Oklahoma Water News

MONTHLY NEWSLETTER OF THE OKLAHOMA WATER RESOURCES BOARD

"Water Atlas" Coming in May! 360 Pages! Texts, Maps, Photos!

Oklahoma's 4,300 lakes, from giant Eufaula to one-acre Sand Springs Municipal Lake and dozens of privately owned lakes of an acre or less, are listed in the "Oklahoma Water Atlas," the Water Resources Board's newest and largest publication. In addition, all of the state's rivers, creeks and streams are listed by county, location of mouth and length and name of receiving stream.

The new "Oklahoma Water Atlas" is a colorful, comprehensive and readable book containing thousands of water facts, interesting texts, 145 lake maps with charted listings of public recreation facilities at each site, 110 lake photos (75 of them in color), 63 other photos and more than a dozen maps, charts and graphs illustrating water information.

For instance, although Eufaula Lake is the largest reservoir in area, sprawling over 105,000 acres, Lake Texoma holds the most water in conservation storage. Texoma covers approximately 88,000 land acres and holds 2.6 million acre-feet of water in conservation storage, compared to Eufaula's 2.3 million acre-feet. (Conservation storage includes all the water held between the sediment pool at the bottom and the flood pool at the top.) The state's 34 major lakes cover a total of 555,450 acres and hold 13,354,785 acre-feet of water in storage.

Other water facts readers probably will not find collected elsewhere include the number of playa lakes—585 covering 9,572 acres during wet seasons; and the number of oxbow lakes of 10 acres or larger—62 covering 2,765 acres. The Atlas describes how oxbow lakes are formed by meandering rivers; touches on the colorful history of Oklahoma's "medici-

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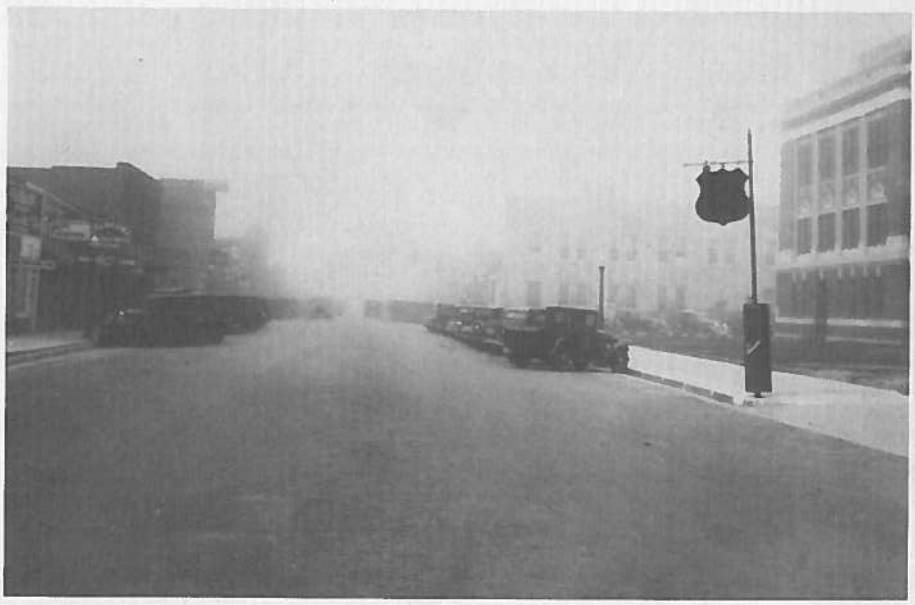

Oklahoma's capricious climate alternately visits flood and drought on the state, often scourging the east with flood while the west chokes under relentless drought. The house on South Robinson Street in Oklahoma City fell victim to the flood of 1923.

At the other extreme, the 10-year-long Dust Bowl emphasized the desperate need for water resources development and proper soil and water conservation measures. A dust storm in Guymon clouds a spring day in 1935.

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nal" springs; maps the groundwater basins and describes the quality of their waters; and discusses wetlands habitat.

The Atlas totals the shoreline miles of Oklahoma lakes of 100 acres or more at 6,268 miles. And it informs readers that there are 12,294 miles of streams 20 miles or longer.

