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Water Current Newsletter

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# Water Current

## July Water and Natural Resources Tour to Examine NE/CO Water Transfers and Marketing

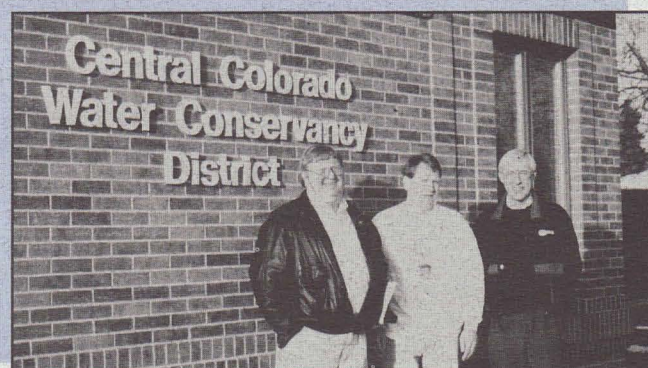
Transferring and marketing water simply isn't done in Nebraska.....or is it?

"Most people would probably tell you it doesn't happen, but between water right holders it can and does happen, and probably more often than most of us would assume," said J. Michael Jess of the University of Nebraska's Conservation and Survey Division and School of Natural Resource Sciences.

Jess, other NU faculty and staff and representatives of the Kearney Area Chamber of Commerce and Central Nebraska Public Power and Irrigation District will lead a July tour examining the transfer and marketing of water in Nebraska and Colorado. Tour buses leave Kearney's Holiday Inn (formerly the Ramada Inn) on Monday morning, July 24.



The Coors Brewing Co., in the foothills of the Rocky Mountains at Golden, CO, is the largest single brewery in the world. A tour and discussion of the brewery's water operations are part of this July's water and natural resources tour (photo: Steve Ress).



Don Schepler, Central Nebraska Public Power and Irrigation District; Tom Cech, Central Colorado Water Conservancy District; and UNL's Mike Jess at Cech's office in Greeley, CO. The district and its water augmentation projects are stops on this July's water and natural resources tour (photo: Steve Ress).

An optional pre-tour dinner and tour of the new Kearney I-80 Great Plains Archway is being planned for Sunday evening, July 23 as a special kick-off.

On Monday morning, the tour will view conservation initiatives being employed by the Central Nebraska Public Power and Irrigation District near Bertrand as a means of off-setting demands for additional wildlife habitat flows in the Platte River as part of the three-state Cooperative Agreement.

"(CNPP&ID) General Manager Don Kraus will talk about the district's formal agreement with the National Wildlife Federation. We also want to see how the district is coping with the loss of customers who have discontinued receiving district water deliveries in favor of getting their irrigation supplies from individually

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# April 22 Marks the 30th Anniversary of National "Earth Day" Celebrations...How Far Have We Come?

## from the DIRECTOR

Edward F. Vitzthum

Chances are that by the time you read this, the Millennial Earth Day celebration will have come and gone. The event, as this is written, is two weeks hence....on Saturday, April 22. The theme this year is global warming and energy.

From a 10 a.m. observance at Lincoln's Antelope Park to EarthFair 2000 on Washington D.C.'s Mall (the latter hosted by film star Leonardo DeCaprio) schools, communities and environmental groups across the nation will mark Earth Day for the 30th consecutive year.

Earth Day #1 in 1970 actually began on March 20, the date of the northern Vernal Equinox. The April 22 observance that year was an environmental teach-in, and that is the date we have continued to observe in subsequent years.

One has to wonder how much we've *learned* over the years. Much of our nation's water is still contaminated, the air in many of our larger cities remains polluted and the litter lying along any roadway is grim evidence of how far we still need to go.

If you're partial to observances such as Earth Day, you won't have long to wait for yet another, and it will go on for a full *week*!

Drinking Water Week takes place the first full week of May, co-sponsored by nearly half a dozen federal and private organizations. The American Water Works Association, the National Drinking Water Clearinghouse, the U.S. Environmental Protection Agency, the Natural Resource Conservation Service and CSREES/USDA are promoting the observance.

