Coalition for Fire Island Wastewater Solutions

Briefing Statement

In 2010 the New York State Department of Environmental Conservation (NYSDEC) declared the majority of Long Island's South Shore Estuary Reserve, including the Great South Bay, as an "impaired water body" under section 303(d) of the Clean Water Act. Nitrogen from wastewater has been identified as a leading cause of water quality degradation. Nitrogen entering into coastal environments degrades the ecological health of estuaries and has been determined to be causing harmful algal blooms (HABS) throughout the South Shore Estuary Reserve. According to scientists at Stony Brook University, the south shore waters experienced extensive Brown Tide events in 2017 and 20 I 8 as well as episodes of Mahogany Tide and Rust Tide. These harmful algal blooms kill shellfish, fin fish and seagrass. They also deter beach goers which adversely impacts the local and regional economy of our island.

To meet the challenge of clean water, Suffolk County is aggressively pursuing waste water treatment solutions throughout the county. These critical solutions include expanding existing sewage treatment plants, building a new sewage treatment facility for Mastic and Shirley, and providing a robust program that allows homeowners to replace antiquated septic and cesspool systems with new innovative wastewater treatment systems with the assistance of grants and low interest loans.

The challenges of upgrading waste water treatment on Long Island must include Fire Island.
Fire Island is a densely visited destination with more than 2.2 million people visiting annually. A 2017 National Park Service report showed that 431,303 visitors to National Park Service sites on Fire Island in 20I 6 spent $18.6 million in Long Island gateway communities. The high visitation adds stress to Fire Island wastewater treatment systems. Ongoing new construction and expansion of homes on Fire Island is an additional incentive to improve wastewater treatment options.

There is a critical need for a Wastewater Planning Study for Fire Island that identifies effective and sustainable wastewater treatment alternatives for this unique part of Long Island. One of the main challenges of this effort is identifying workable alternatives for the multiple jurisdictions and distinctive geographical challenges which exist on Fire Island such as the island's depth to groundwater, vicinity to the ocean or bay, elevation, seasonality of use, as well as other unique characteristics of each community. In addition, sea-level rise projections must be considered when analyzing the long-term sustainability and functionality of potential systems. All of these factors will influence the identification of wastewater treatment options for Fire Island.

Currently there are three waste water treatment methods on Fire Island;

I. The Village of Ocean Beach owns and operates the only municipal wastewater treatment plant on Fire Island. It was constructed in 1921 and was upgraded from primary to secondary treatment technology in the late 1970s. It collects and treats wastewater from 575 homes and two dozen commercial properties. The effluent is discharged to the bay and is monitored by Suffolk County Department of Health and the Department of Environmental Conservation (DEC). The facility is currently undergoing additional upgrades to increase resiliency of the collection and treatment system.

2. Over 3600 homes and businesses in the Fire Island communities are treated by onsite wastewater disposal systems. The predominant onsite sanitary systems on Fire Island are cesspools- covered underground pits lined with permeable cement blocks or rings without a sealed bottom, as per the Fire Island sanitary design approved by the Suffolk County Department of Health. These systems typically rely on bacteria to breakdown the solid waste, while untreated water percolates into the sandy soil.

3. Some public facilities, like Fire Island National Seashore's visitor facilities, also use leach fields.

The Village of Ocean Beach's Sewage Treatment Plant (STP) and collection system is undergoing meaningful upgrades that will allow for the expansion of the sewer district beyond the borders of the Village of Ocean Beach. A collective interest exists to assess the options for expanding this STP and how that expansion can best serve Fire Island residents and be protective of our environment. In addition, upgrading and improving wastewater management on Fire Island for those not served by the STP is essential. There is a recognition and a challenge that one type of technology may not serve all locations on Fire Island, and an array of options will be necessary to improve wastewater management island-wide.

