



Fall 2016

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Tri-Basin Topics

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2016 Annual Report

2016 Project Highlights

Tri-Basin NRD budgets considerable funds (more than \$300,000 per year), in conjunction with the Nebraska Department of Natural Resources (NDNR) to make use of high flows in the Platte River. The NRD and NDNR pay the Central Nebraska Public Power and Irrigation District (CNPPID) to divert high flows outside the irrigation season. The diverted water is allowed to seep out of the bottom of the canals and Elwood Reservoir, providing recharge to local aquifers and augmenting streamflows in Platte and Republican River tributaries. CNPPID diverted more than 5,000 acre-feet of high flows from the Platte River in the fall of 2015 and again in spring of 2016. Water was diverted into Elwood Reservoir and the E-65 Canal. The purpose of these diversions was to recharge groundwater supplies and to re-time excess streamflows, which will return to the Platte and Republican Rivers as tributary baseflows over the next several years. Tri-Basin NRD will also receive credit for augmenting streamflows to fulfill the requirements of our joint integrated water resources management plans (IMPs) in those basins.

Also in the Platte Basin, the North Dry Creek Streamflow Augmentation project utilizes groundwater to augment streamflows of North Dry Creek, a tributary of the Platte River. The purpose of the project is to help the State of Nebraska fulfill its commitment to the Platte River Recovery Implementation Program to reduce shortages to Platte River flow targets by offsetting impacts to Platte streamflows resulting from post-July 1, 1997 water uses within Tri-Basin NRD. The project includes two augmentation wells and two observation wells.

In the Republican Basin, TBNRD directors have established a streamflow augmentation project, similar to the North Dry Creek project described above, on Turkey Creek in Gosper County in order to offset depletions in the Republican Basin portion of the district. One augmentation well was drilled along the creek. Observation wells were drilled in conjunction with the project; they will provide background data that will be helpful in assessing the impact of the project.

Tri-Basin NRD and Lower Republican NRD signed an interlocal cooperation agreement in December 2015 to work together to determine whether it is economically and envi-

ronmentally feasible to construct a diversion that would enable Platte high flows to be diverted from the CNPPID E-65 Canal into Turkey Creek in Gosper County. The districts met with landowners to discuss the project, then they hired Olsson Associates engineering firm to conduct a feasibility study of the proposed project. The feasibility study and preliminary design for the project are expected to be completed this fall. Results of the study will then be presented to the boards of the two districts and the affected landowners for their consideration.



Tri-Basin NRD Manager, John Thorburn, explains the proposed Platte-Republican Diversion Project to district staff and directors in August 2016.

In the Little Blue Basin portion of Tri-Basin NRD, directors are exploring the option of constructing a pipeline to divert water from the tail end of the CNPPID Phelps County Canal to Sand Creek in order to recharge groundwater in eastern Kearney County. Tri-Basin NRD directors are also working with directors from Little Blue NRD to develop integrated water resources management plans (IMPs) that will help the two districts to coordinate groundwater management efforts in the Little Blue Basin in an effort to perpetually sustain groundwater supplies in that basin.

Protecting Our Groundwater

TBNRD staff measure water levels in irrigation and dedicated observation wells each year in order to monitor groundwater quantity throughout the district. Tri-Basin has installed at least one dedicated observation well in every township in the district. Data loggers in observation wells



Nolan Little, Tri-Basin NRD Water Resources Manager, measures the spring groundwater level in an observation well in northern Kearney County.

automatically measure water levels at regular intervals. Intensively measuring our aquifers provides Tri-Basin NRD directors with data they need to discern trends in water levels and make informed decisions about our groundwater supplies. Those trends prompted Tri-Basin NRD directors to enforce irrigation groundwater pumping limits in Union Township (5N-22W) in Gosper County in 2009 in an effort to protect the declining groundwater supply there. More recently, directors became concerned about declining groundwater levels in May Township in Kearney County (6N-13W) and Elk Creek Township in Gosper County (5N-23W). These two townships were designated as Phase Two for groundwater quantity management. It is hoped that a Phase Two designation and associated restrictions will arrest groundwater declines and preclude the need for additional restrictions.

Tri-Basin NRD also works with producers to protect groundwater quality. The NRD has regulated fertilizer application to protect groundwater quality since 1989. District staff work cooperatively with farmers and agronomists to help improve the timeliness, efficiency and effectiveness of fertilizer application. These efforts have resulted in stable or declining nitrate-nitrogen levels in groundwater supplies throughout the district. Data from 2015 Nitrogen Management Reports submitted by the district's producers showed that, on average, producers applied over 9 percent less than the recommended amount of nitrogen to their corn crops. Yet the reported yields averaged over 230 bushels of corn per acre. In 2016, TBNRD staff sampled 254 irrigation wells for nitrate levels and 87 irrigation wells for atrazine levels.

