



# Nebraska Resources

## Newsletter

Published Quarterly by the Nebraska Department of Natural Resources  
301 Centennial Mall / P.O. Box 94676 / Lincoln, NE 68509-4676

### Inside this Issue:

Issue 23, April 2007

- Changes at DNR/cover
- Climate Assessment/page 2
- Retirees/page 3
- Modelers and Geohydrologist  
/page 3
- National Hydrograph Dataset  
/page 4
- Water Well Decommissioning  
Fund/page 2 & page 5

### Agency Numbers to Remember

#### Agency address:

Nebraska  
Department of Natural Resources  
301 Centennial Mall South  
Fourth Floor  
P.O. Box 94676  
Lincoln, Nebraska 68509-4676

#### Agency phone number:

(402) 471-2363

#### Agency fax number:

(402) 471-2900

#### Agency homepage address:

<http://dnr.ne.gov>

### Please Help Us

Please help the Department update and maintain our newsletter mailing list. If the address on your newsletter is incorrect, please let us know so we can make the correction. If possible mail the incorrect address label with corrected changes to our address. If you are receiving the newsletter and no longer wish to please let us know. A full color electronic version of this newsletter can be found on the Department's web site along with all back issues at <http://www.dnr.ne.gov/dnrnews/newsarchive2.html> .

## Changes at the Department of Natural Resources

Over the last several years the Department of Natural Resources (DNR) has been assigned additional duties and responsibilities by Nebraska's lawmakers. These added responsibilities resulted in changes and or additions to the structure and personnel within the Department. The changes were made to help optimize the use of DNR's personnel, expand and refine its capabilities, increase efficiency in serving the public in a timely manner, and gather and maintain more accurate digital records and databases.

As part of **LB 962** the Department has proceeded with the annual analyses and determination of fully and/or overappropriated river basins in the state. The Department worked with UN-L Conservation and Survey Division and members of the Cooperative Hydrology Study (COHYST) team to develop and utilize the most up-to-date scientific modeling tools and data available. DNR also continues to work cooperatively with natural resources districts to jointly develop plans for conjunctive management of surface water and hydrologically connected ground water. In the process the Department learned just how essential it is to obtain and use accurate scientific data in helping make these important decisions.

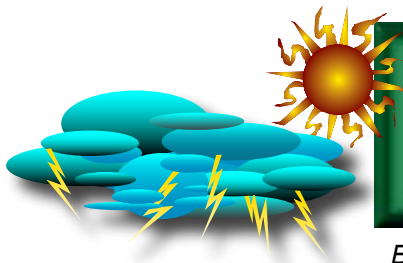
Legislative action over the past several years has allowed the Department to hire a senior ground water modeler, a staff ground water modeler, and a geohydrologist (*see article on page 3*) to assist with LB 962 obligations, Republican River Basin Compact commitments, the Platte River Recovery Implementation Program, and COHYST. The Department has also hired two new water right permits and registrations staff members. These two will help deal with the increased

activity in water right permits and transfer requests in a more efficient and timely manner. The appointment of an integrated management plan coordinator to work with the state's natural resources districts in developing Integrated Management Plans was also made and an additional attorney was hired to help handle legal responsibilities of the Department.

In addition to the new staff members, several positions within the Department have changed or been restructured recently. The retirement of two long-time employees (*see article on page 3*) has changed the Natural Resources Development Fund's project director and the duties in the Department's legal staff. Several additional changes include a new Republican River Coordinator, a new head of the Permits and Registrations Division and a new position of Assistant to the Director working with the legal staff section. These changes have resulted in both new staff members being hired and present staff members being assigned new positions.

A staff directory for the Department can be found at:  
<http://www.dnr.ne.gov/docs/dnrstaff.html>





## Climate Assessment Response Committee Outlook for 2007

By Steve Soberski

The **Climate Assessment Response Committee (CARC)** met on March 20, 2007 to assess conditions as we head into the 2007 agricultural season. A summary of moisture, stream flow, and potential snow melt conditions was provided to the Water Availability and Outlook Committee (WAOC) chaired by Mike Hayes with the National Drought Mitigation Center and State Climatologist Al Dutcher.

Moisture conditions have improved across the state since the fall of 2006. However stream flow conditions for the spring and summer are predicted to be below normal. With normal to below normal snowpack in Colorado as of March 1st and above normal temperatures in March there is some concern that the state may be heading into another year of drought conditions which has water managers worried across the state.