The "Oklahoma Water Atlas" includes texts on Oklahoma history; climate and topography; stream water and groundwater resources; water quality, water management, flood and drought; major stream systems, and Oklahoma's lesser known water resources such as springs, oxbow lakes, playas and wetlands.

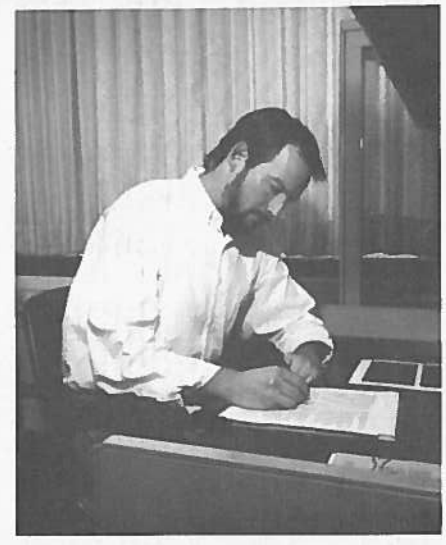
Included in the facts and folklore surrounding the state's "medicinal" springs is an account of a man who partook of the waters of Bromide Spring in Platt National Park most of his life. When he died in 1922 at a ripe old age, his liver was so lively that it stopped the funeral. Since the liver simply refused to die like the old man, so the story goes, mourners were forced to take out the organ and kill it with a club before the funeral could proceed.

The Atlas "History" chapter recounts the runs of flamboyant steamboat captains on the Arkansas and Red Rivers in the heyday before railroads captured the cargo and the imagination of the frontier. One such Red River captain was J. B. Earhart, who dared travel up the Washita River in 1843 to within a mile of Ft. Washita in what is now northwestern Bryan County.

And the same chapter recalls the feats of enterprising bridge builders in spanning the Red River with seven suspension toll bridges and the Canadian River with two in the early years of the 20th century. Indeed, 10 of the 253 suspension bridges built across major rivers of the world between 1741 and 1932 were in Oklahoma! (The 10th bridge was a replacement for a Red River bridge destroyed by cyclone.)

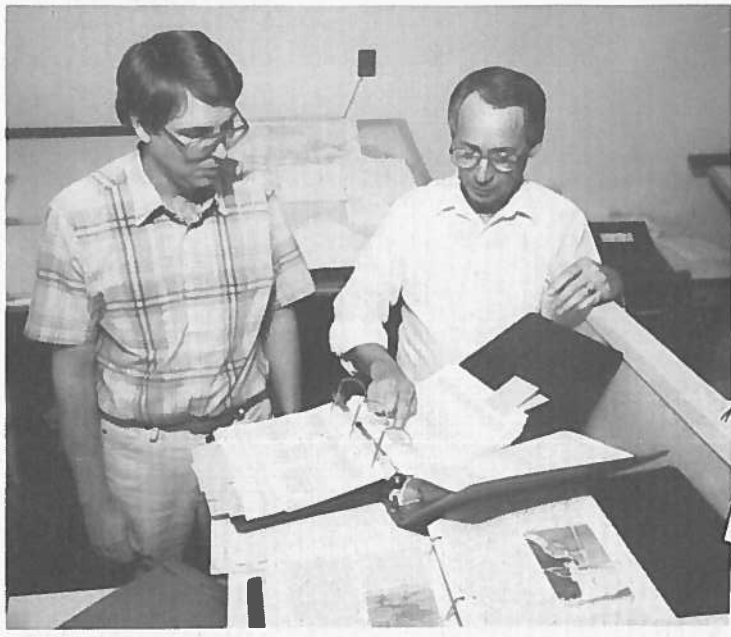
In a chapter on Flood and Drought, the "Oklahoma Water Atlas" points out that between 1931 and 1971 drought occurred somewhere in the state 51 percent of the time—more frequently in the Panhandle and less often in the northeast and south central areas. The tragic Dust Bowl drought lasted 10 years, beginning in 1930. Cycling approximately every 10 years, drought came again in the 1950s. The 1970s saw a mild dry spell, but during the 1980–81 drought, 360 communities experienced water shortages and the state's farmers reeled under losses of at least $275 million.

