife habitat at the lake, but should also improve the lake's water quality.

Beginning in mid-July with a three-year feasibility study to determine the best plants, caging methods, and water levels for planting, the project will entail planting submergent and emergent plants at the shoreline in zero to three feet of

water. Initially, plant types will include arrowhead ("Duck Potato"), American water willow ("Bass Grass"), water stargrass, bulrush, coontail, water celery, and various water lillies.

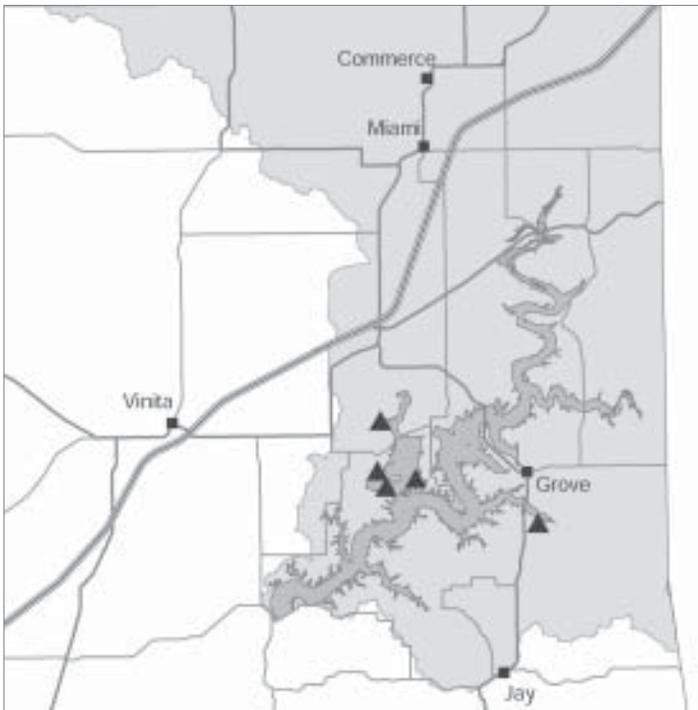
By planting "founder colonies" and through natural reproduction by the colonies, 1000 acres of new fish and wildlife habitat can be created over the next 20 years. In the initial stages,

the young and vulnerable plants will be surrounded by plastic coated wire mesh to protect them from being eaten by fish and water fowl. Visitors to Grand Lake are asked to be mindful of these cages and not disturb them.

Benefits of Native Aquatic Plant Life to Lakes

- **Food** - Aquatic plants are an important food source for many animals. Waterfowl eat the seeds, leafy parts, and tubers of plants, such as pondweeds, arrowhead, and water pepper.
- **Habitat** - Aquatic plants provide important living space for small animals, such as aquatic insects, snails, and crustaceans, which in turn supply food for fish and waterfowl.
- **Cover** - Young fish and amphibians use aquatic plants as a source of cover from predatory fish and birds. This makes aquatic plants important nurseries for baby fish.
- **Housing Supplies** - Sturdy, emergent plants, like cattail and bulrush, provide nest and den materials for many birds and mammals.
- **Erosion Control** - Underwater and emergent plants will protect shorelines from erosion due to wave action or currents. They can help stabilize the sediment, which can increase water clarity.
- **Nutrient Cycling** - Aquatic plants can use nutrients that would otherwise be used by algae, thereby increasing water clarity. They have an ability to soak up pollutants from contaminated water.
- **Resistance to Invasion** - A diverse and healthy native plant community will resist invasion by non-native noxious aquatic weeds, such as Eurasian watermilfoil.

Source: The University of Washington School of Aquatic & Fishery Sciences
www.fish.washington.edu



Selected sites for native aquatic plant introduction along the shoreline of Grand Lake O' the Cherokees

Brueggen Honored with Employee Award

At the May staff meeting of the OWRB, Mary Nell Brueggen of the Planning and Management Division was recognized as Employee of the Quarter. Throughout her 15 years at the Water Board, Brueggen has consistently provided excellent and efficient service in managing imaging workflow. Brueggen has demonstrated professionalism and patience in customer service, and has been diligent in processing water rights and in the preparation of public notices.

In addition to these efforts, Brueggen was nominated for her positive attitude, sense of teamwork, and creativity.



OWRB Executive Director Duane Smith with Mary Nell Brueggen

Oklahoma Drought Monitor

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels, despite recent rainfall. As of July 12, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 98.8 percent full, a 1.3 percent increase from that recorded on June 15, according to information from the U.S. Army Corps of Engineers (Tulsa District). Only three reservoirs have experienced lake level decreases since that time. Only seven reservoirs are currently operating at less than full capacity (compared to 10 four weeks ago). Two reservoirs—Lugert-Altus, only 51.4 percent full; and Tom Steed, 58.6 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs

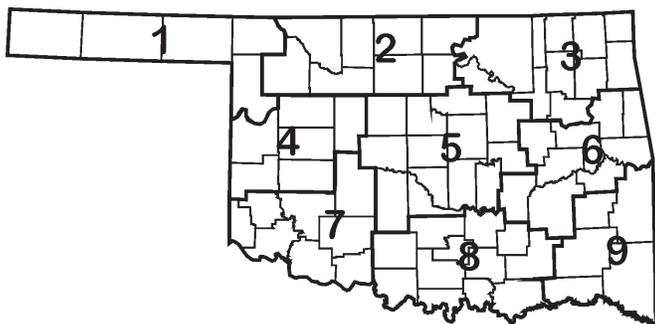
As of July 12, 2004

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	505,170	505,034	99.9
Northeast	3,710,194	3,710,194	100.0
West Central	276,790	251,950	91.0
Central	154,225	154,225	100.0
East Central	3,183,243	3,183,243	100.0
Southwest	301,810	199,778	66.2
South Central	3,118,676	3,089,512	99.1
Southeast	1,561,859	1,561,725	100.0
State Totals	12,811,967	12,655,661	98.8

Drought Indices

According to the latest Palmer Drought Severity Index (July 10, below), no regions in Oklahoma are currently experiencing drought conditions and none of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since June 12. The most modest increase occurred in the Northeast climate division.

The latest monthly Standardized Precipitation Index (through June, below) indicates only moderate long-term dryness in east central and southeast Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), no climate divisions indicate dry conditions. Considering longer periods (through six years), only the East Central and Southeast climate divisions report "moderately dry" conditions at various times over the past 30 months.



Palmer Drought Severity Index

Climate Division (#)	Current Status 7/10/2004	Value		Change In Value
		7/10	6/12	
NORTHWEST (1)	MOIST SPELL	1.62	-2.11	3.73
NORTH CENTRAL (2)	MOIST SPELL	1.17	-0.70	1.87
NORTHEAST (3)	MOIST SPELL	1.51	0.73	0.78
WEST CENTRAL (4)	INCIPIENT MOIST SPELL	0.66	-1.85	2.51
CENTRAL (5)	NEAR NORMAL	-0.17	-1.41	1.24
EAST CENTRAL (6)	INCIPIENT MOIST SPELL	0.93	-1.36	2.29
SOUTHWEST (7)	NEAR NORMAL	0.20	-1.54	1.74
SOUTH CENTRAL (8)	MOIST SPELL	1.02	-0.55	1.57
SOUTHEAST (9)	INCIPIENT MOIST SPELL	0.96	-1.48	2.44

Standardized Precipitation Index

Through June 2004

	3-Month	6-Month	9-Month	12-Month
NORTHWEST (1)	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
NORTH CENTRAL (2)	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
NORTHEAST (3)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
WEST CENTRAL (4)	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
CENTRAL (5)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
EAST CENTRAL (6)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTHWEST (7)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTH CENTRAL (8)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTHEAST (9)	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Financial Assistance Program Update

Loans/Grants Approved as of June 8, 2004

FAP Loans—305 totaling \$529,975,000

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 extremely competitive low-interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—156 totaling \$520,002,020

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—40 totaling \$162,289,895

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—395 totaling \$34,337,477

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—508 totaling \$29,820,332

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

Total Loans/Grants—1,404 totaling \$1,276,424,724

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.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

Ervin Mitchell, *Chairman*; Lonnie L. Farmer, *Vice Chairman*; Bill Secrest, *Secretary*
Harry Currie, Rudy Herrmann, Jack Keeley, Mark Nichols, Richard C. Sevenoaks

Brian Vance, *Writer/Editor* • Darla Whitley, *Writer/Layout* • Barry Fogerty, *Photography*

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In This Issue

Governor's Water Conference Celebrates 25 Years

Tribal Water Symposium

Representative Pope Honored

Kennedy Foundation Honors Senator Muegge

Cloud Seeding Research Project Underway

OCS Director to Lead National Project

Unseasonably Mild Summer Continues through August

Water Conference Agenda

Free eBulletin Aids Water Treatment Professionals

Grand Lake Team Installs Cages

Boyce Named Employee of the Quarter

Oklahoma Drought Monitor

From the Director



*Duane A. Smith
OWRB Executive Director*

In late July, I had the opportunity to tour the Lugert-Altus Irrigation District (LAID) with OWRB Member Mark Nichols, a member of the LAID. Oklahoma Secretary of Environment, Miles Tolbert, and Oklahoma Secretary of Agriculture, Terry Peach, were also on the tour, which was hosted by Tom Buchanan, LAID Director.

