The Coalition for Hither Woods™

Above: Mountain bikers gather to ride Hither Woods trails, January 29, 2023

INFORMATION

PRESENTED TO THE

SUFFOLK COUNTY PARKS TRUSTEES

BY

THE COALITION FOR HITHER WOODS

FEBRUARY 23, 2023

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EXECUTIVE SUMMARY

The information presented in this document will show that East Hampton Town's proposed sewer district for Downtown Montauk lacks a valid environmental purpose. Even in just its first phase, the sewer district would be the largest public works project ever undertaken by East Hampton Town, costing over $75 million of taxpayers' money. It would destroy 14 acres of County parkland in Hither Woods. Yet the project offers almost no demonstrable benefits to Montauk's environment.

Our examination of the Town's plan shows the following:

- Groundwater underlying Downtown Montauk is not used by private or public wells and does not migrate into other parts of Montauk which use well water. Hence, the purity of Downtown Montauk's groundwater is irrelevant to Montauk's drinking water resources.
- On the other hand, the Laurel Canyon County Park property has been recognized by State, County, and Town authorities as important in protecting its underlying aquifer. Pumping contaminated groundwater from Downtown Montauk to this parkland is a foolish risk that may endanger Montauk's future drinking water supplies.
- While groundwater beneath Downtown Montauk seeps into the Atlantic Ocean below the water line, there no evidence that this creates unsafe conditions for swimming or other human use of the ocean off Montauk's beaches. Installing sewers in Downtown Montauk will provide little improvement in Atlantic Ocean water quality, which is already excellent.
- The impact to Fort Pond from pollution underlying Downtown Montauk is minimal, as shown through analysis by the Town's own engineering consultants. Groundwater flow under the downtown area is southerly, away from Fort Pond and towards the ocean. At best, the reduction in nitrogen load to Fort Pond if sewers were installed in Downtown Montauk would be less than 15%. There is evidence that the reduction in nitrogen entering Fort Pond could be as little as 2%. Better results in reducing the nitrogen load to Fort Pond could be realized through increased use of low-nitrogen I/A septic systems by nearby homes and businesses.
- Most of the wastewater generated in Downtown Montauk is produced by motels, and these motels are predominantly located near the Atlantic Ocean, where there is no possibility that their septic wastewater could enter Fort Pond.
- The absence of provable environmental benefits associated with the proposed Downtown Montauk sewer project raises questions about East Hampton's true motives in promoting the sewer project. A detailed report prepared by the Town's consulting engineers, but never released to the public – the Coalition for Hither Woods obtained it through a FOIL demand – strongly suggests that the Town Board wants sewers in order to allow for increased growth and development in Downtown Montauk.
- The Town's desire for economic growth in Downtown Montauk is a manifestly insufficient reason for Suffolk County to trade away 14 acres of parkland, which will thereafter be largely destroyed.

A Brief History of Downtown Montauk

The commercial district commonly known today as "Downtown Montauk" is approximately 80 acres in size. For most of the recorded history of Montauk, since East Hampton's English settlers arrived in the area in 1648, this part of Montauk was known as the Great Plain.

The Great Plain was open grassland between Fort Pond and the Atlantic Ocean. It was relatively flat, fertile land, and was kept bare of shrubs and trees through grazing by cattle, sheep, and horses from about the mid-1600s to the beginning of the 20th century. In August 1898, at the close of the Spanish-American War, the US War Department established Camp Wikoff on Montauk to host recuperating soldiers. The camp was only in full operation for about two months, but during this time several infantry units which had fought in Cuba were encamped on the Great Plain.

The first real construction on the Great Plain took place in 1917, when the Montauk Naval Air Station was established on 33 acres of land there by the US Navy. The Montauk Naval Air Station operated dirigibles for coastal patrol and reconnaissance and functioned from August 1917 until August 1919. More than twenty individual buildings were constructed for the Naval Air Station, including an enormous hangar erected to house a dirigible. All of these buildings were demolished or moved away in 1920, after the station closed down.

In 1921 and 1922 the US Army established a summertime training base at Great Plain, known as Camp Welsh. Regular Army field artillery units lived here for parts of these two summers, while conducting maneuvers and engaging in artillery practice elsewhere on Montauk. Camp Welsh seems to have consisted mainly of tent housing.

In 1925 Carl Fisher bought around 9,000 acres of land on Montauk, including the Great Plain, as part of a plan to remake rural Montauk into a "Miami Beach of the North." On November 22, 1926, Fisher's Montauk Beach Development Corporation filed a subdivision map with the Suffolk County Clerk encompassing practically all of the Great Plain. This Map, commonly referred to as Map No. 174 from its filed map number, was intended to establish the Great Plain area as the business and commercial center of Fisher's Montauk. Downtown Montauk, in the sense of a commercial area, therefore dates to 1926.

The development of Map No. 174 was very slow until the 1950s, when Montauk really began to grow. Nearly all of the motels and restaurants which exist in Downtown Montauk today were built before 1981, when the modern County Health Department regulations took effect. In 1984 the present East Hampton Town Zoning Code was enacted, which practically ended motel development on Montauk. The businesses and condominium developments which produce most of Downtown Montauk's wastewater have thus existed for more than 40 years.

ENVIRONMENTAL IMPACT OF GROUNDWATER IN DOWNTOWN MONTAUK, PART I

IMPACT ON POTABLE WATER SUPPLIES

Because of the density of development in Downtown Montauk, especially that of motels and residential condominiums or cooperatives, it is taken for granted that groundwater downtown does not meet County or State standards for drinking water. For this reason, as well as the availability of public water in Downtown Montauk, we are reasonably certain that all improved properties in the downtown area are served by public water.

Because no one is relying on groundwater under the 80-acre Downtown Montauk district, there is no adverse impact to human health due to drinking the groundwater in this area. Simply stated, contaminated groundwater in Downtown Montauk has ***zero*** impact on drinking water resources.

No business or residential property in Downtown Montauk uses well water drawn from beneath this district. In addition, there no public water supply wells in the downtown area. Finally, because groundwater in Downtown Montauk is at a low elevation and is being pushed out to sea by the higher water table behind it, none of the groundwater under Downtown Montauk migrates into the other parts of Montauk, which comprise more than 12,000 acres.

The impact of Downtown Montauk groundwater on Montauk's drinking water supplies is therefore ***nil***.

Nevertheless, the Town of East Hampton proposes to take polluted groundwater from Downtown Montauk and pump it to a sewage treatment plant atop one of Montauk's remaining clean aquifers, in Hither Woods. Even if the Town has faith in its ability to run a trouble-free sewage treatment plant, this seems incredibly risky. The parkland owned by Suffolk County, on which the Town wants to site its sewer plant, is in a State- and County-designated Special Groundwater Protection Area ("SGPA"). See **Exhibit 1.** SGPA's were established in parts of Suffolk County where groundwater resources were considered critical for the County's future water supply. The Town itself has zoned this land "Parks & Conservation" and has placed it in a "Water Recharge Overlay District," which was designed and intended to protect areas which are important to the Town's drinking water supply. See **Exhibit 2.**

In short, the Town proposes to take contaminated groundwater from beneath Downtown Montauk, which at present seeps harmlessly out into the Atlantic Ocean, and pump it to a sewer plant to be built atop one of Montauk's principal remaining drinking water aquifers. To call the Town's plan illogical is being very kind.

EXHIBIT 1

The proposed Montauk sewage treatment plant would be built over the easternmost part of the Hither Woods aquifer, which is easily the largest aquifer on Montauk. This land is located in a Special Groundwater Protection Area ("SGPA"), so designated by Suffolk County pursuant to Article 55 of the New York Environmental Conservation Law.

