Fall 2022

The Coastal Monitor: Vol. 9 No. 5

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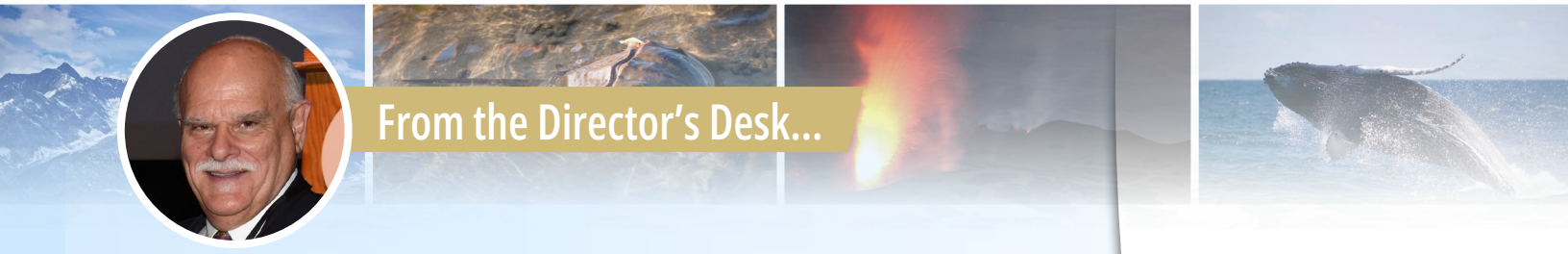
The Coastal Monitor *Vol. 9 No. 5*

THE COASTAL MONITOR

THE OFFICIAL NEWSLETTER OF CERCOM AT MOLLOY UNIVERSITY / CENTER FOR ENVIRONMENTAL RESEARCH AND COASTAL OCEANS MONITORING



From the Director's Desk...

There are a multitude of lessons learned from the last 3 years of the Covid-19 pandemic. But one truly stands out ...the total lack of understanding of the basic chemistry associated with the nitrogen cycle, which in Suffolk County, NY, continues to be declared as the "evil-nitrogen". The major source of nitrogen into the water body comes from the atmosphere which is the predominate constituent of the air we breathe- 79% nitrogen. Nitrogen compounds contribution to eutrophication in freshwater (ponds & lakes) systems is legendary and, the concentration of nitrogen in marine waters has always been known as a limiting agent which are absolutely required elements in small amounts. No nitrogen, no primary productivity. So, historically, at least up to the 1970's and the Clean Water Act, nitrogen contributions to any water system has been attributable to human "sanitary" waste. Large populations require for adequate treatment, sewage systems that involve primary, secondary, and sometimes tertiary treatment along with the use of chlorine to make sure, as best as is chemically possible, the elimination of pathogenic organisms that cause disease. Thus, in the US, there is no concern with cholera, typhoid, and typhus; all significant bacterial diseases that converge in wastewater treatment systems and arise primarily where wastewaters are left untreated!

Normally, sewage treatment systems are considered point source waste discharges. You can "point" to the outfall pipes emptying treated wastes into a receiving body of water; estuaries (originally recommended by the USEPA under SPDES permits) or directly into the ocean. New York City discharges 1.4 billion gallons of treated wastewater into the Hudson River estuary every day! Thus, no diseases and if properly treated there will always be an extremely limited amount of nitrogen in all wastewaters. No matter what the level of treatment, some nitrogen is inevitable. These massive sewage treatment infrastructures are necessary to handle the large concentrated human populations and can be effectively monitored through each STP's SPDES permit.

So, what's all the fuss about septic systems since they do exactly what large STP's do but on a single family, or on a considerably less developed parcel of land? First, individual septic systems are not directly monitored as they are "non-point source" contributors of wastewater. In Suffolk County, NY, 360,000 individual units would be insanely difficult to monitor their daily effluent. They do not need to be monitored directly; groundwater aquifers can give a general "presumptive" influence of collective septic systems discharges on a gross qualitative level (no N2 or nitrate in drinking or potable waters) by providing the number of, or existence of exceedances in groundwater wells throughout Suffolk County. For over 25 years there have been NO closures or even exceedances of groundwater wells for excessive nitrates (above 10 mg/L) in any community directly attributable to septic systems; none whatsoever. To maintain clean potable and surface waters, individual homeowners can take direct care of their own septic systems by adding organic bacteriological enhancers (such as RID-X®) and by having the systems sludge pumped out once a decade on average, to maintain maximum treatment efficiency. Septic systems appreciably depend on naturally occurring soil microbes (here's where our leaders need to learn just a smidgen of soil microbiology and chemistry) the critical points of the nitrogen cycle, functioning anaerobically (yes, no oxygen in soil denitrification) to effectively and upward of 90% effectively removing nitrogen compounds in the personal wastewater stream; those 360,000 individual septic systems collectively are more efficient especially when maintained.

An added benefit of the traditional gravity flow septic system network is the restriction of concentrated development per acre of land (thus, high rises require standard sewage treatment plants to handle increased wastewater volumes) preventing "urban sprawl" into suburban communities' development. This factual unintimidated restriction is not directed at development, or "progress", or "modernization". It's against the infringement upon open space, clean water, and clean air that all environmentalists meaningfully subscribe to. Unless the septic system has failed for lack of maintenance, or for any such causes like a fire, storm damages, etc., there is no need to replace the traditional historic gravity flow septic systems with what has been touted as "advance systems" requiring electric power pumps to operate and are placed underground or just above ground if you happen not care about the aesthetics of your home and property. All these advanced septic systems are then significantly subject to power outages due to any storm system impacting Long Island, such as nor'easters winter storms and certainly hurricanes. If you had lost electric power to your home due to the impacts of Superstorm Sandy in 2015, with the traditional gravity flow septic system you would not need to worry during that entirety of such an event, about the functioning of wastewater treatment by septic systems, as they depend only on gravity, not electricity.

Unfortunately, the present-day discussions on wastewater treatment and "evil nitrogen", continues to be misleading by those who favor mythomania. They frame the nitrogen issue as an issue with no alternative: either continue to let septic systems contribute nitrogen, "causing unparalleled pollution problems" to our coastal communities or replace all old septic systems with either new "advanced" systems or expand connections to existing sewage treatment facilities. This is a false choice, an argument by elimination, thus it is the only choice citizens hear about and have for the future. Please contact me at jtanacredi@molloy.edu to receive our latest research publications on septic systems nitrogen removal efficiencies and traditional septic systems.