DWW is an educational campaign aimed at helping people understand what it takes to ensure safe drinking water and to show how individuals can affect the quantity and quality of the water they drink. Educational materials, including fact sheets, news releases, youth activities, a poster, a consumer confidence report, ads, logos and coupons are available. DWW's internet homepage is: <http://www.awwa.org/bluethum.htm>.

The DWW observance is very timely this year. The U.S. Geological Survey issued a new report in February listing a number of "newly identified contaminants in water." Preliminary results in an on-going study listed a number of familiar compounds: acetaminophen, caffeine, codeine, cotinine (a nicotine metabolite), 17 $\beta$ -estradiol (a hormone) and sulfamethoxazole (an antibiotic).

Data for the USGS study was gathered during 1999 at 100 sites in 24 states, seven of them in Nebraska. An additional 100 sites will be sampled this year. To learn more about the USGS study, visit their internet website at <http://toxics.usgs.gov/regional.emc.html>.

As if to corroborate the USGS report, *Science News*, in its edition for

the week of April 1, 2000 (Vol. 157, No. 14) published a lengthy report on the first major American symposium on pharmaceuticals in water. The symposium was held as part of the American Chemical Society's spring national meeting held recently in San Francisco, CA.

According to that report, both U.S. and Canadian researchers reported finding a broad range of chemical compounds: analgesics, anticancer agents, psychiatric drugs and anti-inflammatories, to name a few. Antibiotics given to livestock as growth enhancers also are a major concern.

What's the solution? One approach, the scientists said, would be to improve the technology of sewage treatment.

Also among my more recent e-mails was an announcement that the American Rivers organization next week (as this is written) will release its 15th annual listing of the nation's "most endangered rivers." A "teaser" on the organization's website says 13 rivers will be given that dubious distinction. You can bet that the Missouri River is one of them.

One gets a feeling, reflecting on e-mails such as these, that we don't need an Earth Day as much as we need an Earth Year or an Earth Decade....maybe even an Earth Century. And instead of just talking about our environmental resources, maybe we should **do** something about them.

What do you think?

## Water Current

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# Preventing and Controlling Pollution Top Priorities in Water Conference Voting

by Steve Ress

Prevention and control of water pollution, unifying systems to govern surface and groundwater and state funding for water research and its application topped a list of 33 water management issues presented to state decision makers at last month's 29th annual Nebraska Water Conference in Lincoln.

Nearly 100 water conference participants voted twice to rank their top water management priorities as part of the March 6-8 conference at Lincoln's Cornhusker Hotel and Burnham Yates Conference Center.

Results of the second balloting, which ranked each issue by the percentage of voters marking each issue as a high priority, medium priority, low priority or not a priority were displayed in the form of a bar graph. These bar graphs were projected at the conference's final luncheon on Wednesday, March 8. Several state senators and representatives from Nebraska senate and congressional offices were at the luncheon to hear the results.

Each of the management issues were ranked in order of importance, with a lower number indicating a higher priority. If issues were tied by the final number ranking, as many were, the number of votes in the high priority, medium and low priority areas helped determine their ranking. The 33 issues and their relative ranking were:

