2015/2016 Annual Water Quality Report

Water Quality Monitoring Program

FUSS & O'NEILL

Prepared in 2017 for

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This *2015/2016 Annual Water Quality Report* was produced in 2017. It presents and describes data and observations that were recorded by the Friends of the Bay Water Quality Monitoring Program during the 2015 and 2016 monitoring seasons as well as information regarding other activities and accomplishments since 2015.

Who We Are

Friends of the Bay (FOB) – a widely respected, not-for-profit organization with thousands of supporters – is dedicated to the protection of the Oyster Bay/Cold Spring Harbor estuary and the surrounding watershed. FOB's advocacy efforts enable the estuary to continue as an unsurpassed scenic, ecological and economically-productive resource.

Our Mission

FOB's mission is to protect, preserve and restore the ecological integrity and productivity of the Oyster Bay/Cold Spring Harbor estuary and the surrounding watershed.

What We Do

- Help to maintain clean waters that sustain a vital ecosystem, a wide range of recreation and a thriving shellfishing aquaculture business.
- Monitor water quality within the estuary.
- Create awareness of the need to preserve water quality and marine life.
- Confront unsound development proposals.
- Promote responsible development and land use planning.
- Partner with residents, organizations, and local businesses.
- Work with government at all levels.

Major Initiatives and Accomplishments

Friends of the Bay contributed funds for the creation of a fishway to restore fish passage at Beaver Lake Dam in Mill Neck. Friends of the Bay was part of a group working with The Nature Conservancy to create the project, which took place in August, 2017 and reopened fish habitat that had been blocked for nearly a century.

In 2014, Friends of the Bay partnered with the Town of Oyster Bay, the Nassau County Soil and Water Conservation District, the Hempstead Harbor Protection Committee, the Oyster Bay/Cold Spring Harbor Protection Committee, Sustainable Long Island, and the National Fish and Wildlife Foundation to install a 1200 square foot raingarden in front of the WaterFront Center in Oyster Bay. The raingarden captures Stormwater from the WaterFront Center's buildings, walkways, and parking lots.

Fourteen municipalities within the watershed joined together beginning in January 2010 in order to help protect and enhance the water quality of Oyster Bay and Cold Spring Harbor and their tributaries in the most cost-efficient and effective manner. In August 2012, these fourteen municipalities signed an Intermunicipal Agreement that officially formed the Oyster Bay/Cold Spring Harbor Protection Committee (OB/CSH PC). OB/CSH PC seeks to be a model of suburban watershed protection for the nation and improve the health of Long Island Sound so that it meets all water quality standards necessary to support swimming, shellfishing, and other recreational, natural, and commercial uses.

In June 2011, Friends of the Bay completed a Watershed Action Plan for the Oyster Bay/Cold Spring Harbor Estuary and surrounding watershed. The Watershed Action Plan is a comprehensive management plan to protect and restore water resource conditions throughout the Oyster Bay/Cold Spring Harbor Watershed. The plan recommends continuation of the ongoing monitoring programs to monitor changes in the harbor conditions as a result of changing watershed conditions and implementation of plan recommendations. Additional data collection is also recommended to refine the current understanding of water quality impairments in the estuary complex, particularly pollutants for which previous monitoring results have demonstrated the potential for water quality impairment but which are not currently identified by NYSDEC as a listed cause of impairment (e.g., sediment, nutrients, dissolved oxygen.)

A State of The Watershed Report was completed in October of 2009. This report summarizes existing environmental and land use conditions in the watershed. It is a comprehensive document that integrates many environmental indicators to assess the current health of the watershed and potential future threats. The report provides a baseline assessment of watershed conditions, which can be updated periodically to evaluate changes in the watershed and help direct watershed management planning.

In April of 2009 Friends of the Bay was awarded the Region 2 Environmental Quality Award by the Environmental Protection Agency for its water quality monitoring program. This award recognizes individuals and organizations that have significantly contributed to improving environmental quality during the prior year; have demonstrated a high level of achievement; and have created unique or location-specific benefits, produced results that are sustainable or reproducible, or increased public involvement in environmental action.

In 1997, we became one of the few East Coast groups ever to receive the prestigious Walter B. Jones Memorial and NOAA (National Oceanic and Atmospheric Administration) Excellence Award in Coastal and Ocean Resource Management presented to the "Non-Governmental Organization of the Year." In 1999, the New York Chapter of the American Planning Association honored FOB with an Award for Meritorious Achievement. Friends of the Bay was selected in the "Best Environmental Organizations" category of the *Long Island Press'* Best of Long Island 2013 issue.(This is the sixth year the readers of the *Long Island Press* selected us as their choice in this category.)

More importantly, our cooperative planning efforts are models for local governments and other environmental groups around Long Island Sound that seek to prepare watershed management plans to protect their embayments and reap the benefits of a cleaner Sound.

Our History

FOB was formed in 1987 by a group of engaged citizens concerned with the proposed development of the Jakobsen Shipyard site on Oyster Bay's western waterfront. Friends of the Bay successfully led a broad-based community effort to replace high-impact commercial development with an environmentally friendly, publicly accessible recreational complex accommodating passive use, community sailing, rowing, fishing, boat launching, maritime preservation and marine education.

Since our founding, we have grown into a powerful voice representing approximately 3,000 members. The New York Times has identified Friends of the Bay as one of the most effective environmental organizations around Long Island Sound. In 1997, we received the prestigious Walter B. Jones Memorial and National Oceanic and Atmospheric Administration Excellence Award for Coastal and Resource Management as the "Non-Governmental Organization of the Year".

Today, FOB continues to monitor water quality in the estuary, while actively advocating for policies and programs to maintain and improve water quality and habitat throughout the watershed. Consistent with the priorities established in the Watershed Action Plan, FOB has been integral to the founding and function of the Oyster Bay / Cold Spring Harbor Watershed Protection Committee, formed by inter-municipal agreement among 14 of the 18 local government entities having jurisdiction over portions of the watershed.

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National Fish and Wildlife Foundation – Provided a portion of the funding necessary to conduct our Water Quality Monitoring Program in 2015 and 2016.

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Oyster Bay Marine Center – Donates fuel for the sampling boat each year.

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Executive Summary

Background

Friends of the Bay's Water Quality Monitoring Program is an important component of our efforts to protect the Oyster Bay/Cold Spring Harbor estuary and the surrounding watershed while serving to increase public awareness of local threats to water quality. This program was developed in cooperation with the United States Fish and Wildlife Service, United States Environmental Protection Agency, New York State Department of Environmental Conservation, local governments, and other volunteer monitoring groups around Long Island Sound.

Friends of the Bay (FOB) conduct water quality monitoring in accordance with a Quality Assurance Project Plan (QAPP) approved by the Environmental Protection Agency (EPA). The QAPP establishes standard operating procedures and quality assurance for data collection, ensuring that data we provide is acceptable to EPA, other environmental agencies and academic researchers.

FOB has been conducting routine water quality monitoring since 2000. The monitoring results are documented in annual or biennial (one every two years) water quality monitoring reports. This report describes the combined results of water quality monitoring conducted in 2015 and 2016.

2015 and 2016 Monitoring Events

During 2015 and 2016, FOB continued data collection in support of the long-term open water body monitoring program. Once a week since 2000, from spring through fall, FOB has collected water quality data in Mill Neck Creek, Oyster Bay Harbor, and Cold Spring Harbor. In 2015, FOB collected samples during 20 separate monitoring events between April 6th and October 26th (18 Mondays and 2 Tuesdays; 7 planned monitoring dates were cancelled for all locations due to inclement weather), collected numerous samples that were analyzed for bacteria (414 samples each for fecal coliform and enterococci) and nitrogen pollution (73 samples for each parameter), recorded hundreds of measurements each of dissolved oxygen, temperature, pH, salinity (averaged 398 measurements), and water clarity (399 measurements).

In 2016, FOB collected samples during 18 separate monitoring events between April 4th and October 31st (16 Mondays and 2 Tuesdays; 7 planned monitoring dates were cancelled for all locations due to inclement weather), collected samples that were analyzed for bacteria (363 samples each for fecal coliform and enterococci) and nitrogen pollution (approximately 72 samples for nitrate and nitrite only), recorded hundreds of measurements each of dissolved oxygen, temperature, pH, salinity (averaged 337), and water clarity (361 measurements).

FOB monitored 19 open water body locations within Cold Spring Harbor (FB-1 through FB-4), Oyster Bay Harbor (FB-5 through FB-12), and Mill Neck Creek (FB-13 through FB-19). Each site was monitored in the morning once per week, weather and tide permitting, for dissolved oxygen, bacteria pollution, salinity, temperature, pH, and clarity. Nitrogen samples were collected twice during the 2015-2016 monitoring seasons.

In July 2010, FOB added three monitoring locations in Laurel Hollow (LH-1, LH-2, and LH-3) to the open water body monitoring program at the request of the Village of Laurel Hollow and Nassau County Department of Health (NCDH). The Laurel Hollow locations were sampled for bacteria only in 2015. No samples were collected from Laurel Hollow in 2016.

Open Water Body Monitoring Results

Three major water quality parameters were monitored in 2015 and 2016: bacteria, dissolved oxygen, and nitrogen. Analysis of the 2015 and 2016 open water body monitoring data provided useful insights into the estuary's water quality.

Bacteria

On a seasonal average basis, the majority of Oyster Bay Harbor met state shellfish standards for fecal coliform during the 2015 and 2016 monitoring seasons. (Oyster Bay Harbor is where the majority of shellfishing occurs in the estuary.) The 2015 and 2016 seasonal geometric mean fecal coliform levels in Oyster Bay Harbor were the lowest recorded since the monitoring program began. In contrast, seasonal average levels of fecal coliform bacteria exceeded state shellfish standards at most of the monitoring stations in Cold Spring Harbor and at all of the monitoring stations in Mill Neck Creek.

Although seasonal geometric mean fecal coliform levels in Oyster Bay Harbor were below the shellfish standard at most locations, consistent with previous years, the 30-day geometric mean fecal coliform levels at some (three of eight) of the stations exceeded the shellfish standard for a portion of the season in 2015 and most of the stations (six of eight) in 2016. Similarly, during the 2013 and 2014 monitoring seasons, the 30-day geometric mean fecal coliform concentrations at a majority of Oyster Bay Harbor monitoring stations did not meet the shellfish standard for fecal coliform.

As observed in previous years, fecal indicator bacteria levels in Cold Spring Harbor and Mill Neck Creek were higher than in Oyster Bay Harbor. Only one of the four monitoring stations in Cold Spring Harbor met the fecal coliform shellfish standard for the entirety of the 2015 season and 2016 seasons. Two of the Cold Spring Harbor stations (FB-3 and FB-4) met both the fecal coliform and enterococci geometric mean swimming standards for the 2015 and 2016 seasons. Mill Neck Creek consistently has the highest levels of fecal indicator bacteria observed in the estuary complex. The highest levels generally occur at FB-15, FB-16, and FB-17, which are locations that are characterized by limited circulation or flushing during low tide or are located near "The Birches" residential subdivision.

The average bacteria levels recorded at Mill Neck Creek monitoring locations decreased significantly (about 70% and 60% for fecal coliform and enterococci, respectively) from the 2011 to the 2016 sampling seasons. These reductions are an early indicator of the water quality improvements that have resulted from sewage infrastructure upgrades at The Birches. However, seasonal geometric mean fecal coliform and enterococci levels at many of the Mill Neck Creek monitoring stations continue to exceed their respective standards, which suggest other sources of fecal indicator bacteria to Mill Neck Creek. Additional monitoring data is needed to further assess water quality in Mill Neck Creek and the remaining pollutant sources.

Nitrogen
Due to circumstances beyond the control of the Friends of the Bay, 2015 and 2016 nitrogen sampling became increasingly limited in scope and frequency. Only samples for nitrate and nitrite were collected for most stations, with seasonal average concentrations across all sampling points below 0.1 mg/L for nitrate and 0.01 for nitrite.

A $10.6 million advanced wastewater treatment facility serving the Oyster Bay Sewer District has been fully operational since March 2006. The facility is achieving the 2014 nitrogen limits imposed by the New York State Department of Environmental Conservation. The upgrade has reduced daily nitrogen discharges by as much as 75%. The Friends of the Bay nitrogen monitoring data will provide a valuable baseline for ongoing evaluation of the effect of reduced nitrogen loading on estuary water quality.

Dissolved Oxygen
Hypoxic and anoxic conditions are likely to have occurred in the Oyster Bay/Cold Spring Harbor estuary complex during the 2015 and 2016 monitoring seasons, although no fish kills were reported. In both years, the Cold Spring Harbor stations (FB-1, FB-2, FB-3, and FB-4) generally showed the greatest variability and lowest dissolved oxygen values of all stations monitored. Dissolved oxygen concentrations at the bottom of the water column fell below the acute standard of 3.0 mg/l in 2015 at all stations and in 2016 at three of four of the Cold Spring Harbor monitoring stations and at several locations in Oyster Bay Harbor and Mill Neck Creek. Dissolved oxygen data continue to indicate that the waters of the estuary are enriched with nutrients. Long-term reductions in nitrogen inputs should reduce the occurrence of extremely low dissolved oxygen conditions in bottom waters.

Stream and Outfall Monitoring Results
Friends of the Bay has implemented a stream and outfall monitoring program since 2007 to establish baseline water quality conditions, identify water quality impacts from potential point and non-point pollution sources, develop a water quality database for the watershed to guide environmental decision-making, and measure the progress toward meeting water quality goals in the estuary watershed. The monitoring program includes sampling of 10 or 11 major discharges (OBS 1-10) into the Oyster Bay/Cold Spring Harbor estuary. These discharges include streams, ponds, a formerly untreated sewage discharge ("The Birches"), and a 'rotating' outfall that can change for each event in an effort to identify other pollutant sources.

Due to limited funding, stream and outfall monitoring was not conducted in 2015 or 2016.

Water Quality and Watershed Management
In June 2011, Friends of the Bay completed a Watershed Action Plan for the Oyster Bay/Cold Spring Harbor Estuary and surrounding watershed. The Watershed Action Plan is a comprehensive management plan to protect and restore water resource conditions throughout the Oyster Bay/Cold Spring Harbor Watershed. The plan recommends continuation of the ongoing monitoring programs to monitor changes in harbor conditions as a result of changing watershed conditions and implementation of plan recommendations. Additional data collection is also recommended to refine the current understanding of water quality impairments in the estuary complex, particularly pollutants for which previous monitoring results have demonstrated the potential for water quality impairment but which are

not currently identified by NYSDEC as a listed cause of impairment (e.g., sediment, nutrients, and dissolved oxygen).

Friends of the Bay will continue to work with citizen scientists, government agencies, and other non-governmental organizations in future monitoring seasons. Together, FOB and its partners will continue to improve and enhance the monitoring program, with the ultimate objective of protecting and improving the quality of water in the Oyster Bay/Cold Spring Harbor estuary complex.

1 Introduction

Friends of the Bay (FOB) is a widely-respected non-profit environmental organization located on the North Shore of Long Island. The mission of FOB is to protect, preserve, and restore the ecological integrity and productivity of the Oyster Bay/Cold Spring Harbor estuary and the surrounding watershed[1]. *Appendix A* presents a fact sheet for the estuary.

The Oyster Bay/Cold Spring Harbor estuary complex consists of a unique ecosystem in close proximity to New York City. Consider:

- Oyster Bay (Mill Neck) is among the 33 Inaugural Stewardship Areas listed within the Long Island Sound Stewardship Initiative 2006 Atlas.[2]
- The U.S. Fish & Wildlife Service maintains a 3,209 acre National Wildlife Refuge (NWR) within the Oyster Bay/Cold Spring Harbor Estuary Complex.[3]
- Two State-designated Significant Coastal Fish and Wildlife Habitat areas exist within the Oyster Bay/Cold Spring Harbor Estuary Complex.[4]
- Some 80 licensed commercial shellfishers and the state's largest shellfish aquaculture operation harvested approximately 50% of the hard clams and oysters landed in NY State in 2013. In 2014, the figures were 67% of hard clams and 10% of oysters landed in NY.[5]
- The Harbor Complex is home to the Cold Spring Harbor Fish Hatchery & Aquarium. The Hatchery is proud to have the largest living collection of New York State freshwater reptiles, fish, and amphibians.
- Oyster Bay is a designated New York State "historic maritime area."
- The oldest traditional shellfish farmer in New York State, Frank M. Flower and Sons (est. 1887), operates out of Oyster Bay. Frank M. Flower and Sons is the only traditional oyster company still in operation on Long Island (C.Blair, Newsday.com).
- Oyster Bay is designated as an Important Bird Area by the National Audubon Society.

The FOB Water Quality Monitoring Program was initiated to continue data collection efforts that would have been terminated due to budget cuts by Nassau County. This program was developed in cooperation with the United States Environmental Protection Agency (EPA), New York State

[1] Friends of the Bay Mission Statement as of 2005

[2] The Stewardship Initiative identifies places with significant biological, scientific, or recreational value throughout Long Island Sound and works to develop a strategy to protect and enhance those special places. The Stewardship Initiative has five specific goals: 1) Preserve native plant and animal communities and unique habitat types; 2) Improve recreation and public access opportunities; 3) Protect threatened and endangered species in their natural habitats; 4) Preserve sites that are important for long-term scientific research and education; and 5) Promote efforts to plan for multiple uses. For additional information, visit http://longislandsoundstudy.net/stewardship/stewardship_atlas06.pdf

[3] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563

[4] http://www.nyswaterfronts.com/waterfront_natural_narratives.asp; For almost two decades, there have been three State designated Significant Coastal Fish and Wildlife Habitats within the Oyster Bay/Cold Spring Harbor Estuary: Cold Spring Harbor, Oyster Bay Harbor, and Mill Neck Creek Wetlands (these habitat designations originated in 1987). On October 15, 2005, The New York State Department of State recommendations to consolidate these designations became effective. The two habitats now include 1) Mill Neck Creek, Beaver Brook, and Frost Creek, and 2) Oyster Bay and Cold Spring Harbor.

[5] 2013-14 New York Annual Shellfish Landings, NYSDEC.

Department of Environmental Conservation (DEC), local governments and other volunteer monitoring groups around Long Island Sound. Friends of the Bay considers this program a necessary component in the effort to preserve the Oyster Bay/Cold Spring Harbor ecosystem and hopes to increase public awareness of local threats to water quality. The water quality program of Friends of the Bay is being conducted to:

1. Provide high quality data to continue the dissolved oxygen-testing baseline established by the Nassau County Department of Health in 1972.
2. Screen for water quality impairments.
3. Monitor the estuary in support of the Total Maximum Daily Load (TMDL) for pathogens that has been established for Oyster Bay and Mill Neck Creek[6].
4. Determine long-term water quality trends.
5. Document effects of water quality improvements.
6. Educate and involve citizens and public officials about water quality protection.
7. Watchdog activity within the watershed and harbor.
8. Assist local, State, and Federal agencies in harbor management by providing data.

This program enables trained citizen scientists working alongside Friends of the Bay staff to monitor various components of the marine ecosystem. Friends of the Bay citizen scientists participate in collecting samples, recording data, and related activities. Individually, they bring intellectual curiosity, diverse backgrounds and skills, and a passion for the environment. They come from as far as the south shore of Long Island and Huntington Harbor, and as close as Bayville and Oyster Bay. Students and teachers from Locust Valley High School also participated in monitoring during the 2013 and 2014 seasons. Friends of the Bay's Water Quality Monitoring Program is also made possible by supporting members, businesses, and other partners including the Nassau County Department of Health, Analytical Chemists Laboratory, LLC, Frank M. Flower & Sons, Inc., Bridge Marina, and Oyster Bay Marine Center.

The program monitors a number of water quality parameters in the estuary including water temperature, pH, clarity, salinity, dissolved oxygen, nitrogen, enterococci bacteria, and fecal coliform bacteria. Measuring these parameters enables Friends of the Bay to better understand changes within the local marine ecosystem. The design of the program was reviewed and approved by the EPA in May of 2006 through Friends of the Bay's *Open Water Body Water Quality Monitoring Program Quality Assurance Project Plan* (QAPP).

A Memorandum of Understanding exists between Friends of the Bay and the U.S. Fish and Wildlife Service as well.[7] In this agreement, Friends of the Bay supplies collected data to the Fish and Wildlife Service. The objectives of this cooperative effort are to support long-term water quality monitoring within Oyster Bay Harbor, Mill Neck Creek, and Cold Spring Harbor, and waterways contained within

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[6] *Pathogen Total Maximum Daily Loads for Shellfish Waters in Oyster Bay Harbor and Mill Neck Creek.* NYSDEC (2003)

[7] Under the authority of the *U.S. Fish and Wildlife Coordination Act,* as amended, (16 U.S.C. Section 661) and Section 7 of the *Fish and Wildlife Act of 1956* [16 U.S.C. 742F(a)(4)], and the *Interior and Related Agencies Appropriation Act of 1992* (PL 102-154, Title 1, 105 Stat. 995.)

the Oyster Bay National Wildlife Refuge in addition to cooperative efforts on environmental education, interpretation, and outreach projects.

This Annual Water Quality Report summarizes the data collected during the 2015 and 2016 monitoring seasons as well as the results of the stream and outfall monitoring program, which was initiated in 2007. This report was produced in 2017 as part of Friends of the Bay's continuing commitment to study the complex factors that impact water quality within the estuary and the surrounding watershed.

2 Watershed Management

In June 2011, Friends of the Bay completed a watershed management plan for the Oyster Bay/Cold Spring Harbor Estuary and surrounding watershed. The watershed management plan was developed in two phases – a State of the Watershed Report and a Watershed Action Plan – following an approach endorsed by the U.S. Environmental Protection Agency (EPA), the NYSDEC, and the New York State Department of State (NYSDOS) Division of Coastal Resources for developing watershed-based plans.

The State of the Watershed Report, prepared on behalf of Friends of the Bay in November 2009 (Fuss & O'Neill, Inc.), summarized existing environmental and land use conditions within the Oyster Bay/Cold Spring Harbor watershed. The State of the Watershed Report integrated a variety of environmental indicators to assess the current health of the watershed and potential future threats. The report provided a baseline assessment of watershed conditions, which can be updated periodically to evaluate changes in the watershed and help direct watershed management planning. The State of the Watershed Report therefore serves as the basis for the Watershed Action Plan.

The Watershed Action Plan identifies prioritized action items to protect and improve the health of the Oyster Bay/Cold Spring Harbor watershed and estuary. The plan recommends continuation of the ongoing water quality monitoring program to monitor changes in harbor conditions as a result of changing watershed conditions and implementation of plan recommendations. Additional data collection is also recommended to refine the current understanding of water quality impairments in the estuary complex, particularly pollutants for which previous monitoring results have demonstrated the potential for water quality impairment but which are not currently identified by NYSDEC as a listed cause of impairment (e.g., sediment, nutrients, and dissolved oxygen).

3 Monitoring Program

3.1 Open Water Body Monitoring

Every Monday[8] morning from April through October 2015 and 2016, Friends of the Bay staff and citizen scientists collected data on water quality and ambient conditions at 19 open water body sites throughout the estuary complex. The parameters measured by Friends of the Bay included dissolved oxygen, salinity, water temperature, pH, water clarity, coliform bacteria, and nitrogen species.

[8] Monitoring is conducted on Tuesday or Wednesday when Monday is a holiday

Dissolved oxygen, salinity, pH, and water temperature were measured using a Hydrolab Quanta. The instrument includes a probe that is lowered within the water column to analyze the water's attributes in-place and a handheld datalogger that interprets the probe measurements and displays them for the sampler.

Water clarity was measured using a Secchi disk, a circular disk with opposing white and black quadrants that is lowered into the water column to the depth at which it can no longer be distinguished by an observer at the surface.

Water samples for coliform bacteria and nitrogen measurement were also collected by Friends of the Bay and analyzed by the Nassau County Department of Health (NCDH) and Analytical Chemists or Pace Analytical, respectively.

Field measurements collected and observations made at the time of sampling were recorded on field water quality monitoring sheets, which are presented in *Appendix C*. The following is a summary of the water quality testing locations and methods. These methods are consistent with the Standard Operating Procedures and Quality Assurance Project Plan that were approved by the EPA in May of 2006.

3.1.1 Monitoring Locations

Friends of the Bay monitored a total of 19 open water body sites throughout the Oyster Bay/Cold Spring Harbor estuary, including locations FB-1 through FB-4 in Cold Spring Harbor, FB-5 through FB-12 in Oyster Bay Harbor, FB-13 through FB-19 in Mill Neck Creek, and LH-1 through LH-3 in Laurel Hollow. A map identifying the approximate location of each site and a table of coordinates (latitude/longitude) for each station are included in *Appendix B*. The Laurel Hollow sites were added at the request of the Nassau County Department of Health and the Incorporated Village of Laurel Hollow to evaluate potential causes of high coliform levels leading to beach closures at the Village of Laurel Hollow.

The Oyster Bay/Cold Spring Harbor estuary station locations and identifiers were revised in 2003, so care should be used when comparing results from 2003 through 2016 to results presented in the 2002 monitoring report.

3.1.2 Monitoring Methods

Friends of the Bay monitored each open water body site for the following water quality parameters:

- Dissolved Oxygen, Water Temperature, and pH – Dissolved oxygen (DO), water temperature, and pH were measured at 22 monitoring sites using the Hydrolab Quanta datalogger and sonde. At each station, dissolved oxygen readings were taken at approximately one half-meter above the bay bottom, one-half meter below the water surface, and one meter below the water surface (depth permitting). The DO data was measured and recorded in milligrams per liter (mg/l), which is equivalent to parts per million (ppm). The measured values are then compared to ranges that describe the effect of dissolved oxygen on aquatic life, which are well established. In general, dissolved oxygen levels above 5 mg/l are preferred. Levels between 4 and 5 mg/l can cause harm to some species of organisms, especially the larvae of crustaceans such as lobster and crabs. Levels between 2 and 4 mg/l can cause harm to many organisms if exposure is prolonged. When dissolved oxygen levels decline below 2 mg/l, many organisms can be harmed quickly. Few organisms can survive exposure to levels below 1 mg/l for more than very short periods.

- Salinity – Salinity is the measurement of the concentration of dissolved salts in the water. Friends of the Bay monitored salinity with the Quanta meter, which measures specific conductivity (a direct measurement of the ease with which electricity passes through water) and converts that measurement to salinity. In earlier years, Friends of the Bay monitored salinity with a hydrometer, an instrument used to measure the specific gravity of liquids.
- Water Clarity – Friends of the Bay measured water clarity with a Secchi disk. The 8-inch diameter disk is divided into alternating black and white quadrants. The disk is lowered into the water with the sun at the citizen scientist's back. The point at which the disk becomes completely obscured is noted. The disk is then raised and the point at which the disk becomes visible again is noted. The average of these two numbers is the Secchi Depth, recorded to the nearest tenth of a meter (decimeter).
- Bacteria – Water samples were collected by Friends of the Bay in sterile bottles approximately one foot below the water surface. The bottles, supplied by NCDH, are then stored in a cooler with ice and transported immediately to the NCDH laboratory in Hempstead for analysis. The NCDH uses the Multiple-Tube Fermentation Technique - Method No.9222D (Standard Methods for the Examination of Water and Wastewater, 1997), which uses a 5-tube decimal dilution test for fecal coliform and EPA Method 1600 (EPA Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-β-D-Glucoside Agar [mEI], 2002) for enterococci. The level of fecal coliform bacteria and enterococci in a water sample is expressed as the most probable number per 100ml (MPN/100ml). A trip blank, supplied by the NCDH laboratory, is used to ensure that proper temperature standards are met. It is placed in the cooler with the ice and, upon arrival at the NCDH laboratory; the trip blank temperature is immediately recorded. If the trip blank exceeds 6°C, NCDH laboratory personnel flag the results on the chain of custody form and then Friends of the Bay flags the data in the electronic database.
- Nutrients – Nitrogen species water samples were collected at the Oyster Bay/Cold Spring Harbor estuary stations from the water surface in plastic bottles prepared by Analytical Chemists Laboratory or Pace Analytical (2013 or 2014 monitoring years, respectively). The bottles contain sulfuric acid and are placed into a cooler with ice packs. Once filled, they are transported to Analytical Chemists Laboratory, located in Farmingdale, New York (2013 monitoring year) or Pace Analytical, located in Melville, New York (2014 monitoring year). The water samples are analyzed for common forms of nitrogen, including nitrate/nitrite, ammonia, and organic nitrogen, collectively called nitrogen species.
- Other Parameters – Other information collected at the sites include: the time the sample was collected; qualitative description of rainfall in the previous 24 hours; tidal stage (scale of 1-4), air temperature (°C); wind direction (1 of 8 directions); wind speed (estimated in 5-mph increments); wave height (subjective, on a scale of 0-5); weather conditions (on a predetermined

1-6 scale); water color (subjective color, e.g. yellow-brown), cloud cover (0-5 scale) and any unusual conditions (i.e., odors, fish kills, debris).

3.1.3 Quality Assurance and Quality Control

The 2006 season was the first in which Friends of the Bay implemented a QAPP that was prepared for the open water body monitoring project. The QAPP was prepared with assistance from Fuss & O'Neill, approved by the EPA, and was implemented by Friends of the Bay in June 2006. Friends of the Bay performed many of the tasks required by the QAPP in earlier years, but the QAPP provides a procedural framework to ensure that the data collected meets EPA standards. Friends of the Bay continued to implement the QAPP during the 2015 and 2016 monitoring seasons. The QAPP includes:

- Formalized monitoring locations and standard parameter list.
- Defined sampling analysis procedures.
- Required collection of duplicate samples.
- Validation of field data through calibration checks and validation with other measurement methods.

The QAPP can be viewed at Friends of the Bay's office in Oyster Bay and is posted on their website at www.friendsofthebay.org.

It should be noted that data generated by the water quality meter was not consistently validated through calibration checks (e.g., titration). When the titrations were completed, the QA/QC readings were found to be outside of the acceptable range (deviate more than 0.5 mg/l) for approximately 13% of the checks performed in 2015 (9% were 2 or more failed titrations per sampling event, 3 total checks per event) and 30% of the checks performed in 2016 (25% were 2 or more failed titrations per sampling event, 3 total checks per event), such that some of the collected data does not meet QA/QC requirements of the QAPP. It should be noted that some of the QA/QC readings were close to the acceptance criterion (deviations of between 0.5 and 1.0 mg/l). These calibration checks show improvement over past years' QA/QC efforts. Friends of the Bay is working to continually improve the quality of data collected through citizen scientist training to reduce QA/QC discrepancies.

3.2 Stream and Outfall Monitoring Program

A stream and outfall monitoring program was initiated in 2007 to establish current baseline water quality conditions in the watershed, identify water quality impacts from potential point and non-point pollution sources, develop a water quality database for the watershed to guide environmental decision-making, and measure the progress toward meeting water quality goals in the Oyster Bay/Cold Spring Harbor estuary watershed.

Friends of the Bay did not conduct stream and outfall monitoring in 2015 or 2016.

4 Results, Analysis, and Discussion

4.1 Open Water Body Monitoring

With the help of citizen scientists, Friends of the Bay monitored water quality at a total of 19 open water body locations on 20 monitoring dates (18 Mondays and 2 Tuesdays; 7 planned monitoring dates were cancelled for all locations due to weather or other unsuitable sampling conditions) from April through October, 2015 and 18 monitoring dates (16 Mondays and 2 Tuesdays; 7 planned monitoring dates were cancelled for all locations due unsuitable sampling conditions) from April through October, 2016. Four sites are located in Cold Spring Harbor, eight are located in Oyster Bay Harbor, seven are located in Mill Neck Creek. Three sampling locations in Laurel Hollow, sampled in past years, were not included in the 2015-2016 sampling effort. Data collected during this season was analyzed both spatially (differences between areas in the estuary) and temporally (changes throughout the season) and compared to results recorded during previous seasons. The estuary was considered as a whole, and in terms of the four primary water bodies that comprise the estuary: Cold Spring Harbor (monitoring locations FB-1 through FB-4), Oyster Bay Harbor (FB-5 through FB-12), Mill Neck Creek (FB-13 through FB-19), and Laurel Hollow (LH-1 through LH-3).

These major water bodies are distinguished by hydrographic separations and differ in terms of physical characteristics, land use, watershed features, and tidal influence (see Monitoring Locations Map in *Appendix B* and Tide Charts in *Appendix D*). Relatively narrow constrictions separate each water body. Plum Point separates Oyster Bay Harbor from Cold Spring Harbor, and the narrows at the Bayville Bridge divide Oyster Bay Harbor from Mill Neck Creek. Mill Neck Creek is shallow and likely to be more influenced by tributary inflows than the other hydrographic areas. Oyster Bay Harbor contains a large mooring area and industrial facilities, is more densely developed on its south shore, and is somewhat separated from Long Island Sound by Centre Island and the landmass that includes incorporated and unincorporated parts of Bayville. Cold Spring Harbor is open to Long Island Sound and is likely to be most rapidly impacted by tidal inflows and water quality within the Sound. Tributaries flowing into the estuary include Whites Creek, Mill River, Beaver Brook, Spring Lake, Tiffany Creek, Cold Spring Brook, and others.

A long-term data analysis was performed in January 2009. This analysis evaluated the open water body water quality monitoring data that was collected by the Friends of the Bay from 2000 to 2006. The data was evaluated for spatial and temporal trends in order to identify how water quality in the Oyster Bay/Cold Spring Harbor estuary has changed and the progress that has been made as a result of management efforts to address water quality problems in the estuary.

In July 2010, Friends of the Bay added three Laurel Hollow sites (LH-1, LH-2, LH-3) to the open water body monitoring program at the request of the Village of Laurel Hollow and NCDH. The beaches in this area were being closed by the NCDH's onshore monitoring. However, the high, intermittent coliform levels did not appear to be correlated with high or low tides. Dye testing of cesspools was completed in the area but there were no significant deficiencies found. The NCDH also suspected sewage dumping by recreational boaters may have been the source; however, the moorings in the area are for very small vessels – most without onboard sanitary facilities. The NCDH concluded that the exceedences were most likely caused by the Canada geese that frequent the open lawn areas upstream of the beach. Monitoring at these sites did not occur after 2014.

4.1.1 Physical Parameters

Salinity, water temperature, pH, air temperature, and water clarity were measured at each open water body sampling station throughout the 2015 and 2016 monitoring seasons. These physical parameters can impact environmental and ecological conditions within the estuary. *Figure 1* shows average air temperature and total rainfall for the sampling season (April through October) in Oyster Bay from 2000 through 2016.

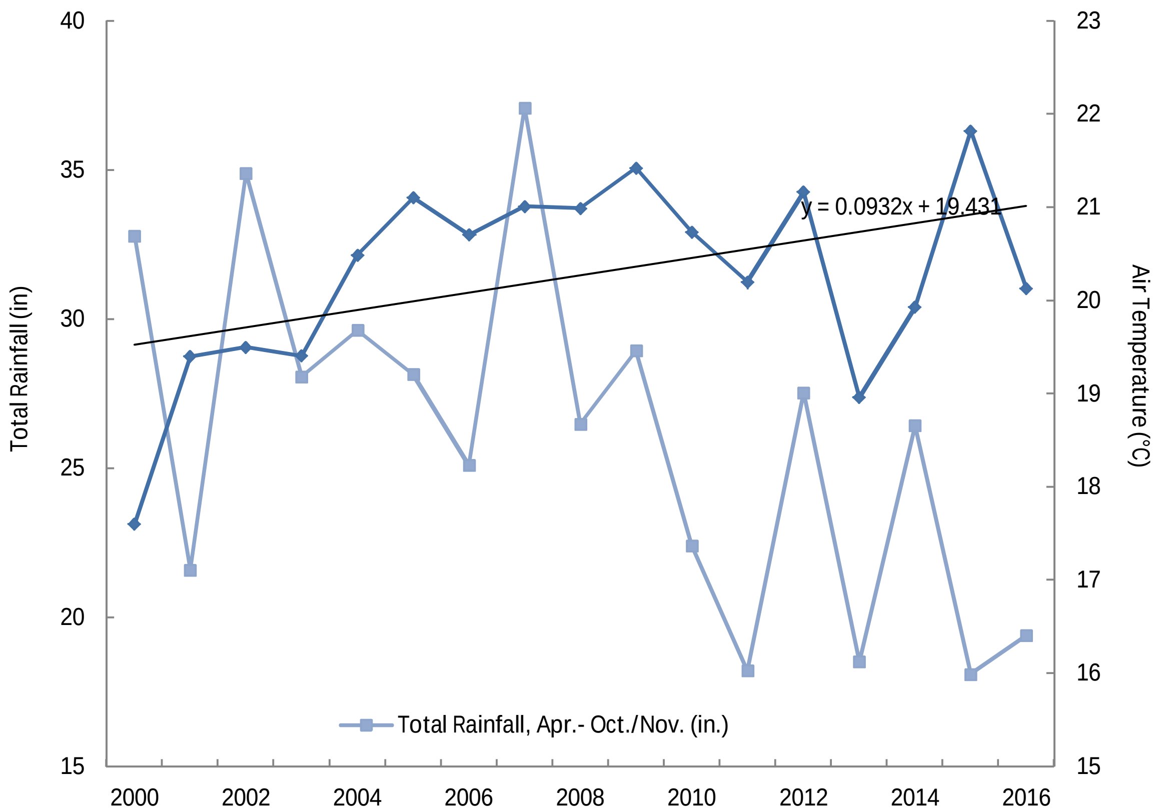

Figure 1. Physical conditions in the Oyster Bay/Cold Spring Harbor Estuary, 2000 – 2016. A linear trend in air temperature is shown and is positive over the period of study.

During the 2015 season, the total rainfall recorded was the lowest of the 16-year monitoring period, slightly lower than the rainfall recorded in 2011. Rainfall amounts during these two years were similar to the third lowest monitoring season (18.5 inches in 2013). At Levittown, Long Island, 18.1 inches of precipitation was recorded during the 2015 monitoring season, which is significantly lower than the average seasonal precipitation from 2000 through 2014 (27.1 inches). The total rainfall during the 2016 monitoring season was 19.4 inches, which is an increase over levels recorded in 2015 but still below the average seasonal precipitation of all sixteen prior monitoring seasons (26.5 inches).

The average seasonal air temperature in the Oyster Bay/Cold Spring Harbor estuary has increased by just over 1 degree Celsius over the 17-season monitoring period. The 2013 monitoring season was the second coolest during this period, but 2015 was the warmest.

Secchi disk depth is an indication of water clarity. Light that penetrates the surface of the water passes through the water column, reflects off the disk, and passes back through the water column to the eye of the observer. Secchi disk depth is the depth where enough light is scattered (by objects, such as sediment particles) or absorbed (by being converted to heat or chemical energy, such as by algae) within the water column that the light reflected by the disk can no longer return to the surface. Dissolved solids, particulate solids, algae, and other biota can impact clarity in a water column. Secchi disk depths in the Oyster Bay/Cold Spring Harbor complex are generally between 2.5 and 0.5 m (the range was 3.3 to 0.2 m in 2015 and 3.8 to 0.0 m in 2016). Although the cause of the attenuation has not been studied in detail, it is likely to be caused by algal growth fueled by nitrogen inputs to the Bay.

Figures 2 and 3 presents 2015 and 2016 Secchi disk depth results, respectively, as averaged for Cold Spring Harbor, Oyster Bay Harbor, and Mill Neck Creek. Average Secchi disk depths (in meters) in 2015 for these areas were 1.37, 1.43, and 1.03, and 1.37, 1.51, and 0.97 m in 2014, respectively. As was the case in past years, Mill Neck Creek had lower water clarity than Oyster Bay Harbor and Cold Spring Harbor, possibly a result of increased biological activity due to it shallow depth, marshy areas, and close proximity to tributary discharges. Secchi disk depths were variable throughout the season, and it is difficult to discern any definitive trends in the 2015 or 2016 data, although the lowest clarity levels seem to occur during mid-summer and the middle of the sampling season (June-July-August) at all locations. See *Appendix E* for additional physical data.

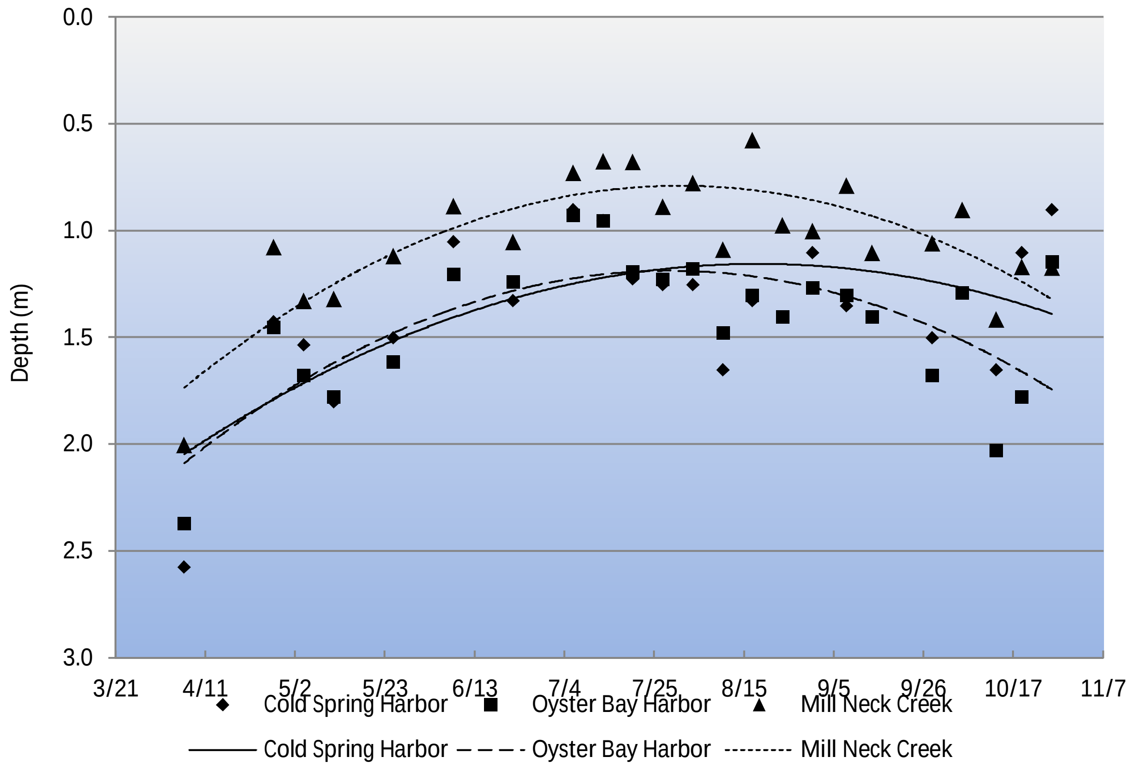

Figure 2. 2015 Secchi disk results, averaged locationally, with trend lines

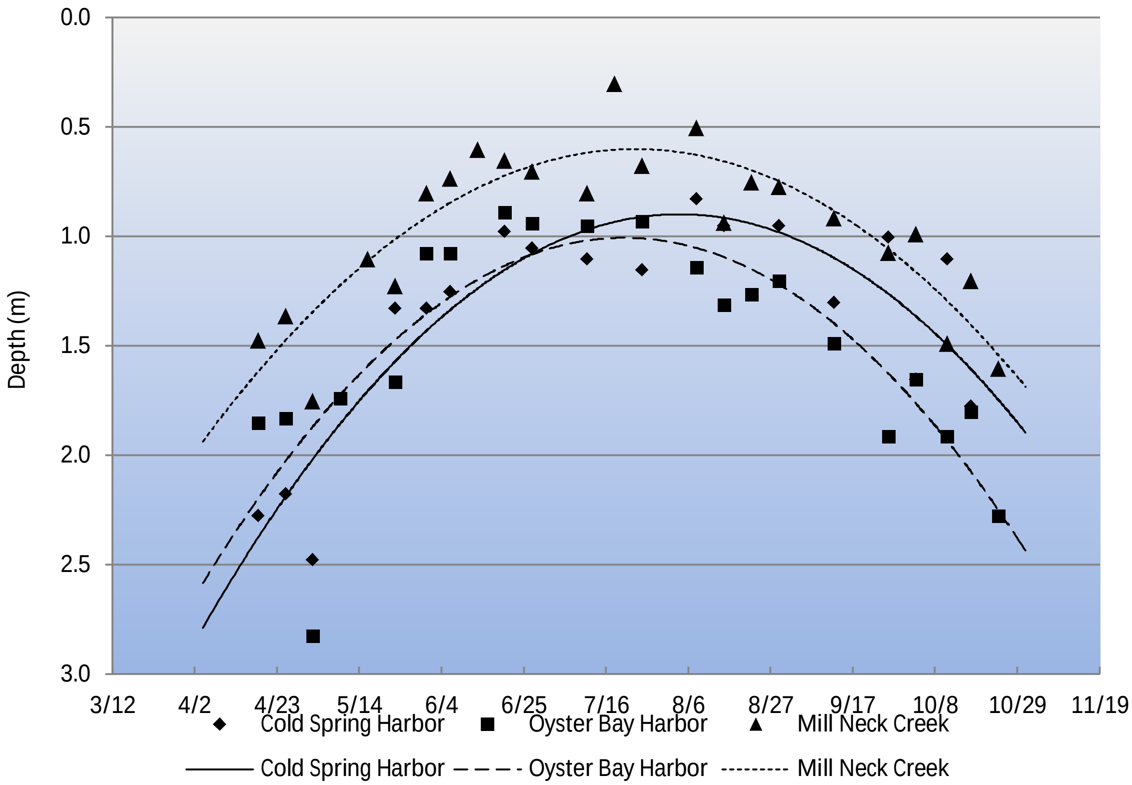

Figure 3. 2016 Secchi disk results, averaged locationally, with trend lines

4.1.2 Bacteria

Bacteria are widespread in the environment. Certain types, however, can be used to indicate the possible presence of human pathogens. Common fecal indicator bacteria include fecal coliform and enterococci. Bacteria are introduced in the marine environment through various point and non-point sources such as surface water runoff, industrial and agricultural discharges or wastewater discharges. The New York Code of Rules and Regulations (NYCRR) specify levels of fecal coliform bacteria that should be met in bodies of water designated for different purposes. Waters used for shellfish cultivation and harvest must meet the most stringent bacteriological criteria.

Coliform bacteria levels are reported as logarithmic average with a 30-day averaging period (also known as the geometric mean, or geomean). Geomeans are often used for regulatory thresholds as they are less prone to influence by outlier values which frequently result during bacterial analysis.

Friends of the Bay collected bacteria monitoring data during the20 weeks monitored in 2015 (7 dates were cancelled completely for all locations due to inclement weather, and all stations may not have been sampled during each event due to site/tidal conditions) and during the18 weeks monitored in 2016 (7 dates were cancelled completely for all locations due to inclement weather, and all stations may not have been sampled during each event due to site/tidal conditions). The completeness of monitoring runs, calculated by dividing the number of runs performed (20, 18) by the number of possible runs (20, 18) and expressed as a percent, is 100%[9] for the 2015 and 2016 monitoring seasons. In comparison, completeness of monitoring runs in previous years has ranged from 77% to 100%.

Table 1 summarizes shellfish standards for fecal coliform bacteria that are enforced by New York State (NYS). In 2004, revised beach closure standards were implemented that are based on measured levels of enterococci, an alternate indicator bacteria, and fecal coliform. The standards are summarized in *Table 2*.

Table 1. NYS Coliform Bacteria Standards

	Shellfishing *
Fecal Coliform	LOG AVG <14 MPN/100 ml and If < 10% of samples do not exceed 43 MPN/100 ml

* 6 NYCRR §47.3

Table 2. NYS Coliform Bacteria Standards, effective 2004

	Swimming †
Fecal Coliform	LOG AVG 30 days < 200 MPN/100ml, and no sample greater than 1,000 MPN/100 ml
Enterococci	LOG AVG 30 days <35 MPN/100 ml, and no sample greater than 104 MPN per 100 ml

†10 NYCRR Section 6-2.15 - Water quality monitoring

Fecal coliform and enterococci levels were measured and reported at twenty-two (22) locations during the 2015 season and nineteen (19) locations during the 2016 monitoring season (Laurel Hollow was only sampled between late June and mid-August in 2015 and not sampled in 2016). Fecal coliform has been measured by Friends of the Bay since the inception of the monitoring program, while enterococci has been measured since 2004.[10]

Tables 3 and *4* present a summary of the season's bacteria results compared to the New York State Shellfishing Standards in *Table 1*. The shaded cells in *Table 3* and *Table 4* indicate that the seasonal geomean and/or the 90th percentile value at that station exceeded the State standard. Although only fecal coliform data were collected in 2015 and 2016, in earlier years of the monitoring program, fecal coliform exceedances were generally accompanied by exceedances in total coliform as well.

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[9] Completeness is typically calculated as the number of total datapoints collected divided the number of datapoints planned. However, completeness calculated in this manner is less meaningful for Friends of the Bay, since several monitoring locations cannot be sampled under certain tidal conditions.

[10] The NCDH laboratory, which performs bacterial analysis for Friends of the Bay, changed analysis methods between the 2004 and 2005 seasons. The earlier method resulted in elevated values compared to the later method. As such, data from 2004 is not comparable to data from later years and not included in this report.

In 2015 and/or 2016, seasonal geometric mean fecal coliform bacteria levels exceeded the shellfish standards for fecal coliform at FB-1, FB-2, FB-3, FB-7, FB-10, FB-13, FB-14, FB-15, FB-16, FB-17, FB-18, and FB-19. These results are encouraging, since all of Laurel Hollow and the majority of Oyster Bay Harbor met the shellfish standards (FB-1, FB-2, and FB-3 are located in Cold Spring Harbor, FB-7 is located in the center of Oyster Bay Cove, FB-10 is located near Beekman Creek, FB-13 through FB-19 are located in Mill Neck Creek). Oyster Bay Harbor is where the majority of shellfishing occurs in the estuary.

Table 3. Comparison of 2015 Monitoring Results to State Shellfishing Standards

Station	Fecal Coliform Seasonal Geomean	Fecal Coliform 90th Percentile	Location
FB-1	35	238	CSH
FB-2	14	92	CSH
FB-3	2	6	CSH
FB-4	2	5	CSH
FB-5	2	5	OBH
FB-6	2	7	OBH
FB-7	11	38	OBH
FB-8	6	23	OBH
FB-9	3	16	OBH
FB-10	22	108	OBH
FB-11	2	8	OBH
FB-12	3	7	OBH
FB-13	15	57	MNC
FB-14	20	86	MNC
FB-15	64	160	MNC
FB-16	58	203	MNC
FB-17	80	210	MNC
FB-18	8	22	MNC
FB-19	12	38	MNC
LH-1	8	22	LH
LH-2	4	8	LH
LH-3	4	9	LH
Shellfish Standard	14	43	

Table 4. Comparison of 2016 Monitoring Results to State Shellfishing Standards

Station	Fecal Coliform Seasonal Geomean	Fecal Coliform 90th Percentile	Location
FB-1	66	304	CSH
FB-2	48	180	CSH
FB-3	13	43	CSH
FB-4	3	13	CSH
FB-5	2	5	OBH
FB-6	1	3	OBH
FB-7	14	54	OBH
FB-8	7	25	OBH
FB-9	5	19	OBH
FB-10	18	200	OBH
FB-11	4	28	OBH
FB-12	5	43	OBH
FB-13	3	19	MNC
FB-14	17	92	MNC
FB-15	83	378	MNC
FB-16	47	304	MNC
FB-17	93	973	MNC
FB-18	12	61	MNC
FB-19	12	97	MNC
Shellfish Standard	14	43	

In 1983, the New York State Department of Environmental Conservation closed Mill Neck Creek to shellfishing due to the elevated coliform bacteria levels found there, which was likely the result of the sewage overflows from "The Birches" (also known as Continental Villa) housing development in Locust Valley that have plagued Mill Neck Creek. This subdivision historically operated its own sewage treatment system, which suffered chronic problems due to cesspool overflows and inadequate treatment of waste, impacting low-lying wetlands and the adjacent creek. Failing and/or low-functioning individual on-site sewage disposal systems located in this area are also believed to have contributed to these chronic problems. As of April 2011, sewage infrastructure upgrades were completed, and all the homes in "The Birches" residential subdivision were connected to the Glen Cove sewage treatment plant.