Lake McConaughy is at 34.7 percent of capacity, and four foot below its level at this time last year. The Bureau of Reclamation is predicting 84 percent of normal snowmelt runoff in the basin that feeds Lake McConaughy so there is concern about water releases this season.

The Republican River Basin had some unexpected positive inflows in February. The area had historic low inflows in 2006 at Enders, Butler, Swanson, and Strunk reservoirs. However, Strunk Reservoir, which is spring-fed, is now at 97 percent of full. Harlan County Reservoir is at 48 percent full, while Swanson is at 38 percent, Enders is at 26 percent, and Butler is at 44 percent. Rain is needed, Hayes said, but the soil moisture profile is wet.

Some links that provide updates on the current and projected moisture and stream flow conditions include;

<http://carc.agr.ne.gov/> (Climate Assessment Response Committee)

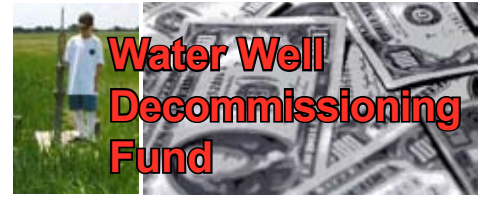
<http://www.droughtcentral.org/> (Drought Central)

<http://drought.unl.edu/> (National Drought Mitigation Center-UNL)

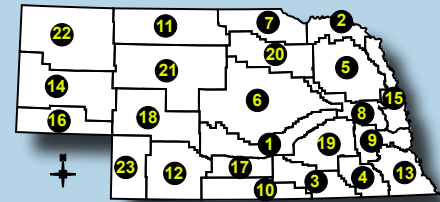
<http://drought.unl.edu/dm/> (Drought Monitor-UNL)

<http://www.wcc.nrcs.usda.gov/> (National Water & Climate Center)

<http://www.drought.noaa.gov/> (NOAA Drought Information Center)

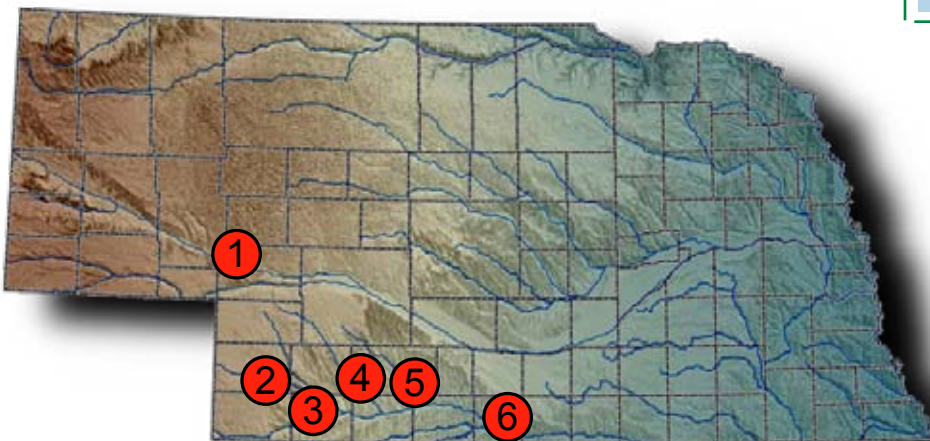


Each year participating natural resources districts are allocated funds to help decommission wells. The source of the Fund is a portion of the fees collected by DNR for well registration. The table below represents the total funds the State has distributed to participating natural resources districts since the fund began in 1994.



Natural Resources Districts	Dollar Amount	% of Total
1. Central Platte	196,179.63	- 11%
2. Lewis & Clark	62,327.88	- 3%
3. Little Blue	178,817.67	- 10%
4. Lower Big Blue	79,093.59	- 4%
5. Lower Elkhorn	152,557.18	- 8%
6. Lower Loup	140,159.63	- 8%
7. Lower Niobrara	0	- 0%
8. Lower Platte North	60,702.92	- 3%
9. Lower Platte South	96,630.17	- 5%
10. Lower Republican	74,341.03	- 5%
11. Middle Niobrara	0	- 0%
12. Middle Republican	61,647.14	- 3%
13. Nemaha	134,274.48	- 7%
14. North Platte	37,111.65	- 2%
15. Papio-Missouri River	118,431.05	- 6%
16. South Platte	35,060.83	- 2%
17. Tri-Basin	101,010.16	- 5%
18. Twin Platte	6,787.84	- 0%
19. Upper Big Blue	156,238.64	- 9%
20. Upper Elkhorn	29,565.87	- 2%
21. Upper Loup	40,421.14	- 2%
22. Upper Niobrara-White	30,948.93	- 2%
23. Upper Republican	45,540.14	- 2%
<b>Total</b>	<b>\$1,837,847.57</b>	<b>100%</b>

