

# WATER WORRIES

## Suffolk Report Documents Decline Without Prescription for Remedy



*The following is a summary of reactions to the draft of the Suffolk County Comprehensive Water Resources Management Plan by some of Long Island's leading environmental groups, including Citizens Campaign for the Environment, Group for the East End, Long Island Pine Barrens Society, The Nature Conservancy and Peconic Baykeeper.*



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Edited by Richard Murdocco



## Overview: Alarming Trends in Water Quality Whitewashed

by Richard Amper,  
*Long Island Pine Barrens Society*



A soon-to-be-released report commissioned by the Suffolk County Department of Health Services documents an alarming decline in the county's drinking and surface water over the past 17 years without concrete recommendations on how to reverse the trend, nor even a process for doing so.

The report involved the Health Services Department, Suffolk County Water Authority, Suffolk County Department of Planning, Suffolk County Department of Public Works and a consultant, Camp, Dresser and McKee (CDM) of Woodbury. While the draft report appears scientifically well-reasoned and sound, its characterization of the state of Suffolk's water does not accurately reflect the magnitude of the decline in drinking and surface waters since the last study in 1987, nor does it provide a roadmap to stem the tide of diminishing water quality and does not adequately convey appropriate concern over the report's findings.

While the report does not indicate that many Suffolk residents are drinking contaminated water, and asserts that the public sources regularly meet state nitrate standards, the study makes clear that Suffolk's water is declining in quality but it advances no specific actions to improve the situation.

We are submitting our reactions in an effort to elevate attention to the troubling trends and to stimulate action by federal, state and county government to attempt to ameliorate the causes of concern. The Suffolk County Comprehensive Water Resources Management Plan (hereinafter, "the Study") acknowledges from the outset that, "the data ...shows a continued gradual decline in water quality (and) concerning trends identify the need for increased water resource protection efforts."

### **Drinking Water**

The Study says "that concentrations of many contaminants introduced to the groundwater by human activity have increased over the past two decades since the 1987 Comp Plan was completed." But the Study often disguises or minimizes the degree of water quality decline when it states "that nitrate concentrations, on average, have increased by more than 1 milligram per liter (mg/L) in both the upper glacial and Magothy aquifers." ***In fact, this increase represents a 40% increase in harmful nitrates in the aquifer closest to the surface and a 200% increase in nitrates in the heretofore***

***largely pristine Magothy, over the past 17 years.*** That means that the volume of nitrates in the Magothy today is equal to that found in the upper glacial aquifer less than two decades ago. This disturbing trend is compounded by the failure to advance any remedial measures likely to reverse this trend or even to reduce the rate of water quality decline. *For more detailed information on these figures, please see Section III .*

The Study blames human activity on the surface for most of the quality decline -- particularly continued real estate development, but it proposes no reduction in this activity nor effective strategies for minimizing the adverse impacts. Similarly, the report acknowledges that the preservation of open space atop aquifer recharge areas is key to ensuring quality drinking water in the future and even identifies the most suitable parcels for such protection. Yet it makes no recommendation for an increase in the rate of land preservation which has been declining in Suffolk for the past 20 years.

The Study admits that sewage treatment plant discharges do not always meet state drinking water standards and that private wells show unacceptable levels of nitrates and other contaminants such as volatile organic compounds and other health impairing toxins. It is important to note that the primary sources of nitrogen in the Great South Bay, declared an “impaired waterway” by the State, are wastewaters from septic tanks and cesspools delivered from groundwater flow. Agricultural activity is identified as a major source of pollution to groundwater and surface water and is by far the largest source of fertilizer and pesticides in Suffolk water. ***Pesticides have been found in 1 of 4 community supply wells.*** Yet no remedial regulation is proposed by the Study.

The report indicates that even community supply wells are vulnerable to contamination by nitrates and volatile organic compounds (VOCs). ***VOCs are present in four (4) times as many wells in 2005 than they were in 1987. Even more alarming is that levels of TCE, a VOC, increased by 150%.*** *For more information on VOCs and pesticides in Long Island’s groundwater, please see Section I.* The Study responds to this disclosure with this meaningless recommendation: “this demonstrates a need for additional groundwater protection measures.”

## Surface Waters

Long Island’s surface waters are also declining precipitously. Coastal waters, rivers and streams are even more sensitive to declining water quality than is the human population. State standards for drinking water limit nitrates to 10mg/L for human consumption but concentrations of even 10% of that level will impair the Island’s waterways.

Nevertheless, the Study minimizes the profound impacts of declining surface and groundwater on our bays, rivers, ponds and streams. The Study declares that a minority of Suffolk’s marine and fresh water systems appear on state “impaired” lists. It enumerates many of the studies conducted to date which identify strategies and recommendations for improving water quality. Nitrogen and pathogens are contributing to increasingly degraded water bodies across Long Island, and point and non-point pollution sources are adversely impacting a majority of Long Island’s surface waters. Nitrogen loads to surface waters promote and sustain harmful algae that impede recovery of Suffolk’s once world renowned shellfisheries. ***Currently, the Great South Bay clam fishery is operating at one percent of its peak potential.***

Photo Credit: Suffolk County



This impacts not only the ecosystem of the bay, but a large economic driver on the eastern end of Long Island. The study does little to take into account the connection between excessive nutrient loadings, harmful algal blooms and the growth of invasive species. Further, the study neglects to “connect the dots” between the direct connection of groundwater and surface water. Even though 95% of surface water on Long Island comes from groundwater, little is being done to effectively resolve these impairments. *For more detailed information on these trends, please see Section IV.*

In response to the deepening crisis, the Study says simply: “Management actions implemented to reduce nutrient and contamination loads to groundwater contributing to the County’s surface water features will reduce these non-point source loads to the surface waters. Protecting the quality of recharge in these areas will help to protect and improve surface water quality.” This is characteristic of the report’s lack of substantive recommendations.

