

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Water Current Newsletter

Water Center, The

---

11-1982

## Water Current, Volume 14, No. 6, November/December 1982

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 14, No. 6, November/December 1982" (1982). *Water Current Newsletter*. 144.  
[https://digitalcommons.unl.edu/water\\_currentnews/144](https://digitalcommons.unl.edu/water_currentnews/144)

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

November/December 1982

## CHRISTMAS IS

Youthful squeals of pure delight,  
Children who won't sleep tonight;  
Celebrating Jesus' birth,  
Santa Claus, laughter and mirth;  
Kisses under mistletoe,  
Trees and candles all aglow;  
Greeting cards sent far and near,  
Friends and family and good cheer.

Conservation & Survey  
Division

DEC 17 1982

University of Nebraska

Along with everything mentioned above —

CHRISTMAS IS JOY,  
CHRISTMAS IS LOVE.

May the joys of this holiday season continue  
throughout the New Year . . . . .

SEASONS GREETINGS FROM THE NWRC STAFF

Vicki Halstrom

M. L. Quinn

Mary Piccolo

Bob Burr

AG Brandt

Bill Powers

Donita Bright

Ann Bleed

Sue Miller

Dann Rodenkover

Karen Stork

Daryniah Rogers



NEBRASKA WATER RESOURCES CENTER



# WATER SEMINARS TO BEGIN IN JANUARY

Topics and speakers have been selected for the 1983 Water Resources Seminar Series sponsored by the Water Resources Center. The theme for the seminars will be "WATER LAW AND POLICY IN THE GREAT PLAINS — IMPLICATIONS FOR NEBRASKA." The seminars will begin on January 12, 1983 and will be held every Wednesday at 3:00 p.m. in the East Campus Union.

From the recent publicity on the sale of Missouri River Water for use in a coal slurry pipeline, it is obvious that Nebraska's water resources are not immune from the policies of adjacent states. This seminar series will help students and the public understand the water law and policies of other states and possible implications for Nebraska. Seminar sessions are open to students, faculty and the public.

Seminar topics and speakers will be as follows:

JANUARY 12 - Introduction and Class Requirements

JANUARY 19 - HYDROGEOGRAPHY OF NEBRASKA AND THE MISSOURI RIVER BASIN, Carroll Hamon, Exec. Director, Missouri Basin States Association

JANUARY 26 - OVERVIEW OF NEBRASKA WATER LAWS AND ISSUES, State Senator Maurice Kremer (retired), Aurora, Nebraska

FEBRUARY 2 - ECONOMIC IMPACTS OF WATER POLICY - Implications of the High Plains Study, Dayle Williamson, Exec. Secretary, Nebr. Natural Resources Commission

FEBRUARY 9 - NEBRASKA WATER LAW AND POLICY - Possible Implication of the *Sporhase* Supreme Court Decision, G. Roderic Anderson, Ass't Attorney General, State of Nebraska

FEBRUARY 16 - KANSAS WATER LAW AND POLICY, Robert L. Smith, Dept. of Civil Engineering, University of Kansas

FEBRUARY 23 - COLORADO WATER LAW AND POLICY, Henry Caulfield, Dept. of Political Science, Colorado State University

MARCH 2 - PUBLIC CONCEPTS OF COLORADO'S WATER SUPPLY, Thomas V. Cech, Executive Director, Central Colorado Water Conservancy District, Greeley, Colorado

MARCH 16 - WYOMING WATER LAW AND POLICY - Natural Resources Development and the North Platte River Compact, Clynn Phillips, Ass't Director, Water Resources Research Institute, University of Wyoming

MARCH 30 - SOUTH DAKOTA WATER LAW AND POLICY - Sale and Management of Missouri River Water, Warren Neufeld, Secretary, Department of Water & Natural Resources, Pierre, South Dakota

APRIL 6 - PUBLIC CONCEPTS OF KANSAS GROUNDWATER DECLINES, David Kromm, Dept. of Geography, Kansas State Univ.

