



Nebraska Resources

Newsletter

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North Platte River Being Monitored

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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.ne.gov/dnrnews/newsarchive2.html>.

Current high water conditions occurring on the North Platte River are expected to continue through the spring according to Brian Dunnigan, Director of the Department of Natural Resources (DNR). The U.S. Bureau of Reclamation (USBR) released information that indicates there currently is limited additional storage space in the Wyoming reservoirs on the North Platte River. Additional storage space will be needed to capture all of the expected future snowmelt and possible precipitation runoff in the Upper North Platte River Basin (please see map on page 2). Release of the stored water is a balancing between reservoir inflows, storage, releases, and the North Platte River levels to maintain acceptable stages for all. The USBR started in early March to release storage water downstream to make room in the Wyoming reservoirs for the expected runoff.

As of May 5, the Natural Resources Conservation Service is reporting snowpack in the Upper North Platte River Basin at 176 percent of average and in the Lower North Platte River Basin (including Sweetwater and Laramie rivers) at 144 percent of average.

The total conservation storage capacity of the seven Wyoming reservoirs operated by the USBR is 2,787,800 acre-feet of water. As of the middle of April, the reservoirs held 2,102,595 acre-feet of water. As snowmelt and precipitation runoff in the North Platte River Basin continues, the North Platte River will be monitored very closely by both the USBR and DNR.

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Water wells providing various benefits continued to be drilled across Nebraska during 2010. During the last year (records for January 1, 2010-December 31, 2010) **over 4,750 water wells were drilled** for purposes ranging

2010 Water Well Registrations

from livestock watering to municipal water use.

Current Nebraska laws require that **all water wells be registered** with the Nebraska Department of Natural Resources (DNR). Exceptions to the law include test holes in existence for ten days or less, dewatering wells with intended use of 90 days or less, and domestic and livestock wells completed prior to September 9, 1993.

Water well contractors are responsible for filing the well

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North Platte River Being Monitored continued from p. 1



In Nebraska, Central Nebraska Public Power and Irrigation District (CNPPID), the owners and operators of Lake McConaughy, are currently

releasing storage water to create additional space in Lake McConaughy to assist with the management of the expected higher flows. Lake McConaughy was at 93.8% of maximum capacity on April 15. CNPPID was granted a temporary variance from the Federal Energy Regulatory Commission to allow an increase in the amount of water that can be stored in Lake McConaughy to help alleviate flooding downstream.

DNR staff is in continued communications with the USBR and CNPPID to discuss the water releases and their downstream effects. Staff members

from DNR's western field office in Bridgeport continue on a daily basis to monitor the flows and levels of the North Platte River. DNR and the Nebraska Emergency Management Agency (NEMA) are working closely together keeping an eye for any lowland flooding that may occur and will continue to provide updates to the public. As of April 15, there was a flood warning for the North Platte River near North Platte, areas of Cody Park in North Platte, and at Lewellen. Landowners and Nebraskans living along the North Platte River should keep a watchful eye on the river over the next few months.

