Friends of the Bay
protect - preserve - restore

2013/2014 Annual Water Quality Report

Water Quality Monitoring Program

FUSS & O'NEILL

Prepared in 2015 for

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www.friendsofthebay.org

This *2013/2014 Annual Water Quality Report* was produced in 2015. It presents and describes data and observations that were recorded by the Friends of the Bay Water Quality Monitoring Program during the sampling year as well as information regarding other activities and accomplishments since 2013.

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

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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Acknowledgements

Friends of the Bay would like to thank the individuals and organizations that make our Water Quality Monitoring Program possible.

National Fish and Wildlife Foundation – Provided a portion of the funding necessary to conduct our Water Quality Monitoring Program in 2013 and 2014.

Frank M. Flower and Sons, Inc. – Dwight and Dave Relyea and Joseph Zahtila, owners of Frank M. Flower and Sons, Inc. have provided dock space, use of boats, and logistical support for Friends of the Bay's monitoring program since 1992.

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

Bridge Marina – Richard Valicenti and his staff continuously provide support to Friends of the Bay through repairs, parts, service, and advice for our vessel.

Nassau County Department of Health – Nassau County Department of Health donates laboratory testing services for bacteria samples collected by FOB.

Analytical Chemists Laboratory LLC / Pace Analytical Services, Inc. – Donated their laboratory services for the testing of nitrates, nitrites, total nitrogen, ammonia-N, and organic nitrogen once per month as part of our Water Quality Monitoring Program.

Boat Captains:
Hank Kasven
Paul DeOrsay

Citizen Scientists:
Pat Aitken
James Altadonna
Terri Felske
Ken Guenther
Paul Hirsch
Mirna Ismail
Terry Kattleman
Lorna Mann
Ira Nadler
Carla Panetta
Barbel Polansky
Liz Rilling
Rebecca Rilling
Locust Valley High School Students & Teacher:
Chris Hoppner (teacher)
Matt Bartell
Rob Dressler
Zach Holowchak
Riggs Johnson
Colin McBride
Cameron Paz
Brian Wright

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 2013 and 2014.

2013 and 2014 Monitoring Events

During 2013 and 2014, 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 2013, FOB collected samples during 27 separate monitoring events between April 8th and October 29th (20 Mondays, 6 Tuesdays, and 1 Wednesday; 3 planned monitoring dates were cancelled for all locations due to inclement weather conditions), collected numerous samples that were analyzed for bacteria (approximately 470 samples each for fecal coliform and enterococci) and nitrogen pollution (approximately 114 samples for each parameter), recorded hundreds of measurements each of dissolved oxygen, temperature, pH, and salinity (averaged 421 measurements), and measured water clarity 465 times.

In 2014, FOB collected samples during 29 separate monitoring events between April 7th and October 27th (27 Mondays and 2 Tuesdays; 4 planned monitoring dates were cancelled for all locations due to inclement weather conditions), collected samples that were analyzed for bacteria (387 samples each for fecal coliform and enterococci) and nitrogen pollution (approximately 96 samples for each parameter), recorded hundreds of measurements each of dissolved oxygen, temperature, pH, and salinity (averaged 383), and measured water clarity 408 times.

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 approximately five times during the monitoring season.

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 in 2014 but not in 2013. In 2014, nearly all of the samples collected were for bacteria only.

Open Water Body Monitoring Results

Three major water quality parameters were monitored in 2013 and 2014: bacteria, dissolved oxygen, and nitrogen. Analysis of the 2013 and 2014 open water body monitoring data provided useful insights into the estuary's water quality.

Bacteria

On a seasonal average basis, all of Laurel Hollow and the majority of Oyster Bay Harbor met state shellfish standards for fecal coliform during the 2013 and 2014 monitoring seasons. (Oyster Bay Harbor is where the majority of shellfishing occurs in the estuary.) The 2014 seasonal geometric mean fecal coliform levels in Oyster Bay Harbor were the second 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 most (six of eight) of the stations exceeded the shellfish standard for a portion of the season in 2013 and 2014. During the 2011 and 2012 monitoring seasons, the 30-day geometric mean fecal coliform concentrations at a majority of Oyster Bay Harbor monitoring stations met 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 2013 or 2014 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 2013 and 2014 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 80% and 65% for fecal coliform and enterococci, respectively) from the 2011 to the 2014 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

The nitrogen monitoring results for 2013 and 2014 indicate that none of the monitoring locations would have met the nitrogen guideline for salt water that New York State applies to the Peconic Bay estuary (total nitrogen greater than 0.5 mg/l), if that guideline were applied to Oyster Bay. Conversely, with the exception of FB-17 during the 2014 monitoring season, all monitoring locations had ammonia levels well below the State standard.

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 2013 and 2014 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 2013 and 2014 at all 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 also continued to implement a stream and outfall monitoring program in 2013 and 2014 albeit in a limited capacity (2 events in 2013 and one in 2014). The goal of the stream and outfall monitoring program is to establish current 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. This monitoring program, initiated in 2007, includes the sampling of 10 or 11 (2013 and 2014 monitoring seasons, respectively) 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.

Although stream and outfall monitoring has been conducted as ten discrete events over five years (no samples were collected in 2012 and for only limited parameters in 2014), some general observations can be made. Overall, DO values have remained fairly consistent over the sampling period since 2007 and are in the range of 6-14 mg/l (there were 2 readings outside of this range collected in 2014 in the range of 2.5-4). Samples were collected for E.coli and fecal coliform during two monitoring events in 2013 and for enterococci and fecal coliform during two monitoring events 2014. The fecal coliform results from both years were within the range of values observed since 2007. The enterococci results from 2014 cannot be compared to past results. Continued monitoring is necessary to further evaluate the presence of potential trends for enterococci and fecal coliform. pH values remain relatively consistent and within a desirable range. Specific conductivity measurements remain relatively consistent over time

and at all stations. In general, ammonia levels in 2013 were measured consistent with past years. The maximum reported ammonia concentration was lower when compared to other years. In 2013, higher nitrate levels were also observed at OBS-6 and OBS-8. Additional data will help to further identify potential pollution sources associated with the streams and outfalls and their respective drainage areas.

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

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

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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.)

This Annual Water Quality Report summarizes the data collected during the 2013 and 2014 monitoring seasons as well as the results of the stream and outfall monitoring program, which was initiated in 2007. This report was produced in 2015 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 2013 and 2014, Friends of the Bay staff and citizen scientists collected data on water quality and ambient conditions at 22 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.

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-

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

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 Analyical, 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 22 open water body sites throughout the Oyster Bay/Cold Spring Harbor estuary, including locations FB-5 through FB-12 in Oyster Bay Harbor, FB-1 through FB-4 in Cold Spring 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 2014 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. The techniques used for analysis include the following methods from APHA and AWWA (1995): Nitrate/nitrite-N (mg/l) 4500-NO3 -E & 4500-NO2-B (in 2013 monitoring year) E353.2 (in 2014 monitoring year), Total Kjeldahl Nitrogen (mg/l) 4500-Norg-B (in 2013) E315.2 (in 2014), Ammonia-N (mg/l) 4500-NH3-D (in 2013) SM4500-NH3 H (in 2014), Organic Nitrogen (mg/L) M4500-NC (in 2014), Total Nitrogen SM 4500 - n Calc (in 2014). Total Kjeldahl Nitrogen (TKN) measures oxidizable nitrogen, including organic and ammonia nitrogen concentrations collectively. In 2013, organic nitrogen levels are then calculated as the difference of TKN and ammonia and total nitrogen can be calculated by adding TKN and nitrate/nitrite results.
- **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 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 2013 and 2014 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 38% of the checks performed in 2013 (33% were 2 or more failed titrations per sampling event, 3 total checks per event) and 39% of the checks performed in 2014 (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). Friends of the Bay is working to 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.

3.2.1 Monitoring Locations

Friends of the Bay monitored a total of 10 major discharges (OBS 1-10) into the estuary in 2013 (two events) and 11 discharges (OBS 1-11) in 2014 (two events). These discharges included streams, ponds,

an untreated sewage discharge, and a 'rotating' outfall that can change for each event in an effort to identify other pollutant sources. A map identifying the approximate location of each site and a table of coordinates (latitude/longitude) for each station are included in *Appendix B*.

3.2.2 Monitoring Methods

In past years, Friends of the Bay monitored each stream and outfall site for the following water quality parameters; however nearly all of the stream and outfall samples collected in 2013 and 2014 were analyzed for bacteria only:

- **Field Parameters** – Dissolved oxygen (DO), water temperature, and pH were measured at 10 monitoring sites using the Hydrolab Quanta datalogger and sonde. The DO data was measured and recorded in milligrams per liter (mg/l), which is equivalent to parts per million (ppm).
- **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.
- **Bacteria** – Water samples are collected by Friends of the Bay in sterile bottles either directly from the outfall or 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. See *Section 3.1.2* for additional description regarding the bacteria sampling and analysis techniques used.
- **Nutrients** – In 2013, nitrogen species water samples are collected in plastic bottles prepared by Analytical Chemists Laboratory containing sulfuric acid and placed into a cooler with ice packs. The samples are then transported to Analytical Chemists Laboratory, located in Farmingdale, New York. In 2014, nitrogen species water samples are collected in plastic bottles prepared by Pace Analytical containing sulfuric acid and placed into a cooler with ice packs. The samples are then transported to Pace Analytical, located in Melville, New York. The water samples are analyzed for common forms of nitrogen, including nitrate, ammonia, and Total Kjeldahl Nitrogen (TKN). Nutrient analysis was not available to Friends of the Bay for this portion of their program in 2014. See *Section 3.1.2* for additional description regarding the nutrient sampling and analysis techniques used.
- **Metals** – In 2013, as in past years, samples were collected in plastic bottles prepared by South Malls Analytical Labs containing nitric acid and analyzed for hardness (mg/l), lead (mg/l), copper (mg/l), and zinc (mg/l). Metals analysis was not available to Friends of the Bay for this portion of their program in 2014.
- **Other Parameters** – Other information collected at the sites include: the time the sample was collected; air temperature (°C); qualitative description of rainfall in the previous 24 hours, water color (scale of 0-3), water odor (scale 0-3), particulates (scale 0-3), and floatables (scale 0-3).

3.2.3 Quality Assurance and Control

The 2007 season was the first monitoring season in which Friends of the Bay implemented a QAPP for the stream and outfall monitoring program. The QAPP was prepared with assistance from Fuss & O'Neill, approved by EPA, and was implemented by Friends of the Bay starting in November 2007. The QAPP includes:

- Formalized monitoring locations and standard parameter list.
- Defined sampling analysis procedures.
- Required collection of duplicate samples.

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 22 open water body locations on 27 monitoring dates (20 Mondays, 6 Tuesdays, and 1 Wednesday; 3 planned monitoring dates were cancelled for all locations) from April through October, 2013 and 29 monitoring dates (27 Mondays and 2 Tuesdays; 4 planned monitoring dates were cancelled for all locations) from April through October, 2014. Four sites are located in Cold Spring Harbor, eight are located in Oyster Bay Harbor, seven are located in Mill Neck Creek, and three are located in Laurel Hollow. 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 has continued through 2014 (no samples were collected in 2013).

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 2013 and 2014 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 2014.

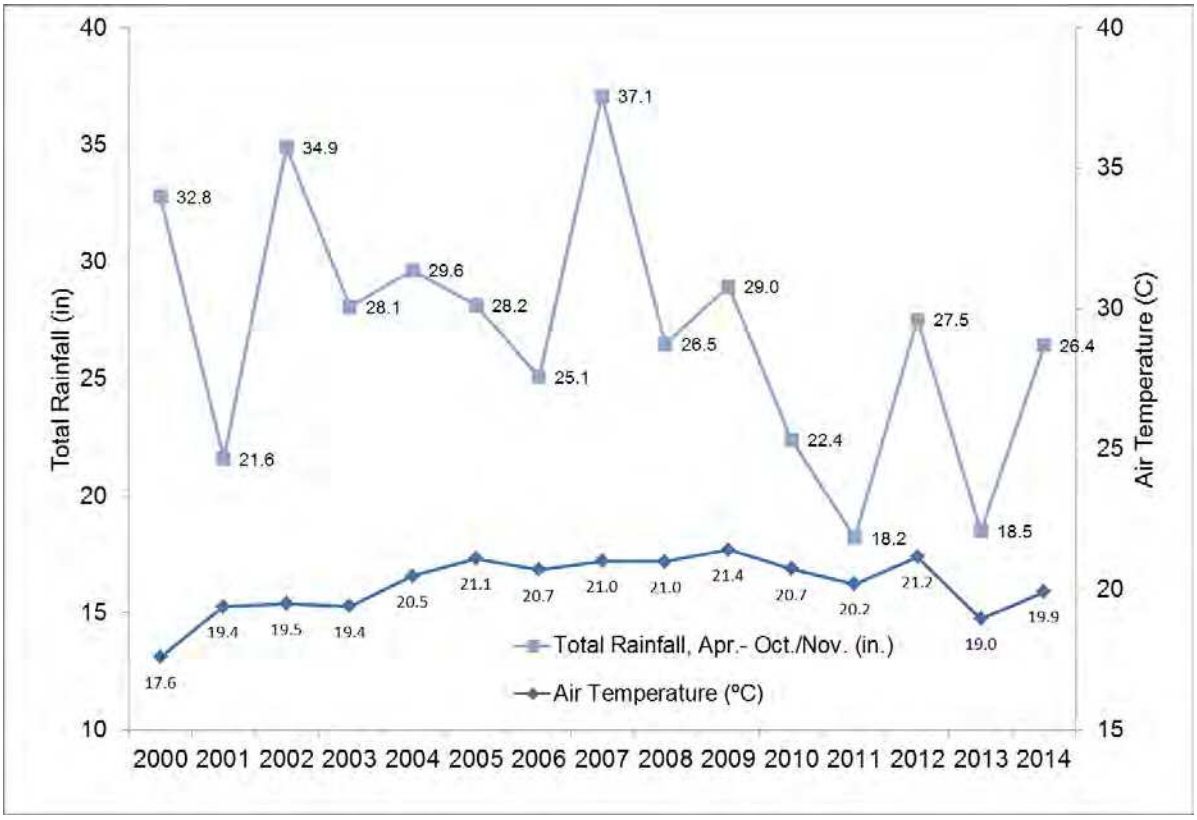

Figure 1. Physical conditions in the Oyster Bay/Cold Spring Harbor Estuary, 2000 ´ 2014

During the 2013 season, the total rainfall recorded was the second lowest of the 15-year monitoring period, only slightly higher than the rainfall recorded in 2011. Rainfall amounts during these two years were well below the third lowest monitoring season (21.6 inches in 2001, a difference of 3.1 inches). At Levittown, Long Island, 18.5 inches of precipitation was recorded during the 2013 monitoring season, which is significantly lower than the average seasonal precipitation from 2000 through 2012 (27.8 inches). The total rainfall during the 2014 monitoring season was 26.4 inches, which is an increase over levels recorded in 2013 but still below the average seasonal precipitation of all fourteen prior monitoring seasons (27.1 inches).

The average seasonal air temperature in the Oyster Bay/Cold Spring Harbor estuary has increased approximately 1 degree Celsius over the 15-year monitoring period. The 2013 monitoring season was the second coolest during this period.

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 5.5 to 0.1 m in 2013 and 3.1 to 0.3 m in 2014). 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 2013 and 2014 Secchi disk depth results, respectively, as averaged for Cold Spring Harbor, Oyster Bay Harbor, and Mill Neck Creek (only one Secchi disk reading was taken in 2014 in Laurel Hollow). Average Secchi disk depths in 2013 for these areas were 1.48, 1.62, and 1.19, and 1.48, 1.57, and 1.14 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 2013 or 2014 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.

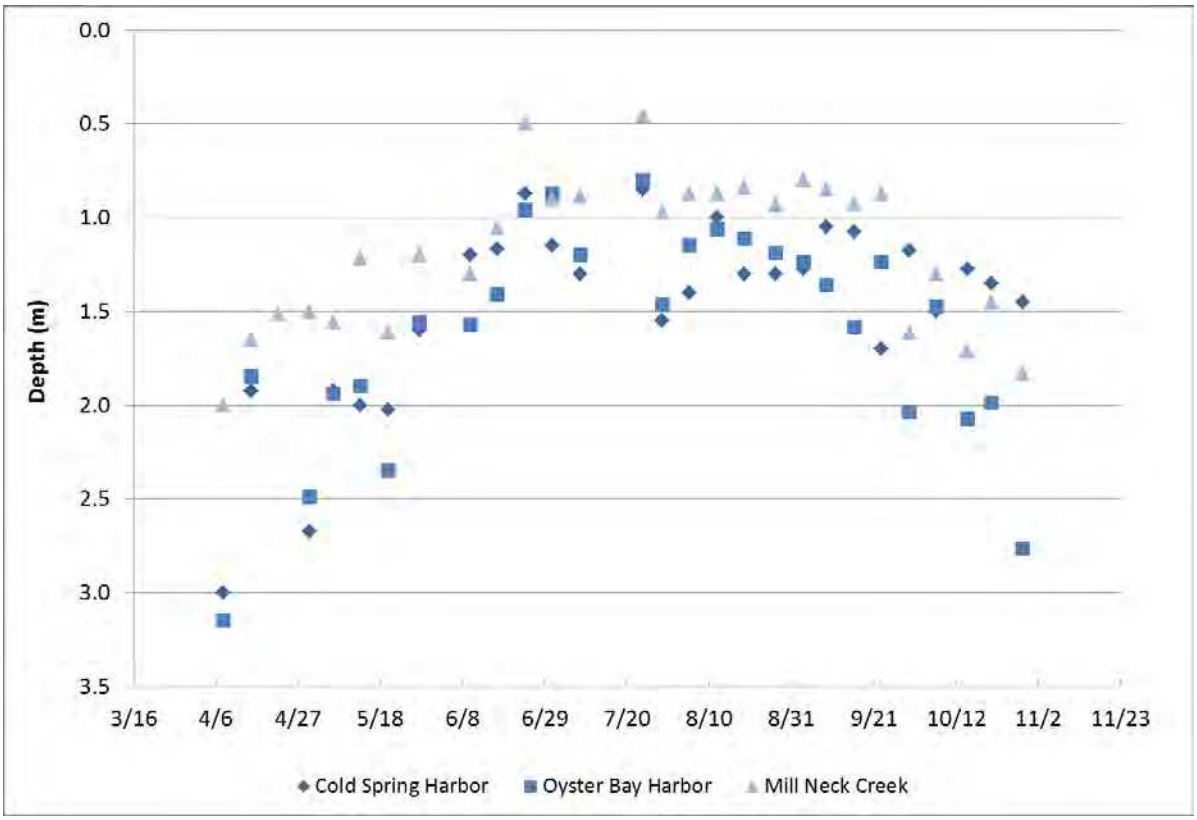

Figure 2. 2013 Secchi disk results, averaged locationally

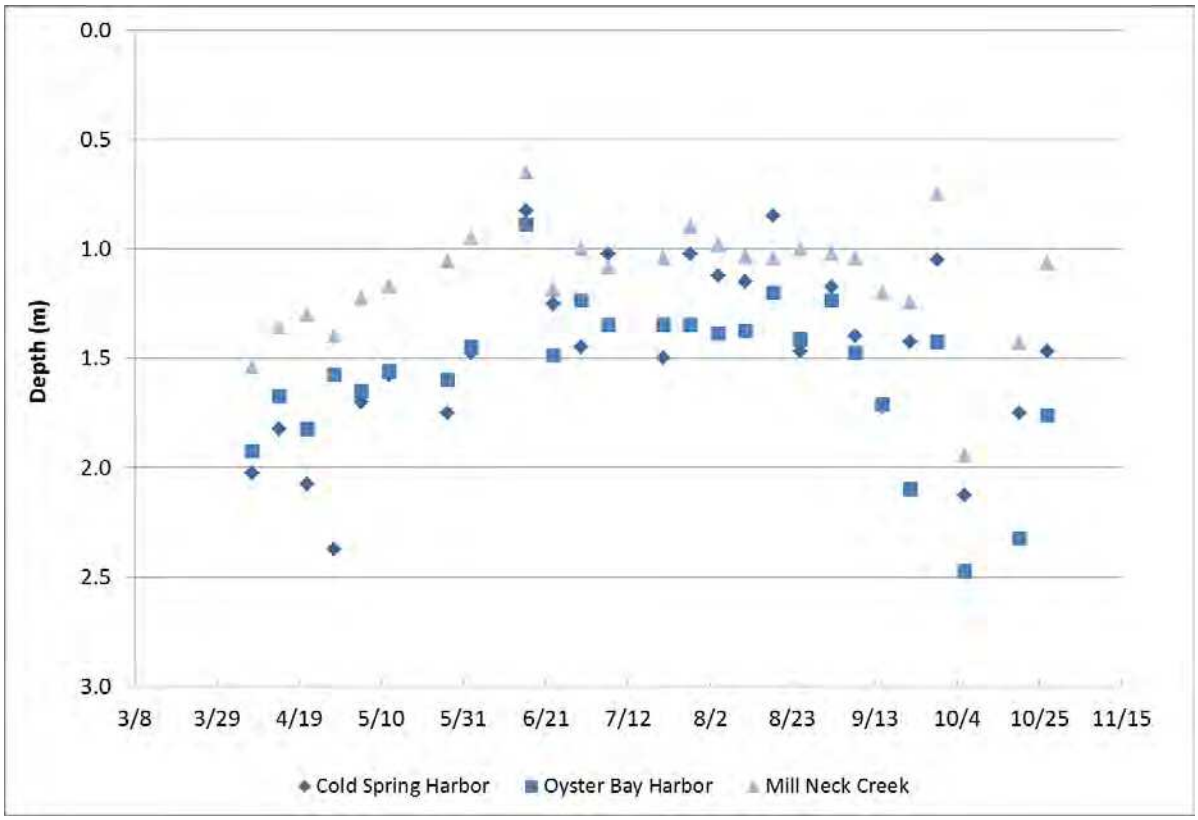

Figure 3. 2014 Secchi disk results, averaged locationally

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 30 of 30 weeks monitored in 2013 (2 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 29 of 30 weeks monitored in 2014 (4 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 (30, 29) by the number of possible runs (30) and expressed as a percent, is 100%[9] and 97% for the 2013 and 2014 monitoring seasons, respectively. In comparison, completeness of monitoring runs in previous years has ranged from 77% to 96%.

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

[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.

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 nineteen (19) locations during the 2013 and all twenty-two (22) locations during the 2014 monitoring season (Laurel Hollow was not sampled in 2013). 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] Samples were collected for enterococci as well, but a different laboratory method was used in 2004 than in 2005 and later. The method used in 2004 resulted in elevated values compared to these later years, so 2004 enterococci results are not included for comparison in this report.

Table 3 and *Table 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 2013 and 2014, in earlier years of the monitoring program, fecal coliform exceedances were generally accompanied by exceedances in total coliform as well.

Table 3. Comparison of 2013 Monitoring Results to State Shellfishing Standards

	Fecal Coliform		
Station	Seasonal Geomean	90th Percentile	Location
FB-1	57	275	CSH
FB-2	43	358	CSH
FB-3	9	42	CSH
FB-4	2	14	CSH
FB-5	2	4	OBH
FB-6	2	7	OBH
FB-7	15	66	OBH
FB-8	8	70	OBH
FB-9	4	17	OBH
FB-10	26	236	OBH
FB-11	4	38	OBH
FB-12	4	19	OBH

[10] The NCDH laboratory, which performs bacterial analysis for Friends of the Bay, changed analysis methods from the 2004 to 2005 season. As such, data from 2004 is not comparable to data from later years.

FB-13	14	89	MNC
FB-14	21	92	MNC
FB-15	65	454	MNC
FB-16	76	487	MNC
FB-17	75	476	MNC
FB-18	9	61	MNC
FB-19	14	85	MNC
Shellfish Standard	14	43	

Table 4. Comparison of 2014 Monitoring Results to State Shellfishing Standards

Fecal Coliform			
Station	Seasonal Geomean	90th Percentile	Location
FB-1	35	255	CSH
FB-2	27	140	CSH
FB-3	10	47	CSH
FB-4	2	9	CSH
FB-5	2	5	OBH
FB-6	2	5	OBH
FB-7	15	81	OBH
FB-8	6	30	OBH
FB-9	4	17	OBH
FB-10	15	150	OBH
FB-11	2	8	OBH
FB-12	3	7	OBH
FB-13	9	79	MNC
FB-14	17	72	MNC
FB-15	31	208	MNC
FB-16	27	85	MNC
FB-17	27	180	MNC
FB-18	10	56	MNC
FB-19	11	46	MNC
LH-1	8	22	LH
LH-2	4	8	LH
LH-3	4	9	LH
Shellfish Standard	14	43	

In 2013 and/or 2014, seasonal geometric mean fecal coliform bacteria levels exceeded the shellfish standards for fecal coliform at FB-1, FB-2, FB-3, FB-7, FB-8, 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-8 is located just west 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.

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 decreased significantly from the 2011 to the 2014 sampling seasons (about 80% and 65% for fecal coliform and enterococci, respectively). These reductions are an early indicator of the 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 2013 and 2014. In Oyster Bay, the geometric mean levels increased slightly in 2013 and then decreased below 2012 levels in 2014. The levels were similar to past years in Oyster Bay Harbor. The 2014 geometric mean fecal coliform levels were the second lowest recorded since the monitoring program began. The geometric mean fecal coliform levels reported in 2006 were only slightly lower than levels measured in 2014 in Oyster Bay and Mill Neck Creek

The enterococci geometric means followed a similar trend in 2013 and 2014 – Cold Spring Harbor decreased slightly from 2011 and 2012 levels, Mill Neck Creek increased significantly in 2013 and then decreased significantly in 2014 (lower than 2012 levels), and Oyster Bay geomeans were similar to past years. Although not shown, geometric mean enterococci levels in Laurel Hollow were 1 MPN/100 ml and geometric mean fecal coliform levels were 5 MPN/100 ml in 2014, respectively, which are below the shellfish standard (no data was collected at Laurel Hollow sites in 2013).

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.

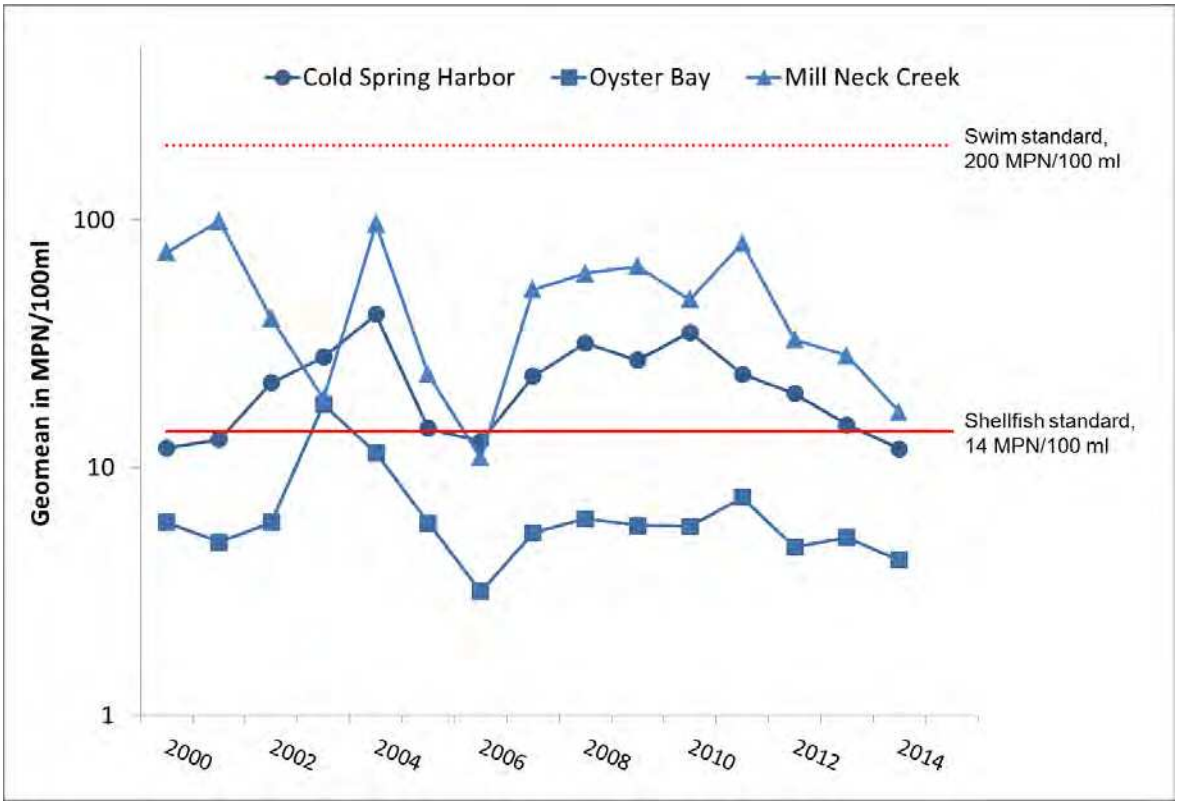

Figure 4. Seasonal geomeans of fecal coliform data by location

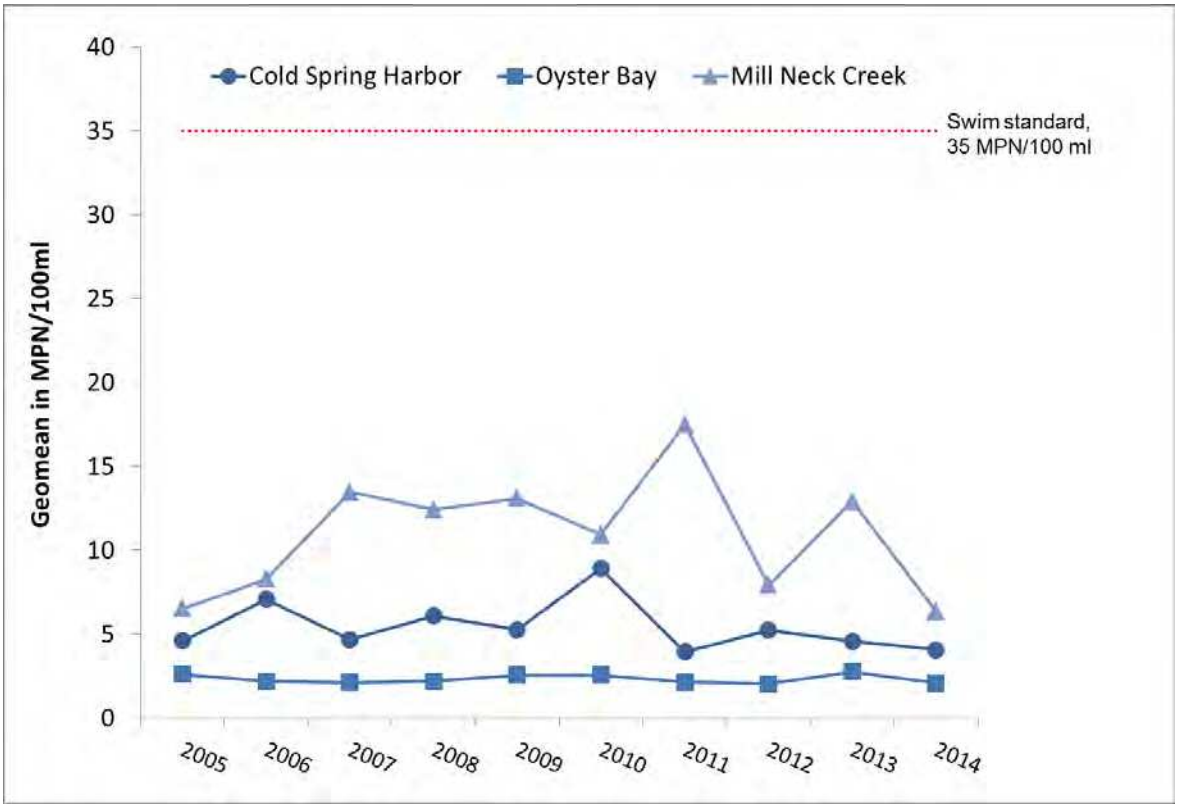

Figure 5. Seasonal geomeans of enterococci data by location

Figure 6 and *Figure 7* present total monthly precipitation as recorded at a precipitation station in Levittown during the 2013 and 2014 sampling seasons. Total monthly precipitation during 2013 and 2014 was fairly evenly distributed. In 2013, the monthly precipitation ranged from a low of 0.22 inches in October to 6.5 inches in June. Precipitation quantities ranged from 1.94 inches in September to 5.83 inches in April 2014. 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.

