



# The Communicator

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## Inflows to Lake McConaughy set record

Inflows to Lake McConaughy during the 2010-11 water year surpassed a record that had stood since 1983-84.

Inflows for the water year reached 2,627,556 acre-feet (a-f), surpassing the previous record by a little more than 24,000 a-f. A water year runs from Oct. 1 to Sept. 30 of the following year.

Inflows during May and June — typically the months when inflows are at their highest — were 420,804 a-f and 471,436 a-f respectively, the third highest total on record for each month. For perspective, *total annual* inflows from 2002-03 through 2006-07 averaged 483,400 a-f.

Inflows continued to run high through the

summer, as July, August and September each recorded the second highest totals for each respective month.

“The first five months of the water year were nothing special,” said civil engineer Cory Steinke. “In fact, inflows were a little below normal through February at about 94 percent of the historic median.”

Inflows started picking up in March when the U.S. Bureau of Reclamation began increasing releases from its reservoirs on the North Platte River in Wyoming in anticipation of heavy runoff from the mountain snowpack.

“There was simply more water entering the system than the reservoirs could

store,” Steinke said. “The Bureau continued high releases through September to make room for next spring’s inflows.”

And there was also more than Lake  
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Top Five Inflow Years	
Water Year	Inflow (acre-feet)
2010-11	2,627,556
1983-84	2,603,167
1982-83	2,358,867
1972-73	2,218,404
1970-71	2,052,372
Historic median	928,964
30-year median	826,055

## Climate change: Using models to predict effects

The phrase, “climate change” (which has replaced “global warming” in the media’s lexicon) turns up so often that it’s almost become hackneyed. While the term is perhaps overly familiar, what it might mean to people who live on the Great Plains is less clear.

Robert Oglesby, a professor of climate modeling at the University of Nebraska-Lincoln, recently addressed the topic at a conference in Lincoln entitled “Climate, Water and Ecosystems — Shaping the Great Plains.”

He prefaced his presentation by offering a clarification of the difference between climate and weather.

“Quite simply,” he said, “climate is what you expect; weather is what you get.”

Climate models can be useful in making predictions about the climate, Oglesby said, but limitations in our knowledge and computing resources mean that results from such models are always subject to uncertainty.

While others might disagree, Oglesby said humans do not *cause* climate change. “Human activities may *affect* climate, but the climate has been changing for millions of years and it’s logical to believe that it will continue to change in the future,” he said.

So what do current climate models predict for our part of the country?

Oglesby said a review of several computer models reveals predictions for rising temperatures in the near future across the

United States, although the magnitude of the warming trend varies from model to model. In general, the models suggest an increase in average daily temperature in the range of 1° to 1.5°.

By 2050, he said, average July temperatures in the Rocky Mountains could be 4° to 5° higher, while states in the Great Plains could see increases of 1° to 2°.

“Some studies have shown that widespread irrigation plays a role in moderating temperature change,” Oglesby said.

Researchers at Columbia University have analyzed the effect of large-scale irrigation on temperature and precipitation trends. The study indicated that in warm, dry regions irrigation increases the amount of

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# Pilot project to study recharge and return flows

Central is participating in a pilot project to study the impact of intentional recharge on groundwater and return flows to the Platte River.

As part of the Platte River Recovery Implementation Program, a “Reconnaissance-Level Water Action Plan” was developed in 2000 and used to formulate the Program’s plan for water projects. The study identified several potential water conservation and supply projects (e.g., new storage reservoirs, groundwater recharge, water leasing, and improved water management).

The current study is a secondary water project to study the effects of groundwater recharge on the Platte River, part of a larger effort to determine how water could be re-regulated or conserved and applied toward the Program’s objectives of reducing target flow shortages in the central Platte River by 130,000 to 150,000 acre-feet per year.

Water from the Phelps Canal began flowing through a newly installed 4-inch pipeline into a nearby recharge pit in early October. Monitoring wells installed between the pit and the Platte River, and also between the canal and the river, will yield data about how much and how fast groundwater migrates to the river.

Natural drains in the area will also be monitored for changes in flows that could be attributable to the recharge pit or the water-filled canal section.

