

Colfax County Aquifer Mapping

August 31, 2017

Over 90% of the water usage in Colfax County for all purposes, agricultural or municipal comes from surface sources. During drought periods this creates extreme shortages.

Future economic development depends upon a sustainable source of water. It is important to have baseline data not only for the quality of water, but the water level and ability to recharge prior to development.

The most complete study conducted in Colfax County was the Geology and Ground Water Resources of the Eastern Part of Colfax County prepared by Roy L. Griggs in 1948. Our proposal is to enhance and build upon all available data sets.

This would be the first time that measurements of static water levels in existing wells, geologic information, water chemistry and water age data would be incorporated into one study. This information will allow producers and communities to identify resources for future development and identify those areas that should not see further development. It will also provide accurate data to educate the public about ground water resources and conservation that will sustain municipalities over time.

In the 2016 legislative session, Senator Pat Woods and Representative Dennis Roch carried legislation to conduct a hydrogeological study of and map the groundwater aquifers underlying Colfax, Harding, Mora, and Union Counties. We seek your support for similar legislation in the upcoming 2018 legislative session.

Northeastern New Mexico Four County Groundwater Initiative

Progress Report August 2017

Beginning in 2015, multiple entities, including counties, soil and water conservation districts, municipalities and other agencies, have agreed to participate in a voluntary regional groundwater monitoring study to determine groundwater resources for a four county area that includes Union, Colfax, Mora and Harding Counties. In addition, southern Quay County has developed a similar project.

The intent of this effort is to identify potential groundwater resources for future development, as well as identify areas that should not see further agricultural and/or municipal development. In addition, the study includes education of and outreach to the public about groundwater resource management.

To date, multiple smaller-scale projects have been launched that are moving in sync to develop identical data sets to eventually understand the larger regional groundwater picture. Three SWCDs, one county and multiple individual ranches and farms are currently participating in these projects. Financial support has come from the SWCDs, the Soil & Water Conservation Commission, individual counties, ranches and farms, and El Llano Estacado RC&D and the High Plains Grasslands Alliance.

Project updates:

Northeastern SWCD has the longest running project, covering most of Union County, that is now in year 10. Currently, over 65 wells are committed to the project. Center pivot irrigated farmland has seen the largest and longest-lived declines in local water tables. However, in the winters of 2016 and 2017, the rate of decline on many of the wells in irrigated areas diminished from 5-7 feet/year to less than 1 foot/year.

Mora-Wagon Mound SWCD's project is now in year 4. Currently, over 90 wells have been committed to the project. Data from this project appears to indicate that the path of potential recharge from the Sangre de Cristo Mountains does not get much farther than a few miles east of the mountain front. The majority of the wells sampled do not appear to be receiving significant modern recharge, based on tritium isotope analyses (see Figure 1 below).

Colfax County and Colfax SWCD have launched a sister project that is in the midst of its first year. Twenty wells have been committed to the project so far.

In **Harding County**, four ranches have committed to building their own datasets, including ranches near Bueyeros and Yates. These individual projects are in their first years.

Southwest Quay SWCD has launched a project that is in its first year and has over 20 wells committed.

In addition, several ranches in Mora County and Colfax County are providing financial support by paying for their own water analyses and releasing their data to the larger SWCD or County

projects. El Llano Estacado RC&D Council has provided funding to assist several producers in the Council area with water analyses. The High Plains Grasslands Alliance has provided financial support to help continue efforts in Mora and Harding Counties.

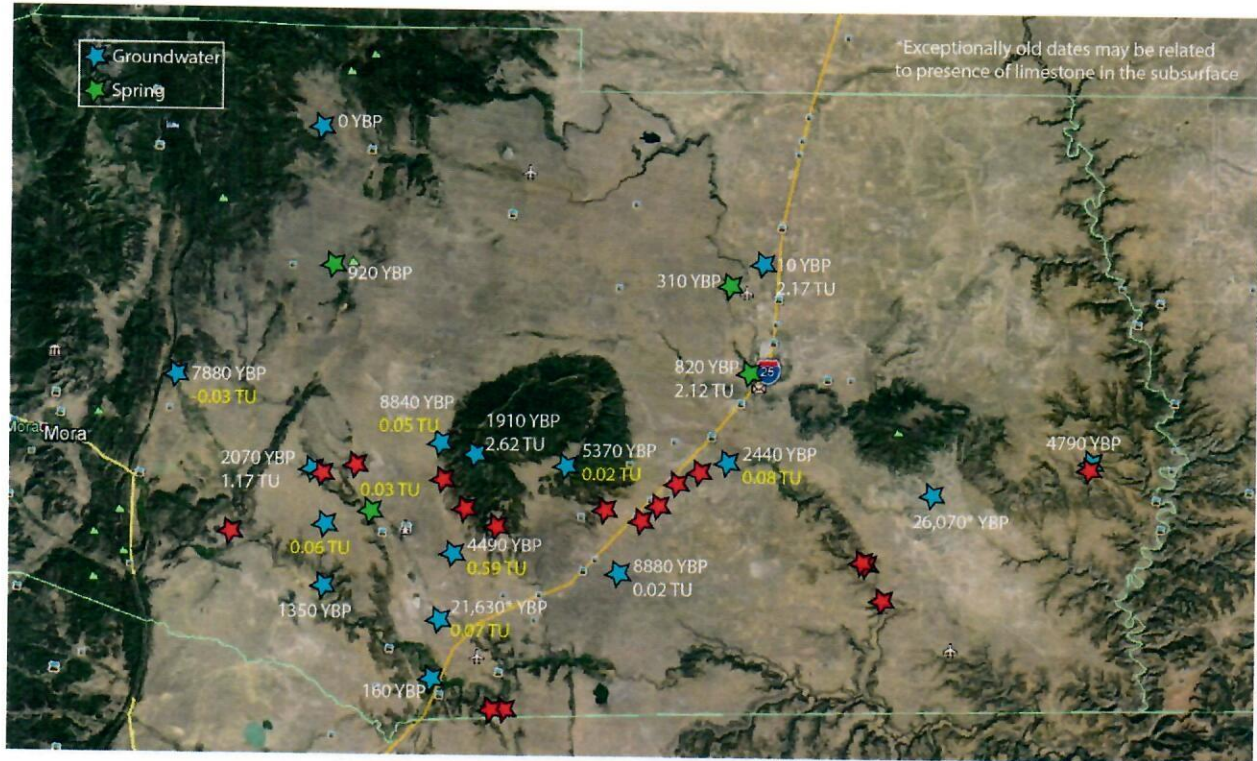


Figure 1. ^{14}C and tritium isotopic information from Mora County, showing the variability in potential for modern recharge. Red stars indicate wells with samples still being processed. Upper number is the ^{14}C average residence time in years before present (YBP). The lower number (where present) is tritium units (TU). Tritium values less than 0.8 TU indicate no modern recharge, values between 0.8 and 4.0 TU show a mixture of modern and older waters and tritium values between 4.0 and 15 indicate modern recharge.