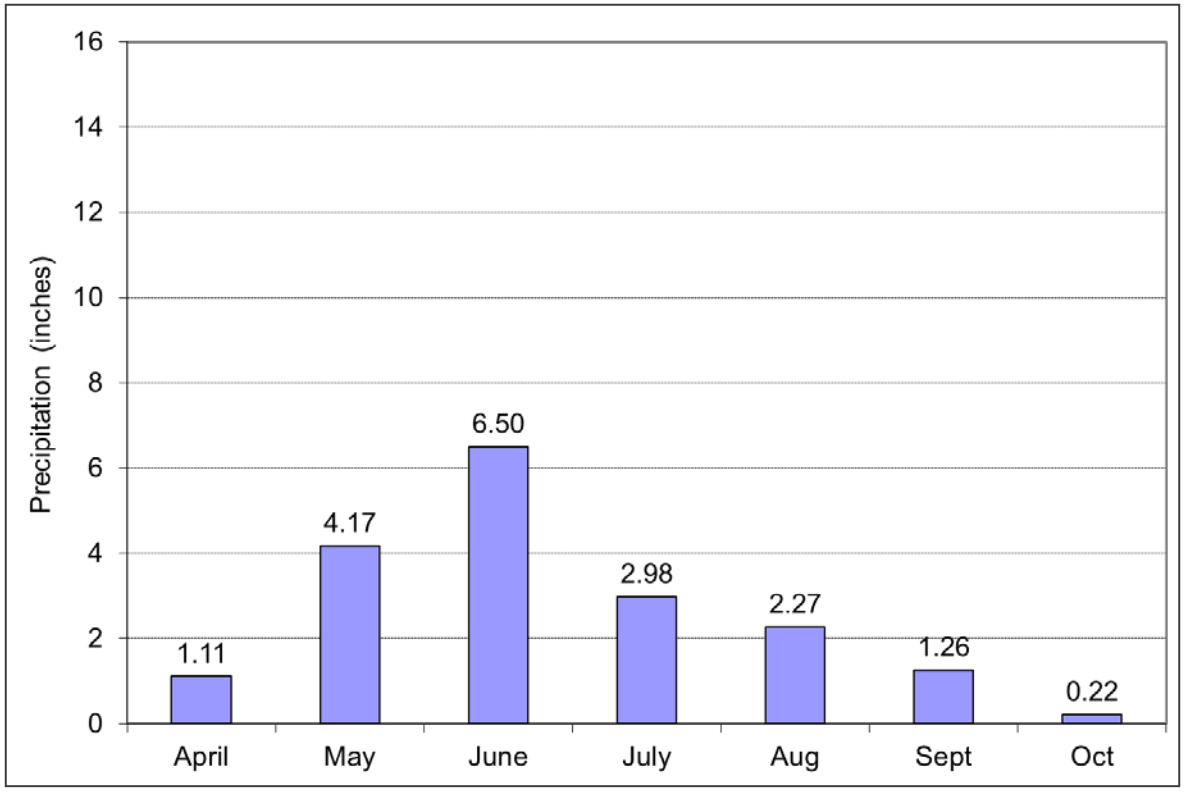

Figure 6. Precipitation recorded at Levittown, Long Island, 2013

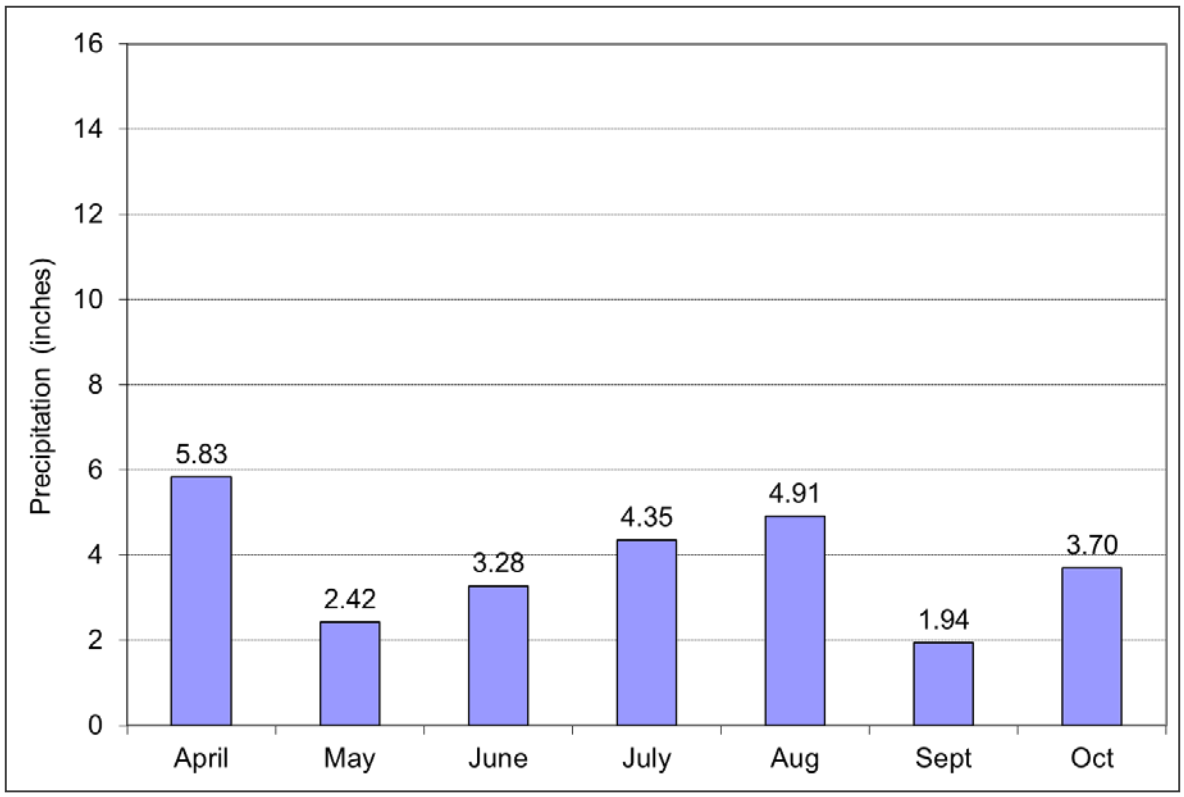

Figure 7. Precipitation recorded at Levittown, Long Island, 2014

4.1.2.1 Cold Spring Harbor Results

Four stations were monitored for fecal coliform and enterococci bacteria in Cold Spring Harbor in 2013 and 2014. *Figure 8* through *Figure 11* present the 2013 and 2014 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*; no stations in Cold Spring Harbor met the fecal coliform NYS shellfish geometric mean standard for the entirety of the 2013 or 2014 season. FB-4 had the lowest recorded levels of the Cold Spring Harbor stations but exceeded the shellfish standard for a portion of both monitoring years.

FB-3 and FB-4 met both the fecal coliform and enterococci geometric mean swimming standards for the 2013 and 2014 seasons. FB-1 and FB-2 exceeded the swimming standards during the majority of the 2013 summer season (late June through September). FB-1 exceeded the swimming standard for a short period of 2014.

During the 2013 and 2014 seasons, no fecal coliform samples exceeded the 1,000 MPN/100 ml single sample swimming standard. Additionally, the 104 MPN/100 ml single sample standard for enterococci was exceeded once at FB-1 and once at FB-2 in 2013, and one time at FB-1 during the 2014 monitoring season. These results would have resulted in beach closures. See *Appendix E* for bacteria data.

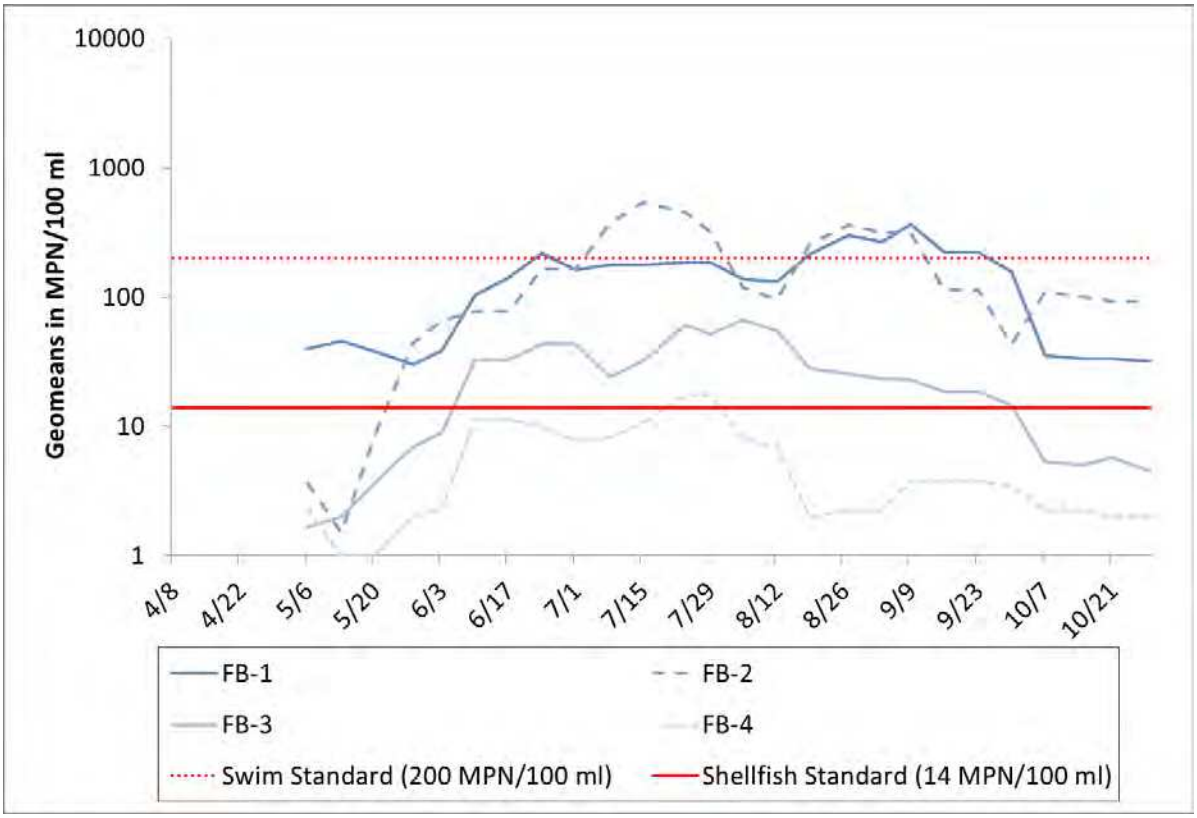

Figure 8. 30-day running geometric mean of 2013 Cold Spring Harbor fecal coliform samples

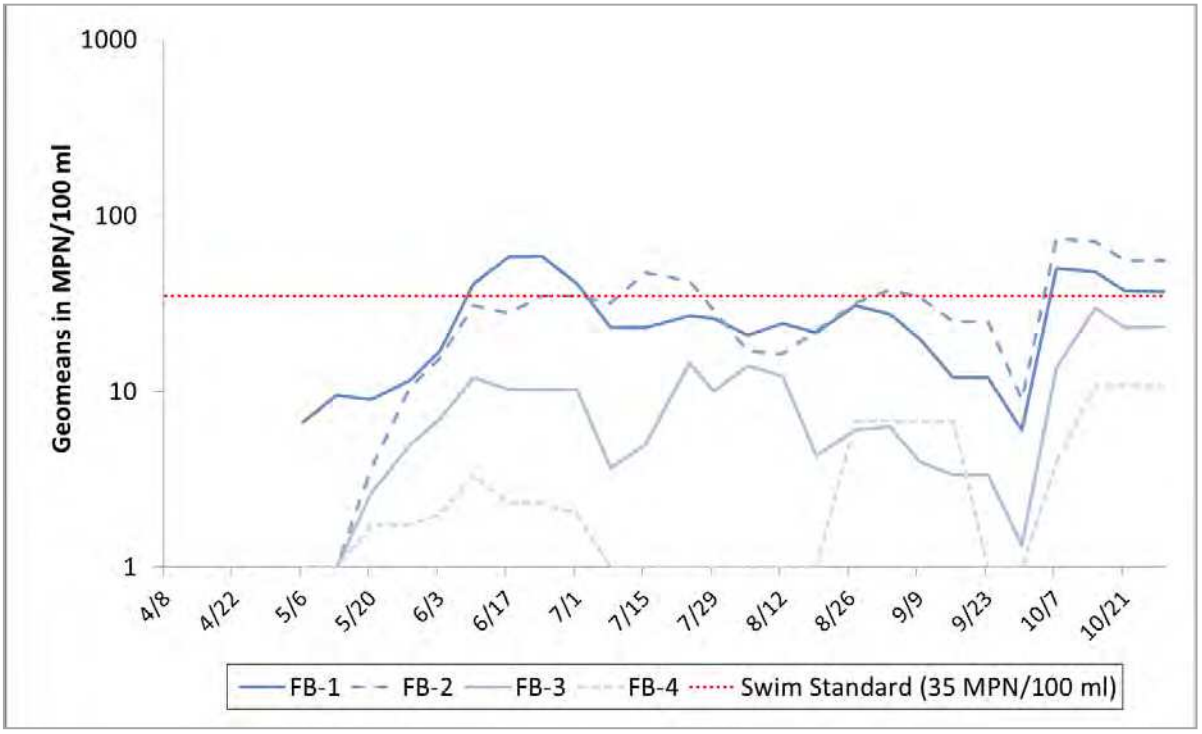

Figure 9. 30-day running geometric mean of 2013 Cold Spring Harbor enterococci samples

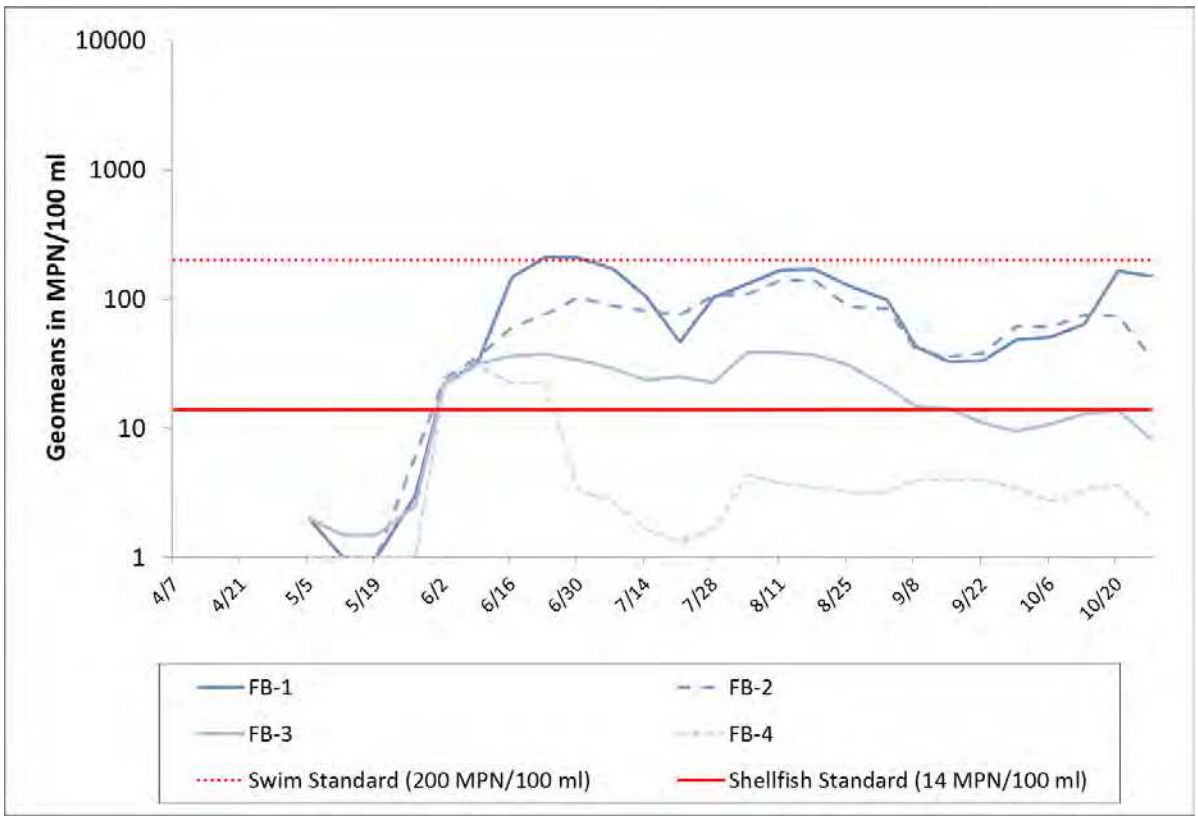

Figure 10. 30-day run ning geometric mean of 2014 Cold Spring Harbor fecal coliform samples

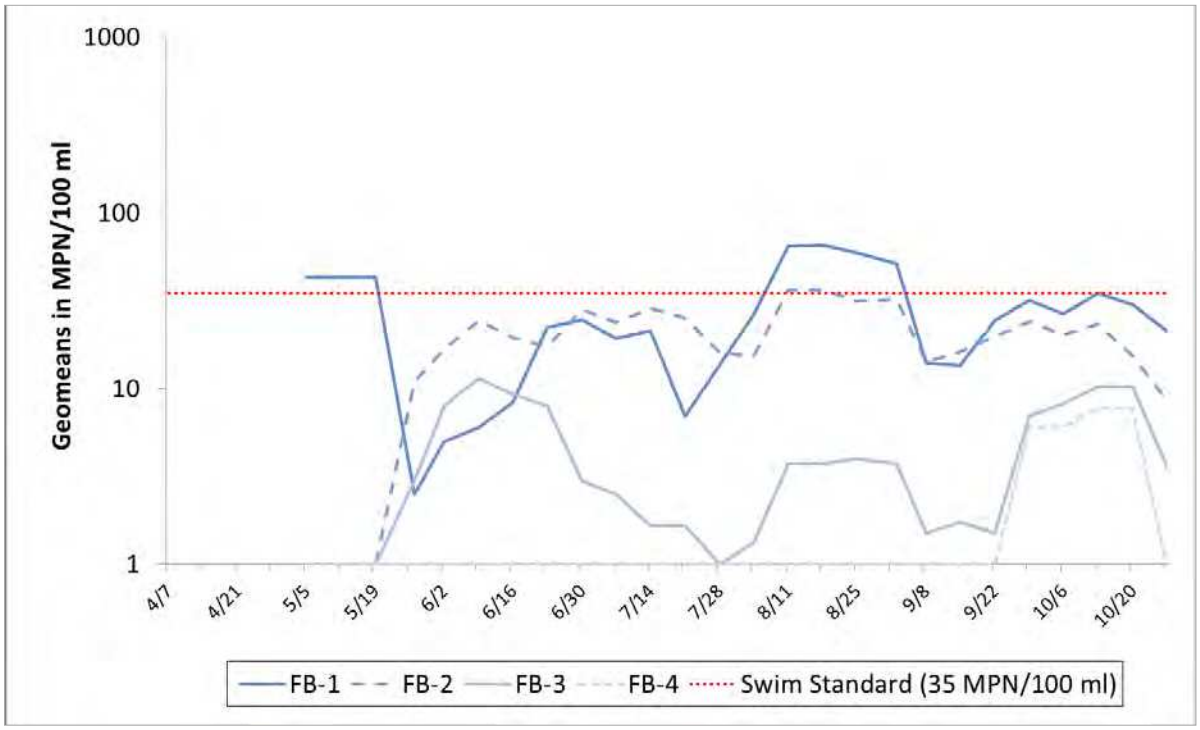

Figure 11. 30-day running geometric mean of 2014 Cold Spring Harbor enterococci samples

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 2013 and 2014 as depicted in *Figure 12* through *Figure 15*. As shown, the geometric mean of fecal coliform results at many of the stations did not meet the geometric mean standard for shellfishing for the 2013 and 2014 seasons. In 2013, 6 of 8 stations exceeded the standard during a portion of the season (FB-5 and FB-6 were below the standard). In 2014, six of the stations exceeded the standard during a portion of the season (FB-5 and FB-11 were below the standard).

In 2013, the running 30-day enterococci geometric mean standard for swimming (35 MPN/100 ml) was exceeded in June through August and in October at FB-10, in July and August at FB-11 and FB-12, and during October at FB-7. The 30-day fecal coliform geometric mean standard for swimming (200 MPN/100 ml) was exceeded at FB-10 during July and during September at FB-8. In 2014, the running 30-day enterococci geometric mean standard (35 MPN/100 ml) was exceeded during a short period of September at FB-10, while the 30-day fecal coliform geometric mean standard (200 MPN/100 ml) was exceeded at FB-10 during September and October.

The single sample swimming standard of 1,000 MPN/100 ml for fecal coliform was not exceeded in 2013 or 2014 within Oyster Bar Harbor, while the 104 MPN/100 ml enterococci swimming standard was exceeded six times in 2013 (FB-10 (3 times), FB-11 (2 times), and FB-12 (once)). See *Appendix E* for bacteria data.

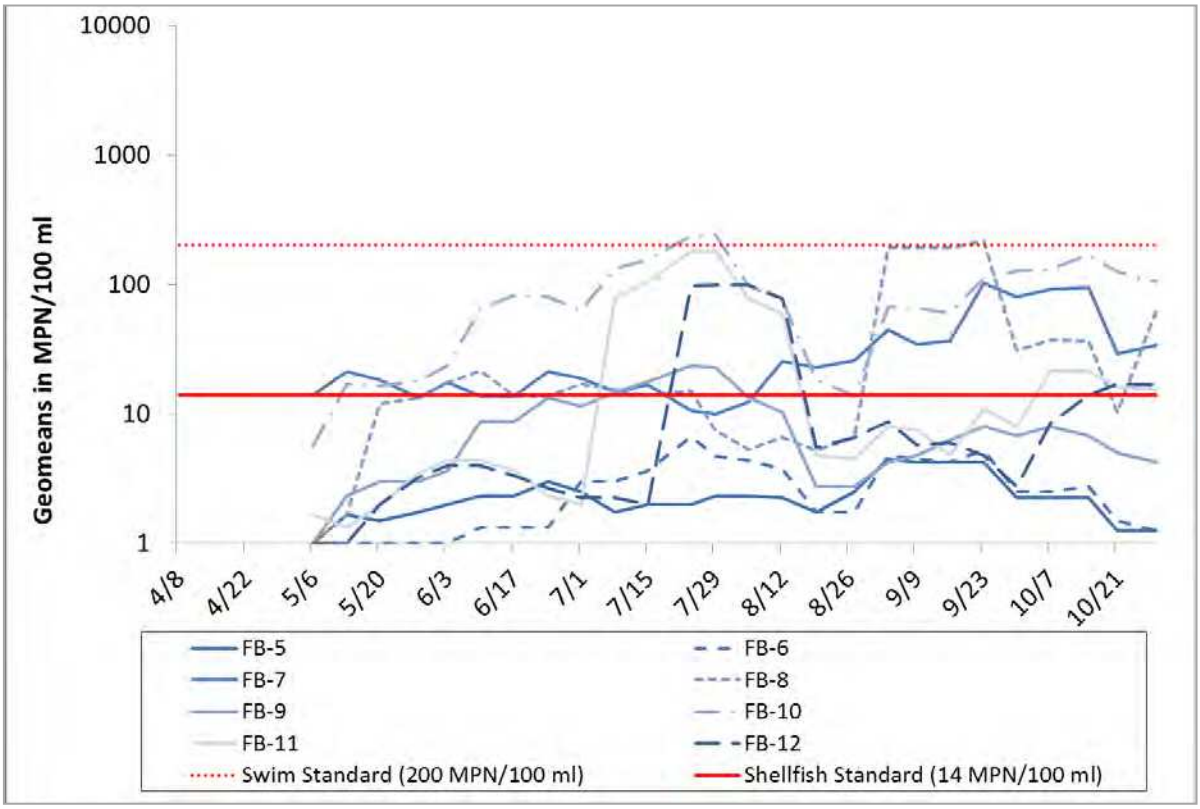

Figure 12. 30-day running geometric mean of 2013 Oyster Bay Harbor fecal coliform samples

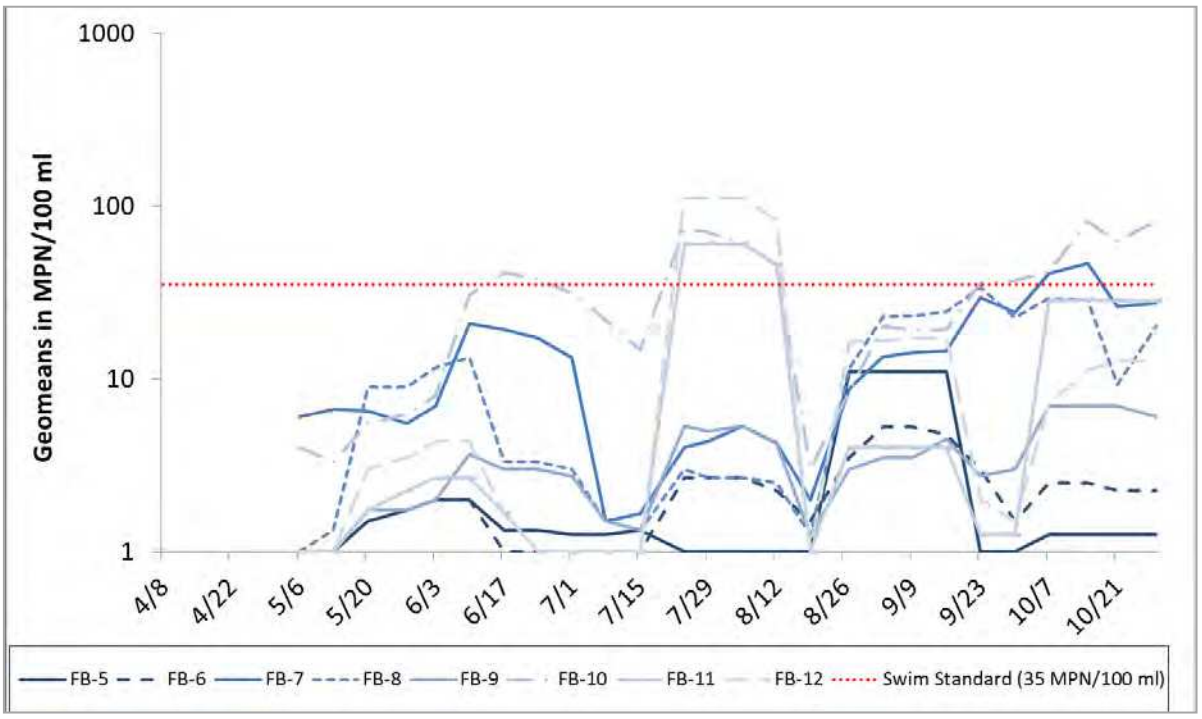

Figure 13. 30-day running geometric mean of 2013 Oyster Bay Harbor enterococci samples

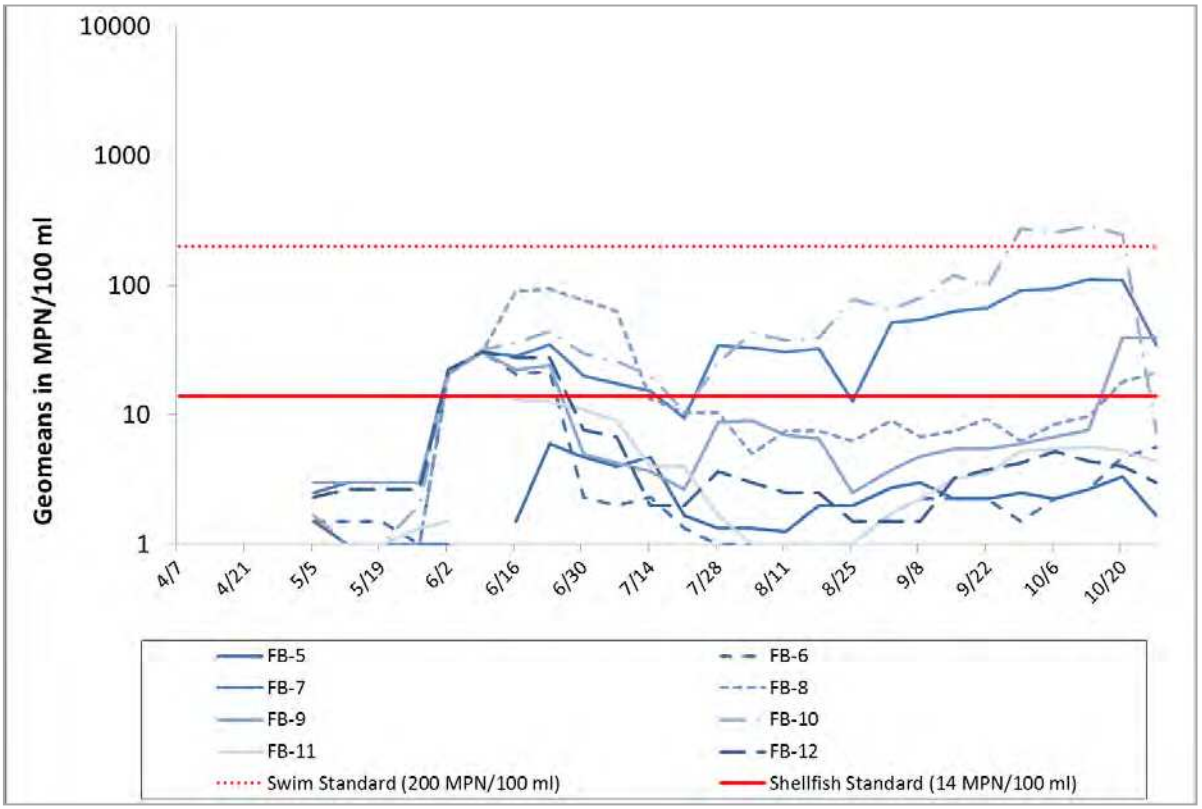

Figure 14. 30-day running geometric mean of 2014 Oyster Bay Harbor fecal coliform samples

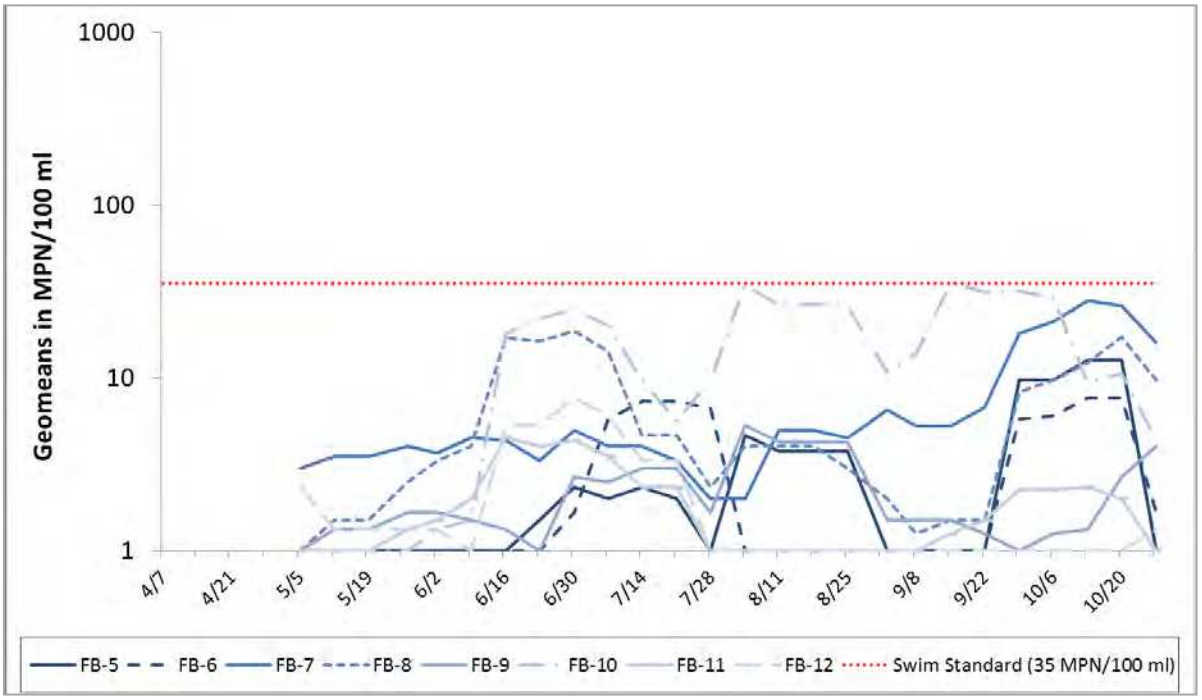

Figure 15. 30-day running geometric mean of 2014 Oyster Bay Harbor enterococci samples

4.1.2.3 Mill Neck Creek Results

In 2013 and 2014, 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 63%, 60%, and 57% of the monitoring events during 2013, respectively, and 60%, 53%, and 40% of the monitoring events during 2014, 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 2013 or 2014 monitoring seasons. Locations FB-15, FB-16, and FB-17 did not meet the geometric mean swimming (fecal coliform and enterococci) standards for fecal coliform for most of the 2013 season and FB-13 and F-15 did not meet for shorter periods of 2014.

The single sample fecal coliform standard (1,000 MPN/100 ml) was not exceeded in 2013 or 2014. Monitoring stations FB-13, FB-14, FB-15, FB-16, FB-17, FB-18, and FB-19 exceeded the enterococci standard (104 MPN/100 ml) two, one, four, six, seven, two, and one time in 2013, respectively. In 2014, monitoring stations FB-13, FB-14, and FB-15 exceeded the enterococci standard one, two, and two times, respectively. 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 80% and 65% for fecal coliform and enterococci, respectively) from the 2011 to the 2014 sampling seasons. These reductions are an early indicator of the water quality improvements that have resulted from 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.

