

Nebraska Resources

Newsletter

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Agency Numbers to Remember

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Editor's Note:

A full color electronic version of this newsletter can be found on the Department's web site along with back issues at <http://www.dnr.nebraska.gov/dnrnews/newsarchive2.html>.



Changes to the Nebraska Natural Resources Commission and New State Water Sustainability Fund

The 2014 Legislature increased the number of Natural Resources Commission (Commission) members, established and funded the new Water Sustainability Fund, and capped funding to Nebraska Resources Development Fund projects.

Expanded Commission Membership

LB 1098 increased the NRC from 16 members to 27 and provided guidance governance of a new fund, the Water Sustainability Fund, by the Commission and the Department of Natural Resources (Department). Eleven new members were appointed by Governor Heineman in mid-May, joining three other appointed members already on the Commission. The remaining 13 commissioners were, and will continue to be, elected by natural resources district board members to represent the river basins across the state. The appointed commissioners represent: agribusiness, agriculture, groundwater irrigators, irrigation districts, manufacturing, Metropolitan Utilities District (Omaha), municipal water users from Lincoln, municipal water users from other municipalities, outdoor recreation users, public power districts, public power and irrigation districts, range livestock owners, surface water irrigators, and wildlife conservation interests. **Commissioners and the river basins or interests represented are listed on page 2.**

LB 906 created the new Water Sustainability Fund and directed that \$21 million be transferred to the fund in July 2014, with the stated intent that \$11 million be transferred to the fund each year thereafter. LB 1098 established the intent, basic governance constructs, and legal authorities for the new fund. As stated in the bill, the goals of the Water Sustainability Fund are to:

- provide financial assistance to programs, projects, or activities that increase aquifer recharge, reduce aquifer depletion, and increase streamflow;
- remediate or mitigate threats to drinking water;
- promote the goals and objectives of approved integrated management plans or ground water management plans;
- contribute to multiple water supply management goals including flood control, reducing threats to property damage, agricultural uses, municipal and industrial uses, recreational benefits, wildlife habitat, conservation, and preservation of water resources;
- assist municipalities with the cost of constructing, upgrading, developing, and replacing sewer infrastructure facilities as part of a combined sewer overflow project;
- provide increased water productivity and enhance water quality;

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- g) use the most cost effective solutions available; and
- h) comply with interstate compacts, decrees, other state contracts and agreements and federal law.

The Legislature found that these goals can be met by equally considering programs, projects, or activities in the following categories:

- a) Research, data, and modeling;
- b) rehabilitation or restoration of water supply infrastructure, new water supply infrastructure, or water supply infrastructure maintenance or flood prevention for protection of critical infrastructure;
- c) conjunctive management, storage, and integrated management of groundwater and surface water; and
- d) compliance with interstate compacts or agreements or other formal state contracts or agreements or federal law.

It was further stated that the Legislature intended the fund to be equitably distributed statewide to the greatest extent possible for the long term and give priority funding status to projects which are the result of federal mandates.

Before any applications for funding programs, projects, or activities can be accepted, the Commission and the Department must define and establish policies and rules

for the applications and processes of review and evaluation within the statutory requirements described in LB 1098. Rulemaking is a formal process that requires the Commission and the Department to: prepare and approve proposed rules; obtain approval to proceed with public review from the Governor's Policy Research Office; publicize proposed rules; and conduct publicly-noticed hearings. After the Commission and the Department review comments and testimony and finalize proposed rules, the rules must be approved by both the Attorney General's Office and the Governor's Office.

Once approved, the policies and rules will define requirements for what the applications for funding must include. Applications must be submitted to the Director of the Department for review and acceptance prior to delivery to the Commission for scoring, ranking, and determining funding.

Legislation during the 2014 session also included major changes for a funding program the Commission has directed since 1974. LB 905 included a new appropriation for the Nebraska Resources Development Fund (NRDF) of nearly \$10.5 million for FY14-15 in addition to the previously approved appropriation of \$3,140,325. However, LB 906 amended the NRDF governing statutes by capping expenditures to the previously approved allocations for each project, prohibiting reallocation among approved projects, and prohibiting any new applications for funds. After currently approved cost share commitments to existing projects totaling about \$17.4 million are satisfied, the NRDF will cease to operate.