We visited many of the primary irrigation facilities, which include more than 300 miles of canals and lateral water lines, and got a first-hand look at some of the 46,000 acres of southwest Oklahoma farmland, mostly cotton, under the District's purview. It is obvious that member farmers have done a tremendous job of nurturing their crops with an important assist from both Mother Nature and water supply at nearby Lugert-Altus Reservoir. The District and lake are responsible for no less than

See From the Director, Page 2

Governor's Water Conference Celebrates 25 Years

The 25th Annual Oklahoma Governor's Water Conference will be held Tuesday and Wednesday, October 19-20, 2004, at the Cox Business Services Convention Center in downtown Oklahoma City. The event will begin with a half-day Tribal Water Symposium on Tuesday (see page three for details and page five for an agenda) and conclude with the formal day-long Water Conference on Wednesday. Conferees will be welcomed on Wednesday by OWRB Chair Ervin Mitchell, followed by a special video presentation in celebration of the 25th year of the Oklahoma Governor's Water Conference. The video will characterize Oklahoma's diverse water resources as well as important water issues facing the state.

Wednesday's Keynote Speaker will be Lieutenant Governor Mary Fallin. Topics throughout the day will include water development infrastructure financing, planning for the future of the Grand River Basin, Oklahoma and Arkansas River development, interstate compacts, and a navigation update. The luncheon will feature state and federal legisla-

tive updates along with the presentation of Oklahoma Water Pioneer awards. Reservations for overnight accommodations at the Renaissance Hotel (10 North Broadway,

See Water Conference, Page 2



From the Director . . . Continued from page 1

one-half of the state's invaluable cotton crop. In a typical year, more than 100,000 bales of cotton worth \$35 million dollars are produced, generating a total economic impact of \$220 million to Jackson County alone. This year's anticipated bumper crop could easily exceed that total.

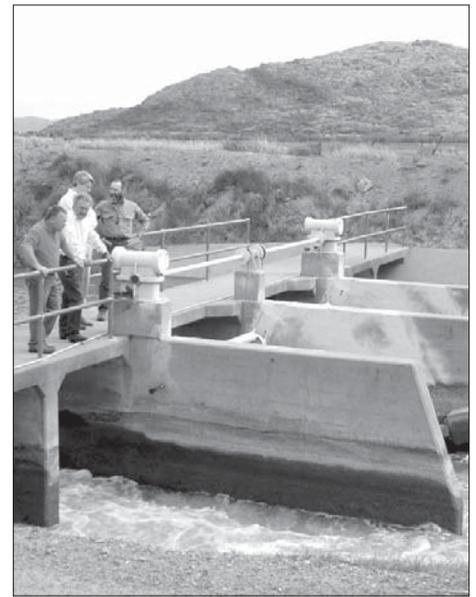
In most years, however, intense watering imposes severe stress on the lake, frequently dropping the reservoir's level to one-third of its capacity. The lake's water supply currently occupies only about 19 percent of its conservation pool. Despite implementation of conservation measures, such as water reuse and drip irrigation, farmers frequently face prospects of inadequate supplies to meet crop requirements. Low lake levels also influence recreation and other uses at the reservoir, which is home to a popular state resort and park at scenic Quartz Mountain. In addition to irrigation acreage, more than 10,000 acres of adjacent land and surface lake area is shared between local irrigators and state tourism and wildlife agencies responsible for recreation and wildlife preservation in the region. And all of these uses affect the local economy. The further lake levels drop, the greater the impacts to all stakeholders.

Through an ongoing cooperative study between the OWRB and Bureau of Reclamation, we are researching methods to augment the water supply of Lugert-Altus Reservoir as well as increase the efficiency of the District's delivery system. Options under consideration include increasing the lake's capacity, capturing excess waters, reducing or eliminating brush that reduces runoff into the lake, and desalinization of salty water that

enters the lake from the west. Final management options identified through this study should provide the necessary measures to protect Lugert-Altus Reservoir, the District and the many benefits they provide to both local and state economies.

I want to pass on this final reminder that the Governor's Water Conference will be held October 19-20 in Oklahoma City.

This, our 25th silver anniversary meeting, should be an extra special event. I encourage every person with an interest in Oklahoma's water future to complete and mail the registration form included in this issue of the *Water News* or call us at 405-530-8800 to make your reservation. See you there.



OWRB Member Mark Nichols; Terry Peach, Secretary of Agriculture; Miles Tolbert, Secretary of Environment; and tour guide Tom Buchanan, LAID Director; overlook one of the irrigation canals

Water Conference . . . Continued from page 1

Oklahoma City) can be made by calling 1-405-228-8000 or 1-800-468-3571. A block of rooms at a special room rate of \$89, single or double, has been reserved for conferees until September 24. After that date, the Conference rate will be offered as available.

To register for the Water Conference, call 405-530-8800 and ask for Mary Nell Brueggen, Registration

Coordinator, **or** fill out and mail the registration form below. Registration costs \$60 and includes the half-day Tribal Water Symposium and evening reception on Oct. 19, and the traditional Water Conference program and luncheon on Oct. 20.

25th Annual Governor's Water Conference Registration Form

Please mail form to

Governor's Water Conference
3800 N. Classen Boulevard
Oklahoma City, OK 73118

Please enclose \$60 check, money order, or purchase order payable to the Oklahoma Water Resources Board. No refunds after September 30.

For more information, call (405) 530-8800 or visit the OWRB Web site at www.owrb.state.ok.us

Check all that apply*:

- I will attend the symposium on October 19.
- I will attend the reception on October 19.
- I will attend the conference and luncheon on October 20.

* One price (\$60) includes any or all of the above.

Name _____

Organization _____

Address _____

City/State _____

Zip _____ Phone (____) _____

Tribal Water Symposium

The Symposium on Tribal Claims and Water will be held on day one (October 19) of the Governor's Water Conference. Speakers will address the origination and evolution of Native American water claims in Oklahoma from the Louisiana Purchase through the federal removal treaties (such as the Treaty of Dancing Rabbit Creek), Trail of Tears, and creation of Oklahoma Territory, Indian Territory and, finally, the State of Oklahoma.

Representing eight percent of the state's population, Oklahoma's American Indians have played, and continue to play, a prominent role in state society, culture, politics, sports, and other social affairs. Oklahoma's Indian heritage is honored in its official state seal and flag. At the center of the seal is a star, and within each of the five arms of the star are symbols representing



Oklahoma state flag

each of the "Five Civilized Tribes" (the Creeks, Chickasaws, Choctaws, Cherokees, and Seminoles) that were forcefully resettled into the territory of Oklahoma. The Oklahoma state flag depicts an Indian war shield, stars, eagle feathers, and an Indian peace pipe, as well as a white man's symbol for peace, an olive branch. The name "Oklahoma" comes from two Choctaw words, "ukla" meaning person and "humá" meaning red. A Native American is also represented prominently on the Oklahoma state seal.



Oklahoma state seal

Finally, as a tribute to Oklahoma's Indian heritage and to increase appreciation for the historical role Native Americans have played in the state's history, an American Indian statue ("The Guardian") was placed atop the Capitol dome upon its completion in 2002.

Representative Pope Honored

On September 3, State Representative Clay Pope was presented an "Exceptional Commitment Award" by the Oklahoma



Rep. Clay Pope

Academy of State Goals during its annual salute in Tulsa. Originally started by former Governor and U.S. Senator Henry Bellmon, the Academy is a bipartisan "think tank" consisting of public policy experts and opinion leaders from Oklahoma.

Pope was recognized for promoting public policy issues that have improved the quality of life for Oklahomans. Serving as vice chairman of the state House Committee on Agriculture and Rural Development, Pope has been instrumental in formulating legislation to protect the state's agricultural industry and environment, while ensuring excellent water and air quality for future generations.

A Kingfisher County farmer and rancher, the Loyal Democrat announced his retirement from the House of Representatives in May, completing his fifth consecutive two-year term as a state legislator.

Kennedy Foundation Honors Senator Muegge

Former Oklahoma State Senator Paul Muegge received the John F. Kennedy Profiles in Courage Award from the Kennedy Library Foundation on May 24. The award is presented annually to public servants who have withstood strong opposition to follow what they believe is the right course of action.

According to the Kennedy Foundation, Senator Muegge put his political career on the line when he authored laws that placed tough new regulations on the corporate swine and poultry industries in Oklahoma. Citing the need for clean air, clean water, and a protected environment to maintain the high quality of life Oklahomans enjoy, Muegge sponsored legislation that would regulate and impose restrictions on hog production to safeguard the environment. His bill required new hog

farms to be set back from neighboring properties and mandated water and soil testing. Additionally, the bill requires swine operations to pay a flat fee based upon the size of the operation that ranges from \$15 to \$225 per year, as well as an additional \$0.80 per animal unit based upon the licensed capacity of the hog operation, to fund the State's regulatory oversight of the industry.

Senator Muegge was reelected to a third term in 1998. However, he did not seek a fourth term, stating, "There's no better job than serving the people of northern Oklahoma, but just like every job, you eventually reach a point when you feel that you've accomplished everything you can." He continues to be an active voice in environmental and rural development issues impacting Oklahoma and the nation.

Cloud Seeding Research Project Underway

In partnership with the Texas Department of Licensing and Regulation, the OWRB has initiated its multi-year study of regional weather modification. Almost \$230,000 in federal funding will provide agency oversight and supervision of research efforts in western Oklahoma and the Texas panhandle.

The OWRB has contracted with members of the world-renowned Oklahoma Weather Center—including the National Severe Storms Laboratory (NSSL) and Oklahoma Climatological Survey (OCS)—and Weather Decision Technologies, Inc. (WDT) to answer fundamental questions related to the effectiveness of cloud seeding technology in the Oklahoma/Texas region. WDT is an Oklahoma-based private weather company.

Ongoing research includes field exercises to determine the impact of timely seeding on the behavior of growing convective clouds and their capacity to produce rainfall and hail. Weather researchers will deploy customized aircraft to assess the concentrations of cloud condensation nuclei that are responsible for the production or inhibition of rainfall.