The average bacteria levels recorded at Mill Neck Creek monitoring locations have decreased significantly since the 2011 sampling season (about 80% and 65% for fecal coliform and enterococci, respectively). While average levels increased after 2014, they remained below the levels observed prior to infrastructure upgrades. These reductions are an early indicator of potential water quality improvements resulting from the sewage infrastructure upgrades. However, seasonal geometric mean fecal coliform levels at the Mill Neck Creek monitoring stations continue to exceed the fecal coliform standard, which suggests other sources of fecal indicator bacteria to Mill Neck Creek. Additional monitoring data is needed to further assess water quality in Mill neck Creek and the remaining pollutant sources.

Figure 4 and *Figure 5* present seasonal geometric means (i.e., May through October) for fecal coliform and enterococci, respectively, for each of the estuary's embayments. Geometric mean levels of fecal coliform decreased in Cold Spring Harbor and Mill Neck Creek in 2015 before increasing above the shellfish standard in 2016. In Oyster Bay, the geometric mean levels in 2015 and 2016 remained consistent with levels in recent years. Although the 2015-2016 geometric mean fecal coliform levels were among the lowest recorded since the monitoring program began, they did show a slight increase above 2014 levels. Further monitoring is required to ensure that this pattern does not represent a broader increasing trend, instead showing expected variation around the post-infrastructure-upgrade average.

The enterococci geometric means followed a similar trend in 2015 and 2016 – Cold Spring Harbor decreased slightly from 2013 and 2014 levels, Mill Neck Creek remained consistent with 2014 levels, and Oyster Bay geomeans were similar to past years. Enterococci geometric means in 2015 and 2016 were among the lowest recorded since monitoring began. Although not shown, geometric mean enterococci levels in Laurel Hollow were 1 MPN/100 ml and geometric mean fecal coliform levels were 6 MPN/100 ml in 2015, which are below the shellfish standard (no data was collected at Laurel Hollow sites in 2016).

Although the shellfish and swimming standards are included on the figures below for reference, the locationally-averaged geomeans cannot be used to directly assess compliance with the standards.

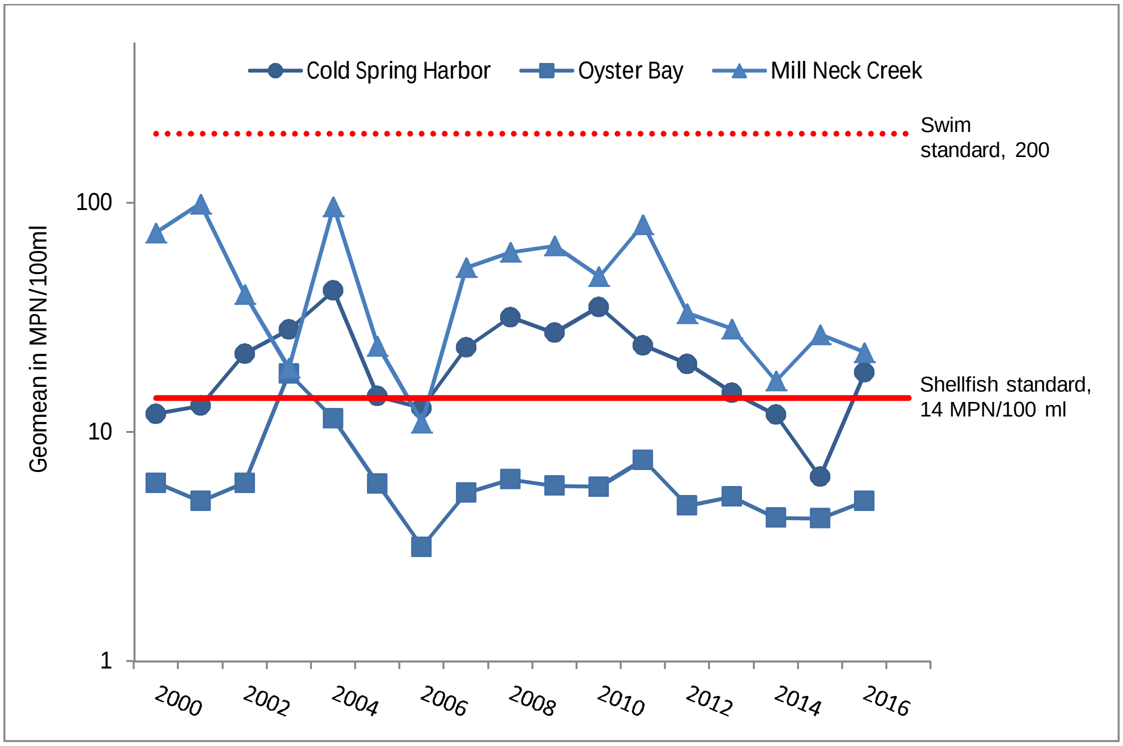

Figure 4. Seasonal geomeans of fecal coliform data by location

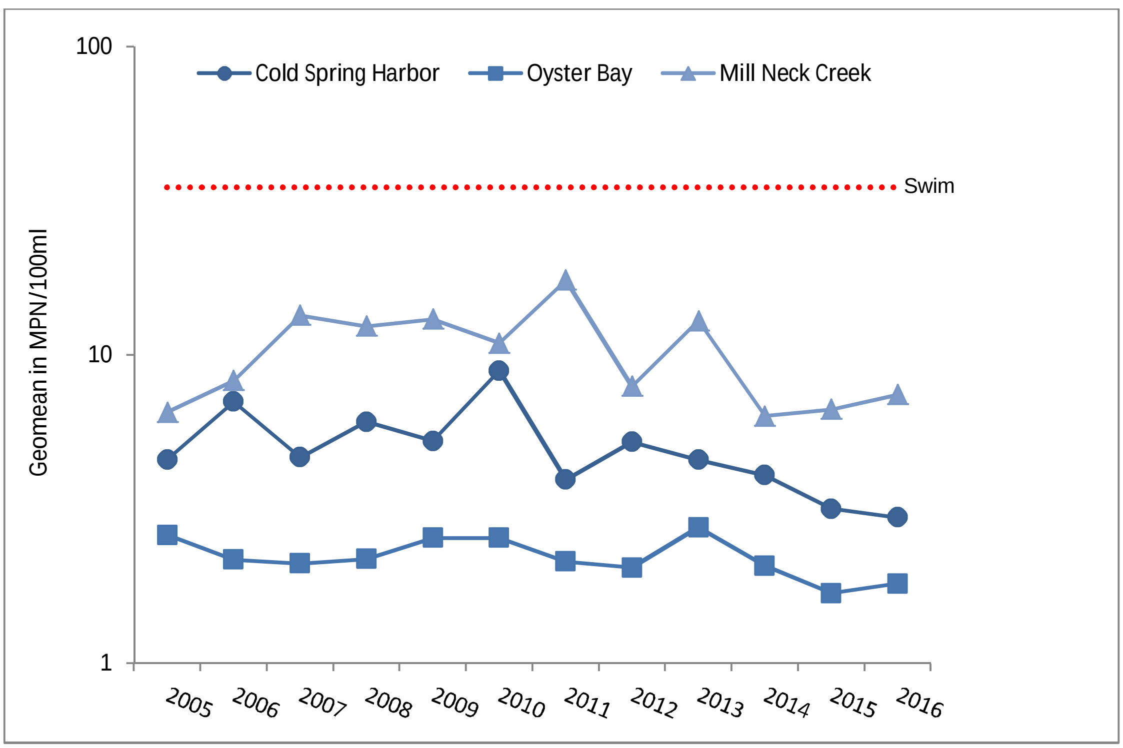

Figure 5. Seasonal geomeans of enterococci data by location

Figure 6 and *Figure 7* present total monthly precipitation as recorded at a precipitation station in Levittown during the 2015 and 2016 sampling seasons. Total monthly precipitation during 2015 and 2016 was fairly evenly distributed. In 2015, the monthly precipitation ranged from a low of 1.43 inches in April to 3.77 inches in June. Precipitation quantities ranged from 0.8 inches in August to 4.62 inches in July 2016. The distribution of precipitation through the monitoring season is important since stormwater runoff can transport bacteria pollution to receiving waters. See *Appendix E* for additional bacteria data.

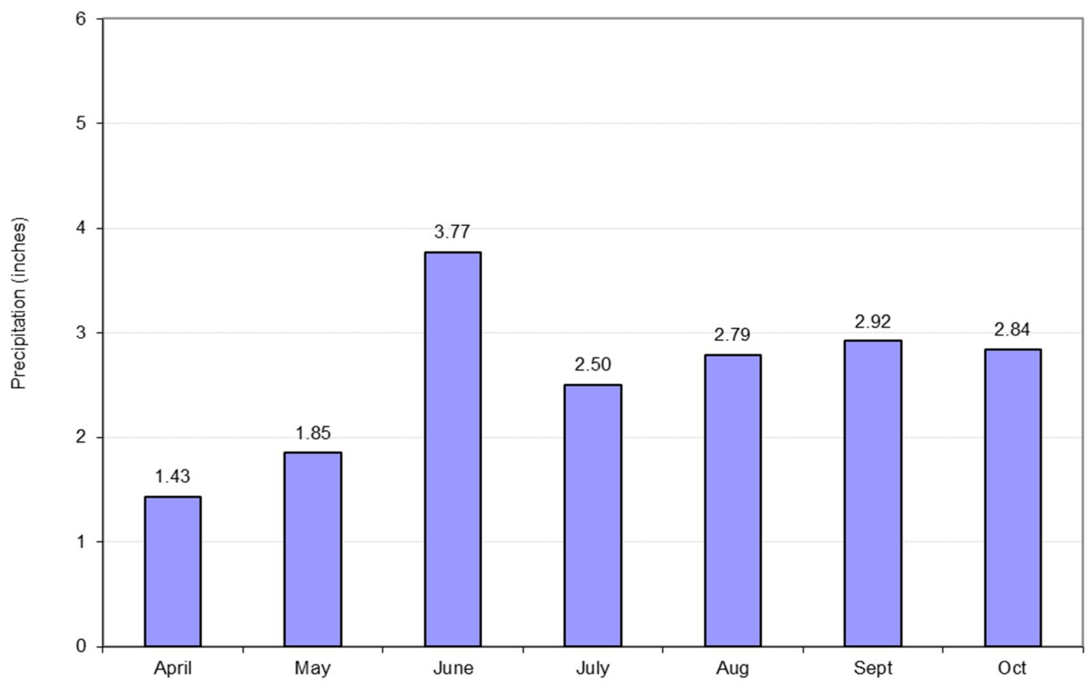

Figure 6. Precipitation recorded at Levittown, Long Island, 2015

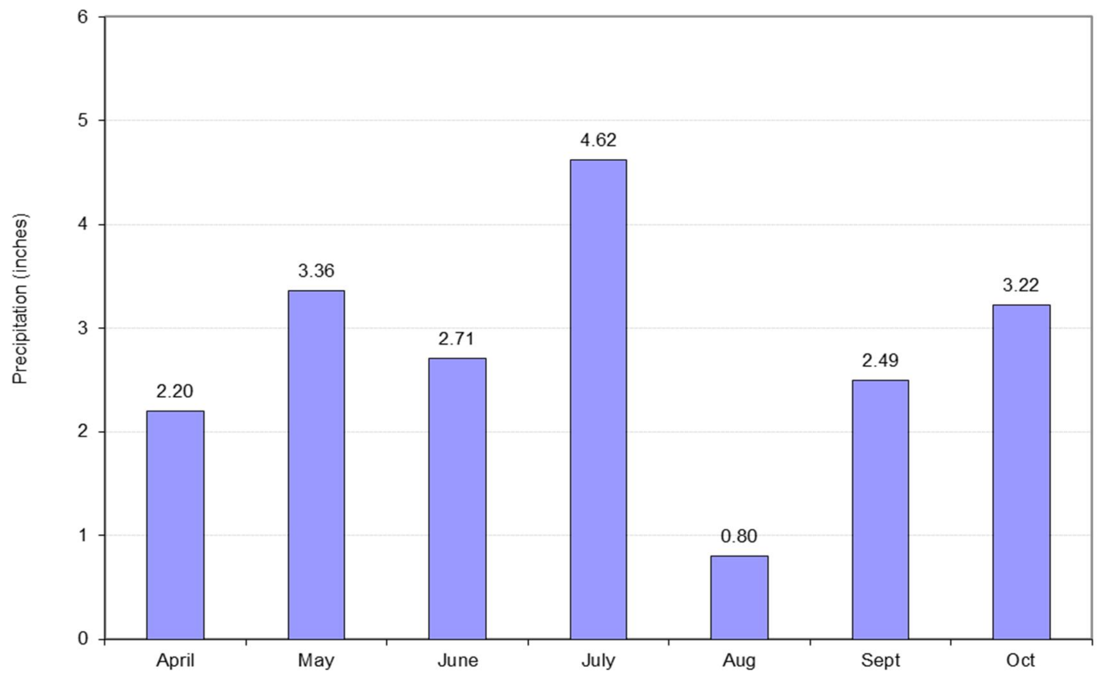

Figure 7. Precipitation recorded at Levittown, Long Island, 2016

4.1.2.1 Cold Spring Harbor Results

Four stations were monitored for fecal coliform and enterococci bacteria in Cold Spring Harbor in 2015 and 2016. *Figure 8* through *Figure 11* present the 2015 and 2016 fecal coliform and enterococci 30-day running bacteria geometric means for each station. In some cases, fewer than two samples were collected in the preceding 30-day period, so some breaks in the line graph are present.

The results for shellfishing are consistent with those presented in *Table 3*; stations FB-3 and FB-4 met the fecal coliform NYS shellfish geometric mean standard for the entirety of the 2015 season. No stations met this standard in 2016. FB-4 had the lowest recorded levels of the Cold Spring Harbor stations but exceeded the shellfish standard for a portion of the 2016 monitoring season.

In 2015 and 2016, FB-1 exceeded both swimming standards during two time periods (late May through June and most of September), while FB-2 exceeded the swimming standard from late May through June. FB-3 also exceeded the fecal coliform swimming standard during the same period of 2015, and during one week of 2016. FB-4 exceeded this standard between late May and early June 2015.

During the 2015 seasons, no fecal coliform samples exceeded the 1,000 MPN/100 ml single sample swimming standard, but during the 2016 season it was exceeded once at FB-2. Additionally, the 104 MPN/100 ml single sample standard for enterococci was exceeded twice at FB-1 through FB-3 in 2015. In the 2016 monitoring season, this standard was exceeded once at FB-1 and FB-2. These results would have resulted in beach closures. See *Appendix E* for bacteria data.

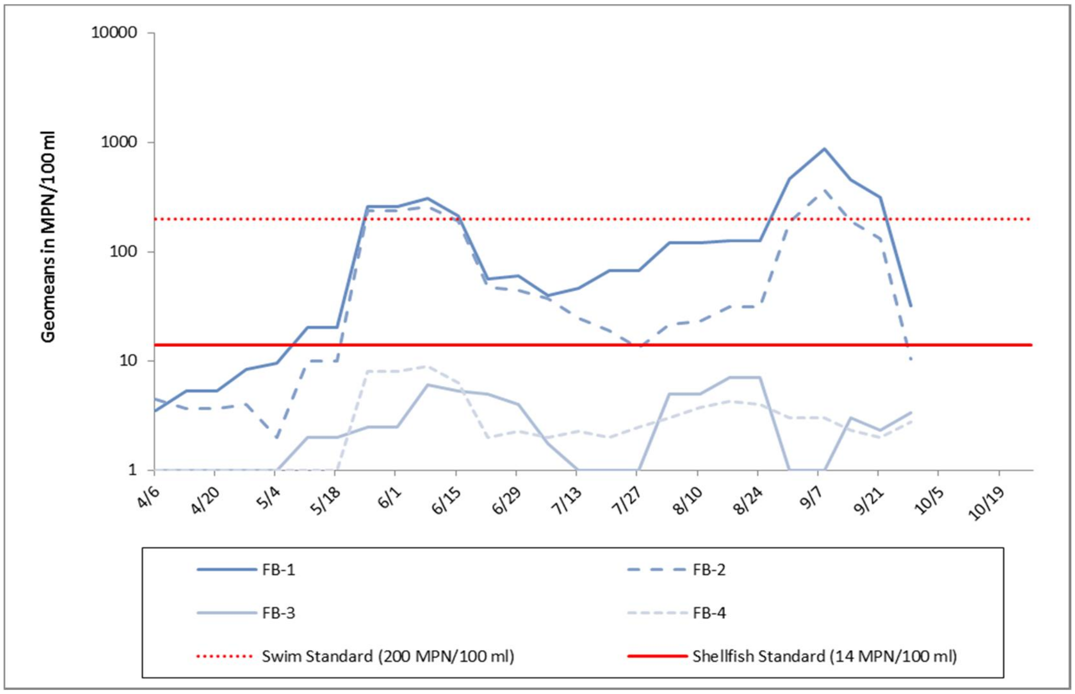

Figure 8. 30-day running geometric mean of 2015
Cold Spring Harbor fecal coliform samples

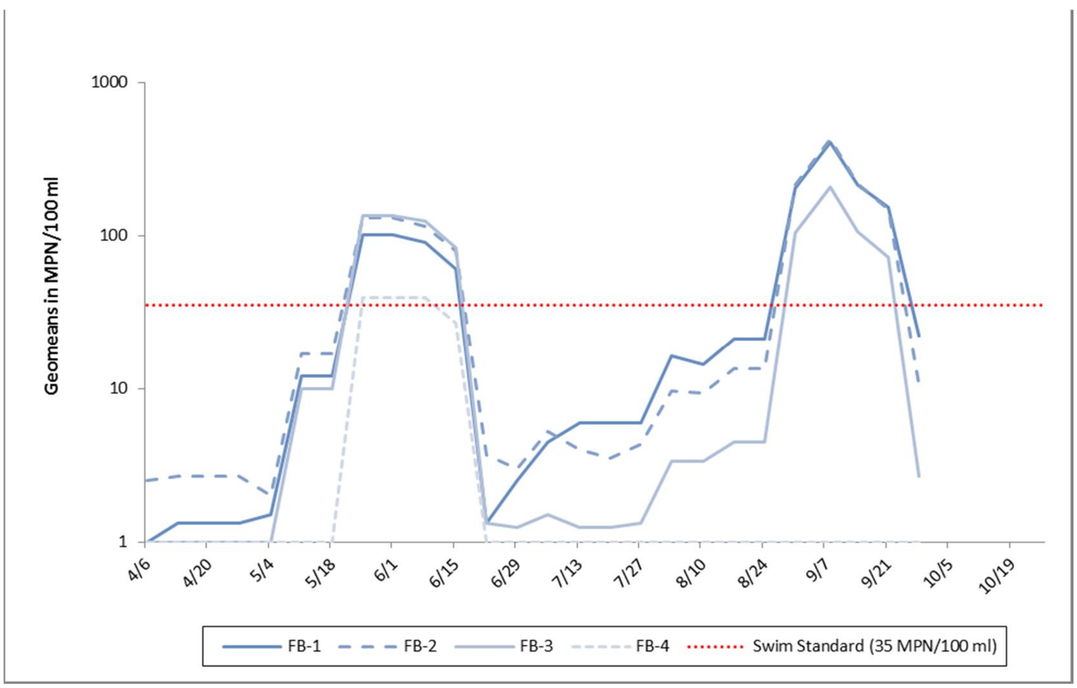

Figure 9. 30-day running geometric mean of 2015
Cold Spring Harbor enterococci samples

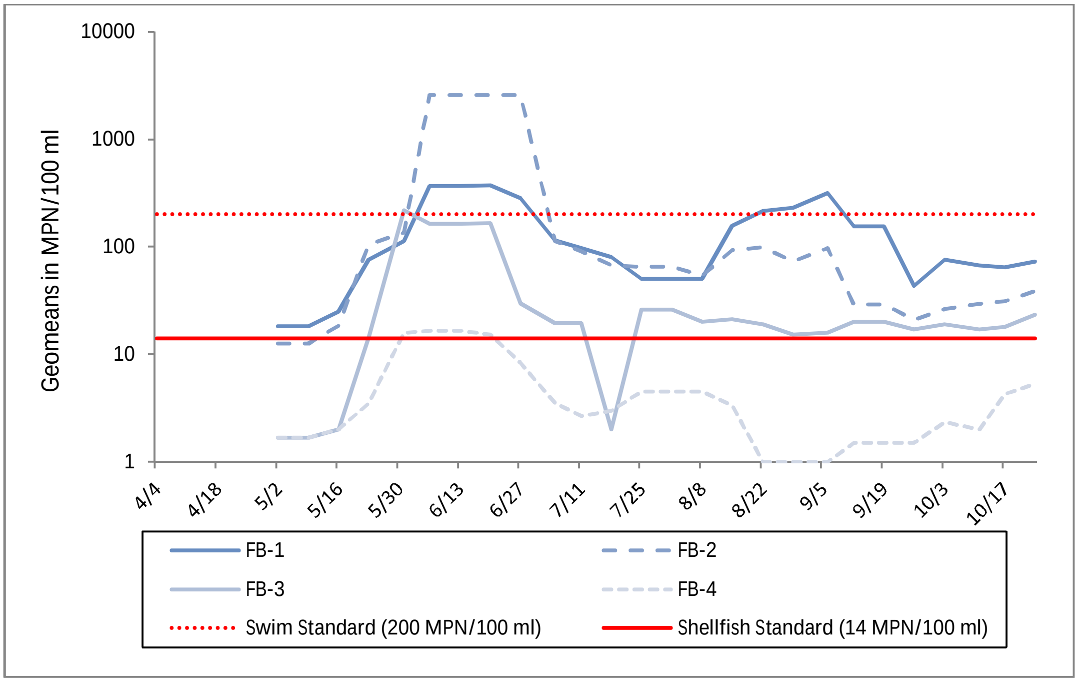

Figure 10. 30-day running geometric mean of 2016
Cold Spring Harbor fecal coliform samples

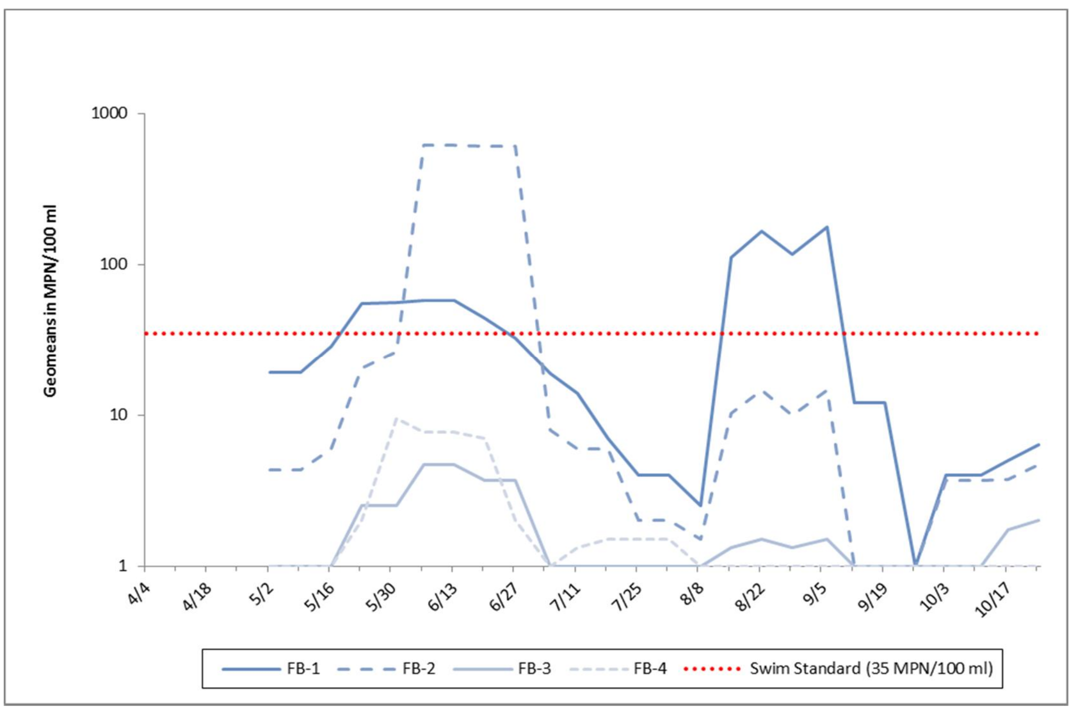

Figure 11. 30-day running geometric mean of 2016
Cold Spring Harbor enterococci samples

4.1.2.2 Oyster Bay Harbor Results

A total of eight stations were monitored for fecal coliform and enterococci bacteria in Oyster Bay Harbor in 2015 and 2016 as depicted in *Figures 12-15*. As shown, the fecal coliform geometric means at several stations did not meet the geometric mean standard for shellfishing for the 2015 and 2016 seasons. In 2015, half of the 8 stations exceeded the standard during a portion of the season (FB-5, FB-6, FB-9, and FB-11 met the standard). In 2016, six of the stations exceeded the standard during a portion of the season (FB-5 and FB-6 were below the standard).

In 2015, the running 30-day enterococci geometric mean standard for swimming (35 MPN/100 ml) was exceeded in late-May through mid-June at FB-5, FB-6, FB-7 and FB-11. The 30-day fecal coliform geometric mean standard for swimming (200 MPN/100 ml) was exceeded at FB-10 during August 2015. In 2016, the running 30-day enterococci geometric mean standard (35 MPN/100 ml) was exceeded during a short period of August and September at FB-10, but the 30-day fecal coliform geometric mean standard (200 MPN/100 ml) was met at all stations for the length of the sampling season.

The single sample swimming standard of 1,000 MPN/100 ml for fecal coliform was not exceeded in 2015 or 2016 within Oyster Bar Harbor, while the 104 MPN/100 ml enterococci swimming standard was exceeded once in 2015 at FB-7 and FB-11. See *Appendix E* for bacteria data.

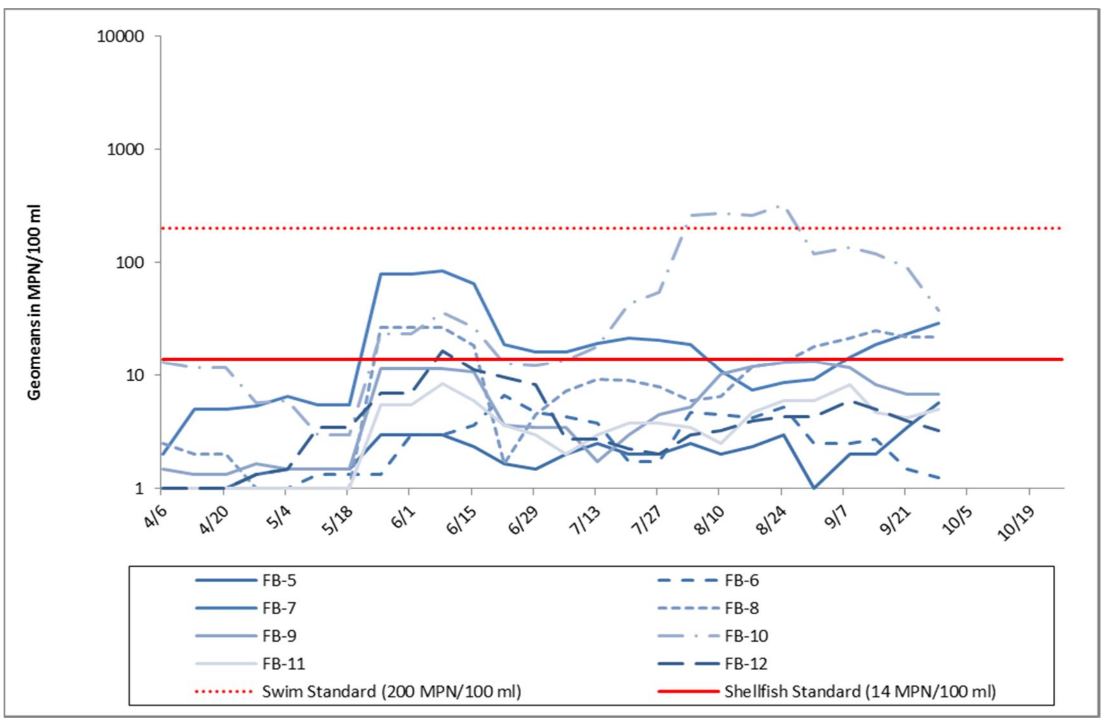

Figure 12. 30-day running geometric mean of 2015
Oyster Bay Harbor fecal coliform samples

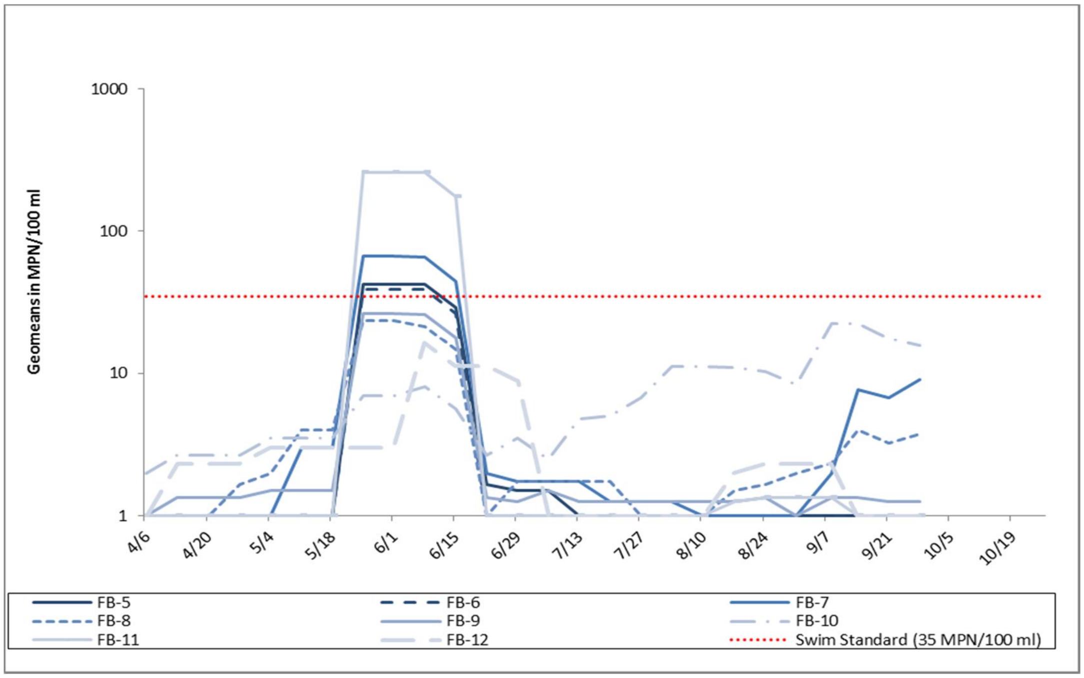

Figure 13. 30-day running geometric mean of 2015
Oyster Bay Harbor enterococci samples

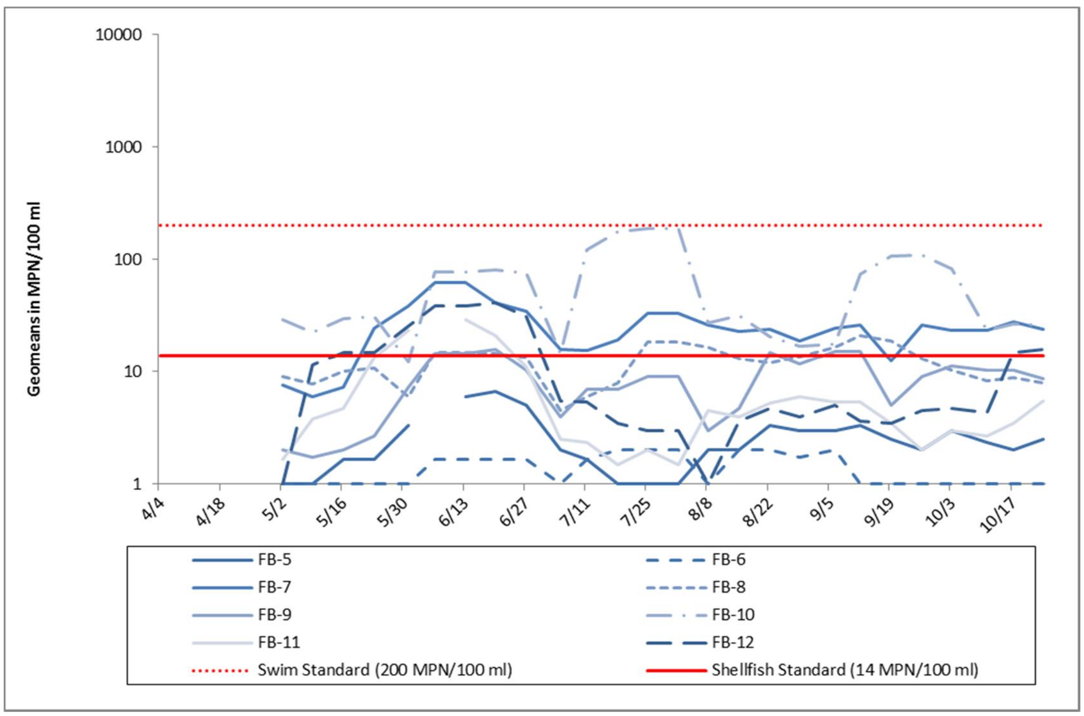

Figure 14. 30-day running geometric mean of 2016
Oyster Bay Harbor fecal coliform samples

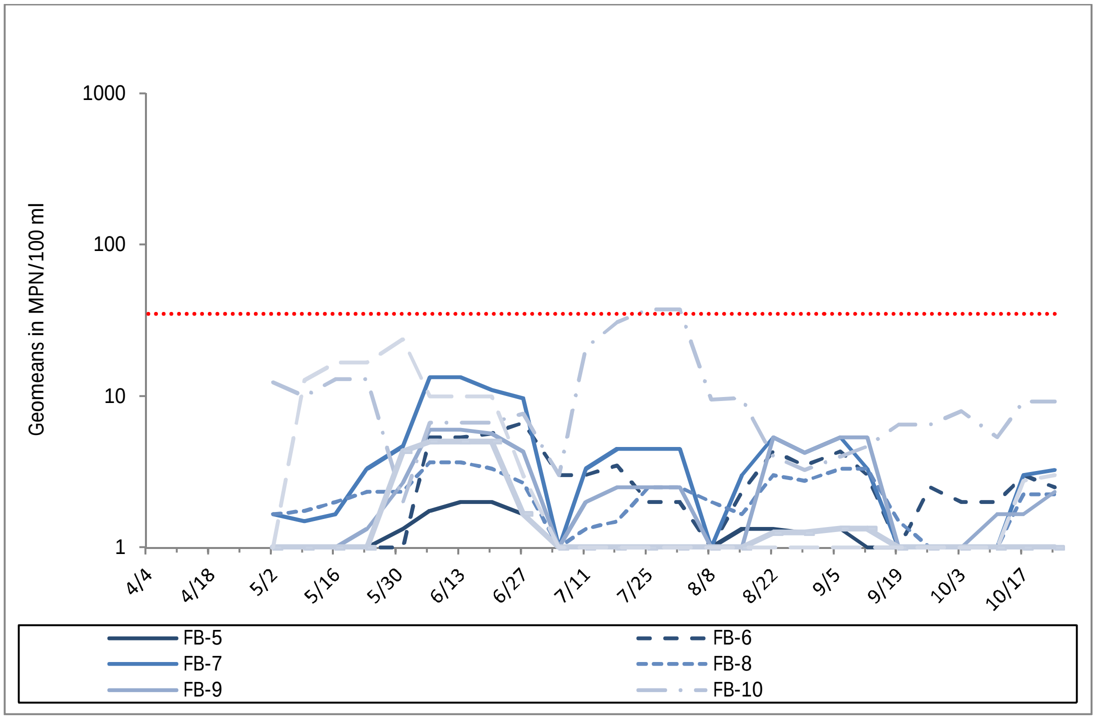

Figure 15. 30-day running geometric mean of 2016 Oyster Bay Harbor enterococci samples

4.1.2.3 Mill Neck Creek Results

In 2015 and 2016, seven stations were monitored in Mill Neck Creek for fecal coliform and enterococci, and monthly geometric means were calculated for the data. *Figure 16* through *Figure 19* present the results of this analysis.

FB-15, FB-16, and FB-17 are difficult to monitor since low tidal conditions often prevent access; FB-15, FB-16, and FB-17 were only successfully sampled on 53%, 47%, and 30% of the monitoring events during 2015, respectively, and 47%, 47%, and 40% of the monitoring events during 2016, respectively. Therefore, the analysis is based on a much smaller data set.

None of the Mill Neck Creek locations met the geometric mean shellfishing standards for the entire 2015 or 2016 monitoring seasons. Location FB-17 did not meet the geometric mean swimming (fecal coliform and enterococci) standards for fecal coliform for most of the 2015 season and FB-13 to FB-16 did not meet for shorter periods of 20115 and 2016.

The single sample fecal coliform standard (1,000 MPN/100 ml) was not exceeded in 2015, while the standard was exceeded once at FB-16 and twice at FB-17 in 2016. In 2015, monitoring stations FB-13, FB-14, FB-15, FB-16, and FB-19 exceeded the enterococci standard once each. Monitoring stations FB-13, FB-14, FB-16, and FB-17 exceeded the enterococci swimming standard (104 MPN/100 ml) once, while FB-15 exceeded the standard twice in 2016. See *Appendix E* for bacteria data.

The highest levels of fecal coliform and enterococci generally occur at FB-15, FB-16, and FB-17. It is notable that FB-15 is located in tidal flats with limited circulation or flushing during low tide, FB-17 is the closest station to "The Birches" residential subdivision (described previously), and FB-16 is at the northern-most tidal location sampled in Mill Neck Creek (second closest to "The Birches"). As indicated previously, the average bacteria levels recorded at Mill Neck Creek monitoring locations decreased significantly (about 70% and 60% for fecal coliform and enterococci, respectively) from the 2011 to the 2016 sampling seasons. These reductions are an indicator water quality improvements continue following the sewage infrastructure upgrades. However, seasonal geometric mean fecal coliform and enterococci levels at many of the Mill Neck Creek monitoring stations continue to exceed their respective standards, which suggest other sources of fecal indicator bacteria to Mill Neck Creek. Additional monitoring data is needed to further assess water quality in Mill Neck Creek and the remaining pollutant sources.

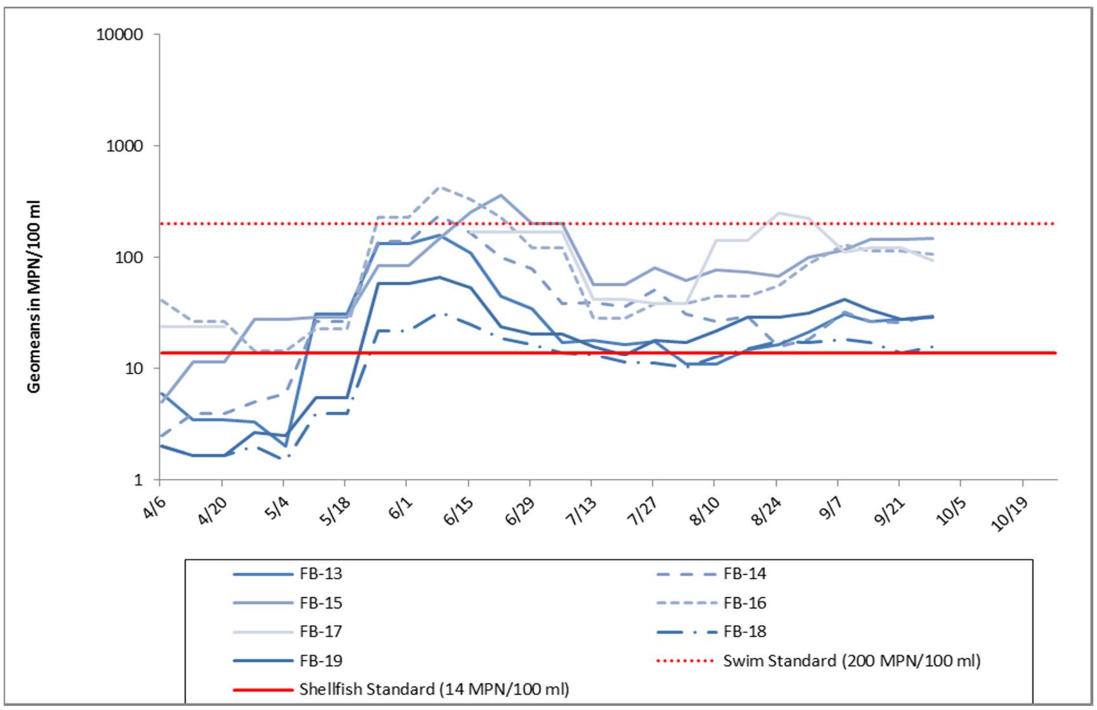

Figure 16. 30-day running geometric mean of 2015
Mill Neck Creek fecal coliform samples

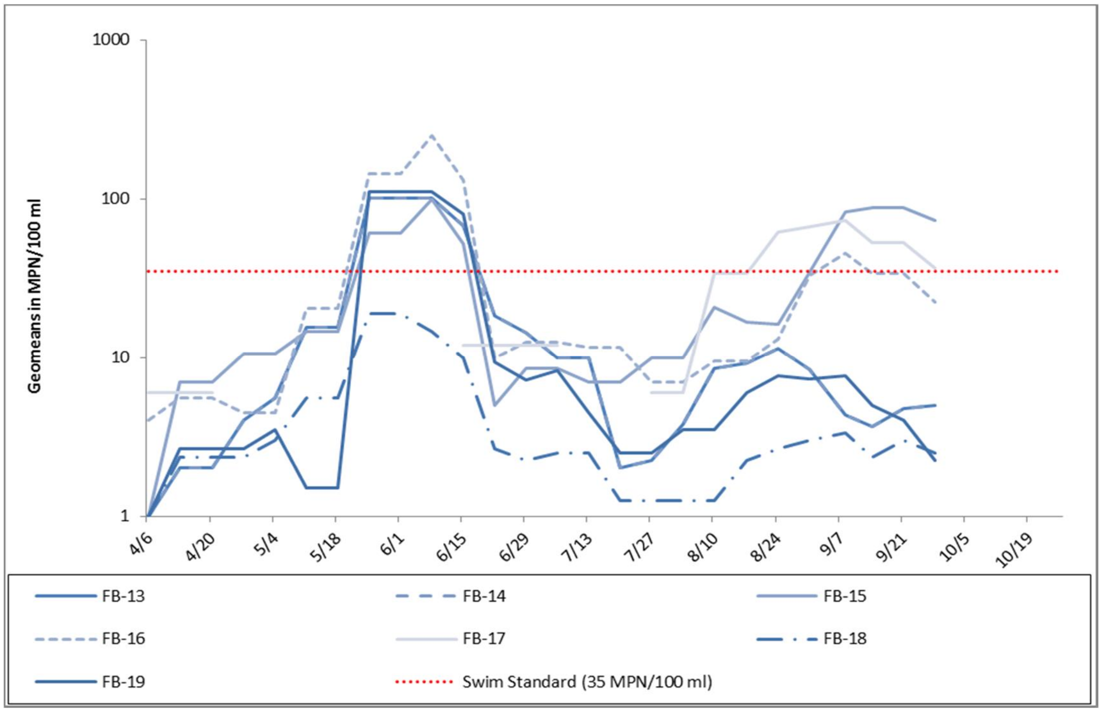

Figure 17. 30-day running geometric mean of 2015
Mill Neck Creek enterococci samples

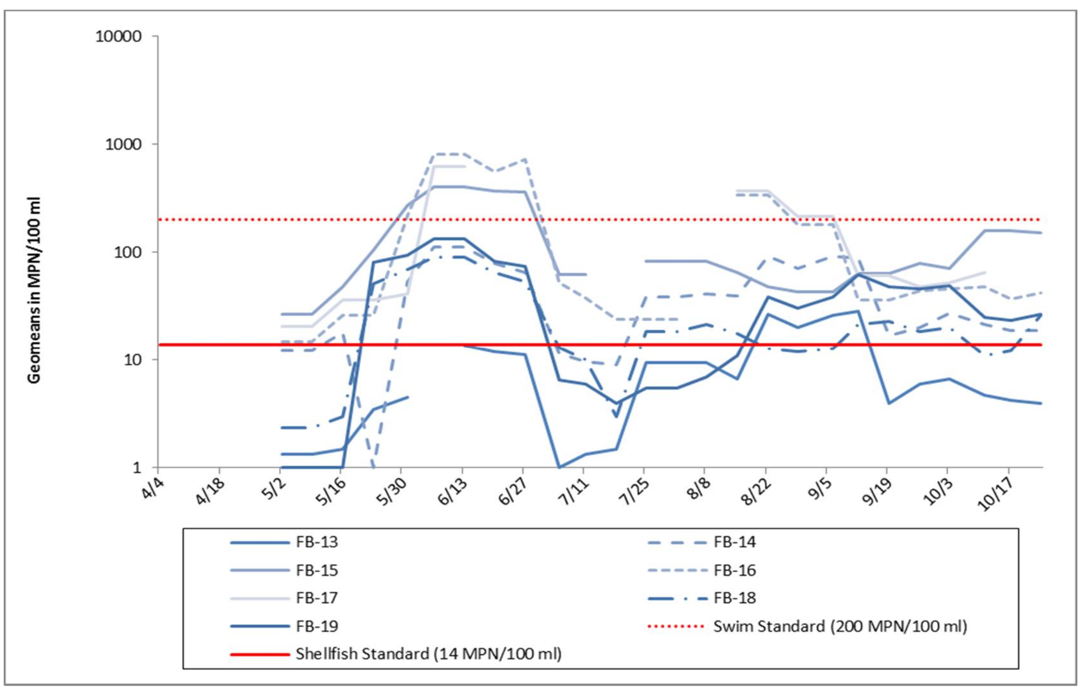

Figure 18. 30-day running geometric mean of 2016
Mill Neck Creek fecal coliform samples

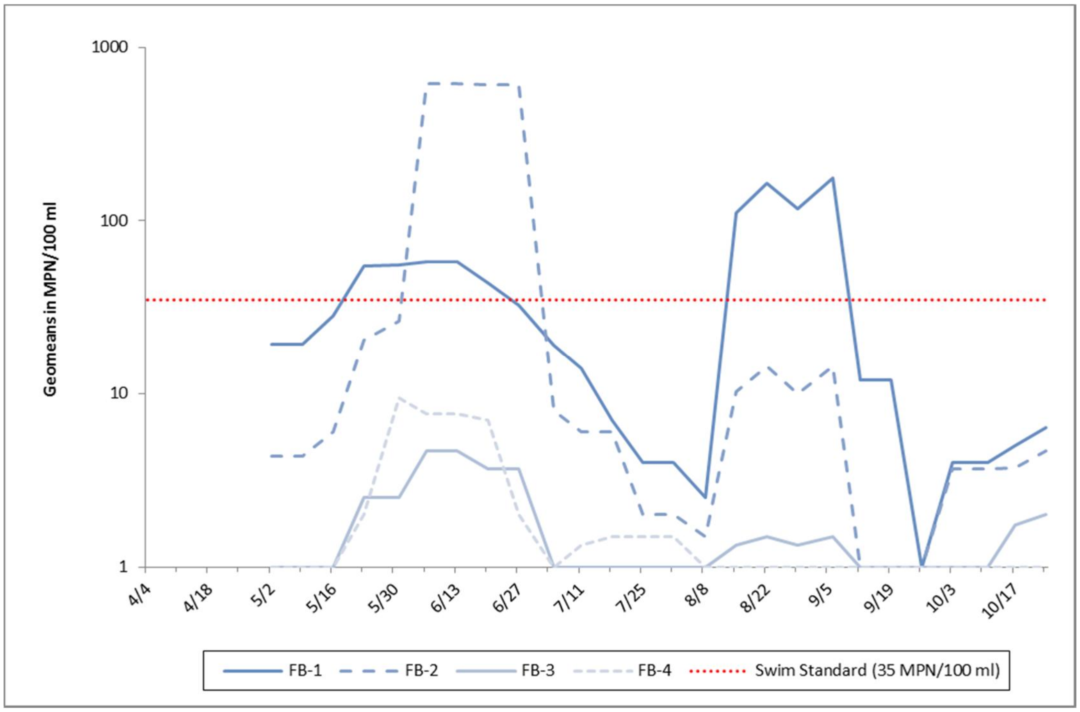

Figure 19. 30-day running geometric mean of 2016
Mill Neck Creek enterococci samples

4.1.3 Nutrient Enrichment by Nitrogen

4.1.3.1 The Nitrogen Cycle

The nutrients nitrogen and phosphorus, as well as other minerals, are essential components for marine organisms. Nitrogen and phosphorus are typically the limiting factor in the quantity of biomass (organisms, such as algae, bacteria, fish, and plants) that can grow in a water body. When nutrient inputs to a water body increase, microorganism populations also increase. These increases are generally first seen in the density of algae, resulting in an algal bloom.

A common rule of thumb is that the ratio of nitrogen to phosphorus in biomass is approximately 7 to 2. This means that, if the nitrogen concentration divided by the available phosphorus is less than 3.5, biological growth will be limited by the amount of nitrogen (Chapra 1997) in the water. If this ratio is greater than 3.5, then phosphorus will limit biological growth (other nutrients, such as silica, are known to limit growth as well in less common instances).

In marine ecosystems, such as the Oyster Bay/Cold Spring Harbor complex, phosphorus is generally abundant. The amount of biological growth that occurs is directly related to the amount of nitrogen that is present in the water. For this reason, Friends of the Bay monitors nitrogen in the estuary since nitrogen is typically the “limiting” nutrient in the marine environment.

Algal blooms may occur during the year, depleting the nutrient concentrations within the water column. When the nutrients are depleted, phytoplankton populations die off and sink to the bottom, contributing to large amounts of organic matter in the water column. This organic matter decays while sinking and is further decomposed by bacteria in the estuarine sediments.

Bacteria consume oxygen while decomposing dead phytoplankton. This depletion of oxygen may result in hypoxia (DO less than 3 mg/l) at the harbor bottom. Typically, hypoxia occurs in summer, when the water column stratification hinders oxygen replenishment in deep water.

Four nitrogen species are common in marine waters: ammonia, nitrate, nitrite and organic nitrogen. *Figure 20* presents a schematic of the interrelationships between these species, showing the processes that impact nitrogen in the marine environment.

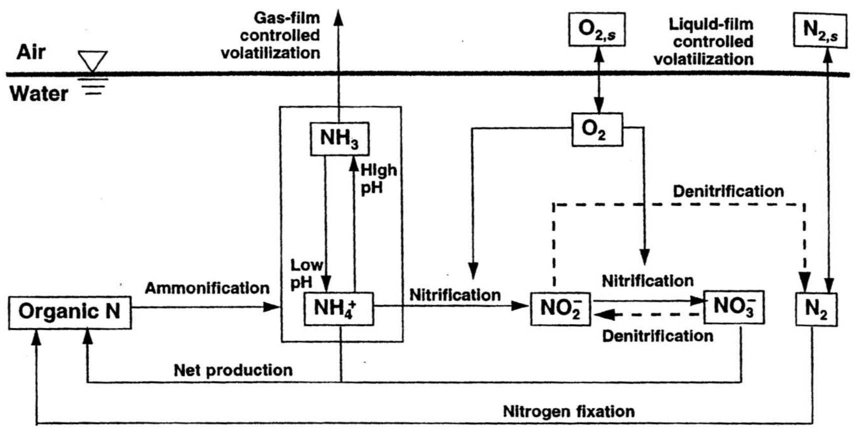

Figure 20. Nitrogen species and processes in marine environments
(Source: Chapra 1997)

Organic nitrogen is present in the form of urea, amino acids, proteins and other compounds (LISS, 1994). It can be bound to organic matter such as plants or algae. Dissolved forms of organic nitrogen come from sewage plants effluent, sewer overflow, failing septic systems and stormwater runoff. Dissolved forms of organic nitrogen are available to bacteria and phytoplankton populations and promote their growth.

Phytoplankton also utilize inorganic forms of nitrogen, including ammonia, nitrate, and nitrite. Organic nitrogen decays through ammonification to ammonia. Nitrates and nitrites are carried into the marine waters by stormwater runoff or result from nitrification of ammonia within the water body. Nitrates and nitrites can be converted to nitrogen gas by bacteria under anoxic conditions, and thus removed from the aqueous environment. High levels of ammonia may pose a danger to aquatic life. With rising temperatures and pH, ammonia ions (NH_4^+) change at increased rates into an un-ionized form of ammonia (NH_3). This form of ammonia is toxic to fish and aquatic plants.