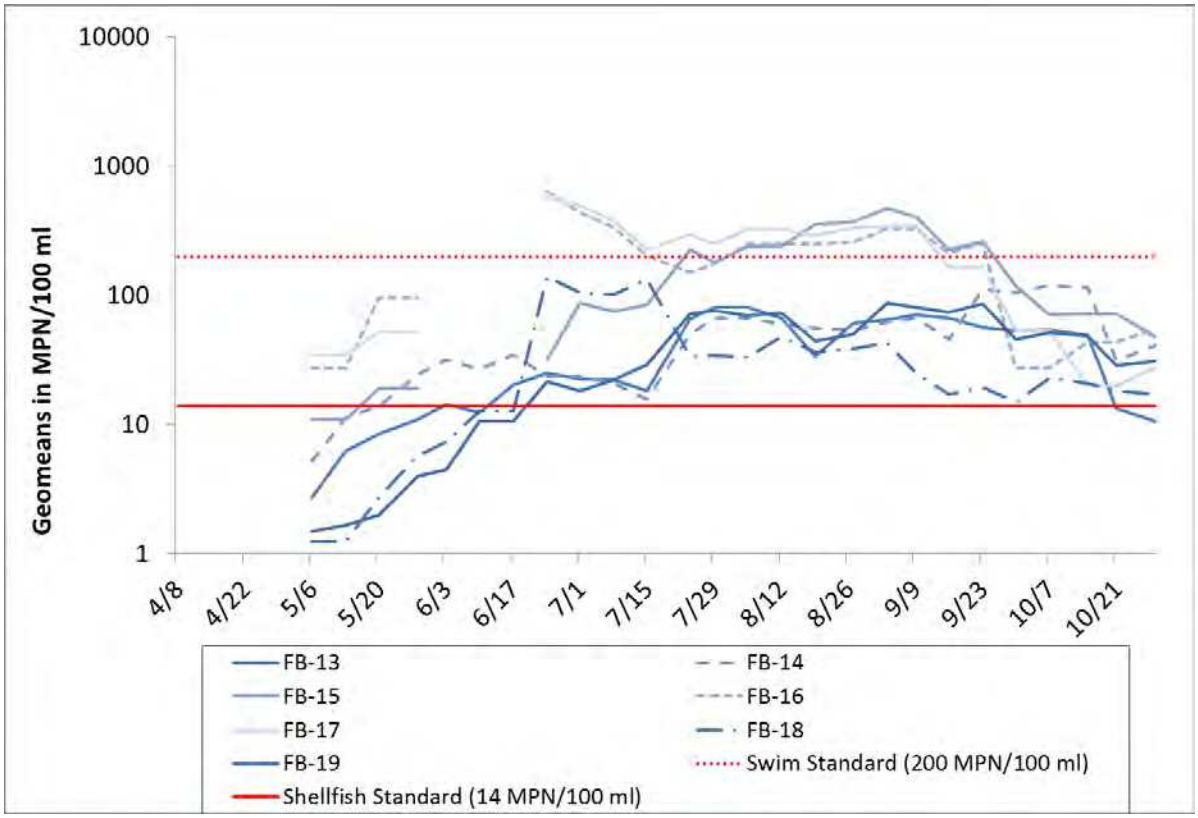

Figure 16. 30-day running geometric mean of 2013 Mill Neck Creek fecal coliform samples

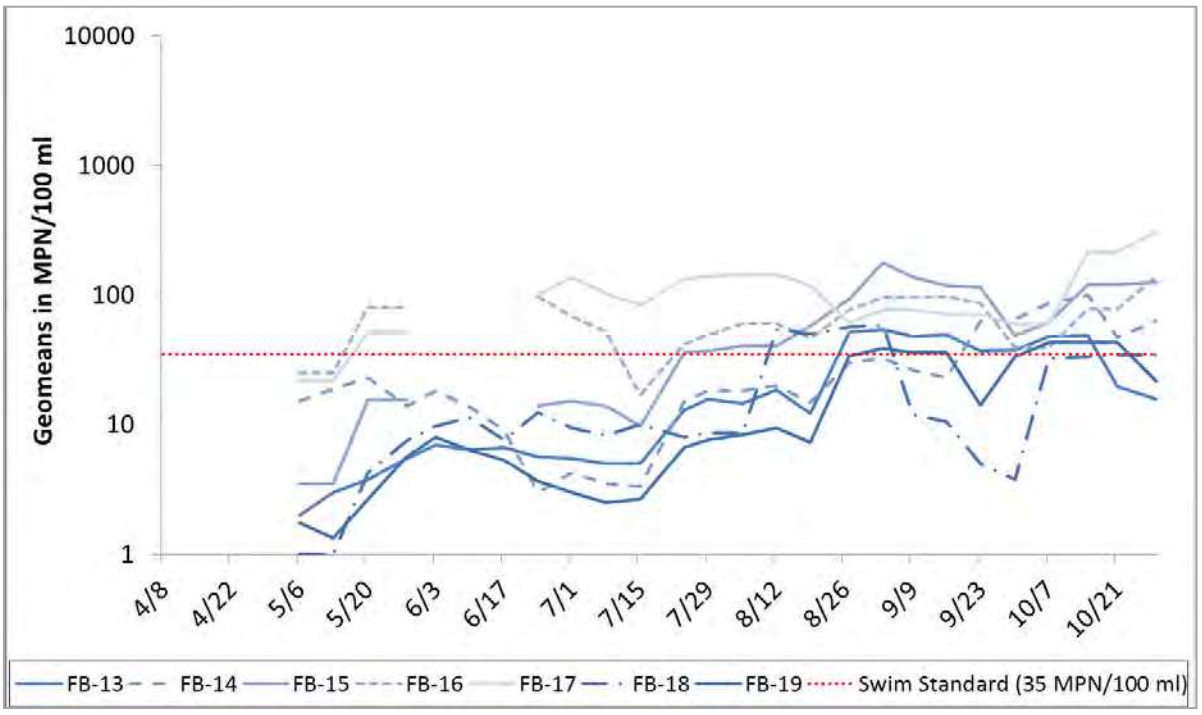

Figure 17. 30-day running geometric mean of 2013 Mill Neck Creek enterococci samples

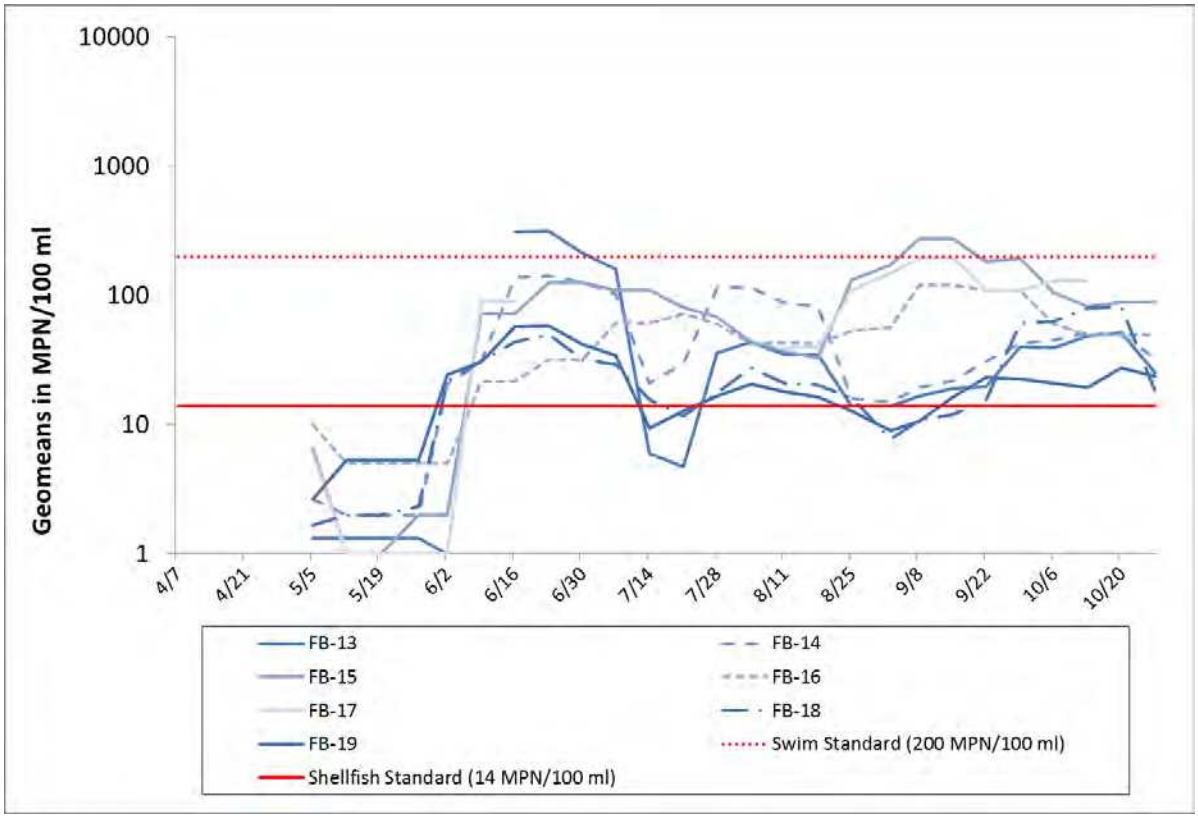

Figure 18. 30-day running geometric mean of 2014 Mill Neck Creek fecal coliform samples

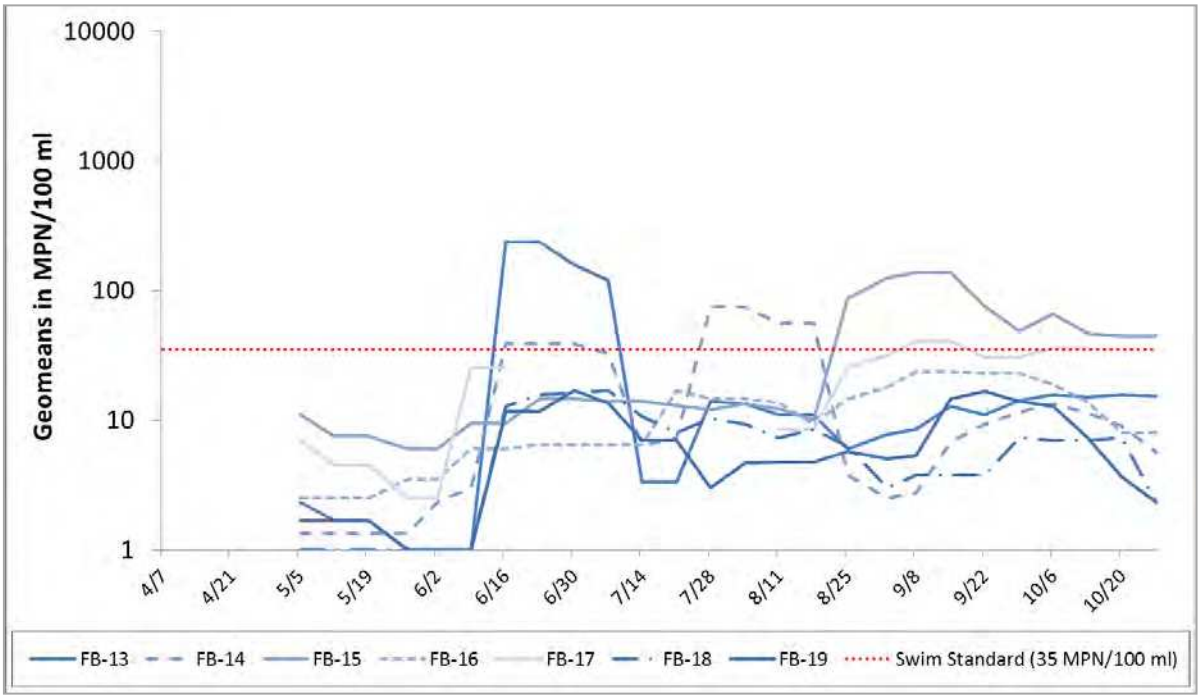

Figure 19. 30-day running geometric mean of 2014 Mill Neck Creek enterococci samples

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.

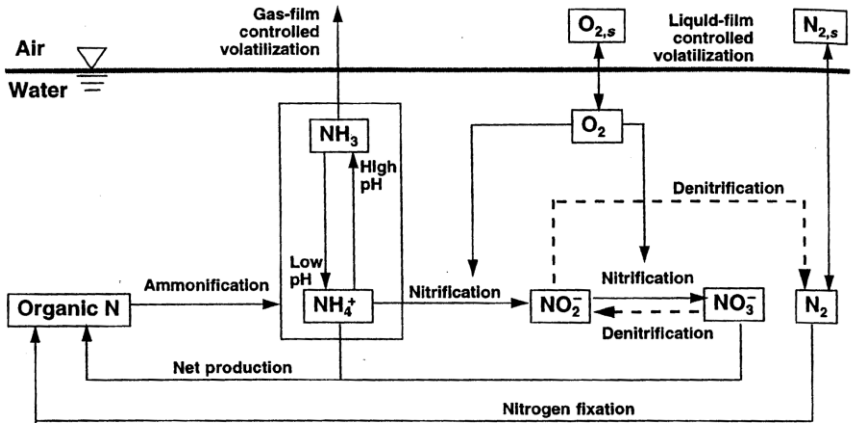

Figure 20. Nitrogen species and processes in marine environments
(Source: Chapra 1997)

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. In 2013 and 2014 FOB monitored three species of nitrogen at

22 sites in the Oyster Bay estuary, including ammonia, nitrate/nitrite and TKN. Samples were collected approximately once per month as scheduled. From these analyses, Organic Nitrogen levels (TKN minus ammonia) and total nitrogen (i.e., TKN plus nitrate and nitrite) can be calculated.

Organic nitrogen is typically present in larger quantities in the Oyster Bay/Cold Spring Harbor estuary waters than ammonia and nitrate plus nitrite, generally accounting for more than 50% of total nitrogen at the monitoring sites. In 2013, organic nitrogen accounted for an average of 96% of total nitrogen at estuary monitoring locations and 74% in 2014. Organic nitrogen seasonal averages exceeded 1.4 mg/l at all locations in 2013 and 0.1 mg/l in 2014. In the estuary, ammonia and nitrate/nitrite levels were low compared to organic nitrogen levels.

With the exception of FB-17, all monitoring locations had ammonia levels well below the State standard during the 2014 monitoring season (*Figure 21*). In the case of station FB-17, the seasonal average level was only 0.01 mg/l above the standard; and the average of only two samples. The seasonal average for all locations was 0.05 mg/l in 2013 and 0.14 mg/l in 2014.

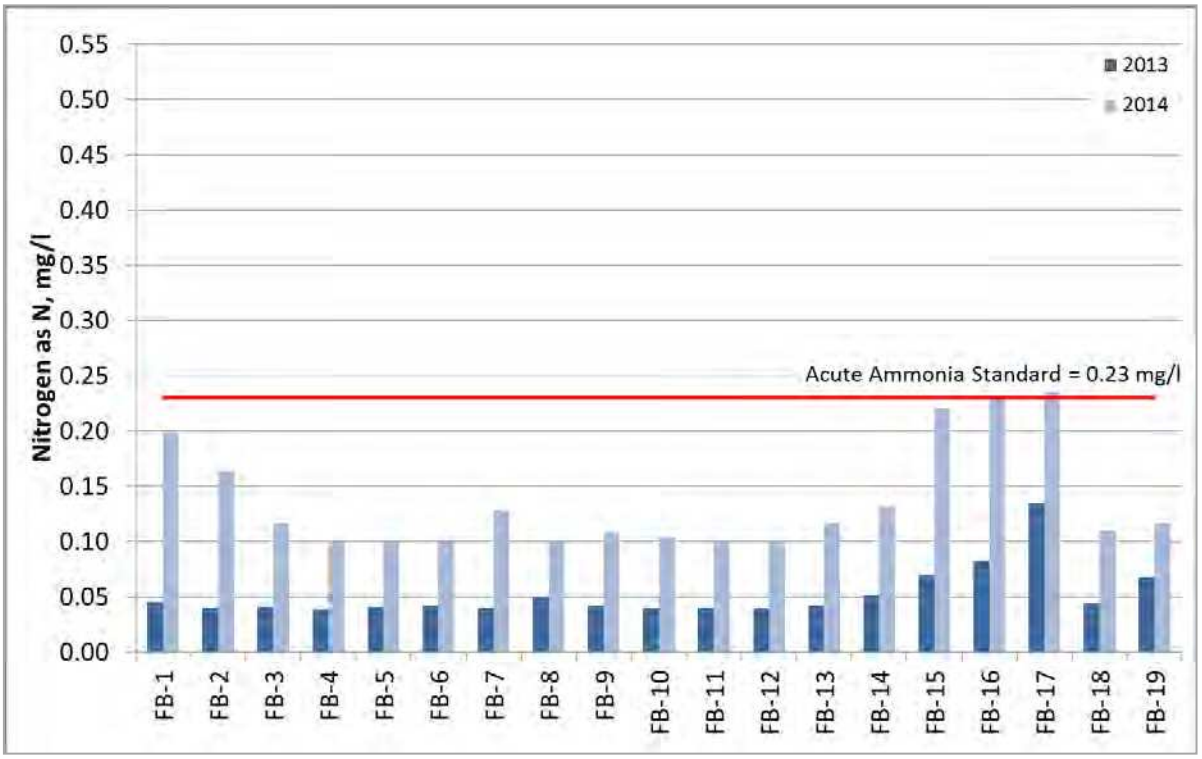

Figure 21. Seasonal average ammonia results for 19 stations in the Oyster Bay/Cold Spring Harbor Estuary, 2013 & 2014

Figure 22 shows locationally-averaged total nitrogen data for the monitored open water body stations in 2013 and 2014. Using the NYSDEC guideline for the Peconic Bay estuary, the seasonal average total nitrogen levels for all of the Cold Spring Harbor, Oyster Bay Harbor, and Mill Neck Creek monitoring locations would have exceeded the total nitrogen guideline of 0.5 mg/l in 2013 and one location, FB-15, would have exceeded in 2014. As a comparison, all 19 monitoring locations have exceeded this guideline since 2005 (in 2002, 2003, and 2004, 17, 11, and 12 locations, respectively, would have exceeded the guideline). The fact that only one monitoring location exceeded in 2014 is a significant and

encouraging improvement over past years. The elevated levels were described in Friends of the Bay's 2004 Water Quality Report, but nitrogen samples were only collected on two occasions in that year and the elevated results could not be verified. See *Appendix E* for additional nitrogen data.

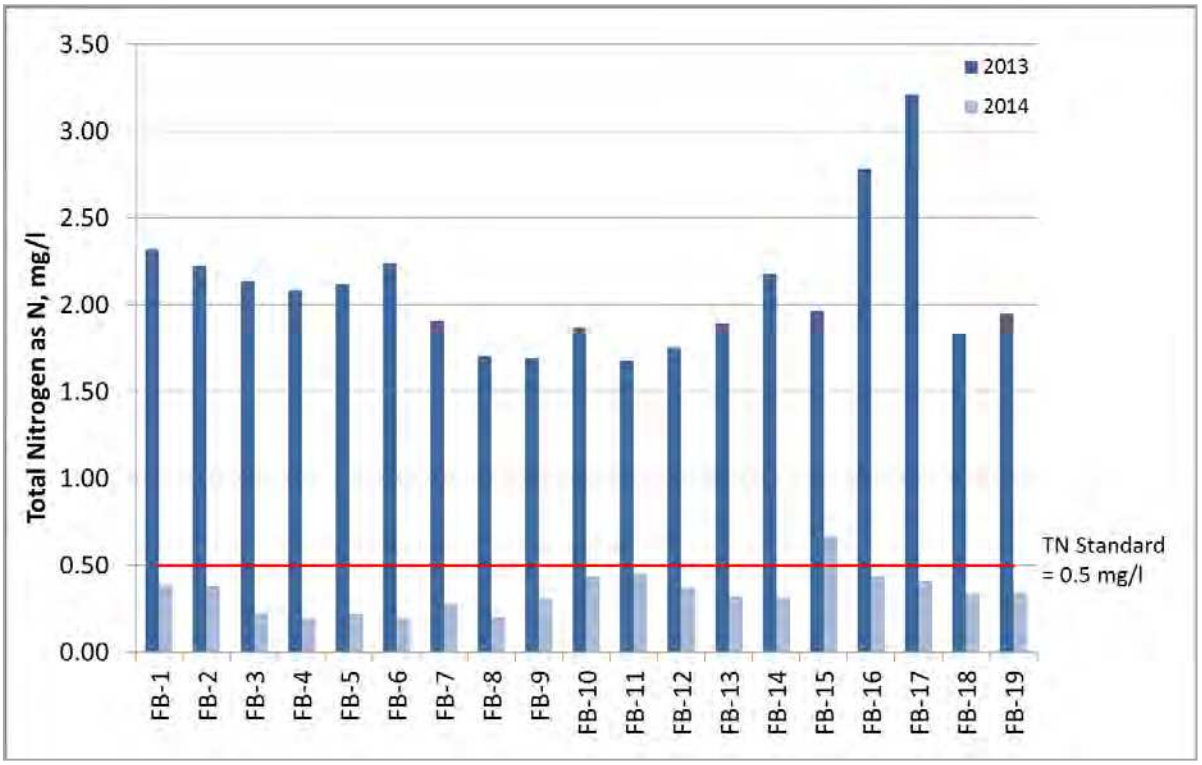

Figure 22. Seasonal aver age total nitrogen results for 19 stations in the Oyster Bay/Cold Spring Harbor Estuary, 2013 & 2014

As depicted in *Figure 23*, total nitrogen levels measured in the estuary have been generally trending upward since Friends of the Bay began monitoring in 2002. The 2014 monitoring season experienced the lowest total nitrogen levels the inception of this monitoring program, while 2013 was closer to the average nitrogen levels measured over all monitoring seasons.

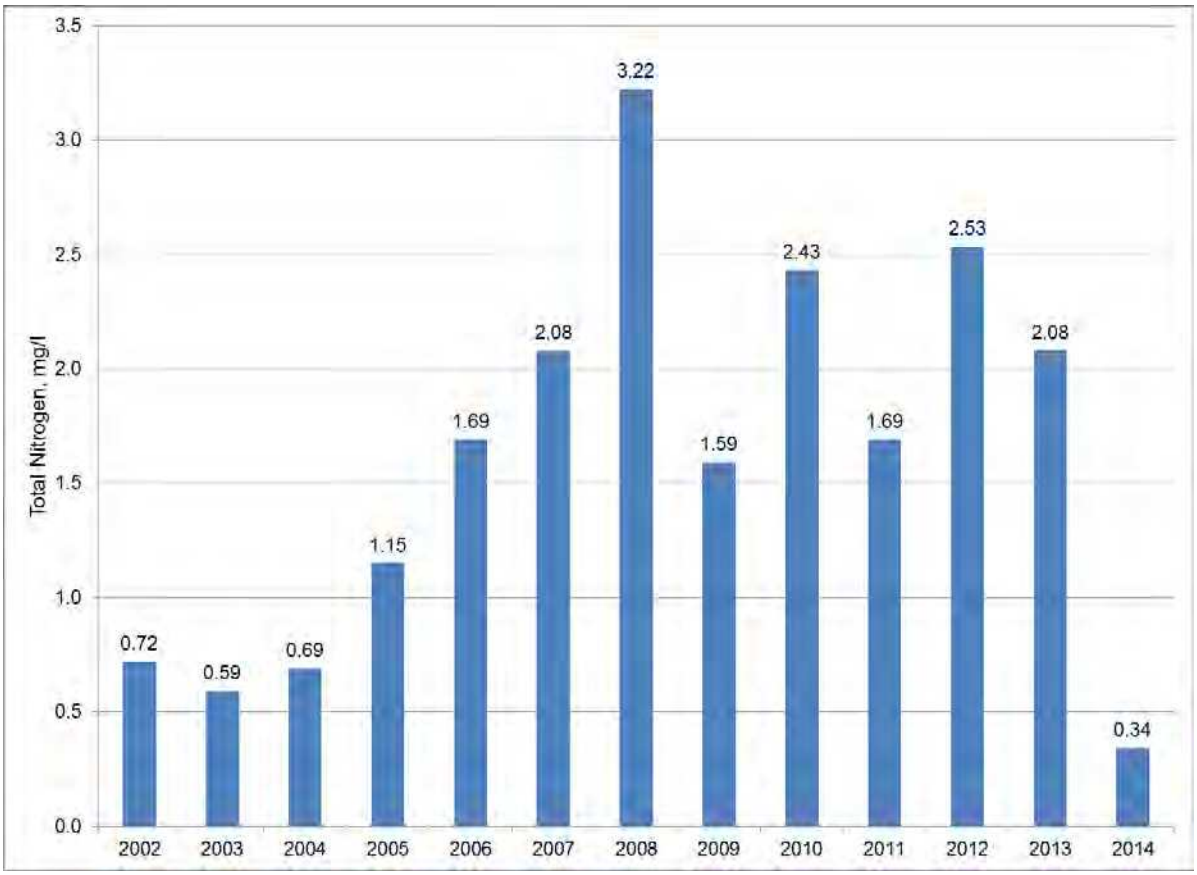

Figure 23. Sea sonal averages for total nitrogen

4.1.4 Disso lve d Oxyg e n

All aquatic life 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.

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

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.

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 2013 and 2014, Friends of the Bay monitored dissolved oxygen (DO) levels at the top and bottom of the water column at 22 open water body sites in the estuary complex (19 sites in 2013, Laurel Hollow was not sampled). Dissolved oxygen concentrations at the top of the water column were generally 5-8 mg/l (0.91-8.74 mg/l in 2013 and 0.45-38.01 mg/l in 2014) and 3-4 mg/l (0.75-7.65 mg/l in 2013 and 0.89-99.00 mg/l in 2014) at the bottom of the water column. The extremely low and high dissolved oxygen values measured during the 2014 monitoring season were noted by the samplers as "suspicious," indicating likely problems with the data logger and sonde. The 2014 dissolved oxygen monitoring data has been included in this report for completeness, but should not be used to make any conclusions about water quality. The 2013 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 24* through *Figure 30* present DO data collected at the bottom of the water column throughout the 2013 and 2014 seasons.