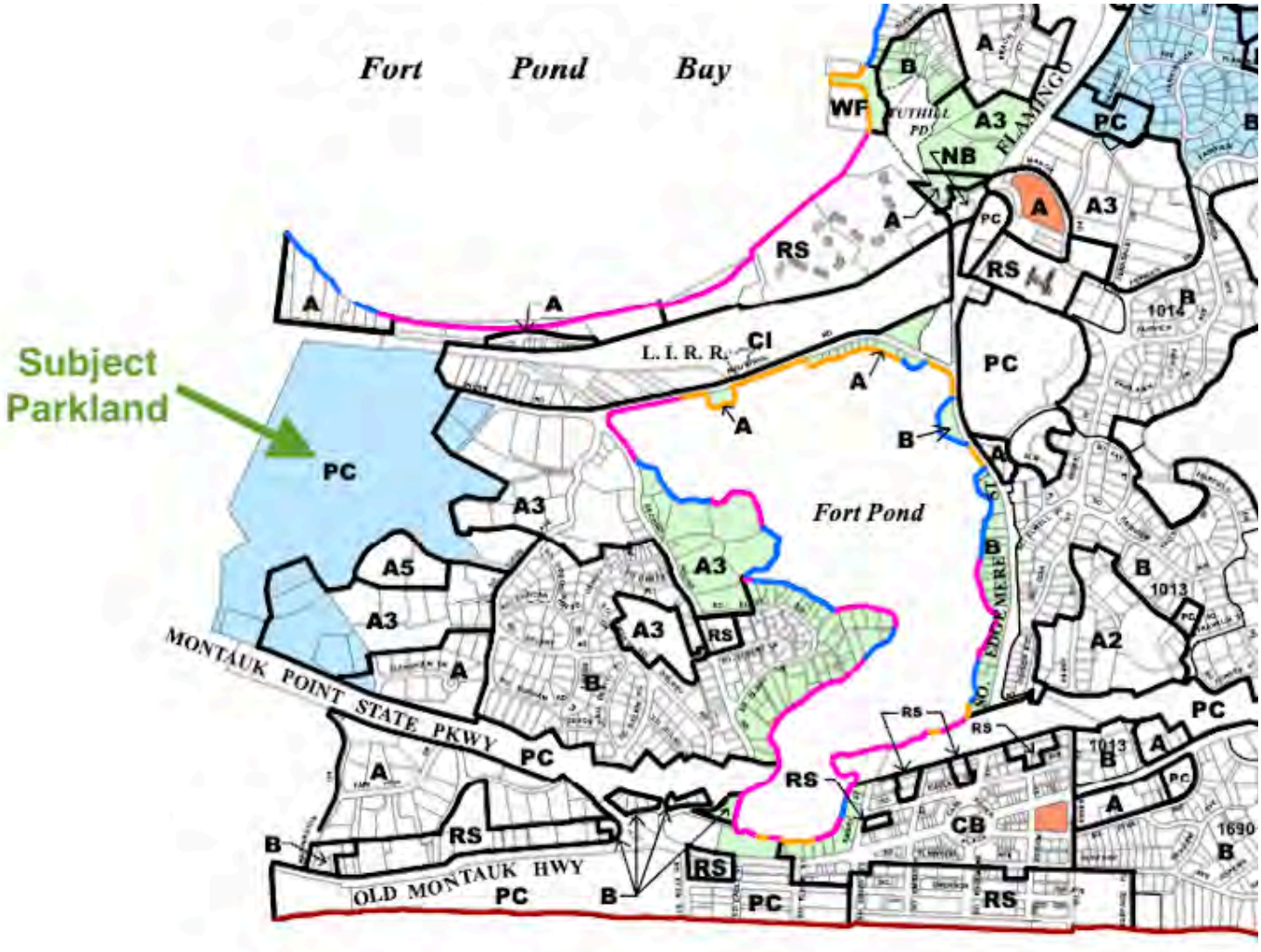
EXHIBIT 2

East Hampton Town Zoning Map

The East Hampton Town Zoning Map shows that Suffolk County's Laurel Canyon Park is zoned Parks & Conservation ("PC"). See map excerpt below. The map also shows that the County parkland is situated in the Town's Water Recharge overlay district (blue shading). Neither zoning designation is at all suitable for the construction of a sewage treatment plant and leaching field.

The Town Zoning Code states in § 255-3-61 that the purpose of the Water Recharge Overlay District is to stringently regulate "areas where disproportionately large quantities of rainwater are recharged into and stored in the underground aquifer, in order to help ensure the continued sufficiency and purity of the Town's irreplaceable groundwater supply and sole source of drinking water."

East Hampton Town's government seems to have forgotten that Montauk, and the Town as a whole, are dependent upon a sole source aquifer for all of the Town's drinking water supplies. These water supplies are – as the Town Zoning Code says – "irreplaceable."



ENVIRONMENTAL IMPACT OF GROUNDWATER IN DOWNTOWN MONTAUK, PART II

IMPACT ON SURFACE WATERS (ATLANTIC OCEAN)

The environmental impact of groundwater beneath Downtown Montauk migrating into the Atlantic Ocean is basically non-existent. Remember first that all Downtown Montauk businesses are required to periodically empty the sludge from their septic tanks and transport it out of the area to a regional sewage treatment plant. There are no "pipes" from downtown motels or businesses that carry septic waste directly into the ocean. So, the "pollutant" seeping into the ocean is primarily nitrogen-rich groundwater.

Unintentional discharges of septic waste from Downtown Montauk businesses, or "overflows," are exceedingly rare. At a June 2021 Town wastewater committee meeting the Town Natural Resources Director was only able to identify one recent septic overflow event in Downtown Montauk, and the overflow did not reach public streets.

The volume of contaminated groundwater emanating from Downtown Montauk is insignificant in relation to the Atlantic Ocean, which is of course a very large and dynamic water body. This statement is corroborated by water quality data collected by the New York State Department of Environmental Conservation and by the Surfrider Foundation, a private organization. That data shows that water quality in the Atlantic Ocean off Downtown Montauk's beaches is generally excellent throughout the year. The very few examples of reduced water quality appear to be associated with heavy rain events, when surface water runoff from East Hampton Town roads flows directly onto Montauk's ocean beaches. An example can be found at Lowenstein Court, off Surfside Place, where the Town maintains a stormwater discharge pipe that empties right onto the beach.

See the attached from the Surfrider Foundation, **Exhibit 3**, and the New York State DEC, **Exhibit 4**.

Above: Town stormwater outfall pipe empties onto ocean beach, at Surfside Place.

EXHIBIT 3

Surfrider Foundation, Montauk Ocean Water Quality
July 2014 to February 2023

The Surfrider Foundation water samples are collected in the ocean off Surfside Place (near Lowenstein Court), at a surfing and surfcasting spot historically known as Atlantic Terrace. The Town of East Hampton has a discharge pipe onto the beach here (see photo on preceding page), which carries stormwater runoff from nearby roads and streets. This can lead to elevated levels of pollutants after major rain events.

The Surfrider data shows generally good water quality throughout the data collection period.