- |   |     |
|---|-----|
| 1. Prevention and control of pollution sources                    | 1.5 |
| 2. Unify systems to govern surface water and groundwater          | 1.5 |
| 3. State funding for water research and its application           | 1.6 |
| 4. Active and continuing state water planning process             | 1.6 |
| 5. Protection of environmentally sensitive water resources        | 1.6 |
| 6. Water policy conflict resolution outside the judicial system   | 1.7 |
| 7. State financing sufficient to implement a state water plan     | 1.8 |
| 8. Develop and educate students at all levels in water management | 1.8 |
| 9. Continuing education for citizen leaders in water management   | 1.8 |
| 10. Importance of irrigated agriculture to state's economy        | 1.8 |
| 11. Local responsibility for water quality and quantity           | 1.9 |
| 12. Develop water policy with active leadership from agriculture  | 1.9 |
| 13. State funding and involvement in water management education   | 2.0 |
| 14. Marketing of water rights by individuals                      | 2.0 |
| 15. Emerging technology to solve water problems                   | 2.1 |
| 16. Broader public inclusion in decision making                   | 2.1 |
| 17. Intergovernmental generated water policy and management       | 2.1 |
| 18. Leadership from partnering among all individuals and groups   | 2.2 |
| 19. Local planning and zoning as a tool for water management      | 2.2 |
| 20. Equity among and between water users                          | 2.2 |
| 21. Clarify and elevate water rights for habitat and recreation   | 2.2 |
| 22. Sales tax as a financing tool                                 | 2.2 |
| 23. Consequences of state-mandated lids                           | 2.3 |
| 24. Dilemma of financing water development                        | 2.3 |
| 25. Consequences of population migration to interstate corridors  | 2.4 |
| 26. Consequences of real property tax reform                      | 2.4 |
| 27. Use of debt as a financing tool                               | 2.5 |
| 28. Cabinet-level water position in the Governor's office         | 2.5 |

- |   |     |
|---|-----|
| 29. Local government consolidation                                | 2.6 |
| 30. Physical reorganization of state water-related agencies       | 2.6 |
| 31. Leadership based upon state pride and emanating from citizens | 2.6 |
| 32. Use of public trust doctrine as a guide for water policy      | 2.7 |
| 33. Complete revision of all aspects of state water laws          | 2.9 |



A panel discusses the draft list of water issues prior to electronic voting at last month's 29th annual Nebraska Water Conference in Lincoln (photo: Steve Ress).



Award winners at the 29th annual Nebraska Water Conference in Lincoln were (from left), Isco Inc. (represented by Douglas Grant) receiving the Progress Award; Wayne Madsen, who received The Groundwater Foundation's Maurice Kremer Groundwater Achievement Award; and Darrell G. Watts, who received the Pioneer Award (photo: Steve Ress).

After conference sessions on management challenges and management issues on Tuesday, conference attendees had the opportunity to prioritize by voting, or adding to a draft list of 26 water management issues Tuesday afternoon. On Wednesday morning that list, as prioritized (along with seven additional suggested issues) was discussed by a panel and conference attendees. The final list of 33 issues then were prioritized a second time using an electronic voting system provided by Nebraska Public Power District.

(Continued on page 4)



## Research Brief:

# Effect of Herbicides on Aquatic Environments Needs Research, Says UNL Ecologist

by Charles A. Flowerday, Editor  
NU Conservation and Survey  
Division

A few years ago, after a major national review involving a panel of more than 10 researchers, a report in a leading environmental journal concluded that the most widely applied weed killer in Nebraska "Does not pose a significant risk to the aquatic environment."

A University of Nebraska-Lincoln aquatic ecologist thinks this may be premature, however.

Kyle Hoagland and his colleagues have conducted a number of studies on the effects of atrazine and Alachlor on various forms of single-celled organisms that are fundamental to the aquatic food web in North America. While not intending to fuel alarmist fires, the UNL School of Natural Resource Sciences (SNRS) researcher believes that more needs to be done to determine the overall and selective effects of these widely applied, water-soluble herbicides.

Atrazine is the most commonly applied herbicide in the nation and alachlor is the second most widely used pesticide (a designation that includes herbicides, or weed killers).

About 15 million pounds of atrazine and four million pounds of alachlor are applied each year in Nebraska.

One of the results is that benthic diatoms, or bottom-dwelling one-celled organisms surrounded by a glass shell, subject to chronic exposure of low levels of atrazine did not show significant effects, but experienced a serious growth reduction when later exposed to an acute dose of a higher level of the herbicide. This experiment was designed to replicate the effects of atrazine on diatoms in streams in agricultural regions that already contain chronic low levels of the herbicide and then experience "spikes" of atrazine when spring rains flush fields soon after application.

Impacts determined through a range of studies on green and blue-green algae and diatoms in streams were that even at fairly low levels, the herbicides produce differential toxicity, selectively damaging cells, blocking photosynthesis and stunting growth in ways that vary by species, as well as by length and intensity of exposure.