APRIL 13 - PUBLIC CONCEPTS OF NEBRASKA'S WATER - Effects of Supplemental Water Supply in Nebraska, Charles Y. Deknatel, Community & Regional Planning, UNL

APRIL 20 - ARIZONA WATER LAW AND POLICY - New Approaches and Innovative Changes, James W. Johnson, Water Rights Lawyer, Phoenix, Arizona

APRIL 27 - FEDERAL/NATIONAL WATER POLICY AND ITS IMPACT ON THE PLAINS, Warren Viessman, Jr., Senior Specialist in Engineering and Public Works, Library of Congress

## 1983 NEBRASKA WATER CONFERENCE

The annual Nebraska Water Conference will be held March 8-9, 1983 at the Nebraska Center for Continuing Education. The theme for the 1983 conference is "Moving Forward with Water Management."

The Nebraska Water Conference Council Planning Committee is currently setting up the final program and contacting speakers. Topics to be discussed at the conference include (1) the Pick-Sloan Program, (2) Future Water Use Efficiency and Management: Technology and Policy, and (3) Water Activity Update Sections on legislative activity, nitrate contamination of groundwater, and the SCS conservation program and changes in the 1902 Reclamation Act.

Preliminary information will be available in January 1983. Mark your calendars now!



# **IRRIGATION SHORT COURSE IN JANUARY**

The annual Nebraska Irrigation Short Course will again be offered on January 24-25, 1983 at the Nebraska Center for Continuing Education in Lincoln.

The short course is sponsored by the UNL Institute of Agriculture and Natural Resources. Extension specialists will present many of the topics which will include: nitrogen management - yield goals; irrigation management (Hall County); nitrates in ground water; update on insecticides and herbicides; efficient surface irrigation; water planning and legislative update; ground water recharge; irrigation scheduling; and Soil Conservation Service new irrigation program.

The registration fee is \$43 for both days, \$32 for one day, and \$6 for extra copies of the Proceedings. For additional information, contact Paul Fischbach, Dept. of Agricultural Engineering, UNL, Lincoln, Nebraska 68583-0726.

## **RESEARCH REVIEW**

**Project Title: Water and Energy Conservation Using Center Pivot Irrigation and Reduced Tillage Systems**

**Principal Investigator: James R. Gilley, Professor  
Dept. of Agricultural Engineering  
University of Nebraska-Lincoln**

The basic goal of this project was to develop and evaluate crop production systems which have the potential to reduce both water and energy consumption in irrigated agriculture without adversely affecting water quality. A combination of field experimentation and computer modeling was undertaken to determine the quantity and quality of runoff water from reduced-pressure center pivot irrigation systems, to determine the water and energy savings from these systems, to develop mathematical models of these systems, and to determine the feasibility of using these systems in other locations.

Reducing the pressure of center pivot systems can save significant amounts of energy; however, improper site selection for some types of these systems may result in increased runoff. The increased runoff will lower the irrigation efficiency and the potential energy savings will be reduced, nullifying part of the energy savings gained through pressure reduction. The incorporation of modified tillage practices will greatly reduce the runoff problem.

Mathematical models of the water application characteristics of center pivot systems and soil infiltration rates were used to develop criteria for proper site selection of reduced pressure systems. These criteria can be used to determine the feasibility of using the various reduced pressure devices as a function of soil intake families.

Options available to operators of reduced pressure systems are reduced system capacity design, proper speed of rotation, modified application rate patterns, and modified cultural practices. Constraints on the use of reduced pressure center pivots will often be site specific and depend on the soil type, topography, crop and history of land use. Reductions in irrigation efficiency caused by reduced pressure may negate a portion of the energy saved through pressure reduction and must be considered when determining the net energy savings from reduced pressure systems, especially for those systems with larger lifts.