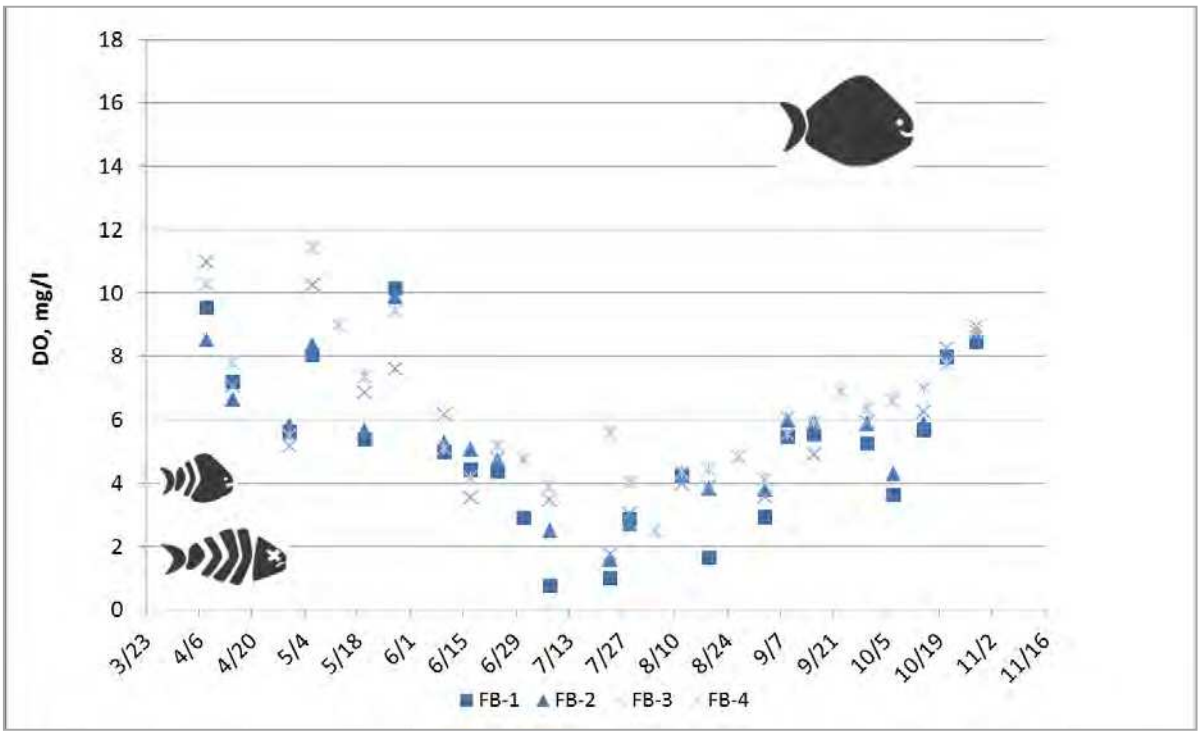

Figure 24. Dissolved oxygen for Col d Spring H arbor monitoring locations, 2013

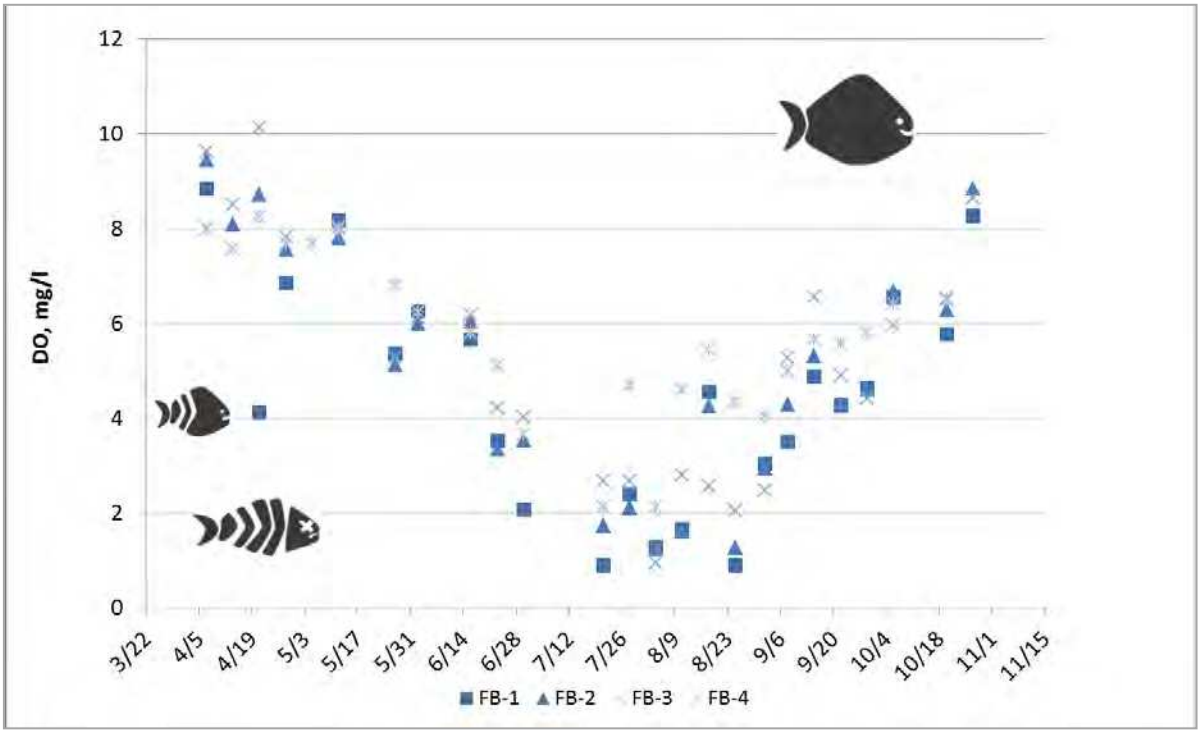

Figure 25. Dissolved oxygen for Cold Spring H arbor monitoring locations, 2014

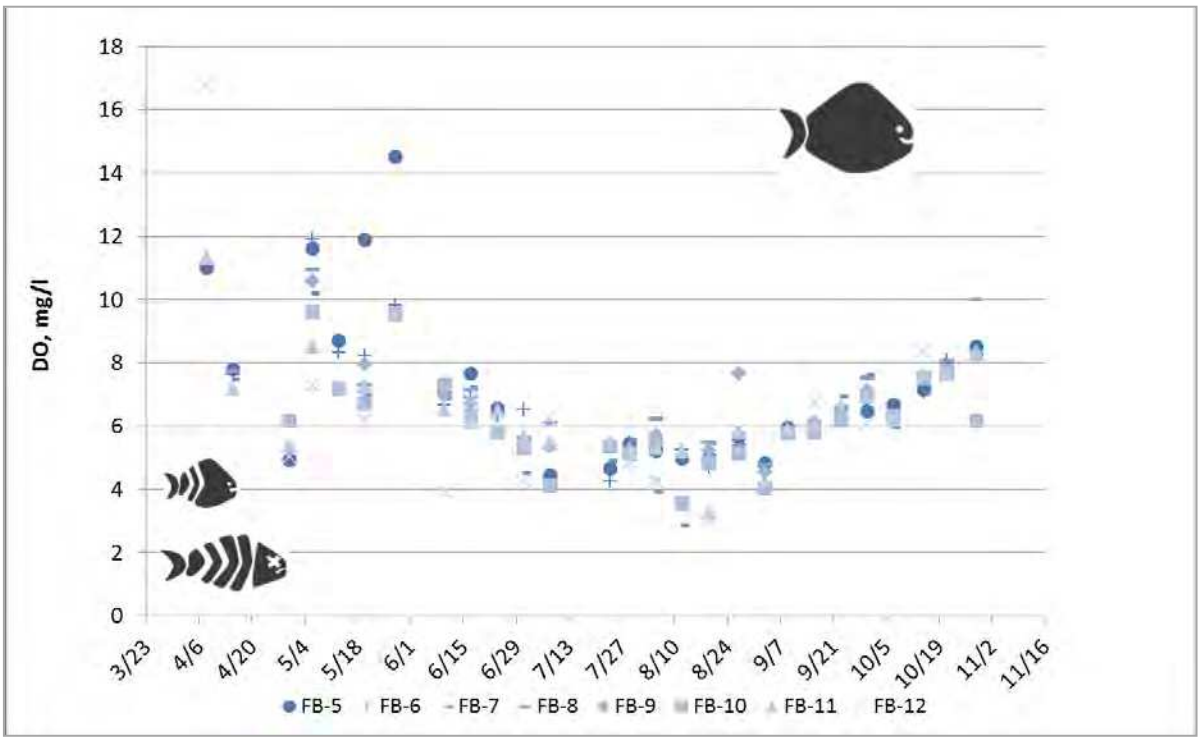

Figure 2 6. Dissolved oxygen for Oyster Bay Harbor monitoring locations, 2013

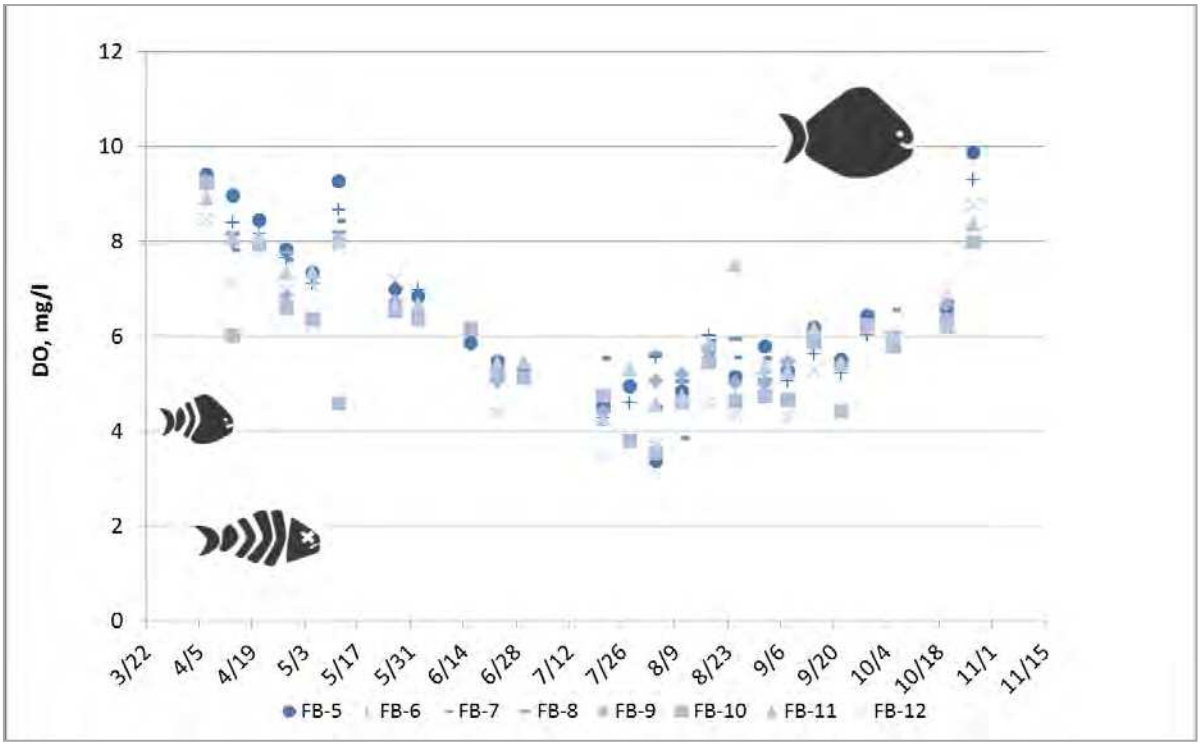

Figure 2 7. Dissolved oxygen for Oyster Bay Harbor monitoring locations, 2014

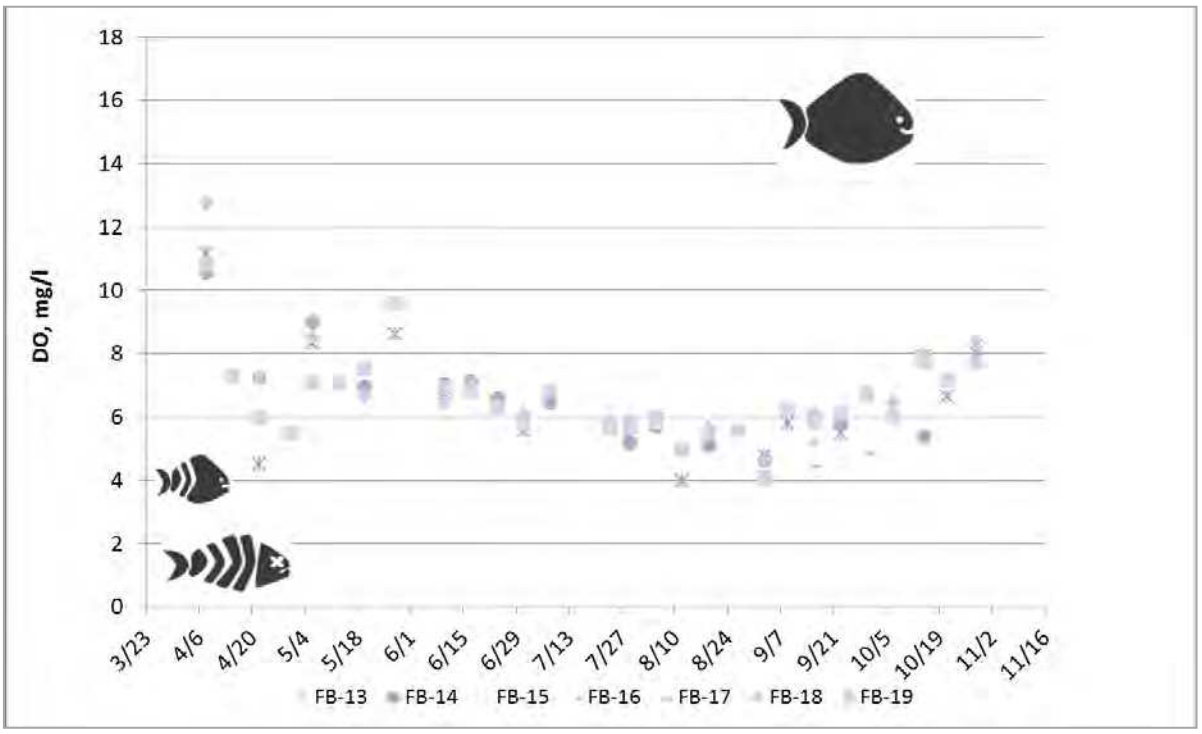

Figure 2 8. Dissolved oxygen for Mill Neck Creek monitoring locations, 2013

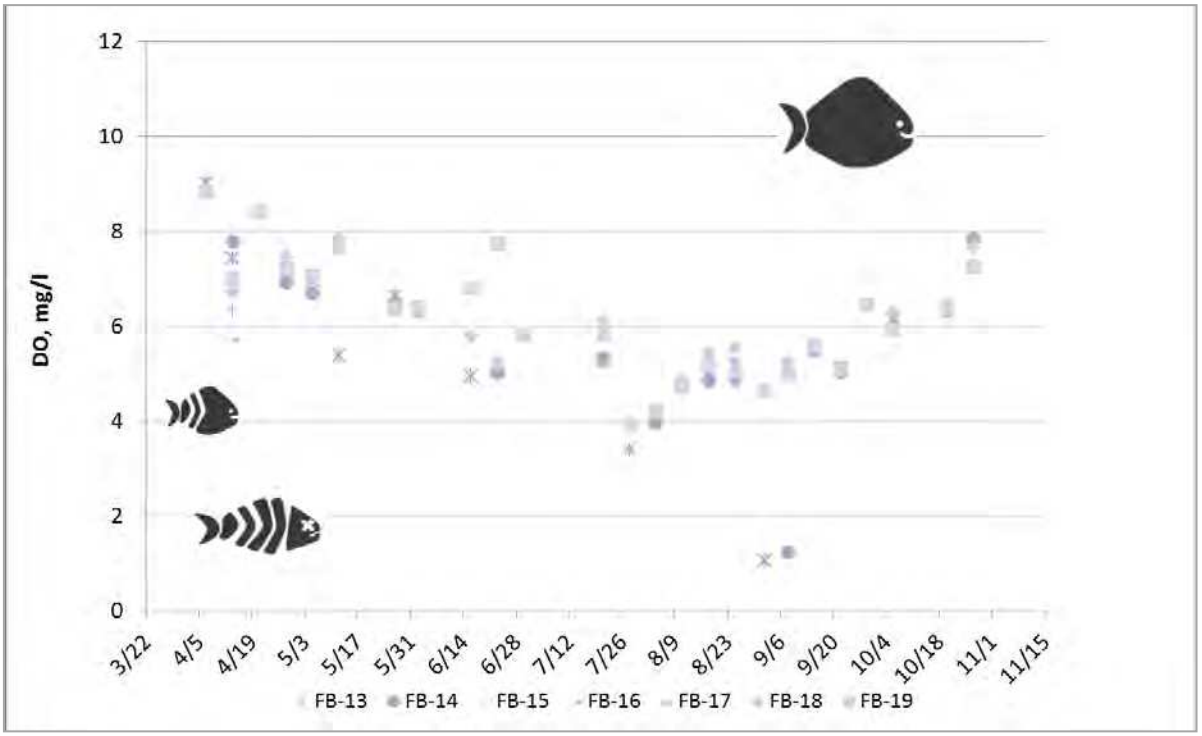

Figure 2 9. Dissolved oxygen for Mill Neck Creek monitoring locations, 2014

Figure 32 and *Figure 33* present boxplots of the DO data collected at the bottom of the water column throughout the 2013 and 2014 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 31*, 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.

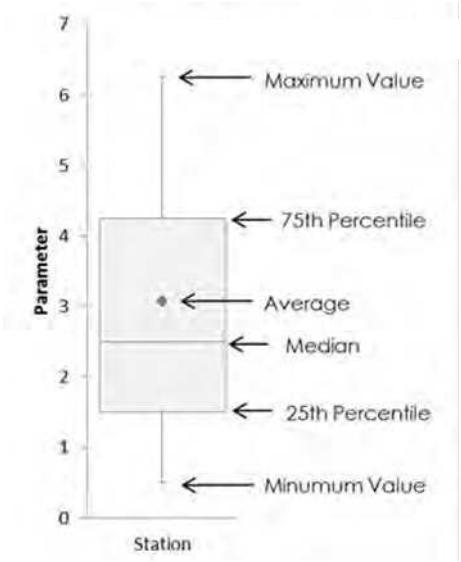

Figure 3 0. Boxplot Elements

The mean and median DO values were slightly lower in 2014 compared to 2013. In 2014, measured DO values (0.5 m from the bottom) were lower overall than 2013, with all values less than 10.1 mg/l (all values in 2013 were below 16.8 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 2013, DO concentrations fell below the acute standard of 3.0 mg/l at stations FB-1, FB-2, FB-3, FB-4, and FB-7. DO levels fell below the acute standard at FB-1, FB-2, FB-3, FB-4, FB-13 and FB-14 in 2014.

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.

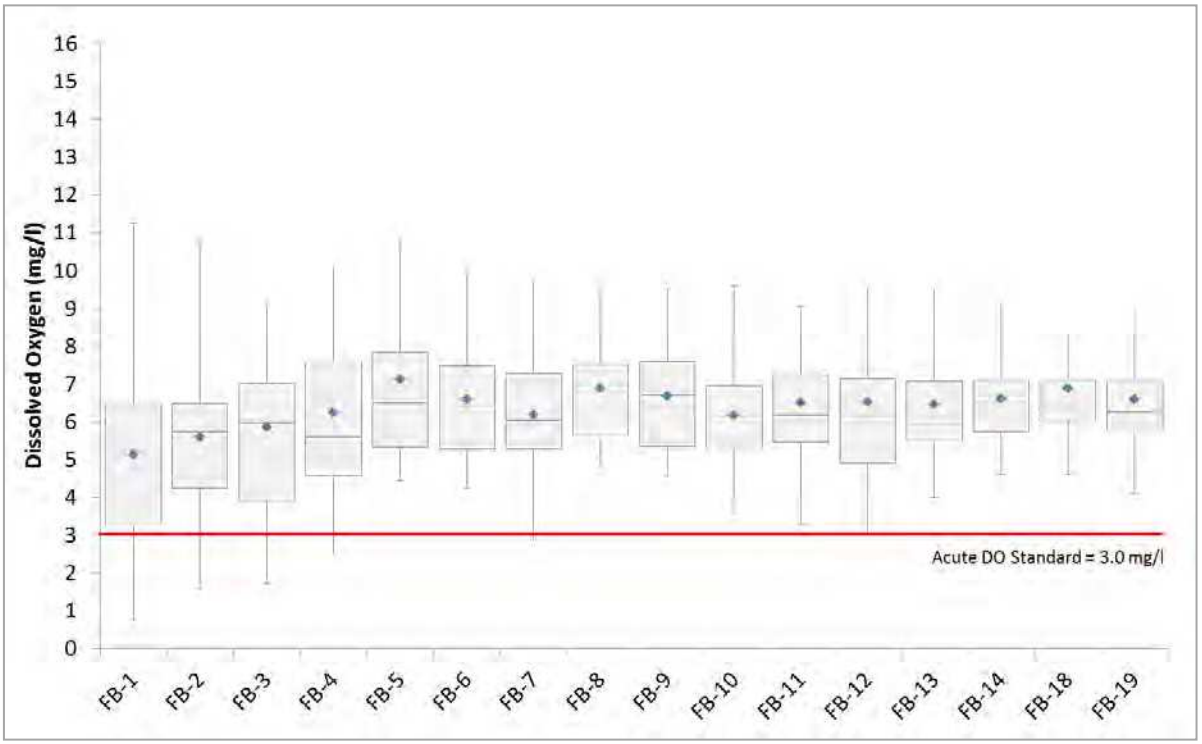

Figure 31. Dissolved oxygen at all monitoring locations , 2013

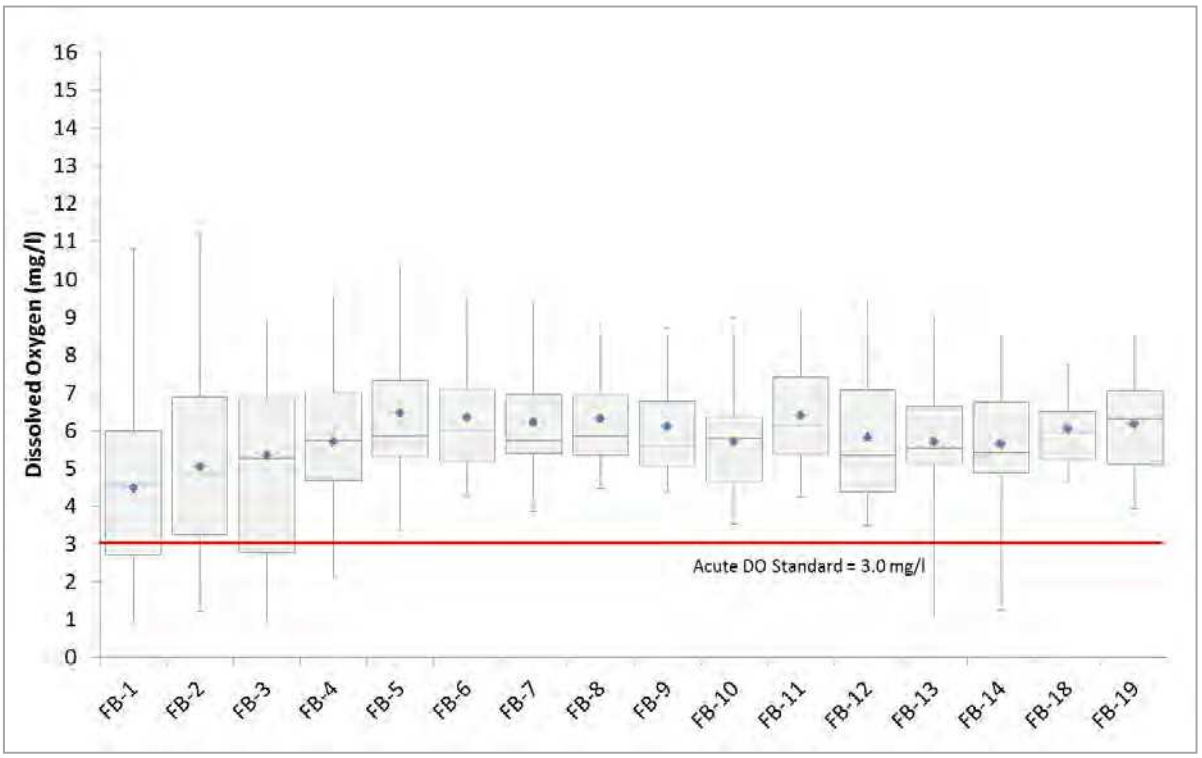

Figure 32 . Dissolved oxygen at all monitoring locations, 2014

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.

The monitoring program includes "rotating" stormwater or wastewater outfall monitoring locations that can change from event to event in an effort to identify pollutant sources given limited resources. Additionally, one monitoring location is upstream of the Mill River discharge to the estuary. This location was selected to examine changes in pollutant contributions within the Mill River watershed. The reach between the upstream and downstream monitoring locations includes an apartment complex, numerous residences, Mill Pond, and freshwater wetlands.

Stream and pond discharge monitoring locations include:

- OBS-2, Beaver Lake Outflow
- OBS-3, Beekman Creek
- OBS-5, Mill River Outflow
- OBS-6, White's Creek
- OBS-7, Tiffany Creek
- OBS-8, DeForest Pond Outflow
- OBS-9, St. John's Pond Outflow

Paired upstream and downstream locations include:

- OBS-4, Upper Mill River
- OBS-5, Mill River Outflow

Wastewater and stormwater discharge monitoring locations include:

- OBS-1b, Adams Avenue Outfall
    - Prior to 2013, samples were collected from The Birches sewage outfall (OBS-1) and in 2013 samples were collected at the DeForest Outfall (OBS-1a)
- OBS-10, Rotating Outfall
- OBS-11, Rotating Outfall

Samples collected at these stations were monitored for dissolved oxygen, specific conductivity, pH, temperature, *E.coli*, fecal coliform, ammonia as N, nitrate as N, TKN, phosphorus as P, BOD, COD, TSS, turbidity, hardness as $CaCO_3$, lead, copper, zinc, magnesium, calcium, alkalinity as $CaCO_3$, and qualitative parameters (odor, color, particulates, and floatables). Nutrients and metals were not monitored in 2014 due to laboratory limitations.

Although stream and outfall monitoring has been conducted as ten discrete events over five years (no samples were collected in 2012 and for only limited parameters in 2014), some general observations can be made. In summer 2010, DO measurements at OBS-8 were very low and in 2011 they were similarly low at OBS-11 (Mill Pond). These are the lowest observed values of all the stations. In general, stations OBS-1, OBS-8 and OBS-10 have lower DO values. Overall, DO values have remained fairly consistent since 2007 and are in the range of 6-14 mg/l.

Samples were collected for *E.coli* and fecal coliform during two monitoring events in 2013 and for enterococci and fecal coliform during two monitoring events in 2014. The 2013 *E.coli* results at OBS-1b (Adams Avenue outfall) were higher than in past years at rotating outfall locations. As in 2011, *E.coli* levels were low at OBS-9 in 2013. The fecal coliform results from both years were within the range of values observed since 2007. All stations except for OBS-4 and OBS-9 exceeded the swimming standard during at least one sampling event. The enterococci results from 2014 cannot be compared to past results as it is a different unique species from *E.coli* and fecal coliform. Continued monitoring is necessary to further evaluate the presence of potential trends in fecal coliform and enterococci.

pH values have remained relatively consistent and within a desirable range. Elevated pH readings were again recorded at OBS-2 in August 2013 (9.46 SU), which is similar to the elevated pH (10 SU) measured in June 2011. Specific conductivity measurements have remained relatively consistent over time and at all stations. Notably, elevated specific conductivity concentrations were observed at OBS-6 in all sampling events except for December 2008, December 2010, and June 2011, at Laurel Hollow Beach outfall (sampled under rotating stations OBS-10 & OBS-11) in July and October 2014, and at Adams Avenue Outfall (OBS-1b) in 2013 and 2014. In general, ammonia levels in 2013 were measured consistent with past years. The maximum reported ammonia concentration was lower compared to other years. In 2013, higher nitrate levels were also observed at OBS-6 and OBS-8. The highest metals concentrations were also observed at OBS-1b (Adams Avenue outfall) in 2013. Additional data will help to further identify potential pollution sources associated with the streams and outfalls. Stream and outfall monitoring results are provided in *Appendix F*.

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 being 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. A unique station number 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.
  - Continue the current Friends of the Bay stream and outfall monitoring program, focusing on priority outfalls and discharges to the estuary complex.
  - 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 concentrate 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, silt from stormwater runoff can smother otherwise productive shellfish beds, and 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.
  - Harmful algal bloom (HAB) monitoring should be conducted within Oyster Bay/Cold Spring Harbor to address these risks and guide water quality management approaches. Specific recommendations include:
    - Coordinate with NYSDEC to expand the NYSDEC Bureau of Marine Resources Shellfisheries Section marine biotoxin monitoring program and/or the Suffolk County HABs monitoring program to Oyster Bay/Cold Spring Harbor.

        - Coordinate HABs monitoring efforts between state, county, and municipal health departments and marine monitoring efforts.
        - Incorporate periodic HAB monitoring into the Friends of the Bay water quality monitoring program and compile results in the proposed Information Resource Center.
        - Coordinate with local government and university researchers regarding ongoing research findings on HABs and implement related water quality management approaches.
    - 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 2013 and 2014 water quality monitoring data provides the following insights:

- On a seasonal average basis, all of Laurel Hollow and the majority of Oyster Bay Harbor met state shellfish standards for fecal coliform during the 2013 and 2014 monitoring seasons. (Oyster Bay Harbor is where the majority of shellfishing occurs in the estuary.) The 2014 seasonal geometric mean fecal coliform levels in Oyster Bay Harbor were the second 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 most (six of eight) of the stations exceeded the shellfish standard for a portion of the season in 2013 and 2014. During the 2011 and 2012 monitoring seasons, the 30-

day geometric mean fecal coliform concentrations at a majority of Oyster Bay Harbor monitoring stations met 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 2013 or 2014 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 2013 and 2014 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 80% and 65% for fecal coliform and enterococci, respectively) from the 2011 to the 2014 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 monitoring data indicate that all monitoring locations would have exceeded the NYSDEC nitrogen guideline for marine waters that has been established for the Peconic Bay estuary. Conversely, with the exception of FB-17 during the 2014 monitoring season, all monitoring locations had ammonia levels well below the State standard.
- 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.
- Hypoxic and anoxic conditions are likely to have occurred in the Oyster Bay/Cold Spring Harbor estuary complex during the 2013 and 2014 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 2013 and 2014 at all 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.
- Friends of the Bay continued stream and outfall monitoring in 2013 and to a limited extent in 2014. Continued monitoring is necessary to further evaluate trends in the data and inputs of nonpoint source pollution from 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.

7 References

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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]

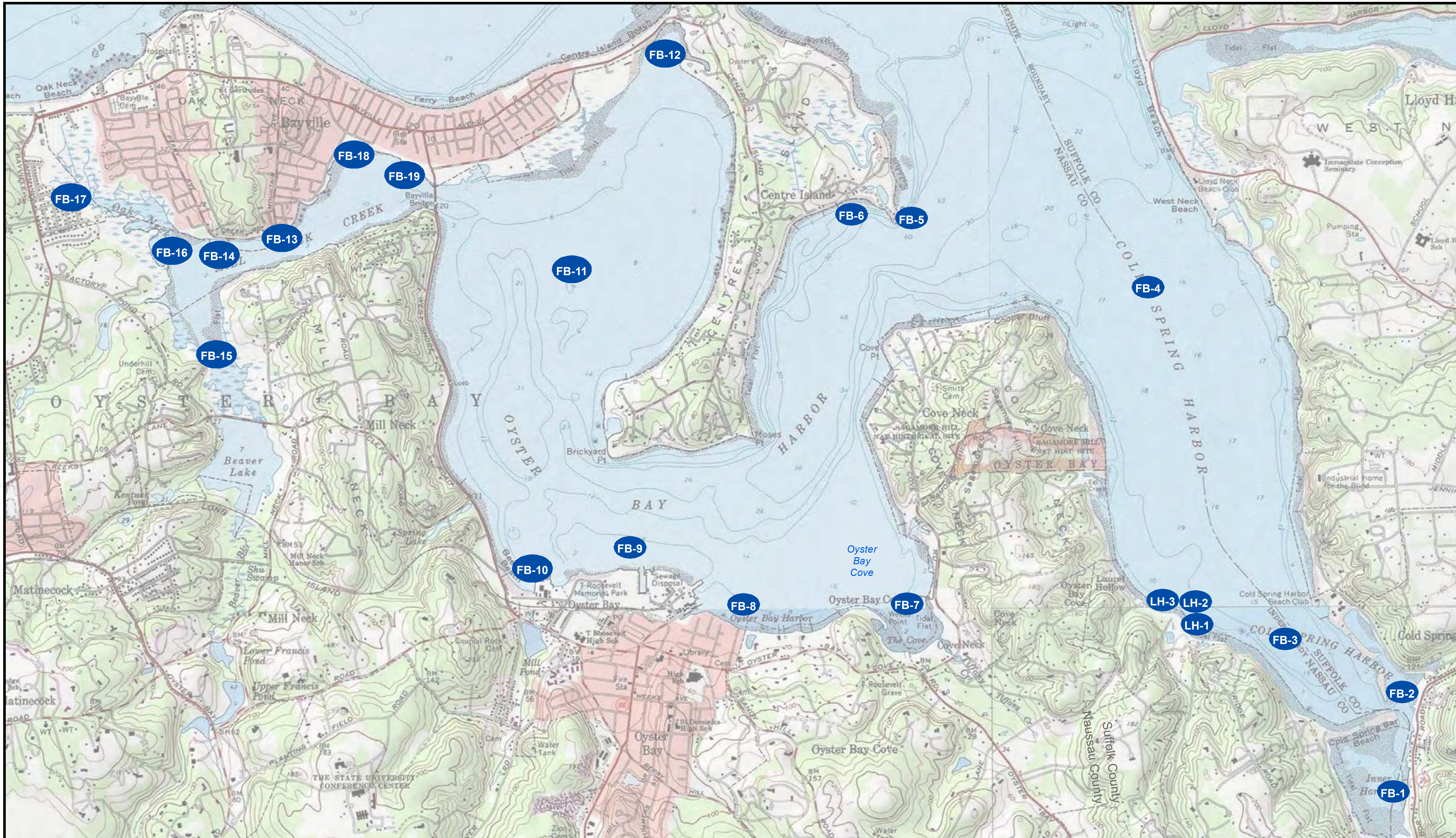
Further, the TMDL indicates that pollution from marinas and boat mooring areas should be reduced using appropriate mitigation techniques such as:

- 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



Friends of the Bay
Water Quality Monitoring Locations

Data Sources:
Friends of the Bay; USGS Topo Maps © 2011 National Geographic Society;
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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

OBS – 1b Adams Ave, Outfall Bayville

OBS – 2 Beaver Lake Outflow

OBS – 3 Beekman Creek

OBS – 5 Mill River Outflow

OBS – 4 Mill River Headwaters

OBS – 6 White's Creek

Oyster Bay Cove

OBS – 7 Tiffany Creek

OBS – 8 DeForest Pond Outflow

OBS – 9 St. John's Pond Outflow

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Friends of the Bay
Oyster Bay/Cold Spring Harbor Watershed
Stream and Outfall Monitoring Locations

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W E
S

Legend

MonitoringLocations
Oyster Bay/Cold Spring Harbor Watershed
County

Stream and Outfall Sampling Locations in Mill Neck Creek, Oyster Bay, and Cold Spring Harbor

Site ID	Site Location	Site Description	Coordinates
OBS – 1	The Birches Sewage Outfall	Adjacent to end of pipe, accessible from Meleny Road. *Sampled prior to the 2013 season.*	40°54′17″ N 73°34′57″ W
OBS – 1a	DeForest Outfall	Storm outlet adjacent and immediately south of pond outlet. *Sampled during the 2013 season only.*	40°52′24″N 73°27′68″ W
OBS – 1b	Adams Ave, Outfall, Bayville	In line with end of Adams Ave.	40°54′20″ N 73°33′20″ W
OBS – 2	Beaver Lake Outflow	South side of Robert De Graff Causeway upstream of and adjacent to waterfall	40°53′15″N 73°33′48″ W
OBS – 3	Beekman Creek	West Side of West Shore Road	40°52′34″ N 73°32′34″ W
OBS – 4	Upper Mill River	South Side of Glen Cove Road adjacent to apartments	40°52′01″ N 73°32′29″ W
OBS – 5	Mill River Outflow	Mill River upstream of Beekman Creek culvert and tidal influence	40°52′27″ N 73°32′25″ W
OBS – 6	White's Creek	Adjacent to South Street upstream of tidal influence, near Commander Oil Terminal	40°52′27″ N 73°31′41″ W
OBS – 7	Tiffany Creek	North side of Cove Neck Road	40°52′19″ N 73°30′11″ W
OBS – 8	DeForest Pond Outflow	North of intersection of Shore Road and Spring Street in Cold Spring Harbor	40°52′14″ N 73°27′41″ W
OBS – 9	St. John's Pond Outflow	South of road on top of dam adjacent to fish hatchery, south of Route 25A and west of Lawrence Hill Road	40°51′25″ N 73°27′48″ W
OBS – 10	Rotating Outfall	Select 1 outfall during each wet weather event, and 1 outfall where discharge is occurring during a dry weather event.	Varies
OBS – 11	Rotating Outfall	Select 1 outfall during each wet weather event, and 1 outfall where discharge is occurring during a dry weather event.	Varies

Appendix C

Water Quality and Stream and Outfall 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

_____ _____

_____

_____

_____

_____

_____

Friends OF THE Bay
Working to keep the oyster in Oyster Bay

FUSS & O'NEILL
Disciplines to Deliver

Stream and Outfall Field Data Sheet

Location ID:	Lat: Long:
Location Name:	Precipitation in previous 72 Hours: _____
Sample ID:	Start Date/Time of Precipitation: _____/_____
Date: Time: Sampler:	Total Storm Event Precipitation: _____

Location Sketch:

Wet or Dry Event:

Description of Flow (circle one or estimate):

Dry Stagnant Trickle Moderate Heavy Est. Rate: _____CFS

Est. Method (circle or name): Area-Rate Volume/Time Other:

Indicator	Check if Present	Description	1 = slight to 3 = severe
Odor	☐		
Color	☐		
Turbidity	☐		
Floatables	☐		

Appearance:

Comments:

Container	Quantity	Preservative

Field Parameters:

Parameter	Instrument	Result	QA/QC Performed?	Method	Result	Note
DO						
Specific Conductance						
pH						
Temperature						

Comments:

Appendix D

Tide Tables for Oyster Bay – 2013 & 2014

TOWN OF OYSTER BAY

2013

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

* 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

2013 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

2013

OYSTER BAY HARBOR

HIGH TIDE TABLE

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*

John Venditto
Town Supervisor
www.oysterbaytown.com

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

* 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

2013

HEMPSTEAD HARBOR

HIGH TIDE TABLE

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*

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

* 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

NOAA Tide Predictions

Oyster Bay Harbor,New York,2014

The NOAA Tide Predictions application provides predictions in both graphical and tabular formats, with many user selected options, for over 3000 stations broken down by key areas in each state. Users can also access stations via the Google map interface. Additional information can be found in the help page.

Station Types: The NOAA Tide Predictions application provides predictions from 2 distinct categories of stations at over 3000 locations:
Harmonic - The predicted height values for Harmonic stations are conducted by combining the harmonic constituents into a single tide curve.
Subordinate - The high and low height values for Subordinate stations are obtained by means and differences, and ratios applied to the full harmonic constant predictions at a specific Harmonic station (a Reference station).