## **Groundwater Quantity & Water Consumption**

The water document also addresses groundwater quantity and consumption. It concludes “that on a County-wide basis, the aquifer system can sustain current and projected rates of water supply pumping.”

Still, the Study projects the need for the construction of 100 additional public wells over the next 20 years at a staggering cost. The cause is a “peak capacity” challenge. The water supply system must be designed to meet population needs at their greatest. Typically, that occurs when automatic sprinkler systems begin operation in the early morning hours. This is true both for suburban landscapes and farms. The study also cites the fact that ***water demand in Suffolk is sharply rising due to irrigation demand for both residential and commercial lawns and landscapes.*** *For more information on these figures, please see Section II.*

Strategies suggested include odd and even day irrigation requirements, requiring devices that automatically shut down irrigation systems during rain and the possibility of implementing Conservation Pricing in which the cost of a gallon of water increases with the quantity consumed.

There are some parts of the East End and elsewhere where shallow wells limit supply capacity and transmission from the Pine Barrens or elsewhere may be required.

Sewage Treatment Plants that discharge to surface waters result in a net loss of groundwater from the aquifers and possible reduction in local, water table elevation. It can also result in a loss of stream baseflow. The report also discusses predicted sea level rise, but leaves to others the task of addressing the implications for saltwater intrusion on the North and South forks and other adverse environmental impacts.

**Suffolk County needs to develop a sustainable water quality protection plan to reverse current trends and provide for maintainable drinking water and surface water quality.**

Only with a thorough, scientific comprehensive plan can Suffolk County take steps to protect its sole source aquifer. The County must craft a plan with the political teeth to enforce the solid long-range planning that is necessary for protecting the water supply.

## **Section I: Rapidly Diminished Groundwater Quality**

*By Adrienne Esposito, Citizens Campaign for the Environment*



Protection of Suffolk's groundwater from toxic and hazardous waste has long been an objective of Suffolk's public health protection goals. Contamination by Volatile Organic Compounds (VOCs) and pesticides have been identified as a serious threat to groundwater quality (Dvirka and Bartilucci, 1987, CDM,1998). The three most frequently detected VOCs in Suffolk County groundwater are Tetrachloroethene (PCE), Trichloroethene (TCE) and 1,1,1-Trichloroethane (TCA). In addition, contaminants of concern include Perchlorate, Methyl Tertiary Butyl Ether (MTBE) that is found in gasoline, and pharmaceuticals and personal care products (PPCPs).

The Draft SCWCMP identifies the following critical testing results for Suffolk County's drinking water:

### **Volatile Organic Chemicals are increasing in the Upper Glacial and Magothy Aquifers -**

- A comparison of PCE levels in wells indicates that PCE was detected in four times as many wells in 2005 as in 1987.
- In 2005, PCE concentrations in 24 of the 54 wells increased more than 100% from 0.30 to 0.63 micrograms per liter ( $\mu\text{g/L}$ ) in the 211 upper glacial public supply wells tested. A similar trend is seen in the Magothy wells where average PCE concentrations increased 100% from 0.30  $\mu\text{g/L}$  to 0.62  $\mu\text{g/L}$ . Only one of the wells sampled in both 1987 and 2005 exceeded the 5  $\mu\text{g/L}$  MCL in 1987, while nine wells in the dataset exceeded the standard in 2005.
- Average TCE concentrations increased 150% from 0.29  $\mu\text{g/L}$  to 0.73  $\mu\text{g/L}$  in the 210 upper glacial public supply wells that were sampled in both 1987 and 2005. A similar trend is seen in the Magothy wells sampled in both 1987 and 2005 where average TCE concentrations increased from 0.33  $\mu\text{g/L}$  to 0.73  $\mu\text{g/L}$ , indicating contaminant flow to the deeper portions of the aquifer. Only one of the wells sampled in 1987 exceeded 5  $\mu\text{g/L}$  MCL in 1987, while nine wells exceeded the standard in 2005, indicating deteriorating water quality.
- TCA was the VOC that had the most widespread distribution throughout the County in 2005. Average TCA concentrations in the Magothy supply wells tested from both years increased slightly from 0.37  $\mu\text{g/L}$  to 0.47  $\mu\text{g/L}$ . Four wells that were sampled in both 1987 and 2005 exceeded the 5  $\mu\text{g/L}$  MCL in both years.

### **Methyl Tertiary Butyl Ether (MTBE) in groundwater is a widespread concern throughout Suffolk County.**

- MTBE was detected in 330 public supply wells in Suffolk County from 2000 through 2005.
- In 2005 MTBE was found in 130 upper glacial supply wells and 17 Magothy supply wells. MTBE was detected in approximately 16 percent of raw groundwater samples collected from all supply wells and was detected above the drinking water standard in untreated samples from two community supply wells.

