# Decentralized Wastewater MOU Partnership Webinar Series

This webinar is sponsored by EPA's Decentralized Wastewater MOU Partnership, which consists of 18 organizations that work collaboratively to encourage proper decentralized system management and education on system maintenance in order to protect the nation's public health and water resources.

# Suffolk County's Reclaim Our Water Initiative

***USEPA Webinar, March 21, 2018***


**Peter A. Scully**

*Deputy County Executive*

**Walter Dawydiak, Jr. P.E., J.D.**

*Director of Environmental Quality*

- Suffolk County's Nitrogen Problem
- Subwatersheds Wastewater Plan
- Sanitary Code Policy Changes
- Septic Demo Program
- Septic Incentive Program: Groundwork for a District
- Harmful Algal Blooms Action Plan & Closing Thoughts
- Q & A

# Why the Fuss?

- ~1.5 million people, >900 sq miles/600,000 acres
  - Mostly unsewered (~74% of population)
- Vulnerable sole source aquifer
  - Diffuse public water supply well network (>900 wells)
    - Often relatively shallow (upper glacial aquifer)
  - ~35,000 private wells; 200 sewage treatment plants
- Wetlands, surface waters, 3 major estuary systems
  - Groundwater and surface waters are connected
  - All Suffolk estuary systems **IMPAIRED** by **NITROGEN**
    - Peconics, South Shore Estuary Reserve, Long Island Sound
    - Eutrophication and low dissolved oxygen
    - Harmful algal blooms
    - Shellfish impacts
    - COASTAL RESILIENCY
      - Wetlands, eelgrass

**Sewers Needed Now, Suffolk Warned**
Lane, Earl
*Newsday (1940-1987);* Sep 26, 1969; ProQuest Historical Newspapers: Newsday
pg. 15

# Sewers Needed Now, Suffolk Warned

**By Earl Lane**

Oakdale—Mention Long Island to some people in Bangalore, India, or Tashkent, USSR, and they might wrinkle their noses and ask, "Isn't that where they have cesspools?"

That proves something, Dwight F. Metzler, the state's deputy health commissioner for environmental services, said yesterday to make a point about sewers.

Recounting his travels through India, Russia and other countries and his discussions with health officials, Metzler said, "Long Island is the outstanding example in the world where a major population still discharges sewage in ground waters. Even people in underdeveloped countries tell me they can't understand it."

Metzler spoke at a conference at Dowling College on water pollution. He called for passage of a proposed sewer district for southwestern Suffolk County on the November ballot. After the session, he outlined steps that state agencies could take to prevent further pollution of the county's water supply by seepage from cesspools. About half of Nassau County is served by sewers. In Suffolk, only several isolated communities and developments have sewers.

Metzler said that the State Water Resources Commission, which issues permits for the use of fresh water supplies, could reduce or halt permits for use of the county's remaining water resources if the contamination continues. He also said that the drilling of new wells could be halted and existing wells could be quarantined in areas where underground water supplies are being contaminated.

Metzler said, "I doubt that the state will move in within the next five years" to press for construction of the sewers if the sewer proposal is defeated. But he said that the State Health Department would continue a close scrutiny of county water usage and contamination levels. He said that Suffolk health officials have been asked to meet next week with the Water Resources Commission in Albany to discuss the county's water supply. It will be the first such report from Suffolk in about two years, he said.

Metzler said that the State Pure Water Authority, which can construct and operate sewers if requested to by a local government, has no authority to order sewer construction. A department of health spokesman said that if health conditions in an area become hazardous because of inadequate sewage facilities, the commissioner of health can intervene under broad provisions of the public health law and require a local timetable on projects to remedy the situation.

"Sewers must come; you need them now. The longer you put it off, the more expensive it will be," Metzler said. He said that about $100,000,000 is left from a $1 billion state bond issue approved in 1966 for sewer facilities. The proposed Southwest Sewer District would cost $269,060,000 to build. Interest charges on the 40-year bonds would bring the total cost to $521,373,750. About $60,000,000 of the remaining state funds can be applied to the Suffolk project. Metzler said that those funds will likely "be fully obligated by next summer" whether Suffolk acts or not. Metzler also said that inflation of construction costs of sewage facilities totals about 12 per cent a year.

John M. Flynn, a public health engineer in the county health department, agreed with Metzler that only about 20 per cent of Suffolk's water supply is being extracted from water tables less than 75 feet below the surface. The figure was about 80 per cent in 1959.

Reproduced with permission of the copyright owner. Further reproduction prohibi

**U.S. Warns Suffolk It May Act on Sewers**
Eysen, Alan
*Newsday (1940-1987);* Apr 24, 1968; ProQuest Historical Newspapers: Newsday
pg. 15

# U.S. Warns Suffolk It May Act on Sewers

**By Alan Eysen**

Patchogue—The federal government may take an active role in bringing sewers to Suffolk County unless the county speeds its efforts to halt pollution of the bay waters between Blue Point and Westhampton Beach, a federal official said yesterday.

Murray Stein, assistant commissioner for enforcement for the U.S. Water Pollution Control Administration, told a water pollution conference here that the federal government would join with the state in seeking development of a regional sewage collection and treatment system in the county if Suffolk fails to take action. "Unless you come up with such a system, you may have us working for the state for a long time," Stein said.

The federal official declined to go into detail on what the government could do to bring about the development of a sewer system or to suggest any deadline for local action. He said, however, "We can order the county to stop polluting the water." Stein added that if the county refused to comply with such an order, the government could bring a civil action that could result in fines being levied against Suffolk. A proposed sewer system for the West End was defeated in a February, 1967, referendum by a 6-1 margin.

The County Board of Supervisors is in the process of naming a new 10-member sewer agency to consist of five voting members, chosen for their knowledge of sewer engineering, and five non-voting members, including the county executive and the chairman of the board of supervisors.

Stein remarked on the need for a major Suffolk sewer system in approving the progress that has been made toward relieving pollution created in the eastern portion of Great South Bay and Moriches Bay by duck farms and by the Village of Patchogue's inadequate sewage treatment system.

The commissioner said, "You need an areawide collection and treatment system if you want to utilize Moriches Bay to the fullest extent." Deputy State Health Commissioner Dwight F. Metzler, who also attended the conference, said that his agency would also press for action on such a system. Both Stein and Metzler said, however, that they would move cautiously in the hope that Suffolk would take the initiative in developing the system.

They said that their current efforts would be geared to following through on the recommendations made at two earlier conferences called by the federal government on pollution in the 18-mile stretch of bay between Blue Point and Westhampton Beach. Yesterday's conference was, in effect, a progress report on these recommendations. Stein said that it would be at least six months before the next conference will be held.

The recommendations were that the Village of Patchogue construct a secondary sewage treatment plant to be in operation by 1970; that duck farmers in the area have pollution treatment facilities installed, and that federal and state authorities survey the Moriches Bay front and recommend dredging and waste disposal measures.

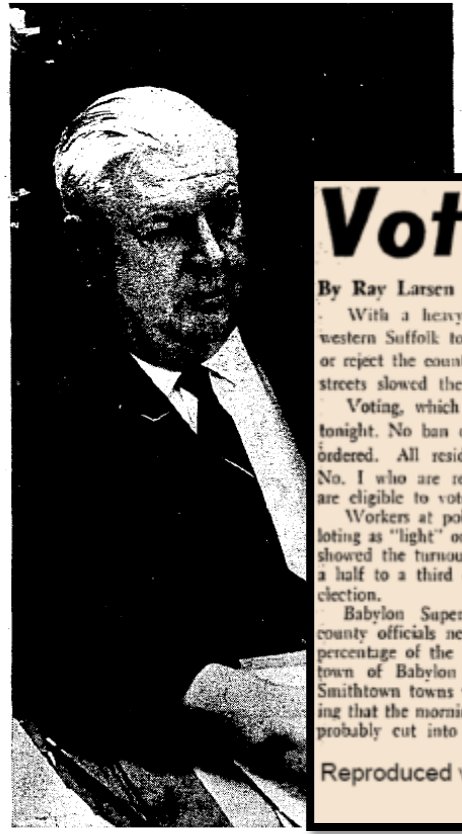
County Board Chairman John V. N. Klein said that he would not care to see the federal government force a sewer system on the county. "I would prefer to see the initiative come from the people of Suffolk County," he said. County Executive Dennison said, "We have to do something on the local level, and quickly. I have said often enough that if we don't move ourselves to eliminate the problems somebody would step in."

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# SEWER VOTE: 6-1 DOWN THE DRAIN

## Suffolk Project Defeated at Polls

Stories on Page 3



## Voters Decide on Sewers Today

By Ray Larsen

With a heavy turnout predicted, voters from four western Suffolk towns went to the polls today to accept or reject the county's first proposed sewer district. Slushy streets slowed the early voting.

Voting, which began at 6 this morning, ends at 7 tonight. No ban on the sale of alcoholic beverages was ordered. All residents of the proposed Sewer District No. 1 who are registered to vote in national elections are eligible to vote in today's referendum.

Workers at polling places described the morning balloting as "light" or mild." A spot check of polling places showed the turnout in the first few hours running about a half to a third of the turnout in November's general election.

Babylon Supervisor Gilbert C. Hanse and other county officials nevertheless were predicting that a high percentage of the 135,000 eligible voters from all of the town of Babylon and parts of Huntington, Islip and Smithtown towns would cast ballots. He said this morning that the morning snow which turned the streets slushy probably cut into the early turnout but this would be overbalanced later in the day. "When there's a lot of people against something, they turn out to vote," said Hanze, chairman of the county board of supervisors, "and I think there are a great number of people who oppose sewers. . . . With the snow, commuters probably went right on to the train and they'll vote when they get home. And groups for and against the plan will start telephoning later for a good turnout."

If the sewers are rejected, as predicted, Hanse and Suffolk County Executive Dennison said that it may take over a year or more to present another sewer proposal to the public. Hanse, a Republican, said he favors new financial studies of the proposal if it is defeated and said extensive changes might have to be made. He refused to be more specific. He said, "In my opinion, it would be at least one year to get up a new referendum proposal."

Dennison, a Democrat, said that he also feels it would take up to a year to get a new proposal before the public. He said he, too, might want changes in the current proposal and setup. He declined to be specific, however, except to say, "I might just ask that both leaders of both major political parties be seated on a new sewer agency as members." The all-Republican Suffolk Sewer Agency, which developed the current plan, has been accused of being political.

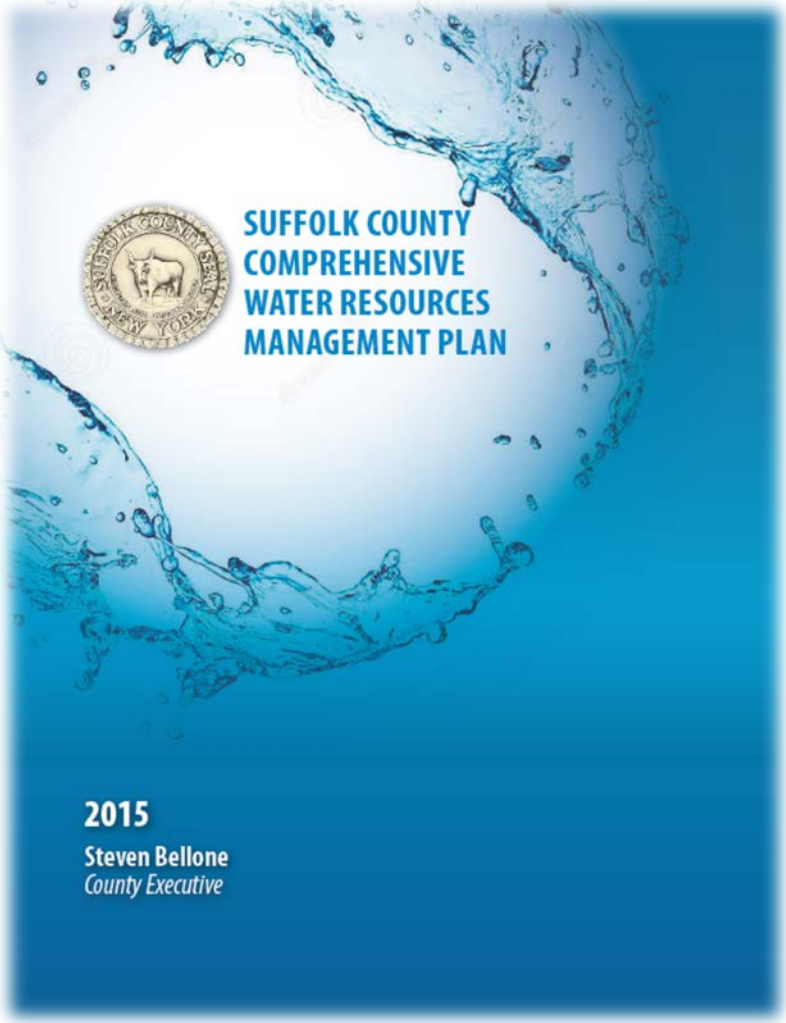
The proposal, strongly opposed by the Suffolk Democratic and Conservative parties but endorsed by the Suffolk Republican and Liberal parties, calls for the construction of complete sewer and water recharge system for the district. The agency says the project will cost $557,232,173 to build and finance. The cost of the project, however, has been challenged by some who claim that construction cost escalation and other factors could raise the total cost of the project to more than $700,000,000.

The sewer agency yesterday wrapped up its informational program on the proposal with a pair of interviews on local radio stations. The major interview, on WGLI's "Open Line" program, featured a two-hour debate between Louis P. DiMatteo, an engineer for the agency's consulting engineers, and Harry J. Kangieser, a retired Bay Shore contractor who opposes the project. The other interview was a half-hour pre-recorded session on Station WALK, with Richard H. Allen, sewer agency chairman and John Flynn, an engineer with the Suffolk Health Department, who supports the proposal.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

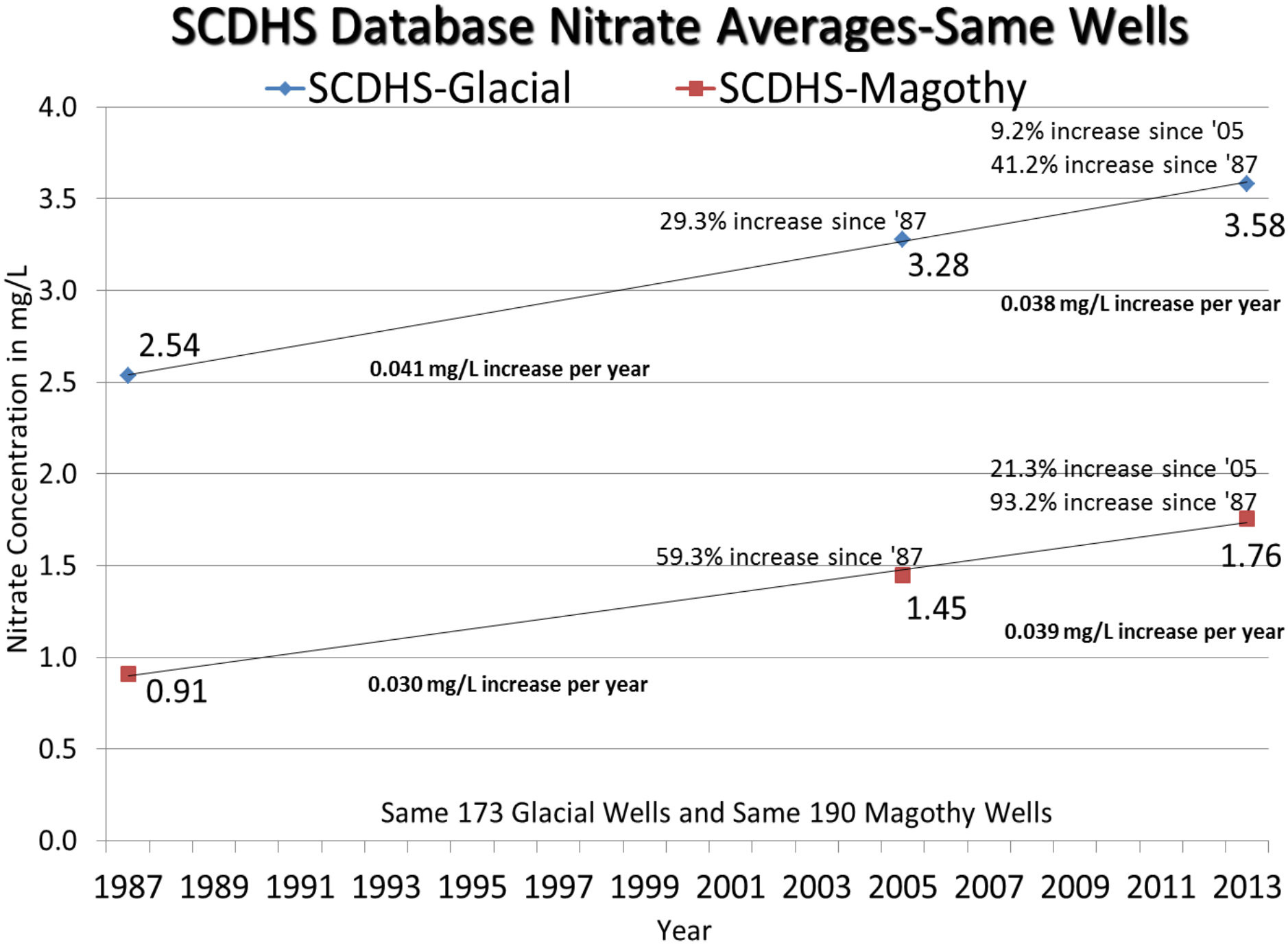
Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# Suffolk County Comprehensive Water Resources Management Plan 2016



