



601 S. 12th St. Suite 201

Lincoln, NE 68508

nard@nrdnet.org

(402) 471-7670

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TO: Interested Parties
FROM: Dean E. Edson, Executive Director
RE: 2013 NRD WATER MANAGEMENT ACTIVITIES SUMMARY

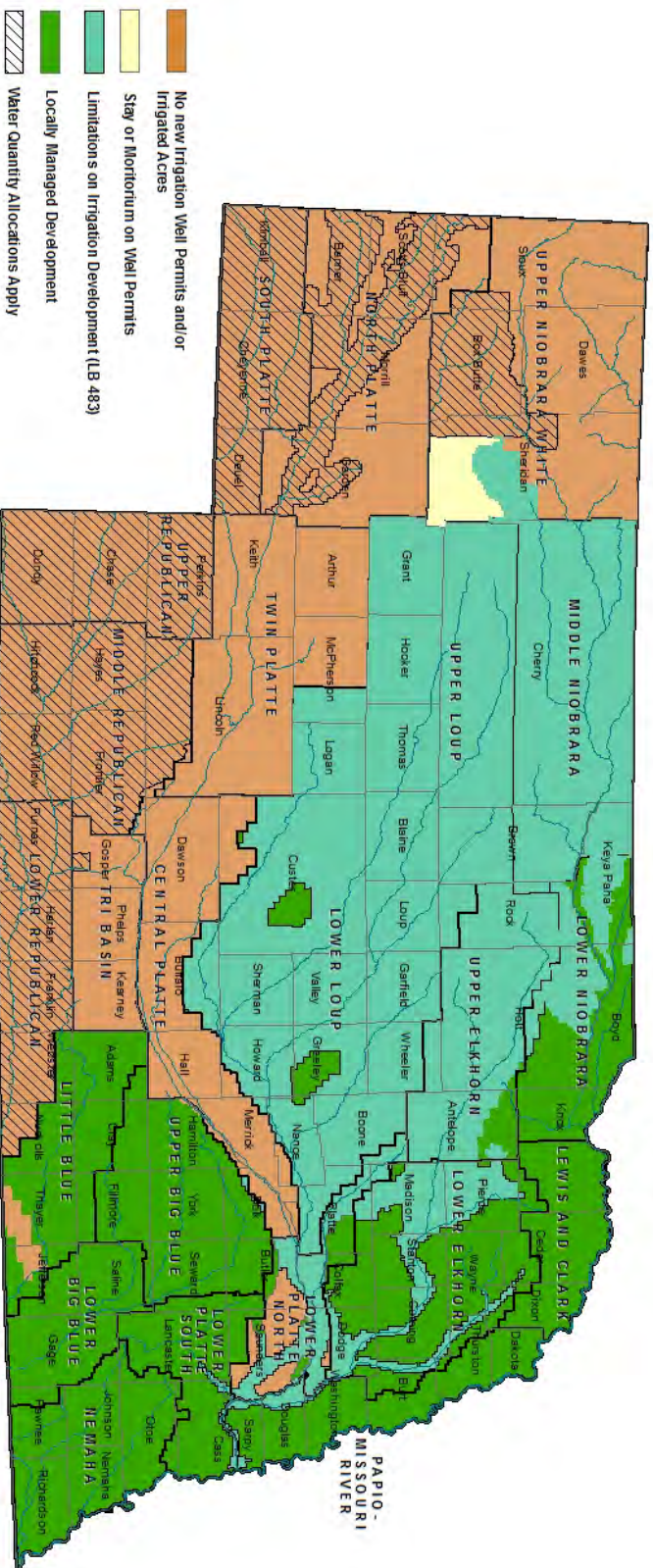
This packet includes a summary of NRD water management activities as of December 2012. The map included in the packet of information depicts districts in Nebraska where well drilling moratoriums are in place. The individual district summary of activities and water management programs is listed alphabetically.

Also included is a four page timeline of significant law changes that occurred over the last 40 years that authorized various management programs for the NRDs.

If you have any questions, please contact the individual NRD manager listed or myself at:

Dean E. Edson, Executive Director
Nebraska Association of Resources Districts
601 South 12th, Suite 201
Lincoln, NE 68508
Phone (402) 471-7670,
Email dedson@nrdnet.org
Check out the NRD Website at www.nrdnet.org

Restrictions on Groundwater Irrigation



This map is for general reference only. Portions of some sections represented as subject to a stay, moratorium or limitation may not be restricted. Contact the local Natural Resources District for more information.

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Natural resources districts have local responsibility for ground water from overuse and pollution. Each district has a protect ground water. State law has given districts a variety of regulatory tools, to deal with contamination, shortages or user Below is a timeline since the creation of the NRD's until present



protecting plan to conflicts. day.
Nebraska's Natural Resources Districts
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1972 – Natural Resources Districts begin operations after passage of LB 1357, groundwater management by NRD's is a vital mainstay of the act.

1975 – LB 577 adopted by the Legislature recognizes that ownership of water is held by the state for the benefit of its citizens and that NRD's have the legal authority to regulate certain activities in the use of groundwater.

1975 – NRD's began recording static water levels by using a network of observation and recorder wells. Partnerships in this endeavor were made with UNL Conservation and Survey Division, USGS, and other state agencies. Groundwater well moratoriums were allowed only if groundwater levels declined and only when all other authorized controls were not protecting water supplies (this provision stayed in law until passage of LB962 in 2004).

1985 – Legislature adopted LB 1106, the Ground Water Management and Protection Act which allows NRD's to create Ground Water Management Plans for quality and quantity. Plans must be approved by the State of Nebraska.

1986 – Each NRD has in place an approved Ground Water Management Plan reviewed by the state that is continually maintained and updated. Groundwater decline trigger-levels are set by the districts to initiate regulation, if approved by the State of Nebraska.

1996 – Legislature adopted LB 108 which restructured the Ground Water Management and Protection Act for integrated management of ground and surface water applying first to the Lower Republican NRD, Middle Republican NRD, Upper Republican NRD, and Tri-Basin NRD. The statutes applied to the remaining districts in 1999. This was the first time Nebraska law recognized a connection between ground and surface water. The legislation allowed for any individual or NRD to request the state to review any determination of conjunctive use conflicts between ground and surface water.

1996 – All four NRDs involved in LB 108 requested the Nebraska Department of Water Resources for a determination as to whether there were disputes between ground and surface water users. The state made a preliminary determination in September that the conjunctive use of ground and surface water was leading to disputes over water use in the Republican River Basin. Studies were initiated by the NRDs in the Republican basin.

1998 – Before the State of Nebraska was ready to make a final determination, Kansas filed a lawsuit against Nebraska over consumptive use of water in the Basin. The State of Nebraska requested the four NRD's to suspend their initial 1996 request and not impose well drilling moratoriums.

2004 – Following the Republican River settlement agreement between Kansas, Nebraska and Colorado, the Republican Basin NRDs implement allocations at levels recommended by the State of Nebraska to maintain compliance with the agreement. The allocations targeted a 5-10 percent reduction in use according to state officials.

2004 – The legislature adopted LB 962 addressing ground and surface water interaction. The primary intent was to declare certain river basins "over or fully appropriated" which will bring imposed regulations such as well moratoriums, certifying irrigated acres, developing an "Integrated Water Management Plan" and other management actions as determined by the NRD. All districts included in the "over or fully appropriated" basins have imposed more stringent regulation than requested by the State of Nebraska. In addition, 7 NRD's have extended moratorium boundaries beyond state recommendations. (Tri-Basin NRD, Central Platte NRD, South Platte NRD, Lower Platte North NRD, Upper Niobrara – White NRD, Nemaha NRD, & Little Blue NRD). Basins not declared fully or over appropriated will be reviewed prior to January 1 of each year.

2006 – The legislature passed LB 1226 into law which provided several modifications and clarifications to implement LB 962. The key changes include:

- 1) Provided an exemption for municipalities from allocation restrictions imposed after November 1, 2005. The municipal exemption also allows for new industrial uses up to 25 million gallons annually for growth. Although the exemptions are provided to the municipalities, in fully or over-appropriated areas the NRDs are required to reduce other water uses by an equal amount of the increase either through regulation or retirement of existing uses.
- 2) For natural resources districts located in a river basin, sub-basin, or reach that has been determined to be fully appropriated over-appropriated, the measure increases the levy authority by 3 cents to administer and implement ground water management activities and integrated management activities. The levy is in addition to the 4.5 cent levy and the extra 1.0 cent levy authority granted by LB 962 in 2004. The additional authority to exceed restricted funds budgeted was scheduled to phase out over 3 years.
- 3) Provide authority to the NRDs to request DNR stop issuing surface water rights in areas where a NRD has imposed a well drilling moratorium and/or a stay on expansion of irrigated acres. This provision has been used by several NRDs.

2005-06 – Although groundwater pumping in the Republican Basin was 20 percent below the allocation recommended by the State of Nebraska in both years, state officials tell the NRDs this was not enough. The lingering drought is impacting water supplies.

2007 – LB701 was passed by the legislature, providing additional authorities to address water management activities. The key changes include:

- 1) Allowing NRDs in areas that are covered by an interstate compact to lease or purchase water to enhance stream flows and pay for such by issuing bonds. The NRDs were granted new taxing authority of up to 10 cents from property tax and/or up to \$10/irrigated acre occupation tax to pay for the bonds. The NRDs in the Republican Basin leased over 30,000 acre-feet of water in 2007 under this provision. A lawsuit has been filed regarding the constitutionality of this provision which stopped the issuance of the bond to pay the water right holders for the lease of the water.
- 2) Establishment of a Water Resources Cash Fund to be administered by DNR to comply with interstate water compacts and to conserve water in fully and over-appropriated basins. This provision of the bill appropriates \$2.7 million per year to the Water Resources Cash Fund. The NRDs are providing more local funds than required to access these funds.
- 3) An extension of the 3 cent levy authority for NRDs in fully and over-appropriated areas from 2008 to 2012.
- 4) Requires DNR, in consultation with the effected natural resources district, to do an annual determination in fully and over-appropriated basins, starting January 1, 2008, and every January 1 thereafter, to estimate the maximum amount of water that may be available from stream flow for a beneficial purpose in the short and long-term. The language would not be an "order" by the department, rather only a forecast developed by DNR and the affected NRDs.
- 5) Allows NRDs to impose a temporary well drilling moratorium without a notice or hearing, but requires a hearing within 180 days. Similar language is included allowing DNR to impose a temporary 180-day stay on new surface water natural-flow appropriations in areas where a natural resources district has imposed a temporary 180-day stay on new well construction and the addition of new irrigated acres. Water wells of public water suppliers are exempt from temporary moratoriums. The Lower Platte North NRD used this provision of law in 2007.
- 6) Creation of a 13-member Riparian Vegetation Task Force, as proposed in LB 458, consisting of a representative of the Governor, state agencies, NRDs, the Nebraska Environmental Trust, and a riparian landowner from each of the state's congressional districts. State funding of \$2.5 million year was included to provide grants to remove vegetation and invasive species of river channels in fully or over-appropriated areas. In 2007, NRDs in the Platte and Republican basins provided matching funds and in-kind funding for this program.

2007 - Preliminary estimates on groundwater use are well below allocations for the 3rd year in a row in the Republican Basin. Water leased by the Republican Basin NRDs from surface water right holders and normal rainfall keeps the State of Nebraska in compliance for water use.

2008- Due to a constitutional challenges on LB 701, the Republican Basin NRDs cannot issue bonds under the law to raise funds to pay surface water right holders for the water leased. While the case works its way through the legal process, the Nebraska Legislature passes LB1094 which loans the Republican Basin NRDs \$9 million to pay the surface water right holders for the leased water. Oral arguments will be held December 14, 2009 in the Lancaster County District Court.

2009- The legislature adopted a bill, LB 54, to allow NRDs to track depletions and gains resulting from new, expired or modified water use in fully or over-appropriated areas. Procedures to include:

- 1) Use of generally accepted methodologies based on the best available information.
- 2) Provide a methodology to estimate streamflow depletions and gains and provide information on gains as offsets to new uses.
- 3) Require the identification of means to be utilized so new uses will not have more than a de minimis effect on existing surface water or groundwater users.
- 4) Provide a procedure for sharing information between the Department of Natural Resources and the NRDs.
- 5) Identify water that could mitigate new uses.
- 6) Provide a plan, after consulting with and providing an opportunity for public input from interested parties, for making water available for offset for economic development purposes.

2009- LB483 was passed by the legislature, that changes the planning process for NRDs when a determination is made that the district is not fully appropriated and a stay on well drilling has expired or that a preliminary determination was made that a basin, sub-basin, or reach is fully appropriated but a final determination finds that it is not fully appropriated. The key changes include:

- 1) Change the date for a request of re-evaluation of a basin from March 1 to July 1.
- 2) Require natural resources districts that are in a situation where a status change has occurred from fully appropriated or preliminarily fully appropriated to not fully appropriated, to create and implement a policy for the prioritization and granting of water well permits for the four-year period following the change.
- 3) Require moratoriums to stay in place until the districts developed rules and regulations to allow limited growth that would not reach a point to cause a fully appropriated determination.
- 4) Require DNR to approve the NRD rules and regulations within 60 days of NRD adoption. If DNR fails to approve the regulations, NRDs would have to adopt rules and regulations to allow up to 2,500 irrigated acres growth or not more than 20 percent increase in historic irrigated acres within a hydrologically-connected area.
- 5) The bill would prohibit DNR from issuing any new appropriation for the four-year period following a status change that would result in a fully appropriated status based on the most recent evaluation.
- 6) Prohibit DNR from granting more than 834 acres of new surface water appropriations for irrigation

2010- LB 764 was passed by legislature that allows NRDs to develop IMPs in areas that are not fully or over-appropriated. This bill allows a natural resources district encompassing a river basin, sub-basin, or reach that has not been designated as fully or over-appropriated to, jointly with the department, develop an integrated management plan for such river basin, sub-basin, or reach located within the district.

2010- The legislature adopted a bill, LB 862, that changed provisions relating to the regulation of water. The bill makes two important changes to the occupation tax and managing water resources. First the bill provides the NRDs a local water user-based fee system to self-fund many of the activities necessary to adequately deal with the water challenges facing Nebraska while protecting local economies and all existing and future uses.

In order for NRDs to use the occupation tax they must have it in their Integrated Management Plan (IMP) with plans on how the funds will be being used. The IMP then has to be approved by DNR. The occupation tax can only be used to purchase or lease groundwater or surface water rights, purchase or lease of water from canals or reservoirs, removal of vegetation or invasive species that affect the river flow, or change augmentation of the river flows. This will allow NRDs to implement programs that will help protect the economy in the fully and over-appropriated basins in water-short years.

The second major change is that the occupation tax can be used to fund programs without issuing bonds. Although bonding is still allowed, this option allows NRDs to pay for smaller projects in one year rather than financing them.

2011- The bill LB 229e was passed by the legislature and provides for a process for the Nebraska Department of Natural Resources to apply for a grant from the Nebraska Environmental Trust Fund (NETF) to fund water programs. This is what the compromise does:

- Allows the Department of Natural Resources (DNR) to apply to NETF for a three-year \$9.9 million grant for fully/over-appropriated river basins and gives that grant 50 bonus points in the ranking.
- Provides an annual match of \$3.3 million in General Fund dollars that will be appropriated to the Water Resources Cash Fund (WRCF).
- Adds intent language to apply for an additional three-year grant provided that benchmark criteria are met.
- Requires natural resources districts to provide a 40 percent matching fund requirement.

2011- LB 400 was passed by the legislature that incorporates language from LB 528 to change the sunset date for the NRD three-cent levy for ground water management activities and integrated management activities in fully and over-appropriated areas from 2011-12 to 2017-18.

2012- LB 526e was passed by the legislature to allow for an entire surface water irrigation right to be transferred for a non-consumptive use. The new language would place conditions on such a transfer, including that the transfer or change in purpose will not diminish the supply of water available or otherwise adversely affect any other water appropriator, adversely affect Nebraska's ability to meet its obligations under a multistate agreement, or result in administration of the prior appropriation system by the Department of Natural Resources, which would not have otherwise occurred.

2012- Bills LB 950 and LB 950Ae were passed by the legislature to provide an additional \$1.4 million to the Water Resources Cash Fund, bringing the total to \$4.7 million. The emergency clause was included in the companion "A" bill.

2012- The legislature approved LB 1125e which provides a process for natural resources districts to follow when implementing an occupation tax. The process for implementing an occupation tax in the bill is as follows:

- Acres classified by the county assessor as irrigated shall be subject to such district's occupation tax unless on or before March 1 in each subsequent year, the record owner certifies to the district the non-irrigation status of such acres.
- A district may exempt from the occupation tax acres that are enrolled in local, state, or federal temporary irrigation retirement programs that prohibit the application of irrigation water in the year for which the tax is levied.
- Except as provided above, a district is prohibited from providing an exemption from, or allowing a request for a local refund of, an occupation tax on irrigated acres regardless of the irrigation source while the record owner maintains irrigated status on such acres in the year for which the tax is levied.

Central Platte NRD

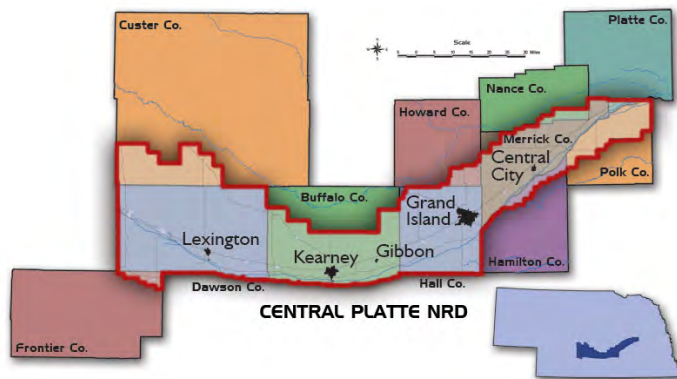
215 N Kaufman Ave
Grand Island, NE 68803

Phone: (308) 385-6282

Website: www.cpnrd.org

General Manager: Ron Bishop

Email: cpnrd@cpnrd.org



GROUNDWATER STATUS & ACTION STEPS

Irrigated agriculture provides a large economic base for the Central Platte NRD area, with much of the agriculture depending on groundwater to supplement rainfall. CPNRD contains one of the highest densities of irrigation wells in the state—over 17,000 wells irrigating 900,000 acres.

1977: CPNRD contracted with USGS to develop its first computer model of the hydrogeologic aquifer system within the District. The model had the capability to evaluate effects of various alternative management plans on water levels and on streamflow in the District. In the mid-80's, it was updated by HDR Engineering to assist with groundwater management plans.

1987: Groundwater Quality Management Program was implemented to provide a long-term solution for widespread high groundwater nitrate-nitrogen problems. Average N levels have been reduced by 23% since the program's inception.

Central Platte has been involved in many of the state's water issues due to its location along the Platte River. The NRD, along with a number of other "partners", were awarded two grants by the Nebraska Environmental Trust to develop the Cooperative Hydrology Study (COHYST). This state of the art computer model is now used for a variety of water issues, including the Platte River Recovery Implementation Program (PRRIP), annual basin determinations by the Department of Natural Resources (NDNR), as well as the development of the NRD's Integrated Management Plan and the Basin Integrated Management Plan.

November 2003: CPNRD board initiated and implemented a suspension on drilling new wells and expansion of irrigated acres. The suspension was put in place to allow the Board and the DNR to look over the situation between groundwater and surface water to determine if a problem existed and how it would affect future water supplies.

