

Nebraska Resources

Newsletter



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

Nebraska Hosts AWSE Spring Workshop

By Mike Thompson

The Nebraska Department of Natural Resources (DNR) had the privilege of hosting the annual technical workshop sponsored by the Association of Western State Engineers (AWSE). The workshop was held on May 25 and 26 at the Lied Lodge in Nebraska City. **The annual workshop provides an opportunity for water resource engineers, scientists and regulatory program managers from throughout the 19 western states to share information, techniques and innovations with colleagues.** Topics are wide-ranging and plenty of time is allowed for questions and discussions about the most urgent challenges faced by water resource managers and regulators. Attendees came from Alaska, Kansas, Idaho, Nebraska, Nevada, North Dakota, Oklahoma, Texas, Utah and Wyoming. One person presented using remote conferencing software from the State of Washington.



As explained on the AWSE website: *"The Association of Western State Engineers (AWSE) was formed in 1928 and has been continuously active*

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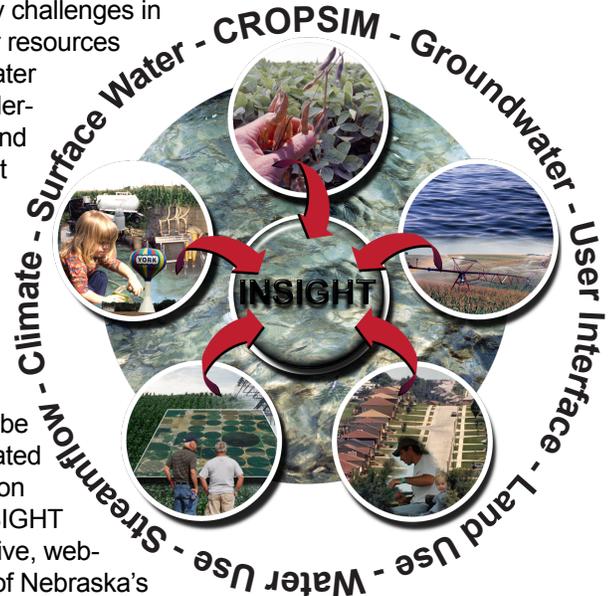
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Integrated Network of Scientific Information and GeoHydrologic Tools (INSIGHT)

By Laura Paeglis

Nebraska has faced many challenges in meeting demands on its water resources from flooding to shortages. Water managers are tasked with understanding the supply of water and all the demands placed on that supply and then managing the systems to meet everyone's needs. To assist water managers in meeting the increasing challenges of managing a limited resource, the Nebraska Department of Natural Resources (DNR) will be launching INSIGHT, an Integrated Network of Scientific Information and GeoHydrologic Tools. INSIGHT will include a series of interactive, web-based maps and evaluations of Nebraska's



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through present day. AWSE members are state engineers or other officials charged with administration of the laws governing appropriation, distribution or control of the water resources of each state.”

The Association’s purposes as expressed in its constitution are as follows:

- To formulate broad principles applicable to all those states for the development, use, control, and regulation of the waters thereof.
- To assist one another in the solution of individual problems through the exchange of ideas and experiences.
- To cooperate in preserving the states’ inherent right to develop, use, control, and distribute the water thereof and to facilitate resolution of interstate water problems.
- To enhance the beneficial and efficient use of water by encouraging the improvement and perfection of the laws relating thereto and by other proper means.
- To circulate among members such information as may be helpful in the discharge of their official duties.

The program this year encompassed four main topics of interest. They were 1) Groundwater Studies, 2) Technical Studies & New Applications, 3) Missouri River Issues and History, and 4) Integrated Management of Surface Water and Groundwater. Representatives from water regulatory offices presented on topical areas 1, 2 & 4. The Missouri River subject matter was handled by staff from the U.S. Army Corps of Engineers (Corps) and the U.S. Fish & Wildlife Service.