4.1.3.2 Nitrogen Criteria and Standards

In 1989, the U.S. EPA proposed ambient water quality criteria for ammonia (NH_3) in salt water. The criteria are influenced by pH, salinity, and temperature. The EPA recommends that continuous total ammonia levels should not exceed 0.72 mg/l for waters having the following conditions: salinity 20 ppt, temperature 2°C, and pH 8. However, for slightly more alkaline conditions (pH 8.4), the criterion decreases to 0.30 mg/l.

The 1994 Long Island Sound Study (LISS) identified several major sources of nitrogen. These sources include deposition from air pollution, delivery from large tributaries, sewage treatment plants, failing septic systems, and storm water runoff. LISS presented several management options for controlling the nitrogen load into the Sound. Two of these options, including sewage treatment plant upgrades for nitrogen removal and reduction of nitrogen from non-point sources, could potentially result in a 55% reduction of nitrogen load to Long Island Sound.

Nitrogen water quality standards vary across the U.S. Some States follow total maximum daily load (TMDL) criteria. Others use site-specific or waterbody-based ambient nutrient levels (National Research Council, 2000). New York State adopted a revised aquatic life standard for ammonia level in marine waters in 2008. For estuarine waters such as Oyster Bay, the chronic, or long-term aquatic standard for ammonia (un-ionized ammonia as NH_3) is 35 µg/L (0.035 mg/l). The acute ammonia standard is 230 µg/L (0.23 mg/l), meaning that the estuary is considered impaired if measurements exceed this level.

In addition, the NYSDEC has adopted a total nitrogen (TN) guideline of 0.5 mg/l for the Peconic Bay estuary surface water (Suffolk County Department of Health Services, 1999). This guideline is based on the 1988-1990 summer data correlation of the mean TN levels with an occurrence of dissolved oxygen standard violations. The 1999 Comprehensive Conservation and Management Plan for the Peconic Bay Estuary proposed a change of this guideline to 0.45 mg/l based on more recent data (1994-1996). A more stringent criterion of 0.4 mg/l TN is being considered for shallow waters in order to protect eelgrass habitat areas.

LISS established a target of 58.5% nitrogen reduction from the 1990 baseline for cumulative point and non-point in-basin sources (NYSDEC, 2000). This target is to be achieved through maintaining maximum annual loads of nitrogen at 11 management zones. As of 2002, sewage treatment plant upgrades decreased nitrogen loads to the Sound by 28% (EPA 2006). An additional 12% reduction was targeted for completion by August 2004 (it is unknown if this goal was accomplished).

To address this water quality problem, NYSDEC imposed limits to reduce nitrogen discharged from the municipal treatment plants located on the north shore of Long Island. NYSDEC issued a revised discharge permit that required the Oyster Bay Sewer District (OBSD) to reduce nitrogen discharged to Oyster Bay from the treatment plant by 63.8 percent in three 5-year increments by August 2014. With the intent of reducing nitrogen discharges into Oyster Bay and Long Island Sound, the OBSD upgraded its plant in 2006 to provide advanced treatment for nitrogen removal. The OBSD advanced treatment facility is achieving the 2014 nitrogen limits imposed by the NYSDEC permit, and the upgrade has reduced the daily nitrogen discharged by as much as 75%.

4.1.3.3 Monitoring Results

FOB began monitoring nitrogen in 2002 with the goal of establishing a baseline of data and identifying possible areas of concern in the estuary. Due to circumstances beyond the control of FOB, sampling for nitrogen species occurred once in 2015 and once in 2016. It is therefore difficult to compare results from these sampling seasons to those of previous years.

4.1.4 Dissolved Oxygen

All aquatic life larger than bacteria depends on oxygen availability in the water column. Low levels of oxygen have multiple effects on the marine ecosystems such as a change of species behavior, sensitive species growth impairment and in severe conditions, death of large populations of fish and other species. LISS summarized the effects of different oxygen impairment levels on some organisms of Long Island Sound. An excerpt of these findings is presented in *Table 5*. LISS (1994) concluded that low dissolved oxygen (hypoxia) poses the most serious threat to the health of the Sound ecosystem. The waters of the western and central portions of the Sound generally exhibit hypoxia during the months of July, August and September.

In bodies of water, oxygen is replenished from the atmosphere and by plant and algal photosynthesis. While aquatic plants and algae produce oxygen during the day, throughout the night photosynthesis does not occur, and consumption of oxygen by bacteria through decay of dead biomass consumes residual oxygen. Thus, the lowest levels of the daily cycle occur in the early morning hours. Several other factors influence the amount of dissolved oxygen found in a particular body of water:

- Water temperature - cooler water holds more oxygen; therefore, warm summer waters can be particularly stressful for marine organisms.
- Salinity - with increasing salinity the capacity of water to hold oxygen diminishes.
- Water turbidity - poor water clarity prevents sunlight from reaching oxygen-producing aquatic plants lower in the water column.
- Nutrients - excess nutrients can cause an algal bloom which blocks sunlight from aquatic vegetation lower in the water column. When algae dies and sinks to the bottom, the bacteria involved in decay of the plant material consume a significant amount of dissolved oxygen.
- Mixing of the waters - stagnant waters and waters that are stratified hinder transport of oxygen into lower levels of the water column.

Table 5. Effect of Dissolved Oxygen Concentrations on Selected Organisms. (LISS, 1994)

Dissolved oxygen concentrations above the pycnoline (top of the water column)	
4-5 mg/l	Suitable for many species and life stages, may result in limited biological consequences
3-4 mg/l	25-50% mortality of larval lobsters (based on 4-day long experiments)
2-3 mg/l	50-95% mortality of larval lobsters (based on 4-day long experiments)

Dissolved oxygen concentrations below the pycnoline (bottom of the water column)	
4-5 mg/l	Protective for most biological consequences
3-4 mg/l	Protective for many biological consequences, reduced growth of juvenile Am. Lobster, grass shrimp, summer flounder (12-day experiments)
2-3 mg/l	Impaired finfish habitat (reduced abundance), mortality of larval grass shrimp and mud crabs (12-day experiments)
1-2 mg/l	Impaired lobster and finfish habitat, 10-90% mortality of some non-larval species (4-day experiments)
0-1 mg/l	Many severe consequences, even at short exposures

Previously, DO levels above 5.0 ppm were considered healthy; DO levels below 5.0 ppm were considered to cause various adverse impacts (related to growth, reproduction, and survival of organisms). The severity of impacts, and threshold DO levels where impacts occur, are strongly species dependent. A revised dissolved oxygen standard was implemented by NYSDEC in 2008. For estuarine waters such as Oyster Bay/Cold Spring Harbor Estuary, the chronic, or long-term DO standard is 4.8 ppm. The standard allows levels to fall below 4.8 ppm for short periods of time; the lower the level, the shorter the time interval allowed (as defined by the equation below).

$$DO_i = \frac{13.0}{2.80 + 1.84e^{-0.1t_i}}$$

where DO_i = DO concentration in mg/l between 3.0 - 4.8 mg/l and t_i = time in days. This equation is applied by dividing the DO range of 3.0 - 4.8 mg/l into a number of equal intervals. DO_i is the lower bound of each interval (i) and t_i is the allowable number of days that the DO concentration can be within that interval. The actual number of days that the measured DO concentration falls within each interval (i) is divided by the allowable number of days that the DO can fall within interval (t_i). The sum of the quotients of all intervals (i …n) cannot exceed 1.0:

i.e., $\sum_{i=1}^{n} \frac{t_i(actual)}{t_i(allowed)} < 1.0$

The DO concentration shall not fall below the acute standard of 3.0 mg/l at any time.

The acute DO standard is 3.0 ppm, meaning that the estuary is considered impaired if DO measurements fall below this level. For DO concentrations that are equal to or greater than 3.0 ppm and less than 4.8 ppm, the growth and abundance of certain marine species will be affected. The impact of hypoxia on marine life depends on the duration and area over which low DO levels occur; water temperature, salinity, and distribution and behavioral patterns of resident species also play a role in how marine organisms react to hypoxic conditions.

In 2015 and 2016, Friends of the Bay monitored dissolved oxygen (DO) levels at the top and bottom of the water column at 19 open water body sites in the estuary. Dissolved oxygen concentrations at the top of the water column were generally 5-8 mg/l (2.4-12.3 mg/l in 2015 and 2.23-9.31 mg/l in 2016) and 3-4 mg/l (1.6-11.5 mg/l in 2015 and 0.27-9.1 mg/l in 2016) at the bottom of the water column. The 2015 and 2016 data follow the general trends observed in past years, with the highest dissolved oxygen values occurring in the spring, declining levels through the early summer, and then rising again in late summer and into the fall. *Figures 21* through *Figure 26* present DO data collected at the bottom of the water column throughout the 2015 and 2016 seasons.

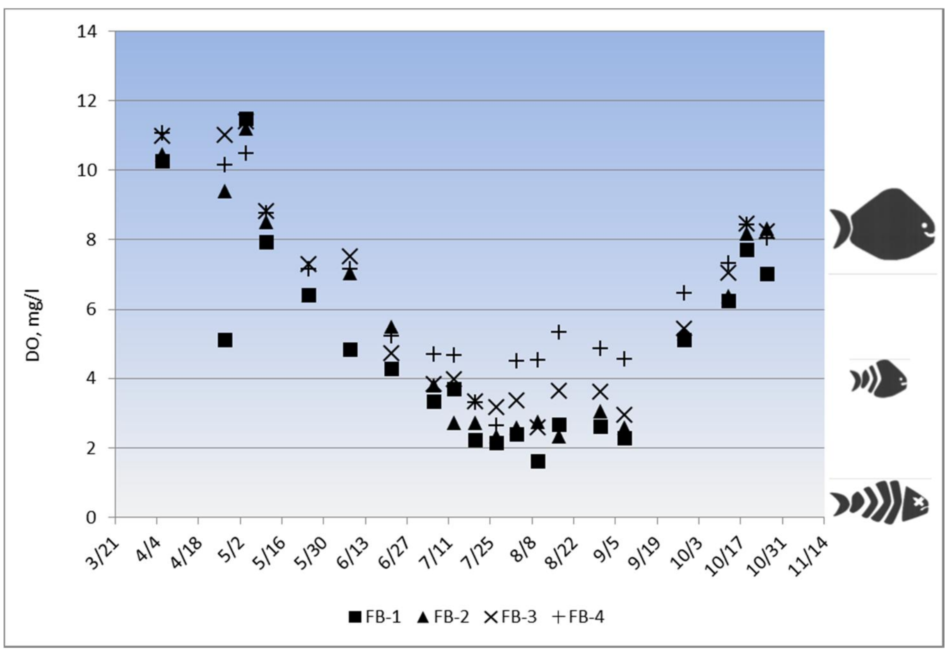

Figure 21. Dissolved oxygen for Cold Spring Harbor monitoring locations, 2015

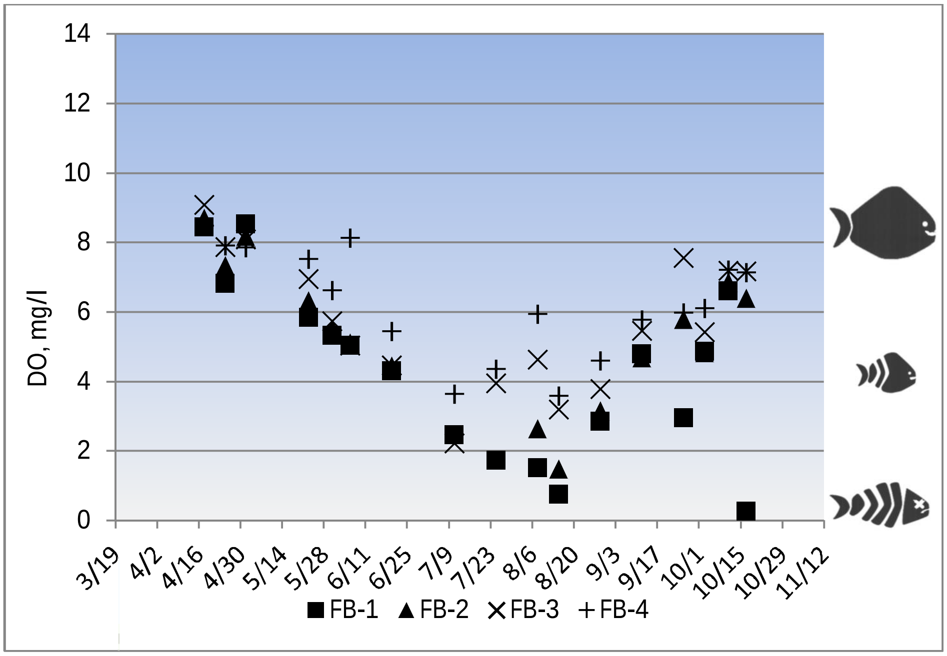

Figure 22. Dissolved oxygen for Cold Spring Harbor monitoring locations, 2016

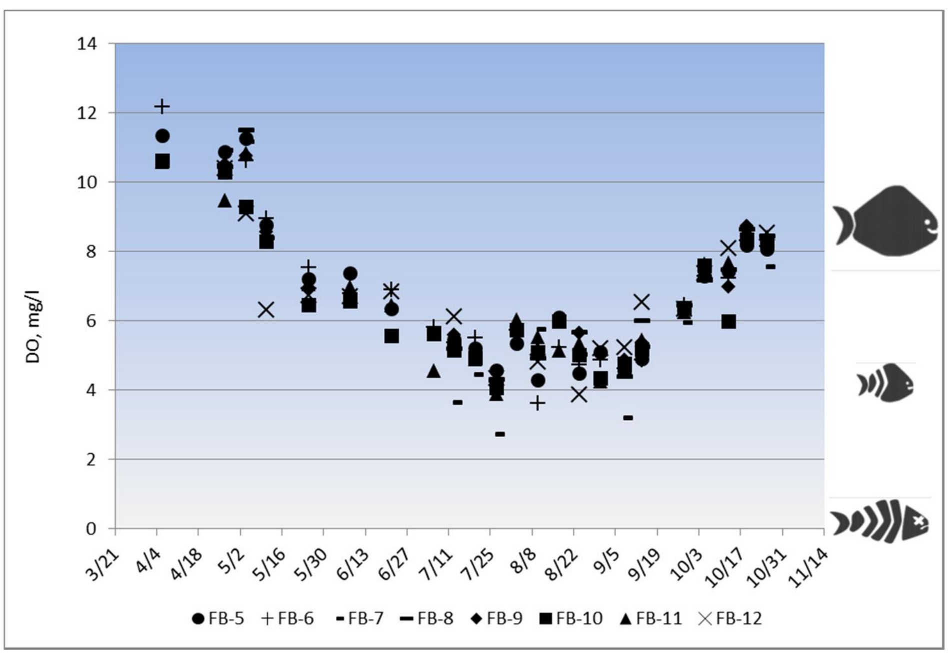

Figure 23. Dissolved oxygen for Oyster Bay Harbor monitoring locations, 2015

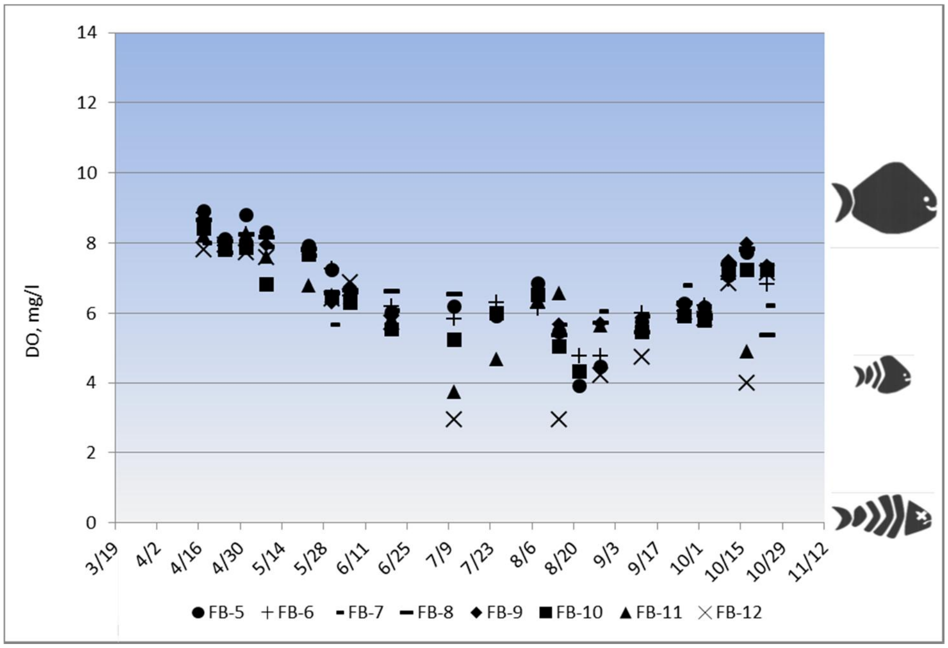

Figure 24. Dissolved oxygen for Oyster Bay Harbor monitoring locations, 2016

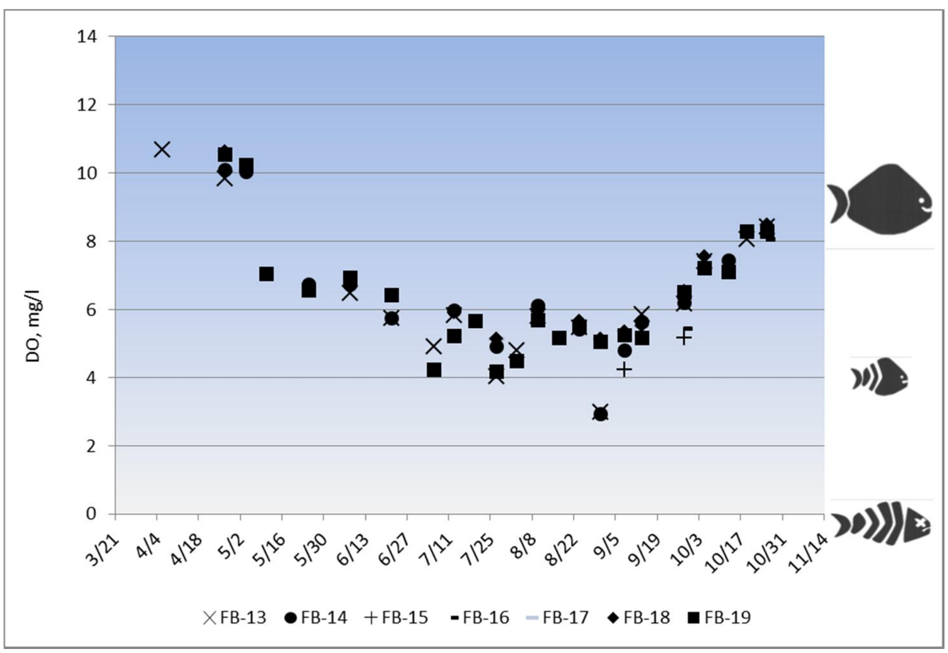

Figure 25. Dissolved oxygen for Mill Neck Creek monitoring locations, 2015

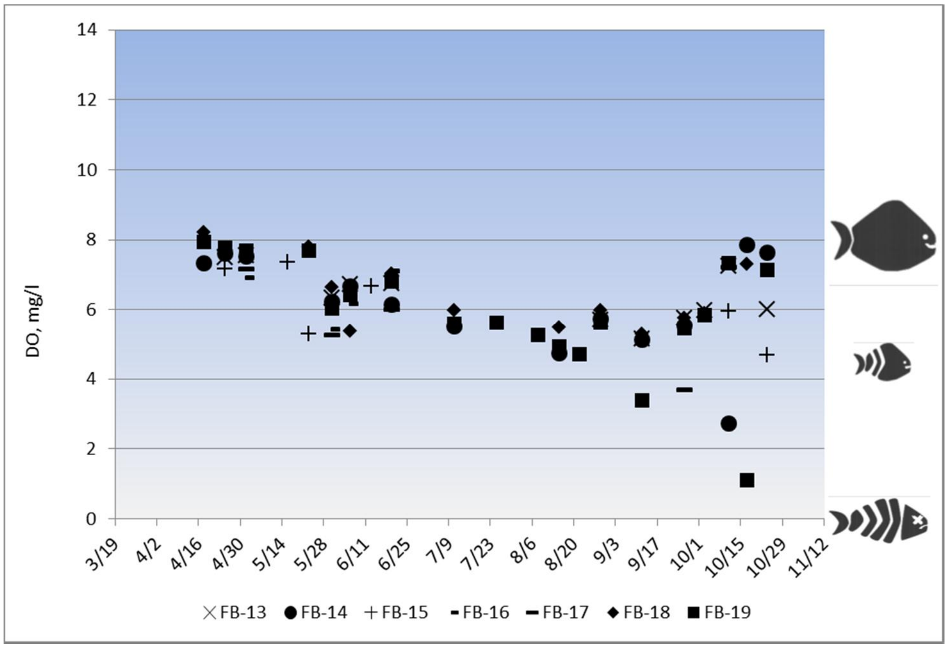

Figure 26. Dissolved oxygen for Mill Neck Creek monitoring locations, 2016

Figure 28 and *Figure 29* present boxplots of the DO data collected at the bottom of the water column throughout the 2015 and 2016 seasons. Note that some monitoring stations are not represented in the boxplots as there was insufficient data for some stations. Boxplots have been used to graphically summarize the water quality data. Boxplots provide a succinct, graphical summary of water quality data to allow comparison of water quality conditions at different monitoring stations. A boxplot consists of a box, whiskers, and outliers. As shown in *Figure 27*, the top of the box is the 75th percentile, the bottom of the box is the 25th percentile, the line dividing the box is the median value (50th percentile), and the diamond is the average. The vertical lines above and below the box are called whiskers and represent the minimum and maximum values of the observed data.

The mean and median DO values in 2015 and 2016 were similar to those in previous years. In 2016, measured DO values (0.5 m from the bottom) were lower overall than 2015, with all values less than 11.5 mg/l (all values in 2016 were below 9.1 mg/l). In both years, the Cold Spring Harbor stations (FB-1, FB-2, FB-3, and FB-4) generally showed the greatest variability and lowest DO values of all stations monitored. In 2015, DO concentrations fell below the acute standard of 3.0 mg/l at stations FB-1, FB-2, FB-3, FB-4, FB-7, FB-12, FB-13, and FB-14. DO levels fell below the acute standard at FB-1, FB-2, FB-3, FB-12, and FB-13 in 2016. The majority (~65%) of acute DO levels occurred in the bottom 0.5m.

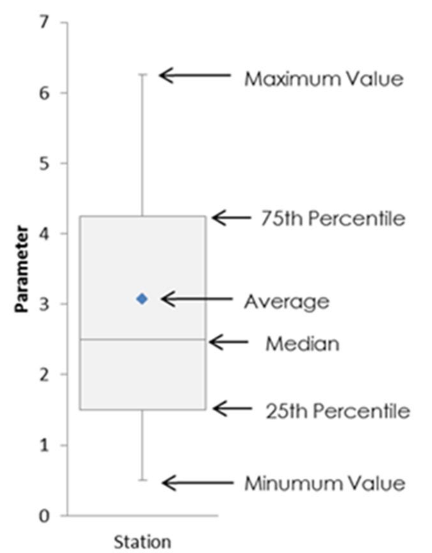

Figure 27. Boxplot Elements

While hypoxic and anoxic conditions are likely to have occurred in the Oyster Bay/Cold Spring Harbor estuary complex based on past experience and trends in the data, it is important to note that no fish kills were reported. The existing ecological community has likely adapted to low DO levels, and actual DO levels are not believed to have deviated beyond typical ranges. Low dissolved oxygen levels are a symptom of over-enrichment by nutrients and not a problem that can be solved directly. Reducing nutrient inputs from the surrounding watershed into the estuary would likely improve water quality and could reduce the occurrence of low DO levels. See *Appendix E* for additional dissolved oxygen data.

4.2 Stream and Outfall Monitoring

The Friends of the Bay stream and outfall monitoring program is intended to identify potential upland sources of pollutants and causes of water quality impacts in the Oyster Bay, Cold Spring Harbor, and Mill Neck Creek estuary complex. No samples were collected during the 2015 and 2016 sampling seasons following upgrades to septic systems near previous monitoring stations. Analysis and discussion of 20013 and 2014 monitoring data can be found in the previous monitoring report.

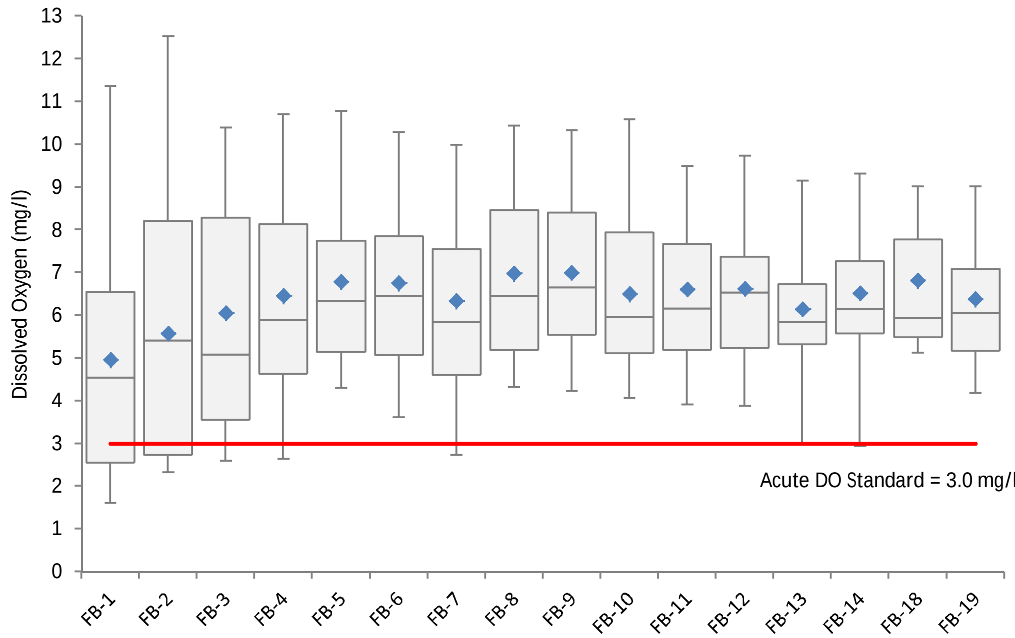

Figure 28. Dissolved oxygen at all monitoring locations, 2015

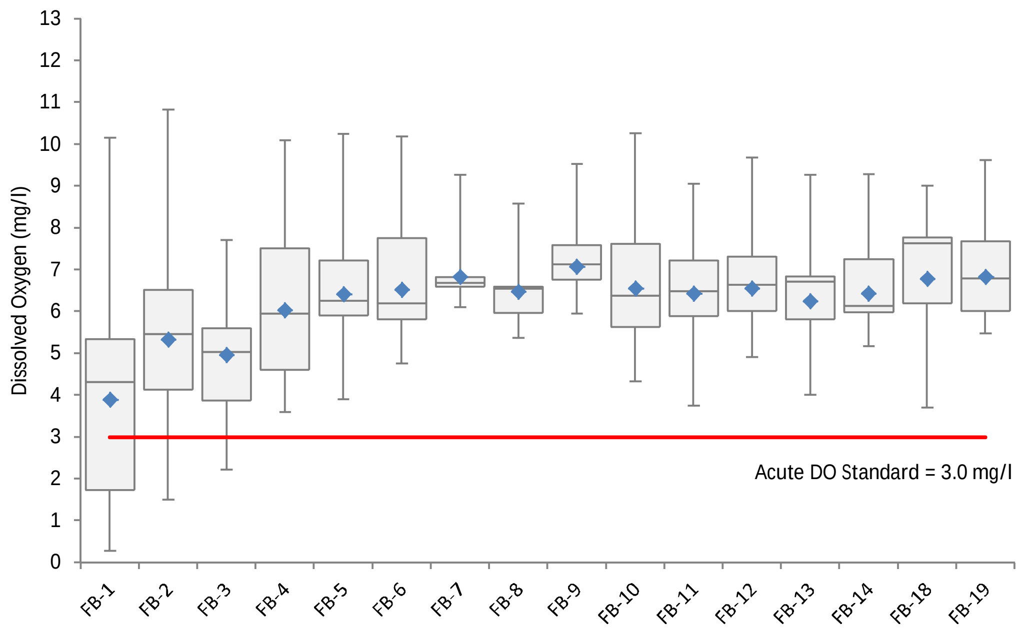

Figure 29. Dissolved oxygen at all monitoring locations, 2016

5 Program Recommendations

5.1 Proposed Short-Term Changes

- Measure DO Profiles – Prior to 2003, FOB recorded DO at 1-meter intervals throughout the water column. This practice ceased in 2003 due to the excessive number of measurements recorded each week. However, stratification data can be useful in tracking conditions within the estuary. FOB should consider measuring DO profiles at one of the open water monitoring locations to track the development of stratification throughout the season. If temperature and salinity profiles were also recorded at that location, then the pycnoline (depth interval of steep density gradients) could be tracked via the halocline (depth interval of steep salinity gradients) and thermocline (depth interval of steep temperature gradients).
- Use Consistent Station Numbering for Rotating Outfalls – To date, the rotating outfalls have used the same station numbers each year, which can lead to confusion since multiple geographic locations are represented by a single station identifier over multiple years of monitoring. If the outfall monitoring program is restarted, a unique station identifier should be assigned to each rotating outfall location.

5.2 Potential Future Changes

To further refine the understanding of water quality in Cold Spring Harbor, Oyster Bay Harbor, and Mill Neck Creek, Friends of the Bay is considering the following additions to the monitoring program:

- Improve Understanding of Estuary and Watershed Conditions – As stated in the Watershed Action Plan, Friends of the Bay would like to:
  - Continue the current Friends of the Bay citizen water quality monitoring program at the in-harbor monitoring locations to continue collecting baseline water quality information and to assess the effectiveness of plan implementation over time.
  - Resume the Friends of the Bay stream and outfall monitoring program, as funding allows, focusing on priority outfalls and discharges to the estuary complex. Both dry- and wet-weather sampling is useful in identifying pollutant sources.
  - Although many users of the harbor have a working knowledge of the various types of marine habitats within portions of the estuary complex, information is limited regarding the actual quality and distribution of benthic (i.e., bottom-dwelling) communities and habitats throughout Oyster Bay/Cold Spring Harbor. A benthic habitat mapping survey is recommended to identify and assess the quality of benthic habitats and biological communities, including those habitats and biological communities that are threatened, missing, or have been extirpated by human activity. This type of information would be used to identify and guide restoration projects such as a shellfish sanctuary, eelgrass restoration, and restoration of diamondback terrapin nesting areas.
  - Current efforts at improving water quality focus on reducing pathogen loads to the estuary complex, based on the pathogen Total Maximum Daily Load (TMDL) that was developed

for portions of Oyster Bay and Mill Neck Creek. While pathogens are a major threat to water quality, as well as to recreation and the shellfish industry, they are just one of many. Water quality monitoring data collected by Friends of the Bay indicates that low dissolved oxygen and elevated nitrogen concentrations are common in areas of the estuary complex during the summer. Additionally, sediment from stormwater runoff can smother otherwise productive shellfish beds, and contain nutrients such as phosphorus can result in harmful algal blooms. Specific recommended actions to evaluate other water quality issues include:

    - Coordinate with NYSDEC regarding the potential inclusion of Oyster Bay/Cold Spring Harbor for water quality impairments other than pathogens (i.e., low dissolved oxygen, nutrients, sediment) during future listing of impaired waters (303d list).
    - As a long-term project, develop a linked hydrodynamic and water quality model of the estuary complex to assess the relative influence of watershed sources and Long Island Sound circulation on the water quality of the estuary. In addition to pathogen load reductions, the model could be used to predict the affect of reduced nutrient loads from the watershed on harbor water quality, focusing on specific water quality concerns, such as dissolved oxygen. The model could also be used to predict the impact of other changes on water quality, such as increased rainfall resulting from climate change.
    - Ensure that future management efforts address the full range of water quality parameters and potential sources of water quality impairments.

  - Additional study of the Cold Spring Harbor inner harbor area and the Beaver Lake and Oak Neck Creek areas in Mill Neck Creek is recommended to further assess potential pollution sources in these areas.

- Bacteria Source Tracking – Friends of the Bay would like to include Bacteria Source Tracking as part of its water quality monitoring program in future years. FOB continues to monitor grant opportunities to fund the collection of samples for Bacteroides as an indicator of recent human fecal pollution. The QAPP will be modified if funding is acquired to accommodate the additional sampling.
- Apparent Color – Apparent color is an easy way to get general information about what material is dissolved or suspended in the water, and thus would be a beneficial parameter for FOB to monitor. Water with very little dissolved or suspended material appears blue in color. The presence of dissolved organic matter such as decaying plant matter can result in water color of yellow or brown. The presence of dinoflagellates can produce a reddish or deep yellow color. Water that is rich in phytoplankton and algae appears green. Runoff can result in a variety of colors including yellow, red, brown or gray.
- Chlorophyll a and/or Algal Enumeration – In addition to measuring apparent color, it would benefit the monitoring program to measure chlorophyll levels within the estuary. A chlorophyll test would measure the concentration of algae in the water column, helping to identify if algal blooms are influencing water clarity. Alternatively, algal enumeration can identify the quantity of specific algal species that are present. Varying algal species can be an indicator of changes in a water body from year to year.

6 Conclusions

Analysis of the 2015 and 2016 water quality monitoring data provides the following insights:

- On a seasonal average basis, the majority of Oyster Bay Harbor met state shellfish standards for fecal coliform during the 2015 and 2016 monitoring seasons. (Oyster Bay Harbor is where the majority of shellfishing occurs in the estuary.) The 2015 seasonal geometric mean fecal coliform levels in Oyster Bay Harbor were the lowest recorded since the monitoring program began and only increased slightly above the shellfish standard for 2016. In contrast, seasonal average levels of fecal coliform bacteria exceeded state shellfish standards at most of the monitoring stations in Cold Spring Harbor and at all of the monitoring stations in Mill Neck Creek.
- Although seasonal geometric mean fecal coliform levels in Oyster Bay Harbor were below the shellfish standard at most locations, consistent with previous years, the 30-day geometric mean fecal coliform levels at most of the stations exceeded the shellfish standard for a portion of the season in 2015 (four of eight stations) and 2016 (six of eight stations). During the 2013 and 2014 monitoring seasons, the 30-day geometric mean fecal coliform concentrations similarly exceeded the shellfish standard for fecal coliform.
- As observed in previous years, fecal indicator bacteria levels in Cold Spring Harbor and Mill Neck Creek were higher than in Oyster Bay Harbor. None of the monitoring stations in Cold Spring Harbor met the fecal coliform shellfish standard for the entirety of the 2015 season, although stations FB-3 and FB-4 met the standard for the 2016 season. Two of the Cold Spring Harbor stations (FB-3 and FB-4) met the fecal coliform geometric mean swimming standards for the 2015 and 2016 seasons. Mill Neck Creek has the consistently highest levels of fecal indicator bacteria observed in the estuary complex. The highest levels generally occur at FB-15, FB-16, and FB-17, which are locations that are characterized by limited circulation or flushing during low tide or are located near "The Birches" residential subdivision.
- The average bacteria levels recorded at Mill Neck Creek monitoring locations decreased significantly (about 70% and 60% for fecal coliform and enterococci, respectively) between the 2011 and 2016 sampling seasons. These reductions are an indicator of the water quality improvements that have resulted from sewage infrastructure upgrades at The Birches. However, seasonal geometric mean fecal coliform and enterococci levels at many of the Mill Neck Creek monitoring stations continue to exceed their respective standards, which suggest other sources of fecal indicator bacteria to Mill Neck Creek. This could be the result of stormwater pollution. Additional monitoring data is needed to further assess water quality in Mill Neck Creek and the remaining pollutant sources.
- Nitrogen monitoring did not occur to the same extent as in previous sampling years due to laboratory challenges. Since nitrogen plays an important ecosystem role in the estuary, its monitoring is important and should be restarted if feasible.
- A $10.6 million advanced wastewater treatment facility serving the Oyster Bay Sewer District has been fully operational since March 2006. The facility is achieving the 2014 nitrogen limits imposed by the New York State Department of Environmental Conservation. The upgrade has

reduced daily nitrogen discharges by as much as 75%. Nitrogen monitoring can provide valuable information for evaluating the effects of reduced nitrogen loading on estuary water quality.

- Hypoxic and anoxic conditions are likely to have occurred in the Oyster Bay/Cold Spring Harbor estuary complex during the 2015 and 2016 monitoring seasons, although no fish kills were reported. In both years, the Cold Spring Harbor stations (FB-1, FB-2, FB-3, and FB-4) generally showed the greatest variability and lowest dissolved oxygen values of all stations monitored. Dissolved oxygen concentrations at the bottom of the water column fell below the acute standard of 3.0 mg/l in 2015 and 2016 at most of the Cold Spring Harbor monitoring stations and at several locations in Oyster Bay Harbor and Mill Neck Creek. Dissolved oxygen data continue to indicate that the waters of the estuary are enriched with nutrients. Long-term reductions in nitrogen inputs should reduce the occurrence of extremely low dissolved oxygen conditions in bottom waters.
- Stream and outfall monitoring was discontinued in 2015. Friends of the Bay will seek to resume stream and stormwater outfall monitoring in future years, as funding allows, to further assess point and nonpoint source pollutant contributions and sources in the watershed.
- As recommended in the 2011 Watershed Action Plan, ongoing water quality monitoring is essential for evaluating changes in harbor water quality as a result of land use activities in the watershed and implementation of the watershed plan recommendations. Additional data collection is also recommended to refine the current understanding of water quality impairments in the estuary complex, particularly pollutants for which previous monitoring results have demonstrated the potential for water quality impairment but which are not currently identified by NYSDEC as a listed cause of impairment (e.g., sediment, nutrients, and dissolved oxygen).
- Friends of the Bay will continue to work with citizen scientists, government agencies, and other non-governmental organizations in future monitoring seasons. Together, FOB and its partners will continue to improve and enhance the monitoring program, with the ultimate objective of protecting and improving the quality of water in the Oyster Bay/Cold Spring Harbor estuary complex.

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FUSS & O'NEILL

Appendix A

Oyster Bay/Cold Spring Harbor Estuary Complex Fact Sheet

Oyster Bay/Cold Spring Harbor Estuary Complex

Background Information

Located on the north shore of Long Island, the Oyster Bay/Cold Spring Harbor Estuary Complex – approximately 6,000 acres in size – is recognized as a vital natural, economic, cultural, historical and recreational resource.

And there is so much more to know about the Oyster Bay/Cold Spring Harbor Estuary Complex:

- The Oyster Bay/Cold Spring Harbor Estuary Complex is an embayment of Long Island Sound. (In 1987, the Sound was officially designated an Estuary of National Significance under the National Estuary Program.)

- The U.S. Fish & Wildlife Service maintains a National Wildlife Refuge (NWR) within the Oyster Bay/Cold Spring Harbor Estuary Complex. In fact, the Oyster Bay NWR – which encompasses part of Cold Spring Harbor – is the largest of the Long Island Complex's eight refuges. The NWR consists of 3,209 acres of bay bottom, saltmarsh, and a small freshwater wetland. Nationally, Oyster Bay NWR is one of the few bay bottom Refuges owned and managed by the U.S. Fish and Wildlife Service.[1]

  The Oyster Bay NWR – which was established in 1968 via land donation from the Town of Oyster Bay and several local villages under the Migratory Bird Conservation Act – consists of high quality marine habitats that support a variety of aquatic-dependent wildlife. The refuge's waters and marshes surround Sagamore Hill National Historic Site, home of Theodore Roosevelt - father of the National Wildlife Refuge System.[2]

  Subtidal (underwater up to mean high tide line) habitats are abundant with marine invertebrates, shellfish and finfish.[3] The Refuge is located off of the Long Island Sound and the sheltered nature of the bay makes it extremely attractive as winter habitat for a variety of waterfowl species, especially diving ducks.[4]

  In 2005, Defenders of Wildlife included the Oyster Bay NWR on their list of the ten most endangered Refuges in the country. The *Refuges at Risk: America's Ten Most Endangered National Wildlife Refuges 2005* report explains that the Oyster Bay NWR has become threatened by polluted

[1] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563
[2] http://refuges.fws.gov/profiles/index.cfm?id=52563
[3] http://refuges.fws.gov/profiles/index.cfm?id=52563
[4] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563

stormwater runoff; non-sustainable development; habitat destruction; and human sewage associated with failing sewer infrastructure, inadequate on-site septic systems, and boat discharge. (Since 2005, both Oyster Bay and Long Island Sound have been declared "no discharge zones." Discharge of sewage from boats is now illegal.)

- For almost two decades there have been three State-designated Significant Coastal Fish and Wildlife Habitats within the Oyster Bay/Cold Spring Harbor Estuary: Cold Spring Harbor, Oyster Bay Harbor, and Mill Neck Creek Wetlands (these habitat designations date back to 1987).[5] The New York State Department of State recently concluded a review involving proposed revisions to 25 designated Significant Coastal Fish and Wildlife Habitats (SCFWH) on the North Shore in Nassau and Suffolk counties. The habitat designations went into effect on October 15, 2005. Among the 25 habitats that have been revised are areas that fall within the OB/CSH Estuary. The three Habitats will now be consolidated into two: 1) Mill Neck Creek, Beaver Brook, and Frost Creek and 2) Oyster Bay and Cold Spring Harbor. [See end of document for more info regarding SCF&W Habitat areas.]

- OB/CSH Fish and Wildlife Facts:
    - More than 126 bird species have been documented at the Oyster Bay National Wildlife Refuge, including 23 species of waterfowl.[6]
    - Oyster Bay National Wildlife Refuge has the heaviest winter waterfowl use of any of the Long Island National Wildlife Refuges.[7]
    - According to the U.S. Fish and Wildlife Service (USFWS), species that rely on this ecosystem include Federal and State designated endangered and threatened species such as the bald eagle, peregrine falcon, osprey, northern harrier, and least tern.[8]
    - The northern diamondback terrapin is common at the Oyster Bay National Wildlife Refuge, particularly in the Frost Creek and Mill Neck Creek sections. The Refuge is considered to have one of the largest populations of diamondback terrapins on Long Island.[9]
    - The Harbor Complex hosts a productive marine finfishery. Oyster Bay has been designated by the National Marine Fisheries Service (NMFS) as Essential Fish Habitat (EFH) for 15 species of finfish across multiple life stages. The harbor serves as a nursery and feeding ground from early spring to late fall for these species and, as a result, contributes to the abundance of fisheries resources that are of regional significance.[10]

- New York State's 1999 Long Island Sound Coastal Management Program, prepared by the NYS Department of State, identifies the Oyster Bay-Cold Spring Harbor area as a Regionally Important Natural Area.[11] [See end of document for more info regarding RINA.]

- The Oyster Bay/Cold Spring Harbor Estuary Complex is also considered one of the most important shellfish producing areas in New York State. The majority of Oyster Bay is certified for commercial shellfish harvest, with economically important shellfisheries including oyster (*Crassotrea virginica*) and hard clam (*Mercinaria mercinaria*). The waters of Oyster Bay are classified SA - the highest and

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[5] http://www.nyswaterfronts.com/waterfront_natural_narratives.asp
[6] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563
[7] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563
[8] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563
[9] http://refuges.fws.gov/profiles/WildHabitat.cfm?ID=52563
[10] National Marine Fisheries Service and Mid-Atlantic Fishery Management Council. 2000. *Guide to Essential Fish Habitat Designations in the Northeastern United States*. http://www.nero.noaa.gov/hcd/webintro.html
[11] http://www.nyswaterfronts.com/downloads/pdfs/lis_cmp/Chap6.pdf

best water quality determination for shellfishing. This is an unusual distinction given the harbor complex's proximity to New York City and the fact that harbors to the west have been closed for more than 30 years.

- The F.M. Flower & Sons, Inc., along with more than 80 licensed independent commercial baymen (45 of whom are full-time baymen), annually harvests roughly one-half of New York State's oyster crop[12] and one-half of NY's hard clams[13] from the heart of the Oyster Bay National Wildlife Refuge.

- A section of the surrounding watershed is located within the Oyster Bay Special Groundwater Protection Area – a Critical Environmental Area[14] – on the spine of the deep flow water recharge area. Virtually all of Long Island's drinking water is drawn from a system of underground reservoirs or aquifers. The Island's drinking water system was designated as the nation's first Sole Source Aquifer, requiring special protection. The Oyster Bay Special Groundwater Protection Area is one of two such state-designated areas in Nassau County designed for the purpose of maintaining open space to recharge the aquifer.

- The Harbor Complex is home to the Cold Spring Harbor Fish Hatchery & Aquarium. The Hatchery is proud to have the largest living collection of New York State freshwater reptiles, fish and amphibians which are housed in the Julia F. Fairchild Building, the Walter L. Ross II Aquarium Building and in eight outdoor ponds. Brook, Brown and Rainbow trout are raised to stock private ponds.

- Renowned for its maritime legacy, Oyster Bay has been designated a "historic maritime area" by New York State.

What is a Significant Coastal Fish & Wildlife Habitat?

The New York State Department of Environmental Conservation evaluates the significance of coastal fish and wildlife habitats, and following a recommendation from the DEC, the Department of State designates and maps specific areas.

A habitat is designated "significant" if it serves one or more of the following functions: (a) the habitat is essential to the survival of a large portion of a particular fish or wildlife population; (b) the habitat supports populations of species which are endangered, threatened or of special concern; (c) the habitat supports populations having significant commercial, recreational, or educational value; and (d) the habitat exemplifies a habitat type which is not commonly found in the state or in a coastal region. In addition, the significance of certain habitats increases to the extent they could not be replaced if destroyed.

What is a Regionally Important Natural Area?

Regionally important natural areas are defined geographic areas within the Long Island Sound coastal boundary and generally are composed of a variety of smaller, natural ecological communities that together form a landscape of environmental, social, and economic value to the people of New York. A regionally important natural area would meet the following three conditions:

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[12] http://refuges.fws.gov/profiles/index.cfm?id=52563

[13] 2013 New York Annual Shellfish Landings, New York State Department of Environmental Conservation

[14] http://www.dec.state.ny.us/website/dcs/seqr/cea/

1) The area contains significant natural resources.
2) The resources are at risk.
3) Additional management measures are needed to preserve or improve the significant resources, or sustain their use.

To be designated as a CEA, an area must have an exceptional or unique character with respect to one or more of the following: a benefit or threat to human health; a natural setting (e.g., fish and wildlife habitat, forest and vegetation, open space and areas of important aesthetic or scenic quality); agricultural, social, cultural, historic, archaeological, recreational, or educational values; or an inherent ecological, geological or hydrological sensitivity to change that may be adversely affected by any change. Following designation, the potential impact of any Type I or Unlisted Action on the environmental characteristics of the CEA is a relevant area of environmental concern and must be evaluated in the determination of significance prepared pursuant to Section 617.7 of SEQR.

Additional information:

❖ Use impairments in Oyster Bay Harbor, Mill Neck Creek, Cold Spring Harbor and its tributaries are identified in the 2000 Atlantic Ocean/Long Island Sound Basin Waterbody Inventory and Priority Waterbodies List (PWL).[15] The use impairments include shellfishing, public bathing, fish consumption, habitat/hydrology, aquatic life, and recreation. (The use impairment of shellfishing is reinforced by the following facts: 1) Oyster Bay Harbor, Mill Neck Creek and its tidal tributaries are among the 69 water bodies, in the New York State 2002 303(d) list, impaired for shellfish harvesting[16] (SEE BELOW) and 2) The NYS DEC has decertified all shellfish harvesting areas in Mill Neck Creek and some shellfish harvesting areas in Oyster Bay.)

❖ According to *Pathogen Total Maximum Daily Loads for Shellfish Waters in Oyster Bay Harbor and Mill Neck Creek*, a September 2003 report[17] by the New York State Department of Environmental Conservation, "urban storm water is… the major source of pathogens (approx. 88% of total) to the Harbor." The report also points out that "the waters support a large recreational environment for boating which represents the second largest source of pathogens (approx. 11% of total) to these bodies." (Note that boat discharges have now been banned in Oyster Bay and throughout the Sound.)

❖ Oyster Bay Harbor, Mill Neck Creek, and its tidal tributaries are among the 69 water bodies listed in the New York State's 2002 303(d) as impaired for shellfish harvesting. The New York State Department of Environmental Conservation, with the cooperation and technical assistance of the U.S. Environmental Protection Agency (USEPA), along with their contractors Battelle and HydroQual, has completed the total maximum daily loads (TMDL) for pathogens in the shellfish waters for Oyster Bay Harbor and Mill Neck Creek. In accordance with USEPA's Water Quality Planning and Management Regulations (40 CFR, Part 30), TMDLs need to be developed to achieve the applicable water quality standards. Oyster Bay Harbor needed to be broken down into several distinct areas where individual TMDLs have been developed. Once implemented, these TMDLs are expected to achieve the targeted reductions in pathogen loads from point and non-point sources with the ultimate goal of achieving the water quality standards for shellfish harvesting. In

[15] 2000 Atlantic Ocean/Long Island Sound Basin Waterbody Inventory and Priority Waterbodies List (PWL), New York State Department of Environmental Conservation.
[16] *Pathogen Total Maximum Daily Loads For Shellfish Waters in Oyster Bay Harbor and Mill Neck Creek*, New York State Department of Environmental Conservation (September 2003) http://www.dec.state.ny.us/website/dow/oystbay.pdf
[17] *Pathogen Total Maximum Daily Loads For Shellfish Waters in Oyster Bay Harbor and Mill Neck Creek*, New York State Department of Environmental Conservation (September 2003) http://www.dec.state.ny.us/website/dow/oystbay.pdf

management zone OBH-2 a 10% pathogen load reduction is mandated and in management zone OBH-3 an 89% pathogen load reduction is mandated. In the other management zones, it is necessary to ensure no increase in pathogen discharges.[18]

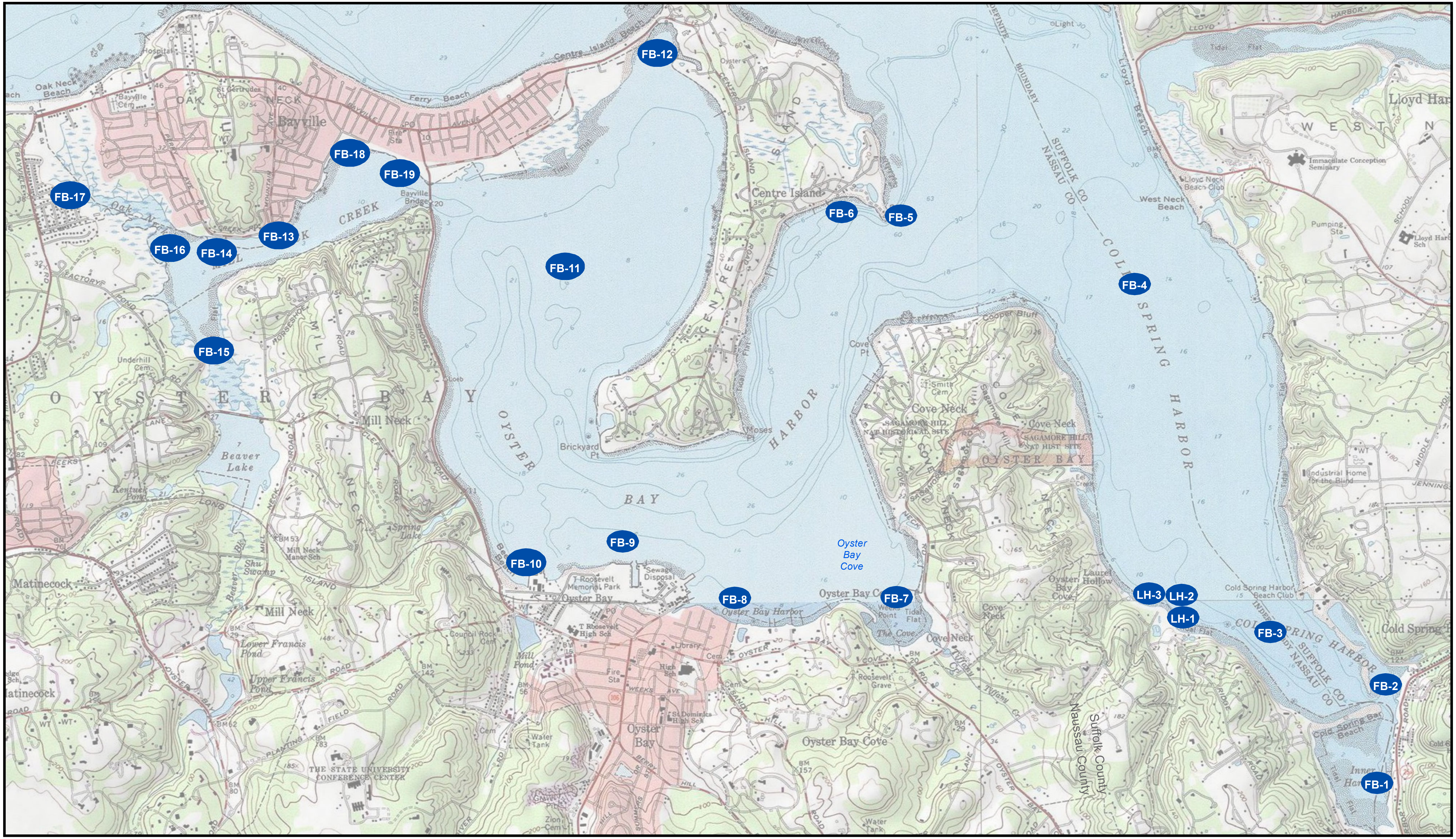
Further, the TMDL indicates that pollution from marinas and boat mooring areas should be reduced using appropriate mitigation techniques such as:

- Public awareness campaigns on illicit dumping of wastewater,
- Enhancement of public toilet facilities near the shore and,
- Expansion of current pump-out programs including the mobile and on-shore pump out facilities.

