Meeting Update: Sustainable Groundwater Use In The Little Rock Creek Area

On June 17, 2021, staff from the Minnesota Department of Natural Resources hosted a virtual meeting with Little Rock Creek Area stakeholders to provide updates on plans for assuring a sustainable supply of groundwater in the Little Rock Creek area.

Dan Lais, Central Region Manager welcomed attendees and underscored the importance of meeting with water users. He said that DNR knows and understands that groundwater is tied to livelihoods, family and community. He added that groundwater is also vital to supporting ecosystems in the Little Rock Creek Area. This is the important groundwater sustainability challenge; provide predictable quantities of groundwater to support businesses while allowing enough groundwater to flow to Little Rock Creek to support ecosystems.

He highlighted that DNR's analysis shows that groundwater use in the Little Rock Creek Area has created adverse impacts to Little Rock Creek and that changes in water use are needed to allow more groundwater to flow into the creek. He added that DNR will collaborate extensively with stakeholders about sustainable solutions before any decisions are made about the need to change any DNR water-use permits.

Lais closed by stating DNR's goal for the day: do our best to engage with you authentically, honestly, and in a manner that you feel heard and valued, as we work together on these complex water challenges and opportunities.

Regulation

Randall Doneen, DNR Manager for the Conservation Assistance and Regulation section explained that DNR is opting for a regulatory approach in the Little Rock Creek Area that both protects natural resources and provides flexibility for irrigators. Doneen said water-use permits for irrigation can best be administered under the groundwater part of Minnesota statutes, rather than under surface water statutes. This approach allows DNR to work with permitted water users to manage water in a way that prevents adverse impacts while maintaining a more predictable water supply.

Water flow and habitat

Jason Moeckel, DNR Manager for the Information Monitoring and Analysis section reviewed a water quality analysis done by the Benton SWCD in 2009 and another by the Minnesota Pollution Control Agency in 2015.That research showed that the water quality of Little Rock Creek has suffered

impairments under seven categories. The MPCA analysis stated that high volume water use in the area is a potential cause of low stream flow, which in turn contributes to water quality impairments.

In contrast to those water quality studies, he said that DNR analysis aimed to describe how water moves underground through aquifers and to Little Rock Creek and Bunker Hill Creek. He said that high groundwater use in the area adversely impacts Little Rock Creek stream flow and habitat. Even with normal to above normal rainfall, groundwater pumping has had an effect on stream flow.

Moeckel went on to describe DNR's stream habitat analysis. The analysis shows that streamflow depletion of more than 15% in August would adversely impact aquatic life in Little Rock Creek. The analysis also shows that streamflow is being reduced by up to 25% in some years, when groundwater pumping is highest. Groundwater sustainability statutes require that groundwater use does not cause adverse impacts. He described research that showed August to be a critical time for stream health, as water flows are typically at their lowest during August. Streams are particularly sensitive to streamflow depletion during summer periods with low flows; a time when water availability is also important for other uses like homes and crop irrigation.

A meeting attendee questioned the "baseline" condition DNR used in the analysis to quantify groundwater diversion. The questioner asked if an oak forest or oak savannah landscape (before row crop agriculture) should be used as a baseline instead of the un-irrigated alfalfa landscape that DNR used. Moeckel responded that the un-irrigated alfalfa land cover was used because the Little Rock Creek area is primarily an agricultural landscape and this condition is not likely to change now or in the immediate future. Given that, the deep rooted alfalfa plants are more resistant to drought than many other crops and represent how much water may be used by crops in an unirrigated baseline condition. DNR staff added that the data to accurately predict stream flows in pre-settlement times does not exist.

Moeckel described how Little Rock Creek is warmed about 2 degrees Celsius (3.6 degrees Fahrenheit) as it travels through the impoundment of Little Rock Creek in the Sartell Wildlife Management Area (WMA). Little Rock Creek slows and expands in this impoundment allowing air temperature and sunlight to warm the water. DNR is exploring options for managing water levels in the WMA to limit stream warming while still supporting waterfowl habitat. Moeckel added that streamflow depletion may also increase water temperatures in some years and some of the time.

Managing water differently

Moeckel then reviewed the potential water management options found in the Sustainable Use of Groundwater in the Little Rock Creek Area Plan. The plan's aim is to assure that use of groundwater remains sustainable and consistent with state laws.

The plan describes several possible scenarios: increasing water conservation, installing more stream buffers, using pipelines to distribute water from sources farther from the stream, and augmenting

stream flow during low flow periods by pumping water into the stream from a well. Moeckel said the DNR is open to other suggestions from the public.

Next Steps

Moeckel said that in the coming months the DNR will continue analyzing water management options in order to identify actions that will eliminate adverse impacts to Little Rock Creek from groundwater use. DNR will continue to keep people in the area informed of progress.

The DNR is planning a mid-winter meeting to provide an update on the analysis and to receive advice. Notices of the next meeting will be posted to the project web page and to the email subscription list available on the project web page.

Contact Information

Questions about this project can be addressed to Mark Hauck, DNR project manager, 320-223-7846, mark.hauck@state.mn.us

For more information on the Little Rock Creek area groundwater project, visit the project web page at www.mndnr.gov/littlerock. For more information on DNR's groundwater management programs, visit www.mndnr.gov/gwmp/index.html.