Groundwater resources in Illinois are extremely important to the well-being of the state’s citizens and to the economy of the state as a whole. Nearly 5 million Illinois citizens, or more than one-third of the population, receive their drinking water from groundwater sources. Almost 60% of the Illinois water supply beyond Lake Michigan comes from groundwater, and about 90% of the rural population depends on groundwater to supply its water needs. Groundwater use for public, household, commercial and industrial, farming, mining, and power generation totals about 925 million gallons per day (3.5 billion L/day) pumped from more than 10,000 public supply wells and more than 440,000 household wells. To satisfy this demand, about 7,800 new wells are drilled annually. Groundwater industries, including well drillers, environmental consulting firms, and waste management firms, generate nearly $1.5 billion in sales annually. This amount does not include the direct sale of water by utilities.

Groundwater resources are inextricably linked to surface water, both in receiving recharge and in providing the base flow to streams, which keeps them flowing during dry periods and sustains aquatic ecosystems. Groundwater is essential for maintaining wetlands and supporting the special habitats they provide.

Although Illinois’ groundwater resources are abundant, its aquifers are not distributed uniformly across the state. Aquifers occur from ground surface to deeper than 1,000 feet (305 m), and groundwater yield varies from location to location, from a few gallons of water per minute to more than a million gallons per day. Water quality also varies greatly with depth, geological materials, and natural protection from contamination.

The following chapters describe Illinois aquifers from a geological perspective—their geological framework, constituents, composition, spatial distribution, quality, and natural protection from contamination. This part concludes with a chapter covering the importance of geology to wetlands.
Image on previous page: Waterfall and bridge, Matthiessen State Park, La Salle County, Illinois.