Given the complex nature of the Fire Island's governmental jurisdictions, array of stakeholders, and mosaic of land use and ownership, there was consensus that a cooperative, multi-jurisdictional effort was necessary to develop a Fire Island-wide and comprehensive approach to wastewater management on Fire Island. On June 6, 2018, local, state, and federal agencies, nonprofit organizations and Fire Island stakeholders convened to discuss the current state of wastewater management on Fire Island. This group is now formally recognized as the **Coalition for Fire Island Wastewater Solutions.** The Fire Island Wastewater Solutions Coalition has had multiple meetings and is committed to pursue a waste water treatment plan that will provide for the sustainable future of Fire Island, protect the South Shore Estuary Reserve and be protective of public health.

Funding is needed for a Request for Proposal to allow The Fire Island Waste Water Solutions Coalition to hire a consultant (through Suffolk County) to produce the necessary Wastewater Planning Study for Fire Island.

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Frequently Asked Questions

What is the Coalition for Fire Island Wastewater Solutions?

The Coalition is a group of local, state, and federal agencies, nonprofit organizations and Fire Island stakeholders working together to develop wastewater management strategies for Fire Island. Members of the Coalition include:

- Citizens Campaign for the Environment
- Fire Island Association, Inc.
- Fire Island National Seashore
- New York State Assembly, Andrew Garbarino, 7th District
- New York State, Office of Planning and Development, South Shore Estuary Reserve
- New York State Senate, Phil Boyle, 4th Senate District
- Seatuck Environmental Association
- South Shore Estuary Reserve Council Citizens Advisory Committee
- Suffolk County, Peter A. Scully, Deputy County Executive
- Suffolk County Legislature, Robert Calarco, 7th District
- Suffolk County Legislature, Steven Flotteron, 11th District
- Suffolk County Legislature, William J. Lindsay, 8th District
- The Nature Conservancy
- Town of lslip, Office of the Supervisor
- Town of Brookhaven, Office of the Supervisor
- United States Geological Survey
- Village of Ocean Beach
- Village of Saltaire

How is wastewater currently managed on Fire Island?

Wastewater on Fire Island is currently managed in several ways:

- ***Village of Ocean Beach municipal wastewater treatment plant.*** The treatment plant, constructed in 1921, collects and treats the wastewater from 575 homes and 24 commercial properties. The effluent from the plant to the Great South Bay is within the criteria for wastewater discharge and monitored by Suffolk County Department of Health and New York State Department of Environmental Conservation. The plant is currently undergoing upgrades to make the system more efficient and with updated materials.

- ***3600 homes and businesses in the Fire Island communities use onsite wastewater disposal systems (OWDS).*** The majority of OWDS on Fire Island are cesspools, covered underground pits lined with permeable cement blocks or rings without a sealed bottom. Cesspools typically rely on bacteria to break down solid waste and untreated water percolates into the sandy surficial aquifer.

- ***Fire Island National Seashore visitor facilities use leach fields.***

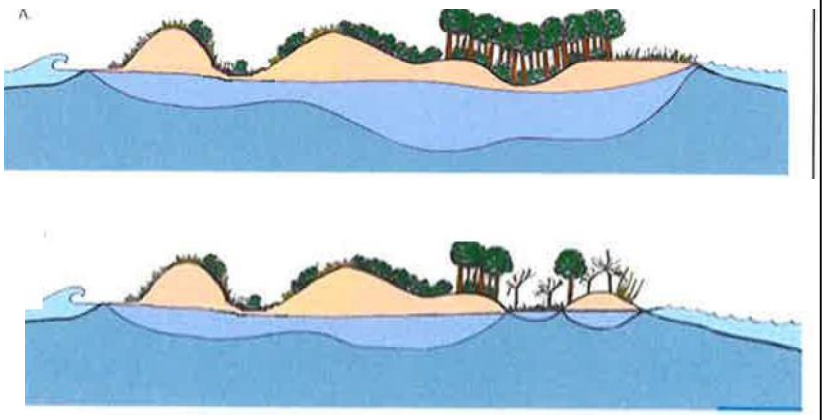
Do cesspools and other OWDS work well on Fire Island?

No, OWDS do not remove nutrients, including Nitrogen, as well as they should. The water table on Fire Island is close to the surface of the ground leaving little room for drainage during storm events. This can result in standing water, or ponding. The U.S. Environmental Protection Agency recommends a buffer of two to five feet of dry soil between a cesspool and water table to most efficiently complete the treatment of wastewater. Few places on Fire Island meet this guideline.