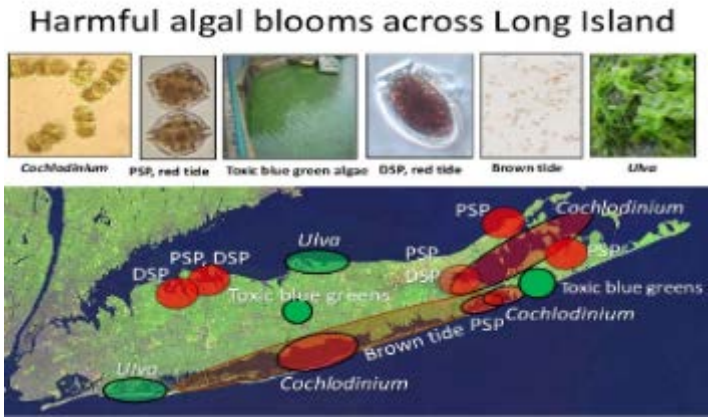

Topics Include:

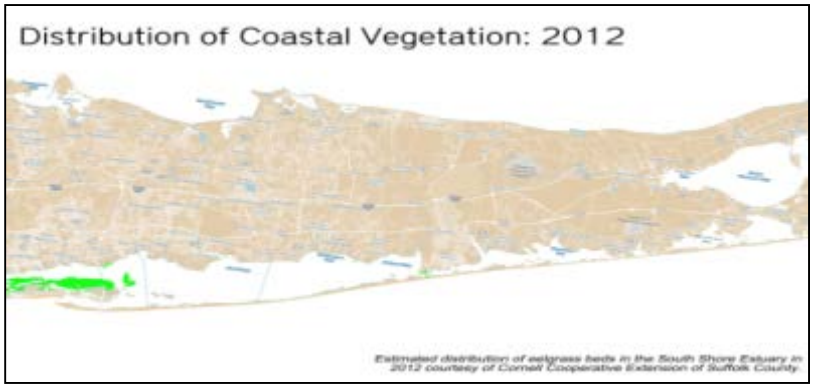
- Value of Water
- Ways/Means to Protect Water Quality
- Wastewater Treatment
- Coastal Resiliency
- Nitrogen
- VOCs
- Pesticides
- Pharmaceuticals & Personal Care Products
- Watersheds & Integrated Ecosystem Health


SCDHS Database Nitrate Averages-Same Wells
SCDHS-Glacial
SCDHS-Magothy
Nitrate Concentration in mg/L
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
9.2% increase since '05
41.2% increase since '87
29.3% increase since '87
3.58
3.28
0.038 mg/L increase per year
2.54
0.041 mg/L increase per year
21.3% increase since '05
93.2% increase since '87
59.3% increase since '87
1.76
1.45
0.039 mg/L increase per year
0.91
0.030 mg/L increase per year
Same 173 Glacial Wells and Same 190 Magothy Wells
1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Year

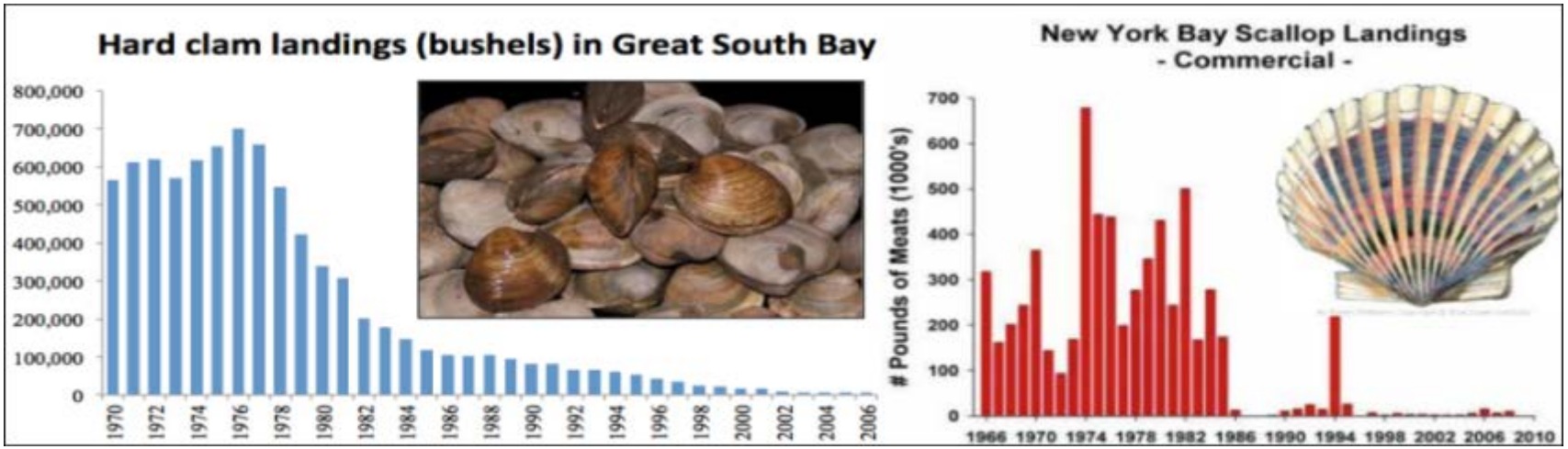
# NITROGEN PROBLEM

- All 3 Estuary systems IMPAIRED (dissolved oxygen), PLUS:

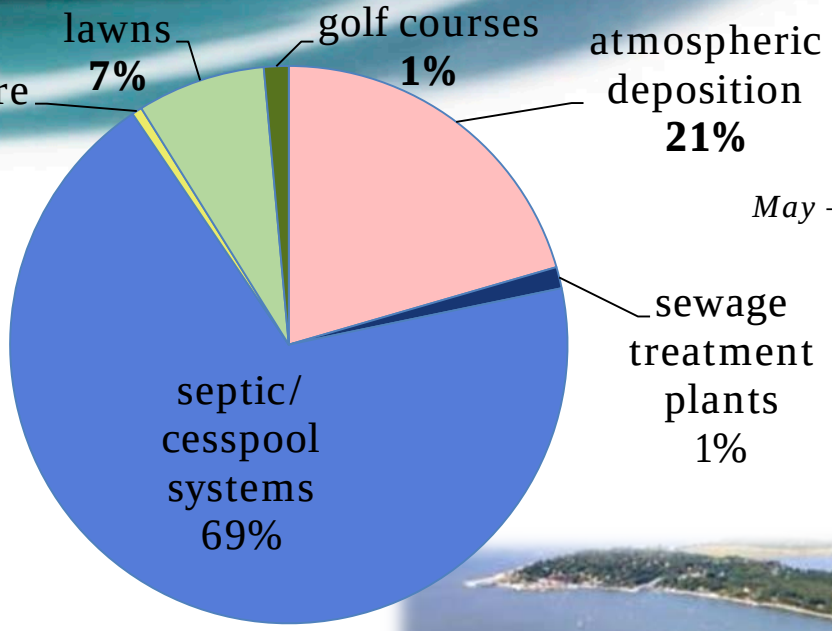



~90% loss of SAV; major loss of wetlands



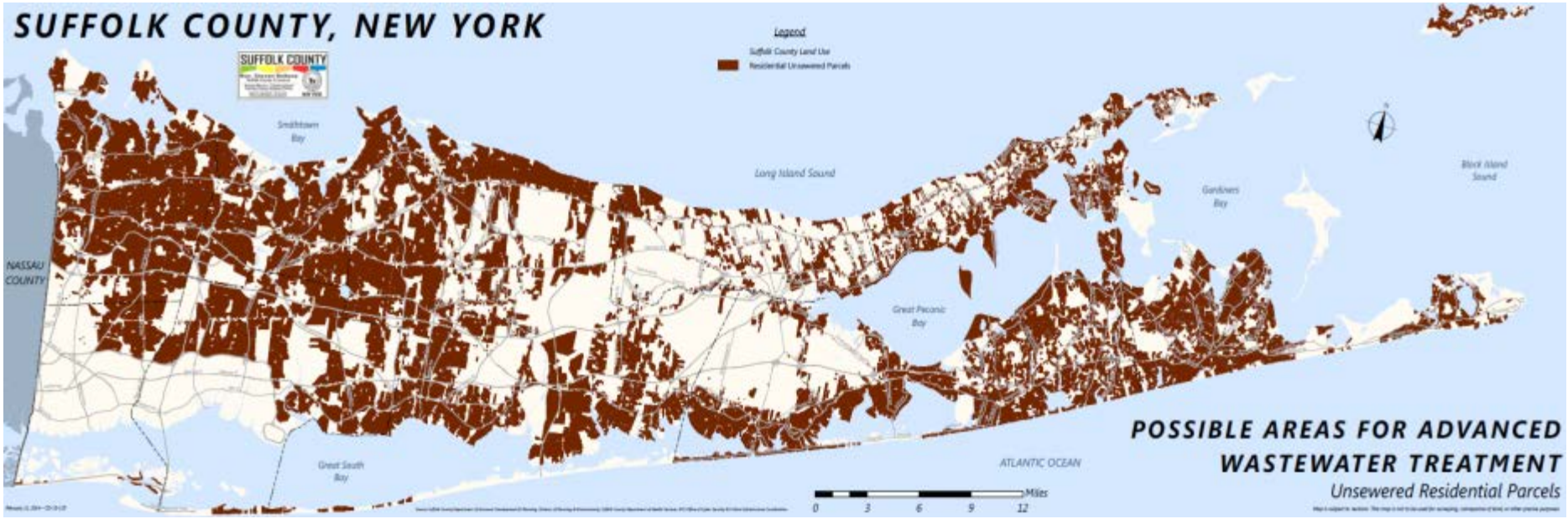
# Reclaiming Our Water

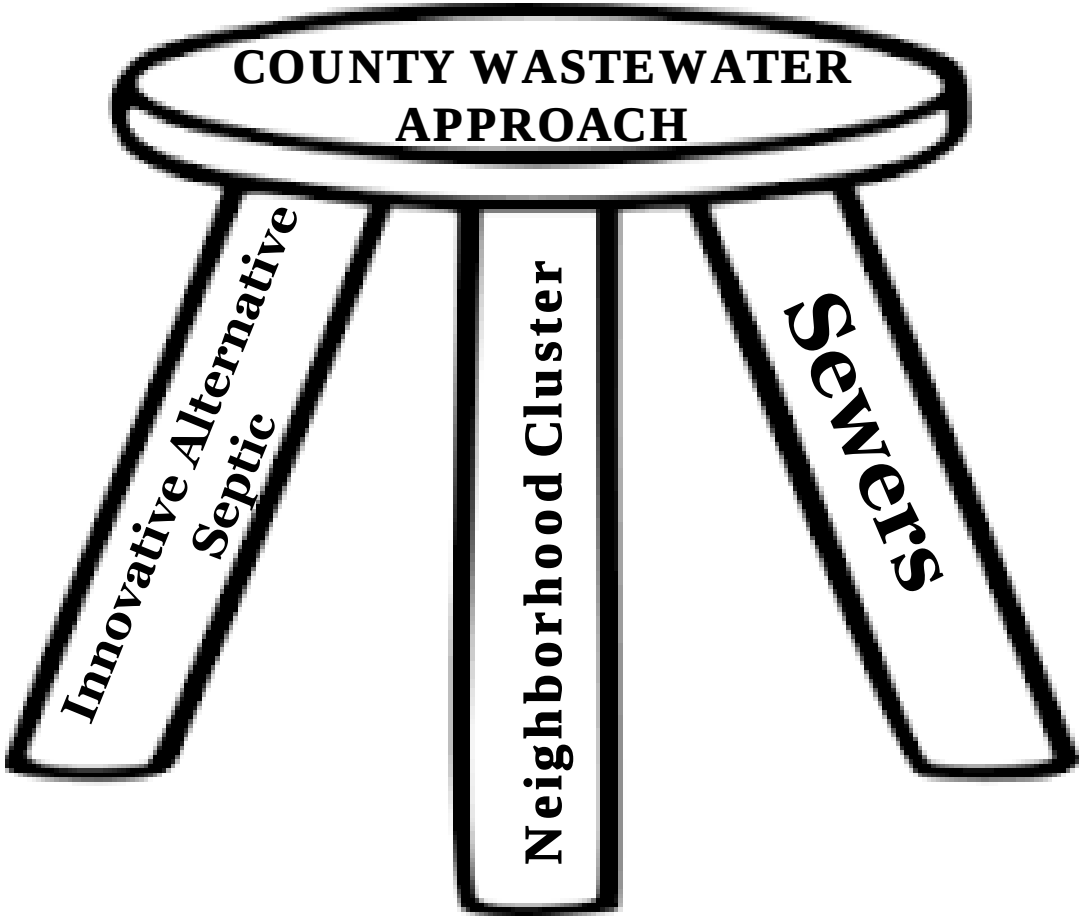



*May – June 2015*

# 74% Non-Performing Wastewater Treatment

- Approximately 360,000 onsite sewage disposal system
- 209,000 systems in priority areas
- Approximately 252,530 pre-date requirement for septic tank



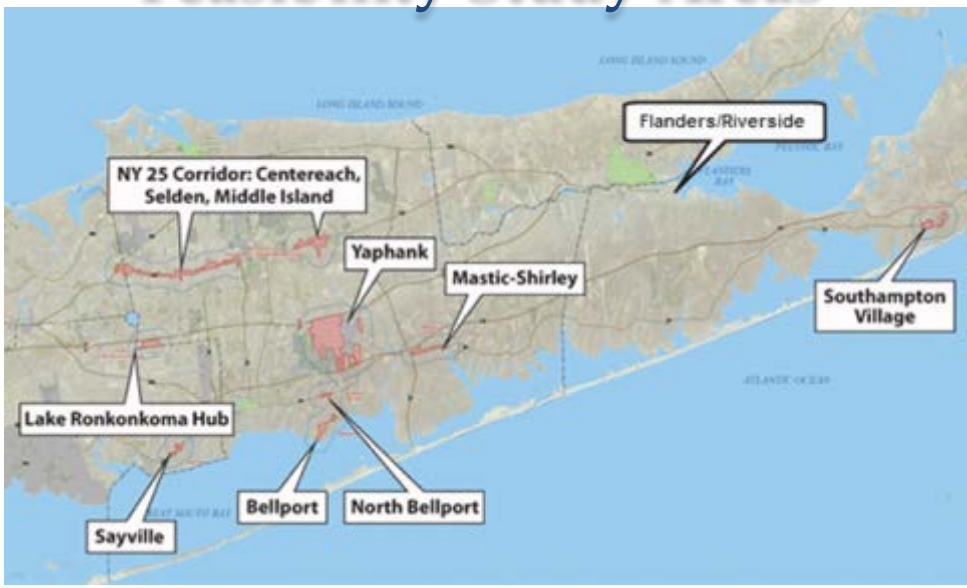

COUNTY WASTEWATER APPROACH
Innovative Alternative Septic
Neighborhood Cluster
Sewers