2004: Nebraska Legislature adopted LB 962, calling for integrated management of surface and groundwater. The Platte Basin above Elm Creek, NE, was declared over-appropriated and the area from Columbus to Elm Creek was designated as fully appropriated; meaning any additional uses would cause water supply to be out of balance with demand. With those designations, the NRDs and NDNR developed Integrated Management Plans (IMPs) calling for "no new uses" in the basin above Columbus that would negatively impact an existing surface water right or groundwater use. New uses are allowed, but any depletion to existing rights and uses must be "offset" with water. A Stakeholders Group helped develop the IMP. CPNRD also participated in development of the Basin IMP. The NRD is currently 19 years ahead of the schedule developed for the IMP on returning water back to the river.

April 2006 to July 2008: CPNRD certified 1,013,214 acres irrigated acres. The NRD now has 1,020,248 irrigated acres on record- 94,205 are able to be irrigated by surface water. Crops irrigated in CPNRD: corn, soybeans, sorghum, potatoes, alfalfa, small grains and sunflowers.

Summer 2006: Governor Heineman signed the Platte River Recovery Implementation Program (PRRIP), which entered Nebraska into an agreement with the states of Wyoming and Colorado and the U.S. Department of Interior Fish & Wildlife Service (FWS). The program calls for no new depletions to the FWS "target flows" and a return to the 1997 level of depletions. New uses are allowed, but any depletion must be offset with water.

2007: NRD board approved first water bank transaction in the district by approving a variance request and deposit of 2.4 acre-feet (ac-ft) per year into the District's water bank. The water banking policy states that for every acre-foot of water impacting the river that can be acquired, there's that much less regulation and cutback that will need to be imposed. Goal is to diminish the chance of having to regulate irrigators by acquiring water rights from willing landowners.

June 2012: The following agreements were approved by the CPNRD board:

-*Platte Basin Water Project Coalition Interlocal Cooperation Agreement*- Parties include NDNR and South Platte, Twin Platte, North Platte, Tri-Basin and Central Platte NRDs. Agreement allows utilization of new Water Cash Fund through NET and the Legislature for Platte Basin water management activities and will take the place of PBHEP.

-*J-2 Regulating Reservoir*- Parties include NDNR and Central Platte, Tri-Basin and Twin Platte NRDs. Agreement allows excess flows from CNPP&ID supply canals to be stored and later put into Platte River when needed to meet FWS target flows. Excess flows will be used

as credit for requirements of PRRIP. CPNRD is in line to receive 10% of reservoir water; providing the NRD with up to 2,000 ac-ft of water per year.

-Financial Management Agreement- Parties include NDNR, Nebraska Community Foundation and Central Platte, South Platte, Tri-Basin, and Twin Platte NRDs. Agreement states that the Nebraska Community Foundation will be utilized for administrative and financial management support for water management activities.

November 2012: Over \$4.6 million has been spent by CPNRD to purchase water rights to get the over-appropriated area back to a fully appropriated status and over 3,000 ac-ft of water to help meet the goal of returning to fully appropriated designation. COHYST has been useful in determining the amount of water needed to bring the Platte River back to 1997 levels- estimated at 3,400 ac-ft. The latest effort to return the area above Elm Creek to a 'fully appropriated' condition involves surface water storage of excess flows for later release during times of shortage and working with four irrigation canals in Dawson County:

Six Mile Canal December 2010: NRD purchased Six Mile Canal Company in Gothenburg- the first-ever buyout of a surface water irrigation canal in Nebraska allowing farmers to convert to more efficient groundwater irrigation and also increases Platte River flows. Project allows NRD to return water to the river to protect endangered species, make irrigation more efficient for farmers, put more land into crop production and improve public safety.

Cozad Canal NRD partnered with Cozad Ditch Company to manage canal and lease surface water as part of its efforts to increase Platte River flows and protect endangered species for the PRRIP and state law. Unused surface water flows from the irrigation canal will be diverted back to the Platte River. The NRD will utilize the canal after irrigation season by diverting excess flows into the canal to recharge the aquifer and then filter back into the River. CPNRD is helping fund a complete rehab of the canal to create a more efficient system. The canal has water rights to irrigate over 25,000 acres of land in the area between Gothenburg and Lexington. 60% of projects costs will be paid by grants from PBHEP (involves money from Platte Basin NRDs), NET, and the state water management fund.

Thirty Mile Canal Partnership between the NRD and Thirty Mile Canal Company includes a purchase agreement-NRD will pay \$2 million for half interest in the irrigation system; including canal water rights, value of buildings and equipment. Canals will be used after irrigation season to hold diverted off-season excess Platte River flows when available. Water will seep from canals into groundwater that is hydrologically connected to the River and provide river enhancement credits for partners. Rehab of canals cost is estimated at \$3 million, including replacement of bridges, siphons and culverts. 60% or \$1.8 million of projects costs will be paid by grants from PBHEP (involves money from Platte Basin NRDs), NET, and the state water management fund.

Southside (Orchard Alfalfa) Canal NRD and Southside Canal Company (Orchard-Alfalfa), have a management-lease agreement. NRD will assist in all operations, pay half of operations and maintenance costs, and receive half of revenue. The NRD will use canals after irrigation season to hold diverted off-season excess Platte River flows when available. Water will seep from the canals into groundwater that is hydrologically connected to the river and provide river enhancement credits for Southside and CPNRD. Rehabilitation work is estimated to cost about \$4 million. The project is expected to be funded through the NDNR Water Cash Fund at 60%, Southside Irrigation Company at 20% and CPNRD at 20%.

Other Conjunctive Management Efforts:

Conjunctive Management Study- The Platte River Conjunctive Management study creates tools to better manage ground and surface water in the Central Platte Valley by collecting and evaluating data to develop a hydrologic budget. Some components included in the budget are rainfall, pumping, surface water applied, total evapotranspiration, recharge, runoff and acreage. Developing plans to manage the hydrologic budget will result in better utilization of both resources. After developing management plans, an implementation phase will be needed.

Surface Water Model- A joint Middle Platte Basin Water Resources subcommittee has been working to develop a surface water model. The committee requested that the NRD participate in a public opinion survey to understand the public's attitude and perceptions about water usage in Nebraska. In September 2011, the board approved spending up to \$28,000 for the Central Platte and Twin Platte NRDs to hire a consultant, on a 50/50 basis, to conduct a survey on attitudes and perceptions in order to design an effective information and education program. The survey area was from the Lake McConaughy area to Chapman, NE. The overall goal of the effort discussed was to provide water to all water users.

May 2012: CPNRD and Twin Platte NRD (TPNRD) boards of directors voted unanimously to approve an offer to the CNPPID to assist in converting their surface water irrigation project to a groundwater irrigation project and recharge program. In June 2012, CPNRD and TPNRDs made the offer to the CNPPID board including financial assistance for future conjunctive management studies and for landowners to switch to groundwater use. Currently, 75% of the users in that system already have irrigation wells that are used during drought conditions. The NRDs proposal would take it a step further for allow landowners to rely totally on groundwater and use the surface water for recharge. CNPP&ID's board took the proposal under advisement.

Lewis & Clark NRD

608 N. Robinson, P.O. Box 518

Hartington, NE 68739

Phone: (402) 254-6758

Fax: (402) 254-6759

Web site: www.lcnrd.org

Manager: Tom Moser

Email: lcnrnd@hartel.net



GROUNDWATER STATUS

Lewis & Clark NRD, located in the northeast corner of Nebraska, is comprised largely of non-irrigated land due to aquifer limitations and topography. Combinations of confined and unconfined glaciated aquifers result in mostly low production wells with slow recharge.

Irrigation development in the Lewis & Clark NRD started in the mid 1970's with 70 registered irrigation wells. By the early 1980's the number of registered irrigation wells had grown to over 520. Since the mid 1980's there has been a steady increase in the number of irrigation wells and irrigated acres. In 2004 and 2005, the district saw a sizeable surge in new irrigation wells and acres irrigated. As of September 2011 there are a total of 1122 registered irrigation wells in the district.

In 1976, the NRD began collecting static water level measurements in wells located across the district to monitor the effect of irrigation development on the aquifer. Over the past 30 years our records show half of the original wells have increasing static water levels with an average rise of 4.1 feet. It is important to note the wells with the greatest decline are located within 1 mile of the Missouri River just below Gavins Point Dam which also has a degrading streambed that may account for this decline. The district currently measures 30 irrigation wells to monitor static water levels with none of these measurements showing any sustained decline.

ACTION STEPS

- 1986 – NRD developed a Groundwater Management Plan (updated in 1993)
- 2004 – NRD set up the Bazile Triangle Groundwater Management Area which includes the following townships: Creighton, Columbia Section 6, 7, 18, 19 and Cleveland except for Section 25, 26, 27, 34, 35, 36 to improve the groundwater quality of the area.
- 2012 – NRD has joined efforts to develop a basin wide Integrated Management Plan (IMP) for the Platte River Basin.
- 2012 – NRD has made preliminary contacts with the Nebraska Department of Natural Resources to provide more information on how IMP's could work for the District.

FUTURE

The drought of 2012 has increased pumping pressure on the limited aquifers of the Lewis & Clark NRD. Currently, the Lewis & Clark NRD has not been declared "Fully Appropriated" and there are no plans to consider well moratoriums. However, the District has contacted the DNR to investigate the possibility of developing an Integrated Management Plan (IMP). Planning could include establishment of groundwater level triggers and development of a plan to manage water limitations should they continue or re-develop in the future. At this time well permits are required in two townships in the southwest corner of the district.

The NRD has received an increased number of conflict of use reports in isolated areas around the District, where reports have been common in previous years. Drought conditions have made it necessary for several landowners to lower stems or dig new wells in order to maintain water availability. With existing aquifer limitations, topography, and the fact there has not been a sustained decline in the groundwater levels, the directors do not plan to implement regulations for new well installation or irrigated acre expansion at this time. But the District will consider development of triggers and regulations for future need.

Little Blue NRD

6th and Maple

PO Box 100

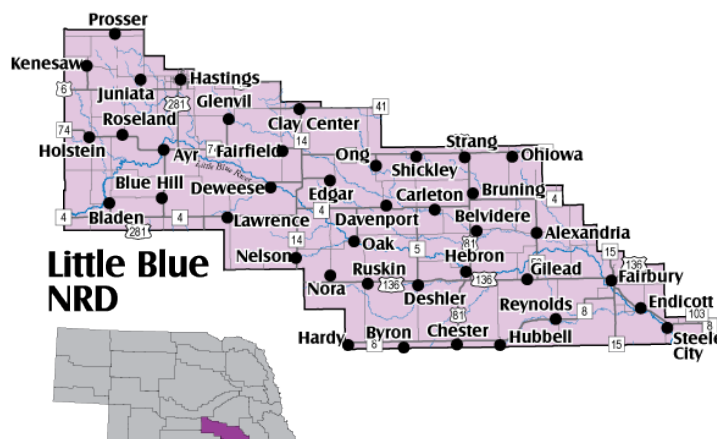
Davenport, NE 68335

Phone: (402) 364-2145

Website: www.littlebluenrd.org

General Manager: Michael Onnen

Email: monnen@littlebluenrd.org



GROUNDWATER STATUS

The Little Blue NRD measures groundwater levels biannually using a monitoring network of 340 deep wells. The District has also installed a 48-well network of dedicated monitoring wells equipped with data loggers for continuous recordings of water fluctuations. Significant groundwater declines were experienced in some areas of the district through the 50s, 60s and early 70's. Since that time, water levels have stabilized and fluctuate in unison to the rainfall cycles experienced. The drought cycle of 2000 through 2006 caused declines equal to those of the early 70's, however, ample rainfall and reduced pumpage since that time have caused water levels to rebound by two feet. The District also monitors groundwater wells for nitrates and atrazine, and screens for other natural elements in the water's chemistry. A gradual rise in nitrate levels in several areas of the District prompted the establishment of six intensive management areas which now total nearly 292,000 acres. Another 86,400 acre area is under investigation at this time for addition to the intensive management areas.

ACTION, STEPS, AND GUIDELINES

- 2001: The District receives grant and initiates an aggressive wellhead protection programs with numerous communities.
- 2003: Groundwater study were initiated for all of Thayer, and portions of Nuckolls and Jefferson counties to provide more detailed mapping of aquifer and an understanding of the water resources.
- 2005-NRD works with City of Fairbury to determine methods of reducing nitrates for municipal water supply, a direct impact to the District's rural water project which acquires our water from the city.
- 2006: Updates to Groundwater Management Plan established a comprehensive set of rules and regulations for groundwater management, including: conditions for high capacity uses, wider well spacing, water transfers, fall fertilization restrictions and sub-area management action adjustments.
- 2006: A water quantity sub-area was established in southern Thayer and Jefferson counties with a stay imposed on well permits and expanding irrigated acres. All irrigated acres in the area were certified by producers. The District gathers pumpage data from operators.
- 2008: The hydrologic study of Thayer, Jefferson, and eastern Nuckolls Counties was completed.
- 2008: A study to determine hydrologically connected surface and groundwater was completed for the Blue River Basin by the Upper Big Blue NRD. The study shows very little interconnectivity exists in the Little Blue Basin.
- 2008: NRD Board committed to installing a network of dedicated monitoring wells across the District to get better understanding of aquifer characteristics and seasonal drawdowns. A three-year Interrelated Water Management Plan Grant was approved by DNR for the well installations.
- 2009-NRD began intensive discussions with the City of Hastings regarding wellhead protection

- 2010-NRD Board initiated a district-wide hydrogeologic study to fill gaps in data and compile all available information for more user-friendly planning tools which can be used to refine the Groundwater Management Plan.
- 2010-Extensive water sampling by NRD in Adams County reveals widespread nitrate problems upgradient of the City of Hastings wells.
- 2011-Initiated an evaluation of soil irrigation suitability study to determine if more stringent regulations are necessary before issuing well permits for highly erodible lands.
- 2011-NRD Board adopted new rules and regulations which apply an aquifer score (supported by the hydrogeologic study data) and soils score (based on the irrigation suitability) to evaluate all new irrigation well permits. Permits with low aquifer or soils scores have been approved, but certain conditions are applied to those permits to protect the resources and provide valuable data which the district can use to further evaluate aquifer response in more sensitive areas.
- 2012-The Hastings wellhead protection area and associated rules are approved with LBNRD and UBBNRD assistance.
- 2012-NRD established a tentative sixth water quality area of 86,400 acres and began intensive water sampling of the area to determine severity and extent of nitrate pollution. A 319 grant was secured which provided funds for a technician to do extensive work with landowners in this area to promote conservation and BMPs.

FUTURE ACTIONS

The District will continue to monitor the water table levels through the annual well readings and observation well networks. The District will continue to evaluate the District's Groundwater Management Plan and Rules and Regulations to determine if changes are warranted.

Water quality studies of the new potential intensive management area will be completed and a decision made as to the initiation of additional restrictions. Operator BMP promotion will get into full swing.

Monitoring of the District's water quality conditions will continue and extensive work with producers will occur to implement BMPs and new technologies which reduce water consumption and reduce risks to water quality. The NRD will manage existing and establish new regulatory areas as needed for nitrogen management.

Communities will be assisted with both approved and planned wellhead protection plans for source water protection. The NRD will work to get all communities more active in wellhead protection activities. The NRD will assist the City of Hastings in a pilot aquifer storage and restoration project to protect the municipal water supply.

The NRD is discussing tightening irrigation runoff rules to further reduce waste of water and protect downstream properties.

Lower Big Blue NRD

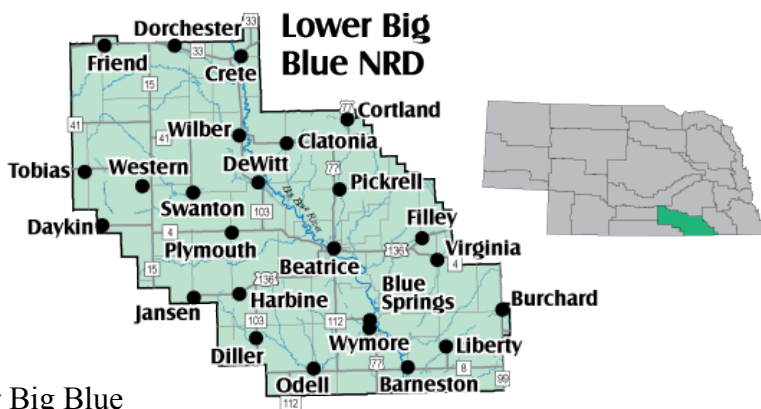
Office: 805 Dorsey Street, Beatrice, NE

Phone 402-228-3402

Web site: www.lbbnrd.net

Manager: Dave Clabaugh

Email: clabaugh@lbbnrd.net



GROUNDWATER STATUS

There is no well drilling moratorium in the Lower Big Blue

NRD. The entire district was declared a Groundwater Management Area in 1997 due to concerns about water quality. Permits are required for wells pumping 50 or more gallons per minute. There are no pumping restrictions in the NRD. The district is monitoring groundwater levels and will follow its Groundwater Management Plan if groundwater declines reach designated trigger levels. Water levels have been monitored since 1981. The district has a 60 square mile Phase II area where operators have to meet educational requirements and submit reporting forms on residual nitrogen sampling and other BMPs. Fall fertilization is delayed until after November 1st. The Phase II area has nitrate-nitrogen levels in the groundwater that are between 6 ppm. and 9 ppm. The rest of the NRD is in a Phase I area where nitrate-nitrogen levels are below 6 ppm. Operators use voluntary measures to prevent and reduce groundwater contamination.

The NRD has several incentive programs that address water quality and quantity problems. The district provides incentives for purchases of equipment that allow farmers to more accurately apply fertilizer and chemicals. Groundwater users are offered cost-share on water flow meters to obtain information on the flow rate of their wells and amount of gallons pumped. ET gauges and soil moisture probes cost share provides information to help irrigators schedule their irrigations more efficiently.

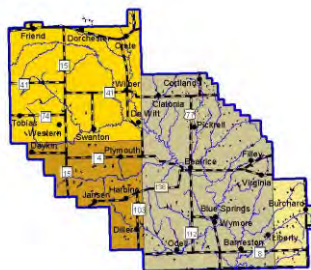
ACTION STEPS

- 1981- Groundwater level measurement program begins.
- 1986- District adopts Groundwater Management Plan
- 1987- District wide groundwater monitoring network established to provide baseline data on groundwater quality
- 1988- The Nebraska Department of Environmental Quality conducted a
 - SPA study in an area northwest of the city of Beatrice
- 1990- The NRD begins the first year of additional study in the proposed SPA
- 1994- The three year Special Protection Area study was completed
- 1997- District amends its Groundwater Management Plan to include groundwater quality regulations and the entire district is declared a Groundwater Management Area. At the same time a 60 Square mile Phase II area established.
- 2006- NRD begins the Blue Basin Groundwater Study in conjunction with the Upper Big Blue NRD and the Little Blue NRD
- 2008- Blue Basin Study completed with results indicating only small areas of groundwater-surface water interconnection in the NRD.

- 2010-District amends its Groundwater Rules and Regulations to require flow meters on new wells and spacing requirements on new wells permits changed to 1000’.

FUTURE

Spring 2012 static water levels decreased 0.54 feet from the Spring of 2011. Groundwater levels are 1.21 feet above the district's 1982 baseline. Groundwater level monitoring will continue to document fluctuations of groundwater levels. Water sampling for nitrate-nitrogen will continue, particularly in areas with known hot spots of nitrate problems.