In the laboratory, meteorologists will analyze various cloud seeding operations performed during Oklahoma's weather modification program, which was directed by the OWRB from 1996 through 2001. This aspect of the study will utilize both rain-gage and Doppler radar data observed during those seeding events. Using NEXRAD radar, the NSSL is providing a subjective evaluation of cause and effect, if any, on individual storms or clusters



A cloud seeding research aircraft with cloud physics instrumentation mounted on the wing. Inset shows cloud particle counter on board the plane.

of storms during the introduction of seeding agents in or near the storms' environment. Radar and hail data provided by WDT, supplemented by live NEXRAD radar, will be used by OCS climatologists to study cloud formation and growth in the Great Plains region of Oklahoma and Texas.

In 2002, Congress re-established federal funding for cloud seeding research through the creation of the Weather Damage Modification Program (WDMP) in the U.S. Bureau of Reclamation. The WDMP funds research initiatives from states that have an on-going cloud seeding operations or research program. The Oklahoma/Texas study should conclude next summer.

OCS Director to Lead National Project

Ken Crawford, long-time Director of the Oklahoma Climatological Survey (OCS) and current State Climatologist for Oklahoma, has accepted an appointment with the National Weather Service (NWS) to lead implementation of a national integrated weather observation network modeled after the Oklahoma Mesonet.

During Crawford's anticipated two- to four-year absence, Dr. Renee McPherson will serve as Acting Director of OCS while Derek Arndt will assume duties as Acting State Climatologist. Dr. McPherson has been at OCS since 1992, most recently completing a one-year sabbatical with the Cooperative Institute for Mesoscale Meteorological Studies. Arndt has worked for OCS's Climate Information Group since 1996.

Crawford was integral to establishment of the Oklahoma Mesonet, arguably the finest meteorological system of its kind in the world. Prior to oversight of the Climatological Survey, Crawford served 30 years with the NWS, including a stint as area manager for Oklahoma.

Unseasonably Mild Summer Continues Through August

According to the Oklahoma Climatological Survey, the summer of 2004 (June through August) was the fifth coolest on record in Oklahoma history (dating back to 1892). Statewide precipitation for this time period was 4.3 inches above normal, making summer 2004 the 13th wettest summer on record. Statewide statistics for the month of August show temperatures were on average 4.6° F below normal.

Climatologists surmise that the mild conditions were a result of unseasonably large and persistent upper level low pressure systems over central Canada. These systems were responsible for sending a series of cool fronts into Oklahoma, resulting in the numerous record lows and record low-highs experienced throughout the state. Forecasts for this fall suggest relatively normal temperature and precipitation for Oklahoma.

Oklahoma Water: A Quality of Life

25th Annual Governor's Water Conference, October 19-20, 2004

Tuesday, October 19

Symposium on Tribal Claims and Water

1:00	Registration	3:25	EPA Perspective on Tribal Water Claims Ben Grumbles, Acting Asst. Administrator, Office of Water (invited) Richard Greene, Region VI Administrator (invited) U.S. Environmental Protection Agency
1:30	Welcome & Overview Duane A. Smith OWRB Executive Director Justice Yvonne Kauger Oklahoma Supreme Court	3:45	Congressional Viewpoint Ryan Jackson, Counsel Senate Environment and Public Works Committee
1:50	Land of Many Cultures: American Indians in Oklahoma Bob Blackburn, Director Oklahoma Historical Society	4:05	Tribal Perspectives Chad Smith, Principal Chief Cherokee Nation John Berrey, Chairman Quapaw Tribe Bill Anoatubby, Governor Chickasaw Nation
2:10	Coordination of State/Tribal Water Quality Administration Miles Tolbert Oklahoma Secretary of the Environment	5:05	Resolution of Tribal Water Claims Lindsay Robertson, Associate Professor OU College of Law
2:30	Negotiating Indian Water Rights Claims Susan Cottingham, Director Montana Reserved Water Rights Compact Commission	5:25	Adjournment to Reception
2:50	Town of Taos & Abeyta Water Right Adjudication Tomas Benavidez, Town Attorney Taos, New Mexico		
3:10	Break		

Wednesday, October 20

Governor's Water Conference Program

8:00	Registration	Oklahoma River Development Project Jim Hasenbeck, Studio Architecture, Oklahoma City	
8:30	Welcome and Introductions Ervin Mitchell, OWRB Chairman	Arkansas River Vision Plan Kevin Conner, Carter & Burgess, San Antonio, TX	
8:35	Video - "Oklahoma Water: A Quality of Life"	Navigation Update Scott Robinson, Director, Port of Muskogee	
9:05	Keynote Address Lt. Governor Mary Fallin	Interstate Compact News Dick Seybolt, Chairman Arkansas-Oklahoma Arkansas River Compact Commission	
9:20	Infrastructure Financing Panel Moderator: Joe Freeman, OWRB Ted Lockin, Mayor of Bartlesville Dennis Krueger, Gen. Manager, Kiwash Electric Coop. Dr. Joe Taron, Chairman, Pottawatomie Co. Dev. Authority Chris Cochran, Senior Vice President, Capital West	12:00	Luncheon Program Oklahoma Water Pioneer Awards Featured Luncheon Speaker Bill Richardson, Governor of New Mexico (invited) Water Outlook from Washington D.C. Oklahoma's Congressional Delegation (invited) Oklahoma State Legislative Water Perspective House Speaker-Elect Jari Askins Representative David Braddock Senator Johnnie Crutchfield Senator Jay Paul Gumm Congressional Senate Candidate Forum Representative Brad Carson (invited) Dr. Tom Coburn (invited)
10:10	Water Development Infrastructure Financing Scott Meacham, Director Oklahoma Office of State Finance		
10:30	Break/Exhibits		
10:45	State of the State's Water: Celebrating 25 Years of the Governor's Water Conference Duane Smith, OWRB Executive Director		
11:00	Planning for the Future of the Grand River Basin Kevin Easley, General Manager Grand River Dam Authority		
11:15	Water Magazine		
		2:30	Adjournment

Free eBulletin Aids Water Treatment Professionals

Today's water treatment professionals face important decisions each and every day that require quick action and a clear understanding of the nation's regulatory issues. The *Safe Drinking Water Trust eBulletin* was recently launched by the Rural Community Assistance Partnership (RCAP) through a federal Homeland Security Grant awarded by the U.S. Department of Health and Human Services to serve as a primary resource in water system solutions. This valuable tool is offered at no cost to the water systems.

To register, users simply go online and fill out the subscription form at www.watertrust.org. Every three weeks, subscribers will receive an interactive e-mail bulletin containing informational articles. This free resource is one of the industry's leading centralized water utility tools

created specifically to help small public water systems keep up with the flurry of regulations that impact this industry.

Recognizing that rural water systems need more than just additional reading material, the *SDWT eBulletin* offers both up-to-date financial resources and an interactive "ask-the-expert" section providing direct access to water industry experts from across the nation. Taking nearly two years to conceptualize and design, the inaugural issue of the *Safe Drinking Water Trust eBulletin* was unveiled earlier this summer by Community Resource Group Inc., which serves RCAP's southern region.

For more than 30 years, the RCAP partnership has served as a leader in rural community development through its field-based staff and delegate agencies working at the community level in all 50 states. In Oklahoma, local RCAP partnership offices are located in Tulsa, Bennington, Warner, and Pryor, or can be contacted at www.crg.org.

Grand Lake Team Installs Cages

In early September, as part of a newly initiated study at Grand Lake to introduce native aquatic plant life, staff from the Oklahoma Department of Wildlife Conservation (ODWC), Lewisville Aquatic Ecosystem Research Facility (LAERF), and OWRB installed t-posts and vinyl coated wire mesh to cage and protect the new plants from fish, turtles, and other herbivores.



Pictured left to right are Gene Gilliland, Jim Burroughs, and Keith Thomas (ODWC); Owen Mills (OWRB); and Paul Williams (LAERF).

Boyce Named Employee of the Quarter

In July, the OWRB's Employee of the Quarter Award was presented to Monte Boyce, OWRB Comptroller, for outstanding service to the agency and State of Oklahoma. Specifically, Boyce was recognized for dedicated maintenance of agency fiscal records, exceptional efforts to satisfy state financial reporting requirements, and general competency and professionalism in the performance of his duties. Boyce's responsibilities include preparation of the budget work

program, budget request, and consolidated annual financial report, and he also acts as liaison between the OWRB and the Office of State Finance, State Treasurer's Office, and the fiscal staffs of the House and Senate. A 17-year public servant, Boyce joined the OWRB in 2001, transferring from the Oklahoma Department of Environmental Quality.



Boyce with Duane Smith, OWRB Executive Director

Oklahoma's Longest Rivers

Beaver/North Canadian	765.9 miles
Red River	591.7 miles
Washita River	547.4 miles
Canadian River	460.0 miles
North Canadian River	457.1 miles
Cimarron River	420.5 miles



North Canadian River at Seiling

Oklahoma Drought Monitor

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of August 30, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 96.7 percent full, a 1.6 percent decrease from that recorded on August 3, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-seven reservoirs have experienced lake level decreases since that time. Nineteen reservoirs are currently operating at less than full capacity (compared to 10 last month). Two reservoirs—Lugert-Altus, only 19.1 percent full; and Tom Steed, 53.9 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs

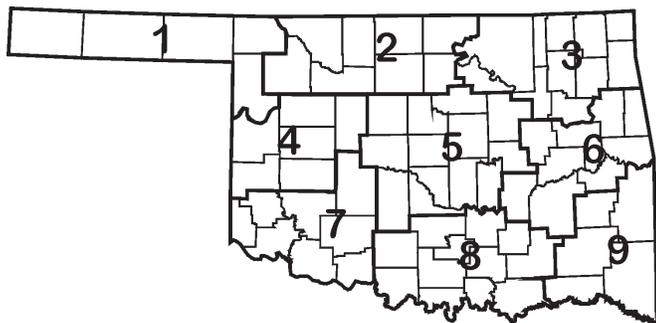
As of August 30, 2004

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	420,480	419,201	99.7
Northeast	3,710,194	3,581,438	96.5
West Central	276,790	246,915	89.2
Central	154,225	153,977	99.8
East Central	2,915,043	2,915,043	100.0
Southwest	301,810	149,979	49.7
South Central	2,940,740	2,899,721	98.6
Southeast	1,512,859	1,462,186	96.7
State Totals	12,232,141	11,828,460	96.7

Drought Indices

According to the latest Palmer Drought Severity Index (August 28, below), no regions in Oklahoma are currently experiencing drought conditions and only three of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since July 31. The greatest decrease occurred in the East Central climate division.

