Online Groundwater Level Data

The groundwater level data shown were downloaded from the USGS National Water Information System (NWIS) database, accessed at http://waterdata.usgs.gov/nwis/si. This database contains records of more than 850,000 wells, springs, test holes, tunnels, drains, and excavations in the United States. Available site descriptive information includes well-location and completion information, such as latitude, longitude, well depth, and aquifer. NWIS water-level data may be queried and used to construct historical time-series hydrographs for wells. As an example, for Suffolk County mapped well "S16783" search NWIS on Site Name "16783", and choose "match any part" then click submit. A search will be performed and a resulting list of site numbers will appear; click on the site number, then click on the field groundwater-level measurements link.

Additional USGS links include:

- New York State Active Groundwater Level Network: http://groundwaterwatch.usgs.gov/StateMaps/NY.html
- Historical Groundwater Level Data: http://waterdata.usgs.gov/ny/nwis/gw/
- Water Quality Data: http://waterdata.usgs.gov/ny/nwis/qw/

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For more information on the USGS—The Federal source for science about the earth, its natural and living resources, natural hazards and the environment:
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Telephone: 1-888-ASK-USGS

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Water-Table and Potentiometric-Surface Altitudes

in the Upper Glacial, Magothy, and Lloyd Aquifers beneath Long Island, New York, March-April 2006

By Jack Monti, Jr. and Ronald Busciolano, Martyn J. Smith, and M.Peter deVries

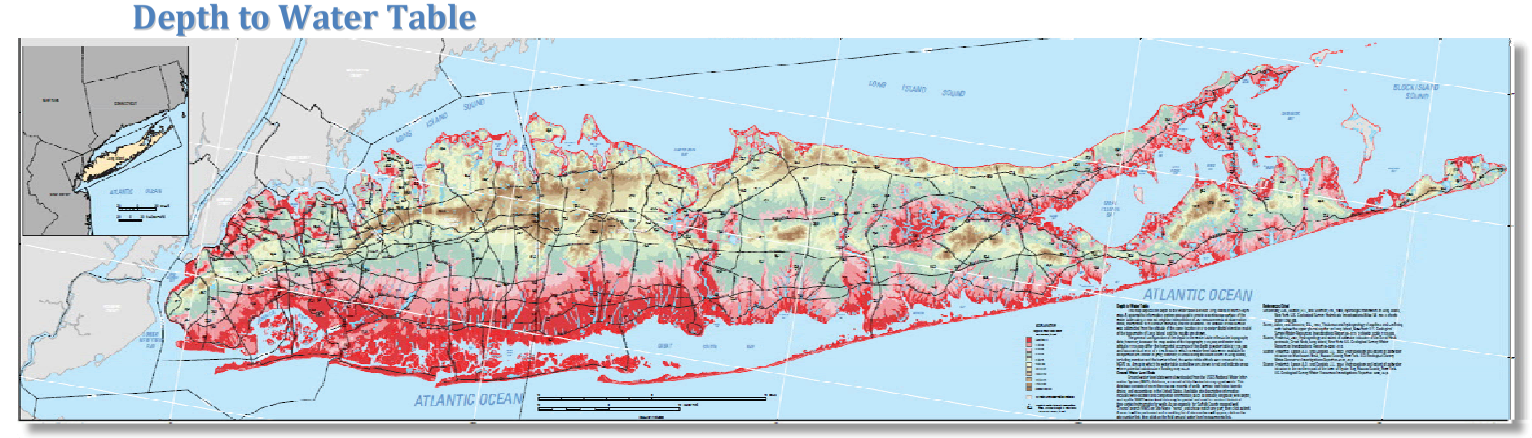
Introduction

- Each year during March and April, the USGS conducts a survey of hydrologic conditions within the three main water-bearing units underlying Long Island—**the upper glacial, Magothy, and Lloyd aquifers**—in order to define the spatial distribution of the water table and potentiometric surfaces.
- Water-level measurements were made by the wetted-tape method in 502 wells across Long Island during March and April 2006 and used to prepare the maps in this report.
- The data collected and the maps constructed from them are commonly used in studies of Long Island's hydrology, and by water managers and suppliers for aquifer management and planning purposes.