The groundwater study presentations and discussion focused on the process of transitioning from scientific studies to applied science that is oriented toward informed decision-making in the realm of water supply management and conflict resolution. Bob Barwin with the State of Washington was not able to attend in person, so he participated using conferencing software from his home state. He discussed the application of knowledge gained from the Yakima Groundwater Study. The Yakima Basin issues include federal and tribal claims to water and the interaction between newer groundwater projects and established surface water rights. Julie Cunningham from Oklahoma discussed the Arbuckle-Simpson Groundwater Aquifer Study. Natural springs, domestic uses and municipal needs were the focus of ongoing discussions and planning in the region encompassing the aquifer. Lane Letourneau from Kansas finished the groundwater study section with a discussion of the Ozark Aquifer Safe Yield Study. This area includes portions of southeast Kansas and southwest Missouri. Balancing domestic, agricultural and municipal needs were the focus of that study.

The next session had the most variety of subject matter. Suzy Valentine discussed the implementation of a new approach to water management in Texas. This was, in part, the result of passage of a regional water planning process that created 16 regional planning groups. It required quantifying water supplies, evaluating impacts of water projects on water quality and planning for population growth. Another factor influencing the process was passage of a bill in the Texas Legislature that required environmental studies and data collection and analysis to achieve a “sound ecological environment” for Texas rivers. The inclusion of provisions for “environmental flows” is a new consideration for vetting new applications and developing flexible conditions that would allow for new uses while providing for adequate environmental flows.

The second presentation was by Tom Christopher-son of the Nebraska Department of Health and Human Services who explained the process and results of the Nebraska Grout and Vadose Zone Study. The study provided new insight into the well grouting process and has been nationally recognized as a significant study. The study emphasized the need to pay close attention to the geological changes in the unsaturated zone of the borehole, consistently and carefully describe the soils and formations encountered, and note the degree of consolidation of formations drilled. One of the main conclusions of the study is that there is not a “best” method. It is important to understand the conditions in the borehole and design a grout process that maintains a less permeable seal than the surrounding vadose zone material. Essentially, the conditions and properties in the surrounding soils and formations must be matched to grout that will provide the best long-term stability. Some conventional assumptions about the best process for grouting were discovered to be incorrect. As a result of the study, new construction standards are being proposed in Nebraska.

The final presentation of the group was provided by Josh Lear of DNR, who demonstrated how the National Hydrography Dataset (NHD) could be utilized to develop water administration and watershed modeling support applications. The NHD is a comprehensive surface water dataset designed to support the organization of water-related datasets to support mapping and modeling applications based upon them. The DNR is the NHD steward for Nebraska and the efforts of staff have been divided between ongoing data improvements and development of custom applications for organization and analysis of DNR’s water-related datasets and the development of information products.

As an indication of the timeliness of the next session, some of the Corps staff could not attend, due to the beginning of a difficult spring and summer for their water operations center that controls storage and releases from the

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mainstem reservoirs on the Missouri River. The Missouri River session included presentations on some of the history of the basin beginning with the exploration by Lewis and Clark's Corps of Discovery, early navigation attempts, the development of the mainstem reservoirs and navigation channel after the 1944 Flood Control Act, and now the ongoing planning efforts regarding the management of the river system.

