

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Water Current Newsletter

Water Center, The

---

Fall 1986

## Water Current, Volume 18, Fall-Winter 1986-97

Follow this and additional works at: [https://digitalcommons.unl.edu/water\\_currentnews](https://digitalcommons.unl.edu/water_currentnews)



Part of the [Water Resource Management Commons](#)

---

"Water Current, Volume 18, Fall-Winter 1986-97" (1986). *Water Current Newsletter*. 164.

[https://digitalcommons.unl.edu/water\\_currentnews/164](https://digitalcommons.unl.edu/water_currentnews/164)

This Article is brought to you for free and open access by the Water Center, The at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Water Current Newsletter by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.



# Water Current

Fall-Winter 1986-87

## *Wildlife Habitat, Water Demands to be Discussed at Seminar*

At a University of Nebraska spring-semester seminar, experts will explain how the Missouri and Platte rivers could be managed for irrigation, flood control, power generation and navigation and still have good fisheries and wildlife habitat.

"Wildlife Habitat and Competing Water Demands," the Nebraska Water Resources seminar for spring semester, 1987, will also feature sessions on:

—Nebraska's stream and lake resources;

—How instream-flow needs are determined;

—The Prairie Bend Project: how its planners hope it will satisfy the water

## **Irrigation Tour to Arizona to See London Bridge, Bureau's Projects**

You don't have to travel to Great Britain to see the London Bridge. Reconstructed at Lake Havasu City, Ariz., it will be part of the itinerary on a winter irrigation tour. The tour will also include visits to the first U.S. Bureau of Reclamation project, the Salt River Project, and the bureau's newest and most expensive project, which cost an estimated \$3.6 million.

Water ranching, the selling of land with water rights, will also be described on the Nebraska Irrigation Tour to Arizona Feb. 8-13, 1987. Les Sheffield, University of Nebraska-Lincoln extension farm management specialist and tour director, announced that the schedule also includes visits to:

—The U.S. Department of Agriculture Water Research Laboratory

; and the Howard Wurtz farm, which uses gravity, mechanized sprinkler and drip irrigation;

—The Gila River Indian farms;

—The University of Arizona

*continued inside*

needs for irrigation, municipalities and wildlife habitat;

—The latest in remote-sensing techniques for inventorying surface water and wildlife habitat;

—Wetlands complexes.

"Each spring seminar we try to have speakers with topics that are of current interest to Nebraskans," said William Powers, director of the University of Nebraska Water Resources Center and coordinator of the seminar. "And this seminar is particularly important for those interested in Nebraska's water and wildlife issues," he added.

The seminar begins Jan. 14, 1987 at 3:30 p.m., and will meet on Wednesdays in Room 17, Bessey Hall, UNL. One hour of credit may be earned, and the class is open to the public. For more information contact the departments of geography, geology, or forestry, fisheries and wildlife, or the Nebraska Water Resources Center at (402) 472-3305.

## **Calendar in a Capsule**

*January 14*

Water Research Priorities Workshop

*January 15*

Research Update by University Faculty

*February 8-13*

Nebraska Water Conference Council Irrigation Tour to Arizona

*March 17-18*

Annual Nebraska Water Council Conference

## *Bleed Receives 1986 YWCA Tribute to Women Award*

Ann Bleed, an assistant professor with the University of Nebraska Conservation and Survey Division and Department of Forestry, Fisheries and Wildlife, has been awarded the 1986 YWCA Tribute to Women Award.

"We are very proud of Dr. Bleed's contributions to the academic and civic community," said William Powers, director of the Nebraska Water Resources Center at CSD. "She has a unique combination of training and experience that makes her a valuable person to the university and the city of Lincoln. This tribute is a well-deserved honor."



