

GROUNDWATER QUALITY IN ILLINOIS

Since the inception of the Water Survey in the 19th century, water quality has been an integral part of our mission. Understanding groundwater quality and geochemistry is important for several reasons:

- 1) knowledge of an aquifer’s water quality is critical for understanding its availability as a drinking water source and what type of treatment is necessary to make it potable;
- 2) the aqueous geochemistry of an aquifer can help elucidate flow mechanisms in the subsurface, including the location and rates of recharge and discharge, sources of water, fate and transport of contaminants, etc.;
- 3) the quality of groundwater discharge to wetlands and streams is important for aquatic ecology.

Understanding groundwater quality and geochemistry requires several features. A robust water quality monitoring program is important to understanding the basic water quality characteristics of an aquifer, including the locations and concentrations of contaminants.

Using these foundational data, directed studies in the field and laboratory can be undertaken to understand geochemical and hydrogeological characteristics of aquifers, including the fate and transport of natural and anthropogenic contamination.

Geochemical modeling is the third leg of the stool, allowing scientists to more fully understand the *in situ* geochemical conditions and reactions, and predict the fate of contaminants.

Half of Illinois citizens draw on groundwater for their drinking water. The state’s industry also depends on water supplies of a quality to meet the needs of a healthy economy.

The Illinois Groundwater Protection Act adopted a prevention model to maintain the beneficial use of those resources. ISWS leads the Illinois Department of Natural Resources’ water supply planning program which is conducting resource planning in the state’s 11 groundwater planning regions.

The Survey’s work provides a critical scientific basis to the some 1,500 community water systems and 400,000 private well users.

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Foundational Research

Emerging Issues

HEAL Laboratory

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State Agency Engagement

FOUNDATIONAL RESEARCH—EMERGING ISSUES

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