Disclaimer: The official Tide prediction tables are published annually on October 1, for the following calendar year. Tide predictions generated prior to the publishing date of the official tables are subject to change. The predictions from the web based NOAA Tidal Predictions are based upon the latest information available as of the date of your request. Tide predictions generated may differ from the official published predictions if information for the station requested has been updated since the publishing date of the official published tables.

StationId:8516201
Source:NOAA/NOS/CO-OPS
Station Type:Subordinate
Time Zone:LST/LDT
Datum:mean lower low water (MLLW) which is the chart datum of soundings

NOAA Tide Predictions

Oyster Bay Harbor,New York,2014

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W ●	04:41 AM	-0.8 -24	**16** Th ○	05:17 AM	0.1 3
	10:45 AM	8.9 271		11:20 AM	7.5 229
	05:20 PM	-1.4 -43		05:46 PM	-0.2 -6
	11:18 PM	8.0 244		11:46 PM	7.2 219
2 Th	05:34 AM	-1.0 -30	**17** F	05:56 AM	0.1 3
	11:37 AM	9.0 274		11:57 AM	7.4 226
	06:11 PM	-1.5 -46		06:21 PM	-0.2 -6
3 F	12:09 AM	8.2 250	**18** Sa	12:23 AM	7.2 219
	06:28 AM	-1.0 -30		06:34 AM	0.1 3
	12:30 PM	8.8 268		12:34 PM	7.3 223
	07:02 PM	-1.4 -43		06:57 PM	-0.2 -6
4 Sa	01:02 AM	8.2 250	**19** Su	01:00 AM	7.2 219
	07:22 AM	-0.9 -27		07:12 AM	0.2 6
	01:23 PM	8.5 259		01:11 PM	7.2 219
	07:53 PM	-1.2 -37		07:34 PM	-0.1 -3
5 Su	01:55 AM	8.2 250	**20** M	01:37 AM	7.2 219
	08:19 AM	-0.7 -21		07:53 AM	0.2 6
	02:18 PM	8.1 247		01:50 PM	7.0 213
	08:46 PM	-0.9 -27		08:12 PM	0.0 0
6 M	02:50 AM	8.0 244	**21** Tu	02:16 AM	7.2 219
	09:17 AM	-0.4 -12		08:36 AM	0.3 9
	03:15 PM	7.6 232		02:33 PM	6.9 210
	09:41 PM	-0.6 -18		08:54 PM	0.2 6
7 Tu	03:46 AM	7.8 238	**22** W	02:58 AM	7.1 216
	10:18 AM	-0.2 -6		09:24 AM	0.4 12
	04:14 PM	7.2 219		03:20 PM	6.7 204
	10:38 PM	-0.2 -6		09:40 PM	0.3 9
8 W ◐	04:45 AM	7.6 232	**23** Th	03:45 AM	7.1 216
	11:20 AM	0.0 0		10:17 AM	0.4 12
	05:15 PM	6.8 207		04:13 PM	6.5 198
	11:36 PM	0.1 3		10:32 PM	0.5 15
9 Th	05:44 AM	7.5 229	**24** F ◑	04:39 AM	7.2 219
	12:22 PM	0.1 3		11:16 AM	0.4 12
	06:16 PM	6.6 201		05:12 PM	6.4 195
				11:30 PM	0.5 15
10 F	12:34 AM	0.3 9	**25** Sa	05:37 AM	7.3 223
	06:42 AM	7.4 226		12:18 PM	0.2 6
	01:21 PM	0.1 3		06:15 PM	6.4 195
	07:16 PM	6.6 201			
11 Sa	01:31 AM	0.4 12	**26** Su	12:31 AM	0.4 12
	07:38 AM	7.4 226		06:39 AM	7.5 229
	02:16 PM	0.1 3		01:20 PM	-0.1 -3
	08:11 PM	6.6 201		07:17 PM	6.6 201
12 Su	02:24 AM	0.4 12	**27** M	01:33 AM	0.2 6
	08:30 AM	7.4 226		07:40 AM	7.8 238
	03:06 PM	0.0 0		02:20 PM	-0.4 -12
	09:01 PM	6.7 204		08:17 PM	7.0 213
13 M	03:12 AM	0.4 12	**28** Tu	02:33 AM	-0.2 -6
	09:17 AM	7.4 226		08:39 AM	8.2 250
	03:51 PM	-0.1 -3		03:17 PM	-0.8 -24
	09:47 PM	6.9 210		09:14 PM	7.4 226
14 Tu	03:57 AM	0.3 9	**29** W	03:31 AM	-0.6 -18
	10:01 AM	7.5 229		09:36 AM	8.6 262
	04:31 PM	-0.2 -6		04:10 PM	-1.2 -37
	10:29 PM	7.0 213		10:08 PM	7.8 238
15 W	04:38 AM	0.2 6	**30** Th ●	04:26 AM	-1.0 -30
	10:41 AM	7.5 229		10:30 AM	8.8 268
	05:09 PM	-0.2 -6		05:01 PM	-1.4 -43
	11:08 PM	7.1 216		11:00 PM	8.2 250
			31 F	05:19 AM	-1.2 -37
				11:22 AM	8.9 271
				05:51 PM	-1.5 -46
				11:50 PM	8.4 256

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	06:12 AM	-1.3 -40	**16** Su	06:10 AM	-0.1 -3
	12:13 PM	8.8 268		12:10 PM	7.4 226
	06:40 PM	-1.5 -46		06:29 PM	-0.3 -9
2 Su	12:40 AM	8.5 259	**17** M	12:30 AM	7.5 229
	07:04 AM	-1.2 -37		06:48 AM	-0.2 -6
	01:04 PM	8.5 259		12:47 PM	7.4 226
	07:29 PM	-1.3 -40		07:05 PM	-0.2 -6
3 M	01:31 AM	8.4 256	**18** Tu	01:06 AM	7.6 232
	07:57 AM	-1.0 -30		07:27 AM	-0.1 -3
	01:56 PM	8.1 247		01:25 PM	7.3 223
	08:19 PM	-0.9 -27		07:42 PM	-0.1 -3
4 Tu	02:22 AM	8.2 250	**19** W	01:44 AM	7.6 232
	08:52 AM	-0.6 -18		08:09 AM	-0.1 -3
	02:49 PM	7.6 232		02:06 PM	7.1 216
	09:10 PM	-0.5 -15		08:23 PM	0.1 3
5 W	03:15 AM	7.9 241	**20** Th	02:25 AM	7.5 229
	09:48 AM	-0.2 -6		08:55 AM	0.0 0
	03:44 PM	7.1 216		02:53 PM	6.9 210
	10:04 PM	0.0 0		09:09 PM	0.3 9
6 Th ◐	04:10 AM	7.5 229	**21** F	03:12 AM	7.5 229
	10:47 AM	0.1 3		09:48 AM	0.2 6
	04:43 PM	6.7 204		03:45 PM	6.7 204
	11:01 PM	0.4 12		10:02 PM	0.5 15
7 F	05:08 AM	7.2 219	**22** Sa ◑	04:07 AM	7.4 226
	11:48 AM	0.4 12		10:47 AM	0.2 6
	05:44 PM	6.4 195		04:45 PM	6.5 198
				11:03 PM	0.6 18
8 Sa	12:01 AM	0.7 21	**23** Su	05:09 AM	7.4 226
	06:08 AM	7.0 213		11:52 AM	0.2 6
	12:48 PM	0.5 15		05:50 PM	6.6 201
	06:44 PM	6.3 192			
9 Su	01:00 AM	0.8 24	**24** M	12:08 AM	0.5 15
	07:07 AM	6.9 210		06:15 AM	7.5 229
	01:45 PM	0.5 15		12:57 PM	0.0 0
	07:41 PM	6.4 195		06:55 PM	6.8 207
10 M	01:56 AM	0.7 21	**25** Tu	01:14 AM	0.2 6
	08:02 AM	6.9 210		07:20 AM	7.7 235
	02:36 PM	0.3 9		01:59 PM	-0.3 -9
	08:33 PM	6.6 201		07:57 PM	7.1 216
11 Tu	02:47 AM	0.6 18	**26** W	02:17 AM	-0.2 -6
	08:52 AM	7.1 216		08:22 AM	8.1 247
	03:22 PM	0.2 6		02:57 PM	-0.6 -18
	09:20 PM	6.8 207		08:55 PM	7.6 232
12 W	03:33 AM	0.4 12	**27** Th	03:16 AM	-0.6 -18
	09:37 AM	7.2 219		09:20 AM	8.4 256
	04:04 PM	0.0 0		03:51 PM	-1.0 -30
	10:03 PM	7.0 213		09:49 PM	8.1 247
13 Th	04:15 AM	0.2 6	**28** F	04:12 AM	-1.0 -30
	10:18 AM	7.3 223		10:14 AM	8.6 262
	04:42 PM	-0.1 -3		04:41 PM	-1.2 -37
	10:42 PM	7.2 219		10:40 PM	8.5 259
14 F ○	04:55 AM	0.0 0			
	10:57 AM	7.4 226			
	05:18 PM	-0.2 -6			
	11:19 PM	7.4 226			
15 Sa	05:33 AM	-0.1 -3			
	11:34 AM	7.5 229			
	05:54 PM	-0.3 -9			
	11:55 PM	7.5 229			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa ●	05:04 AM	-1.3 -40	**16** Su ○	06:07 AM	-0.1 -3
	11:05 AM	8.7 265		12:08 PM	7.5 229
	05:29 PM	-1.3 -40		06:23 PM	-0.1 -3
	11:29 PM	8.7 265			
2 Su	05:55 AM	-1.3 -40	**17** M	12:25 AM	7.9 241
	11:55 AM	8.6 262		06:45 AM	-0.3 -9
	06:16 PM	-1.2 -37		12:45 PM	7.6 232
				07:00 PM	-0.1 -3
3 M	12:17 AM	8.8 268	**18** Tu	01:00 AM	8.0 244
	06:45 AM	-1.2 -37		07:24 AM	-0.4 -12
	12:43 PM	8.3 253		01:23 PM	7.6 232
	07:03 PM	-1.0 -30		07:37 PM	-0.1 -3
4 Tu	01:04 AM	8.6 262	**19** W	01:37 AM	8.0 244
	07:34 AM	-1.0 -30		08:04 AM	-0.4 -12
	01:32 PM	8.0 244		02:03 PM	7.5 229
	07:50 PM	-0.6 -18		08:16 PM	0.0 0
5 W	01:52 AM	8.3 253	**20** Th	02:16 AM	8.0 244
	08:24 AM	-0.6 -18		08:47 AM	-0.3 -9
	02:22 PM	7.5 229		02:46 PM	7.3 223
	08:38 PM	-0.1 -3		08:59 PM	0.2 6
6 Th	02:42 AM	7.9 241	**21** F	03:00 AM	7.9 241
	09:16 AM	-0.1 -3		09:34 AM	-0.2 -6
	03:14 PM	7.1 216		03:33 PM	7.2 219
	09:30 PM	0.3 9		09:48 PM	0.4 12
7 F	03:34 AM	7.4 226	**22** Sa	03:49 AM	7.8 238
	10:11 AM	0.3 9		10:28 AM	0.0 0
	04:09 PM	6.7 204		04:27 PM	7.0 213
	10:25 PM	0.7 21		10:43 PM	0.5 15
8 Sa	04:30 AM	7.0 213	**23** Su	04:46 AM	7.7 235
	11:08 AM	0.6 18		11:27 AM	0.2 6
	05:07 PM	6.4 195		05:27 PM	6.9 210
◐	11:23 PM	1.0 30		11:46 PM	0.6 18
9 Su	06:30 AM	6.8 207	**24** M ◑	05:49 AM	7.5 229
	01:08 PM	0.8 24		12:32 PM	0.2 6
	07:07 PM	6.3 192		06:31 PM	6.9 210
10 M	01:24 AM	1.1 34	**25** Tu	12:53 AM	0.6 18
	07:30 AM	6.6 201		06:57 AM	7.6 232
	02:05 PM	0.8 24		01:36 PM	0.1 3
	08:05 PM	6.4 195		07:37 PM	7.1 216
11 Tu	02:22 AM	1.0 30	**26** W	02:00 AM	0.3 9
	08:28 AM	6.7 204		08:04 AM	7.7 235
	02:58 PM	0.7 21		02:38 PM	-0.1 -3
	08:59 PM	6.6 201		08:39 PM	7.5 229
12 W	03:15 AM	0.8 24	**27** Th	03:04 AM	-0.1 -3
	09:21 AM	6.8 207		09:06 AM	7.9 241
	03:46 PM	0.6 18		03:36 PM	-0.4 -12
	09:47 PM	6.9 210		09:36 PM	8.0 244
13 Th	04:04 AM	0.6 18	**28** F	04:03 AM	-0.5 -15
	10:08 AM	7.0 213		10:04 AM	8.2 250
	04:29 PM	0.3 9		04:29 PM	-0.6 -18
	10:31 PM	7.2 219		10:30 PM	8.4 256
14 F	04:47 AM	0.3 9	**29** Sa	04:57 AM	-0.8 -24
	10:50 AM	7.2 219		10:57 AM	8.3 253
	05:09 PM	0.1 3		05:19 PM	-0.8 -24
	11:11 PM	7.5 229		11:20 PM	8.7 265
15 Sa	05:28 AM	0.1 3	**30** Su ●	05:49 AM	-1.1 -34
	11:30 AM	7.4 226		11:47 AM	8.4 256
	05:47 PM	0.0 0		06:06 PM	-0.8 -24
	11:49 PM	7.7 235			
			31 M	12:07 AM	8.9 271
				06:37 AM	-1.1 -34
				12:35 PM	8.3 253
				06:52 PM	-0.7 -21

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.
Referenced to Station: BRIDGEPORT (8467150) Time offset in mins (high:7 low: 13) Height offset in feet (high: * 1.08 low: *1.08)

StationId:8516201
Source:NOAA/NOS/CO-OPS
Station Type:Subordinate
Time Zone:LST/LDT
Datum:mean lower low water (MLLW) which is the chart datum of soundings

NOAA Tide Predictions

Oyster Bay Harbor,New York,2014

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	12:53 AM	8.9 271	**16** W	12:31 AM	8.4 256
	07:24 AM	-1.0 -30		07:01 AM	-0.5 -15
	01:22 PM	8.2 250		01:00 PM	7.7 235
	07:37 PM	-0.5 -15		07:11 PM	0.1 3
2 W	01:38 AM	8.7 265	**17** Th	01:11 AM	8.4 256
	08:10 AM	-0.8 -24		07:44 AM	-0.6 -18
	02:08 PM	7.9 241		01:43 PM	7.7 235
	08:22 PM	-0.1 -3		07:54 PM	0.1 3
3 Th	02:23 AM	8.3 253	**18** F	01:54 AM	8.4 256
	08:57 AM	-0.4 -12		08:29 AM	-0.5 -15
	02:55 PM	7.5 229		02:29 PM	7.6 232
	09:08 PM	0.3 9		08:41 PM	0.2 6
4 F	03:10 AM	7.9 241	**19** Sa	02:41 AM	8.3 253
	09:44 AM	0.0 0		09:19 AM	-0.4 -12
	03:44 PM	7.2 219		03:19 PM	7.5 229
	09:56 PM	0.7 21		09:33 PM	0.4 12
5 Sa	03:59 AM	7.4 226	**20** Su	03:34 AM	8.1 247
	10:34 AM	0.4 12		10:13 AM	-0.2 -6
	04:35 PM	6.9 210		04:14 PM	7.4 226
	10:48 PM	1.0 30		10:31 PM	0.5 15
6 Su	04:52 AM	7.0 213	**21** M	04:32 AM	7.9 241
	11:27 AM	0.8 24		11:12 AM	0.0 0
	05:30 PM	6.6 201		05:13 PM	7.3 223
	11:45 PM	1.3 40		11:34 PM	0.6 18
7 M ◐	05:49 AM	6.7 204	**22** Tu ◑	05:35 AM	7.7 235
	12:23 PM	1.0 30		12:14 PM	0.1 3
	06:27 PM	6.6 201		06:16 PM	7.4 226
8 Tu	12:44 AM	1.3 40	**23** W	12:41 AM	0.5 15
	06:48 AM	6.6 201		06:42 AM	7.6 232
	01:19 PM	1.1 34		01:16 PM	0.1 3
	07:23 PM	6.6 201		07:19 PM	7.6 232
9 W	01:42 AM	1.3 40	**24** Th	01:47 AM	0.3 9
	07:46 AM	6.6 201		07:47 AM	7.6 232
	02:12 PM	1.0 30		02:16 PM	0.0 0
	08:17 PM	6.9 210		08:20 PM	7.9 241
10 Th	02:38 AM	1.0 30	**25** F	02:50 AM	0.0 0
	08:41 AM	6.7 204		08:49 AM	7.7 235
	03:02 PM	0.9 27		03:13 PM	-0.1 -3
	09:07 PM	7.1 216		09:17 PM	8.3 253
11 F	03:28 AM	0.8 24	**26** Sa	03:48 AM	-0.3 -9
	09:30 AM	6.9 210		09:46 AM	7.9 241
	03:48 PM	0.6 18		04:06 PM	-0.2 -6
	09:53 PM	7.4 226		10:09 PM	8.6 262
12 Sa	04:14 AM	0.4 12	**27** Su	04:42 AM	-0.6 -18
	10:16 AM	7.1 216		10:39 AM	8.0 244
	04:30 PM	0.4 12		04:56 PM	-0.3 -9
	10:34 PM	7.7 235		10:58 PM	8.8 268
13 Su	04:58 AM	0.1 3	**28** M	05:32 AM	-0.8 -24
	10:58 AM	7.3 223		11:29 AM	8.0 244
	05:11 PM	0.3 9		05:43 PM	-0.3 -9
	11:14 PM	8.0 244		11:44 PM	8.8 268
14 M	05:39 AM	-0.1 -3	**29** Tu ●	06:19 AM	-0.8 -24
	11:39 AM	7.5 229		12:16 PM	8.0 244
	05:51 PM	0.1 3		06:28 PM	-0.1 -3
	11:52 PM	8.2 250			
15 Tu ○	06:20 AM	-0.4 -12	**30** W	12:29 AM	8.7 265
	12:19 PM	7.6 232		07:03 AM	-0.7 -21
	06:30 PM	0.1 3		01:01 PM	7.9 241
				07:11 PM	0.1 3

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	01:12 AM	8.5 259	**16** F	12:49 AM	8.8 268
	07:47 AM	-0.4 -12		07:25 AM	-0.7 -21
	01:45 PM	7.7 235		01:25 PM	7.9 241
	07:55 PM	0.3 9		07:36 PM	0.1 3
2 F	01:56 AM	8.2 250	**17** Sa	01:36 AM	8.8 268
	08:30 AM	-0.2 -6		08:14 AM	-0.7 -21
	02:30 PM	7.5 229		02:13 PM	7.9 241
	08:39 PM	0.6 18		08:27 PM	0.1 3
3 Sa	02:40 AM	7.9 241	**18** Su	02:27 AM	8.7 265
	09:14 AM	0.2 6		09:05 AM	-0.6 -18
	03:15 PM	7.3 223		03:05 PM	7.9 241
	09:25 PM	0.9 27		09:21 PM	0.2 6
4 Su	03:26 AM	7.5 229	**19** M	03:21 AM	8.4 256
	09:59 AM	0.5 15		09:59 AM	-0.4 -12
	04:03 PM	7.1 216		04:00 PM	7.8 238
	10:14 PM	1.1 34		10:20 PM	0.3 9
5 M	04:15 AM	7.1 216	**20** Tu	04:20 AM	8.1 247
	10:47 AM	0.8 24		10:55 AM	-0.2 -6
	04:53 PM	6.9 210		04:59 PM	7.8 238
	11:07 PM	1.3 40		11:23 PM	0.4 12
6 Tu	05:08 AM	6.8 207	**21** W ◑	05:21 AM	7.9 241
	11:37 AM	1.0 30		11:54 AM	0.0 0
	05:45 PM	6.9 210		05:59 PM	7.9 241
7 W ◐	12:02 AM	1.4 43	**22** Th	12:28 AM	0.4 12
	06:03 AM	6.6 201		06:25 AM	7.6 232
	12:29 PM	1.1 34		12:54 PM	0.1 3
	06:39 PM	6.9 210		07:00 PM	8.0 244
8 Th	12:59 AM	1.3 40	**23** F	01:32 AM	0.3 9
	06:59 AM	6.6 201		07:29 AM	7.5 229
	01:22 PM	1.1 34		01:53 PM	0.1 3
	07:31 PM	7.1 216		07:59 PM	8.2 250
9 F	01:55 AM	1.2 37	**24** Sa	02:34 AM	0.1 3
	07:55 AM	6.6 201		08:30 AM	7.5 229
	02:13 PM	1.0 30		02:49 PM	0.1 3
	08:22 PM	7.3 223		08:56 PM	8.4 256
10 Sa	02:48 AM	0.9 27	**25** Su	03:32 AM	-0.1 -3
	08:47 AM	6.8 207		09:27 AM	7.5 229
	03:02 PM	0.8 24		03:43 PM	0.1 3
	09:09 PM	7.6 232		09:48 PM	8.5 259
11 Su	03:37 AM	0.6 18	**26** M	04:25 AM	-0.3 -9
	09:36 AM	7.0 213		10:20 AM	7.6 232
	03:48 PM	0.7 21		04:33 PM	0.2 6
	09:54 PM	7.9 241		10:37 PM	8.6 262
12 M	04:24 AM	0.2 6	**27** Tu	05:14 AM	-0.4 -12
	10:23 AM	7.2 219		11:10 AM	7.6 232
	04:33 PM	0.5 15		05:20 PM	0.2 6
	10:38 PM	8.2 250		11:23 PM	8.6 262
13 Tu	05:09 AM	-0.1 -3	**28** W ●	05:59 AM	-0.4 -12
	11:08 AM	7.4 226		11:56 AM	7.6 232
	05:18 PM	0.3 9		06:05 PM	0.3 9
	11:20 PM	8.5 259			
14 W ○	05:54 AM	-0.4 -12	**29** Th	12:07 AM	8.4 256
	11:53 AM	7.6 232		06:42 AM	-0.3 -9
	06:02 PM	0.2 6		12:40 PM	7.6 232
				06:48 PM	0.5 15
15 Th	12:04 AM	8.7 265	**30** F	12:49 AM	8.3 253
	06:39 AM	-0.6 -18		07:24 AM	-0.2 -6
	12:38 PM	7.8 238		01:22 PM	7.5 229
	06:48 PM	0.1 3		07:30 PM	0.6 18
			31 Sa	01:31 AM	8.1 247
				08:04 AM	0.0 0
				02:05 PM	7.4 226
				08:13 PM	0.8 24

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	02:13 AM	7.8 238	**16** M	02:13 AM	8.9 271
	08:44 AM	0.2 6		08:48 AM	-0.8 -24
	02:47 PM	7.3 223		02:49 PM	8.3 253
	08:56 PM	0.9 27		09:08 PM	-0.1 -3
2 M	02:56 AM	7.5 229	**17** Tu	03:08 AM	8.6 262
	09:26 AM	0.5 15		09:41 AM	-0.6 -18
	03:31 PM	7.3 223		03:44 PM	8.3 253
	09:42 PM	1.1 34		10:07 PM	0.0 0
3 Tu	03:41 AM	7.2 219	**18** W	04:05 AM	8.3 253
	10:09 AM	0.7 21		10:36 AM	-0.4 -12
	04:16 PM	7.2 219		04:41 PM	8.3 253
	10:30 PM	1.2 37		11:08 PM	0.2 6
4 W	04:29 AM	7.0 213	**19** Th ◑	05:04 AM	7.9 241
	10:54 AM	0.8 24		11:32 AM	-0.2 -6
	05:04 PM	7.2 219		05:39 PM	8.3 253
	11:22 PM	1.3 40			
5 Th ◐	05:19 AM	6.8 207	**20** F	12:11 AM	0.2 6
	11:42 AM	0.9 27		06:06 AM	7.6 232
	05:53 PM	7.2 219		12:30 PM	0.1 3
				06:38 PM	8.2 250
6 F	12:16 AM	1.3 40	**21** Sa	01:14 AM	0.3 9
	06:12 AM	6.6 201		07:08 AM	7.4 226
	12:32 PM	1.0 30		01:28 PM	0.3 9
	06:44 PM	7.3 223		07:37 PM	8.2 250
7 Sa	01:11 AM	1.1 34	**22** Su	02:15 AM	0.2 6
	07:07 AM	6.6 201		08:09 AM	7.3 223
	01:24 PM	1.0 30		02:25 PM	0.4 12
	07:34 PM	7.5 229		08:33 PM	8.2 250
8 Su	02:05 AM	0.9 27	**23** M	03:12 AM	0.1 3
	08:02 AM	6.7 204		09:07 AM	7.2 219
	02:16 PM	0.9 27		03:20 PM	0.5 15
	08:25 PM	7.7 235		09:27 PM	8.3 253
9 M	02:58 AM	0.6 18	**24** Tu	04:06 AM	0.0 0
	08:56 AM	6.9 210		10:00 AM	7.3 223
	03:07 PM	0.8 24		04:11 PM	0.5 15
	09:14 PM	8.0 244		10:16 PM	8.2 250
10 Tu	03:49 AM	0.2 6	**25** W	04:54 AM	0.0 0
	09:47 AM	7.1 216		10:49 AM	7.3 223
	03:57 PM	0.6 18		04:59 PM	0.6 18
	10:02 PM	8.3 253		11:03 PM	8.2 250
11 W	04:39 AM	-0.1 -3	**26** Th	05:39 AM	0.0 0
	10:37 AM	7.4 226		11:35 AM	7.4 226
	04:47 PM	0.4 12		05:44 PM	0.6 18
	10:51 PM	8.6 262		11:46 PM	8.1 247
12 Th	05:28 AM	-0.5 -15	**27** F ●	06:21 AM	0.0 0
	11:27 AM	7.6 232		12:18 PM	7.4 226
	05:37 PM	0.2 6		06:26 PM	0.7 21
	11:40 PM	8.9 271			
13 F ○	06:17 AM	-0.7 -21	**28** Sa	12:28 AM	8.0 244
	12:16 PM	7.9 241		07:00 AM	0.1 3
	06:27 PM	0.0 0		12:59 PM	7.5 229
				07:07 PM	0.7 21
14 Sa	12:29 AM	9.0 274	**29** Su	01:08 AM	7.9 241
	07:06 AM	-0.8 -24		07:38 AM	0.1 3
	01:06 PM	8.1 247		01:39 PM	7.5 229
	07:19 PM	-0.1 -3		07:47 PM	0.8 24
15 Su	01:20 AM	9.0 274	**30** M	01:48 AM	7.8 238
	07:57 AM	-0.9 -27		08:15 AM	0.3 9
	01:57 PM	8.2 250		02:18 PM	7.5 229
	08:12 PM	-0.1 -3		08:28 PM	0.8 24

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.
Referenced to Station: BRIDGEPORT (8467150) Time offset in mins (high:7 low: 13) Height offset in feet (high: * 1.08 low: *1.08)

StationId:8516201
Source:NOAA/NOS/CO-OPS
Station Type:Subordinate
Time Zone:LST/LDT
Datum:mean lower low water (MLLW) which is the chart datum of soundings

NOAA Tide Predictions

Oyster Bay Harbor,New York,2014

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	02:28 AM	7.6 232	**16** W	02:51 AM	8.7 265
	08:53 AM	0.4 12		09:19 AM	-0.8 -24
	02:59 PM	7.4 226		03:23 PM	8.7 265
	09:11 PM	0.9 27		09:49 PM	-0.2 -6
2 W	03:09 AM	7.4 226	**17** Th	03:46 AM	8.3 253
	09:33 AM	0.5 15		10:12 AM	-0.5 -15
	03:40 PM	7.4 226		04:18 PM	8.6 262
	09:55 PM	1.0 30		10:48 PM	0.0 0
3 Th	03:52 AM	7.1 216	**18** F	04:44 AM	7.9 241
	10:14 AM	0.6 18		11:07 AM	-0.1 -3
	04:23 PM	7.4 226		05:15 PM	8.4 256
	10:43 PM	1.1 34		11:49 PM	0.2 6
4 F	04:39 AM	6.9 210	**19** Sa ◑	05:43 AM	7.5 229
	10:59 AM	0.8 24		12:04 PM	0.2 6
	05:09 PM	7.4 226		06:13 PM	8.2 250
	11:34 PM	1.1 34			
5 Sa ◐	05:29 AM	6.8 207	**20** Su	12:51 AM	0.3 9
	11:47 AM	0.9 27		06:45 AM	7.2 219
	05:58 PM	7.5 229		01:03 PM	0.5 15
				07:12 PM	8.1 247
6 Su	12:28 AM	1.0 30	**21** M	01:52 AM	0.4 12
	06:23 AM	6.7 204		07:46 AM	7.1 216
	12:39 PM	1.0 30		02:01 PM	0.7 21
	06:49 PM	7.6 232		08:10 PM	7.9 241
7 M	01:25 AM	0.9 27	**22** Tu	02:50 AM	0.4 12
	07:20 AM	6.7 204		08:44 AM	7.0 213
	01:34 PM	0.9 27		02:57 PM	0.8 24
	07:43 PM	7.8 238		09:04 PM	7.9 241
8 Tu	02:21 AM	0.6 18	**23** W	03:43 AM	0.4 12
	08:18 AM	6.8 207		09:38 AM	7.1 216
	02:30 PM	0.8 24		03:49 PM	0.8 24
	08:38 PM	8.1 247		09:55 PM	7.9 241
9 W	03:17 AM	0.3 9	**24** Th	04:32 AM	0.3 9
	09:14 AM	7.1 216		10:27 AM	7.2 219
	03:26 PM	0.6 18		04:38 PM	0.8 24
	09:32 PM	8.4 256		10:42 PM	7.9 241
10 Th	04:12 AM	-0.1 -3	**25** F	05:15 AM	0.2 6
	10:09 AM	7.4 226		11:12 AM	7.3 223
	04:21 PM	0.3 9		05:22 PM	0.7 21
	10:26 PM	8.7 265		11:25 PM	7.9 241
11 F	05:04 AM	-0.5 -15	**26** Sa ●	05:55 AM	0.2 6
	11:02 AM	7.7 235		11:53 AM	7.4 226
	05:15 PM	0.0 0		06:03 PM	0.7 21
	11:19 PM	9.0 274			
12 Sa ○	05:56 AM	-0.8 -24	**27** Su	12:05 AM	7.9 241
	11:54 AM	8.1 247		06:33 AM	0.2 6
	06:08 PM	-0.3 -9		12:33 PM	7.5 229
				06:43 PM	0.6 18
13 Su	12:12 AM	9.1 277	**28** M	12:44 AM	7.8 238
	06:46 AM	-1.0 -30		07:09 AM	0.2 6
	12:45 PM	8.4 256		01:11 PM	7.6 232
	07:02 PM	-0.4 -12		07:22 PM	0.6 18
14 M	01:04 AM	9.1 277	**29** Tu	01:22 AM	7.7 235
	07:37 AM	-1.0 -30		07:45 AM	0.3 9
	01:37 PM	8.6 262		01:48 PM	7.7 235
	07:57 PM	-0.5 -15		08:01 PM	0.7 21
15 Tu	01:57 AM	9.0 274	**30** W	02:00 AM	7.6 232
	08:27 AM	-1.0 -30		08:21 AM	0.3 9
	02:29 PM	8.7 265		02:25 PM	7.7 235
	08:52 PM	-0.4 -12		08:41 PM	0.7 21
			31 Th	02:39 AM	7.4 226
				08:58 AM	0.4 12
				03:04 PM	7.7 235
				09:23 PM	0.8 24