**Ann Bleed**

"Her formal education in zoology and industrial engineering and her experience in many civic activities give her unique talents, which she has used for a better local, state and regional environment," Powers said. In 1982, Bleed was appointed assistant professor on the Water Resources Center staff. She also has contributed to the Lincoln community as a volunteer on the Mayor's Flood Plain Map Committee, was vice chair of the Landfill Site Selection Committee and chaired the Mayor's Solid Waste Alternatives Committee. She is a past president of

*continued on back*



## **Research Review: Polishing of Biologically Denitrified Groundwater Supplies to Meet Drinking Standards**

*Investigator:* Mohamed F. Dahab,  
University of Nebraska-  
Lincoln, Civil Engineering

Although nitrates in drinking water can be reduced or removed by using chemical methods, most of these processes are not very efficient and cost too much. Biological denitrification has been used mostly with wastewater treatment. The purpose of this study was to optimize the denitrification system by adding minimal concentrations of organic chemicals to the effluent, and second, to investigate methods by which the residual organic content of the denitrified water could be reduced to, or near, drinking water standards mandated by the Safe Drinking Water Act.

Results of the first phase indicate that nitrates can be reduced to well below the SDWA standards while keeping effluent organic chemicals at a minimum. And during the second phase, short-term aeration, followed by the addition of powdered activated carbon, was the most effective method to reduce soluble organic content.

## **From the Director: Good Potential for Coordination at UNL**

by Bill Powers

The potential exists for excellent coordination of the activities of three major university associations interested in water-resources research because the University of Nebraska-Lincoln has administration involved in all three associations. These associations are the National Association of State Universities and Land Grant Colleges (NASULGC), the Universities Council on Water Resources (UCOWR) and the National Association of Water Institute Directors (NAWID).

The chancellor of UNL, Dr. Martin A. Massengale, is on the Water Resources Committee of NASULGC. The vice-chancellor of the UNL Institute of Agriculture and Natural Resources, Dr. Roy G. Arnold, is the chair of a NASULGC ad hoc committee on water quality and management. Besides being director of the Water Resources Center, I am the executive secretary for UCOWR and the chair-elect of NAWID.

Having people in the same location

*continued inside*

## **Announcements**

*USGS Matching Grant Proposals Due Jan. 5, 1987:* Research proposals for funding under Section 105 of the Water Resources Research Act were due in the Nebraska Water Resources Center office by Jan. 5, 1987. This deadline applies only to proposals submitted by faculty of the University of Nebraska. Other applicants should apply directly to the U. S. Geological Survey. For more information, contact William Powers or Eileen Miller at (402) 472-3305.

*Workshops:* A workshop for UNL water scientists on setting water-research priorities based on problems identified at the July 10-11, 1986, workshop was held Jan. 14, 1987, at the UNL Nebraska Union on City Campus.

*Update:* On Jan. 15, 1987, an update on University of Nebraska water research at UNL was held at the East Campus Union from 8 a.m. to 4:30 p.m. The program included about 20 researchers who presented highlights of their projects on water quality, crop-water use, policy making, improving methods of data collection, irrigation scheduling and predicting run-off under different tillage and irrigation systems.

*Nebraska Irrigation Tour to Arizona:* Les Sheffield is coordinating the tour of irrigation highlights in Arizona to be held Feb. 8-13, 1987. Contact him at (402) 472-1773 or 472-1772 for more information. (Related story on page 1.)

*Annual Water Conference:* March 17 and 18, 1987, are the dates for the Nebraska Water Conference, which will be held at the Nebraska Center for Continuing Education at 33rd and Holdrege streets. A committee met in late November and early December to plan the program. Announcements will be sent out.

### **Drop Us a Line**

*Have you moved?*

*Do you know someone who  
would like to receive  
Water Current?*

*Do you want more information  
about what's in  
this newsletter?*

*Send us your address—  
we'll get back to you.*

## **Platte River Report Receives AWRA Award**

A research paper by a University of Nebraska professor that describes the Platte River Forum for the Future, won the American Water Resources Association's Boggess Award for the best paper published in the association's bulletin in 1985.

The two-year project, funded by the Nebraska Natural Resources Commission, describes the hydrology, the agricultural economics, agricultural engineering and fish and wildlife related to the Platte River.

The paper's principal author was Martha Gilliland, UNL associate professor of civil engineering. Other UNL authors were Ralph Cady, research hydrologist with the Conservation and Survey Division; James Gilley, professor of agricultural engineering; Raymond Supalla, professor of agricultural economics; and William Powers, director of the Nebraska Water Resources Center.

Other contributors to the article were Lee Becker of the Nebraska Department of Water Resources; Joe Gabig of the Nebraska Game and Parks Commission; and Richard Kern and Arley Larson of the Nebraska Natural Resources Commission.