[18] *Pathogen Total Maximum Daily Loads For Shellfish Waters in Oyster Bay Harbor and Mill Neck Creek*, New York State Department of Environmental Conservation (September 2003) http://www.dec.state.ny.us/website/dow/oystbay.pdf

Appendix B

Sampling Locations Map and Description



0 0.5 1
Miles

Friends of the Bay
Water Quality Monitoring Locations

Data Sources:
Friends of the Bay; USGS Topo Maps © 2011 National Geographic Society;
Document Path: J:\GIS\P2005\1349\B10\MonitoringLocations.mxd

Sampling Locations in Cold Spring Harbor, Oyster Bay Harbor, Mill Neck Creek, and Laurel Hollow

	Site ID	Site Name	Site Description	Latitude	Longitude
Cold Spring Harbor	FB-1	South Cold Spring Harbor Cove	50 yards off last dock in Cold Spring Harbor, just south of Whalers Yacht Club Slips	40°51’45” N	73°27’51” W
	FB-2	CSH Cove North Mooring Field	Cove just north-east of Powell’s Marina, east of large sand bar and small mooring field	40°52’09” N	73°27’48” W
	FB-3	CSH South	200 yards west of Cold Spring Harbor mooring field; mid channel between Mobil Oil Terminal and orange brick house	40°52’22” N	73°28’25” W
	FB-4	CSH North	Center of CSH, south-east of Plum Point; just north of Charles Wang’s dock	40°53’47” N	73°29’08” W
Oyster Bay Harbor	FB-5	Plum Point	Off Plum Point, 110 yards south of Red Nun “4”	40°54’04” N	73°30’23” W
	FB-6	Seawanhaka Yacht Club PSTP outfall	Out fall is located at pink buoy. Station 200 years off boat yard dock	40°54’05” N	73°30’42” W
	FB-7	Oyster Bay Cove	Center of cove 100 yards south-west of Mr. Yampole’s pier	40°52’31” N	73°30’25” W
	FB-8	Whites Creek and OB-STP outfall	100 yards east of Commander Oil dock	40°52’31” N	73°31’17” W
	FB-9	Roosevelt Beach	Approx. 200 yards offshore and in line with flagpole at Roosevelt Park	40°52’45” N	73°31’53” W
	FB-10	Beekman Beach and Mill Pond outfall	Mid Channel between mooring field and finger piers, 100 yards off shore	40°52’40” N	73°32’24” W
	FB-11	West Harbor	Midway between east and west shores, off large white house on North western shore	40°53’52” N	73°32’11” W
	FB-12	Turtle Cove	110 yards west of canal	40°54’44” N	73°31’41 W
Mill Neck Creek	FB-13	Mill Neck Creek-East	Mill Neck Creek, south of yellow house and wall	40°54’00” N	73°33’43” W
	FB-14	Mill Neck Creek -West	Confluence of Oak Neck Creek and Mill Neck Creek	40°53’56” N	73°34’03” W
	FB-15	Mill Neck Creek-South	As far south towards Beaver Dam in Oak Neck Creek as tidal stage allows	40°53’32” N	73°34’04” W
	FB-16	Mill Neck Creek-North	As far North in Mill Neck Creek as tidal stage allows to steel pillared dock	40°53’57” N	73°34’18” W
	FB-17	The Birches STP	North-west most channel past steel pillared dock in Mill Neck Creek	40°54’10” N	73°34’50” W
	FB-18	Mill Neck Cove	North most point which tide will allow	40°54’20” N	73°33’20” W
	FB-19	Flowers Oyster Hatchery	10 feet south of warning buoy marking shellfish racks	40°54’15” N	73°33’04” W
Laurel Hollow	LH-1	Flowers Oyster Hatchery-South	Southern end of public beach, at outfall pipe	40°52’27” N	73°28’53” W
	LH-2	Flowers Oyster Hatchery-Central	Near end of rock jetty	40°52’31” N	73°28’57” W
	LH-3	Flowers Oyster Hatchery-North	Northern end of public beach	40°52’32” N	73°29’04” W

Appendix C

Water Quality Monitoring Data Sheets

Friends of the Bay

Volunteer Water Quality Monitoring Data Sheet

DATE: ______________________

CAPTAIN: ______________________ FIELD SAMPLING LEADER: __________________________

SAMPLERS: _______________________________ ________________________________

STATION: _______ Time (2400): ___________ Air Temp (C°) ________

GPS Reading: 40°___________ 73°___________

☐ Bacteria Sample ☐ Duplicate

☐ Nitrogen Sample ☐ Duplicate

☐ DO Sample Collected ☐ DO Sample Preserved

____ Rainfall in previous 24 hours: 0= none 1= light 2= moderate 3= heavy

WATER & WEATHER CONDITIONS

	Tidal Stage	1=high slack 2 = ebbing/falling 3= low slack 4 = flooding/rising
	Water Color	1 = brown 2 = red brown 3 = green 4 = yellow brown 5 = green brown
	Surface conditions	1= algal bloom 2 = oil slick 3 = foam 4 =dead fish 5 = debris 6=Other: ___________________________
	Cloud Cover	**0 = no clouds, 1 = <25%, 2 =25-50%, 3 =50-75%, 4 = 75-100%**
	Wind Direction	**1= North 2= Northeast 3= East 4= Southeast 5= South 6= Southwest 7= West 8= Northwest**
	Wind Speed	**0= no wind 1= <5mph 2= 5-10mph 3= 10-15mph 4= 15-20mph 5= 20-25mph 6= >25mph**

	Weather	**1 = fair 2 = partly cloudy 3 = cloudy 4 = rain 5 = snow 6 = fog**
	Wave Height	0 = no waves 1= slight movement 2= light chop small waves on shore 3= moderate chop 4 = white caps 5 = swells

FIELD MEASUREMENTS Site #_______

Depth (m)	Temperature °C	Dissolved Oxygen (mg/l)	Salinity (ppt)	pH
0.5				
1.0				
____ (0.5 m above bottom)				
Bottom = _____				

SECCHI DEPTH: ________

	Initials:	Initials:
Hit bottom before disappearing?	Yes No	Yes No
Angle		
Average of Two Readings	(m)	

COMMENTS

_________________________ _________________________ ___________________

Rev. Aug 2014

Appendix D

Tide Tables for Oyster Bay – 2015 & 2016

John Venditto
Town Supervisor
www.oysterbaytown.com

TOWN OF OYSTER BAY

2015

AT JONES INLET

SOUTH SHORE HIGH TIDE TABLE

Date of NEW MOON
Date of FULL MOON

KEEP OUR WATERWAYS CLEAN

Dockside Pumpout at Tobay Marina
** Free Pumpout Vessel Service - call on Marine Channel 9*

Department of Environmental Resources
Neil O. Bergin, Commissioner
(516) 677-5811

	Jan		Feb		Mar		Apr		May		Jun	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
1	4:06	4:32	5:30	5:56	4:12	4:44	6:19	6:47	6:26	6:53	7:16	7:35
2	5:01	5:26	6:14	6:41	5:05	5:33	7:01	7:26	7:08	7:30	7:58	8:14
3	5:50	6:15	6:55	7:22	5:50	6:17	7:40	8:03	7:47	8:06	8:40	8:54
4	6:34	7:01	7:33	8:01	6:31	6:56	8:16	8:37	8:24	8:40	9:24	9:37
5	7:15	7:44	8:10	8:40	7:08	7:33	8:51	9:10	9:02	9:15	10:12	10:26
6	7:55	8:27	8:46	9:18	7:44	8:09	9:25	9:42	9:41	9:54	11:06	11:21
7	8:35	9:10	9:22	9:56	8:18	8:43	10:01	10:17	10:26	10:39		12:03
8	9:14	9:53	9:58	10:34	9:52	10:16	10:41	10:57	11:17	11:32	12:18	12:59
9	9:55	10:37	10:36	11:13	10:26	10:50	11:28	11:46		12:14	1:15	1:55
10	10:35	11:20	11:18	11:55	11:03	11:28		12:22	12:30	1:11	2:13	2:53
11	11:17			12:06	11:47		12:43	1:21	1:29	2:10	3:13	3:52
12	12:03	12:01	12:43	1:00	12:13	12:38	1:44	2:23	2:30	3:10	4:15	4:52
13	12:46	12:48	1:38	2:03	1:06	1:35	2:48	3:28	3:33	4:12	5:17	5:49
14	1:32	1:41	2:41	3:11	2:05	2:38	3:54	4:33	4:37	5:13	6:16	6:41
15	2:24	2:40	3:47	4:18	3:10	3:46	5:00	5:34	5:38	6:09	7:10	7:30
16	3:21	3:44	4:48	5:17	4:18	4:54	6:00	6:30	6:35	7:01	8:00	8:16
17	4:19	4:44	5:44	6:11	5:24	5:56	6:55	7:21	7:27	7:49	8:48	9:01
18	5:14	5:39	6:35	7:02	6:22	6:51	7:47	8:10	8:18	8:36	9:36	9:46
19	6:04	6:30	7:25	7:52	7:16	7:42	8:37	8:58	9:08	9:23	10:25	10:32
20	6:53	7:20	8:15	8:42	8:06	8:31	9:27	9:47	9:58	10:11	11:14	11:18
21	7:42	8:10	9:07	9:35	8:56	9:20	10:19	10:37	10:51	11:01		12:03
22	8:33	9:03	10:01	10:30	9:47	10:11	11:14	11:29	11:43	11:51	12:04	12:50
23	9:25	9:58	10:56	11:25	10:40	11:03		12:08		12:35	12:50	1:35
24	10:21	10:54	11:52		11:35	11:57	12:22	1:03	12:40	1:25	1:35	2:20
25	11:17	11:51	12:20	12:48		12:31	1:14	1:56	1:29	2:14	2:21	3:06
26		12:13	1:16	1:46	12:52	1:26	2:06	2:49	2:17	3:03	3:11	3:55
27	12:47	1:10	2:13	2:46	1:46	2:22	2:59	3:42	3:08	3:53	4:06	4:45
28	1:43	2:09	3:14	3:47	2:41	3:20	3:54	4:36	4:01	4:43	11:15	
29	2:42	3:10			3:39	4:18	4:49	5:26	4:54	5:31	5:56	6:22
30	3:42	4:11			4:37	5:14	5:40	6:12	5:46	6:15	6:46	7:07
31	4:39	5:07			5:31	6:03			6:33	6:56		

	Jul		Aug		Sep		Oct		Nov		Dec	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
1	7:32	7:50	8:45	9:05	10:06	10:31	10:35	11:07	11:01	11:41	11:23	
2	8:18	8:35	9:36	9:56	11:01	11:27	11:32		11:57		12:06	12:14
3	9:05	9:22	10:29	10:50	11:57		12:06	12:29	12:37	12:51	12:57	1:04
4	9:56	10:13	11:25	11:46	12:25	12:54	1:04	1:26	1:31	1:44	1:47	1:54
5	10:50	11:07		12:21	1:23	1:51	2:02	2:22	2:25	2:38	2:37	2:46
6	11:46		12:43	1:17	2:22	2:48	3:00	3:19	3:19	3:31	3:28	3:40
7	12:03	12:42	1:40	2:13	3:21	3:47	3:57	4:16	4:09	4:22	4:17	4:31
8	1:00	1:38	2:39	3:11	4:22	4:46	4:53	5:10	4:56	5:09	5:02	5:19
9	1:57	2:34	3:39	4:11	5:20	5:41	5:44	5:58	5:37	5:51	5:44	6:02
10	2:55	3:32	4:42	5:10	6:12	6:28	6:29	6:42	6:16	6:30	6:23	6:43
11	3:57	4:31	5:41	6:04	6:57	7:11	7:09	7:21	6:51	7:08	7:00	7:22
12	4:59	5:29	6:34	6:52	7:38	7:49	7:46	7:58	7:26	7:44	7:37	8:02
13	5:58	6:23	7:21	7:35	8:16	8:26	8:21	8:34	7:59	8:21	8:16	8:45
14	6:52	7:12	8:04	8:15	8:53	9:02	8:55	9:08	8:34	9:01	9:00	9:33
15	7:41	7:57	8:45	8:54	9:29	9:37	9:27	9:43	9:15	9:48	9:49	10:27
16	8:27	8:39	9:25	9:31	10:03	10:12	10:00	10:21	10:03	10:42	10:44	11:24
17	9:12	9:20	10:05	10:09	10:39	10:50	10:38	11:05	10:59	11:41	11:41	
18	9:56	10:02	10:45	10:47	11:16	11:32	11:24	11:58	11:58		12:21	12:39
19	10:41	10:43	11:24	11:27	11:59			12:18	12:39	12:58	1:18	1:39
20	11:26	11:26		12:05	12:22	12:49	12:56	1:18	1:38	1:59	2:18	2:41
21		12:10	12:09	12:46	1:17	1:44	1:56	2:19	2:39	3:02	3:19	3:45
22	12:09	12:52	12:55	1:30	2:16	2:44	2:58	3:22	3:40	4:05	4:19	4:46
23	12:52	1:34	1:46	2:20	3:19	3:48	4:01	4:26	4:38	5:04	5:15	5:43
24	1:36	2:18	2:43	3:17	4:24	4:52	5:02	5:27	5:32	5:58	6:07	6:35
25	2:25	3:06	3:46	4:18	5:26	5:51	5:59	6:23	6:23	6:50	6:55	7:24
26	3:20	3:58	4:50	5:19	6:21	6:45	6:52	7:16	7:11	7:40	7:41	8:12
27	4:20	4:55	5:50	6:15	7:13	7:36	7:41	8:07	7:59	8:32	8:27	9:01
28	5:21	5:49	6:44	7:07	8:02	8:26	8:30	8:58	8:48	9:25	9:13	9:51
29	6:17	6:40	7:34	7:56	8:51	9:17	9:19	9:51	9:39	10:19	10:00	10:40
30	7:08	7:29	8:24	8:46	9:42	10:10	10:11	10:46	10:32	11:13	10:47	11:29
31	7:56	8:16	9:14	9:37			11:05	11:44			11:34	

* Start Daylight Saving Time March 13th

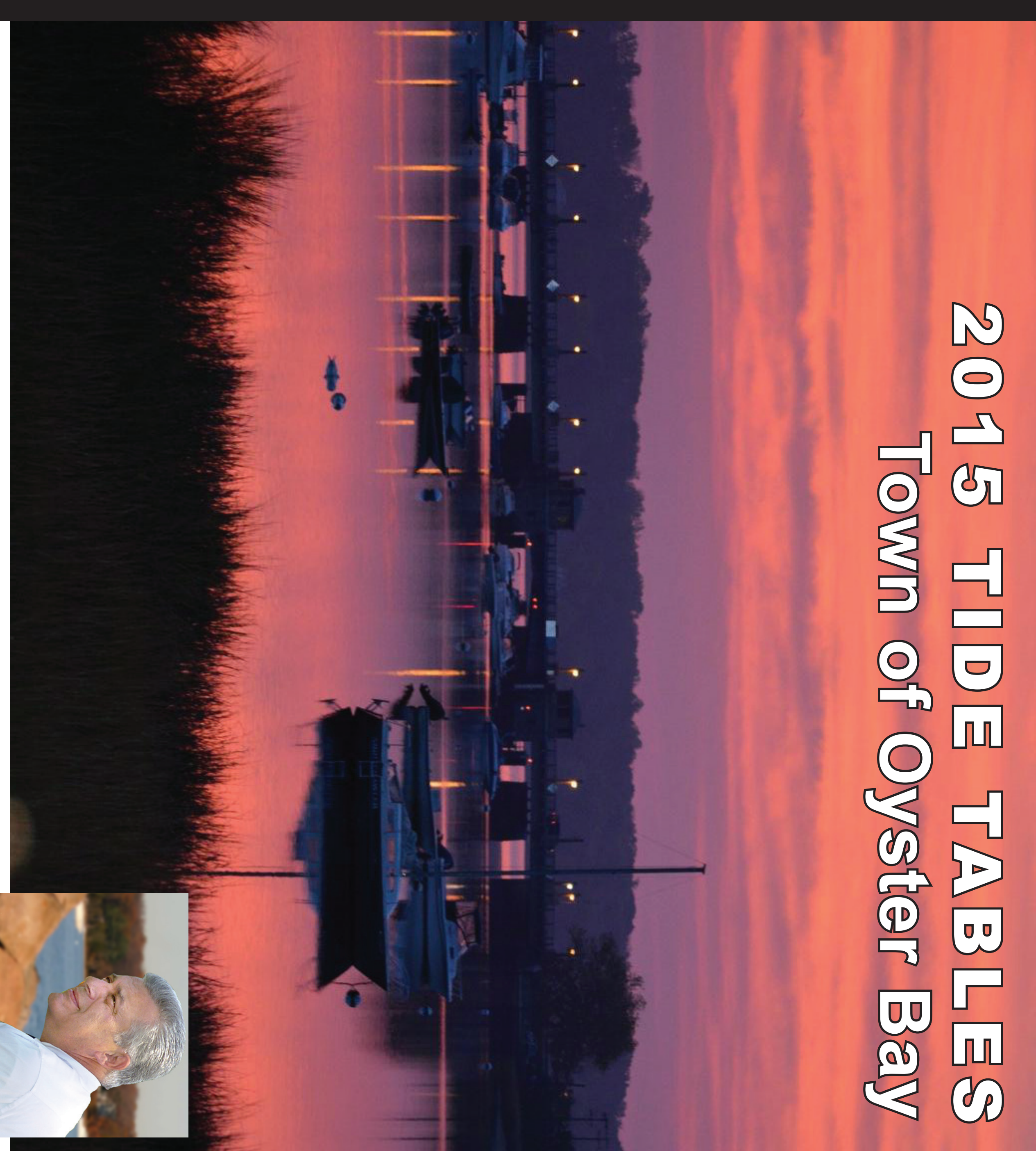
** Start Eastern Standard Time November 6th

For Tobay Ocean side minus 10 min.
For Tobay Boat Basin add 2 Hours, 4 Min. 4 min.

For Bellmore add 1 Hour, 48 min.
For Biltmore Shores add 2 hours, 34 mind.

Tide Estimates supplied to the Town of Oyster Bay by National Oceanic & Atmospheric Administration

2015 TIDE TABLES



2015 TIDE TABLES
Town of Oyster Bay

Dear Resident,

One of the many attributes that makes the Town of Oyster Bay so special is its beautiful waterways, which offer a wide variety of recreational and commercial water-related activities, not to mention scenic vistas and havens for a myriad of marine and other wildlife.

Boaters can cruise the waters of Oyster Bay/Cold Spring Harbor, Hempstead Harbor, South Oyster Bay and the Atlantic Ocean. Swimmers can enjoy any of seven beaches, five on the north shore and two on the south shore. Shell fishers, both commercial and recreational, have access to two of the last viable shell fishing harbors on Long Island, Oyster Bay/Cold Spring Harbor and South Oyster Bay.

Preserving and enhancing our marine resources is an environmental legacy for which I would like my administration to be remembered. To this end, the Town Board has implemented a number of projects and programs as part of our commitment to take whatever steps necessary to ensure that these resources continue to flourish. We invite you to enjoy the many pleasures our waterways have to offer and hope that you find the tide tables in this brochure helpful in planning your activities.

Very truly yours,

JOHN VENDITTO
Town Supervisor

TOWN OF OYSTER BAY

2015

OYSTER BAY HARBOR

HIGH TIDE TABLE

John Venditto
Town Supervisor
www.oysterbaytown.com

Date of NEW MOON
Date of FULL MOON

KEEP OUR WATERWAYS CLEAN

**Free Dockside Pumpout at Roosevelt & Tappen Marinas*
** Free Pumpout Vessel Service - call on Marine Channel 9*

Department of Environmental Resources
Neil O. Bergin, Commissioner
(516) 677-5811

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
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31	8:38	9:09			9:37	10:00			10:40	10:51			11:58		12:44	1:10			2:39	2:58			3:13	3:33

* Start Daylight Saving Time
March 13th

** Start Eastern Standard Time
November 6th

For Bayville Bridge add 13 min.
For Northport Bay minus 12 min.
For Cold Spring Harbor minus 14 min.

For Bridgeport minus 7 min.
For Orient Point minus 1 hr. 21 min. approx.

Tide Estimates supplied to the Town of Oyster Bay by National Oceanic & Atmospheric Administration

TOWN OF OYSTER BAY

2015

GLEN COVE - HEMPSTEAD HARBOR

HIGH TIDE TABLE

John Venditto
Town Supervisor
www.oysterbaytown.com

Date of NEW MOON
Date of FULL MOON

KEEP OUR WATERWAYS CLEAN

**Free Dockside Pumpout at Tappen and Roosevelt Marinas*
** Free Pumpout Vessel Service - call on Marine Channel 9*

Department of Environmental Resources
Neil O. Bergin, Commissioner
(516) 677-5811

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
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31	9:09	9:42			10:10	10:34			10:56	10:51			11:51		12:40	1:05			2:41	2:54			3:09	3:18

* Start Daylight Saving Time
March 13th

** Start Eastern Standard Time
November 6th

For Kings Point add 22 min.

Tide Estimates supplied to the Town of Oyster Bay by National Oceanic & Atmospheric Administration

TOWN OF OYSTER BAY

2016

AT JONES INLET

SOUTH SHORE HIGH TIDE TABLE

John Venditto
Town Supervisor
www.oysterbaytown.com

Date of NEW MOON
Date of FULL MOON

KEEP OUR WATERWAYS CLEAN

Dockside Pumpout at Tobay Marina
** Free Pumpout Vessel Service - call on Marine Channel 9*

Department of Environmental Resources
Neil O. Bergin, Commissioner
(516) 677-5811

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31	12:18	12:25			1:16	1:52			3:23	4:03			5:59	6:23	7:26	7:41			8:30	8:47			8:27	8:55

* Start Daylight Saving Time March 13th

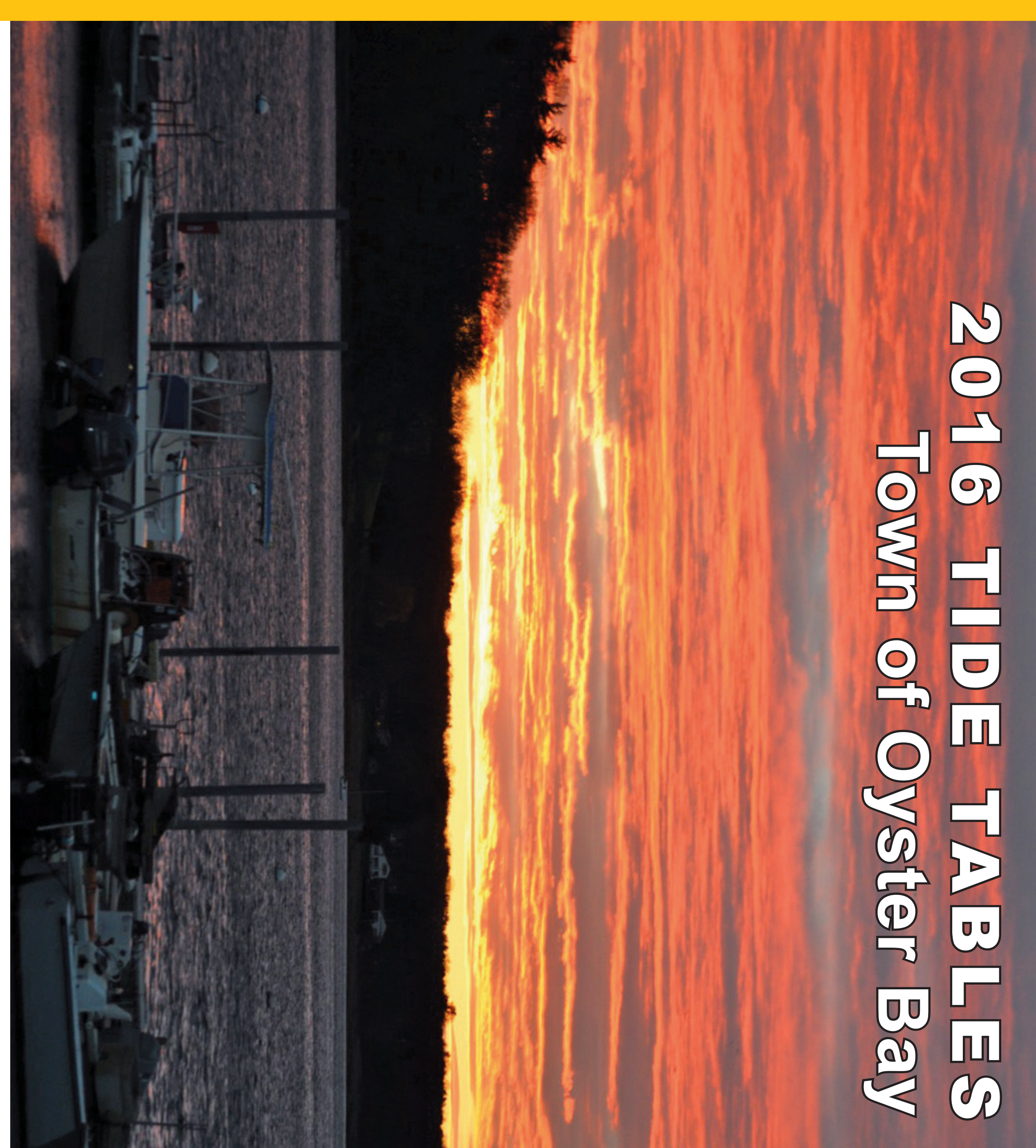
** Start Eastern Standard Time November 6th

For Tobay Ocean side minus 10 min.
For Tobay Boat Basin add 2 Hours, 4 Mi 4 min.

For Bellmore add 1 Hour, 48 min.
For Biltmore Shores add 2 hours, 34 mind.

Tide Estimates supplied to the Town of Oyster Bay by National Oceanic & Atmospheric Administration

2016 TIDE TABLES



Dear Resident,

One of the many attributes that makes the Town of Oyster Bay so special is its beautiful waterways, which offer a wide variety of recreational and commercial water-related activities, not to mention scenic vistas and havens for a myriad of marine and other wildlife.

Boaters can cruise the waters of Oyster Bay/Cold Spring Harbor, Hempstead Harbor, South Oyster Bay and the Atlantic Ocean. Swimmers can enjoy any of seven beaches, five on the north shore and two on the south shore. Shell fishers, both commercial and recreational, have access to two of the last viable shell fishing harbors on Long Island, Oyster Bay/Cold Spring Harbor and South Oyster Bay.

Preserving and enhancing our marine resources is an environmental legacy for which I would like my administration to be remembered. To this end, the Town Board has implemented a number of projects and programs as part of our commitment to take whatever steps necessary to ensure that these resources continue to flourish. We invite you to enjoy the many pleasures our waterways have to offer and hope that you find the tide tables in this brochure helpful in planning your activities.

Very truly yours,

JOHN VENDITTO
Town Supervisor

TOWN OF OYSTER BAY

2016

OYSTER BAY HARBOR

HIGH TIDE TABLE

John Venditto
Town Supervisor
www.oysterbaytown.com

Date of NEW MOON
Date of FULL MOON

KEEP OUR WATERWAYS CLEAN

**Free Dockside Pumpout at Roosevelt & Tappen Marinas*
** Free Pumpout Vessel Service - call on Marine Channel 9*

Department of Environmental Resources
Neil O. Bergin, Commissioner
(516) 677-5811

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
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* Start Daylight Saving Time
March 13th

** Start Eastern Standard Time
November 6th

For Bayville Bridge add 13 min.
For Northport Bay minus 12 min.
For Cold Spring Harbor minus 14 min.

For Bridgeport minus 7 min.
For Orient Point minus 1 hr. 21 min. approx.

Tide Estimates supplied to the Town of Oyster Bay by National Oceanic & Atmospheric Administration

TOWN OF OYSTER BAY

2016

GLEN COVE - HEMPSTEAD HARBOR

HIGH TIDE TABLE

John Venditto
Town Supervisor
www.oysterbaytown.com

Date of NEW MOON
Date of FULL MOON

KEEP OUR WATERWAYS CLEAN

**Free Dockside Pumpout at Tappen and Roosevelt Marinas*
** Free Pumpout Vessel Service - call on Marine Channel 9*

Department of Environmental Resources
Neil O. Bergin, Commissioner
(516) 677-5811

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
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10	11:04	11:37	12:01	12:19		12:04	1:57	2:30	2:32	3:13	4:02	4:47	4:15	4:51	4:59	5:26	6:06	6:30	6:29	6:53	6:58	7:31	7:29	8:10
11	11:47		12:46	1:07	12:27	12:53	2:48	3:25	3:27	4:13	5:03	5:46	5:08	5:43	5:57	6:23	7:15	7:37	7:36	8:01	7:58	8:32	8:30	9:10
12	12:19	12:33	1:34	1:57	1:15	1:43	3:45	4:28	4:30	5:19	6:07	6:45	6:08	6:40	7:07	7:28	8:31	8:45	8:40	9:05	8:52	9:26	9:25	10:04
13	1:04	1:21	2:25	2:52	3:06	3:38	4:51	5:41	5:40	6:25	7:12	7:43	7:16	7:40	8:27	8:36	9:27	9:40	9:33	9:58	9:41	10:15	10:17	10:56
14	1:52	2:12	3:22	3:54	4:03	4:41	6:08	6:55	6:50	7:29	8:14	8:37	8:22	8:38	9:26	9:30	10:10	10:25	10:19	10:46	10:29	11:05	11:08	11:47
15	2:45	3:08	4:27	5:08	5:09	5:56	7:23	8:03	7:57	8:28	9:10	9:27	9:19	9:28	10:10	10:12	10:49	11:07	11:03	11:32	11:19	11:55	11:59	
16	3:42	4:10	5:43	6:32	6:27	7:17	8:30	9:03	8:56	9:20	9:59	10:09	10:07	10:09	10:46	10:50	11:29	11:51	11:49			12:09	12:38	12:50
17	4:46	5:22	7:03	7:48	7:46	8:29	9:29	9:55	9:48	10:06	10:43	10:45	10:47	10:43	11:20	11:29		12:12	12:19	12:36	12:47	1:01	1:29	1:41
18	5:58	6:45	8:12	8:50	8:55	9:31	10:20	10:41	10:34	10:46	11:20	11:14	11:20	11:15	11:56		12:36	12:56	1:07	1:24	1:41	1:56	2:22	2:35
19	7:15	8:01	9:11	9:44	9:54	10:24	11:04	11:20	11:15	11:20	11:50	11:39	11:49	11:49	12:10	12:36	1:23	1:44	1:58	2:16	2:40	2:57	3:18	3:35
20	8:23	9:04	10:02	10:32	10:44	11:10	11:44	11:54	11:50	11:46		12:15		12:22	12:54	1:19	2:12	2:34	2:52	3:11	3:46	4:07	4:19	4:41
21	9:21	9:58	10:48	11:15	11:29	11:50		12:17		12:17	12:10	12:44	12:29	12:59	1:40	2:05	3:05	3:28	3:53	4:14	4:56	5:21	5:20	5:48
22	10:13	10:47	11:28	11:52		12:09	12:19	12:43	12:06	12:38	12:48	1:20	1:11	1:41	2:28	2:54	4:04	4:30	5:05	5:30	6:02	6:30	6:21	6:53
23	11:00	11:33		12:03	12:25	12:42	12:37	1:01	12:34	1:05	1:29	2:02	1:57	2:26	3:20	3:48	5:15	5:45	6:22	6:50	7:04	7:33	7:19	7:53
24	11:43		12:23	12:31	12:53	1:07	1:01	1:28	1:09	1:40	2:15	2:47	2:45	3:15	4:18	4:48	6:38	7:08	7:33	8:01	7:59	8:29	8:12	8:46
25	12:13	12:20	12:46	12:54	1:11	1:27	1:35	2:02	1:50	2:22	3:03	3:36	3:37	4:09	5:25	5:57	7:55	8:23	8:36	9:04	8:49	9:17	8:59	9:32
26	12:49	12:53	1:09	1:23	1:33	1:53	2:14	2:43	2:34	3:07	3:56	4:30	4:35	5:07	6:45	7:18	9:01	9:26	9:32	9:57	9:32	10:01	9:40	10:13
27	1:20	1:23	1:40	1:59	2:05	2:28	2:58	3:29	3:23	3:58	4:54	5:29	5:38	6:12	8:08	8:35	9:56	10:19	10:19	10:44	10:09	10:39	10:14	10:48
28	1:48	1:56	2:18	2:41	2:43	3:09	3:46	4:20	4:16	4:53	5:56	6:31	6:52	7:25	9:17	9:39	10:45	11:07	11:01	11:26	10:40	11:11	10:40	11:16
29	2:21	2:35	3:02	3:28	3:27	3:55	4:40	5:17	5:15	5:52	7:06	7:39	8:15	8:41	10:14	10:34	11:28	11:49	11:38		11:02	11:35	11:04	11:38
30	3:01	3:20			4:15	4:47	5:39	6:17	6:18	6:54	8:23	8:49	9:26	9:47	11:05	11:23		12:06	12:03	12:08	11:24	11:56	11:35	
31	3:47	4:11			5:09	5:45			7:27	8:00			10:26	10:43	11:50				12:34	12:28			12:07	12:12

* Start Daylight Saving Time
March 13th

** Start Eastern Standard Time
November 6th

For Kings Point add 22 min.

Tide Estimates supplied to the Town of Oyster Bay by National Oceanic & Atmospheric Administration

Appendix E

2015-2016 Open Water Body Monitoring Results

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1		Friends of the Bay 2014 Water Quality Data - **Site 1, Cold Spring Cove South**															
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0	Salinity BTM	PH Top	PH 1.0	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)
3	Site 1	2015-04-06	6.08	6.09	5.67		24.56	24.63	25.56	8.19	8.17	8.09	11.10	10.92	10.26	2.3	7.0
4	Site 1	2015-04-13															
5	Site 1	2015-04-20															
6	Site 1	2015-04-27	11.13	10.54	8.16		22.50	24.38	22.66	8.61	8.52	7.83	10.74	9.43	5.11	1.5	6.2
7	Site 1	2015-05-04	9.71	9.45	8.35		25.17	25.34	25.98	8.43	8.41	8.31	12.23	12.02	11.47	1.3	3.9
8	Site 1	2015-05-11	14.92	14.14	10.82		24.02	24.54	25.97	8.85	8.50	8.33	10.28	9.10	7.94	1.6	4.6
9	Site 1	2015-05-18															
10	Site 1	2015-05-25	15.63	15.38	14.16		25.22	25.42	25.99	8.01	8.01	7.93	7.33	7.26	6.40	1.0	4.0
11	Site 1	2015-06-01															
12	Site 1	2015-06-08	15.88	15.81	15.02		24.88	24.95	20.60	7.98	7.93	7.54	7.27	6.81	4.83	0.8	5.4
13	Site 1	2015-06-15															
14	Site 1	2015-06-22	21.69	21.11	18.41		23.01	23.95	25.82	8.46	8.24	7.51	11.01	9.01	4.26	1.1	5.5
15	Site 1	2015-06-29															
16	Site 1	2015-07-06	21.70	21.39	20.76		24.83	25.70	25.99	7.89	7.82	7.58	6.59	5.78	3.33	0.7	5.3
17	Site 1	2015-07-13	23.67	23.48	22.45		24.62	24.82	25.91	7.79	7.71	7.45	6.49	5.46	3.70	0.8	5.9
18	Site 1	2015-07-20	24.22	23.33	21.90		24.98	25.43	26.03	7.73	7.54	7.41	6.04	3.84	2.21	1.0	5.6
19	Site 1	2015-07-27	23.57	23.16	21.99		25.32	25.87	26.46	7.67	7.62	7.52	3.78	3.06	2.13	1.1	5.3
20	Site 1	2015-08-03	23.71	23.65	23.59		25.04	25.10	26.17	7.40	7.40	7.24	3.40	3.42	2.40	1.2	5.4
21	Site 1	2015-08-10	23.30	23.20	22.08		24.96	25.38	26.75	7.52	7.44	7.24	3.90	2.41	1.60	1.2	6.7
22	Site 1	2015-08-17	23.38	23.79	23.54		25.68	25.46	26.38	7.48	7.51	7.52	2.41	2.56	2.66	1.2	5.4
23	Site 1	2015-08-24															
24	Site 1	2015-08-31	24.07	24.28	24.48		25.76	26.12	26.56	7.58	7.57	7.55	3.48	3.18	2.60	1.0	4.1
25	Site 1	2015-09-08	24.55	24.31	29.01		26.05	26.69	27.92	7.68	7.73	7.63	3.40	3.07	2.27	1.5	4.9
26	Site 1	2015-09-14															
27	Site 1	2015-09-21															
28	Site 1	2015-09-28	20.86	20.92	21.71		25.78	25.93	26.88	7.75	7.73	9.58	4.98	5.13	5.11	1.2	5.6
29	Site 1	2015-10-05															
30	Site 1	2015-10-13	17.80	17.95	17.95		25.80	26.37	26.86	8.05	8.03	8.20	6.58	6.41	6.24	1.6	4.5
31	Site 1	2015-10-19	11.23	12.51	13.88		23.23	24.81	26.12	8.32	8.34	8.32	8.23	8.05	7.71	0.7	6.4
32	Site 1	2015-10-26	13.77	13.83	13.96		26.11	26.11	26.26	8.28	8.27	8.26	7.55	7.43	7.01	0.8	7.0
33																	
34	Site Total		20	20	20	0	20	20	20	20	20	20	20	20	20	20	20
35	All Sites Total		423	395	394	3	399	395	394	399	395	394	399	395	394	399	396
36	Average		**19.20**	**19.06**	**18.54**	**#DIV/0!**	**24.89**	**25.39**	**25.86**	**7.97**	**7.91**	**7.84**	**6.62**	**5.97**	**4.68**	**1.12**	**5.35**
37			398.67														
38																	
39		***Holding Time Exceeded 8/31/15**															

	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																				
2	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Condition	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	2.8	2	<1								0	3	3	6	1	0	0	2	0	2015-04-06
4																				2015-04-13
5																				2015-04-20
6	18.0	1	1								0	2	5	1	1	8	1	1	1	2015-04-27
7	13.7	12	1		0.001	0.000					0	3	5	5	N/A	6	0	1	0	2015-05-04
8	32.0	2	2								0	2	5	6	2	6	2	2	2	2015-05-11
9																				2015-05-18
10	25.1	15	1								0	2	N/A	N/A	1	6	2	1	1	2015-05-25
11																				2015-06-01
12	18.9	25	23		0.010	0.003					0						1	3	1	2015-06-08
13																				2015-06-15
14	24.8	580	180								0	3	1	6	0	8	1	1	2	2015-06-22
15																				2015-06-29
16	29.8	100	2								0	4	3	6	4	6	1	1	2	2015-07-06
17	25.2	110	1		0.000	0.004					0	4	3	6	0	0	0	1	0	2015-07-13
18	30.5	23	1								0	4	5	6	1	8	1	1	1	2015-07-20
19	27.1	140	6								0.01	2	5	4	4	5	0	4	0	2015-07-27
20	25.6	56	10								0	2	1	6	0	5	2	1	1	2015-08-03
21	21.7	34	7								0	4	3	6	0	5	1	1	0	2015-08-10
22	32.4	100	1								0	4	3	6	1	0	0	2	0	2015-08-17
23																				2015-08-24
24	24.9	*150	*41								0	4	3	6	3	0	0	2	0	2015-08-31
25	37.8	29	1								0	2	4	6	0	6	1	1	1	2015-09-08
26																				2015-09-14
27																				2015-09-21
28	17.6	970	410								0	4	5	6	4	4	0	6	0	2015-09-28
29																				2015-10-05
30	17.1	160	19								0	4	1	6	3	4	1	2	1	2015-10-12
31	2.6	70	33								0	2	1	6	0	5	1	1	0	2015-10-19
32	8.60	32	14								0	4	5	6	0	1	1	1	2	2015-10-26
33																				
34	20	20	20		3	3														
35	409	414	414		73	73														
36	**22.81**	43.820	5.551		0.004	0.002														
37																				
38																				
39																				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1		Friends of the Bay 2016 Water Quality Data - **Site 1, Cold Spring Cove South**																																		
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0	Salinity BTM	PH Top	PH 1.0	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate NO3	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Condition	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																																
4		2015-04-11		no samples																																
5	Site 1	2016-04-18	00751	10.21	10.05	9.50	26.01	26.07	26.32	8.29	8.24	8.06	9.29	8.91	8.45	2.0	6.4	n/a	5	1							0	4	5	0	0	0	0	1	0	
6	Site 1	2016-04-25	00747	13.46	13.37	12.79	24.78	25.12	25.86	8.16	8.1	7.88	7.45	7.68	6.82	2.0	5.6	10.10	12	3							0	3	5	6	4	0	0	3	0	
7	Site 1	2016-05-02	01107	11.89	11.76	11.52	24.37	25.60	26.21	8.40	8.26	8.27	8.93	8.79	8.54	2.10	6.5	13.90	38	54							0	2	3	6	4	4	0	3	2	
8		2016-05-09		no samples																																
9		2016-05-16		no samples																																
10	Site 1	2016-05-23	00726	14.80	14.67	14.01	24.35	24.83	25.71	8.12	8.14	7.98	7.15	6.79	5.86	1.2	6.0	14.60	113	56							0	3	5	5	4	0	0	3	0	
11	Site 1	2016-05-31	01024	18.74	17.72	16.62	24.16	24.96	25.96	7.97	8.05	8.00	5.85	6.08	5.34	1.0	6.8	23.50	n/a	n/a							3	1	3	0	4	7	1	3	0	
12	Site 1	2016-06-06	00811	17.02	16.92	16.51	24.79	25.21	25.82	7.86	7.84	7.77	5.33	5.43	5.04	1.1	4.9	22.20	618	60		0.050	0.000				3	3	5	6	1	7	1	1	0	
13	Site 1	2016-06-13	Cancelled due to Wind 6/13/2016																																	
14	Site 1	2016-06-20	00751	19.14	19.14	18.24	25.24	25.29	26.31	7.98	7.84	7.59	6.45	5.15	4.31	0.9	5.4	21.00	130	28							0	3	5	5	1	0	0	2	0	
15	Site 1	2016-06-27	00902	19.81	19.81	19.81	23.23	23.37	23.44	8.13	8.13	8.07	Quanta malfunction			1.0	3.1	23.30	98	10							0	2	5	1	1	6	1	2	0	
16	Site 1	2016-07-05	Cancelled due to Rain 7/5/2016																								0									
17	Site 1	2016-07-11	01034	22.41	22.31	20.91	24.90	24.64	24.29	8.80	8.02	7.70	7.08	6.83	2.46	1.1	5.5	21.90	62	4		0.050	0.003				0	2			2		1	2	1	
18	Site 1	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																	
19	Site 1	2016-07-25	01050	24.58	24.31	23.84	26.13	26.13	26.53	7.75	7.69	7.59	2.53	3.45	1.73	1.0	3.2	26.90	38	4							0	4	1	6	4	6	1	2	2	
20		2016-08-01		no samples																																
21	Site 1	2016-08-08	01107	25.00	24.71	23.90	25.09	25.62	27.54	8.45	8.22	7.64	9.20	9.50	1.52	0.80	3.7	27.2	63	1		0.01	0.003				0	4	2	1	1	0	1	1	0	
22	Site 1	2016-08-15	00759	27.29	27.30	27.13	25.00	26.09	18.20	7.65	7.57	7.39	2.60	2.33	0.75	0.7	4.0	26.90	370	330							0	4	3	6	1	0	0	1	0	
23		2016-08-22		no samples																																
24	Site 1	2016-08-29	00755	25.01	24.99	25.00	26.72	26.86	27.72	7.48	7.47	7.41	3.40	4.14	2.86	0.8	3.0	25.20	260	23							0	4	3	5	3	1	0	3	0	
25		2016-09-06		no samples																																
26	Site 1	2016-09-12	01046	23.89	23.86	23.32	26.68	26.81	27.08	7.85	7.85	7.68	5.25	6.03	4.81	1.0	5.0	21.50	48	1		0.110	0.033				0	2	1	6	1	2	1	1	1	
27		2016-09-19		no samples																																
28	Site 1	2016-09-26	01022	21.60	21.62	22.03	26.31	26.66	27.38	7.63	7.54	7.36	6.19	5.35	2.96	0.4	5.4	19.10	39	1							0	2	1	6	1	4	1	1	1	
29	Site 1	2016-10-03	00810	19.10	19.27	19.46	26.27	26.85	27.49	7.31	7.33	7.39	4.16	4.41	4.88	1.5		17.30	140	10							0	3	1	0	4	0	0	3	0	
30	Site 1	2016-10-11	01017	15.72	15.94	17.30	25.71	26.07	27.53	7.63	7.61	7.60	7.10	7.13	6.60	1.0	6.2	11.90	21	1							0	3	3	6	0	1	2	1	0	
31	Site 1	2016-10-17	00756	16.48	16.59	16.86	24.21	19.16	18.77	7.64	7.65	7.69	6.85	7.24	0.27	1.7	5.0	17.20	58	8							0	4	3	6	3	6	1	2	0	
32	Site 1	2016-10-24	no samples CSH - Wx																								0									
33	Site 1	2016-10-31	trip canceled - weather																																	
34	Average			19.23	19.13	18.82	25.22	25.30	25.45	7.95	7.86	7.73	6.17	6.19	4.31	1.18	5.04	20.22	66.30	7.81	#DIV/0!	0.06	0.01	#DIV/0!	#DIV/0!	#DIV/0!										
35	Site Total			18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	17.00	17.00	18.00	17.00	18.00	18.00	18.00	0.00	4.00	4.00	0.00	0.00	0.00										
36	All Sites		00337	360.00	336.00	310.00	360.00	336.00	309.00	358.00	335.00	309.00	360.00	320.00	291.00	361.00	350.00	361.00	363.00	363.00	2.00	72.00	71.00	1.00	1.00	248.00										