# SEWERING DISTRICT EXPANSION/CREATION

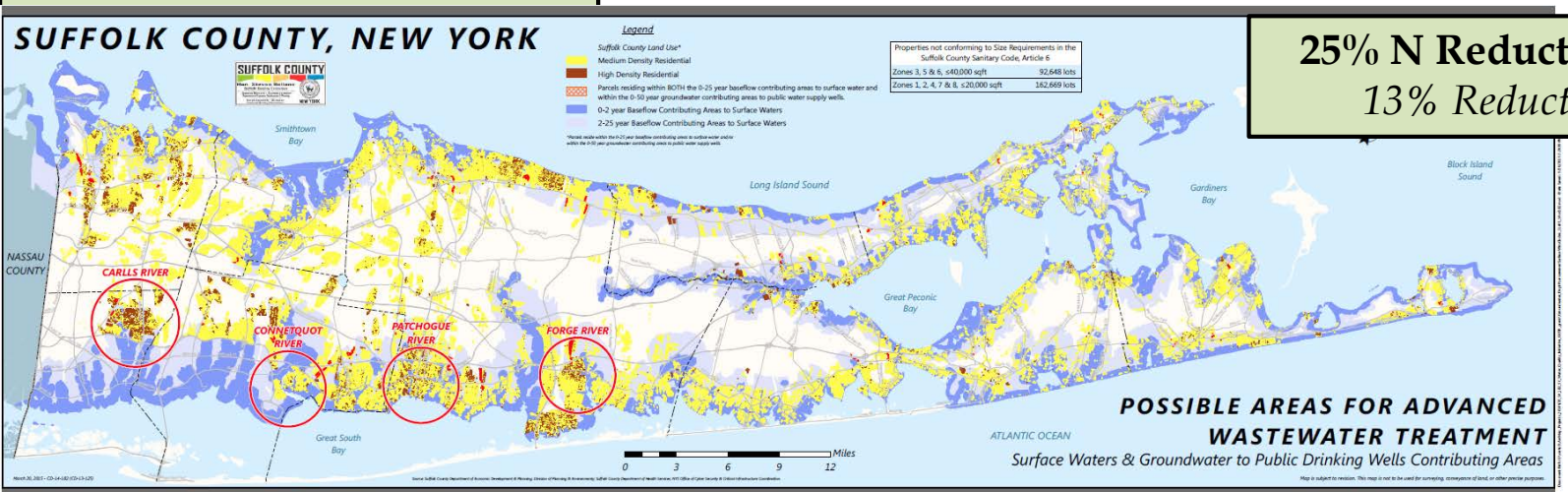
SCDPW Sewering Feasibility Studies

- Wyandanch, Deer Park, W. Babylon, N. Babylon, W. Islip
- Mastic-Shirley
- Bellport, N. Bellport
- Southampton Village
- Flanders
- Ronkonkoma HUB
- Sayville

## Feasibility Study Areas




**Reclaim Our Waters**
NYS Governor $383 Million for Sewering




**25% N Reduction in 4 areas**
*13% Reduction Bay-wide*

# Setting the Stage for the Solution to Nitrogen Pollution:

## Evolution to Use of Innovative Treatment Systems

- Innovative Onsite Systems → Pilot Program → Certifications
- Preparing the Industry → Licensing Law → Training
- Responsible Management Entity → Enacted Article 19 → Regulate Installations and Maintenance
- Code Amendments → Working Groups → Updates of Outdated Regulations
- Putting New Technologies in Place → Identify Priority Areas for Advanced Treatment → Funding Mechanism

# SEPTIC/CESSPOOL UPGRADE PROGRAM ENTERPRISE

- **7.0M Existing Funding with Additional $1.5M Annually**
- **NYSDEC Funded Grant to Develop Upgrade Program**:

1) Subwatersheds Wastewater Plan and GEIS

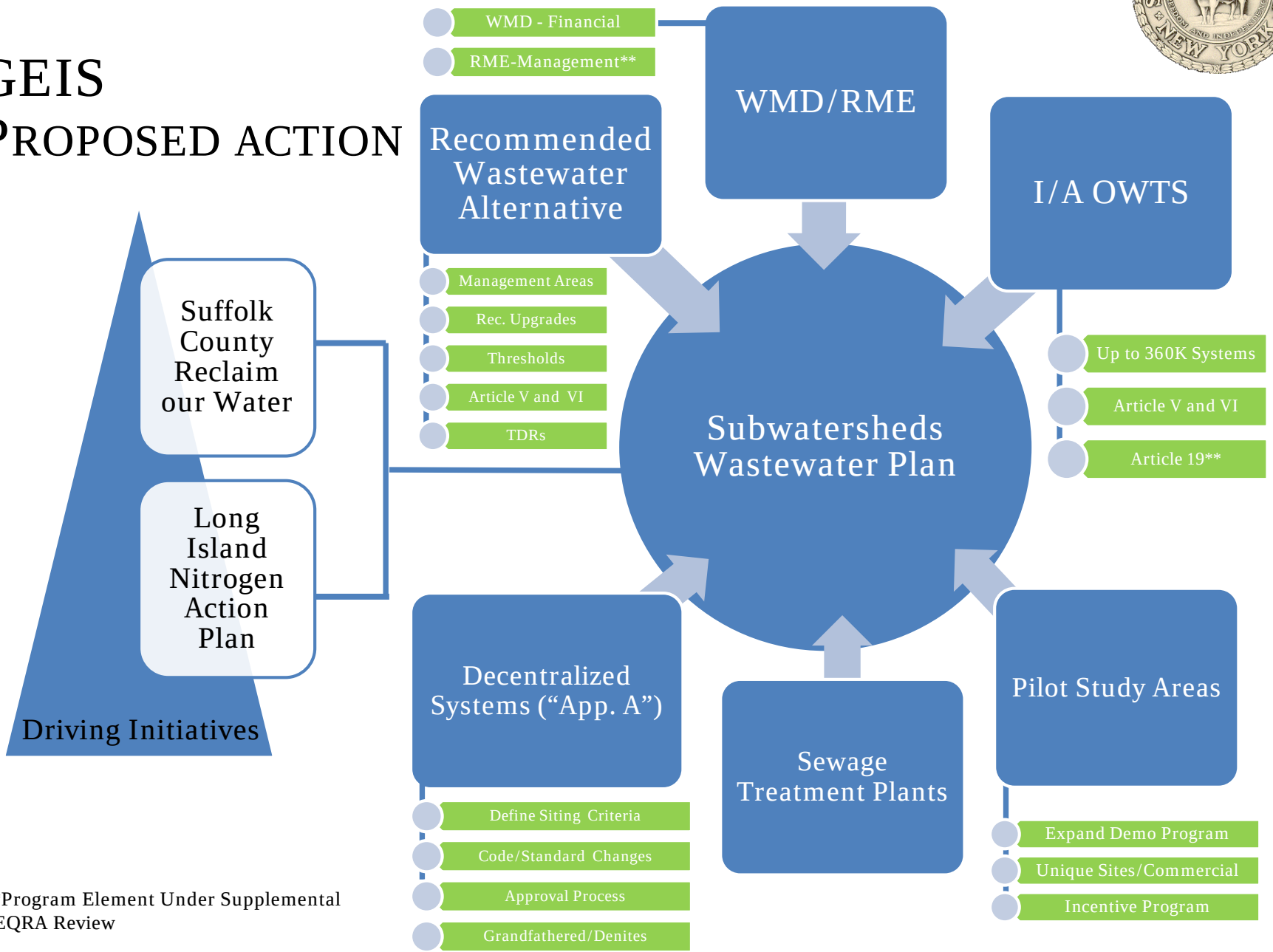
2) Septic Program Development
   - ✓ Sanitary Code and Construction Standard Revisions
   - ✓ District Formation and Funding Mechanism
   - ✓ Responsible Management Entity (RME)

3) Septic Program Implementation
   - ✓ Septic Improvement Program
   - ✓ I/A OWTS Pilot and Demonstration Programs
   - ✓ Early RME implementation
   - ✓ Industry Training

# SUBWATERSHEDS WASTEWATER PLAN

- **Science Based Bridge to Support Policy Decisions - Transition from Septic Demo and Septic Incentive Program to wide-scale implementation**
- **Provide recommended blueprint for wastewater upgrades:** Set priority areas, nitrogen load reduction goals, and describe where, when, and what methods to implement to meet reduction goals (I/A OWTS, sewering, clustered, other)
- **Based on models, data evaluations, and cost-benefit analysis:**
  - FIRST unified evaluation of our three major estuary system watersheds since the 1970s LI 208 Study: **191 Subwatershed boundaries**, nitrogen loads, impacts, and load reduction goals.
  - FIRST EVER to be completed with an integrated and predictive groundwater model
- **Cost-Benefit to Support Policy and Funding Decisions:** evaluate trigger points and related cost/staff impacts for requiring I/A OWTS (e.g., sensitive areas, new construction, on property transfer, system failure, etc.); Countywide water quality district.
- **Generic Environmental Impact Statement:** SEQRA – review environmental impacts for SWP recommendations

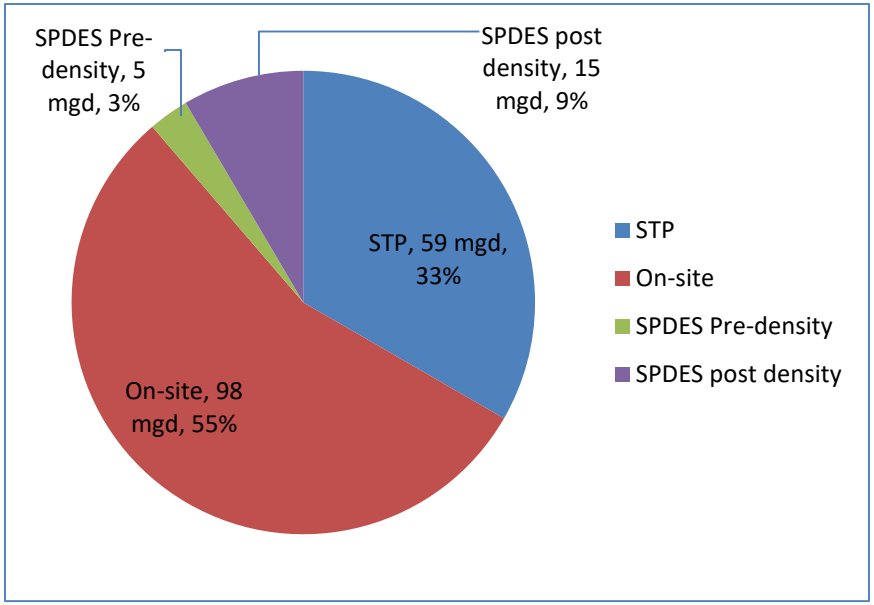
# GEIS
# PROPOSED ACTION



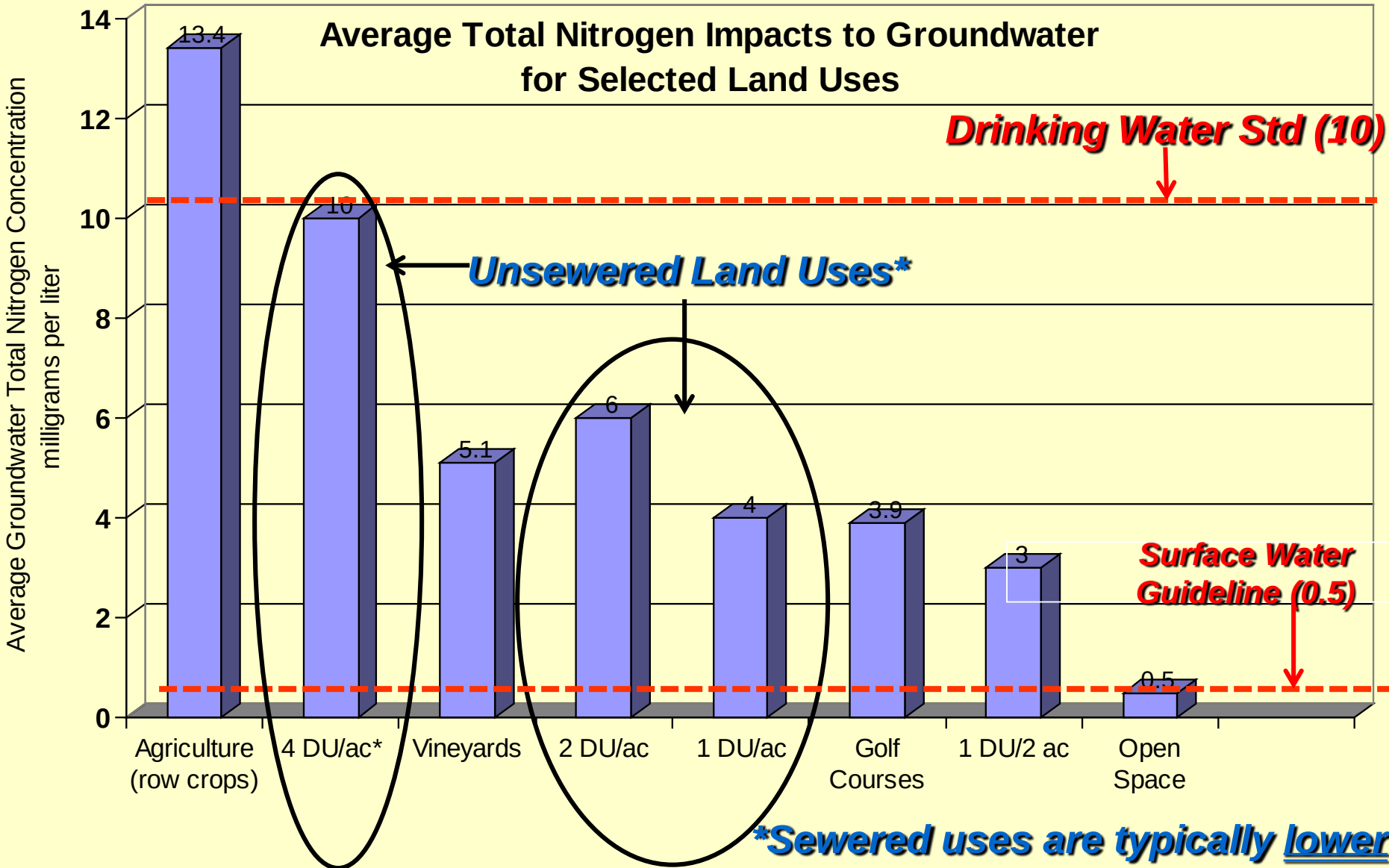

**Program Element Under Supplemental SEQRA Review

# Approximate Flow

- Total STP discharge — 59 million gallons per day
  - 43 mgd surface water
  - 16 mgd groundwater
- Total individual homes — 108 million gallons per day
  - 360,000 x 300 gpd per home
- Total comm (inc. class 02) — 20 million gallons per day
  - 8000 sites x 2500 gpd per site
  - SPDES program ~40 years old
  - SCSC Article 6 is ~30 years old
  - Permits issued since Article 6 consider density restrictions

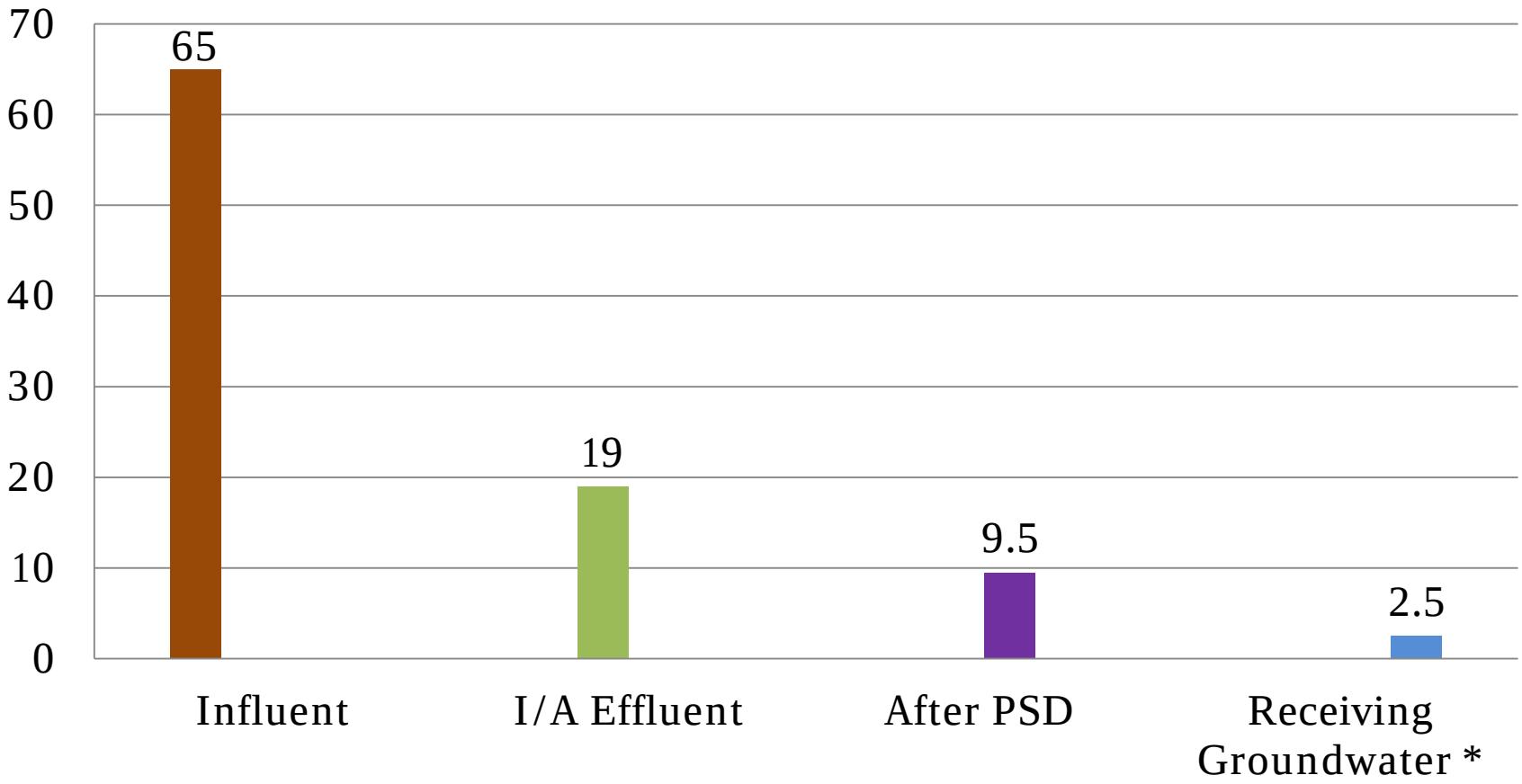


# Land Use & Nitrogen Impacts




***Sewered uses are typically lower**

# Septic Nitrogen Concentrations




*Receiving Groundwater Quality (1/2 acre lot)

