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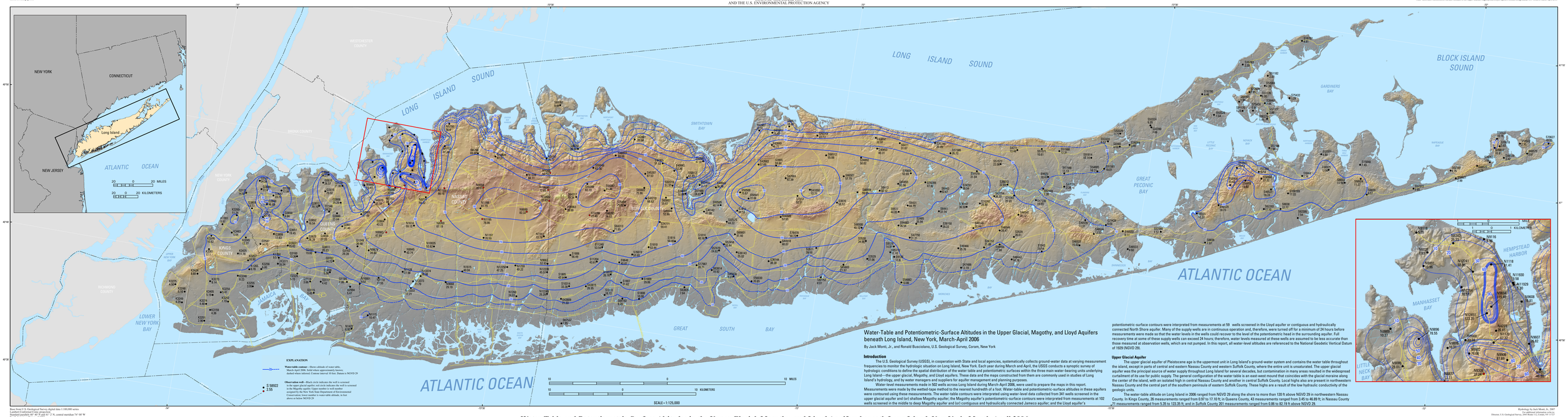
TOWN OF EAST HAMPTON
TOWN OF NORTH HEMPSTEAD
TOWN OF SOUTHAMPTON
TOWN OF SOUTHAMPTON
AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

SCIENTIFIC INVESTIGATIONS MAP 3066
Water table—SHEET 1 of 4
Mason Dixon Lines, Inc., Contractor
Water-Table and Potentiometric-Surface Altitudes in the Upper Glacial, Magothy, and Lloyd Aquifers beneath Long Island, New York, in March-April 2006



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, U.S. Geological Survey, Coram, New York

Introduction

The U.S. Geological Survey (USGS), in cooperation with State and local agencies, systematically collects ground-water data at varying measurement frequencies to monitor the hydrologic situation on Long Island, New York. Each year during March and April, the USGS conducts a synoptic survey of hydrologic conditions to define the spatial distribution of the water table and potentiometric surfaces within the three main water-bearing units underlying Long Island—the upper glacial, Magothy, and Lloyd aquifers. These data 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.

Water-level measurements made in 502 wells across Long Island during March-April 2006, were used to prepare the maps in this report. Measurements were made by the wetted-tape method to the nearest hundredth of a foot. Water-table and potentiometric-surface altitudes in these aquifers were contoured using these measurements. The water-table contours were interpreted using water-level data collected from 341 wells screened in the upper glacial aquifer and (or) shallow Magothy aquifer; the Magothy aquifer's potentiometric-surface contours were interpreted from measurements at 102 wells screened in the middle to deep Magothy aquifer and (or) contiguous and hydraulically connected Jameco aquifer; and the Lloyd aquifer's potentiometric-surface contours were interpreted from measurements at 59 wells screened in the Lloyd aquifer or contiguous and hydraulically connected North Shore aquifer. Many of the supply wells are in continuous operation and, therefore, were turned off for a minimum of 24 hours before measurements were made so that the water levels in the wells could recover to the level of the potentiometric head in the surrounding aquifer. Full recovery time at some of these supply wells can exceed 24 hours; therefore, water levels measured at these wells are assumed to be less accurate than those measured at observation wells, which are not pumped. In this report, all water-level altitudes are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29).

Upper Glacial Aquifer

The upper glacial aquifer of Pleistocene age is the uppermost unit in Long Island's ground-water 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 that coincides with the glacial moraine along the center of the island, with an isolated high in central Nassau County and another in central Suffolk County. Local highs also are present in northwestern Nassau County and the central part of the southern peninsula of eastern Suffolk County. These highs are a result of the low hydraulic conductivity of the geologic units.

The water-table altitude on Long Island in 2006 ranged from NGVD 29 along the shore to more than 120 ft above NGVD 29 in northwestern Nassau County. In Kings County, 26 measurements ranged from 0.97 to 17.10 ft; in Queens County, 43 measurements ranged from 3.45 to 46.89 ft; in Nassau County 71 measurements ranged from 5.35 to 122.35 ft; and in Suffolk County 201 measurements ranged from 0.86 to 82.19 ft above NGVD 29.

Base from U.S. Geological Survey digital data 1:100,000 series
Lambert Conformal Conic projection
Standard parallels 41° 29' N and 43° 47' N, central meridian 74° 00' W
North American Datum of 1983

Hydrology by Jack Monti, Jr., 2007
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U.S. Geological Survey, Branch of Information Services, Box 25286, Denver, CO 80225-0286

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