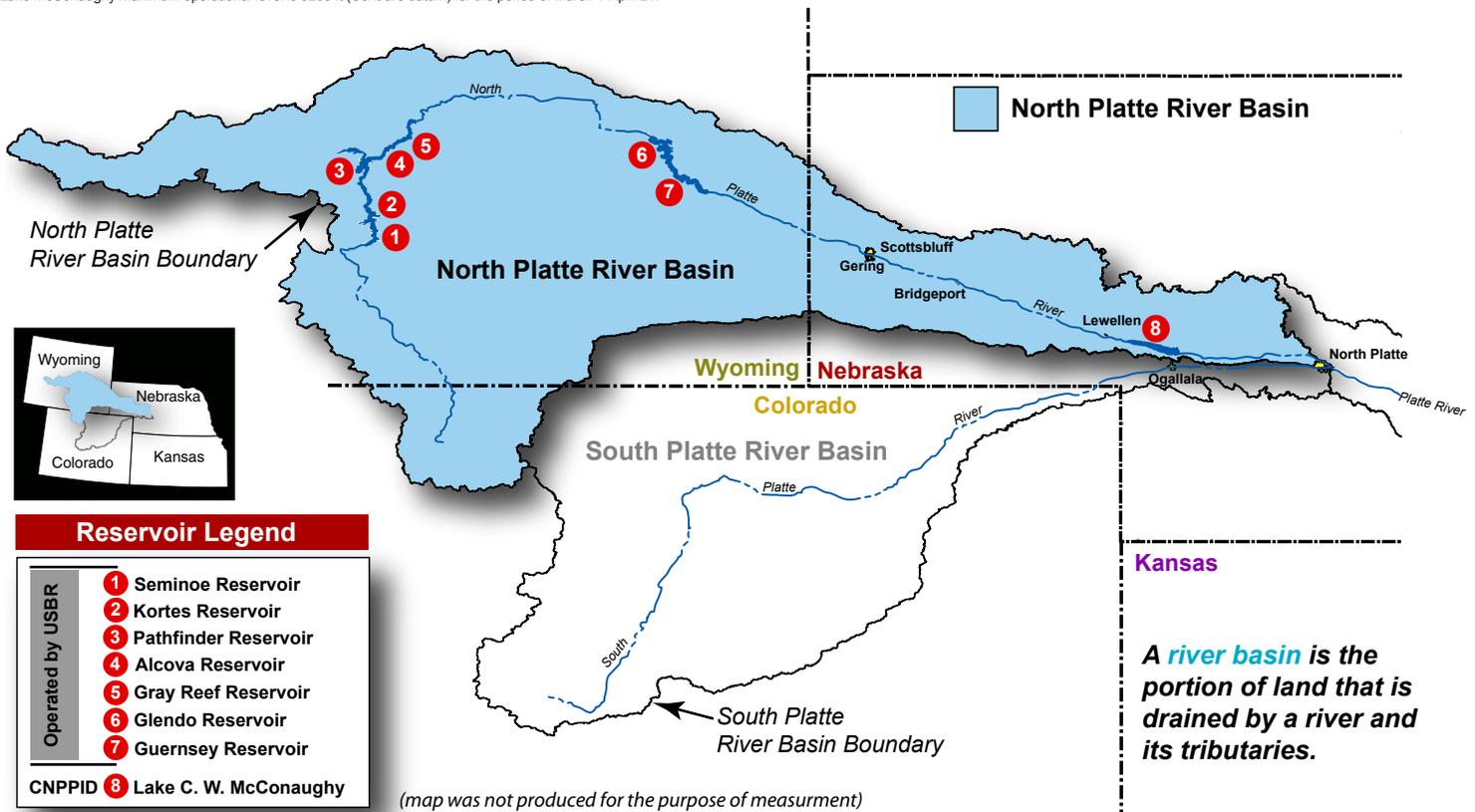
Up-to-date information on conditions and what can be expected at different high water levels is available for certain sites along the North Platte River on the National Weather Service's internet site at <http://www.crh.noaa.gov/lbf/>.

Anyone who has questions about flooding in their area or needs assistance should contact their local County Emergency Manager. A directory of all local managers is available at NEMA's internet site at <http://www.nema.ne.gov/directories/directors.html>.

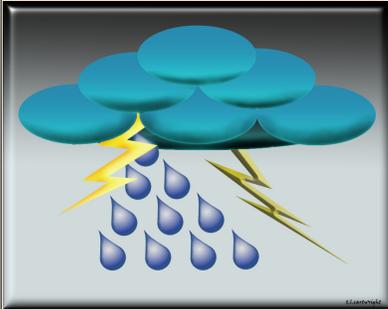
Reservoir	Top of Active Conservation Pool in Acre-feet	Maximum Storage in Acre-feet	Water Level Conditions as of April 15	
			Current Content in Acre-feet	% of Conservation Storage*
1. Seminole Reservoir	1,017,273	1,017,273	645,073	63.4
2. Kortez Reservoir	4,739	7,000	5,222	110.2
3. Pathfinder Reservoir	1,016,507	1,205,000	858,400	84.4
4. Alcova Reservoir	184,405	184,405	166,086	90.1
5. Gray Reef Reservoir	1,800	1,800	1,709	94.9
6. Glendo Reservoir	517,485	1,118,653	404,638	78.2
7. Guernsey Reservoir	45,612	45,612	21,467	47.1
8. Lake C.W. McConaughy	1,594,100**	1,743,000	1,495,300	93.8
Total	4,381,921	5,322,743	3,597,895	82.1

U.S. Bureau of Reclamation

*Reservoir is considered "full" when pool elevation is at top of active conservation pool. Percentage is based on total reservoir volume below that level.
 **Lake McConaughy maximum operational level is 3260 ft (Central's datum) for the period of March 1-April 24.



