



Upper Niobrara White Natural Resources District General Manager Lyndon Vogt, right, and Mike Jess, associate director of the Water Center at the University of Nebraska-Lincoln, discuss water issues on an Alliance area farm. In the background is a field of chickpeas, also known as garbanzo beans.

Hub photos by Lori Potter

Practice before Law

Chadron-area NRD, farmers beat law to drought management

By LORI POTTER

Hub Staff Writer



ALLIANCE — When the Chadron-based Upper Niobrara White Natural Resources District implemented a districtwide well moratorium two years ago to stem aquifer losses, including declines of up to 50 feet in the Alliance

area, there was no LB962.

General Manager Lyndon Vogt said NRD officials acted under an earlier water management law, LB108.

A year later, in 2004, the Legislature passed LB962.

UNWNRD was one of the areas quickly identified by the Nebraska Department of Natural Resources as fully appropriated. The problem, Vogt said, was only the western two-thirds of the district were included.

In order to continue the districtwide well moratorium,



Alliance farmer Mark Watson hands off a bag of chickpeas while explaining his crop rotations. Corn is planted into wheat stubble, chickpeas are planted into cornstalks and wheat is planted into bean stubble.

there had to be another public hearing.

"It makes you really popular

to do that twice," Vogt joked.

DNR Director Roger Patterson has told Vogt that the Upper Niobrara White is the only area of Nebraska to have a well moratorium in an area not yet fully appropriated.

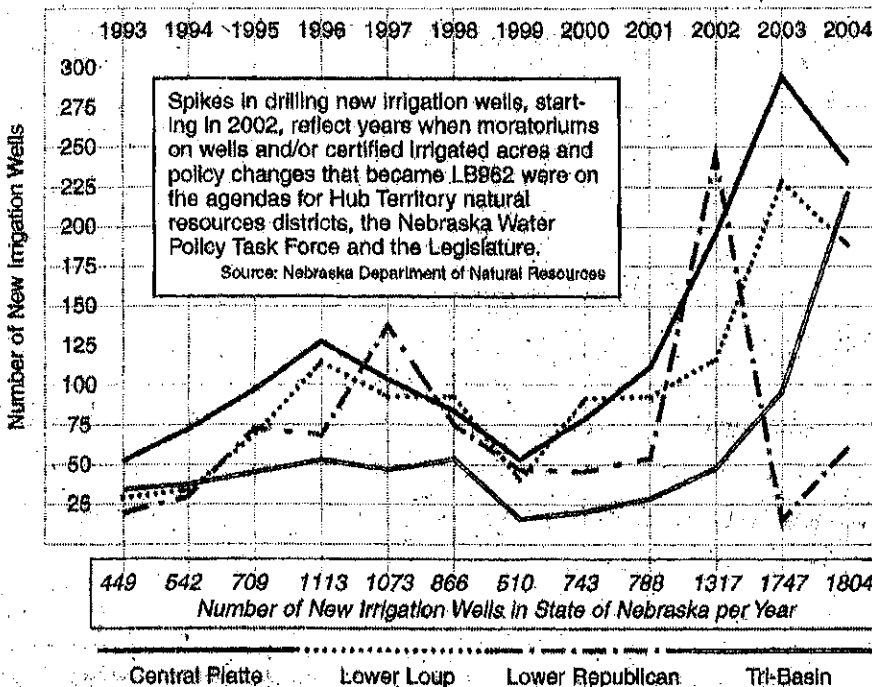
"We haven't issued a new well permit for over two years," Vogt said. "To be honest about it, we've had very little grief about it ... The bottom line is that everyone seems to know something needs to be done."

A citizens' advisory committee is working with the UNWNRD board on an LB962-required integrated water management plan. Vogt said the NRD's own groundwater management plan is so strict that the integrated plan may be just an additional chapter.

District officials are looking at possible irrigation water allocations by the 2007 crop year. Vogt said an amount hasn't been discussed, but it will be based on pasture and crop needs, rainfall (the average is 14 to 16 inches annually) and groundwater declines.

"To stop the decline, we probably have to be below the

New Irrigation Wells per Year by Natural Resources District



MANAGE

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need for some crops grown in this area," he said. The crops include corn, chickpeas, millet, edible beans, sunflowers, potatoes, wheat and sugar beets.

A process estimated to cost \$2.8 million has started to meter all irrigation wells.

The NRD is offering 50-50 cost shares for up to three meters per landowner, thanks in part to a three-year, \$300,000 grant from the Nebraska Environmental Trust. But Vogt said there isn't enough money

to help with all the meters and some may have to be installed without help from the district.

He said the UNWNRD, which includes all of Box Butte, Dawes and Sheridan counties and much of Sioux County, has 2,300 wells over 4.5 million acres. More than half of the wells are in the Alliance area.

Well depths vary from 50 to 80 feet in eastern areas that are part of the Sandhills to 400 feet drilled to shale around Alliance.

The water situation also has generated more interest in no-till farming.

That was clear two years ago when 65 farmers and ranchers attended a no-till meeting spon-

sored by the NRD and Natural Resources Conservation Service.

Vogt said the one thing lacking is University of Nebraska conservation farming research in the northern Panhandle. "It seems like the landowners in this area are learning from each other, and we're (the NRD) just the mediator."

Vogt said that when farmers go into a local coffee shop and brag about how much money they made instead of how much crop they raised, he'll know he's done his job. "We're not there yet."

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7-5-05

Sidney no friend of LB962

City spent \$12 million on '50-year solution' to water troubles

EDITOR'S NOTE: Most of the information for this series was gathered by Hub Staff Writer Lori Potter June 28 to Thursday during the Nebraska Water Conference Council's annual water and natural resources tour.

By **LORI POTTER**

Hub Staff Writer



BRIDGEPORT — People who don't irrigate crops, operate hydropower plants or manage city utilities may not know, or care, how state laws, interstate compacts, lawsuits or even drought affect them as long as water flows each time they turn on a faucet.

"The average person living in a municipi-

palty has no idea about water rights ... until you raise their water rates, or their monthly bill, or it doesn't work, which all happened in Sidney," said Sidney Mayor David Weiderspon.

Murphy's law has governed water issues in Sidney the past few years. Everything that could go wrong did go wrong.

Sidney was one of many Nebraska towns that faced water quality issues in the 1980s because of high nitrates in groundwater.

Weiderspon said Sidney was required by state health officials to either treat water from existing wells or drill new wells.

The solution was to mix high-nitrate water from Brule formation wells with a limited source of low-nitrate water from wells drilled into the alluvium northeast of town.

In 2002, the height of the multi-year drought, Sidney's water crisis involved quantity.

The main wellfield started to go dry, and the alluvial wells couldn't be used harder. In July, water pressure declined for Interstate

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Upper Niobrara-White NRD faces same moratoriums, depletions, other issues as in Hub Territory — Page 3A

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80 area businesses, including Cabela's.