This study has shown that reduced pressure center pivot irrigation systems do not have detrimental effects upon the soil rooting environment. Further, the crop yield results indicate that there was no inherent difference in yield potential with the different methods of water applications in any of the years studied. Thus, other factors related to the type of center pivot irrigation system such as potential runoff and slope, irrigation efficiency, energy cost, and pumping plant size and cost should still be the major considerations when selecting the proper pressure for a center pivot system for a given site.



## **PAPER PRESENTED ON NITRATES IN GROUNDWATER**

A paper summarizing some of the Nebraska work on nitrates in ground water was presented at the Ninth Annual Conference of the Ground Water Management Districts Association in Scottsdale, Arizona, December 1-3, 1982. The title of the paper was "Detection of Nitrate Beneath Agricultural Land and its Long-Term Implications for Ground Water Pollution in Nebraska," by Gary Hergert, Darrell Watts and William Powers.

The paper assembled information on (1) the nitrate concentration in ground water as collected by Roy Spalding; (2) the loss of nitrogen below the root zone and its movement toward the ground water measured by Gary Hergert; (3) a model simulation of future nitrate concentrations in the ground water by Darrell Watts and Derrel Martin; and (4) some preliminary results of the Hall County Special Water Quality Project coordinated by the Environmental Programs division of IANR. The paper reviewed present nitrate concentrations, their loss and movement from the soil; simulated future concentrations in ground water; and suggested how we might manage nitrogen to reduce these losses and accumulations.

A copy of this paper may be obtained by writing or calling the Nebraska Water Resources Center.

## **NWRA CONFERENCE HELD IN KEARNEY**

The 1982 Nebraska Irrigation Exposition and Water Conference was held in Kearney on November 29-30, 1982. Sponsored by the Nebraska Water Resources Association and the Nebraska State Irrigation Association, this year's program included a number of timely issues such as the High Plains Ogallala Aquifer Study, the North Loup Project, and the question of funding for future water projects. In addition, the Water Center's recent publication, "Strategies for Reducing Pollutants from Irrigated Lands in the Great Plains," was the subject of a presentation by staff member M.-L. Quinn.

On the second day of the conference, Senators Maurice Kremer and Loran Schmit participated in a session on state and federal legislation. Each made thought-provoking comments. Congresswoman Virginia Smith was unable to attend the conference but addressed the group by telephone during the Tuesday luncheon. That afternoon attendees heard an informative presentation on research performed in Nebraska involving the use of Magnacide H to control plant growth in irrigation canals. The final session concluded with a candid panel discussion of the varying views concerning the Platte River Forum. All in all, this was a well-organized conference and provided an excellent chance to share and discuss ideas.

M.-L. Quinn  
Asst. Professor, Water Resources

## **WATER RESOURCES EXPERTISE DIRECTORY COMPILED**

The Water Resources Center and the Universities Council on Water Resources (UCOWR) are in the process of compiling a Directory of Water Resources Expertise. The purpose of the directory is to aid those agencies seeking faculty for short-term consulting assignments in the U.S. and abroad and to assist graduate students and others requesting information on graduate study programs and waterrelated faculty.

The computerized directory will have the capability of assembling lists of university faculty throughout the United States with expertise in a selected area. The directory is limited to faculty members from the approximately 80 UCOWR member universities in the U.S. and the seven foreign affiliates. These names will be categorized into the four broad divisions of Engineering, Natural Sciences, Biological Sciences and Social Sciences, with sub-categories in each division. The listings will be further broken down into major interests under sub-categories in these four divisions.

It is anticipated that the directory will be completed by the spring of 1983 and will contain up to 2,000 names. Additional information may be obtained from the UCOWR Executive Secretary's Office, University of Nebraska, 310 Ag. Hall, Lincoln, NE 68583.



