

Distribution of Wells - Maps 8, 9, and 10

These maps show the number of wells per square mile and show where ground water is being used, and the intensity of use. Map 8 shows that wells within the intermontane basins of western Montana are almost exclusively in the surficial unconsolidated aquifers associated with major rivers and their tributaries. The highest well density occurs in urban centers like the Missoula-Bitterroot and Kalispell valleys. Areas around Anaconda, Butte, Deer Lodge, and Dillon also have significant use of ground water. Alluvial aquifers are the most commonly used throughout this region. The exception is near Choteau, where glacial outwash and stream gravel terraces are developed for water supply. Map 8 demonstrates that stream networks and the surficial aquifers should be considered important components of the same water supply system. Protecting the quality of water in the system will require protecting both surface and subsurface water sources.

Map 9 shows the distribution of wells for the central part of Montana. The most intensive use of ground water occurs around Bozeman, Billings, Great Falls, and Helena. Wells are also concentrated around many smaller communities and within major stream valleys, just as they are in western Montana. However, unlike western Montana, many wells in the region are outside the boundaries of surficial aquifers (striped areas). The only other reliable sources for ground water in these areas are the bedrock aquifers. Another important observation from Map 9 is that glacial outwash and gravel deposits are more abundant in the central region than in western Montana. These deposits are important aquifers northeast of Chinook, and north of Harlowton, Ryegate, and Roundup.

Map 10 shows the distribution of wells in eastern Montana. In this region, ground-water use is heavily concentrated along stream valleys and tributaries, similar to the other two regions (Map 8 and 9). This underscores the importance of surficial aquifers throughout the state. The majority of ground-water use in Montana comes from surficial unconsolidated aquifers and makes protecting the quality of water in these aquifers a high priority. In addition, Map 10 reveals that use of the bedrock aquifers is more common in eastern Montana. This is shown by the large number of wells located beyond the surficial aquifer boundaries. The reason for the high level of use is basically the same as for the central region; bedrock aquifers are the only reliable sources of water away from the alluvial valleys. Besides alluvial and bedrock aquifers, upper Tertiary and lower Quaternary unconsolidated deposits are used to supply water north of the Missouri River.