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Spotlight on Students

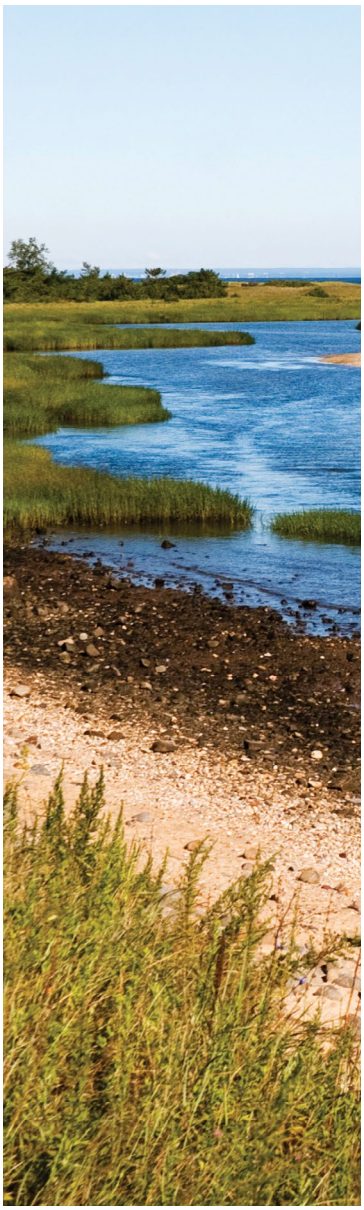
NOYCE Ambassadors at CERCOM 2022

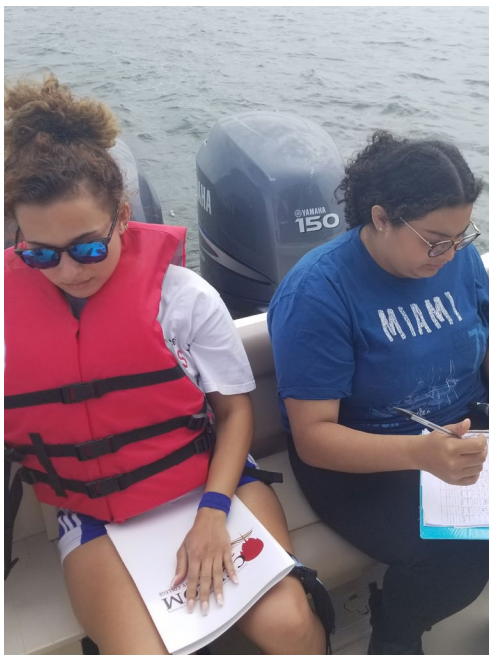
In June, CERCOM hosting another successful trip for Noyce Ambassadors! The Ambassadors are always impressed with the work at the field station.

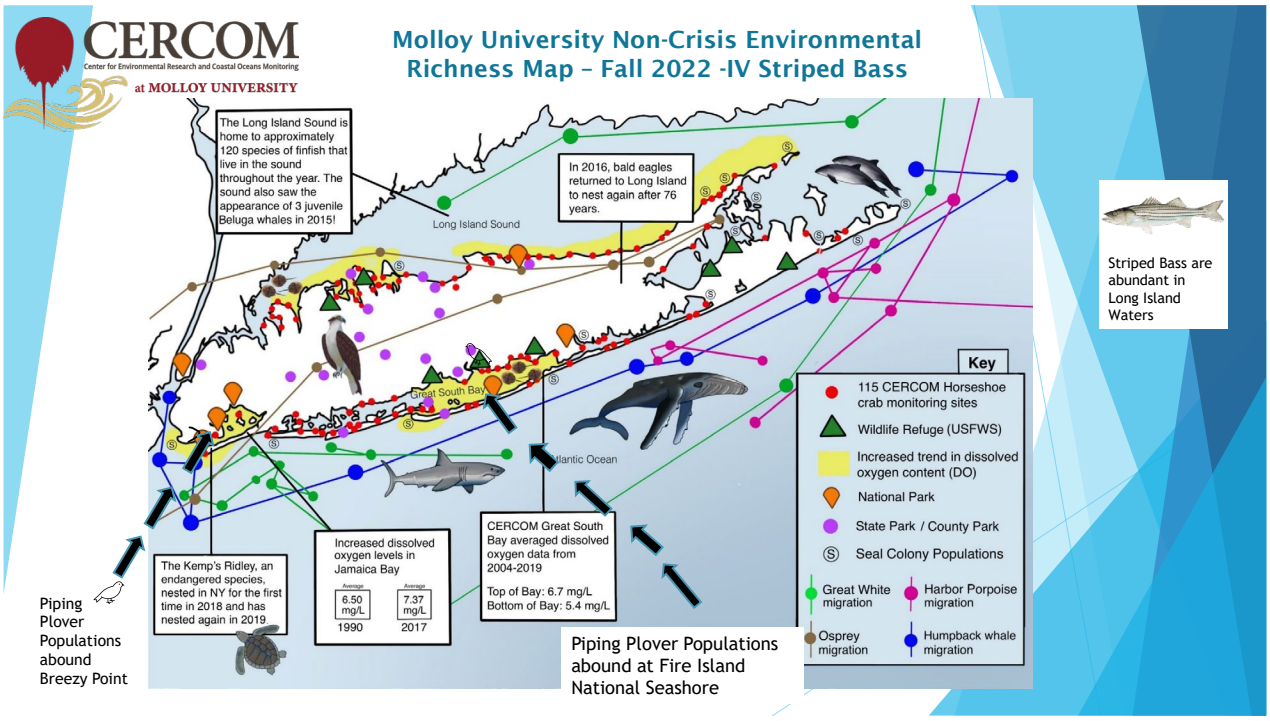
Dr. John Tanacredi, Director, provided an important and interesting history of the area and shared his passion for caring for the horseshoe crab.

Kyle Maurelli, Technical Research Assistant, showed them the importance of collecting data and creating an environment where the horseshoe crab can survive and thrive. How exciting it was to see the pools you have incorporated into the lab and the horseshoe crabs looked excited as well! It was good to see them moving around so much!

A good time was had by all.







LI Natural Resources Non-Crisis Map
#IV-Fall 2022 – Striped Bass – No Crisis here!