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1		Friends of the Bay 2016 Water Quality Data **- Site 2, Cold Spring Cove North**																																		
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity 0.5 m from BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1 m	DO 0.5 m from BTM	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																																
4		2015-04-11		no samples																																
5	Site 2	2016-04-18	00813	9.75	9.65	9.37	25.85	26.12	26.45	8.35	8.35	8.32	9.31	9.22	8.71	2.2	6.7	14.70	1	1							0	4	5	6	0	0	0	1	0	
6	Site 2	2016-04-25	00758	13.03	12.94	12.73	25.25	25.31	26.06	8.21	8.21	8.16	7.84	7.88	7.35	1.9	5.6	11.7	31	9							0	3	5	6	4	0	0	3	0	
7	Site 2	2016-05-02	01054	11.65	11.62	11.46	25.12	25.87	26.28	8.29	8.28	8.24	8.59	8.53	8.18	2.3	7.6	13.9	6	3							0	2	3	6	4	0	0	3	2	
8		2016-05-09		no samples																																
9		2016-05-16		no samples																																
10	Site 2	2016-05-23	00742	14.52	14.37	13.92	24.27	24.55	25.78	8.12	8.13	8.01	7.25	7.05	6.33	1.3	6.0	15.3	204	38							0	3	5	5	4	0	0	3	0	
11	Site 2	2016-05-31	01013	18.71	16.94	16.52	25.30	25.97	26.03	7.97	7.99	8.01	5.94	5.52	5.53	0.9	7.4	23.1	67	15							3	1	3	0	4	3	1	3	0	
12	Site 2	2016-06-06	00824	16.86	16.64	16.44	23.49	25.26	26.02	7.95	7.97	7.93	5.60	5.40	5.12	1.2	7.1	22.1	7500	1800		0.370	0.004				3	3	5	6					0	
13	Site 2	2016-06-13		Cancelled due to Wind 6/13/2016																																
14	Site 2	2016-06-20	00812	18.64	18.61	17.74	25.41	25.69	26.43	8.01	7.95	7.74	5.16	5.05	4.45	0.9	6.9	21.8	140	6							0	3	5	5					0	
15	Site 2	2016-06-27	00911	19.91	19.81	19.01	22.82	23.09	23.69	8.17	8.03	7.92	Quanta malfunction			0.9	5.3	22.8	86	10							0	2	5	1					0	
16	Site 2	2016-07-05		Cancelled due to Rain 7/5/2016																																
17	Site 2	2016-07-11	01026	22.31	22.31	N/A	25.56	25.56	N/A	7.99	7.99	N/A	6.41	6.17	N/A	1.3	1.3	21.7	48	2		0.050	0.002				0	2	5	6					1	
18	Site 2	2016-07-18		Cancelled due to Boat Malfunction 7/18/2016																																
19	Site 2	2016-07-25	01041	24.51			25.78			7.87			6.4			0.8	1.0	27.9	82	2							0	4	1	6	4	6	2	3	2	
20		2016-08-01		no samples																																
21	Site 2	2016-08-08	01057	24.67	24.07	23.70	25.44	25.90	21.20	9.19	7.74	7.67	7.89	3.99	2.65	0.6	5.6	27.6	26.0	1		0.110	0.006				0	4	5	6	1	2	1	1	0	
22	Site 2	2016-08-15	00802	27.39	27.41	26.99	25.59	25.84	26.61	7.87	7.81	7.67	4.10	3.84	1.50	0.9	7.1	**27.1**	170	28							0	4	3	6	1	0	0	1	0	
23		2016-08-22		no samples																																
24	Site 2	2016-08-29	00810	24.97	25.00	24.96	26.72	26.72	27.22	7.46	7.38	7.20	4.44	3.17	3.16	0.9	7.0	24.9	24.0	1							0	4	3	6	4		1	3	1	
25		2016-09-06		no samples																																
26	Site 2	2016-09-12	01037	23.37	23.44	23.42	26.80	27.08	27.37	7.74	7.72	7.68	4.93	4.75	4.70	1.0	6.3	24.9	34.0	1		0.160	0.049					2	1	6					1	
27		2016-09-19		no samples																																
28	Site 2	2016-09-26	01010	21.53	21.42	21.96	26.72	27.08	27.38	7.59	7.59	7.62	5.68	5.77	5.80	0.8	0.9	20.2	8	1							0	2	3	6					1	
29	Site 2	2016-10-03	00824	19.32	19.37	19.83	26.92	27.06	28.14	7.42	7.44	7.47	4.96	5.02	4.84	1.5	6.3	16.8	37.0	9							0	3	1	0					0	
30	Site 2	2016-10-11	01008	15.73	16.77	17.52	25.50	26.79	27.83	7.57	7.61	7.63	6.90	7.02	6.87	1.1	6.7	11.8	43	1								3	3	6					0	
31	Site 2	2016-10-17	00808	16.63	16.68	16.96	26.59	27.01	27.73	7.68	7.67	7.63	6.99	7.10	6.40	1.7	5.5	19.2	37	4								4	3	6					0	
32	Site 2	2016-10-24		no samples CSH - Wx																																
33	Site 2	2016-10-31		trip canceled - weather																																
34				19.08	18.65	18.28	25.51	25.94	26.26	7.97	7.87	7.81	6.38	5.97	5.44	1.23	5.57	20.42	47.53	5.16	#DIV/0!	0.17	0.02	#DIV/0!	#DIV/0!	#DIV/0!										
35				18.00	17.00	17.00	18.00	17.00	17.00	18.00	17.00	17.00	18.00	16.00	16.00	18.00	18.00	18.00	18.00	18.00	0.00	4.00	4.00	0.00	0.00	0.00										
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 3, Cold Spring Harbor South																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP (0.5 m)	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															2016-04-04
4		2015-04-11		no samples																															2015-04-11
5	Site 3	2016-04-18	00825	9.84	9.81	9.18	26.13	26.47	26.50	8.35	8.39	8.33	9.13	9.36	9.09	2.70	6.1	13.60	1	1						0	4	5	6	0	0	0	1	0	2016-04-18
6	Site 3	2016-04-25	00810	12.77	12.71	12.47	25.92	26.27	26.33	8.28	8.26	8.22	8.32	8.19	7.88	2.5	3.6	11.0	3	1						0	3	5	6	4	0	0	3	0	2016-04-25
7	Site 3	2016-05-02	01035	11.39	11.40	11.35	25.86	25.79	26.41	8.29	8.30	8.20	8.65	8.62	8.09	2.5	6.7	12.4	1	1						0	2	3	6	4	0	0	3	2	2016-05-02
8		2016-05-09		no samples																															2016-05-09
9		2016-05-16		no samples																															2016-05-16
10	Site 3	2016-05-23	00753	14.25	14.19	13.66	25.37	25.51	26.18	8.19	8.18	8.05	7.40	7.25	6.96	1.1	6.0	17.8	28	4						0	3	5	5	4	0	0	3	0	2016-05-23
11	Site 3	2016-05-31	01006	17.90	17.64	16.30	25.60	25.93	26.23	8.19	8.16	8.06	6.86	6.76	5.74	2.0	6.3	22.1	410	1						3	1	3	0	4	4	0	3	0	2016-05-31
12	Site 3	2016-06-06	00831	17.11	17.00	16.21	25.56	25.76	26.29	8.10	8.08	7.96	6.21	5.98	5.04	1.4	5.8	21.1	51	9		0.050	0.002			3	3	5	6	1				0	2016-06-06
13	Site 3	2016-06-13		Cancelled due to Wind 6/13/2016																															2016-06-13
14	Site 3	2016-06-20	00820	18.51	18.54	17.44	25.99	26.11	26.56	8.24	8.13	7.85	6.36	5.84	4.48	0.9	6.2	22.4	37	1						0	3	4	1	1				0	2016-06-20
15	Site 3	2016-06-27	00919	20.30	20.20	18.60	23.80	23.80	23.95	8.39	8.36	8.02	Quanta malfunction			1.0	6.0	23.4	2	1						0	2	5	1	1				0	2016-06-27
16	Site 3	2016-07-05		Cancelled due to Rain 7/5/2016																															2016-07-05
17	Site 3	2016-07-11	01017	22.31	22.31	19.70	25.98	26.05	26.93	8.14	8.14	7.70	7.49	7.24	2.22	1.0	4.7	21.1	N/a	N/a		0.010	0.001			0	2	3	6	2				2	2016-07-11
18	Site 3	2016-07-18		Cancelled due to Boat Malfunction 7/18/2016																															2016-07-18
19	Site 3	2016-07-25	01031	24.01	23.94	23.01	26.61	27.68	27.07	7.86	7.85	7.76	4.43	4.20	3.95	1.5	4.1	28.6	26	1						0	4	1	6	3	6	2	2	3	2016-07-25
20		2016-08-01		no samples																															2016-08-01
21	Site 3	2016-08-08	01044	24.81	24.50	23.80	26.36	26.35	27.03	8.15	8.06	7.82	7.28	6.70	4.63	0.8	3.9	28.0	14	1		0.020	0.002			0	4	5	6	1		0	1	0	2016-08-08
22	Site 3	2016-08-15	00820	27.55	27.84	26.67	26.27	26.35	26.88	8.08	8.02	7.73	5.73	5.42	3.20	1.0	5.8	27.2	24	2						0	4	3	6	1	0	0	1	0	2016-08-15
23		2016-08-22		no samples																															2016-08-22
24	Site 3	2016-08-29	00822	24.98	24.97	24.77	27.07	27.15	27.42	7.53	7.51	7.42	3.89	3.91	3.80	1.0	6.0	24.6	8	1						0	4	3	0	4	8	1	3	1	2016-08-29
25		2016-09-06		no samples																															2016-09-06
26	Site 3	2016-09-12	01030	23.39	23.39	23.41	26.87	27.23	27.73	7.90	7.92	7.89	6.12	6.13	5.46	1.4	6.1	21.7	32	1		0.110	0.037				2	1	6	1				1	2016-09-12
27		2016-09-19		no samples																															2016-09-19
28	Site 3	2016-09-26	01003	21.68	21.67	22.05	27.30	27.37	27.60	7.87	7.86	7.84	8.17	8.03	7.56	1.0	6.0	19.6	2	1							2	3	6	1				2	2016-09-26
29	Site 3	2016-10-03	00835	19.37	19.69	19.92	27.42	27.70	28.36	7.50	7.55	7.55	5.50	5.66	5.43	1.6	6.2	16.8	23	1						0	3	1	0	4				0	2016-10-03
30	Site 3	10/11/20160	01000	15.90	16.52	17.21	26.56	27.22	27.95	7.67	7.70	7.67	7.53	7.57	7.19	1.3	5.7	14.5	26	1							3	3	6	0				0	10/11/20160
31	Site 3	2016-10-17	00816	16.78	16.87	17.06	27.23	27.51	27.95	7.95	7.74	7.75	7.37	7.33	7.17	1.7	4.5	18.9	21	4							4	3	6	3				1	2016-10-17
32	Site 3	2016-10-24		no samples CSH - Wx																															2016-10-24
33	Site 3	2016-10-31		trip canceled - weather																															2016-10-31
34				19.05	19.07	18.49	26.22	26.46	26.85	8.04	8.01	7.88	6.85	6.72	5.76	1.47	5.54	20.27	12.87	1.40	#DIV/0!	0.05	0.01	#DIV/0!	#DIV/0!	0.43									
35				18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	17.00	17.00	18.00	18.00	18.00	18.00	18.00	0.00	4.00	4.00	0.00	0.00	14.00									
36																																			
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1		Friends of the Bay 2016 Water Quality Data - Site 4, Cold Spring Harbor North																
2		Date	Time	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3		2016-04-04		No samples														
4		2015-04-11		no samples														
5	Site 4	2016-04-18	00833	10.12	10.01	8.99	26.16	26.29	26.63	8.33	8.34	8.29	9.08	9.10	8.48	2.2	6.7	15.20
6	Site 4	2016-04-25	00819	12.56	12.72	10.86	26.05	26.13	26.59	8.32	8.3	8.2	8.5	8.33	7.92	2.3	4.6	11.0
7	Site 4	2016-05-02	01035	11.59	11.58	11.23	26.28	26.28	26.54	8.32	8.31	8.24	8.5	8.33	7.86	3.0	7.7	10.9
8		2016-05-09		no samples														
9		2016-05-16		no samples														
10	Site 4	2016-05-23	00802	14.55	14.5	12.75	25.52	25.59	26.49	8.39	8.37	8.21	8.71	8.53	7.52	1.7	6.5	16.3
11	Site 4	2016-05-31	00958	18.42	18.21	14.71	25.9	26.03	26.57	8.3	8.29	8.18	7.7	7.57	6.62	1.4	8.0	22.3
12	Site 4	2016-06-06	00845	17.54	17.51	17.17	26.14	26.14	26.13	8.25	8.24	8.13	7.15	7.02	8.14	1.3	5.3	21.9
13	Site 4	2016-06-13	Cancelled due to Wind 6/13/2016															
14	Site 4	2016-06-20	00830	19.41	19.24	16.65	26.36	26.42	26.8	8.29	8.24	8.08	6.58	6.35	5.44	1.2	7.0	21.8
15	Site 4	2016-06-27	00927	20.7	20.61	18.51	23.89	23.88	24.08	8.38	8.31	8.09	Quanta malfunction			1.3	6.1	23.4
16	Site 4	2016-07-05	Cancelled due to Rain 7/5/2016															
17	Site 4	2016-07-11	01004	21.51	21.51	19.71	26.73	26.73	27.15	8.18	8.17	7.87	7.35	6.75	3.65	1.0	5.1	21.3
18	Site 4	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016															
19	Site 4	2016-07-25	01017	24.37	24.37	21.14	26.84	26.71	27.42	8.19	8.15	7.89	7.23	6.80	4.37	1.3	4.5	26.7
20		2016-08-01		no samples														
21	Site 4	2016-08-08	01030	25.31	25.21	24.17	27.16	27.08	27.33	8.44	8.37	8.03	9.30	8.62	5.95	1.1	4.9	27.7
22	Site 4	2016-08-15	00830	27.17	27.07	26.08	27.2	27.1	27.07	8.25	8.17	7.75	6.99	6.48	3.59	1.2	6.6	26.3
23		2016-08-22		no samples														
24	Site 4	2016-08-29	00830	25.09	25.08	24.14	27.58	27.51	27.9	7.83	7.78	7.55	6.17	5.54	4.60	1.1	6.5	25.6
25		2016-09-06		no samples														
26	Site 4	2016-09-12	01021	23.97	23.97	23.86	27.89	27.89	27.89	7.96	7.96	7.91	5.99	6.01	5.78	1.8	6.5	20.8
27		2016-09-19		no samples														
28	Site 4	2016-09-26	00954	22.45	22.45	22.42	28.26	28.26	28.26	7.63	7.62	7.58	6.25	6.24	5.98	1.8	6.8	19.0
29	Site 4	2016-10-03	00846	18.8	18.84	19.93	27.46	27.46	28.43	7.65	7.63	7.63	6.56	6.49	6.11	2.0		17.1
30	Site 4	2016-10-11	00952	17.13	17.13	17.14	27.88	27.95	27.95	7.72	7.71	7.69	7.47	7.43	7.22	1.0	6.2	11.6
31	Site 4	2016-10-17	00825	16.90	16.89	17.17	27.73	27.87	28.02	7.87	7.85	7.76	8.03	7.38	7.14	2.0	3.7	19.2
32	Site 4	2016-10-24	no samples CSH - Wx															
33	Site 4	2016-10-31	trip canceled - weather															
34	Site 4			19.31	19.27	18.15	26.72	26.74	27.07	8.13	8.10	7.95	7.50	7.23	6.26	1.59	6.04	19.89
35	Site 4			18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	17.00	17.00	18.00	17.00	18.00
36	Site 4																	
37	Site 4																	
38	Site 4																	
39	Site 4																	
40																		
41																		
42																		
43																		
44																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1																	
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3																	
4																	
5	1	1						0	4	5	6	0	0	0	1	0	
6	3	1						0	3	5	6	4	0	0	3	0	
7	1	1						0	2	3	6	4	0	0	3	2	
8																	
9																	
10	6	3						0	3	5	5	4	6	1	3	0	
11	26	16						3	1	3	0	4	4	1	3	0	
12	18	4		0.000	0.006			3	3	5	6					1	
13																	
14	2	1						0	2	4	1					0	
15	5	1						0	2	5	1					0	
16																	
17	1	2		0.010	0.000			0	2	3	6					2	
18																	
19	8	1						0	4	1	6	3	6	2	2	3	
20																	
21	1	1		0.010	0.003			0	4	3	6	1	2	1	2	2	
22	1	1						0	4	3	6	1	1	1	1	1	
23																	
24	1	1						0	4	5	6	4	8	1	3	1	
25																	
26	2	1		0.070	0.020				2	1	6					2	
27																	
28	1	1							2	3	6					2	
29	4	1						0	4	1	0					0	
30	1	1							3	3	6					0	
31	11	1							4	3	6					1	
32																	
33																	
34	2.70	1.39	#DIV/0!	0.02	0.01	#DIV/0!	#DIV/0!	0.43									
35	18.00	18.00	0.00	4.00	4.00	0.00	0.00	14.00									
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43																	
44																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 5, Plum Point																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 5	2016-04-18	00840	10.61	10.06	9.32	26.30	26.42	26.58	8.34	8.34	8.42	9.27	9.13	8.92	2.1	10.0	15.40	1	1						0	4	5	6	0	0	0	1	0	
6	Site 5	2016-04-25	00828	12.60	12.63	12.16	26.40	26.33	26.31	8.25	8.25	8.27	8.05	8.12	8.10	2.20	10.0	11.3	1	1						0	2	5	6	4	0	0	3	0	
7	Site 5	2016-05-02	01022	11.46	11.46	11.46	26.49	26.42	26.42	8.27	8.31	8.27	8.29	8.39	8.81	2.50	10.0	10.7	1	1						0	2	3	6	4	0	0	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 5	2016-05-09	00903	11.74	11.74	11.50	26.16	26.15	26.28	8.30	8.31	8.27	8.45	8.41	8.30	2.1	10.0	16.5	3	1						0	4	3	6	1	6	1	2	2	
11	Site 5	2016-05-23	00811	14.72	14.67	13.53	26.09	26.08	26.31	8.27	8.27	8.28	7.77	7.92	7.91	1.8	10.0	15.0	1	1						0	3	5	5	4	6	1	3	0	
12	Site 5	2016-05-31	00951	16.95	16.84	16.64	26.26	26.32	26.24	8.24	8.26	8.25	7.27	7.27	7.22	1.4	10.0	23.0	6	2						3	1	3	0	4	2	1	3	0	
13	Site 5	2016-06-06	00853	17.77	17.74	17.48	26.15	26.22	26.20	8.18	8.20	8.17	6.72	6.64	6.49	1.3	10.0	23.2	11	3		0.020	0.003			3	3	5	6					2	
14	Site 5	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 5	2016-06-20	00838	19.34	19.25	18.42	26.57	26.49	26.6	8.18	8.19	8.12	6.4	6.31	6.03	1.1	10.0	21.8	3	1						0	4	4	1					0	
16	Site 5	2016-06-27	00940	20.50	20.50	20.50	23.95	23.88	23.80	8.25	8.25	8.25	nta malfunction			1.1	10.0	22.9	1	1						0	2	5	1					0	
17	Site 5	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 5	2016-07-11	00957	21.61	21.51	21.01	26.66	26.72	26.77	8.14	8.13	8.08	6.81	6.63	6.18	1.1	10.0	21.2	1	1		0.020	0.005			0	2	3	6					2	
19	Site 5	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 5	2016-07-25	01034	23.84	23.61	22.91	27.08	27.18	27.21	8.09	8.09	8.09	6.10	6.07	5.90		10.5	26.1	1.000	1.000						0	4	1	6	2	6	2	2	3	
22	Site 5	2016-08-08	01015	24.80	24.81	24.50	27.28	27.28	27.27	8.22	8.21	8.13	7.76	7.47	6.84	1.2	10.0	28.4	3	1		0.010	0.001			0	3	3	6	1	2	1	1	2	
23		2016-08-22		no samples																						3	2	5	6	0	2	1	1	2	
24	Site 5	2016-08-15	00840	26.80	26.79	26.25	27.07	27.07	27.19	8.17	8.15	8.06	5.97	5.99	5.45	1.3	10.0	26.1	2	2						0	4	3	6	1	0	0	1	0	
25		2016-09-06		no samples																															
26	Site 5	2016-08-22	00847	25.30	25.29	24.61	27.37	27.37	27.49	7.93	7.93	7.87	4.69	4.61	3.90	1.5	>10.0	21.0	5	1						3	2	5	6					2	
27		2016-09-19		no samples																															
28	Site 5	2016-08-29	00838	24.97	24.90	24.19	27.58	27.65	27.83	7.82	7.79	7.64	5.87	5.51	4.45	1.3	10.5	25.3	2	1						0	4	5	6	4	8	1	3	1	
29	Site 5	2016-09-12	01010	23.85	23.85	24.39	27.89	27.89	27.89	7.92	7.92	7.91	5.82	5.84	5.76	2.5	10.4	22.6	3	1		0.080	0.027				2	1	6					2	
30	Site 5	2016-09-26	00944	22.39	22.37	22.37	28.18	28.14	28.18	7.62	7.63	7.63	6.23	6.23	6.26	2.3	2.6	18.7	1	1							2	3	6					1	
31	Site 5	2016-10-03	00857	19.23	19.23	19.45	28.12	28.12	28.20	7.61	7.59	7.62	6.15	6.18	6.17	1.9	1.5	16.6	5	1							4	2	0					0	
32	Site 5	2016-10-11	00944	17.61	17.62	17.60	28.12	28.11	28.11	7.68	7.66	7.67	7.02	7.06	7.08	2.2		9.4	1	1							3	3	6					0	
33	Site 5	2016-10-17	00837	16.94	16.94	17.02	27.94	27.87	27.02	7.81	7.80	7.78	7.98	8.08	7.73	2.1		18.2	1	1							4	3	6					2	
34	Site 5	2016-10-24	00925	16.24	16.23	16.20	27.84	27.91	27.84	7.74	7.74	7.73	7.31	7.40	7.30	3.0	10.0	14.0	3	1							2	0	0					2	
35	Site 5	2016-10-31	trip canceled - weather																																
36	Site 5			19.01	18.95	18.64	26.93	26.93	26.94	8.05	8.05	8.02	7.00	6.96	6.74	1.80	9.19	19.40	1.97	1.13	#DIV/0!	0.03	0.01	#DIV/0!	#DIV/0!	0.75									
37	Site 5			27.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	20.00	20.00	20.00	19.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	16.00									
38	Site 5																																		
39	Site 5																																		
40																																			
41																																			
42																																			
43																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - **Site 6, Seawanhaka Yacht Club PSTP outfall**																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 6	2016-04-18	00845	10.05	10.01	9.55	26.41	26.41	26.53	8.33	8.37	8.33	9.14	9.05	8.86	1.5	8.5	14.40	1	1						0	4	5	6	0	0	0	1	0	
6	Site 6	2016-04-25	00836	13.12	13.09	13.04	26.29	26.29	26.29	8.26	2.83	8.25	8.12	8.10	7.91	2.2	4.50	11.9	1	1						0	2	5	6	4	0	0	3	0	
7	Site 6	2016-05-02	01015	11.49	11.48	11.41	26.42	26.42	26.41	8.27	8.26	8.23	8.37	8.38	8.25	2.8	8.70	8.9	1	1						0	2	3	6	4	8	0	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 6	2016-05-09	00854	8.00	11.8	11.76	26.09	26.09	26.08	8.27	8.27	8.49	8.27	8.22	8.20	2.2	5.70	14.9	1	1						0	4	3	6	1	6	2	1	2	
11	Site 6	2016-05-23	00824	14.81	14.87	13.62	26.09	26.09	26.31	8.27	8.26	8.26	7.90	7.86	7.75	1.9	6.60	16.4	1	1						0	3	5	5	4	0	0	3	0	
12	Site 6	2016-05-31	00946	18.55	18.56	17.46	26.04	26.04	26.32	8.27	8.25	8.24	7.46	7.46	7.26	1.3	10.00	23.6	1	1						3	1	3	0	4	4	1	3	0	
13	Site 6	2016-06-06	00859	17.85	17.74	17.21	26.22	26.22	26.27	8.20	8.18	8.20	6.69	6.62	6.48	1.2	7.70	22.7	14	3		0.030	0.001			3	3	5	6					1	
14	Site 6	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 6	2016-06-20	00844	19.04	19.12	18.54	26.55	26.48	26.6	8.2	8.17	8.13	6.32	6.32	6.19	1.0	7.7	27.8	2	1						0	4	4	1					0	
16	Site 6	2016-06-27	00948	20.80	20.70	20.30	23.89	23.89	23.87	8.32	8.29	8.24	nta malfunction			1.0	6.6	24.4	4	1						0	2	5	1					0	
17	Site 6	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 6	2016-07-11	00949	22.01	21.91	20.51	26.61	26.60	26.83	8.16	8.14	8.03	7.03	6.97	5.82	1.3	4.9	20.8	3	3		0.030	0.001			0	2	5	6					2	
19	Site 6	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 6	2016-07-25	00958	24.38	24.44	24.08	26.98	26.98	27.04	8.09	8.08	8.04	6.39	8.07	6.30	0.9	4.0	26.8	1	1						0	4	1	6	2	0	2	2	3	
22	Site 6	2016-08-08	01002	24.81	24.80	24.37	27.24	27.14	27.26	8.22	8.13	8.01	7.18	6.95	6.13	1.4	4.9	31.5	1	1		0.030	0.003			0	3	3	6	1	2	1	1	2	
23		2016-08-22		no samples																															
24	Site 6	2016-08-15	00847	26.98	26.95	26.29	27.40	27.01	27.15	8.09	8.09	7.93	5.90	5.88	5.33	1.5	7.0	28.0	5	4						0	4	3	6	1	0	0	1	1	
25		2016-09-06		no samples																															
26	Site 6	2016-08-22	00857	25.35	24.34	25.16	27.30	27.23	27.37	7.94	7.46	7.90	4.72	4.68	4.76	1.6	5.1	21.4	7	1						3	2	2	6	0	8	1	1	0	
27		2016-09-19		no samples																															
28	Site 6	2016-08-29	00845	25.10	25.03	24.59	27.58	27.58	27.70	7.77	7.75	7.67	5.54	5.15	4.75	1.5	7.0	25.5	1	1						0	4	3	6	4	8	1	3	1	
29	Site 6	2016-09-12	01003	23.80	23.75	23.73	27.88	27.88	27.88	7.95	7.94	7.92	6.06	6.05	5.99	1.7	7.3	20.6	1	1		0.080	0.026				2	1	6					1	
30	Site 6	2016-09-26	00937	22.36	22.35	22.18	28.18	28.18	28.03	7.61	7.60	7.57	6.18	6.20	6.05	2.4		18.2	4	1							2	3	6					2	
31	Site 6	2016-10-03	00905	19.01	19.01	19.02	28.04	28.04	28.04	7.58	7.58	7.56	6.10	6.21	6.21	2.1	3.0	17.7	1	1						0	4	2	0					0	
32	Site 6	2016-10-11	00937	17.57	17.57	17.58	28.11	28.11	28.11	7.66	7.66	7.63	7.04	7.06	6.97	2.2	6.2	10.6	1	1							3	3	6					0	
33	Site 6	2016-10-17	00844	16.89	16.89	16.95	27.87	27.87	27.94	7.81	7.84	7.77	8.07	8.03	7.75	1.9	5.6	18.6	6	1							4	3	6					1	
34	Site 6	2016-10-24	00914	16.24	16.24	16.22	27.84	27.91	27.78	7.74	7.74	7.69	7.13	7.09	6.83	3.0	6.0	13.5	2	1							2	0	0					1	
35	Site 6	2016-10-31	trip canceled - weather																																
36	Site 6			18.96	19.08	18.74	26.91	26.88	26.94	8.05	7.76	8.00	6.98	7.02	6.69	1.74	6.35	19.91	1.88	1.19	#DIV/0!	0.04	0.01	#DIV/0!	#DIV/0!	0.56									
37	Site 6			21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	20.00	20.00	21.00	20.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	16.00									
38	Site 6																																		
39	Site 6																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - **Site 7, Oyster Bay Cove**																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 7	2016-04-18	00858	10.40	10.31	10.29	26.22	26.29	26.36	8.31	8.33	8.27	8.63	8.55	7.99	2.1	3.4	15.70	2	1						0	4	5	6	0	0	0	1	0	
6	Site 7	2016-04-25	00847	n/a	n/a	13.35	n/a	n/aa	26.30	n/a	n/a	8.16	n/a	n/a	7.72	on the bott	1.0	11.4	20	3						0	2	5	6	4	1	1	3	0	
7	Site 7	2016-05-02	01001	12.01	11.97	11.94	26.17	26.23	26.23	8.26	8.24	8.32	8.25	8.27	8.26	3.8	3.8	12.6	1	1						0	2	3	6	4	0	0	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 7	2016-05-09	00842	11.04	11.98	11.94	25.82	26.10	26.09	8.23	8.23	8.23	7.94	7.98	7.89	1.2	2.7	14.9	1	1						0	3	3	6	1	7	1	1	1	
11	Site 7	2016-05-23	00834	15.00	14.51	14.51	25.89	26.15	26.14	8.27	8.26	8.25	7.70	7.69	7.64	1.5	3.0	15.7	72	8						0	3	5	5	4	1	1	3	0	
12	Site 7	2016-05-31	00932	19.21	19.04	18.19	25.79	25.92	25.95	8.20	8.16	8.02	7.22	6.49	5.68	1.1	4.9	25.7	43	5						3	1	3	0	4	2	1	3	0	
13	Site 7	2016-06-06	00910	18.51	18.47	18.41	25.90	25.97	25.83	8.13	8.11	8.08	6.54	6.50	6.59	1.2	3.1	21.8	73	27		0.030	0.001			3	3	5	6					1	
14	Site 7	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 7	2016-06-20	00857	19.94	20.01	19.64	26.31	26.31	26.31	8.19	8.19	8.12	6.54	6.57	6.09	0.9	3.9	21.3	8	1						0	3		1					1	
16	Site 7	2016-06-27	01003	21.20	21.10	21.00	23.55	23.76	23.76	8.07	8.10	8.11	Quanta malfunction			1.0	3.3	24.3	24	1						0	2	5	1					0	
17	Site 7	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 7	2016-07-11	00935	23.74	23.11	N/A	25.87	25.94	N/A	8.14	8.10	N/A	7.25	6.74	N/A	0.8	1.7	20.8	15	8		0.010	0.001			0	2	5	6					2	
19	Site 7	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 7	2016-07-25	00940	24.72	24.71		26.64	26.71		7.83	7.77		4.97	5.23		0.9	1.4	27.1	51	1						0	3	1	6	2	6	1	2	2	
22	Site 7	2016-08-08	01142	25.20	25.21		27.17	27.15		8.21	8.18		7.44	7.12		1.1	1.4	32.0	1	1		0.020	0.003			0	4	3	6	1	0	0	1	0	
23		2016-08-22		no samples																															
24	Site 7	2016-08-15	00858	27.40	27.46	27.29	26.99	26.88	26.98	8.12	8.13	7.97	6.60	6.28	5.66	1.3	2.5	26.5	17	7						0	4	3	6	1	1	1	1	1	
25		2016-09-06		no samples																															
26	Site 7	2016-08-22	00907	25.14			27.08			7.92			5.49			1.0		23.0	54	8						3	2	3	6	1	8	2	1	3	
27		2016-09-19		no samples																															
28	Site 7	2016-08-29	00855	25.44	25.44	25.42	27.38	27.45	27.45	7.86	7.83	7.76	6.49	6.21	6.05	1.0	3.0	26.2	3	1						0	4	5	6	4	8	1	3	1	
29	Site 7	2016-09-12	00953	23.35	23.48	23.29	27.37	27.37	27.51	7.96	7.96	7.89	6.17	6.24	5.90	1.2	3.40	20.5	22	1		0.070	0.020				2	1	6					1	
30	Site 7	2016-09-26	00927	20.29	20.61	21.00	27.45	27.68	27.84	7.63	7.67	7.70	6.61	6.82	6.80	1.9	2.80	24.8	30	1							2	3	6					2	
31	Site 7	2016-10-03	00920	18.78	**18.78**	18.81	27.88	27.88	27.89	7.50	7.50	7.53	5.66	5.69	5.85	1.8	5.0	17.7	19	1						0	4	2	0					0	
32	Site 7	2016-10-11	00929	15.81	16.36	16.45	27.24	27.71	27.71	7.69	7.70	7.66	7.59	7.56	7.39	1.8	3.1	12.4	22	1							3	3	6					0	
33	Site 7	2016-10-17	00855	16.54	16.76		27.52	27.72		7.83	7.81		7.78	7.16		On Bottom	1.6	19.2	41	9							4	3	6					0	
34	Site 7	2016-10-24	00948	15.04	15.04	15.38	27.36	27.36	27.37	7.69	7.70	7.65	7.16	7.11	6.21	1.10	2.2	14.1	14	2							2	0	0					3	
35	Site 7	2016-10-31	trip canceled - weather																																
36	Site 7			19.44	19.18	17.93	26.58	26.66	26.61	8.00	8.00	7.98	6.95	6.90	6.78	1.41	2.86	20.37	13.54	2.26	#DIV/0!	0.03	0.01	#DIV/0!	#DIV/0!	0.56									
37	Site 7			20.00	20.00	17.00	21.00	20.00	17.00	21.00	20.00	17.00	21.00	19.00	16.00	21.00	20.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	16.00									
38	Site 7																																		
39	Site 7																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2016 Water Quality Data - **Site 8, Oyster Bay STP at White's Creek**																
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1 m	BTM DO	Secchi	Depth (meters)	Air Temp
3		2016-04-04		No samples														
4		2015-04-11		no samples														
5	Site 8	2016-04-18	00905	10.36	10.33	10.17	26.22	26.29	26.35	8.33	8.34	8.33	8.85	8.83	8.67	2.1	3.4	15.6
6	Site 8	2016-04-25	00901	13.22	n/a	13.23	26.22	n/a	26.23	8.22	n/a	8.23	8.05	n/a	8.05	1.50	15.00	12.1
7	Site 8	2016-05-02	00950	12.01	11.93	11.83	25.82	26.23	26.37	8.26	8.21	8.19	8.09	8.09	8.26	2.80	5.10	11.9
8		2016-05-09		no samples														
9		2016-05-16		no samples														
10	Site 8	2016-05-09	00822	11.68	11.68	11.68	26.01	26.08	21.65	8.24	8.24	8.21	8.3	8.19	8.16	1.8	3.2	15.2
11	Site 8	2016-05-23	00846	14.91	14.84	14.81	26.02	26.02	26.02	8.29	8.27	8.25	7.95	5.92	7.85	1.90	3.7	16.0
12	Site 8	2016-05-31	00923	18.45	18.25	17.68	26.04	26.03	26.15	8.14	8.15	8.14	6.53	6.52	6.56	1.00	4.6	24.5
13	Site 8	2016-06-06	00923	18.41	18.31	17.91	26.11	26.17	26.16	8.23	8.21	8.17	7.03	6.83	6.66	1.20	3.5	22.7
14	Site 8	2016-06-13	Cancelled due to Wind 6/13/2016															
15	Site 8	2016-06-20	00908	20.54	20.31	19.94	26.33	26.32	26.38	8.25	8.24	8.17	6.94	6.84	6.64	1.00	3.9	21.9
16	Site 8	2016-06-27	01015	20.5	20.70	20.40	23.82	23.88	23.95	8.20	8.19	8.17	nta malfunction			0.90	3.3	26.4
17	Site 8	2016-07-05	Cancelled due to Rain 7/5/2016															
18	Site 8	2016-07-11	00926	22.24	22.20	22.13	26.19	26.33	26.47	8.17	8.15	8.07	7.31	7.30	6.55	1.00	1.9	20.4
19	Site 8	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016															
20		2016-08-01		no samples														
21	Site 8	2016-07-25	00937	24.38	24.17		26.77	27.04		8.06	8.04		6.38	6.16		0.80	1.3	27.3
22	Site 8	2016-08-08	01153	25.41	25.40		27.10	27.16		8.21	8.19		7.88	7.85		1.10	1.5	32.1
23		2016-08-22		no samples														
24	Site 8	2016-08-15	00912	27.51	27.41	26.71	26.88	26.95	27.07	8.11	8.07	8.00	6.30	5.95	5.36	1.40	3.4	26.1
25		2016-09-06		no samples														
26	Site 8	2016-08-22	00919	25.03	25.04		27.01	27.01		7.84	7.75		5.02	5.21		1.40	1.4	22.3
27		2016-09-19		no samples														
28	Site 8	2016-08-29	00907	25.42	25.43	25.40	27.23	27.31	27.45	7.84	7.83	7.70	6.18	6.09	5.73	1.20	3.0	26.4
29	Site 8	2016-09-12	00939	23.44	23.44	23.33	27.30	27.30	27.51	7.85	7.85	7.82	5.68	5.63	5.46	1.40	3.1	20.9
30	Site 8	2016-09-26	00915	21.61	21.58	21.69	27.88	27.72	27.87	7.59	7.60	7.61	6.22	6.30	6.29	1.50	2.9	17.6
31	Site 8	2016-10-03	00928	18.87	19.00	19.00	27.89	27.97	27.97	7.55	7.55	7.55	6.08	5.95	5.95	1.80	2.7	17.9
32	Site 8	2016-10-11	00920	16.32	16.36	16.46	27.42	27.56	27.57	7.70	7.69	7.66	7.59	7.54	7.40	1.70	2.2	9.6
33	Site 8	2016-10-17	00918	16.92	16.83	16.86	27.72	27.79	27.80	7.82	7.83	7.81	8.11	8.10	7.83	2.00	2.6	18.6
34	Site 8	2016-10-24	01001	15.89	15.90	15.90	27.68	27.68	27.68	7.77	7.73	7.71	7.22	6.98	5.36	2.2	3.00	14.3
35	Site 8	2016-10-31	trip canceled - weather															
36	Site 8			19.20	19.46	18.06	26.65	26.74	26.48	8.03	8.01	7.99	7.09	6.86	6.87	1.51	3.56	19.99
37	Site 8			21.00	21.00	18.00	21.00	21.00	18.00	21.00	21.00	18.00	21.00	20.00	17.00	21.00	21.00	21.00
38	Site 8																	
39	Site 8																	
40																		
41																		
42																		
43																		
44																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1																	
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3																	
4																	
5	1	1.000						0	4	5	6	0	0	0	1	0	
6	1	1.000						0	2	5	6	4	1	1	3	0	
7	25	3.000						0	2	3	6	4	0	0	3	2	
8																	
9																	
10	4	2						0	3	3	6	2	6	1	2	1	
11	3	2						0	3	5	5	4	8	1	3	0	
12	11	3						3	1	3	0	4	5	2	3	0	
13	31	6		0.020	0.001			3	3	3	6					1	
14																	
15	2	1						0	3	4	1					1	
16	7	1						0	2	5	1					0	
17																	
18	9	2		0.020	0.001			0	2	5	6					2	
19																	
20																	
21	28	3						0	3	1	6	2	6	1	2	3	
22	5	1		0.020	0.005			0	4	3	6	1	0	0	1	0	
23																	
24	6	1						0	4	3	6	1	8	1	1	1	
25																	
26	25	7						3	2	3	6	1	8	2	1	1	
27																	
28	19	2						0	4	3	6	4	8	1	3	1	
29	19	1		0.090	0.030			0	2	1	6					2	
30	7	1							1	3	6					2	
31	5	1						0	4	1	0					0	
32	13	1							3	3	6					0	
33	10	6							4	3	6					1	
34	4	1							2	0	0					3	
35																	
36	7.40	1.74	#DIV/0!	0.04	0.01	#DIV/0!	#DIV/0!	0.53									
37	21.00	21.00	0.00	4.00	4.00	0.00	0.00	17.00									
38																	
39																	
40																	
41																	
42																	
43																	
44																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - **Site 9, Roosevelt Beach**																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 9	2016-04-18	00933	10.27	10.27	10.11	26.36	26.35	26.42	8.33	8.33	8.31	8.72	8.72	8.68	1.1	2.3	20.2	1	1						0	4	5	6	0	0	0	1	0	
6	Site 9	2016-04-25	00926	13.28	n/a	n/a	26.23	n/a	n/a	8.21	n/a	n/a	8.16	n/a		1.00	1.00	13.6	1	1						0	2	5	6	4	0	1	3	0	
7	Site 9	2016-05-02	00935	12.24	12.13	12.10	26.18	26.17	26.17	8.21	8.20	8.18	7.87	7.91	7.96	2.60	4.30	10.4	4	1						0	2	3	6	4	0	0	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 9	2016-05-09	00751	**11.81**	11.82	11.80	26.02	26.02	26.02	8.24	8.23	8.21	7.96	7.96	7.96	1.60	3.00	13.9	1	1						0	3	3	6	2	6	1	2	1	
11	Site 9	2016-05-23	00912	14.61	14.51	14.51	26.01	26.01	26.08	8.24	8.25	8.21	7.74	7.76	7.66	1.50	3.10	15.3	3	2						0	3	5	5	4	7	1	3	0	
12	Site 9	2016-05-31	00856	18.97	18.54	18.49	25.92	25.97	25.97	8.14	8.11	8.07	6.40	6.38	6.31	0.9	4.4	23.8	18	5						3	1	3	0	4	0	0	3	0	
13	Site 9	2016-06-06	00951	18.42	18.41	18.31	26.04	26.03	26.10	8.19	8.19	8.16	6.99	6.81	6.73	1.0	3.7	23.0	23	11		0.010	0.005			3	3	5	6					2	
14	Site 9	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 9	2016-06-20	00935	19.35	19.22	19.22	26.49	26.49	26.49	8.12	8.14	8.1	6.03	6.01	5.95	0.8	3.8	21.6	7	1						0	3	4	1					1	
16	Site 9	2016-06-27	01050	21.40	21.40	21.30	23.84	23.77	23.84	8.25	8.24	8.24	nta malfunction			0.9	3.1	24.8	1	1						0	2	5	1					0	
17	Site 9	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 9	2016-07-11	00903	22.12	22.07	N/A	26.54	26.53	N/A	8.10	8.08	N/A	6.59	6.50	N/A	0.8	1.5	20.3	13	4		0.010	0.001			0	2	5	6					2	
19	Site 9	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 9	2016-07-25	00916	24.68	24.64		26.92	26.85		8.03	8.02		6.12	6.15		1.0	1.3	27.5	5	1						0	3	1	6	2	6	1	2	2	
22	Site 9	2016-08-08	00930	24.71	24.71		27.14	27.14		8.08	8.03		7.00	6.93		1.5	1.4	28.0	1	1		0.020	0.005			0	1	3	6	1	8	1	1	1	
23		2016-08-22		no samples																															
24	Site 9	2016-08-15	00939	27.41	27.21	26.70	26.89	26.88	27.01	8.10	8.06	8.01	6.17	5.97	5.68	1.3	2.8	26.7	8	1						0	1	3	6	1	0	0	1	0	
25		2016-09-06		no samples																															
26	Site 9	2016-08-22	00947	25.44	25.48		27.17	27.17		7.93	7.91		5.07	5.19		1.3	1.40	23.2	36	14						3	2	3	6	1	8	2	1	2	
27		2016-09-19		no samples																															
28	Site 9	2016-08-29	00937	25.53	25.47	25.13	27.38	27.45	27.58	7.83	7.82	7.80	6.02	5.85	5.70	1.6	3.00	26.5	2	1						0	4	3	6	3	8	1	2	1	
29	Site 9	2016-09-12	00912	23.66	23.75	23.78	27.45	27.53	27.60	7.93	7.91	7.90	5.94	5.82	5.85	1.5	3.10	19.6	8	1		0.070	0.024			0	1	5	6					0	
30	Site 9	2016-09-26	00902	21.87	21.83	21.76	27.88	27.88	27.80	7.62	7.60	7.57	6.21	6.12	5.98	2.1	4.10	17.7	10	1						0	1	5	6					0	
31	Site 9	2016-10-03	00952	18.84	**18.85**	18.86	27.96	27.89	27.96	7.57	7.57	7.55	6.20	6.19	6.20	1.8	2.00	18.8	16	1						0	4	1	0					0	
32	Site 9	2016-10-11	00856	16.20	16.20	16.21	27.48	27.48	27.48	7.68	7.68	7.66	7.41	7.48	7.48	1.9	2.60	10.8	5	3							3	3	6					0	
33	Site 9	2016-10-17	00934	16.93	16.83	16.83	27.80	27.79	27.87	7.82	7.85	7.79	8.09	8.09	7.97	2.0	2.70	24.5	no sample	no sample							4	3	6					1	
34	Site 9	2016-10-24	01026	15.82	15.82	15.82	27.68	27.68	27.61	7.73	7.72	7.72	7.39	7.38	7.34	2.4	2.30	15.0	5	3							2	0	0					3	
35	Site 9	2016-10-31	trip canceled - weather																																
36	Site 9			19.22	19.46	18.18	26.73	26.75	26.75	8.02	8.00	7.97	6.90	6.80	6.90	1.46	2.71	20.25	4.80	1.73	#DIV/0!	0.03	0.01	#DIV/0!	#DIV/0!	0.50									
37	Site 9			21.00	21.00	18.00	21.00	21.00	18.00	21.00	21.00	18.00	21.00	20.00	16.00	21.00	21.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	18.00									
38	Site 9																																		
39	Site 9																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - **Site 10, Beekman Beach**																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 10	2016-04-18	00941	11.04	11.04	10.21	26.06	26.2	26.35	8.31	8.33	8.27	8.64	8.53	8.4	2	5.4	20.2	1	1						0	4	5	6	0	0	0	1	0	
6	Site 10	2016-04-25	00933	13.48	13.49	13.41	26.1	26.17	26.23	8.21	8.22	8.18	7.96	7.96	7.81	2.80	3.50	12.7	1	1						0	2	5	6	4	1	1	3	0	
7	Site 10	2016-05-02	00922	12.55	12.11	11.95	25.99	26.31	26.23	8.20	8.19	8.10	7.86	7.91	7.86	2.50	6.50	10.8	86	35						0	2	3	6	4	0	0	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 10	2016-05-09	00739	11.84	11.87	11.81	24.95	25.95	26.02	8.10	7.76	7.46	7.63	7.54	6.81	2.2	5.20	13.2	2	3						0	3	3	6	2	6	1	2	1	
11	Site 10	2016-05-23	00921	15.81	16.00	15.31	24.75	25.72	25.84	8.27	8.29	8.23	8.12	7.99	7.67	1.30	5.40	17.8	6	1						0	3	5	5	4	8	1	3	0	
12	Site 10	2016-05-31	00845	19.50	19.21	18.19	25.66	25.79	26.03	8.18	8.17	8.15	6.83	6.64	6.46	1.1	7.4	23.6	29	2						3	1	3	0	4	0	0	3	0	
13	Site 10	2016-06-06	01000	20.22	19.81	18.80	25.06	25.74	25.92	8.29	8.28	8.16	7.47	7.17	6.30	0.9	5.90	23.5	200	17		0.000	0.004			3	4	5	6					1	
14	Site 10	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 10	2016-06-20	00944	21.81	21.64	20.04	25.97	26.24	26.31	8.35	8.31	8.08	7.08	7.03	5.52	0.8	6.90	23.0	15	1						0	3	4	1					1	
16	Site 10	2016-06-27	01100	21.90	22.00	20.00	23.03	23.72	23.90	8.28	8.27	8.22	nta malfunction			0.8	5.4	25.2	14	5						0	2	5	1					0	
17	Site 10	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 10	2016-07-11	00855	22.65	22.75	21.61	25.92	26.34	26.59	8.21	8.20	7.99	7.53	7.35	5.23	1.1	3.8	20.1	340	57		0.020	0.001			0	2	5	6					0	
19	Site 10	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 10	2016-07-25	00900	24.78	24.75	24.64	26.64	26.85	26.85	8.04	8.01	7.86	6.24	6.18	5.99	0.8	2.4	27.2	40	18						0	2	1	6	3	6	1	3	2	
22	Site 10	2016-08-08	00917	24.74	24.71	24.67	26.83	27.07	27.13	8.13	8.10	8.02	6.96	6.90	6.51	1.6	3.5	28.1	15	1		0.020	0.002			0	1	3	6	1	8	1	1	2	
23		2016-08-22		no samples																															
24	Site 10	2016-08-15	00947	27.91	27.91	27.11	26.54	26.69	26.87	8.17	8.12	7.95	6.47	6.21	5.03	1.1	5.3	28.4	41	10						0	1	3	6	1	8	1	1	1	
25		2016-09-06		no samples																															
26	Site 10	2016-08-22	00955		25.81	25.51	27.11	27.24			7.97	7.86		5.41	4.33	1.5	4.1	23.0	6	1						3	2	3	6	1	8	2	1	2	
27		2016-09-19		no samples																															
28	Site 10	2016-08-29	00946	25.93	25.40		27.26	27.38		7.90	7.69		6.58	5.50		1.1		26.2	6	1						0	4	3	6	2	8	1	2	1	
29	Site 10	2016-09-12	00902	23.99	23.96	23.73	27.03	27.32	27.53	7.88	7.89	7.88	5.63	5.70	5.45	1.3	5.6	20.2	210	12		0.120	0.030			0	1	5	6					0	
30	Site 10	2016-09-26	00854	21.81	21.95	21.84	27.81	27.80	27.88	7.62	7.60	7.59	6.13	6.10	5.90	1.9	5.2	19.7	11	1						0	1	5	6					0	
31	Site 10	2016-10-03	01000	18.95	**18.95**	18.92	27.80	27.89	27.96	7.52	7.52	7.53	5.73	5.87	5.78	0.8	4.1	18.7	26	11						0	4	1	0					0	
32	Site 10	2016-10-11	00848	15.42	15.84	16.12	26.75	26.75	27.48	7.68	7.68	7.69	7.41	7.49	7.28	1.7	5.4	10.4	33	4							3	3	6					0	
33	Site 10	2016-10-16	00943	16.71	16.64	16.76	27.23	27.50	27.79	7.85		7.80	8.15	7.92	7.23	1.8	3.4	21.7	38	21							4	3	6					1	
34	Site 10	2016-10-24	01038	15.79	15.81	15.84	27.61	27.61	27.68	7.73	7.73	7.71	7.23	7.00	7.22	3.6	4.4	15.6	7	1							2	0	0					3	
35	Site 10	2016-10-31	trip canceled - weather																																
36	Site 10			19.34	19.60	18.82	26.29	26.58	26.66	8.05	8.02	7.94	7.14	6.92	6.46	1.56	4.94	20.44	17.88	3.86	#DIV/0!	0.04	0.01	#DIV/0!	#DIV/0!	0.50									
37	Site 10			20.00	21.00	20.00	21.00	21.00	19.00	20.00	20.00	20.00	20.00	20.00	19.00	21.00	20.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	18.00									
38	Site 10																																		
39	Site 10																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 11, West Harbor																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 11	2016-04-18	00952	10.76	10.65	10.18	26.24	26.30	26.35	8.32	8.31	8.32	8.63	8.56	8.23	1.90	4.20	16.90	1	1						0	4	5	6	0	0	0	1	0	
6	Site 11	2016-04-26	00942	13.84	13.78	n/a	26.18	26.25	n/a	8.26	8.28	n/a	8.26	8.30	n/a	2.1	2.0	12.8	3	1						0	2	5	6	4	1	2	3	0	
7	Site 11	2016-05-02	00912	12.29	12.27	11.89	26.18	26.18	26.37	8.26	8.23	8.22	8.23	8.24	8.27	2.9	8.2	10.30	1.00	1.00						0	2	3	6	4	2	1	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 11	2016-05-09	00727	11.89	11.90	11.97	25.75	25.75	25.89	8.23	8.23	8.17	8.25	7.89	7.61	1.8	3.5	13.2	10	1						0	3	3	6	4	7	1	2	2	
11	Site 11	2016-05-23	00939	16.21	16.11	15.41	25.74	25.80	25.91	8.25	8.27	8.22	7.73	7.59	6.80	1.9	4.4	15.5	29	1						0	3	5	5	4	7	1	3	4	
12	Site 11	2016-05-31	00836	19.83	19.47	18.37	25.81	25.87	26.03	8.28	8.22	8.14	6.92	6.88	6.52	1.0	5.7	22.3	31	11						3	1	3	0	4	7	1	3	0	
13	Site 11	2016-06-06	01009	19.51	19.35	18.91	26.01	25.93	25.99	8.22	8.20	8.19	6.84	6.72	6.45	0.9	5.1	22.4	28	3		0.010	0.001			3	4	6	6					1	
14	Site 11	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 11	2016-06-20	00957	21.71	21.71	20.62	26.24	26.23	26.34	8.31	8.3	8.2	6.58	6.38	5.86	0.8	4.8	21.1	4	1						0	3	4	1					1	
16	Site 11	2016-06-27	01108	23.40	23.20	23.40	23.84	23.84	23.75	8.37	8.33	8.36	nta malfunction			1.0	3.6	23.7	1	1						0	2	5	1					1	
17	Site 11	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 11	2016-07-11	00846	22.94	22.90	21.62	26.36	26.35	26.45	8.17	8.14	7.89	7.17	7.01	3.74	0.8	3.0	20.6	2	1		0.010	0.001			0	2	5	6					0	
19	Site 11	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 11	2016-07-25	00845	26.01	25.76	25.01	26.83	26.83	26.72	8.16	8.07	7.72	7.03	6.26	4.68	1.2	2.00	27.1	1	1						0	2	1	6	4	6	1	3	3	
22	Site 11	2016-08-08	00904	24.91	24.87	24.81	27.14	27.14	27.07	8.10	8.13	8.02	6.76	6.64	6.37	0.80	2.10	28.80	8	1		0.010	0.001			0	1	3	6	2	1	1	1	1	
23		2016-08-22		no samples																															
24	Site 11	2016-08-15	01000	27.81	27.64	26.91	26.90	26.76	27.05	8.21	8.18	7.83	6.96	6.73	6.57	1.50	3.90	27.90	3	1						0	1	3	6	1	0	0	1	0	
25		2016-09-06		no samples																															
26	Site 11	2016-08-22	01008	26.24	26.21		26.98	26.98		7.96	7.96		5.50	5.42		1.40	2.10	22.90	9	2						3	3	3	6	1	8	2	1	2	
27		2016-09-19		no samples																															
28	Site 11	2016-08-29	00958	25.86	25.74	25.40	27.32	27.39	27.45	7.90	7.86	7.78	6.42	6.13	5.65	1.40	4.00	26.00	4	1						0	1	5	6	3	8	1	2	1	
29	Site 11	2016-09-12	00854	23.86	23.87	23.84	27.60	27.60	27.60	7.91	7.91	7.90	5.69	5.80	5.78	1.40	4.10	19.40	3	1		0.080	0.028			0	1	3	6					0	
30	Site 11	2016-09-26	00844	22.05	22.04	22.06	27.96	27.96	27.96	7.62	7.62	7.60	6.15	6.19	6.11	2.10	3.00	17.90	1	1						0	1	5	6					0	
31	Site 11	2016-10-03	01010	17.90	17.88	18.02	27.63	27.63	27.85	7.52	7.53	7.57	6.22	6.26	6.17	1.70	3.00	19.10	5	1						0	4	2	0					0	
32	Site 11	2016-10-11	00839	16.35	16.34	16.34	27.63	27.63	27.63	7.72	7.72	7.71	7.63	7.56	7.42	1.60	4.00	10.40	2	1							3	3	6					0	
33	Site 11	2016-10-17	01000	16.56	16.59	16.60	27.51	27.71	27.79	7.88	7.88	7.83	7.85	6.59	4.90	1.70	3.80	23.20	6	1							4	3	6					0	
34	Site 11	2016-10-24	00856	15.75	15.76	15.76	27.67	27.67	18.67	7.72	7.73	7.68	7.73	6.95	7.27	2.00	4.00	13.40	9	1							2	0	0					2	
35	Site 11	2016-10-31	trip canceled - weather																																
36	Site 11			19.79	19.72	19.32	26.64	26.66	26.26	8.07	8.05	7.97	7.13	6.91	6.36	1.52	3.83	19.76	4.13	1.22	#DIV/0!	0.03	0.01	#DIV/0!	#DIV/0!	0.50									
37	Site 11			21.00	21.00	20.00	21.00	21.00	20.00	21.00	21.00	20.00	21.00	20.00	19.00	21.00	21.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	18.00									
38	Site 11																																		
39	Site 11																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - **Site 12, Turtle Cove**																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 12	2016-04-18	01000	13.22	13.4	12.48	26.23	26.23	26.27	8.26	8.24	8.20	8.12	8.08	7.81	2.0	3.3	20.90	1	1						0	4	5	6	0	0	0	1	0	
6	Site 12	2016-04-25	00949	n/a	n/a	13.83	n/a	n/a	26.32	n/a	n/a	8.22	n/a	n/a	7.95	1.0	1.0	11.5	1	1						0	2	5	6	4	2	1	3	0	
7	Site 12	2016-05-02	00857	13.07	13.08	13.11	26.08	26.08	26.15	8.17	8.16	8.12	7.81	7.75	7.73	2.7	5.0	9.1	1	1						0	2	3	6	4	3	1	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 12	2016-05-09	00714	11.62	11.66	11.70	25.66	25.66	25.67	8.14	8.15	8.11	7.55	7.63	7.59	1.0	2.6	13.5	43	48						0	3	3	6	4	7	1	2	2	
11	Site 12	2016-05-23	00948	16.81	16.71	n/a	25.91	25.89	n/a	8.22	8.19	n/a	7.62	7.47	n/a	1.5	3.6	16.3	1	1						0	3	5	5	4	7	1	3	0	
12	Site 12	2016-05-31	00828	22.97	22.78	21.47	25.44	25.43	25.52	8.21	8.21	8.12	6.34	6.28	6.40	0.8	5.3	21.7	33	22						3	1	3	0	4	3	1	3	0	
13	Site 12	2016-06-06	01017	21.01	20.91	20.64	25.51	25.57	25.70	8.21	8.25	8.25	6.93	6.95	6.87	0.9	4.0	22.6	82	7		0.010	0.003			3	4	5	6					1	
14	Site 12	2016-06-13	Cancelled due to Wind 6/13/2016																																
15	Site 12	2016-06-20	01007	22.30	21.91	21.30	26.26	26.32	26.29	8.23	8.27	8.13	6.42	6.62	5.73	0.7	4.5	21.4	9	1						0	3	4	1					1	
16	Site 12	2016-06-27	01113	24.60	24.60	24.60	23.95	23.95	23.95	8.29	8.29	8.30	nta malfunction			0.8	3.0	24.8	2	1						0	2	5	1					1	
17	Site 12	2016-07-05	Cancelled due to Rain 7/5/2016																																
18	Site 12	2016-07-11	00834	23.15	23.02	22.74	26.36	26.36	26.42	7.97	7.91	7.74	5.80	5.13	2.94	0.7	2.1	21.1	5	1		0.010	0.001			0	2	5	6					0	
19	Site 12	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
20		2016-08-01		no samples																															
21	Site 12	2016-07-25	00837	26.94	26.94		26.86	26.86		8.09	7.93		6.10	5.90		0.9	1.7	26.90	1	1						0	2	1	6	3	6	2	2	2	
22	Site 12	2016-08-08	00842	25.11	25.40		27.15	27.15		7.67	7.38		4.54	4.13		0.4	1.3	24.90	1	1		0.010	0.002			0	2	3	6	0		1	1	1	
23		2016-08-22		no samples																															
24	Site 12	2016-08-15	01008	29.11	28.71	27.94	26.80	26.79	26.90	7.82	7.88	7.70	5.08	4.65	2.96	1.1	3.0	28.40	9	1						0	1	3	6	1	0	0	1	0	
25		2016-09-06		no samples																															
26	Site 12	2016-08-22	01022	26.34			26.98			7.97			5.19			0.4	0.8	22.50	4	1						3	3	5	6	1	8	2	1	1	
27		2016-09-19		no samples																															
28	Site 12	2016-08-29	01004	26.17	26.05	25.80	27.19	27.19	27.25	7.72	7.67	7.62	4.91	4.59	4.20	0.5	3.0	26.40	2	1						0	1	3	6	2	8	1	2	1	
29	Site 12	2016-09-12	00847	23.82	23.81	23.51	27.39	27.39	27.37	7.96	7.92	7.84	5.54	5.29	4.73	0.9	3.3	19.20	5	1		0.040	0.017			0	1	5	6					0	
30	Site 12	2016-09-26	00830	20.97	21.00	20.98	27.91	27.91	27.91	7.65	7.65	7.65	5.99	6.07	6.03	1.1	2.1	20.20	4	1						0	1	5	6					0	
31	Site 12	2016-10-03	01019	18.22	18.17	18.16	27.86	27.93	27.86	7.55	7.54	7.52	5.90	5.84	5.82	1.3	2.4	18.30	5	1						0	4	1	0					0	
32	Site 12	2016-10-11	00829	15.53	15.56	15.48	27.59	27.59	27.66	7.65	7.65	7.62	7.00	7.18	6.84	2.2	2.9	12.20	4	1							3	3	6					0	
33	Site 12	2016-10-17	01006	16.06	16.06	15.97	27.41	27.48	27.41	7.93	7.90	7.81	7.97	7.73	4.00	1.1	3.0	22.30	47	8							4	3	6					1	
34	Site 12	2016-10-24	00839	14.21	14.21	14.22	27.53	27.60	24.12	7.71	7.69	7.66	7.12	7.05	7.16	0.9	3.0	13.80	8	2							2	0	0					2	
35	Site 12	2016-10-31	trip canceled - weather																																
36	Site 12			20.56	20.21	19.05	26.60	26.60	26.40	7.97	7.94	7.92	6.42	6.35	5.92	1.09	2.90	19.90	4.67	1.74	#DIV/0!	0.02	0.01	#DIV/0!	#DIV/0!	0.50									
37	Site 12			20.00	20.00	18.00	21.00	20.00	18.00	21.00	20.00	18.00	21.00	19.00	17.00	21.00	21.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	18.00									
38	Site 12																																		
39	Site 12																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1		Friends of the Bay 2016 Water Quality Data - **Site 13, Mill Neck Creek East**																																		
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																																
4		2015-04-11		no samples																																
5	Site 13	2013-04-08		**8.56**	8.11	8	25.09	25.00	25.4	8.36	8.34	8.32	9.96	10.02	11.13	2.1	2.1	15.0	1	1	ND		ND	1.630	1.630	1.630		1	4	6						
6	Site 13	2013-04-15		**10.32**	10.38		23.06	24.71		8.33	8.32		7.13	7.09		1.6	1.9	7.4	4	4								3	5							
7	Site 13	2013-04-22		11.4	11.39	11.37	25.51	25.52	24.69	8.92	8.9	8.81	7.47	7.67	4.51	1.6	3.3	7.7	1	1								4	5							
8		2016-05-09		no samples																																
9		2016-05-16		no samples																																
10	Site 13	2013-04-30		**12.67**			25.40			9.06			5.40			1.1	1.2	11.1	5	2								2	4	6						
11	Site 13	2013-05-06		15.37	15.32	15.29	25.63	25.63	25.62	9.55	9.56	9.55	736.00	7.78	8.33	1.7	1.8	10.6	1	1								2	3	6						
12	Site 13	2013-05-13		14.31	16.09		24.41	24.92		9.16	9.16		6.56	6.95		1.2	1.5	7.9	18	8	ND	0.042		1.570	1.570	1.610		3	5							
13	Site 13	2016-04-18	01059	12.22	12.06		26.12	26.09		8.31	8.30		8.15	8.11		1.9	1.7	22.5	1	1							0	1	3	6	0	1	1	1	0	
14	Site 13	2016-04-25	01000	n/a	n/a	14.10	n/a	n/a	25.10	n/a	n/a	8.10	n/a	n/a	7.49	1.3	1.0	13.0	7	2							0	2	5	6	4	2	1	3	0	
15	Site 13	2016-05-02	00732	12.84	12.87	12.88	25.86	25.86	25.86	8.13	8.14	8.09	7.53	7.58	7.54	2.1	4.0	9.9	2	1							0	2	3	6	4	4	1	3	2	
16	Site 13	2016-05-23	01006	16.54	16.27	n/a	25.47	25.53	n/a	8.20	8.21	n/a	7.48	7.53	n/a	1.5	3.1	16.8	43	6							0	3	5	5	4	2	2	3	0	
17	Site 13	2016-05-31	00804	20.46	20.35	20.28	25.69	25.62	25.62	8.13	8.12	8.09	6.36	6.36	6.34	0.9	3.9	21.9	38	3							3	1	3	0	4	2	0	3		
18	Site 13	2016-06-06	01031	19.84	19.82	19.81	25.74	25.74	25.74	8.21	8.16	8.16	6.74	6.73	6.71	0.8	3.2	23.3	100	32		0.010	0.008				3	4	5	6						
19	Site 13	2016-06-13	Cancelled due to Wind 6/13/2016																																	
20		2016-08-01		no samples																																
21	Site 13	2016-06-20	01020	21.91	21.81	21.81	26.11	26.17	26.17	8.24	8.24	8.22	6.91	6.89	6.76	0.6	3.1	20.8	16	1							0	3	4	1						
22	Site 13	2016-06-27	00815	22.90	22.90	22.90	23.40	23.40	23.47	8.20	8.17	8.11	Quanta malfunction			0.7	3.1	23.0	8	1							0	2	5	5						
23		2016-08-22		no samples																																
24	Site 13	2016-07-05	Cancelled due to Rain 7/5/2016																																	
25		2016-09-06		no samples																																
26	Site 13	2016-07-11	00806	23.11	22.92	N/A	26.01	26.14	N/A	7.98	7.93	N/A	6.08	5.58	N/A	0.9	1.20	21.7	6	2		0.010	0.001				0	2	1	6						
27		2016-09-19		no samples																																
28	Site 13	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																	
29	Site 13	2016-07-25	00741	26.01			26.61			7.75			4.43			0.5		27.3	18	17							0	2	1	6	4	6	1	3	0	
30	Site 13	2016-08-08	00813	25.14			26.37			7.52			3.81			0.0	0.50	25.2	2	2		0.020	0.004				0	2	3	6						
31	Site 13	2016-08-15	01021	27.91	**27.91**		26.73	26.75		7.98	7.99		5.47	5.73		1.2	1.60	28.6	7	1							0	1	3	6	1	0	0	1	0	
32	Site 13	2016-08-22	00739	25.71	25.83		25.47	25.68		7.42	7.16		2.86	2.74		0.7	1.60	22.9	240	77							3	2	3	6	0	8	1	1	0	
33	Site 13	2016-08-29	01020	26.16	26.07	26.06	27.19	27.19	27.19	7.84	7.82	7.79	6.11	5.95	5.71	1.1	4.00	25.9	2	1							0	1	3	6	2	8	1	2	1	
34	Site 13	2016-09-12	00749	23.84	23.84	23.77	27.39	27.46	27.46	7.76	7.70	7.55	5.41	5.38	5.16	1.1	3.00	20.2	17	7		0.080	0.029				0	4	5	6						
35	Site 13	2016-09-26	00732	21.44	21.38	21.40	27.72	27.71	27.71	7.51	7.54	7.51	5.75	5.63	5.76	1.4	2.0	13.80	15	5							0	4	5	6						
36	Site 13	2016-10-03	01034	17.86	17.88	17.92	27.42	27.49	27.63	7.48	7.49	7.51	5.87	5.92	5.99	1.5	3.0	18.70	20	8							0	4	1	0						
37	Site 13	2016-10-11	00817	15.90	15.91	15.94	27.33	27.40	27.40	7.64	7.64	7.62	7.29	7.29	7.25	2.0	2.7	10.50	7	1								3	3	6						
38	Site 13	2016-10-17	01020	16.47	16.44		27.43	27.43		7.87	7.83		7.93	6.71		1.3	2.0	21.20	15	3								4	3	6						
39	Site 13	2016-10-24	00826	**15.21**	15.21	15.21	27.51	27.51	27.44	7.65	7.65	7.64	6.87	6.58	6.01	2.6	2.7		15	1								2	1	0						
40	Site 13	2016-10-31	trip canceled - weather																																	
41																																				
42				20.05	19.52	19.03	26.27	26.30	26.34	8.03	8.04	8.00	42.68	6.41	6.59	1.23	2.41	19.32	10.52	3.04	#DIV/0!	0.03	0.01	1.57	1.57	1.61										
43				21.00	20.00	15.00	22.00	20.00	15.00	22.00	20.00	15.00	22.00	19.00	14.00	22.00	21.00	21.00	22.00	22.00	1.00	5.00	4.00	1.00	1.00	1.00										
44																																				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - **Site 14, Mill Neck Creek West**																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 14	2013-04-08		**8.93**	8.32	8.2	24.98	25.02	25.08	8.39	8.41	8.33	11.93	11.79	10.58		2.4	16.8			ND			1.470	1.510		1	4	6					0	
6	Site 14	3013-04-15		**10.32**	10.49		23.96	24.44		8.38	8.36		6.95	6.85		1.5	1.4	7.9	11	4							3	5						0	
7	Site 14	2013-04-22		11.43	11.42	11.44	25.52	25.52	25.52	8.99	8.98	8.96	7.30	6.90	7.22	1.8	2.5	7.5	1	1							4	5						2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 14	2016-04-18	01050	12.56	12.29	12.10	25.98	26.04	26.03	8.29	8.29	8.24	8.02	7.85	7.33	1.1	2.3	20.5	1	1						0	1	5	6	0	1	1	1	0	
11	Site 14	2016-04-25	01010	n/a	n/a	14.48	n/a	n/a	25.73	n/a	n/a	8.12	n/a	n/a	7.59	1.3	1.0	12.7	35	3						0	2	5	6	4	2	0	3	0	
12	Site 14	2016-05-02	00742	12.89	12.84	12.88	25.65	25.79	25.86	8.11	8.12	8.11	7.44	7.49	7.52	2.0	4.0	8.9	1	1						0	2	3	6	4	4	1	3	2	
13	Site 14	2016-05-31	00758	21.22	20.81	20.39	25.24	25.50	25.63	8.11	8.11	8.03	6.43	6.38	6.22	0.8	4.1	21.3	54	13						3	1	3	0	4	3	0	3	0	
14	Site 14	2016-06-06	01037	19.81	19.81	19.74	25.81	25.81	25.81	8.18	8.19	8.16	6.75	6.72	6.66	1.0	3.6	23.1	173	27		0.020	0.000			3	4	1	6					1	
15	Site 14	2016-06-13	Cancelled due to Wind 6/13/2016																																
16	Site 14	2016-06-20	01026	21.91	21.82	21.80	26.18	26.17	26.17	8.22	8.22	8.20	6.35	6.24	6.14	0.7	3.5	22.3	11	1						0	3	4	1					1	
17	Site 14	2016-06-27	00807	23.30	23.01	23.07	23.56	23.68	23.62	8.13	8.14	8.13	Quanta malfunction			0.7	3.0	22.0	12	5						0	2	5	5					0	
18	Site 14	2016-07-05	Cancelled due to Rain 7/5/2016																																
19	Site 14	2016-07-11	00758	23.28	23.26	22.74	25.87	25.94	26.28	7.97	7.97	7.87	6.10	6.08	5.51	0.9	2.5	21.5	6	1		0.010	0.013			1	2	1	6					1	
20		2016-08-01		no samples																															
21	Site 14	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
22	Site 14	2016-07-25	00751	**26.04**	25.91		26.54	26.61		7.55	7.46		3.73	3.94		0.5	1.9	26.60	72	30						0	2	1	6	4	6	1	3	0	
23		2016-08-22		**no samples**																															
24	Site 14	2016-08-08	00803	25.30	25.20		26.30	26.37		7.62	7.43		3.89	3.63		0.5	1.4	24.80	11	1		0.030	0.005			0	2	3	6	0		0	1	0	
25		2016-09-06		no samples																															
26	Site 14	2016-08-15	01028	28.11	28.51	27.71	26.50	26.56	26.75	7.92	7.92	7.92	4.98	5.29	4.74	0.8	2.9	29.30	37	3						0	1	3	6	1	0	0	1	0	
27		2016-09-19		no samples																															
28	Site 14	2016-08-22	00743	25.64			26.31			7.40			3.34			0.7	0.6	23.30	230	150						3	2	5	6	0		1	1	1	
29	Site 14	2016-08-29	01027	26.32	26.26	26.06	27.12	27.12	27.19	7.84	7.82	7.72	6.09	5.99	5.72	0.5	3.0	26.80	9	2						0	1	3	6	2	8	1	2	1	
30	Site 14	2016-09-12	00755	23.99	23.99	23.88	27.32	27.39	27.39	7.77	7.77	7.75	5.25	5.19	5.11	1.1	3.1	20.70	25	22		0.090	0.024			0	4	5	6					0	
31	Site 14	2016-09-26	00739	21.46	21.43	21.40	27.79	27.72	27.72	7.53	7.52	7.51	5.59	5.60	5.53	1.2	3.1	16.70	15	2						0	4	5	6					1	
32	Site 14	2016-10-03	01041	17.73	17.74		27.34	27.34		7.42	7.42		5.60	5.60		1.2	1.5	18.10	42	2						0	4	3	0					0	
33	Site 14	2016-10-11	00810	15.68	15.65	15.96	27.04	27.11	27.19	7.60	7.59	7.44	6.88	5.98	2.73	1.7	2.7	10.80	7	3							3	3	6					0	
34	Site 14	2016-10-17	01026	16.48	16.47	16.42	27.50	27.50	27.42	7.88	7.88	7.88	8.26	7.88	7.84	1.20	3.30	21.10	11	1							4	3	6					1	
35	Site 14	2016-10-24	00815	14.86	14.91	15.08	27.21	27.28	21.14	7.61	7.62	7.53	6.73	6.24	7.62	1.60	2.30	13.40	15	5							2	1	0					0	
36	Site 14	2016-10-31	trip canceled - weather																																
37	Site 14			19.92	19.57	19.07	26.24	26.31	25.97	7.93	7.94	7.97	6.09	6.10	6.23	1.09	2.56	19.01	14.67	3.68	#DIV/0!	0.04	0.01	#DIV/0!	#DIV/0!	0.63									
38	Site 14			20.00	20.00	16.00	21.00	20.00	16.00	21.00	20.00	16.00	21.00	19.00	15.00	21.00	21.00	21.00	21.00	21.00	0.00	4.00	4.00	0.00	0.00	16.00									
39	Site 14																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 15, Mill Neck Creek South																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 15	2016-04-18	01039	13.10			25.59			8.21			7.62			1.0		21.7	6	4						0	1	5	6	0	1	1	1	0	
6	Site 15	2016-05-02	00753	12.88	13.04	13.01	24.13	24.97	25.11	8.03	8.01	7.94	6.78	7.05	7.17	0.8	3.8	8.0	48	26						0	2	3	6	4	0	0	3	2	
7	Site 15	2016-05-23	01013	16.51	16.41	16.41	25.40	25.47	25.46	8.21	8.26	8.20	7.55	7.54	7.36	1.1	3.6	16.6	162	14						0	3	5	5	4	3	1	3	0	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 15	2016-05-31	00753	21.79	21.78	21.74	24.62	24.83	24.90	7.89	7.87	7.74	5.40	5.14	5.30	0.7	3.5	22.1	390	320						3	1	3	0	4	0	0	3	0	
11	Site 15	2016-06-06	01045	21.21	21.11	21.10	24.74	24.81	24.74	7.99	8.02	7.99	6.24	6.16	6.12	0.4	2.6	23.9	655	86		0.010	0.001			3	4	5	6					1	
12	Site 15	2016-06-13	Cancelled due to Wind 6/13/2016																																
13	Site 15	2016-06-20	01033	23.51	23.40	23.31	25.60	25.60	25.59	8.22	8.22	8.22	6.66	6.65	6.67	0.6	3.6	21.6	63	1						0	3	4	1					1	
14	Site 15	2016-06-27	Too Shallow																																
15	Site 15	2016-07-05	Cancelled due to Rain 7/5/2016																																
16	Site 15	2016-07-11	Too Shallow																																
17	Site 15	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
18	Site 15	2016-07-25	00808	26.14			26.33			7.51			3.32			0.3	1.0	26.2	83	29						0	2	1	6	4	6	1	3	1	
19	Site 15	2016-08-15	01040	29.01			25.15						5.52			0.6		29.2	48	6						0	1	3	5	1	0	0	1	0	
20		2016-08-01		no samples																															
21	Site 15	2016-08-29	01035	26.58			26.07			7.57			4.27			0.4	1.0	26.80	38	1						0	2	3	6	2	8	1	2	1	
22	Site 15	2016-09-12	00800	23.36	23.57		25.66	26.45		7.53	7.42		3.36	3.29		0.60	1.50	18.30	90	24		0.030	0.009			0	4	5	6					0	
23		2016-08-22		no samples																															
24	Site 15	2016-09-26	00749	20.18			26.81			7.26			4.38			0.60	1.10	12.60	69	25						0	4	5	6					0	
25		2016-09-06		no samples																															
26	Site 15	2016-10-03	01051	17.52	17.47		16.38	16.31	16.31	7.19	7.12		4.15	4.2		0.50	1.50	19.10	53	10							4	3	0					0	
27		2016-09-19		no samples																															
28	Site 15	2016-10-11	00804	14.11	14.63	14.74	22.78	25.18	25.32	7.36	7.33	7.31	6.08	5.91	5.96	0.60	3.50	9.10	350	57							3	3	6					0	
29	Site 15	2016-10-17																																	
30	Site 15	2016-10-24	00748	13.42	14.13	14.50	26.40	26.70	26.77	7.45	7.50	7.47	6.40	5.19	4.68	0.90	1.60	12.30	56	130							2	0	0					0	
31	Site 15	2016-10-31	trip canceled - weather																																
32	Site 15																																		
33	Site 15																																		
34	Site 15			19.95	18.39	17.83	24.69	24.48	24.28	7.72	7.75	7.84	5.55	5.68	6.18	0.65	2.36	19.11	82.98	17.76	#DIV/0!	0.02	0.01	#DIV/0!	#DIV/0!	0.55									
35	Site 15			14.00	9.00	7.00	14.00	9.00	8.00	13.00	9.00	7.00	14.00	9.00	7.00	14.00	12.00	14.00	14.00	14.00	0.00	2.00	2.00	0.00	0.00	11.00									
36	Site 15																																		
37	Site 15																																		
38	Site 15																																		
39	Site 15																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 16, Mill Neck Creek North																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 16	2016-04-18	01025	13.03			25.32			8.20			7.94			1.9	1.9	20.3	4	1						0	1	5	6	0	1	1	1	0	
6	Site 16	2016-05-02	00809	12.10	12.46	12.74	23.84	24.46	24.75	7.95	7.93	7.93	6.85	6.84	6.91	1.0	3.3	9.1	26	11						0	2	3	6	4	4	1	3	2	
7	Site 16	2016-05-31	00742	21.79	21.81	21.81	24.48	24.83	24.97	7.92	7.92	7.90	5.40	5.41	5.42	0.6	3.2	22.4	220	130						3	1	3	0	4	0	1	3	0	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 16	2016-06-06	01057	21.34	21.40	21.20	24.75	24.75	24.75	7.99	7.99	7.96	6.14	6.15	6.18	0.5	3.2	24.8	1400	100		0.000	0.001			3	4	5	6					0	
11	Site 16	2016-06-13	Cancelled due to Wind 6/13/2016																																
12	Site 16	2016-06-20	01042	23.94	23.91	23.91	25.12	25.40	25.40	8.22	8.24	8.22	7.18	7.20	7.11	0.5	2.8	21.1	52	2						0	3	4	1					0	
13	Site 16	2016-06-27	Too Shallow																																
14	Site 16	2016-07-05	Cancelled due to Rain 7/5/2016																																
15	Site 16	2016-07-11	00749	23.59	N/A	N/A	25.81	N/A	N/A	7.54	N/A	N/A	3.9	N/A	N/A	0.5	0.6	20.4	24	4		0.010	0.003			1	2	1	6					1	
16	Site 16	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
17	Site 16	2016-07-25	Too Shallow																																
18	Site 16	2016-08-15	01050	28.91			25.87			7.86			6.28			0.7	1.5	32.2	340	15						0	1	1	1	1	0	1	1	0	
19	Site 16	2016-08-29	01043	26.59			26.50			7.37			3.6			0.9	0.9	27.8	21	5						0	2	3	6	2	1	1	2	0	
20		2016-08-01		no samples																															
21	Site 16	2016-09-12	00809	23.30	23.26		26.08	26.16		7.44	7.39		3.03	3.08		0.7	1.5	21.6	51	11		0.050	0.013			0		5	6					0	
22	Site 16	2016-09-26	00755	**19.83**	19.76		27.01	26.93		7.29	7.29		4.64	4.50		0.8	1.4	14.40	37	17						0	4	5	6					0	
23		2016-08-22		**no samples**																															
24	Site 16	2016-10-03	01107	17.76			26.57			7.2			4.08			0.4	0.8	19.80	49	26						0	4	5	brownish scum					0	
25		2016-09-06		no samples																															
26	Site 16	2016-10-11	00752	**14.16**			25.02			7.27			5.92			0.8	1.4	**10.20**	59	15							3	3	6					0	
27		2016-09-19		**no samples**																															
28	Site 16	2016-10-17																	3	1															
29	Site 16	2016-10-24	00804	**13.68**	13.81		26.39	26.47		7.45	7.44		5.25	5.71		1.1	1.3	13.70	58	31							2	1	0					0	
30	Site 16	2016-10-31	trip canceled - weather																																
31	Site 16																																		
32	Site 16																																		
33	Site 16																																		
34	Site 16			20.00	19.49	19.92	25.60	25.57	24.97	7.67	7.74	8.00	5.40	5.56	6.41	0.80	1.83	19.83	47.18	10.48	#DIV/0!	0.02	0.01	#DIV/0!	#DIV/0!	0.64									
35	Site 16			13.00	8.00	6.00	13.00	8.00	5.00	13.00	8.00	5.00	13.00	8.00	5.00	13.00	13.00	13.00	14.00	14.00	0.00	3.00	3.00	0.00	0.00	11.00									
36	Site 16																																		
37	Site 16																																		
38	Site 16																																		
39	Site 16																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 17, The Birches STP																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 17	2016-04-18	01022	13.09			25.32			8.14			7.45			1.00	1.0	20.50	5	1						0	1	3	6	0	1	1	1	0	
6	Site 17	2016-05-02	00815	12.01	12.64	12.75	23.21	24.26	24.68	7.93	7.95	7.91	6.68	6.99	7.16	1.10	3.3	8.80	36	21						0	2	3	6	4	4	1	3	2	
7	Site 17	2016-05-31	00737	21.84	21.85	21.80	24.27	24.69	24.55	7.82	7.81	7.63	5.27	5.31	5.26	0.90	2.7	22.30	41	90	n/a					3	1	n/a	0	4	0	0	3	0	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 17	2016-06-06	01101	22.54	n/a	n/a	24.51	n/a	n/a	7.94	n/a	n/a	5.72	n/a	n/a	0.40	1.0	26.70	1200	67		0.010	0.001			3	4	1	6	0					
11	Site 17	2016-06-13	Cancelled due to Wind 6/13/2016																																
12	Site 17	2016-06-20	01048	23.94	23.91	24.06	25.12	25.19	24.98	8.17	8.15	8.15	6.30	6.18	6.01	0.50	2.5	23.10	150	5						0	3	4	1	1					
13	Site 17	2016-06-27	00750			21.40			22.81			7.49	nta malfunction			0.50	2.1	23.30	1040	380						0	2	5	5	2					
14	Site 17	2016-07-05	Cancelled due to Rain 7/5/2016																																
15	Site 17	2016-07-11	Too Shallow																																
16	Site 17	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
17	Site 17	2016-07-25	Too Shallow																																
18	Site 17	2016-08-15	01055	28.41			25.79			7.71			3.82			0n Bottom		31.74	370	32						0	1	1	1	1	0	0	1	0	
19	Site 17	2016-08-29	01048	26.48			26.42			7.18			3.44			0.50	1.2	28.70	59	5						0	2	3	6	2	1	1	2	0	
20		2016-08-01		no samples																															
21	Site 17	2016-09-12	00813	21.92			25.69			7.36			2.23			0.60	1.1	24.50	63	13		0.030	0.007			0	4	5	6	0					
22	Site 17	2016-09-26	00802	18.06	18.64	18.41	26.84	26.85	26.73	7.20	7.17	7.13	4.02	3.79	3.69	0.90	2.3	28.90	34	8						0	4	5	6	0					
23		2016-08-22		no samples																															
24	Site 17	2016-10-03	01113	17.70			25.58			7.03			3			0.30	0.5	20.40	62	64						0	4	5	6	4					
25		2016-09-06		no samples																															
26	Site 17	2016-10-11	00748	13.55	15.89	16.12	24.58	27.40	27.55	7.20	7.64	7.64	5.54	7.28	7.21	1.70	2.7	10.50	100	32							3	3	6	0					
27		2016-09-19		no samples																															
28	Site 17	2016-10-24		no samples																															
29	Site 17	2016-10-31	trip canceled - weather																																
30	Site 17																																		
31	Site 17																																		
32	Site 17																																		
33	Site 17																																		
34	Site 17			19.96	18.59	19.09	25.21	25.68	25.22	7.61	7.74	7.66	4.86	5.91	5.87	0.76	1.85	22.45	92.66	21.19	#DIV/0!	0.02	0.00	#DIV/0!	#DIV/0!	0.55									
35	Site 17			11.00	6.00	7.00	11.00	6.00	7.00	11.00	6.00	7.00	12.00	6.00	6.00	12.00	11.00	12.00	12.00	12.00	1.00	2.00	2.00	0.00	0.00	11.00									
36	Site 17																																		
37	Site 17																																		
38	Site 17																																		
39	Site 17																																		
40																																			
41																																			
42																																			
43																																			
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		Friends of the Bay 2016 Water Quality Data - Site 18, Mill Neck Cove																																	
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3		2016-04-04		No samples																															
4		2015-04-11		no samples																															
5	Site 18	2016-04-18	01105	12.11	11.79	11.79	26.1	26.16	26.16	8.34	8.35	8.34	8.39	8.35	8.20	1.5	2.1	21.9	1	1						0	1	3	6	0	1	1	1	0	
6	Site 18	2016-04-25	01020	14.26	14.31	14.34	25.78	25.86	25.86	8.22	8.21	8.20	7.82	7.80	7.74	1.3	2.8	11.6	5	1						0	2	5	6	4	8	2	3	0	
7	Site 18	2016-05-02	00834	12.78	12.81	12.84	25.79	25.79	25.93	8.13	8.11	8.08	7.55	7.54	7.64	2.3	3.7	10.4	1	1						0	2	3	6	4	4	1	3	2	
8		2016-05-09		no samples																															
9		2016-05-16		no samples																															
10	Site 18	2016-05-23	01023	17.01	16.17	16.04	25.28	25.73	25.73	8.22	8.26	8.24	7.78	7.85	7.79	1.2	3.3	18.1	102	1						0	3	5	5	4	2	1	3	0	
11	Site 18	2016-05-31	00714	20.30	20.28	20.25	25.62	25.62	25.62	8.19	8.16	8.12	6.58	6.62	6.63	1.0	3.4	22.2	36	7						3	1	3	0	4	2	0	3	0	
12	Site 18	2016-06-06	01116	20.12	20.01	19.91	25.83	25.75	25.82	8.19	8.20	8.16	6.61	6.58	5.37	0.80	4.2	26.8	136	17		0.00	0.00			3	4	5	6	1				1	
13	Site 18	2016-06-13	Cancelled due to Wind 6/13/2016																																
14	Site 18	2016-06-20	01101	22.51	22.21	21.81	25.98	26.05	26.17	8.29	8.31	8.28	7.30	7.18	7.01	0.7	4.7	20.7	24	1						0	3	4	1	1				1	
15	Site 18	2016-06-27	00821	22.71	22.71	22.61	23.75	23.67	23.74	8.24	8.22	8.22	Quanta malfunction			0.8	3.4	22.7	2	1						0	2	5	5	1				0	
16	Site 18	2016-07-05	Cancelled due to Rain 7/5/2016																																
17	Site 18	2016-07-11	00818	22.43	22.42	22.41	26.27	26.34	26.41	7.97	7.99	7.95	5.93	6.21	5.98	0.8	1.8	21.1	4	1		0.010	0.001			0	2	1	6	1				1	
18	Site 18	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016																																
19	Site 18	2016-07-25	00810	26.71			26.75			7.70			5.48			0.9	0.9	27.4	33	9						0	2	1	6	4	6	1	3	1	
20		2016-08-01		no samples																															
21	Site 18	2016-08-08	00822	24.91			27.07			7.79			6.46			0.8	0.7	28.4	10	2		0.010	0.011			0	2	3	6	0	1	1	1	1	
22	Site 18	2016-08-15	01107	28.01	27.81	27.61	26.77	26.76	26.82	8.50	8.02	7.94	5.92	5.63	5.47	1.1	2.5	28.2	10	1						0	1	4	6	1	0	0	1	0	
23		2016-08-22		no samples																															
24	Site 18	2016-08-22	00753	26.20			26.76			7.80			4.78			0.7	0.7	22.4	18	4						3	2	3	6	0	8	1	1	0	
25		2016-09-06		no samples																															
26	Site 18	2016-08-29	01100	26.36	26.17	26.08	27.13	27.19	27.19	7.89	7.85	7.78	6.39	6.20	5.99	1.0	2.0	28.1	10	1						0	2	3	6	2	8	1	2	1	
27		2016-09-19		no samples																															
28	Site 18	2016-09-12	00828	23.72	23.72	23.80	27.38	27.45	27.53	7.82	7.81	7.79	5.35	5.40	5.28	1.2	2.8	19.3	36	2		0.070	0.017			0	4	5	6	1				0	
29	Site 18	2016-09-26	00815	21.41	21.40	21.40	27.79	27.79	27.71	7.53	7.51	7.48	5.79	5.68	5.75	1.4	2.8	16.8	1	1						0	1	5	6	0				0	
30	Site 18	2016-10-03	01132	18.01	18.00	18.00	27.57	27.64	27.57	7.50	7.50	7.51	5.95	5.98	5.90	1.6	2.7	19.4	23	4						0	4	5	6	1				0	
31	Site 18	2016-10-11	00736													1.7		11.9	9	3							3	3	6	2				0	
32	Site 18	2016-10-17	01037	16.38	16.38	16.37	27.42	27.42	27.42	7.90	7.89	7.87	7.95	7.86	7.30	1.2	2.9	22.3	16	1															
33	Site 18	2016-10-24	01055	15.29	15.30		27.37	27.44		7.67	7.68		7.32	7.22		bottom	1.5	14.8	56	2							2	0	0					1	
34	Site 18			20.59	19.47	19.68	26.44	26.42	26.38	7.99	8.00	8.00	6.63	6.81	6.58	1.16	2.57	20.73	11.59	1.91	#DIV/0!	0.02	0.01	#DIV/0!	#DIV/0!	0.53									
35	Site 18			19.00	16.00	15.00	19.00	16.00	15.00	19.00	16.00	15.00	19.00	15.00	14.00	20.00	19.00	20.00	20.00	20.00	0.00	4.00	4.00	0.00	0.00	17.00									
36	Site 18																																		
37	Site 18																																		
38	Site 18																																		
39	Site 18																																		
40	Site 18																																		
41	Site 18																																		
42	Site 18																																		
43	Site 18																																		
44																																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2016 Water Quality Data - Site 19, Flowers Oyster Hatchery																
2		Date	Time	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)	Air Temp
3		2016-04-04		No samples														
4		2015-04-11		no samples														
5	Site 19	2016-04-18	01111	11.93	11.85	11.62	26.09	26.09	26.15	8.33	8.33	8.32	8.27	8.22	7.94	1.90	4.7	22.2
6	Site 19	2016-04-25	01031	n/a	14.10	14.03	n/a	25.92	26.05	n/a	8.25	8.25	n/a	8.01	7.78	2.10	3.0	13.2
7	Site 19	2016-05-02	00842	12.82	12.83	12.80	25.93	25.86	25.93	8.18	8.16	8.15	7.69	7.72	7.68	2.00	6.8	9.7
8		2016-05-09		no samples														
9		2016-05-16		no samples														
10	Site 19	2016-05-23	01031	16.81	16.47	16.17	25.47	25.53	25.73	8.25	8.25	8.27	7.83	7.80	7.69	1.50	5.9	18.9
11	Site 19	2016-05-31	01101	21.54	21.41	20.21	25.60	25.66	25.69	8.27	8.27	8.19	6.76	6.67	6.03	1.00	5.4	26.3
12	Site 19	2016-06-06	01122	20.61	20.54	20.01	25.63	26.63	25.75	8.19	8.19	8.20	6.90	6.77	6.43	0.90	6.8	23.7
13	Site 19	2016-06-13	Cancelled due to Wind 6/13/2016															
14	Site 19	2016-06-20	01107	22.51	22.21	21.81	25.99	26.05	26.10	8.20	8.30	8.23	6.61	6.71	6.80	0.90	6.9	20.6
15	Site 19	2016-06-27	00826	22.71	22.61	22.61	23.68	23.67	23.74	8.25	8.25	8.18	Quanta malfunction			0.80	5.9	23.1
16	Site 19	2016-07-05	Cancelled due to Rain 7/5/2016															
17	Site 19	2016-07-11	00821	22.42	22.43	22.39	26.41	26.34	26.41	8.03	8.02	7.97	6.03	6.03	5.60	0.90	4.4	23.6
18	Site 19	2016-07-18	Cancelled due to Boat Malfunction 7/18/2016															
19	Site 19	2016-07-25	00814	25.88	25.77	25.78	26.75	26.82	26.75	7.96	7.92	7.80	6.12	5.77	5.63	0.80	3.3	26.1
20		2016-08-01		no samples														
21	Site 19	2016-08-08	00838	25.17	25.13	24.91	21.72	26.72	27.00	7.89	7.89	7.81	5.23	5.27	5.26	0.70	3.50	26.20
22	Site 19	2016-08-15	01114	**28.47**	27.81	27.71	26.71	26.63	26.75	8.86	8.06	7.78	5.23	5.44	4.94	1.20	5.0	28.2
23		2016-08-22		**no samples**														
24	Site 19	2016-08-22	00802	26.34	26.35	26.41	26.63	26.70	26.70	7.83	7.82	7.81	4.70	4.67	4.71	0.90	2.7	23.6
25		2016-09-06		no samples														
26	Site 19	2016-08-29	01105	26.48	26.36	26.08	27.06	27.13	27.19	7.86	7.84	7.75	6.98	6.02	5.61	1.00	5.0	28.8
27		2016-09-19		no samples														
28	Site 19	2016-09-12	00837	23.83	23.82	23.66	27.31	27.39	27.60	7.81	7.80	7.81	5.22	5.18	3.40	1.10	5.3	19.8
29	Site 19	2016-09-26	00822	21.38	24.39	24.38	27.71	27.71	27.72	7.51	7.59	7.50	5.48	5.55	5.46	1.20	5.2	18.3
30	Site 19	2016-10-03	01140	17.93	17.92	17.88	27.28	27.35	27.49	7.47	7.48	7.48	5.86	5.90	5.85	1.40	4.7	20.4
31	Site 19	2016-10-11	00729	15.94	15.89	16.21	27.33	27.40	27.56	7.62	7.62	7.66	7.19	7.26	7.32	1.90	4.8	11.1
32	Site 19	2016-10-17	01044	16.58	16.42	16.39	27.29	27.35	26.02	7.86	7.86	7.86	8.02	7.87	1.09	1.10	6.7	25.2
33	Site 19	2016-10-24	01102	15.35	15.34	15.33	27.51	27.51	27.44	7.73	7.71	7.69	7.21	7.00	7.14	1.80	4.1	14.6
34	Site 19			20.77	20.48	20.32	26.22	26.52	26.49	8.01	7.98	7.94	6.52	6.52	5.91	1.26	5.01	21.18
35	Site 19			19.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.00	19.00	20.00	20.00	20.00
36	Site 19																	
37	Site 19																	
38	Site 19																	
39	Site 19																	
40																		
41																		
42																		
43																		
44																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1																	
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	
3																	
4																	
5	1	1						0	1	3	6	0	1	1	1	0	
6	1	1						0	2	5	6	4	2	0	3	0	
7	1	1						0	2	3	6	4	4	1	3	2	
8																	
9																	
10	161	2						0	4	3	5	0	3	1	1	0	
11	27	10						3	1	3	0	4	2	1	3	0	
12	210	14		0.01	0.00			3	4	5	6	1				1	
13																	
14	10	1						0	3	4	1	1				1	
15	3	1						0	2	5	5	1				0	
16																	
17	5	1		0.010	0.001			0	2	1	6	1				1	
18																	
19	6	7						0	2	1	6	3	6	1	3	1	
20																	
21	8.0000	5.0000		0.010	0.001			0	2	3	6	1	1	1	1	1	
22	19	1						0	1	4	6	1	0	0	1	0	
23																	
24	90	14						3	2	3	6	0	8	1	1	1	
25																	
26	6	4						0	2	3	6	2	8	1	2	1	
27																	
28	90	35		0.060	0.024			0	1	5	6	1				0	
29	3	4						0	1	5	6	1				0	
30	54	41							4	5	0	1				0	
31	19	4							3	3	6	2				0	
32	19	9							4	3	6	1				0	
33	15	2							2	0	0					2	
34	12.20	3.70	#DIV/0!	0.02	0.01	#DIV/0!	#DIV/0!	0.56									
35	20.00	20.00	0.00	4.00	4.00	0.00	0.00	16.00									
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43																	
44																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data **- Site 2, Cold Spring Cove North**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity 0.5 m from BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1 m	DO 0.5 m from BTM	Secchi	Depth (meters)	Air Temp
3	Site 2	2015-04-06	6.11	6.07	5.41		24.63	25.24	25.74	8.26	8.23	8.22	11.18	10.85	10.45	2.2	4.4	4.6
4	Site 2	2015-04-13																
5	Site 2	2015-04-20																
6	Site 2	2015-04-27	10.22	10.69	8.77		23.64	25.09	25.80	8.57	8.55	8.40	11.48	10.93	9.40	1.4	6.6	14.2
7	Site 2	2015-05-04	8.92	8.86	8.17		24.84	25.45	20.69	8.41	8.45	8.40	11.98	11.74	11.21	1.5	5.0	11.7
8	Site 2	2015-05-11	13.14	12.38	11.30		24.53	25.35	25.91	8.41	8.44	8.38	9.15	8.17	8.51	1.7	4.8	31.0
9	Site 2	2015-05-18																
10	Site 2	2015-05-25	16.51	15.56	13.86		25.03	25.14	26.12	8.01	7.99	7.92	7.59	7.35	6.40	1.4	5.0	26.0
11	Site 2	2015-06-01																
12	Site 2	2015-06-08	15.90	15.91	15.21		24.82	24.88	25.83	8.05	8.04	7.94	8.14	7.74	7.05	1.0	4.6	18.9
13	Site 2	2015-06-15																
14	Site 2	2015-06-22	20.54	20.31	18.96		24.16	24.43	25.50	8.16	8.07	7.73	8.63	7.87	5.50	1.3	5.0	24.2
15	Site 2	2015-06-29																
16	Site 2	2015-07-06	22.08	21.52	20.91		24.76	24.96	25.71	8.07	7.96	7.60	7.11	5.66	3.81	0.8	5.0	28.2
17	Site 2	2015-07-13	23.17	23.12	22.33		25.37	25.44	35.91	7.77	7.67	7.37	5.59	4.68	2.72	1.1	6.8	26.3
18	Site 2	2015-07-20	23.59	22.64	22.02		24.03	25.08	26.09	7.68	7.56	7.42	4.97	3.62	2.73	1.0	4.8	29.3
19	Site 2	2015-07-27	23.06	22.54	21.54		25.85	26.27	26.66	7.63	7.60	7.55	3.18	2.63	2.32	1.1	6.5	28.8
20	Site 2	2015-08-03	23.65	23.65	23.80		25.11	25.18	25.96	7.49	7.45	7.34	3.74	3.28	2.59	1.2	4.4	27.1
21	Site 2	2015-08-10	22.63	22.28	21.45		26.14	26.42	26.89	7.45	7.43	7.34	2.77	2.42	2.76	1.7	7.5	28.4
22	Site 2	2015-08-17	23.81	23.80	23.51		25.75	25.89	26.52	7.55	7.54	7.49	3.11	2.98	2.32	1.1	6.7	32.7
23	Site 2	2015-08-24																
24	Site 2	2015-08-31	23.98	24.37	24.46		25.40	26.27	26.70	7.64	7.64	7.65	3.55	3.25	3.05	1.0	5.4	25.7
25	Site 2	2015-09-08	24.33	24.07	23.91		26.97	26.55	26.49	7.75	7.73	7.69	3.35	3.01	2.59	1.2	7.1	30.3
26	Site 2	2015-09-14																
27	Site 2	2015-09-21																
28	Site 2	2015-09-28	21.13	21.19	21.69		26.29	27.65	27.02	7.89	7.90	7.90	5.40	5.41	5.31	1.1	5.5	17.2
29	Site 2	2015-10-05																
30	Site 2	2015-10-13	17.89	17.88	17.93		26.43	26.57	27.00	8.09	8.09	8.04	6.42	6.53	6.37	1.6	6.8	17.6
31	Site 2	2015-10-19	13.08	13.33	14.08		25.25	25.40	26.47	8.34	8.34	8.33	8.34	8.34	8.18	0.9	6.3	1.9
32	Site 2	2015-10-26	14.04	14.05	14.03		26.19	26.33	26.47	8.32	8.31	8.30	7.96	8.07	8.32	0.9	8.6	8.3
33																		
34	Site Total		20	20	20	0	20	20	20	20	20	20	20	20	20	20	20	20
35			**18.39**	**18.21**	**17.67**	**#DIV/0!**	**25.26**	**25.68**	**26.47**	**7.98**	**7.95**	**7.85**	**6.68**	**6.23**	**5.58**	**1.26**	**5.84**	**21.62**
36		*Holding Time Exceeded 8/31/15																