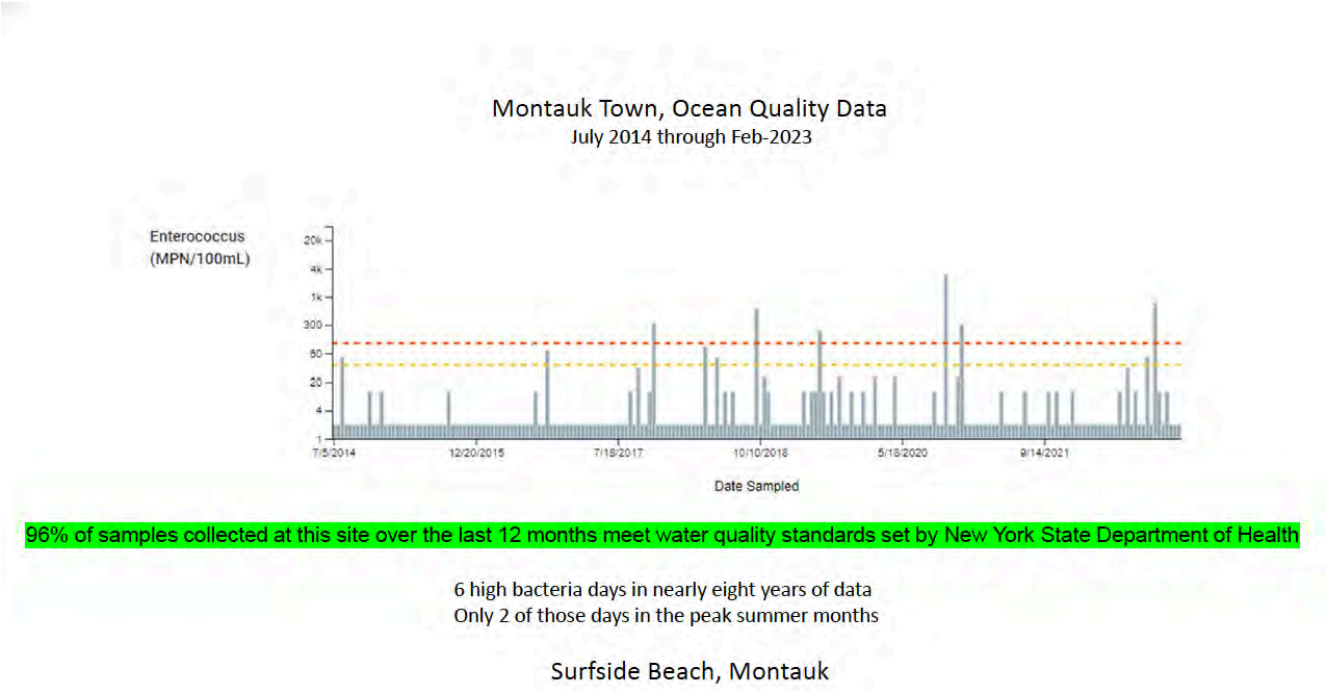


EXHIBIT 4

New York State DEC Water Quality Data for Montauk Ocean Beach

The DEC Water Quality data for this report focuses on Downtown Montauk (Station 65-13E, Hero Beach). The DEC data indicates that for the period 2016-2021, ocean water quality was excellent and allowed the zone to remain open all year(s). There were three days during this period that water quality came close to being non-compliant with State standards due to storm flooding or heavy rainfall.

DEC Data
Division of Marine Resources Data Atlantic Ocean Shellfishing Growing Area #65 Evaluation 2022

Area Description

The Atlantic Ocean (Shellfish Growing Area #65) is located on the south shore of Long Island and extends from the New York-New Jersey border in New York Bight to Montauk Point and includes the New York jurisdictional limit, extending out to three nautical miles from the shoreline. The shoreline borders Queens, Nassau, and Suffolk counties and New York State has management authority over the shellfish resources within the entire growing area.

The topography of the shoreline area directly adjacent to the Atlantic Ocean is composed mainly of low-lying sandy beaches or sandy-rocky bluffs ranging in height from 20'-100' near gravel-sand beaches. This topography is typical of the south shore of Long Island and coastal outwash plains. These sandy soils are very permeable and provide excellent drainage. The dunes along the Atlantic Ocean absorb much of the stormwater before it has a chance to reach the growing area.

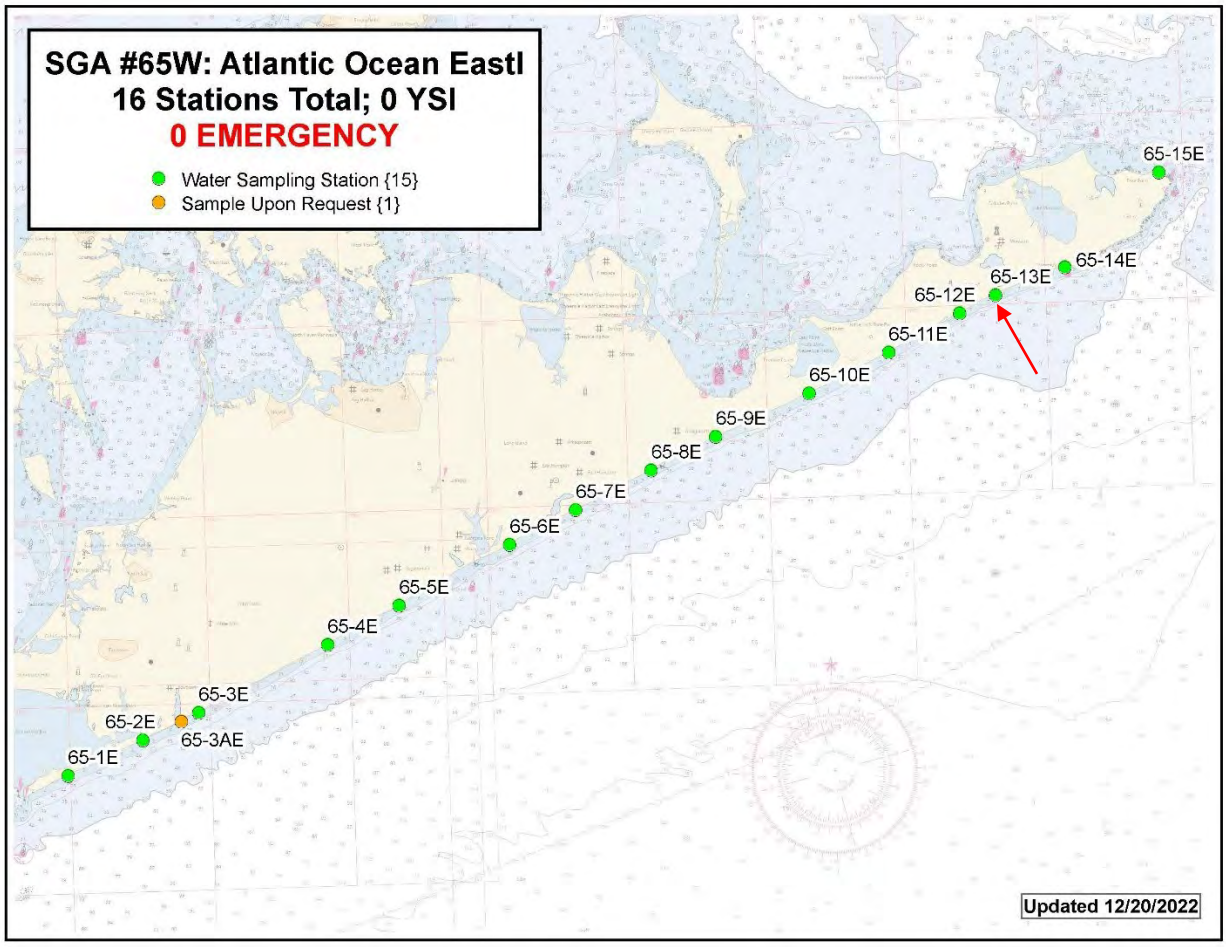
The latest shoreline survey for SGA #65 Atlantic Ocean was completed in 2022 in conjunction with this triennial reevaluation. The shoreline survey describes the pollution sources of this growing area as those from surface water inputs, sewage treatment plants, stormwater, domestic waste disposal, wildlife, and recreational use.

Domestic Waste Disposal:

There are approximately 40 residential properties at or near the shoreline of the Atlantic Ocean. All the residential properties that are near the shoreline are in Montauk and Ditch Plains. These properties all rely on on-site in-ground wastewater treatment systems. The remainder of the residential, commercial, and recreational use facilities that are near the Atlantic Ocean are located north of the dunes and boardwalks and are not considered potential pollution sources.

Sampling Plan:

There are 48 total sampling stations in the Atlantic Ocean, as shown on the accompanying sampling charts. 41 stations in SGA #65 are certified year-round and must be sampled six times throughout the year, and seven stations are uncertified year-round and have no sampling requirements (**Appendix A,** Table 1).



YSI: "Yellow Springs Instrument" is a Water Quality Testing means. YSI is the "gold standard" for water quality testing. It measures dissolved oxygen, total algae, turbidity, pH, ORP, conductivity conductance, salinity, TDS, ammonium, ammonia, chloride, nitrate, depth temp, and GPS Coordinates.

DEC Emergencies: Events that immediately threaten life, health, property, general welfare or natural resources, and require a prompt response.

Previous Analyses:

The 2021 annual report indicated that the actual and potential pollution sources were being adequately monitored in the Atlantic Ocean and the area did not require any modifications to protect public health. A suggestion was made to monitor stations OI and 3AE more closely to determine if any changes in classification might be necessary in the future. Additionally, a recommendation was made to coordinate the sampling of station 3AE with the opening of the outfall pipe by the Village of Southampton (Appendix B).