The Hudson River is the second largest spawning area for Striped Bass (*Morone, saxatilis*) on the East Coast of the United States, and their spawn will make it through the NY Bight, the East River into western LI Sound, and ultimately across the coastal estuaries and embayment's of Long Island. At the same time large schools of bunker gather throughout these coastlines of Long Island, from the tip of Brooklyn to Montauk Point are a primary prey species for Stripers.

The larger Stripers are often fished around where the "bunker", or Menhaden gather and concentrate. It is not uncommon to fish a 40+ pound Striped Bass from these waters. For the last 5 years, Long Island's coastal waters have been rich in dissolved oxygen with Jamaica Bay generally averaging 6.8 mg/L; Great South Bay 5.93mg/L (TOP) 5.69mg/L (bottom); Long Island Sound amazing over 7.5 mg/ L and Peconic Bay over 4.8 mg/L due in fact to the abundant diversity of photosynthetic oxygen producing phytoplankton. These primary producer assemblages supporting the diversity of finfish, and all the associated food chains, have culminated in the most expansive marine mammal populations in over 40 years for example, increased number of Humpbacked whales. This amazing total improvement in DO values in all Long Islands major embayment's can be attributed to the lowest level of nitrogen to coastal Long Island estuaries due to the significant effectiveness of the NYSDEC issued SPDES permit system for sewage treatment plants. Nitrogen levels discharged in all wastewater treatment systems, has never been lower than today, resulting in the improved water quality in all these ecosystems. This is testimony to the USEPA's implementation of this monitoring requirement for all wastewater treatment plants under the Clean Water Act of 1972. In Jamaica Bay for example where 320 million gallons of treated wastewaters empty every day, there have been no anoxic (zero oxygen) condition ever reported over the last 40 years.

All finfish species over the last 10 years have been doing quite well. The population of Strippers, Flounder and Blue Fish have been robust; all supported by the steadfast treatment of wastewater volumes and the monitoring of the NY States PDES permits for sewage treatment plants.

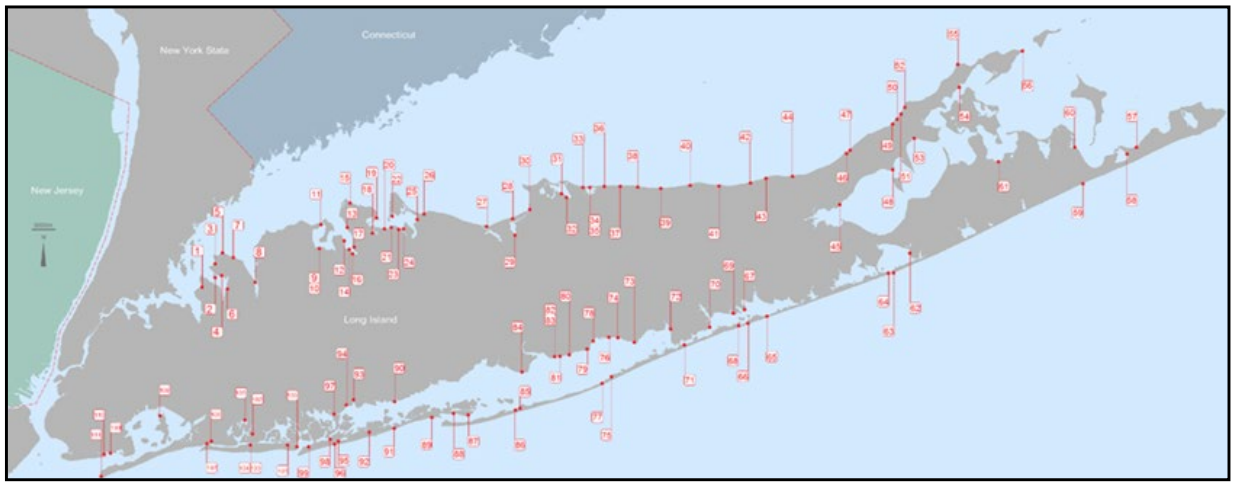
Striped Bass (*Morone saxatilis)* spawn in freshwaters and is an anadromous perciform fish. This species is the state saltwater fish for New York State. They are believed to live up to 30 years and the largest specimen recorded was 124 pounds back in 1896. In the United States the Striped Bass was designated as a protected game fish in 2007. Four important bodies of water with breeding stocks are Chesapeake Bay, Massachusetts Bay /Cape Cod, Delaware River, and the Hudson River estuary including Long Island. Striped Bass are of significant value for sports fisheries and have been introduced to many freshwater waterways outside their natural range. The largest Striped Bass ever taken by angling was an 81.88 lbs. specimen taken from a boat in the LI Sound in 2011. The Atlantic coastwide harvest of Striped Bass is managed by the ASMFC which noted in 2019 that these "resources are overfished." A 10-year plan, Amendment #7 has just been implemented to replenish Striped Bass to sustainable levels throughout the traditional migratory range from North Carolina to Maine. Previous management quotas did provide for a successful rebuilding the stock back in 2007 with nearly 56 million fish included all age classes. 2022 looks bright for fishermen and these sustainable populations will flourish, concurrent with improved water quality, catch restrictions and a bumper crop of their favorite prey, Menhaden.

SUMMER 2022 LONG ISLAND HORSESHOE CRAB INVENTORY & BREEDING BEACH STATUS REPORT

CERCOM monitors 115 beach locations from Brooklyn to Montauk during the optimal Limulus, polyphemus breeding season. This beach survey's take place for approximately 15 weeks each year, from May through August, and GPS coordinates are used to mark beach locations to assure the same location is visited each year. Each site takes about one to two hours to collect and record data along an approximate one-mile distance.

Data on the Horseshoe Crab Inventory Survey is recorded on Molloy University's website
https://www.molloy.edu/academics/undergraduate-programs/biology/cercom/hsc-inventory-form

Annual Reports can be found at
https://www.molloy.edu/academics/undergraduate-programs/biology/cercom/reports



Importance of Horseshoe Crab

ABC News Visited CERCOM in April 2022 and filed this report bringing light to the importance of the Horseshoe Crab

Kellenberg High School Visit

HERSUITESPOT®

HerRise STEM Squad is a gender-specific program designed to encourage high-school girls to apply science, technology, engineering, and mathematics (STEM) concepts and skills through hands-on, inquiry-based learning. It aims to provide students with an opportunity to explore STEM topics through collaboration with other girls who share similar interests. Students will learn how these topics impact their everyday lives while developing confidence in their own self-worth as they apply what they've learned in a real-world setting.