The latest monthly Standardized Precipitation Index (through August, below) indicates only moderate long-term dryness in eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), no climate divisions indicate dry conditions. Considering longer periods (through six years), the Southeast and East Central climate divisions report "moderately dry" conditions over the past 18 and 24 months.



Palmer Drought Severity Index

Climate Division (#)	Current Status 8/28/2004	Value		Change In Value
		8/28	7/31	
NORTHWEST (1)	MOIST SPELL	1.96	1.59	0.37
NORTH CENTRAL (2)	MOIST SPELL	1.50	0.80	0.70
NORTHEAST (3)	MOIST SPELL	1.99	2.35	-0.36
WEST CENTRAL (4)	MOIST SPELL	1.39	-0.04	1.43
CENTRAL (5)	MOIST SPELL	1.17	0.30	0.87
EAST CENTRAL (6)	INCIPIENT MOIST SPELL	0.57	1.05	-0.48
SOUTHWEST (7)	INCIPIENT MOIST SPELL	0.84	-0.04	0.88
SOUTH CENTRAL (8)	MOIST SPELL	1.44	1.19	0.25
SOUTHEAST (9)	INCIPIENT MOIST SPELL	0.58	0.88	-0.30

Standardized Precipitation Index

Through August 2004

	3-Month	6-Month	9-Month	12-Month
NORTHWEST (1)	VERY WET	MODERATELY WET	MODERATELY WET	MODERATELY WET
NORTH CENTRAL (2)	MODERATELY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
NORTHEAST (3)	MODERATELY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
WEST CENTRAL (4)	MODERATELY WET	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
CENTRAL (5)	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
EAST CENTRAL (6)	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTHWEST (7)	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTH CENTRAL (8)	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
SOUTHEAST (9)	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Financial Assistance Program Update

Loans/Grants Approved as of August 10, 2004

FAP Loans—307 totaling \$536,255,000

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 extremely competitive low-interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—157 totaling \$523,011,472

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—41 totaling \$162,351,407

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—405 totaling \$35,227,613

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—508 totaling \$29,820,332

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

Total Loans/Grants—1,418 totaling \$1,286,665,823

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.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

Ervin Mitchell, *Chairman*; Lonnie L. Farmer, *Vice Chairman*; Bill Secrest, *Secretary*
Harry Currie, Rudy Herrmann, Jack Keeley, Mark Nichols, Richard C. Sevenoaks

Brian Vance, *Writer/Editor* • Darla Whitley, *Writer/Layout* • Barry Fogerty, *Photography*

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In This Issue

Native American Issues Focus of Silver Anniversary Water Conference

Tribes Partner in Monitoring

Governor's Water Conference Tribal Symposium

FLOOD CURRENT:

Staying the Course on Partnerships, Training

Floodsmart.gov

Flood Insurance Q&A

Board Tours Arbuckle-Simpson

Water Board Loan Program Bond Issue Rated "AAA"

OWRB Web Site Recognized

Oklahoma Drought Monitor

From the Director



*Duane A. Smith
OWRB Executive Director*

At October's Water Conference, I had the pleasure of hosting the Symposium on Tribal Claims and Water, which examined the many water issues related to Native American sovereignty, including treatment as states in administration of water quality standards. Considering the contentious nature of the subject, by the end of the day, I believe most conferees left feeling encouraged about the willingness of both state and Tribal leaders to acknowledge and build upon common environmental protection and economic development goals.

Of course, there was much discussion regarding the Pawnee Tribe's recent application to EPA for "treatment as states." Understandably, the potential for *checkerboarding* of water quality regulations that could result from this

See From the Director, Page 2

Native American Issues Focus of Silver Anniversary Water Conference

The 25th Annual Oklahoma Governor's Water Conference was held in Oklahoma City on October 19-20. This year's two-day event commenced with a Tribal water symposium, with speakers focusing on the many water-related issues facing Oklahoma's 38 federally recognized Tribes as the state works to resolve conflicting claims to water rights and water quality administration. Conferees were treated to a warm welcome by special guest Oklahoma Supreme Court Justice Yvonne Kauger, followed by an overview of the many complex topics in American Indian history in Oklahoma by Dr. Bob Blackburn of the Historical Society. Contributing to the Tribal perspective were Chad Smith, Principal Chief of the Cherokee Nation; John Berrey, Chairman of the Quapaw Tribe; and Bill Anoatubby, Governor of the Chickasaw Nation. Other speakers included Oklahoma Secretary of Environment, Miles Tolbert; Susan Cottingham, Montana Reserved Water Rights Compact Commission; Chuck Sheehan, EPA; Ryan Jackson, Counsel for the Senate Environment and Public Works Committee; and Dr. Lindsay Robertson, OU College of Law.

OWRB Chairman Ervin Mitchell welcomed conferees and speakers on the second day of the Conference with a video presentation entitled "Oklahoma Water: A Quality
See Water Conference, Page 3



Bill Anoatubby, Governor of the Chickasaw Nation

delegation of authority makes the state and many local governments quite nervous, especially as they contemplate the economic ramifications to industry and Oklahoma communities. To avoid such problems, federal, state and Tribal governments need to have sovereign-to-sovereign discussions about our water future.

As we heard from Oklahoma Tribal leaders and other speakers at the Water Conference, state and/or federal recognition of Tribal sovereignty does not impose a death sentence for future economic development no more than it does for our environment. Native Americans and all other Oklahomans benefit from clean and abundant sources of water; we all suffer if our waters become polluted or are misused. Just because the state's current water law does not recognize Tribal ownership, that doesn't mean we don't think we ought to work *with* the Tribes, that compacting is *not* the right way to go. Mutual protection of our water resources begins with open hearts and open minds.

Tribes Partner in Monitoring

Native American governments will join the Water Board and U.S. Geological Survey to underwrite streamflow monitoring in Oklahoma. The proposal was part of a joint funding agreement approved by the nine-member Board at its October 19 meeting.

The cooperative partnership assists the OWRB in managing state surface waters, including the prediction of flood and drought events. Stream gages located throughout Oklahoma also provide important water quality information used to supplement data collected through the agency's Beneficial Use Monitoring Program. The contribution of \$141,550 from the Cherokee, Choctaw and Chickasaw Nations will attract \$458,475 in federal matching funds. Additional contributions will allow operation of a \$956,250 monitoring program through fiscal year 2005.

Governor's Water Conference Tribal Symposium



"You cannot understand Oklahoma—its institutions, its communities, its constitution of government, the way we look at the world itself—without understanding American Indians."

Justice Yvonne Kauger
Oklahoma Supreme Court

"One of the issues that we must understand, one of the issues that binds us together as a community, is water."

Bob Blackburn, Director
Oklahoma Historical Society



"It's clear the tribes need to have a greater institutional voice in state environmental decision-making..."

Miles Tolbert
Okla. Secretary of the
Environment

"We need to sit down and talk and we need to figure out what's best for Oklahoma and what's best for Indians, because it's the same thing."

John Berrey, Chairman
Quapaw Tribe



"All parties involved ... believe economic development would be inhibited by a complicated regime of conflicting statutes."

Ryan Jackson, Counsel
Senate Environment and
Public Works Committee

"We hired a mediator. Does [he] help us get along? Hell no, but he makes us get things done. And that's what counts."

Tomas Benavidez, Town
Attorney for Taos, New Mexico



Water Conference . . . Continued from page 1

of Life.” The keynote address was delivered by Lt. Governor Mary Fallin, followed by addresses from Senate candidates, Representative Brad Carson and Dr. Tom Coburn. Some of the other speakers included Scott Meacham, Director of the Oklahoma office of State Finance; Kevin Easley, General Manager of the Grand River Dam Authority; Chris Cochran, Senior Vice President, Capital West; and Dick Seybolt, Chairman of the Arkansas-Oklahoma Arkansas River Compact Commission.

At the luncheon, Oklahoma Pioneer Awards were presented to Dr. Joe Taron and Glenn Sullivan (see below).



Lt. Governor Mary Fallin delivering the Keynote Address

Duane Smith and Secretary Miles Tolbert updated the audience on state water issues. Congressman Tom Cole joined State Legislators in an update on water-related legislation to conclude the conference.



OWRB staff members Theda Adkisson, Monte Boyce, Mary Schooley, and Anita Ray



Dick Seybolt, Arkansas-Oklahoma Arkansas River compact Commission and Jim Schuelein, OWRB



Left: Gene Whatley, ORWA; Ted Lockin, Bartlesville Mayor; and Joe Freeman, OWRB



Mark Nichols, OWRB Member; Tom Buchanan, Lugert-Altus Irrigation District; and Mason Mungle, Farmer's Union



Bob Drake, Arbuckle Master Conservancy District, and Ervin Mitchell, OWRB Chair



Ervin Mitchell, OWRB Chairman



Kelly Burch, OK Attorney General's office; Doug Schooley, OK Dept. of Mines; and Mike Melton, OWRB

2004 Oklahoma Water Pioneers



At the conference, Engineer and former state water advocate, Glenn Sullivan (Norman) was named an Oklahoma Water Pioneer. Among numerous other accomplishments, Sullivan was recognized for his part in the creation of the first Oklahoma Comprehensive Water Plan and the state's first groundwater laws.