The 2020 annual report indicated that the actual and potential pollution sources were being adequately monitored in the Atlantic Ocean and the area did not require any modifications to protect public health. A suggestion was made to conduct more cold weather sampling in Jones Inlet to determine if any upgrades in classification could be made and more warm weather sampling near Agawam Lake at station 3AE to determine if a closure is necessary around the pipe (Appendix B).

65-13E: Hero Beach, Downtown Montauk

Year Round Analysis Date Range: 1/ 2016 - 12/ 2021

65-Atlantic Ocean

FC at Station:

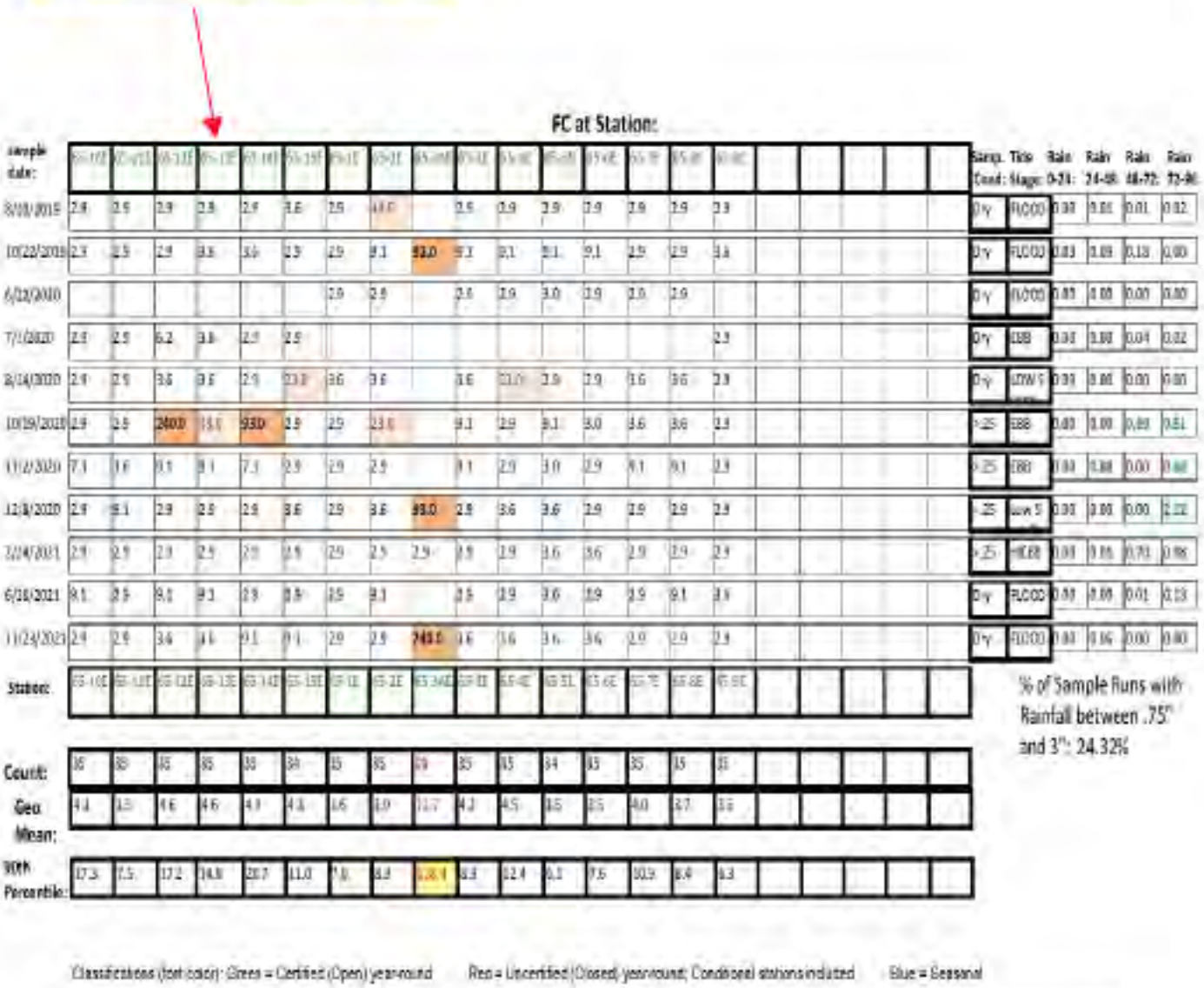
sample date:																						Samp. Cond:	Tide Stage:	Rain 0-24:	Rain 24-48:	Rain 48-72:	Rain 72-96:
5/26/2016	2.9	2.9	2.9	2.9	3.6	3.6	2.9	2.9	2.9	2.9	11.0	2.9	2.9	2.9	3.6	9.1						>25	HIGH	0.25	0.00	0.01	0.00
6/25/2016	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9		2.9	2.9	2.9	2.9	4.6	2.9	2.9						Dry	EBB	0.01	0.00	0.09	0.00
7/10/2016	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9		2.9	2.9	2.9	3.6	2.9	2.9	2.9						Dry	FLOOD	0.03	0.00	0.12	0.00
6/8/2016	23.0	23.0	23.0	9.1	23.0		2.9	9.1		23.0	9.1	23.0	3.6	23.0	9.1	9.1						>25	FLOOD	0.02	0.00	0.02	0.00
7/25/2016	3.6	2.9	2.9	9.1	2.9	2.9	2.9	3.6		3.6	3.6	2.9	2.9	2.9	2.9	3.6						Dry	LOW S	0.00	0.00	0.00	0.00
8/8/2016	2.9	2.9	2.9	2.9	23.0	23.0	2.9	2.9	3.6	3.6	2.9	2.9	2.9	23.0	2.9	2.9						Dry	LOEBB	0.00	0.01	0.03	0.00
1/4/2017	2.9	2.9	2.9	2.9	3.6	2.9	2.9	2.9		3.6	3.6	2.9	2.9	2.9	2.9	2.9						>25	HIGH S	0.47	0.48	0.00	0.00
2/13/2017	2.9	2.9	2.9	2.9	2.9	2.9	3.6	2.9		11.0	2.9	2.9	2.9	2.9	3.6	2.9						>25	EBB	0.59	0.00	0.00	0.00
4/25/2017							2.9	2.9		2.9												Dry	HIGH	0.03	0.00	0.03	0.03
5/9/2017	2.9	2.9	2.9	2.9	2.9	23.0					3.6	2.9	3.6	2.9	2.9	2.9						Dry	LOEBB	0.91	0.20	0.00	0.07
5/17/2017	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9		2.9	2.9	2.9	2.9	2.9	2.9	2.9						>25	FLOOD	0.09	0.00	0.06	1.10
6/13/2017	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9		2.9	2.9	2.9	2.9	2.9	2.9	2.9						Dry	HIGH S	0.04	0.00	0.00	0.00
7/11/2017	9.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9		3.6	2.9	3.6	2.9	2.9	3.6	2.9						>25	HIEBB	0.03	0.00	0.00	0.46
8/8/2017	2.9	2.9	2.9	2.9	2.9	23.0	2.9	2.9	2.9	2.9	2.9	2.9	3.6	2.9	2.9	2.9						>25	FLOOD	0.02	0.51	0.01	0.00
7/7/2018	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9						Dry	FLOOD	0.01	0.21	0.00	0.00
6/20/2018	2.9	2.9	2.9	2.9	3.6	2.9	2.9	3.6		2.9	7.3	2.9	2.9	2.9	2.9	2.9						>25	FLOOD	0.03	0.04	0.41	0.00
7/19/2018	3.6	2.9	2.9	2.9	2.9	3.6	2.9	2.9		3.6	2.9	2.9	2.9	2.9	2.9	2.9						Dry	FLOOD	0.04	0.00	0.00	0.00
8/1/2018	3.6	3.6	2.9	23.0	9.1	3.6	23.0	2.9		2.9	2.9	2.9	3.6	2.9	2.9	2.9						Dry	FLOOD	0.03	0.00	0.00	0.00
6/14/2018	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.6		2.9	2.9	2.9	2.9	2.9	2.9	2.9						Dry	EBB	0.03	0.00	0.00	0.00
10/29/2018	3.6	3.6	3.6	3.6	3.6	2.9	23.0	2.9		9.1	9.1	3.6	3.6	23.0	3.6	9.1						>25	FLOOD	0.13	0.00	0.00	0.00
11/13/2018	2.9	3.6	3.6	9.1	23.0	3.6	3.6	2.9		3.6	23.0	3.6	3.6	2.9	2.9	3.6						>25	FLOOD	0.79	0.00	0.00	0.00
1/7/2019	9.1	2.9	23.0	3.6	2.9	2.9	2.9	2.9		2.9	2.9	3.6	2.9	2.9	2.9	3.6						>25	EBB	0.03	0.02	0.00	0.00
5/4/2019	2.9	2.9	3.6	2.9	2.9	2.9	2.9	2.9		2.9	2.9	2.9	2.9	2.9	2.9	2.9						>25	EBB	1.42	0.01	0.46	0.02
5/14/2019	7.2	2.9	2.9	2.9	2.9	3.6	23.0	3.6	9.1	9.1	2.9	3.6	2.9	2.9	3.6	2.9						>25	LOW S	0.01	0.67	0.35	0.01
6/18/2019	3.6	3.6	3.6	2.9	2.9	2.9	2.9	2.9	23.0	2.9	3.6	2.9	2.9	2.9	2.9	2.9						Dry	FLOOD	0.01	0.02	0.01	0.01
7/23/2019	1300.0	460.0	38.0	93.0	460.0	23.0	9.1	9.1		9.1	43.0		93.0	43.0	38.0	43.0						>25	FLOOD	1.31	0.29	0.00	0.00