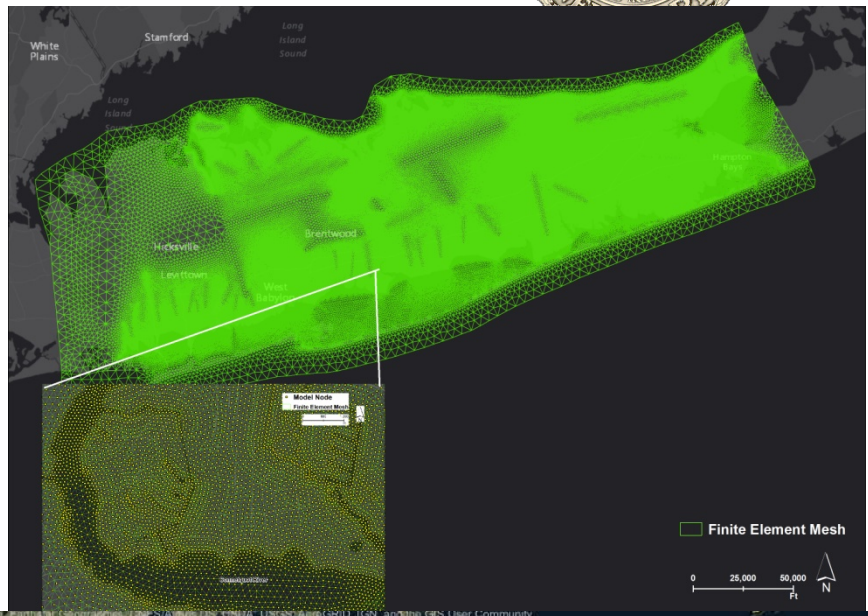
* Preliminary studies show PSD's can achieve up to 50% additional N Removal

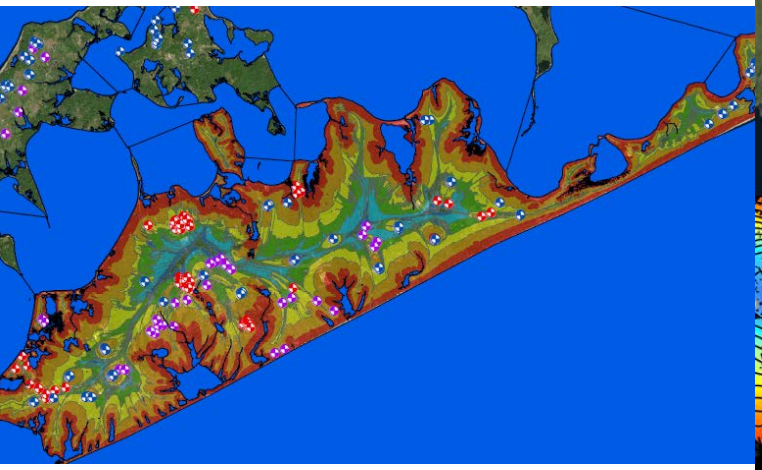
# Subwatershed Delineations

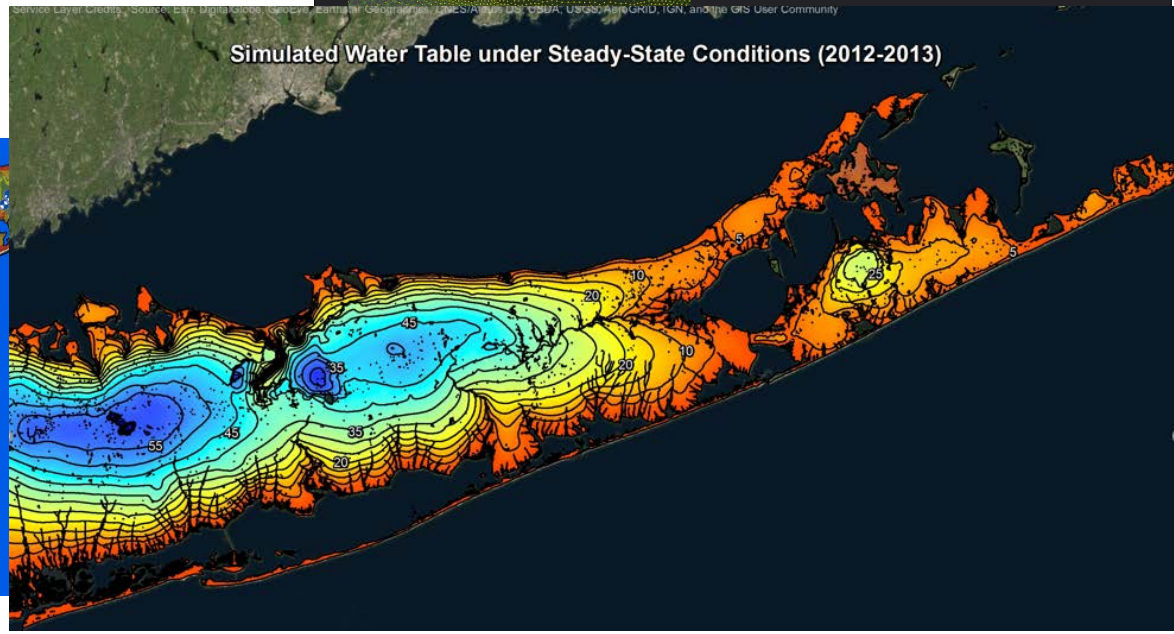
191 Subwatersheds

- 134 Estuaries
- 19 Lakes
- 38 Streams

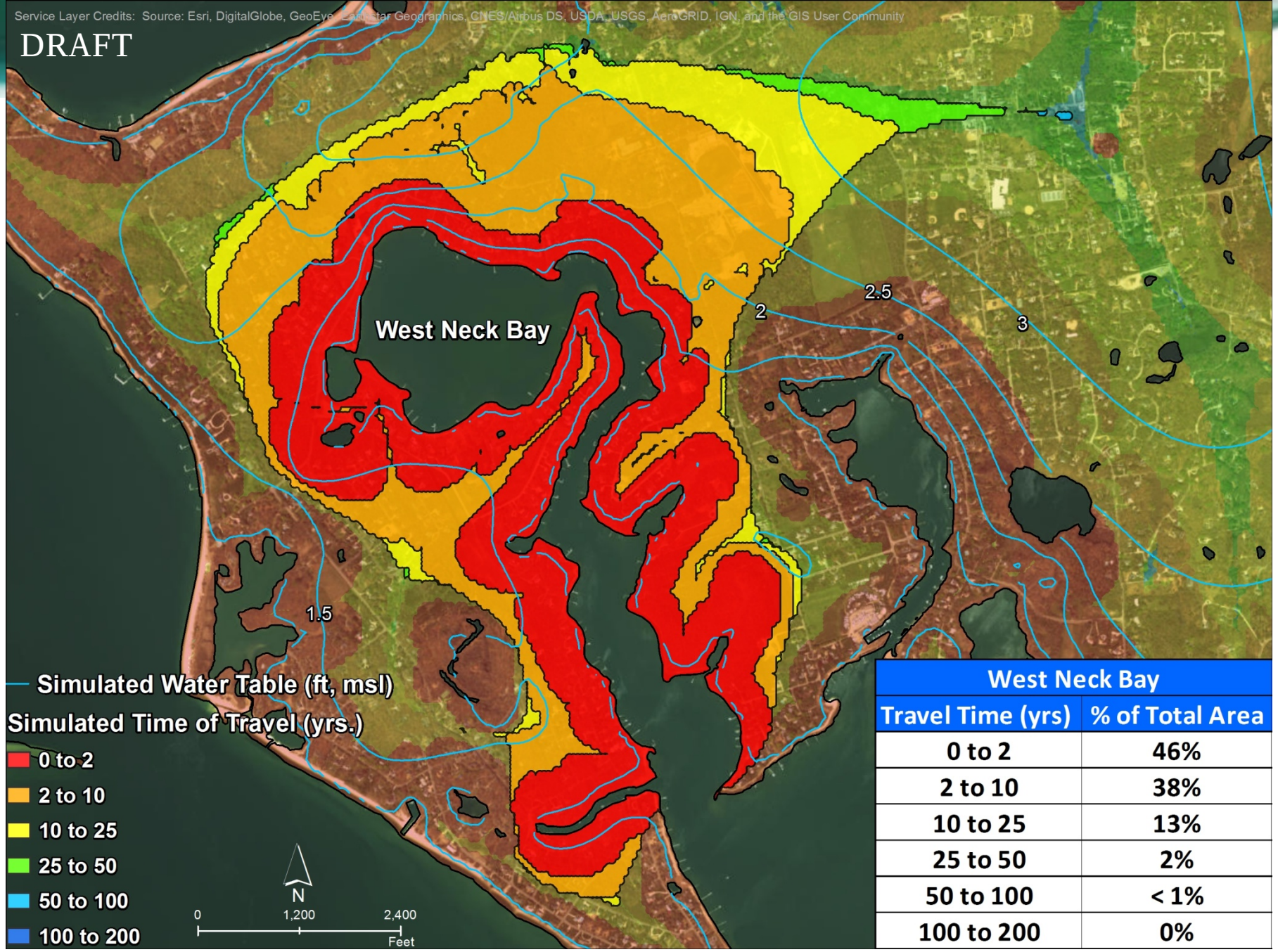
27 Long Island Sound
77 Peconic Estuary
73 South Shore Estuary
14 Ponds



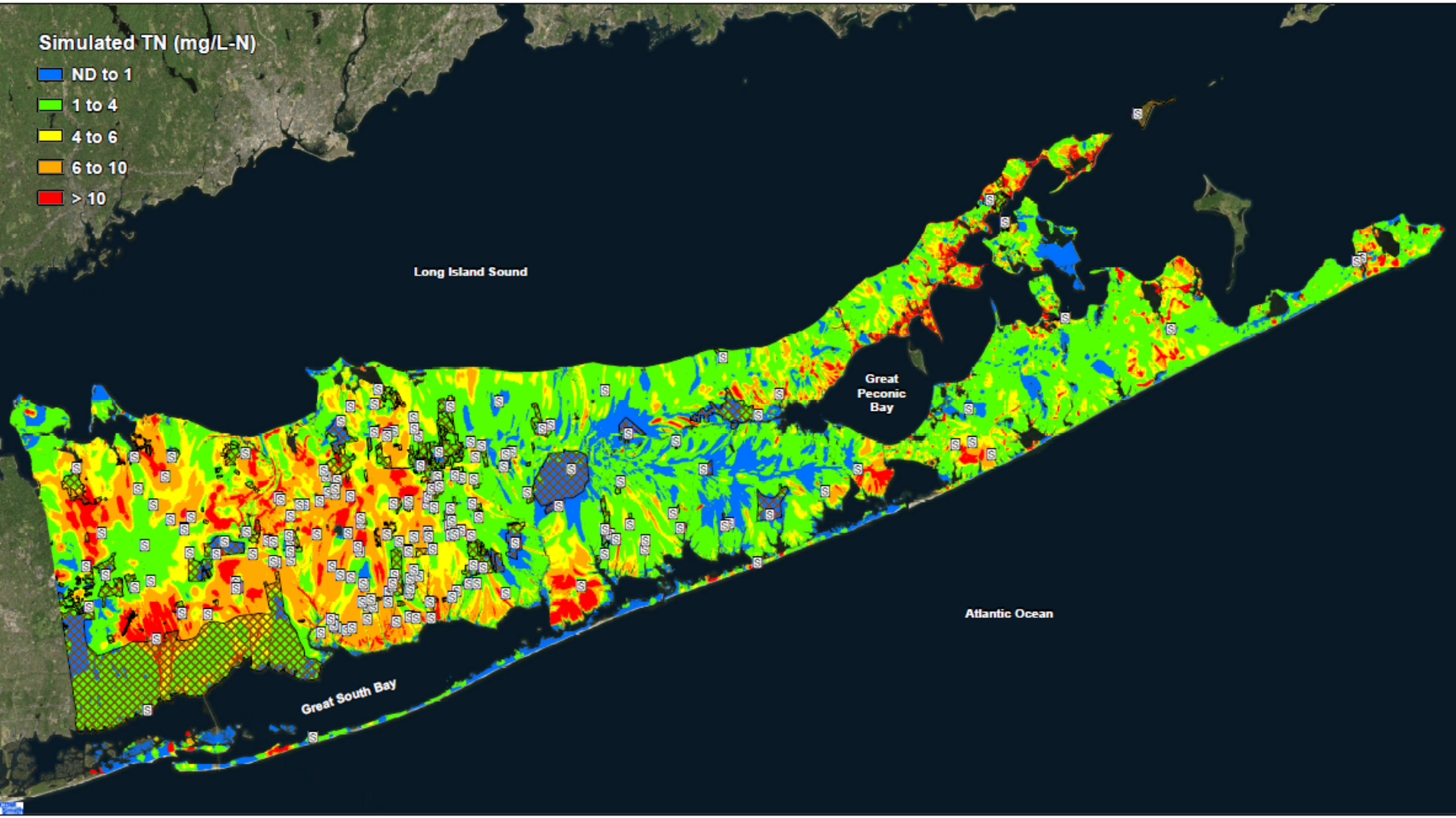


DRAFT




| West Neck Bay | |
|---|---|
| Travel Time (yrs) | % of Total Area |
| 0 to 2 | 46% |
| 2 to 10 | 38% |
| 10 to 25 | 13% |
| 25 to 50 | 2% |
| 50 to 100 | < 1% |
| 100 to 200 | 0% |

# SIMULATED UPPER GLACIAL NITROGEN AFTER 200 YEARS




Sewage Treatment Plant
Sewer Service Area

N

0 2.5 5 10 Miles

**Simulated Nitrogen Concentration within the Upper Glacial Aquifer after 200 Years**
**Suffolk County Subwatersheds Wastewater Plan**

# DECENTRALIZED WASTEWATER & EPA's LEADERSHIP

- Management Models and Case Studies
- Long Island Sound Study
- Peconic Estuary Program
- Funding early demonstration programs and wastewater management programs in New England
- Chesapeake Bay Data sharing Agreement
- New England / Long Island Data Sharing Agreement
- Nitrogen Sensor Challenge