Rounded to the nearest %



- 1. **Lake McConaughy** is at 34.7% of capacity
- 2. **Enders Reservoir** is 26% full
- 3. **Swanson Reservoir** is 38% full
- 4. **Hugh Butler Lake** is 44% full
- 5. **Harry D. Strunk Lake** is 97% full
- 6. **Harlan County Reservoir** is 48% full



## Four long-time employees with the Department of Natural Resources have recently retired

Last August, **Tom Pesek**, a 32-year employee with the Department retired. Tom managed the Department's Resource Development Fund and worked closely with project sponsors. A reception was held in his honor where numerous agencies, departments, and sponsors attended and congratulated Tom on his retirement and the services he performed.

**James Vassos**, with the Bridgeport Field Office, retired after 42 years of service last October. Jim worked with surface water irrigators and irrigation districts in western Nebraska. During times of drought fieldwork requires a special talent when communicating with irrigators, Jim, had that talent.

A member of the survey staff, **Russ Rinne**, retired

with 32 years of service the first of the year. Russ saw the technology used in survey change tremendously during those 32 years. A reception was held in his honor in the State Office Building last December.

After more than 36 years of public service, **Jim Cook** with the legal counsel section retired at the end of February. Jim worked with Nebraska water policy and water laws since receiving his law degree. At his farewell reception, Jim was honored by both sides of water policy for his knowledge, mannerism, and patience when dealing with people and difficult issues.

The Department staff would like to recognize and congratulate these four individuals for their dedication, we also wish them the best in their retirements.



## Ground Water Modelers and Geohydrologist Strengthen DNR Efforts on Interrelated Surface Water and Ground Water

*By Steve Gaul*

How do you determine a sustainable balance between surface water and ground water? What are some alternative pumping scenarios that result in specific levels of impact to a stream at specific times? What type of research can help us better understand what is happening with the water balance in a specific area? These types of questions are not easy to answer, but with the passage of LB 962 in 2004 the answers became even more important. Fortunately legislative appropriations allowed the Department to fill three positions that are to address just those types of questions.

Last September the Department hired a hydrogeologist, Jesse Bradley, to fill the position of Interrelated Water Management Analyst. In that capacity he helps assemble the Department's annual evaluation of hydrologically connected water supplies, coordinates, tracks and suggests hydrogeologic research, and provides geologic expertise for general Department activities and integrated management plans.

In October and November the Department hired Doug Hallum and Jim Schneider as ground water modelers. Doug brings a solid background in geology to the

job and since he started in October has been especially involved in activities related to the Platte River Cooperative Hydrology Study (COHYST) model. Jim is a PHD geologist who serves as Senior Ground Water Modeler and not only knows the intricacies of models, but is expert in their uses, limitations, and knowing the modeling needs for answering specific questions.

Ground water – surface water models or modeling related efforts currently being developed or actively used in Nebraska include a variety of cooperative, external and in-house efforts, including:

- COHYST and Other Platte Modeling
- Republican Compact Model
- Elkhorn-Loup Ground Water Model
- Blue Basin Ground Water Model
- Upper Niobrara/Box Butte Related Modeling
- Frenchman Valley Appraisal Study
- Nemaha Ground Water Flow Model

If Nebraska is to manage its ground water – surface water relationships in the most effective possible manner, groundwater models will be an indispensable tool. The new staff members will allow DNR to better analyze existing modeling efforts, conduct additional modeling analyses, and help see that modeling is conducted in a sound, scientific manner.



## National Hydrograph Dataset

By Josh Lear

The Department of Natural Resources (DNR) has completed its portion of a 5-year project to develop high-resolution **National Hydrography Dataset (NHD)** coverage for the state of Nebraska.

The NHD is a dataset model developed jointly by the USGS and EPA. This dataset provides a common reference digital hydrographic dataset for a wide cross-section of applications using data

related to surface water features.

NHD is an accurate, high-resolution, detailed inventory of surface water features including basic descriptive attributes. The attribute data supports mapping of hydrographic features and the geodatabase structure supports analysis of the hydrographic network and associated data. Modeling applications are also supported.