Page 1A

Note: 65-13E: Hero Beach, Down Town Montauk
Certified Open year around

Note:
65-13E: Hero Beach, Downtown Montauk
8-1-2018: Tide was at Flood Stage
7-23-2019: Heavy Rainfall, meeting standard for Adverse Pollution Conditions (APC)

65-13E: Hero Beach, Downtown Montauk



Classifications (font color): Green = Certified (Open) year-round Red = Uncertified (Closed) year-round; Conditional stations indicated Blue = Seasonal

Black value with orange highlight denotes samples do not meet NSSP and NYSDEC criteria

Red value denotes samples do not meet NSSP and NYSDEC criteria for certified areas

Purple value denotes samples meeting criteria but approaching threshold levels

Blue rainfall value denotes rainfall amounts meeting Adverse Pollution Condition (APC) criteria - min of 0.75 inches

DatePrepared: 12/21/2022 11:03:18

Note: 65-13E: Hero Beach, Down Town Montauk
Certified Open year around

Note:
65-13E: Hero Beach, Downtown Montauk
10-19-2020: Heavy Rainfall, meeting standard for Adverse Pollution Conditions (APC)

ENVIRONMENTAL IMPACT OF GROUNDWATER IN DOWNTOWN MONTAUK, PART III

IMPACT ON SURFACE WATERS (FORT POND)

Fort Pond is a 184-acre freshwater pond situated just north of Downtown Montauk. Fort Pond is the only surface water body (or wetland) located anywhere near Downtown Montauk except for the Atlantic Ocean.

One of the premises underlying East Hampton Town's push for sewers in Downtown Montauk is that sewers in the downtown area will improve water quality in Fort Pond. Although water quality in Fort Pond is not bad, as of June 2020 it was classified as a "partially impaired water body" by the New York State DEC. See https://www.dec.ny.gov/docs/water_pdf/section303d2018.pdf. The cause of the impairment is occasional low dissolved oxygen in parts of Fort Pond. The DEC currently assesses the low dissolved oxygen events in Fort Pond as being a result of natural causes, and not driven by anthropogenic pollutants (i.e., pollutants produced by human activity). See Footnote 8 in the above-referenced webpage.

There seems to be limited public information concerning the amount of nitrogen to be found in Fort Pond. Nevertheless, nitrogen is not currently the basis of any regulation of Fort Pond by the DEC. The Town's own consulting engineers on the sewer project (H2M) have produced information showing that putting sewers in Downtown Montauk will cause only a very small reduction in nitrogen inputs to Fort Pond. This is chiefly because the direction of groundwater flow under Downtown Montauk is away from Fort Pond and towards the Atlantic Ocean. Most nitrogen entering Fort Pond undoubtedly comes from homes and businesses east and west of the pond.

Attached below is H2M's complete 2021 report (the "Hazlett Report") on nitrogen loading to Fort Pond (**Exhibit 5**). The report was prepared by Timothy J. Hazlett, Ph.D. Also attached is a map from the Hazlett Report which shows the very small part of Downtown Montauk actually situated in the Fort Pond watershed or groundwater catchment area (**Exhibit 6**). The map illustrates how little of the land designated for Downtown Montauk's sewer district actually lies within Fort Pond's catchment area, and thus explains why only a fraction of the groundwater beneath downtown actually flows into Fort Pond. The most important factor is that groundwater flow under downtown is south, towards the Atlantic Ocean. In addition, most of Downtown Montauk is separated from Fort Pond by a buffer of New York State parkland. Finally, data from the Suffolk County Water Authority shows that the properties which consume the most water (and thus presumably generate the most wastewater), are predominantly large motels and cooperatives fronting on or close to the Atlantic Ocean. (See **Exhibit 7** below.) It is safe to say that none of the wastewater produced by these motels and co-ops ever finds its way to Fort Pond.

In reviewing the Hazlett report, please focus on the report's Figures 1, 2, and 3. While Figure 1 suggests that nitrogen loading to Fort Pond would be reduced by less than 15% overall if Downtown Montauk were sewered, Figures 2 and 3 indicate that the nitrogen load to Fort Pond due to septic systems will only decline by two per cent (2%) if sewers are installed in Downtown Montauk. Either way, this is a derisory return on a $75-plus-million public investment that would, in the bargain, destroy 14 acres of forested parkland.

EXHIBIT 5

FORT POND WATERSHED ASSESSMENT REPORT

Quantifying Nitrogen Loading to the Fort Pond Contributing Area and Impacts from Sewering the Downtown Montauk Area

H2M Project No. EHPT2101

NOVEMBER 2021

Prepared for:

Supervisor Peter Van Scoyoc and Town Board Members
Town of East Hampton
159 Pantigo Road
East Hampton, New York 11937

Prepared by:

H2M architects + engineers
538 Broad Hollow Road, 4th Floor
Melville, New York 11747

H 2 M architects + engineers

1.0 BACKGROUND & OBJECTIVES

Fort Pond is located north and west of downtown Montauk, a hamlet that is part of the Town of East Hampton. The location is on the easternmost tip of the southern fork of Long Island. Montauk Hamlet is separated from areas west by some low hills and surface water bodies, including Fort Pond.

The relative water quality of Fort Pond is of interest as a part of a larger project, which is planning to provide municipal sanitary wastewater collection, conveyance, and treatment infrastructure within downtown Montauk. The addition of this infrastructure will eliminate existing onsite wastewater disposal systems' (septic/cesspool) discharge to groundwater, where the flow will be diverted to a treatment plant. The goal of the nutrient loading analysis is to estimate the current nitrate loading to Fort Pond and then compare that to a post-sewering scenario to evaluate any reduction in nitrogen loading (via groundwater) to Fort Pond. Please refer to Gobler C. J., 2017 and Lloyd, S., 2014 for example applications of the approach employed here.

1.1 Geologic Setting

Fort Pond is situated on top of what is variously described in the literature as a Till Moraine (Caldwell, D.H., et. al., 1986). Long Island's two forks are remnants of its glacial past and it is thought that the south fork, where the site is located, is a feature near where the glacial ice sheets terminated some 10,000 years ago or more (Ronkonkoma Terminal Moraine).

The terrain formed by the till consists of several low rolling hills within the study area. The hills are comprised of unsorted deposits of boulders, gravels, sands, silts, and clays (Nemickas, B. and Koszalka, E., 1982). Fort Pond is situated in a topographic low, probably underlain by glacial materials that are relatively less permeable than sands or gravels, considering the perched (water table) nature of the pond. Fort Pond stretches nearly from the north (Fort Pond Bay) to south shore (Atlantic Ocean) and is 72 hectares (~178 acres) in area.

