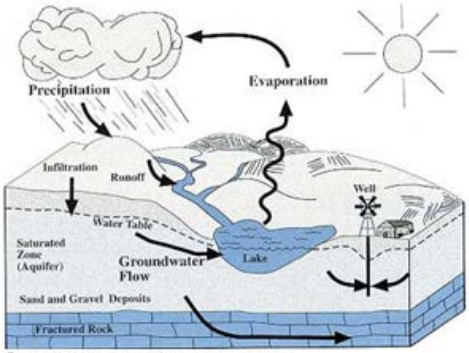
Natural Resources

Groundwater

Groundwater is Rice County's most abundant water resource. Groundwater aquifers are deposits, or rock formations, that can store water in interconnected pores and cracks.

Aquifers, or bodies of saturated rock or sediment through which water can move readily, provide the ground water for Rice County. Knowledge of the major aquifers systems is essential to the protection of Rice County's groundwater source. The major primary aquifer system in the county is the Saint Peter-Prairie du Chien-Jordan aquifer. The county also uses the Saint Lawrence-Franconia aquifer and the Galina aquifer. City wells tap into the Jordan Sandstone portion of the aquifer, while residential wells are generally shallower and tap into the water from glacial drifts (western townships) or the Saint Peter Sandstone (eastern townships). Protection of the aquifers in eastern Rice County is particularly important because the area contains karst topography, areas with many sinkholes and cave systems that often lack surface streams. Karst geology can be seen along the Straight River in Faribault.



Source: www.pca.state.mn.us

The yield of an aquifer is the rate at which water can be pumped out continuously without depleting the supply. Highest yields come from alluvial deposits along major river valleys; sand and gravel on glacial outwash plains are also good suppliers of groundwater. However, groundwater usage is difficult to assess in Rice County and throughout Minnesota for that matter. This is due to the fact that the sum of the parts is greater than the whole. Much of the water is reused, often several times, before it leaves the county.

Residents of Rice County obtain their water solely from ground water resources. In rural areas, individual wells serve as the source for water. Municipal wells provide the water resources for the residents of the cities in the county. Groundwater is also used by large industries in the county. The protection of clean groundwater resources has a direct impact on almost every land use and natural area. Groundwater quality is perhaps the best example for showing how and why land uses are interrelated. Threats to water quality – surface runoff, soil erosion, sedimentation, and nutrients from sewage and fertilizer – can be lessened by proper planning and sound stewardship.

Figure 1: Nitrate Probability Ranking Water Table Aquifer, Rice County.

This map simulates the presence of nitrate in the subsurface to predict where one would expect to see the highest nitrate concentrations within the water table.

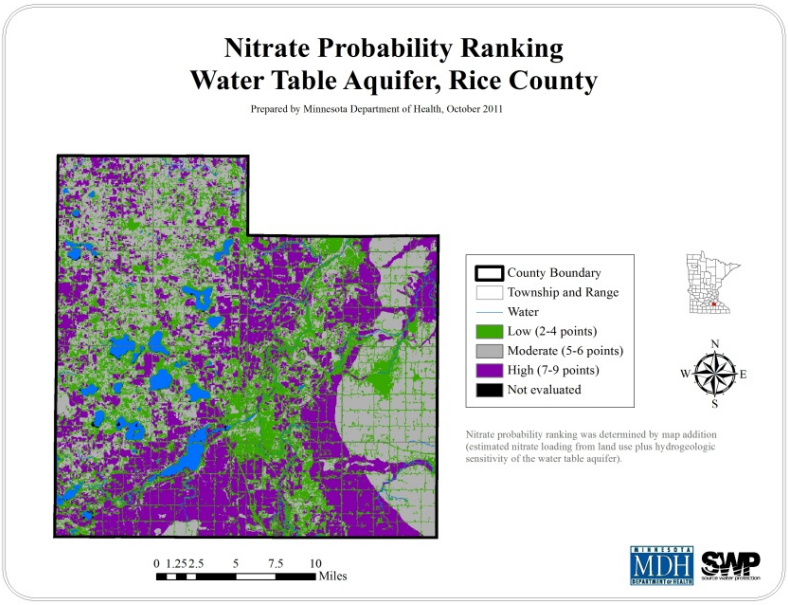


Figure 2: Hydrogeologic Sensitivity of the Water Table Aquifer, Rice County.

This map evaluates near-surface geology in terms of vulnerability of ground water below.