Lower Elkhorn NRD

601 East Benjamin, Suite #101

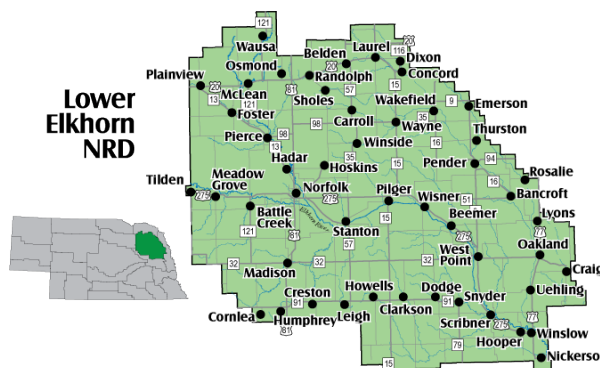
Norfolk, NE 68701

Phone: (402) 371-7313

Website: www.lenrd.org

General Manager: Stan Staab

Email: sstaab@lenrd.org



GROUNDWATER STATUS

The Lower Elkhorn Natural Resources District (District) monitors both groundwater quantity and quality to detect any changes, trends, or problems, as well as to understand the groundwater and the complex hydrogeology of the area. 2012 was a challenging year due to severe drought. The District received over 150 complaints regarding individual well water quantity problems during the summer months of 2012. The District decided to halt any new irrigation development for 2013 as a result of the magnitude and severity of the individual well water quantity complaints. The District will reevaluate whether it will approve new irrigation on an annual basis going into the future.

The District monitors groundwater quantity by measuring the depth of the groundwater in 245 irrigation wells each spring and fall. If groundwater drops to a certain level in any of these wells, the NRD will work with local groundwater users to take protective measures to ensure that groundwater supplies will be sustained long term.

Spring depth-to-groundwater measurements reveal that groundwater levels typically fall and rise over time, closely following precipitation cycles, but have remained sound throughout the years. In the spring of 2012, 120 of the 245 wells measured had higher groundwater levels than in the spring of 2011, which is fairly typical. The drought of 2012 exposed a problem that cannot be detected by spring depth-to-groundwater measurements: groundwater declines that happen during the irrigation season.

This year's drought caused non-stop pumping for irrigation throughout the District. Even though spring groundwater levels were favorable, the heavy pumping caused dramatic groundwater declines in portions of the District during the irrigation season. The District will explore strategies and methods for minimizing the impact of heavy pumping on irrigation-season groundwater declines, including voluntary and educational actions by and for groundwater users in these areas, as well as regulations imposed by the District.

The District collects groundwater samples from irrigation wells each year to monitor groundwater quality. If groundwater contamination reaches 50 percent of the EPA limits for safe drinking water, the District will work with local landowners to stabilize, reduce, and prevent the occurrence, increase, or spread of the contamination.

The District also works with Pierce County farmers in its "Phase 2 Area" to correct a groundwater nitrate contamination problem. Acceptance of the educational, soil and water sampling, and reporting requirements has been very high, with 100% of the farmers complying with the rules in the Phase 2 Area.

Although this year's data are still being evaluated, it appears that there are no major changes in groundwater quality in the District.

The District collects detailed groundwater quantity and quality information from specially installed monitoring wells. The wells, designed by the UNL Conservation and Survey Division, allow the District to monitor specific groundwater formations, and are equipped with sampling pumps and automatic groundwater level sensors. The groundwater level sensors allow the District to track groundwater changes throughout the year by recording measurements multiple times per day.

ACTION STEPS

- **1976** – Begin semiannual (spring and fall) measurements of the depth of the groundwater.
- **1986** – Groundwater Management Plan approved by the Department of Water Resources. Begin annual groundwater quality sampling.
- **1996** – Groundwater Management Plan quantity and quality sections revised.
- **1997** – A district-wide groundwater management area is established, including a “Phase 2” subarea in Pierce County. Farmers in the Phase 2 area must attend educational programs, test their irrigation water, perform deep soil testing, and report these results and irrigation water and nitrogen use to the District.
- **1999** – Monitoring well network started.
- **2005** – The Phase 2 subarea is expanded to include most of Pierce County.
- **2007** – Flow meters required on new wells.
- **2008** – The Lower Elkhorn NRD imposes a stay on new wells and new irrigated acres in the non-hydrologically connected area of the District, an area covering roughly two-thirds of the District.
- **2009** – Rules and Regulations are approved by the Lower Elkhorn NRD to limit new irrigation growth to a per-year average of 2,500 acres in the hydrologically connected and 5,000 acres in the non-hydrologically connected areas of the District. Monitoring wells were installed at nine sites to help understand the hydrogeologic variability in those areas.
- **2010** – The District amended its Rules and Regulations to simplify paperwork requirements for variances. The Lower Platte River Basin Coalition was formed with six other NRDs to address endangered species issues and integrated management planning.
- **2012** – The District agreed to do a voluntary integrated management plan with the Nebraska Department of Natural Resources.

FUTURE

The District continues to study and evaluate groundwater and surface water to gain a better understanding of these important resources.

The District is cooperating with ten other NRDs, the UNL Conservation and Survey Division, the US Geological Survey, and the Department of Natural Resources on two regional hydrogeologic studies that cover roughly half of the state: the Elkhorn – Loup Model (ELM) and the Eastern Nebraska Water Resources Assessment (ENWRA) projects. These projects, which are partially funded by the Interrelated Water Management Plan Program, have and will continue to improve our understanding and management of groundwater resources.

The District participates in two other studies. With the Upper Elkhorn NRD and the UNL Conservation and Survey Division, a study to determine the degree of connectivity between groundwater aquifers and surface water has begun. The District is also working with the US Geological Survey to update an analysis of streamflow trends in the Elkhorn and Platte Rivers, and to evaluate the effect of tile drainage systems on streamflow.

Lower Loup NRD

2620 Airport Drive

Ord, Nebraska 68862

PHONE: (308) 728-3221

Website: www.llnrd.org

General Manager: Leon “Butch” Koehlmoos

Email: butchk@llnrd.org



GROUNDWATER STATUS

District data shows the NRD’s groundwater levels remain higher today than they were in 1972 and average stream flows have also improved. Groundwater levels across the NRD in the spring of 2010 increased an average 0.56 feet increase from levels from 2009.

ACTION STEPS & TIMELINES

- 1975 – Started District static water level measurements
- 1979 – Attempted to implement a water quantity control area, but were denied by the Nebraska Department of Water Resources
- 1980 – Stream gauging began on Beaver Creek due to water quantity issues in Sandhills
- 1981 – Installed transect wells along Beaver Creek as part of study
- 1985 – The first District Groundwater Management Plan implemented
- 1990s – Major expansion of water quantity program, went from 230 to 300 wells for static water level measurements
- 1995 & 2002 - Water Quality Section of Groundwater Management Plan updated
 - Work on streambed conductance measurements in Loup River Basin begins
 - Approve agreement with DNR to survey elevations of all monitoring wells in NRD
- 2005 – Work on streambed conductance measurements in Loup River Basin begins
- 2005 – Approve agreement with DNR to survey elevations of all monitoring wells in NRD
- 2006 – Water Resources Committee & Variance Committee created to deal with water quantity issues
 - Stay issued on the issuance of well permits, certification of irrigated acres required, variance process approved
 - Elkhorn-Loup Modeling Study begins, inter-local agreement signed between eight NRDs and U.S.G.S., funding for initial year of study received from Natural Resources Commission
 - U.S.G.S. completed seepage run measurements on streams in Loup and Elkhorn River Basins
- 2007 – Initiated the installation of SWL data loggers
 - Stay issued on expansion of irrigated acres
 - Adopted new Water Transfer Rules and Regulations
- 2008 – Completed Phase I of Elkhorn-Loup Modeling Study with updated base of aquifer map, stream depletion map on four square-mile grid and operational analytical model
 - Completed Irrigated Acre Certification Process with over 1.2 million acres certified
 - Contracted infrared aerial photography of District for irrigated acre compliance
 - Preliminary determination by DNR that the lower Platte River Basin was fully- appropriated
- 2009 – Fully-appropriated determination for lower Platte River Basin reversed by DNR
 - Adopted rules and regulations to create a process for allowing irrigated acre development as a result of passage of LB-483
 - Granted 2,003 new irrigated acres provided for under LB-483
- 2010 – Adopted new Groundwater Management Area Rules and Regulations that included the definition of a “banked” acre
 - Completed Phase II of ELM Study with refined stream depletion map, updated base of aquifer map, and pump testing to determine transmissivity
 - Completed ELM Study geophysical and test hole analysis of Lower Loup and Upper Elkhorn NRDs
 - Began Area 28 Aquifer Properties and Nitrate Management Analysis Project

- Received Nebraska Environmental Trust Grant for Irrigation Monitoring Project, providing well data loggers and producer cost-share for flow meters
- Completed elevation measurements on all registered irrigation wells in Area 28
- Completed second round of applications for additional 2,000 new irrigated acres provided for under LB-483
- Completed aerial reconnaissance of the major tributaries of the Loup River System for invasive weeds
- Completed second round of infrared aerial photography of District for irrigated acres certification compliance
- 2011 – Completed third round of applications for additional 3,000 new irrigated acres provided for under LB-483
 - Completed spraying of invasive species on the major tributaries of the Loup River System and reconnaissance in river sub-basins
 - Completed another year of the ELM project and established well monitoring program in partnership with UNL Conservation & Survey
 - Completed another year of the Environmental Trust/319 grant project gathering flow data from pump recording sites
 - Hired Wellhead Protection Coordinator and re-established the Wellhead Protection Program
 - Completed third round of infrared aerial photography of District for irrigated acres certification compliance
 - Continued partnership with NRCS and the State of Nebraska on LIDAR mapping of the District
 - Provided financial assistance for repairs of major infrastructure with irrigation districts following flood damage
 - Expanded water quality monitoring for nitrate contamination, deep core soil sampling, and public education program in Water Quality Area 18
 - Began the South Loup River Basin Water Quantity Study to collect data on water quantity conditions to determine long-term trends
 - Began funding a USGS stream gauge on the South Loup River near Arnold
- 2012 – Adopted new groundwater management area rules and regulations, including rules governing irrigation using of lagoon water and prohibiting new irrigated acres within a wellhead protection area
 - Completed another year of the Environmental Trust/319 grant project gathering flow data from pump recording sites
 - Completed another year of the ELM project and continued well monitoring program in partnership with UNL Conservation & Survey
 - Completed fourth round of applications for additional 3,000 new irrigated acres provided for under LB-483
 - Completed aquifer study of Groundwater Management Area 28 in Platte and Nance Counties with Olsson Associates
 - Provided additional financial assistance for repairs of major infrastructure with irrigation districts following flood damage
 - Completed fourth round of infrared aerial photography of District for irrigated acres certification compliance
 - Began 319 grant work within wellhead protection areas in the District

FUTURE

The Lower Loup NRD continues working with USGS to update and upgrade the Elkhorn-Loup Model. The District will utilize the three-dimensional representation of the aquifer created in the Area 28 Study to lower nitrate levels in groundwater. The District will continue its annual infrared aerial photography of the District for irrigated acre certification compliance. The wellhead protection coordinator will assist municipalities in the NRD with wellhead protection planning and implementation. The District will continue to investigate the presence of invasive weeds with aerial reconnaissance on secondary tributaries of the Loup River System. The LLNRD will partner with the Natural Resources Conservation Service on LIDAR (Light Detection and Ranging) mapping of the entire District.

Lower Niobrara NRD

410 Walnut Street, P.O. Box 350

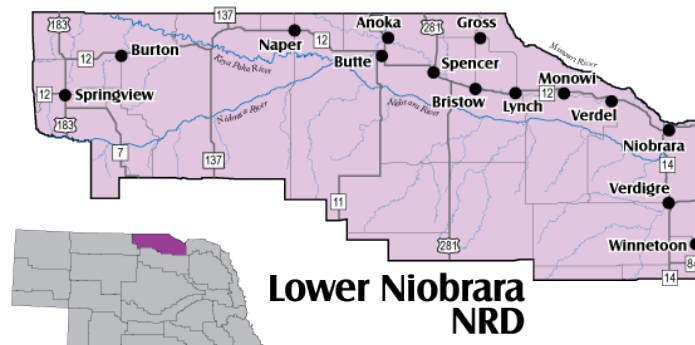
Butte NE 68722-0350

Phone: (402) 775-2343

Website: www.lnnrd.org

General Manager: Terry Julesgard

Email: dfilsinger@nntc.net



GROUNDWATER STATUS

The Lower Niobrara NRD had 60% of the District classified as fully appropriated until reversed by the Nebraska Supreme Court in June 2011. The District is using LB483 to allow for limited irrigation development in the area affected by the reversal. The growth limit is set at 2500 acres per year for the next four years with applications being taken in October 2011 for December 2011 approval and in December 2011 for approval in February 2012. Two application periods remain December 2012 for approval in February 2013 and December 2013 for approval in February 2014. Producers are required to apply for these acres which are ranked by number of wells required, stream depletion, land class and conservation practices applied to the land. A portion of the Lower Niobrara was designated fully appropriated in the Lower Platte River Basin designation. That designation too was later reversed and the last applications have been taken for this area. Future development will be determined through the District Voluntary Integrated Management Plan, which is being developed through the stakeholder committee process. The remainder of the District has no restrictions at this time.

The Lower Niobrara NRD monitors groundwater static water levels in 75 wells each spring and fall. Currently no areas of decline have been identified. Directed by LNNRD Groundwater Quality Management Plan the staff samples irrigation wells on a yearly rotation to identify areas with water quality issues. Through this monitoring program eight areas have been identified to have high nitrates levels. The District has designated these eight areas as Phase II areas. This designation requires producers in these areas to follow best management practices in regards to nitrogen use and complete annual reporting forms which track their nitrogen use by field.

The District has also received an Environmental Trust Fund Grant for the past three years to offset the cost for producers to install flowmeters on their irrigation systems. The flowmeters give the producer a management tool to monitor the amount of water pump as well as helping the District gain a better understanding of the groundwater used. Through the program 78 flowmeters were purchased and installed.

ACTION STEPS & TIMELINE

- 1986 – A Groundwater Management Plan was approved by the state of Nebraska
- 1995 – The Groundwater Management Plan was amended as required by law
- 1996 – Groundwater Quality Management Area implemented
- 2003 – Groundwater Plan was amended by Board and approved by state of Nebraska
- 2004 – A Phase II area was implemented in north central Holt County with high nitrate levels
- 2006 – The second Phase II area was implemented in areas with high nitrate levels in north western Holt County and western Boyd County
- 2007 – On October 17th a portion of the Lower Niobrara was determined fully appropriated
- 2008 – Preliminary determination by DNR that the Lower Platte Basin was fully appropriated
- 2009 – The Lower Platte River Basin fully appropriated determination was reversed by DNR. Rules and regulations were approved to limit irrigation growth to 2500 acres per year for 4 years
- 2011 – Supreme Court reversed the Lower Niobrara River Basin Fully Appropriated designation
- 2011 – Rules and Regulation were approved to allow for limited irrigation in the reversal area

- 2011 – District requested to begin the Voluntary Integrated Management Plan with the Department of Natural Resources

FUTURE

The LNNRD has begun developing a voluntary Integrated Management Plan with the Department of Natural Resources to better manage the ground and surface water resources. Several Stakeholder Committee meeting have been held defining the goals and objectives of the Plan. Certification of irrigated acres has been completed in the areas of the District which were declared fully appropriated and later reversed. Also steps or being taken to certify the remaining irrigated acres of the District. The District is also looking into developing hydro geology maps of the district to help identify sub-areas where more groundwater management may be needed. The staff will continue to sample wells for nitrates, measure static water levels and gather flowmeter readings. The Lower Niobrara NRD will also continue to monitor and implement its Groundwater Management Plan Rules and Regulations and implement new rules and regulations as deemed necessary by its board of directors.

Lower Platte North NRD

511 Commercial Park Road

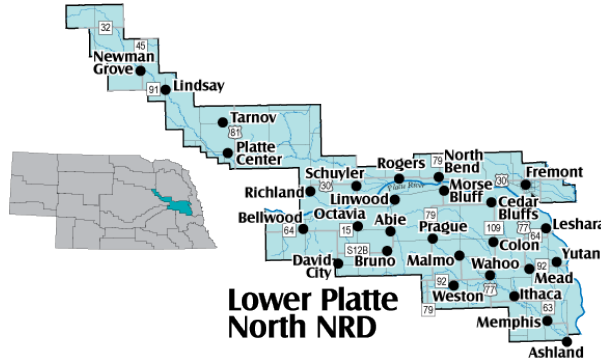
Wahoo, NE 68066

Phone: (402) 443-4675

Website: www.lpnnrd.org

General Manager: John Miyoshi

Email: lpnnrd@lpnnrd.org



GROUNDWATER STATUS & ACTION STEPS

The Lower Platte North NRD (LPNNRD) comprises portions of seven Counties in east central Nebraska: Boone, Madison, Platte, Colfax, Butler, Dodge, and Saunders Counties. The District covers 1,587 square miles or approximately 1.03 million acres.

- 1985 - LPNNRD adopted its first Ground Water Management Plan and instituted a Ground Water Energy Level (GWEL) network in 1986 with 66 wells. The District had 3,110 active registered irrigation wells and a major municipal water user with the City of Lincoln wellfield in the southeast corner of Saunders County.
- 1995 - The LPNNRD updated its Ground Water Management Plan and adopted rules and regulations to address both ground water quality and quantity. The NRD expanded its GWEL network to 118 wells, and at the end of 1995, the District had 3,557 active registered irrigation wells.
- 1997 - The NRD initiated a district wide Ground Water Management Area for water quality, while water quantity areas are addressed on a case-by-case basis. LPNNRD started a district wide water well permit program and nitrogen certification classes for producers.
- 2006 - The LPNNRD has 4,213 active registered irrigation wells, and in addition, the City of Lincoln has expanded its wellfield and the Metropolitan Utilities District (MUD) was constructing a major wellfield in Saunders County (LPNNRD) and Douglas County (Papio-Missouri River NRD), which is expected to go on-line in 2008. The District has an unusual water user in the remediation efforts by the U.S. Army Corps of Engineers at a Former Ordnance plant near Mead, Nebraska. Ground water pumping commenced in 2002 with water use estimated at 3,900 acre-feet per year. Future water uses in the District include expanding ethanol production and the urbanization of Saunders County. The LPNNRD has expanded our GWEL network to 121 wells and installed 18 monitoring wells with continuous recorders placed in sensitive aquifers. For all new water uses permitted by the LPNNRD after October 1, 2005, the District requires a flow meter or time totalizer on wells that pump over 50 gallons per minute.
- 2007 - Declining ground water levels have been noticed in our District particularly in the Uplands of Butler County. This aquifer has reached its trigger level and the District designated this area as a Level One Ground Water Management Area in January 2007. While increased irrigation could likely be sustained in some parts of our District, expansion in the Uplands portion of Saunders and Butler counties raised concerns that small pocket aquifers in the glaciated areas may not be able to accommodate even one or two additional high capacity wells. Therefore, on May 14, 2007 the District declared a temporary stay on new high capacity wells and the expansion of historically irrigated acres in the Uplands. The District became involved with several studies to collect more detailed information about the water resources of our District. These studies included the Elkhorn Loup Model (ELM), Eastern Nebraska Water Resources Assessment (ENWRA), Platte Valley Ground Water Model, and the Subarea Delineation Study. Funding from Integrated Water Management Plan Program Fund (IWMPPF) and the Environmental Trust made these studies possible. Key research agencies were the United States Geological Survey and the Conservation and Survey Division of the University.
- 2008 - The LPNNRD revised its rules and regulations to take into account glaciated portions of our District, effects of the recent drought and new information from our Subarea Delineation Study. This revision included declaring a Level One district wide management area for ground water quantity, different classes of water well permits based on annual usage, and adoption of Stay Management Areas. The temporary stay lapsed on May 10, 2008, but was replaced with Stay

Management Areas in the Swedeburg, Prague, Yutan, and Yutan South subareas. Other subareas may be placed in Stay Management Areas in the immediate future. The District has 4,318 active registered irrigation wells and 139 wells in our GWEL network. The MUD well field is now in operation, whereas ethanol production has stalled. Of the four bio-fuels plants planned for our District, none of them are currently in operation.