On July 7, 2022, HerRise STEM Squad visited CERCOM to view our field station and learn about Horseshoe Crab research. For more information about HerRise go to https://www.hersuitespot.com/stemsquad/

USGS
science for a changing world

USGS in Collaboration with Molloy University CERCOM established a Tide Gage in the West Sayville location in 2017

Above: Tide gage at CERCOM, West Sayville, NY

- Data is Recorded Every 6 minutes and relayed hourly under non-storm conditions
  - Satellite
  - Telephone
- Automatically checked for Storm Surges and once found, alerts are issued via email to USGS.

Benefits of Tide-Gaging Program

- Increased local flood-warning time
- Ability to monitor storm tides in realtime
- Improve accuracy of Coastal Flood Predictions
- Collection of Long-Term Data
  - High & Low Waters
  - Extreme Water Levels
  - Sea-Level Rise

- **Help** Speed Evaluations from Flood-threatened areas to determine exit strategies
- **Minimize** disruption in flood spared communities
- **Facilitate** planning to mitigate vulnerability to flood and low water related losses
- **Enhance** disaster preparedness and response.

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Blooming Richness!

Great South Bay Phytoplankton Diversity Report 2022: Healthy as healthy can be!

Caroline Kane, CERCOM Volunteer, Identifying Phytoplankton

Annual Phytoplankton Inventory Great South Bay

We have monitored these five locations in the Great South Bay for the total phytoplankton species identified microscopically. This chart reveals a fact which may be hidden by the reporting of HAB's (Harmful Algae Blooms) without noting their considerable infrequency in relation to the amazing productivity and diversity of marine phytoplankton in our coastal waters which is necessary for the productivity associated with marine coastal food webs and the ecological healthy shore environments that support a host of migratory species.

It has been debated 1 as to the relationship between diversity and productivity of the global oceans. At the very minimum to begin to understand the mechanistic processes that explain productivity- diversity patterns (i.e. massive blooms, grazing predation), phytoplankton inventories are central to the field of biodiversity and ecosystem functioning. 2,3 The five locations give a collective look at the diversity of phytoplankton in Great South Bay, New York and will be subject to a trend analysis for the last 5 years, presently in preparation.

Site 1	Site 2	Site 3	Site 4	Site 5
Actinoptychus	Asterionella	Actinoptychus	Actinoptychus	Asterionella
Asterionella	Biddulphia	Asterionella	Asterionella	Biddulphia
Biddulphia	Chaetoceros	Biddulphia	Biddulphia	Chaetoceros
Ceratium furca	Coscinodiscus	Chaetoceros	Chaetoceros	Coscinodiscus
Ceratium fusus	Dinophysis	Corethron	Coscinodiscus	Lichmophora
Ceratium longipes	Grammatophora	Coscinodiscus	Grammatophora	Grammatophora
Chaetoceros	Gyrosigma	Dinophysis	Gyrosigma	Gyrosigma
Coscinodiscus	Lichmophora	Entomoneis	Lichmophora	Navicula
Dinophysis	Melosira	Grammatophora	Melosira	Nitzschia
Ditylum	Navicula	Gyrosigma	Navicula	Paralia
Grammatophora	Nitzschia	Lichmophora	Nitzschia	Pleurosigma
Gyrosigma	Paralia	Melosira	Paralia	Protoperidinium
Lichmophora	Pleurosigma	Navicula	Pleurosigma	Rhizosolenia
Navicula	Protoperidineum	Nitzschia	Protoperidinium	Skeletonema
Nitzschia	Pseudonitzschia	Paralia	Rhizosolenia	Striatella
Paralia	Rhizosolenia	Pleurosigma	Skeletonema	Thalassionema
Pleurosigma	Skeletonema	Rhizosolenia	Striatella	Triceratium
Protoperidinium	Striatella	Skeletonema	Thalassionema	
Pseudonitzschia	Thalassionema	Striatella	Triceratium	
Rhizosolenia	Triceratium	Thalassionema		
Striatella		Triceratium		
Thalassionema				
22 Species Total	21 Species Total	20 Species Total	19 Species Total	17 Species Total

Site #1	Sexton
Site #2	Ocean Beach
Site #3	Ocean Bay Park
Site #4	Sailor's Haven
Site #5	Cherry Grove

1 Bopp, L; et.al., (2013) "Multiple Stressors of Ocean Ecosystems in the 21st Century: Projections with CMIPS Models" Bio geosciences; 10 (10): 6225-6245. 2Loreau,M. Naeem, S. & Inchausti, P. (2002) "Biodiversity and Ecosystem Functioning: Synthesis and Perspectives (Oxford University Press)
3Duffy, J.P. (2009) "Why Biodiversity is important is important to the functioning of real-world ecosystems", Front. Ecol. Environ., 7, 437-444

CERCOM RESEARCH AFFILIATES: (CRA)

INTRODUCING YUMIKO IWASAKI, PH.D.

Research Scientists that are either faculty of Molloy University's Department of Earth and Environmental Sciences or from associated collaborative organizations working on scientific investigations at the CERCOM Field Station: This is the inaugural report on the CRA's and their respective work.

Yumiko Iwasaki

Dr. Iwasaki is a Research Affiliate at CERCOM, Molloy University and a Visiting Researcher at Hiroshima University. She earned her Ph.D. at Graduate Center, CUNY, and studied trilobites at American Museum of Natural History with Dr. Niles Eldredge. She studied trilobites, an extinct animal, and today Dr. Iwasaki works to protect horseshoe crabs from extinction to understand their secret for survival.

Latest research publications in associate with CERCOM at Molloy University.
Iwasaki, Y., Burrowing behavior of juvenile Limulus polyphemus, in relation to their molting pattern. In: J.T. Tanacredi, M.L. Botton, Y. Iwasaki, P.K.S. Shin, S.G. Cheung (eds.), Global Conservation and Biology of Horseshoe Crab Species; Springer Publisher.
Ecdysial pattern in trilobite species was hypothesized to have occurred in substrate to avoid predation. To make an inference to this, horseshoe crab juveniles were observed at CERCOM Field Station during molting with the presence of their potential predators such as blue crabs. The result showed that they molted on the substrate without burrowing which they often did when active.