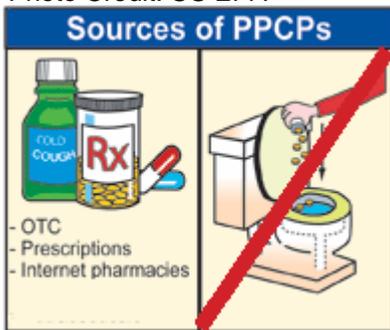
- In addition, MTBE was detected in almost 10 percent of the private wells SCDHS tested from 1997 through 2007, and 1.4 percent exceeded the drinking water standard of 10 parts-per-billion (ppb).

**Pesticides are found in almost one out of every four community supply wells and the number of pesticide contaminates is increasing.**

- Extensive investigations, including sampling of private wells have identified the presence of 80 pesticide-related compounds in Suffolk’s groundwater.
- SCDHS found 140 community supply wells (approximately 23 percent of the wells sampled) were impacted by pesticide-related contaminants during the period from 1997 through 2006.
- The public and private well data compiled for selected pesticides from 1980 through 2006 demonstrates that several common agricultural pesticide chemicals can persist in groundwater for decades and that pesticide degradates are detected more frequently and in higher concentrations than some parent compounds.
- Pesticide contamination in Suffolk County is primarily associated with agricultural land use, although additional sources are associated with residential, commercial or institutional lawn care. Pesticides were detected in 12 of the 29 wellfields whose historical land uses were evaluated in detail during this study.

**Pharmaceutical Drugs and Personal Care Products are an emerging contaminate of concern in Suffolk groundwater supplies.**

Photo Credit: US EPA



In recent years, low levels of pharmaceutical drugs and personal care products (PPCPs) have been detected in our environment. PPCPs include a broad range of products such as prescription and over the counter medications, veterinary and illicit drugs, fragrances, sun-screen products and cosmetics. Many are used and released to the environment causing low levels to be detected in our waters.

A subset of this group of contaminants, endocrine disrupting compounds (EDCs), is also of concern. The United States Environmental Protection

Agency (EPA) has established an Endocrine Disruptor Screening Program to develop an approach to identify chemicals as EDCs, however, this approach has not yet been established.

As most pharmaceuticals are designed to be water soluble, and to be persistent long enough to serve their designated therapeutic purposes, they can be present in dissolved form in receiving surface and groundwater. PPCPs are continuously introduced into the environment by sewage treatment plants and by on-site wastewater disposal systems such as septic tanks.

The results of this study illustrates that rigorous protection is warranted for protecting our aquifer system. Review of the water quality data has shown that widespread contamination of VOCs, pesticides, MTBE and emerging contaminates are increasing at an alarming rate. Highest levels of VOCs are found in wells with industrial, commercial, transportation or institutional uses within their source water areas. Nevertheless, low levels of VOCs are widely detected in groundwater throughout the County, indicating a more widespread low-level source such as residential septic systems.

In addition to septic systems, many of the small sewage treatment plants that serve commercial and industrial areas discharge treated effluent to groundwater and provide another pathway for these contaminants to be introduced to our aquifer system. Preventing increased contamination should be the primary goal of the Comprehensive Management Plan. The report identifies **Task 16 – Exclusion Zone Mapping**, which states: “After spatially joining the data from the Source Water Assessment, the area contributing to surface waters, the Deep Recharge Zones and the Special Groundwater Protection Areas and removing the overlaps, the resultant data encompasses 871 square miles representing 97% of the study area.....The mapping indicates that virtually all of the county warrants protection based on the criteria of protection of drinking water, groundwater recharge and surface water protection .”

***Therefore the stated goal of this report should be a holistic and comprehensive planning process to maintain or improve groundwater conditions.***

## **Section II: Increased Groundwater Consumption Trends**

*Written by Kevin McDonald, The Nature Conservancy*



On top of the diminished water quality, the projected future water consumption trends prove to be troubling as well. Presently, there are a number of practices (mainly yard and lawn care practices, septic system care, and irrigation practices) that are the main contributors to groundwater contamination. The paradigm is that users benefit and the public resources are contaminated and the public is left to either: pay to restore such resources (treating public water at the pump) or suffer degraded and less productive natural environment (surface water degradation, harmful algal blooms, toxic fish, closed shellfishing, loss of quality of life). The choice is ours to either avert a large-scale, costly and almost irreversible problem, or watch it all unfold.

Water demand in Suffolk is going up largely due to irrigation demands of lawns and landscapes. Voluntary programs to address preservation efforts do not work effectively. To date, efforts to meaningfully ameliorate these impacts have not worked, as they have relied on voluntary only measures. This now needs to change if water quality is to be meaningfully protected.

The County's report does a poor job at linking what water quality standards should be to maintain, as well as to protect, surface water quality. Considering the economic, tourism, and quality of life aspects of the county's surface waters, one would have expected better guidance on the protection of these resources by the County. Either the natural system is thriving, or the system as a whole is highly impaired and polluted, either way, our actions have a direct impact on the future of our potable water supply.