At **1:24,000 scale**, NHD presents water features at the same scale as other state digital Datasets such as the Digital Elevation Models (DEMs). It provides the basis for, or enhances the efficiency of, a wide range of potential water analysis activities. NHD is a means to index all surface water data, allowing faster and more focused retrievals of such data and is a means to analyze it in a hydrologically meaningful way. The NHD is available to the public with the exception of 7 sub basins in the Loup basin and 1 sub basin (Hat) in the Cheyenne basin (as of April 16, 2007). This data is available on the DNR website; <http://www.dnr.ne.gov> under **Spatial/GIS databases** or at the USGS NHD website; <http://nhd.usgs.gov>. An NHD status map is available at the USGS website.

The Department has now refocused its NHD efforts towards supporting the use of NHD through demos and workshops and will provide referencing services on a limited basis. DNR will conduct hands-on training which will guide the users through

mapping, referencing and NHD-based analysis exercises designed to familiarize students with the dataset and its functionality.

The Department can, on a limited basis, provide referencing services to users as a means of jump-starting their applications. Linear referencing, also referred to as reach indexing, is a means of assigning a unique stream address to user data. The data can then be analyzed based upon its relationship to the hydrologic network.

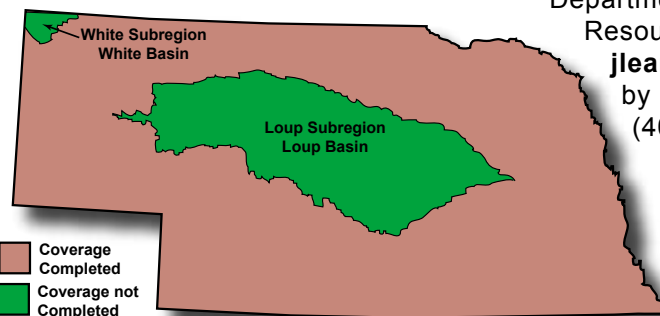
As rivers and streams change course and as user demands increase, the NHD will have to be "maintained".

The NHD model includes a stewardship component to handle these maintenance activities and it is anticipated that the Department will be designated as the official NHD data steward for the state of Nebraska. It is likely that, as more and more users develop applications on the NHD, errors and deficiencies will be discovered. DNR has developed a webpage specifically for the purpose of allowing users to communicate these observations to the data steward. These errors can then be systematically visited and corrected in the maintenance process.

For more information on the National Hydrography Dataset, contact Josh Lear at the Nebraska

Department of Natural Resources at

[jlear@dnr.ne.gov](mailto:jlear@dnr.ne.gov) or  
by phone at  
(402) 471-3954.