Iwasaki, Y. (2022) CERCOM Volunteer at Great Gull Island, NY. Kabutogani, no. 42: 16-28. Japan Association for the Conservation of Horseshoe Crab (in Japanese)
Japan Society of the Conservation of Horseshoe Crab has been dedicated to the study and survey of this species for decades. In order to compare and contrast, a different kind of volunteering program, common terns on Great Gull Island, NY is introduced, showing its success to promote awareness of the bird and environment/climate changes associated with it.
Iwasaki, Y. (2022). Horseshoe Crab Conservation - Updates: International Activities, pp. 62-63. In: Y. Kondo, S. Ohtsuka, and M. Saito (eds.), Life in the Hachino Higata Mudflats. NextPublishing Authors Press, PUBFUN Co., Ltd. (in Japanese)
A short paper highlighting the progression of international collaboration on horseshoe crab research which started between Japan and the U.S. and now expands to other Asian and Southeast Asian countries. The paper includes a brief note on the historical development of IUCN Horseshoe Crab Specialist Group.

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EARTH DAY 2022

On Earth Day April 22, 2022, CERCOM hosted a Virtual Symposium entitled **"The Long Island Eco-Summit"**

An Open Fact-Based Forum on Long Island's Environmental Issues. An important collection of observations by practicing scientists and authoritative conservationists on Long Island's Ecological Resiliency from the tip of Brooklyn to the tip of Montauk.

Dr. John T. Tanacredi opened the symposium and Introduced Dr. James Lentini, President of Molloy University and he gave a welcome and a few remarks about Molloy University.

Dr. Artie Kopelman President of CRESLI Coastal Research & Education Society of Long Island, Inc., was founded in the summer of 1996 by a group of experts in marine mammal science, environmental sciences, education, and conservation. CRESLI was formed for the purposes of conducting research, providing educational experiences, and promoting conservation of coastal ecosystems. Research and education are inextricably linked in all CRESLI activities. As such, CRESLI actively seeks cooperative alliances with researchers, educational institutions, and the participation of the public. Our pinniped and cetacean research projects, for example, utilize public whale watch cruises and seal walks as platforms for collecting data and educating the public at the same time. Dr. Kopelman gave a presentation on the richness of marine mammals in our Long Island waters and invites all to join him any of our excursions, lectures, activities to learn about our coastal waters and the ecosystems therein. Come out on trips to see the amazing diversity of marine mammals, sea turtles, pelagic birds, and other marine life. Become a member and/or a volunteer and join us in our work. Go to www.cresli.org for more information and to sign up for an excursion.

Don Riepe, American Littoral Society- LI Chapter/ Jamaica Bay Guardian gave his presentation on Long Island's Amazing Natural Resource Productivity and Biodiversity. Don Riepe has 25 years experience as a naturalist and manager of the National Park System's Jamaica Bay Wildlife Refuge, Don is knowledgeable about and a staunch defender of wildlife and habitat in the urban littoral zone. Don frequently leads domestic and international field trips for the Society. He has led the Society's efforts to coordinate the International Coastal Cleanup for the state of New York for more than 30 years and initiated the derelict boat removal program known as Jamaica Bay Clean Sweep.

In 2004 he assumed the role of the Jamaica Bay Guardian, a title designated to him by the NYS-DEC. He is well known for many of his he has taken over the years on the wildlife along Long Island beaches and estuaries. He can be reached at don@littoralsociety.org

This Forster's tern caught himself a snack. Just a few of the hundreds of photographs By Don Riepe

Our next speaker was Paul Sieswerda founder of Gotham Whale, gave a presentation on Fisheries Supporting Endangered Whale Species. Stationed on New York's Staten Island, Paul Sieswerda is the Executive Director of New York's Gotham Whale - an advocacy group that combines citizen activism with science by collecting marine research data throughout the area. Growing up, Paul discovered his passion for marine life as a recreational SCUBA diver and spent much of his working life working with aquariums. After retirement from that field, Paul founded Gotham Whale under the Staten Island Zoological Society and works on expanding his organization from year to year. For more information go to https://www.gothamwhale.org or email him at paul@gothamwhale.org

Kevin McAllister Founder & President, Defend H2O, our next speaker, spoke about his experiences dealing with "Sand, Seawalls and Sea Level Rise" and shared his experience on ways we can manage this ever-growing phenomenon. Mr. McAllister has advocated for progressive coastal zone management, opposing shoreline hardening, and is an advocate for improved bay flushing (i.e. Fire Island breach). Just one of many interests related to shoreline management. McAllister has a undergraduate degree in Natural Resources Conservation and Marine Biology, and holds a Master's degree in Coastal Zone Management. His specialized training is unique in addressing the consequences of climate change on coastal sustainability, and his academic training bridges several disciplines within the biological and physical sciences. His education achievements include undergraduate degrees in Natural Resources Conservation and Marine Biology, and an M.S. in Coastal Zone Management. You can reach out to him by going to https://defendh2o.org/ or email at mac.waterwarrior@icloud.com 631.808.3479 (office)

Steve Papa, Senior Fish and Wildlife Biologist, at U.S. Fish and Wildlife Service, Ecological Services Division, in Shirley, New York, presented on "Endangered Species; Birds". He has been the Conservation and Planning Assistance (e.g., Energy Projects, Development Projects, Habitat Restoration, Flood Protection Projects) and Endangered Species Consultation, Listing and Recovery, Migratory Bird Conservation Coordinate with various Fed, State and local agencies and private entities on development and conservation projects. His presentation touched on the birds along Long Island and their status. For questions and more information contact him at steve_papa@fws.gov (631) 286-0485.

Dr. John T. Tanacredi, CERCOM Molloy gave his presentation on "Conservation of Horseshoe Crabs in New York" and spoke about the importance of LAL produced by the Horseshoe Crab. Email Dr. Tanacredi at jtanacredi@molloy.edu for more information about the Horseshoe Crab, CERCOM (Center for Environmental Research and Coastal Oceans Monitoring) at Molloy University.

Nelson Vaz from the National Weather Service at Brookhaven National Lab, Upton, NY, presented on "Long Island Hurricane Risks!" Hurricane Preparedness week is the first week of May, and June 1st to November 30th is the hurricane season with the peak months from August through October. He spoke about the various storm history and the impacts to New York. contact at nelson.vaz@noaa.gov

The state of the Estuaries in the New York, Long Island area was presented by Robert Pirani, Program Dir. Hudson River Foundation; NY-NJ Harbor Estuary; Aimee Boucher- Life Scientist (Peconic Estuary); and Cayla Sullivan -Life Scientist (Long Island Sound) on National Estuary Programs on Long Island, Long Island Sound, Hudson River Estuary, NY Bight Apex and NY Harbor National Estuary Programs USEPA Region II. They presented on work they are doing regarding the health and monitoring these Estuaries.