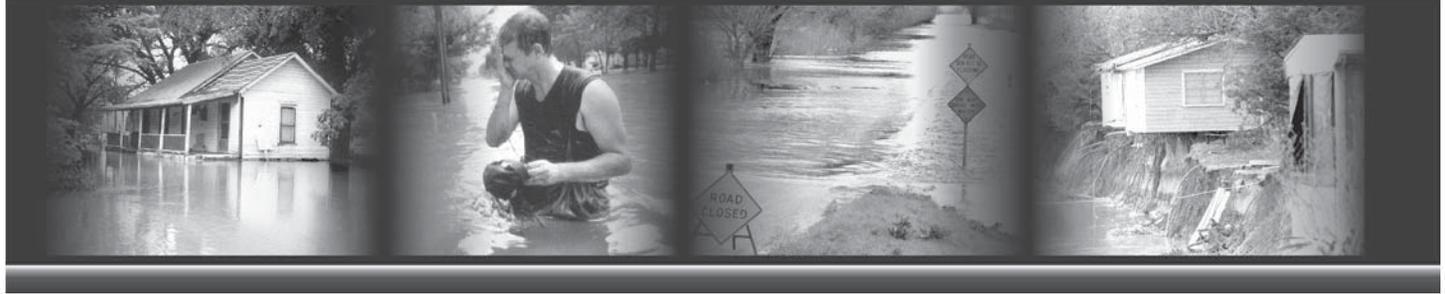


Also honored as a Water Pioneer was state rural water advocate Joe Taron (Shawnee). For 22 years, Taron chaired the Pottawatomie County Development Authority and advocated a plan to secure an additional water source for the county. His efforts resulted in the construction of Wes Watkins Reservoir.



Derek Smithee, OWRB; Dr. Jonathon Hook, EPA; and Chuck Sheehan, EPA

FLOOD CURRENT



Staying the Course on Partnerships, Training



Mike Mathis
State Floodplain Coordinator, OWRB

The Oklahoma Floodplain Managers Association's 14th Annual Conference, held last month at Western Hills Lodge, was an overwhelming success. A valuable partner of the Water Board and one of the organizations targeted by the agency in our alliance-building strategy, OFMA continues to make giant strides in promoting floodplain management in Oklahoma. More than 150 floodplain managers from across the state attended the meeting and each earned 12 continuing education credits.

Lonnie Ward, Oklahoma's FEMA representative, who was reassigned to a similar position in Texas, was recognized at the meeting for six years of service to OFMA. We will certainly miss Lonnie's professionalism and leadership. We are lucky that Jack Graham, a long-time OFMA member and one of the state's first certified floodplain managers, will assume Lonnie's post. The transition should be seamless as Jack, like Lonnie, demonstrates wide-ranging knowledge of floodplain management issues in Oklahoma. And both men recognize the extreme importance of consistent and quality training programs for those involved in community land use planning, especially in crucial floodplain areas.

As 2004 comes to an end, I think most in the floodplain management community would agree that the legislation and new law requiring continuing education of floodplain administrators was the most significant event of the year. The OWRB has begun the rule-making process for floodplain manager accreditation and we encourage your suggestions and comments. Training and continued education is the key to responsible floodplain management at the local level. Our individual success in this discipline, as with all endeavors in our own lives, is dependent

upon continued expansion of our personal knowledge and experience. It's just common sense.

I also want to thank OWRB staff for their continued hard work this year. Our people have worked diligently to complete the many targeted Community Assistance Program visits that ensure local compliance with NFIP regulations. In this regard, we depend upon community officials to maintain their program administration records and ensure that flood damage prevention ordinances remain current and enforced. Also, as we inventory repetitive loss structures in Oklahoma, we appreciate their assistance in providing staff with their local knowledge of individual properties and county records.

Finally, I want to remind you that the OWRB's upcoming training class, "Managing Floodplain Development Through the NFIP," is scheduled for January 10-14, 2005. Please call Rhonda Bowers at 405-530-8800 to enroll; class size is limited and the class fills quickly. I encourage all floodplain managers to take advantage of this excellent training opportunity.



FLOODSMART.GOV
An official site of the National Flood Insurance Program



FEMA

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[Glossary](#)
[Site Map](#)
[Help](#)

Know the Facts

NFIP Resources

Insurance Center



Prepare

Be safe, be smart—be ready when the floodwaters start to rise.
[Know the Facts](#)



Participate

Is your community working with the NFIP to reduce flood losses?
[NFIP Resources](#)



Protect

Don't suffer devastating financial loss due to floods.
[Insurance Center](#)



Agents

Enhance your marketing efforts by distinguishing yourself as a flood insurance expert. Begin today and participate in our new, interactive Agent Co-Op and Referral Programs, designed For Agents Only.

What's your flood risk? How does flood insurance protect you? Discover the answer to these and other questions at www.floodsmart.gov, a Web site designed by the Federal Emergency Management Agency (FEMA). The site, directed primarily at property owners and renters in flood-prone areas, presents basic information about floods and flood insurance, including the National Flood Insurance Program (NFIP). Visitors to the site can also access tools to help them estimate their flood insurance premiums and find a local flood insurance agent.

Flood Insurance Q & A

Who can purchase flood insurance?

Anyone in a community that participates in the National Flood Insurance Program (NFIP) can purchase building and contents coverage against flood damage (with only a few exceptions) from any private insurance agent.

When is the best time to obtain flood insurance coverage?

Now. There is a 30-day waiting period for flood insurance to become effective. However, if flood insurance is purchased in connection with a mortgage loan, there is no waiting period.

What is a Special Flood Hazard Area (SFHA)?

These are the areas with the highest risk for flooding, shown on Flood Insurance Rate Maps as Zones A E, AO, AH, or V. Over a 30-year mortgage, homes in these zones have a 26 percent chance of being flooded.

How do you know if a building is in a SFHA?

Flood maps depict darkly shaded areas as high-risk flood areas. Check with your local floodplain official to confirm your property's flooding risk. To order copies of flood maps, visit www.fema.gov. Lenders are required to notify borrowers if flood insurance is required as a condition of a mortgage loan.

Rains Swamp Muskogee



Ducks swim in floodwaters left in the wake of torrential rainfall that occurred during late October in the Meadows Addition in the south part of Muskogee. Some areas of the community reported more than seven inches of rain, inundating roads and houses throughout Muskogee and resulting in the worst flooding in more than 20 years. The inset photograph demonstrates that floodwaters reached higher than mailboxes in the community.

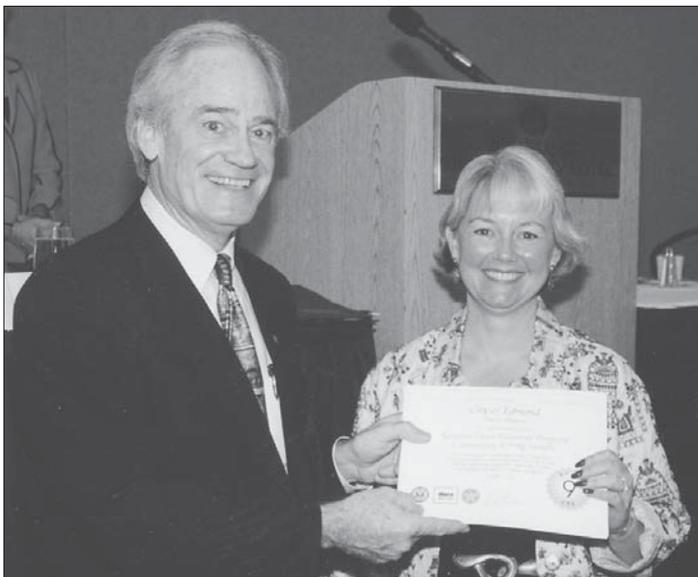


Water weighs 62.4 lbs. per cubic foot and typically flows downstream at 6 to 12 miles an hour.

When a vehicle stalls in the water, the water's momentum is transferred to the car. For each foot the water rises, 500 lbs. of lateral force are applied to the car.

But the biggest factor is buoyancy. For each foot the water rises up the side of the car, the car displaces 1,500 lbs. of water. In effect, the car weighs 1,500 lbs. less for each foot the water rises.

Two feet of water will carry away most automobiles.



Mike Melton, of the OWRB, presents a Community Rating System (CRS) certificate to Nancy Kennedy, Stormwater Utility Director for the City of Edmond, at the Oklahoma Municipal League Awards Breakfast, held August 20 in Oklahoma City. The certificate denotes "Class 9" status, which allows Edmond residents a five percent flood insurance premium discount based on local implementation of mitigation, outreach, and educational activities that go well beyond minimum NFIP requirements.

Board Tours Arbuckle-Simpson

In conjunction with the OWRB's September meeting in Sulphur, Board members, OWRB staff, and guests were taken on a tour of the Arbuckle-Simpson study area. The tour was highlighted by brief lectures by Board staff and members of Arbuckle Study Peer Review Team at various locations, including Vendome Well, at the Chickasaw National Recreation Area in Sulphur; Jacobs Ranch, which overlies the aquifer's Hunton Anticline; U.S. Silica Quarry, near the town of Mill Creek; Tishomingo National Fish Hatchery at Pennington Creek; Lake of the Arbuckles; and Turner Falls Park, near Davis.



Randall Ross, a hydrologist with the Kerr Environmental Research Center in Ada, demonstrates the capricious nature of groundwater flow through a typical karst aquifer.