Central Plains Severe Weather Symposium and Family Weatherfest



The Nebraska Department of Natural Resources (DNR) participated in the **2011 Central Plains Severe Weather Symposium and Family Weatherfest** (CPSWS) held at Hardin Hall on the East Campus of Uni-

versity of Nebraska-Lincoln (UNL) on Saturday, April 9. The symposium began in Lincoln in 2000, and is a free public, family-friendly event, with valuable weather related information for all age groups. The symposium events are organized by the High Plains Regional Climate Center, UNL's School of Natural Resources and the Lancaster County Office of Emergency Management. The CPSWS is closely tied to the efforts associated with Nebraska Emergency Management Agency's Severe Weather Awareness Week.

The DNR's **Nebraska Rainfall Assessment and Information Network (NeRAIN)** exhibit was one of numerous exhibits on display in Hardin Hall for the event. NeRAIN is a network of approximately 900 volunteers located across Nebraska that record precipitation amounts at their locations and input that local information into a state-wide database housed and updated on a daily basis at DNR. NeRAIN volunteers receive an official rain gauge and are trained on proper gauge placement, reading, and reporting methods. This data is recorded and the information is available to the general public at NeRAIN's website (see web address below). Nebraska's natural resources districts act as regional coordinators to solicit and train volunteers in the proper measurement of precipitation.

If you would like to become a volunteer in the NeRAIN program, please visit NeRAIN's website listed below or contact your local natural resources district.



For additional information on the **Central Plains Severe Weather Symposium and Weatherfest** go visit: <http://snr.unl.edu/cpsws/>

For additional information on **NeRAIN** visit: <http://dnrdata.dnr.ne.gov/NeRAIN/index.asp>

Use of Platte River Basin High Flows to Reduce Flood Risk and Enhance Groundwater Recharge

By Jesse Bradley, P.G.

The Nebraska Department of Natural Resources (DNR) is having great success working with surface water irrigation districts in the Platte River Basin and the partners in the Platte Basin Habitat Enhancement Program (PBHEP) to divert flood flows from the North Platte River. The DNR has contacted surface water irrigation districts in the Upper Platte Basin to identify those that can assist with flood flow mitigation as well as participate in a conjunctive management demonstration project. As of April 7, 2011, fourteen irrigation districts have signed contracts to take a portion of the flood

flows into their canals. The diverted water will flow into canals and soak into the ground through the unlined canals, pits, and other existing facilities. Funding for these projects in the Platte River Basin will be provided by the PBHEP, which includes support from local natural resources districts and the DNR. These projects will benefit the state by moving some high flow water out of the rivers during potential flood risk times and storing some of the flows in the aquifer, potentially assisting the state with future interstate compliance efforts.

Brian Dunnigan, Director of DNR stated that *"the unique conditions this year present an excellent opportunity for water managers to study the potential benefits of implementing these types of projects, as well as the persistence of the water being stored in the aquifers. The surface water irrigation districts have shown great support for this important project."* The DNR has worked closely with the local natural resources districts and other water managers to develop models and other tools that allow

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Upper Niobrara River Basin Groundwater Model

By Stephanie E. Ashley and Brandi Flyr, Ph.D.

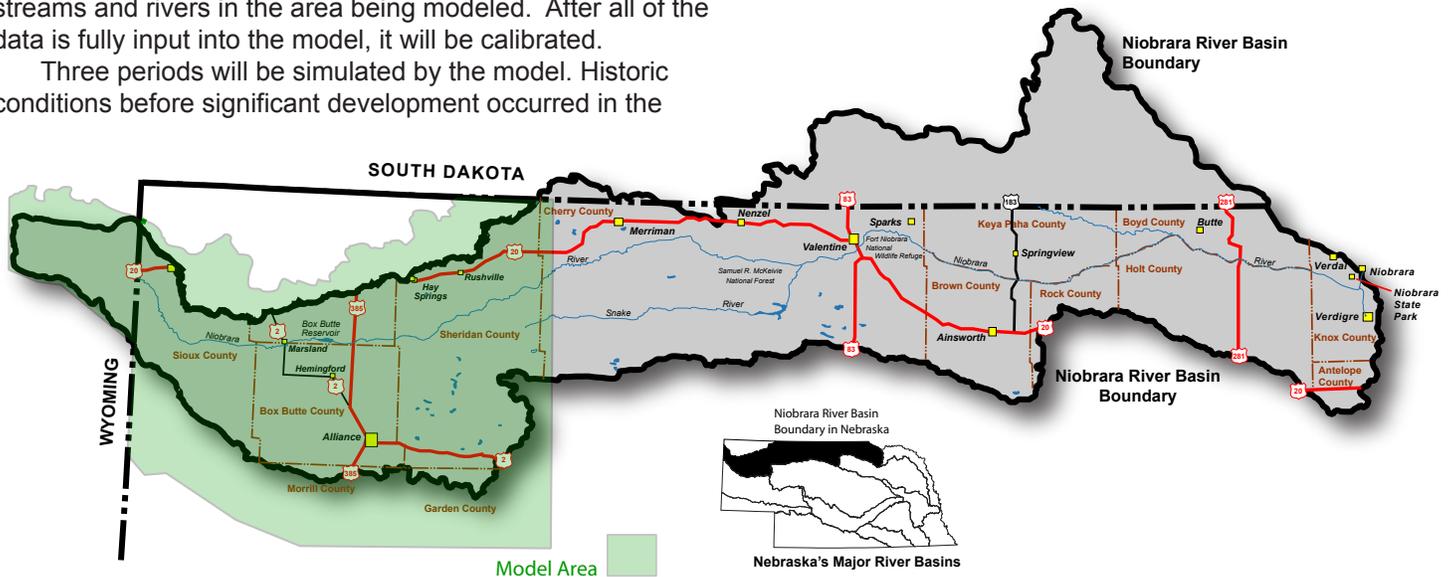
The Integrated Water Management Division of the Nebraska Department of Natural Resources (DNR) is currently developing a groundwater flow and conjunctive management model for the Upper Niobrara River Basin. The model will assist the DNR and the Upper Niobrara-White Natural Resources District (NRD) in reaching the goals of their integrated management plan. These goals include managing near-term and long-term water supplies so that current uses are protected while preserving the economic, environmental, and social welfare of the area. The model will assist the DNR and the NRD by helping them to evaluate water management strategies and understand the impacts of water uses and various climatic scenarios.