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	5	1								0	3	3	6	2.5	0	0	2	0	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	1	1								0	2	5	6	1	8	1	1	1	2015-04-27
7	6	4		0.020	0.003					0	3	5	6	0	2	0	1	0	2015-05-04
8	9	3								0	2	5	6	2	6	2	2	3	2015-05-11
9																			2015-05-18
10	10	1								0	2	N/A	N/A	1	6	2	1	2	2015-05-25
11																			2015-06-01
12	31	33		0.010	0.000					0						1	3	1	2015-06-08
13																			2015-06-15
14	490	230								0	3	5	6	0	8	1	1	2	2015-06-22
15																			2015-06-29
16	130	1								0	4	3	6	4	4	1	1	2	2015-07-06
17	14	7		0.000	0.001					0	4	3	6	0	0	1	1	0	2015-07-13
18	27	3								0	4	3	6	1	8	1	1	2	2015-07-20
19	71	1								0.01	2	5	4	4	5	0	4	0	2015-07-27
20	47	10								0	2	1	6	0	4	2	1	1	2015-08-03
21	43	2								0	4	3	6	1	5	1	1	0	2015-08-10
22	110	1								0	4	3	6	1	0	0	2	0	2015-08-17
23																			2015-08-24
24	*210	*26									4	3	6	3	0	0	2	0	2015-08-31
25	41	1								0	2	4	6	0	6	1	1	1	2015-09-08
26																			2015-09-14
27																			2015-09-21
28	880	430								0	4	5	6	4	4	0	6	0	2015-09-28
29																			2015-10-05
30	35	5								0	4	5	6	3	4	0	2	1	2015-10-13
31	23	12								0	2	1	6	0	-	1	1	0	2015-10-19
32	39	15								0	4	5	6	0	1	0	1	0	2015-10-26
33																			
34	20	20		3	3														
35	35.083	5.076																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 3, Cold Spring Harbor South**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP (0.5 m)	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 3	2015-04-06	5.72	5.63	4.99		25.49	25.62	25.99	8.27	8.28	8.27	11.15	11.45	10.98	2.6	3.7	3.9
4	Site 3	2015-04-13																
5	Site 3	2015-04-20																
6	Site 3	2015-04-27	10.89	10.78	8.73		25.01	25.26	25.86	8.56	8.59	8.55	11.46	11.32	11.00	1.3	6.0	15.1
7	Site 3	2015-05-04	9.86	9.36	8.56		25.85	25.83	25.99	8.54	8.53	8.46	12.93	12.09	11.38	1.8	4.2	10.8
8	Site 3	2015-05-11	13.19	12.81	10.49		25.32	25.73	26.16	8.46	8.50	8.40	9.70	8.51	8.81	1.6	4.5	27.0
9	Site 3	2015-05-18																
10	Site 3	2015-05-25	15.12	14.76	13.43		25.96	25.96	26.17	8.02	8.04	7.98	7.74	7.76	7.28	1.8	4.5	25.8
11	Site 3	2015-06-01																
12	Site 3	2015-06-08	15.34	15.29	15.01		25.77	25.76	26.10	7.99	8.01	7.99	7.72	7.61	7.51	1.0	4.2	18.7
13	Site 3	2015-06-15																
14	Site 3	2015-06-22	20.81	20.83	18.06		24.94	25.01	26.02	8.23	8.24	7.62	9.27	8.70	4.72	1.3	4.5	24.4
15	Site 3	2015-06-29																
16	Site 3	2015-07-06	21.96	21.56	20.41		25.41	25.32	26.12	7.98	7.90	7.60	6.81	4.88	3.82	1.0	4.5	26.4
17	Site 3	2015-07-13	23.15	23.06	22.06		25.45	25.65	26.11	7.85	7.83	7.51	6.31	6.03	3.97	0.8	6.3	24.7
18	Site 3	2015-07-20	23.12	23.03	21.78		25.66	25.79	26.24	7.83	7.78	7.55	5.55	5.07	3.33	1.3	4.5	29.3
19	Site 3	2015-07-27	23.15	23.13	21.27		26.01	26.08	26.71	7.86	7.87	7.60	4.92	5.18	3.15	1.3	6.1	28.7
20	Site 3	2015-08-03	23.71	23.68	23.26		25.89	25.96	26.30	7.50	7.48	7.38	3.49	3.44	3.35	1.4	3.7	29.1
21	Site 3	2015-08-10	22.96	22.72	21.37		26.36	26.42	27.07	7.77	7.58	7.40	4.81	3.48	2.59	1.7	6.7	27.0
22	Site 3	2015-08-17	24.36	23.80	23.43		25.70	26.18	26.80	7.73	7.71	7.59	4.86	4.35	3.63	1.2	5.1	29.3
23	Site 3	2015-08-24																
24	Site 3	2015-08-31	24.23	24.27	24.39		26.33	26.04	27.50	7.76	7.74	7.72	4.33	5.27	3.62	1.2	3.9	26.2
25	Site 3	2015-09-08	24.72	24.15	23.85		27.07	26.97	27.53	8.00	7.85	7.70	5.22	3.90	2.93	1.3	5.9	29.2
26	Site 3	2015-09-14																
27	Site 3	2015-09-21																
28	Site 3	2015-09-28	21.26	21.61	21.56		26.72	27.01	27.58	7.99	8.01	7.98	5.72	5.83	5.43	1.6	5.1	17.8
29	Site 3	2015-10-05																
30	Site 3	2015-10-13	17.80	17.83	18.02		26.85	27.06	27.28	8.21	8.22	8.22	7.08	7.16	7.03	1.4	4.8	18.1
31	Site 3	2015-10-19	13.02	13.04	14.25		29.94	26.01	27.18	8.42	8.41	8.42	8.60	8.60	8.45	1.1	5.1	3.4
32	Site 3	2015-10-26	13.96	13.98	13.99		26.96	26.96	26.96	8.41	8.42	8.44	8.35	8.33	8.22	1.1	5.5	9.2
33			*Holding Time Exceeded 8/31/15															
34	Site Total		20	20	20	0	20	20	20	20	20	20	20	20	20	20	20	20
35			**18.42**	**18.27**	**17.45**	**#DIV/0!**	**26.13**	**26.03**	**26.58**	**8.07**	**8.05**	**7.92**	**7.30**	**6.95**	**6.06**	**1.39**	**4.94**	**21.21**
36																		