The differential effects are important because they can have significant

effects on community structure, which could have ripple effects up through the food web, said Hoagland.

"Ecologically, they act like a selective grazer," he said. "Some are very much affected, some not at all."

Another result was that the combined effects of atrazine combined with insecticides may be toxic to the larvae of aquatic insects such as midges, which birds and fish feed upon.

Another looked at the effect of alachlor on common wetland vegetation, such as bulrushes and cattails, in doses ranging from 10 to 1,500 parts per billion (ppb). It significantly inhibited growth in hardstem bulrush at an exposure of 500 ppb and above, even when the concentration of the parent compound had decreased to 1.55 ppb by the 16th and last week of the study.

Chlorosis, a yellowing indicating lack of chlorophyll, also was present at all but the lowest concentration.

Another study, the first comparing the effects of these common herbicides on green algae relative to diatoms, found that green algae tend to concentrate more of the active ingredient than diatoms, Hoagland said.

However, this may be related to the greater ability of diatoms to use more

## Preventing and Controlling Pollution Top Priorities in Water Conference Voting

(continued from page 3)

"We were very pleased with participation in the voting processes by those attending the conference and with the excellent representation by state and federal legislators at Wednesday's luncheon when the voting results were presented," said conference co-organizer Bob Kuzelka of the UNL Water Center/Environmental Programs.

Speakers helping to lead Tuesday's water management discussions included W. Don Nelson, a past advisor on policy and decision making on the staffs of four state chief executives in both Nebraska and Wyoming; Steven G. Oltmans, longtime water management specialist

and current manager of the Papio-Missouri Natural Resources District; and Groundwater Foundation president Susan S. Seacrest, a role model for citizen involvement in all areas of water protection, education and management.

Sessions on management issues focused on three panels looking at "Leadership and involvement," "Organization structure," and "Policy and decision making" on Tuesday afternoon. Management issues such as higher education, grassroots education and partnerships were explored in the first panel. The second looked at federal primacy, state reorganization and state versus local control of

water resources. The third discussed marketing, conjunctive use, preferences, safe drinking water and resource development.

Also at the conference, the Nebraska Water Conference Council presented its annual Pioneer and Progress Awards at Tuesday's luncheon, respectively, to longtime University of Nebraska irrigation specialist Darrell G. Watts and to Isco Inc., both of Lincoln.

The Groundwater Foundation's annual Maurice Kremer Groundwater Achievement Award was presented to Trenton well driller and groundwater activist Wayne Madsen.



## July Water and Natural Resources Tour to Examine NE/CO Water Transfers and Marketing (continued from page 1)

owned wells," said Jess.

The tour continues west to Grant for lunch and a visit with Upper Republican Natural Resources District (NRD) irrigators who are marketing and trading irrigation allocation rights.

Buses then head to Denver, CO for a pregame cookout and then tickets to the Colorado Rockies vs. Los Angeles Dodgers baseball game. Lodging will be at downtown Denver's Comfort Inn which recently completed a multi-million dollar remodeling project. The high-rise hotel was built in the late 1950's as an annex to the historic Brown Palace. Downtown Denver's 16th Street Mall and a variety of dining are within easy walking distance for those opting not to attend the baseball game.

On Tuesday morning, buses head to the Coors Brewing Co. in Golden, CO for a tour of the brewery complex. Company engineers will explain water operations, development and challenges at the two-mile-long plant, which houses the largest single brewery in the world.

After a picnic lunch at the brewery, the tour will depart for the Northern Colorado Water Conser-

vancy District in Loveland, CO for talks with property owners who have sold water rights to Denver or its suburbs.

"This portion of the tour will also look at what Colorado water districts are doing to cope with changes brought about from off-setting demands for additional wildlife habitat flows in downstream Nebraska," said Jess.

Tour buses will split and alternate between stops at Carter Lake, for a briefing on the district's southern water supply project and Flatiron Reservoir for a discussion of water development issues and the challenges of urban development.