# WHY NITROGEN SENSOR DATA IS IMPORTANT

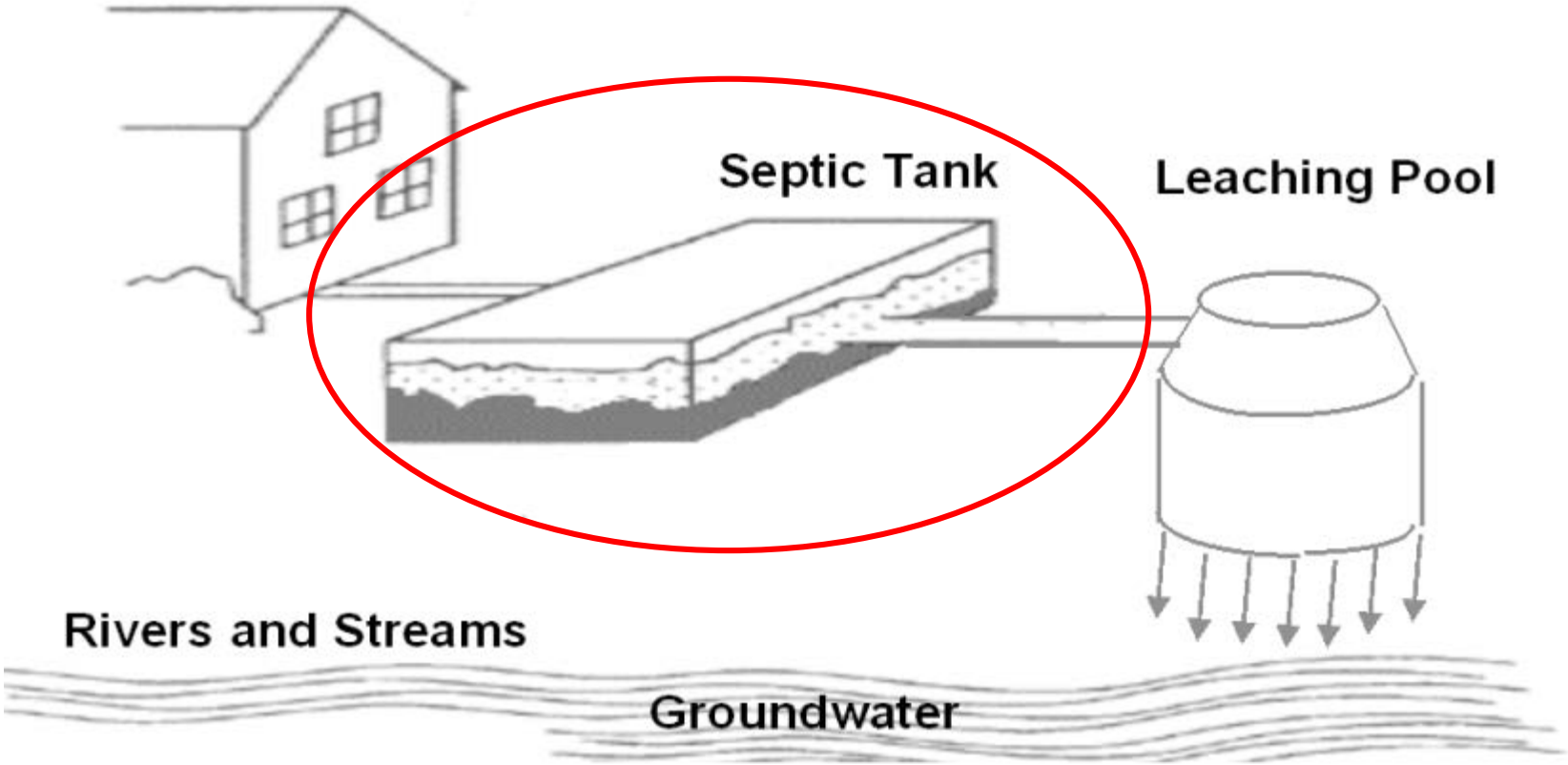
- **Reduced costs (esp. to industry)**
  - **Currently >$1,000 per composite N sample, and >$200 for grab sample**
    - **$50,000 for sampling for provisional approval of 1 system (grabs)**

- **Improve quality of data**
  - **Standardized collection method**
  - **Continuous collection**

- **Streamlined reporting**
  - **SCDHS upgrading IT platforms to accept industry data and remote telemetry (NYSDEC SCUPE Grant)**

- **Real-time information to evaluate performance**
  - **ID necessary corrective actions quickly**
  - **Evaluate nitrogen reductions in relation to goals (adaptive management)**

# 1972 Residential Onsites - Changes



# Article 19 Bill Signing
# August 2016

# SANITARY CODE ARTICLE 19
# MANAGEMENT OF I/A OWTS

- Unanimously Adopted by SC Legislature and BOH in July 2016
- Establishes a framework for the Department, as the Responsible Management Entity, to evaluate, approve, register, oversee, and facilitate the use of I/A OWTS
- Allows the Department the authority to promulgate procedures, protocols, and standards to evaluate, approve, register, oversee, and facilitate the use of I/A OWTS
- Article 19 allows the Department to ensure that I/A OWTS continue to function effectively over the long-term and to benefit the environment.
- The Department shall have the legal authority and technical capacity to ensure the long-term operation, maintenance and management of all I/A OWTS activities (monitoring, operation and maintenance, and data management).

# Suffolk County Department of Health Services
# Proposed Sanitary Code Changes

Policy 1: "Grandfathering" for Commercial Properties

Policy 2: Permit Requirements for Retrofits & Replacements

Policy 3: Require I/A OWTS for New Construction

Policy 4: Require I/A OWTS for existing systems (e.g. failure, sunset etc..)

Policy 5: Require I/A OWTS upon Property Transfer

Policy 6: Amend Unsewered Density Limit to 1 Unit / Acre for all Hydrogeologic Zones

## Phase - I

- Approved by SC Legislature and SC BOH 2017
- Changes effective January 2018 for Grandfathering
- Changes to take effect July 2018 for reporting of pump-outs, replacements, and retrofits.
- Changes to take effect July 2019 for permits for replacements or retrofits

## Phase - II

- Goal to Implement ASAP after 2018 SWP GEIS Findings Statement
- Dependent on Sub-watersheds Wastewater Plan Recommendations (County Wide vs Critical/Priority Areas)
- Policy 4 and 5 may be dependent on establishment of Wastewater Management District and Funding Mechanism
- Requires increase in SCDHS Staffing

# Impacts of Article 6 Policy Changes

- **Requiring I/A OWTS New Construction**
  - *Commercial ~ 185 per year*
  - *Residential ~ 1224 per year*

***Based on average final approvals issued by WWM in last 4 years (2013-2016)*

- **Requiring SCDHS approval for Retrofits and/or Replacements of Cesspools, Conventional Systems, and I/A OWTS**
  - *~5,000 to 9,000 systems per year* (Note: replacement of cesspools with cesspools not permitted)
- **I/A OWTS for Pre-Existing Commercial Sites Exceeding Article 6 Density**
  - *~ 25 WWM applications per year*

# Septic Industry Licensing and Training

New License Requirements Effective 6/23/16

- 11 Specialized endorsements under “liquid waste umbrella”
- Required training and certification
- Required Continuing Education upon license renewal.

I/A OWTS Overview Class

- Offered by SCDHS in cooperation with the New England Onsite Wastewater Training Program (NEOWTP)
- 5 classes have been held to date
- There have been 167 participants since we began offering it in April 2016
- Class is being offered 3 times in 2018

# ENVIRONMENTAL HEALTH INFORMATION MANAGEMENT SYSTEM ("EHIMS")

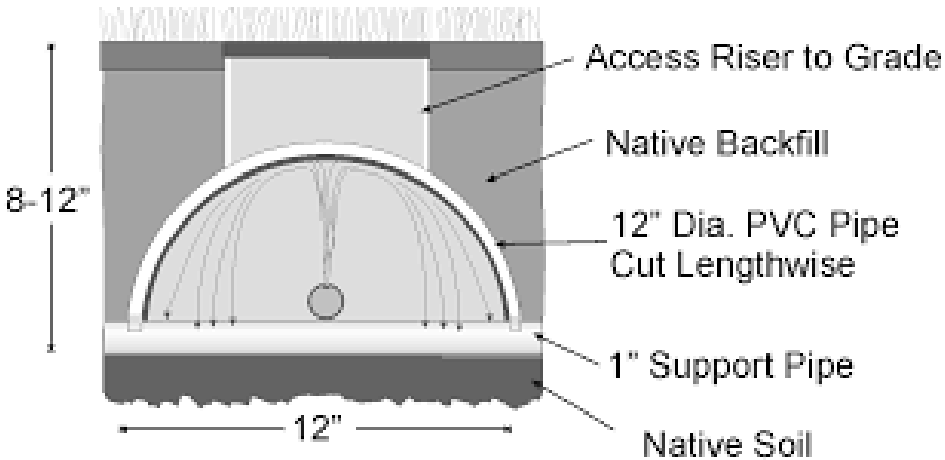
- **Electronic "backbone" of the Responsible Management Entity (RME)**
  - ✓ Integration of all databases that will manage RME data
  - ✓ Provide web-based portal one stop shopping for permitting, data upload, inspections, O&M records, etc.
  - ✓ I/A OWTS performance data tracking and management
  - ✓ Electronic plan submittal and review
  - ✓ GIS based mapping – link records to tax parcels
  - ✓ Negotiations on contract began on December 2017 and were finalized on February 2018
- **Next Steps:**
  - Contract will be signed March 2018
  - Kickoff meeting is tentatively scheduled for 5/1/2018
  - Estimated completion date 4/30/2019

# SEPTIC DEMONSTRATION PROGRAM (I/A OWTS)

- *Phase 1 - Septic Demo Program*
  - Manufacturer Selection
    - 4 manufacturers selected to install 6 types of systems for a total of 19 systems
  - Homeowner Selection
    - 19 homes selected throughout the County via lottery by Legislative District
- *Phase 2 - Septic Demo Program*
    - 6 manufacturers applied to install 8 types of systems
    - Homeowner Selection - over 207 Applicants
    - 20 homeowners selected on July 26, 2016

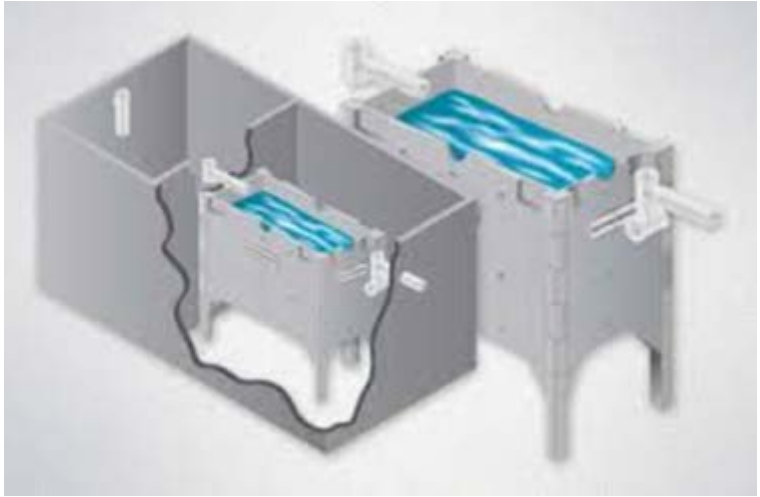
# THE PRESSURIZED SHALLOW DRAINFIELDS (PSDS)

- Pressurized drainfields that evenly and horizontally distribute treated effluent within 18 inches of the top soil horizon.
- Emphasis on increased microbial activity and nutrient absorption.
- Treated effluent reductions up to 50% TN



# LIST OF APPROVED I/A OWTS

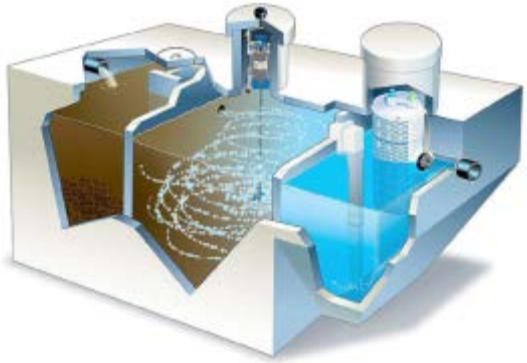
- *Updated periodically ( last update 1/19/18)*
- *Experimental Systems:*
  - *Nitrex System (with Orenco, Waterloo Biofilter, or SeptiTech)*
    - ✓ *Nitrex w/ Orenco installed at Scully Estates*
  - *Nitrogen Reducing Biofilter (lined, unlined, or Denite Tank)*
  - *Vegetated Gravel Recirculating Filter (AKA Constructed Wetlands)*
- *Pilot Systems*
  - *ECOPOD-N Series*
- *Provisional Systems*
  - *Hydro-Action AN Series*
  - *Norweco Singulair TNT*
  - *Norweco Hydro-Kinetic*
  - *Orenco AX-RT*
  - *Fuji Clean CEN Series*
- *Septic Demo Pilot Systems*
  - *System currently installed as part of septic demo are not on the list since they cannot be sold until approved for Provisional Use*



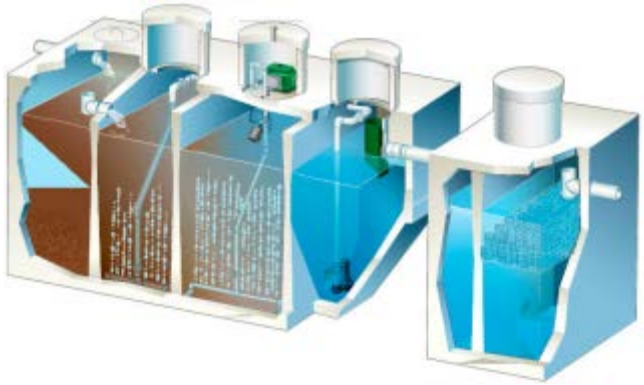
# PROVISIONALLY APPROVED I/A OWTS

Hydro-Action

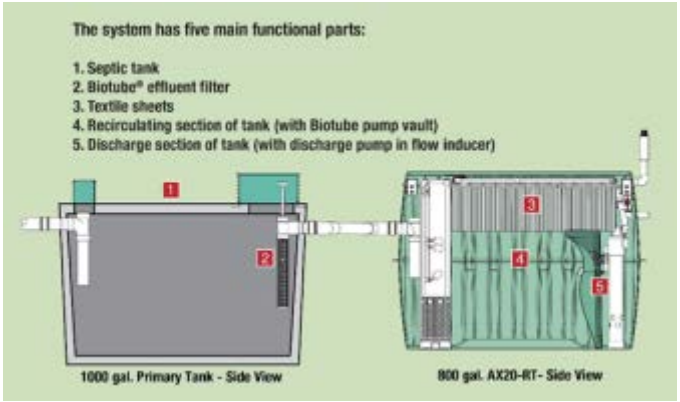
Fuji Clean System



Norweco Singlair TNT



Norweco Hydrokinetic




Orenco Advantex AX-RT

# Performance Summary of I/A OWTS Demonstrated in Suffolk County and Approved for Provisional Use

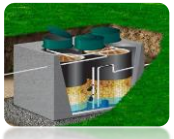
| Technology | AVG (Mg/L)* | Provisional Approval |
|---|---|---|
| Hydro-Action AN Series | 11.6 mg/L | Approved in September 2016 |
| Norweco – Singulair TNT | 18.3 mg/L | Approved in October 2016 |
| Orenco Advantex – RT | 18.8 mg/L | Approved in March 2017 |
| Norweco – Hydro-Kinetic | 17.4 mg/L | Approved in April 2017 |
| Fuji Clean System | 16.6 mg/L | Approved in January 2018 |

*Standard is 19mg/L

# Number of Approved Systems As of March 2018

| Technology | # Septic Demo Installs | # SIP Approvals | Other Approvals | Total # of approvals |
|---|---|---|---|---|
| Hydro-Action AN Series | 5 | 14 | 35 | **54** |
| Norweco – Singulair TNT | 5 | 15 | 38 | **58** |
| Orenco Advantex – RT | 2 | 3 | 9 | **14** |
| Norweco – Hydro-Kinetic | 5 | 0 | 1 | **6** |
| Fuji Clean System | 4 | 3 | 6 | **13** |
| **Totals** | **21** | **35** | **89** | **145** |

# I/A OWTS BEING EVALUATED BY SUFFOLK COUNTY

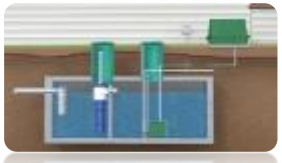


**Waterloo BioFilter**

**Ecoflo Coco Filter**

A packed bed media filter consisting of foam cubes (Waterloo) and coconut husks (Ecoflo). Septic effluent is evenly distributed over the media surface and the media provides a surface area for bacteria and other microorganisms to grow. As the wastewater trickles down through the filter bed, it is treated by the organisms growing on the media.

**BioMicrobics BioBarrier MBR**



**BUSSE MBR**

Membrane bioreactors refers to a combination of biological process and membrane separation used to treat the wastewater. The effluent moves from outside of the membrane to an inside void space and is pulled under a vacuum.

**BioMicrobics SeptiTech STAAR**

A trickling filter comprised of polystyrene beads. Septic effluent is sprayed over the filter. As the effluent migrates through the pores of the filter, organics are aerobically degraded by the bacteria living on the media.

**Fuji Clean System**

**PUGO Systems**

A three compartment septic tank that utilizes a integrated fixed-film activated sludge process. Septic effluent is applied to a medium on which microbes attach themselves. In addition, an air compressor supplies oxygen to the 3rd compartment and an air lift recirculates effluent to the first chamber for denitrification.

**Orenco Advantex AX-20**

A packed bed media filter consisting of fabric sheets. Septic effluent is evenly distributed over the media surface and the media provides a surface area for bacteria and other microorganisms to grow. As the wastewater trickles down through the filter bed, it is treated by the organisms growing on the media.