Weiderspon said city officials imposed water-use restrictions and budgeted \$100,000 for a "50-year solution" engineering study.

The city water supply also depended on old Sidney army depot wells along Highway 30. On Dec. 27, 2003, the property owner told city officials they could buy his property for \$4 million or he'd turn off the water to the Cabela's distribution center.

On Dec. 31, 2003, he turned off the water, and Cabela's had to haul water to its facility in tanker trucks for a year.

City officials proceeded with their 50-year plan, which resulted in a \$12 million project that started transporting water into Sidney from a new wellfield northwest of the city on May 31, 2005.

WEIDERSPON said the cost is equivalent to \$2,000 for every man, woman and child in Sidney.

The process raised conflicts between the city, new state integrated water management legislation and the South Platte Natural Resources District.

City Manager Gary Person has been particularly outspoken in saying there are too many roadblocks for cities needing to expand water systems or provide water as a vital economic development tool.

Under LB962, the SPNRD and the rest of the Platte Basin west of Elm Creek was designated Sept. 15, 2004, as overappropriated by the Nebraska Department of Natural Resources. That meant well moratoriums, integrated water management plans and offsets for new water uses were required.

SPNRD Board President Keith Rexroth of Sidney said NRD officials weren't opposed

WHAT'S NEXT

Wednesday — A wet spring and early summer has raised the spirits of farmers and ranchers and raised the water levels at Lake McConaughy. Water supply problems aren't over in the Platte Basin, but Nebraska's largest lake should be able to provide some irrigation water in 2006. The wet weather also means that Nebraska Public Power District hasn't had to use the wells drilled last year as a source of emergency cooling water for the Gerald Gentlemen power plant.

Thursday — Nebraska's unique Sandhills act as a giant sponge to recharge the Ogallala Aquifer and several river systems. The hydrology system found in the region of grass-covered sand dunes is reflected across the 70 square miles of the Crescent Lake National Wildlife Refuge in Garden County.

Friday — Court rulings related to Pumpkin Creek and other waterways in the North Platte Basin upstream from Lake McConaughy could forever change laws governing the use of groundwater and surface water. However, the legal resolution of some issues could take years.

Weekend — District Forester Doak Nickerson of the Nebraska Forest Service is passionate about spreading the word that the woodlands in northwest Nebraska's Pine Ridge will remain healthy and safe from fire only with proper management. And that requires regular timber harvests. Also, The Economy page will feature a photo tour of parts of the Sandhills and northern Panhandle.

to Sidney's well project because there was an emergency need, but there were procedures that had to be followed to legally permit water transport via pipeline the 18 miles from wellfield to city.

One difficulty was that state laws are "fuzzy" about moving the water, Rexroth said, and there were other conflicts about project jurisdiction issues.

CITY OFFICIALS became so frustrated that during the 2005 session of the Legislature they promoted LB708, which was indefinitely postponed in committee.

Weiderspon said city officials argued that domestic users of water in municipalities should be treated the same as domestic users in rural areas.

The statement of intent for LB708 said it would exempt public water suppliers and others in fully appropriated or overappropriated basins from having to offset increased groundwater consumption for domestic uses. Public water suppliers wouldn't need to obtain a permit from an NRD for such wells.

Rexroth said one NRD concern was that the exceptions

would remove protection for other water users on issues such as adequate well spacing.

The SPNRD directors recently approved setting aside 1,000 acre-feet of water annually for up to five years for municipalities to use as offsets for domestic water projects or economic development. Rexroth said the credits likely will come from conservation programs that pay farmers to retire irrigated acres.

NEBRASKA Water Policy Task Force members are meeting with officials from several cities to discuss possible legislation to better address municipalities' concerns.

Other issues for all Platte Basin water users include Endangered Species Act compliance and the "no new depletions" plans required of Nebraska, Colorado and Wyoming as part of the Platte River Cooperative Agreement.

"Nebraska has been blessed with a lot of water," Rexroth said, "but not a lot of foresight in what to do when that resource is limited."

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Big Mac could give farmers water they need

EDITOR'S NOTE: Most of the information for this series was gathered by Hub Staff Writer Lori Potter June 28 to Thursday during the Nebraska Water Conference Council's annual water and natural resources tour.

By LORI POTTER
Hub Staff Writer



OGALLALA — It might seem impossible to find any good things to say about Lake McConaughy, which is less than 40 percent full after five years of drought in the Platte Basin.

However, Central Nebraska Public Power and Irrigation District officials have seen small improvements that likely mean irrigation water will be provided in 2006 to customers watering 113,000 acres in Gosper, Phelps and Kearney counties.

That wasn't certain last November.

After a record-low lake volume of 355,000 acre-feet (20 percent full) at the end of the 2004 irrigation



Hub photo by Lori Potter

season, Central engineers estimated in their water supply report that Big Mac could be just 3 percent of full by the end of the 2005 irrigation season.

"We're pretty certain, unless July and August are just awful hot ... that we'll have a better supply next

year," said CNPPID Public Relations Manager Tim Anderson last Thursday.

"Better" refers to this year's delivery of just 6.7 inches of irrigation water per acre planned from

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♦ MAC

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June 28 through Aug. 22.

Anderson said the 2006 supply still may not allow the normal 18 inches per acre. "We'd have to see



Tim Anderson

some major improvements to see a full irrigation supply next year," he said.

Decisions for 2005 were made early enough to give irrigators time to plan for limited water.

Many are using supplemental groundwater and/or have consolidated more than one allocation on the same acres.

MOTHER NATURE gets credit for making the best of a bad situation by providing the best May and June rainfall seen in years throughout much of Nebraska.

"There's been very, very little irrigation up to this week," Anderson said Thursday. "That's what we said all along. The best thing to get the lake up was to need limited irrigation in the irrigated area."

Now, he said, two or three nice rains in July and August are needed.

Another boost came from higher-than-expected June runoff into the South Platte River.

STATE RESERVOIR VOLUMES

RESERVOIR	CURRENT	FULL CAP	% FULL
HARLAN COUNTY	141,278	315,090	44.8%
CALAMUS	123,100	127,400	96.6%
SWANSON	39,969	112,214	35.6%
MERRITT	74,285	74,500	99.7%
SHERMAN	67,000	69,076	87.0%
LAKE MINATARE	37,728	58,795	64.2%
SUTHERLAND	58,568	64,723	90.5%
ENDERS	12,965	44,480	29.1%
JOHNSON LAKE	43,685	42,500	102.8%
ELWOOD	11,118	37,800	29.4%
HUGH BUTLER	21,523	36,200	59.5%
HARRY STRUNK	36,632	36,705	102.6%
DAVIS CREEK	31,452	31,150	101.0%
BOX BUTTE	16,105	31,000	48.7%
BRANCHED OAK	25,000	27,000	92.6%
MALONEY	17,640	17,800	98.1%
LAKE ALICE	5,368	11,034	48.6%
JEFFREY	6,732	6,500	88.2%
LAKE OGALLALA	2,301	2,500	92.6%
TOTAL OF LAKES	770,534	1,145,487	67.3%
LAKE MCCONAUGHY	648,800	1,743,000	37.2%

As of June 27, 2005

"We were able to pick up water there for about 12 days that we didn't plan on," Anderson said. Although South Platte water doesn't flow into Lake McConaughy, it was used to help fill Central canals.

