

IOWA GROUND WATER CONDITIONS

Ground water Importance: Iowans rely heavily on ground water for drinking water, agricultural, industrial, and recreational needs. Ninety-two percent of Iowa's public water supplies utilize ground water through community, non-transient noncommunity, and transient noncommunity systems (Figure 1). Ground water sources serve about 57% of Iowa's population; approximately 1.5 million people are served by community public water supplies that draw their drinking water from a ground water source, and an additional 240,000 people utilize ground water drawn from private wells. Agricultural and recreational needs are served by approximately 2,300 irrigation wells, and 436 wells are registered for industrial use.

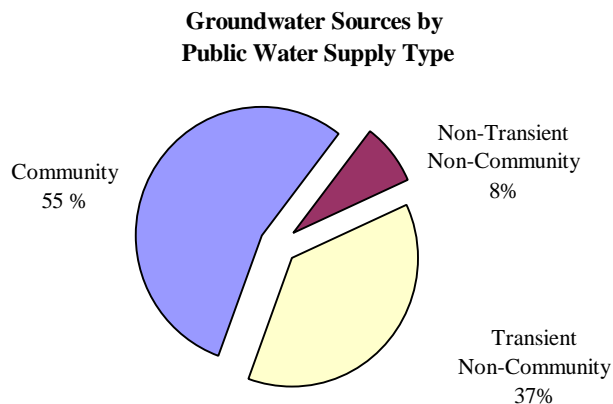


Figure 1

Where is it? Ground water is fairly abundant throughout the state. As shown in Figure 2, the majority of municipal wells are completed in aquifers confined by bedrock formations. Alluvial wells along the Missouri and Mississippi Rivers, and in the western, south central, and southeastern portions of the state provide high volume, good quality ground water for many municipal water supplies.

How Good Is the Water? Ground water in Iowa is generally of good quality, though there are some localized cases of contamination throughout the state. During 1998, 33 of Iowa's 1,977 active public water supplies (1.6%) experienced Maximum Contaminant Level (MCL) violations of the nitrate standard.

One public system experienced a violation of the arsenic standard, and two systems violated the fluoride standard, though arsenic and fluoride are naturally occurring at elevated

Distribution of Public Ground water Supply by Type in Iowa

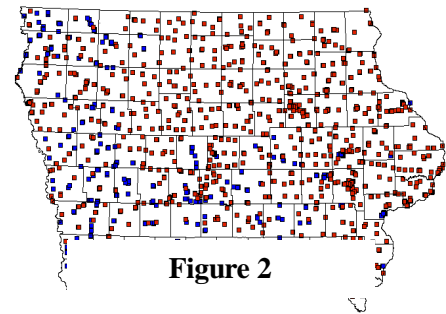


Figure 2

- Bedrock municipal wells
- Alluvial municipal wells

levels in ground water in these areas. Only one public water supply using ground water as a source exceeded the MCL for an organic chemical (carbon tetrachloride) during 1998. Three systems violated the MCL for naturally occurring radionuclides during 1998, while a total of 27 ground water systems continue to experience chronic violations of the radionuclide standards.

A survey of (private) domestic well water quality in Midwestern states conducted by the Center for Disease Control (CDC) indicated that 58.6% of domestic wells in Iowa contain coliform bacteria, with fecal coliform indicated in 20.5% of samples. Nitrate levels exceeded the MCL of 10 milligrams per liter in 20.6% of samples, and atrazine levels exceeded the MCL of three micrograms per liter in 0.4% of samples. A total of 526 domestic Iowa wells were sampled for this study, published in 1998.

Costs of Contamination: Although it is impossible to say exactly how much has been spent to remediate ground water contamination in Iowa, it is estimated that more than \$100 million has been spent by public water supplies to eliminate or treat sources of contamination.

Many systems have been forced to abandon contaminated wells, add expensive infrastructure for treatment, develop new sources, or consolidate with other systems to avoid distribution of water that did not meet the standards of the Safe Drinking Water Act. During the first two years of the Drinking Water State Revolving Fund loan program, more than \$18 million in loans has been appropriated to systems for remediation of contamination-related problems alone.

Efforts to Protect Ground Water:

Ground water protection is receiving increasing attention in Iowa. Currently, the State of Iowa is spending about \$160,000 per year to monitor the status of its ground water, excluding the funds allocated for special studies in localized areas. Under the direction of a newly elected governor and a newly appointed director, the Iowa Department of Natural Resources expects additional funding for statewide ground water monitoring within the next few years.

Source water assessment of every public water supply is required by the 1996 Safe Drinking Water Act. As a result, approximately \$1.7 million provided by the set-aside funds of the Drinking Water State Revolving Fund loan program will be used to delineate and assess potential contaminant sources and source water vulnerability for every public ground water supply in Iowa over the next four years. Technical assistance for systems preparing wellhead or source water protection plans is being funded with an additional \$130,000 from the technical assistance set-aside moneys of the Drinking Water State Revolving Fund.

Additional programs directed toward ground water protection include programs contaminated site cleanup, permitting to

contain pollution from landfills and animal confinement units, tracking of large-scale ground water use for municipal, irrigation, and industrial use, the grants to counties program which provides for the abandonment of inactive wells to prevent ground water contamination and permitting of private drinking water wells and septic systems, and the Safe Drinking Water Act monitoring waiver program.

What Else Is Needed? Additional resources are needed to continue and improve Iowa's effort towards ground water protection. Although funding issues are critical, efforts to educate the public regarding the protection of ground water supplies may provide great benefits over time. Current needs include:

- ◆ Additional funding for statewide ambient ground water monitoring.
- ◆ Staff to assist communities with implementing local wellhead protection programs.
- ◆ Staff to work with partners in managing the various non-point pollution sources that affect ground water.
- ◆ Evaluation of the effectiveness of protection efforts and suggestions on how to better direct resources to maximize their impact.
- ◆ Integration of data from various sources to complete the picture of ground water quality in Iowa.
- ◆ Placement of monitoring and other data on the web so that current ground water data is accessible to all Iowans.