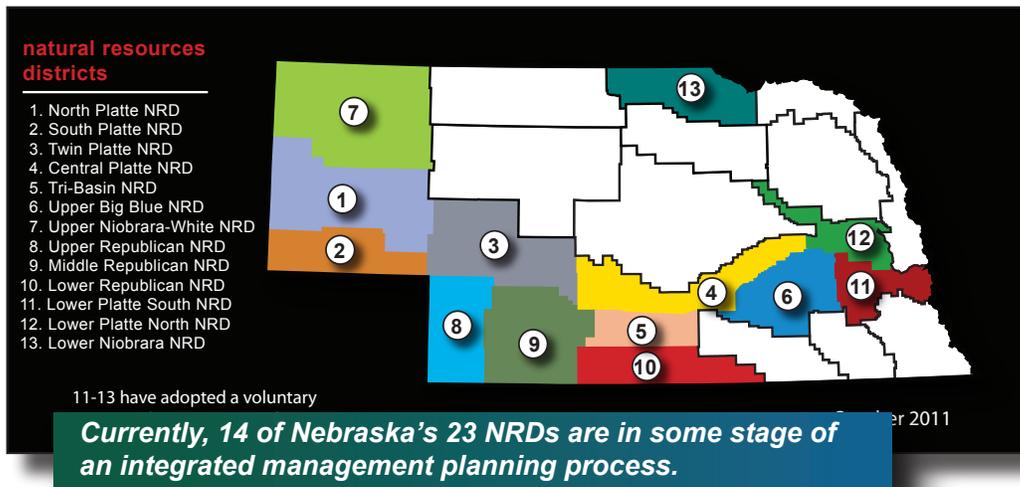
The final session dealt with aspects of conjunctive management of surface and groundwater resources. Jim Schneider, DNR Deputy Director, provided an overview of the integrated water management activities in

Nebraska, including development of integrated management plans with local natural resources districts and the annual report on the evaluation of hydrologically connected surface and groundwater. A key concept that was emphasized is that the management process is an ongoing exercise in adaptive management. Once management plans have been adopted by an NRD and DNR there is monitoring, evaluation, adjustment, assessment, and design that will be used to improve upon the previous plans. Doug Hallum followed with a discussion of the analytical tools and techniques used to

support the planning process. He discussed the current iteration of the cooperative hydrology study on the Platte River (COHYST), water budgeting, watershed analytical methods and the various spatial and temporal considerations of developing planning tools. The final presentation was by Matt Anders from the Idaho Department of Water Resources. Matt discussed the development and implementation of groundwater flow modeling that is being used to analyze the interactions between groundwater withdrawals and springs that supply flow to surface water users in the

Snake River Basin. The goal is to develop tools that will aid water administration decisions to reasonably apportion the water resources of the basin.

The digital presentation files are not online currently, but will be shared on the AWSE website at the following address: <http://westernstateengineers.org/presentations/>.



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river basins. It will provide a one-stop shop for water-related data and serve as an educational tool for water managers and the public.

INSIGHT will compliment and expand upon work already completed by DNR and the state's natural resources districts (NRDs). INSIGHT will contain information about water supply and current water use. This will include data such as streamflow measurements, groundwater level measurements, meter data, canal diversion records, and other data. It will also contain tools to help users understand how groundwater and surface water interact along with the results of modeling efforts already completed by DNR. In addition, DNR is per-

forming basin hydrologic assessments in many of the state's major river basins and these results will also be available through INSIGHT.



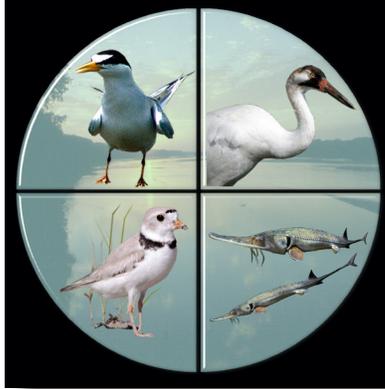
DNR will work with the NRDs, irrigation districts, canal companies, other water managers throughout the state, and private contractors to develop the content and interface for INSIGHT. DNR anticipates releasing INSIGHT to the public approximately July 2013. DNR will maintain and update the databases into the future.

DNR recently released *Water Matters* No. 6 to fully explain the purpose and progress of INSIGHT. This issue of *Water Matters* is available through the DNR's website at http://dnr.ne.gov/IWM/WaterMatters/WaterMatters_No6.pdf.

Platte River Recovery Implementation Program Update

By Jennifer Schellpeper, M.S.