A **SECONDARY** benefit was that CNPPID storage water from Lake McConaughy that already was in the system could be released into Elwood Reservoir a few days.

As part of Central's 2005 water conservation plan, Elwood Reservoir isn't being filled. It holds and releases supplemental water to

irrigators in parts of Gosper and Phelps counties. There is no supplemental water to hold because of this year's small allocations.

Long-term relief for Lake McConaughy must come from the west in the form of runoff from snow in the Rocky Mountains, releases from federal Bureau of Reclamation, reservoirs in Wyoming and return flows from upstream irrigation districts in the Nebraska Panhandle.

Kingsley Dam Superintendent Jerry Steinke said the Wyoming reservoirs are at about 57 percent of their almost 2.8 million a-f capacity.

What's Next

Thursday — Nebraska's unique Sandhills act as a giant sponge to recharge the Ogallala Aquifer and several river systems. The hydrology system found in the region of grass-covered sand dunes is reflected across the Crescent Lake National Wildlife Refuge.

Friday — Court rulings related to Pumpkin Creek and other waterways in the North Platte Basin upstream from Lake McConaughy could forever change laws governing the use of groundwater and surface water. However, the legal resolution of some issues could take years.

Weekend — District Forester Doak Nickerson of the Nebraska Forest Service is passionate about spreading the word that the woodlands in northwest Nebraska's Pine Ridge will remain healthy and safe from fire only with proper management.

Also, The Economy page will feature a photo tour of parts of the Sandhills and northern Panhandle.

Dry conditions upstream have contributed to record low inflows to Lake McConaughy the past three years. One result was record low hydropower production by CNPPID in 2004 of 33 percent of normal.

THE SHRINKING lake has revealed large white sand beaches that have been enjoyed by campers, but that creates challenges for Nebraska Game and Parks Commission staff trying to maintain boat access to the water.

Steinke said Nebraska is one of only a couple western states with no recreational water rights. He explained that Lake McConaughy's water is for Central and Nebraska Public Power District irrigation and for an environmental account managed by the U.S. Fish and Wildlife Service.

Big Mac still is a big lake.

On June 27, it held 648,000 a-f

of water and covered more than 17,000 surface acres, according to CNPPID calculations. That compares to general numbers used to indicate a full capacity of 1,743,000 a-f and 30,600 surface acres.

A full lake is 22 miles long. The current length is 12 miles.

Although the lake is 47 feet below maximum, Steinke said it's five feet higher than at this time last year.

"IT'S STILL 88 feet to the bottom," he said. "There's some 120-foot water out there in front of the dam ... I think we're at the bottom and we're going to work our way back up."

"We've been in this drought for so long," Anderson said, "that it's easy to get pessimistic thinking that it's never going to rain again."

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Refuge in Sandhills has unique obstacles, lots of wildlife

EDITOR'S NOTE: Most of the information for this series was gathered by Hub Staff Writer Lori Potter June 28 to Thursday during the Nebraska Water Conference Council's annual water and natural resources tour.

BY LORI POTTER

Hub Staff Writer

GARDEN COUNTY — An appreciation of solitude is required to enjoy the scenery along the sandy, one-lane roads through much of Garden County.



The journey makes it easy to believe that Crescent Lake National Wildlife Refuge truly is in the middle of nowhere. It doesn't help that maps distributed at



Hub photo by Lori Potter

refuge headquarters tell visitors that it's 28 miles back south to Oshkosh and just as far northeast to Lakeside or northwest to Antioch. Located between ranches recently sold to Ted Turner on the east and the Church of Jesus Christ

Crescent Lake National Wildlife Refuge Manager Neil Powers stands in front of a grossly wetland that leads to Glimet Lake. The refuge covers about 46,000 acres of the Nebraska Sandhills in Garden County.

fence" along the road leading to the headquarters office. The fence helps researchers catch, identify and observe turtles. The first Crescent Lake acres were purchased in 1931, according to Steve Knoke of Scottsbluff, project leader for the U.S. Fish and Wildlife Service's North Platte National Wildlife Refuges. The goal was to provide breeding areas for birds — 273 species have been observed at the Garden County refuge since 1936 — and other animals.

Crescent Lake has five full-time employees, plus seasonal summer employees who concentrate on a fire program that includes prescribed burns of 1,100 to 1,200 acres a year for habitat

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How does the Ogallala aquifer recharge? A big sponge called the Sandhills — Page 3A

REFUGE

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management and firefighting. Knoke said one refuge firefighter currently is in Utah with a wildlife crew.

The refuge headquarters site has an office, several residences, a 3-year-old bunkhouse for firefighters, and several equipment storage and shop buildings. The vehicles include an airboat, dirt-moving units, a truck with a front-end loader and uniquely modified firefighting equipment.

"We gotta fight light and fast," Knoke said about controlling wildfires over so many acres of grass growing on sand dunes.

Controlling vehicle weight is a major concern, and the ability to haul an ample supply of water is a necessity. Diesel engines on trucks used to fight fires are replaced with lighter gas engines.

There are about 8,000 refuge visitors a year, Knoke said.

Deer season is a major draw, and hunters regularly come from Wisconsin, Arizona, Minnesota and Colorado.

The USFWS's brochure outlining public-use regulations says hunting is permitted from Sept. 1 through Jan. 31. Knoke said only 5,000 acres south of refuge headquarters are off limits to hunters.

About 40 deer are taken each year. When he was asked about chronic wasting disease, Knoke said, "We've been very fortunate not to have had any positives, but I'm afraid it's just a matter of time."

Twenty-seven deer on the refuge wear radio collars, and 20 more will get them this year. Knoke said that allows Nebraska Game and Parks Commission officials to do aerial surveys of the herds.

Boating and float tubes are permitted only on Island Lake, which

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is open to fishing year-round.

Knoke said USFWS officials are working with the state on plans to renovate the lake by pumping out the water, poisoning all the fish — carp now dominate — and starting over to create a better bass lake.

The other two public access lakes are Crane and Smith, where ice fishing only is allowed from Nov. 1 through Feb. 15. Knoke said ice fishing is the No. 1 public use of the refuge.

"As national wildlife refuges go, it's little used," he said about Crescent Lake. "You don't just pass through." One reason is that Garden is the only Nebraska county without a paved north-south road.