Currently, the DNR has developed the framework of the model and is gathering sets of input data such as precipitation recharge rates, flow rates, and hydrologic properties of streams and rivers in the area being modeled. After all of the data is fully input into the model, it will be calibrated.

Three periods will be simulated by the model. Historic conditions before significant development occurred in the

basin will be simulated using general, average input data. This period will be used as a starting point for the second simulation which models conditions from 1960 to present. It is important to model historic conditions to calibrate the model and ensure that it accurately estimates the natural response to changes or stresses to the system. The accuracy of the historic model helps to quantify the level of certainty that can be placed in the future predictive model, which is the third period that will be simulated. Various management and climatic scenarios can be modeled with the future predictive model to understand and evaluate the impacts to stream flow rates and groundwater levels.

It is anticipated that the modeling in the Upper Niobrara River Basin will be completed by early next year. The DNR has developed plans to initiate a similar modeling approach for the lower portion of the Niobrara River Basin as well.



Update on Development and Modification of Integrated Management Plans

By Stephanie E. Ashley and Jesse Bradley, P.G.

In July of 2004, LB 962 became effective making it necessary for the Department of Natural Resources (DNR) and the Natural Resources Districts (NRDs) to develop an integrated management plan (IMP) for any river basin, subbasin, or reach determined to be fully appropriated. A key aspect of any IMP is monitoring and developing management strategies that adapt

to changing circumstances. The DNR and NRDs are continuing to progress in the development and modification of these plans.

The DNR, Upper Republican NRD and Middle Republican NRD adopted the third generation of IMPs last fall, while similar updates are still in progress with the Lower Republican NRD (see previous newsletters for additional

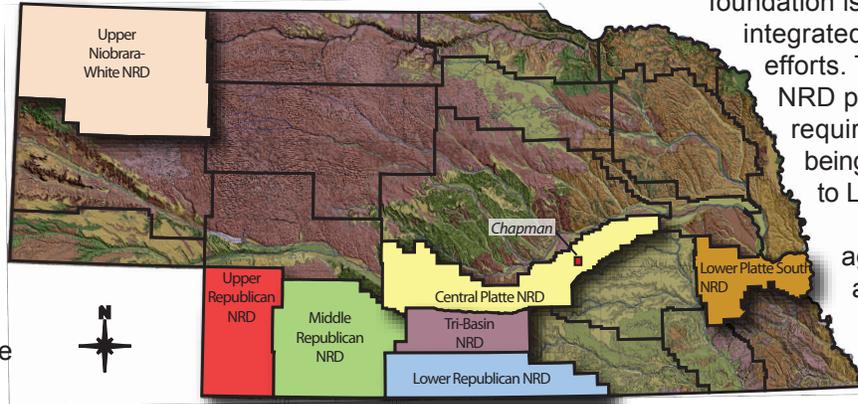
information). In addition, IMPs for the Upper Niobrara-White and Central Platte NRDs are currently being revised and first generation IMPs are being developed in collaboration with the Tri-Basin and Lower Platte South NRDs.