Dr. Robert Nuzzi, Royal Reynolds, and Roger Tollefsen, presented on "Wastewater and Nitrogen",

Dr. Martin Cantor- CPA, Director, Long Island Center for Socio-Economic Policy Long Island Eco-Health presented on "Interaction of Economics and Ecology for Long Island". Contact at ecodev1@aol.com

Dr. Mark Ringenary, Former Research Scientist, National Park Service, (Ret.) presented on "Urban Eco- Health of Jamaica Bay".

Finally, Kevan Cleary, US Attorney, NY, presented on the "History of Jamaica Bay and Wildlife Rights".

The video of the Long Island Eco-Summit will be provided at a later date.

For more information, contact Regina Gorney at rgorney@molloy.edu

MY CORNER OF THE CIRCLE

SOME OPINIONS ON OPINIONS

By John T. Tanacredi, PhD.

NYTimes Editorial 2017:

Robert Jay Lifton's Opinion, **"Our Changing Climate Mind-Set"**, New York Times, 8 October 2017 needed to take an introductory course in geology or meteorology to reveal to him that "our planetary danger" has not changed in an "extraordinary" manner; what has changed extraordinarily is the 2/3 of the world's population living near or on the global coastline or on an island directly in harm's way. How conveniently one forgets that the last four years' hurricane seasons in North America have been "extraordinarily quiet in frequency and intensity". His metaphoric "biblical proportions" description and suggesting that anyone would "embrace the apocalyptic narrative of destruction by an angry deity", reveals how little science he understands, and to connect these events to President Trump having "increasing difficulty defending their position", on climate change is absurd. I was a flight meteorologist with the US Navy from 1968 through 1970; a Navy Hurricane Hunter and flew the tail end of the 1969 season and the beginning of the 1970 season. 1969's Camille, a level 5 hurricane with sustained winds of 190 MPH and a 60-mile-wide eye resulted in a storm surge of 21 feet and 259 lives lost with over $1.4 billion (in 1969 dollars') in damages, was as devastating and unpredictable as all those events this season. To this date there is still no totally conclusive evidence as to what causes and determines the final path of these massive meteorological phenomena. The statement that sea levels which on average have possibly risen 1 foot in 100 years, would have any substantive effect on hurricane storm surges is so inaccurate it borders on hysterics. Global warming trends and sea levels have risen but to automatically identify these as causational factors is also down-right wrong.

Unfortunately, Lifton's note that the "apocalyptic fear aroused by the recent destructive hurricanes" will "take hold in the American mind-set about the implications of climate change", misleads everyone to believe that these phenomena were hatched to counter climate supporting deniers and that the "climate swerve" he notes is unfortunately a "chicken little, the sky is falling, civilization-ending" delusion. Monsoons in India and China, plate tectonic volcanic eruptions and tsunamis recently experienced in Mexico, Japan and throughout the entire Pacific, dramatic changes in precipitation patterns across North America, El Nino and La Nina years and a global population birth rate annually increasing at a rate of over 103 million new human beings, all are constantly forcing humans to adapt to our ever-changing Earth systems. This unfortunately is reality. Lifton should bring his "psychological imagination" to all those in emotional need. Ecologically and environmentally however, he needs to be more realistic in his mental health prescriptions.

NYTimes Editorial 2020:

The editorial **"Coronavirus and the Climate"** in the June 16, 2020, **Wall Street Journal**, Global View by Walter Russell Mead, notes that "The global climate change movement faces a choice: learn the lessons of the pandemic or fail". Did we learn that the human global population growth of 97 million new births each year still pumps more populations into new community developments, new food production, ageing engineering infrastructure, and new and growing species loss, all contributing to a distraction of the actual perpetrators of over consumption, disrespect for the bio-diversity of life and the disparity between the extremely poor (at a percentage of 9.2% or 689 million people) and the incredibly wealthy of banks , politicians or global despots? With unmitigated gall, the "Extinction Rebellion Group" who promotes nonviolence and disobedience to force government action to avoid "tipping points" (whatever they are) to "climate change mitigation". (What does this mean?) Started in the UK "support worldwide around a common sense of urgency to tackle climate breakdown "time is running out for many species" Drop in emissions" aren't economically sustainable". The economic damage, Covid has demonstrated that 62% of Americans have jobs that can be done remotely "reducing peak travel means a faster commute"!

Commuting is lost time (99 hours a year in traffic congestion) a host of negative impacts to commute!! 18% of emissions worldwide due to road transportation.

So, a new "normal". The old normal will rebound once the World Health Organization realized that the resultant lockdowns will have fostered human ingenuity and technological response to improve human responses to these events into the future. The Bottomline is that there is no "bottom line" for human sacrifice. The actual inconvenient truth is that we are all not adapting enough.

NYTimes Editorial 2022:

The opinion piece, **"A Remedy For Climate Anxiety"**, by Margaret Klein Salamon, New York Times, May 1, 2022, a psychologist, to an experienced scientist in conservation biology, IS anxiety provoking! What continues to amaze me about the psycho-social diatribe promoting "climate emotions conversations", may assist her clients in retrieving a "protective response" for their feelings, but will always ignore the unmitigated ignorance of basic ecological and general environmental sciences. Psychologists are not trained, experienced or able to have substantive scientific discussions on the sciences, (physics, chemistry, ecology, conservation biology, statistics to name a few disciplines that all scientists must master) before statements she makes, to take the conversations that "lurk in the shadows all around us". Even her litany of "emergencies"; "more intense drought, sea level rise, superstorms" (as a former fight meteorologist with the US Navy Hurricane Hunters, these are "hurricanes" to meteorologists)" "and heat waves "are all extreme weather phenomena that have plagued humankind since time immemorial! To add insult to injury, she gives an example of "nonviolent direct action", where in Britain, a climate activist group, Extension Rebellion, advocating occupying prominent sites in London, and disrupting London to get government to act more rapidly to halt biodiversity loss and greenhouse gas emissions, has transformed in the US to basically establish "legal rights for ecosystems". Well before any action to reduce anxiety and to foster their anticipated "regenerative culture", basic ecological facts need to be extoled first so that extreme events are identified for what they are, as normal, while being at the extremes of a broad range of environmental phenomena. As "Executive Director of the Climate Emergency Fund" supporting "Scientist Rebellion", Ms. Salamon has recruited a group of "over 1000 scientists around the world who are angry and fearful of climate changes and have engaged in various forms of disobedience including chaining themselves to the White House fence and covering the Spanish Parliament building with paint the color of blood." Of course, these types of demonstrations pale in comparison to the self-immolation suicide event on Earth Day with which she begins her "remedy piece". Hopefully her new client base will not go off this deep end for a "profoundly spiritual" movement that can only be scientifically described as tragically overwrought.