Knoke said the refuge has about 4,700 acres of wetlands and only nine of the many lakes are managed. Kyle Hoagland, director of the University of Nebraska-Lincoln

Water Center, said the lakes vary dramatically from fresh water to twice the salinity of seawater.

Some lakes have fish, and some don't. Others have mostly brine shrimp brine flies and similarly unusual plants "things you'd see along the coast," Hoagland said.

Four-wheel drive vehicles are allowed on some designated refuge trails, Knoke said. However, much of Crescent Lake is managed as a wilderness area, with access denied or allowed only on foot or horse.

Refuge Manager Neil Powers said grazing is a habitat management tool, with the number of acres offered to ranchers varying from year to year. There were 13,776 acres up for grazing bids this year. Hoagland said the refuge also offers many opportunities for student and faculty research. "I can bring a class out here and see 75 species of birds in one day,"

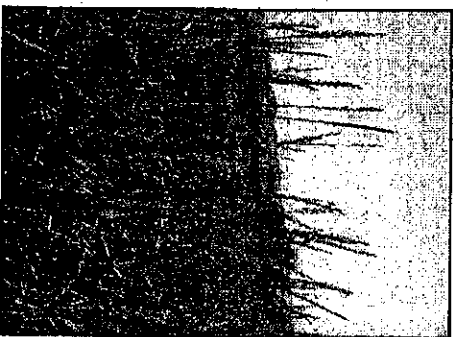
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Thursday, July 7, 2005

HUB TERRITORY

Sandhills are Neb.'s 'crown jewel of water resources'

Slender
wheatgrass
and other
native
grasses
thrive this
summer in
the unusu-
ally wet
Nebraska
Sandhills.



Hub photos by Lori Potter

By LORI POTTER

Hub Staff Writer

GARDEN COUNTY — It would take volumes to describe all the qualities that make the Nebraska Sandhills special, even unique.

In fact, the region has been the topic of many books, ranging from the novels by the Sandhills' prominent storyteller, Matt Sandoz, to cultural, historical and geographical research.

Among the latter is "An Atlas of the Sand Hills" published in 1989 by the Conservation and Survey Division of the University of Nebraska-Lincoln's Institute of

Agriculture and

Natural Resources. A

total of 238 pages of text, photos, maps and graphs were required to describe the region's climate, geology, hydrology, soils, streams, plants, wildlife, anthropology, land management and history.

Kyle Hoagland, current director of UNL's Water Center, can describe the Sandhills in just a few words. "I call it a crown jewel of water resources in the state."

Officially, the Sandhills' 19,300



square miles include a small part of South Dakota.

In Nebraska, they stretch for 265 miles across the central and west-central parts of the state, covering nearly 13 million acres. The southern edge is in northern Keith and Lincoln counties, and they roll north across the South Dakota state line from Cherry County.

It's the largest sand dune area in the Western Hemisphere and one of the largest grass-stabilized dune regions in the world, according to the atlas introduction written by Ann Bleed, who was state hydrologist in 1989 and now is deputy director of

the Nebraska Department of Natural Resources.

She explained that the large sand masses now held in place by grasses were formed by blowing sand, mostly during the past 8,000 years.

"Although the grass can immobilize large dunes and support the numerous cattle ranches that are the economic base of the region, the grass cover is extremely fragile and susceptible to wind erosion," Bleed wrote.

She also wrote the groundwater section in the atlas. Bleed describes a

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◆ ATLAS

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hydrology cycle that affects streams and groundwater supplies throughout much of Nebraska.

"Since very little surface water or groundwater flows into the Sandhills, the primary source of water is precipitation, which according to the climate section in the atlas can range from about 23 inches on the east edge to less than 17 inches on the west.

"Yet, there is sufficient water to maintain a grass cover over the dunes, supply numerous lakes, marshes and subirrigated meadows, provide a nearly constant streamflow to parts of four major rivers (including the Loup and Platte systems), and fill to overflowing a groundwater reservoir that holds about half of all the groundwater found in Nebraska," Bleed wrote.

She referred to a mid-1960s estimate that the groundwater reservoir held 700 million to 800 million acre-feet of water. That compares with Nebraska's largest surface water reservoir, Lake McConaughy, which is

considered full at about 1.7 million acre-feet.

Bleed said the "apparent paradox" of so much water in a semiarid area has to do with the highly permeable soils that limit runoff and enhance infiltration. Those soils sit on a gently sloping layer of impermeable bedrock.

Hoagland said the groundwater is part of the High Plains Aquifer that runs from Texas to South Dakota. About two-thirds of the aquifer is in Nebraska, primarily in what's called the Ogallala formation, where it's 300 feet thick in some areas.

Most of the Sandhills lakes and ponds are the "surface expression of the groundwater aquifer," he said. Some of the

lakes are fresh water and some can be twice as salty as seawater. Hoagland said some lakes can become separated from the groundwater in late summer and then reconnect. "Many of the lakes are unique on a worldwide basis," he added.

Hoagland and Bleed both used a sponge description for the Sandhills hydrology.

Bleed wrote in the atlas that the groundwater reservoir benefits from a system that is "sopping up water not captured by ET" (evapotranspiration by plants).

With the sandy soils, it recharges very fast," Hoagland

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HUB TERRITORY

Allocation formula unclear

By LORI POTTER

Hub Staff Writer

HOLDREGE — Some of Nebraska's 23 natural resources districts are "totally frustrated" with the state Department of Natural Resources Districts, according to the president of the Nebraska Association of Resources Districts.

Tri-Basin NRD Director and NARD President David Nelson of Upland said Tuesday at the Tri-Basin board meeting that the frustration comes from changes in how DNR will determine boundaries for fully appropriated basins. "People ... feel they just got blindsided," Nelson said.

DNR is required under LB962, the integrated water management law passed by the Nebraska Legislature in 2004, to annually determine which undesignated basins, subbasins and river reaches are fully appropriated.

All or part of eight natural resources districts already are considered fully appropriated: Upper Niobrara White, North Platte, South Platte, Twin Platte, Central Platte, Upper Republican, Middle Republican and Lower Republican.

The Platte Basin upstream of Elm Creek has been identified as overappropriated.

The controversy involves the formula that will be used to set the fully appropriated boundaries. DNR is proposing 10/50, which would include areas where pumping a well for 50 years will deplete

MANY MORE WATER-RELATED MEETINGS

Several water-related meetings are scheduled in the next few weeks:

■ Nebraska Republican River Management Districts Association at 10 a.m. Tuesday at the Tri-Basin Natural Resources District office at the Phelps County Ag Center in Holdrege. The agenda includes a Department of Natural Resources report on Republican River Compact accounting for 2004.

Force Executive Committee from 9 a.m. to 11:45 a.m. Aug. 2 at the Phelps County Ag Center in Holdrege. The agenda includes reviewing rules to determine fully appropriated basins.