- 2009 - With the Department of Natural Resources preliminary designation of 'Fully Appropriated' and subsequent withdrawal of that designation, several changes were made at LPNNRD. LB 483 also mandated options to the NRDs when a Preliminary Designation is withdrawn. Our Rules and Regulations were revised to allow no more than 2,500 acres of new (expanded) irrigation in the area hydrologically connected to the Lower Platte River. The four Stay Management Sub-Areas designated in 2008 remain closed to further expansion of new irrigated acres and a fifth sub-basin was added in the Platte Valley Uplands. We believe these five sub-areas are in balance and any additional withdrawals are not sustainable. LPNNRD has contracted with GIS Workshop to assist in the certification of all irrigated acres within the District prior to the 2010 planting season. Our Ground Water Elevation Level network has expanded from our historical number of 144 to 162 in 2009 and we plan to add another 10 wells in 2010. A DEQ grant for the installation of flow meters in our Level 1 and Stay Management Areas was approved. One of the five NRCS AWEP contracts in Nebraska was approved for LPNNRD. We will use these \$1.8 million over a five year period to more efficiently use our water resources. LPNNRD has also contracted with the University of Nebraska to assist producers with installation of Water Mark Sensors to maximize irrigation efficiency.
- 2010 - The District currently has three ground water development areas: Normal (well permit required); Limited (District can award up to 2,500 new irrigated acres per year through 2012); and Restricted ('offsets' for new water use are required). Ongoing studies include: ENWRA, ELM, and Platte Valley Modeling Studies, along with new studies: mapping the geology of the Swedeburg Subarea using helicopter electromagnetic survey and test holes plus working with Papio Missouri River NRD and Lower Platte South NRD on using the Farm Package Process computer model in conjunction with MODFLOW software to map the aquifers in the Ashland area. LPNNRD staff have started certifying acres, but this is expected to take two years to complete. The District continued work with the University to improve irrigation efficiency by awarding cost share dollars for ET gauges and watermark sensors. Concerning ground water quality, intensive sampling of wells in the Bellwood area is being done to reevaluate the effectiveness of the District's Phase 2 management area for increasing nitrate levels. More sampling is scheduled for 2011.
- 2011 – July 2011 the LPNNRD Board voted to proceed with development of a voluntary Integrated Management Plan (IMP) for the district. The Platte Valley Modeling study will conclude at the end of 2011 and further modeling efforts (contingent upon grant funding) are scheduled for the Todd Valley in 2012. Intensive ground water quality sampling was completed in our Bellwood Phase 2 GWMA to evaluate changes of the nitrate-nitrogen content in the aquifer since 2002 and to compare readings to landowner submitted nitrate results. The District continues to closely monitor cleanup efforts at two superfund sites, the Former Ordnance Plant near Mead and Lindsay Manufacturing.
- 2012 – The summer of 2012 brought on a quick and intensive drought that was felt though-out the State. As a consequence the LPNNRD received several well interference complaints that matched the number of complaints we received during the previous drought years from 2000 to 2006. All types of wells seemed to be affected, but was most noticeable in domestic and stock wells. The Board decided to go ahead with granting an additional 2,500 acres of new irrigation development for 2013 in the hydrologically connected area. The real effects of the drought on ground water levels may not be known until the spring readings of 2013.

FUTURE

The Board of the LPNNRD has agreed to restrict future irrigation development in the hydrologically connected area to 2,500 acres per year as outlined in LB483. The LPNNRD will continue to work to develop a voluntary IMP for our District and work with DNR and other NRD's in the Lower Platte Basin to develop a comprehensive water plan.

Lower Platte South NRD

3125 Portia Street

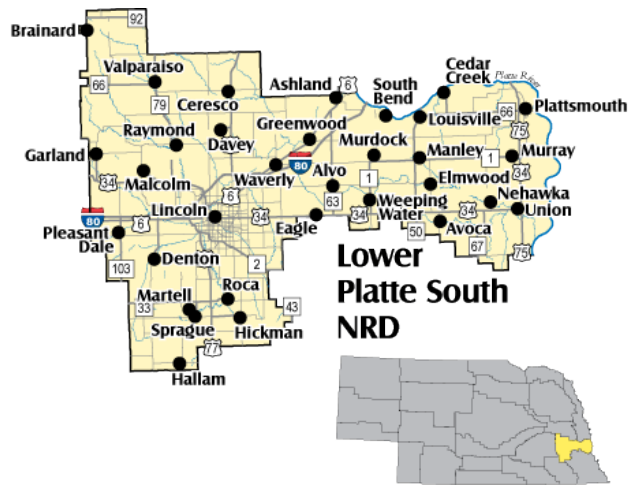
Lincoln, NE 68501

Phone: (402) 476-2729

Web site: www.lpsnrd.org

General Manager: Glenn Johnson

Email: lpsnrd@lpsnrd.org



GROUND WATER STATUS

The LPSNRD currently monitors 130 wells for ground water quality and 110 wells for quantity as part of the District-wide monitoring network. The monitoring network continues to grow and evolve to accommodate the hydrogeologic variability of the area. The LPSNRD also samples about 100 community water supply wells and monitoring wells as part of its on-going efforts to assist communities in monitoring and protecting their ground water supplies. This monitoring network includes all of the public water supply wells in cooperating communities. Several communities, with assistance from the LPSNRD, have installed monitoring wells to supplement their monitoring networks.

ACTION STEPS

- 1970's – Began taking ground water level measurements to supplement information obtained by USGS and others.
- 1980's – Began collecting ground water samples to monitor non-point source contaminants.
- 1985 – First LPSNRD Ground Water Management Plan in accordance with LB1106.
- 1995 – LPSNRD revised its Ground Water Management Plan to incorporate additional requirements in LB 51 (1991) and LB 480 (1994).
- 2002 – Declared the Lower Salt Creek Ground Water Reservoir a Phase II Area for nitrate-nitrogen in ground water.
- 2004 – Declared the Valparaiso Community Water System Protection Area (based on the Wellhead Protection Area boundaries) a Phase II Area for nitrate-nitrogen in ground water.
- 2006—Joined with five eastern Nebraska NRDs and state and local agencies to initiate the Eastern Nebraska Water Resources Assessment (ENWRA), with the goal of developing a geologic framework and water budget for the glaciated area of eastern Nebraska.
- 2008 – Adopted major changes to the District's Ground Water Rules and Regulations involving permitting of wells, installation of water well meters, and ground water quality management.
- 2009—Adopted rules and regulations for the implementation of LB483, involving certification of historically ground water irrigated acres in the Hydrologically Connected Area (HCA) along Salt Creek and the Platte River. Also completed verification studies for eight Community Water System Protection Areas (wellhead protection areas) to determine the source of elevated nitrates in public water supply wells, possibly leading to declaration of additional Phase II or Phase III management areas for nitrate.

- 2010—Designated seven CWSPAs as Phase II and one CWSPA as a Phase III management area for nitrates, and began holding public input meetings to develop programs to address the problem. Also, began certification of irrigated acres in the remainder of the District, and continued efforts toward having water meters installed on all wells pumping more than 50 gallons per minute. Finally, completed a modeling project with the University of Nebraska along Lower Salt Creek funded by the Integrated Water Management Plan Program (IWMPP), designed to document ground and surface water interconnection and test various scenarios to evaluate the District’s current ground water triggers in the Lower Salt Creek Ground Water Reservoir.
- 2011—Completed certification of irrigated acres outside the HCA, bringing the total certified in the District to approximately 23,000 acres. Continued cost-share program for installation of meters on wells and developed program for reporting usage. Adopted rules and regulations for one new Phase II and one new Phase III GWMA in CWSPAs, and began program implementation, and began organization of advisory groups for five other Phase II CWSPAs. Began process of developing the state’s first voluntary Integrated Management Plan (IMP) with a Board of Directors retreat, retaining a consulting firm to develop a District-wide water budget, and kickoff meetings with stakeholders.
- 2012—Completed installation of dedicated pumps in 75 monitoring wells, resulting in increased efficiency of sampling efforts. Purchased and outfitted new sampling vehicle. Continued cost-share program for installation of meters on wells and implemented program for reporting usage. Issued approximately 22 new well permits. Received approximately 50 well decommissioning applications and completed decommissioning about 25 wells. Received and investigated two new irrigation runoff complaints, and continued work on one ongoing complaint. Held advisory group meetings for four Phase II CWSPAs. Continued process of developing the state’s first voluntary Integrated Management Plan (IMP) with completion of a District-wide water budget, retained consultant for development and implementation of public involvement plan, and held several stakeholder and focus group meetings. Began implementation of vadose zone sampling program to support nitrate management efforts. Responded to multiple requests for information regarding drought and effects on ground water supplies. Retained consultant to assist with developing mobile applications for all ground water (and other program) data. Cooperated with UNL-CSD to reorganize ENWRA coordinator position, and participated in hiring effort for new coordinator.

FUTURE

The NRD will continue to develop its voluntary IMP with implementation of its public involvement plan, stakeholder and focus group meetings, and will have a draft of its IMP in 2013. The NRD also plans to have rules and regulations for the remaining Phase II CWSPAs developed and implemented in 2013. The District will continue to implement and expand its vadose zone monitoring program, and coordinate that program with its ongoing ground water monitoring. Finally, LPSNRD will continue to participate in the ENWRA effort, including housing the reorganized coordinator position and cooperating with UNL-CSD to identify and implement mutually beneficial actions.

Lower Republican NRD

30 North John Street - PO Box 618

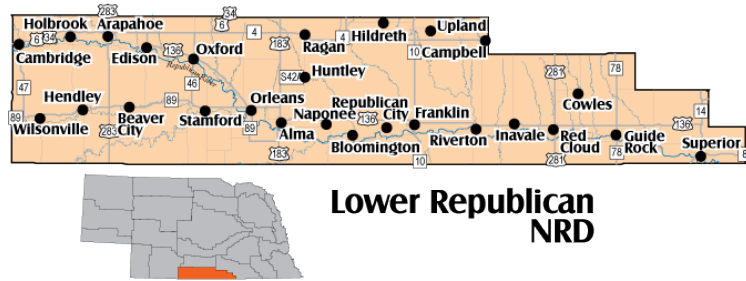
Alma, NE 68920

Phone: (308) 928-2182

Website: www.lnrnd.org

General Manager: Michael Clements

Email: mclements@lnrnd.org



The Lower Republican NRD has been designated as fully appropriated, however, the settlement agreement reached between the states of Nebraska, Kansas, and Colorado has prompted the Lower Republican NRD to implement a number of Groundwater Management Controls. The controls implemented have been for the preservation and conservation of groundwater and for compact compliance.

- December 9, 2002—Moratorium on New Wells
- December 31, 2004—Moratorium on New Acres
- December 31, 2004—Acres Certified (Total Irrigated Acres 325,876)
- April 1, 2005—Metered
- June 24, 2005—Integrated Management Plan
 - Allocations: (Lowest in State)
 - West of Hwy 183 = 36 inches for 3 years / East of Hwy 183 = 33 inches for 3 years
- February 29, 2008—Integrated Management Plan
 - Allocations: 45 inches for 5 years District Wide
- October 1, 2011—Integrated Management Plan
 - Allocation: 45 inches for 5 years District wide

Water Usage

2003 = 13.03 inches per acre	2008 = 5.18 inches per acre
2004 = 11.24 inches per acre	2009 = 5.67 inches per acre
2005 = 7.41 inches per acre (36% below allocation)	2010 = 4.43 inches per acre
2006 = 7.60 inches per acre	2011 = 5.31 inches per acre
2007 = 6.14 inches per acre	

The Lower Republican NRD has been actively involved in promoting and implementing a number of conservation programs aimed at improving irrigation efficiency and lowering our overall use of groundwater.

The LRNRD has recently received a \$4,000,000 Agricultural Water Enhancement Program (AWEP) grant for temporarily or permanently converting from irrigated to dryland. In addition, we have received a \$625,000 grant through the Cooperative Conservation Partnership Initiative program. This program has enabled us to provide soil moisture sensors on 50,000 acres throughout the District.

Conservation Programs and Acres Involved

EQIP—Irrigated to Dryland 6,000 acres

CREP—7,538 acres

EQIP Special Initiative—1,360 acres

AWEP—1,800 acres

16,698 acres permanently or temporarily retired since 2005. This represents over 5% of the total irrigated acres in the LRNRD.

FUTURE: The LRNRD will continue to strive for enhancements to the augmentation supply in the Republican Basin. We will continue to promote the CREP, EQIP irrigated to dryland, and EQIP Special Initiative programs to temporarily and permanently retire irrigated acres. The LRNRD has and will continue to do our part to preserve our most precious natural resource, groundwater.

2009-2011 GROUNDWATER USE BY COUNTY

COUNTY West to East	AVERAGE (Acre-Inch)		
	2009	2010	2011
FURNAS	4.54	5.41	6.44
HARLAN	5.49	4.56	5.85
FRANKLIN	6.14	3.92	4.85
WEBSTER	7.25	3.91	3.88
NUCKOLLS	4.83	5.10	4.18
Average District Usage	5.65	4.43	5.31

Middle Niobrara NRD

526 E 1st Street, Valentine, NE 69201

402-376-3241

Manager: Mike Murphy

mnnrd@qwestoffice.net

Fax: 402-376-1040

Website: www.mnnrd.org (under construction)



GROUNDWATER STATUS

Bordering South Dakota, the Middle Niobrara Natural Resources District lies in North Central Nebraska along the middle stretch of the Niobrara River. One of the largest NRD's in the state, the district has an area of 2.9 million acres which includes the northern two thirds of Cherry, western Keya Paha, northern Brown and a small parcel of western Rock Counties.

ACTION STEPS & TIMELINE

Irrigation well development in the MNNRD began as early as 1927 and slowly increased until the 1970's when there was a very sharp increase with 618 irrigation wells being completed.

Since the 1980's there has been a gradual increase with a present total of 920 certified active irrigation wells. In 1975, the MNNRD began to monitor groundwater. In 1986, information began to be analyzed to develop a Ground Water Management Plan. Wells measured from 1975 to 1990 showed static water levels increased an average of 2.5 feet. Irrigation withdrawals were compared to annual recharge throughout the district and it was determined that only 5 townships had well equivalents in excess of recharge rates. The remainder of the district had recharge in excess of withdrawals.

The district's Ground Water Management Plan was approved by the Nebraska Department of Natural Resources in 1995, with the rules and regulations portion initially approved in 2001 and most recently updated May 5, 2011 to include a transfer of certified acres process and update the certification of irrigated acres process. The MNNRD GWMP is primarily qualitative. Qualitative management includes Management Zones 1 thru 4 with Zones 1 thru 3 in effect. Updates to the rules and regulations in April of 2007 now require all persons who apply any type of fertilizer, commercial or organic, on a total of more than five (5) acres of land in all management zones are required to complete a fertilizer applicator certification course once every four (4) years. Producers in Zone 3 (nitrates greater than 5ppm in more than 50% of the wells) are also required to use and adopt two or more Best Management Practices from an approved list and conduct soil testing. Quantitative management includes the goal to forever maintain the present level of groundwater within historic natural fluctuations that occur. Groundwater levels are monitored by the measurement of static water levels twice a year at 126 sites. Permits are required for all new and replacement wells which pump over 50 gallons per minute.

The Lower Niobrara Basin was declared fully appropriated on January 25, 2008 placing a moratorium on new high capacity wells and surface water development, and on expansion of irrigated acres. A contestment was filed with NDNR by four NRDs on February 9, 2008 to request NDNR to determine if the Lower Niobrara Basin is truly fully appropriated. This case went all the way to the Nebraska Supreme Court. On June 3, 2011 the Supreme Court reversed the fully appropriated determination. On June 29, 2011 NDNR notified the District that they have 120 days to come up with rules and regulations to comply with LB 483. These regulations could allow for limited expansion on new groundwater and surface water uses. On September 12, 2011 the District passed regulations that would allow for up to 2500 acres per year, of new groundwater irrigation and or equivalent uses to be allowed, for the next four

years. The District has approved 4915 acres of new irrigated acres and uses the past 2 years. The MNNRD will be taking applications for the 3rd year of the LB 483 process in August and September of 2013.

FUTURE

The District has certified 87,000 groundwater, 29,652 surface water, and 6,985 combination surface/ground water irrigated acres. Permanent water level recorders were placed in 31 wells throughout the district in 2010 and 10 more were added in 2011 to gain a better understanding of seasonal groundwater fluctuations. In addition to this, in 2010 the District completed a study with USGS to explore the aquifer properties near Plum Creek. 28 water level recorders and the aquifer test with USGS were funded in part by the Nebraska Environmental Trust. The addition of these data will allow the District to make better decisions when implementing policy. The District also promotes water conservation through a cost share program that includes assistance on pivot conversions and gated pipe. Flow meters are not required, but an ultrasonic flow meter check is offered to irrigators free of charge. The MNNRD is also participating in the ELM study with the Elkhorn and Loup NRD's and has started a study to improve water quality and stream degradation in the Long Pine Creek watershed.

Middle Republican NRD

220 Center Avenue, PO Box 81

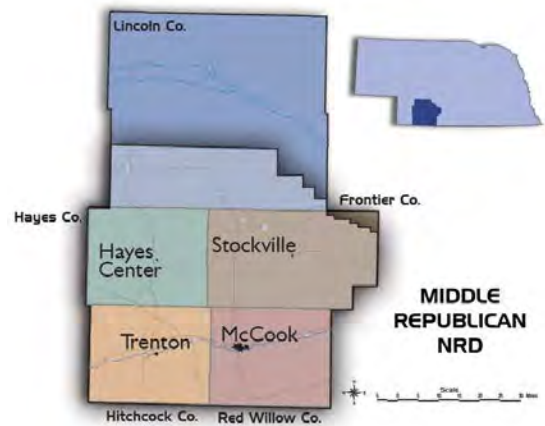
Curtis, NE 69025

Phone: (308) 367-4281

Web site: www.mrnrd.org

General Manager: Daniel Smith

Email: office@mrnrd.org



HISTORY

Following a request by the districts to the Department of Water Resources, the Republican Basin received a preliminary designation of being fully appropriated under LB108 in September of 1996. The Joint Action Plan process was placed on hold during the lawsuit with Kansas from May 1998 to July 2003. In July of 2003 a final determination of conflicts under the LB 108 process was made and the development of rules and regulations began. In July of 2004 a “fully appropriated” designation was made under LB 962 and the Joint Action Plan process was replaced by the Integrated Management Plan process. The first generation Integrated Management Plan (IMP) became effective on January 1, 2005. The third generation IMP became effective on November 1, 2010 and the rules and regulations to implement that plan took effect in August of 2012. This third generation IMP provides for reductions in pumping and curtailment of surface water during a Compact Call Year and continues the compliance standard with regard to individual district uses that were developed in 2008.