The evening meal will be a barbecue at Loveland Mountain Park and overnight will be at Loveland's Fairfield Inn which is next door to one of the largest outlet shopping malls in Northern Colorado.

On Wednesday morning, the tour moves to the Central Colorado Water Conservancy District in nearby Greeley, discussion will center on how the district is helping local groundwater users develop mandated water augmentation plans. Heading east toward Nebraska there

will be a visit to the Tamarack Ranch State Wildlife Area and its reservoirs that are planned for construction as a means of fulfilling Colorado's commitment to the Three State Cooperative Agreement in augmenting flows in the South Platte River.

The tour will also stop at the headgate of the Western Canal near the Colorado-Nebraska border.

Tour registrations are being handled by the Kearney Chamber. Cost has not yet been set. Costs and additional details will be outlined in an upcoming mailing to *Water Current* subscribers.

Tour sponsors are the Kearney Chamber, Central Nebraska Public Power and Irrigation District, Nebraska Public Power District, Gateway Farm Expo, the Nebraska Water Conference Council and NU's Institute of Agriculture and Natural Resources, School of Natural Resource Sciences, Conservation and Survey Division and Water Center/Environmental Programs.

For more information, contact the Kearney Chamber at (800)652-9435 or the UNL Water Center at (402)472-3305.

## Water Rates Vary Widely

Municipal water rates vary widely across the United States and residents of Lincoln can feel fortunate in paying a considerably lower rate than many residents in Pennsylvania, West Virginia, New Hampshire and Vermont.

Residents of those states pay more than three times the price for their water than people in Arkansas, Michigan and Tennessee, for example.

One thing is nearly certain, the price of water will go higher for most consumers.

"We forecast the drought and then the floods to push water prices higher in many states as suppliers seek new sources of water and try to improve their infrastructure to meet these periods of high demand," said

Richard Soultanian, co-president of the independent utility cost management company, National Utility Service, Inc., authors of the 1999 Water Price Survey.

That survey found major differences in pricing between regions in the U.S., it also unexpectedly also found significant variation in prices in neighboring cities. These price fluctuations are due mainly to factors such as environmental concerns and the age and upkeep of water supply infrastructure.

Following are the prices per 220,200 gallons of water in several major U.S. cities, including many midwestern cities similar in population to Lincoln. The prices indicated are for an average monthly cost of 2220,000 gallons (294,300 cubic feet

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Not rain, nor sleet nor cold.....UNL Water Sciences Laboratory field manager Mark Burbach (right) explains soil and groundwater sampling techniques to geoscientist Vitaly Zlotnik (left) and his students while conducting samplings in the Lower Platte North Natural Resources District near Mead in early February (photo: Steve Ress).





# Water News Briefs

## New EPA Water Guide Available

The U.S. Environmental Protection Agency has produced a new guide titled *Handbook for Capacity Development: Developing Water System Capacity Under the Safe Drinking Water Act* as amended in 1996 (EPA 816-R-99-012), including a focus on small rural systems.

Free copies are available by phoning (800)490-9198. It will soon be available on-line at [www.epa.gov/OGWDW/ssinfo.htm](http://www.epa.gov/OGWDW/ssinfo.htm).

## Free Tabloids Still Available

Copies of "*Drinking Water - Understanding a Resource*" remain available from the University of Nebraska Water Center/Environmental Programs.

The tabloid contains information on understanding consumer confidence reports being used by public water systems; causes for public concern such as nitrates, bacteria and atrazine; how public water supplies are treated; proper construction and abandoning of water wells; source water, wellhead and groundwater protection programs; agencies and or-

ganizations to go to for help and information; a youth page; drinking water-related internet sites and other useful information.

Copies of 1998's "*Wetlands - Understanding a Resource*," which explores state and regional wetland issues, are also available. For copies of either tabloid, contact NU Water Center/Environmental Programs at (402)472-3305 or e-mail [sress1@unl.edu](mailto:sress1@unl.edu).

## 2000 Groundwater Foundation Fall Conference

The Groundwater Foundation's fall Groundwater Guardian designation and conference, "Asking the right Questions: Evaluating the Impact of Groundwater Education" will be at the Lied Conference Center, Nebraska City Nov. 13-15.

