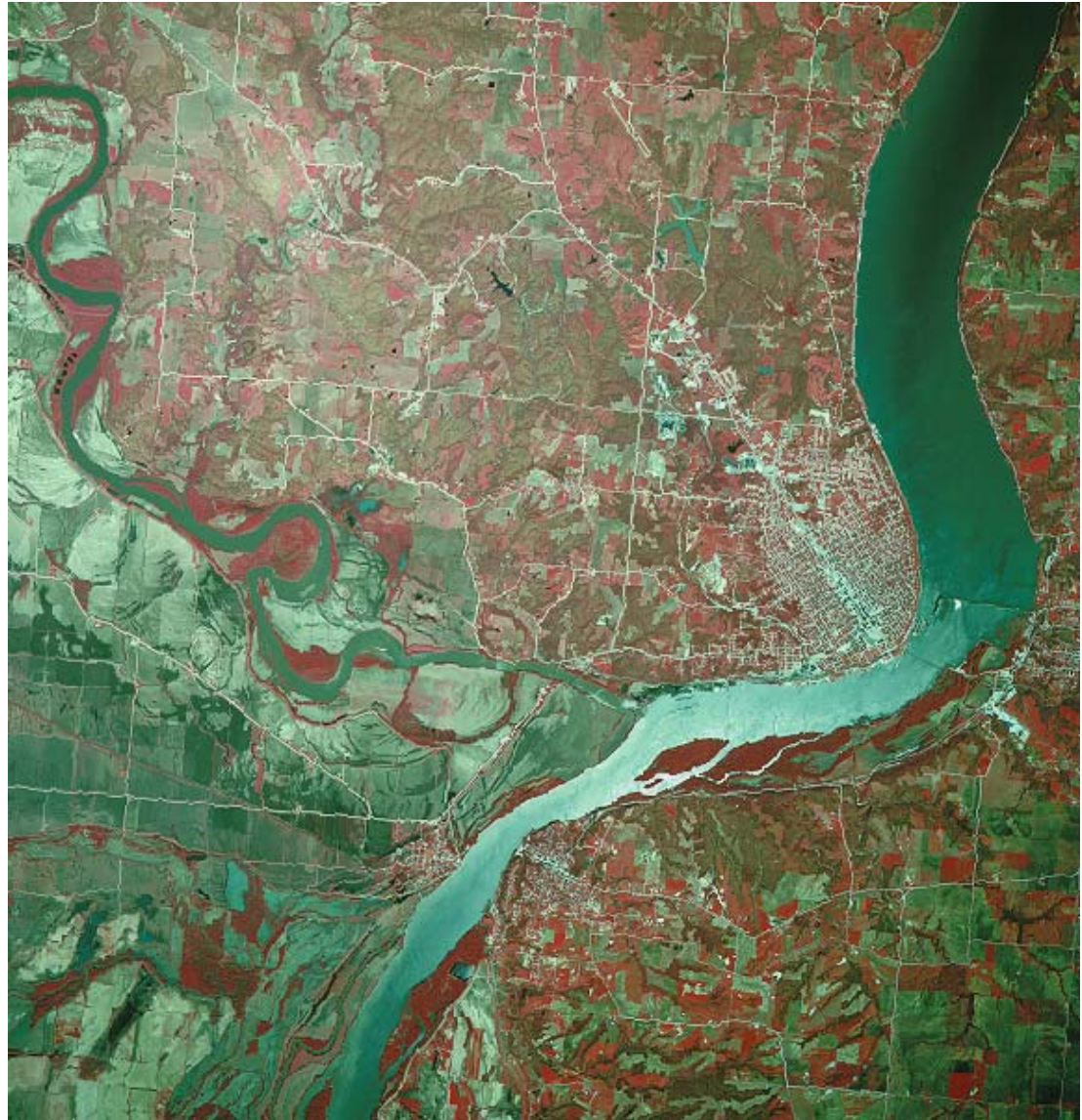


The Mississippi River (right) is joined by the meandering Des Moines River (left) at the southeastern tip of Iowa, near Keokuk. The state's rivers are fed not only by runoff from the land surface but also by groundwater discharge to their channels. The interactions between surface water and groundwater play a major role in the quality of water supplies in Iowa as well as those downstream. (May 10, 1978 color-infrared photo; altitude 40,000 ft.)



PREFACE

“At this stage in the . . . history of Iowa when a larger number of water works are being built than ever before, . . . there is need of specific and authoritative information as to the aqueous treasures of the rocks.”

– William Harmon Norton
Artesian Wells of Iowa, 1897

The fate of any farmstead or community in Iowa is tied to an adequate supply of fresh water. The most frequent questions asked of the Iowa Geological Survey are about groundwater – that vital, but hidden, natural resource that supplies 80 percent of Iowans with their drinking water. As important as groundwater is to our state, most people are unaware of the underground conditions that supply water to wells and, in turn, affect its vulnerability to contamination. *Iowa’s Groundwater Basics* takes a statewide, in-depth look at Iowa’s groundwater resources – where they occur; how they behave; where they are vulnerable; and how they are used. The intent is to provide basic information about the occurrence of groundwater in Iowa and to describe the various geologic settings that affect both its availability and its vulnerability. Understanding this information is in the best interests of Iowans; it is essential to groundwater protection and management efforts in general, and to implementation of the State’s Source Water Protection program in particular.

Consider that throughout Iowa all human activity is supported

by geological substrates – layers of the Earth’s surface composed of land and its accompanying water resources. Our past and present agricultural, urban, and commercial uses of this land carry far-reaching consequences for both resources. Because these human, earth, and water interactions will be with us far into the future, and the number of people affected by them continues to increase, there is particular need for a broadened public understanding of the geological basics of Iowa’s groundwater resources.

Successful land and water management is based upon reliable information and the support of a well-informed public. We hope to supply this needed information to Iowa citizens, lawmakers, educators, engineers, and drillers, as well as to those municipal, county, state, and federal agencies that handle groundwater contamination issues, source water and wellhead protection efforts, and various natural resource management projects. This guide is designed to provide a framework for understanding groundwater availability and protection issues throughout the state. It also can serve as a bridge to connect a general audience with the more detailed information available in technical publications. Finally, it can awaken interest among Iowans to the dynamic hydrologic aspects of their surrounding landscapes, watersheds, and wetland habitats.

Iowa’s Groundwater Basics is a general treatment of groundwater in Iowa and does not address the numerous local variations that can occur. Readers are directed to “References and Information Sources” at the end of this publication or to the Iowa Geological Survey for more site-specific information.