The **Platte River Recovery Implementation Program (Program)** has three overarching goal areas: **Adaptive Management, Land and Water**. The adaptive management plan continues to be implemented according to the Program documents. The monitoring and studies under the plan will help answer the many questions concerning the most effective and efficient use of water for the endangered species. **To date, the Program has acquired approximately 8,610 acres of habitat land that count toward the 10,000 acre goal.** In the water area the original thirteen water action plan projects have been further studied and the ones with the best cost/benefit analysis are being actively pursued. Two project reservoirs working



in conjunction with The Central Nebraska Public Power and Irrigation District canal system have risen to the top of the project list and are being actively pursued by the Program. Nebraska is planning to be an active partner in this project for the purpose of meeting the goals of the Nebraska New Depletion Plan and the Platte Basin Integrated Management Plans. The Department of Natural Resources intends to use money from the Nebraska Environmental Trust Grant, discussed in an article on page 5 of this newsletter, to help fund this project.

Lower Republican NRD Integrated Management Plan

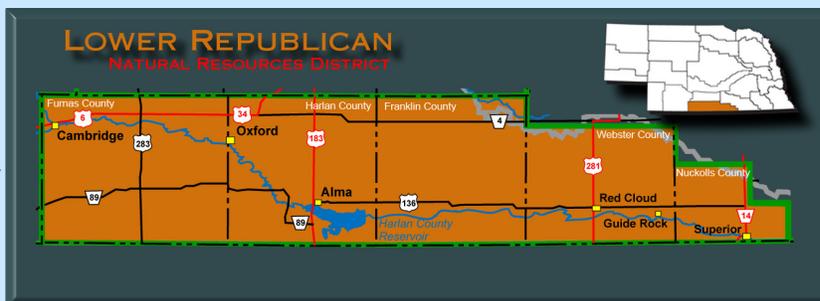
By Jesse Bradley, P.G.

In August, the Department of Natural Resources (DNR) and Lower Republican Natural Resources District (LRNRD) jointly agreed to implement a third generation integrated management plan (IMP) in the Republican River Basin. This third generation IMP is the culmination of two years of work. The IMP, among other components, includes comprehensive monitoring and forecasting protocols that proactively identify the potential need for additional management actions when water supplies are limited due to

Republican River Compact allocations. These additional management actions will include the curtailment

of groundwater users in areas near the river and tributaries of the basin if other proactive management alternatives are not in place, as well as additional administration of surface water users by DNR.

The LRNRD IMP in coordination with the other basin natural resources districts plans provide for a comprehensive and proactive management strategy that allows the basin NRDs to independently manage their water supplies in a manner that meets local goals while ensuring that the state maintains compliance with the Compact. This third generation IMP became effective October 1, 2011. A copy of the IMP can be found at: <http://dnr.ne.gov/IWM/NRD/LowerRep/LRNDPlan872011.pdf>.



NET Radio Reports on Dam Safety in Nebraska

By Pat Diederich, P.E.

NET Radio recently reported on steps being taken by the Department of Natural Resources (DNR) to assure the safety of dams in Nebraska.

The report, entitled **“State Investigates Pipes at Nebraska Dams,”**

highlighted the use of DNR's remote operated video inspection equipment which is used to assess

the condition of corroding corrugated metal principal spillway conduits.

An archived version of the story can be viewed at: http://www.publicbroadcasting.net/netradio/news.newsmain/article/0/0/1805145/news/State_investigates.pipes.at.Nebraska.dams.



Remote operated video inspection equipment.



Environmental Trust Grant Application Addresses Nebraska Platte Basin Water Management Activities

By Steve Gaul

In September, the Nebraska Department of Natural Resources (DNR) submitted a year 2012 Nebraska Environmental Trust application designed to plan, implement and monitor activities that result in better infrastructure and more effective water management in Nebraska's Platte River Basin. **If funded, the \$9.9 million "Platte Basin Water Management Action Initiative"** application would help remediate for current depletions caused by past actions and allow Nebraska to optimize timing and quantity of water use under a wide spectrum of water availability scenarios.