Chemigation is the process of applying fertilizer and ag chemicals through irrigation systems. Farmers who chemigate are able to "spoon feed" fertilizer to their crops as it is needed, reducing nitrogen leaching below the crop root zone into the aquifer. In Gosper, Phelps, and Kearney counties, this activity is permitted and overseen by Tri-Basin NRD staff to assure that groundwater supplies are protected from contamination by fertilizer and ag chemicals. The

district issued 120 new chemigation permits and 1,845 renewals in 2016. District staff inspected safety devices on 738 center pivots in 2016.

Nebraska community water systems regularly test drinking water to insure that it is safe. Rural residents in Gosper, Phelps and Kearney Counties also need to know whether they have safe drinking water. The district offers a program that allows rural residents to have their household drinking water tested for nitrates and bacteria free of charge once a year. More information on this program is available by calling Tri-Basin NRD at 1-877-995-6688.

Conservation Cost-Share Assistance

Tri-Basin NRD provides and administers cost-share funds for many soil and water conservation practices, including well decommissioning, soil moisture sensors, irrigation well flowmeters, conservation tree plantings and conversion of irrigated cropland to dryland cropland and grassland. In fiscal year 2015-2016, Tri-Basin NRD approved \$25,222.97 in local funding for conservation tree planting cost-share, \$132,017.58 in state-funded NSWCP cost-share funds for other conservation practices, and \$38,000.00 in cost-share for well decommissioning.

Managing Financial Resources Wisely

TBNRD's total operating expense budget for July 1, 2016 to June 30, 2017 is \$1,353,050.17 with the levy set at .039374 per \$100 valuation. An owner of a house valued at \$100,000 will pay just \$39.37 in 2016 to protect this area's natural resources.

Planting Trees for Future Generations

Each year, Tri-Basin NRD sells conservation trees and shrubs for windbreak and habitat plantings. In 2016, 3,826 trees and shrubs were planted by the NRD's contractor and 2,064 trees and shrubs were sold for hand-planting. Tri-Basin NRD also provides free tree seedlings for several educational events and for local Arbor Day celebrations. The district distributed 585 free trees to district residents in 2016. Tri-Basin staff also help landowners diagnose tree diseases and fungal blights and decide on treatment methods.



Tri-Basin NRD staff and tree planting contractor lay plastic weed barrier in preparation for planting trees in a windbreak.

Educating and Informing Local Residents

Each winter, Tri-Basin NRD joins CNPPID, Holdrege Area Chamber of Commerce and UNL Extension to host the Holdrege Water Conference. At this event, agricultural producers and agri-business professionals gather to discuss current water issues relevant to the TBNRD area. Other adult information and education programs include Nitrogen Management classes for agricultural producers and the weekly Natural Resources Report on KRVN 880 radio station.

In September, Tri-Basin NRD holds the Rainwater Basin Conservation Day for eighth grade students at Sacramento-Wilcox Wildlife Management Area. Over 200 students attend this event each year to learn about geology, wetlands, soils, trees and wildlife. Tri-Basin also collaborates with other agencies to hold a "Water Jamboree" for area fifth grade students every April at Harlan County Reservoir. Water conservation topics are presented in hands-on sessions to approximately 500 students who attend this event.

Adventure Camp about the Environment is a summer camp for middle school students, sponsored by Nebraska's NRDs. Tri-Basin NRD offers up to six full scholarships each year for students in the district to attend this camp.

About Tri-Basin NRD

Nebraska's Natural Resources Districts (NRDs) were established in 1972 to protect our natural resources. This system for managing natural resources through locally elected officials is unique to Nebraska.

Locally, Tri-Basin NRD was formed by consolidating the Phelps, Gosper, and Kearney County Soil and Water Conservation Districts. TBNRD is unusual because it encompasses portions of three different river basins: Republican, Platte, and Little Blue.

Tri-Basin NRD is governed by a Board of Directors with 13 members, 12 of whom are elected from designated sub-districts and one at-large member.

2015 Active Irrigation Wells

County	Total Irrigation Wells	Certified Irrigated Acres
Kearney County	2,125	228,534.49
Phelps County	2,181	258,152.30
Gosper County	760	93,464.18
Total	5,066	580,150.97
Basin	Total Irrigation Wells	Certified Irrigated Acres
Republican Basin	1,616	189,969.10
Platte Basin	2,624	298,694.18
Little Blue Basin	826	91,487.69
Total	5,033	580,150.97

Republican Basin Water Use*

Irrigation System	2008	2009	2010	2011	2012	2013	2014	2015
Pivots	6.88	7.11	5.05	6.63	13.88	12.46	6.11	8.28
Gravity	11.79	12.42	8.62	10.86	21.33	22.84	11.34	15.79
Pivot/Gravity	8.06	7.79	5.31	7.20	14.28	15.05	6.54	9.39
Drip Tape							7.60	12.17
Weighted Avg.	8.26	8.36	5.82	7.57	15.36	14.25	6.72	9.3

*All Republican Basin irrigation wells are metered. Metered water use is also reported from wells in the Platte and Little Blue Basins. Data updated February 11, 2016.