The first Ground Water Management Area was adopted in July of 1998 and has been revised several times to reflect changes in emphasis, legislation and the compact settlement. A Quality Management Area along the main stem of the Republican River in Hitchcock and Red Willow Counties was created and adopted in 1993 and we continue to monitor levels of nitrate contamination in this area. Average levels of nitrates are approximately 7.5 mg/l and have not increased since 1993. Many areas show a reduction in the levels of nitrate.

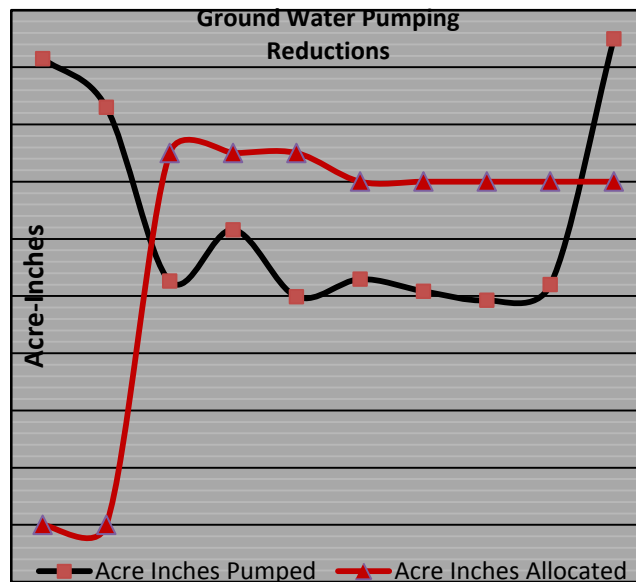
Figure 1

Ground Water Management Area

Established	July 1, 1998
Revised	July 1, 1999
Revised	July 1, 2000
Revised	Nov. 17, 2003
Revised	January 1, 2005
Revised	October 3, 2006
Revised	February 1, 2008
Revised	March 16, 2009
Revised	August 2012

Integrated Management Plan

Established	January 1, 2005
Revised	October 3, 2006
Revised	January 8, 2008
Revised	August 2, 2010
Effective	November 2010



MAJOR ACTIONS

- Temporary Suspension of Drilling June 12, 2002
- Certification of Irrigated Acres November 2003
- All Water Uses Metered December 2004
- IMP implemented January 2005

The third generation of the IMP included an improved forecast provision and the possibility of pumping restrictions in a compact call year. These restrictions apply to surface water and ground water users. Ground water allocations may be subject to a reduction in order to maintain compact compliance. These reductions would apply to all ground water irrigated acres in the district. Bans on new wells and new acres remain in place.

Revised allocation for the period of 2013 through 2017 is 60 inches for five years. Actual pumping levels throughout the District have been less than the set allocation. Yearly pumping data and irrigated acres are provided to the Department of Natural Resources to be used in compact accounting. **See Figure 1 on reverse side.**

Irrigated acres in MRNRD – 309,532 (approximately 1 acre in every 8 is irrigated)

Actual irrigation water use:

2005--8.52 inches	2006--10.32 inches	2007-- 7.98 inches
2008--8.59 inches	2009--8.17 inches	2010-- 7.85 inches
2011--8.40 inches	2012--17.0 inches (est.)	

PROGRAMS

- Retirement of Irrigated acres:
CREP – temporary – 13,000 acres 10 to 15 years beginning in 2005 and 2006
EQIP, AWEP and ARP – 3420.9 acres 2005 through 2012
Riverside Irrigation Company 672 acres of surface water and 305 acres of commingled ground water.
- River Flow Enhancement – The revised authorities provided by LB 862 will be used to fund retirement programs, leases and augmentation. Planned assessment of \$9.50/acre.
- Riparian Projects – River riparian improvements completed. Maintenance efforts continue.
- N-CORPE Nebraska Cooperative Republican Platte Enhancement Project. An interlocal agreement with the Twin Platte, Upper Republican, Middle republican, and Lower Republican NRDs to purchase 19,500 acres and develop pipelines to augment flow in both the Platte and Republican Rivers.

2013 AND BEYOND

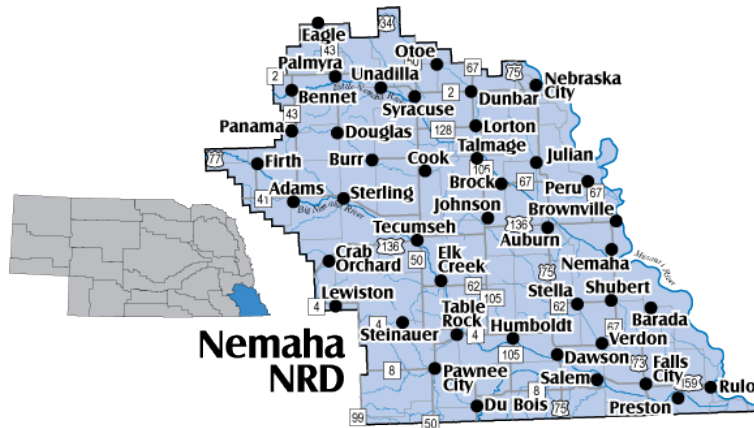
Integrated Management Reductions in pumping will continue to be achieved using a combination of regulation, incentive programs, and other management actions. The revised occupation tax authority in LB 862 in 2010 finally makes it possible to move forward with larger scale programs and projects. The MRNRD continues to work with the other districts in the basin and DNR to improve our IMPs and to provide the most accurate data possible for compact accounting. The MRNRD completed purchase of the Riverside Irrigation Company in 2012 freeing up nearly 2000 acre feet to be used for meeting our compliance standards. The recent purchase of 19,500 acres in Lincoln County by four NRDs will lead to stability within the basin and allow the districts to maintain compliance with our IMP standards and aid Nebraska in Compact Compliance.

FLOOD CONTROL

The district provides operation and maintenance of 34 flood control structures. These structures are on tributaries to the Republican River and are all dry structures. They capture flood flows and release them over a period of days to minimize the flood effects of significant storms.

Nemaha NRD

62161 Hwy 136
Tecumseh, NE 68450
Phone: (402) 335-3325
Website: www.nemahanrd.org
General Manager: Bob Hilske
Email: nnrd@nemahanrd.org



GROUNDWATER STATUS & ACTION STEPS

The Nemaha NRD is served by just a few aquifers that yield large amounts of water for the majority of uses in the District. Although irrigation has typically been somewhat limited within the District, the 1970s and the 2000s each saw a big jump in new irrigation well construction with 206 and 220, respectively. This compares to 30 in the 1950s, 41 in the 1960s, 38 in the 1980s, and 29 in the 1990s. From 2010 to the present a total of 58 have been constructed. Due to the very hot and dry summer this year along with high commodity and land prices, a high demand for irrigation wells is anticipated. There are currently 622 registered irrigation wells in the District.

August, 1999 - The entire District was designated as a Phase I Groundwater Management Area (GWMA). Phase I controls require a permit, prior to construction, for wells designed to pump greater than 50 gallons per minute. To date, 472 wells have received approved permits throughout the District, however only 328 were ever constructed due to the permit expiring or lack of sufficient groundwater quantity.

May, 2006 - Responding to increased well development and conflicts among some users, the NRD board issued a District-wide, temporary, two-year closure to the issuance of well permits effective May 15, 2006. The closure was blanketed District-wide as defensible data to support delineated aquifer boundaries was not available. Also, during this time the District's Groundwater Management Plan (GWMP) was in the process of being updated in order to better address groundwater quantity issues. A variance process was also established during the two-year closure requiring greater spacing between high capacity wells, drilling of a testhole and Board approval. This allowed the District to better scrutinize each request on a case by case basis. Since the May 15th, 2006 temporary closure, 217 applications have been considered, 135 were approved and constructed, 8 were denied, 35 expired and 39 are currently pending registration.

The District currently has eight active continuous read water level recorder wells and hand measures over 120 wells (irrigation, livestock, domestic, and public water supply) each spring and fall. Forty seven of these wells located in a marginal production aquifer area have been measured weekly or twice monthly for static water level from June through August for the past seven years. One domestic well in that area had been pumping some air during peak irrigation periods for the past few years however the landowner opted to connect to a rural water connection this year that ran adjacent to their property.

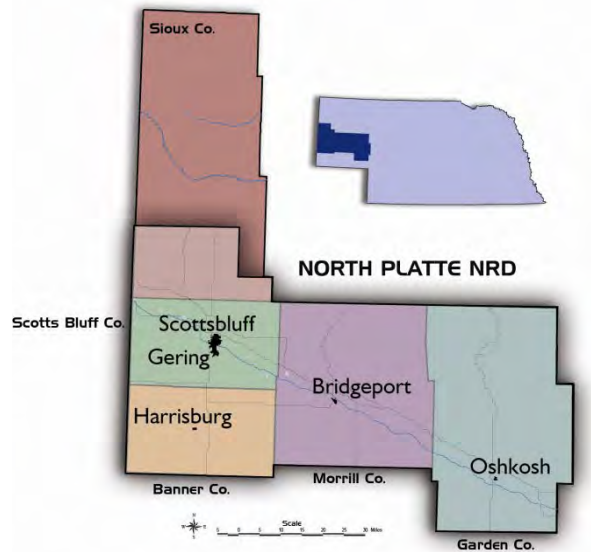
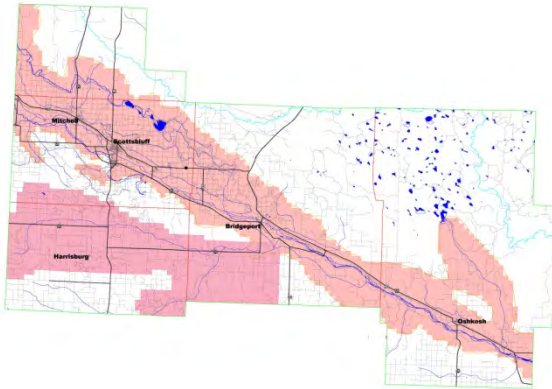
A three year grant application from the Integrated Water Management Policy Program Funds (IWMPPF) was submitted to and approved by the Nebraska Natural Resources Commission in 2006. The funds were used to collect hydrogeologic data, install additional continuous recorder wells and develop a groundwater model in order to delineate aquifer boundaries, develop management areas and regulate groundwater use accordingly. It was the District's goal to have the GWMP updates completed and in place by the May 2008 well permit closure expiration date, however that date was extended until October, 2008. Additional changes to the District's Groundwater Management Plan and associated Rules and Regulations prompted the District to initiate a temporary 180 day stay

on new high capacity well development in lieu of extending the temporary closure rule a second time. The new Groundwater Management Rules and Regulations went into effect on February 1st, 2009 thus ending the temporary 180 day stay early.

The District is also a partner with the Eastern Nebraska Water Resources Assessment (ENWRA) group that is researching geophysical technologies to delineate the glaciated aquifer regions of eastern Nebraska. A Nebraska Environmental Trust Fund (NETF) grant was submitted this past September to conduct helicopter time domain electromagnetic flights at two locations within the District. Announcement of the grants approved by the NETF for 2013 will be announced in April.

North Platte NRD

100547 Airport Road
P.O. Box 280
Scottsbluff, NE 69363-0280
Phone: (308) 632-2749
Website: www.npnrd.org
Manager: Ron Cacek
E-mail: cacek@npnrd.org



The NPNRD showing the Overappropriated area in light pink and the Pumpkin Creek Basin sub-area in dark pink. (DNR 2004)

GROUNDWATER STATUS

- Recharge and return flows in the North Platte Valley are highly dependent on the delivery of irrigation water through the canal system
- The total water in the system is highly dependent upon the snowfall and run off from the Rocky Mountains in Colorado and Wyoming. This also has a direct impact on the amount of water available downstream.

ACTION STEPS & TIMELINE

The North Platte NRD has been proactive in dealing with the water issues and with the drought:

- **2001** -- A moratorium was placed on the drilling of new wells in the Pumpkin Creek Basin Sub-area (first on Platte River Basin).
- **2002** -- A moratorium was placed on the drilling of new wells in the rest of the NRD.
- **2002** -- All ground water uses in the Pumpkin Creek Basin Sub-area were certified.
- **2003** -- A ground water irrigation allocation of 15 acre-inches per acre was implemented in the Pumpkin Creek Basin Sub-area. A ground water allocation has been maintained each year since, reviewed and adjusted according to water levels and use demand.
- **2004** -- DNR placed a stay on the expansion of irrigated acres.
- **2005** -- Pumpkin Creek Basin Sub-area ground water irrigation allocation is reduced to 14 acre-inches per acre per water year.
- **2006** -- Approximately 2,500 irrigated acres were permanently retired in the Pumpkin Creek Basin Sub-area through a conservation easement.
- **2006** -- Rules and regulations were adopted for the certification of all ground water uses in the District and for the installation of flow meters in the overappropriated portion of the district.
- **2007** -- The allocation for ground water irrigation use in the overappropriated area of the District is set at 18 inches per acre per water year, beginning with Water Year 2009.

- **2007** – The NRD joins with other Panhandle NRDs and counties to form the High Plains Weed Management Association to address the control of invasive plant species in the upper Platte River Basin.
- **2007** – The District begins a cooperative effort with Panhandle NRDs and the NRCS to promote continuous no till farming practices and hold no till producer workshops and an annual no till conference.
- **2007** – Rules for the transfer of ground water within the District, except for the Pumpkin Creek Basin Sub-area, are adopted.
- **2008** – Certification within the District is completed and flow meter installation on wells in the overappropriated area of the District is complete.
- **2008** – The ground water irrigation allocation for the Pumpkin Creek Basin Sub-area was reduced to 12 acre-inches per acre per water year.
- **2008** – The ground water irrigation allocation of 18 acre-inches per acre per water year goes into effect in the overappropriated area of the District.
- **2009** – The Integrated Management Plan is adopted on September 14.
- **2009** – The Basin-wide Plan for the overappropriated portion of the Platte River Basin is adopted and took effect on September 11.
- **2010** – Implementation of the Integrated Management Plan begins.
- **2010** – **The ground water irrigation allocation is set at 56 acre-inches per for the allocation period of Water Year 2010 through 2013.**
- **2011** – 8,347 irrigated acres have been temporarily retired within the District.
- **2012** – Changed allocation in the Pumpkin Creek Basin Sub-area from 12 acre-inches per acre per year to 36 acre-inches per acre pre three years starting in Water Year 2013 and ending in Water Year 2015.

FUTURE

The North Platte NRD is continuing to develop the Western Water Model, which consists of both surface and groundwater components. The model will provide with one of the most up-to-date tools the NRD can have to meet the needs of both our constituents concerns and our statutory obligations. It will provide a better picture of how the groundwater and surface water work together, and it will give our Board of Directors the best available information when making decisions.

The District is exploring ways to partner with landowners, canal companies, and irrigation districts to develop recharge project that could provide both immediate and long term impacts to the river. We are also exploring other opportunities to expand our leadership role in educating both adults and children, rural and urban, about the urgency of protecting western Nebraska's water resources.

The District is continuing to seek ways to address the water issues on the North Platte River and is working with other Platte Basin NRD's to meet the obligations established in LB 962. We are evaluating on an ongoing basis the effectiveness of our actions in implementing the Integrated Management Plan.

Papio-Missouri River NRD

8901 S. 154 St.

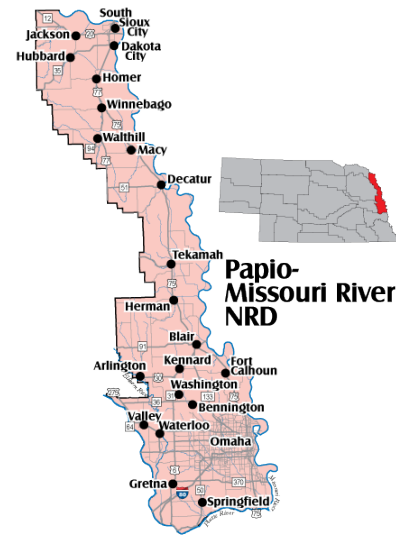
Omaha, Nebraska 68138-3621

Phone: (402) 444-6222

Web site: www.papionrd.org

General Manager: John Winkler

Email: jwinkler@papionrd.org



GROUNDWATER STATUS

To date, the Papio-Missouri River NRD has not documented any decline in water levels or serious water quality issues. Monitoring results to date reflect the cyclical nature of irrigation well pumping and recharge, but have not shown any significant long-term declines. On December 16, 2008, the Department of Natural Resources made a preliminary determination of fully appropriated for the Lower Platte River Basin and then made a final determination of not fully appropriated on April 8, 2009. Prior to that final determination, legislative bill 483 passed with an emergency provision requiring NRD's, in which a change in status to not fully appropriated occurs, to manage the expansion of groundwater irrigated acres over a four year planning period. The intent was to keep the basin from becoming fully appropriated during that planning period. The P-MRNRD imposed an immediate stay on the construction of new water wells and the expansion of groundwater irrigated acres in the area in which surface water and groundwater are hydrologically connected to the Lower Platte River without a variance from the District and adopted regulations for the granting of those variances. The District certified irrigated acres and placed a limit on the expansion of groundwater irrigated acres of not more than 2,500 acres per year. While the stay was originally put in place for a four year planning period, the District elected to begin the process of developing a voluntary Integrated Management Plan (IMP) for the Lower Platte River basin with the Nebraska Department of Natural Resources (NDNR). The stay will remain in place with a limit of no more than 2,500 acres of new groundwater irrigation development per year through the two year development of the IMP. The IMP will be developed with cooperation of numerous stakeholders in the Platte River basin and will incorporate and address the goals and objectives of those stakeholders. The District is also participating with the other NRD's in the Lower Platte River basin and NDNR on the development of a basin-wide plan.

The District has also partnered with the US Geological Survey, Lower Platte North NRD, Lower Platte South NRD and ENWRA to develop a pilot groundwater flow model in the Ashland area. The model implements the Farm Process for MODFLOW, a full water budget analysis tool, to help the District better assess the water budget components of the Lower Platte system. It is anticipated that this model will be utilized to assess any controls implemented by the IMP to ensure those controls further the goals and objectives. The District is monitoring 43 wells for quantity and 30 wells and 6 nested wells for water quality.

ACTION STEPS AND TIMELINE

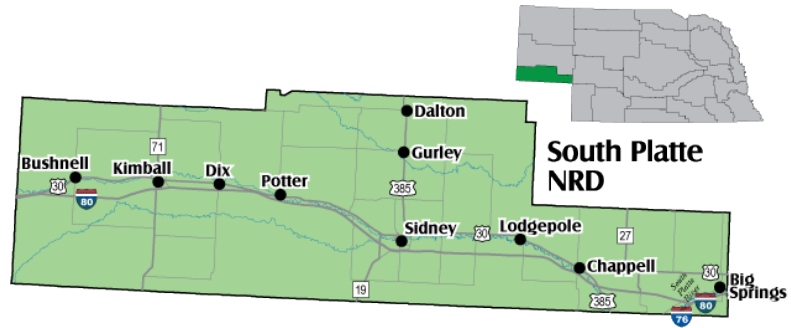
- 1978 – Initiated static water level monitoring program in the District.
- 1985 – Adopted Groundwater Management Plan (GWMP) as required by law.
- 1994 – Revised GWMP to include triggers for groundwater quantity and groundwater quality.
- 2009 – Imposed stay on new irrigation wells and expansion of groundwater irrigated acres.
- 2011 – Completed Ashland area pilot groundwater flow model.
- 2012 – Began voluntary Integrated Management Plan development.