1.2 Groundwater Flow to Fort Pond

The study relies on groundwater flow as the mechanism for transporting nitrate from a source to a point of discharge, which in this case is Fort Pond. Groundwater flow direction and rates are not explicitly accounted for in the model spreadsheet. Instead, a catchment area is first designated for the receiving water body. H2M defined the Fort Pond catchment by subtracting depth-to-water[1] from the publicly available GIS-based LiDAR defined surface topography to define the groundwater (water table) elevation. The boundaries of the groundwater catchment to Fort Pond were calculated using GIS. The area of the groundwater catchment is calculated as 243 ha (~600 acres). Refer to Appendix A for an overview map of the modeled Fort Pond groundwater catchment area.

2.0 NUTRIENT LOADING MODEL (NLM)

The nutrient loading of the Fort Pond groundwater catchment is based on the use of a spreadsheet model known as the NLM (Nitrogen Loading Model), developed by researchers at the Marine Biological Laboratory in Woods Hole, MA. NLM has been used widely along the Northeast coast, in part because it can quantify sources of nitrogen with relative ease and accuracy and tie into land use and population. The NLM is for use in groundwater-driven systems and has been used on projects across Long Island. Inputs to the NLM specified by the user mostly include area values for different land uses, as these may reflect conditions of runoff versus infiltration to groundwater and potentially varying nutrient loading rates.

[1] Depth-to-water data based on web-based publicly available information obtained from United States Geologic Survey (USGS). https://ny.water.usgs.gov/maps/li-dtw/

2.1 Major Components

There are three primary nutrient source categories considered in the NLM: atmospheric deposition, wastewater, and fertilizer. Given the area of study (defined by water table elevations as the groundwater area contributing to Fort Pond), and in most instances each of the primary categories applied in the model are comprised of sub-categories.

The Wastewater category contains loading input from cesspools and septic systems. In this specific case, it also contains documented discharges to groundwater from two sites with their own onsite wastewater treatment facility and effluent leach fields (i.e. Rough Riders Landing and Montauk Manor). The Atmospheric deposition category applies nitrogen loading distributed over the area on a weighted basis per land use type. Grassed land, for example, is assigned a higher atmospheric deposition rate than paved impervious areas, where runoff is dominant. Fertilizer is the remaining major loading category. It consists of an estimated loading rate of nitrate on park lands, sports fields, and lawns expressed in terms of mass (kg) per area (ha) per time (yr).

2.2 Limitations

The NLM is a so-called "lumped parameter" model that combines external inputs along with internal constants to generate output solutions. There are many assumptions inherent to the model, which in some cases will result in over- or underestimated nutrient loads. Limitations of the model for the reader to consider include:

- water table groundwater levels vary
  - with time,
  - from nearby pumping or injection,
  - from seasonal variations in rainfall or water use / wastewater infiltration,
  - atmospheric pressure (storms),
  - with sea level changes (tides – when near the shore), and
  - with spatially variable precipitation.

As a result, the groundwater contributing area will tend to change over time as well. The NLM area therefore is representing a moment in time that is likely close to average water table conditions but may not cover the full range of behavior of the groundwater system.

- loading rates (+/-)
  - may be known precisely in some areas but may have to be estimated or assigned textbook values elsewhere and
  - nitrogen fixing or other forms of affective removal from the system are all estimated and difficult to measure.
- areas over which some loads are distributed are inexact and based on GIS (or best available data) where possible

The NLM for Fort Pond should be viewed as a broad-brush tool to evaluate the relative nitrogen loading within the contributing area. As more or better data is available in the future, it could be used to replace current data in the model and refine the results of the model, decreasing uncertainty.

2.3 Fort Pond NLM Model

The three dominant nitrogen loading inputs used in the NLM are land area-weighted Wastewater, Atmospheric, and Fertilizer sources. The area-weighting means that all else being equal in each scenario, identical loading rates on different sized land areas will produce larger inputs to groundwater on the smaller parcel (higher concentration). Wastewater comprised the largest estimated loading component to Fort Pond, followed by Atmospheric Deposition, and Fertilizer (total).

2.3.1 Wastewater

For the septic and cesspool components of wastewater nitrogen loading, the mass is estimated by a combination of proximity to Fort Pond and (<200m vs >200m) the parcels are weighted equally between cesspool and septic systems. Denitrification is included in the wastewater calculation more than 200m from Fort Pond, as the inferred groundwater flow path and contact time for the nitrogen is longer.

Where specific data of nitrogen discharge was available, it was used in the model. Discharge permit data for maximum yearly loading rates to groundwater were used for the Rough Riders Landing and Montauk Manor properties (approximately 30,000 gpd at 10mg/L). This was a conservatively high estimate, given the season fluctuation of use and occupancy. At times during the year the loading may be at the highest rate, while at other times it may be negligible. The variation in source concentration over time will lag the arrival at the pond due to the groundwater travel time. The estimated wastewater nitrogen loading to Fort Pond is 6301 kg/yr, prior to sewering, and is reduced to 5342 kg/yr after the planned sewer installation (refer to **Figure 1, Figure 2 and Figure 3**). The model predicts an overall nitrogen budget reduction of about 2% of the current discharge to Fort Pond due to wastewater alone (~1000 kg/yr).

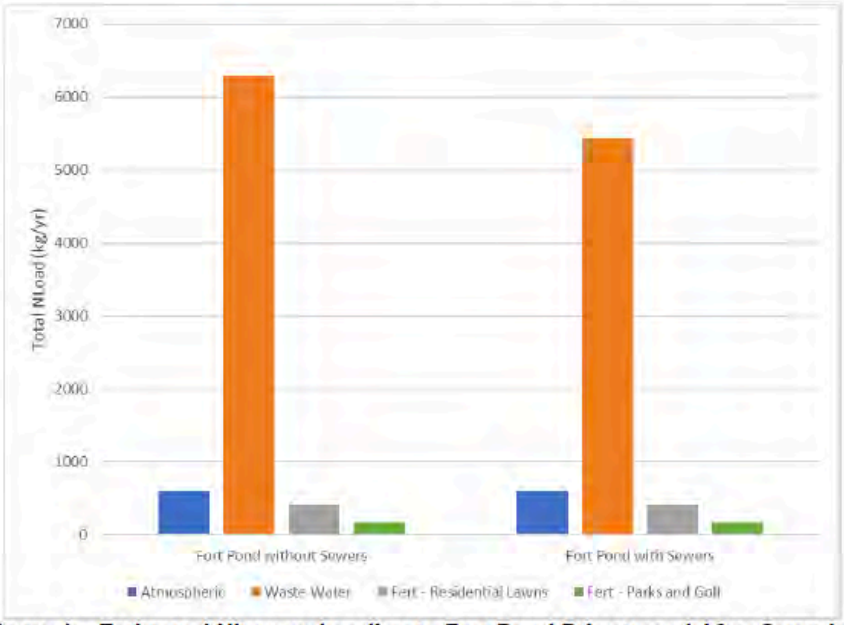


Figure 1 – Estimated Nitrogen Loading to Fort Pond Prior to and After Sewering

Fort Pond's nitrogen is largely the product of septic system wastewater, according to Hazlett. Before sewers, Hazlett estimates that nitrogen loading to Fort Pond **due to septic wastewater** is about 6,301 kilograms/year. If sewers are installed in Downtown Montauk Hazlett estimates the nitrogen load to Fort Pond due to septic wastewater will drop by about 1,000 kg/year, to approximately 5,324 kg/year. If correct, this would be about a 15% reduction in nitrogen loading to Fort Pond **as a result of** septic wastewater. It is important to note, however, that this is **less than** a 15% reduction in the overall nitrogen load, because there are other sources of nitrogen entering Fort Pond.

Fort Pond's nitrogen is largely from septic system wastewater. Presently, before the installation of sewers in Downtown Montauk, Hazlett estimates that 84% of Fort Pond's nitrogen budget is attributable to septic wastewater.