First Name	Last Name	Representing	City
Garry	Anderson	Elkhorn River Basin	Dixon
Brian	Barels	Public Power Districts	Columbus
Donald	Batie	Agricultural Interests	Lexington
Joel	Christensen	Metropolitan Utilities Districts	Omaha
Stan	Clouse	Municipal Water User from city of first or second class	Kearney
Dave	Deines	North Platte River Basin	Gering
Beverly	Donaldson	Missouri Tributaries River Basin	Omaha
Kevin	Fornoff	Republican River Basin	Hayes Center
N. Richard	Hadenfeldt	Loup River Basin	Dannebrog
Joseph	Hergott	Little Blue River Basin	Hebron
Steve	Huggenberger	Municipal Water User from city of primary class	Lincoln
Clint	Johannes	Lower Platte River Basin	Richland
David	Kadlecek	Niobrara-White-Hat River basins	Hay Springs
Thomas	Knutson	Surface Water Irrigators	St. Paul
Henry (Hod)	Kosman	Wildlife Conservation Interests	Scottsbluff
Don	Kraus	Public Power & Irrigation Districts	Holdrege
Dick	Mercer	Groundwater Irrigators	Kearney
Owen	Palm	Agribusiness Interests	Scottsbluff
Tom	Palmertree	Manufacturing Interests	Deshler
Darrell M.	Rains	Big Blue River Basin	Beatrice
Keith	Rexroth	South Platte River Basin	Sidney
Michael (Mick)	Reynolds	Middle Platte River Basin	Wood River
Scott	Smathers	Outdoor Recreation Users	Lincoln
Lindsey	Smith	Range Livestock Owners	Broken Bow
Jeff	Steffen	Missouri Tributaries River Basin	Crofton
Walter Dennis	Strauch	Irrigation Districts	Mitchell
Steven	Sugden	Nemaha River Basin	Adams

Nebraska Well Rehabilitation and Decommissioning Project

The Department of Health and Human Services, Division of Public Health, Office of Drinking Water and Environmental Health (DHHS) in partnership with six natural resources districts has undertaken a research project intended to improve protection of groundwater quality through development of better methods to seal water wells against contamination originating at the surface. The Nebraska Environmental Trust Fund and the Water Well Standards and Contractors Licensing Board are providing funding with the six natural resources districts that are providing in-kind services. The Department of Natural Resources (Department) is a member of the Board and supports this important project.

Nebraska has over 94,000 active irrigation wells and many industrial and public water supply wells. The vast majority of these wells are constructed with gravel fill in the space between the well borehole wall and the well casing. Newer public water supply construction standards require better seals against potential surface contaminants. The older well construction practices potentially compromise the natural protection provided by existing clay layers in Nebraska's geology. Recent research has confirmed the gravel fill can serve as a direct pathway for contaminants to enter Nebraska's groundwater aquifers.

Many of these contaminants can cause health related problems to Nebraskans who may become exposed to them in drinking water pumped from domestic and public water supply wells. When contamination affects drinking water supplies, the remedies can be costly, including spending millions of dollars on water treatment, developing new public water supply wells, or connecting to another safe water supply.

The DHHS and partners have undertaken a two-year study to determine acceptable methods to insert sealants into the gravel fill adjacent to the existing natural clay layers; thus, making the clay layers effective again in protecting Nebraska's groundwater from surface contaminants. The research will be applicable to rehabilitating existing water wells and decommissioning water wells that will no longer be used. Currently, filling in the old well and placing a cap over it is all that is required to decommission a water well. While the existing standards protect against someone falling into an open hole, they do not address the potential for groundwater contamination through the annular space between the original borehole and the casing that is filled-in. The new methods are expected to improve rehabilitation and decommissioning standards and provide for a better seal against contamination.

To be able to utilize these new methods, DHHS staff has proposed a voluntary and temporary delay on decommissioning wells while the study is ongoing. The rationale behind the delay is that groundwater will be better protected if improved methods are used to not only fill in and seal the borehole, but also seal the annular space against future contamination. DHHS staff asked Department staff if they could facilitate tracking any such wells where decommissioning will be deferred until better methods are available.

The Department, whose role is to register all new water wells and record the decommissioning information for water wells that will no longer be used, will be tracking and reporting on these wells to support the larger group's efforts.

Proper Construction Oversight Reduces Dam Failures

Nationwide, about half of all dam failures occur during first filling, when the reservoir is filled to capacity for the first time. When a dam fails upon first filling, the cause is most often traced back to poor construction practices. Improper foundation preparation, poor compaction of soil, use of unsuitable soils, and incorrect installation of principal spillway conduits are all common causes of dam failures upon first filling. These common problems are usually avoided if professional oversight is provided during construction.