Further Information and Full Report

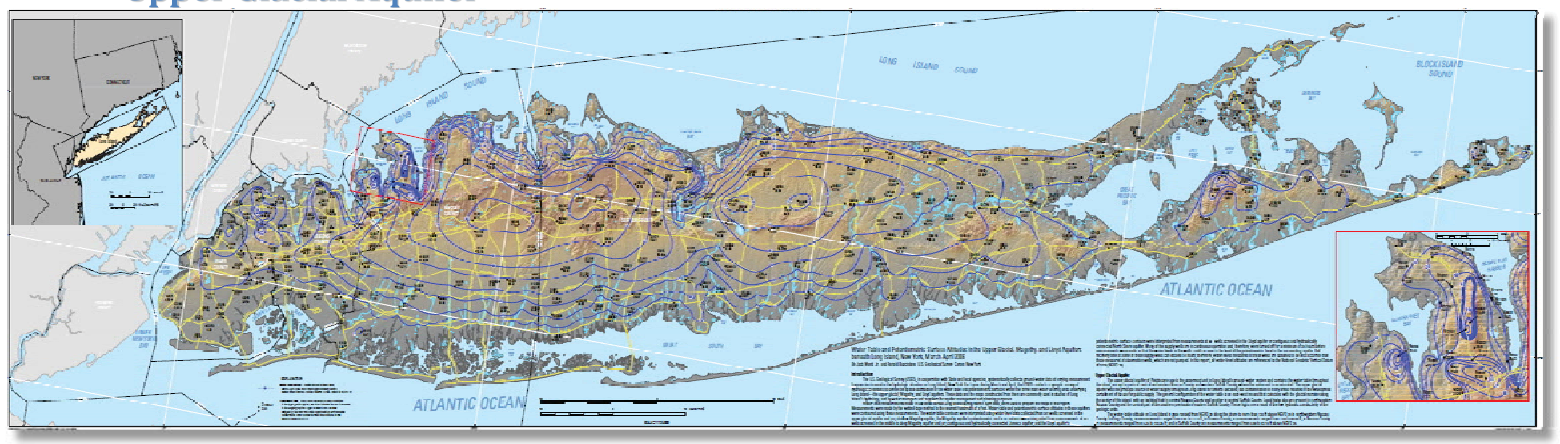
- Web Viewers (very user friendly):
  1) USGS Depth-to-Water tool for Long Island, NY (http://ny.water.usgs.gov/maps/li-dtw)
  2) USGS online mapper for water-table altitude, and potentiometric surface of Magothy, Jameco, Lloyd, and North Shore aquifers on Long Island, NY (http://ny.water.usgs.gov/maps/li-gc/)
- Full Report in PDF (four large 72x34 in. maps, 40 mb each, slow to plot at full size): *U.S. Geological Survey Scientific Investigations Map 3066, 4 sheets, scale 1:125,000* http://pubs.usgs.gov/sim/3066/
- GIS Dataset: http://ny.water.usgs.gov/projects/gisunit/Long_Island_SIM3066.html
- Online Groundwater Level Data is available (see section below).