The committee will tour the Republican Valley Aug. 2 and 3, including stops in McCook, Trenton, Cambridge and Alma.

■ A public hearing on proposed DNR rules to determine fully appropriated basins and their

boundaries at 9 a.m. Aug. 11 at the Kearney Holiday Inn. Written testimony received on or before Aug. 11 also will be entered into the hearing record. The mailing address is DNR, P.O. Box 94676, Lincoln, NE 68509-4676.

For a copy of the proposed rules, visit the Web site at www.dnr.state.ne.us. Click on "negotiated rulemaking" on the home page. Or, call 402-471-2363.

NRDS

Continued from page 3A

28/40 formula has been used many times in setting water issues and should be used to designate fully appropriated areas.

Bleed said the 28/40 formula is used for different purposes within the three-state Platte River Cooperative Agreement. It was used as part of the Nebraska v. Wyoming North Platte River lawsuit, she said, but Wyoming's geology is very different than Nebraska's.

Bleed explained that wells causing a significant effect to a stream are DNR's concern.

The NARD resolution concludes that if DNR doesn't use the 28/40 "original standard," the NARD will consider legislative and/or legal remedies.

The Tri-Basin board voted Tuesday to support the resolution. A key issue for NRDS, according to Nelson, is that the 10/50 line would cause overlapping jurisdictions. "Some people say it's going to create a nightmare to enforce," he said.

Tri-Basin General Manager John Thorburn said it's not practi-

cal to implement the 10/50 line because the boundaries would affect the next basin in many cases.

"Any of these lines will be arbitrary," he said, "but the 28/40 line does follow pretty closely the basin boundaries."

Bleed agrees that no one wants to live under rules from three different NRDS, but she believes the districts can cooperate to make the boundaries work. "I think it is a problem," she said, "but I don't think it's unfixable."

Some comments Tuesday concerned Central Nebraska Public Power and Irrigation District. Director Larry Reynolds of

Lexington said Central officials have pushed for an even stricter boundary rule, at 1 percent loss over 100 years, so DNR saw 10/50 as a compromise.

CNPPID Public Relations Manager Jim Anderson told the Hub this morning that Central officials have looked at options. "We'd obviously like the strongest, but we haven't come down on one yet," he said.

Anderson understands why some NRKD officials are frustrated. "Those were the numbers discussed," he said about the 28/40 formula. "... But it was never cast in concrete."

the Hub this morning, with the rules left up to DNR.

On June 20, NARD leaders passed a resolution that says the

See ♦ NRDS, page 9A

The boundary issue likely will be discussed Aug. 1 at a Central and Tri-Basin joint planning meeting.

Anderson said Central will testify at DNR's Aug. 11 public hearing in Kearney on the proposed fully appropriated rules, but district officials haven't settled on their message.

Tri-Basin Director David Nickel of Kearney wondered if anything will change DNR officials' 10/5 proposal. "What good does it do to hold hearings if they've already made up their minds?"

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Kearney Canal water rights are oldest on Platte — and that makes regulation 'complicated'

EDITOR'S NOTE: Most of the information for this series was gathered by Hub Staff Writer Lori Potter June 28 to 30 during the annual Nebraska Water Conference Council's water and natural resources tour.

By LORI POTTER

Hub Staff Writer

KEARNEY — The Kearney Canal isn't valuable because it's a large diversion.

The water removed from the Platte River southeast of Elm Creek irrigates a modest 4,000-plus acres as it makes its way 16 miles down the canal to the city of Kearney, where it flows through a round brick power plant on the

north edge of the University of Nebraska at Kearney campus.

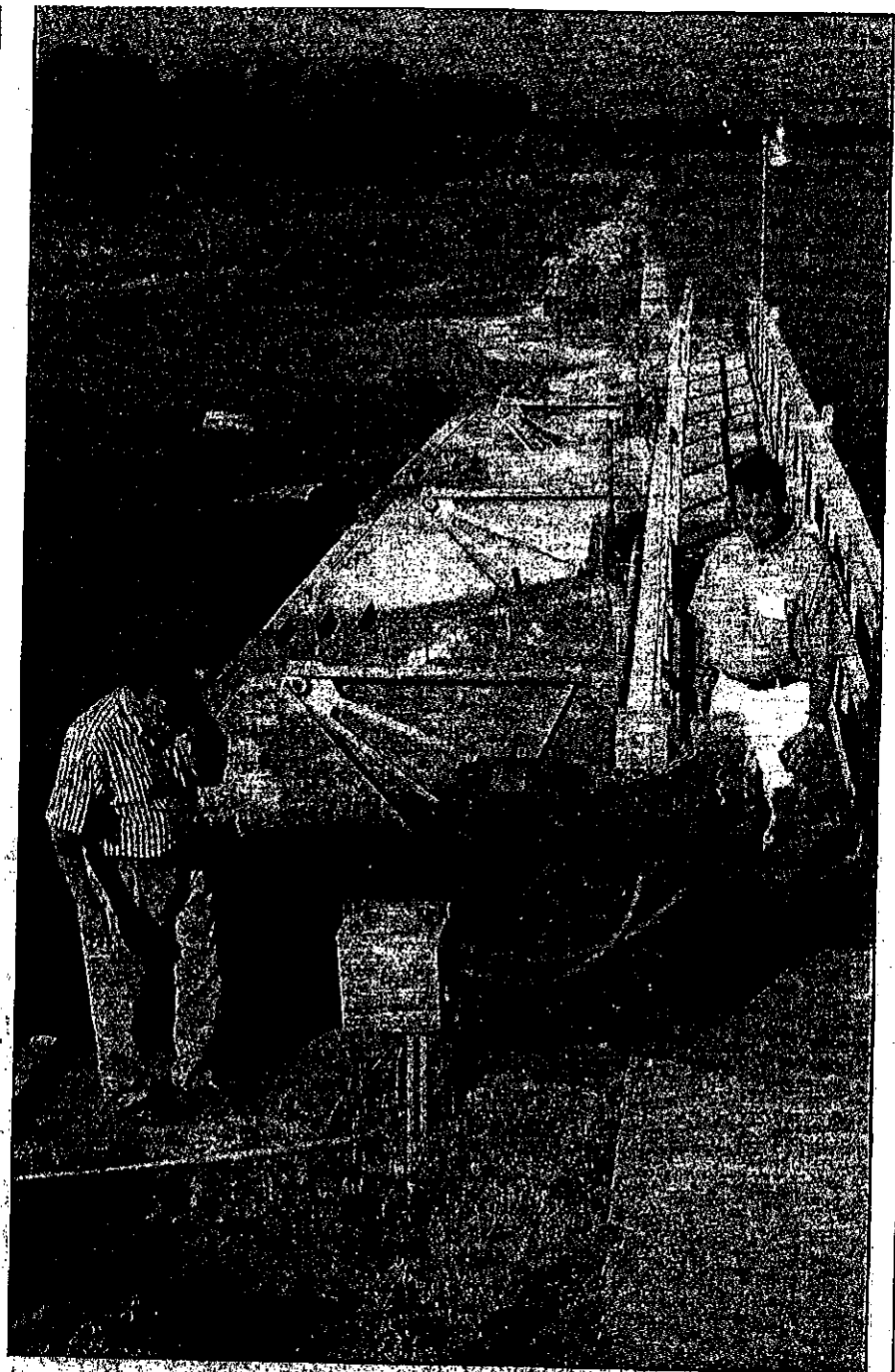
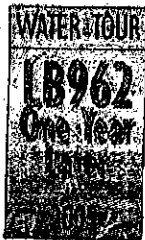
The hydro's generation of 1.6 megawatts of electricity is tiny compared with Nebraska Public Power District's largest power plant. The coal-fired Gerald Gentleman Station near Sutherland can generate 1,365 megawatts of electricity.