# Suffolk County Department of Health Services
# Septic Demo Performance Data

| Technology | Projected Approval Data | Treatment Performance * | # of Systems Being Sampled | % Completed |
|---|---|---|---|---|
| Orenco Advantex – AX20 | Summer 2018 | 23.4 mg/l | 3 | 61% |
| Amphidrome | Spring 2018 | 18.8 mg/L | 2 | 75% |
| Ecoflow + Denite | Spring 2018 | 7.1 mg/L | 2 | 66% |
| Ecoflow | Cannot project | 19.8 mg/L | 2 | 66% |
| Pugo | Cannot Project | 28.8 mg/L | 4 | Manufacturer to make adjustments in 2018 |
| Waterloo | Cannot Project | 52.0 mg/L | 2 | Manufacturer to make adjustments in 2018 |
| BioBarrier | Cannot Project | 48.0 mg/L | 2 | Manufacturer to make adjustments in 2018 |
| BUSSE - MF | Cannot Project | 83.1mg/l | 2 | Systems offline. Manufacturer to make adjustments in 2018 |
| SepticTech | Installed Fall 2017. No Equilibrium/Steady-State Samples Collected | | | |

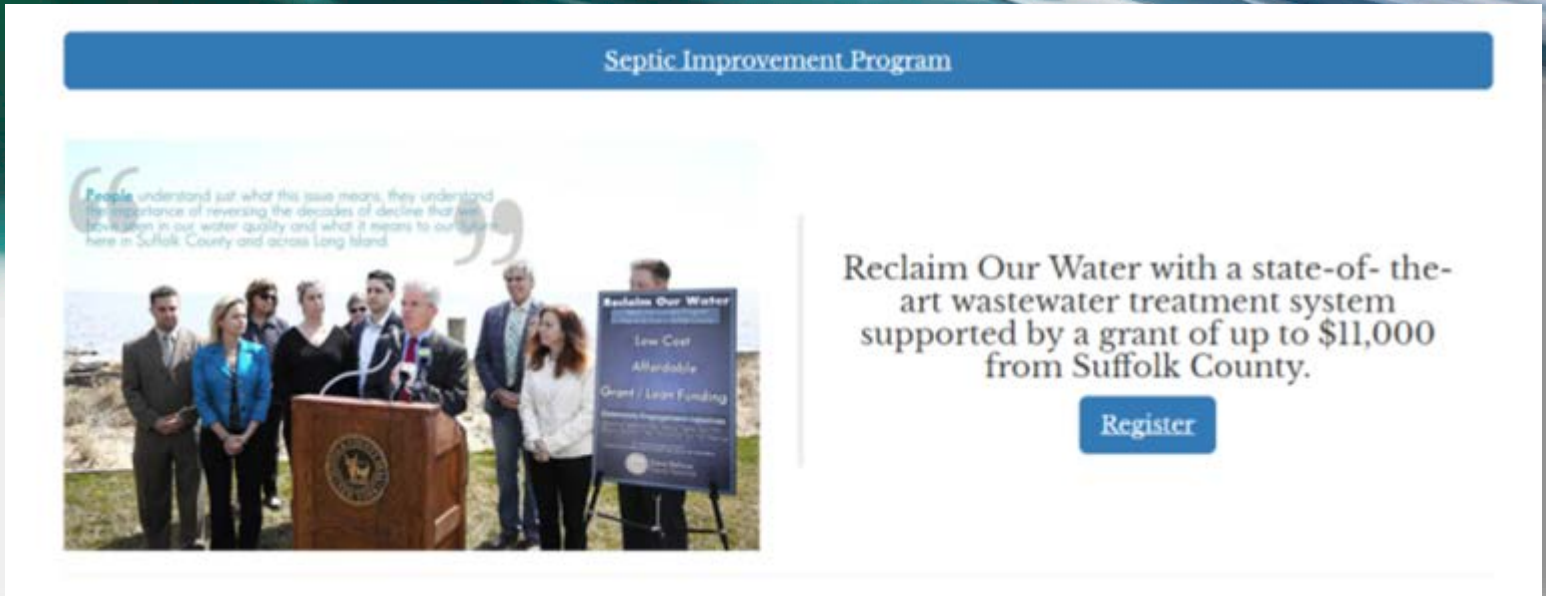
*Standard is 19mg/L

# Comparison of I/A OWTS Results & Discussion of Performance Standard

| Technology | NSF 245 or ETV Certification | **Suffolk County** | Maryland | Barnstable County | New Jersey Pinelands | Rhode Island |
|---|---|---|---|---|---|---|
| Advantex AX | NSF 24 mg/l | **21.6 mg/L** | 14 mg/l | 17.42 mg/l | | 14.9 mg/l |
| Advantex RT | | **18.8 mg/L** | 17 mg/l | | | |
| HydroAction | NSF 15 mg/L | **11.6 mg/L** | 20.3 mg/l | | | |
| Norweco Singulair | NSF 12 mg/L | **18.3 mg/L** | 27 mg/l | 17.86 mg/l | | |
| Norweco Hydro-Kinetic | NSF 7.9 mg/L | **18.5 mg/L** | | | | |
| BUSSE MF | NSF 16 mg/l | **72.3 mg/L** | | | | |
| Amphidrome | ETV 10.81 mg/L | **17.8 mg/L** | | 13.74 mg/l | 17 mg/l | |
| BioMicrobics FAST | NSF 17 mg/L | | 25 mg/l | 15.48 mg/l | 21 mg/l | 17.1 mg/l |
| BioMicrobics BioBarrier | NSF 9 mg/L | **48.0 mg/L** | | | 23 mg/l | |
| BioMicrobics SeptiTech | NSF 17 mg/L | | 20 mg/l | 17.37 mg/l | 17 mg/l | 11.3 mg/L |
| Fuji Clean | NSF 10 mg/L | **16.6 mg/L** | | | | |
| Pugo | NSF 17 mg/L | **29.9 mg/L** | | | | |
| Ecoflo Coco Filter | NSF 18.6 mg/L | **19.8 mg/L** | | | | |
| Waterloo BioFilter | ETV 14 mg/L | **52.0 mg/L** | | 17.89 mg/l | | |

Notes:

- Barnstable County, Mass uses the median. Results are the average of the median
- NJ Pinelands and Rhode Island use the median. Results are the average of the median
- Maryland use the average
- SC systems stated are part of a demo program. Results are the average of at least 6-months of composite sampling. Suffolk County results in **red** are of systems that have not received provisional approval and a limited sample size is represented
- Performance Standard of 30 mg/l in Maryland and 19 mg/l in MA, RI, and Suffolk County




# Suffolk County's Septic Improvement Program (SIP)

# SUFFOLK COUNTY'S SEPTIC IMPROVEMENT PROGRAM

## APPROVED LOCAL LAW

Intro. Res. No. -2017 Laid on Table 3/28/2017
Introduced by Presiding Officer on request of the County Executive

**RESOLUTION NO. -2017, ADOPTING LOCAL LAW NO. -2017, A LOCAL LAW TO ESTABLISH A GRANT ASSISTANCE PROGRAM FOR THE INSTALLATION OF INNOVATIVE AND ALTERNATIVE ONSITE WASTEWATER TREATMENT SYSTEMS**

**WHEREAS**, there was duly presented and introduced to this County Legislature at a meeting held on , 2017, a proposed local law entitled, "**A LOCAL LAW TO ESTABLISH A GRANT ASSISTANCE PROGRAM FOR THE INSTALLATION OF INNOVATIVE AND ALTERNATIVE ONSITE WASTEWATER TREATMENT SYSTEMS**"; now, therefore be it

**RESOLVED**, that said local law be enacted in form as follows:

**LOCAL LAW NO. -2017, SUFFOLK COUNTY, NEW YORK**

**A LOCAL LAW TO ESTABLISH A GRANT ASSISTANCE PROGRAM FOR THE INSTALLATION OF INNOVATIVE AND ALTERNATIVE ONSITE WASTEWATER TREATMENT SYSTEMS**

**May 31, 2017**
**Suffolk County Executive**
**Steve Bellone signs**
**SIP into Law**

# Septic Improvement Program (SIP)

**Suffolk Incentive Grant**
administered by the Suffolk Dept. of Health Services (up to $11,000)

+

**Septic Loan**
administered by CDCLI (up to $10,000)

=

Septic Incentive Program

## Grant Program Details:

- Individual homeowners may be eligible for a grant up to $11,000.
- $10,000 will be provided toward the purchase and installation of an approved I/A OWTS and leaching structure, as well as for attendant engineering and design services.
- An additional $1,000 may be available for installation of Pressurized Shallow Drainfield for a maximum grant of up to $11,000.

## Income Criteria:

- Adjusted Gross Income less than or equal to $300,000/year is eligible for 100% of grant
- Adjusted Gross Income between $300,000/year - $500,000/year is eligible for 50% of grant
- Adjusted Gross Income of $500,000 or more will not be eligible for a grant (consistent with NYS Star Property Tax Rebate).

## Septic Replacement Loan Program

To further CDCLI's mission of increasing investment in neighborhoods, protecting the assets of homeowners, and protecting the environment, a **low interest rate loan product** is now available to assist with the installation of a Suffolk County approved replacement septic system!

This new loan from CDCLI is made available in conjunction with the Suffolk County Septic Improvement Program. Under the Suffolk County Septic Improvement Program, homeowners may apply for a **grant** from Suffolk County to assist with the cost of replacing outdated and failing septic systems with state-of-the-art nitrogen reducing systems designed to reverse decades of damaging nitrogen pollution of ground and surface waters.

LEARN MORE

# LOAN PROGRAM DETAILS:

- Administered by CDCLI Funding Corporation
- Individual homeowners may be eligible for low cost financing up to $10,000
- Competitive 3% interest rate
- Repayment term of up to 15 years
- The loan program will be administered by CDCLI Funding Corp, with financial support from Bridgehampton National Bank

# Grant Eligibility Criteria

- ✓ The residence must be single family, owner-occupied year round and the owner's primary residence.
- ✓ The residence must be served by a septic system or cesspool and is not connected to a public sewer or located in any sewer district or any proposed sewer district.
- ✓ Property is not a rental property.
- ✓ New construction is not eligible; however construction projects on existing residences may be eligible.
- ✓ No in-home business (other than a personal home office that does not require additional kitchen use or customer access).
- ✓ No resident is an elected official or office holder of any political party (including official political party committee members).
- ✓ Availability of valid Certificates of Occupancy (CO) or Certificate of Zoning Compliance for the residence.
- ✓ Income verification (Provide a copy of owner (s) most recently filed federal income tax return).

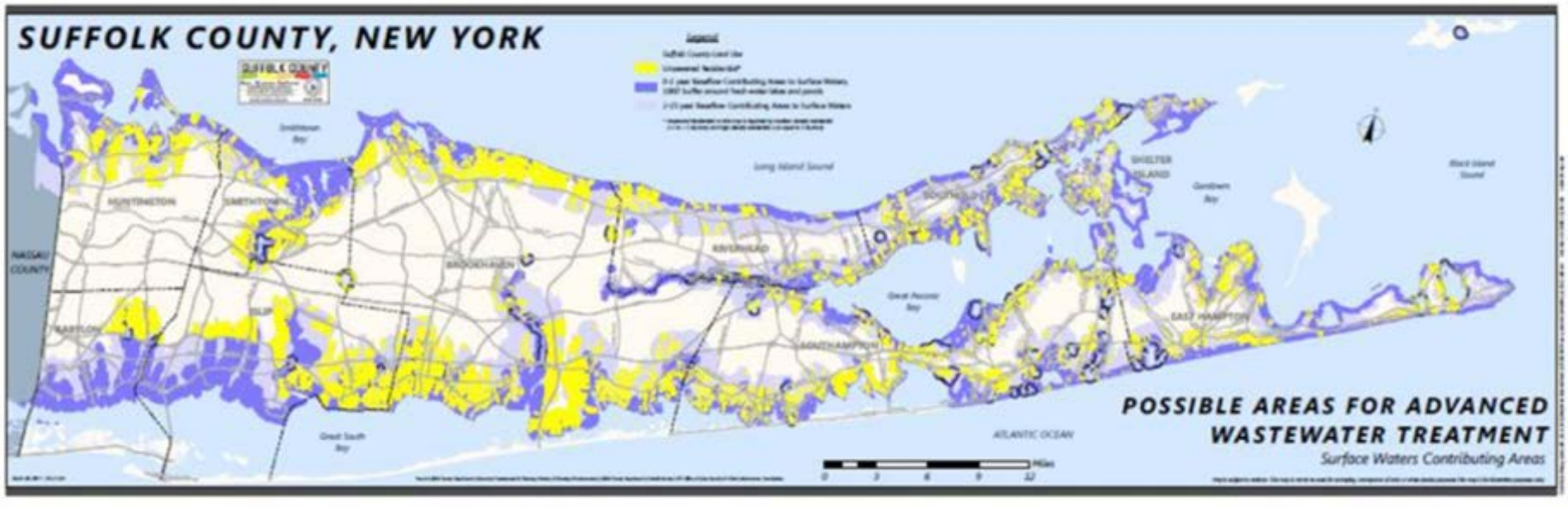
# Suffolk County's Septic Improvement Program

**Priority Areas:**

1) Parcels located within the Priority Critical Areas (high or medium density parcels within the 0-2 year groundwater travel time or high or medium density residential parcels within 1,000 feet of enclosed water bodies in Suffolk County)

2) Parcels located within Critical Areas (high or medium density parcels within the 2-25 year groundwater travel time)

3) Parcels located outside Critical Areas



# Ranking and Scoring Process

- Completed applications are scored and ranked as outlined in SIP rules and regulations.
- Homeowners will receive routine updates via e-mail as to the status of their application.
- Top ranked applications (based on priority area and documented failure) will be sent a Grant Acceptance packet which contains the Grant Certificate and Grant Agreement.
- Homeowners have 30 days to sign the Grant Agreement. If signed Grant Agreements are not received by the Suffolk County Department of Health Services (SCDHS) within 30 days the Grant Certificate will expire and the allocated funding will revert back into the Grant pool. If final approval is not issued within 180 days from execution of the Grant Agreement, the Grant Certificate will expire and funding will revert back into the Grant pool.

# Suffolk County's Septic Improvement Program

## *Estimated I/A OWTS Unit Costs*

TOTAL COST FOR INSTALLATION

**$16,200**

- Treatment Unit retail cost of $7,900
- Labor and electrical costs of $5,500
- Start-up costs of $300
- Average engineering costs of $2,500
- Uses existing leachfields

**$19,200**

- Treatment Unit retail cost of $7,900
- Labor and electrical costs of $5,500
- Start-up costs of $300
- Average engineering costs of $2,500
- Installation of a pressurized leachfield $3,000

NOTES:

- Assumes one day installation at $4,000 /Day
- Assumes adequate setbacks and separation distances (no variance required)
- Does not include retaining wall systems, permitting costs, and landscaping costs

# Suffolk County NY - Septic Improvement Program
# Vendor Cost Ranking Sheet

ROW Reclaim Our Water

### Vendor Quotes: Scenario 1 – I/A OWTS with Reuse of Existing Leaching Structure

| Vendor in Ascending Order | Technology | Cost of IA OWTS Installation with reuse of Existing Leaching Structure |
|---|---|---|
| Roman Stone Construction Co | Norweco Singulair TNT | $13,584.64 |
| Advanced Wastewater Solutions LLC | Fuji Clean CEN Series | $13,750.00 |
| Shelter Island Sand, Gravel & Contracting Inc.* | Fuji Clean CEN Series | $14,180.00 |
| Ecological Supply Company Inc. | Hydro-Action AN Series | $15,233.13 |
| Green Land Contracting | Orenco Advantex AX20-RT | $17,163.00 |
| Roman Stone Construction Co | Norweco Hydro-Kinetic | $17,165.83 |

### Vendor Quotes: Scenario 2 – I/A OWTS with New Gravity Leaching Structure

| Vendor in Ascending Order | Technology | IA OWTS Installation with New Gravity Leaching Structure |
|---|---|---|
| Advanced Wastewater Solutions LLC | Fuji Clean CEN Series | $15,650.00 |
| Roman Stone Construction Co | Norweco Singulair TNT | $16,240.64 |
| Shelter Island Sand, Gravel & Contracting Inc.* | Fuji Clean CEN Series | $16,730.00 |
| Ecological Supply Company Inc. | Hydro-Action AN Series | $17,633.13 |
| Roman Stone Construction Co | Norweco Hydro-Kinetic | $19,821.83 |
| Green Land Contracting | Orenco Advantex AX20-RT | $20,355.00 |

### Vendor Quotes: Scenario 3 – I/A OWTS with Pressurized Shallow Drainfield (PSD)

| Vendor in Ascending Order | Technology | IA OWTS Installation with Pressurized Shallow Drainfield |
|---|---|---|
| Advanced Wastewater Solutions LLC | Fuji Clean USA | $19,003.60 |
| Ecological Supply Company Inc. | Hydro-Action AN Series | $19,633.13 |
| Shelter Island Sand, Gravel & Contracting Inc.* | Fuji Clean CEN Series | $20,183.00 |
| Roman Stone Construction Co | Norweco Singulair TNT | $20,240.64 |
| Green Land Contracting | Orenco Advantex AX20-RT | $22,209.00 |
| Roman Stone Construction Co | Norweco Hydro-Kinetic | $23,821.83 |

**Notes:**

1. for scenario 1 all estimated costs would fall under the intended SIP funding limits when combined with $2,500 in estimated design costs.
2. for scenarios 2 and 3, costs above the red line would fall under the intended SIP funding limits when combined with Design costs. Costs below the red line would require out of pocket expense from Property Owner.
3. PSD's can be a cost effective option where site conditions would otherwise trigger a mounded retaining wall system or deep excavations which have quoted costs greater than $40,000.00.
4. Shelter Island Sand, Gravel & Contracting Inc. prices apply only to installations on Shelter Island.