## WATER FINANCING NEEDS DISCUSSED

In the wake of federal budget cuts and other economic conditions, there is increasing concern about water facility financing. This concern was evident at a recent conference held in Washington, D. C. on "Saving our Nation's Water Infrastructure: A Challenge in the Future." Also in a draft report by the Council of State Planning Agencies entitled "Financing Public Works in the 1980's", the author notes that the current crisis in infrastructure financing can be used as an opportunity to redefine public investment priorities.

At the Washington conference participants discussed continuing action to develop and promote new financing structures and increase public awareness of water financing needs. Five workshops discussed problems and proposed solutions on the following topics: (1) inconsistent and unreliable funding, (2) public awareness, (3) conflicting intergovernmental relationships, (4) institutional, legal, regulatory and self-imposed constraints, and (5) inadequate planning and programming. Proceedings of the conference will be available. For additional information, contact American Public Works Association, 1301 Pennsylvania Avenue, N.W., Washington, D. C. 20004.

A book of the draft report on "Financing Public Works in the 1980's" will be published shortly. For information on the report, contact Barbara Dyer, Council of State Planning Agencies, Suite 291, 400 N. Capitol St., Washington, D. C. 20001.

## CALL FOR PAPERS

The 12th Annual Rocky Mountain Groundwater Conference will be held April 11-13, 1983 in Boise, Idaho. Papers are being solicited on the following topics: (1) development and utilization of geothermal resources, (2) economic and legal aspects of western states groundwater, (3) computer applications to groundwater hydrology, (4) groundwater quality—sampling procedures to data management, and (5) remote sensing technology applied to groundwater hydrology. Papers reporting research results, design and analysis techniques, and case studies are encouraged. Topics are not limited to those listed, and all appropriate papers dealing with groundwater hydrology will be considered.

Initial paper selection will be based on review of the abstracts. The abstracts should be 250-500 words in length and will be evaluated based on quality, content, originality and applicability. The final acceptance will be based on the content of the paper and how well it meets the description of the abstract.

Deadlines are: for receipt of abstract - January 24, 1983; invitation to submit paper based on abstract - February 11, 1983; receipt of manuscript - February 28, 1983; and notification of acceptance - March 20, 1983.

Abstracts should be sent to: 12th Annual Rocky Mountain Groundwater Conference, c/o D. J. Parlman, U.S. Geological Survey, Box 036 Federal Bldg., 550 West Fort Street, Boise, Idaho 83724. Telephone: (208) 334-1750.

## CORRECTION

In the September/October issue of *WATER CURRENT* on page 2, a mistake was made in the discussion of Dr. Gary Hergert's project on nitrate movement beneath irrigated corn fields in the Sandhills. In the second paragraph on page 2, it was noted that "90 pounds of nitrogen per acre per year contributed 5055 pounds of nitrate below the rooting zone". The correct figure should be 50-55.

## EDITOR RESIGNS

If perhaps you noticed a change in the style of *WATER CURRENT* this month, that's because Dan Himsworth, editor for the past year, has resigned and taken a position with the Soil Conservation Service at Clay Center, Nebraska. Dan has been at the University of Nebraska since September 1981 working in the Department of Agricultural Communications and the Water Resources Center developing TV programs, slide tapes, news releases, and other material on the water research and education programs of the Center. We will miss Dan and wish him continued success in his water resources career.



# WATER CURRENT

Water Current is published by the Nebraska Water Resources Center, which is a division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln.

William L. Powers . . . . . Director

Karen E. Stork . . . . . Editor

Address all correspondence or requests to NWRC at 310 Agricultural Hall, University of Nebraska, Lincoln, Nebraska 68583-0710. Phone: (402) 472-3305.

NEBRASKA WATER RESOURCES CENTER  
310 Agricultural Hall  
University of Nebraska  
Lincoln, Nebraska 68583-0710

Vince Dreeszen, Director  
Conservation & Survey Division  
113 Nebraska Hall  
City Campus, 0517