The Kearney Canal's most valuable quality is that it has senior water rights on the Platte River. That means its water rights must be fulfilled before all other junior rights, even if that means other surface water users get less than a full supply.

Those rights likely will grow in value to NPPD as water demand increases for agriculture, wildlife habitat, municipal and industrial needs. No new surface rights are being issued in the Platte Basin and areas of groundwater well moratoriums are expanding.

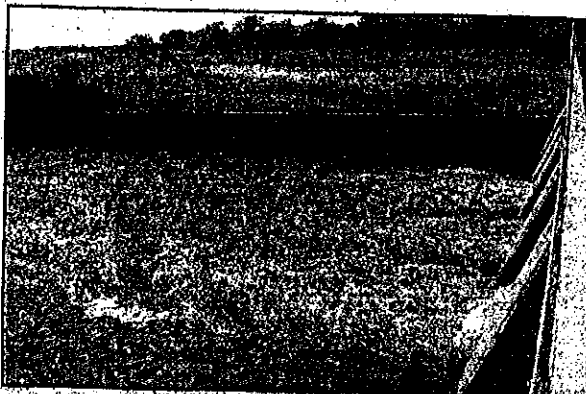
Under LB962, Nebraska's

See ♦ CANAL, page 11A



Hub photos by Lori Potter

When a gate at the Kearney Canal malfunctioned Tuesday morning during the first stop on the 2005 Water Tour, Nebraska Public Power District Water Resources Adviser Frank Kwaphoski of North Platte used his cell phone to report the problem. At right is Randy Zach of Columbus, another NPPD water resources adviser.



At the diversion for the Kearney Canal southeast of Elm Creek, water runs parallel to the Platte River for a short distance on its way toward Nebraska's oldest hydropower plant in Kearney. The canal is the diversion farthest downstream on the river.

◆ CANAL

Continued from page 1A

new integrated water management law, and proposed interstate agreements, new water uses must be offset by retiring current uses in overappropriated and fully appropriated parts of the Platte Basin.

That has generated discussions about the potential for water banking, government or private compensation for retired water uses or rights, and other water commerce topics.

MIKE JESS, associate director of the University of Nebraska-Lincoln Water Center and former director of the state Department of Water Resources, said the main purpose of canal construction in 1882 was to bring hydropower to a growing city of Kearney.

NPPD Water Resources Adviser Frank Kwapnioski of North Platte said the canal's earliest water right is for a diversion of 22 cubic feet per second for irrigation and 160 cfs for hydropower. An additional right in 1929 brought those totals to 45 cfs for irrigation and 350 for the hydro.

The project made Kearney one of the rare prairie cities to have electrical power before the turn of the century. The electricity was used to operate street cars, electric lights and industries such as the short-lived cotton mill.

In the year since LB962 was passed by the Nebraska Legislature, the Kearney Canal has been identified as the place where the overappropriated part of the Platte Basin begins, running west to the state lines with Colorado and Wyoming.

Jess recalled that during his term as DWR director, the canal was a regulatory issue because of

Nebraska's first-in-time, first-in-right system for surface water and its position as the canal farthest downstream.

Engineers tried to determine how much regulation was required upstream to provide just enough water at the Kearney Canal to fulfill its senior water rights without overregulating, he said. Adding to that difficulty, were constant flow variations created by weather events and channel irregularities.

JESS SAID THAT over the years, measuring devices have been installed on the river and its channels. "They are what is hoped to be one-day (water) travel times apart," he said, listing as examples measuring stations at North Platte, Brady, Cozad and Overton.

It's still difficult for water managers to track water for surface irrigation districts using natural flow water rights with various seniority dates and amounts. There also is storage water from reservoirs.

"THAT'S PRETTY complicated," Jess said.

Kwapnioski said more gauging equipment has been installed at Kearney Canal to measure river changes and monitor flows in years when water is released from an environmental account managed by the U.S. Fish and Wildlife Service. The water is stored in Lake McConaughy and released to benefit habitat in Kearney-Grand Island area.

Jess said one tool for water managers is a daily "River and Canal Bulletin" issued by the state from May until the final diversions of each irrigation season, usually at the end of September.

Kearney Canal diversions can continue later into the fall because of its hydropower water right.

e-mail to:

LB962 ONE YEAR LATER

The 2005 Nebraska Water Conference Council's annual water and natural resources tour this week started at the Kearney Canal, stopped at Lake McConaughy, visited Crescent Lake National Wildlife Refuge in the middle of the Sandhills, and then traveled to Chadron and Alliance to study timber, farming, mining and water management issues in the Panhandle.

Tour co-sponsors were Central Nebraska Public Power and Irrigation District, Gateway Farm Expo, Kearney Area Chamber of Commerce, Nebraska Association of Resources Districts, Nebraska Water Conference Council, Nebraska Public Power District, and the University of Nebraska-Lincoln's School of Natural Resources, Water Center and Conservation and Survey Division.

Following is a schedule of story topics for the water tour series, LB962 One Year Later.

Monday — Nebraska Water Policy Task Force member Gene Glock, Nebraska Department of Natural Resources Director Roger Patterson and others review LB962, the state integrated water management law a year after it's passage.

Also, the Legislature probably will consider bills in 2006 related to LB962, especially how to fund it.

Tuesday — Sidney Mayor David Wiederspon and South Platte NRD Chairman Keith Rexroth describe the circumstances that led the southern Panhandle city and other municipalities to be among the strongest critics of LB962.

Also, the Upper Nebraska White NRD experiences groundwater depletion issues, well moratoriums and other water use issues similar to those seen in the Republican and Platte basins.

Wednesday — A wet spring and early summer raised the spirits of farmers and ranchers and the water levels at Lake McConaughy. Water supply



problems aren't over in the Platte Basin, but Nebraska's largest lake should be able to provide some irrigation water in 2006.