The paper, "Simulation and Decision Making: the Platte River Basin in Nebraska," was published in the April 1985 issue of the "Water Resources Bulletin." The award was presented to Gilliland at the annual awards luncheon Nov. 12 at the 22nd American Water Resources Association conference in Atlanta.

The Boggess Award was established by AWRA in 1973 in honor of William R. Boggess, a charter AWRA member, one of its first directors and a past president.

## **Fall-Winter 1986-87**

Nebraska Water Resources Center  
William L. Powers      Director

Pat Larsen      Editor  
Charles Flowerday      Editor  
Audrey Schardt      Editorial Assistant

113 Nebraska Hall  
University of Nebraska  
Lincoln, Nebraska 68588-0517





## Irrigation Tour . . .

Maricopa Agricultural Center;

—The Paloma Ranch, which has more than 30,000 acres under irrigation

—Gila Bend;

—The Red Mountain Farms at Dateland, near Yuma, which produce citrus, vegetable, alfalfa, jojoba and other specialty crops;

—The Central Arizona Project Pumping Plant and Park Dam on Lake Havasu.

Another highlight of the tour will be a trip to Sun City, including a visit to the famous Sun Dome Theater, one of the largest theaters on one floor in the United States. And visitors can view model homes at Sun City West.

The tour is sponsored by the Nebraska Water Conference Council and the UNL Institute of Agriculture and Natural Resources, and the tour planning committee is:

J. Michael Jess, tour chairman and director of the Nebraska Department of Water Resources; Vincent Dreeszen, director of the UNL Conservation and Survey Division; Vance Anderson, retired vice president of Western Land Roller Co. of Hastings; and Sheffield of the UNL Department of Agricultural Economics.

Sheffield said that the trip is limited to 30 persons. Costs vary, depending on points of departure and lodging for single or double rooms. The deadline for applying is Jan. 15, 1987; points of departure include Lincoln, Omaha and Denver, or participants can meet the group in Phoenix.

"We received excellent cooperation from all of the people contacted for this trip on the committee's visit to Arizona, and I believe we have an excellent tour lined up for next February," Sheffield said.

For more information, contact Sheffield at (402) 472-1772 or 472-1773.

## Director . . .

serving in these key associations could enhance the coordination of such activities as the preparation of reports and policy statements, as well as testimony before committees considering legislation on water-resources research at universities.

This coordination is of particular importance during the next few years since legislation is expected to be introduced in Congress that would place water quality in one of the competitive grant categories in the U.S. Department of Agriculture research program and the legislation to reauthorize the Water Resources Research Act should be introduced next year.

# High Plains Aquifer R and D Authorized for Schools, Producers in 1986 Act

by Pat Larsen

Not since 1970 has Congress passed a major water bill. But on the last day of the 99th Congress, an omnibus water bill, HR 6, was announced. The Water Resources Development Act of 1986 authorizes funds for research and development for five years.

Universities in eight states overlying the High Plains aquifer—Nebraska, Colorado, Kansas, New Mexico, Oklahoma, South Dakota, Texas and Wyoming—will share an annual authorization of \$11.8 million to be split equally among these states. The bill also authorizes farmers to apply for demonstration project funds.

Under Section 303, institutions of higher education could receive funds for research in:

- Water-use efficiency,
- Cultural methods,
- Irrigation technologies,
- Water-efficient crops,
- Water and soil conservation.

Section 304 authorizes research funds to the institutions of higher education in the eight High Plains-aquifer states on the following:

- Precipitation management,
- Weather modification,
- Aquifer-recharge opportunities,
- Uses of saline water,
- Desalination technologies,
- Salt-tolerant crops, and
- Groundwater recovery.

Grants to farmers could be made for demonstration projects on:

- Water-efficient irrigation technologies and practices,
- Soil and water conservation management systems,
- Growing and marketing of more water-efficient crops.

Director William Powers of the Nebraska Water Research Center said, "Each of the eight states will have a technical advisory committee, which will establish priorities for research and demonstration projects involving water resources."

He explained that the law specifies that each director of a water institute or center will serve on the seven-member committee for each of their respective states. The Secretary of the Interior will allocate funds to each technical advisory committee for distribution to institutions of higher education within the eight states.