The conference will focus on evaluation trends in environmental education and presentations will home-in on using evaluation techniques effectively, innovation evaluation strategies; assessing environmental impacts; building environmental protection capacity through education; environmental education as a compliance tool; and environmental education programs and state standards.

"Environmental education is becoming results focused as we become more accountable to our constituents,

customers and colleagues. Evaluating the impact of groundwater education and other natural resource programs and the interpretation and application of this data will result in programming that has a positive impact on the public," said Groundwater Foundation President Susan Seacrest.

Abstracts are being solicited through May 28. To be a presenter, prepare a brief 200-word abstract. Papers may include relevant research, innovative evaluation methods, evaluation programs in evaluation case studies focusing on assessing educational impacts as well as implementation strategies.

Presentations will be available in 20-minute classroom-style presentations, brief plenary presentations and poster sessions. Presenters will be selected and notified by July 1.

For more information, e-mail [info@groundwater.org](mailto:info@groundwater.org) or phone (800)858-4844 or (402)434-2740 (in Lincoln).

## 2000 Groundwater University

The Groundwater Foundation is accepting applications for Groundwater University 2000, a program for junior and senior high students interested in groundwater and the environment. Up to 25 students will be accepted for the June 22-24 session at Platte River State Park.

The program provides students with an opportunity to learn about a variety of groundwater and natural resources topics, while exploring careers in related environmental fields. The program, sponsored by Nebraska Public Power District, is open to students across the U.S.

Cost of the program is \$175, which includes meals, lodging, transportation and recreation. Fees do not include transportation to Nebraska.

The theme of this year's "GU" is "Groundwater: Past, Present, Future."

For more information, contact Chad Foust, Groundwater University Director, The Groundwater Foundation, P.O. Box 22558, Lincoln NE 68542-2558 or e-mail [chad@groundwater.org](mailto:chad@groundwater.org).

## Water Rates Vary Widely (continued from page 5)

or 883 cubic meters) of water on a two-inch meter for commercial use. This is approximately enough water for an apartment block of around 15 units, or a small office block:

Pittsburgh, PA	\$873.55
Grand Forks, ND	\$524.55
Los Angeles, CA	\$516.20
Des Moines, IA	\$425.69
Kansas City, MO	\$416.70
Washington, D.C.	\$406.13
Billings, MT	\$385.84
Oklahoma City, OK	\$371.70

New York NY	\$367.88
Sioux Falls, SD	\$349.05
Lincoln, NE	\$319.87
Wichita, KS	\$313.31
Denver, CO	\$302.81
Duluth, MN	\$292.76
St. Louis, MO	\$275.14
Chicago, IL	\$236.03
Fort Smith, AK	\$204.33

(Taken in part from an article in the March, 2000 issue of U.S. Water News. Access U.S. Water News on-line at [www.uswaternews.com](http://www.uswaternews.com)).



## APRIL

**25-27:** International conference and exhibition on Life Cycle Assessment: Tools for Sustainability, Hyatt Regency Crystal City, Arlington, VA. For information call (206)463-7431 or register on-line at <http://www.epa.gov/ttnrmrl/inlca.htm>.

**25-27:** NWQMC National Monitoring Conference: "Monitoring for the Millennium," Hyatt Regency, Austin, TX. Phone (405)516-4972 or on-line at <http://nwqmc.site.net>.

**25-28:** The Eleventh Global Warming International Conference and Expo, Boston, MA. Advanced registration deadline is Jan. 15, 2000. For information, write to GWXI Expo Coordinator, P.O. Box 5275, Woodridge, IL 60517-0275 or FAX (630)910-1561 or at [www.GlobalWarming.net](http://www.GlobalWarming.net).

## MAY

**1-3:** American Water Resources Association Spring Specialty Conference, "Water Resources In Extreme Environments," Sheraton Anchorage Hotel, Anchorage, AK. Direct questions to Roger Allely, (907)269-8644 or e-mail [roger\\_ally@dnr.state.ak.us](mailto:roger_ally@dnr.state.ak.us).