The wet weather also means that Nebraska Public Power District hasn't had to use the wells drilled last year as a source of emergency cooling water for the Gerald Gentleman power plant.

Thursday — Nebraska's unique Sandhills act as a giant sponge to recharge the Ogallala Aquifer and several river systems. The hydrology system found in the region of grass-covered sand dunes is reflected across the 70 square miles of the Crescent Lake National Wildlife Refuge in Garden County.

Friday — Court rulings related to Pumpkin Creek and other waterways in the North Platte Basin upstream from Lake McConaughy could forever change laws governing the use of groundwater and surface water. However, the legal resolution of some issues could take years.

Next weekend — District Forester Doak Nickerson of the Nebraska Forest Service is passionate about spreading the word that the woodlands in northwest Nebraska's Pine Ridge will remain healthy and safe from fire only with proper management — and that requires regular timber harvests.

Also, The Economy page will feature a photo tour of parts of the Sandhills and northern Panhandle.

Groups find common ground on river

Conservationists, miners strike deal

ASHLAND (AP) — It's enough to turn the head of a least tern: Conservationists and sand and gravel companies working together on the Platte River.

Sand and gravel companies have been accused of being bad guys. They mine the aggregate beneath the topsoil and sell it to companies that mix it with asphalt or cement. In the process, they scar the land with sand pits and piles of dirt and rock.

Conservationists have been considered the good guys. They want to save what's left of the Platte River.

URNS OUT, there were no good guys or bad guys. Just two groups that didn't understand each other.

"The first meeting was like a sophomore dance, but we eventually got to talking and found out we had a lot in common," said Carl Roberts, a self-proclaimed "dirt guy" for Lyman-Richey Sand and Gravel Co.

Said The Nature Conservancy's John Heaston: "We always thought mining guys were digging holes to plant houses."

What they discovered was both groups had the same public relations problem.

Roberts said that nobody wanted a sand pit in their backyard.

But if you want good roads, you need plenty of aggregate and the way to get it in Nebraska is to mine it and create sand pits.

It was much the same story for The Nature Conservancy.

People want wildlife, parks and other green spaces, Heaston said, but they don't want to see the group come into an area, buy huge tracts of land and take them out of farming or ranching production.

That first uneasy meeting in 2003 led to further discussions and the creation of a group called PACE — Planning, Aggregates Community and Environment.

HERE'S HOW it works: Before a company opens up a new sand pit, PACE members develop a long-term use plan, which includes provisions for reclaiming the pit and turning it into a sustainable landscape.

Heaston and Roberts recently showed off a mining operation and restored wetland project on the Platte River near Ashland.

What makes this pit different is the planning that went into it. For example, the topsoil is piled in places where it can be easily moved when it comes time to reclaim the land. The site will be mined for about 10 years, then returned to farmland.



Hub photos by Lori Potter

Standing at the Kearney Canal diversion southeast of Elm Creek, Nebraska Water Policy Task Force member Gene Glock of Rising City describes the work of the task force, the history of LB962 and water issues still to be resolved.

Officials looking beyond LB962

EDITOR'S NOTE: Hub Staff Writer Lori Potter gathered most of the information for this series June 28-30 during the Nebraska Water Conference Council's annual water and natural resources tour.

BY LORI POTTER

Hub Staff Writer

ELM CREEK — Gene Glock of Rising City didn't believe it was possible for 49 Nebraskans representing water issues across the state to agree to dramatically change state water policies.

Yet nearly two years ago, consensus was reached by the governor-appointed Nebraska Water Policy Task Force. Its recommendations for integrated management of groundwater and surface water became LB962, which was passed by the Nebraska Legislature in 2004.

"I think it was successful because most people went away mad as hell ...," Glock said as he stood Tuesday at the Kearney Canal diversion southeast of Elm Creek. "Nobody was really happy with what we came up with, but it was the best we could come up with."

THE URGENCY to do something legislatively was driven by the Pumpkin Creek lawsuit. A Morrill County ranch family claimed that upstream irrigators "took" their priority surface water rights by pumping from hydrologically connected groundwater and causing the creek to go dry.

Under LB962, the Platte Basin upstream from the Kearney Canal immediately was declared overappropriated by the Nebraska Department of Natural Resources.

Glock said the same hydrological circumstances existed in the Republican Basin. State officials didn't want to use the "overappropriated" label as long as the Kansas v. Nebraska lawsuit was pending, believing that Kansas would want even more water, he said.

DNR officials now are preparing for

See ♦ LB962, page 6A

Water has always been a contentious issue, even before drought and LB962 — **Page 3A**

A look ahead: See what's next in the water tour series — **Page 6A**



Continued from page 1A

their first LB962-required annual evaluation of all Nebraska basins. In those determined to be fully appropriated, there will be well and new water use moratoriums. DNR, the natural resources districts and stakeholders will have three to five years to write integrated water management plans.

One controversial issue is the criteria DNR will use to set fully appropriated boundaries.

DNR Director Roger Patterson said that, in part, they must reflect the conductivity of



Roger Patterson

groundwater and surface water. Proposals have ranged from Colorado's strict 0.1 percent loss of streamflow from groundwater use in 100 years to the 28 percent-40 years

favored by such water management entities as the Central Platte NRD at Grand Island.

"Where I am is 10 (percent) and 50 (years)," Patterson told the Hub. "I'm fairly confident that will be in the draft," which could be issued within the next week. A hearing on the proposed criteria may be the week of Aug. 8 in Kearney, he said.

ALTHOUGH he disagrees with some of DNR's technical work, Glock still believes action was required to halt or reverse water resources depletions for the benefit of future generations — "unless we're going to be selfish," he added.

The task force continues to look at water banking, transfers and selling water rights. "It's really a touchy issue," Glock said. "... Under certain conditions, it can be done."

A lot about LB962 has been "touchy," Glock said he knows of some NRD directors who were voted off their boards for supporting the work of the task force and LB962.

"THE alternative will be to go to court all of the time, and that's not good," he said.

"(LB962) has been very successful for what we've done so far ...," Glock said. "It's going to take a lot of education to keep people from trying to tear LB962 apart. If given the chance, it can be very successful."

"I think we're in a good place," Patterson said. "I think some realities are settling in."

The quality of Nebraska's natural resources remains clear to Glock. Standing along the Kearney Canal, he extended his arms to point east and then west when saying, "It's wonderful to see the resources we have ... We

Tuesday — Sidney Mayor David Wiederspon and South Platte NRD Chairman Keith Rexroth describe the circumstances that led the southern Panhandle city and other



municipalities to be among the strongest critics of LB962.

Also, the Upper Niobrara-White NRD shares groundwater

depletion issues, well moratoriums and other water use issues also seen in the Republican and Platte basins.

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have more diversity from that corner to that corner than any other state in the nation."

