



Spring 2017

Volume 31, Issue 2

# Tri-Basin Topics

A quarterly publication of Tri-Basin Natural Resources District

## Republican Basin Water Use

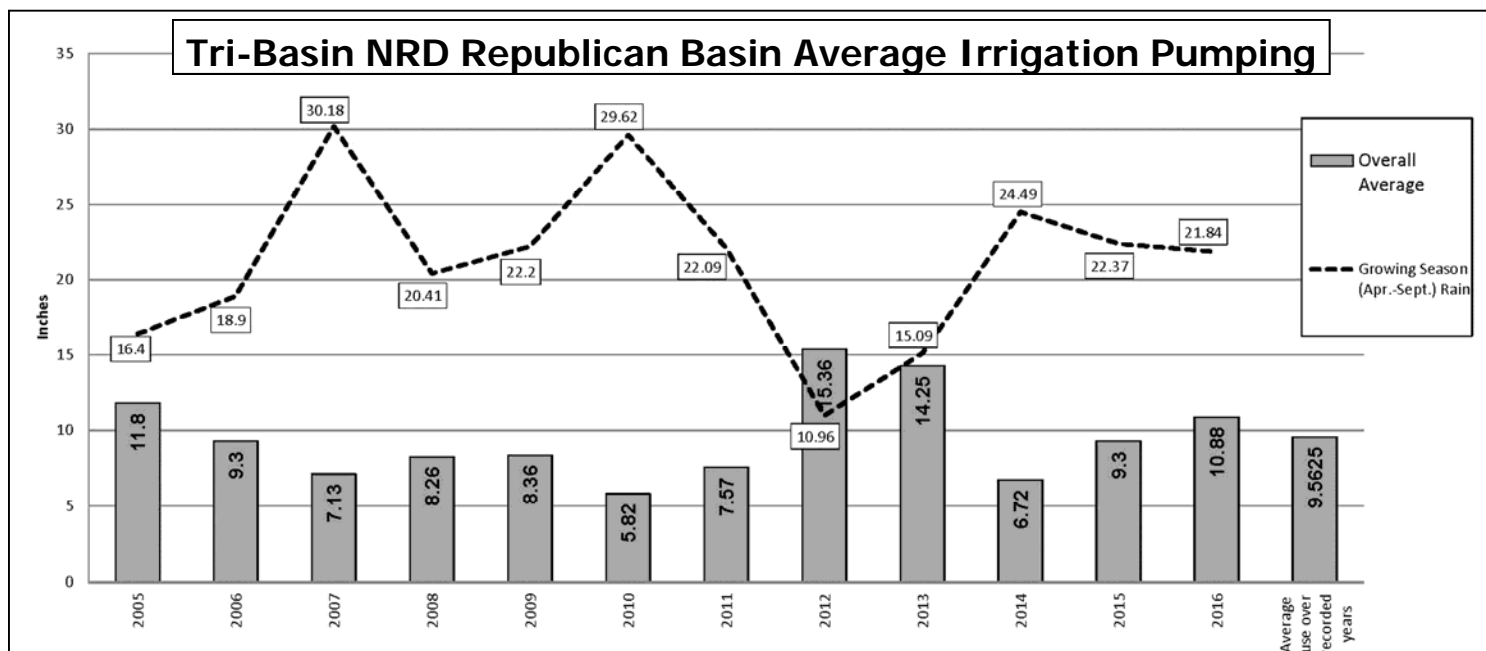
Tri-Basin NRD has partnered with our farmers to collect irrigation water use data for more than a decade. We collect this data for several reasons. First, we are mandated by a US Supreme Court order (2003) to annually report groundwater pumping data to the Republican River Compact Commission. The data is then used in the compact computer model to estimate water consumption in the Republican River Basin in Nebraska. Tri-Basin carried out the court order by requiring flowmeters on all wells in the Republican Basin portion of the district that irrigate fifteen or more acres (owners of wells that irrigate fewer than fifteen acres are not required to install flowmeters, but they are required to annually estimate and report water use).

Pumping data has also proven valuable to researchers studying irrigated crop production. Several University of Nebraska studies have utilized our district's groundwater pumping and crop report data in studies analyzing irrigation water use efficiency and crop productivity.