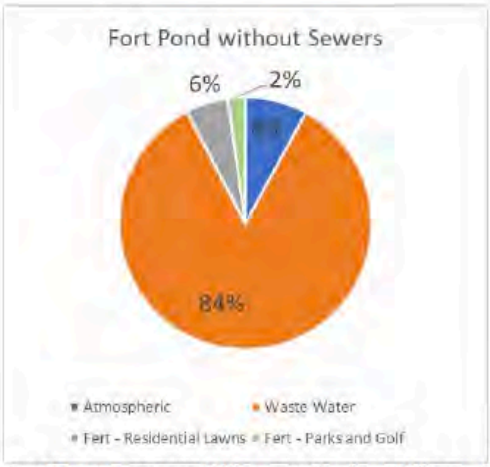


Figure 2 - Components of Nitrogen Budget Prior to Sewers

If sewers were installed in Downtown Montauk, Hazlett estimates that the percentage of nitrogen entering Fort Pond from septic wastewater would fall to 82% of the total nitrogen budget, from an original figure of 84%. This is only a 2% reduction in nitrogen loading from septic waste – hardly a great return on a $75 million-plus sewer project that will also destroy parkland.

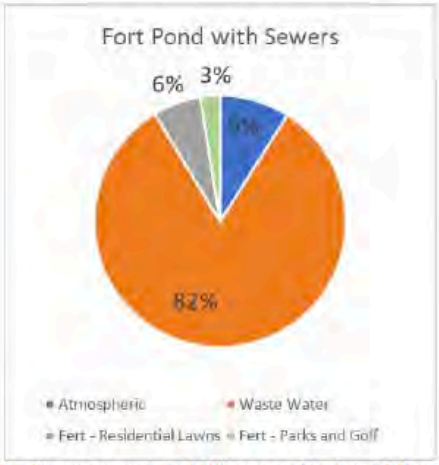


Figure 3 - Components of Nitrogen Budget After Sewers

2.3.2 Atmospheric Deposition

Nitrogen gas comprises 78% of Earth's atmosphere while oxygen gas is approximately 21% of the atmosphere at sea level. Both are critical for life on earth. There are two main mechanisms by which atmospheric nitrogen is deposited on the land surface: wet and dry deposition (An excellent primer on nitrogen deposition can be found here - http://nadp.slh.wisc.edu/lib/brochures/nitrogen.pdf).

Dry deposition occurs via the chemical interaction between nitrogen compounds in the air and the surface of the earth. These can be complex and occur over many different time and spatial scales where nitrogen is removed from the atmosphere and chemically attached to water, plants, rocks and minerals, and many other types of materials. Wet deposition occurs primarily through precipitation (rain and snow). Refer to **Figure 4** for an overview of nationwide atmospheric nitrogen deposition variation.

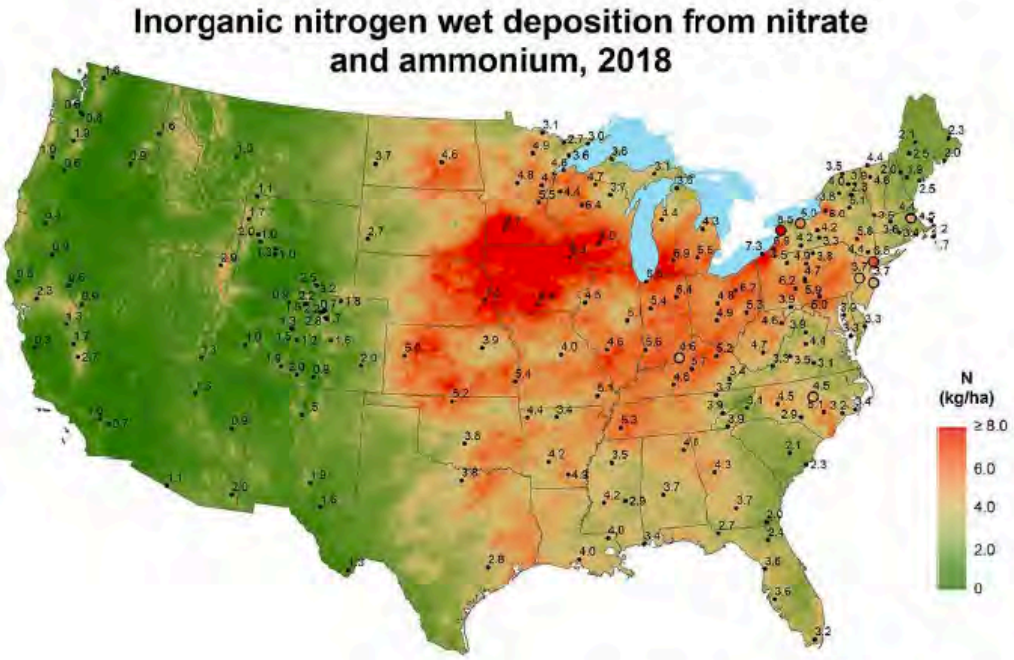


Figure 4 - Atmospheric N Deposition Variation

There are many factors affecting the overall atmospheric deposition of N. Broadly speaking, one can see that the eastern US and upper Midwest have much higher amounts of nitrogen deposited per hectare (ha) than from the Rocky Mountains and west. Agricultural, vehicular emissions, and other contributions to the atmospheric nitrogen load tend to fallout as precipitation in the east. The western half of the country benefits from prevailing westerly winds along with less arable land and lower population density, overall.

Atmospheric deposition of nitrogen over the Fort Pond groundwater catchment is not affected by sewering. The calculated nitrogen load in both cases is 594 kg/yr when denitrification and vadose zone release is included. Without these factors, the loading to Fort Pond is predicted to be 1,647 kg/yr. As a percentage of the calculated nitrogen budgets before and after sewering (refer to **Figures 2 and Figure 3**), atmospheric nitrogen deposition accounts for 8% and 9%, respectively. The percentage of the budget accorded atmospheric deposition increases slightly when the sewers have been installed because the overall nitrogen loading within the catchment is predicted to decrease.

2.3.3 Fertilizer

There are approximately 54 hectares of grassed areas (parks, lawns, golf courses) within the groundwater catchment of Fort Pond. It is assumed in the NLM that each of these categories of grassed land use apply fertilizer to the properties. Three different rates are used in the model, with the golf course rate being the highest at approximately 146 kg/ha/yr.

Fertilizer application overall has the least contribution to Fort Pond's nutrient budget totaling 573 kg/yr with or without the new sewer installed (**Figure 1**). The percentage contribution of fertilizer nitrogen increases from 8% to 9% (**Figures 2 & 3**) when the sewer is added, as the overall nitrogen budget is decreased.

3.0 SUMMARY & RECOMMENDATIONS

The Nutrient Loading Model (NLM) spreadsheet model was originally developed by Woods Hole Oceanographic Institute. It was employed here to evaluate and quantify what, if any, changes to Fort Pond water quality could be anticipated, given the installation of sewers within downtown Montauk. All nitrogen inputs to the model were distributed over the groundwater catchment for Fort Pond and often associated with a land use or cover. The model was populated with input that was known directly from permits and was otherwise derived from GIS datasets.

Three primary sources were categorized in the model: wastewater, atmospheric deposition, and fertilizers. All these categories are contributing nitrogen to the Fort Pond catchment. The wastewater component is by far the dominant one, accounting for more than 80% of both the before and after sewering nitrogen budget. The remainder of both budgets are comprised of nearly equal parts accounted for by atmospheric deposition and fertilizers (parks + golf courses). Even with about 10 parcels being added to the sewer system and removed from cesspools or septic.

It is clear that the definition of the problem as stated and the varying availability of data, there are uncertainties in the predictions made by the model. Fort Pond's nitrogen budget is most heavily influenced by wastewater via combination of leach field discharges, septic systems, and cesspools. Were the problem area of the groundwater catchment for Fort Pond changed in shape or size, it is not likely that either atmospheric deposition or fertilizer would come to dominate the nitrogen budget.

In terms of mitigation value, there is little that can be done locally as far as reducing the atmospheric deposition nitrogen loading to Fort Pond. The occurrence of atmospherically deposited nitrogen is complex and related to precipitation and how or where the nitrogen fixes to land surface materials or moves into groundwater. Wastewater nitrogen reduction via the addition of sewers, however, seems a relatively straightforward and valuable approach in terms of improving the relative water quality of Fort Pond or other points of discharge. The replacement of septic and cesspool systems with sewers, nearest to Fort Pond and within the identified groundwater contributing area, should be a priority if the pond's water quality is the focus.