	T	U	V	W	X	Y	Z	AA	A	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	8	1	2	1	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	1	1								0	2	5	6	1	8	1	2	1	2015-04-27
7	8	1		0.010	0.001					0	3	5	5	0	2	0	1	0	2015-05-04
8	2	1								0	2	5	6	1	6	1	2	2	2015-05-11
9																			2015-05-18
10	2	1								0	2	N/A	N/A	1	6	2	1	2	2015-05-25
11																			2015-06-01
12	18	19		0.010	0.001					0						1	3	2	2015-06-08
13																			2015-06-15
14	460	250								0	2	3	6	0	8	2	1	4	2015-06-22
15																			2015-06-29
16	61	1								0	4	3	6	3	6	1	1	2	2015-07-06
17	51	2		0.000	0.004					0	4	3	6	0	0	1	1	0	2015-07-13
18	31	1								0	4	3	6	1	8	1	1	3	2015-07-20
19	36	1								0.01	2	5	4	4	5	0	4	0	2015-07-27
20	31	2								0	2	1	6	0	5	2	1	1	2015-08-03
21	2	1								0	4	3	6	1	5	1	1	0	2015-08-10
22	7	1								0	4	3	6	2	0	0	2	0	2015-08-17
23																			2015-08-24
24	*56	*8									4	3	6	3	8	1	2	2	2015-08-31
25	7	1								0	2	4	6	0	6	1	1	1	2015-09-08
26																			2015-09-14
27																			2015-09-21
28	370	210								0	4	5	6	4	4	0	6	0	2015-09-28
29																			2015-10-05
30	15	4								0	4	5	6	3	2	1	2	1	2015-10-13
31	8	3								0	2	5	6	0	2	1	1	1	2015-10-19
32	8	1								0	4	5	6	0	1	1	1	2	2015-10-26
33																			
34	20	20		3	3														
35	15.205	2.830																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1		Friends of the Bay 2014 Water Quality Data - **Site 4, Cold Spring Harbor North**																																			
2		Date	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	Site 4	2015-04-06	5.38	5.49	4.82		25.68	25.68	26.05	8.30	8.29	8.28	11.18	11.13	11.07	3.2	4.4	5.3	1	1								0	4	3	6	1	8	1	2	1	2015-04-06
4	Site 4	2015-04-13																																			2015-04-13
5	Site 4	2015-04-20																																			2015-04-20
6	Site 4	2015-04-27	9.11	9.05	8.16		25.82	25.81	25.86	8.60	8.55	8.52	11.11	11.00	10.15	1.5	6.0	15.3	1	1								0	2	5	5	1	8	1	2	1	2015-04-27
7	Site 4	2015-05-04	11.60	11.58	7.79		25.66	25.42	23.36	8.59	8.58	8.41	12.32	11.43	10.48	not given	5.2	13.2	1	1		0.020	0.000					0	4	5	6	0	2	0	1	0	2015-05-04
8	Site 4	2015-05-11	14.81	14,34	9.85		25.53	25.59	26.26	8.53	8.52	8.56	9.72	9.97	8.75	2.3	5.1	26.0	1	1								0	2	5	6	1	6	2	2	2	2015-05-11
9	Site 4	2015-05-18																																			2015-05-18
10	Site 4	2015-05-25	15.59	15.51	11.97		25.92	25.91	26.44	8.07	8.06	8.01	8.01	7.87	7.16	1.8	5.2	23.9	1	1								0	2	N/A	N/A	1	6	2	1	2	2015-05-25
11	Site 4	2015-06-01																																			2015-06-01
12	Site 4	2015-06-08	15.83	15.83	15.54		25.93	25.93	26.17	8.08	8.05	7.95	8.08	7.91	7.14	1.4	4.8	18.4	3	1		0.000	1.000					0						1	3	2	2015-06-08
13	Site 4	2015-06-15																																			2015-06-15
14	Site 4	2015-06-22	20.36	20.33	16.79		25.83	25.83	26.44	8.22	8.22	7.77	8.94	8.51	5.21	1.6	4.9	23.9	2	78								1	2	3	6	0	8	2	1	3	2015-06-22
15	Site 4	2015-06-29																																			2015-06-29
16	Site 4	2015-07-06	22.07	21.85	19.87		25.49	25.75	26.45	8.19	8.11	7.80	8.19	6.49	4.70	1.1	4.9	24.2	10	1								0	4	5	6	3	1	1	2	2	2015-07-06
17	Site 4	2015-07-13	24.05	23.77	20.52		25.97	26.03	26.40	8.06	7.99	7.71	7.47	6.73	4.67	1.1	6.8	26.3	4	1		0.000	0.004					0	4	3	6	0	0	0	1	0	2015-07-13
18	Site 4	2015-07-20	24.29	24.02	21.61		26.05	26.11	26.37	8.07	8.01	7.57	7.17	5.80	3.30	1.6	5.0	28.3	1	1								0	2	3	6	1	8	1	1	3	2015-07-20
19	Site 4	2015-07-27	23.56	23.48	20.12		26.31	26.30	26.74	7.97	7.96	7.66	5.94	5.30	2.63	1.5	6.7	29.4	1	1								0.01	2	3	6	4	5	1	3	1	2015-07-27
20	Site 4	2015-08-03	23.95	23.95	21.54		26.32	26.39	26.86	7.90	7.88	7.60	6.08	5.96	4.49	1.2	4.8	28.0	1	1								0	2	5	6	0	5	2	1	1	2015-08-03
21	Site 4	2015-08-10	23.25	23.23	21.72		26.65	26.58	27.02	7.95	7.93	7.72	6.15	5.54	4.52	2.0	7.2	23.0	1	1								0	4	3	6	1	5	1	1	0	2015-08-10
22	Site 4	2015-08-17	24.75	24.62	23.72		26.42	26.52	26.96	8.13	8.09	7.91	7.43	6.91	5.33	1.8	5.5	35.1	1	1								0	4	3	0	1	6	0	2	0	2015-08-17
23	Site 4	2015-08-24																																			2015-08-24
24	Site 4	2015-08-31	24.55	24.49	24.16		26.63	26.89	27.33	7.94	7.91	7.88	5.35	5.27	4.84	1.2	4.8	26.4	*13	*<1									4	3	6	3	8	1	2	1	2015-08-31
25	Site 4	2015-09-08	24.97	24.48	24.14		27.14	27.34	27.47	8.07	8.00	7.87	5.91	5.24	4.54	1.4	6.6	31.1	1	1								0	2	4	6	0	6	1	1	1	2015-09-08
26	Site 4	2015-09-14																																			2015-09-14
27	Site 4	2015-09-21																																			2015-09-21
28	Site 4	2015-09-28	21.41	21.41	21.46		27.57	27.57	27.72	8.10	8.10	8.07	6.45	6.47	6.45	2.1	5.9	18.1	1	1								0	4	5	6	4	4	0	6	0	2015-09-28
29	Site 4	2015-10-05																																			2015-10-05
30	Site 4	2015-10-13	17.90	17.93	18.24		26.93	27.00	27.44	8.36	8.36	8.36	8.15	8.05	7.32	2.0	5.8	18.1	5	1								0	4	5	6	3	4	1	2	1	2015-10-13
31	Site 4	2015-10-19	15.02	15.02	15.01		27.29	27.29	26.97	8.31	8.30	8.28	8.07	7.85	8.42	1.7	5.1	43.0	1	1								0	2	5	6	0	8	1	1	1	2015-10-19
32	Site 4	2015-10-26	14.72	14.71	14.70		27.55	27.48	27.48	8.36	8.35	8.28	8.22	8.34	8.04	0.80	6.80	9.40	4	1								0	4	5	6	0	1	1	1	3	2015-10-26
33																																					
34	Site Total		20	20	20	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20		3	3														
35		*Holding Tin	**18.86**	**18.99**	**17.09**	**#DIV/0!**	**26.33**	**26.37**	**26.59**	**8.19**	**8.16**	**8.01**	**8.00**	**7.59**	**6.46**	**1.65**	**5.58**	**23.32**	1.517	1.292																	
36																																					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 5, Plum Point**																
2		Date	H20 Temp TOP (0.5m)	H20 temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 5	#########	1	4.9	4.72		25.93	25.99	26.04	8.36	8.31	8.3	11.33	11.37	11.34	3	10.0	5.2
4	Site 5	#########																
5	Site 5	#########																
6	Site 5	#########	8.92	8.80	8.47		25.80	25.80	25.92	8.55	8.55	8.53	11.30	11.15	10.86	2.0	10.5	15.3
7	Site 5	#########	10.56	10.64	10.16		25.89	25.96	26.00	8.61	8.65	8.54	11.96	11.79	11.27	2.0	10.0	12.2
8	Site 5	#########	13.58	13.38	12.92		25.89	25.88	25.93	8.48	8.42	8.45	9.05	8.97	8.75	1.8	3.5	29.0
9	Site 5	#########																
10	Site 5	#########	14.89	15.00	14.04		26.09	26.03	26.19	8.02	8.08	8.00	7.78	7.75	7.20	2.0	10.0	23.5
11	Site 5	#########																
12	Site 5	#########	16.01	16.01	16.00		7.42	7.46	7.37	7.96	7.96	7.95	7.42	7.46	7.37	1.4	9.3	18.4
13	Site 5	#########																
14	Site 5	#########	19.86	19.61	18.10		25.95	26.01	26.23	8.04	8.02	7.92	7.30	7.16	6.34	1.2	9.6	25.5
15	Site 5	#########																
16	Site 5	#########	22.04	21.45	21.00		26.11	26.10	26.14	7.94	7.93	7.90	6.38	6.20	5.66	0.9	10.0	26.9
17	Site 5	#########	23.10	23.08	21.78		26.09	26.07	26.24	8.01	7.94	7.74	7.02	6.72	5.46	1.1	10.0	26.1
18	Site 5	#########	23.82	23.11	22.68		26.60	26.37	26.27	7.89	7.85	7.83	5.72	5.47	5.21	1.1	10.0	31.0
19	Site 5	#########	23.21	22.75	22.10		26.44	26.50	26.61	7.90	7.86	7.80	5.31	5.11	4.57	1.6	6.8	34.2
20	Site 5	#########	24.01	23.96	23.11		26.47	26.39	26.58	7.85	7.84	7.79	5.62	5.55	5.33	1.3	10.0	28.4
21	Site 5	#########	23.11	23.00	21.44		26.79	26.78	27.15	7.82	7.78	7.68	5.08	4.76	4.30	1.3	10.0	28.0
22	Site 5	#########	24.81	24.57	24.20		26.78	26.77	26.83	8.00	7.99	7.94	6.45	6.37	6.08	1.6	10.0	30.3
23	Site 5	#########	24.72	24.66	23.79		26.92	26.99	27.10	7.95	7.94	7.80	5.64	5.52	4.47	1.8	9.5	29.5
24	Site 5	#########	24.69	24.69	24.60		27.13	27.13	27.13	7.94	7.94	7.91	5.18	5.20	5.08	1.5	10.0	26.8
25	Site 5	#########	24.54	24.48	24.40		27.41	27.41	27.54	7.94	7.92	7.88	4.89	4.81	4.55	1.7		33.2
26	Site 5	#########	23.46	23.47	23.50		27.30	27.30	27.30	7.87	7.85	7.79	5.04	5.08	4.89	1.7		17.5
27	Site 5	#########																
28	Site 5	#########	21.34	21.35	21.47		27.43	27.43	23.50	8.10	8.13	8.11	6.38	6.33	6.36	2.1	10.5	18.3
29	Site 5	#########	17.21	17.24	17.23		27.46	27.46	27.46	8.21	8.20	8.24	7.30	7.28	7.30	1.3	10.5	13.7
30	Site 5	#########	18.04	18.04	18.02		27.29	27.22	27.19	8.26	8.26	8.23	7.36	7.37	7.43	2.3	N/A	17.7
31	Site 5	#########	14.96	14.94	14.98		27.21	27.07	27.36	8.32	8.33	8.28	8.10	8.16	8.19	2.0	10.0	5.3
32	Site 5	#########	14.80	14.79	14.69		27.56	27.56	27.55	8.37	8.37	8.33	8.06	8.10	8.06	1.5	10+	9.4
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	21	23
35		***Holding Ti**	**18.81**	**18.87**	**18.41**	**#DIV/0!**	**25.82**	**25.81**	**25.72**	**8.10**	**8.09**	**8.04**	**7.20**	**7.12**	**6.79**	**1.66**	**9.48**	**21.97**

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	8	1	2	1	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	1	1								0	2	5	6	1	8	1	2	2	2015-04-27
7	1	1		0.010	0.000					0	4	5	6	0	6	0	1	0	2015-05-04
8	1	1								0	2	5	6	1	6	2	2	2	2015-05-11
9																			2015-05-18
10	1	1								<1	<1	N/A	N/A	1	6	2	1	2	2015-05-25
11																			2015-06-01
12	1	1		0.010	1.000					0						1	3	2	2015-06-08
13																			2015-06-15
14	15	84								0	2	3	6	0	8	1	1	2	2015-06-22
15																			2015-06-29
16	3	1								0	4	5	6	2	1	1	1	2	2015-07-06
17	1	3		0.010	0.004					0	4	5	5	0	0	0	1	0	2015-07-13
18	2	1								0	4	3	6	1	6	1	1	2	2015-07-20
19	3	1								0.01	2	3	6	4	4	1	3	1	2015-07-27
20	2	1								0	2	5	6	0	4	2	1	1	2015-08-03
21	2	1								0	1	3	6	1	5	0	1	0	2015-08-10
22	1	1																	2015-08-17
23	5	1								0	2	3	0	2	1	1	1	1	2015-08-24
24	*4	*1								0	4	3	6	2	8	1	3	2	2015-08-31
25	5	1									2	4	6	0	6	1	1	1	2015-09-08
26	3	1								0	3	0	0	3	8	4	2	3	2015-09-14
27																			2015-09-21
28	1	1								0	4	3	6	4	4	0	6	0	2015-09-28
29	5	1								0	2	3	6	4	2	1	3	2	2015-10-05
30	1	1								0	4	5	6	3	6	1	2	1	2015-10-13
31	1	1								0	2	5	6	0	1	1	1	2	2015-10-19
32	4	1								0	4	5	6	0	1	1	1	3	2015-10-26
33																			
34	23	23		3	3														
35	1.907	1.318																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 6, Seawanhaka Yacht Club PSTP outfall**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 6	#########	5.14	5.02	4.68		25.93	25.94	26.11	8.3	8.32	8.32	11.5	11.79	12.17	2.8	4.2	6.0
4	Site 6	#########																
5	Site 6	#########																
6	Site 6	#########	9.02	8.75	8.44		25.81	25.86	25.85	8.55	8.56	8.52	11.19	11.04	10.51	1.7	6	14.1
7	Site 6	**#########**	10.86	10.75	10.03		25.97	25.90	26.00	8.60	8.58	8.53	11.66	11.43	10.63	1.8	5.00	14.1
8	Site 6	#########	13.85	14.82	13.21		25.84	25.90	25.76	8.45	8.46	8.45	9.40	9.39	8.96	2.1	6.60	32.0
9	Site 6	#########																
10	Site 6	#########	15.44	15.35	14.98		26.04	26.11	26.10	8.01	8.01	7.99	7.77	7.81	7.55	1.9	7.30	22.5
11	Site 6	#########																
12	Site 6	#########	15.87	15.92	15.78		26.07	26.07	26.13	7.94	7.94	7.92	7.30	7.28	6.79	1.0	4.7	18.1
13	Site 6	#########																
14	Site 6	#########	19.74	19.57	19.18		26.02	26.01	26.00	8.02	8.01	7.96	7.47	7.46	6.90	1.4	4.6	23.1
15	Site 6	#########																
16	Site 6	#########	22.18	21.83	21.64		26.04	26.03	26.02	8.00	7.88	7.81	6.40	6.29	5.82	1.1	4.5	28.3
17	Site 6	#########	23.35	22.43	22.41		26.09	26.30	26.26	7.85	7.71	7.66	6.38	5.43	5.37	0.9	6.4	26.6
18	Site 6	#########	23.92	23.82	23.30		26.80	26.11	26.16	7.88	7.87	7.80	6.37	5.93	5.50	1.2	5.0	29.5
19	Site 6	#########	23.16	23.08	22.11		26.51	26.43	26.75	7.90	7.87	7.76	5.41	5.31	4.24	1.5	6.9	30.4
20	Site 6	#########	24.24	24.24	24.08		26.40	26.40	26.40	7.87	7.88	7.82	5.83	5.83	5.74	1.3	4.8	N/A
21	Site 6	#########	23.32	23.27	21.69		26.73	26.72	27.01	7.91	7.89	7.64	5.67	5.23	3.61	1.8	9.2	23.0
22	Site 6	#########	24.88	24.51	24.03		26.77	26.70	26.82	7.96	7.92	7.83	6.38	6.05	5.24	1.6	6.3	28.1
23	Site 6	#########	25.32	25.22	24.10		26.80	26.87	27.04	8.05	8.01	7.79	6.61	6.20	4.72	1.6	5.5	30.9
24	Site 6	#########	27.76	24.71	24.38		27.00	27.06	27.12	7.93	7.92	7.93	5.14	5.08	4.88	1.3	6.6	26.4
25	Site 6	#########	24.41	24.39	24.24		27.41	27.41	27.40	7.91	7.92	7.88	4.77	4.78	4.62	1.6	7.6	29.6
26	Site 6	#########	23.29	23.29	23.43		27.15	27.15	27.30	7.88	7.88	7.84	5.03	4.83	4.86	1.6	3.1	16.2
27	Site 6	#########																
28	Site 6	#########	21.41	21.39	21.82		27.50	27.50	27.50	8.10	8.09	8.07	6.43	6.07	6.46	2.3	4.8	18.3
29	Site 6	#########	17.34	17.33	17.34		27.47	27.54	27.54	8.20	8.22	8.17	7.26	7.30	7.29	1.4	5.7	13.5
30	Site 6	#########	17.94	17.99	18.07		27.14	27.21	27.21	8.29	8.29	8.26	7.50	7.60	7.22	2.4	3.7	18.3
31	Site 6	#########	14.92	14.91	14.91		27.35	27.35	27.35	8.31	8.29	8.29	7.92	8.31	8.31	2.5	5.1	5.1
32	Site 6	#########	14.27	14.31	14.32		27.39	27.46	27.39	8.40	8.38	8.36	8.13	8.20	8.14	N/A	9.4	10.7
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23
35			**19.20**	**19.00**	**18.62**	**#DIV/0!**	**26.62**	**26.61**	**26.66**	**8.10**	**8.08**	**8.03**	**7.28**	**7.16**	**6.76**	**1.67**	**5.78**	**21.13**
36			*Holding Time Exceeded on 8/31/15					*Bottle Received Cracked - Not Tested*										

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	2	1	2	1	#########
4																			#########
5																			#########
6	1	1								0	2	N/A	6	2	8	1	2	2	#########
7	1	1		0.000	0.002					0	4	5	6	0	6	0	1	0	**#########**
8	1	1								0	2	5	6	1	6	2	2	2	#########
9																			#########
10	2	1								0	2	N/A	N/A	1	6	2	1	2	#########
11																			#########
12	1	1		0.010	0.004					0						1	3	2	#########
13																			#########
14	5	77								0	2	3	6	0	8	1	1	2	#########
15																			#########
16	1	1								0	4	5	6	2	0	0	1	0	#########
17	1	1		0.010	0.002					0	4	3	6	0	0	0	1	0	#########
18	3	1								0	4	3	6	1	8	1	1	2	#########
19	1	1								0.01	2	3	6	4	5	1	2	0	#########
20	3	1																	#########
21	3	1								0	1	3	6	1	5	0	1	0	#########
22	1	1								0	4	3	6	2	0	0	1	0	#########
23	1	1								0	2	1	0	1	0	0	1	1	#########
24	*5	*1								0	4	3	6	2	7	1	2	2	#########
25	1	1								0	2	4	6	0	6	1	1	1	#########
26	-*	-*								0	3	0	0	3	8	2	2	2	#########
27																			#########
28	1	1								0	4	5	6	4	4	1	6	0	#########
29	3	1								0	2	3	6	4	2	1	3	3	#########
30	2	1								0	4	5	6	3	6	1	2	1	#########
31	8	1								0	2	5	6	0	1	1	1	1	#########
32	10	1								0	4	5	6	1	1	1	1	3	#########
33																			#########
34	23	23		3	3														
35	1.646	1.257																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 7, Oyster Bay Cove**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 7	2015-04-06	5.37	N/A	N/A		25.95	N/A	N/A	8.33	N/A	N/A	11.08	N/A	N/A	0.8	0.8	7.5
4	Site 7	2015-04-13																
5	Site 7	2015-04-20																
6	Site 7	2015-04-27	10.90	10.61	9.76		25.15	25.21	25.64	8.50	8.49	8.52	10.79	10.79	10.92	1.5	2.5	12.2
7	Site 7	2015-05-04	11.09	10.95	10.36		25.91	25.91	26.02	8.60	8.59	8.63	12.05	11.79	11.18	1.5	2.3	14.7
8	Site 7	2015-05-11	14.65	13.85	13.47		25.73	25.82	25.89	8.39	8.40	8.43	8.49	8.47	8.41	2.0	1.9	27.0
9	Site 7	2015-05-18																
10	Site 7	2015-05-25	16.25	N/A	N/A		25.87	N/A	N/A	7.92	N/A	N/A	7.32	N/A	N/A	1.3	1.3	23.6
11	Site 7	2015-06-01																
12	Site 7	2015-06-08	16.01	15.98	N/A		25.79	25.93	N/A	7.86	7.80	N/A	6.74	6.46	N/A	1.4	1.5	18.4
13	Site 7	2015-06-15																
14	Site 7	2015-06-22	21.49	N/A	N/A		25.17	N/A	N/A	8.12	N/A	N/A	8.22	N/A	N/A	1.3	1.2	24.0
15	Site 7	2015-06-29																
16	Site 7	2015-07-06	22.70	21.81	N/A		25.71	26.30	N/A	7.74	7.79	N/A	5.58	5.34	N/A	0.9	1.8	24.3
17	Site 7	2015-07-13	23.58	23.33	23.27		26.02	26.02	26.01	7.66	7.52	7.41	5.45	4.38	3.66	0.8	3.5	26.0
18	Site 7	2015-07-20	24.08	23.63	23.34		25.69	25.81	26.02	7.69	7.62	7.62	4.60	4.52	4.46	0.5	2.0	29.7
19	Site 7	2015-07-27	23.77	23.65	22.75		26.32	26.38	26.49	7.85	7.78	7.54	4.96	4.30	2.73	1.1	3.7	26.6
20	Site 7	2015-08-03	24.26	23.92	N/A		26.05	26.19	N/A	7.79	7.66	N/A	5.86	5.48	N/A	1.2	1.7	27.4
21	Site 7	2015-08-10	23.65	23.60	23.48		26.67	26.67	26.59	7.91	7.91	7.84	5.97	6.01	5.76	1.4	3.1	23.7
22	Site 7	2015-08-17	24.89	24.52	N/A		26.57	26.70	N/A	7.84	7.76	N/A	5.64	5.11	N/A	1.1	1.6	32.3
23	Site 7	2015-08-24	25.24	25.12	24.99		26.73	26.72	26.72	8.09	8.03	7.79	7.05	6.63	5.05	1.6	2.6	30.0
24	Site 7	2015-08-31	25.02	24.99	N/A		26.93	27.00	N/A	7.94	7.91	N/A	5.17	4.26	N/A	1.2	1.9	26.6
25	Site 7	2015-09-08	24.94	24.87	24.53		27.21	27.28	27.27	7.97	7.94	7.70	5.62	4.89	3.19	1.3	3.7	29.9
26	Site 7	2015-09-14	22.23	22.20	22.22		26.97	26.97	26.97	7.90	7.89	7.80	5.53	5.53	5.27	1.2	1.8	17.5
27	Site 7	2015-09-21																
28	Site 7	2015-09-28	20.83	20.82	20.80		27.26	27.19	27.26	8.07	8.07	7.95	6.20	6.32	5.94	1.6	2.9	18.1
29	Site 7	2015-10-05	16.71	16.97	16.99		26.87	27.16	27.24	8.12	8.13	8.12	6.80	7.12	7.21	1.4	2.1	13.0
30	Site 7	2015-10-13	17.53	17.90	17.95		26.63	26.85	27.07	8.20	8.20	8.24	8.20	7.22	7.47	2.0	2.8	18.9
31	Site 7	2015-10-19	11.51	12.74	N/A		26.14	26.60	N/A	8.27	8.26	N/A	8.49	8.50	N/A	1.3	2.1	5.6
32	Site 7	2015-10-26	13.15	13.34	13.72		26.92	27.07	27.08	8.40	8.41	8.39	8.11	8.11	7.57	0.9	4.0	11.7
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23
35			**19.12**	**19.74**	**19.12**	**#DIV/0!**	**26.27**	**26.49**	**26.59**	**8.05**	**8.01**	**8.00**	**7.13**	**6.56**	**6.34**	**1.27**	**2.30**	**21.25**
36			*Holding Time Exceeded on 8/31/15															

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	6	1	2	1	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	1	1								0	2	5	6	3	8	1	2	2	2015-04-27
7	3	1		0.010	0.000					0	4	5	6	0	8	0	1	0	2015-05-04
8	11	1								0	2	5	6	3	6	2	2	2	2015-05-11
9																			2015-05-18
10	2	1								0	2	N/A	N/A	1	6	2	1	1	2015-05-25
11																			2015-06-01
12	9	5		0.010	0.006					0	N/A	N/A	N/A	N/A	N/A	1	3	1	2015-06-08
13																			2015-06-15
14	150	130								0	2	5	6	0	8	2	1	3	2015-06-22
15																			2015-06-29
16	20	1								0	4	5	6	2	8	1	1	2	2015-07-06
17	26	2		0.010	0.001					0	4	3	6	0	0	0	1	0	2015-07-13
18	11	3								0	1	5	5	1	8	1	1	2	2015-07-20
19	8	1								0.01	2	5	6	4	4	1	4	0	2015-07-27
20	20	1								0	2	5	6	0	5	2	1	2	2015-08-03
21	39	2								0	1	3	6	1	5	1	1	0	2015-08-10
22	20	1								0	4	3	6	2	0	1	1	0	2015-08-17
23	4	1								0	2	3	0	2	1	1	1	1	2015-08-24
24	*13	*1								0	4	3	6	3	8	1	2	2	2015-08-31
25	7	1								0	2	5	6	0	6	1	1	1	2015-09-08
26	6	1								0	4	0	0	3	8	3	2	3	2015-09-14
27																			2015-09-21
28	15	1								0	4	5	6	4	0	0	6	0	2015-09-28
29	23	4								0	2	3	6	4	2	1	3	1	2015-10-05
30	19	18								0	4	5	6	1	5	1	2	1	2015-10-13
31	37	4								0	2	5	6	0	1	1	1	1	2015-10-19
32	38	10								0	4	5	6	1	1	1	1	2	2015-10-26
33																			
34	23	23		3	3														
35	11.767	2.078																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1		Friends of the Bay 2014 Water Quality Data - **Site 8, Oyster Bay STP at White's Creek**																																			
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	Site 8	2015-04-06	5.41	5.4	N/A		26.02	25.74	N/A	8.3	8.3	N/A	10.88	10.75	N/A	Not given	1.7	5.8	1	1.000								0	4	3	3	1	6	1	2	1	2015-04-06
4	Site 8	2015-04-13																																			2015-04-13
5	Site 8	2015-04-20																																			2015-04-20
6	Site 8	2015-04-27	9.39	9.39	9.23		25.69	25.76	25.73	8.53	8.52	8.49	10.95	10.76	10.46	1.2	3.5	13.3	4	1								0	2	5	6	4	8	1	3	2	2015-04-27
7	Site 8	2015-05-04	11.72	11.62	11.24		25.80	25.87	25.80	8.62	8.60	8.60	11.62	11.56	11.51	1.6	1.8	17.9	1	1		0.000	0.001					0	4	5	6	0	8	0	1	0	2015-05-04
8	Site 8	2015-05-11	13.74	13.28	N/A		25.76	25.88	N/A	8.41	8.55	N/A	8.00	7.84	N/A	1.8	1.7	27.0	1	1								0	2	5	6	4	6	2	3	2	2015-05-11
9	Site 8	2015-05-18																																			2015-05-18
10	Site 8	2015-05-25	15.19	14.87	N/A		25.96	26.02	N/A	7.91	7.90	N/A	7.18	6.88	N/A	1.6	1.6	23.2		3	<1							0	2	N/A	N/A	1	6	2	11		2015-05-25
11	Site 8	2015-06-01																																			2015-06-01
12	Site 8	2015-06-08	15.78	15.65	N/A		26.06	26.13	N/A	7.87	7.83	N/A	7.17	7.02	N/A	1.3	1.4	18.7	1	5		0.010	0.003					0	N/A	N/A	N/A	N/A	N/A	1	3	1	2015-06-08
13	Site 8	2015-06-15																																			2015-06-15
14	Site 8	2015-06-22	19.90	N/A	N/A		25.74	N/A	N/A	7.87	N/A	N/A	6.80	N/A	N/A	1.2	1.4	26.5	52	42								0	2	3	6	0	8	1	1	2	2015-06-22
15	Site 8	2015-06-29																																			2015-06-29
16	Site 8	2015-07-06	22.31	N/A	N/A		25.85	N/A	N/A	7.86	N/A	N/A	16.19	N/A	N/A	0.8	1.3	26.6	2	1								0	3	5	6	1	6	1	1	1	2015-07-06
17	Site 8	2015-07-13	23.40	24.40	23.35		26.02	25.02	25.95	7.63	7.62	7.42	5.4	5.47	5.19	0.9	2.8	24.0	1	1		0.010	0.002					0	4	3	6	0	0	0	1	0	2015-07-13
18	Site 8	2015-07-20	23.39	N/A	N/A		26.02	N/A	N/A	7.72	N/A	N/A	5.15	N/A	N/A	1.2	1.3	31.2	2	1								0	1	3	6	1	7	1	1	2	2015-07-20
19	Site 8	2015-07-27	23.28	23.24	23.02		26.30	26.37	26.43	7.71	7.70	7.67	4.38	4.30	4.31	1.2	3.0	27.4	13	4								0.01	2	5	6	4	5	1	4	1	2015-07-27
20	Site 8	2015-08-03	22.03	N/A	N/A		26.33	N/A	N/A	7.76	N/A	N/A	5.75	N/A	N/A	1.0	1.3	27.1	13	1								0	2	1	6	0	5	2	1	2	2015-08-03
21	Site 8	2015-08-10	23.53	23.46	24.92		26.59	26.66	26.78	7.87	7.83	7.72	5.80	5.27	4.92	1.6	3.9	24.8	9	1								0	1	3	6	1	6	0	1	0	2015-08-10
22	Site 8	2015-08-17	24.59	24.57	N/A		26.56	26.60	N/A	7.86	7.82	N/A	6.01	5.71	N/A	1.2	1.5	28.0	1	1								0	4	3	6	1	0	0	2	0	2015-08-17
23	Site 8	2015-08-24	25.33	25.18	24.99		26.66	26.73	26.86	7.98	7.96	7.88	6.07	6.08	5.67	1.5	2.3	36.3	9	1								0	2	3	0	1	1	1	1	1	2015-08-24
24	Site 8	2015-08-31	24.85	24.82	N/A		26.93	26.93	N/A	7.94	7.95	N/A	5.38	5.24	N/A	1.6	2.3	28.2	5	1								0	4	3	6	3	7	1	2	2	2015-08-31
25	Site 8	2015-09-08	24.40	24.36	24.50		27.12	27.19	27.27	7.85	7.84	7.83	4.53	4.45	4.40	1.5	3.1	29.2	11	1								0	2	5	6	0	6	1	1	1	2015-09-08
26	Site 8	2015-09-14	22.78	22.87	22.90		26.92	26.99	26.92	7.90	7.90	7.87	5.74	5.66	6.02	1.5	1.8	17.8	23	3								0	4	0	0	2	8	3	2	3	2015-09-14
27	Site 8	2015-09-21																																			2015-09-21
28	Site 8	2015-09-28	20.83	20.83	20.84		27.19	27.19	27.19	8.07	8.06	8.03	6.30	6.44	6.46	1.6	2.8	18.2	20	2								0	4	5	6	4	2	1	6	0	2015-09-28
29	Site 8	2015-10-05	16.46	16.36	16.72		26.51	27.01	27.09	8.15	8.15	8.82	7.25	7.21	7.17	1.7	2.1	13.0	22	2								0	2	5	6	4	2	1	3	3	2015-10-05
30	Site 8	2015-10-13	17.87	17.90	17.92		27.07	27.07	27.19	8.28	8.26	8.25	7.65	7.55	7.47	2.2	2.6	19.7	34	8								0	4	5	6	1	4	1	2	1	2015-10-13
31	Site 8	2015-10-19	12.98	13.17	13.74		26.86	27.08	26.95	8.31	8.31	8.27	8.42	8.40	8.66	1.9	2.1	58.0	12	1								0	2	5	6	0	1	1	1	1	2015-10-19
32	Site 8	2015-10-26	13.04	13.53	13.74		27.67	27.60	27.09	8.41	8.43	8.40	8.29	8.26	8.46	1.1	3.8	10.4	21	4								0	4	5	6	1	1	1	1	2	2015-10-26
33																																					
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23	22	23		3	3														
35			**18.79**	**18.15**	**19.01**	**#DIV/0!**	**26.42**	**26.52**	**26.71**	**8.04**	**8.08**	**8.10**	**7.43**	**7.10**	**6.98**	**1.42**	**2.22**	**24.01**	5.897	1.805																	
36																																					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 9, Roosevelt Beach**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 9	2015-04-06	5.47	5.48	N/A		25.82	25.82	N/A	8.31	8.38	N/A	11.35	11.28	N/A	1.3	1.3	6.2
4	Site 9	2015-04-13																
5	Site 9	2015-04-20																
6	Site 9	2015-04-27	9.53	9.43	9.31		25.63	25.69	25.69	8.52	8.51	8.50	10.79	10.65	10.51	1.40	2.4	11.5
7	Site 9	2015-05-04	10.54	10.54	10.53		25.95	26.02	26.02	8.56	8.55	8.55	11.11	10.94	10.75	1.30	2.2	22.8
8	Site 9	2015-05-11	13.26	13.21	13.15		25.88	25.81	25.81	8.41	8,43	8.41	8.93	8.83	8.56	1.6	2.0	24.0
9	Site 9	2015-05-18																
10	Site 9	2015-05-25	15.10	15.10	15.09		26.03	26.03	26.03	7.95	7.93	7.92	7.12	7.01	6.96	1.5	2.1	24.0
11	Site 9	2015-06-01																
12	Site 9	2015-06-08	16.23	16.22	N/A		26.01	26.01	N/A	7.93	7.92	N/A	7.24	7.22	N/A	1.5	1.7	18.6
13	Site 9	2015-06-15																
14	Site 9	2015-06-22	19.94	19.98	19.87		25.89	25.89	25.88	7.91	7.91	7.84	6.61	6.57	6.33	1.1	2.0	24.7
15	Site 9	2015-06-29																
16	Site 9	2015-07-06	22.28	N/A	N/A		25.91	N/A	N/A	7.84	N/A	N/A	6.09	N/A	N/A	1.0	1.2	26.4
17	Site 9	2015-07-13	23.44	23.42	23.38		26.02	26.09	26.09	7.74	7.73	7.68	5.58	5.58	5.60	0.8	3.5	25.2
18	Site 9	2015-07-20	24.50	24.06	N/A		25.93	25.98	N/A	7.95	7.86	N/A	6.33	6.15	N/A	1.5	1.6	30.3
19	Site 9	2015-07-27	24.51	24.32	22.95		25.99	26.27	26.43	7.90	7.86	7.71	5.61	5.29	4.22	1.1	3.1	26.4
20	Site 9	2015-08-03	24.14	24.13	N/A		26.33	26.33	N/A	7.78	7.73	N/A	5.58	5.67	N/A	1.3	1.6	30.1
21	Site 9	2015-08-10	23.89	23.48	22.89		26.61	26.66	26.72	7.84	7.78	7.61	5.39	5.24	5.15	1.7	3.5	25.3
22	Site 9	2015-08-17	24.57	24.57	N/A		26.56	26.63	N/A	7.78	7.74	N/A	5.54	5.58	N/A	1.2	1.7	28.2
23	Site 9	2015-08-24	25.31	25.19	25.12		26.67	26.72	26.72	8.04	7.97	7.87	6.61	6.19	5.64	1.3	2.8	29.8
24	Site 9	2015-08-31	24.90	24.90	N/A		26.93	27.00	N/A	7.92	7.93	N/A	5.28	5.39	N/A	1.2	2.1	27.7
25	Site 9	2015-09-08	24.74	24.55	24.41		27.14	27.13	27.20	7.91	7.88	7.82	54.16	5.06	4.86	1.3	2.2	29.1
26	Site 9	2015-09-14	23.33	23.30	23.33		27.01	27.08	27.01	7.88	7.87	7.86	5.22	5.24	5.38	1.6	1.9	17.1
27	Site 9	2015-09-21																
28	Site 9	2015-09-28	21.17	21.17	21.17		27.35	27.28	27.21	8.08	8.08	8.06	6.36	6.31	6.29	1.5	3.0	18.2
29	Site 9	2015-10-05	16.06	16.00	16.13		26.70	26.77	26.85	8.17	8.15	8.11	7.52	7.54	7.58	1.4	3.2	12.1
30	Site 9	2015-10-13	17.93	17.93	17.99		27.07	27.14	27.14	8.26	8.37	8.26	7.10	7.06	6.97	2.1	2.6	20.8
31	Site 9	2015-10-19	13.83	13.84	13.86		26.81	26.95	26.88	8.32	8.30	8.26	8.33	8.47	8.73	1.8	2.3	6.0
32	Site 9	2015-10-26	13.74	13.88	14.27		27.16	27.16	27.32	8.45	N/A	8.38	8.41	8.40	8.35	1.2	3.9	10.1
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23
35			**19.06**	**18.85**	**18.34**	**#DIV/0!**	**26.41**	**26.48**	**26.56**	**8.06**	**8.02**	**8.05**	**9.23**	**7.08**	**6.99**	**1.38**	**2.34**	**21.50**
36																		

	T	U	V	W	X	Y	Z	AA	A	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	2	1	2	1	#########
4																			#########
5																			#########
6	1	1								0	2	1	6	4	8	1	3	2	#########
7	2	1		0.000	0.001					0	4	5	6	0	7	0	1	0	**#########**
8	1	2								0	2	5	6	4	6	2	3	2	#########
9																			#########
10	2	1								0	2	N/A	N/A	0	6	1	1	1	#########
11																			#########
12	1	2		0.020	0.005					0						1	4	1	#########
13																			#########
14	22	51								0	2	3	6	0	8	1	1	2	#########
15																			#########
16	1	1								0	3	5	6	1	8	1	1	1	#########
17	9	2		0.020	0.005					0	4	3	6	0	0	0	1	0	#########
18	1	1								0	1	3	6	1	8	1	1	2	#########
19	3	1								0.01	2	5	6	4	6	2	4	1	#########
20	1	2								0	4	5	6	1	5	2	1	2	#########
21	2	1								0	1	3	6	0	6	0	1	0	#########
22	6	1								0	4	3	6	2	8	0	1	1	#########
23	9	1								0	2	3	0	1	1	1	1	1	#########
24	4	2								0	4	3	6	4	6	1	2	2	#########
25	22	1								0	2	5	6	0	6	2	1	1	#########
26	13	1								0	4	0	0	1	8	3	2	3	#########
27																			#########
28	5	1								0	4	5	6	4	3	1	6	0	#########
29	17	2								0	2	3	6	4	2	1	3	2	#########
30	3	1								0	4	5	6	1	6	1	2	2	#########
31	2	1								0	2	5	6	0	8	1	1	1	#########
32	5	1								0	1	5	6	1	1	1	1	3	#########
33																			
34	23	23		3	3														
35	3.405	1.470																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 10, Beekman Beach**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 10	2015-04-06	5.93	5.85	5.62		25.7	25.7	25.76	8.29	8.28	8.27	10.93	10.85	10.61	3	4.4	9.0
4	Site 10	2015-04-13																
5	Site 10	2015-04-20																
6	Site 10	2015-04-27	9.67	9.66	9.25		25.57	25.64	25.82	8.52	8.53	8.46	10.68	10.59	10.29	1.5	5.90	11.1
7	Site 10	2015-05-04	13.73	13.53	11.15		25.63	25.55	25.85	8.62	8.59	8.36	10.06	10.24	9.30	1.80	5.40	22.0
8	Site 10	2015-05-11	13.64	13.56	13.07		25.90	25.82	25.94	8.39	8.39	0.22	8.71	8.56	8.29	1.8	4.5	22.5
9	Site 10	2015-05-18																
10	Site 10	2015-05-25	15.39	15.04	14.80		25.90	25.96	26.02	7.91	7.92	7.87	6.99	6.85	6.46	1.8	4.20	23.0
11	Site 10	2015-06-01																
12	Site 10	2015-06-08	16.22	16.22	16.09		26.01	25.94	26.01	7.90	7.90	7.79	7.03	6.98	6.57	1.2	4.00	18.4
13	Site 10	2015-06-15																
14	Site 10	2015-06-22	20.59	20.53	19.61		25.70	25.77	25.99	7.99	7.94	7.81	7.18	6.64	5.57	1.1	3.9	24.7
15	Site 10	2015-06-29																
16	Site 10	2015-07-06	22.06	22.15	21.90		25.83	25.89	25.89	7.86	7.88	7.80	6.05	6.15	5.61	0.9	3.4	24.8
17	Site 10	2015-07-13	21.46	23.80	23.37		25.98	26.03	26.02	7.85	7.73	7.66	6.45	5.59	5.15	0.9	6.00	24.2
18	Site 10	2015-07-20	24.73	24.21	23.30		25.93	25.92	26.09	7.98	7.88	7.72	6.60	5.60	4.93	1.5	4.0	28.2
19	Site 10	2015-07-27	24.39	23.84	22.91		26.13	26.25	26.14	7.81	7.75	7.65	5.40	4.40	4.06	1.2	5.7	24.0
20	Site 10	2015-08-03	24.77	24.71	24.35		26.21	26.35	26.27	7.91	7.86	7.80	6.10	5.96	5.74	1.3	4.0	32.2
21	Site 10	2015-08-10	23.87	23.82	23.15		26.40	26.67	26.74	7.85	7.84	7.73	5.48	5.40	5.08	1.4	5.9	24.4
22	Site 10	2015-08-17	25.17	25.09	24.75		26.44	26.44	26.50	8.00	7.94	7.76	6.84	6.55	5.97	1.4	3.9	27.3
23	Site 10	2015-08-24	25.30	25.07	24.82		26.73	26.79	26.85	7.91	7.85	7.78	5.60	5.22	5.02	1.4	5.0	27.0
24	Site 10	2015-08-31	25.14	24.99	24.90		26.51	26.86	26.93	8.02	7.95	7.88	5.84	5.16	4.33	1.2	5.5	27.3
25	Site 10	2015-09-08	24.73	24.83	24.41		27.14	27.20	27.19	7.84	7.85	7.76	4.81	4.83	4.76	1.1	6.1	26.9
26	Site 10	2015-09-14	23.57	23.69	23.45		26.81	27.02	27.02	7.85	7.83	7.80	5.11	5.15	5.18	1.6	4.5	19.2
27	Site 10	2015-09-21																
28	Site 10	2015-09-28	21.02	21.07	21.06		26.91	27.13	27.13	8.12	8.13	8.07	6.51	6.35	6.37	1.6	4.6	18.9
29	Site 10	2015-10-05	14.48	15.54	15.51		24.48	26.61	21.76	8.21	8.11	8.16	7.64	7.37	7.59	1.1	4.4	12.4
30	Site 10	2015-10-13	17.84	17.72	17.82		26.92	26.99	26.77	8.33	8.33	8.09	7.77	7.68	5.99	1.7	5.90	21.1
31	Site 10	2015-10-19	13.82	14.04	13.71		26.81	27.03	26.81	8.31	8.31	8.26	8.06	8.31	8.34	1.7	4.2	57.0
32	Site 10	2015-10-26	13.12	13.20	13.81		26.37	26.94	27.09	8.37	8.39	8.39	8.38	8.39	8.30	0.9	5.7	10.2
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23
35			**19.16**	**19.22**	**18.82**	**#DIV/0!**	**26.17**	**26.37**	**26.20**	**8.08**	**8.05**	**7.61**	**7.14**	**6.91**	**6.50**	**1.44**	**4.83**	**23.30**
36																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	11	1								0	4	3	6	1	8	1	2	1	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	21	3								0	2	1	6	4	8	1	3	2	2015-04-27
7	5	1		0.000	0.003					0	4	5	5	0	8	0	1	0	2015-05-04
8	9	4								0	2	5	6	4	6	1	3	2	2015-05-11
9																			2015-05-18
10	3	3								0	2	N/A	N/A	1	6	1	1	1	2015-05-25
11																			2015-06-01
12	3	4		0.020	0.005					0						1	3	1	2015-06-08
13																			2015-06-15
14	44	10								0	2	3	6	0	8	1	1	2	2015-06-22
15																			2015-06-29
16	28	6								0	3	5	6	1	8	1	1	2	2015-07-06
17	9	1		0.020	0.003					0	4	3	5	0	8	1	1	0	2015-07-13
18	1	1								0	1	3	6	1	8	1	1	1	2015-07-20
19	11	6								0.01	2	5	6	4	4	2	4	1	2015-07-27
20	34	2								0	4	5	6	2	5	2	2	2	2015-08-03
21	27	10								0	1	3	6	0	6	0	1	0	2015-08-10
22	100	2								0	4	3	6	1	0	0	1	0	2015-08-17
23	59	13								0	2	3	0	1	1	1	1	1	2015-08-24
24	860	20								0	4	3	6	4	0	1	2	0	2015-08-31
25	64	10								0	1	4	6	0	6	1	1	2	2015-09-08
26	57	1								0	4	0	0	2	8	3	2	2	2015-09-14
27																			2015-09-21
28	240	14								0	4	5	6	4	1	1	6	0	2015-09-28
29	110	52								0	2	3	6	4	2	1	3	1	2015-10-05
30	7	1								0	4	5	6	2	6	1	2	2	2015-10-13
31	7	4								0	2	5	6	0	2	1	1	1	2015-10-19
32	27	6								0	1	5	6	1	1	1	1	2	2015-10-26
33																			
34	23	23		3	3														
35	22.407	4.250																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - Site 11, West Harbor																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 11	2015-04-06	6.46	6.08	6.08		25.5	25.78	25.56	8.29	8.30	8.29	10.91	10.88	10.59	3.3	4.6	6.1
4	Site 11	2015-04-13																
5	Site 11	2015-04-20																
6	Site 11	2015-04-27	9.43	9.43	9.32		25.69	25.69	25.76	8.55	8.52	8.51	10.71	10.61	9.49	1.3	3.6	10.8
7	Site 11	2015-05-04	13.84	13.43	11.20		25.62	25.66	25.92	8.63	8.62	8.59	11.38	11.23	10.84	1.7	3.3	17.0
8	Site 11	2015-05-11	17.84	17.47	N/A		25.52	25.66	N/A	8.36	8.35	N/A	6.85	6.64	N/A	1.8	1.9	28.5
9	Site 11	2015-05-18																
10	Site 11	2015-05-25	16.40	16.36	15.52		26.02	25.88	25.98	7.94	7.95	7.92	7.57	7.49	7.06	1.8	5.1	21.0
11	Site 11	2015-06-01																
12	Site 11	2015-06-08	17.29	17.28	16.56		25.78	25.85	25.75	7.94	7.91	7.86	7.22	6.94	6.98	1.0	2.8	18.2
13	Site 11	2015-06-15																
14	Site 11	2015-06-22	21.11	21.04	19.86		25.65	25.65	25.89	7.96	7.95	7.91	7.13	6.97	6.45	1.3	2.6	24.3
15	Site 11	2015-06-29																
16	Site 11	2015-07-06	23.30	23.16	22.76		16.63	16.60	16.56	7.90	7.90	7.86	6.60	6.54	4.57	1.0	2.1	23.4
17	Site 11	2015-07-13	23.99	23.75	23.35		25.96	26.10	26.09	7.88	7.84	7.71	6.50	6.25	5.56	1.3	4.3	24.2
18	Site 11	2015-07-20	25.45	25.41	24.11		25.81	25.81	25.10	8.01	7.95	7.88	6.44	6.05	4.89	1.3	2.2	28.8
19	Site 11	2015-07-27	25.14	25.13	22.93		26.08	26.08	26.36	7.83	7.81	7.71	5.19	5.00	3.90	1.1	4.3	24.3
20	Site 11	2015-08-03	25.14	25.10	25.09		26.15	26.15	26.15	7.91	7.88	7.79	6.26	6.19	6.04	1.0	2.1	30.2
21	Site 11	2015-08-10	24.95	24.87	23.42		26.57	26.57	26.73	8.01	8.00	7.83	6.78	6.51	5.54	1.4	4.2	25.1
22	Site 11	2015-08-17	25.50	25.39	25.11		26.38	26.45	26.51	7.84	7.83	7.72	5.87	5.80	5.14	1.1	2.3	26.6
23	Site 11	2015-08-24	25.72	25.60	25.07		26.60	26.60	26.79	8.12	8.03	7.85	6.89	6.30	5.35	1.1	3.5	26.5
24	Site 11	2015-08-31	25.08	25.06	25.02		26.86	26.86	26.86	7.94	7.93	7.93	5.53	5.36	4.27	1.3	3.5	26.7
25	Site 11	2015-09-08	24.74	24.76	24.50		27.21	27.21	27.34	7.93	7.90	7.81	5.20	5.13	4.74	1.0	4.3	26.7
26	Site 11	2015-09-14	23.16	23.16	23.16		26.79	26.79	26.72	7.94	7.93	7.90	5.72	5.77	5.44	1.2	3.2	18.6
27	Site 11	2015-09-21																
28	Site 11	2015-09-28	21.14	21.14	21.12		27.35	27.21	27.21	8.11	8.09	8.08	6.43	6.43	6.27	1.7	4.2	18.7
29	Site 11	2015-10-05	15.76	15.77	15.77		27.11	27.04	26.97	8.21	8.19	8.18	7.65	7.66	7.65	1.0	3.7	11.5
30	Site 11	2015-10-13	17.87	17.83	17.81		26.93	26.92	26.92	8.33	7.84	7.62	7.90	7.86	7.68	2.1	3.8	22.1
31	Site 11	2015-10-19	13.96	13.96	13.96		27.03	27.03	26.96	8.37	8.33	8.29	8.50	8.61	8.64	1.6	2.5	6.3
32	Site 11	2015-10-26	14.14	14.13	14.12		27.18	27.17	27.17	8.43	8.43	8.41	8.44	8.43	8.42	1.40	4.80	10.00
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23
35			**19.89**	**19.80**	**19.36**	**#DIV/0!**	**25.93**	**25.95**	**25.97**	**8.11**	**8.06**	**7.98**	**7.29**	**7.16**	**6.61**	**1.43**	**3.43**	**20.68**
36																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	2	1	2	2	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	1	1								0	2	1	6	4	8	1	3	2	2015-04-27
7	1	1		0.010	0.000					0	4	5	6	0	2	0	1	0	2015-05-04
8	1	1								0	3	5	6	2	6	2	2	3	2015-05-11
9																			2015-05-18
10	1	1								0	2	N/A	N/A	1	6	2	1	2	2015-05-25
11																			2015-06-01
12	1	1		0.030	0.003					0	N/A	N/A	N/A	N/A	N/A	1	3	2	2015-06-08
13																			2015-06-15
14	10	520								0	2	3	6	0	8	1	1	2	2015-06-22
15																			2015-06-29
16	7	1								0	3	5	6	0	0	0	1	0	2015-07-06
17	1	1		0.020	0.004					0	1	3	0	0	8	1	1	1	2015-07-13
18	3	1								0	2	3	6	1	7	1	1	2	2015-07-20
19	11	1								0.01	2	3	6	4	5	2	4	0	2015-07-27
20	3	1								0	4	5	6	2	6	2	2	2	2015-08-03
21	5	1								0	1	3	1	0	8	0	1	0	2015-08-10
22	6	1								0	4	3	6	2	0	0	1	0	2015-08-17
23	1	1								0	2	1/3	0	2	1	1	1	1	2015-08-24
24	2	1								0	4	3	6	3	6	1	2	2	2015-08-31
25	1	1								0	1	5	6	0	6	1	1	1	2015-09-08
26	15	2								0	4	0	0	1	8	3	2	3	2015-09-14
27																			2015-09-21
28	2	1								0	4	5	6	4	2	1	6	0	2015-09-28
29	8	1								0	2	5	6	4	2	1	3	2	2015-10-05
30	4	1								0	4	5	6	2	6	1	2	2	2015-10-13
31	3	1								0	2	5	6	0	2	1	1	1	2015-10-19
32	5	1								0	1	5	6	1	1	1	1	4	2015-10-26
33																			
34	23	23		3	3														
35	2.706	1.392																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - **Site 12, Turtle Cove**																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1 m	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 12	2015-04-06	6.97	N/A	N/A		25.56	N/A	N/A	8.23	N/A	N/A	10.43	N/A	N/A	Not given	1.7	6.2
4	Site 12	2015-04-13																
5	Site 12	2015-04-20																
6	Site 12	2015-04-27	9.83	9.80	9.71		25.71	25.71	25.71	8.56	8.53	8.49	10.75	10.56	10.41	1.0	3.6	10.4
7	Site 12	2015-05-04	14.51	14.38	12.40		25.66	25.65	25.75	8.48	8.50	8.49	9.23	9.21	9.08	1.7	2.6	15.3
8	Site 12	2015-05-11	18.43	18.40	18.26		25.62	25.61	25.61	8.05	8.07	8.08	5.41	8.07	6.32	1.3	2.2	23.5
9	Site 12	2015-05-18																
10	Site 12	2015-05-25	18.63	18.63	18.48		25.83	25.83	25.83	7.83	7.81	7.79	6.75	6.77	6.72	1.0	2.7	20.7
11	Site 12	2015-06-01																
12	Site 12	2015-06-08	17.80	17.80	17.80		25.87	25.87	25.87	7.83	7.82	7.75	6.65	6.61	6.70	0.8	2.0	18.4
13	Site 12	2015-06-15																
14	Site 12	2015-06-22	21.64	21.58	21.58		25.67	25.60	25.67	7.88	7.90	7.87	6.87	6.95	6.84	1.3	1.9	24.0
15	Site 12	2015-06-29																
16	Site 12	2015-07-06	23.40	23.35	N/A		25.81	25.88	N/A	7.70	7.60	N/A	5.05	2.14	N/A	0.8	1.5	27.2
17	Site 12	2015-07-13	25.36	25.26	25.06		26.02	25.95	26.01	7.91	7.90	7.79	6.64	6.54	6.11	0.9	3.5	25.7
18	Site 12	2015-07-20	26.61	26.23	N/A		25.78	25.74	N/A	7.99	7.86	N/A	6.25	5.35	N/A	1.2	1.5	29.8
19	Site 12	2015-07-27	25.36	25.36	25.15		26.09	26.09	26.09	7.76	7.76	7.67	5.00	4.90	4.33	1.0	3.3	25.3
20	Site 12	2015-08-03	25.63	25.62	N/A		26.24	26.24	N/A	7.97	5.67	N/A	7.97	5.67	N/A	1.0	1.6	31.2
21	Site 12	2015-08-10	25.27	25.12	24.93		26.59	26.51	26.57	7.83	7.74	7.66	5.27	4.84	4.82	1.2	3.4	22.9
22	Site 12	2015-08-17	25.83	25.59	N/A		26.47	26.46	N/A	7.74	7.74	N/A	4.96	4.64	N/A	1.2	1.5	27.3
23	Site 12	2015-08-24	25.94	25.86	25.71		26.68	26.68	26.67	7.77	7.58	7.67	4.59	2.80	3.87	0.9	2.7	26.4
24	Site 12	2015-08-31	25.51	25.45	25.42		26.81	26.81	26.81	7.98	7.98	7.95	5.64	5.56	5.20	0.8	2.8	26.8
25	Site 12	2015-09-08	25.64	25.65	25.45		27.03	27.03	27.02	7.92	7.91	7.86	5.11	5.24	5.23	0.9	3.1	29.0
26	Site 12	2015-09-14	21.79	21.76	21.75		26.74	26.67	26.73	8.04	8.03	8.01	6.41	6.43	6.54	0.8	2.3	18.0
27	Site 12	2015-09-21																
28	Site 12	2015-09-28	20.46	20.44	20.23		26.04	26.96	27.02	8.24	8.23	8.13	7.01	6.90	6.33	1.0		18.8
29	Site 12	2015-10-05	15.72	15.73	15.72		27.04	27.04	27.04	8.15	8.13	8.12	7.35	7.39	7.37	1.0	3.0	11.0
30	Site 12	2015-10-13	17.43	17.42	17.41		26.70	26.63	26.62	8.45	8.47	8.42	8.56	8.51	8.08	1.4	3.5	20.6
31	Site 12	2015-10-19	12.25	12.11	N/A		27.08	26.93	N/A	8.38	8.36	N/A	8.55	8.60	N/A	1.4	1.8	8.2
32	Site 12	2015-10-26	13.04	13.05	13.12		26.91	26.91	26.91	8.49	8.50	8.45	8.52	8.57	8.53	1.00	4.10	11.10
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	22	23
35			**20.13**	**20.66**	**19.89**	**#DIV/0!**	**26.26**	**26.31**	**26.35**	**8.05**	**7.91**	**8.01**	**6.91**	**6.47**	**6.62**	**1.07**	**2.56**	**20.77**
36																		