FUTURE

The Papio-Missouri River NRD does not anticipate long-term declines in groundwater levels within the District. The District will continue to monitor both quantity and quality to continue to build the database. This information is provided to US Geological Survey and the Conservation and Survey Division at UN-L. The data is permanently stored in the Nebraska Dept. of Natural Resources Data Bank. The District is a partner in the joint Eastern Nebraska Water Resources Assessment (ENWRA) project to better map and manage the groundwater resources in Eastern Nebraska.

South Platte NRD

P.O. Box 294,
551 Parkland Drive
Sidney, NE 69162-0294
Phone: (308) 254-2377
Website: www.spnrd.org
General Manager: Rod L. Horn
Email: rlhorn@spnrd.org



GROUND WATER STATUS

Wet springs at the end of the first decade in the 21st century, coupled with more efficient water use during preceding drought years, have resulted in more stabilized water levels across the District. Despite that progress, ground water levels remain far below those measured 20 years ago, in some areas more than 20 feet lower than historical marks. The District continues to develop a more detailed understanding of ground water, as well as programs to further reduce consumptive water uses. The entire SPNRD is either fully appropriated or overappropriated.

ACTION STEPS AND TIMELINES

- Since its inception in 1972, the SPNRD has been recording the depth of ground water in a network of observation and recorder wells to monitor ground water trends. The District works with the UNL Conservation and Survey Division to provide data collection, data storage and interpretation.
- 1985-1986 – SPNRD’s Ground Water Management Plan required by LB 1106 (1984) was completed and approved by the Nebraska Department of Natural Resources, which established “trigger mechanisms” for the Ogallala and alluvium aquifers. Due to the complex nature and extreme water table fluctuations, a Brule aquifer observation zone was established in 2002 to enable the District to better monitor this resource.
- 1998 – The Cooperative Hydrology Study (COHYST) was started to develop scientifically supportable hydrologic databases, analyses, models, and other information in the Platte Basin in Nebraska upstream of Columbus. The SPNRD was a sponsor.
- 2001 – The SPNRD Board of Directors revised its Ground Water Management Plan to incorporate a Ground Water Integrated Management Plan and to establish a Districtwide Ground Water Management Area Designation.
- October 2002 – The SPNRD Board of Directors adopted an order to establish a Districtwide Ground Water Management Area to manage ground water for concerns of quantity, integrated management and quality.
- October 2002 – The SPNRD Board of Directors adopted an order establishing the Lodgepole Creek Integrated Ground Water Management Subarea, which placed a moratorium on permits for new wells with a capacity of 50 gallons per minute or greater.
- 2002-2006 – The District completed certification of 133,457 total irrigated acres with 1,312 registered irrigation wells.
- January 2004 – SPNRD Board of Directors ordered a temporary suspension of water well construction for all areas of the District not already in a moratorium.
- January 2004 – Board of Directors approved requirement to have flow meters installed on irrigation wells District wide. Flow meters were installed incrementally through March 2009.
- July 2004 – Because of LB 962 (2004), stays were placed on the drilling of new large capacity wells and expansion of irrigated acres throughout the District.
- August 2004 – To meet requirements of LB962, Board of Directors re-aligned ground water management subcommittees and began forming Integrated Management Plan Committee to help form and make recommendations on IMP.
- September 2004 – Because of LB 962, the entire SPNRD was designated as either fully appropriated or overappropriated.
- November 2006 – The SPNRD board adopted amendments to the Districtwide Ground Water Management Area Rules and Regulations incorporating allocation, transfer and pooling procedures.
- January 2007 – First District-required allocations went into effect for 2007 growing season.
- October 2007 – Under the Districtwide Ground Water Management Rules and Regulations began making adjustments to Certified Irrigated Acres through variance requests, voluntary and conservation program CIA retirements, and well deferments.
- July 2008 – The SPNRD and NDNR Integrated Management Plan (IMP) was adopted and went into effect.
- January 2009 – Allocations began in the last subareas phased in under the District’s requirements.

- April 2009 – The Platte Basin Habitat Enhancement Program set out to increase habitat diversity and the resilience of the Platte River Basin ecosystem. With funding from NET, NDNR, the Nebraska Game and Parks Commission and five Platte Basin NRDs, the program develops projects to reduce consumptive water use or increase benefits to wildlife. Using these and federal funds, the District has developed a number of conservation easements permanently retiring irrigated acres, and participated in water recharge projects.
- July 2009 – The SPNRD, NDNR and Platte Basin NRDs approved and implemented the Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin.
- July 2009 – With approval of the Basin-Wide Plan, the SPNRD and NDNR modified, approved and implemented Rule 9 of the District IMP, relating to overappropriated portions of the District.
- July 2009 – The SPNRD Board adopted amendments to the Districtwide Ground Water Management Area Rules and Regulations, lowering allocations in four subareas in the Lodgepole Valley and Sidney Draw areas beginning in the 2010 irrigation season. The four subareas were the first in the District to be placed under allocation restrictions, which began in March 2007.
- February 2010 – As part of the IMP process, the District began the process to account for industrial/ commercial water uses and establish baselines.
- July 2010 – Platte Basin NRDs and NDNR performed the first review of the Basin-wide Plan, including a public hearing to receive testimony.
- May 2011 – The Board approved the Amended and Restated Districtwide Ground Water Management Area Rules and Regulations, which included provisions under LB 477 (2009) providing that no transfer of certified irrigated acres or certified water use be accepted without the prior approval of any lienholder. The restated rules and regulations also repealed three other ground water management documents relating to both ground water quality and quantity that were incorporated into the new rules and regulations.
- July 2011 – Platte Basin NRDs and NDNR held the second annual review of the Basin-wide Plan, including a public hearing to receive testimony.
- September 2011 – The Board approved the final baselines for municipal water accounting, completing the process to account for most ground water uses within the District.
- March 2012 – The Board approved amendments to the Districtwide Ground Water Management Area Rules and Regulations, adjusting allocations for irrigation years 2013-2015. Substantive changes were made for the District's tablelands, which were reduced from a 20" per year average to 14" per year average.

RESEARCH & TECHNOLOGY

The District is constantly searching for more information on water resources in efforts to manage the resource wisely and fulfill the requirements of state law. Some recent projects include:

- April 2008 – Began aerial geophysical surveys across the District to help determine the feasibility of electronically mapping hydrogeological features. The South Platte, North Platte and Twin Platte NRDs have sponsored the ongoing project, in conjunction with the USGS and the Nebraska Environmental Trust.
- January 2009 – The District commissioned a study from the University of Nebraska Bureau of Business Research entitled "The Economic Impact of South Platte NRD's Integrated Management Plan and Districtwide Ground Water Management Area Rules and Regulations," to determine possible impacts and implications the regulations might have on the agricultural community and District economy as a whole.
- February 2009 – In partnership with the North Platte NRD, began development of the Western Water Use Management Model to provide modeling information specific to the SPNRD and NPNRD not included in the COHYST Model. The model will be capable of calculating the success of management actions and options in relation to achieving goals outlined in the IMPs and Districtwide Ground Water Management Area Rules and Regulations, and provide a greater understanding of hydrogeology within the districts.
- July 2009 – Began development of a Water Accounting GIS, which would handle all calculations for irrigation and industrial flow meters and municipal water accounting use. The database will take individual property dynamics into account to more efficiently generate water management reports.
- April 2010 – Received a grant from the Nebraska Environmental Trust for Expanding the Hydrogeological Framework for Selected Areas of the South Platte NRD to expand the District's monitoring well network. The expansion will extend the District's capability to physically monitor ground water quality and ground water levels in areas not previously measured.
- July 2010 – With a grant from NET began a study on the economic impact of reduced ground water allocations in the Nebraska Panhandle, and development of educational programming to improve crop management with less water.
- July 2010 – The Board of Directors approved an agreement with NDNR for a study of flows in Lodgepole Creek to 1) review historical stream flow data to determine the extent of live stream within the Lodgepole Creek subarea and a hydraulic evaluation of how such flow translates to the South Platte River; 2) refine the stream depletion analysis completed by COHYST (2008) and provide additional assessment of depletions that must be offset in the Lodgepole Creek subarea; 3) evaluate the feasibility of using Lodgepole Creek subarea flows to augment flows in the South Platte River.

Tri-Basin NRD

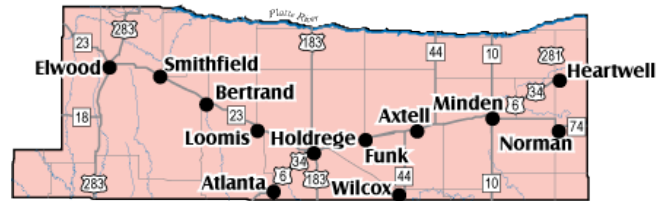
1723 N. Burlington St., Holdrege NE 68949

Phone: 308-995-6688

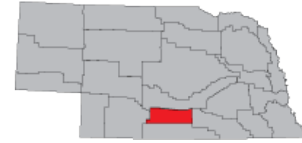
Web Site: www.tribasinnrd.org

Manager: John Thorburn

Email: jthorburn@tribasinnrd.org



Tri-Basin NRD



GROUNDWATER STATUS

Tri-Basin NRD includes portions of the Platte, Republican and Little Blue River basins in south-central Nebraska. All irrigated land in the district has been counted and certified. No additional irrigated acres can be developed anywhere within the district. Flowmeters are in place on all wells in the Republican Basin portion of the district and are required on all conditional replacement wells. Transfers of groundwater and certified irrigated acres are regulated under NRD rules.

ACTION STEPS & TIMELINES

- 1977- Tri-Basin initiated a district-wide groundwater level data observation network.
- 1981-87- Tri-Basin worked with US Geological Survey (USGS) and NE Natural Resources Commission to model groundwater resources in south-central Nebraska. This model was used as a basis for Tri-Basin's first groundwater management plan.
- 1989- Tri-Basin established a groundwater management area to protect groundwater quality.
- 1995- Revised NRD groundwater management plan was approved by Nebraska Department of Water Resources.
- 1996-Tri Basin and other Republican Basin NRDs initiated "LB 108" process for Republican Basin portion of the district to regulate groundwater users to protect Republican River streamflows. It was suspended at the request of Attorney General Don Stenberg after Kansas filed a lawsuit against Nebraska over Republican River Compact compliance in 1998.
- June, 2003- Tri-Basin NRD required flowmeters on all irrigation wells in the Republican Basin portion of the district. Flowmeters are also required on all new wells district-wide.
- July, 2004- Tri-Basin NRD and DNR agreed on a joint action plan for the Republican Basin portion of the district under LB 108 provisions.
- September, 2004- Tri-Basin declared a district-wide groundwater quantity management area and an integrated management area to protect Platte and Republican basin streamflows.
- March, 2006- Tri-Basin expanded the integrated management area to include an area in the Platte Basin designated that same month by DNR.
- October, 2006- Tri-Basin closed the Little Blue Basin portion of the district to development of additional irrigated acres to prevent groundwater declines. Tri-Basin is working with Little Blue and Lower Republican NRDs to develop a joint plan for management of groundwater supplies.
- May, 2008- Nebraska Game & Parks Commission (NGPC), Central Nebraska Public Power and Irrigation District (CNPPID) and Tri-Basin NRD approved an agreement that enables Tri-Basin and NGPC to compensate CNPPID for delivering excess water to Elwood Reservoir. These water deliveries protect the fishery at Elwood Reservoir and provide groundwater recharge that benefits both the Platte and Republican River basins.
- September, 2008- Tri-Basin NRD designated one township in Gosper County as a phase 3 Groundwater Quantity Management Area, due to declining groundwater levels. Groundwater pumping was limited to a total of 27 inches per acre for 2009-2011. An adjacent township was designated as phase 2 for quantity management.

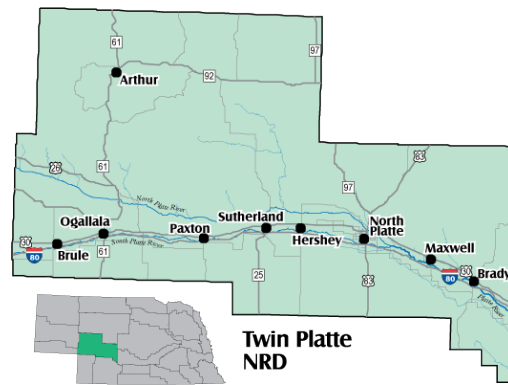
- July, 2009- Tri-Basin NRD and CNPPID approved an agreement for CNPPID to request that DNR re-classify 3000 acres of surface irrigation water rights for instream flow. The water will be delivered to the Platte River near Lexington and will offset groundwater well depletions to streamflows.
- August, 2009- Tri-Basin NRD and NDNR agreed on joint IMP for the Platte Basin portion of the NRD. The IMP and associated NRD rules changes take effect September 15, 2009.
- September, 2010- Tri-Basin NRD board authorized geologic investigation to determine feasibility of construction of a groundwater recharge reservoir at a site east of Minden along Sand Creek in eastern Kearney County. The study determined that the geology at the site is favorable for reservoir construction.
- May, 2011- Tri-Basin NRD launched the first phase of a streamflow augmentation project on North Dry Creek, a tributary of the Platte River in Kearney County. The project involves leasing land at up to three sites for the construction of groundwater wellfields that will be used to augment streamflows into North Dry Creek. The project will help the State of Nebraska fulfill its commitment to the Platte River Recovery Implementation Program to reduce shortages to Platte River flow targets.
- October, 2011- Tri-Basin NRD directors extended groundwater pumping restrictions in one township in Gosper County because groundwater levels in that township have not fully recovered to the 1981-85 average. Groundwater pumping will be limited to a total of 27 inches per acre for 2012-2014.

FUTURE

Tri-Basin NRD has enacted comprehensive regulations to manage groundwater quality and quantity, as well as for integrated management of interconnected groundwater and surface water resources. Protecting domestic water supplies is the top priority under the district Groundwater Management Plan.

Twin Platte NRD

TierOne Bank Center
111 South Dewey Street, 2nd Floor
P.O. Box 1347
North Platte, NE 69103-1347 Phone: 308-535-8080
Web site: www.tpnrd.org
General Manager: Kent O. Miller
Email: tpnrd@tpnrd.org



GROUND WATER STATUS

The Twin Platte Natural Resources District (TPNRD) began an extensive ground water levels monitoring program in the mid 1970's and established a Ground Water Management Plan in the mid 1980's. In 2004, the Board of Directors, in consideration of the Cooperative Agreement discussions going on between Nebraska, Colorado, Wyoming, and the U.S. Department of Interior for a Platte River Recovery Implementation Program, and in consideration of the Water Policy Task Force recommendations that resulted in LB962 being enacted by the Nebraska Legislature, approved a temporary suspension on drilling new wells for an area within the 28%/40 years SDF line. In 2006, the Board of Directors took action to approve a Ground Water Management Area for the entire TPNRD that established a stay on the issuance of high capacity water well construction permits for all the TPNRD. In 2007, the Board of Directors took action to adopt a stay on the use of an existing water well to increase the number of acres historically irrigated for all the TPNRD.

ACTION STEPS & TIMELINES

- **1976**-Began an extensive ground water levels monitoring program.
- **1985**-Established a Ground Water Management Plan.
- **March 12, 1998**-Approved participating in an Inter-local Cooperation Agreement for a Cooperative Hydrology Study (COHYST) for the Platte River Basin in Nebraska.
- **July 1, 2004**-TPNRD Temporary Suspension On Drilling New Wells began for the area within 28%/40 Years SDF line
 - Began developing revisions for the Ground Water Management Plan to allow for a Ground Water Management Area for the full TPNRD
- **September 15, 2004**-NE DNR Order – Over Appropriated above Kearney Canal diversion for area within 28%/40 Years COHYST line
 - As a result of that designation, additional land area within the TPNRD became subject to Stays on New Wells and Stays on Increases in Irrigated Acres
- **September 30, 2004**-The NE DNR issued an order the all of the TPNRD was fully appropriated.
- **March, 2005**-Stakeholders who represent area ground water users began meeting for preparation of recommendations for an Integrated Water Management Plan (IMP) for the TPNRD
- **February 24, 2006**-A Ground Water Management Area became effective for the entire TPNRD which established a stay on the issuance of high capacity water well construction permits for the entire TPNRD.
- **October 27, 2006**-Governor Dave Heineman announced that he would sign the Platte River Recovery Implementation Program.
- **June 18, 2007**-A stay on the use of an existing water well to increase the number of acres historically irrigated became effective for the entire TPNRD.
- **April 20, 2009**-Final meeting of Stakeholders and recommendation completed for the goals, objectives, rules and regulations to present to the TPNRD and the NE DNR for the IMP for the TPNRD
- **July 2, 2009**-Public Hearing for the TPNRD and the NE DNR for the IMP for the TPNRD & for the Platte River Basin Plan
- **September 15, 2009**-Effective date for TPNRD IMP
 - **TPNRD IMP** (LB 962 Required)
 - To incrementally achieve and sustain a fully appropriated condition
 - The first stage is to return the river to the 1997 level or condition

- Within the first 10 Year Increment, address impacts of streamflow depletions to surface water appropriations due to water use initiated after July 1, 1997.
 - For the Platte River Basin above Elm Creek, that requirement consists of adding 26,200 acre feet of water per year
 - For the TPNRD, that requirement consists of adding 7,700 acre feet of water per year to the stream within the TPNRD
 - The 7,700 acre-feet will have to come from existing uses, as the river is “over appropriated” and there is no new water readily available
 - The second stage is for the NRDs to return the river to the Fully Appropriated condition
- Within Subsequent Increments, address impacts of streamflow depletions to surface water appropriations due to water use initiated prior to July 1, 1997 (may be addressed prior to a subsequent increment)
 - The amount of water needed to be added to the river to accomplish this requirement needs to be determined
- **Trigger points in the TPNRD Integrated Management Plan**
 - By the end of 2012
 - An accretion to the river equal to or exceeding 5,804 acre feet annually – **By the end of 2012 the TPNRD exceeded this trigger due to temporary and short term projects**
 - By the end of 2019
 - An accretion to the river equal to or exceeding 6,185 acre feet annually
 - By the period 2043 – 2048
 - An accretion to the river equal to or exceeding 7,700 acre feet annually
- **Spring and Fall 2011-Irrigation Canal Recharge Projects**
 - The TPNRD entered into agreements with the DNR, and the Irrigation Districts
 - Short-term credit for water to the river
 - When excess water is available
- **October 2012-J-2 Re-regulating Reservoir**
 - The TPNRD entered into agreement with the DNR through 2019
 - Short-term credit for water to the river
 - The TPNRD will get a percent of the credit due to DNR for compensation for a limited time
- **November 2012-N-CORPE (Nebraska Cooperative Republican Platte Enhancement Project)**
 - Permanent credit for water to the Platte River
 - The TPNRD and the three Republican NRDs will permanently retire 19,500 irrigated acres in Southern Lincoln County
 - A pipeline will be used to convey water to both the Platte and Republican Rivers as needed
 - 117 irrigation wells will be decommissioned and the irrigated acres will be returned to native vegetation
- **Irrigation Canal Recharge Projects (2013-2018)**
 - The TPNRD entered into agreement with the DNR and the Irrigation Districts for the next 5 years
 - Annual credit for water to the river when available
 - When excess water is available

FUTURE

- **December 2012-Agreement with CPNRD**
- The TPNRD enter into agreement with the CPNRD
- Annual credit for water to the river

Upper Big Blue NRD

105 N. Lincoln Avenue

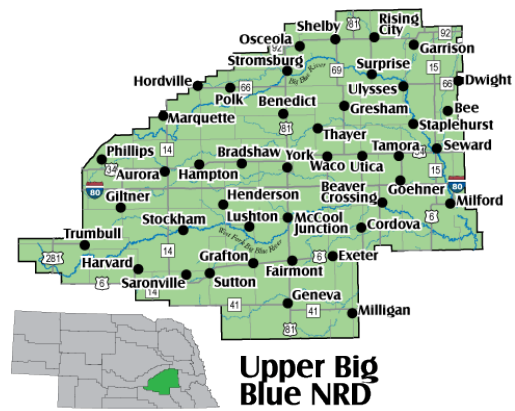
York, NE 68467

Phone: (402) 362-6601

Website: www.upperbigblue.org

General Manager: John C. Turnbull

Email: jturnbull@upperbigblue.org



**Upper Big
Blue NRD**

GROUNDWATER STATUS: The Upper Big Blue NRD

Groundwater Management Area was the second one established in

Nebraska. That was in 1977, right after the Upper Republican Area. The Upper Big Blue NRD Groundwater Management Area encompasses all or parts of nine counties and has 1/7 of the total irrigated acres in Nebraska. The changes in water levels are closely related to the changes in annual rainfall.