Powers concluded, "HR 6 will provide an impetus for additional research that Nebraska will find very useful in the near future and for our grandchildren."

He cautioned that authorization is just the first step and Congress also needs to appropriate funds for activities specified in HR 6. President Reagan has signed the bill.

## Remote Sensing Reveals Changes in Wildlife Habitat

by Pat Larsen

No one really knows what pre-settlement conditions were in the Rainbasin region of Nebraska, but new information may be provided about the area, according to University of Nebraska-Lincoln researchers.

"Unfortunately, the only documentation of this historic landscape is a soil survey in 1927, aerial photography of 1938 and recollections of older residents in the area," Mark Kuzila, UNL Conservation and Survey Division soil scientist and researcher, said. "Because these depressions in the Rainbasin area are located in a rich agricultural region, the economics of maximum production to achieve maximum profit led to the filling in, or draining, of many of these rain basins."

The result is a conflict between habitat/wildlife managers and agricultural producers on the management of these wetlands in central Nebraska. This region is characterized by hundreds of topographic basins, ranging from a few acres to a few square miles in size. Kuzila, Donald C. Rundquist and Patrick J. Starks, CSD researchers, examined and attempted to identify filled and unfilled depressions using airborne multispectral scanner data.

"This information will be useful to those interested in changes in wetland wildlife habitat as a result of agricultural development and to soil scientists who are interested in using remote sensing to augment field mapping and classification procedures," Kuzila said.

The study originated to attempt an objective analysis of the feasibility of

*continued on back*



### **Bleed . . .**

the Lincoln-Lancaster County League of Women Voters.

She was a co-investigator on a recent study of the Platte River, and she organized and conducted an inter-agency tour of the Rainbasin region to examine and discuss alternative policies to preserve those wetlands. Bleed also organized and conducted a national inter-disciplinary conference on multi-objective management techniques. And she was invited by the National Engineering Foundation to present a research paper, "A Strategy for Incorporating Social and Environmental Objectives in Water Resources Planning and Management."

Bleed has encouraged both men and women in their career development, Powers said. She is especially supportive of the program, "Graduate Women in Science," which encourages and promotes women in scientific careers. She also is serving on the search committee for a new director of the UNL Conservation and Survey Division, where the Nebraska Water Resources Center has been based since

1985. Powers said, "This is no slight task, because this division is responsible for the development of the scientific information base of the state's natural resources, and its leadership can greatly affect future development of Nebraska."

In addition to doing research, Bleed teaches in the Department of Forestry, Fisheries and Wildlife. Her degrees include a Ph.D. in zoology from the University of Wisconsin in 1974 and a master's of science degree in industrial and management systems engineering from UNL in 1982. She and her husband, Peter, have two sons.

### **Remote Sensing . . .**

using multispectral remote sensing for mapping soils in this area. "We hope not only to contribute to knowledge about the spectral responses of soil profiles but also to shed some light on a potential procedure for identifying modified landscapes," he said.

The study was presented at the annual meetings of the American Society of Agronomy, Crop Science Society of America and Soil Science Society of

America at New Orleans, which were Nov. 30-Dec. 5, 1986. The research area is located in the Loess Plains of south-central Nebraska, where the myriad topographic depressions are underlain by claypan soils, which impede percolation of precipitation. Some of these depressions remain natural wetlands primarily because federal or state ownership has prevented filling of the basins. The majority are privately owned, transitory wetlands that reflect different uses from year to year, depending upon the annual moisture.

Furthermore, the exact number of landscape modifications is a point of disagreement among various Nebraska resource managers. The specific location of this study is in Clay County, which has more depressions than any other county in the region. Kuzila added that another reason for selecting this site is that Clay County soil surveys from 1927 and 1981 are available.

Kuzila concluded that few researchers have attempted to use spectral data on soil for examining human-induced landscape modification.



**Nebraska Water Resources Center  
The University of Nebraska-Lincoln  
113 Nebraska Hall  
Lincoln, NE 68588-0517**

**NON-PROFIT ORG.  
U.S. POSTAGE  
PAID  
Lincoln, Nebr.  
Permit No. 46**

