

The Great Depression - in Ground Water

In areas of the dry south and southwest, where groundwater use is heavy and withdrawal exceeds recharge, water tables have dropped considerably (see also box 10.2). What is more surprising is that the effects of excessive pumping can be seen even in areas widely regarded as adequately wet. Consider, as an example, northern Illinois.

Sandstones of the Cambro-Ordovician aquifer system, confined over much of their areal extent, have long been used as the principal or sole source of municipal water in many parts of northern Illinois. When the height of the potentiometric surface for the confined aquifer is mapped, a dramatic drop is seen in the Chicago metropolitan area, from more than 750 feet (250 meters) above sea level to, locally, more than 100 feet (30+ meters) below sea level. What the contours really represent is a giant cone of depression in the potentiometric surface.

This cone of depression is due to yet another instance of groundwater withdrawal rates far exceeding recharge rates. Over just a decade, water levels in some area wells dropped more than 30 meters. Close to Lake Michigan, the situation can be alleviated by using proportionately more lake water. However, nearby communities and rural homesteads lacking ready access to the lake waters are finding it increasingly difficult and expensive to keep the ground waters flowing. Even if all groundwater withdrawal ceased for a time-an unlikely possibility-centuries of recharge at least would be required to restore the water levels.