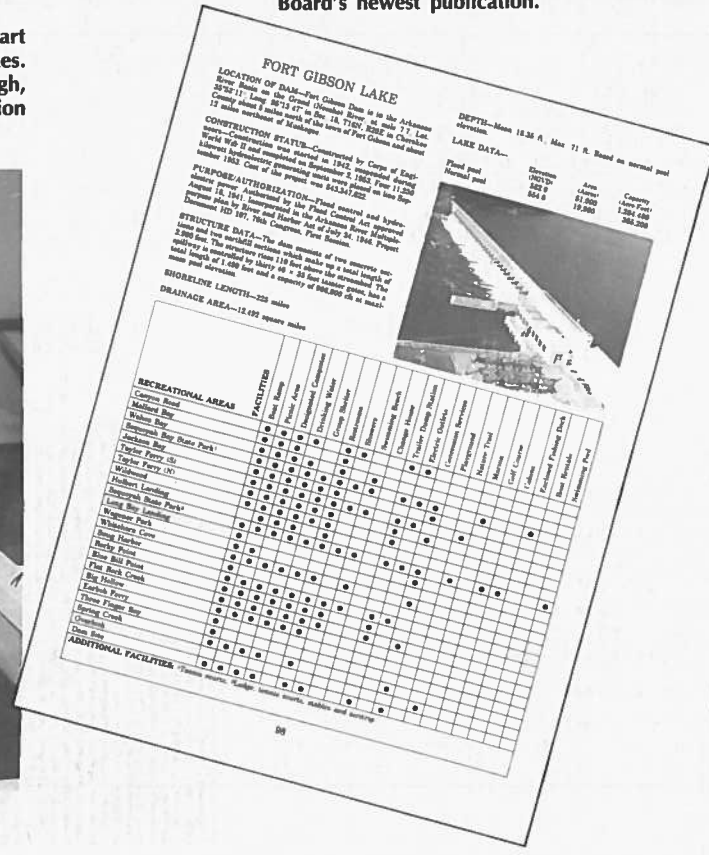
The "Oklahoma Water Atlas" is a rich resource book for all Oklahomans with an interest in the state's water resources—especially sportsmen, students, teachers, tourists, city and state officials and members of business and industry.



Public Information Representative Brian Vance proofreads typeset copy included in the Board's newest publication.

The OWRB's new "Oklahoma Water Atlas" provides lake information, a chart of recreational areas and facilities, a photo and full-page map of 145 lakes. Each one is described and mapped, largely the work of Mike McGaugh, cartographic drafter (left), James Leewright, head of the Drafting Section (right) and Brad Nesom (not shown).

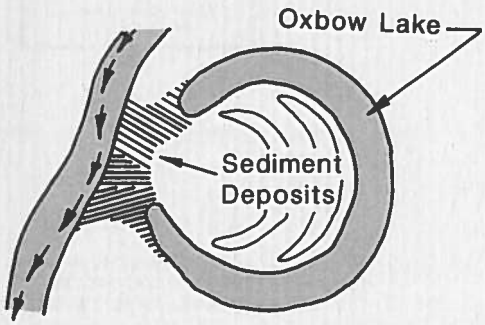




The soft-covered 8½ × 11-inch book costs $8.50 at the Oklahoma Water Resources Board's Oklahoma City office, or $10 mailed (book rate) to any address in the U.S. Please prepay orders, make checks to the Oklahoma Water Resources Board and address mail orders to 1000 N.E. Tenth, Oklahoma City, OK 73117. For further information, please call the OWRB at (405) 271-2555.

Mary Whitlow, OWRB public information representative, selects slides for use in the "Oklahoma Water Atlas." Whitlow and Brian Vance collaborated on writing and editing for the book.

Photo shows a sharp meander on the North Fork of the Red River. An oxbow lake forms from such a meander. As shown in the drawing, the swiftest water sweeps around the outside of the curve, deepening the outside of the channel by erosion and allowing the slower, sediment-laden water to deposit its burden on the inside of the curve. (Note wide crescent of sand in the photo.) Deposits of sediment eventually sever the meander from the channel and an oxbow is formed in the abandoned channel.



mainstream

Conoco Offers Settlement

Conoco Inc. recently offered to buy almost 400 homes and lots in an effort to settle a pending lawsuit directed at the company's Ponca City refinery. Nearby residents claim refinery operations have caused groundwater pollution which literally surfaced two years ago in the basements of area homes.