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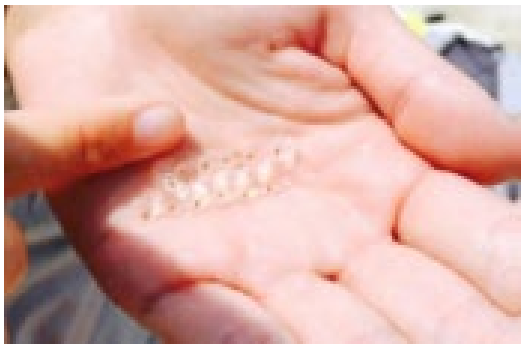
IT'S A SALP YEAR!

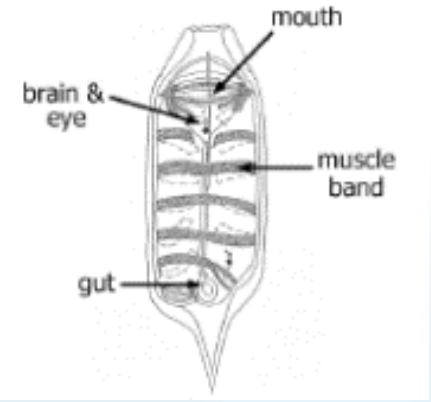
By Ida Sanoff

If you were swimming in early August, you may have noticed that the water felt lumpy. Every time you moved, you felt little bumps. If you scooped one into your hand, you may have seen some little ridges along the bump as well as long chains of bumps. The little transparent bumps washed up along the shoreline and in some spots, there were so many that the shoreline felt like it was covered in a slippery layer of clear Jell-O.



Many people call these things "baby jellyfish" But they're not jellyfish at all. And they don't sting or bite. Sometimes one or more summers go by and you don't see or feel one of these little bumps. But some years, the water is just loaded with these things. They're called salps.

Salps are plankton, animals that get from place to place by drifting on ocean currents. They are not jellyfish and not even related to them. They are tunicates, very distantly related to animals that have a backbone, which includes us humans. They are basically just a little, gelatinous bubble that takes in water at one end, passes it over a membrane that removes nutrients, and squirts it out the other end.



But some years are "salp years". Their population can increase as much as 1,000 times and then decline just as quickly. There was a hint that this was a salp year and I didn't even realize they were coming. Usually, as soon as we get into late June and early July around here, the water warms up a bit and it turns green from all of the phytoplankton. These are microscopic organisms, mostly plants, that contain chlorophyll and can trap energy from sunlight, just like your houseplant does. But this year, the water has been crystal clear, despite all the rain and I couldn't understand why. Then the salps appeared and it all made sense: Salps consume algae and other phytoplankton like little vacuum cleaners. The algae are devoured as fast as they are produced and the water stays clear.

Well, the little salps are very good at eating and they are very good at something else too: Reproduction. They have a complex reproductive method, but it is very, very successful. When the water starts to warm up, a single salp which is sometimes called an oozoid can make long chains of clones of itself, without a partner. You may have even seen some of these chains in the water. The little buds are called blastozooids and they float along and feed while attached to each other in the long chains. But the buds are hermaphrodites, which means that they are both male AND female at different points in their development. Before you know it, there are salps everywhere!

But this remarkable rate of reproduction is the salp's downfall. The population quickly becomes larger than the food supply and the salps start to die off. Unfortunately, salps are not an attractive food for sea creatures because they are mainly water. But they may play a role in moving carbon from the atmosphere. There are so many of them that when they die and decompose, they literally move carbon away from shallow water into deeper water, which may help reduce the greenhouse gases that cause climate change. So, enjoy the nice clear water that we have now, courtesy of salps.

AN OPINION NATURALLY: ENVIRONMENTAL CORRECTNESS AND RESILIENCY

"Political correctness" or PC has received considerable attention these days and a simple tweet from a celebrity using a disingenuous term or an insensitive descriptor, results in headlines and pages of "newsworthy" editorials describing why terminology, which historically was insensitive, could overshadow the injustices severity. Today nothing is ignored; everything is sarcastic where you declare yourself possibly a "Shock Jock" or a "Political Satirist", but in either case you are now informative and "right". So today 50 years after the first Earth Day and World Environment Day, there is an "Environmental Correctness" (EC) so pervasive in the news media, that alternative and trained ecologically based experiences, (and yes informed opinions and analysis), for the most part, are ignored or worse, maligned.

Therefore, offshore windmills are the only "true answer" to LI's energy needs; nitrogen pollution from leaking septic systems (by the way, that is how septic systems principally work, they leak or leach) is "evil incarnate" and can only be replaced with "new technology" and "can cause cancer!". With an already massive infrastructure along our coastline, it is proposed to build new bridges, tunnels, seaports, LNG stations, penta-coated power poles, windmills, and to maintain breaches in the coastal zone, all as "environmentally correct". Opposition is labeled "antiquated", "not progressive", and "truly not-politically correct", or just "old school".

LI is a paradigm to give greater attention! Long Island from the tip of Brooklyn to the tip of Montauk is vibrant, rich, and unique as the largest populated island in the United States. A place that for 2022 portends to perpetuate several environmental myths that have hood winked the populace and will leave Long Island beyond 2022 more developed, less natural resources and ultimately primed for an ecological debacle, not from sea level rise or global warming but from the undesirable truth of expansive infrastructure, urban sprawl, and unproven "advanced" technology.