# Septic Improvement Program – Vendor Contact Information

For More Information visit www.ReclaimOurWater.info or call (631) 852-5811

| Manufacturer & Technology | Local Contact |
|---|---|
| **Norweco Singulair & HydroKinetic** | Tom Montalbine, President<br>Roman Stone Construction Company<br>85 South Fourth Street - Bayshore, NY 11706<br>Web: www.romanstoneco.com Phone: 631-667-0566 Ext.114<br>Email: tmontalbine@romanstoneco.com |
| **Hydroaction** | Tom Foster, Ecological Supply Company<br>PO Box 1035 - Cutchogue, NY 11935<br>Phone: 631-599-2457<br>Email: sales@ecosupplycompanyinc.com<br><br>Joe Densieski, Wastewater Works Inc.<br>139 Reeves Ave - Riverhead, NY 11901<br>Phone: 631-831-2580<br>Web: www.wastewaterworksinc.com |
| **Fuji Clean System** | Bryan McGowin, Advanced Wastewater Solutions, LLC<br>PO BOX 1622 - Southampton ,NY 11969<br>Email: bmcgowin@gmail.com or bryan@awsli.com<br>631-405-0358<br><br>Peder Larsen, Shelter Island Sand, Gravel, & Contracting<br>PO Box 2028 – Shelter Island, NY 11964<br>(631) 749-1040<br>sisandgravel@gmail.com |
| **Orenco AX-RT** | Lee Essay, Green Land Contracting<br>1557 County Rd. 39 - Southampton, NY 11968<br>Phone: 631-488-4466<br>Email: greenlandcontracting17@gmail.com |

## Projected 1-Year Electrical Costs

| Technology | 1 year electrical consumption (kWh/year) | Increased electrical costs per year ($0.17/ kWh) |
|---|---|---|
| Orenco Advantex AX20-RT | 335.8 kWh | $57.00 |
| Fuji Clean System | 463.55 kWh | $78.80 |
| Hydro-Action AN | 734.26 kWh | $124.82 |
| Norweco Singulair TNT | 979.66 kWh | $167.00 |
| Norweco Hydro-Kinetic | 1051.2 kWh | $178.70 |

*Note: the Hydro-Action unit utilizes a mixer pump during start-up. The pump use is discontinued after startup, and usage data will vary after the start-up period.*

## Septic Improvement Program Notes

- Please see Designer cost ranking document for estimates of I/A OWTS design and permitting costs.
- All prices are estimates from Vendor submitted quotes for 4-bedroom I/A OWTS. Sales tax is not included and is exempt for capital improvement projects.
- Actual costs may vary based on site constraints. Homeowners are urged to contact Vendors to discuss project specific costs for their Property.
- Grant funding will not exceed $10,000 for I/A OWTS installed with gravity leaching or $11,000 for I/A OWTS installed with PSD.

**Use of Grant Funds is Not Allowed For:**

- Irrigation repairs
- landscaping
- electrical improvements unrelated to the I/A OWTS

For More Information visit
www.ReclaimOurWater.com
or call (631) 852-5811

# Suffolk County Septic Improvement Program
# Designer Cost Ranking Sheet – Rev. January 19, 2018

For More Information visit www.ReclaimOurWater.info or call (631) 852-5811

| Designer in Ascending Order | Contact | Location | Phone Number | E-mail | Base Price to Design an I/A OWTS for up to a 6 Bedroom Residence |
|---|---|---|---|---|---|
| 3-Engineering, LLC | Bennette Burks | Virginia | (804) 873-5000 | Burks@3-Eng.com | $2,500 |
| Barrett, Bonacci, & Van Weele, P.C | Joseph Marx, PE | Hauppague | (631) 435-1111 | jmarx@bbvpc.com | $2,500 |
| Condon Engineering | John Condon Jr, PE | Mattituck | (631) 298-1986 | condon77173@optonline.net | $2,500. |
| Lombardo Associates, Inc. | Pio Lombardo, PE | Sag Harbor | (617) 964-2924 | pio@lombardoassociates.com | $2,500 |
| Pacifico Engineering PC | Ralph Pacifico, PE | Bohemia | (631) 988-0000 | engineer@pacificoengineering.com | $2,500 |
| RMS Engineering | Matthew Scheiner, PE | Huntington | (631) 271-0576 | mscheiner@rmsengineering.com | $2,500 |
| Studio A/B Architects | Glynis Berry, A.I.A., LEED AP | Riverhead | (631) 591-2402 | glynis@studioabarchitects.com | $2,500 |
| TF Engineering | David Rhoades, PE | Sag Harbor | (631) 740-7273 | info@tfcivilengineering.com | $2,500 |
| J.R. Holzmacher P.R, LLC | Heather Sonnenberg, PE | Ronkonkoma | (631) 234-2220 | heather@holzmacher.com | $3,400 |
| The Raynor Group, P.E, L.S, & PLLC | Vincent Gaudiello, PE | Watermill | (631) 726-7600 | gaudiello@raynorgroup.net | $5,200 |

*Note: under this scenario all estimated costs above the red line would fall under the intended SIP funding limits when combined with I/A OWTS material and installation costs. Costs below the red line would require out of pocket expense from Property Owner.*

## Septic Improvement Program (SIP) Notes

- Please see Vendor cost ranking document for I/A OWTS material and installation costs.
- Base prices provided in the document do not include the cost of a site survey, soil borings, percolation test, or additional design parameters that if needed could increase costs and may be incurred at the homeowners expense.
- Actual costs may vary based on site constraints. Homeowners are urged to contact Designers to discuss project specific costs for their Property.
- Some designers may have geographic limits on their service area. Homeowners are urged to contact Designers to see if they fall within their service area.
- Grant funding allocated for I/A OWTS design services are anticipated not to exceed $2,500. Any additional expenses associated with the design of the I/A OWTS would be the responsibility of the homeowner.

# *Ongoing Costs for the Homeowner*

- **Annual Operations & Maintenance $300**

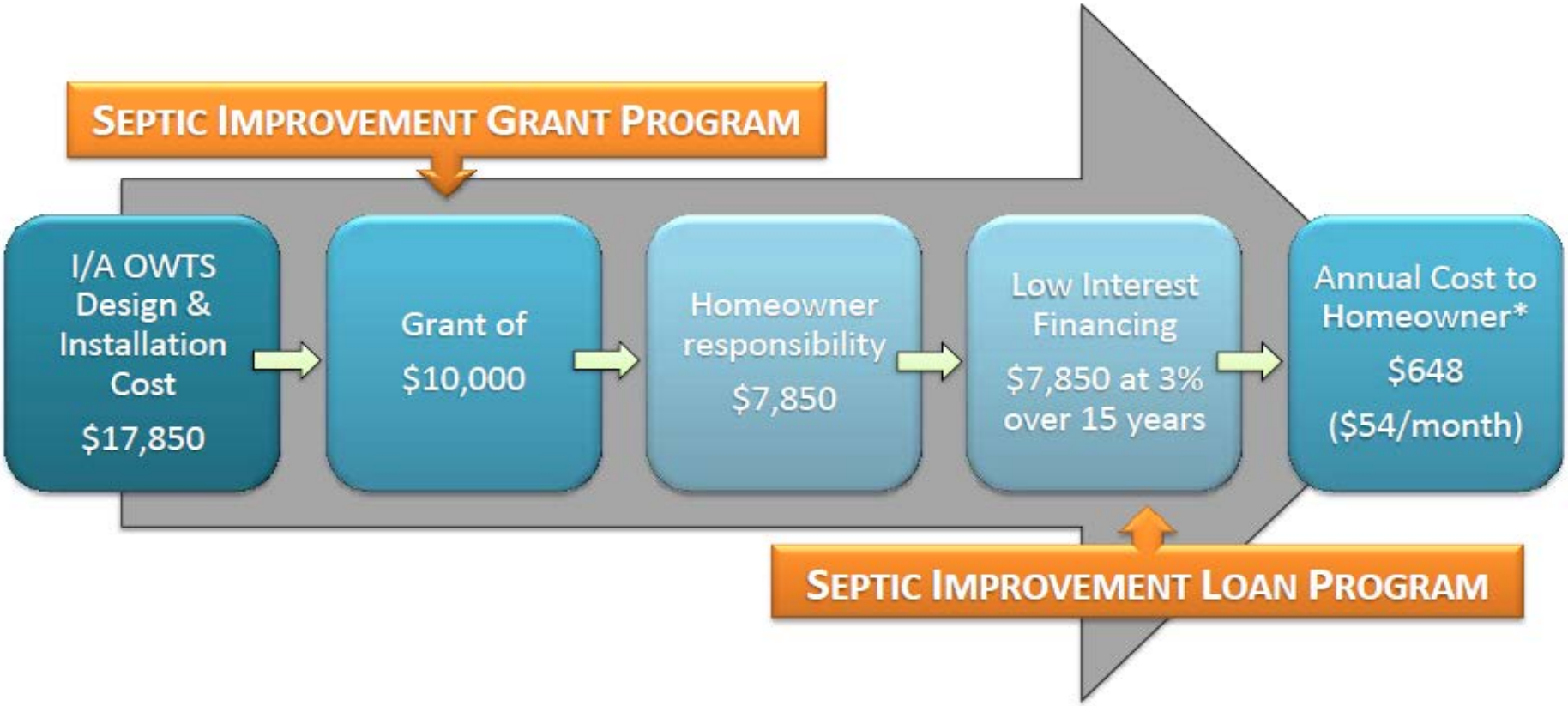
  The first three years are covered as part of the manufacturer's warranty

- **Annual electric costs $57-$266**

  Depending on the treatment process and manufacturer, the system either runs continuously or on-demand. Of the systems that have been provisionally approved, annual electric costs range from $57 to $266 per year

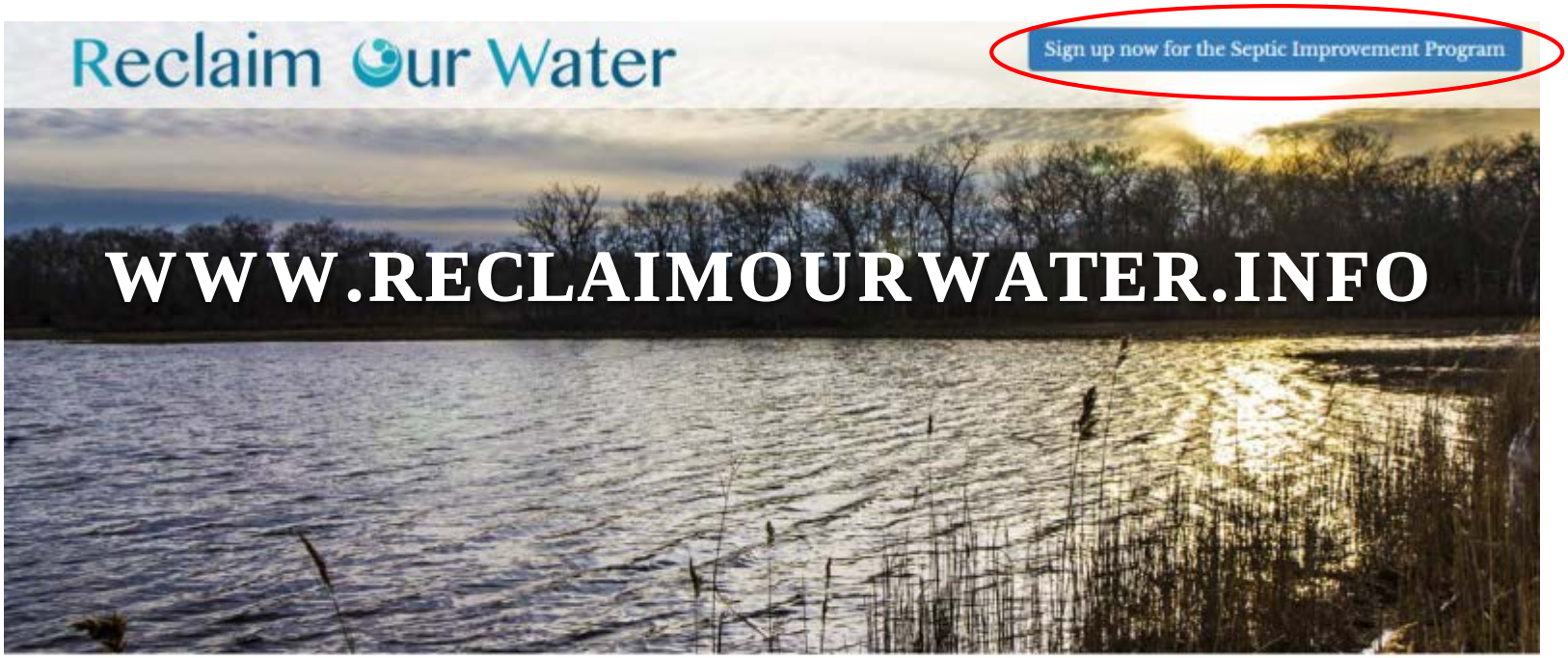
# Suffolk County's Septic Improvement Program

## *Estimated Annual Costs to the Average Homeowner*




** Does not include estimated annual O&M cost of $300*

# Register Online and Activate Your Account



# Septic Improvement Program - Grant Application

## Applicant Information

Applicant First Name:

M.I.:

Applicant Last Name:

Contact First Name:

Contact Last Name:

Contact Cellphone #:

Email Address:

Username:

Password

Confirm Password:

## I Am Not A Robot

Please check the box to continue.

I AM NOT A ROBOT.

REGISTER

Please fill in all required information. After clicking "Register" you should receive a confirmation email with an activation link. Please click on the activation link and follow the instructions on-screen.

## Having trouble?

Thank you for your interest in Suffolk County's Septic Improvement Program. If you are having trouble completing the application or have questions, please contact the Department of Health Services at 631-852-5811, or septicdemo@suffolkcountyny.gov. Staff is available to assist you Monday-Friday from 9am-5pm.

Copyright © 2017, Suffolk County Government.