In Nebraska, the Nebraska Department of Natural Resources (Department) works in coordination with the professional engineering community to verify the proper construction of dams. During the construction of a dam, the dam owner is required to obtain the services of a professional engineer to perform day-to-day construction oversight. In addition to this day-to-day oversight, the Department conducts periodic inspections of dams that are under construction. During these inspections, the Department documents the current status of the dam and inspects the dam for problems that are commonly overlooked. When unique problems arise during construction, the Department may be able to provide advice based on past experience and lessons learned from other dam sites across the state.

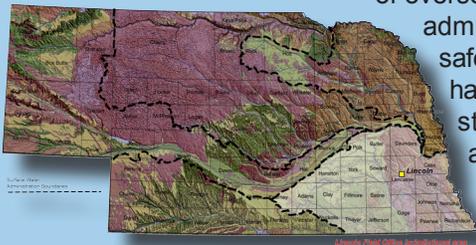
After the construction of a dam is complete, the engineer must submit a construction certification form and as-built drawings for the dam to the Department. In submitting the form, the engineer confirms the dam was constructed in accordance with the approved plans and specifications. Upon receiving the completed construction certification form, the Department typically issues an approval to operate the dam and the dam owner is allowed to begin impounding water in the reservoir. With proper oversight during construction, the likelihood of the dam failing upon first filling or anytime in the future is significantly reduced.

Meet the Lincoln Field Office

In addition to the main office in Lincoln, the Department of Natural Resources (Department) has field offices in Bridgeport, Cambridge, Lincoln, Norfolk, and Ord. Each of the five field offices assists the Department by performing a wide variety of site work, and gathering relevant water data throughout the state. Field office staff frequently cooperate with state and local agencies to educate the public and protect Nebraska's natural resources.

The Lincoln Field Office has a jurisdictional area covering over 12,000 square miles in south-east Nebraska and includes all or portions of 23 counties.

Major stream reaches in the area include:



the Big Blue, Little Blue, and Nemaha river basins, as well as portions of the Lower Platte River, Lower Missouri River and Salt Creek basins. Approximately 1,800 natural flow (irrigation) appropriations are regulated on an annual basis by the field office. Additionally, the **Lincoln Field Office encompasses the highest density of dams in the state, with over 1,200 being located within its boundaries.**

Housed in the Lincoln Field Office are three staff members: Curt Inbody, Jeff Vifquain, and Lucas Hadenfeldt with the shared responsibility of overseeing surface water administration, conducting safety inspections of low hazard dams, operating streamgaging stations, and computing stream flow records in their assigned area. Field investigations

to determine if permit conditions are being met and dam safety inspections are typically completed before and after irrigation season.

During the irrigation season, staff inspects numerous pumps and diversions, and collects water use data throughout the area. In times of short supply, localized water shortages are addressed through water rights administration. Water rights are administered according to the Prior Appropriation Doctrine (first in time is first in right). Constituents who make use of Nebraska's surface water resources may contact the Lincoln Field Office at:

Nebraska
Department of Natural Resources
 Lincoln Field Office
 P.O. Box 94676
 Lincoln, NE 68509-4676
 Ph: 402-471-3005

Lincoln Earth Day April 2014

The Floodplain section of the Department of Natural Resources' (Department) Engineering Programs and Services Division and Integrated Water Management (IWM) Division had an informational booth at Lincoln Earth Day on April 12. The event was held at Union Plaza along Antelope Creek in Lincoln and included a wide range of interested attendees, from children to adults.



Floodplain staff demonstrated a 3-D flood model. The model created a fun activity for those in attendance to see the impacts of land use changes, such as the development of a parking lot, on the behavior and impact of flooding in a watershed. The Department's flood model can be demonstrated to any interested group as part of an outreach event, or can be used as part of a defined classroom demonstration for age groups from elementary to high school. If you are interested in learning more about the model or having a demonstration, please contact the Department.

The IWM Division's outreach at the event focused on introducing the public to the new Lower Platte South Natural Resources District (LPSNRD) Integrated Management Plan (IMP), explaining the Department's Integrated Network of Scientific Information & GeoHydrologic Tools (INSIGHT), and leading a hands-on activity about water use and the importance of water supply planning. The hands-on activity featured a model river and colored sponges that represented consumptive water uses (surface water irrigation, groundwater irrigation, and municipal use), while toys in the water represented some non-consumptive uses (wildlife habitat and recreation). Participants were invited to use the sponges to withdraw water from the river and observe what happened when all users consumed as much water as they could. Take home messages from the activity tied it back to the LPSNRD IMP and INSIGHT: IMPs help us manage water to ensure that we have enough water now and for the future, and INSIGHT provides the science to support these management activities.