Depth to Water Table



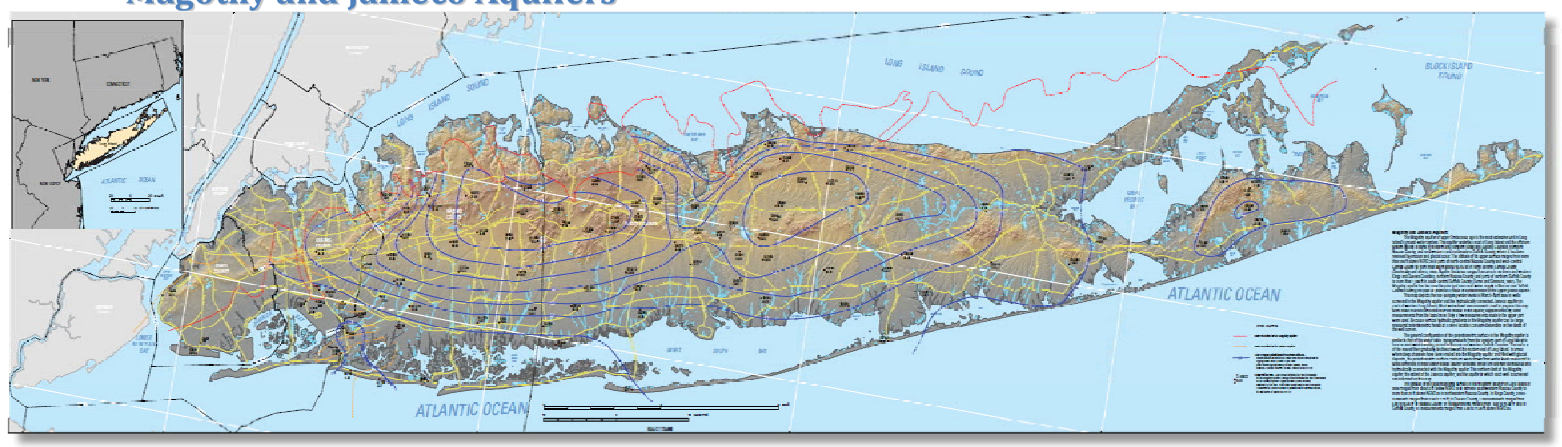
- This map depicts the **depth to the water table** beneath the surface of Long Island in March-April 2006.
- Areas in which the water table is shallow, less than 11 feet below the surface, are shown in red and indicate areas where potential substructure flooding may occur.

Upper Glacial Aquifer



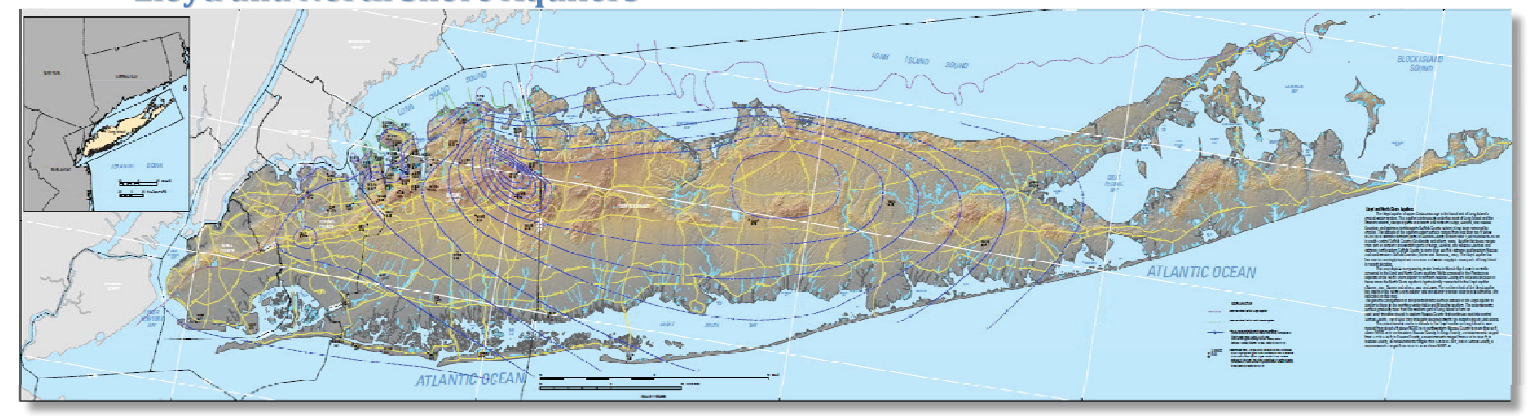
- The upper glacial aquifer is the uppermost unit in Long Island's groundwater system and contains the water table throughout the island, except in parts of central and eastern Nassau County and western Suffolk County, where the entire unit is unsaturated.
- The upper glacial aquifer was the principal source of water supply throughout Long Island for several decades, but contamination in many areas resulted in the widespread curtailment of its use for public supply.
- The general configuration of the **water-table** is an east-west mound, ranging in altitude from local sea level to more than 120 ft. above National Geodetic Vertical Datum of 1929 (NGVD 1929), that coincides with the glacial moraine along the center of the island, with isolated highs in central Nassau County and central Suffolk County.