From the 1990's through to the early 2000's considerable scientific research, federal initiatives in the National Estuary Program and the justifiable upgrading of wastewater systems in response to the Clean Water Act especially in the NYC metropolitan region, have revealed the magnificent accomplishments of regulation of water quality. Monitoring and inventory of natural resources, and basic eco-system management analysis, have matured in dramatically improved water quality and air quality. This is especially prevalent in the urbanizing environments globally, restructured to be at the forefront of increasing positive impacts on biological diversity (for example, Bald Eagles are back nesting in NYC) and environmental quality resulted in a dramatic improvement in water resources. Water quality in NYC, especially Jamaica Bay has considerably improved dissolved oxygen, aiding in the resurgence of major fisheries populations supporting and providing support of near shore marine mammal populations such as Right Whales, Minke Whales and especially Humpback Whales, which breach under the Verrazano Narrows Bridge and off the Rockaways. Nassau County has seen dramatic increases in Winter Flounder populations with increasing recreational fishing levels; Suffolk County has an incredible increase in Menhaden supported by the natural phytoplankton blooms across the Atlantic and especially into Long Island Sound. The coastline reveals a resurgence of Humpback Whale populations, along their migratory near shore pathway, to the point there is a proposal to designate the entire south shore of Long Island a "Whale Superhighway". This eco-fact has been ultimately ignored by those who have pushed for larger and larger wind farms offshore. Energy development is proposed right within the paths of these resurging whale population migrations.

Two environmental myths one from the tip of Brooklyn in Jamaica Bay where sub-aqueous sand borrow pits need to be filled in and recontoured, to pollution issue in Suffolk County regarding septic tank xenophobia and a "nitrogen-evil incarnate" policy, have triggered massive infrastructure replacement. Both these issues perpetuated by a total ignorance of functioning natural resources and environmental correctness at biblical proportions.

Political Correctness has gone to such extremes that social issues such as poverty and rising numbers of "eco-refuges". are now described as the new sources of "climate change" impacts. Unfortunately, this disrupter is backwards in thought and basic principles of ecology. The urban phenomenon is growing especially along coastlines directly in harm's way. It is the direct effect of sprawling, energy demanding intensity, and the exponential predominance of increasing urban human populations living along the coastlines around the world, that puts this pressure on coastal natural resources.

If the global (and on a micro-scale here on Long Island) increase in population remains untethered from controlling the vast exploitation of Earth's natural resources, there will never be enough new ideas to keep human society resilient to the everchanging environment. In this regard there is no universally agreed definition on what "resiliency" means. The idea of resiliency stems from the historic concept of sustainable development which became common language at the first globally celebrated Earth Summit in 1992. The UN World Commission on Environment and Development defines sustainability, many times used interchangeably with resiliency, as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". To achieve this, the resiliency or ability to adapt, needs to be fostered.


Sunset on Great South Bay

Long Island's resiliency is steeped in scientific advancements led by some of the World's leading and iconic scientists. Long Island is and has historically been an incubator for scientific achievement and reveals a robust catalogue of globally significant scientists. This historic and legendary roster includes Energy, Land Use and overarching all, Resiliency. These areas involve a history of science pathways leading to discovery, or exploration of the island and coastal environments. This history of science is dramatically important in shaping Long Island's development, political influences, and diverse cultural attributes. Both the Cold Spring Harbor Labs (CSHL) and the Brookhaven National Laboratory (BNL) have been hubs of some of the greatest scientific achievements in the modern era. Barbara McClintock, Nobel Laureate, discovered mobile genetic elements. Additionally, one of the eight Nobel Laureates from CSHL's, Max Delbrück, initiated the field of molecular genetics. BNL is home to many acclaimed scientists such as Raymond Davis Jr., Nobel Prize winning chemist who won the award in physics for detecting solar neutrinos. Moreover, Northrop Grumman was a key developer in groundbreaking technology focused in aeronautical travel and space exploration. Long Island has a long history of science and scientists who have explored ways to sustain wetlands, and Pine Barren forests; support energy development in a variety of methods; environmental scientists such as Barry Commoner for history and ecology, natural solar and wind sources and advances in transportation (Robert Moses, Charles Lindbergh) and battery technology (Nicola Tesla); to exploration of physics in outer space such as Astronaut Michael Massimino and in Cosmology, Albert Einstein; and inner space, Cold Spring Harbor and DNA genetics Nobel Laureate's James Watson and Francis Crick; to the history of conservation biology Sylvia Earle and ecological understandings (Walt Whitman, Teddy Roosevelt and the National Park System) and the whaling history (Herman Melville), collectively are part of "The History of Long Island Achievements in Science" and the common resiliency of the human spirit.

Regardless of the unfortunate level of environmental correctness today, demonstrated, reputable scientific progress through appropriate analysis and inclusive collaborations, will always support the influence of the sciences on developing effective public policy. To this end, a scientists skeptical, honest, comprehensive review of the impacts of human influences on the natural systems of Earth, is a healthy endeavor on all levels of the environment.

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FINAL WORD

A Former US Navy Flight Meteorologist, "Hurricane Hunters Point of View": and start worrying about their unintended consequences!

It is never too early to prepare for Hurricane Season: CERCOM is a National Weather Service Co-op Meteorological Station Collecting Daily Weather Readings.

One of the many lessons learned (in and above the $95 billion in damages behind only 2005 Katrina's (a level 3 hurricane) impact to New Orleans) by experiencing Hurricane IDA's cat. 4 hurricane with over 170 mph winds and seven inches of rain to Long Island in September of2021, was the level. If Long Island had been directly hit by such a storm, it would make Superstorm Sandy's (2012) $60 Billion cost impact seem like a summer rain shower! Even though the Army Corps of Engineers, levees were improved to handle hurricane risks initially experienced in Louisiana by Hurricane Katrina (only a cat 3 storm!), the ultimate message to Long Islanders is the reveal of unintended consequences. For example, in Suffolk County, the loss of power resulting from Sandy, which was not even a category one storm, hadn't impacted homeowners' loss of septic system functioning to handle homeowner's wastewaters because all gravity flow septic systems do not need power! Unfortunately, it has been uniformly accepted to replace "old systems" that operate by gravity flow with new "advanced septic systems" below ground with moving parts! Please understand that as a former US Navy Flight Meteorologist, "Hurricane Hunter", a Katrina scale hurricane hitting Long Island in the future, is not an "if" occurrence; it's a "when it occurs" circumstance.

We now have the continued long-term planned misguided effort to replace all existing 360,000 homes of their gravity flow septic systems with "electric powered below ground advanced systems." So, in the event of any hurricane resulting in the eventual home power eliminating event, for the first time in American history on Long Island your natural gravity flow septic systems treatment of sewage would be compromised with these "advanced systems" once the power goes off. Translation: No sewage treatment capability without the power from an electric generator!

If you settle for what they are giving you, (or will be giving you into the future) you will deserve what you get.

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