

Meeting Update: Bonanza Valley Groundwater Management Area

On December 11, DNR groundwater planner Mark Hauck welcomed 32 people to Glenwood State Bank’s upstairs meeting room. The group heard about the DNR’s upcoming groundwater analysis projects and the DNR shared two conservation stories of Bonanza Valley residents. These and other DNR actions are called out in the Bonanza Valley Groundwater Management Area Plan, now in its fourth year of implementation.

The plan directs DNR actions, which include groundwater monitoring, analysis, setting sustainability thresholds and improving the permitting process. The plan also aims to improve communication among all stakeholders and provides for review of the plan. Hauck said that at the beginning of the process, analysis had not yet clarified if groundwater use, which has been increasing through time, was sustainable. However, there is a risk – and it needed to be studied.

“We’re now at the point to have our technical team to start the groundwater flow analysis” Hauck said.

Computer analysis for BV hydrology

John Seaberg, a Groundwater Specialist and Professional Geologist with the DNR’s groundwater technical unit described the flow of water from precipitation to how groundwater finds its way into rivers, lakes and wetlands. Groundwater flow is complex, can be variable from location to location, is influenced by groundwater pumping and is mostly invisible. Seaberg also described how a computer program is used to simulate groundwater flow in the Bonanza Valley. Advisory team member Jerry Wright said that groundwater analysis has been done before in Bonanza Valley, the first of which was by the United States Geological Survey in 1971. DNR hydrologist Supervisor Jay Frischman agreed and described this upcoming DNR analysis as more detailed. For example it will describe how aquifer levels may impact surface water features.

Seaberg said the analysis is set to begin this year and is now in the early stages of planning. Once complete, the groundwater analysis can then be used to better understand a very complex set of natural systems, making visible what was once invisible.

Irrigation Flow Meter Study

Joy Loughry, Water Monitoring and Surveys (WMS) unit supervisor for DNR's Division of Ecological and Water Resources shared results of a study that took place in the Little Rock Creek Groundwater Management Area north of St. Cloud. It is the first year of a two-year study aimed at assessing the accuracy of different methods of measuring and estimating groundwater use. DNR is working with eight local irrigators who have agreed to attach a flow meter to their nine irrigation systems. The study will help determine if any adjustments in reported water use are needed for DNR's groundwater flow analysis. Data from 2019 are not yet available, but results from the first year show:

- Pumping volumes measured by DNR were less than the reported pumping volume at seven of the nine sites, and higher than reported volumes at two sites.
- The smallest difference between what DNR measured and what the permittee reported was 2.8% (measured amount was more than reported) and the largest difference was 36.2% (measured amount was less than reported).

After the study is completed this spring, it has the potential to be conducted in other areas of the state, including the Bonanza Valley GWMA, as described in the Bonanza Valley GWMA plan.

Conservation stories

The Bonanza Valley GWMA plan says "The DNR will promote lessons learned about water conservation from working farms, municipalities, industries, and other water users in the GWMA." Two Bonanza Valley agricultural operators were interviewed by DNR and their stories were shared with the group. Hauck highlighted Anderson Farms - Jim, and his sons Grant, Noah, Isaac and Jim's brother John. Hauck read a few excerpts from a print article that highlighted their long farming history in the area and their commitment to water conservation and investing in new water conservation technology.

The group then viewed a short DNR video of Bob Brauchler, who described how water conservation and managing land as a way to ensure the economic viability of his farm.

The DNR has planned at least one more video of municipal water conservation and expects to release these stories in early 2020.

Groundwater is a very important natural resource in the Bonanza Valley. It supports agricultural businesses through crop irrigation and livestock watering. It provides drinking water for most of the valley's residents. Groundwater also flows into and supports a variety of important streams and wetlands in the valley. Because groundwater is so important and its use has increased through the years, the DNR wants to ensure that continued use of groundwater in Bonanza Valley is sustainable.

Contact Information

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For more information on the Bonanza Valley Groundwater Management Area or to sign up to receive project updates, visit the project web page at www.mndnr.gov/gwmp/area-bv.html.

For more information on DNR's groundwater management programs, visit www.mndnr.gov/gwmp/index.html.

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