**4-5:** Texas Water Law, Omni Houston Hotel, Houston, TX. To register, or for information phone (800)873-7130.

**9-11:** Buffers: Commonsense Conservation for Urbanizing Landscapes, Arbor Day Farm, Lied Conference Center, Nebraska City. National conference, sponsored by The National Arbor Day Foundation. Early registration before May 2. For information, phone (888)448-7337 or FAX (402)474-0820.

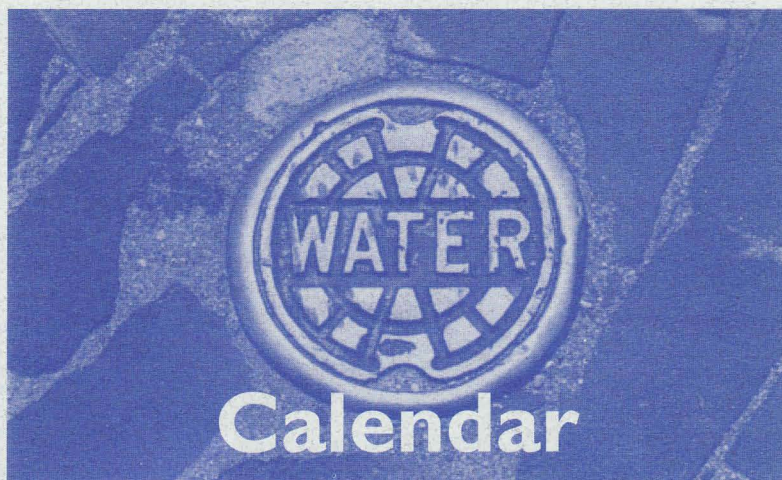
**17-18:** Southwest Focus Ground Water Conference 2000, Hilton Austin North and Towers, Austin, TX. Regional water planning and water quality issues associated with drinking water, sponsored by the National Ground Water Association. For information phone (800)551-7379 or register on-line at [www.ngwa.org/education](http://www.ngwa.org/education).

## JUNE

**5-9:** 45th Annual Institute in Water Pollution Control, Manhattan College, Riverdale, NY. For a brochure or information, contact Florence Byrne at (718)862-7277 or e-mail [JJeris@Manhattan.edu](mailto:JJeris@Manhattan.edu).

**5-7:** Nebraska Environmental Education Association (NEEA) annual conference, Camp Calvin Crest, Fremont. "A Current Event: Nebraska's Lower Platte River, Meandering Through the Past, Present and Future. Contact Harry Heafer for more information at (402)441-8035 or e-mail [hheafer@ci.lincoln.ne.us](mailto:hheafer@ci.lincoln.ne.us).

**21-24:** Sixth International Interdisciplinary Conference on the Environment, Montreal, Quebec, Canada. Abstracts due no later than April 15. For information phone (508)767-7296 or e-mail [hkickey@assumption.edu](mailto:hkickey@assumption.edu).



## JULY

**9-12:** Watershed 2000, Vancouver, British Columbia. The Water Environment Federation and others are sponsoring this international conference to explore national and international challenges of managing watersheds. For information, contact the WEF at (703)684-2400.

**24-26:** Nebraska Summer Water Tour to Western Nebraska and Northern Colorado. Sponsored by the UNL Water Center, Kearney Area Chamber of Commerce and others. For information, phone (402)472-3305 or e-mail [sress1@unl.edu](mailto:sress1@unl.edu).

## SEPTEMBER

**2-8:** Fourth International Conference on Integrating Geographic Information Systems (GIS) and Environmental Modeling, Banff Centre for Conferences, Banff, Alberta, Canada. For information, phone (303)497-6330 or e-mail [bparks@colorado.edu](mailto:bparks@colorado.edu).

**17-22:** International Conference on Coastal Zone Management, Saint John, New Brunswick, Canada. For information, phone (506)462-5961 or e-mail [czc2000@gov.nb.ca](mailto:czc2000@gov.nb.ca).