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	03:19 AM	7.3 223	**16** Sa	04:20 AM	7.8 238
	09:38 AM	0.6 18		10:40 AM	0.1 3
	03:44 PM	7.6 232		04:46 PM	8.3 253
	10:08 PM	0.8 24		11:23 PM	0.3 9
2 Sa	04:04 AM	7.1 216	**17** Su ◑	05:18 AM	7.4 226
	10:21 AM	0.7 21		11:37 AM	0.5 15
	04:28 PM	7.6 232		05:44 PM	8.0 244
	10:57 PM	0.9 27			
3 Su	04:53 AM	6.9 210	**18** M	12:24 AM	0.5 15
	11:09 AM	0.9 27		06:18 AM	7.1 216
	05:17 PM	7.6 232		12:36 PM	0.8 24
	11:52 PM	0.9 27		06:44 PM	7.7 235
4 M ◐	05:47 AM	6.8 207	**19** Tu	01:24 AM	0.7 21
	12:03 PM	1.0 30		07:19 AM	6.9 210
	06:11 PM	7.7 235		01:35 PM	1.0 30
				07:43 PM	7.6 232
5 Tu	12:50 AM	0.8 24	**20** W	02:22 AM	0.7 21
	06:46 AM	6.8 207		08:18 AM	7.0 213
	01:01 PM	1.0 30		02:33 PM	1.0 30
	07:09 PM	7.8 238		08:40 PM	7.6 232
6 W	01:50 AM	0.6 18	**21** Th	03:16 AM	0.7 21
	07:47 AM	6.9 210		09:12 AM	7.1 216
	02:01 PM	0.8 24		03:26 PM	1.0 30
	08:09 PM	8.1 247		09:31 PM	7.6 232
7 Th	02:50 AM	0.3 9	**22** F	04:03 AM	0.6 18
	08:47 AM	7.2 219		10:00 AM	7.2 219
	03:01 PM	0.5 15		04:14 PM	0.8 24
	09:08 PM	8.4 256		10:18 PM	7.7 235
8 F	03:47 AM	-0.1 -3	**23** Sa	04:46 AM	0.5 15
	09:44 AM	7.6 232		10:44 AM	7.4 226
	04:00 PM	0.1 3		04:58 PM	0.7 21
	10:05 PM	8.8 268		11:01 PM	7.8 238
9 Sa	04:41 AM	-0.5 -15	**24** Su	05:26 AM	0.4 12
	10:39 AM	8.0 244		11:25 AM	7.6 232
	04:56 PM	-0.2 -6		05:39 PM	0.6 18
	11:00 PM	9.0 274		11:40 PM	7.8 238
10 Su ○	05:33 AM	-0.8 -24	**25** M ●	06:03 AM	0.3 9
	11:32 AM	8.4 256		12:03 PM	7.8 238
	05:51 PM	-0.5 -15		06:18 PM	0.5 15
	11:54 PM	9.2 280			
11 M	06:24 AM	-1.0 -30	**26** Tu	12:18 AM	7.8 238
	12:23 PM	8.8 268		06:38 AM	0.3 9
	06:45 PM	-0.7 -21		12:40 PM	7.9 241
				06:55 PM	0.4 12
12 Tu	12:46 AM	9.2 280	**27** W	12:55 AM	7.7 235
	07:13 AM	-1.0 -30		07:13 AM	0.3 9
	01:14 PM	9.0 274		01:16 PM	7.9 241
	07:38 PM	-0.8 -24		07:33 PM	0.4 12
13 W	01:38 AM	9.0 274	**28** Th	01:32 AM	7.7 235
	08:03 AM	-0.9 -27		07:49 AM	0.4 12
	02:05 PM	9.0 274		01:52 PM	7.9 241
	08:32 PM	-0.6 -18		08:12 PM	0.5 15
14 Th	02:30 AM	8.6 262	**29** F	02:10 AM	7.5 229
	08:53 AM	-0.7 -21		08:26 AM	0.5 15
	02:57 PM	8.9 271		02:29 PM	7.9 241
	09:27 PM	-0.4 -12		08:53 PM	0.5 15
15 F	03:24 AM	8.2 250	**30** Sa	02:50 AM	7.4 226
	09:45 AM	-0.3 -9		09:05 AM	0.6 18
	03:51 PM	8.7 265		03:08 PM	7.8 238
	10:24 PM	0.0 0		09:37 PM	0.6 18
			31 Su	03:34 AM	7.2 219
				09:49 AM	0.8 24
				03:53 PM	7.8 238
				10:27 PM	0.7 21

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	04:24 AM	7.0 213	**16** Tu ◑	05:49 AM	7.0 213
	10:39 AM	0.9 27		12:06 PM	1.1 34
	04:43 PM	7.7 235		06:12 PM	7.4 226
	11:22 PM	0.7 21			
2 Tu ◐	05:19 AM	6.9 210	**17** W	12:51 AM	0.9 27
	11:35 AM	1.0 30		06:48 AM	6.9 210
	05:41 PM	7.8 238		01:06 PM	1.2 37
				07:12 PM	7.3 223
3 W	12:23 AM	0.7 21	**18** Th	01:48 AM	1.0 30
	06:20 AM	6.9 210		07:46 AM	6.9 210
	12:37 PM	1.0 30		02:04 PM	1.2 37
	06:44 PM	7.9 241		08:09 PM	7.2 219
4 Th	01:26 AM	0.5 15	**19** F	02:41 AM	0.9 27
	07:23 AM	7.1 216		08:40 AM	7.1 216
	01:41 PM	0.8 24		02:57 PM	1.0 30
	07:47 PM	8.1 247		09:02 PM	7.3 223
5 F	02:27 AM	0.3 9	**20** Sa	03:29 AM	0.8 24
	08:25 AM	7.4 226		09:28 AM	7.3 223
	02:44 PM	0.4 12		03:46 PM	0.8 24
	08:49 PM	8.4 256		09:49 PM	7.5 229
6 Sa	03:24 AM	-0.1 -3	**21** Su	04:12 AM	0.6 18
	09:23 AM	7.9 241		10:12 AM	7.6 232
	03:43 PM	0.0 0		04:30 PM	0.6 18
	09:47 PM	8.7 265		10:32 PM	7.6 232
7 Su	04:19 AM	-0.4 -12	**22** M	04:51 AM	0.5 15
	10:18 AM	8.4 256		10:53 AM	7.8 238
	04:40 PM	-0.4 -12		05:11 PM	0.4 12
	10:42 PM	8.9 271		11:12 PM	7.7 235
8 M	05:10 AM	-0.7 -21	**23** Tu	05:29 AM	0.4 12
	11:10 AM	8.8 268		11:31 AM	8.0 244
	05:34 PM	-0.7 -21		05:50 PM	0.3 9
	11:35 PM	9.0 274		11:50 PM	7.7 235
9 Tu ○	06:00 AM	-0.9 -27	**24** W ●	06:05 AM	0.3 9
	12:00 PM	9.1 277		12:08 PM	8.1 247
	06:27 PM	-0.9 -27		06:28 PM	0.2 6
10 W	12:26 AM	9.0 274	**25** Th	12:28 AM	7.7 235
	06:49 AM	-0.9 -27		06:41 AM	0.3 9
	12:50 PM	9.2 280		12:43 PM	8.1 247
	07:19 PM	-0.9 -27		07:06 PM	0.2 6
11 Th	01:17 AM	8.8 268	**26** F	01:05 AM	7.7 235
	07:37 AM	-0.7 -21		07:18 AM	0.4 12
	01:39 PM	9.2 280		01:19 PM	8.1 247
	08:10 PM	-0.7 -21		07:45 PM	0.2 6
12 F	02:08 AM	8.5 259	**27** Sa	01:44 AM	7.6 232
	08:26 AM	-0.4 -12		07:56 AM	0.5 15
	02:30 PM	8.9 271		01:57 PM	8.1 247
	09:03 PM	-0.4 -12		08:27 PM	0.2 6
13 Sa	02:59 AM	8.1 247	**28** Su	02:25 AM	7.4 226
	09:17 AM	0.0 0		08:38 AM	0.7 21
	03:21 PM	8.5 259		02:38 PM	8.0 244
	09:57 PM	0.0 0		09:12 PM	0.3 9
14 Su	03:53 AM	7.6 232	**29** M	03:11 AM	7.3 223
	10:10 AM	0.4 12		09:24 AM	0.8 24
	04:15 PM	8.1 247		03:25 PM	7.9 241
	10:53 PM	0.4 12		10:03 PM	0.5 15
15 M	04:50 AM	7.3 223	**30** Tu	04:02 AM	7.1 216
	11:06 AM	0.8 24		10:16 AM	0.9 27
	05:12 PM	7.7 235		04:19 PM	7.8 238
	11:51 PM	0.7 21		11:00 PM	0.5 15

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.
Referenced to Station: BRIDGEPORT (8467150) Time offset in mins (high:7 low: 13) Height offset in feet (high: * 1.08 low: *1.08)

StationId:8516201
Source:NOAA/NOS/CO-OPS
Station Type:Subordinate
Time Zone:LST/LDT
Datum:mean lower low water (MLLW) which is the chart datum of soundings

NOAA Tide Predictions

Oyster Bay Harbor,New York,2014

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W ◐	04:59 AM	7.0 213	**16** Th	12:11 AM	1.0 30
	11:16 AM	1.0 30		06:12 AM	6.9 210
	05:20 PM	7.8 238		12:31 PM	1.3 40
				06:34 PM	6.9 210
2 Th	12:02 AM	0.6 18	**17** F	01:06 AM	1.1 34
	06:01 AM	7.1 216		07:09 AM	6.9 210
	12:21 PM	0.9 27		01:28 PM	1.3 40
	06:25 PM	7.8 238		07:32 PM	6.9 210
3 F	01:05 AM	0.4 12	**18** Sa	01:58 AM	1.0 30
	07:04 AM	7.3 223		08:02 AM	7.1 216
	01:27 PM	0.7 21		02:23 PM	1.1 34
	07:30 PM	8.0 244		08:25 PM	7.0 213
4 Sa	02:05 AM	0.2 6	**19** Su	02:47 AM	0.9 27
	08:06 AM	7.7 235		08:51 AM	7.4 226
	02:30 PM	0.3 9		03:12 PM	0.8 24
	08:32 PM	8.2 250		09:14 PM	7.1 216
5 Su	03:03 AM	-0.1 -3	**20** M	03:31 AM	0.7 21
	09:03 AM	8.2 250		09:36 AM	7.6 232
	03:29 PM	-0.2 -6		03:58 PM	0.6 18
	09:30 PM	8.4 256		09:59 PM	7.3 223
6 M	03:57 AM	-0.4 -12	**21** Tu	04:13 AM	0.6 18
	09:58 AM	8.6 262		10:18 AM	7.9 241
	04:25 PM	-0.6 -18		04:40 PM	0.3 9
	10:25 PM	8.6 262		10:41 PM	7.4 226
7 Tu	04:47 AM	-0.6 -18	**22** W	04:53 AM	0.4 12
	10:49 AM	9.0 274		10:57 AM	8.0 244
	05:18 PM	-0.8 -24		05:21 PM	0.1 3
	11:17 PM	8.7 265		11:21 PM	7.5 229
8 W ○	05:36 AM	-0.7 -21	**23** Th ●	05:32 AM	0.3 9
	11:38 AM	9.2 280		11:35 AM	8.2 250
	06:09 PM	-1.0 -30		06:00 PM	0.0 0
9 Th	12:07 AM	8.6 262	**24** F	12:00 AM	7.6 232
	06:24 AM	-0.6 -18		06:10 AM	0.3 9
	12:26 PM	9.2 280		12:12 PM	8.3 253
	06:58 PM	-0.9 -27		06:40 PM	-0.2 -6
10 F	12:56 AM	8.5 259	**25** Sa	12:40 AM	7.6 232
	07:11 AM	-0.4 -12		06:50 AM	0.3 9
	01:14 PM	9.1 277		12:50 PM	8.3 253
	07:47 PM	-0.7 -21		07:22 PM	-0.2 -6
11 Sa	01:45 AM	8.2 250	**26** Su	01:21 AM	7.6 232
	07:59 AM	-0.1 -3		07:31 AM	0.4 12
	02:02 PM	8.7 265		01:31 PM	8.3 253
	08:37 PM	-0.3 -9		08:05 PM	-0.1 -3
12 Su	02:34 AM	7.8 238	**27** M	02:04 AM	7.5 229
	08:48 AM	0.3 9		08:16 AM	0.5 15
	02:51 PM	8.3 253		02:16 PM	8.2 250
	09:27 PM	0.1 3		08:53 PM	0.0 0
13 M	03:25 AM	7.5 229	**28** Tu	02:52 AM	7.4 226
	09:39 AM	0.7 21		09:05 AM	0.6 18
	03:43 PM	7.8 238		03:06 PM	8.1 247
	10:20 PM	0.5 15		09:45 PM	0.1 3
14 Tu	04:19 AM	7.1 216	**29** W	03:45 AM	7.3 223
	10:34 AM	1.0 30		10:01 AM	0.7 21
	04:38 PM	7.4 226		04:02 PM	7.9 241
	11:14 PM	0.8 24		10:42 PM	0.2 6
15 W ◑	05:15 AM	6.9 210	**30** Th	04:43 AM	7.2 219
	11:31 AM	1.3 40		11:02 AM	0.8 24
	05:35 PM	7.1 216		05:04 PM	7.7 235
				11:43 PM	0.3 9
			31 F ◐	05:44 AM	7.3 223
				12:08 PM	0.7 21
				06:09 PM	7.7 235

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	12:44 AM	0.2 6	**16** Su	12:10 AM	1.0 30
	06:47 AM	7.6 232		06:18 AM	7.0 213
	01:14 PM	0.4 12		12:41 PM	1.1 34
	07:14 PM	7.7 235		06:42 PM	6.6 201
2 Su	01:44 AM	0.1 3	**17** M	01:00 AM	0.9 27
	06:47 AM	7.9 241		07:08 AM	7.2 219
	01:17 PM	0.1 3		01:33 PM	0.8 24
	07:16 PM	7.8 238		07:33 PM	6.7 204
3 M	01:41 AM	-0.1 -3	**18** Tu	01:48 AM	0.8 24
	07:45 AM	8.3 253		07:55 AM	7.5 229
	02:16 PM	-0.3 -9		02:22 PM	0.5 15
	08:14 PM	8.0 244		08:21 PM	6.9 210
4 Tu	02:35 AM	-0.3 -9	**19** W	02:33 AM	0.6 18
	08:38 AM	8.7 265		08:39 AM	7.7 235
	03:11 PM	-0.6 -18		03:07 PM	0.2 6
	09:08 PM	8.1 247		09:07 PM	7.1 216
5 W	03:26 AM	-0.5 -15	**20** Th	03:17 AM	0.4 12
	09:29 AM	8.9 271		09:21 AM	7.9 241
	04:03 PM	-0.8 -24		03:51 PM	-0.1 -3
	09:59 PM	8.2 250		09:50 PM	7.2 219
6 Th ○	04:15 AM	-0.5 -15	**21** F	03:59 AM	0.3 9
	10:17 AM	9.0 274		10:03 AM	8.1 247
	04:52 PM	-0.9 -27		04:33 PM	-0.3 -9
	10:48 PM	8.1 247		10:33 PM	7.4 226
7 F	05:02 AM	-0.4 -12	**22** Sa ●	04:42 AM	0.2 6
	11:04 AM	8.9 271		10:44 AM	8.3 253
	05:39 PM	-0.8 -24		05:16 PM	-0.5 -15
	11:36 PM	8.0 244		11:16 PM	7.5 229
8 Sa	05:48 AM	-0.2 -6	**23** Su	05:25 AM	0.1 3
	11:50 AM	8.7 265		11:26 AM	8.4 256
	06:25 PM	-0.6 -18		06:01 PM	-0.6 -18
9 Su	12:22 AM	7.8 238	**24** M	12:00 AM	7.5 229
	06:34 AM	0.1 3		06:10 AM	0.1 3
	12:36 PM	8.4 256		12:11 PM	8.4 256
	07:11 PM	-0.3 -9		06:47 PM	-0.6 -18
10 M	01:09 AM	7.6 232	**25** Tu	12:46 AM	7.6 232
	07:20 AM	0.4 12		06:58 AM	0.1 3
	01:22 PM	8.0 244		12:59 PM	8.3 253
	07:57 PM	0.1 3		07:36 PM	-0.5 -15
11 Tu	01:57 AM	7.3 223	**26** W	01:35 AM	7.5 229
	08:08 AM	0.7 21		07:50 AM	0.2 6
	02:11 PM	7.6 232		01:51 PM	8.2 250
	08:45 PM	0.4 12		08:28 PM	-0.4 -12
12 W	02:46 AM	7.1 216	**27** Th	02:28 AM	7.5 229
	08:59 AM	1.0 30		08:47 AM	0.2 6
	03:01 PM	7.2 219		02:47 PM	7.9 241
	09:34 PM	0.7 21		09:24 PM	-0.3 -9
13 Th	03:37 AM	6.9 210	**28** F	03:26 AM	7.5 229
	09:53 AM	1.2 37		09:49 AM	0.3 9
	03:55 PM	6.9 210		03:48 PM	7.7 235
	10:26 PM	0.9 27		10:22 PM	-0.1 -3
14 F ◑	04:31 AM	6.8 207	**29** Sa ◐	04:26 AM	7.6 232
	10:49 AM	1.3 40		10:53 AM	0.3 9
	04:51 PM	6.7 204		04:52 PM	7.5 229
	11:18 PM	1.0 30		11:22 PM	-0.1 -3
15 Sa	05:25 AM	6.9 210	**30** Su	05:27 AM	7.7 235
	11:46 AM	1.2 37		11:59 AM	0.1 3
	05:47 PM	6.6 201		05:56 PM	7.4 226

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	12:22 AM	-0.1 -3	**16** Tu	12:10 AM	0.8 24
	06:27 AM	7.9 241		06:20 AM	7.0 213
	01:02 PM	-0.1 -3		12:50 PM	0.8 24
	06:58 PM	7.4 226		06:48 PM	6.3 192
2 Tu	01:19 AM	-0.1 -3	**17** W	01:02 AM	0.8 24
	07:25 AM	8.2 250		07:11 AM	7.2 219
	02:01 PM	-0.3 -9		01:42 PM	0.5 15
	07:57 PM	7.4 226		07:41 PM	6.5 198
3 W	02:14 AM	-0.2 -6	**18** Th	01:52 AM	0.6 18
	08:20 AM	8.4 256		08:00 AM	7.5 229
	02:57 PM	-0.6 -18		02:32 PM	0.1 3
	08:52 PM	7.5 229		08:31 PM	6.7 204
4 Th	03:07 AM	-0.3 -9	**19** F	02:41 AM	0.4 12
	09:11 AM	8.5 259		08:47 AM	7.7 235
	03:48 PM	-0.7 -21		03:21 PM	-0.2 -6
	09:43 PM	7.6 232		09:19 PM	6.9 210
5 F	03:56 AM	-0.3 -9	**20** Sa	03:29 AM	0.2 6
	09:59 AM	8.5 259		09:33 AM	8.0 244
	04:36 PM	-0.8 -24		04:08 PM	-0.5 -15
	10:31 PM	7.6 232		10:06 PM	7.2 219
6 Sa ○	04:43 AM	-0.2 -6	**21** Su	04:16 AM	-0.1 -3
	10:45 AM	8.4 256		10:19 AM	8.3 253
	05:21 PM	-0.7 -21		04:54 PM	-0.8 -24
	11:17 PM	7.6 232		10:53 PM	7.4 226
7 Su	05:28 AM	-0.1 -3	**22** M ●	05:04 AM	-0.3 -9
	11:30 AM	8.3 253		11:06 AM	8.5 259
	06:04 PM	-0.5 -15		05:41 PM	-1.0 -30
				11:39 PM	7.6 232
8 M	12:01 AM	7.5 229	**23** Tu	05:53 AM	-0.4 -12
	06:11 AM	0.1 3		11:54 AM	8.6 262
	12:13 PM	8.0 244		06:29 PM	-1.1 -34
	06:46 PM	-0.3 -9			
9 Tu	12:44 PM	7.3 223	**24** W	12:28 AM	7.8 238
	06:55 AM	0.3 9		06:43 AM	-0.5 -15
	12:56 PM	7.7 235		12:44 PM	8.5 259
	07:28 PM	-0.1 -3		07:18 PM	-1.0 -30
10 W	01:28 AM	7.2 219	**25** Th	01:18 AM	7.9 241
	07:39 AM	0.5 15		07:36 AM	-0.5 -15
	01:40 PM	7.4 226		01:37 PM	8.3 253
	08:10 PM	0.2 6		08:09 PM	-0.9 -27
11 Th	02:12 AM	7.0 213	**26** F	02:10 AM	7.9 241
	08:25 AM	0.7 21		08:33 AM	-0.4 -12
	02:26 PM	7.1 216		02:32 PM	8.0 244
	08:53 PM	0.4 12		09:02 PM	-0.7 -21
12 F	02:58 AM	6.9 210	**27** Sa	03:06 AM	7.8 238
	09:14 AM	0.9 27		09:33 AM	-0.2 -6
	03:14 PM	6.7 204		03:30 PM	7.6 232
	09:39 PM	0.6 18		09:59 PM	-0.5 -15
13 Sa	03:47 AM	6.8 207	**28** Su ◐	04:04 AM	7.8 238
	10:05 AM	1.0 30		10:36 AM	-0.1 -3
	04:05 PM	6.5 198		04:32 PM	7.3 223
	10:28 PM	0.8 24		10:58 PM	-0.3 -9
14 Su	04:37 AM	6.8 207	**29** M	05:04 AM	7.8 238
	11:00 AM	1.0 30		11:40 AM	-0.1 -3
	04:59 PM	6.3 192		05:36 PM	7.0 213
◑	11:18 PM	0.8 24		11:58 PM	-0.1 -3
15 M	05:29 AM	6.9 210	**30** Tu	06:05 AM	7.8 238
	11:55 AM	0.9 27		12:44 PM	-0.1 -3
	05:54 PM	6.3 192		06:39 PM	6.9 210
			31 W	12:58 AM	0.0 0
				07:05 AM	7.8 238
				01:45 PM	-0.3 -9
				07:39 PM	6.9 210

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.
Referenced to Station: BRIDGEPORT (8467150) Time offset in mins (high:7 low: 13) Height offset in feet (high: * 1.08 low: *1.08)

Appendix E

2013-2014 Open Water Body Monitoring Results

	Friends of the Bay 2013 Water Quality Data - **Site 1, Cold Spring Cove South**																																	
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 1	4/8/2013	7.31	7.25	7.20	25.31	25.51	25.70	8.06	7.90	7.80	9.49	9.70	9.53	2.7	2.1	7.60		2	<1	ND	0.114	1.180	1.180	1.290		4	5	6	0	2	0	0	2
Site 1	4/15/2013	9.59	9.43	8.85	23.99	24.53	25.18	8.48	8.43	8.28	8.08	7.92	7.21	1.8	4.6	6.80		27	1							2	5		0	4	0		3
Site 1	4/22/2013	Site not done due to rain and tidal conditions																															
Site 1	4/30/2013	11.62	11.66	11.22	24.02	24.97	25.64	9.22	9.44	9.43	4.70	5.07	5.63	2.7	4.1	14.30		80*	18							4	4		1	1	2	1	1
Site 1	5/6/2013	13.43	12.82	11.81	24.16	25.31	25.95	9.72	8.67	8.60	8.07	7.95	8.03	1.6	6.9	11.50		12	<1							4	3	6	1	3	1	2	2
Site 1	5/13/2013	Site not done due to rain and tidal conditions																			Not recorded												
Site 1	5/20/2013	15.29	15.04	14.15	14.72	25.12	25.78	9.47	9.49	9.47	3.81	4.02	5.37	1.9	4.4	18.30		23	8							2	5		0	4	1	1	6
Site 1	5/28/2013	14.16	14.84	14.58	23.72	24.35	25.59	7.74	7.64	7.55	6.75	7.50	10.14	1.6	4.6	18.40		55	26							2	4	6	0	0	0		1
Ste 1	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 1	6/10/2013	18.23	17.75	16.03	23.04	23.43	25.38	7.85	7.67	7.28	8.52	8.30	4.99	1.1	4.30	21.00	18.23	230	90	<.050	0.149	1.65	1.65	1.80		3	5		0	4	0		3
Site 1	6/17/2013	20.88	19.86	17.93	23.05	23.64	25.04	8.12	7.85	7.44	10.87	9.66	4.43	1.0	5.9	30.50	20.88	bottle cracked- N/A							0	4	3	6	0	1	1	6	1
Site 1	6/24/2013	21.13	21	20.92	23.9	24.24	24.86	7.63	7.6	7.4	5.83	5.17	4.36	0.6	5.2	25.60	21.13	210	27							3	5	6	0	0	1	6	1
Site 1	7/1/2013	21.03	20.75	20	24.52	24.79	25.26	7.59	7.53	7.42	4.95	4.29	2.90	1.1	4.7	24.30	21.03	43	6	<.05	<.035	3.30	3.30	3.30	1	2	5	6	1	4	3	6	3
Site 1	7/8/2013	24.20	23.60	22.90	23.90	24.40	25.01	7.50	7.20	7.11	5.30	2.30	0.75	0.80	5.0	27.7	24.20	280	36						0	3	1	6	0	1	0	0	1
Ste 1	7/15/2013	Run cancelled																															
Site 1	7/24/2013	24.18	24.23	23.08	25.55	25.46	26.58	7.18	7.12	7.03	3.18	2.91	1.00	0.8	5.0	26.80	24.18	230	39						1	4	3	6	0	2	2	1	1
Site 1	7/29/2013	23.87	23.82	22.58	23.65	24.55	26.56	7.41	7.27	7.08	4.91	3.42	2.88	1.5	4.2	27.00	23.87	46	3						1	2	3	6	0	1	1	1	1
Ste 1	8/5/2013																																
Site 1	8/12/2013	23.38	23.43	23.11	24.61	25.74	26.79	7.78	7.6	7.4	6.70	5.44	4.22	0.8	6.1	23.00		118	31	<0.050	<0.035	3.90	3.90	3.90	0	2	1	6	0	4	1	2	3
Site 1	8/19/2013	22.4	22.44	26.62	24.92	24.99	26.63	7.38	7.39	7.31	3.67	3.39	1.63	1.1	8.0	26.10		480	31						0	4	5	6	0	1	1	1	2
Ste 1	8/27/2013																																
Site 1	9/3/2013	23.18	23.16	23.22	26.08	26.58	27.22	7.43	7.45	7.40	3.57	3.41	2.93	1.1	6.3	23.20		200	21	0.073	0.158	1.53	1.46	1.69	0	4	5	6	0	4	1	2	4
Site 1	9/9/2013	21.26	21.64	22.44	23.75	25.62	26.27	8.00	7.89	7.76	7.16	6.25	5.46	0.9	3.5	19.40		420	8						0	4	5	6	0	1	1	2	1
Site 1	9/16/2013	20.73	21.00	21.65	24.63	25.86	27.37	8.23	8.13	7.30	7.97	7.13	5.53	0.8	7.9	17.40		43	7						0	2	5	6	0	4	1	2	3
Ste 1	9/23/2013																																
Site 1	9/30/2013	19.39	20.11	19.83	25.66	26.60	27.72	8.03	7.98	7.84	6.61	6.22	5.25	1.1	4.6	19.00		12	3						0	2	5	6	0	1	1	1	1
Site 1	10/7/2013	20.33	20.30	20.29	27.10	27.31	27.67	7.76	7.76	7.78	4.25	3.86	3.61	1.7	6.0	22.90		51	140	<0.050	0.049	1.87	1.87	1.92	0	4	5	6	2	3	2	6	2
Site 1	10/15/2013	17.55	17.70	18.21	26.06	27.14	28.28	8.41	8.27	7.97	8.40	7.51	5.69	0.9	8.0	19.30		37	<1						0	2	5	6	1	0	1	2	1
Site 1	10/21/2013	15.08	16.75	16.69	25.82	26.94	27.44	8.50	8.39	8.38	8.84	8.16	7.97	0.9	5.1	17.00		34	5						0	4	5	6	1	0	1	6	1
Site 1	10/29/2013	12.33	12.96	13.75	25.34	25.93	27.72	8.79	8.72	8.60	9.85	9.10	8.47	1.4	7.2	13.10		6*	<1						0	2	1	6	2	0	1	6	1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 2, Cold Spring Cove North**																																		
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 2	4/8/2013	7.30	7.27	7.04	25.17	25.37	25.70	8.15	8.13	8.06	9.53	9.50	8.51	2.6	7.1	8.6		5	2	ND	0.135	1.300	1.300	1.44		4	5	6	0	2	0	0	2
Site 2	4/15/2013	9.23	9.11	8.84	24.58	24.79	25.32	8.50	8.49	8.44	7.60	7.29	6.64	1.6	6.9	7.4		8	1							2	5		0	4	0		3
Ste 2	4/22/2013	Ste not done due to rain and tidal conditions																																	
Site 2	4/30/2013	11.47	11.42	11.25	25.24	25.24	25.58	9.45	9.45	9.44	5.32	5.28	5.80	2.9	4.5	15.4		1*	1							4	4		0	1	1	2	1
Site 2	5/6/2013	12.42	12.31	11.65	25.70	25.83	26.01	8.63	8.61	8.58	10.28	8.16	8.35	1.9	1.2	11.6		2	1							4	3	6	0	3	2	4	2
Ste 2	5/13/2013	Ste not done due to rain and tidal conditions																		Not recorded														
Site 2	5/20/2013	14.61	14.56	13.67	25.25	25.31	25.97	9.50	9.47	9.46	3.65	4.01	5.66	1.6	6.4	17.2		22	9*							2	5		0	4	1	1	6
Site 2	5/28/2013	14.68	14.74	14.69	24.28	24.70	25.25	7.84	7.81	7.70	9.47	8.27	9.89	1.8	4.8	17.6		110*	22							2	4	6	1		0		1
Ste 2	6/3/2013	Run cancelled due to wind and weather conditions.																																	
Site 2	6/10/2013	17.47	16.04	16.02	23.57	23.86	25.45	7.84	7.67	7.61	8.01	6.49	5.28	1.2	5.7	21.8	17.47	100	61	<.050	0.150	1.820	1.820	1.97		3	5		0	4	0		3
Site 2	6/17/2013	19.58	18.66	18.12	23.11	24.02	24.90	7.96	7.66	7.58	9.01	6.79	5.05	1.2	5.6	28.4	19.54	23	<1						0	4	3	6	0	1	2	6	1
Site 2	6/24/2013	21.04	21.19	20.84	23.54	23.83	24.66	7.68	7.19	7.50	5.90	6.80	4.70	0.8	4.8	27.8	21.04	370	42							3	5	6	0	0	1	6	1
Ste 2	7/1/2013	Ste not done due to wind and weather conditions																																	
Site 2	7/8/2013	24.30	23.64	23.13	23.66	24.00	25.02	8.00	7.58	7.27	7.80	6.18	2.50	0.9	5.1	25.6	24.30	720	53						0	3	1	6	0	1	1	6	1
Ste 2	7/15/2013	Run cancelled																																	
Site 2	7/24/2013	24.00	23.87	23.18	25.19	24.70	26.65	7.47	7.22	7.15	5.16	4.83	1.57	0.7	6.7	25.4	24.00	180	32						1	4	3	6	0	1	2	7	1
Site 2	7/29/213	23.36	22.78	22.58	25.11	25.85	26.63	7.23	7.16	7.10	3.62	2.91	2.70	1.4	5.5	24.7	23.36	57	2						1	2	3	6	0	1	0	0	1
Ste 2	8/5/2013																																		
Site 2	8/12/2013	23.08	23.04	23.11	24.11	25.44	26.65	7.76	7.46	7.40	7.40	4.70	4.23	1.1	5.3	23.5		49	15	<0.05	0.303	3.67	3.67	3.97	0	2	1	6	0	4	1	2	3
Site 2	8/19/2013	22.40	22.37	26.68	25.70	26.05	26.70	7.44	7.44	7.40	4.20	3.96	3.82	1.2	7.5	25.4		670	49						0	4	5	6	0	1	1	7	2
Ste 2	8/27/2013																																		
Site 2	9/3/2013	23.12	23.22	23.38	26.36	26.79	27.44	7.52	7.49	7.43	4.03	3.79	3.77	1.3	7.6	23.2		220	49	<0.050	0.137	1.61	1.61	1.75	0	4	5	6	1	4	1	2	6
Site 2	9/9/2013	22.00	22.07	22.48	25.54	25.83	26.62	7.91	7.87	7.80	6.43	6.25	5.97	0.7	5.4	19.2		48	5						0	4	5	6	0	1	0	0	1
Site 2	9/16/2013	20.74	21.20	21.71	25.22	26.29	27.51	8.11	8.04	7.89	7.28	6.82	5.91	1.0	7.1	17.2		70	21						0	2	5	6	0	4	1	2	3
Ste 2	9/23/2013																																		
Site 2	9/30/2013	19.44	19.73	19.69	26.36	27.36	28.00	8.06	7.95	7.97	6.25	5.71	5.87	1.1	7.2	21.0		11	1						0	2	5	6	1	1	1	2	1
Site 2	10/7/2013	20.07	20.11	20.33	26.03	26.88	27.74	7.79	7.77	7.78	5.60	4.81	4.28	1.3	5.5	22.9		250	200	<0.050	0.112	1.89	1.89	2.00	0	4	5	6	2	3	1	6	2
Site 2	10/15/2013	17.57	18.09	18.31	26.35	27.57	28.50	8.27	8.11	8.06	7.60	6.31	5.86	0.8	7.6	19.4		38	12						0	2	5	6	0	0	0	0	1
Site 2	10/21/2013	16.37	16.33	16.86	26.51	26.58	27.80	8.51	8.49	8.41	8.92	8.61	7.98	1.0	6.1	18.6		74	9						0	4	5	6	0	0	0	0	1
Site 2	10/29/2013	12.32	13.70	13.75	25.98	27.51	27.72	8.79	8.64	8.61	9.87	8.93	8.74	1.30	6.20	13.40		4*	2						0	2	1	6	1	0	2	6	1
		pH readings suspect: instrument out of calibration																																	

Friends of the Bay 2013 Water Quality Data - **Site 3, Cold Spring Harbor South**