In addition, the project will examine infil-



*Pilot project — This recharge pit is part of a project to study return flows to the Platte River.*

tration rates and the ability for such a project to function during the winter when ice is likely to form on the canal.

Central will monitor the effects on a 9.7-mile section of the Phelps Canal that will hold water throughout the winter. The canal is normally drained after irrigation season ends; the project’s participants are interested to learn what kind of maintenance issues arise as a result of winter canal operations.

While monitoring wells and drains will produce quantifiable data, a computer model will be used to estimate the overall effect on the groundwater table and return flows to the river.

Central civil engineer Cory Steinke, who is working with the Program on the pro-

ject, called it a “small project being tested to see if something on a larger scale could produce the desired results.”

Return flows to the river from the small project are expected to be in the 20- to 35-cfs range, but data collection from the monitoring wells and drains and the computer model will produce a more definite number.

Prior to the project, Central obtained a temporary water right from the Nebraska Department of Natural Resources to conduct off-season diversions. Ostgren Construction of Holdrege excavated the recharge pit and Central personnel installed the pump and pipeline from the canal to the pit. The cost of the project is being paid by the Platte River Program.

## Central enters into power sales agreement with KCP&L

Central’s board of directors recently approved a motion at a special board meeting to enter into a power purchase agreement with Kansas City Power & Light (KCP&L), an investor-owned electric utility headquartered in Kansas City, Mo.

Under terms of the agreement, Central will begin selling power generated at its three Supply Canal hydroplants -- Jeffrey, Johnson No. 1, and Johnson No. 2 -- to KCP&L beginning on Jan. 1, 2014. The three hydroplants have the capacity to produce up to 63 MW of power. The

term of the power contract is ten years.

KCP&L serves more than 800,000 customers in 47 counties located in northeastern Missouri and eastern Kansas, a service area that covers more than 18,000 square miles. It operates 15 generating facilities that provide power to retail and wholesale customers in its service area.

Nebraska is connected to a broader network of regional electrical power transmission systems, through which Nebraska’s utilities buy and sell electricity to

other utilities. Being part of this larger network helps keep electric costs down and service reliability high. Nebraska utilities routinely sell excess electricity to utilities in Missouri, Iowa, Kansas and South Dakota, as well as the Western Area Power Administration, a federal power marketing association. Nebraska utilities also buy power from those other entities when necessary.

Central will continue to sell power generated at the 50-MW Kingsley Hydroplant to the Nebraska Public Power District.

# On the Lakefront



## Clarification of regulations regarding alcohol consumption at District lakes

Last year Gov. Dave Heineman signed rules and regulations adopted by the Nebraska Game and Parks Commission (NGPC) that lifted a ban on alcohol at state parks and recreation areas.

However, due in part to opposition from individuals and community organizations in Keith County and other parts of Nebraska, as well as from Central, Lake McConaughy was exempted from the new regulations and the ban on alcohol consumption at the state's largest lake remains in effect.

While it is illegal to consume and/or have an open container of alcohol anywhere within the Lake McConaughy State Recreation Area (SRA), including on the water, there has been some confusion about how the new rules and regulations affect other lakes and reservoirs along Central's hydro-irrigation system.

At Johnson Lake, it is permissible to consume alcohol in the campgrounds, with certain restrictions, but it is NOT permitted on the lake itself. Alcohol consumption is NOT allowed in parking lots or on roadways and beaches. In addition, consumption in campgrounds is prohibited between 10 p.m. and 6 a.m., and no containers holding more than one gallon are permitted.

It is also permissible to consume alcohol at NGPC campgrounds and wildlife management areas adjacent to Central's other lakes (e.g., Lake Ogallala SRA, Gallagher Canyon SRA, Jeffrey Lake WMA, Elwood WMA), unless otherwise posted, but alcohol consumption on the lakes themselves is prohibited.

And of course, it is unlawful to operate a boat or personal watercraft with a blood alcohol content of .08 percent or greater. Doing so constitutes Boating Under the Influence (BUI), which carries a penalty of up to a \$1,000 fine, up to six months in jail, and the loss of boating privileges for six months. Refusal to submit to a chemical blood alcohol test will result in the same penalties as BUI.