Application Progress

# Good Afternoon, Septic!

## Property Owner Information and Adjusted Gross Income Reported on Federal Income Tax Return (Each property owner must be listed and must include their return information):

**Name of Applicant(s):** (If filing jointly, only include combined income once)

| First Name: | M.I. | Last Name: | Filing Status: | Tax Form: | Return Amount: |
|---|---|---|---|---|---|
| John | | Doe | Single | 1040ez | 22000.01 |

ADD ADDITIONAL OWNER

## Dwelling Information

| Address | Zip Code: | Year Built: |
|---|---|---|
| 8 Sheridan Drive, SHIRLEY | 11782 | 1970 |

VERIFY

(You must verify your address before continuing.)

| District: | Section: | Block: | Lot: |
|---|---|---|---|
| 0200 | 981.90 | 05.00 | 004.000 |

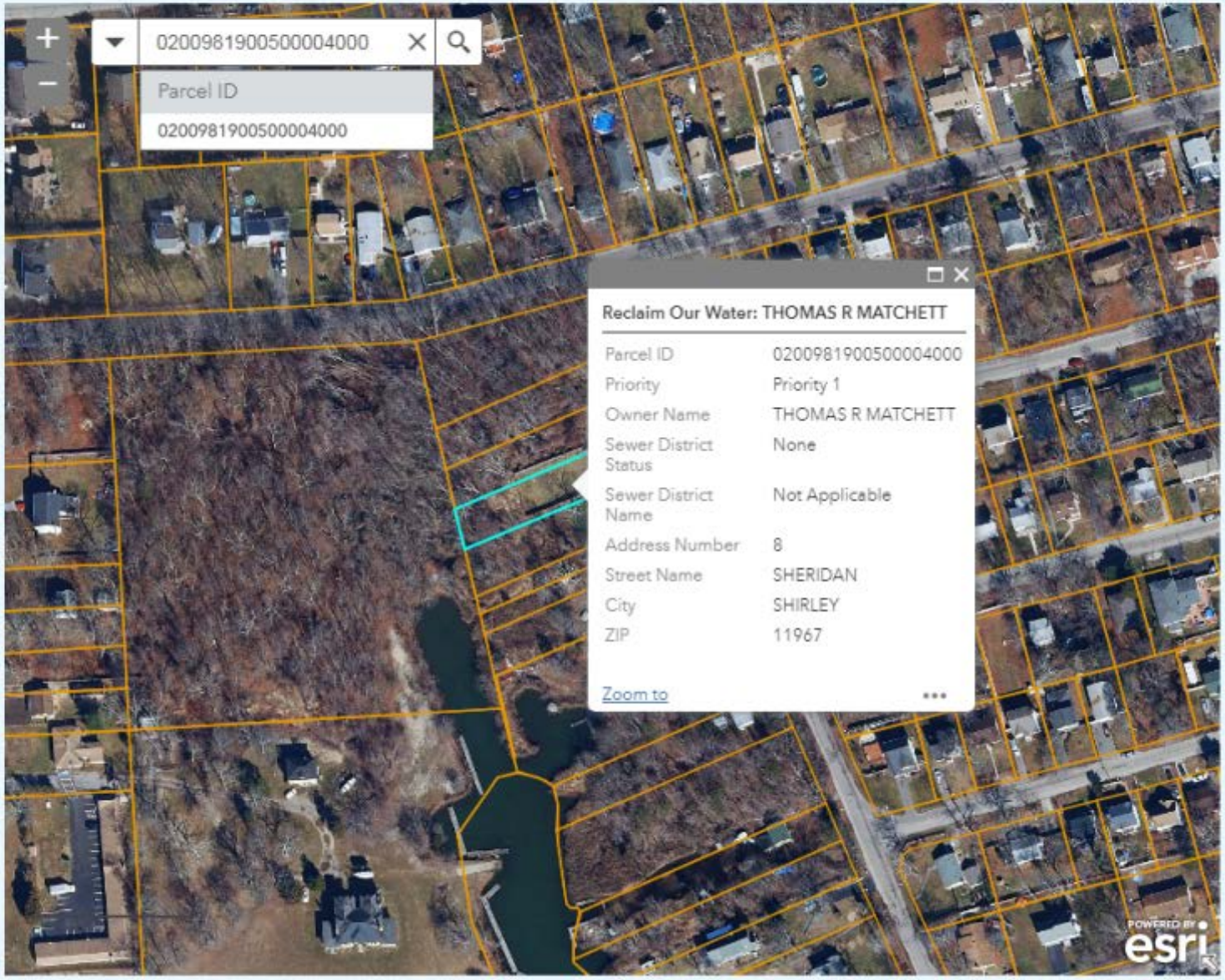
ADD ADDITIONAL PARCEL # / DSBL

Enter in your tax map info as listed on your tax bill. Please add additional tax lot info as necessary:

| District: | Section: | Block: | Lot: |
|---|---|---|---|
| 0200 | 981.90 | 05.00 | 004.000 |

ADD ADDITIONAL PARCEL # / DSBL

Enter in your tax map info as listed on your tax bill. Please add additional tax lot info as necessary.



# GRANT DISPERSAL

- Iss*uance of Grant Payment:*
  - Once Final Approval letter is issued and payment vouchers and invoices are received, grant payments will be issued by the County to the Design Professional and Vendor identified in the Grant Agreement exhibits on behalf of the homeowner.

# STANDARD ACTIVITY PERMIT SAP-1-17-001

## Alternative Septic System Installation - Suffolk County

- An applicant would submit a regular, full application package to DEC for review
- This includes a detailed site plan or survey of the proposal and a cross view of the proposed septic system. The cross view must indicate the specific model of I/A OWTS so we can confirm that it is one that Suffolk County is authorizing, and show seasonal high groundwater.
- The project description box on the Application form should indicate that the project is to install an I/A OWTS to replace an existing septic system and also specify which model they are proposing to install. This will alert assigners in the Permits Office to make a note to the project managers that the review should be completed in an expedited timeframe.
- goal is to issue these SAP permits within 10 business days of receipt of a complete application. So from the applicant's perspective, there would be no change to DEC's permit process, they must submit all required information as they would for a regular permit.
- For requests for a letter of No Jurisdiction, the process is also the same. We will endeavor to issue the letter within 10 business days.

# SIP Application Status as of March 14, 2018

- **Septic Improvement Program (SIP) Statistics**
  - SCDHS started accepting applications July 3, 2017
    - ✓ 1023 registrants
    - ✓ 280 completed applications
    - ✓ 207 issued grant certificates
    - ✓ 37 withdrawn grant certificates, 2 rescinded
    - ✓ 168 active grant certificates
    - ✓ 47 total WWM Permit Applications
      - – 12 permits pending price quotes from vendors and assignments of payment from homeowners
      - – 12 completed installations
      - – 5 other installs Approved & waiting to be scheduled
    - ✓ 9 final approvals issued by WWM

# SIP Grants by Town as of March 1, 2018

| Town | # of Grant Certificates Issued |
|---|---|
| Brookhaven | 50 |
| Southampton | 35 |
| East Hampton | 23 |
| Huntington | 18 |
| Southold | 11 |
| Islip | 10 |
| Smithtown | 8 |
| Shelter Island | 6 |
| Riverhead | 3 |
| Babylon | 1 |

# State Septic System Replacement Fund
# &
# Suffolk County's
# Septic Improvement Program

# STATE SEPTIC SYSTEM REPLACEMENT FUND

- Suffolk County receives **$10,025,000** in first allocation
  - Program Eligibility
    - ✓ Must be located in a Priority Area
    - ✓ Must be failure, likely to fail, or determined by County Health Official that suspected to be major source of pollutants based on environmental factors.
    - ✓ Only single family homes, 2 family homes, and small businesses are eligible.
    - ✓ Projects cannot exceed 1,000 gpd
    - ✓ Seasonal / secondary homes are not eligible
  - Ineligible Costs
    - ✓ Routine Maintenance
    - ✓ Sales tax
    - ✓ Fines, penalties, permit fees, and late fees
    - ✓ Non-essential site beautification
    - ✓ Administrative work completed by engineer
    - ✓ Construction oversight by engineer if engineer is also conduction septic repair or replacement

# Comparison of Programs

| County SIP Program | NYS Septic System Replacement Fund |
|---|---|
| • Single Family, Owner Occupied<br>• Owner must be a natural person<br>• Property is not a rental property<br>• New construction on virgin lot is not eligible<br>• Construction Projects on existing residences are eligible<br>• in-home business are not eligible<br>• Income eligibility requirements in place | • All residences < 1,000 gpd are eligible<br>• No restrictions on ownership<br>• Seasonal properties & second homes not eligible<br>• Construction projects on existing residences are eligible<br>• No restrictions on in-home businesses<br>• No income eligibility requirements |

# SIP PROJECTIONS UNDER CURRENT RULES

- Net of 30 applications per month or 360 projected for 2018 at current rate of $10,000 grants.

  **$3,600,000**

- Anticipate at least 40 applications per month or 480 per year if funding is increased to $15,000 grants ($10,000 State, $5,000 County)

  **$7,200,000 total ( $4,800,000 NYS & $2,400,000 SC)**

- Anticipate at least 50 applications per month or 600 per year if funding is increased to $20,000 grants

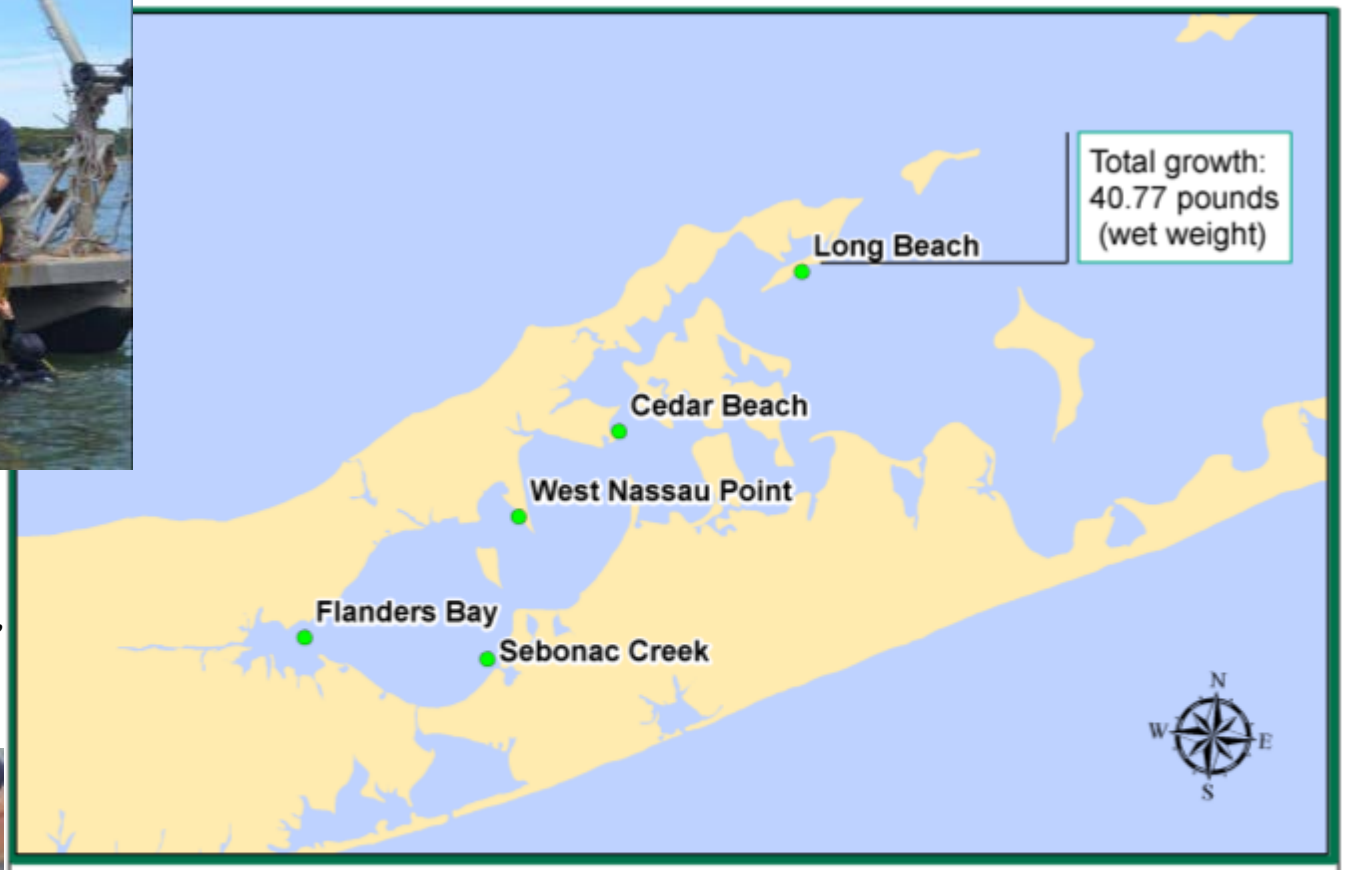
  **$12,000,000 total ( $6,000,000 NYS & $6,000,000 SC)**

# Kelp Aquaculture Feasibility Study

# Peconic Estuary Seaweed Aquaculture Feasibility Study

- Suffolk County EDP funding CCE of Suffolk County to conduct a **Pilot study on aquaculture of Sugar Kelp.**
- Seaweed aquaculture is an emerging "green industry" that can offer considerable environmental and economic benefits to the region.
- **The main purpose** is to evaluate the potential of this new industry to improve water quality via bio-extraction of nitrogen and carbon, while producing a high-demand, renewable product.
- Promising preliminary results show kelp growth reaching commercial size at Long Beach in Gardiners Bay and at Flanders Bay
- A well-established kelp aquaculture program can potentially be a significant way to reduce nitrogen loading removal as well as provide new opportunities for aquaculture practices.

Above: County Executive Steve Bellone and Legislator Al Krupski assist in harvesting a kelp line at Cedar Beach, Southold on June 8, 2017. Photos provided by CCE




## Peconic Estuary Seaweed Aquaculture Feasibility Study

**: One vertical kelp dropper line at each each Kelp Study site**

1 inch = 5.52 miles

5 2.5 0 5 Miles

Water Quality Division

Prepared by: Camilo Salazar
Date: 10/03/2017

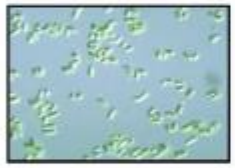
Kelp lines coordinates and growth data provided by Stephen Schott, Cornell Cooperative Extension of Suffolk County

© 2013 Aerial Photography New York State Office of Cyber Security.

# Suffolk County HAB Action Plan

# History of Harmful Algae on Long Island

**1951 – 1954, Green tides, Chlorophytes**



**1954 – 1985, 30-yrs HAB free, Largest hard clam and bay scallop fisheries on US east coast**

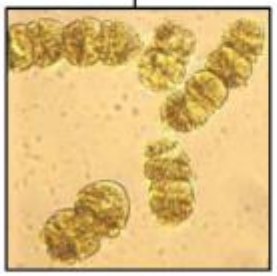
**2003- First toxic blue green algae bloom**

**2006- PSP event caused by *Alexandrium***

**1951**
Closure of Moriches Inlet, duck farms common

**1954**
Moriches Inlet opened, green tides end

**1985 - First brown tide caused by *Aureococus***



**2004 - First red tide caused by *Cochlodinium***

**2011 - First DSP caused by *Dinophysis***

# HAB Action Plan (2017) Purpose and Findings:

- **Objective:** to provide a coordinated strategy for research, monitoring, and management of HABs.
  - Managed by SCDHS/New York Sea Grant
  - Funded through SC Water Quality Protection and Restoration Program (WQPRP).

- **Findings:**
  - HABs in Suffolk County appear to be increasing in frequency and diversity

    "*may have reached a level unprecedented elsewhere in the United States*"
  - Reducing nutrient inputs to surface waters, especially via groundwater inputs, are the actions that will have a significant effect on HABs in Suffolk County
  - Climate variability is likely to accelerate and exacerbate the HAB issue
  - An ongoing and coordinated HAB monitoring/research program is a necessary foundation for the County's adaptive and evolving HAB Action Plan
  - <u>Significant reduction in the frequency scope, and extent of ecosystem/human health impacts of future HABs in Suffolk County is achievable</u>

# HAB Action Plan Recommendations

## Management

All HAB management efforts shall be closely coordinated with Suffolk County Subwatersheds Wastewater Plan and NYSDEC Long Island Nitrogen Action Plan.

**Top Strategic Priority:**

- **Reduce nitrogen and phosphorus loading to ground watersheds, surface watersheds and direct inputs to surface waters, particularly by upgrading septic systems**
- **Actively endorse/promote the Georgica Pond pilot project as a model for subwatersheds**
- **Establish ongoing HAB Management Workgroup and convene an annual symposium**
  - Achieve inter-governmental cooperation and consistency in HAB and nutrient management
  - Report on HAB Action Plan outputs and outcomes; recommendations for Plan Updates.

## Monitoring

- **Suffolk County and the NYSDEC should institute routine monitoring for the presence of the Diarrhetic Shellfish Poison (DSP) toxin (using advanced monitoring technologies).**
  - Passive Solid-Phase Adsorption Toxin Tracking (SPATT, water column)
  - Abraxis Protein Phosphate Inhibition Assay (PP2A, shellfish meats)
- **Deploy a sensor buoy in Lake Ronkonkoma for real time monitoring of cyanobacteria and nutrients.**
- **Evaluate use of the cutting edge remote sensing technologies**

## Public Health and Outreach

- **Establish/ maintain an HAB Website to access current info on all HABs**
  - Public can report unusual environmental conditions that might be associated with an emergent HAB

## Research

- **Secure and allocate funding for priority research needs in the region, similar to the Brown Tide Research Initiative model in 1990s, which led to several breakthroughs in understanding and managing HABs.**
  - Such HAB research would require at least 1 million dollars a year, over the next 5 years.
- **Develop HAB-specific predictive water quality modeling for the establishment of refined nutrient load reduction goals.**
- **Continue to assess the role of legacy sediments and nutrients (phosphorus/nitrogen) in Suffolk County HAB formation and sustenance**
- **Suffolk County along with collaborating agencies (NYSDEC as lead) should assess the utility and practicality of treating HAB-prone freshwater lakes and ponds with various control methods.**

# FINAL THOUGHT

*"Clean water should be the birthright of every Long Islander and it's time we tackle this crisis together and Reclaim our Water."*

-Steve Bellone, Suffolk County Executive
2014 State of the County