Both the public and Department staff enjoyed the Lincoln Earth Day booth. Children were especially drawn in by both hands-on water use activities, and liked being able to interact with the exhibits. While the message most of the children seemed to understand from the activity was the importance of conserving water, their watching parents were interested in some more specific details such as the relative amounts of water used by each consumptive use. Adults and teens were also interested in a map that was on display, which showed the area affected by the LPSNRD IMP.



Crop Irrigation Demand Network

In the spring of 2014, the Nebraska Department of Natural Resources (Department) and the Central Platte Natural Resources District (CPNRD) launched a joint initiative to fund a network of real-time irrigation pumping data. The project will collect real-time pumping data with additional data at select sites (soil moisture, groundwater level data, other weather data, irrigation system pressure, etc). The Department and CPNRD began discussions of this project after the CPNRD was unable to receive funding from the Nebraska Environmental Trust for a groundwater only, real-time monitoring project. Due to the amount of work that the CPNRD put into the conception and design of the project and the likely benefits associated with expanding the network to evaluate surface water pumping sites, the Department and the CPNRD entered into an inter-local agreement to jointly fund the project.

The stations will be measuring and recording the volume of water pumped, rainfall, and system pressure collected at 15-minute intervals for groundwater sites; and rainfall and water stage at surface water sites. Soil moisture probes will also be installed at select sites based on landowner cooperation. There will be approximately eighty groundwater stations and twenty surface water stations installed. Groundwater stations will be installed throughout the CPNRD and surface water stations will be installed in eastern Nebraska. The CPNRD will be working with a University of Nebraska-Lincoln Extension technician to identify interested producers for participation in the project and will work with a certified McCrometer Connect Dealer to manage the proper installation of flow meters and remote

telemetry units (RTU) as well as provide service for the equipment to ensure proper performance of the equipment and accuracy of data collected.

One goal of gathering the data is to support integrated groundwater and surface water management plan objectives, including the development of modeling tools and analysis to support water management decisions. Another goal is to provide this data to producers for the purpose of education and the promotion of improved irrigation water management. Accurate data such as this is necessary for determining irrigation efficiency and is a valuable irrigation management tool for the farmer to diagnose the performance of the irrigation system and quickly make changes to optimize application efficiency.

Seeing a need for this type of data as well as other activities that support development of high quality data on water use or water supply across the state, the Department has created the INSIGHT Data Enhancement Program (IDEP) and is also opening up funding sources for participating natural resources districts and local partners. The refinement of groundwater and surface water use data across the state will provide improved data for the Department's INSIGHT web portal.

INSIGHT provides a database of groundwater and surface water use and information and water supply information to be utilized by water managers, water users, and the general public. The plan is to continue to improve this network while working with other agencies through cooperative partnerships for centralized data collection and dissemination via INSIGHT.

The Nebraska Silver Jackets Team

The Nebraska Silver Jackets team is a collaborative interagency group, continuously working together to reduce flood risk at the state level. Through the Silver Jackets program, the Nebraska Department of Natural Resources (Department), the Nebraska Emergency Management Agency (NEMA), the U.S. Army Corps of Engineers (USACE), the Federal Emergency Management Agency (FEMA), and other agency partners work to provide a unified approach to addressing Nebraska's flood risk management priorities. Often, no single agency has the complete solution, but each may have one or more pieces to contribute. The Silver Jackets team is the forum where all relevant agencies come together to collaboratively plan and implement an interagency solution that also seeks to prevent duplication of effort across agen-

cies. Through partnerships, Silver Jackets improves the multi-agency utilization of federal resources by leveraging state resources including data, staff, and funding.

The Department is designated as the lead state office and chairs the Nebraska Silver Jackets team. The goal of the Nebraska Silver Jackets team overall is to enhance intergovernmental partnerships resulting in comprehensive and sustainable solutions to flood risk in Nebraska. Since its formation in 2011, the Nebraska Silver Jackets team has collaborated on several projects. One of the current initiatives is focused on supporting high-water mark signs.



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Department of Natural Resources

Brian P. Dunnigan P.E., Director

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Sites for the high-water mark signs will be determined based on a number of selection criteria, including the visibility of the sign and the availability of historical flooding information for the site. Another key component is community interest in having a sign and willingness to support flood risk awareness outreach efforts. If your community is interested in potentially participating in this program, please contact the Department.

Through these projects, in association with regular coordination meetings, the Nebraska Silver Jackets team is working to improve flood risk management in the State. For more information on Silver Jackets in Nebraska and nationwide, see the following links:

floods.dnr.nebraska.gov/

nfrmp.us/state/index.cfm

Nebraska Department of Natural Resources....

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