The current model area does not contain a large area of land designated as fertilized. If Fort Pond water quality improvement is a key community objective, it is suggested that fertilizer plans be considered for properties like golf courses and parks, where fertilizer application is common.

Lastly, the seasonality of wastewater volume and nitrate loading should be considered when considering future actions. The distance within the Fort Pond catchment from a given source to the pond may be known and constant, but the travel time is not. Summer season high nitrogen levels at the pond may in fact reflect a combination of recent local sources and older, more distant sources. Managing nitrogen inputs based on both their source concentrations and locations will provide the best possible outcomes.

4.0 REFERENCES

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EXHIBIT 6

H2M Map Showing Watershed Boundary for Fort Pond

The map below outlines the proposed Downtown Montauk sewer district with a blue line. The watershed or catchment area for Fort Pond is depicted in light green.

Although the map as reproduced here is small, it is possible to see that very little of the Downtown Montauk sewer district is situated within the Fort Pond watershed area. In fact, the only place that the sewer district overlaps the pond's watershed is near the extreme southern end of Fort Pond, or the northwest edge of the sewer district. Businesses in this area include 7-Eleven, a Citgo gas station, and the Harvest on Fort Pond restaurant. The restaurant has already upgraded to an I/A OWTS low-nitrogen septic system.

EXHIBIT 7

Downtown Montauk Water Usage Data, for the top users

The Montauk Water Usage table below identifies the businesses which were the largest consumers of public water in Downtown Montauk over the past 5 years, according to the Suffolk County Water Authority. Logically, water consumption closely parallels the generation of septic wastewater. The accompanying map shows the locations of these high-consumption users in the downtown area. The businesses are mainly motels or cooperatives, and they tend to be located near the ocean.

Remarkably, 47% of the public water delivered to Downtown Montauk over the past five years was consumed by just 11 property owners!

Rank	Address	Owner	2018	2019	2020	2021	2022	Total	% of Total
1	126 S EMERSON AVE	ROYAL ATLANTIC CORP	4,472,314	4,262,373	4,347,092	5,562,322	4,034,742	22,678,844	11.6 %
2	20 SURFSIDE AVE	SURF CLUB AT MONTAUK CORP	2,827,440	2,842,400	2,700,280	2,909,720	1,985,940	13,265,780	6.8 %
3	108 S EMERSON AVE	OCEAN BEACH RESORT LTD (Blue Motel)	1,979,432	1,991,924	1,402,350	2,071,885	1,887,204	9,332,796	4.8 %
4	130 S EMERSON AVE	ROYAL ATLANTIC COOPERATIVE CORP	1,706,240	1,862,527	1,759,363	1,935,196	1,600,526	8,863,852	4.5 %
5	88 S ELMWOOD AVE	88 SOUTH ELMWOOD OWNER LLC, Malibu Motel (Yacht Club Housing)	1,044,477	984,518	1,026,106	1,550,342	2,814,335	7,419,779	3.8 %
6	626 MONTAUK HWY	OCEANSIDE OWNERS LLC (Hero Beach)	1,250,978	1,594,295	1,388,011	1,642,960	1,418,799	7,295,042	3.7 %
7	55 S ELMWOOD AVE	MONTAUK BEACH HOUSE, LLC.	1,563,911	887,839	960,806	940,468	812,904	5,165,927	2.6 %
8	44 S ELMWOOD AVE	DAUNT RESORT LLC (Albatross)	876,417	964,090	1,166,686	1,169,887	717,661	4,894,740	2.5 %
9	11 S EMERY ST	FORT POND PARTNERS LLC (Harvest Restaurant on Fort Pond) *	947,215	1,001,647	753,438	980,613	975,990	4,658,903	2.4 %
10	45 S ELMWOOD AVE	JOAN LYCKE (Laundromat)	769,168	914,707	758,465	807,077	808,139	4,057,556	2.1 %
11	107 S EMERSON AVE	SOLE EAST, LLC	562,646	454,634	783,605	1,071,809	1,055,802	3,928,496	2.0 %

* Note: The Harvest Restaurant has installed its own low nitrogen I/A sanitary system.

Top 5 Water Users make up 31.5% of Downtown Montauk Usage

Top 11 Water Users make up 46.9% of the Downtown Montauk Usage

SINCE THERE DOESN'T SEEM TO BE MUCH ENVIRONMENTAL BENEFIT FROM A DOWNTOWN MONTAUK SEWER DISTRICT, WHY DOES THE TOWN OF EAST HAMPTON INSIST ON BUILDING A SEWAGE TREATMENT PLANT THAT WOULD REQUIRE 14 ACRES OF COUNTY PARKLAND?

The reasons for the Town's persistence might not be the ones the Town tells you.

Here's a hint. In its July 2022 Report to the East Hampton Town Board – a report which to this day has never been released to the public – H2M wrote the following as to the **Purpose of Forming the Sewer District**:

> Business development and revitalization also hinge upon functioning sanitary systems. Every building, whether residential or commercial, designed for any specific use, has a certain amount of wastewater flow that its sanitary system is engineered to handle. In Suffolk County, the areas where failing on-site sanitary systems exist as the predominant method of wastewater disposal are losing value as they cannot be used to their fullest extent. This is seen in the Downtown Montauk Area where many buildings cannot accommodate mixed-use, cannot have a wet license, and are not able to increase their maximum occupancy ratings.
>
> To minimize the discharge of contaminants to the environment, Suffolk County Department of Health Services (SCDHS) enacted Article 4, Article 6, Article 7, and Article 12 of the Suffolk County Sanitary Code to form the rules and regulations on which to protect groundwater and public health in Suffolk County. Article 6 of Suffolk County Sanitary Code was enacted in 1980 to limit development density based on location relative to water resources. Any development initiated after 1980 that would exceed the density limitations specified in Article 6 would be required to install onsite sanitary wastewater treatment system(s) or connect to a centralized treatment system to ensure compliance with local regulatory requirements. It is for these reasons that the development of centralized sanitary infrastructure would be beneficial to the social, economic, and environmental sectors of the Downtown Montauk Area.
>
> Centralized sanitary wastewater collection, conveyance and treatment infrastructure will provide the property owners within the Downtown Montauk Area with the opportunity to expand their existing businesses in compliance with local zoning ordinance, as well as improve public perception associated with the reduction of nuisance odor emissions and potential back-ups that require pump-out activities of existing onsite sanitary wastewater disposal systems. Improvements to the Downtown Montauk Area will provide additional employment opportunities and may result in increased property valuations. The increase in property valuation within the Downtown Montauk Area and surrounding properties will provide additional property tax revenues to the Town while increased business activity will provide additional sales tax and income tax revenue, thus increasing the overall valuation of Montauk hamlet and to the overall Town.

In other words, the Town wants a sewer district in Downtown Montauk so it can get around the constraints imposed by the Suffolk County Sanitary Code, and so that downtown businesses, including restaurants and nightclubs, can increase the numbers of patrons they serve. It is not inherently wrong for the Town of East Hampton to promote economic growth and development in Montauk. But it is dishonest to say that this is being done in the guise of "clean water" and environmental protection. The Town wants Suffolk County to sacrifice 14 acres of forested parkland in the middle of Hither Woods so that Downtown Montauk businesses can expand. Let's just call a spade a spade.

CONCLUSION

What will we lose if East Hampton Town gets what it wants from Suffolk County?

Fourteen acres of woodlands on the right in the photo above.

These woods will be bulldozed for a ½ acre sewage treatment building, other structures, and up to 250 concrete leaching pools, each 12 feet deep, which will be emplaced in the ground to accept and recharge what might eventually be more than 500,000 gallons per day of effluent from the sewer plant.

Town officials might dispute some of these figures, but the Town's ultimate plan is revealed in the July 2022 H2M Map, Plan & Report. Whatever Town representatives might say today, if East Hampton Town acquires this land it will be free to do what it wants with it so long as it serves the purposes of a sewage treatment plant.