The application was submitted pursuant to language in § 61-218(7) (a) of the Nebraska Revised Statutes which requires that DNR "apply for a **grant of nine million nine hundred thousand dollars** from the Nebraska Environmental Trust Fund, to **be paid out in three annual installments of three million three hundred thousand dollars**. The purposes listed in the grant application shall

be consistent with the uses of the **Water Resources Cash Fund** provided in this section and shall be **used to aid management actions taken to reduce consumptive uses of water, to enhance streamflows, to recharge groundwater, or to support wildlife habitat...."** Platte Basin NRDs have pledged \$6.6 million in matching funds. Additional funding for the Water Resources Cash Fund will



come from the State General Fund at \$3.3 million per year. A brief summary of the grant can be found on the Nebraska Environmental Trust website, Summary of Applications page 34 at http://www.environmentaltrust.org/grants/pdf_docs/2012_Summary%20of%20Applications%20Booklet.pdf.

CREP Area Expanded

By Susan France

The **Nebraska Platte-Republican Conservation Reserve Enhancement Program (CREP)** area in the Platte River Basin was recently expanded to include areas along Lodgepole Creek, the South Platte River and upper Pumpkin Creek, all in western Nebraska. The expanded area and other modifications recently made to the Nebraska Platte-Republican CREP was announced in Sidney, Nebraska, on September 20 at the celebration of the 25th anniversary of the U.S. Department of Agriculture Farm Service Agency's Conservation Reserve Program.

The Nebraska Platte-Republican CREP was the first of its kind in the United States. The program exists through a Memorandum of Agreement between the State of Nebraska and the U.S. Department of Agriculture Farm Service Agency. **This program is aimed at reducing irrigation water use, improving water quality, and enhancing wildlife habitat in areas of the state that have been determined to be fully or overappropriated. The goal is to convert 100,000 acres of land to grass or similar habitat**



cover. Currently there are just under 50,000 acres enrolled in the program.

The program is a voluntary program that pays the landowner to plant the cover crop and then pays an annual payment (that approximates current irrigation rental rates) for a **period of ten to fifteen years**. The landowner must enter into contracts with the Farm Service Agency and the Department of Natural Resources (DNR) agreeing not to irrigate the lands and not to use the water previously used for irrigation for the ten to fifteen year period of the contracts.

The modification to the original Memorandum of Agreement that allowed the expansion of the area also allows for DNR to amend existing and new contracts. The amendments to the contracts will allow the landowners to enter into permanent easements for permanent retirement of the irrigation water use on the lands under the CREP contracts if certain criteria are met. The permanent easements would go into effect immediately following the termination of the CREP contracts and would be held by the local natural resources district. A map of the CREP project area can be found at <http://dnr.ne.gov/CREP/CREPMaps.pdf>.



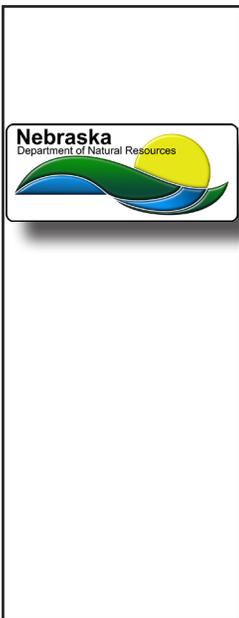
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The *Nebraska Resources* is a quarterly publication of the Nebraska Department of Natural Resources. We welcome your comments and suggestions.

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State Water Planning and Review Process

By Susan France

The Director of the Department of Natural Resources is charged with the guidance and general supervision of the state water planning and review process. Neb. Rev. Stat. § 2-15,106 requires the Director to submit an annual report and plan of work for the state water planning and review process to the Legislature and Governor. The 2011 report has been submitted and may be found on the Department's website at http://dnr.ne.gov/AnnualReport/Report_2011/AnnualReport2011.pdf.

Nebraska Department of Natural Resources....

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