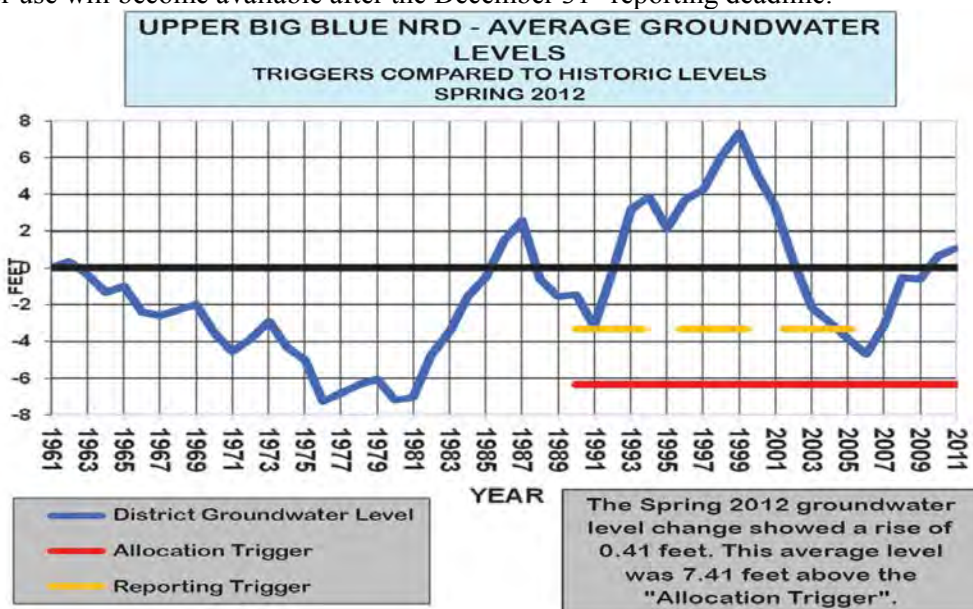
The average irrigation use last year was 5.2 inches compared to 5.0 inches for municipal. The average amount of irrigation water pumped on the 1,163,000 certified irrigated acres in the Upper Big Blue NRD for the last 4 years was 5.4 inches per acre, amounting to about 512,400 acre feet per year. The groundwater in the spring of 2011 was ½ foot higher than it was in 1961. Water conservation is important because one inch of water saved on the irrigated land in the Upper Big Blue NRD amounts to 100,000 acre feet of water.

ACTION STEPS & TIMELINE:

- 1972 – Upper Big Blue NRD created (all 23 NRDs started on the same date).
- 1974-76 - Dry period, drought coupled with increase of groundwater wells being drilled.
- 1975 – Nebraska Groundwater Management Act adopted by the Legislature.
- 1977 - Upper Big Blue Groundwater Management Area established in a cooperative effort between the Nebraska Department of Water Resources and the Upper Big Blue NRD to protect the future.
- **1978 – Upper Big Blue average ground water level hits all-time low of 7 feet below 1961**
- **1979 - Ground Water Management Area regulations go into effect** with the goal of keeping the declines to less than ½ foot per year. The rules included well permits, 1,000 foot well spacing, and future allocation if decline rate was exceeded.
- 1980-87; 1991-94; 1997-99; 2007-08 —Wet periods: Abundance of precipitation; groundwater levels rise; rising average groundwater levels mirror rising accumulated rainfall.
- **1990 – Rules changed to hold the Average Ground Water Level at or above the 1978 level (sustainability).**
- 1993 - Water Quality Management Area established in Upper Big Blue through cooperative effort with the Department of Environmental Quality to protect the future.
- 1999 - Rules added to require large groundwater users (withdrawal of 500 acre feet from one parcel of land per year) to conduct a hydrologic study showing the impacts of the groundwater withdrawal. If the impact is not adverse, a permit is granted.
- **2000 – Upper Big Blue average groundwater level hits all-time high of 7 feet above 1961 level.**
- 2001-04 - Dry periods and extreme drought conditions, groundwater levels decline.
- 2004 - Regulations amended establishing a Reporting Trigger (groundwater level declines to a point 3 feet above the 1978 level) and an Allocation Trigger (another 3-foot drop beyond the Reporting Trigger). A flow meter must be installed on any new or replacement well.
- 2005 - Small area in Hamilton County parallel to the Platte River declared fully appropriated with a stay on well drilling and expansion of irrigated acres. District completed groundwater model of area adjacent to the Platte and

submits it to the Department of Natural Resources. The rest of the NRD does not have a well drilling moratorium, but is still subject to the groundwater management regulations.

- **2006 - Reporting Trigger reached requiring the certification of all irrigated acres through the use of county assessor records.** Three ethanol plants permitted to drill wells based on minor impacts demonstrated through required large water user studies. One other site deemed not feasible for permit because of impact on other users.
- **2007 – Above average annual rainfall.** All water users required to report water use by Dec. 31, 2007. Average reported water use 4.95 inches per acre. 1,109,818 irrigated acres were certified by the Board of Directors. Rules changed to implement more restrictive groundwater transfers. Ground water modeling for Big and Little Blue Basins conducted by District staff. 5th proposed ethanol plant still trying to find adequate water after first two large water user studies show adverse impacts to other water users. A city begins required large water user study for proposed city well field.
- **2008 – Additional acres certified bringing the total to 1,147,675 certified irrigated acres.** Total irrigation water use was 4.3 inches per acre. Big Blue and Little Blue river basins groundwater modeling completed and submitted to Department of Natural Resources. 5th Ethanol plant water study approved but for lesser amount of withdrawal that requested.
- **2009 – LB 483 irrigation growth regulations adopted** for small area along the Platte river in Polk county following cooperative effort by Upper Big Blue NRD and the Department of Natural Resources to protect the future. 1,780 water meters installed with Environmental Trust Grant over last 3 years. Large water user study by a city approved paving the way for future well field.
- **2010 – Integrated Management Plan for part of Hamilton County approved by the Department of Natural Resources and the Upper Big Blue NRD.** Total average irrigation water use reported was 5.2 inches per acre.
- **2011 – Upper Big Blue NRD measured 484 observation wells throughout the District and found that the average from these wells showed a 1.27 foot increase from the 2010 levels.** Groundwater levels in the Upper Big Blue NRD have been measured since 1961. Since 1961, the number of farmland irrigated acres in the Upper Big Blue NRD has grown nearly four times from approximately 300,000 acres to 1.1 million acres today. However, since 1961, the average groundwater level has risen one-half foot overall, even with an increase of 800,000 irrigated acres over that same period of time. Total average irrigation water use reported was 4.7 inches per acre.
- **2012 – Drought: Meters and allocation a possibility** if the District groundwater level falls to the 1978 groundwater level (3 feet below the point where certification of irrigated acres was required) allocation will be implemented. Municipal allocations are comparable. Industrial allocation is initially set at 100% of historic use. All wells must be equipped with a flow meter before the groundwater user will be granted an allocation. The Upper Big Blue NRD Board of Directors recently amended regulations pertaining to water quality, in particular working on reducing nitrates found in groundwater. The board is also tightening up the NRD's groundwater transfer rules. Total average irrigation water use will become available after the December 31st reporting deadline.



Upper Elkhorn NRD

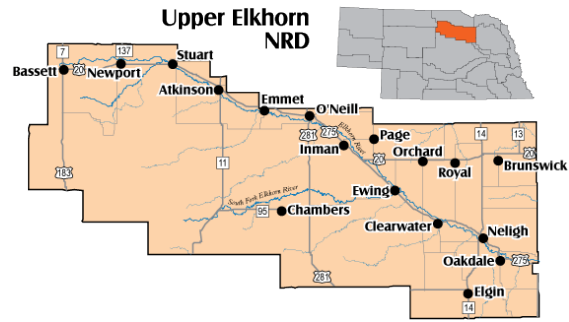
301 N Harrison, O'Neill, NE. 68763

Phone: 402-336-3867

Web site: www.uenrd.org

Manager: Dennis Schueth

Email: dschueth@uenrd.org



GROUNDWATER STATUS

Located in northeast central part of the state, the Upper Elkhorn NRD encompasses approximately 1.9 million acres of cropland, rangeland, and grassland in Antelope, southern Holt, eastern Rock, and northern Wheeler Counties. Irrigated agriculture, cattle, and hay production are vital to the economy of this sparsely populated region. Even with the expansion of groundwater irrigation, no portion of the UENRD has shown a significant continual decline in groundwater levels since annual spring static water levels were first recorded in 1972. The northwest portion of the District was designated as Fully Appropriated by the Nebraska Department of Natural Resources due to the drainage confluence with the Niobrara River. This determination was ultimately reversed by the Nebraska Department of Natural Resources on June 29th, 2011. The majority of the District is considered to be part of the Lower Platte River Basin. The Lower Platte was preliminarily labeled as —Fully Appropriated in 2008, but this decision was reversed in 2009. Limited irrigated acre expansion continues in the UENRD under the restrictions set forth when LB 483 was passed in 2009.

ACTION STEPS & TIMELINES

- 1975 – District established static water level monitoring in irrigation wells. Today, the District monitors water levels biannually at 160 irrigation and dedicated monitoring wells.
- 1976 – UENRD established a groundwater quality monitoring program. The District currently samples nearly 600 irrigation wells annually for nitrate-nitrogen concentration.
- 1997 – The entire District was designated as a Phase I Management Area for Groundwater Quality. This designation requires all high capacity (> 50gpm) wells to be permitted by the District. It also requires producers, both commercial and private, to be certified by the District to apply nitrogen. The certification requirements include attending a nitrogen education class and analysis of groundwater for nitrate-nitrogen once every four years. To date, over 1,600 producers have been certified by the District to apply nitrogen fertilizer.
- 1999 – Initial start of construction on the current 55 dedicated monitoring well sites.
- 2001 – Developed 4 weather stations used for gathering evapotranspiration data across District. The data is used to compile crop water use estimates in cooperation with the University of Nebraska-Lincoln Extension.
- 2002 – Two areas of the District are listed as Phase II in the UENRD and require yearly reports submitted by effected landowners regarding irrigation and nitrogen management
- 2004 – Installed 15 pressure transducers in various dedicated monitoring wells across District to provide continuous data on water levels
- 2005 – The 2006 assessment of the Elkhorn River basin shows that 6.0 days are still available above Fully Appropriated in 2030 with Additional Well Development.
- 2005 – UENRD Board of Directors determined that a moratorium on additional high capacity water uses within the District is unnecessary at this time.
- 2006 – Preliminary evaluation by DNR included the Elkhorn River Basin with the Loup and Lower Platte Basin and deemed all involved basins as not being Fully Appropriated.
- 2006 – UENRD Water Resource Committee starts modifying the Groundwater Quantity Management Plan to address potential future concerns over groundwater availability.
- 2006 - UENRD initiated a flowmeter cost-share program for all irrigators assisting with either the Quality or Quantity monitoring programs or for those wells located in the Phase II areas.
- 2006 – The UENRD is an active participant in developing the multi-phase Elkhorn-Loup Modeling Project (ELM). Active participants are the USGS, DNR and eight other NRDs working through a local agreement. The ELM will give participating members an accurate depiction and working model of both surface and groundwater resources within the study area. In 2010, this project moved into the Phase III.
- 2007 – Elkhorn River basin NRDs (Upper & Lower Elkhorn) initiated Streambed Tests in the Elkhorn River conducted by Dr. Hong Chen of the School of Natural Resources and Sue Lackey of the Conservation Survey Division. This study was designed to determine the extent of streambed and aquifer connectivity.
- 2007 – UENRD took further steps to monitor groundwater levels and pumping impact by the installation of 15 additional pressure transducers in observation wells around the District.
- 2007 – Niobrara River Basin upstream from Spencer Hydro was labeled as being fully appropriated by the NDNR. This decision affected approximately 150,000 acres in the northwest portion of the UENRD. Through LB 962, a stay was placed high-capacity well construction and expansion of irrigated acres was halted within the Niobrara River Basin 10/50 line.
- 2008 – UENRD received an Environmental Trust Grant for funding to assist with flowmeter cost-share for cooperating landowners and to better understand water use in the District.
- 2008 – UENRD drilled a series of test holes as part of the ELM Project study
- 2008 – Lower Platte River Basin, which includes the Elkhorn and Loup drainages, was preliminarily designated —Fully Appropriatedl enacting stays on new irrigation wells, surface water permits and irrigated acre expansion.
- 2009 – LB 483 was approved on April 6, 2009, limiting irrigation development in any NRD that had its fully appropriated status reversed. On April 8, the Lower Platte River Basin Designation was reversed by NDNR. The UENRD developed Rules and Regulations to allow for further irrigation acre development of 2,500 acres per year from 2009-2012.
- 2009 – Three additional observation wells were installed in southern Holt County to further enhance the ELM project and monitor groundwater

quality. All three wells are part of the UNL School of Natural Resources Real-Time Groundwater Level Monitoring Network.

- 2010 – The UENRD assisted USGS scientists with geophysics work to enhance the ELM project. These —virtual test holes— will provide more data regarding the geological structure of the aquifer.
- 2010 – The UENRD held several informational meetings and a public hearing on September 13, to receive testimony on changes to District Groundwater Management Plan Rules and Regulations. The major amendments to the District Rules and Regulations included: simplification of the nitrogen recertification requirements, hydrological evaluation of proposed ground water uses exceeding 500 acre feet per year, requirement of flowmeters on all new or replacement wells, certification of all historically irrigated acres within the District, and facilitation of ground water or irrigated acre transfers. These changes were effective October 29, 2010.
- 2011-Contracted with GIS Workshop to develop software to facilitate irrigated acre certification. This process will begin in the fall of 2011 or shortly after January 1st, 2012.
- 2011-The Upper Elkhorn NRD is finishing a 319 Grant (NDEQ) in Northern Antelope County (East Branch Verdigriss Creek) to improve water quality issues for ground and surface water. This grant offered assistance to land owners to implement best management practices associated with irrigation and nutrient management practices, well decommissioning and septic system updates.
- 2011 – The UENRD held several informational meetings and a public hearing on September 12, to receive testimony on changes to District Groundwater Management Plan Rules and Regulations due to the Nebraska Department of Natural Resources status change of Lower Niobrara River Basin on June 29, 2011. The major amendments to the District Rules and Regulations included: clarification of not allowing irrigated acre transfers between hydrological areas labeled by the Nebraska Department of Natural Resources, such as Lower Platte River Basin and Lower Niobrara River Basin; allowing limited development (2500 acres) within the area of the Lower Niobrara River Basin and Lower Platte River Basin, requiring a fee to reapply for expansion acres after the application was denied in a previous application period, changing the application period to October instead of January and requiring an official Highly Erodible Land classification from USDS-FSA/NRCS.
- With the re-designation portions of the Lower Platte River and Niobrara River Basins of the Upper Elkhorn NRD to non-fully appropriated status; the UENRD has approved 10,000 acres to be developed for irrigation between 2009-2012. During this timeframe there was approximately 23,423 acres which had been applied for acre expansion.
- 2012 – The UENRD held several informational meetings and a public hearing on August 27th, to receive testimony on changes to District Groundwater Management Plan Rules and Regulations. The effective date of the changes was October 1, 2012. Changes to the plan were necessary to allow up to 2,500 acres to be developed for ground water irrigation, include and require the remaining 8% of the district that was outside of the Lower Platte 10/50 area to apply for expansion of irrigated acres, setting a time period (November 1-March 1) to allow for irrigated acre transfers, and labeling an additional 557,000 acres as Phase II areas for nitrate nitrogen levels. Since March of 2011 there has been approximately 2,442 ground water irrigated acres transferred to lands that have lower stream depletions than the original point of origin. This allows consumptive use savings to occur for ground and surface water.
- 2012 - The Upper Elkhorn NRD is currently discussing with the NRDs that are part of the Lower Platte River Basin and the Nebraska Department of Natural Resources in developing a voluntary or basin wide management plan for the basin. The districts are currently reviewing an inter-local agreement to work collectively on common goals and objectives for the basin.
- 2012 - The Upper Elkhorn NRD is working with four other NRDs in developing a watershed management plan for the area in northern Antelope, Knox and Pierce counties. Technical meetings are being held to develop goals and objectives for this area as it relates to ground water quality issues.
- 2012 - The Upper Elkhorn NRD is moving forward with certification of ground water irrigated acres throughout the whole NRD.
- 2012 – The UENRD is still participating in developing the Elkhorn-Loup Model with other NRDs and USGS. Phase III of the ELM model will be completed in FY14-15 which will assist in management decisions with the hydrologic connectivity between ground and surface water into the future.
- 2012 – The UENRD is partnering with NARD, Nebraska DEQ, and the Conservation and Survey Division of the University of Nebraska-Lincoln to develop an on-line Nitrogen Applicators Certification Program. The UENRD requires certification once every four years for anyone responsible for making decisions on applications of nitrogen fertilizer on an area larger than one acre and applying more than 50 pounds per acre of actual nitrogen. A project implementation grant from US EPA Region 7, along with in-kind contributions from the NRD's is funding the program. This program should help the District obtain improved compliance with the UENRD Groundwater Management Plan.
- Ongoing – Each year the Upper Elkhorn NRD helps sponsor area water festivals and environmental events to promote the awareness of our natural resources to students across Northeast Nebraska.

The fifth grade festivals focus on laying a foundation for the future caretakers of our natural resources. Children are taught about water quality and quantity and how good clean water can protect lives. They learn about conservation practices to protect property and ways to protect our natural resources for future generations. This year over 500 students attended H2O Daze and the Natural Resources Festival. The Wonderful World of Water program is a very unique festival because it is the only festival for 9th and 10th grade students in Nebraska. Over 180 students attended the daylong program this year and participated in various hands-on activities while working with resource professionals. This allows students the opportunity to explore natural resources related careers.

The Nebraska Envirothon is a program for 9th-12th grade students designed to promote awareness about our natural environment. Students compete in a contest that tests their knowledge on a wide array of subjects consisting of aquatics, forestry, policy, range, soil, wildlife and a special topic selected by the host state of the National competition. This year approximately 100 students from 19 different area schools participated in the competition.