Most important, however, is the value that flowmeter data can provide to irrigators. As the old saying goes: "to measure is to know." If you have flowmeter data and an hour meter on your center pivot panel, you can readily calculate how much water you're applying per hour. A key to tracking your crop's irrigation water needs over the course of irrigation season using the "checkbox method" is to track the

amount of water that you have applied and subtract the crop's evapotranspiration (Et). You can determine crop Et directly from an Et gauge or get it by calling the Water Use Hotline at 800-993-2507. You can also track your pumping to see whether your well's output declines through the course of the irrigation season. Finally, you can divide your water use amount by your energy cost to determine the cost per acre-inch for applying water, which is critical to calculating total crop input costs.

The graph below shows average irrigation pumping in the Republican River Basin portion of Tri-Basin NRD since 2005. Also shown on the graph is rainfall recorded during the growing season at Holdrege. You will notice that, as you would expect, irrigation pumping increases and decreases in relation to rainfall. The 2016 pumping data appears to be somewhat high in relation to rainfall. Keep in mind, however, that the timing and amount of rainfall is more important than the total amount received when farmers consider whether irrigation is needed at any particular point during the growing season. The bar on the far right of the graph shows average pumping throughout the period of record (2005-2016) for the Republican Basin portion of the district. Tri-Basin NRD appreciates the great cooperation we get from producers who submit their water use data to us every year. Keep up the good work!



*"Dedicated to Conservation of our Natural Resources"*

<http://www.tribasinrd.org>



# Manager's Message

by John Thorburn

## Platte-Republican Diversion

Tri-Basin and Lower Republican NRDs are partnering on an exciting new project we call the Platte-Republican Diversion Project. The concept of this project is to divert water from the Platte

during times of excess flows and transport it into a tributary of the Republican River. More specifically, the NRDs are working with Central NE Public Power and Irrigation District (CNPPID) to construct a diversion from the E-65 Canal about three miles west of Smithfield that would enable water to be diverted down the East Branch of Turkey Creek.

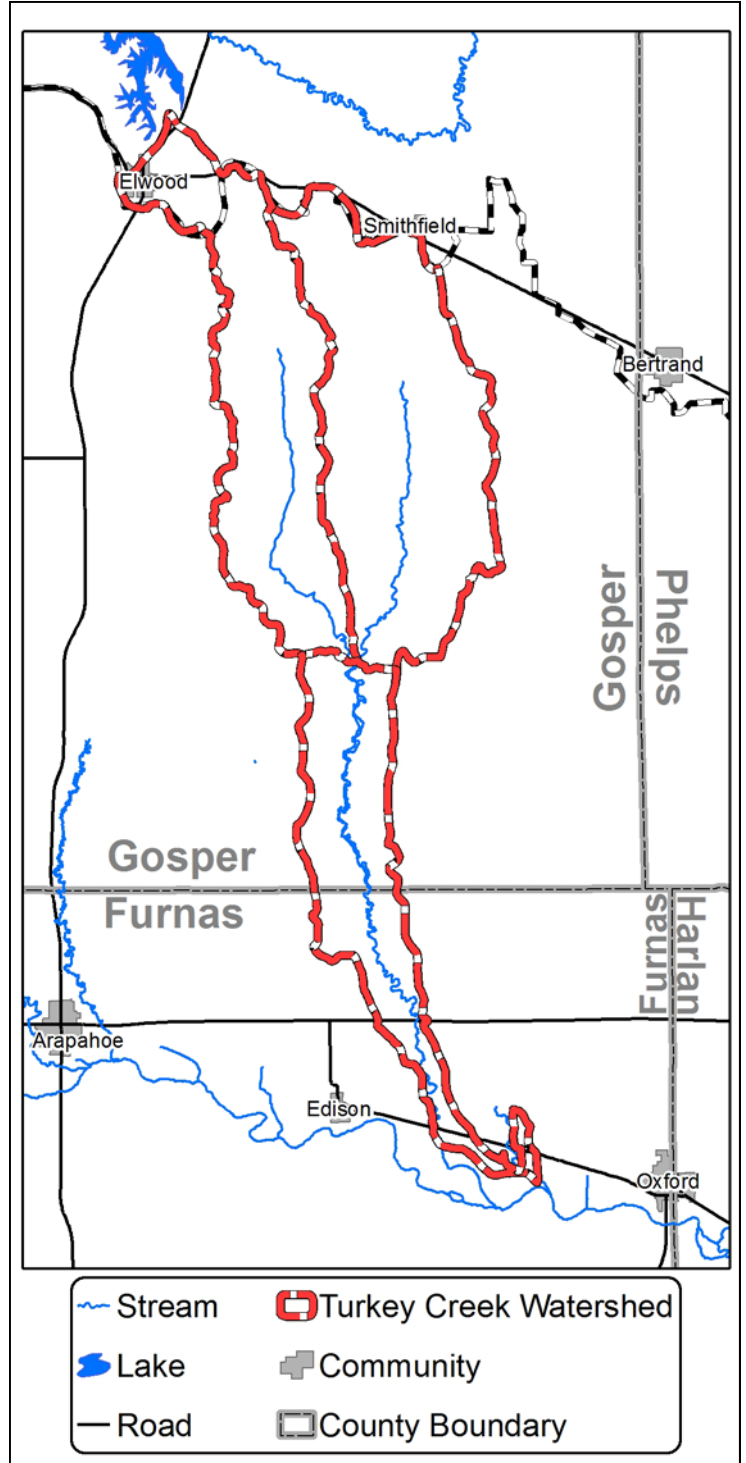
Platte Basin water is especially valuable to Nebraska when delivered to the Republican Basin because it is treated as "imported water" in the Republican River Compact (the interstate agreement between Nebraska, Kansas, Colorado and the federal government). Imported water is "extra credit" water for Nebraska because it isn't part of what the compact calls the Virgin Water Supply of the Republican Basin. For that reason, Nebraska doesn't have to divide imported water with Kansas. We get a 1:1 credit for every drop of water that we divert across the basin divide, even if it soaks into the ground before it reaches the river.