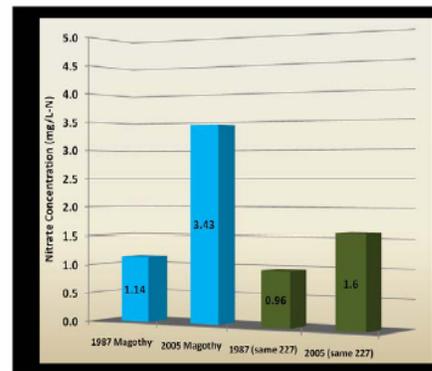
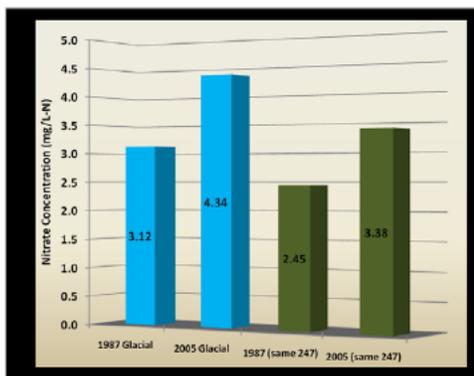
# Section III: Connecting the Dots: The Impacts of Rising Nitrogen Levels in Suffolk County Groundwater on Estuarine Ecosystems

*By Christopher Gobler, PhD, Director of the Stony Brook-Southampton Coastal and Estuarine Research Program*

The Suffolk County Comprehensive Water Resources Management Plan reported rapid and large changes in the levels of nitrogen (N) in Suffolk County’s groundwater. From 1987 to 2005, N concentrations in the Glacial aquifer rose from 3.12 mg/L (milligrams per liter) to 4.34 mg/L while levels in the Magothy aquifer rose from 1.14 mg/L to 3.43 mg/L, increases of 40 and 200%, respectively (Figure 3-6a&b). These are large changes for such a brief period of time (18 years) and the trend in the Magothy is particularly surprising, as the deeper Magothy aquifer now contains more N than the Glacier aquifer did in 1987. Even at the more moderate rate of increase found in the Glacier aquifer during the study period (40% increase in 18 years) would result in the mean

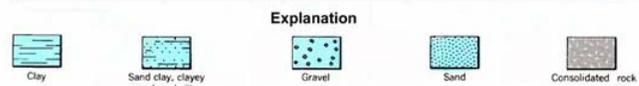
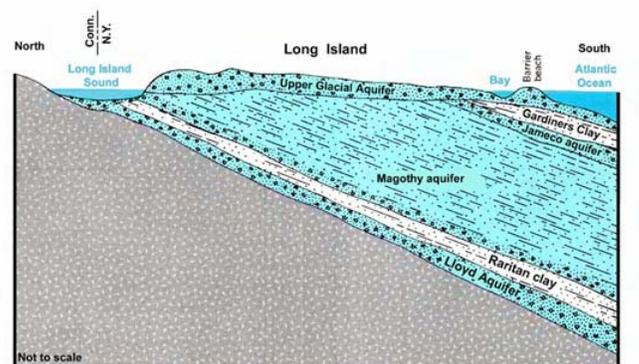
Figure 3-6a - Nitrate Trends in Public Supply Wells Screened in Upper Glacial Aquifer (All Glacial Public Supply Wells & Same Set of 247 Public Supply Wells)

Figure 3-6b - Nitrate Trends in Public Supply Wells Screened in Magothy Aquifer 1987 - 2005 (All Magothy Public Supply Wells and Same Set of 227 Public Supply Wells)



concentrations of N this aquifer exceeding the human health standard of 10mg/L by the year 2050.

These rising levels of N have now impacted our coastal ecosystems. Nearly all N in groundwater is nitrate, a form that is immediately assimilated by marine plants and algae once it enters Suffolk County’s estuaries, where N is the limited element (Gobler et al 2002, 2004, 2006). The concentrations of nitrate in groundwater are currently orders of magnitude higher than those in our estuaries (Gobler et al 2002, 2004, 2006) and thus are likely affecting these systems. In 2008 the New York State Department of Environmental Conservation (NYSDEC) declared the entire South Shore Estuary Reserve system on Long Island an ‘impaired water body’ (303d listing). This is a region stretching more than 100 km and including all of Suffolk County’s south shore estuaries including South Oyster Bay, Great South Bay, Moriches Bay, and Shinnecock Bay. NYSDEC cites algal blooms and N loading as the reasons these water bodies are impaired. Recently, Kinney and Valiela (2011) completed a N budget for Great South Bay and determined that the primary source of N to this impaired water body