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Water — It's Hard to Share

Drought blamed, but water fight outdates shortage

By LORI POTTER

Hub Staff Writer

ALLIANCE — The drought has been cursed as the force leading to well moratoriums, allocations, integrated water management plans and other lasting changes in how Nebraskans use water. Yet the former director of the state water resources department remembers when there were equally big water fights in times of plenty.

Mike Jess, now associate director of the University of Nebraska-Lincoln Water Center, said some of his biggest arguments with the Wyoming state engineer's office occurred "when there was 150 percent snowfall in the Rockies and all the reservoirs were full."

WATER ALWAYS will be a contentious issue, he said, and difficult to regulate in years of surplus or drought. "It's hard for us to share, I guess."

Some debates about the integrated management of surface water and groundwater were settled in 2004 when the Nebraska Legislature passed LB962. Jess said nearly everyone now acknowledges that pumping some groundwater wells can impact streamflows.

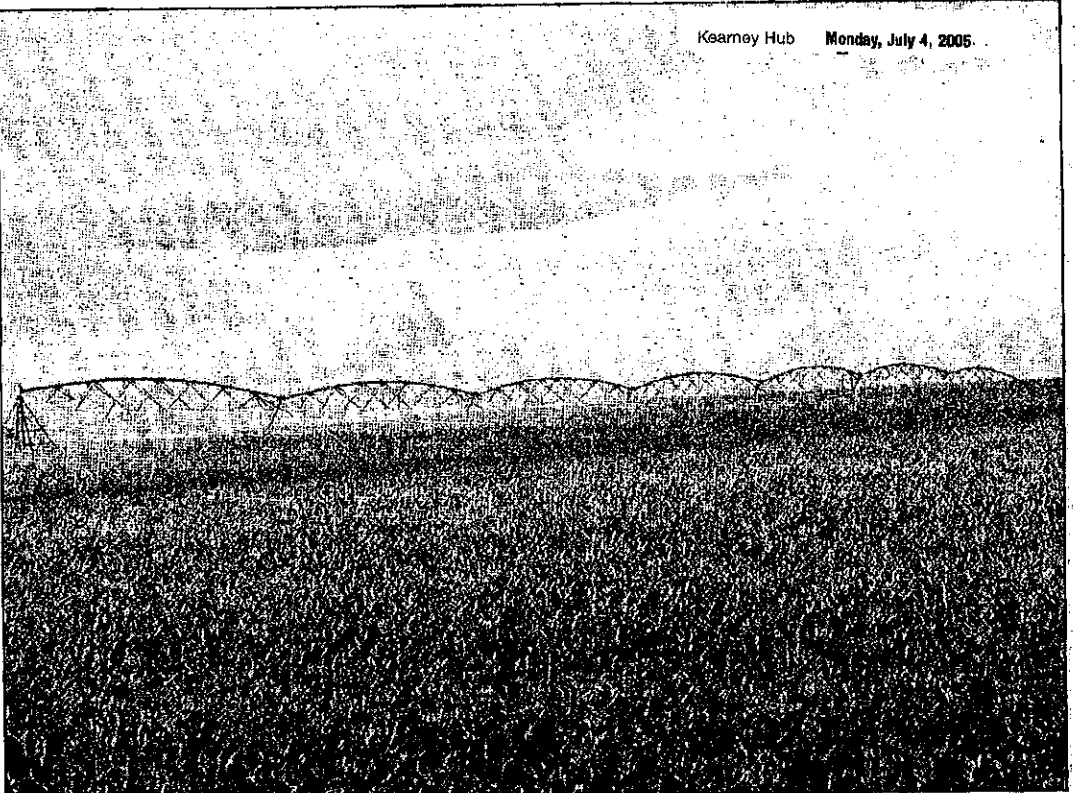
Implementing LB962 involves determining when, how and who is impacted. "We've sort of reached that point where you draw the line. Is your well included? ... I think that's still contentious," Jess said.

He occasionally raised integrated water issues as state water director by talking about how other states managed their water. "But when I would talk about it, it was very unpopular," Jess said.

He said it took drought and settlement of the Kansas v. Nebraska Republican River lawsuit to get people to acknowledge that there are limits on using water resources.

A KEY MOMENT in the lawsuit came when the special master (judge) ruled and the U.S. Supreme Court agreed that groundwater use that affects streamflows counts toward interstate compact compliance.

Nebraska Department of Natural Resources Director Roger Patterson said the first big step for Nebraska actually was in the mid-1990s, with passage of LB108. It was the first legislative recog-



Kearney Hub Monday, July 4, 2005

Hub photo by Lori Potter

Rain clouds build over a pivot irrigation system and some hail-damaged corn northeast of Alliance on the Box Butte County tablelands. The area is in the Niobrara-White NRD, which is being managed as fully appropriated.

inition of groundwater-surface water relationships.

Then, LB962 took the next step by requiring DNR to annually evaluate basins to determine if they're fully appropriated. Such designations trigger moratoriums on new uses and development of integrated water management plans by DNR, natural resources districts and local stakeholders.

"THAT'S SAYING, 'If the supply has been developed, stop,' Patterson said. "...Then you don't have to back up the train (as in overappropriated basins). That's hard. We did that in the Republican Basin."

Jess said "watershed" is the new operative term.

Science on the ground is still catching up with the politics of water. Jess said the basic hydrology is known, but not specific locations and water relationships.

Tim Anderson of Holdrege, who is public relations manager and lobbyist for Central Nebraska Public Power and Irrigation District, expects two LB962

issues to be on the agenda for the 2006 session of the Nebraska Legislature: future funding and more flexible water use by municipalities.

One goal is having a dedicated source of funding, "so every year we don't have to go to the Legislature and beg for money," Anderson said.

The Nebraska Water Policy Task Force had suggested dedicating 1/50th of 1 cent of state sales tax, but legislators didn't want to earmark general sales taxes for specific purposes. Other funding ideas still being studied by the task force include increasing NRD levies or charging well or water use fees.

PATTERSON said that \$7.5 million, or about twice the amount asked for, was approved for LB962 this fiscal year, so some of that will carry into the future.

Nebraska Public Power District Water Resources Adviser Frank Kwapioski of North Platte said it's vital that the state allocates the necessary funds for programs that pay irrigators to retire water use in overappropriated

basins or to provide offsets for new water uses. "Someone is going to have to give the water up and it's not fair to ask them to do that without compensation," he said.

Anderson said municipalities in moratorium areas want the abilities to expand city water systems and quickly offer water as an incentive for new industries or other economic development. Municipalities use only 3 percent to 4 percent of the water, he said, "so we ought to be able to find them more flexibility, especially for economic development."

WATER ISSUES will compete with other contentious topics, including school consolidation, in the short 2006 legislative session. Anderson said 20 of the 49 senators will be "lame ducks," because of term limits.

Add to the mix the 2006 elections, he said, "and the whole year is going to be interesting with politics."

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Mike Jess



Roger Patterson



Tim Anderson