

Mapping Public Supply Well Water Quality in Nassau and Suffolk Counties, New York

Tyrand Fuller, C.P.G., James Touchet and Richard Bova C.P.G.

For decades, researchers, scientists, officials from public agencies and water utilities have collected and analyzed water quality data from wells throughout Long Island. This collected data has been used to produce reports vital to the understanding of Long Island's aquifers. Water quality data from thousands of wells (public supply and monitoring wells) are managed in independent databases by various entities, however there has never been a method to unify all of the available information. In addition to water quality, these databases also include other pertinent attributes such as well location/coordinates, aquifer, water table level, and pumping history. In 2014 a partnership was formed between Nassau and Suffolk counties known as the Long Island Commission on Aquifer Protection (L.I.C.A.P.). As stated in the L.I.C.A.P. mission, this bi-county entity was formed to address both quality and quantity issues facing the Long Island aquifer system, and to advocate for a coordinated regional approach to groundwater resources management. In working with this coordinated approach water suppliers across Long Island shared water quality data for calendar year 2015, along with locations of their public supply wells (Fig. 1) and well attributes (well depth, aquifer type, district, etc). The data obtained was exported in Microsoft Excel and transferred into ArcGIS. The creation of this system allows for water utilities and public agencies to search for any sampled analyte and have results visually displayed by concentration range and location. In addition analytes can be searched based on well depth, mean sea level elevation, aquifer type, water district and sample date. This allows for water quality data to be displayed both in spatial dimensions and time. The framework linking water quality data and public supply wells within ArcGIS offers an unprecedented view into the Long Island aquifer system. Future goals of this project include the addition of all monitor wells within Nassau and Suffolk counties and a web GIS version of the system. There is also an initiative to incorporate attributes such as driller's log, geophysical logs, resistivity logs and source water contributing areas as well.

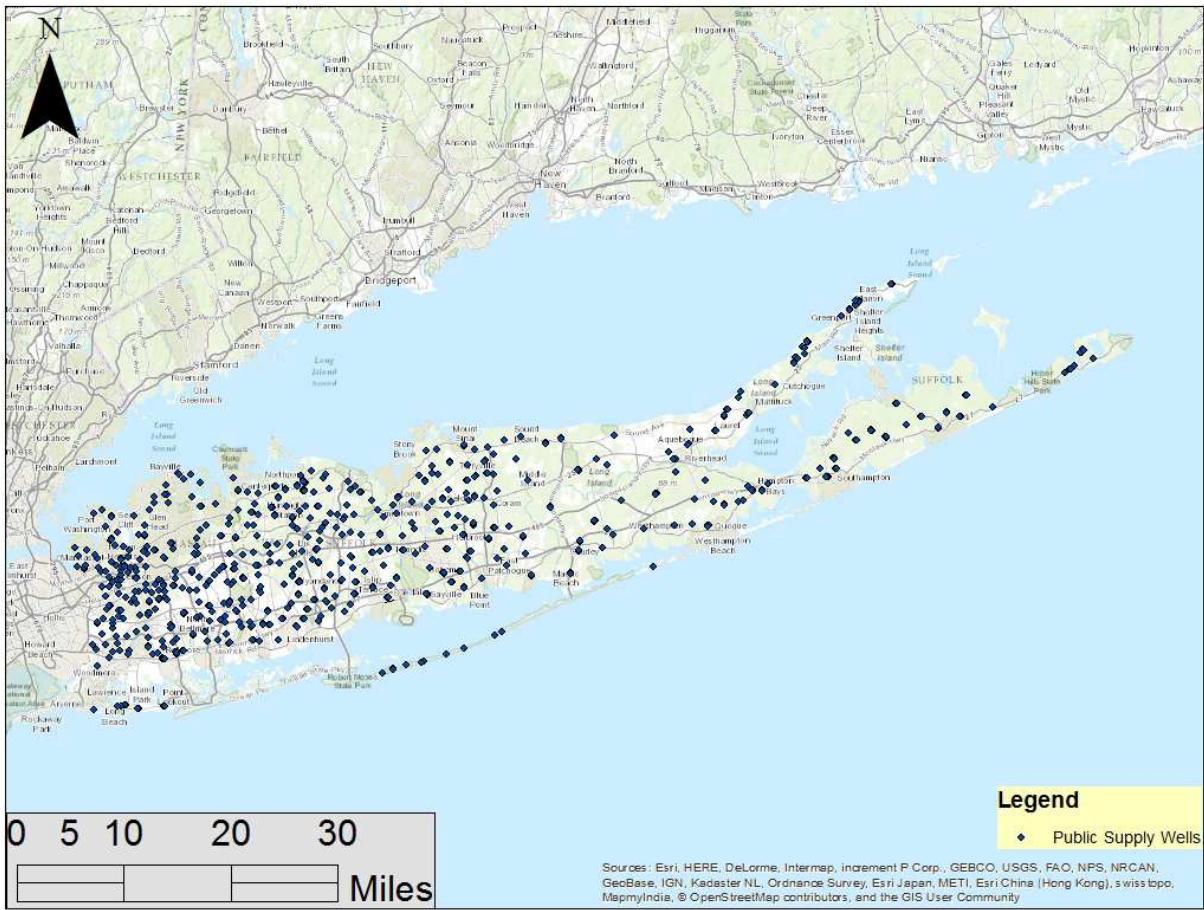


Figure 1: Map of Long Island public supply wells