	Date	H_20 Temp TOP (0.5m) (°C)	H_20 Temp 1 m (°C)	H_20 Temp 0.5m from BTM (°C)	Salinity TOP (0.5m) (ppt)	Salinity 1 m (ppt)	Salinity 0.5 m from BTM (ppt)	pH Top (0.5m)	pH 1 m	pH 0.5m from BTM	DO TOP (0.5m) (ppm)	DO 1 m (ppm)	DO 0.5m from BTM (ppm)	Secchi (m)	Depth (m)	Air Temp (°C)	H_2O Temp BTM monthly AVG (°C)	Fecal Coliform Bacteria (CFU/100ml)	Enterococci (CFU/100ml)	Ammonia (NH_3) (mg/l)	Nitrate/Nitrite (NO_3-NO_2) (mg/l)	Total Kjeldahl Nitrogen (TKN) (mg/l)	Organic Nitrogen (N) (mg/l)	Total Nitrogen (mg/l)	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Wave Height	Cloud Cover	Wind Speed	Wind Direction	Weather
Site 3	4/8/2013	7.13	6.83	6.73	25.50	25.45	25.89	8.26	8.22	8.17	9.63	9.81	10.98	3.3	6.2	9.6		1	<1	ND	0.068	1.430	1.430	1.500		4	5	6	0	2	0	0	2
Site 3	4/15/2013	9	8.94	8.67	25.05	25.19	25.65	8.55	8.55	8.47	7.94	7.82	7.06	1.7	4.2	7.1		1	<1							2	5		0	4	0		3
Site 3	4/22/2013	Site not done due to rain and tidal conditions																															
Site 3	4/30/2013	11.53	11.43	11.05	25.59	25.59	25.91	9.47	9.47	9.43	5.22	4.98	5.16	2.6	4.2	12.5		1*	<1							4	4		2	1	2	2	1
Site 3	5/6/2013	12.93	12.88	11.82	25.72	25.68	26.14	9.66	9.65	9.58	8.86	8.71	10.26	2.0	6.0	11.1		3	<1							4	3	6	1	3	2	4	2
Site 3	5/13/2013	Site not done due to rain and tidal conditions																		Not recorded													
Site 3	5/20/2013	15.12	14.85	13.31	25.27	25.54	26.09	9.97	9.59	9.48	4.49	4.83	6.85	2.1	5.9	16.7		7	6							2	4	0	1	4	1	2	3
Site 3	5/28/2013	14.69	14.66	14.41	25.78	25.25	25.79	7.90	7.91	7.75	6.50	7.74	7.60	1.6	3.7	15.7		11	8							2	3	6	0	0	1	1	1
Site 3	6/3/2013	un cancelled due to wind and weather condition																															
Site 3	6/10/2013	17.21	16.94	16.02	24.59	25.20	25.52	8.04	8.02	7.83	8.84	8.52	6.16	1.2	4.2	19.0	17.21	80	22	<.050	<.035	1.830	1.830	1.830		3	5	6	0	4	1	3	3
Site 3	6/17/2013	20.26	19.15	17.51	24.21	24.66	25.16	8.03	7.96	7.43	8.75	8.06	3.54	1.3	4.8	26.7	20.26	8	<1						0	4	3	6	0	1	2	6	1
Site 3	6/24/2013	21.18	21.17	20.48	24.53	24.74	25.07	1.90	1.90	7.57	6.71	7.08	4.78	0.9	3.8	27.3	21.18	43	8							3	5	6	0	0	0	6	1
Site 3	7/1/2013	Site not done due to wind and weather conditions																															
Site 3	7/8/2013	23.85	23.89	22.62	24.69	24.76	25.22	7.73	7.81	7.43	5.81	6.25	3.45	1.3	4.4	25.2	23.85	21	2						0	4	1	6	1	1	1	6	1
Site 3	7/15/2013	Run cancelled																															
Site 3	7/24/2013	24.29	24.29	22.45	25.77	27.98	26.98	7.77	7.70	7.19	7.47	6.20	1.73	0.9	5.3	27.8	24.29	100	27						1	4	3	6	1	2	2	8	1
Site 3	7/29/2013	23.37	23.14	22.22	26.30	26.37	26.97	7.32	7.22	7.14	4.00	2.96	3.03	1.6	4.7	24.8	23.37	33	<1						1	2	3	6	0	1	1	1	1
Site 3	8/5/2013																																
Site 3	8/12/2013	23.3	23.27	22.89	25.59	25.73	26.99	7.73	7.72	7.45	6.32	5.95	3.99	1.0	4.5	22.8		31	9	<0.050	<0.035	3.15	3.15	3.15	0	2	1	6	1	4	2	2	3
Site 3	8/19/2013	22.63	22.63	22.56	25.62	26.49	27.12	7.51	7.51	7.45	4.67	4.23	3.89	1.4	6.6	23.4		20	3						0	4	5	6	0	1	1	7	2
Site 3	8/27/2013																																
Site 3	9/3/2013	23.28	23.63	23.37	26.51	27.23	27.51	7.63	7.67	7.50	5.03	4.97	3.55	1.1	6.5	22.9		19	7	0.054	0.210	1.90	1.85	2.11	0	4	5	6	2	4	1	2	6
Site 3	9/9/2013	22.20	22.20	22.48	26.54	26.54	27.33	8.02	8.01	7.85	7.10	6.93	6.04	1.0	4.9	17.2		30	2						0	4	5	6	0	1	1	2	1
Site 3	9/16/2013	21.11	21.11	21.69	26.85	26.85	27.66	8.16	8.11	7.11	7.25	6.78	4.90	1.0	6.9	17.5		7	1						0	2	5	6	0	4	1	2	3
Site 3	9/23/2013																																
Site 3	9/30/2013	19.36	19.56	19.69	26.78	27.63	28.14	8.2	8.19	7.98	7.77	7.02	5.91	1.1	6.6	18.4		7	<1						0	2	5	6	1	1	1	2	1
Site 3	10/7/2013	20.59	20.61	20.52	27.96	27.97	27.96	8.13	8.13	8.11	6.70	6.72	6.59	1.3	4.5	24.6		2	39	<0.050	0.058	2.03	2.03	2.09	0	4	5	6	3	3	2	5	2
Site 3	10/15/2013	17.90	17.77	18.20	27.85	27.77	28.5	8.27	8.27	8.12	7.48	7.41	6.23	1.1	7.0	17.60		6	49						0	2	5	6	1	0	0	0	1
Site 3	10/21/2013	16.26	16.40	16.94	26.56	27.49	28.22	8.47	8.49	8.44	8.52	8.62	8.24	1.5	5.3	16.40		8	3						0	4	5	6	0	0	0	0	1
Site 3	10/29/2013	12.90	13.43	13.64	26.48	27.63	27.99	8.77	8.76	8.65	10.05	9.77	8.95	1.5	5.7	14.40		2*	2						0	2	1	6	1	0	1	7	1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 4, Cold Spring Harbor North**																																		
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 4	4/8/2013	6.63	6.58	6.1	25.68	25.68	25.72	8.27	8.23	8.06	11.74	11.83	10.28	3.4	7.4	8.7		1	<1	ND	ND	1.320	1.320	1.320		4	3	6	0	2	0	0	1
Site 4	4/15/2013	8.37	8.34	7.47	25.7	25.7	26	8.55	8.55	8.51	7.97	7.79	7.79	2.6	5.0	7.1		5	1							2	5		0	4	0		3
Site 4	4/22/2013	Site not done due to rain and tidal conditions																																	
Site 4	4/30/2013	11.38	11.4	10.45	25.86	25.79	26.09	9.54	9.54	9.53	6.09	6.49	5.49	2.5	4.6	14.1		<1	<1							4	4		2	1	2	2	2
Site 4	5/6/2013	12.00	11.97	11.72	26.04	26.1	26.15	9.63	9.62	9.6	8.67	10.06	11.44	2.2	6.2	10.1		<1	<1							4	3	6	2	2	2	4	2
Site 4	5/13/2013	14.22	14.27	14.78	25.72	25.71	25.78	9.71	9.69	9.69	7.48	7.75	9	2.0	4.7	10.1		<1	<1	ND	ND	1.520	1.520	1.520		4	4		3	1	3	8	1
Site 4	5/20/2013	14.86	14.78	13.05	25.61	25.74	26.15	9.61	9.63	9.61	4.71	5.26	7.36	2.5	5.8	15.8		1	4							2	4	0	1	4	1	1	3
Site 4	5/28/2013	14.87	14.92	14.72	25.6	25.75	25.01	8.06	8.04	7.97	7.17	10.54	9.41	1.4	4.2	17.2		5	1							2	5	6	0	2	1	0	1
Site 4	6/3/2013	Run cancelled due to wind and weather conditions.																																	
Site 4	6/10/2013	18.49	18.01	15.25	24.99	23.45	26.03	8.05	7.96	7.69	8.29	8.23	5.08	1.3	5.0	20.2	18.49	28	5	<.050	<.035	1.640	1.640	1.640		3	5	6	0	4	0		3
Site 4	6/17/2013	20.19	19.86	17.32	24.98	24.83	25.36	8.09	8.20	7.55	9.57	9.32	4.15		5.6	24.4	20.19	<1	<1						0	4	3	6	0	1	1	6	1
Site 4	6/24/2013	22.11	22.12	20.26	24.91	24.98	25.26	8.1	8.07	7.71	8.00	7.19	5.18	1.2	4.9	27.6	22.11	<1	<1							3			0		1	6	1
Site 4	7/1/2013	21.93	21.91	18.27	25.26	25.26	25.80	8.01	8.00	7.70	7.46	7.32	4.73	1.2	5.9	24.4	21.93	<1	1	<.050	<.035	3.080	3.080	3.08	1	2	5	6	0	4	2	6	3
Site 4	7/8/2013	24.53	24.51	21.13	25.21	25.21	25.58	8.17	8.15	7.42	8.74	8.61	3.89	2.2	4.4	25.3	24.53	30	<1						0	4	3	6	1	1	1	6	1
Site 4	7/15/2013	Run cancelled																																	
Site 4	7/24/2013	24.82	24.78	23.81	26.28	26.35	26.74	7.74	7.73	7.57	7.10	7.13	5.59	1.0	2.9	25.5	24.82	21	<1						1	4	3	6	1	2	1	8	1
Site 4	7/29/2013	23.46	23.25	22.10	26.59	26.58	27.03	7.68	7.58	7.25	6.20	4.26	4.01	1.7	5.5	28.1	23.46	<1	<1						1	2	3	6	0	1	1	8	1
Site 4	8/5/2013	23.46	23.48	23.45	26.8	26.87	26.87	7.50	7.58	7.52	5.38	5.13	2.48	1.4	7.1	19.10	23.46	2	<1						1	4	5	6	2	0	2	8	1
Site 4	8/12/2013	23.78	23.78	22.21	26.53	26.6	27.32	8.08	8.05	7.51	8.34	7.87	4.35	1.1	5.5	22.2		4	<1	<0.050	<0.035	3.35	3.35	3.35	0	2	1	6	2	4	2	2	3
Site 4	8/19/2013	22.37	22.37	22.01	27.26	27.26	27.46	7.64	7.64	7.6	5.06	4.93	4.43	1.5	7.6	23.1		1	<1						0	4	5	6	0	0	1	6	2
Site 4	8/27/2013	23.27	23.26	22.61	26.72	26.72	27.48	8	7.96	7.64	7.01	6.63	4.83	1.3	5.5	24.1		2	24						2	2	5	6	4	3	2	1	2
Site 4	9/3/2013	23.89	23.88	23.29	27.46	27.46	27.79	7.69	7.66	7.6	5.11	4.84	4.10	1.6	6.3	22.9		2	<1	0.066	0.051	1.75	1.68	1.80	0	4	5	6	1	4	1	2	6
Site 4	9/9/2013	22.25	22.26	22.36	27.46	27.47	27.83	7.94	7.9	7.78	6.25	6.05	5.54	1.6	5.6	17.4		10	<1						0	4	3	6	0	1	1	2	1
Site 4	9/16/2013	21.32	21.5	21.72	27.5	27.57	27.87	8.03	7.94	7.85	6.75	6.30	5.93	1.5	7.4	17.6		<1	<1						1	2	5	6	1	4	1	2	3
Site 4	9/23/2013	19.87	19.88	19.90	27.72	27.72	27.72	8.13	8.12	8.09	7.23	7.13	6.89	1.7	5.4	12.5		2	<1						0	4	0	5	3	0	2	1	1
Site 4	9/30/2013	19.70	19.61	19.85	27.57	27.64	28.43	8.34	8.33	8.1	8.40	7.93	6.31	1.4	6.9	21.00		<1	<1						0	2	5	6	1	1	1	1	1
Site 4	10/7/2013	20.34	20.34	20.31	27.95	27.95	28.24	8.19	8.16	8.14	6.89	6.83	6.59	1.7	4.9	23.10		5	13	0.056	<0.035	1.88	1.82	1.88	0	4	3	6	3	4	2	6	3
Site 4	10/15/2013	17.93	17.93	18.03	28.41	28.48	28.56	8.3	8.27	8.22	7.56	7.40	6.98	2.3	7.6	19.40		<1	28						0	2	5	5	1	1	1	2	1
Site 4	10/21/2013	16.84	16.85	16.93	28.29	28.36	28.37	8.48	8.45	8.38	8.45	8.33	7.77	2.0	6.1	15.60		<1	1						0	4	5	6	0	0	0	0	1
Site 4	10/29/2013	13.43	13.44	13.48	28.19	28.12	28.26	8.73	8.72	8.6	9.61	9.36	8.77	1.6	6.6	11.70		<1	<1						0	2	1	6	2	0	1	6	1
		pH readings suspect: instrument out of calibration																																	

	Friends of the Bay 2013 Water Quality Data - **Site 5, Plum Point**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100 ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 5	4/8/2013	**6.79**	6.71	6.25	25.55	25.68	25.79	8.36	8.33	8.24			11	3	10.5	10.2		<1	<1	ND	ND	1.110	1.110	1.110										
Site 5	4/15/2013	**8.58**	8.59	7.94	25.58	25.58	25.89	8.54	8.52	8.49	7.80	7.78	7.80	2.50	10.0	7.7		1	<1							2	5		0	4	1	2	3
Site 5	4/22/2013 Ste not done due to rain and tidal conditions																																	
Site 5	4/30/2013	**11.67**	11.68	11.71	25.87	25.87	25.87	9.50	9.50	9.50	5.63	6.23	4.93	3.3	5.0	13.6		<1	<1							3	4		2	1	1	4	2
Site 5	5/6/2013	12.54	12.28	11.28	25.98	26.05	26.13	9.60	9.60	9.57	8.63	8.90	11.61	1.6		11.1		<1	<1							2	3	6	2	3	2	3	2
Site 5	5/13/2013	14.38	14.40	14.34	25.65	25.65	25.67	9.66	9.67	9.72	11.21	7.17	8.70	2.3	10.5	11.2		3	<1	ND	ND	1.440	1.440	1.440		4	5		2	1	3	7	1
Site 5	5/20/2013	13.68	13.63	12.70	25.98	25.98	26.27	9.59	9.59	9.61	6.97	6.52	11.89	2.3	1.5	17.5		1	3							2	4	0	1	4	2	2	3
Site 5	5/28/2013	**15.04**	15.05	14.65	25.82	25.75	25.94	7.99	7.99	7.87	6.89	10.44	14.50	1.6	10.5	17.4		2	2							1	5	6	0	2	1	0	2
Ste 5	6/3/2013	Run cancelled due to wind and weather conditions.																																
Site 5	6/10/2013	17.07	17.45	16.69	25.37	25.43	25.68	7.89	7.88	7.87	7.31	7.16	7.07	1.5	10.0	20.3	17.07	4	<1	<.05	<.035	1.740	1.740	1.740		3	5	6	0	3	0	2	3
Site 5	6/17/2013	19.10	18.94	18.72	25.00	25.00	25.14	7.97	7.94	7.91	8.22	8.11	7.66	1.5	10.0	27.3	19.10	<1	<1						0	4	0				1	6	1
Site 5	6/24/2013	21.85	21.84	24.41	24.97	24.97	25.03	7.90	7.89	7.86	6.89	6.71	6.55	1.0	9.8	26.0	21.85	4	2							3	5	6	0	0	2	6	1
Site 5	7/1/2013	21.53	21.21	19.18	25.32	25.37	25.60	7.84	7.72	7.78	6.10	5.98	5.48	0.9	10.0	24.3	21.53	<1	1	<.05	<.035	3.350	3.350	3.350	1	2	5	6	0	4	2	6	3
Site 5	7/8/2013	23.94	23.93	19.62	25.32	25.33	25.95	7.96	7.95	7.63	7.14	7.06	4.44	1.6	10.0	25.4	25.33	<1	1						0	4	5	6	1	1	3	8	1
Site 5	7/15/2013 Run cancelled																																	
Site 5	7/24/2013	24.31	24.40	23.58	26.55	26.70	26.81	7.60	7.56	7.41	6.53	5.72	4.65	1.0	8.0	25.6	24.31	4	1						1	4	3	6	0	2	2	7	1
Site 5	7/29/2013	23.38	23.35	22.99	26.66	26.72	26.78	7.52	7.51	7.46	5.58	5.54	5.44	1.5	10.2	25.0	23.38	2	<1						1	2	3	6	0	1	1	8	1
Site 5	8/5/2013	23.35	23.37	23.25	26.87	26.87	26.79	7.54	7.53	7.52	5.16	5.18	5.22	2.0	10.0	19.1	23.35	<1	<1						1	4	4	6	0	0	2	8	1
Site 5	8/12/2013	23.28	23.38	22.91	26.87	26.94	27.07	7.63	7.62	7.58	5.61	5.70	4.99	1.2	12.4	22.4		2	<1	<0.050	<0.035	3.37	3.37	3.37	0	3	1	6	1	3	2	2	3
Site 5	8/19/2013	**22.56**	22.54	22.07	27.19	27.19	27.39	7.65	7.64	7.61	5.23	4.95	5.02	1.5	10.0	22.9		2	<1						0	4	5	6	0	1	1	6	2
Site 5	8/27/2013	23.04	23.03	22.87	27.21	27.21	27.28	7.75	7.75	7.70	6.17	6.08	5.66	1.4		23.1		5	41						0	2	5	6	2	4	1	2	3
Site 5	9/3/2013	23.79	23.84	23.57	27.46	27.53	27.59	7.65	7.69	7.67	4.90	5.08	4.83	1.5	10.0	23.2		9	<1	0.086	<0.035	1.79	1.70	1.79	0	4	5	6	2	4	1	2	6
Site 5	9/9/2013	22.23	22.26	22.23	27.54	27.54	27.61	7.81	7.80	7.79	6.12	6.03	5.95	1.7	10.0	18.6		<1	<1						0	4	3	6	0	1	1	2	1
Site 5	9/16/2013	21.68	21.69	21.77	27.73	27.73	27.87	7.83	7.82	7.81	5.99	5.96	5.88	2.0	10.0	17.9		2	<1						1	2	5	6	1	4	1	2	3
Site 5	9/23/2013	20.03	20.03	20.02	27.73	27.80	27.80	8.02	8.02	7.99	6.74	6.72	6.51	1.9	10.0	14.8		5	1						0	4	5	6	1	0	1	8	1
Site 5	9/30/2013	19.75	19.73	19.70	27.93	27.93	27.28	8.18	8.17	8.09	7.39	7.23	6.49	2.1	10.0	18.0		<1	<1						0	2	5	6	1	1	1	1	1
Site 5	10/7/2013	20.44	20.42	20.38	28.03	28.03	28.70	8.08	8.08	8.09	6.75	6.79	6.68	1.4	10.0	22.3		<1	2	<0.050	<0.035	2.04	2.04	2.04	0	4	5	6	3	3	2	6	2
Site 5	10/15/2013	17.76	17.78	17.79	28.33	28.41	28.48	8.26	8.26	8.23	7.44	7.38	7.16	2.60	10.0	18.2		2	<1						0		2	6	0	1	0	0	1
Site 5	10/21/2013	16.89	16.90	16.85	28.29	28.29	28.29	8.38	8.37	8.34	8.06	8.05	7.85	2.3	10.0	14.9		1	<1						0	4	5	6	1	0	1	6	1
Site 5	10/29/2013	13.62	13.59	13.64	28.27	28.27	28.27	8.54	8.54	8.51	8.60	8.60	8.50	2.8	10.0	11.7		<1	1						0	2	1	6	2	0	1	6	1
		pH readings suspect: instrument out of calibration																																

	Friends of the Bay 2013 Water Quality Data - **Site 6, Seawanhaka Yacht Club PSTP outfall**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 6	4/8/2013	6.66	6.72	6.58	25.61	25.16	25.68	8.32	8.28	8.23				3.3	6.7	13.7		<1	1	ND	ND	1.200	1.200	1.200		4	4	6	0	1	0	0	1
Site 6	4/15/2013	8.58	8.58	8.57	25.58	25.65	25.58	8.56	8.55	8.54	7.81	7.77	7.63	2.7	5.00	7.4		<1	<1							2	5		0	4	1	4	3
Site 6	4/22/2013	Ste not done due to rain and tidal conditions																																
Site 6	4/30/2013	11.75	11.79	11.53	25.88	25.88	25.94	9.47	9.48	9.47	5.36	5.49	4.99	3.1	3.8	13.5		<1	<1							3	4		2	2	1	4	2
Site 6	5/6/2013	12.51	12.52	11.75	26.05	26.05	26.15	9.61	9.55	9.56	14.07	13.21	11.90	2.0	6.90	8.7		1	<1							4	3	6	2	2	2	4	2
Site 6	5/13/2013	14.81	14.84	14.56	25.67	25.67	25.65	9.49	9.49	9.54	6.16	6.69	8.32	2.6	5.80	11.2		1	<1	ND	ND	1.620	1.620	1.620		4	5		2	1	3	7	1
Site 6	5/20/2013	14.53	14.48	13.65	25.80	25.80	26.04	9.59	9.58	9.58	4.62	5.22	8.22	3.0	5.70	19.2		1	4							2	4	0	0	4	0	0	3
Site 6	5/28/2013	15.08	14.99	14.92	25.82	25.82	25.82	8.01	7.99	7.97		10.44	9.82	1.8	4.40	18.4		<1	1							1	5	6	0	2	1	0	2
Ste 6	6/3/2013	Run cancelled due to wind and weather conditions.																																
Site 6	6/10/2013	17.80	17.70	16.88	25.31	25.31	25.62	7.9	7.88	7.79	7.56	7.28	6.66	1.9	5.9	20.0	17.80	2	1	<.05	<.035	1.620	1.620	1.620		4	5	6	1	4	1	2	3
Site 6	6/17/2013	19.56	18.93	18.45	25.03	25.09	25.13	8.2	7.92	7.93	8.62	8.16	6.91	1.6	6.0	25.5	19.56	<1	<1						0	4	3	6	0	1	2	6	1
Site 6	6/24/2013	21.75	21.80	21.29	25.04	24.97	25.02	7.89	7.89	7.89	6.56	6.48	6.33	0.9	6.1	29.3	21.75	<1	<1							3	5	6	0	0	2	6	1
Site 6	7/1/2013	22.27	22.17	21.78	25.27	25.27	25.32	7.88	7.88	7.84	6.87	6.75	6.52	0.9	5.6	23.8	22.27	8	1	<.05	<.035	4.020	4.020	4.020	1	2	5	6	0	4	3	6	3
Site 6	7/8/2013	23.96	23.93	19.34	25.33	25.33	26.01	7.87	7.86	7.62	6.66	6.51	4.34	1.2	7.0	25.9	23.96	2	<1						0	4	5	6	1	1	1	6	1
Ste 6	7/15/2013	Run cancelled																																
Site 6	7/24/2013	24.72	24.74	23.51	26.71	26.71	26.87	7.50	7.48	7.37	5.56	5.46	4.25	1.0	6.0	25.5	24.72	10	6						1	6	0	2	1	7	1	7	1
Site 6	7/29/2013	23.20	23.13	22.98	26.79	26.79	26.78	7.52	7.49	7.45	5.67	5.55	5.47	1.4	6.7	26.1	23.20	2	1						1	2	3	6	0	1	1	8	1
Site 6	8/5/2013	23.61	23.61	23.60	26.81	26.81	26.81	7.54	7.53	7.50	5.31	5.33	5.16	1.1	11.3	18.8	23.61	1	<1						1	4	5	6	0	0	2	8	1
Site 6	8/12/2013	23.44	23.41	23.28	26.87	26.87	26.94	7.61	7.59	7.58	5.48	5.4	5.25	1.2	5.5	23.3		2	<1	<0.050	<0.035	3.04	3.04	3.04	0	3	1	3	0	3	2	2	3
Site 6	8/19/2013	22.53	22.51	22.43	27.19	27.19	27.19	7.61	7.59	7.57	4.94	4.94	4.68	1.2	8.5	22.0		2	3						0	4	5	6	0	1	1	6	2
Site 6	8/27/2013	23.00	22.99	22.83	27.21	27.21	27.41	7.71	7.69	7.64	5.85	5.84	5.38	1.4	6.8	22.9		2	9						2	2	5	3	2	4	1	1	3
Site 6	9/3/2013	23.83	23.82	23.64	27.46	27.46	27.52	7.62	7.61	7.57	4.65	4.76	4.71	1.5	8.6	23.2		13	8	0.093	<0.035	2.29	2.20	2.29	0	4	5	6	0	4	0		6
Site 6	9/9/2013	22.27	22.27	22.25	27.47	27.47	22.61	7.78	7.78	7.76	6.04	6.04	5.96	1.7	8.6	17.5		1	<1						0	4	3	6	0	1	1	2	1
Site 6	9/16/2013	21.70	21.69	21.74	27.66	27.73	27.73	7.84	7.84	7.81	6.00	6.05	6.04	1.6	8.0	17.8		1	1						0	2	5	6	0	4	1	2	3
Site 6	9/23/2013	19.99	19.95	19.89	27.65	27.65	27.79	8.02	8.01	7.96	6.70	6.61	6.41	1.7	7.7	13.8		6	2						0	4	0	6	1	0	1	8	1
Site 6	9/30/2013	19.75	19.66	19.75	27.93	27.92	28.14	8.20	8.20	8.13	7.68	7.40	6.80	2.0	5.6	19.0		2	2						0	2	5	6	1	1	1	1	1
Site 6	10/7/2013	20.47	20.41	20.37	27.89	27.49	28.17	8.06	8.48	8.05	6.76	6.60	6.42	1.5	6.8	22.4		1	5	<0.050	<0.035	1.89	1.89	1.89	0	4	5	6	3	4	2	6	3
Site 6	10/15/2013	17.77	17.77	17.71	28.33	28.41	28.40	8.28	8.26	8.20	7.53	7.50	7.07	1.1	9.0	16.8		2	<1						0	2	5	6	0	1	0	6	1
Site 6	10/21/2013	16.86	16.86	16.88	28.22	28.22	28.29	8.38	8.38	8.36	8.15	8.18	8.09	2.4	6.3	16.3		<1	<1						0	4	5	6	1	0	1	6	1
Site 6	10/29/2013	13.73	13.73	13.68	28.35	28.35	28.34	8.48	8.48	8.46	8.33	8.34	8.28	3.0	7.5	12.4		<1	2						0	2	1	6	1	0	1	6	1
		pH readings suspect: instrument out of calibration																																