OWRB Web Site Recognized

The Water Board's on-line water well log and drilling administration service, launched in October 2003, has been chosen by the Center for Digital Government as a finalist in the 2004 Best of the Web Digital Government Achievement Awards in the government-to-business category. The highly successful program allows the public to search the agency's extensive database of water wells drilled in Oklahoma. It also provides a way for Oklahoma's water well drillers to submit on-line logs of their individual drilling operations.

The Center for Digital Government is a national research and advisory institute on information technology policies and best practices in state and local government.

Water Board Loan Program Bond Issue Rated AAA

The nation's top credit ratings services—Standard & Poors, Moody's Investor Service, and Fitch Ratings—have assigned AAA ratings to the Oklahoma Water Resources Board's upcoming \$204 million revenue bond issue. The bonds, which closed October 26, will be used to leverage funds utilized for water and wastewater project financing throughout the state.

Bond proceeds will be used to finance eligible projects from the Board's Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF). Funds to capitalize both programs—which offer low-interest loans to both large and small Oklahoma communities—are provided through EPA grants and state matching funds (equal to 20 percent of the federal government grants). The DWSRF provides financial assistance to communities for public water supply construction projects. The CWSRF provides loans for municipal wastewater infrastructure and other pollution control projects.

During the Board's bond issue in October 2003, Oklahoma became the first state in EPA's Region 6 to leverage the DWSRF. Bond proceeds will provide approximately \$120 million for clean water projects and \$80 million for drinking water projects.

Oklahoma's DWSRF is the only financing program in Region 6 that has loan demand high enough to warrant leveraging and this bond issue further exemplifies this strong aspect of the fund's strength. In addition, the OWRB is cross collateralizing the drinking water and clean water programs, making this program the first in the region and one of only about 10 in the country providing this level of water and wastewater financing. The Bond Buyer newspaper has already identified the Board's bond issue as its national "Deal of the Week."

The "AAA" rating reflects the board's diverse loan pool, significant default tolerance as a result of over-collateralization from pledged loan revenues and debt service reserve funds, and sound underwriting guidelines. The bonds are secured by a debt service reserve and loan repayments pledged to bondholders. The debt service reserve, in addition to providing bondholder security, generates excess earnings that are used to subsidize borrower loan repayments.

According to Wendy Wipperman, a credit analyst in Standard & Poor's Dallas office, the OWRB has a very strong history of oversight that exceeds most states. For example, the OWRB requires a monthly report from all borrowers, not just an annual report like many agencies.

The OWRB serves as the state's primary financing vehicle for local government water and wastewater projects. The agency is authorized to assist political subdivisions and municipal corporations of the state, therefore eliminating the risk of lending to private entities. The OWRB's five financial assistance programs—consisting of the Drinking Water and Clean Water State Revolving Fund Loan Programs, Bond Loan Program, Emergency Grant Program, and Rural Economic Action Plan Grant Program—are collectively responsible for almost \$1.3 billion in financing for community water and sewer infrastructure projects in Oklahoma. The effort was launched through a \$25 million dollar appropriation by the State Legislature in 1983.

Oklahoma Drought Monitor

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of October 25, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.9 percent full, a 1.6 percent decrease from that recorded on September 28, according to information from the U.S. Army Corps of Engineers (Tulsa District). Nine reservoirs have experienced lake level decreases since that time. Twenty-four reservoirs are currently operating at less than full capacity (compared to 27 last month). Three reservoirs—Lugert-Altus, only 20.7 percent full; Tom Steed, 56.6 percent; and Waurika, 77.8 percent—remain below 80 percent capacity.

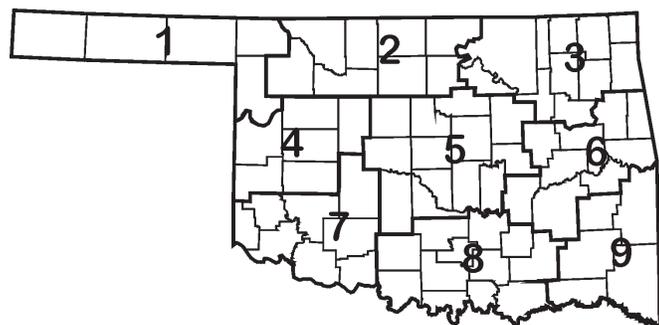
Storage in Selected Oklahoma Lakes & Reservoirs

As of October 25, 2004

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	428,325	425,382	99.3
Northeast	3,710,194	3,509,999	94.6
West Central	276,790	244,636	88.4
Central	154,225	152,273	98.7
East Central	3,022,323	2,923,970	96.7
Southwest	301,810	73,685	24.4
South Central	3,037,769	2,799,364	92.2
Southeast	1,474,334	1,400,973	95.0
State Totals	12,405,797	11,530,282	92.9

Drought Indices

According to the latest Palmer Drought Severity Index (October 25, below), no regions in Oklahoma are currently experiencing drought conditions. In addition, none of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since September 23. The most modest increase occurred in the Northeast climate division.



The latest monthly Standardized Precipitation Index (through September, below) indicates only some moderate long-term dryness in Oklahoma. Among the *selected* time periods (3, 6, 9, and 12 month SPIs), only the Southeast climate division indicates dry conditions (“moderately dry” over the 3-month period). Considering longer periods (through six years), the Southeast and East Central climate divisions report “moderately dry” conditions at times over the past 18, 24 and 30 months.

Palmer Drought Severity Index

Climate Division (#)	Current Status 10/23/2004	Value 10/23	Value 9/25	Change In Value
NORTHWEST (1)	UNUSUAL MOIST SPELL	2.78	1.82	0.96
NORTH CENTRAL (2)	UNUSUAL MOIST SPELL	2.14	1.17	0.97
NORTHEAST (3)	INCIPIENT MOIST SPELL	0.88	0.56	0.32
WEST CENTRAL (4)	MOIST SPELL	1.67	1.18	0.49
CENTRAL (5)	MOIST SPELL	1.20	0.26	0.94
EAST CENTRAL (6)	NEAR NORMAL	0.28	-0.48	0.76
SOUTHWEST (7)	INCIPIENT MOIST SPELL	0.95	0.42	0.53
SOUTH CENTRAL (8)	MOIST SPELL	1.62	0.46	1.16
SOUTHEAST (9)	INCIPIENT MOIST SPELL	0.50	-0.62	1.12

Standardized Precipitation Index

Through September 2004

3-Month	6-Month	9-Month	12-Month
MODERATELY WET	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Financial Assistance Program Update

Loans/Grants Approved as of October 19, 2004

FAP Loans—307 totaling \$536,255,000

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 extremely competitive low-interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—160 totaling \$529,555,168

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—45 totaling \$187,251,639

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—404 totaling \$35,127,614

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—509 totaling \$29,920,332

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

Total Loans/Grants—1,425 totaling \$1,318,109,753

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.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

Ervin Mitchell, *Chairman*; Lonnie L. Farmer, *Vice Chairman*; Bill Secrest, *Secretary*
Harry Currie, Rudy Herrmann, Jack Keeley, Mark Nichols, Richard C. Sevenoaks

Brian Vance, *Writer/Editor* • Darla Whitley, *Writer/Layout* • Barry Fogerty, *Photography*

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In This Issue

Nine Programs Comprise OWRB's Highest Priorities

Board Approves Four REAP Grants

Fiscal Year 2004 Expenditures

Old Trees Sought for Arbuckle Tree Ring Study

Dry Outlook for Western U.S.

OWRB Adds Groundwater Monitoring Tool

Well Measurement Program Underway

OWRB Video Available on DVD

Chili Cook-off Supports United Way

Agencies Join Salvation Army for Kids

Oklahoma Drought Monitor

From the Director



*Duane A. Smith
OWRB Executive Director*

As 2004 comes to an end, I look to 2005 as a year of great promise for the OWRB. As we chart our course for the coming year, I am filled with renewed optimism about the OWRB, our people and our current direction. Again, the agency, its Board and staff, look forward to making opportunities out of challenges.

Of course, the agency's Strategic Plan defines our role in managing and protecting the water resources of Oklahoma. Specifically, the plan includes nine high priority programs through which the OWRB will focus efforts in fiscal year 2005.

Without question, our top priorities in 2005 include updating the Oklahoma Comprehensive Water Plan, last modified in 1997, and recapitalizing the Statewide Water Development Revolving Fund, the primary source of

See From the Director, Page 2

Nine Programs Comprise OWRB's Highest Priorities

The OWRB's Strategic Plan contemplates the following agency High Priority Programs for FY-2005.

Comprehensive Water Plan

The 10-year revision of the *Oklahoma Comprehensive Water Plan*, mandated by the State Legislature, is due in 2005. In conjunction with the Bureau of Reclamation, the OWRB has already completed updated population projections, which will be used to formulate estimates of future water use throughout the state. These estimates will provide critical information on Oklahoma's future water supply infrastructure needs. The state's most pressing water policy issues will also be reevaluated.

Special Water Resource Studies

The OWRB's existing water management authority and technical capabilities place the agency in a unique position to answer important questions related to Oklahoma water quality and quantity. As a result, the agency is often called upon to design, direct and/or participate in various local, state, and federal studies of Oklahoma's water resources and issues related to water management. While the impetus for many of these studies is due to intense, and often unanticipated, public interest—such as the deterioration of water quality near the Arkansas border due to increased nutrient loadings and the recently proposed groundwater transfer from the Arbuckle-Simpson Aquifer to central Oklahoma—the OWRB will strive to identify additional investigations and appurtenant funding that will



OWRB geologist Bob Fabian takes GPS location readings at a well near Dougherty, Oklahoma, as part of the agency's Arbuckle-Simpson Hydrology Study.