The NGPC is responsible for law enforcement on the water, including fishing/hunting regulations, boating and safety regulations, and alcohol laws. State and local law enforcement agencies share the authority to enforce state laws in and around recreation areas.

Central's board sent a letter to Gov. Heineman in June 2010 in opposition to lifting the alcohol ban at Lake

McConaughy based on concerns for public safety and preserving the family-friendly atmosphere at the lake, a concern that carries over to other District lakes. In recognition of this stance, Central was awarded a "Community Leadership Award for Excellence" by Project Extra Mile. Project Extra Mile is a statewide network of community coalitions working to prevent underage drinking of alcohol.

The following is the text of the statute pertaining to the consumption of alcohol on public property.

**Nebraska Revised Statutes 53-186: Consumption of liquor on public property; forbidden; exceptions; license authorized.**

(1) Except as provided in subsection (2) of this section or section 60-6.211.08, it shall be unlawful for any person to

consume alcoholic liquor upon property owned or controlled by the state or any governmental subdivision thereof unless authorized by the governing bodies having jurisdiction over such property.

(2) The commission may issue licenses for the sale of alcoholic liquor at retail (a) on lands owned by public power districts, public power and irrigation districts, the Bureau of Reclamation, or the Corps of Army Engineers or (b) for locations within or on structures on land owned by the state, cities, or villages or on lands controlled by airport authorities. The issuance of a license under this subsection shall be subject to the consent of the local governing body having jurisdiction over the site for which the license is requested as provided in the Nebraska Liquor Control Act.

According to Nebraska Revised Statutes 53-103.02, "alcoholic liquor includes alcohol, spirits, wine, beer, and any liquid or solid, patented or not, containing alcohol, spirits, wine or beer and capable of being consumed as a beverage by a human being. Alcoholic liquor also includes confections or candy that contains more than one-half of one percent alcohol."

### Record inflows

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McConaughy could store. The lake filled to near capacity (elevation 3,264.9 ft., .1 ft. below normal operating capacity) on July 13 as Central held water in the reservoir to mitigate flooding near the city of North Platte. As inflows began to fall, outflows were increased to begin the process of making room for next spring's inflows.



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## Using models to predict effects *(continued from page 1)*

water available for evapotranspiration. When soil is wet, part of the sun's energy is diverted from warming the soil to vaporizing moisture, which results in a cooling effect. The researchers also found a link between widespread irrigation and more precipitation downstream from heavily irrigated areas.

In terms of precipitation on the Great Plains, an examination of 18 computer models showed that 11 models predicted increases and seven predicted decreases in annual precipitation.

"The models tended to agree that the northern and eastern parts of the U.S.



would see an increase in precipitation, while the southern and western parts of the country will likely be drier," Oglesby said. "The central Plains are on the 'zero line,' which means that precipitation amounts could go either way."

In the Platte River Basin, the effects of climate change on temperature and precipitation could play a major role in storage/release operations at large reservoirs.

The models indicate that snowpack could begin to accumulate earlier than is currently the case, with precipitation in February and March coming more frequently in the form of rain, rather than snow, Oglesby said. This would result in earlier, faster snowmelt runoff, rather than a large, slow-melting snowpack that continues into the early summer months.

The result would be a loss of "free storage," a reference to water that is stored in the form of snow and ice, rather than in reservoirs.

While the volume of water entering the Platte Basin from the Rocky Mountains is

predicted to remain relatively stable—with periods of higher and lower accumulations typical of normal year-to-year variation — such a development may require reservoir managers to adapt by changing the timing of fill-and-release operations.

<http://www.cnppid.com>

### On the Web

The Nebraska Power Association has launched a new web site! The NPA is a voluntary organization representing all segments of Nebraska's power industry: municipalities, public power districts, public power and irrigation districts and cooperatives engaged in generation, transmission, or distribution of electricity within our state.

Check out the web site at [www.nepower.org/](http://www.nepower.org/) to learn everything to need to know about Nebraska's power industry!

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