The tentative agreement allows for owners and renters in the affected area to receive payments and relocate. Other residents could share $5 million, contingent upon proximity to the problem area. Terms of the settlement, which must be formally approved by a federal judge in Oklahoma City, specify that neither party admits fault, liability or responsibility for claims or damages.

"Conoco agreed to the settlement because it is the right thing to do—for these residents, for Ponca City and for Conoco," said refinery manager Dennis Parker. Conoco is Ponca City's largest employer.

The Conoco refinery lies near the banks of the Arkansas River where the groundwater table is near the surface in shallow alluvium and terrace deposits. When an oily sludge appeared in the basements of Circle Drive residents in 1988, Conoco officials said they were assured by the State Department of Health that there were no concentrations of materials in the groundwater which would constitute an immediate health threat. Last September, the OWRB approved a plan submitted by Conoco and the City of Ponca City to lower the water table. The draft permit would require pumping the hydrocarbon contaminated water, treating it and then discharging the water directly into the Arkansas River. The permit is currently undergoing administrative review by the U.S. Environmental Protection Agency.

Floodplain Permits Needed

The spring flood season is here. As a result, the OWRB reminds state agencies of the need for permits prior to construction or development on state-owned or -operated property within floodplains.

"Alteration of floodplains or the placement of structures in floodplains can significantly increase the magnitude and velocity of floodwaters," according to Harold Springer, chief of the OWRB's Engineering Division. "Development should never divert, retard or obstruct floodwaters to the point where the public is threatened."

The Board regulates floodplain development through construction and building permits. Board rules state that any new construction, fill, excavation or other floodplain use that is hazardous to the public or affects the capacity of the floodway to carry floodwaters shall not commence

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without first securing a construction permit from the Board. In addition, building of family dwellings or commercial or industrial structures within state-owned floodplains is forbidden without an OWRB building permit.

Permits are not necessary for the use of flood-prone lands for many agricultural purposes, rehabilitation of structures listed on the National Register of Historic Places, and governmental roadway and bridge projects. Government agencies which are already in compliance with National Flood Insurance Program regulations implemented by local entities are exempt from obtaining a Board permit.

Springer suggests that the OWRB be contacted prior to development.

ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF APRIL 17, 1990

PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (AF)	PERCENT OF CAPACITY
SOUTHEAST		
Atoka	123,475	100.0
Broken Bow	918,100	100.0
Pine Creek	77,700	100.0[2]
Hugo	157,600	100.0[2]
McGee Creek	109,800	100.0
CENTRAL		
Thunderbird	105,925	100.0
Hefner	55,743	100.0
Overholser	15,935	100.0
Draper	85,110	85.1
Arcadia	27,390	100.0
SOUTH CENTRAL		
Arbuckle	62,571	100.0
Texoma	2,637,700	100.0
Waurika	203,100	100.0
SOUTHWEST		
Altus	132,886	100.0
Fort Cobb	78,347	99.0
Foss	162,700	67.0[1]
Tom Steed	88,991	100.0
EAST CENTRAL		
Eufaula	2,329,700	100.0
Tenkiller	627,500	100.0
Wister	63,250	100.0[2]
Sardis	302,250	100.0
NORTHEAST		
Eucha	79,567	100.0
Grand	1,491,800	100.0
Oologah	544,240	100.0
Hulah	30,594	100.0
Fort Gibson	365,200	100.0
Heyburn	6,600	100.0
Birch	19,189	99.0
Hudson	200,300	100.0
Spavinaw	30,000	100.0
Copan	43,400	100.0
Skiatook	319,400	100.0
NORTH CENTRAL		
Kaw	428,600	100.0[2]
Keystone	616,000	100.0
NORTHWEST		
Canton	97,500	100.0
Fort Supply	13,774	99.0
Great Salt Plains	31,400	100.0
STATE TOTALS	**12,683,337**	**96.1**

1. Conservation storage lowered for project modification
2. Seasonal pool operation

Data courtesy of U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Department, and City of Tulsa Water Superintendent's Office.

This monthly newsletter, printed by the Central Printing Division of the Office of Public Affairs, Oklahoma City, Oklahoma, is published by the Oklahoma Water Resources Board as authorized by James R. Barnett, executive director. Ten thousand copies are printed and distributed monthly at an approximate cost of 20 cents each.

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Monthly Newsletter of the
Oklahoma Water Resources Board
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