See Programs, Page 2

water and wastewater system project funding in Oklahoma. In addition to the ongoing study of water resources in the Arbuckle-Simpson region of South central Oklahoma, we also need to identify additional water resource studies as well as potential avenues for funding these important technical investigations that guide the usage and protection of our water resources.

Water quality/quantity monitoring, such as that accomplished through the Board's highly successful Beneficial Use Monitoring Program, will continue to be an integral aspect of the Board's mission as we look to expand the effort to include groundwater. Measures through which we implement Oklahoma's Water Quality Standards, which are closely linked to BUMP, must be continually refined and improved to reflect ever-changing state and national priorities. And through data

Programs . . . Continued from page 1

be required to allocate and preserve the state's water resources more fairly and efficiently .

Statewide Water Development Revolving Fund Capitalization

In response to Oklahoma's anticipated \$2 billion demand for water and wastewater infrastructure financing through FY 2010, it is critical that the OWRB identify and obtain additional external revenue sources to support its financing activities. A \$40 million initial investment in the OWRB's financial assistance programs has generated a perpetual asset base of almost \$350 million while providing \$1.35 billion in water and wastewater loans and grants to Oklahoma communities. These funds have resulted in a total savings of more than \$415 million to cities, towns, and rural water districts throughout the state.

Water Quality/Quantity Monitoring

While the OWRB's Beneficial Use Monitoring Program continues to provide definitive benchmark data vital to the protection of Oklahoma's surface water quality, particularly in determining where Oklahoma's most pressing water quality problems are occurring, Oklahoma lacks a comprehensive groundwater monitoring strategy. If equipped with an appropriate long-term source of funding, BUMP is the logical vehicle for such an effort, as well as to support ongoing initiatives related to biological monitoring, streamgaging, and citizen volunteer monitoring.

Water Quality Standards and Implementation

Oklahoma's Water Quality Standards, the cornerstone of state water quality management and protection efforts, will continue to evolve to reflect changing federal and state priorities and regulations. Foremost among standards-related issues are development of standards to protect Oklahoma's groundwater resources; development of Standards implementation procedures by the state's environmental agencies; integrating quality and quantity issues into the Standards; improvement of use support

management and dissemination programs and public outreach efforts, the OWRB will solidify its status as Oklahoma's primary source of water information.

On the legal front, reevaluation of Oklahoma's current water laws is needed to determine if they are truly protective of our precious water resources, especially in light of new state and federal regulations.

I encourage all Oklahoma citizens to join the Water Resources Board in our continuing challenge to balance all water uses. The results of our actions impact not only the water user community, but all Oklahomans. Voice your opinion about the state's water issues by contacting the OWRB or your local, state or federal representatives on how best to utilize and protect the state's water resources. We look forward to hearing from you.

assessment protocol procedures, including those pertaining to biological thresholds of water quality protection; and development of nutrient criteria.

Data Management and Dissemination

As Oklahoma's water agency, the OWRB will strive to maintain a technical infrastructure—including network environment, databases and data storage, in-house and online applications, and mapping capabilities—that allows the agency to provide accurate and expedited water-related information and services to the public, State Legislature, Congress, and other customers.

Public Outreach

The OWRB will continue to further public knowledge of agency objectives and water management/protection programs, as well as the general importance of Oklahoma's most valuable natural resource.

Resolution of Tribal Water Claims

In addition to previous claims involving water quantity, several Indian tribal governments in Oklahoma are currently seeking treatment as a state authority to administer water quality programs, particularly water quality standards. To resolve Indian tribal claims to water resources in Oklahoma, the OWRB plans to provide administrative support to the Oklahoma Secretary of Environment, Governor, and Legislature; facilitate meetings between state and tribal officials; review claims; prepare informational materials; and complete other tasks that encourage resolution of claims.

Review of Oklahoma Water Law

OWRB staff will conduct appropriate research—including review of appropriate statutes and cases—and prepare initial written summaries of the principles of Oklahoma's water laws. It is envisioned that the agency and/or Legislature will bring together representatives of large water users, academics, attorneys, and others to review principles of law and suggest updates and changes to members of the State Legislature.

Board Approves Four REAP Grants

At its December 14 meeting, the Oklahoma Water Resources Board approved four Rural Economic Action Plan (REAP) grants to finance local water and sewer system improvements.

The grant awards, approved by the nine-member Board, are the first attributed to a fiscal year legislative appropriation of \$2.4 million. The OWRB anticipates additional REAP grants throughout the year for at least 20 eligible community water systems in direct relation to monthly program allocations received by the agency. The REAP program, created by the State Legislature in 1996, primarily targets small towns that are often excluded from traditional funding programs. As a result, it is a key component of the state's overall economic development program for rural Oklahoma. To date, the Board has approved 408 REAP grants for more than \$35 million. When combined with other funding sources, REAP grants have contributed to the construction of water/wastewater projects totaling more than \$64 million throughout the state.

Okfuskee County Rural Water District #1 will use its \$88,000 grant to replace an aging sanitary lift station with a submersible lift station, complete with associated

sewer lines, manholes, instrumentation, controls and other necessary construction and appurtenances.

Noble County Rural Water, Sewer and Solid Waste Management District #4 will use its \$39,999 grant to move water lines that are dangerously close to adjoining sewer lines of another entity. The relocation of some 4,100 feet of lateral lines will prevent potential contamination.

The Town of Stonewall in Pontotoc County will use its \$99,863 REAP grant to repair a leaking structure in its water treatment plant and replace two failing service pumps and backwash pumps, along with related necessary appurtenances and construction.

Wapanucka Public Works Authority in Johnston County will use its \$59,000 grant to extend water sewer and fire protection service to a new sports complex for the Wapanucka School System. The project will consist of approximately 2,000 feet of water line and 700 feet of sewer line along with related construction and appurtenances.

Fiscal Year 2004 EXPENDITURES

Oklahoma Water Resources Board

<u>Fund Description</u>	<u>FY-01</u>	<u>FY-02</u>	<u>FY-03</u>	<u>FY-04</u>
Constitutional Reserve	49,809	0	0	0
State Appropriations	3,534,986	3,580,729	3,289,614	3,817,113
Carryover	283,714	75,143	67,432	376,887
Weather Modification	1,087,787	0	0	0
Drillers & Pump Installers	23,711	8,282	24,303	-22
Rural Economic Action Plan	1,055,503	1,177,606	1,643,265	473,170
OWR Revolving Fund	282,896	278,353	261,822	292,412
Drillers & Installers Regulation Fund	0	8,799	17,313	41,856
USGS Cooperators	129,680	118,435	223,885	251,650
Reimbursement	1,141,932	1,289,555	1,157,333	1,296,970
Drinking Water Loan Administration Fund	353	12,369	171,363	143,999
Wastewater Facility Construction Fund	490,343	464,641	588,111	693,938
State Revolving Fund - Operations	<u>220,546</u>	<u>141,035</u>	<u>128,365</u>	<u>0</u>
Total Revolving Funds	4,432,751	3,499,075	4,215,760	3,193,973
Federal Funds	476,126	1,064,723	1,071,802	1,600,951
Federal Water Quality Management Funds	3,756,478	3,343,020	4,034,206	7,422,924
Expenditure Totals	12,533,864	11,562,690	12,678,814	16,411,848
Activity				
Administration	1,991,875	2,398,540	2,073,221	2,198,420
Water Quality	1,827,910	2,027,235	2,166,694	2,482,280
Financial Assistance	1,358,849	1,298,484	1,675,741	1,395,711
Planning & Management	2,136,693	2,328,164	2,576,367	2,755,600
Weather Modification	1,087,787	0	0	0
Secretary of Environment	<u>4,130,750</u>	<u>3,510,267</u>	<u>4,186,791</u>	<u>7,579,837</u>
TOTAL	12,533,864	11,562,690	12,678,814	16,411,848

Old Trees Sought for Arbuckle Tree Ring Study

As part of the Oklahoma Water Resources Board's ongoing study of the Arbuckle-Simpson aquifer, researchers are seeking old trees that could be used to gather information on the region's climatic and hydrologic history.

Widely used since the 1930s, the analysis of tree rings not only provides a glimpse of a particular tree's life and growth history, it can be used to reconstruct streamflow and precipitation records for the surrounding area. According to Dr. Andover Tarhule, Assistant Professor of Hydrology at the University of Oklahoma, who is directing this portion of the Arbuckle study, researchers are particularly looking for old Post Oaks or Burr Oaks (see samples at right).

"We are asking citizens to provide us with information on the locations of either of these tree species in or around the Arbuckle-Simpson aquifer region. The information we receive will remain confidential," Tarhule says.

He also emphasizes that the procedure utilized to collect cores will do absolutely no harm to the trees. All samples will be less than 0.2 inches in diameter.

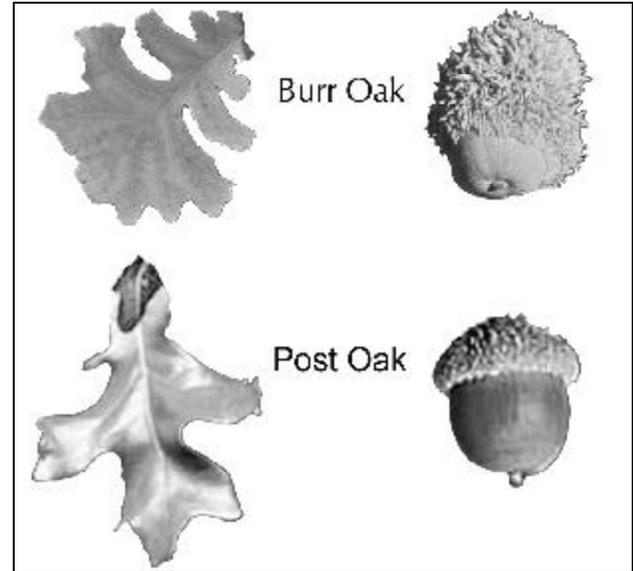
The following criteria will be used to determine the best candidates for the tree ring study:

- Trees should be located away from water, preferably on hilly or rocky terrain.
- There should be a reasonable chance of obtaining

about five similar trees within one square mile.