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is wastewater from septic tanks and cesspools delivered via groundwater flow. Since half of this system is sewerred, the importance of wastewater as a N source is likely even greater in eastern South Shore Estuary Reserve bays such as Moriches and Shinnecock Bay which are not sewerred. The delivery of this groundwater N to our estuaries is complex; the residence time for nitrate from groundwater once it enters the estuary is only hours as it is quickly assimilated by marine microbes. Further complicating the detection of groundwater N in surface waters was a change in the methods used to measure total N (use of the Keljahl method stopped in 2000) that seems to have resulted in reported N concentrations dropping substantially. The high groundwater N loads to Suffolk County's waters have manifested themselves in other ways, however, that are more obvious. While there were no reported blooms of harmful algae in Suffolk County in the early 1980's, since 1985, five distinct groups of harmful algal bloom (HAB) have emerged in Suffolk County's coastal waters: 1. Brown tides caused by *Aureococcus anophagefferens* in the SSER (Gobler et al 2005), 2. Toxic cyanobacteria blooms in eutrophic, freshwater lakes (Gobler et al 2007), 3. Paralytic shellfish poison (PSP)-producing red tides caused by *Alexandrium fundyense* in the harbors of Long Island Sound (Hattenrath et al 2010), 4. Diarrhetic Shellfish Poison (DSP)-producing red tides caused by *Dinophysis acuminata* in the harbors of Long Island Sound (Gobler et al in prep), 5. Fish-killing red tides caused by *Cochlodinium polykrikoides* in the Peconic Estuary and Eastern Shinnecock Bay (Gobler et al 2008). In four of five cases, direct and indirect links have been made between nitrogen loading and the occurrence of these Harmful Algal Blooms (HABs) (Gobler et al 2005, Gobler et al 2007, Gobler et al in prep, Hattenrath et al 2010; Davis et al 2009, 2010). In the fifth case (DSP), the occurrence of this toxic red tide in a region with extremely high N loads and other red tides stimulated by wastewater nitrogen (Hattenrath et al 2010) suggests N may be the ultimate cause of this event as well. While these HABs are generally unsightly, several synthesize toxic compounds that endanger human health. The most dangerous of these, saxitoxin, is the compound which is responsible for PSP and causes shellfish bed closures on the north and south shores of Long Island. Recent surveys of the organism that produces saxitoxin, *Alexandrium fundyense*, have detected cells throughout Long Island's coastal waters (north shore, east end, south shore) and have found the greatest accumulations in regions with the highest N loading rates: Northport Harbor, Meetinghouse Creek, Weesuck Creek, and the Forge River. Hence, as N loading rates from groundwater continue to increase, PSP events may expand to other regions as their N loading rates approach those of places where PSP occurs today.

Harmful algae are likely not the only harbinger of increases in groundwater N loading on estuaries. Eelgrass is a critical benthic habitat that sustains robust fisheries but is highly sensitive to N loads (Wall et al 2008). As N levels in groundwater have increased, thousands of acres of eelgrass have vanished from eastern and south shore estuaries. Bivalve shellfish have traditionally represented the largest fishery in Suffolk County. In 1980, two of three hard clams eaten east of the Mississippi River came from Great South Bay. Landings of hard clams and bay scallops have diminished 99% since this time, in part due to N-stimulated harmful algal blooms (Kreuter et al 2008).

The changes in groundwater N are primarily driven by human population expansion, some of which may have occurred decades ago (Kinney and Valiela 2011). As such, proactive measures to restrict the amounts of N loading to groundwater in Suffolk County now should limit the continued negative ecological impacts on estuaries in the future. Please note that cited literature is available upon request.

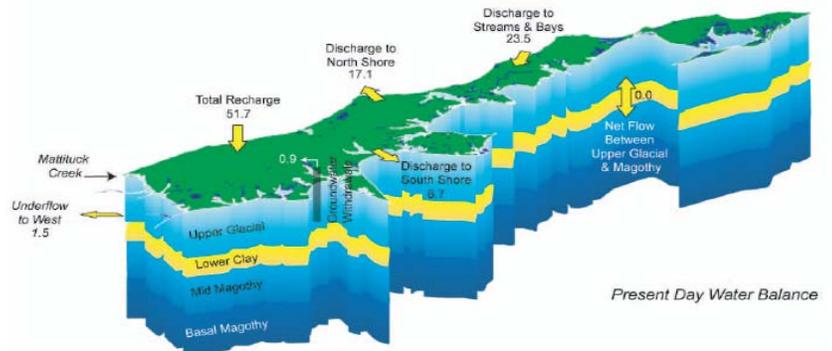
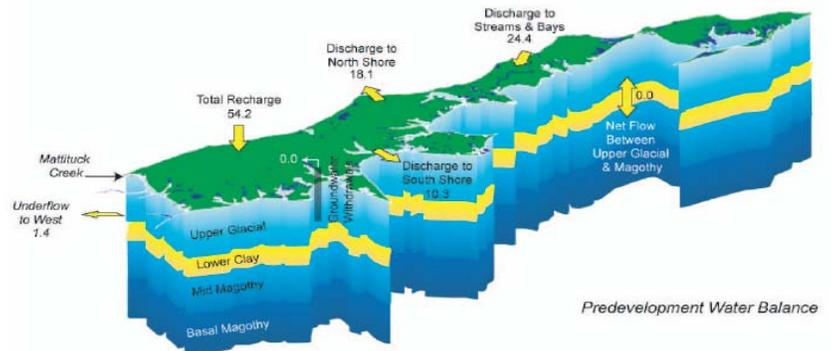


