

NEW YORK GROUND WATER CONDITIONS

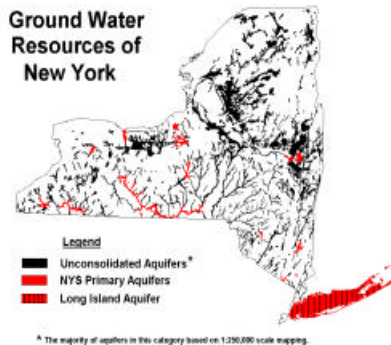
Ground Water Importance: Ground water is an invaluable and critical natural resource for the population, business and environmental health of New York State (NYS). Ground water, water that fills the pores and fractures in both soil and rock, is an integral part of the hydrologic cycle.



The dependence on ground water for domestic and business purposes is often irreplaceable. The trend away from surface water for community water supplies has only increased the role of and dependence on ground water. Fifty to as many as 100+ ground water based water systems serve most counties in New York. Business use of ground water is also significant. The combined commercial / industrial estimated daily usage is approximately 263 Mgal/d.

In terms of environmental health, ground water provides the contributing base flow for much of New York State's 46,000+ miles of streams and rivers during periods of below normal precipitation. Of equal importance is the role of ground water in maintaining the overall health of New York's wetlands, watersheds and ecosystems.

Where is it? Ground water exists in all regions of New York State. The more productive sand and gravel aquifers of Long Island and the valley fill aquifers upstate are depicted in the figure below. Bedrock aquifers, although often



less productive, are utilized by more than 75% of the approximately 10,000 new water wells drilled in the state each year. In several counties of Long Island,

water supply dependency on ground water is virtually 100%. Elsewhere the dependency on ground water is approximately 50% (including individual private wells). In all, the total population dependency on ground water in New York State, including individual private wells, exceeds 6 million people.

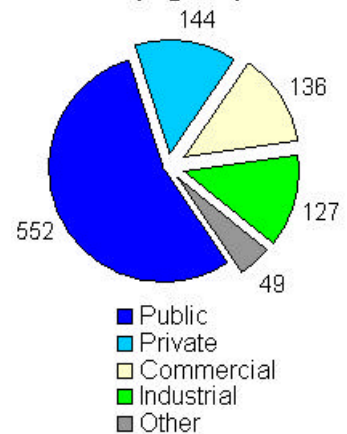
How Good Is It? The quality of New York's ground water is generally good and of sufficient quantity throughout the state.

Natural water quality problems are present in some aquifers mainly involving total dissolved solids, iron, sulfates, chlorides, hydrogen sulfide, methane or radon. Usually, they occur in concentrations below state MCLs or are treatable.

Contamination related to human activity (e.g. past practices, leaks, spills, waste disposal, pesticides, fertilizers, septic tanks, etc.) is known to occur at a number of individual sites and some localized areas. Where occurrences are found, contamination from human activities tend to more seriously affect shallow, unconfined aquifers and thus is a focus of concern to public water supplies and individual private wells that draw from this part of the resource. Deeper fresh water aquifers have also been impacted at some individual sites but remain relatively free from surface derived contamination at this time. Continued vigilance is necessary to retain New York's overall good supply of ground water and to make improvements where required.

Management of Ground Water in New York State: Management and protection of ground water in New York State is achieved through the combined efforts of federal, state and local agencies. Overall, the NYS Department of

Estimated Daily Ground Water Use In NYS (Mgal/d)



Environmental Conservation has the lead role in assuring and coordinating the protection and management of the state's ground water resources. The Department is also responsible for related environmental quality programs including discharge controls, nonpoint source controls, waste disposal, bulk storage and spill response. The vital role of managing the state's public water supplies, and the corresponding source water protection program, is the responsibility of the New York State Department of Health. Counties participate through planning functions and delegation of state programs, while municipalities become involved through enactment of local land use controls. Involvement of federal agencies includes oversight of selected programs (e.g., EPA regulates some types of underground injection) and of their own properties (e.g., military). Additional federal involvement includes support of resource mapping and assessment activities principally through the U.S. Geological Survey.

Several key components of New York States ground water management effort include:

- The establishment of regulatory ground water classifications and standards.
- The creation and use of the "Upstate New York Ground Water Management Program", 1987.
- The creation and use of the "Long Island Ground Water Management Program, 1986.
- The creation and use of the "Comprehensive State Ground water Protection Program Assessment", 1995.

At the present time, nearly all elements outlined in New York's ground water management program reports have been established and fully implemented.

What Else Is Needed? Although nearly all ground water management elements have been

established, there are areas where needs still exist. Those areas include:

- Continuation of effort to improve ground water monitoring & reporting.
- Improve public education effort on ground water related issues, particularly using web-based methods.
- Improve intra- and inter-departmental data sharing and coordination.
- Enhance existing resource mapping effort.
- Continue with ground water related Geographic Information System (GIS) development.
- Improve integration of ground water program with related functions.