as of February 21, 2007

<http://www.dnr.ne.gov>  
under *Spatial/GIS databases*



## Water Well Decommissioning Fund

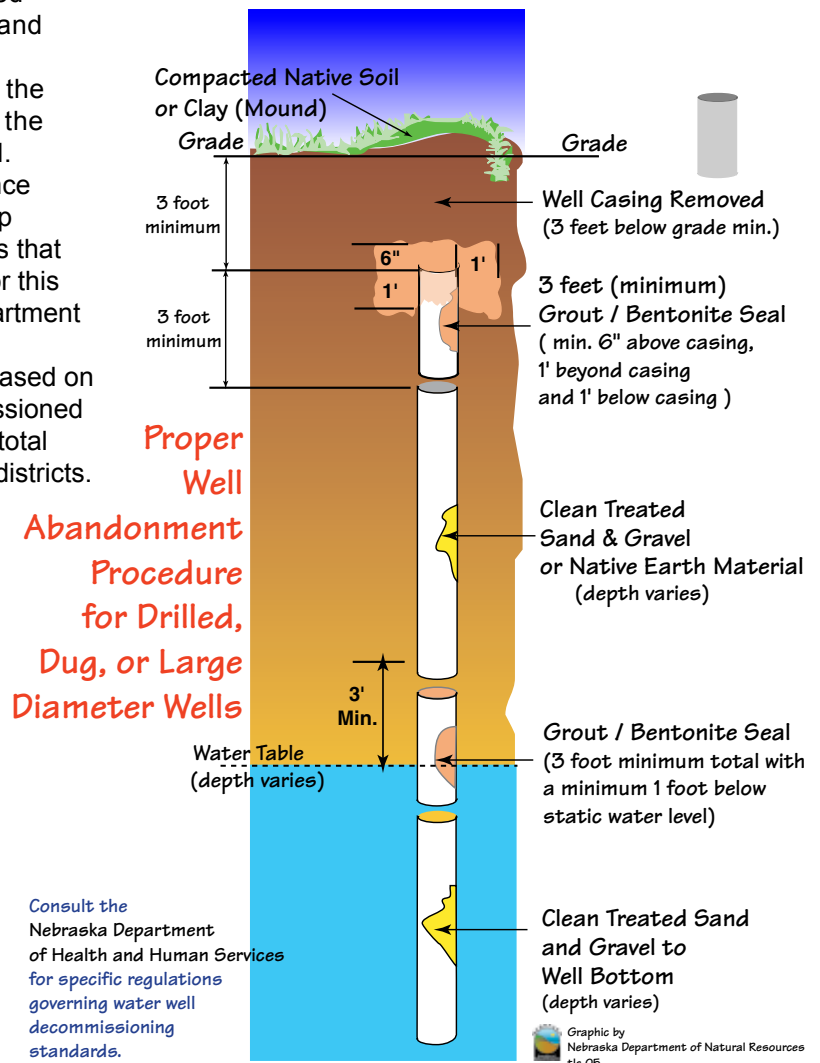
An abandoned well, not properly decommissioned, can be a direct route for numerous types of pollutants into the state's precious ground water supplies. Approximately 90% of Nebraskans receive their domestic water from ground water aquifers beneath the state's surface. It has been estimated that there may be as many as 150,000 abandoned domestic and irrigation wells within Nebraska's borders. Some of these wells have been abandoned for many years and the existence and location of many are unknown to even the landowner. When these wells are not properly decommissioned they have the potential to become not only a direct source for ground water contamination but also can be a safety hazard for humans and animals alike.

**Nebraska state law requires** that water wells that are no longer used be properly plugged and sealed according to rules and regulations of the **Nebraska Department of Health and Human Services** (Title 178, Chapter 12) found at <http://www.hhs.state.ne.us/enh/wws/regs.htm> . Proper decommissioning at

present requires more than dumping dirt or sand down an abandoned well and or putting a metal or concrete cap over the top of the well casing. Proper decommissioning requires the unneeded well be filled with chlorinated sand to the top of the water table, a bentonite (a type of clay) or grout plug be installed at that level with sand filling the remainder of the pipe with a second plug placed below grade. The upper three feet of the well casing is to be removed and the area backfilled and packed with native soil. Because of this potential problem and serious threat to ground water supplies the **Water Well Decommissioning Fund** was established by the 1994 Nebraska Legislature and is administered by the Department of Natural Resources at the state level.

The fund provides monies for cost-share assistance through participating natural resources districts to help encourage the proper decommissioning of water wells that are no longer needed or used. The source of funds for this program is a portion of the fees collected by the Department for well registrations. Each year participating natural resources districts are allocated funds (see page 2) based on the funds available and the portion of wells decommissioned by each district in the previous year compared to the total number of wells decommissioned by all participating districts.

There are minimum requirements for the natural resources districts to qualify for state cost-share assistance. The district's program must provide cost-share assistance for all types of water wells and make assistance available for at least 30 wells per-year along with providing at least 60% of the cost of decommissioning the well. The districts are permitted to establish cost-share ceilings depending on the type of well being decommissioned. For additional information of available cost-share assistance for decommissioning water wells within the state contact your local natural resources district.



**Consult the Nebraska Department of Health and Human Services for specific regulations governing water well decommissioning standards.**

<http://www.hhs.state.ne.us/enh/wws/regs.htm>

<http://www.hhs.state.ne.us/enh/wws/regs.htm>

# Nebraska Resources

Nebraska Department of Natural Resources  
301 Centennial Mall South, 4th Floor  
P.O. Box 94676  
Lincoln, Nebraska 68509-4676

Return Service Requested

PRSR STD  
U.S. POSTAGE  
PAID  
LINCOLN NE  
PERMIT 212



Printed on Recycled Paper

Nebraska Resources page 6



## State of Nebraska

Dave Heineman, Governor

## Nebraska

## Department of Natural Resources

Ann Bleed, Director

The *Nebraska Resources* is a quarterly publication of the Nebraska Department of Natural Resources and is edited by Terry L. Cartwright, Public Information. Your comments and or suggestions are welcomed.

Printed on Recycled Paper with Soy Ink

Nebraska Department of Natural Resources....

....dedicated to the sustainable use and proper management of the State's natural resources.