TBNRD Staff to Inspect Meters

Tri-Basin NRD staff are beginning annual irrigation meter inspections. Each year, NRD staff inspect and take readings from meters in about one-third of the townships in the District.

This year we will be doing inspections in Ranges 13W, 17W, and 21W, along with 5N-22W (Union Township in Gosper County).

If you have irrigation wells in these townships and you put your meters in storage for the winter, you can call the Tri-Basin NRD office at 1-877-995-6688 to schedule an inspection. If there is no meter at the site when TBNRD staff come to inspect, you will receive a letter requesting access to the meter for inspection.

Irrigation Water Management Forms for 2016 are ready.

If you would like to have your reports mailed to you, call our office at 1-877-995-6688.

(All forms will be mailed mid-October.)

Reports are due November 18, 2016.

Reminder of Tri-Basin NRD Meter Requirements

Tri-Basin NRD rules require irrigation flowmeters on:

- All active wells in the Republican Basin portion of Tri-Basin NRD
- All non-replacement wells in the Platte Basin and Little Blue Basin portions of Tri-Basin NRD
- All wells associated with a Groundwater Transfer
- All Wells associated with irrigation-related cost-share practices

Additional meter requirements:

- All meters installed in Tri-Basin NRD must have a totalizer that reads in gallons or acre-inches. If cost-share funds are received on the flowmeter, the totalizer must read in acre-inches.
- All meters in Tri-Basin NRD must be installed according to the meter manufacturer's specifications.

Attention Chemigators:

Remember to drain your main line check valve to prevent freezing.

This will extend the life of the check valve and may help prevent check valve failure.



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Tri-Basin Topics

Non-Profit Permit
U. S. Postage
PAID
Holdrege, NE 68949
Permit No. 220

Tri-Basin Natural Resources District
1723 Burlington St. Holdrege, NE 68949
(308) 995-6688
email: tribasin@tribasinrd.org
www.tribasinrd.org

RETURN SERVICE REQUESTED

Nebraska's NRDs: Protecting Lives, Protecting Property, Protecting the Future

CALENDAR

October 5.. Southwest Land Judging-Phelps County
 October 10..... NRD Closed for Columbus Day
 October 11.....NRD Board Meeting, 7:30 p.m.*
 November 8.....NRD Board Meeting, 7:30 p.m.*
 November 11..... NRD Closed for Veteran's Day
 November 24-25..... NRD Closed for Thanksgiving
 December 13.....NRD Board Meeting, 1:30 p.m.*
 December 26.....NRD Closed for Christmas
 January 2.....NRD Closed for New Year's

* Times are tentative. All meetings are at TBNRD office in Holdrege unless otherwise noted.

TRI-BASIN NRD BOARD OF DIRECTORS

- David Olsen, Chairman Minden, NE
- Bradley Lundeen, Vice Chairman Wilcox, NE
- Joe Bilka, Treasurer Holdrege, NE
- Todd Garrelts, Secretary Holdrege, NE
- Brian Bergstrom Axtell, NE
- Mike Cavanaugh Minden, NE
- Ed Harris Loomis, NE
- Phyllis Johnson Bertrand, NE
- Joe Larson Loomis, NE
- David Raffety Kearney, NE
- Larry Reynolds Lexington, NE
- Jeff Ryan Heartwell, NE
- Ray Winz Holdrege, NE

TRI-BASIN NRD STAFF

- Charles Brooks Land Resources Coordinator
- Tammy Fahrenbruch Water Programs Coordinator
- Lori Hagan Elwood Office Secretary
- Nolan Little Water Resources Manager
- Carie Lynch Administrative Secretary
- Nate Munter Land Resources Technician
- Ruth Nielsen Minden Office Secretary
- Patrick Nott Water Resources Technician
- Tami Reese Holdrege Office Secretary
- Nicole Salisbury Information & Education Coordinator
- Esther Smith Office Assistant
- John Thorburn General Manager
- Jeff VanEperen Field Technician

A mailing list is maintained and requests to be placed on the list should be sent to the above address. Comments and suggestions may be addressed to the General Manager.

Get Tri-Basin Topics in your inbox instead of your mailbox!

To request an electronic version of this newsletter, send an email nsalisbury@tribasinrd.org.