## NOVEMBER

**13-15:** "Asking the Right Questions: Evaluating the Impact of Groundwater Education," The Groundwater Foundation fall conference and Groundwater Guardian designation, Lied Conference Center, Nebraska City. For information, e-mail [info@groundwater.org](mailto:info@groundwater.org) or phone (800)858-4844 or (402)434-2740.

## Research Brief

(continued from page 4)

diverse forms of nutrition, he added.

Most of the studies on one-celled life forms systematically applied increasing doses of the herbicides, ranging from 1 ppb to 1,000 ppb over periods of up to 67 days. Most were done under conditions called "microcosms" that attempt to replicate real streams.

In midwestern streams, alachlor has been found in concentrations as high as 105 ppb in one study and in 98 percent of the 149 sampled in another. Spring flush spikes in headwater streams have run as high as almost 700 ppb for both atrazine and alachlor, Hoagland said.

Regulations set by the U.S. Environmental Protection Agency put the maximum contaminant level for atrazine in drinking water at 3 ppb.

Hoagland has worked with M.M. Langan, Rebecca Spawn and Justin Carder of UNL's SNRS, Jixin Tang and Blair Siegfried of UNL's Department of Entomology and with Karen Nelson of the U.S. Fish and Wildlife Service on one or more of the studies mentioned.

Further work needs to be done, he said, on metabolites (breakdown products) for herbicides other than atrazine and on total herbicide load, as well as on synergistic and chronic effects.

## Correction

The following changes should be made to the table appearing on the middle of page 5 of the February, 2000 *Water Current* as part of a research brief cover article titled "Simple Iron Treatment Inexpensive Way to Remove Pesticides from Contaminated Soil."

Changes in metolachlor concentration listed in mg kg-3 should have been listed as mg kg-1. The table also erroneously lists "cone" rather than "conc."



# Help Us Improve the Water Current:

Help us publish a better *Water Current*. Tell us what we can do to make it better.

Take a few minutes to fill-out and return this page and we will send you a Water Center/Environmental Programs pencil and refrigerator magnet and enter your name in a drawing for one of three Water Center/Environmental Programs ceramic coffee mugs. To be eligible for the drawings, return your completed survey by **Friday, May 26**. Mail it to Steve Ress, Water Center/Environmental Programs, University of Nebraska, P.O. Box 830844, Lincoln, NE 68583-0844 or FAX it to (402)472-3574. NU subscribers may return surveys via campus mail to: 103 NRH, EC 0844. Please mail or FAX the **entire page** (so we have your name for the coffee mug drawings). **Responses will be tabulated. Individual responses will be held in strictest confidence.**

1. Rank, in order of importance to you, the usefulness of the following general areas of the *Water Current* (1 - most important to 8 - least important):

- ☐ Announcements about publications, RFPs, videos, electronic information, etc.
- ☐ Calendar
- ☐ Feature articles on faculty members and/or researchers
- ☐ Previews of upcoming events
- ☐ Director's Notes (Page #2)
- ☐ Feature articles on water and environmental research
- ☐ Water News Briefs
- ☐ Information about upcoming conferences, lectures, courses, etc.

2. What are some topics you would like to see covered in future issues of the newsletter?

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3. What is your area of primary water/environmental interest?

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4. Do you read each issue of the *Water Current* you receive?

☐ Yes ☐ No

5. On average, how much time do you spend reading each issue?

☐ Less than 5 minutes, ☐ 5-10, ☐ 10-15,  
☐ 15 minutes or more.

6. Do you circulate your copy of the *Water Current* to anyone else?

☐ Yes (if so, how many others read it ☐) ☐ No

7. Should the *Water Current* be published:

☐ more often ☐ less often  
☐ Remain at six issues per year

8. Should the *Water Current*:

☐ print more pages ☐ print fewer pages  
☐ maintain the present 8 pages

9. Are there general areas of coverage that the newsletter devotes too much (or not enough) space to?

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10. Your occupation?

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## WATER CENTER/ENVIRONMENTAL PROGRAMS

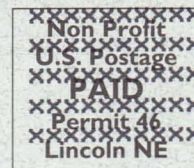
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