Why is the water table rising on Fire Island? Is it related to sea level rise?

Yes, sea level rise contributes to a rising water table on Fire Island. Fire Island is made up of porous sand through which water can quickly flow. The water table under the surface of Fire Island is heavily influenced by ocean and bay tides because of its sandy substrate and narrow width. This means that high and low tides can alter how close the water table is to the ground surface.

A. The ocean, bay, and salt water under the island interact and push the fresh water of the water table towards the surface. (image A)
B. With increases in sea level Fire Island will see more erosion on the ocean and bay shorelines, as well as a higher water table and increased standing water. (image B),
In both images: light blue = fresh water lens, turquoise = salt water



Isthe rising water table why I see more standing water in my community?

Yes it is. As sea level rises, the water table also rises closer to the surface. This can keep rainwater from draining downward through the sandy soil because there is nowhere for that water to go. As a result there are more puddles and standing water in low-lying areas on Fire Island, especially on the bay side.

Are there health concerns associated with increased standing water?

Yes, health concerns arise when cesspools sit within the water table and effluent mixes with standing water. This can result in standing water and stormwater runoff containing high fecal bacteria concentrations. The Fire Island Association, U.S. Geological Survey, and the National Park Service are working together on a study to assess standing water contaminant levels and better understand human and animal health risks.

Do the problems with OWDS impact Fire Island's drinking water supply?

Fire Island's drinking water comes from the Magothy Aquifer, one of the deepest geologic units underlying the Long Island region. Drinking water from this deep aquifer is accessed via wells and pipes and does not interact with the water table, cesspools, or standing water.

Do Fire Island OWDS impact the condition of the Great South Bay?

Yes, there are three ways OWDS affect the Great South Bay:

(1) When cesspools and other OWDS are flooded underground, Nitrogen can leach into groundwater and, subsequently, into the Great South Bay. Nitrogen is a food source for aquatic plants but, in excess, it can cause a cascade of harmful effects to the marine ecosystem, including harmful algal blooms.

(2) In addition, when cesspools sit within the water table, concerns for human health risks arise. Fecal bacteria and viruses can be quickly transferred through groundwater and into nearby wetlands and bays;

(3) Finally, **OWDS** can contribute contaminants of emerging concern (CECs) into waterways, such as pharmaceuticals, personal care and domestic use products, and endocrine active compounds. CECs have been found in shallow groundwater beneath developed areas of Fire Island, including in groundwater discharge to Great South Bay.

How does the Coalition plan to begin addressing these problems?

The Coalition seeks to improve wastewater management on Fire Island by identifying feasible and cost effective technologies that will serve the island's unique geology and human development. A suite of options will be necessary to meet these needs and improve wastewater management island-wide.

To advance this goal, the Coalition is undertaking a Wastewater Planning Study for Fire Island which includes four objectives:

(1) Understanding the current state of wastewater systems throughout Fire Island;
(2) Identifying possible alternatives for wastewater treatment;
(3) Developing a strategy for pilot testing the proposed technologies; and
(4) Identifying funding sources and potential incentives for homeowners who adopt the new technologies.

How is this project aligned with the current National Park Service management goals for Fire Island?

The Fire Island National Seashore General Management Plan (GMP) identifies the importance of developing a Wastewater Management Plan for Fire Island in order to transition wastewater and sewage treatment systems to more sustainable systems, both at National Park Service (NPS) sites and within the Fire Island communities.

What is the position of the Fire Island Association?

The Fire Island Association was heavily involved with the GMP planning process and is committed to supporting the improvement of wastewater technologies on Fire Island. Wastewater management is a critical element of living on Fire Island, and important for the long-term sustainability of the Fire Island communities.

What is the timeline for the Coalition's planning study?

The Coalition will be actively working towards finding funds in 2019 to support a Request for Proposals for a Wastewater Planning Study for Fire Island. The Coalition would like the study to begin by the end of 2019.