- Trees should be at least 100 years old.

Anyone with information on the whereabouts of old Post Oak and/or Burr Oak trees in the Arbuckle region is asked to contact Rachel Turney, OU Graduate Research Assistant, at turney@ou.edu or 405-325-5325, or the OWRB's Technical Studies section at 405-530-8800.



Dry Outlook for Western U.S.

Citizens in the western United States, already suffering through an extended serious drought, should expect dry conditions to continue and even worsen, according to expert climate researchers.

A study of tree rings by scientists from the Lamont-Doherty Earth Observatory of the Earth Institute at Columbia University revealed that a 400-year-long drought dating back 1,000 years ago occurred during a time when the planet was warmer than usual, much like today. If the pattern holds up, it could mean worsening drought.

Dr. David Meko of the University of Arizona tree ring lab notes that according to the tree-ring record, the drought that has gripped the western United States for the past four years pales in comparison with some earlier droughts. Since 1999, the Southwest, central Rockies, and western Great Plains have been parched. The year 2002, in particular, was the driest of the past 100 years in Arizona and second driest for Arizona, New Mexico, Colorado, and Utah.

According to study results prepared for the journal *Science*, gridded drought reconstructions that cover most of the western United States over the past 1,200 years show that the current drought is mild compared to an earlier period of elevated aridity and epic drought in AD 900-1300.

The study's lead author, Dr. Edward R. Cook of the Lamont Doherty Earth Observatory's Tree Ring Laboratory,

says the culprit seems to be La Nina, a cold-water phenomena in the eastern Pacific Ocean that is generally believed to cause drier conditions throughout the western U.S.

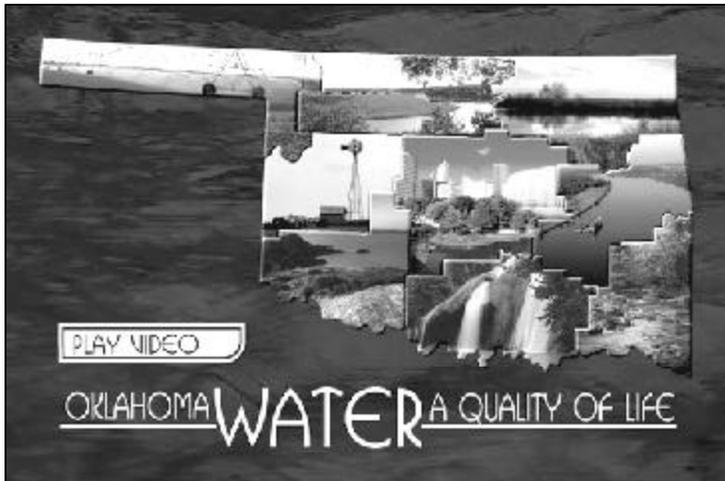
"If warming increases in the future we ought to at least consider the possibility that we are going into a more drought-prone period than we have seen over the last few hundred years," Cook says.

Information courtesy Reuters and LDEO



The U.S. Drought Monitor is a cooperative effort between drought experts in Canada, Mexico, and the United States to monitor drought across the continent on an ongoing basis. Integrated assessments of drought conditions are available at www.drought.unl.edu/dm/monitor.html.

OWRB Video Available on DVD



A limited number of free copies of the OWRB's video, *Oklahoma Water: A Quality of Life*, are now available on DVD while supplies last. The informative 30-minute production debuted at the Governor's Water Conference on October 20, 2004. To request a copy, call 405-530-8800. Allow two to three weeks for delivery.

Agencies Join Salvation Army for Kids

On December 10, OWRB volunteers delivered toys to underprivileged children and families as part of the Salvation Army's Corporate Angel Tree Program.

Mary Schooley has coordinated OWRB participation in the Christmas toy drive since 1996. Schooley says she is always amazed at the considerable generosity exhibited by staff of the OWRB and Office of the Secretary of Environment.

The unwrapped gifts went to over 50 children--infants to 14 years of age. According to the Salvation Army, last year's toy tree drive assisted more than 4,300 families and distributed over 31,000 toys and gifts to children in Oklahoma and Logan Counties.



OWRB staff member Hannah Harder gathers and loads toys for delivery to the Salvation Army in Oklahoma City.

Chili Cook-off Supports United Way

In November, the OWRB's annual Chili Cook-off fundraiser for the United Way of Oklahoma was one of several ways OWRB staff participated in the 2004 Oklahoma State Employee Charitable Contribution Campaign. According to Laura Oak, coordinator of the OWRB Campaign, the agency exceeded its 2004 goal by \$626, with contributions totalling \$7,826. In 2003, the agency raised \$7,128.

To encourage participation, activities also included a hot dog lunch, basketball and soccer balloon competitions, and a Halloween costume contest.



Above: Duane Smith proclaims Mary Nell Brueggen this year's Chili Cook-off Champ for the second year in a row. Second place went to Jalisha Petties, and Mary Schooley

received an honorable mention. At right: staff and guests line up to sample the chili.



Oklahoma Drought Monitor

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of December 20, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.5 percent full, a 0.3 percent increase from that recorded on November 22, according to information from the U.S. Army Corps of Engineers (Tulsa District). Seventeen reservoirs have experienced lake level decreases since that time and only eight reservoirs are currently operating at less than full capacity (compared to eight last month). Two reservoirs—Lugert-Altus, only 37.7 percent full; and Tom Steed, 77.1 percent—remain below 80 percent capacity.

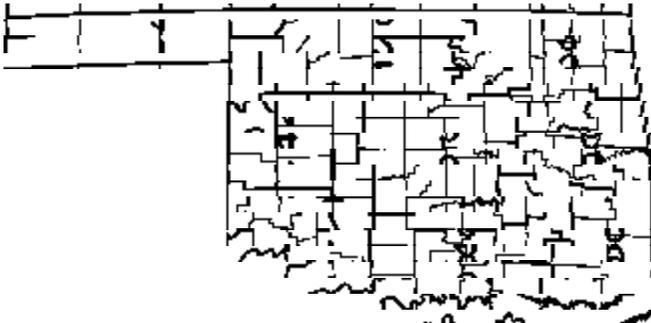
Storage in Selected Oklahoma Lakes & Reservoirs

As of December 20, 2004

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	476,738	476,738	100.0
Northeast	3,710,194	3,636,794	98.0
West Central	276,790	270,422	97.7
Central	154,225	154,225	100.0
East Central	3,022,323	3,022,323	100.0
Southwest	301,810	73,685	24.4
South Central	3,005,444	3,001,592	99.9
Southeast	1,491,229	1,491,229	100.0
State Totals	12,438,753	12,127,008	97.5

Drought Indices

According to the latest Palmer Drought Severity Index (December 18, below), no regions in Oklahoma are currently experiencing drought conditions. Five of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since November 20. The greatest decrease occurred in the West Central climate division.



The latest monthly Standardized Precipitation Index (through November, below) indicates no long-term dryness in Oklahoma. In fact, wet conditions dominate. Among the selected time periods (3-, 6-, 9- and 12-month SPIs), no climate divisions indicate dryness. Similar conditions are evident considering longer periods (through six years).

Palmer Drought Severity Index

Climate Division (#)	Current Status 12/18/2004	Value		Change In Value
		12/18	11/20	
NORTHWEST (1)	VERY MOIST SPELL	3.59	3.84	-0.25
NORTH CENTRAL (2)	VERY MOIST SPELL	3.32	3.28	0.04
NORTHEAST (3)	UNUSUAL MOIST SPELL	2.19	2.23	-0.04
WEST CENTRAL (4)	UNUSUAL MOIST SPELL	2.79	3.28	-0.49
CENTRAL (5)	UNUSUAL MOIST SPELL	2.53	2.53	0.00
EAST CENTRAL (6)	MOIST SPELL	1.39	1.56	-0.17
SOUTHWEST (7)	UNUSUAL MOIST SPELL	2.76	2.82	-0.06
SOUTH CENTRAL (8)	UNUSUAL MOIST SPELL	2.76	2.61	0.15
SOUTHEAST (9)	MOIST SPELL	1.40	1.17	0.23

Standardized Precipitation Index

Through November 2004

3-Month	6-Month	9-Month	12-Month
VERY WET	VERY WET	VERY WET	VERY WET
MODERATELY WET	MODERATELY WET	MODERATELY WET	VERY WET
NEAR NORMAL	MODERATELY WET	MODERATELY WET	MODERATELY WET
VERY WET	VERY WET	VERY WET	VERY WET
MODERATELY WET	VERY WET	MODERATELY WET	MODERATELY WET
MODERATELY WET	VERY WET	MODERATELY WET	MODERATELY WET
VERY WET	VERY WET	VERY WET	VERY WET
MODERATELY WET	VERY WET	MODERATELY WET	MODERATELY WET
MODERATELY DRY	MODERATELY WET	NEAR NORMAL	NEAR NORMAL

Financial Assistance Program Update

Loans/Grants Approved as of December 14, 2004

FAP Loans—307 totaling \$531,875,000

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 extremely competitive low-interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—160 totaling \$534,296,254

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—46 totaling \$189,283,938

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—408 totaling \$35,414,476

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—509 totaling \$29,920,332

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

Total Loans/Grants—1,430 totaling \$1,320,790,000

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.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

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