groundwater resources of
COLUMBIA COUNTY
WISCONSIN

Groundwater recharge

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What is groundwater recharge?

Groundwater recharge is a process in which water infiltrates (soaks) into the ground and flows downward through soil and rock to the water table. As shown in figure 1, the water table is the top of the saturated zone, where all cracks and pores are water-filled. Recharge replenishes the groundwater that flows to wells, streams, lakes, springs, and wetlands.

Not all rain and snow recharges groundwater. Some of the water runs across the land surface to lakes, streams, or storm sewers; some evaporates; and some is used by plants. Other factors affecting recharge include the type of land cover present (forest, row crop, pasture, city, residential area), the type of soil, and the timing and intensity of storms.

How much precipitation becomes recharge? In an average year, Columbia County receives about 33 inches of rain and snow. Of that, about 8 inches recharges the water table. In a very wet year, when the county may receive as much as 50 inches of precipitation, the estimated average recharge rate is about 14 inches per year. During very dry years, when precipitation can be as low as 23 inches, average recharge may be as low as 1.5 inches.

Why is groundwater recharge important?

Almost all water used in Columbia County—including drinking water—comes from groundwater. Recharge maintains the abundant supply of groundwater in the county. Groundwater is also the source of water that keeps wells, streams, and rivers from drying up during hot summer months and extended periods of drought.

What the recharge map shows

The map shows approximate amounts of recharge in Columbia County in a year of average precipitation. It identifies four groundwater recharge categories:

- **Very high**—Sandy soil; drains very quickly.
- **High**—Sandy soil with some silt and clay; drainage is somewhat slower .

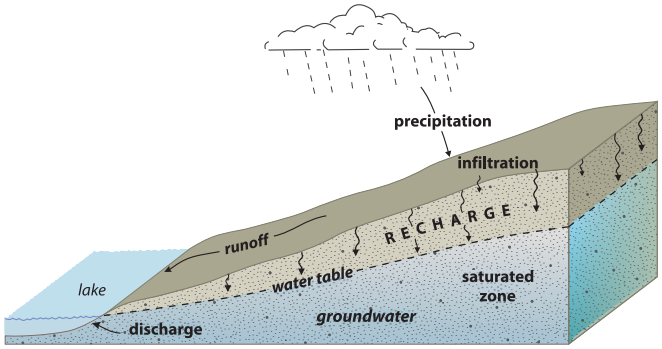

Figure 1. Recharge is the precipitation that soaks into the ground and reaches the water table.

- **Medium**—Clayey and silty soil that prevents water from rapidly percolating into the soil; these areas hold moisture longer, allowing plants to use more of the water with less becoming recharge.
- **Undefined**—Open water, some low-lying wetlands; groundwater primarily *flows to* these areas.

As shown on the map, most of Columbia County receives high recharge. The expansive open areas, sandy soil, and lack of development support groundwater recharge.

Using the map

This map is used to understand how much water enters the groundwater system each year. This information helps water managers assess areas where groundwater pumping from wells is reasonable or excessive, and identify areas where pumping could be increased without harming nearby streams or lakes. A larger version of the map can also be used to inform land-use decisions. For example, development planned for areas with high rates of groundwater recharge could incorporate design features to reduce runoff to storm water systems and preserve the quantity and quality of groundwater.

More information about the groundwater resources of Columbia County, including a detailed, large-scale version of the map (Open-File Report 2012-02), is available from the Wisconsin Geological and Natural History Survey.

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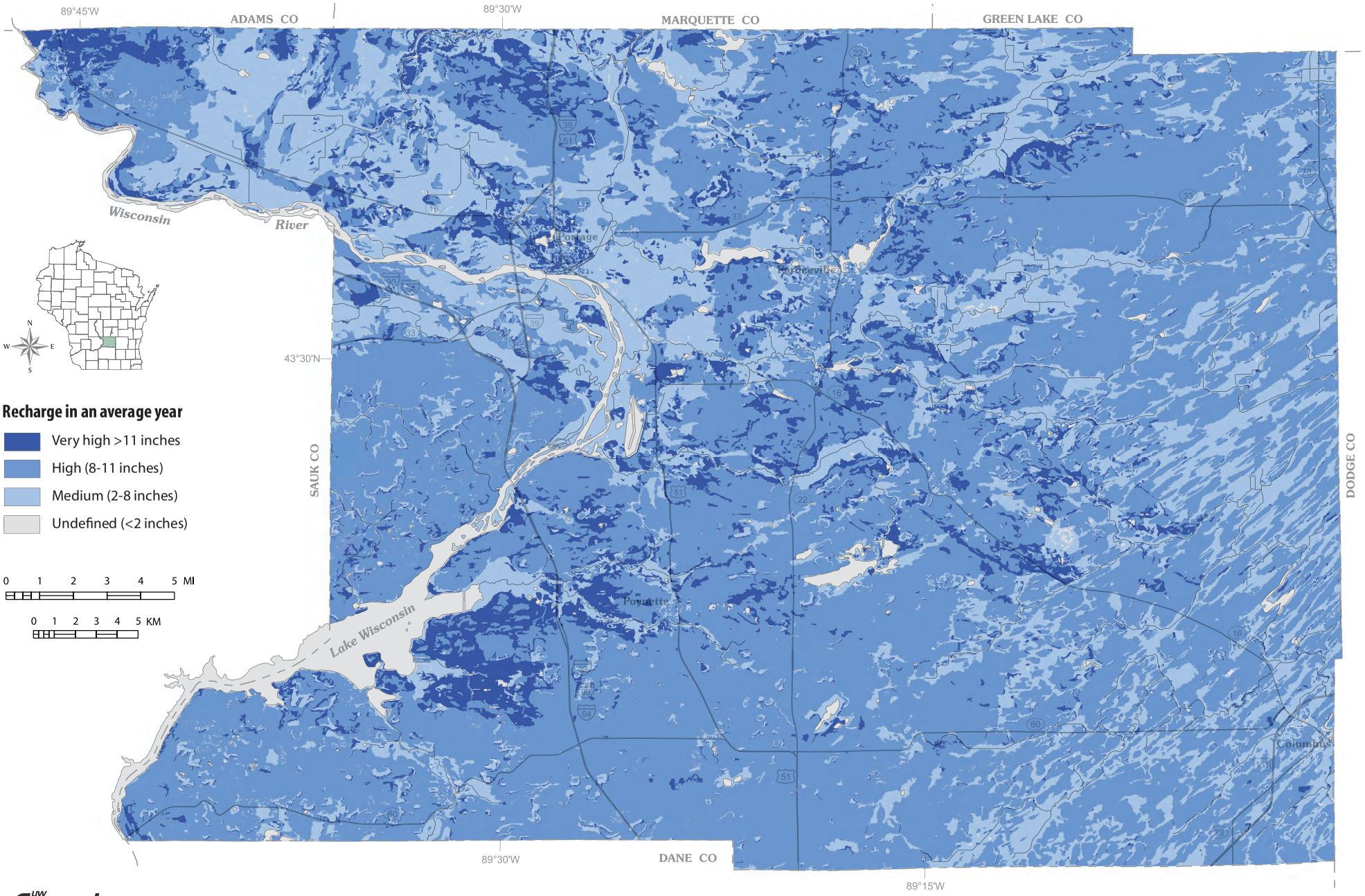
Groundwater recharge in Columbia County, Wisconsin



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