## **Section IV: Nitrogen, Septic Tanks and Sewage and their Relationship to Surface and Groundwater Quality**

*By Kevin McAllister, The Peconic Baykeeper*



Nutrient enriched groundwater from sanitary wastewater discharges is yet another emerging threat to surface water quality in our region. Excessive nutrient loadings have triggered harmful algal blooms and the growth of invasive aquatic vegetation which has suppressed dissolved oxygen levels in a number of water bodies in Suffolk County. Excess nitrogen from On-site Wastewater Discharge Systems (OWDS) has been confirmed as a particular problem in the Forge River and has led to its placement on New York State's 303(d) "Impaired Waters" list (2006). In 2010, Great South, Moriches, Quantuck and Shinnecock bays were included on the NYSDEC's 303(d) list as a result of reoccurring brown tide blooms with elevated nitrogen levels from OWDS, recently confirmed to be the primary source. Moreover, a number of fresh water bodies located within the county were also listed on the 303(d) for failure to meet dissolved oxygen standards. Although the specific causes are undetermined, low dissolved oxygen levels are often attributed to excess nutrient loadings. (see [www.dec.ny.gov/docs/water/pdf/303dlistfinal10.pdf](http://www.dec.ny.gov/docs/water/pdf/303dlistfinal10.pdf) for more information).



Although the specific causes are undetermined, low dissolved oxygen levels are often attributed to excess nutrient loadings. Thus far, sewage wastewater has been regulated and treated primarily as a direct public health issue. The protection of drinking water is the primary focus, with 10 mg/L as the recognized standard. In contrast, sustainable concentrations of nitrogen in estuarine waters are more than 20 times lower than the drinking water standard. The Peconic Estuary Program has identified a goal of 0.45 mg/L of total nitrogen in surface waters to ensure adequate dissolved oxygen levels are continuously maintained to minimize the potential impacts to aquatic life.

Although the mobility of groundwater is very slow, the Suffolk County Comprehensive Water Resources Management Plan has provided ample evidence that Suffolk County's streams are greatly influenced by groundwater. According to the report, approximately 90% of stream flow is groundwater fed. Although groundwater travel times can be on the order of 25 to 50 years, the fact is that all groundwater on Long Island eventually makes its way to surface waters. Neither New York State regulations governing OWDS, nor supplemental County regulations, are adequate to protect against excess nitrogen entering surface waters. As new development continues, relying primarily on OWDS, it's imperative that deficiencies in the regulatory structure are identified and corrected to protect, and where necessary, restore the ecological health of our fresh and marine waters.

## **Section V: Resignation or Aspiration; Suffolk's Water Quality at the Crossroads**

*By Robert S. DeLuca, President, Group for the East End*



Suffolk County deserves significant credit for its longstanding efforts to provide clean drinking water, which have been critical in maintaining the health of Suffolk's 1.5 million residents.

Despite these efforts, however, Suffolk County's soon to be released Comprehensive Water Resources Management Plan (the Study) concludes that County's water quality is experiencing a "continuous and gradual decline". Moreover, the Study recognizes that a broad spectrum of significant new water quality issues (such as perchlorate, pharmaceuticals, sea level rise, and personal care products) are emerging on the horizon, for which few long term management strategies have even been contemplated, much less developed.

The Study's findings are extremely alarming when one considers the long-range implications that such ongoing water quality degradation could, and likely will have on the region's public health, environment and economy. Clearly, if water resources are in a continuous state of decline after decades of monitoring, regulation and government oversight, the challenge that lies ahead is nothing less than monumental – and we believe the Study should have the courage to say so.

In our view, the Study is not the "Call to Action" that it needs to be, given the long-term consequences of its findings. While more issue awareness and project specifics may be forthcoming in the County's anticipated efforts over time, the overall tenor of the Study simply does not provide the urgency that will be absolutely necessary to gain the public, political and financial support for many water quality goals the County ultimately seeks to achieve.

In general, many of the Study's long-term action objectives seem unduly weighted toward largely administrative recommendations that involve the pursuit of testing, monitoring, and reporting, along with the promotion of public water extensions, some expanded water conservation rules, and expanded awareness programs. While we recognize the value of these objectives, the Study would do well to recommend additional substantive and visionary legislative changes to specifically improve the water quality issues identified through existing testing and monitoring efforts.

This is not to say that the Study's proposed regulatory changes (such as requirements for rain sensors, irrigation limits, refined rate structures and Article VI modifications) are not valuable, but clearly, many more critical issues need this same level of stated commitment. For example, issues associated with pesticide, VOC and nitrogen contamination, as well as advanced septic treatment, and decentralized septic management, should all be a priority for major legislative and policy options well beyond the recommendations for more monitoring.

The Study documents that "extensive investigations", undertaken by the Suffolk County Department of Health Services, have detected the presence of no less than 80 pesticide-related compounds in public, private and monitoring wells through the County. The document further states that "140 community supply wells" were also impacted by pesticides. The Study found that such compounds were presently being detected in both ground and surface waters, most notably on the East End, where elevated nitrogen levels associated with agriculture have also been documented. Given the importance of surface water quality and its related economic value to the East End, these are sobering and significant findings for our region.

In light of the substantial role of agriculture on the long term health of Suffolk County's economy and water resources, it is essential that the Study develop specific strategy to engage the Agricultural community in the development of measurable and enforceable standards that redefine long-term agricultural practices that demonstrably reduce nitrogen and pesticide contamination over time. Increased monitoring and outreach is not without value, but given the current trends and the long-term costs associated with both drinking water and surface water contamination from agricultural practices, there is a compelling need to create a for more economically and environmentally sustainable future for East End agriculture.