	T	U	V	W	X	Y	Z	AA	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																		
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	3	1							0	4	3	6	1	2	0	2	1	2015-04-06
4																		2015-04-13
5																		2015-04-20
6	1	1							0	2	1	6	4	8	1	3	1	2015-04-27
7	1	1		0.000	0.002				0	4	5	5	0	8	0	1	0	2015-05-04
8	1	5							0	2	5	6	4	6	2	3	2	2015-05-11
9																		2015-05-18
10	2	1							0	2	N/A	N/A	1	6	2	1	2	2015-05-25
11																		2015-06-01
12	5	5		0.030	0.003				0						1	3	1	2015-06-08
13																		2015-06-15
14	9	1							0	2	3	6	0	8	1	1	1	2015-06-22
15																		2015-06-29
16	24	32							0	3	5	6	0	0	0	1	0	2015-07-06
17	1	1		0.010	0.000				0	1	3	6	0	2	1	1	1	2015-07-13
18	4	1							0	2	3	6	1	7	1	1	2	2015-07-20
19	4	1							0.01	1	5	6	4	5	1	4	0	2015-07-27
20	2	1							0	4	5	6	2	5	2	2	2	2015-08-03
21	1	1							0	1	3	1	0	1	0	1	0	2015-08-10
22	2	1							0	3	3	6	1	0	0	2	0	2015-08-17
23	3	1							0	2	3	0	3	0	0	1	0	2015-08-24
24	6	1							0	4	3	6	3	6	1	2	2	2015-08-31
25	2	1							0	1	5	6	0	6	1	1	1	2015-09-08
26	5	5							0	4	0	0	2	8	3	2	3	2015-09-14
27																		2015-09-21
28	6	1							0	4	5	6	4	2	1	3	0	2015-09-28
29	7	1							1	2	5	6	4	2	0	3	1	2015-10-05
30	2	1							0	4	5	6	1	6	1	2	1	2015-10-13
31	1	1							0	2	5	6	0	1	1	1	0	2015-10-19
32	3	1							0	1	5	6	1	1	1	1	3	2015-10-26
33																		
34	23	23		3	3													
35	2.779	1.484																
36																		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U
1		Friends of the Bay 2014 Water Quality Data - **Site 13, Mill Neck Creek East**																		
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci
3	Site 13	2015-04-06	6.53	6.42	6.40		25.46	25,53	25.60	8.31	8.30	8.29	10.94	10.85	10.69	2.0	2.1	4.9	2	1
4	Site 13	2015-04-13																		
5	Site 13	2015-04-20																		
6	Site 13	2015-04-27	9.70	9.66	9.63		25.50	25.57	25.50	8.49	8.49	8.47	11.07	10.34	9.83	1.0	2.0	10.2	N/A	N/A
7	Site 13	2015-05-04	13.50	N/A	N/A		25.48	N/A	N/A	8.58	N/A	N/A	10.22	N/A	N/A	1.5	1.2	15.3	6	1
8	Site 13	2015-05-11	16.84	N/A	N/A		25.34	N/A	N/A	8.24	N/A	N/A	7.53	N/A	N/A	0.9	0.9	26.0	1	3
9	Site 13	2015-05-18																		
10	Site 13	2015-05-25	17.61	17.24	N/A		25.58	25.71	N/A	7.82	7.81	N/A	7.05	6.99	N/A	1.2	1.6	20.6	3	8
11	Site 13	2015-06-01																		
12	Site 13	2015-06-08	17.73	17.74	17.75		25.31	25.17	25.24	7.76	7.75	7.74	6.47	6.48	6.49	0.7	2.2	17.9	59	23
13	Site 13	2015-06-15																		
14	Site 13	2015-06-22	21.17	21.11	21.13		24.61	25.37	24.46	7.75	7.74	7.71	5.95	5.89	5.75	1.2	2.2	24.0	210	180
15	Site 13	2015-06-29																		
16	Site 13	2015-07-06	22.85	22.84	22.81		25.01	25.08	26.51	7.42	7.39	7.39	4.57	4.86	4.91	0.9	2.0	22.9	110	21
17	Site 13	2015-07-13	24.72	**25.55**	24.48		25.60	25.85	25.85	7.83	7.82	7.76	6.26	6.19	5.84	0.7	3.2	24.3	9	1
18	Site 13	2015-07-20	25.67	25.66	N/A		25.11	25.11	N/A	7.50	7.45	N/A	4.49	4.49	N/A	0.4	1.9	29.4	16	33
19	Site 13	2015-07-27	25.25	25.24	25.22		26.02	26.02	26.02	7.75	7.70	7.62	4.99	4.74	4.03	1.1	2.2	26.1	5	2
20	Site 13	2015-08-03	25.48	25.52	25.23		25.60	25.80	25.80	7.63	7.61	7.58	5.04	4.91	4.79	0.7	2.2	29.4	39	4
21	Site 13	2015-08-10	25.13	24.91	24.85		26.37	26.36	26.43	7.87	7.88	7.81	5.98	5.88	5.80	1.2	3.3	24.3	12	1
22	Site 13	2015-08-17	25.67	25.75	N/A		25.53	25.42	N/A	7.28	7.00	N/A	3.38	3.65	N/A	0.7	2.2	24.4	10	1
23	Site 13	2015-08-24	25.95	25.91	25.85		26.40	26.47	26.47	7.85	7.85	7.82	5.37	5.75	5.45	1.0	2.5	30.2	10	3
24	Site 13	2015-08-31	25.21	25.17	25.17		26.73	26.73	26.73	7.87	7.86	7.87	4.87	4.32	2.99	1.0	3.5		12	10
25	Site 13	2015-09-08	25.13	25.14	N/A		26.94	26.94	N/A	7.68	7.61	N/A	4.78	4.75	N/A	1.0	1.6	23.7	12	20
26	Site 13	2015-09-14	23.00	22.99	23.04		26.71	26.71	26.79	7.88	7.87	7.84	5.59	5.70	5.85	1.2	3.0	18.3	26	4
27	Site 13	2015-09-21																		
28	Site 13	2015-09-28	20.65	20.64	20.62		26.90	26.82	26.83	8.15	8.12	8.11	6.29	6.28	6.18	1.2	2.9	18.8	26	1
29	Site 13	2015-10-05	15.10	15.21	15.52		25.95	26.24	26.25	7.42	8.07	8.03	8.08	7.37	7.42	1.2	2.9	9.7	41	8
30	Site 13	2015-10-13	17.71	17.70	N/A		26.64	26.64	N/A	8.28	8.23	N/A	7.63	7.34	N/A	1.7	2.1	21.3	14	2
31	Site 13	2015-10-19	10.38	11.14	11.74		24.57	26.06	26.29	8.19	8.17	8.16	8.23	8.04	8.05	0.9	2.3	68.0	31	8
32	Site 13	2015-10-26	13.44	13.43	13.47		26.93	26.86	26.86	8.44	8.43	8.42	8.41	8.40	8.43	1.1	11.4	11.4	34	2
33																				
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	22	23	23
35			**19.76**	**20.24**	**19.56**	**#DIV/0!**	**25.84**	**26.05**	**26.10**	**7.91**	**7.86**	**7.91**	**6.66**	**6.34**	**6.41**	**1.07**	**2.67**	**22.78**	16.136	5.145

	A	B	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2		Date	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	Site 13	2015-04-06								0	4	3	6	1	2	1	2	2	#########
4	Site 13	2015-04-13																	#########
5	Site 13	2015-04-20																	#########
6	Site 13	2015-04-27								0	2	1	6	4	7	1	3	1	#########
7	Site 13	2015-05-04		0.000	0.003					0	4	5	5	0	3	0	1	0	**#########**
8	Site 13	2015-05-11								0	2	5	6	4	6	1	3	1	#########
9	Site 13	2015-05-18																	#########
10	Site 13	2015-05-25								0	2	1	N/A	1	8	1	1	0	#########
11	Site 13	2015-06-01																	#########
12	Site 13	2015-06-08		0.010	,004					0						1	3	1	#########
13	Site 13	2015-06-15																	#########
14	Site 13	2015-06-22								0	2	3	6	0	8	2	1	2	#########
15	Site 13	2015-06-29																	#########
16	Site 13	2015-07-06								0	2	4	6	0	0	0	1	0	#########
17	Site 13	2015-07-13		0.020	0.005					0	1	3	6	0	3	1	1	2	#########
18	Site 13	2015-07-20								0	2	5	6	1	7	1	1	1	#########
19	Site 13	2015-07-27								0	1	3	6	4	4	0	4	0	#########
20	Site 13	2015-08-03								0	4	5	6	1	6	2	2	2	#########
21	Site 13	2015-08-10								0	2	3	1	1	3	0	1	0	#########
22	Site 13	2015-08-17								0	3	3	5	1	0	0	2	0	#########
23	Site 13	2015-08-24								0	1	3	0	1	0	0	1	0	#########
24	Site 13	2015-08-31								0	4	3	6	3	7	1	2	2	#########
25	Site 13	2015-09-08								0	4	5	6	0	6	1	1	0	#########
26	Site 13	2015-09-14								0	4	0	0	2	8	4	2	3	#########
27	Site 13	2015-09-21																	#########
28	Site 13	2015-09-28								0	4	5	6	4	3	1	3	0	#########
29	Site 13	2015-10-05								1	2	5	6	4	2	1	3	1	#########
30	Site 13	2015-10-13								0	4	5	6	2	6	1	2	2	#########
31	Site 13	2015-10-19								0	3	5	6	0	8	1	1	0	#########
32	Site 13	2015-10-26								0	1	5	6	1	1	1	1	2	#########
33																			
34	Site Total			3	3														
35																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1		Friends of the Bay 2014 Water Quality Data - **Site 14, Mill Neck Creek West**																																			
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	Site 14	2015-04-06	6.88	N/A	N/A		25.01	N/A	N/A	8.28	N/A	N/A	11.34	N/A	N/A	not given	0.8	5.5	5	1								0	4	3	6	1	2	1	2	3	2015-04-06
4	Site 14	2015-04-13																																			2015-04-13
5	Site 14	2015-04-20																																			2015-04-20
6	Site 14	2015-04-27	10.08	9.83	9.66		25.18	25.44	25.50	8.49	8.49	8.44	10.67	10.59	10.10	1.0	2.0	10.2	2	1								0	2	1	6	4	8	1	3	2	2015-04-27
7	Site 14	2015-05-04	13.46	13.43	13.34		25.47	25.54	25.61	8.62	8.64	8.58	10.90	10.50	10.03	1.3	2.5	16.1	3	1		0.000	0.003					0	4	5	5	0	3	0	1	0	2015-05-04
8	Site 14	2015-05-11	17.71	17.67	N/A		24.54	24.61	N/A	8.17	8.18	N/A	7.17	7.03	N/A	1.5	1.7	25.0	7	1								0	2	5	6	4	6	1	2	1	2015-05-11
9	Site 14	2015-05-18																																			2015-05-18
10	Site 14	2015-05-25	18.30	17.34	17.31		24.84	24.84	25.71	7.79	7.78	7.72	6.89	6.98	6.73	1.3	2.6	20.3	5	4								0	2	1	N/A	1	8	1	1	0	2015-05-25
11	Site 14	2015-06-01																																			2015-06-01
12	Site 14	2015-06-08	17.58	17.60	17.48		25.16	25.16	25.23	7.79	7.79	7.76	6.77	6.82	6.72	1.0	2.0	17.8	48	22		0.020	0.004					0						1	3	1	2015-06-08
13	Site 14	2015-06-15																																			2015-06-15
14	Site 14	2015-06-22	22.10	22.16	21.61		24.63	24.71	24.76	7.64	7.64	7.63	5.73	5.73	5.74	1.2	2.1	23.6	230	130								0	2	3	6	0	8	1	1	2	2015-06-22
15	Site 14	2015-06-29																																			2015-06-29
16	Site 14	2015-07-06	22.89	N/A	N/A		24.87	N/A	N/A	7.20	N/A	N/A	5.00	N/A	N/A	0.4	1.2	23.4	250	55								0	2	4	6	0	0	0	1	0	2015-07-06
17	Site 14	2015-07-13	25.34	24.97	24.48		25.73	25.79	25.85	7.86	7.86	7.79	6.59	6.51	5.96	0.8	3.3	26.8	20	1		0.000	0.000					0	1	3	6	0	3	1	1	2	2015-07-13
18	Site 14	2015-07-20	25.74	N/A	N/A		25.04	N/A	N/A	7.53	N/A	N/A	3.46	N/A	N/A	0.5	1.5	29.9	32	25								0	2	5	6	1	7	1	1	1	2015-07-20
19	Site 14	2015-07-27	25.65	25.31	25.22		25.75	25.95	26.02	7.71	7.75	7.73	4.88	5.00	4.90	0.9	3.2	25.3	13	3								0.01	1	3	6	4	4	1	4	0	2015-07-27
20	Site 14	2015-08-03	25.33	N/A	N/A		25.52	N/A	N/A	7.44	N/A	N/A	3.83	N/A	N/A	0.6	1.3	30.4	90	26								0	4	5	6	1	6	2	2	2	2015-08-03
21	Site 14	2015-08-10	25.79	25.50	25.00		25.68	26.10	26.36	7.90	7.89	7.82	6.48	6.36	6.11	1.0	3.3	25.2	23	1								0	2	3	1	1	3	0	1	0	2015-08-10
22	Site 14	2015-08-17	25.37	N/A	N/A		25.38	N/A	N/A	7.29	N/A	N/A	3.01	N/A	N/A	0.4	1.2	23.6	20	4								0	3	3	6	2	6	1	2	0	2015-08-17
23	Site 14	2015-08-24	26.27	26.06	25.92		26.12	26.40	26.47	7.78	7.79	7.73	5.35	5.55	5.42	1.1	3.0	28.1	71	12								0	1	3	0	1	0	0	1	0	2015-08-24
24	Site 14	2015-08-31	25.19	25.18	25.16		26.80	26.73	26.73	7.89	7.87	7.86	5.04	4.78	2.94	1.0	2.9	27.5	10	1																	2015-08-31
25	Site 14	2015-09-08	22.21	25.15	25.15		26.87	26.94	26.94	7.76	7.77	7.74	4.78	4.82	4.78	0.8	3.1	24.1	6	2								0	4	5	6	0	6	1	1	1	2015-09-08
26	Site 14	2015-09-14	22.76	22.76	22.77		26.56	26.63	26.63	7.88	7.88	7.87	5.46	6.38	5.63	1.2	2.4	18.8	32	1								0	4	0	0	2	8	3	2	3	2015-09-14
27	Site 14	2015-09-21																																			2015-09-21
28	Site 14	2015-09-28	20.79	20.68	20.69		27.05	26.90	26.90	8.16	8.16	8.13	6.44	6.41	6.19	1.3	3.8	19.4	17	2								0	4	5	6	4	3	1	3		2015-09-28
29	Site 14	2015-10-05	14.28	14.26	15.10		24.88	25.03	26.31	8.01	8.03	8.05	7.42	7.34	7.21	0.9	2.9	11.1	48	22								1	2	1	6	4	2	0	3	0	2015-10-05
30	Site 14	2015-10-13	17.87	17.85	17.68		26.50	26.57	26.64	8.26	8.28	8.26	7.60	7.60	7.44	1.7	2.5	21.9	15	1								0	4	5	6	2	6	1	2	2	2015-10-13
31	Site 14	2015-10-19	9.98	9.91	N/A		25.17	24.75	N/A	8.12	8.09	N/A	8.11	8.14	N/A	0.8	1.6	9.2	24	7								0	3	1	6	0	8	1	1	0	2015-10-19
32	Site 14	2015-10-26	13.37	13.34	13.47		26.86	26.86	26.93	8.44	8.43	8.44	8.39	8.37	8.34	1.10	3.70	11.30	34	2								0	2	5	6	1	1	1	1	1	2015-10-26
33																																					
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23	23	23		3	3														
35			**19.78**	**19.39**	**20.00**	**#DIV/0!**	**25.64**	**25.83**	**26.16**	**7.91**	**8.02**	**7.97**	**6.58**	**6.94**	**6.52**	**0.99**	**2.37**	**20.63**	21.316	4.423																	
36																																					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1		Friends of the Bay 2014 Water Quality Data - **Site 15, Mill Neck Creek South**																																			
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	Site 15	2015-04-06																																			2015-04-06
4	Site 15	2015-04-13																																			2015-04-13
5	Site 15	2015-04-20																																			2015-04-20
6	Site 15	2015-04-27	11.00	N/A	N/A		24.00	N/A	N/A	8.44	N/A	N/A	10.80	N/A	N/A	not given	0.5	9.9	5	1								0	1	1	6	4	8	1	3	1	2015-04-27
7	Site 15	2015-05-04																																			2015-05-04
8	Site 15	2015-05-11	16.74	N/A	N/A		25.48	N/A	N/A	8.16	N/A	N/A	7.02	N/A	N/A	1.2	1.1	23.5	18	13								0	2	5	6	4	6	1	2	1	2015-05-11
9	Site 15	2015-05-18																																			2015-05-18
10	Site 15	2015-05-25	18.53	N/A	N/A		24.99	N/A	N/A	7.46	N/A	N/A	6.41	N/A	N/A	0.9	1.1	22.5	38	8								0	2	1	N/A	1	7	1	1	0	2015-05-25
11	Site 15	2015-06-01																																			2015-06-01
12	Site 15	2015-06-08	17.51	N/A	N/A		25.51	N/A	N/A	7.61	N/A	N/A	N/A	N/A	N/A	0.9	0.7	17.8	20	21		0.010	0.004					0	N/A	N/A	N/A	N/A	N/A	1	3	1	2015-06-08
13	Site 15	2015-06-15																																			2015-06-15
14	Site 15	2015-06-22	22.39	N/A	N/A		24.71	N/A	N/A	7.35	N/A	N/A	4.94	N/A	N/A	0.9	0.7	23.3	150	100								0	2	3	6	0	8	1	1	2	2015-06-22
15	Site 15	2015-06-29																																			2015-06-29
16	Site 15	2015-07-06	tide too low																																		2015-07-06
17	Site 15	2015-07-13	25.14				25.23			27.57			4.60			0.3	1.9	25.9	360	5		0.020	0.005					0	1	3	6	0	1	1	1	2	2015-07-13
18	Site 15	2015-07-20																																			2015-07-20
19	Site 15	2015-07-27	25.80	25.85	N/A		25.47	25.54	N/A	7.56	7.58	N/A	3.81	3.97	N/A	0.7	1.9	24.5	44	12								0.01	1	3	4	4	5	1	3	0	2015-07-27
20	Site 15	2015-08-03																																			2015-08-03
21	Site 15	2015-08-10	25.80	25.80	N/A		25.75	23.17	N/A	7.76	7.72	N/A	5.34	5.17	N/A	0.9	1.9	28.1	71	2								0	2	3	1	0	3	0	1	0	2015-08-10
22	Site 15	2015-08-17																																			2015-08-17
23	Site 15	2015-08-24	26.27	26.38	N/A		25.56	25.84	N/A	7.40	7.37	N/A	3.20	3.37	N/A	0.9	1.6	25.9	90	18								0	1	1	0	1	0	0	1	0	2015-08-24
24	Site 15	2015-08-31	25.30	25.25	N/A		26.59	26.59	N/A	7.79	7.78	N/A	4.47	4.90	N/A	0.8	2.1		25	10								0	4	3	6	3	6	1	2	2	2015-08-31
25	Site 15	2015-09-08	25.35	25.39	25.31		26.52	26.58	26.58	7.61	7.63	7.59	3.60	4.04	4.21	0.6	2.0	24.7	120	34								0	4	5	6	0	6	1	1	1	2015-09-08
26	Site 15	2015-09-14	21.96	21.94	N/A		25.68	25.75	N/A	7.80	7.77	N/A	4.93	4.97	N/A	0.7	1.3	19.8	60	5								0	4	0	0	2	8	3	2	2	2015-09-14
27	Site 15	2015-09-21																																			2015-09-21
28	Site 15	2015-09-28	19.99	19.96	20.12		26.03	26.10	26.39	7.86	7.87	7.92	4.81	4.94	5.14	0.7	2.0	19.7	120	64								0	4	5	6	4	1	0	3	0	2015-09-28
29	Site 15	2015-10-05	14.09	14.32	N/A		23.71	24.40	N/A	7.87	7.85	N/A	7.18	7.23	N/A	0.5	1.7	9.4	170	180								1	2	1	6	4	2	0	3	0	2015-10-05
30	Site 15	2015-10-13	17.86	17.82	N/A		26.29	26.29	N/A	8.27	8.24	N/A	7.58	7.46	N/A	1.0	2.3	22.7	150	19								0	4	5	6	1	6	1	2	2	2015-10-13
31	Site 15	2015-10-17																																			2015-10-17
32	Site 15	2015-10-26	12.57	12.76	12.87		25.85	26.06	26.56	8.33	8.35	8.37	8.04	8.15	8.22	0.8	2.5	11.1	130	21								0	2	5	6	1	1	2	1	3	2015-10-26
33																																					
34	Site Total		17	15	15	0	16	15	15	16	15	15	16	15	15	16	16	15	16	16		2	2														
35			**20.39**	**21.55**	**19.43**	**#DIV/0!**	**25.46**	**25.63**	**26.51**	**9.05**	**7.82**	**7.96**	**5.78**	**5.42**	**5.86**	**0.79**	**1.58**	**20.59**	60.789	14.113																	
36																																					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - Site 16, Mill Neck Creek North																
2		Date	H20 Temp TOP (0.5m)	H20 Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 16	#########																
4	Site 16	#########																
5	Site 16	#########																
6	Site 16	#########	10.82	N/A	N/A		25.14	N/A	N/A	8.40	N/A	N/A	10.20	N/A	N/A	not given	1.0	9.9
7	Site 16	#########																
8	Site 16	#########	18.31	N/A	N/A		24.56	N/A	N/A	7.86	N/A	N/A	5.48	N/A	N/A	1.2	0.1	22.0
9	Site 16	#########																
10	Site 16	#########	18.77	N/A	N/A		24.86	N/A	N/A	7.28	N/A	N/A	5.71	N/A	N/A	0.9	1.2	21.0
11	Site 16	#########																
12	Site 16	#########	17.59	N/A	N/A		24.61	N/A	N/A	7.02	N/A	N/A	5.47	N/A	N/A	0.9	0.7	17.6
13	Site 16	#########																
14	Site 16	#########	22.12	N/A	N/A		24.21	N/A	N/A	7.20	N/A	N/A	4.68	N/A	N/A	0.5	1.0	20.6
15	Site 16	#########																
16	Site 16	#########	tide too low															
17	Site 16	#########	25.50				25.25			7.88			7.25			0.5	1.5	26.3
18	Site 16	#########																
19	Site 16	#########	25.75	25.84	N/A		25.54	24.41	N/A	7.50	7.55	N/A	3.75	4.25	N/A	0.5	1.8	23.8
20	Site 16	#########																
21	Site 16	#########	25.45	N/A	N/A		25.56	N/A	N/A	7.33	N/A	N/A	3.49	N/A	N/A	1.2	1.2	25.3
22	Site 16	#########																
23	Site 16	#########	26.28	N/A	N/A		25.41	N/A	N/A	7.28	N/A	N/A	3.41	N/A	N/A	0.8	1.1	27.6
24	Site 16	#########																
25	Site 16	#########	25.27	N/A	N/A		26.37	N/A	N/A	7.43	N/A	N/A	3.82	N/A	N/A	0.6	0.8	27.4
26	Site 16	#########																
27	Site 16	#########																
28	Site 16	#########	20.17	20.30	20.29		26.25	26.32	26.46	7.97	8.00	7.98	5.53	5.62	5.44	0.9	2.0	19.6
29	Site 16	#########	13.67	13.75	N/A		23.21	23.21	N/A	7.65	7.48	N/A	6.68	6.62	N/A	0.9	1.7	11.2
30	Site 16	#########	17.84	17.81	N/A		25.94	26.08	N/A	8.13	8.05	N/A	7.10	6.37	N/A	1.2	1.8	24.2
31	Site 16	#########																
32	Site 16	#########	12.83	12.85	12.78		26.34	26.56	26.63	8.34	8.34	8.30	8.06	8.18	8.06	0.90	2.20	11.40
33																		
34	Site Total		15	13	13	0	14	13	13	14	13	13	14	13	13	14	14	14
35			**20.03**	**18.11**	**16.54**	**#DIV/0!**	**25.23**	**25.32**	**26.55**	**7.66**	**7.88**	**8.14**	**5.76**	**6.21**	**6.75**	**0.85**	**1.29**	**20.56**
36																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3																			2015-04-06
4																			2015-04-13
5																			2015-04-20
6	41	4								0	1	1	6	4	N/A	0	3	0	2015-04-27
7																			2015-05-04
8	13	7								0	2	5	6	4	6	0	2	1	2015-05-11
9																			2015-05-18
10	16	2								0	2	1	N/A	1	8	1	1	0	2015-05-25
11																			2015-06-01
12	30	39		0.001	0.003					0						1	3	1	2015-06-08
13																			2015-06-15
14	430	250								0	2	3	6	0	8	1	1	0	2015-06-22
15																			2015-06-29
16																			2015-07-06
17	230	10		0.001	0.004					0	1	5	6	0	0	0	1	1	2015-07-13
18																			2015-07-20
19	15	15								0.01	1	5	6	4	4	0	4	0	2015-07-27
20																			2015-08-03
21	42	8								0	2	3	1	1	8	0	1	0	2015-08-10
22																			2015-08-17
23	35	6								0	1	1	1	1	0	0	1	0	2015-08-24
24																			2015-08-31
25	56	13								0	4	4	6	0	6	0	1	0	2015-09-08
26																			2015-09-14
27																			2015-09-21
28	120	53								0	4	5	6	4	0	0	3	0	2015-09-28
29	140	38								1	2	1	6	4	3	0	3	0	2015-10-05
30	86	11								0	4	5	6	1	6	1	2	1	2015-10-13
31																			2015-10-17
32	100	18								0	2	5	6	1	1	1	1	2	2015-10-26
33																			
34	14	14		2	2														
35	55.292	14.388																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U
1		Friends of the Bay 2014 Water Quality Data - Site 17, The Birches STP																		
2		Date	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci
3	Site 17	2015-04-06																		
4	Site 17	2015-04-13																		
5	Site 17	2015-04-20																		
6	Site 17	2015-04-27	10.60	N/A	N/A		25.00	N/A	N/A	8.41	N/A	N/A	10.15	N/A	N/A	not given	2.0	9.1	24	6
7	Site 17	2015-05-04																		
8	Site 17	2015-05-09																		
9	Site 17	2015-05-16																		
10	Site 17	2015-05-25																		
11	Site 17	2015-06-01																		
12	Site 17	2015-06-08																		
13	Site 17	2015-06-15																		
14	Site 17	2015-06-22																		
15	Site 17	2015-06-29																		
16	Site 17	2015-07-06	tide too low																	
17	Site 17	2015-07-13	25.39				25.24			7.71			6.62			0.4	1.5	29.6	170	12
18	Site 17	2015-07-20																		
19	Site 17	2015-07-27	25.24	25.20	N/A		25.95	26.01	26.09	7.76	7.77	7.75	5.20	5.21	5.12	1.0	2.8	25.8		
20	Site 17	2015-08-03																		
21	Site 17	2015-08-10	25.45	N/A	N/A		25.56	N/A	N/A	7.33	N/A	N/A	3.59	N/A	N/A	1.2	1.2	25.3	42	
22	Site 17	2015-08-17																		
23	Site 17	2015-08-24	26.24	N/A	N/A		25.20	N/A	N/A	7.04	N/A	N/A	2.92	N/A	N/A	0.7	0.9	27.8	36	6
24	Site 17	2015-08-31																		
25	Site 17	2015-09-08	24.60	N/A	N/A		26.15	N/A	N/A	7.44	N/A	N/A	3.07	N/A	N/A	0.4	1.1	27.0	250	62
26	Site 17	2015-09-14																		
27	Site 17	2015-09-21																		
28	Site 17	2015-09-28	19.87	19.92	N/A		25.74	25.95	N/A	7.87	7.85	N/A	4.12	5.32	N/A	0.8	1.9	20.4	200	71
29	Site 17	2015-10-05	13.62	N/A	N/A		22.66	N/A	N/A	7.26	N/A	N/A	6.18	N/A	N/A	0.7	1.2	11.2	26	76
30	Site 17	2015-10-13	71.64	N/A	N/A		25.72	N/A	N/A	7.99	N/A	N/A	6.13	N/A	N/A	0.9	1.2	23.9	140	13
31	Site 17	2015-10-17																		
32	Site 17	2015-10-26	12.56	12.75	N/A		26.12	26.20	N/A	8.29	8.30	N/A	7.97	8.09	N/A	1.1	1.8	11.6	120	21
33																				
34	Site Total		11	9	9	0	10	9	9	10	9	9	10	9	9	10	10	10	9	8
35			**25.52**	**19.29**	**#DIV/0!**	**#DIV/0!**	**25.33**	**26.05**	**26.09**	**7.71**	**7.97**	**7.75**	**5.60**	**6.21**	**5.12**	**0.80**	**1.56**	**21.17**	76.083	21.127
36																				

	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																	
2	Ammonia (NH3)	Nitrate (NC	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3																	2015-04-06
4																	2015-04-13
5																	2015-04-20
6								0	1	1	6	4	N/A	0	3	0	2015-04-27
7																	2015-05-04
8																	2015-05-09
9																	2015-05-16
10																	2015-05-25
11																	2015-06-01
12																	2015-06-08
13																	2015-06-15
14																	2015-06-22
15																	2015-06-29
16																	2015-07-06
17		0.010	0.003					0	1	5	6	0	3	0	1	0	2015-07-13
18																	2015-07-20
19								0.01	1	3	6	4	4	1	4	0	2015-07-27
20																	2015-08-03
21																	2015-08-10
22																	2015-08-17
23								0	1	1	1	1	0	0	1	0	2015-08-24
24																	2015-08-31
25								0	4	4	3.5	0	0	0	1	0	2015-09-08
26																	2015-09-14
27																	2015-09-21
28								0	4	5	6	4	0	0	3	0	2015-09-28
29								1	2	1	6	4	3	1	3	0	2015-10-05
30								0	4	5	6	1	6	1	2	0	2015-10-13
31																	2015-10-17
32								0	2	5	6	2	1	1	1	0	2015-10-26
33																	
34		1	1														
35																	
36																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1		Friends of the Bay 2014 Water Quality Data - **Site 18, Mill Neck Cove**																																			
2		Date	H20 Temp TOP (0.5m)	Temp 1.0 M	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 M	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 m	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	Site 18	#########	6.60	6.54	N/A		25.4	25.54	N/A	8.27	8.28	N/A	10.88	10.79	N/A	Not given	1.6	4.6	1	1								0	4	3	6	1	8	1	2	2	2015-04-06
4	Site 18	#########																																			2015-04-13
5	Site 18	#########																																			2015-04-20
6	Site 18	#########	9.72	9.66	9.59		25.50	25.50	25.56	8.51	8.52	8.49	10.92	10.79	10.62	1.1	2.3	11.0	1	1								0	2	1	6	4	8	1	3	1	2015-04-27
7	Site 18	**#########**	13.92	13.46	13.48		25.55	25.54	25.54	8.60	8.65	8.69	10.89	10.66	10.06	1.2	2.7	16.1	3	1		0.000	0.003					0	4	5	5	0	3	0	1	0	2015-05-04
8	Site 18	#########	16.97	16.52	N/A		25.42	25.54	N/A	8.26	8.20	N/A	7.40	7.19	N/A	1.5	1.6	27.5	1	5								0	2	5	6	4	6	1	3	1	2015-05-11
9	Site 18	#########																																			2015-05-18
10	Site 18	#########	17.43	17.36	N/A		25.71	25.71	N/A	7.85	7.83	N/A	7.12	7.03	N/A	1.3	1.8	23.0	2	1								0	2	N/A	N/A	1	9	1	1	0	2015-05-25
11	Site 18	#########																																			2015-06-01
12	Site 18	#########	17.34				25.64			7.84			6.97			0.9	1.1	16.3	6	10		0.020	0.002					0						1	3	1	2015-06-08
13	Site 18	#########																																			2015-06-15
14	Site 18	#########	20.66	20.60			25.70	25.70		7.81	7.81		6.38	6.27		1.2	1.5	25.3	38	28								0	2	3	6	0	8	1	1	2	2015-06-22
15	Site 18	#########																																			2015-06-29
16	Site 18	#########	22.54	N/A	N/A		25.78	N/A	N/a	7.38	N/A	N/a	5.03	N/A	N/A	0.7	0.7	30.8	27	1								0	2	4	6	1	0	0	1	0	2015-07-06
17	Site 18	#########	24.84	24.52	24.44		25.86	25.92	25.92	7.87	7.81	7.74	6.50	6.16	5.92	1.0	2.9	26.3	10	1		0.010	0.007														2015-07-13
18	Site 18	#########	24.66	N/A	N/A		25.78	N/A	N/A	7.73	N/A	N/A	5.43	N/A	N/A	0.9	0.8	31.0	20	6								0	2	5	6	1	7	1	1	1	2015-07-20
19	Site 18	#########	25.24	25.20	25.19		25.95	26.01	26.09	7.76	7.77	7.75	5.20	5.21	5.12	1.0	2.8	25.8	9	1								0.01	1	3	6	4	4	1	4	0	2015-07-27
20	Site 18	#########	25.69	N/A	N/A		25.82	N/A	N/A	7.77	N/A	N/A	6.23	N/A	N/A	0.7	1.2	34.2	17	2								0	4	5	6	1	5	2	2	2	2015-08-03
21	Site 18	#########	25.52	25.54	24.97		26.31	26.38	26.43	8.00	7.98	7.89	6.89	6.79	5.94	1.1	2.3	24.2	8	1								0	2	3	1	0	8	0	1	0	2015-08-10
22	Site 18	#########	25.26	N/A	N/A		26.30	N/A	N/A	7.52	N/A	N/A	4.89	N/A	N/A	0.2	0.8	26.5	12	1								0	3	3	6	1	6	1	1	1	2015-08-17
23	Site 18	#########	25.87	25.81	25.80		26.47	26.46	26.53	7.87	7.85	7.82	5.65	5.66	5.65	1.2	2.4	28.1	8	1								0	2	3	0	1	0	0	1	0	2015-08-24
24	Site 18	#########	25.80	25.17	25.16		26.80	26.72	26.72	7.88	7.88	7.88	5.26	5.24	5.120	N/A	2.9	28.8	13	2								0	4	3	6	2	6	1	2	2	2015-08-31
25	Site 18	#########	25.21	25.20	25.18		26.94	27.01	26.94	7.84	7.85	7.79	5.27	5.28	5.36	1.0	2.2	26.1	18	1								0	1	5	6	0	6	1	1	1	2015-09-08
26	Site 18	#########	22.81	22.80	22.76		26.63	26.63	26.63	7.91	7.89	7.86	5.50	5.51	5.52	1.0	2.3	20.6	22	5								0	4	0	2	8	8	3	2	2	2015-09-14
27	Site 18	#########																																			2015-09-21
28	Site 18	#########	20.69	20.70	20.67		26.90	26.90	26.90	8.16	8.16	8.11	6.49	6.56	6.53	1.2	3.2	18.6	12	3								0	4	5	6	4	2	1	3	0	2015-09-28
29	Site 18	#########	15.33	15.33	15.33		26.74	26.74	26.74	8.11	8.10	8.06	7.46	7.50	7.54	1.1	2.1	11.4	21	2								1	2	5	6	4	2	1	3	1	2015-10-05
30	Site 18	#########	17.99	N/A	N/A		26.49	N/A	N/A	8.26	N/A	N/A	7.58	N/A	N/A	1.7	2.2	23.1	19	2								0	1	5	6	2	6	1	2	2	2015-10-13
31	Site 18	#########	13.24	N/A	N/A		26.85	N/A	N/A	8.30	N/A	N/A	8.25	N/A	N/A	Bot.	1.1	58.0	4	5								0	3	1	6	0	8	1	1	0	2015-10-19
32	Site 18	#########	13.51	13.49	13.48		26.87	26.93	26.93	8.44	8.46	8.43	8.46	8.47	8.48	1.80	3.4	11.8	19	1								0	2	5	6	1	1	1	1	2	2015-10-26
33																																					
34	Site Total		23	22	21	0	23	22	21	23	22	21	23	22	21	23	23	23	23	23		3	3														
35			**19.86**	**19.24**	**20.50**	**#DIV/0!**	**26.15**	**26.20**	**26.41**	**8.00**	**8.07**	**8.04**	**6.98**	**7.19**	**6.82**	**1.09**	**2.00**	**23.87**	8.895	2.155																	
36																																					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Friends of the Bay 2014 Water Quality Data - Flowers Oyster Hatchery - **Site 19**																
2		Date	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	H2O Temp BTM monthly AVG	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 M	BTM DO	Secchi	Depth (meters)	Air Temp
3	Site 19	2015-04-06	6.58	N/A	N/A		25.47	N/A	N/A	8.33	N/A	N/A	11.00	N/A	N/A	Not given	1.3	6.0
4	Site 19	2015-04-13																
5	Site 19	2015-04-20																
6	Site 19	2015-04-27	9.72	9.71	9.53		25.50	25.50	25.63	8.52	8.50	8.50	10.89	10.80	10.55	1.2	6.2	10.9
7	Site 19	2015-05-04	14.46	13.77	13.38		25.37	25.42	25.54	8.62	8.62	8.60	10.98	10.80	10.22	1.3	5.0	15.2
8	Site 19	2015-05-11	17.02	16.61	16.55		25.28	25.47	25.59	8.30	8.29	8.30	7.50	7.47	7.03	1.6	3.6	26.6
9	Site 19	2015-05-18																
10	Site 19	2015-05-25	19.15	19.09	18.78		25.37	25.29	25.36	7.96	7.98	8.00	7.23	7.12	6.56	1.1	2.8	26.2
11	Site 19	2015-06-01																
12	Site 19	2015-06-08	17.57	17.48	17.35		25.37	25.30	25.64	7.92	7.87	7.84	7.10	7.11	6.93	0.9	4.2	18.2
13	Site 19	2015-06-15																
14	Site 19	2015-06-22	21.21	21.18	20.83		25.23	25.23	25.57	7.84	7.83	7.82	6.43	6.46	6.41	1.3	3.9	23.1
15	Site 19	2015-06-29																
16	Site 19	2015-07-06	22.89	22.70	22.61		25.44	25.50	25.64	7.69	7.69	7.63	5.59	5.53	4.21	0.9	3.1	24.8
17	Site 19	2015-07-13	25.04	24.86	24.40		25.86	25.86	25.92	7.84	7.84	7.76	6.43	6.22	5.22	1.0	4.9	27.0
18	Site 19	2015-07-20	25.37	25.28	25.10		25.31	25.31	25.37	7.81	7.78	7.77	6.01	5.77	5.67	0.9	3.2	28.9
19	Site 19	2015-07-27	25.34	25.28	24.48		25.95	25.95	26.27	7.74	7.76	7.69	4.92	4.89	4.17	1.0	5.3	25.4
20	Site 19	2015-08-03	25.80	25.77	24.96		25.82	25.82	25.86	7.87	7.84	7.63	6.21	5.87	4.48	1.1	3.9	31.5
21	Site 19	2015-08-10	25.41	25.11	24.88		26.38	26.44	26.43	7.98	7.95	7.87	6.67	6.21	5.70	1.0	4.7	24.0
22	Site 19	2015-08-17	25.79	25.67	25.52		25.82	25.96	26.24	7.64	7.65	7.55	4.98	5.13	5.14	1.0	3.5	27.5
23	Site 19	2015-08-24	26.90	25.90	25.77		26.40	26.40	26.53	7.94	7.93	7.81	6.13	6.10	5.49	1.1	5.0	26.8
24	Site 19	2015-08-31	25.24	25.23	25.19		26.73	26.73	26.73	7.88	7.89	7.89	5.17	5.24	5.03	1.2	5.5	28.8
25	Site 19	2015-09-08	25.17	25.17	25.17		26.87	26.87	26.94	7.83	7.82	7.81	5.04	5.15	5.24	1.1	5.4	26.1
26	Site 19	2015-09-14	22.80	22.74	22.72		26.49	26.49	26.56	7.92	7.91	7.89	5.57	5.43	5.15	1.4	5.3	20.0
27	Site 19	2015-09-21																
28	Site 19	2015-09-28	20.60	20.60	20.62		26.13	26.83	26.79	8.12	8.19	8.09	6.4	6.47	6.5	1.30	5.60	18.80
29	Site 19	2015-10-05	15.34	15.35	15.38		26.74	26.74	26.74	8.16	8.13	8.11	7.49	7.54	7.21	1.0	5.1	11.3
30	Site 19	2015-10-13	18.00	17.91	17.79		26.37	26.37	26.64	8.26	8.28	8.29	7.70	7.72	7.10	1.7	5.3	N/A
31	Site 19	2015-10-19	13.32	13.23	13.31		26.78	26.78	26.78	8.32	8.34	8.29	8.29	8.37	8.28	1.8	3.7	12.2
32	Site 19	2015-10-26	13.36	13.47	13.53		26.79	26.86	26.94	8.45	8.45	8.44	8.37	8.39	8.27	1.4	5.5	13.1
33																		
34	Site Total		23	23	23	0	23	23	23	23	23	23	23	23	23	23	23	23
35			**20.09**	**20.55**	**20.36**	**#DIV/0!**	**25.98**	**26.05**	**26.17**	**8.04**	**8.02**	**7.98**	**7.05**	**6.81**	**6.39**	**1.20**	**4.43**	**21.47**
36																		

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1																			
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate (NO3)	Nitrite (NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen		Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height	Date
3	1	1								0	4	3	6	1	2	1	2	2	2015-04-06
4																			2015-04-13
5																			2015-04-20
6	1	1								0	2	1	6	4	8	1	3	2	2015-04-27
7	3	1		0.000	0.002					0	4	5	5	0	3	0	1	0	2015-05-04
8	1	6								0	2	5	5	4	6	2	3	2	2015-05-11
9																			2015-05-18
10	4	1								0	2	N/A	N/A	4	6	2	1	1	2015-05-25
11																			2015-06-01
12	7	2		0.020	0.003					0						1	3	1	2015-06-08
13																			2015-06-15
14	110	220								0	2	3	6	0	8	1	1	3	2015-06-22
15																			2015-06-29
16	22	1								0	2	5	6	1	0	0	1	0	2015-07-06
17	28	18		0.010	0.011					0	1	3	6	1	1	1	2	1	2015-07-13
18	22	9								0	2	5	6	1	7	1	1	1	2015-07-20
19	10	1								0.01	1	5	6	4	5	2	3	0	2015-07-27
20	23	5								0	4	5	6	1	5	2	2	2	2015-08-03
21	9	3								0	2	3	1	1	3	0	1	0	2015-08-10
22	11	1								0	3	3	6	1	6	1	2	1	2015-08-17
23	29	1								0	2	3	0	2	0	0	1	0	2015-08-24
24	20	9								0	4	3	6	2	6	1	2	2	2015-08-31
25	29	3								0	1	5	6	0	6	1	1	1	2015-09-08
26	39	11								0	4	0	0	2	8	3	2	3	2015-09-14
27																			2015-09-21
28	28	8								0	4	5	6	4	2	0	3	0	2015-09-28
29	59	4								1	2	5	6	4	1	1	3	1	2015-10-05
30	15	3								0	1	5	6	1	6	1	2	2	2015-10-13
31	9	1								0	3	3	65	0	8	1	1	0	2015-10-19
32	34	1								0	2	5	6	1	1	1	1	2	2015-10-26
33																			
34	23	23		3	3														
35	13.328	3.438																	
36																			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1		Friends of the Bay 2014 Water Quality Data - **Laurel Hollow LH1**															
2		Date	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 M	BTM DO	Secchi	Depth (meters)	Air Temp
3	LH1	2014-06-23	19.93	19.82	19.12	26.59	26.66	26.85	7.82	7.79	7.52	5.73	5.54	4.40	1.50	4.80	23.00
4	**	2014-06-30	**bacteria only**														
5	LH1	2014-07-07	**bacteria only**														
6	LH1	2014-07-14	** NO SAMPLES TAKEN** ** WEATHER CONDITION**														
7	LH1	2014-07-21	**bacteria only**														
8	LH1	2014-07-28	**bacteria only**														
9	LH1	2014-08-04	**bacteria only**														
10	LH1	2014-08-11	**bacteria only**														
11	LH1																
12	LH1																
13	LH1																
14	LH1																
15	LH1																
16	LH1																
17	LH1																
18	LH1																
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26	LH1																
27	LH1																
28	LH1																
29	LH1																
30	LH1																
31																	
32																	
33																	
34			8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35																	
36																	

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
1																
2	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate/Nitrite (NO3-NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height
3	13	4							4	1	1	0	0	0	1	0
4	5	1														
5	24	2														
6																
7	1	1														
8	7	1							4	5	1	4	0	0	3	1
9	9	4														
10	20	1						0	4	5	6	0	0	0	1	0
11																
12																
13																
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24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34	7	7														
35	7.873	1.516														
36	**22**	**4**														

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
1		Friends of the Bay 2014 Water Quality Data - **Laurel Hollow LH2**																															
2		Date	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 M	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate/Nitrite (NO3-NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height
3	LH2	2014-06-23	19.91	19.78	19.49	26.52	26.66	26.78	7.86	7.83	7.77	5.75	5.75	5.29	1.40	4.20	28.70	8	3							4	1	1	0	0	0	1	0
4	LH2	2014-06-30	**bacteria only**															4	1														
5	LH2	2014-07-07	**bacteria only**															1	1														
6	LH2	2014-07-14	** NO SAMPLES TAKEN** ** WEATHER CONDITION**																														
7	LH2	2014-07-21	**bacteria only**															3	1														
8	LH2	2014-07-28	**bacteria only**															2	1							4	5	6	4	0	0	3	1
9	LH2	2014-08-04	**bacteria only**															5	4														
10	LH2	2014-08-11	**bacteria only**															8	3						0	4	5	6	0	0	0	1	0
11	LH2																																
12	LH2																																
13	LH2																																
14	LH2																																
15	LH2																																
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32																																	
33																																	
34			8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	7														
35																		2.993	1.644														
36																		**8**															

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
1		Friends of the Bay 2014 Water Quality Data -**Laurel Hollow LH3**																															
2		Date	H20 Temp TOP (0.5m)	H2O Temp 1.0 m	H20 Temp 0.5 m from BTM	Salinity TOP	Salinity 1.0 m	Salinity BTM	PH Top	PH 1.0 m	Ph .5 m from BTM	Top DO	DO 1.0 M	BTM DO	Secchi	Depth (meters)	Air Temp	Fecal Coliform Bacteria	Enterococci	Ammonia (NH3)	Nitrate/Nitrite (NO3-NO2)	Total Kjeldahl Nitrogen (TKN)	Organic Nitrogen (N)	Total Nitrogen	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Cloud Cover	Wind Direction	Wind Speed	Weather	Wave Height
3	LH3	2014-06-23	19.91	19.99	19.37	26.59	26.66	26.85	7.88	7.85	7.71	5.92	5.81	5.10	1.20	3.80	24.50	1	1							4	1	1	0	0	0	1	0
4	LH3	2014-06-30	**bacteria only**															2	1														
5	LH3	2014-07-07	**bacteria only**															4	1														
6	LH3	2014-07-14	** NO SAMPLES TAKEN** ** WEATHER CONDITION**																														
7	LH3	2014-07-21	**bacteria only**															LA * BOTTLE RECEIVED CRACKED NO TESTING*	LA														
8	LH3	2014-07-28	**bacteria only**															5	1							4	5	6	4	0	0	3	1
9	LH3	2014-08-04	**bacteria only**															9	1														
10	LH3	2014-08-11	**bacteria only**															8	1						0	4	5	6	0	0	0	1	0
11	LH3																																
12	LH3																																
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14	LH3																																
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32																																	
33																																	
34			8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6														
35																		6.160	1.000														
36																		**9**															