

MONITORING GROUND-WATER LEVELS, LONG ISLAND, NY

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ABSTRACT

The U.S. Geological Survey (USGS) New York Water Science Center operates a network of over 600 active ground-water monitoring wells on Long Island, N.Y., with the majority of these wells screened in the water-table (upper glacial) aquifer. Water-level data from these wells have enabled the USGS to track the effects of variable precipitation and increased human development on the underlying aquifer system. Large-scale ground-water withdrawals and installation of sewerage systems over the past 50 years have lowered ground-water levels in many parts of western Long Island. In contrast, water levels in the less-developed central and eastern parts of the island remain relatively unaffected by these factors compared to those in western parts, although the effects of development are still discernible in the records.

Beginning in October 2005, above-normal precipitation caused ground-water levels across Long Island to rise and approach or exceeds record values. In areas where shallow depth-to-water-table conditions occur, typically in low-lying areas near inland surface water bodies and the coast, this ground-water rise has been problematic. Adverse effects include ground-water seepage into basements and the failure of septic systems. Documenting these areas of shallow ground water through use of a geographic information system has proven a valuable tool for explaining and defining areas of potential flooding and attendant water-quality impairment of wells, streams, and estuaries.

KEYWORDS

ground-water levels, Long Island, precipitation, human development