The Study should also make the case for immediately confronting some of the most compelling long-range impacts that will only become more complicated to address if they are indefinitely relegated to the back burner.

For example, the Study anticipates “profound impacts” associated with sea level rise in many of the County’s low-lying coastal areas, yet the Study’s Implementation Schedule (ES-11) appears to offer no related plan or even a specific action item to address this issue over the course of its 20-year Implementation Schedule. The absence of a firm commitment now, will only make it more costly to address in the future.

In the end analysis, the Study offers strong and well-documented evidence of significant water quality problems throughout the County, but fails to make a compelling case that much more really needs to be done and done quickly. The study also makes clear that many of the County’s existing water quality programs have already been severely hampered by staffing and funding shortages (which may be instructive as to why more aggressive actions have not been recommended), but does not advocate strongly enough for the specific staffing that would be needed to accomplish the major goals identified in the study.

In essence, the Study takes a “doing the best we can” approach to the next 20 years of water resources protection throughout Suffolk County with a primary action focus on developing a comprehensive public water supply plan that will expand and keep public water supplies safe. Unfortunately, the specific focus on public water expansion is a form of environmental triage that is not without broader consequences. By focusing significant attention and resources on public water extension, the protection and restoration of the groundwater will undoubtedly be subordinated with resulting consequences to our surface waters and ultimately to our economy.

We believe the County can do better and we believe there is widespread public support for water quality protection, but the County must set a stronger tone of urgency and aspiration rather than complacency and resignation about the challenges that lie ahead.

Such aspiration is not unprecedented in Suffolk County and has laid the foundation for some of the nation’s most progressive water quality initiatives over the last four decades.

Whether it was the adoption of Long Island’s first comprehensive Waste Treatment Management Plan (better known as the Long Island 208 Study) in 1978, or the Suffolk County Open Space Protection Program in 1986, or the passage of Pine Barrens Protection Act in 1993, or the adoption of the Comprehensive Management Plan for the Peconic Estuary in 2001, Suffolk County has shown over and over again that it can transform some of the thorniest and intractable environmental issues into a focused set of innovative and operational solutions.

As a result, we call upon Suffolk County to renew its commitment to the kind of inspired environmental leadership that has been necessary in tackling many of our region's water quality challenges over the last 40 years.

In his Foreword to the Long Island 208 study in 1978, the Long Island Regional Planning Board's Chairman Harold V. Gleason clearly defined both the scope of our water quality challenges and the broad commitment that would be necessary to maintain water quality for the future.

*"The evidence speaks for itself. There is a point blank question of preserving the quality of our water," he said. "This stern challenge must be met by the courage of government supported by an informed constituency, sensitive to parochial interests, yet willing to override them for the common good. Effective implementation will provide bread-and-butter benefits in preserving home values, protecting the quality of life and sustaining economic strength."*

It is this level of clear-sighted vision, commitment and urgency that must be present if we are to have any real chance of restoring and improving the quality of our ground and surface waters in Suffolk County.

Unfortunately, as drafted, the Water Resources Management Plan misses an exceptional opportunity to significantly raise the bar for next generation of water quality protection. Unaltered, the study will undoubtedly be shelved as a "*paper plan*" of the kind that was cautioned against by Dr. Lee Koppelman in his "Prefatory Comments" to the Long Island 208 study. According to Dr. Koppelman, a *paper plan* is a plan that is ambitious in recommendations, but with no realistic (or sometimes, intention) of implementation. Dr. Koppelman's "Prefatory Comments" championed a comprehensive planning process for water protection that is based on the best science available, full citizen participation and most importantly, realistic means to implement changes in policy that will help protect the sole source aquifer for future generations.

The Study by Suffolk County seems to be relegating itself to be a paper plan, as opposed to following the template set fourth by the 208 Study.

We sincerely hope this will not be the case.

## Recommendations

Suffolk's water is a resource at risk. Continuing practices that degrade water quality must be curtailed or more strictly regulated to prevent completely compromising drinking and surface water quality. Government at every level must connect the Study's findings with direct action in the form of rules and regulations designed to protect the resource. In response to the dramatic concerns evident, if not well enunciated in the Suffolk County Comprehensive Water Resources Management Plan, we make the following recommendations:

**1. Federal and state government should protect surface and drinking waters as required by existing statute and should implement remedial regulations that current statutes do not require.**

Government must regulate the activities that are contributing to diminished water quality, not merely acknowledge the phenomena, and more thoroughly enforce regulations.

**2. There must be stricter enforcement of Article 6 of the Suffolk County Health Code.**

Article 6 mandates specific maximum residential densities of one acre in Groundwater Management Zones (GMZs) for new developments. Proposals for new projects must conform to Article 6, as well as the Suffolk County Special Groundwater Protection Area rules and regulations. These areas are critical to deep recharge of the aquifer, and further steps must be taken to ensure that these areas are developed properly. The Special Groundwater Protection Area recommendations must cease to be advisory and become regulatory.

**3. Suffolk County, as well as the Town of Brookhaven and the five East End Towns, must accelerate their land preservation programs.** The water report acknowledges that the best way to improve both drinking and surface water quality is to protect lands best suited to recharging the aquifer with rainwater. Suffolk and the six aforementioned towns should prioritize acquisitions to focus on parcels that best serve the aquifer recharge needs of Suffolk, as well as protecting critical habitat.