Olsson Associates engineering firm just completed a feasibility study of the project on behalf of the NRDs. The study is available on the Tri-Basin website ([www.tribasinnrd.org](http://www.tribasinnrd.org)). As part of this study, the researchers considered whether the project will be cost-effective and whether it is environmentally sustainable. The cost of the project will vary between \$1.4 million and \$1.8 million, depending on the rate of flow for which the project is designed. Most of the expense will be associated with installing erosion control measures like constructing check dams and laying down concrete rip-rap to prevent streambank erosion.

Records from a stream gauge at the Gosper-Furnas county line indicate that the baseflow (streamflow resulting from just springs and seeps, not rainfall) of Turkey Creek is about 10-15 cubic feet per second (cfs). The researchers evaluated diversion rates of 40 cfs and 100 cfs. They determined that a diversion rate of 40 cfs would not cause any significant problems, but 100 cfs can't be diverted for more than a few days because it could cause bank erosion. A final design for the project will narrow down parameters for a sustainable diversion rate. Olsson's determined that about 6000 acre-feet of excess flows can be diverted in an average year from the Platte River. When compared to other sources of offset water for the Republican Basin, water from the Platte-Republican Diversion has a favorable benefit-cost ratio of at least 4:1.

The Platte-Republican Diversion project needs to clear a few hurdles before construction can begin. First, we need to get easements for the project from landowners in the upper end of the project, where there aren't any stream baseflows. We also need to get a permit from the US Army Corps of

Engineers and a water right from the Nebraska Department of Natural Resources. We also plan to apply for state Water Sustainability funds to cover as much as 60% of the project cost. When completed, the project will benefit both NRDs in maintaining compliance with our integrated management plans and it will help Nebraska maintain compliance with the Republican River Compact. This will be the first inter-basin diversion project in Nebraska.



Turkey Creek Watershed

## Chemigation Permit Renewals Due June 1

Chemigation renewal forms have been sent to producers and are due, along with payment, in the Tri-Basin NRD office by June 1, 2017. Anyone who wants to apply fertilizer or ag chemicals through their irrigation system needs to apply for a chemigation permit for the 2017 season. Landowners and operators should contact Tri-Basin NRD toll-free at 1-877-995-6688 regarding chemigation permits. All newly permitted chemigation systems must be inspected before use. A person who is certified as a chemigation applicator must supervise injection of fertilizer and ag chemicals in irrigation water.

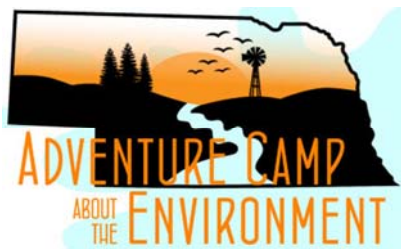
NRD staff do routine inspections on chemigation systems from June until August. Routine inspections are required every three years. If your system is due for an inspection, you will receive a postcard this summer. Routine inspections must be completed for permits to be eligible for renewal the following year. Renewal permits are \$15 and new permits are \$50.