FUTURE

The Upper Elkhorn NRD is collaborating to develop an interlocal agreement with other NRDs included in the Lower Platte River Basin 10/50 area to develop a “Voluntary Integrated Management Plan/Basin-Wide Approach”. The NRDs will utilize the Interlocal Agreement process with the parties involved which will allow the parties involved to use the financial resources and expertise of each district to plan for the future as it relates to the hydrologic connectivity between ground and surface water.

Ongoing monitoring of the District spring static water levels and continuous data collected by observation well pressure transducers will be used to determine future management decisions. One of the UENRD's primary goals is to ensure sustainable water supply for all existing and potential uses.

Upper Loup NRD

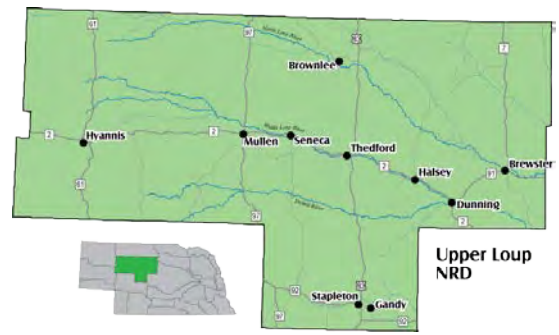
39252 East Hwy 2 Thedford, NE 69166

Phone: 308-645-2250

Web Site: www.ulnrd.org

General Manager: Anna Baum

Email: abaum@upperloupnrd.org



GROUNDWATER STATUS

Upper Loup NRD, part of the Loup River Basin, includes all of Grant, Hooker, Thomas, Blaine, and Logan Counties and parts of McPherson, Brown, and Cherry Counties. The entire sparsely populated area of 4,275,000 acres, is agricultural in character with the main agricultural activity cattle and hay production. The greater part of the district is non-irrigated.

ACTION STEPS & TIMELINE

- 1970's- Ninety-nine wells measured annually in the fall for static water levels since 1972.
- 1978- Several water quality incentive programs established (soil sampling, leafy spurge control)
- 1985 - Ground Water Management Plan was prepared and approved for the ULNRD.
- 1986 - ULNRD began testing ground water samples for nitrates from domestic, irrigation, and stock wells when requested. Approximately 30 wells on average tested annually.
- 1987- ULNRD began issuing chemigation permits and performing inspections.
- 1990 & 2000- ULNRD help fund and maintain long term two weather stations.
- 1991- A revision of the 1985 plan is completed.
- 1994- Additions to the quality portions of the Ground Water Plan were made (in accordance to §46-673.14 of the Nebraska Groundwater Management and Protection Act).
- 1995- Began to participate in Water Wellhead Decommissioning cost share program.
- 1998- District purchased an Ultrasonic Fuji Flowmeter to test the flow rates on irrigation wells.
- 2004- Began participating in the Nebraska Rainfall Assessment and Information Network. Started to measure static water levels biannually – 101 wells measured across district.
- 2005- ULNRD participating in the Elkhorn-Loup Model study.
- 2006- District began to gather information on irrigated water use by producers within district. ULNRD continues to participate in the Elkhorn-Loup Model study.
- 2007- Developed and adopted Groundwater Area Management Rules and Regulations. New rules include the requirement of well permits and flow meters on all new wells pumping 50gpm or more, certification of irrigated acres, water use reporting, In December of 2007 the very northern portion of Cherry and Brown Counties within the ULNRD District were declared fully appropriated. ULNRD continues to participate in the Elkhorn-Loup Model Study.
- 2008 - District issued 28 new high capacity irrigation well drilling permits and certified 57,000 irrigated acres. District drilled 3 dedicated monitoring wells each with continuous data recorders installed as part of a committed ground water network. Began a cyclic testing schedule for nitrates and bacteria on all registered domestic and irrigation wells throughout the district, with 173 wells tested in 2008. In December of 2008 the remainder of our District was preliminarily declared fully appropriated. Due to this designation no new high capacity wells or irrigated acres will be allowed. ULNRD continues to participate in the Elkhorn-Loup Model Study.

- 2009- In March of 2009 DNR changed determined the Lower Platte Basin to NOT be fully appropriated. ULNRD developed and adopted LB-483 Rules and Regulations which limit the expansion of irrigated acres to 2,500 acres annually or 10,000 over the next 4 years. District drilled 3 more dedicated monitoring wells each with continuous data recorders installed as part of a committed ground water network. To date, as part of the district's cyclic testing schedule for nitrates and bacteria on all registered domestic and irrigation wells throughout the district, 95 wells have been tested. ULNRD continues to participate in the Elkhorn-Loup Model Study.
- 2010-In January of 2010 the ULNRD put into place a District wide limitation on expansion of irrigated acres. Total new groundwater irrigated acres will not exceed 2,500 acres per year. The District installed 2 stream gages, one on the South Loup and one on the North Loup Rivers. Recycling trailers have also been placed in 5 of the villages within the District. The ULNRD drilled 3 more dedicated monitoring wells. Static water levels continue to be monitored in over 110 wells and over 50 domestic and irrigation wells were tested this year for nitrates.
- 2011- District certified 70,226 irrigated acres in 2011 up 2,228 acres from 2010. District placed flow meters on 39 irrigation wells this past year to help with more accurate water use data. ULNRD continues to monitor static water levels in spring and fall in over 110 wells and has found a slight increase in the groundwater levels across the district over 2010 levels. 90+ wells were tested for nitrates and bacteria in sub-district 1 of the ULNRD with the average nitrate level being 2.3 ppm, well below the EPA standard of 10 ppm. The ULNRD recycling program remains strong with over 46 tons of recyclable materials being collected within the last year and a half.
- 2012- In July of this year the NRD amended their groundwater rules and regulations to say that from this point on we will only be allowing 2,500 new irrigated acres annually. The Upper Loup, along with several other NRD's, has also begun the steps to develop a Basin Wide Integrated Management Plan. To date the district has 73,812 certified acres. We have placed 60 flowmeters on irrigation wells to help gain more accurate water use data. In addition to this the District placed 15 soil moisture sensors in our more heavily irrigated county to help producers see the value of irrigation performance through better scheduling and use of best management practices. Over 110 static wells continue to be measured biannually, spring and fall, and to date have not noted any notable changes in levels. This year 85 irrigation wells in our subdistrict 2 area were tested for nitrates with the average being 3.2 ppm. 70+ domestic wells were tested in our subdistrict 2 area for nitrates and bacteria with the average nitrate level being 1.82 ppm. Our district wide recycling program has expanded to include another village and since its inception in the spring of 2010 has collected and taken to end market 78 tons of recyclable materials. Over the past several years the Upper loup has sponsored and held several environmental education events as well as make annual visits to all school with the District to promote awareness of our natural resources to students.

Upper Niobrara White NRD

OFFICE: 430 East Second, Chadron, NE 69337

Phone 308-432-6190

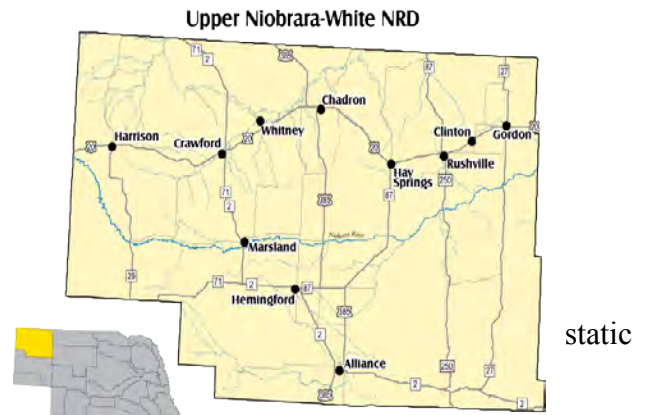
Website: www.unwnrd.org

MANAGER: Lyndon Vogt

Email: vogt@unwnrd.org

GROUNDWATER STATUS

Portions of the UNWNRD have been experiencing declining water levels since the early 1970's. The District approved a Ground Water Management Plan in 1984. In July of 1998 the District designated a District-wide Ground Water Management Area and adopted Rules and Regulations for enforcement. In 2003, the UNWNRD imposed a moratorium on the issuance of well permits for wells pumping over 50 gpm. Replacement wells are still allowed with a permit from the District. The UNWNRD is divided into six ground water management sub-areas. By DNR determination, the UNWNRD was preliminarily designated fully appropriated in July 2004. After studies and a hearing a final determination in November 2004, led to ground water management sub-areas 1, 4 and 5 being fully appropriated. In October 2007, DNR preliminarily determined the Lower Niobrara River Basin to be fully appropriated and made a final determination in January of 2008, this fully appropriated determination included ground water management sub-areas 6 and portions of sub-areas 2 and 3. In June 2011, the Nebraska Supreme Court ruled that the Lower Niobrara River Basin was not fully appropriated and the Department's 2008 determination was reversed.



Water quality degradation is not a major issue in the UNWNRD. Water sampling throughout the District has shown very little contamination. The UNWNRD, with the help from the Department of Environmental Quality, has established water quality priority areas where ground water contamination has been indicated or there is a greater potential for contamination.

ACTION STEPS & TIMELINES

- 1984 – Ground Water Management Plan Developed and Adopted.
- 1995 – Ground Water Management Plan revisions adopted.
- 1998 – Ground Water Management Area Established for the entire District.
- 2003 – The UNWNRD requests DNR study, in consultation with the NRD, the hydrologically connected ground water and surface water in the District and a joint action plan be developed for the integrated management of ground water and surface water resources.
- 2003 – The UNWNRD imposes a temporary suspension on the issuance of new well permits in the entire district.
- 2003 – The UNWNRD appointed a Citizen's Advisory Committee to assist with revisions to the NRD's Ground Water Management Plan and the development of a Joint Action Plan.
- 2004 – The entire UNWNRD preliminarily determined to be fully appropriated by the Department of Natural Resources after the passage of LB 962. State issued stays on the issuance of water well permits and increasing irrigated acres were implemented. The temporary suspension imposed by the NRD was repealed.
- 2004 – DNR held public informational meetings and public hearings in October and released their conclusions in the form of a report entitled: "Report on Hydrologically Connected Groundwater and Surface Water in the Upper Niobrara White Natural Resources District".
- 2004 – The UNWNRD concluding from the report that not all the UNWNRD would be determined to be fully appropriated, and the State issued stays would be lifted in portions of the District. Public

information meetings and a public hearing were held to implement a stay on the issuance of water well construction permits District-wide.

- 2004 – DNR released its final determination designating Hat Creek Basin, the White River Basin, the portion of the Niobrara River Basin above the Mirage Flats Diversion Dam, The Box Butte Creek Subbasin and the Snake Creek Subbasin fully appropriated. The District and DNR started preparing an Integrated Management Plan for management of water resources for the fully appropriated area.
- 2005 – The UNWNRD amended the Rules and Regulations for the Ground Water Management Area and enforcement of the Ground Water Management Plan. The proposed Regulations include implementation of controls for Reporting Requirements, Compliance Inspections, Certification Training, Certifying Regulated Ground Water Uses, Flow Meter Requirements, Ground Water Transfer Rules, Ground Water Pooling Rules, Ground Water Allocations, Variances and Penalties.
- 2006 – The UNWNRD revisions to the Ground Water Management Plan and amendments to the Ground Water Management Area Rules and Regulations adopted.
- 2007 – The UNWNRD finalized the certification of all regulated uses in the entire District.
- 2007 – Irrigation ground water wells within ground water management sub-areas 4 and 6 are metered and currently restricted to a 16-acre inch per year allocation.
- 2007 – DNR preliminarily determines the Lower Niobrara River Basin to be fully appropriated.
- 2008 – DNR released final determination that the Lower Niobrara Basin is fully appropriated and the portion of the District included in this determination is incorporated into the Integrated Management Plan and Rules and Regulations.
- 2008 – Ground water management sub-area 2 triggered a phase II designation, all high capacity wells required to be metered by March 1, 2009.
- 2008 – The UNWNRD and DNR completed the Final Draft of the Integrated Management Plan. Plan requires meters in ground water management sub-area 5 by March 1, 2010.
- 2008 – UNWNRD is revising GWMA Rules and Regulations to keep consistency between IMP Rules and Regulations and the GWMA Rules and Regulations.
- 2009 – Integrated Management Plan adopted May 14, 2009.
- 2009 – UNWNRD finalizing GWMA Rules and Regulations amendments.
- 2009 – UNWNRD and DNR working with an independent consultant to develop an integrated ground water model and surface water model for the portion of the Niobrara River above the Mirage Flats Diversion.
- 2010 – GWMA Rules and Regulations adopted June 10, 2010.
- 2010 – The 2011-2014 allocation is reduced to 54 acre inches, annualized at 13.5 inches per year.
- 2010 – UNWNRD supports the DNR in a request for a grant from the Bureau of Reclamation's Basin Study Program to study water management options in the Niobrara River Basin. The Niobrara River Basin study is one of six projects that the Bureau will fund in 2010.
- 2011 – UNWNRD and Department review and modify Integrated Management Plan
- 2011 – Lower Niobrara River Basin is determined to not be fully appropriated by Nebraska Supreme Court ruling. This decision changed the fully appropriated area of the UNWNRD and led the District to modify its rules and regulations to incorporate the LB "483" rules.
- 2012 – UNWNRD continues to work with the DNR and consultants to finalize ground water and surface water modeling in the Niobrara Basin. Completion of portions of the modeling project expected to be completed by the end of the year.

FUTURE

The District will continue to monitor, in conjunction with State and Federal agencies, the ground and surface water resources within the district and if declines in these water supplies continue to occur, further restrictions may be placed on some or all of the water users in the District.

Upper Republican NRD

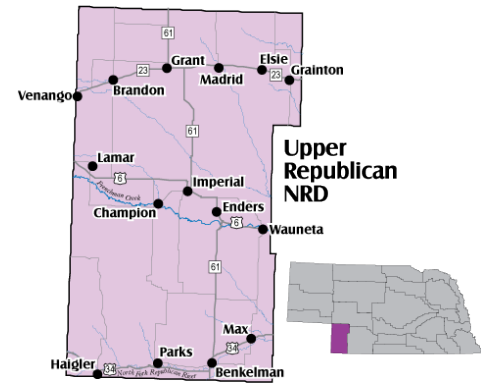
511 E. 5th Street Imperial NE 69033

Phone: (308) 882-5173

Website: www.urnrd.org

General Manager: Jasper Fanning

Email: urnrd@urnrd.org



GROUNDWATER STATUS

In the late 1970's water users from the area were concerned about groundwater declines resulting from irrigation development. Their concerns and efforts played a large part in the formation of the NRDs by the Legislature and the original groundwater management and protection act. The Upper Republican NRD aggressively employed the available authorities in the original groundwater management and protection act. It was the first entity in the state and possibly the country to limit agricultural water use, setting an allocation in the late 1970's. Since those early times, the District has continued to lobby for additional necessary tools to deal with the water issues facing the District.

History of Regulations pertaining to irrigation wells in the Groundwater Management Control Area established February 7, 1978:

ACTION STEPS AND TIMELINES

- 1976 – Ground Water (GW) Management Act Passed
- 1977 – Established GW Management Area and Certified Acres
- 1978 – 1979 – Established GW Metering program
- 1978-1979 – Well Spacing: 3300 ft. from existing irrigation well and 1320 ft. from existing stock or domestic well in townships designated as critical. Allocation set at 20 inches per acre per year including incentives for installing meters prior to 1980.
- 1980-1982 – Meters required on all wells. Allocation is set at 22 inches per year.
- 1983-1987 – Allocation reduced to 20 inches per acre per year for flood irrigation and 16 inches per acre per year for sprinkler irrigation.
- 1988-1992 – Allocation reduced to 15 inches per acre per year for all irrigation wells.
- 1992 – Well spacing in critical townships increased to 5,280 ft. from existing irrigation wells.
- 1993-2004 – Allocation reduced to 14.5 inches per acre per year.
- 1997 – The Board of Directors, having found that depletion of the groundwater supply in the Management Area are so excessive that the public interest cannot be protected solely through the implementation of the controls previously adopted, mandates that no additional well permits shall be issued for lands within the Management Area. No additional groundwater allocation may be added for wells located within the Management Area.
- 1998-2005–Republican River Compact Lawsuit and Settlement Agreement – The Department of Water Resources preliminarily designated the Republican River Basin NRDs under LB 108 in September of 1996, at the request of the Republican River NRDs. The process for a Joint Action Plan was initiated under LB 108 and was placed on hold during the lawsuit with Kansas from May 1998 to July 2003, at the request of the Nebraska Attorney General. In July of 2003, a final determination of conflicts under the LB 108 process was made and the development of rules and regulations under the Joint Action Planning process began. In July of 2004 a “Fully appropriated” designation was made under LB 962 which

replaced the Joint Action Planning process. In May 2005 the Upper Republican Natural Resources District adopted an Integrated Management Plan, effective for the 2005 thru 2007 irrigation seasons, pursuant to LB 962.

- 2005-2007 – Allocation reduced to 13.5 inches per acre per year.
- 2007– Revised Integrated Management Plan adopted that, through reduced water use, implementation of incentive programs and surface water leases funded through authorities granted in LB701, will ensure the State’s compliance with the Republican River Compact and Settlement. In cooperation with the Middle and Lower Republican NRDs, surface water was leased from Frenchman-Valley, Riverside, and Frenchman-Cambridge Irrigation Districts, allowing the State to maintain its consumptive use within its allocation for the 2007 year, as well as reduce the amount of the State’s overuse in the 2003-2007 five year accounting period.
- 2008– Allocation reduced to 13 inches per acre per year for 5 year allocation period. District involved in ongoing invasive weed removal along Republican River riparian corridor. Study of the Republican River basin augmentation project continued. Water short year compliance options for Integrated Management Plan with Department of Natural Resources were analyzed. A District retirement program for certified acres that are not irrigated was developed. Participated in Hazard Mitigation Planning for Perkins, Chase, and Dundy counties.
- 2010– Adopted a revised Integrated Management Plan that aims to keep the state in compliance with the Republican River Compact during water-short years using a combination of programs and projects to reduce consumptive use. Plan emphasizes acreage retirement and stream flow enhancement projects. Should those steps prove inadequate, irrigation in rapid response acres could be limited.
- 2011– District purchases 3,260 irrigated acres that will be retired from irrigation so a portion of the water that otherwise would have been used to irrigate the land can be piped into Rock Creek, a tributary of the Republican River, to aid Compact compliance. The project has the potential to provide the majority of the water that history suggests the District may need during the driest of times to meet its Compact compliance obligations. In addition to the project, the District used federal and local dollars to permanently retire from irrigation 1,360 acres. On average, nearly 11 inches of water for irrigation had annually been applied to the acres, and the average stream-flow depletion factor of the retired land is 88 percent.
- 2012 – An additional 188 acres with significant impacts on stream flow were permanently retired from irrigation using District funds and federal AWEP funds, bringing the total number of retired acres through the AWEP program so far to 1,546. District-wide, the average groundwater table rose for the third consecutive year. The District, along with three other NRDs, initiated in the fall of 2012 a stream flow enhancement project in Lincoln County that includes the retirement of approximately 16,000 acres from irrigated production. Water from the ground that otherwise would be used to irrigate crops will instead be piped into the Republican and Platte Rivers to help the state meet its obligations in both basins. The project has the potential to keep the state in compliance with the Republican River Compact during exceptionally dry periods.

FUTURE

The Upper Republican Natural Resources District will continue to bring water uses into balance with water supplies of the District, in a manner that allows the local economies, which rely heavily upon the beneficial use of the natural resources of the District, to continue to endure the transition.