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As Aquifer Runs Dry, L.I. Water Debate Ensues

By **BRUCE LAMBERT**

Thousands of years ago, rain fell on Long Island and seeped hundreds of feet through the sandy soil, coming to rest on bedrock. It formed what geologists call the Lloyd aquifer, the island's oldest, deepest, purest — and scarcest — groundwater.

Now, after 60 years of virtually unchecked suburban growth and consumption of the island's most precious resource, public officials and civic groups are fighting over control of the remaining water supply. It is as if these were the island's last drops to drink, which is precisely what environmentalists insist the aquifer should be reserved for.

The battle over the aquifer underscores the broader debate over Long Island's entire water supply for its nearly three million residents and future development. Preservationists warn that if the island continues on its present path, it will run out of clean water, while other experts are equally insistent that there is enough to last for generations.

"We're using up the last, best water, and we're not making any new pure water," said Sarah J. Meyland, who teaches hydrology at the New York Institute of Technology.

While the notion of an island lacking water may seem incongruous, the problem is that the surrounding ocean keeps out most conventional sources of fresh water. Unlike New York City, Long Island has no reservoirs, dams, great lakes or mighty rivers to tap.

"A lot of people on Long Island have no idea where they get their water, but everyone there drinks from the ground," unless they use bottled water, said Walter T. Hang, president of Toxics Targeting, a company that compiles data and maps on contamination sites across the state.

On an average day, wells pump 450 million gallons of water to slake the island's thirst. Consumption often doubles or triples in the summer, when sprinklers are working overtime to keep lawns green in America's first modern swath of suburbia. Residents use a daily average of 150 gallons per person, many luxuriating with massaging shower heads, hot tubs, backyard pools and even water parks.

The biggest local supplier — it claims to be the nation's top provider of underground water — is the Suffolk County Water Authority, serving 1.1 million people.

That agency's current campaign to dig a well at Northport into the Lloyd — which is protected by a 1986 moratorium on drilling — has provoked opposition and highlighted the fundamental issue of the island's endangered water supply, which is drawn from a network of 1,300 major wells and thousands of smaller private ones.

The planned well is opposed by groups like the [Sierra Club](#) and the [League of Women Voters](#), as well as communities dozens of miles away in neighboring Nassau County that rely on the aquifer. These opponents say the Suffolk authority has other options, like removing contaminants from existing wells in Northport or even piping in water, but the authority says the cost of those solutions would present a "hardship."

Ultimately, the commissioner of the State Department of Environmental Conservation will decide whether to allow the digging.

To environmentalists, the issue is clear: the supply will be exhausted unless changes are made. They warn that as contamination moves below the surface, water suppliers have to remove more pollutants or drill farther to reach clean sources. And they contend that pumping depletes that reserve, speeds the spread of tainted pockets, sucks in saltwater along the coast and lowers the water table.

"Across the island we are depleting our best water very rapidly," said Ms. Meyland, a leader in the coalition against the Northport well. "The solution is not to simply drill deeper. That's a losing proposition."

Mr. Hang said: "There are thousands of known contamination sites on Long Island and many more potential ones. The brew includes cesspool and sewage treatment effluent, fuel tank leaks, fertilizers, pesticides, dry cleaning solvent, motor oil, industrial waste, road runoff and leaching from garbage dumps. The latest testing even finds traces of caffeine and Prozac."

But other experts insist the island's water is safe and ample.

Paddy South, a spokesman for the Suffolk water authority, said that rain replenished far more than his agency pumped, leaving a reserve of up to 120 trillion gallons. "Basically," he said, "we could last for 70 years using the water we have now, even if it never rained again."

In addition, the authority says it has the biggest laboratory in the nation for testing groundwater, examining as many as 100,000 samples a year for about 300 compounds.

When contamination is detected, the water is filtered or blended with cleaner water, or the well is closed. Defenders of the system say water quality is improving with expanded sewage treatment, cleanup of toxic sites, filtering and preserved open space like the Long Island Pine Barrens for collecting fresh rain.

“Water quality on Long Island is among the best in the United States,” said Lee E. Koppelman, director of the Center for Regional Policy Studies at [Stony Brook University](#).

Stephen M. Jones, the water authority’s chief executive, said, “Arguments are being made on a political and emotional level that really don’t have anything to do with the science.”

Environmentalists concerned about an end of the clean water supply do not specify when this will happen.

“It will happen at different times in different places,” Ms. Meyland said, “and in fact it has already happened in some places.”

On the western end of Long Island, the urbanization of Brooklyn and Queens left the aquifers contaminated and depleted by the late 1940s, forcing the two boroughs to turn to the Catskills and the Hudson River for water. Pollution and saltwater have also closed wells in Nassau and Suffolk Counties, Ms. Meyland said, noting that the number of wells in Nassau with detectible contamination grew to 50 percent in 2000 from 15 percent in 1980.

In June, about 33,000 residents in the West Hempstead area were warned not to drink the water because of contamination from a potentially carcinogenic gasoline additive. The affected pumps were closed and service resumed, but Mr. Hang, whose company compiles data on contamination sites, said, “West Hempstead focused attention in a dramatic way.”

As intensive development has worked its way through Nassau and marched into Suffolk, water pumping, contamination and salt intrusion have followed. The Lloyd aquifer supplies only 9 percent of the island’s water, with bigger reserves in higher layers in the east, far from the population centers.

Much of the stream for which Valley Stream was named has disappeared because sewerage — which stops contamination from septic tanks — has gradually lowered the water table on the South Shore of Nassau.

Nowhere is the situation more sharply drawn than in Great Neck and Port Washington on Nassau’s North Shore, where closing some wells forced communities to pump water in from neighboring areas.

“It’s very analogous to the whole island, a predictive model,” said Assemblyman Steven C. Englebright, a Democrat from Suffolk and the only geologist in the State Legislature.

But experts all agree that Long Island has nowhere else to turn for water. Hooking into the city system is not an option; a pipeline to the Hudson would be prohibitively expensive; and the cost of distillation plants would be far higher.

Of course, conservation would reduce demand. “We could do a heck of a lot more,” Dr. Koppelman said

Some traditional uses of water are irrational, experts concede. They point to toilets, which flush away 28 percent of household water, as the prime culprit, using potable water to transport sewage.

Higher prices would discourage waste but would be politically unpopular. The Suffolk water authority boasts about its bargain rates, about a penny for seven gallons, or \$280 annually for a typical homeowner, on the low end of the water prices on Long Island.

In the 1970s, Long Island was among the nation’s first places designated by the federal [Environmental Protection Agency](#) as depending on a “sole source aquifer” requiring special protection. Yet responsibility for the water is fragmented among various federal, state and local agencies, and more than 50 water companies.

Still, Henry J. Bokuniewicz, director of Stony Brook’s Groundwater Research Institute, said that “by and large, it operates in the right manner.”

Not surprisingly, some disagree. Assemblyman Englebright called the state’s oversight a failure and denounced the Suffolk water authority as reckless.

Ms. Meyland said that the wells in Nassau have violated state pumping limits for years with impunity, and proposed a new agency modeled on multistate river basin commissions to monitor and allocate the water.

As a geologist concerned about the Lloyd, Assemblyman Englebright supports that notion. “This is an extraordinary natural gift,” he said. “It comes pure from the ground. You don’t have to filter or chlorinate it. It’s priceless. It’s ours to use wisely or to squander.”

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