**4. Surface water quality standards must be added to drinking water standards in the regulatory schema.**

The Suffolk County Department of Health Services has to extend its jurisdiction beyond that of merely ensuring that state drinking water standards are not exceeded.

**5. Agricultural practices must now be regulated to reflect their impact on groundwater and surface water.** The county should require that agricultural uses comply with the drinking water standards for NYS, in order to have agricultural practices result in groundwater not exceeding 10 mg/ L nitrogen. Any entity not complying must have a nutrient and pesticide ground and surface water management plan inclusive of monitoring wells with water testing by the county at least twice annually. Farmers should be eligible to receive grants under the business incentive referenced above. However, they should also be held accountable to the new compliance measures and any additional cost incurred, rather than exporting their pollution containment cost (externalizing) to the taxpayers.

**6. Water consumption limitations have to be put in place and the Suffolk County Water Authority needs to implement Conservation Pricing to deter overuse of water resources.**

The growth of nearly 200 Million Gallons per Day in water resources pumped county wide is largely from irrigation associated with lawn maintenance. Due to this increased consumption, Suffolk County should institute a Conservation Pricing program whereby the price of seasonal demand of

water resources is priced such that the current infrastructure can meet the demands of county residents. Suffolk County should institute policy measures to manage water demand, including limits and controls on irrigation to protect water resources. The SCWA is incapable of managing this matter on its own. The county or towns should be required to limit permanent irrigation of surface area per property. The percentage of lawn coverage should also be capped. A reduction of nitrogen dependant lawns, coupled with the requirement of native plantings, would likely result in considerably less infiltration of fertilizer into ground water and surface water. In addition this method is the cheapest, least expensive and most immediately controllable way to realize reductions in nitrogen and pesticide contamination across Suffolk County.

**7. Suffolk needs a new, aggressively funded septic system upgrade program.** After all the other referenced funding sources herein are exhausted, the upgrade program should be funded through water consumption pricing or through a special county wide district for unsewered areas. The public should be given ample time to prepare for these new requirements, and incentives should be offered before mandatory compliance is required or enforcement measures are instituted.

**8. Suffolk County must take the lead on banning chemicals that are harmful to the aquifers and surface waters of Long Island.**

Suffolk should ban the sale of fertilizers that contain perchlorate. If manufacturers cannot certify that the product is perchlorate free, then it simply cannot be available for sale. Suffolk should also require the use of slower release fertilizer chemicals, or ban the sale of fast acting fertilizers except under five pound boxes (presumably used for flower boxes and household plants). Failing that, all these products should be taxed with a pollution surcharge fee that is recaptured by Suffolk and used to finance incentives to upgrade septic systems and other nitrogen and pesticide reduction measures.

**9. There must be a coordinated, inter-agency public education campaign by all levels of government regarding pesticide use, pharmaceuticals and personal care products (PPCPs) impacts on Long Island's groundwater system.**

Homeowners in Suffolk County are inadvertently harming the aquifer by disposing of their unused or expired medications down drains. Also, certain shampoos, detergents, hair sprays, cleaning solutions and various other cosmetic and household chemicals negatively impact the aquifer. Government must take a lead role in crafting policies and education programs to help curb these trends.

**10. Suffolk County should offer direct financial incentives to homeowners and businesses.**

These financial incentives will be paid from a "water hog" surcharge that is levied on users, and a pollution surcharge tax for businesses selling pesticides, fertilizers and other products that have a direct link to declining water quality. These collected fees would finance a Homeowner Incentive program to retrofit and to adopt and retool these more enlightened land and property management measures that are less polluting of the county's collective water resources. The premium in found revenue should be invested back in nutrient abatement strategies for fertilizer reduction measures or septic system upgrades that produce water quality improvements. This will avoid the costly tests and management costs associated with having the highest quality water corrupted by fertilizers and pesticides that we then have to treat with expensive technologies.

**Implicit in these recommendations is the broadest possible distribution of the Suffolk County Water Resources Management Plan, including these observations and a more accurate characterization of the facts and implications for water quality and quantity in Suffolk County. The county must not bury its own findings as though it were intended to be “an internal document” or “suggestions.” Suffolk County residents need to accurately appreciate the decline in the county’s water supply, the causes and the actions required to reverse the current direction.**

## **Conclusion**

To address the current state of Suffolk’s water supply and its alarming downward trend will be a daunting task but one posing an urgent need. As a result, ***we propose a series of federal, state and county Public Forums designed to identify and implement strategies for addressing the need for a sustainable water policy. Solutions will include the drafting of sweeping legislation to ban or regulate anything that degrades water quality.***

New standards will have to be adopted, sewage treatment technology improved and integrated, development controlled and open space protected. The magnitude of the effort required must not deter government at every level from moving swiftly to prevent unsustainable policies from literally poisoning Suffolk’s population and natural resources.

The Suffolk County Comprehensive Water Resources Management Plan is neither comprehensive nor is it a plan. It is, instead, a wake-up call to the nation’s first mature suburb to move immediately to protect and restore drinking and surface waters before it is too late. What Long Island needs is not a water management plan, but rather a water protection plan. It’s preparation and implementation cannot wait.

***There can be no higher priority for Long Island than protection of its water.***