Magothy and Jameco Aquifers

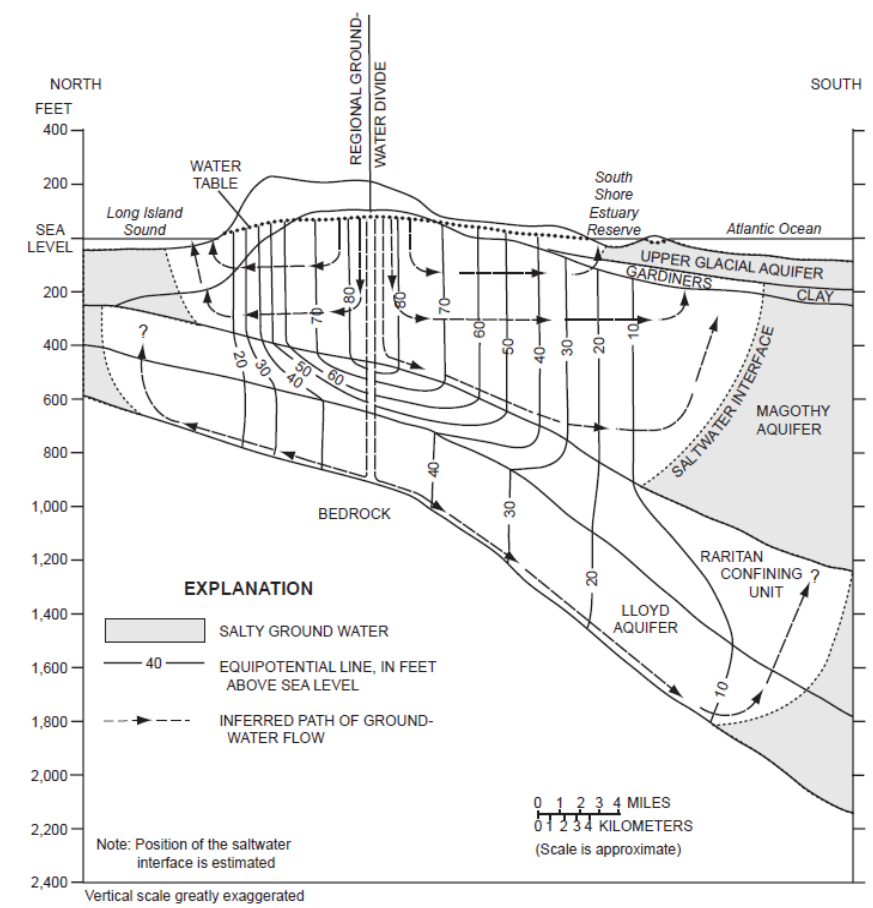


- The Magothy aquifer is the most extensive unit in Long Island's groundwater system underlying most of Long Island and the offshore waters, except in northern portions of the island where it has been removed by erosion and glacial scour.
- The Magothy aquifer has become the principal source of water supply in Nassau and Suffolk Counties during the past 50 years as a result of contamination in the upper glacial aquifer.
- The general configuration of the aquifer's **potentiometric surface** is similar to that of the water table, rising gradually from the western part of Long Island to form an east-west trending mound, ranging in altitude from 3 ft. below to more than 70 ft. above NGVD, in Nassau and western Suffolk Counties. The surface of the mound then gradually declines toward the eastern end of Long Island.

Lloyd and North Shore Aquifers



- The Lloyd aquifer is the basal unit of Long Island's groundwater system, underlying most of Long Island and the offshore waters except in western portions of the Island where it has been removed by erosion.
- The general configuration of the **potentiometric surface** in the Lloyd aquifer is similar to those in the overlying water-table and Magothy aquifers. The surface gradually rises from the western part of Long Island to form an east-west-trending mound, ranging in altitude from 4 ft. to more than 60 ft. above NGVD 29, in eastern Nassau County that continues east into central Suffolk County. The mound then gradually declines toward the eastern end of Long Island.



Generalized section showing hydrogeologic units and generalized directions of groundwater flow on the north and south shores of Long Island, N.Y. (Monti and Scorca, 2003; Nemickas and others, 1989)