The revisions being worked on in the Upper Niobrara-White NRD plan will allow for increased flex-

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Integrated Management Plans continued from p. 4

ibility in monitoring municipal and industrial uses as well as streamline the Upper Niobrara-White NRD's groundwater management rules into a single document. Potential modifications in the Central Platte NRD's IMP would allow for limited well development downstream of the Platte River Recovery Implementation Program's critical habitat reach near Chapman, Nebraska. This modification would bring the lower portion of the Central Platte NRD more in line with existing management conditions in the rest of the Lower Platte Basin NRDs.



The Tri-Basin NRD IMP would build on a Joint Action Plan that is currently in place covering the Republican Basin portion of the District. This IMP will focus on ensuring that the Tri-Basin NRD balances groundwater depletions with imported water supplies in the Republican Basin.

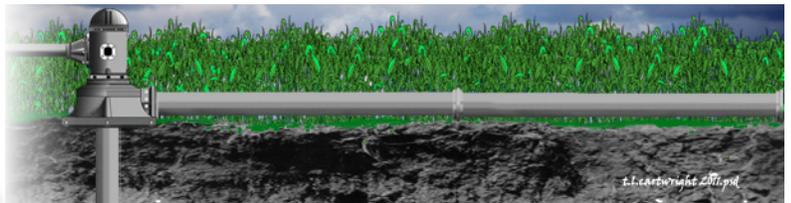
The voluntary IMP being developed with the Lower Platte South NRD is just getting off the ground, but appears to be on track to develop goals and objectives seeking to lay out a process for ensuring that a solid foundation is in place for future integrated management planning efforts. The Lower Platte South NRD plan, while not currently required, is the first plan being developed subsequent to LB 764 passed in 2010. Integrated management provides for a sound process of adaptively managing Nebraska's hydrologically connected water supplies. Managing

water resources into the future will take significant cooperation and foresight between many involved parties. Developing, implementing, and adapting these plans is a big step in the right direction to a sustainable future for Nebraska's water resources.

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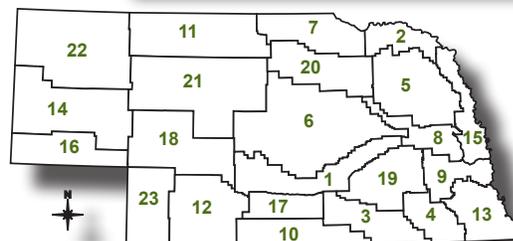
2010 Well Registrations

Natural Resources Districts	1. Central Platte	89	508
	2. Lewis & Clark	24	63
	3. Little Blue	80	179
	4. Lower Big Blue	32	128
	5. Lower Elkhorn	84	369
	6. Lower Loup	89	385
	7. Lower Niobrara	36	96
	8. Lower Platte North	43	252
	9. Lower Platte South	8	353
	10. Lower Republican	17	83
	11. Middle Niobrara	2	95
	12. Middle Republican	10	108
	13. Nemaha	16	146
	14. North Platte	4	152
	15. Papio-Missouri River	15	360
	16. South Platte	4	46
	17. Tri-Basin	30	77
	18. Twin Platte	24	234
	19. Upper Big Blue	89	213
	20. Upper Elkhorn	52	123
	21. Upper Loup	3	148
	22. Upper Niobrara-White	12	591
	23. Upper Republican	8	47
TOTALS	771	4756	
	2010 Registered Irrigation Wells Including Replacement Wells	2010 Total Registered Wells All Types	



registration information for newly constructed water wells with DNR within 60 days of well completion. Well owners are responsible for registering existing wells that have not been previously registered with the DNR. Registration forms and information are available at DNR's offices and on our website at <http://www.dnr.ne.gov/docs/wellforms.html>. Failure to register water wells is a Class IV misdemeanor under Nebraska law. If you have any questions about well registrations, please contact DNR's main office or any of its five field offices.

The electronic address for searching DNR's well registration information is:
<http://dnrdata.dnr.ne.gov/wellssql/>
 DNR Forms are available at:
<http://dnr.ne.gov/docs/wellforms.html>



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the benefits of these types of conjunctive management strategies to be evaluated. This demonstration project builds on those models and tools, as well as allows for identification of locations best suited for these types of projects as additional opportunities present themselves in the future.

For more information on this project, please contact Jesse Bradley with the Integrated Water Management Division of the DNR at (402) 471-0586 or jesse.bradley@nebraska.gov.

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Nebraska Department of Natural Resources....

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