## Check Meter Readings Before Starting Irrigation

As you are getting equipment ready for irrigation season this spring, we'd like to remind you to record the meter readings on your irrigation flowmeters before you begin irrigating crops. We have your ending readings from 2016 in our records, and will use those as the beginning readings for 2017 on your Water Use forms. However, in the event of a discrepancy in readings or a broken meter, your recorded beginning reading can be extremely helpful in tracking down a problem or estimating water use!

## Tri-Basin NRD Offers ACE Camp Scholarships

Adventure Camp about the Environment (ACE) is a natural resources camp sponsored by Nebraska's natural resources districts for students who have completed sixth, seventh, or eighth grade. It will be held at the State 4-H Youth Camp at Halsey June 11-14. Cost of camp is \$190.



Tri-Basin NRD is offering up to six scholarships that cover the full cost of registration for students from Gosper, Phelps, and Kearney Counties who want to attend this camp. The deadline to apply for TBNRD scholarships is

May 2, 2017. More information about the camp and applying for the scholarships can be found on Tri-Basin NRD's website, [www.tribasinnr.org](http://www.tribasinnr.org), or by calling Nicole Salisbury at Tri-Basin NRD toll-free at 1-877-995-6688.



## Hinrichs Serving on Tri-Basin NRD Board

Robin Hinrichs of Axtell is the new Tri-Basin NRD Director for sub-district 3. He is a graduate of the University of Nebraska-Kearney. He is a member of Trinity Lutheran Church in Hildreth, the Kearney-Franklin County Nebraska Corn Growers, the Nebraska High School Officials Association, and the Axtell Baseball Association Board. Robin is also the assistant basketball coach for Axtell High School and an Axtell baseball coach. Fishing and hunting are his hobbies. Robin and his wife, Jodi, have two children: Zach, 15 and Tate, 9.



## Dutton Serving Kearney County NRCS Office

Amy Dutton of Minden has been serving as secretary for the Kearney County NRCS office since November 2016. She graduated from the University of Nebraska-Kearney in the field of natural resources and park management. In her free time, she enjoys baking, fishing, hunting, and trapshooting. Amy and her husband, Nick, have a son, Sam, who will be one in May.

## Tri-Basin to Host Arbor Day Celebration

Tri-Basin NRD will host the Holdrege Chamber of Commerce's Coffee Connection from 9:30 to 10:30 a.m. on Arbor Day, Friday, April 28. Holdrege area residents are invited to stop in the Tri-Basin NRD office during Coffee Connection to receive a free tree seedling.

Tri-Basin will also provide free tree seedlings in other communities throughout the district on Arbor Day. Watch for details on community Arbor Day celebrations in local media outlets, the Tri-Basin NRD website ([www.tribasinnr.org](http://www.tribasinnr.org)), or Tri-Basin NRD's Facebook page.



# Celebrate Arbor Day!

## Plant a tree



Spring 2017

# 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](mailto:tribasin@tribasinrd.org)  
[www.tribasinrd.org](http://www.tribasinrd.org)

RETURN SERVICE REQUESTED

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

# CALENDAR

April 6.....NRD Board Meeting, 1:30 p.m.\*

April 25 & 26 .... Water Jamboree at Harlan Co. Reservoir

April 28..... Arbor Day  
Coffee Connection/Tree Giveaway at Tri-Basin NRD, 9:30 a.m.

May 9.....NRD Board Meeting, 7:30 p.m.\*

May 29.....NRD Closed for Memorial Day

June 20.....NRD Board Meeting, 1:30 p.m.\*

July 4 .....NRD Closed for Independence Day

July 18 .....NRD Board Meeting, 1:30 p.m.\*

\* 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
Robin Hinrichs .....	Axtell, NE
Phyllis Johnson.....	Bertrand, NE
Greg Jorgensen .....	Minden, NE
Joe Larson .....	Loomis, NE
David Raffety .....	Kearney, NE
Larry Reynolds .....	Lexington, NE

### TRI-BASIN NRD STAFF

Charles Brooks .....	Land Resources Coordinator
Tammy Fahrenbruch .....	Water Programs Coordinator
Amy Dutton .....	Minden Office Secretary
Lori Hagan .....	Elwood Office Secretary
Nolan Little.....	Water Resources Manager
Carie Lynch.....	Administrative Secretary
Nate Munter .....	Land Resources Technician
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](mailto:nsalisbury@tribasinrd.org).