	Friends of the Bay 2013 Water Quality Data - **Site 7, Oyster Bay Cove**																																	
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 7	4/8/2013	7.24	7.12	7.08	25.37	25.5	25.57	8.35	8.34	8.3				2.8	2.8	12.1		<1	<1	ND	ND	1.130	1.130	1.130		4	4	6	0	0	0	0	1
Site 7	4/15/2013	8.88		8.84	25.66		25.66	8.52		8.51	7.69		7.46	2.0	1.4	7.8		13	4							2	5		0	4	1	4	3
Site 7	4/22/2013	Site not done due to rain and tidal conditions																															
Site 7	4/30/2013	11.77			25.81			9.42			4.76			2.2	1.3	11.6		28	13							3	4		1	2	2	2	2
Site 7	5/6/2013	13.63	13.62	13.62	25.83	25.83	25.83	9.60	9.59	9.63	8.69	9.40	10.19	1.3	2.1	11.2		1	<1							4	5	6	1	3	2	3	2
Site 7	5/13/2013	14.79			24.98			9.27			5.66			1.3	0.9	11.6		35	6	ND	ND	1.750	1.750	1.750		4	3		2	1	2	8	1
Site 7	5/20/2013	15.22	15.06	15.00	25.69	25.68	25.68	9.56	9.56	9.55	5.09	5.64	6.96	2.7	2.8	18.4		9*	6							2	3	6	0		1		2
Site 7	5/28/2013	15.84			25.52			7.87			7.64			bottom	0.8	16.8		8	9*							4	3	6	0	0	1	1	1
Site 7	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 7	6/10/2013	18.51	17.77	17.69	25.06	25.31	25.31	7.81	7.83	7.80	6.84	7.00	6.87	1.7	1.7	21.2	18.510	24	48	<.050	<.035	1.680	1.680	1.680		4	5	0	4	0		3	
Site 7	6/17/2013	20.15	19.93	19.93	24.70	24.83	24.83	7.75	7.76	7.76	6.91	7.22	7.22	1.5	1.6	25.5	20.150	9	1						0	4			1		2	8	1
Site 7	6/24/2013	22.61	22.30		24.79	24.85		7.77	7.73		6.17	5.83		1.1	1.8	30.2	22.600	31	3							3	5	6	0	0	2	6	1
Site 7	7/1/2013	22.25	21.92	21.79	25.06	25.12	25.18	7.73	7.55	7.51	5.73	4.47	4.53	1.1	2.7	24.2	22.250	11	1	<.050	<.035	3.880	3.880	3.880	1	2	5	6	0	4	1	6	3
Site 7	7/8/2013	24.92	24.90		24.16	25.15		8.01	7.99		7.40	7.65		1.4	1.7	25.2	24.920	8	1						0	4	5	6	0	1	2	8	1
Site 7	7/15/2013	Run cancelled																															
Site 7	7/24/2013	24.99	24.97	24.86	26.65	26.65	26.72	7.42	7.40	7.27	5.17	5.20	4.90	1.1	2.0	30.3	24.990	13	10						1	4	1	6	0	2	1	7	1
Site 7	7/29/2013	23.66	23.67	23.50	26.60	26.60	26.59	7.50	7.48	7.43	5.73	5.59	5.53	1.8	2.3	24.3	23.660	9	2						1	2	3	6	0	1	1	8	1
Site 7	8/5/2013	23.47	23.50	23.69	26.38	26.38	26.53	7.57	7.55	7.51	4.69	4.30	3.92	1.1	3.1	19.8	23.470	15	4						1	4	3	6	1	0	3	1	1
Site 7	8/12/2013	23.59	23.52	23.48	26.52	26.8	26.87	7.46	7.45	7.40	3.25	3.13	2.87	1.2	2.10	22.6		64	1	<0.050	<0.035	1.67	1.67	1.67	0	3	1	6	0	4	1	2	3
Site 7	8/19/2013	22.78	22.77	22.68	26.92	26.92	26.91	7.59	7.57	7.54	5.31	5.35	5.45	1.2	3.80	23.4		3	1						0	4	5	6	0	1	0	6	2
Site 7	8/27/2013	23.27	23.26	23.27	27.08	27.08	27.08	7.61	7.61	7.58	5.52	5.46	5.42	0.9	2.2	26.6		21	29						2	2	5	3	2	4	2	8	3
Site 7	9/3/2013	23.94	23.97	23.91	27.25	27.25	27.46	7.46	7.46	7.30	4.32	4.39	4.21	1.3	3.7	23.4		90	23	0.082	0.036	2.210	2.130	2.250	0	4	5	6	0	4	0	7	6
Site 7	9/9/20136	21.37	21.63	22.08	27.00	27.08	27.39	7.70	7.71	7.70	5.41	5.79	5.76	1.2	2.2	18.3		23	4						0	2	3	6	0	1	1	2	1
Site 7	9/16/2013	21.20	21.22	21.23	27.28	27.28	27.28	7.85	7.84	7.84	6.14	6.09	6.13	1.5	3.4	18.1		11	2						0	2	5	6	0	4	1	8	4
Site 7	9/23/2013	16.61	16.67	18.21	24.98	25.06	26.58	7.87	7.93	7.94	6.42	6.60	6.93	0.2	2.3	12.6		280	90						0	3	1	6	2	0	2	8	1
Site 7	9/30/2013	19.24	19.21	18.94	27.55	27.48	27.61	8.21	8.20	8.16	7.92	7.84	7.61	2.0	3.4	19.0		5	<1						0	2	5	6	1	1	1	1	1
Site 7	10/7/2013	20.33	20.33	20.37	27.94	27.81	27.81	7.94	7.95	7.96	6.00	6.05	5.96	1.7	2.6	22.1		70	70	<0.050	<0.035	0.989	0.989	0.989	0	4	5	6	2	4	1	6	3
Site 7	10/15/2013	16.63	16.61	16.98	27.86	27.78	28.01	8.23	8.26	8.24	7.54	7.75	7.53	2.1	4.1	17.0		23	26						0	2	5	6	0	1	0	0	1
Site 7	10/21/2013	15.05	14.89		27.64	27.63		8.24	8.17		7.46	7.48		2.3	1.8	13.8		19	8						0	4	5	6	0	0	0	0	1
Site 7	10/29/2013	12.71	12.62	12.81	27.44	27.87	27.95	8.50	8.51	8.49	8.57	8.47	8.28	2.4	2.8	11.9		24	6						0	2	1	1	0	0	0		1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 8, Oyster Bay STP at White's Creek**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 8	4/8/2013	7.19	7.15	6.98	25.37	25.43	25.49	8.34	8.31	8.26				3.5	3.7	14.2		<1	<1	ND	0.097	1.210	1.210	1.310		4	4	6	0	0	0	0	1
Site 8	4/15/2013	8.78		8.76	25.52		25.52	8.54		8.51	7.79		7.73	1.2	1.2	8.4		<1	<1							2					1	1	
Site 8	4/22/2013	Site not done due to rain and tidal conditions																																	
Site 8	4/30/2013	10.71			25.81			9.46			5.11			2.1	1.4	13.6		<1	<1							3	4		2	3	1	2	2
Site 8	5/6/2013	13.43	13.42	13.39	25.85	25.82	25.89	9.61	9.40	9.61	10.29	9.81	10.95	2.30	2.5	10.6		<1	<1							4	5	6	2	3	3	2	2
Site 8	5/13/2013	14.53	14.49		25.45	25.45		9.38	9.31		6.78	7.64		1.60	1.5	10.6		3	2	ND	ND	1.650	1.650	1.650		4	3		2	1	2	8	1
Site 8	5/20/2013	15.07	14.93	14.70	25.61	25.74	25.81	9.51	9.51	9.47	5.15	5.17	7.32	2.40	2.8	18.8		43	32							2	5		0		0		6
Site 8	5/28/2013	15.46			25.70			7.99			8.24			1.50	1.4	16.6		6	<1							4	3	6	0	0	0	2	1
Site 8	6/3/2013	Run cancelled due to wind and weather conditions.																																	
Site 8	6/10/2013	18.29	18.05	17.87	24.98	25.11	25.31	7.89	7.85	7.83	7.68	7.41	7.47	1.70	2.2	20.1	18.290	16	7	<.050	<.035	1.610	1.610	1.610		4	5		0		1	2	3
Site 8	6/17/2013	19.42	19.07	18.73	24.81	24.94	25.00	7.79	7.77	7.73	7.49	7.12	7.14	1.30	2.1	27.1	19.400	19	2						0	4			0		2	8	1
Site 8	6/24/2013	22.13	21.64	21.58	24.91	24.89	24.96	7.90	7.89	7.86	6.86	6.55	6.43	0.90	2.2	30.9	22.130	6	1							4	3	6	0	0	1	6	1
Site 8	7/1/2013	22.05	21.58	21.38	25.62	25.25	25.38	7.69	7.69	7.71	5.53	5.53	5.63	0.80	2.5	24.2	22.250	27	2	<.050	<.035	1.920	1.920	1.920	1	2	5	6	0	4	1	6	3
Site 8	7/8/2013	24.46	24.42	24.11	25.21	25.21	25.27	7.88	7.92	7.80	6.88	6.93	6.10	1.20	2.3	26.9	24.460	9	1						0	4	3	6	0	1	1	6	1
Site 8	7/15/2013	Run cancelled																																	
Site 8	7/24/2013	24.64			26.49			7.24			5.07			0.80	1.0	25.2	24.640	9	6						1	4	3	6	0	2	1	7	1
Site 8	7/29/2013	23.43	23.37	23.04	26.52	26.59	26.64	7.43	7.40	7.31	5.38	5.08	5.01	1.70	2.2	26.2	23.430	4	<1						1	2	3	6	0	1	2	8	1
Site 8	8/5/2013	23.58	23.58	23.59	26.52	26.59	26.59	7.80	7.56	7.47	6.22	6.18	6.25	1.00	2.8	19.6	23.580	3	<1						1	4	5	6	0	0	2	8	1
Site 8	8/12/2013	23.23	23.23		26.72	26.72		7.43	7.34		4.79	4.76		0.9	1.8	23.4		10	2	<0.050	<0.035	2.21	2.21	2.21	0	3	1	6	0	4	0	0	3
Site 8	8/19/2013	22.10	22.82	22.63	26.92	26.92	26.91	7.59	7.56	7.49	5.36	5.29	5.48	1.20	3.4	22.6		4	1						0	4	5	6	0	1	0	6	2
Site 8	8/27/2013	23.01	23.01	23.02	27.14	27.14	27.14	7.56	7.53	7.44	5.29	5.16	5.16	1.10	2.1	22.7	23.080	9	42						2	2	5	6	2	4	2	8	3
Site 8	9/3/2013	24.07	24.08	24.02	27.25	27.33	27.32	7.52	7.44	7.26	4.76	4.75	4.79	1.20	3.5	23.3		740	47	0.101	0.327	1.800	1.700	2.130	0	4	5	6	0	4	0	8	6
Site 8	9/9/2013	21.94	22.10		27.24	27.38		7.69	7.52		6.02	6.13		1.40	1.5	18.8		6	3						0	2	3	6	0	1	1	2	1
Site 8	9/16/2013	21.45	21.43	21.48	27.29	27.29	27.43	7.79	7.79	7.75	5.77	5.79	5.64	1.5	3.6	17.2		6	6						0	2	5	6	1	4	1	8	3
Site 8	9/23/2013	17.99	18.15		26.44	26.59		7.91	7.89		6.72	6.73		1.00	1.8	14.8		110	80						0	3	1	6	1	0	1	8	1
Site 8	9/30/2013	19.78	19.73	19.53	27.65	27.64	27.71	8.16	8.17	8.19	7.30	7.33	7.52	2.70	3.0	19.0		1	<1						0	2	5	6	1	1	1	1	1
Site 8	10/7/2013	20.44	20.48		27.74	27.96		8.03	8.05		6.60	6.41		1.70	1.8	22.3		31	31	<0.050	0.047	1.04	1.04	1.09	0	3	5	6	1	4	1	4	3
Site 8	10/15/2013	17.23	17.16	17.18	27.96	27.95	28.18	8.22	8.22	8.18	7.50	7.52	7.34	2.40	4.1	18.2		4	3						0	2	5	6	0	2	0	0	1
Site 8	10/21/2013	16.59	16.55	16.55	28.00	28.06	28.06	8.35	8.34	8.31	8.02	8.06	8.08	1.90	2.1	13.4		5	2						0	4	5	6	0	0	0	0	1
Site 8	10/29/2013	12.68	13.06	13.10	27.88	28.03	28.10	8.05	8.49	8.49	8.42	8.27	10.02	3.00	3.4	12.3		210	45						0	2	1	6	1	0	1	6	1
		pH readings suspect: instrument out of calibration																																	

	Friends of the Bay 2013 Water Quality Data - **Site 9, Roosevelt Beach**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 9	4/8/2013	7.00	6.86	6.77	25.49	25.42	25.48	8.33	8.33	8.31				3.2	3.3	16.4		<1	<1	ND	ND	1.590	1.590	1.590		1	4	6	0	0	0	0	1
Site 9	4/15/2013	9.1			25.4			8.51			7.90			1.20	1.20	8.1		1	<1								5		0	4	1	2	3
Site 9	4/22/2013	Site not done due to rain and tidal conditions																															
Site 9	4/30/2013	11.90			25.88			9.45			5.66			2.10	1.30	12.3		<1	<1							3	4		2	3	3	2	2
Site 9	5/6/2013	13.26	13.28	13.27	28.95	25.88	25.95	9.57	9.59	9.57	11.30	8.98	10.57	2.00	2.70	3.6		<1	<1							4	5	6	2	4	2	2	2
Site 9	5/13/2013	14.56			6.56			25.45			9.35			2.3	1.2	10.3		5	1	ND	ND	1.590	1.590	1.590		3	5		2	1	3	7	1
Site 9	5/20/2013	15.37	15.07	14.93	25.56	25.61	25.61	9.48	9.47	9.45	4.65	5.88	7.94	2.5	2.6	18.0		5	4							2	5	6	0	4	1	0	6
Site 9	5/28/2013	15.11			25.76			7.97			8.99			1.5	0.9	17.3		1	1							4	3	6	0		3	7	3
Site 9	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 9	6/10/2013	18.37	18.11	18.11	25.11	25.17	25.17	7.84	7.80	7.80	7.25	6.97	6.97	1.3	1.5	22.3	18.37	20	6	<.050	<.035	1.510	1.510	1.510		4	5		1		1	7	4
Site 9	6/17/2013	18.89	18.84	18.79	24.94	24.93	25.00	7.77	7.76	7.74	6.43	6.78	6.71	1.0	2.2	25.9	18.89	5	2						0	4	3	6	0	1	1	6	1
Site 9	6/24/2013	22.00	22.00		24.91	24.91		7.91	7.90		7.02	7.02		0.8	1.9	30.7	22.00	15	1							4	3	6	0	0	1	6	1
Site 9	7/1/2013	22.53	55.33	22.07	25.07	25.14	25.19	7.75	7.73	7.70	5.86	5.81	5.37	0.9	2.5	23.7	22.57	6	2	<0.050	<0.035	2.130	2.130	2.130	1	2	5	6	0	4	1	6	3
Site 9	7/8/2013	23.65	23.05	22.71	25.32	25.44	25.50	7.77	7.73	7.68	5.97	5.51	5.35	1.1	2.5	30.1	23.65	32	<1						0	4	4	6	1	1	2	7	1
Site 9	7/15/2013	Run cancelled																															
Site 9	7/24/2013	24.97	24.96		26.57	26.50		7.31	6.98		4.95	4.89		0.8	1.4	24.5	24.97	33	13						1	3	3	6	0	2	1	7	1
Site 9	7/29/2013	23.24	23.24	23.21	26.65	26.72	26.65	7.43	7.43	7.42	5.28	5.30	5.21	1.4	2.3	23.7	23.24	4	<1						1	2	3	6	0	1	2	8	1
Site 9	8/5/2013	23.57	23.58	23.59	26.59	26.59	26.59	7.51	7.50	7.49	5.71	5.70	5.70	1.2	2.3	20.6	23.57	3	2						1	4	5	6	1	0	2	8	1
Site 9	8/12/2013	23.38	23.38		26.73	26.73		7.57	7.57		5.32	5.36		1.1	1.5	23.3		1	1	<0.050	<0.035	1.70	1.70	1.70	0	3	1	6	1	4	2	2	3
Site 9	8/19/2013	22.77	26.92	22.77	26.99	22.77	26.92	7.55	7.55	7.55	5.16	5.12	5.23	1.1	2.9	20.6		3	<1						0	4	5	6	0	1	1	6	2
Site 9	8/27/2013	23.04	23.04	23.04	27.14	27.14	27.14	7.65	7.65	7.64	5.77	5.76	7.65	1.6	2.1	22.8	23.13	4	8						2	2	5	3	3	4	2	8	3
Site 9	9/3/2013	24.02	24.02	23.96	27.32	27.32	27.39	7.56	7.54	7.47	4.61	4.61	4.55	1.3	2.9	23.2		9	4	0.093	<0.035	1.890	1.800	1.890	0	4	5	6	0	4	0	8	6
Site 9	9/9/2013	22.07	22.10		27.46	27.39		7.74	7.72		5.88	5.93		1.4	1.5	20.0		3	1						0	2	3	6	0	0	1	2	1
Site 9	9/16/2013	21.44	21.42	21.44	27.43	27.36	27.43	7.79	7.78	7.76	5.91	5.88	6.12	1.5	3.6	17.6		9	5						0	1	5	6	2	4	1	2	4
Site 9	9/23/2013	19.12	19.13		27.48	27.40		7.97	7.96		6.69	6.67		1.5	1.6	13.5		11	1						0	3	5	6	2	0	1	8	1
Site 9	9/30/2013	19.31	19.35	19.44	27.48	27.55	27.70	8.15	8.13	8.10	7.51	7.71	7.11	2.3	3.5	17.0		4	5						0	2	5	6	1	1	1	2	1
Site 9	10/7/2013	20.44	20.45		21.89	27.89		8.01	8.01		6.51	6.48		1.7	1.6	22.0		8	17	<0.050	<0.035	1.44	1.44	1.44	0	3	5	6	1	4	1	4	3
Site 9	10/15/2013	17.20	16.97	17.28	27.95	27.87	28.10	8.28	8.26	8.20	7.92	7.85	7.54	2.0	3.5	18.6		4	5						0	2	5	6	0	0	0	0	1
Site 9	10/21/2013	16.61	16.60		28.07	28.07		8.34	8.33		7.84	7.82		1.4	1.7	13.2		4	1						0	4	5	6	0	0	0	0	1
Site 9	10/29/2013	12.98	12.98	13.00	28.03	28.03	28.03	8.50	8.48	8.47	8.38	8.40	8.32	2.8	3.0	10.9		1*	<1						0	2	1	6	1	0	1		1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 10, Beekman Beach**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 10	4/8/2013	8.19	7.57	7.16	25.07	25.13	25.25	8.37	8.38	8.34				3.3	3.3	16.8		1	<1	ND	0.69	1.41	1.41	2.10											
Site 10	4/15/2013	9.14	9.14		25.2	25.13		8.49	8.48		7.47	7.51		1.60	1.60	9.6		4	4							3	5		0	4	1	2	3
Ste 10	4/22/2013	Ste not done due to rain and tidal conditions																																	
Site 10	4/30/2013	11.95	11.98	11.84	25.54	25.82	25.81	9.41	9.42	9.42	5.84	6.00	6.15	3.2	3.60	12.4		12*	7							3	4		0	3	0	2	2
Site 10	5/6/2013	14.42	14.26	13.61	25.66	25.70	25.90	9.57	9.53	9.52	9.93	7.70	9.61	2.10	5.00	10.1		1	<1							4	5	6	2	4	2	2	3
Site 10	5/13/2013	14.87	14.87	14.79	25.54	25.61	25.67	9.42	9.42	7.37	6.11	6.61	7.18	2.1	3.2	10.3		38	2	ND	1	1.15	1.15	2.15		2	4		2	0	2	7	1
Site 10	5/20/2013	15.22	15.03	14.80	25.61	25.68	25.74	9.46	9.41	9.27	4.62	5.15	6.71	1.7	5.40	17.5		15*	12*							1	5	6	0	4	1		6
Site 10	5/28/2013	16.05	16.05	15.20	25.38	25.45	25.62	8.15	8.13	7.96	8.34	8.45	9.57	1.5	4.00	17.4		18*	10*										1		2	8	3
Ste 10	6/3/2013	Run cancelled due to wind and weather conditions.																																	
Site 10	6/10/2013	19.19	19.11	18.62	24.81	24.87	24.92	7.97	7.95	7.81	8.36	8.23	7.32	1.6	4.8	21.3	19.19	160	70	<.050	0.837	0.962	0.962	1.80		4	5		0	4	0		4
Site 10	6/17/2013	19.16	19.02	18.58	24.87	24.87	25.06	7.76	7.76	7.69	6.86	6.75	6.33	1.5	5.1	25.6	19.16	70	43						0	4	3	6	0	1	1	6	1
Site 10	6/24/2013	23.24	22.60	21.91	24.78	24.66	24.98	7.90	7.83	7.30	7.20	7.12	5.80	0.9	5.1	32.8	23.24	8	<1							4	3	6	0	0	1	6	1
Site 10	7/1/2013	24.40	22.37	21.86	25.07	25.13	25.19	7.74	7.72	7.67	5.76	5.65	5.31	0.7	5.4	23.7	22.40	13	11	0.05	0.035	2.21	2.21	2.21	1	2	5	6	0	4	1	5	3
Site 10	7/8/2013	25.77	25.67	23.06	24.62	25.11	25.39	7.96	7.97	7.59	7.47	7.14	4.12	0.9	5.5	29.8	25.77	440	32						0	4	4	6	0	1	2	6	1
Ste 10	7/15/2013	Run cancelled																																	
Site 10	7/24/2013	25.81	26.00	25.36	25.54	26.33	26.38	7.53	7.54	7.19	6.30	5.97	5.35	0.7	4.0	26.0	25.81	260	180						1	3	3	6	0	2	1	7	1
Site 10	7/29/2013	23.39	23.42	23.18	26.30	26.26	26.65	7.45	7.45	7.38	5.43	5.51	5.11	1.5	5.4	24.3	23.39	22	1						1	2	3	6	0	1	1	8	1
Site 10	8/5/2013	23.69	24.08	23.88	26.46	26.61	26.68	7.47	7.45	7.44	5.55	5.48	5.53	1.0	5.1	18.9	23.69	7	1						1	4	5	6	0	0	2	8	1
Site 10	8/12/2013	23.44	23.45	23.40	26.59	26.59	26.73	7.57	7.56	7.51	5.43	5.24	3.57	1.3	4.2	22.2		11	7	<0.050	<0.035	1.74	1.74	1.74	0	4	1	3	1	4	0	0	3
Site 10	8/19/2013	22.82	23.00	23.06	26.06	26.71	26.86	7.55	7.53	7.48	5.26	5.12	4.84	1.1	6.0	20.1		33	3						0	4	5	6	0	1	1	6	2
Site 10	8/27/2013	23.04	23.06	23.04	27.07	27.07	27.14	7.64	7.63	7.58	5.57	5.56	5.14	1.5	5.2	22.6		4	23						2	2	5	6	1	4	1	8	3
Site 10	9/3/2013	24.30	24.31	24.10	26.76	26.83	27.25	7.95	7.54	7.32	5.07	4.93	4.04	1.3	5.9	23.0		220	48	0.075	0.126	1.60	1.53	1.73	0	4	5	6	0	4	0	8	6
Site 10	9/9/2013	21.76	22.06	21.56	27.23	27.39	27.29	7.75	7.74	7.66	5.78	5.78	5.78	1.4	4.7	16.9		4	2						0	2	3	6	0	0	1	2	1
Site 10	9/16/2013	21.46	21.46	21.49	27.36	27.36	27.44	7.75	7.75	5.71	5.84	5.85	5.83	1.8	6.3	17.8		12	4						0	1	5	6	2	4	1	8	3
Site 10	9/23/2013	16.36	17.91	19.06	22.22	21.53	27.40	7.99	7.95	7.88	7.19	6.74	6.19	0.5	4.8	12.4		210	90						0	3	1	6	2	0	1	8	1
Site 10	9/30/2013	19.28	19.28	19.40	27.41	27.41	27.56	8.10	8.10	8.07	7.40	7.10	6.94	2.2	5.8	17.0		280	53						0	2	5	6	1	1	1	2	1
Site 10	10/7/2013	20.41	20.43	20.48	27.39	27.74	27.89	8.01	7.99	7.94	6.52	6.46	6.31	1.8	4.7	22.1		26	20	<0.050	0.037	1.30	1.30	1.34	0	4	5	6	1	4	1	6	2
Site 10	10/15/2013	16.92	16.95	17.11	27.87	27.87	27.95	8.30	8.27	8.16	8.19	7.98	7.52	2.0	6.9	15.6		160	160						0	2	5	6	0	0	0	0	1
Site 10	10/21/2013	16.43	16.42	16.67	27.99	28.06	28.07	8.34	8.33	8.29	7.89	7.86	7.75	2.3	3.8	9.8		32	18						0	4	5	6	0	0	0	0	1
Site 10	10/29/2013	12.88	12.98	12.87	27.11	28.03	28.02	8.23	8.15	7.80	8.07	7.21	6.15	2.8	6.3	8.4		200	130*						0	2	1	6	0	0	0		1
		pH readings suspect: instrument out of calibration																																	

	Friends of the Bay 2012 Water Quality Data - **Site 11, West Harbor**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 11	4/8/2013	7.62	7.44	7.31	25.05	25.05	19.39	8.35	8.33	8.30	12.79	10.67	11.31	3.60	4.30	14.60		<1	<1	ND	0.054	1.54	1.54	1.59		4	4	1	0	0	0	0	1
Site 11	4/15/2013	9.62	9.61	9.63	25.08	25.08	25.38	8.52	8.50	8.47	7.26	6.22	7.19	2.3	2.4	8.0		3	<1							3	5		0	4	1	2	3
Site 11	4/22/2013	Site not done due to rain and tidal conditions																															
Site 11	4/30/2013	12.55		12.55	25.78		25.71	9.39		9.39	5.50		5.37	2.2	1.7	11.7		<1	<1							3	4		2	3	3	2	2
Site 11	5/6/2013	14.28	13.98	13.85	25.78	25.84	25.84	9.56	9.56	9.57	8.59	8.66	8.51	2.3	3.8	9.8		<1	<1							4	5	6	2	4	3	2	3
Site 11	5/13/2013	15.17	15.13		25.55	25.55		9.35	9.32		6.51	6.90		1.6	1.8	12.1		2	<1	ND	ND	1.84	1.84	1.84		2	5		2	0	2	7	1
Site 11	5/20/2013	16.11	15.92	14.89	25.38	25.44	25.68	9.47	9.47	9.44	5.13	5.64	7.25	2.2	3.8	16.3		4	4							1	5	6	0	4	0		6
Site 11	5/28/2013	15.99		15.59	25.44		25.64	8.09		8.09	8.07		9.50	1.6	1.8	18.1		7*	3							4	54	6	1	4	1	1	3
Site 11	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 11	6/10/2013	20.07	19.40	18.15	24.70	24.80	25.18	7.99	7.92	7.76	8.24	8.20	6.54	1.4	3.0	20.1	20.07	2	<1	<.050	<.035	1.52	1.52	1.52		4	5		2	4	1	2	4
Site 11	6/17/2013	20.13	20.07	19.10	24.49	24.56	24.87	7.93	7.89	7.83	8.00	8.02	6.14	1.3	3.3	24.1	20.13	2	1						0	4	3	6	0	1	1	0	1
Site 11	6/24/2013	22.90	22.75	22.61	24.84	24.94	24.93	7.87	7.87	7.84	6.79	6.65	6.50		3.2	31.2	22.90	3	<1							4	3	6	0	0	2	6	1
Site 11	7/1/2013	23.77	23.87	22.07	24.90	24.91	25.19	7.90	7.90	7.75	6.81	6.73	5.66	0.7	3.8	23.4	23.77	<1	<1	<.050	<.0350	2.09	2.09	2.09	1	2	5	6	0	4	2	4	3
Site 11	7/8/2013	26.07	26.00	24.66	25.12	25.12	25.22	8.00	7.99	7.74	7.64	7.50	5.45	1.1	1.1	3.4	26.07	310	<1						0	4	5	6	0	1	1	6	1
Site 11	7/15/2013	Run cancelled																															
Site 11	7/24/2013	26.24	26.24	25.00	25.98	25.98	26.46	7.45	7.46	7.36	5.71	5.76	5.46	0.50	2.4	25.5	26.24	230	180						1	3	3	6	0	1	1	7	1
Site 11	7/29/2013	23.96	23.95	23.34	26.47	26.39	26.73	7.63	7.60	7.38	6.91	6.45	5.26	1.30	3.4	23.9	23.96	2	<1						1	2	4	6	0	2	2	6	1
Site 11	8/5/2013	23.45	23.45	23.45	26.59	26.59	26.59	7.45	7.42	7.27	5.75	5.72	5.32	0.90	3.10	23.2	23.45	1	<1						1	4	5	6	0	0	2	8	1
Site 11	8/12/2013	23.58	23.60	23.60	26.66	26.67	26.74	7.59	7.57	7.53	5.65	5.48	5.20	1.00	2.70	21.8		4	<1	<0.050	<0.035	1.73	1.73	1.73	0	4	1	6	1	4	2	2	3
Site 11	8/19/2013	23.15	23.18	23.18	26.79	26.72	26.79	7.52	7.51	7.48	5.12	4.97	3.28	0.90	4.10	20.0		12	1						0	4	5	6	0	2	1	6	3
Site 11	8/27/2013	23.35	23.35	23.27	26.94	26.94	26.94	7.77	7.75	7.70	6.10	5.92	5.80	0.80	3.20	22.8	23.38	1	13						2	2	5	6	2	4	2	8	3
Site 11	9/3/2013	24.52	24.43	24.32	26.99	27.13	27.19	7.57	7.50	7.40	4.81	4.50	4.22	1.00	3.80	22.8		15	1	0.080	<0.035	1.86	1.78	1.86	0	4	5	6	0	4	1	2	6
Site 11	9/9/2013	21.67	21.67	21.62	27.37	27.30	27.30	7.79	7.77	7.76	5.97	5.92	5.88	1.20	2.80	15.8		2	<1						0	2	3	6	0	0	1	2	1
Site 11	9/16/2013	21.68	21.69	21.71	27.58	27.58	27.59	7.81	7.80	7.80	5.99	6.05	6.11	1.80	4.80	17.8		<1	1						0	1	5	6	2	4	2	8	4
Site 11	9/23/2013	19.32	19.35	19.35	27.34	27.34	27.34	7.96	7.97	7.95	6.88	6.76	6.63	1.40	2.40	12.7		26	2						0	2	5	6	3	0	2	1	1
Site 11	9/30/2013	19.36	19.36	19.33	27.56	27.63	27.55	8.13	8.12	8.09	7.35	7.23	6.94	1.60	4.60	17.0		3	<1						0	1	5	6	1	1	1	2	1
Site 11	10/7/2013	20.34	20.39	20.34	27.31	27.31	27.31	7.88	7.88	7.89	6.18	6.19	6.22	1.00	2.50	21.6		56	110	<0.050	<0.035	1.14	1.14	1.14	0	3	5	6	3	4	2	6	3
Site 11	10/15/2013	17.35	17.35	17.34	28.10	28.10	28.10	8.22	8.21	8.16	7.75	7.72	7.60	2.50	5.10	15.2		1	2						0	1	5	6	0	0	0	0	1
Site 11	10/21/2013	15.96	15.98	15.99	27.83	27.82	27.90	8.30	8.29	8.26	7.69	8.29	7.65	1.90	2.70	11.8		4	1						0	4	5	6	1	0	1	6	1
Site 11	10/29/2013	12.41	12.43	12.46	28.00	28.00	28.00	8.49	8.49	8.48	8.44	8.38	8.29	2.60	4.20	6.9		1*	1						0	2	1	3	1	0	1	6	1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 12, Turtle Cove**																																	
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 12	4/8/2013	8.33	8.16	8.14	25.09	25.08	25.15	8.25	8.21	8.2	19.22	16.07	16.79	2.5	2.2	18.70		<1	1	ND	ND	2.02	2.02	2.02		1	4	6	0	0	0	0	1
Site 12	4/15/2013	9.93			25.24			8.30			7.13			1.3	1.3	7.0		<1	<1							3	5		0	4	1	2	3
Site 12	4/22/2013	Site not done due to rain and tidal conditions																															
Site 12	4/30/2013	13.13		13.11	25.73		25.73	9.21		9.20	4.75		5.03	1.7	1.7	11.2		<1	<1							3	4		0	4	0	0	3
Site 12	5/6/2013	15.47	15.48	15.47	25.91	25.84	25.84	9.41	9.39	9.37	8.03	8.99	7.28	1.9	2.7	9.9		<1	<1							4	5	6	2	4	2	4	3
Site 12	5/13/2013	14.78			25.46			9.23			6.72			1.4	1.0	8.8		1	<1	ND	ND	1.79	1.79	1.79		2	5	5	2	0	3	8	1
Site 12	5/20/2013	16.72	16.71	16.65	25.34	25.40	25.40	9.23	9.22	9.23	4.61	5.19	6.20	2.0	2.4	15.1		5	9*							1	4	6	0	4	0		6
Site 12	5/28/2013	16.82			25.63			8.01			8.15			1.4	1.4	16.1		6*	3							4	5	6	1	4	1	2	3
Site 12	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 12	6/10/2013	20.95	19.85	19.13	24.73	25.05	25.15	7.92	7.70	7.48	7.70	6.37	3.90	1.5	2.2	21.1	20.95	<1	<1	<.050	<.035	1.72	1.72	1.72		4	5		1	4	2	3	4
Site 12	6/17/2013	21.17	21.26	20.84	24.53	24.53	24.59	7.76	7.76	7.78	6.98	7.09	6.79	1.6	2.4	24.6	21.17	3	<1						0	4	3	6	1	1	2	6	1
Site 12	6/24/2013	24.62	24.78	24.01	25.01	24.94	24.98	7.70	7.72	7.73	5.73	5.77	6.10	1.1	2.5	29.4	24.62	4	<1							4	3	6	0	0	2	7	1
Site 12	7/1/2013	25.17	25.17	24.91	24.74	24.74	24.73	7.65	7.65	7.54	5.10	5.04	4.25	1.0	3.0	23.5	25.17	<1	<1	<.050	<.035	1.93	1.93	1.93	1	2	5	6	0	4	2	6	3
Site 12	7/8/2013	27.32	27.31	27.12	25.02	25.09	25.02	7.85	7.85	7.85	6.02	6.23	6.25	1.1	2.6	26.70	27.32	1	<1						0	4	5	6	0	1	1	6	1
Site 12	7/15/2013	Run cancelled																															
Site 12	7/24/2013	26.89			26.08			7.13			4.58			0.5	1.0	24.50	26.89	290	330						1	3	3	6	0	1	2	7	1
Site 12	7/29/2013	24.81		24.59	26.50		26.49	7.45		7.35	5.48		4.86	1.1	2.6	23.30	24.81	4	<1						1	2	3	6	0	2	2	8	1
Site 12	8/5/2013	22.90	22.90	22.81	26.57	26.57	26.56	7.17	7.14	6.94	4.24	4.28	4.27	0.9	2.3	19.60	22.90	<1	<1						1	4	3	6	0	0	2	8	1
Site 12	8/12/2013	23.89	23.89		26.68	26.60		7.55	7.52		4.03	3.99		0.6	1.8	22.20		14	<1	<0.050	<0.035	1.96	1.96	1.96	0	4	1	3	0	4	0	0	3
Site 12	8/19/2013	22.89	22.85	22.51	26.71	26.71	26.69	7.37	7.36	7.30	4.17	3.70	3.06	0.7	2.8	19.60		3	<1						0	4	5	6	0	2	1	4	3
Site 12	8/27/2013	23.46	23.49	23.51	26.59	26.66	26.73	7.75	7.79	7.78	5.73	5.86	5.87	0.8	2.3	22.70	22.94	8	62						2	2	5	6	1	4	1	2	3
Site 12	9/3/2013	24.81	24.85	x	26.64	26.64	x	7.58	7.50	x	5.12	5.21	x	0.8	2.7	22.90		10	3	0.076	<0.035	1.60	1.52	1.60	0	4	5	6	0	4	0	8	6
Site 12	9/9/2013	21.22	20.78		27.26	27.33		7.78	7.75		5.69	5.69		0.9	1.7	15.00		2	3						0	2	3	6	0	0	2	2	1
Site 12	9/16/2013	20.82	20.83	20.83	27.41	27.41	27.41	7.94	7.94	7.41	6.82	6.80	6.73	1.0	2.7	17.20		4	1						0	4	5	6	0	4	2	1	4
Site 12	9/23/2013	18.50	18.52		27.38	27.38		8.00	7.98		6.67	6.62		1.7	1.2	12.10		3	1						0	2	5	6	1	0	2	2	1
Site 12	9/30/2013	19.11	19.11	19.04	27.47	27.47	27.47	8.12	8.11	8.06	6.93	6.77	6.09	1.4	3.8	16.00		2	<1						0	1	5	6	1	1	1	2	1
Site 12	10/7/2013	20.10	20.11		27.52			7.91	7.91		6.21	7.19		1.0	1.7	21.70		25	26	<0.050	<0.035	1.25	1.25	1.25	0	3	5	6	3	2	2	6	2
Site 12	10/15/2013	15.73	16.71	16.71	27.95	27.71	27.86	8.39	8.43	8.40	8.75	8.69	8.36	1.9	4.0	16.20		26	17						0	1	5	6	0	0	1	6	1
Site 12	10/21/2013	14.93	14.96	14.96	27.85	27.85	27.85	8.24	8.21	8.11	7.17	7.30	7.56	1.4	1.8	12.20		15	7						0	3	5	6	0	0	1	6	1
Site 12	10/29/2013	11.52	11.52	11.49	27.95	27.95	27.95	8.51	8.50	8.48	8.34	8.27	8.13	2.7	3.4	8.60		<1	<1						0	2	1	6	0	0	1	6	1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 13, Mill Neck Creek East**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 13	4/8/2013	**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	0	0	0	0	1
Site 13	4/15/2013	**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		0	4	2	1	3
Site 13	4/22/2013	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		2	0	3	1	1
Site 13	4/30/2013	**12.67**			25.40			9.06			5.40			1.1	1.2	11.1		5*	2							2	4	6	2	4	3	3	3
Site 13	5/6/2013	15.37	15.32	15.29	25.63	25.63	25.62	9.55	9.56	9.55	7.60	7.78	8.33	1.7	1.8	10.6		<1	<1							2	3	6	1	1	2	3	1
Site 13	5/13/2013	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		1	0	3	7	2
Site 13	5/20/2013	16.14	16.12		25.17	25.24		9.27	9.26		6.97	14.00		2.0	1.6	15.8		10	4							4	5		0	4	1		6
Site 13	5/28/2013	16.51	16.45	16.44	25.05	25.05	25.05	7.97	7.95	7.93	7.22	7.76	8.62	1.4	2.2	14.8		15*	9							4	5	1	2	4	2	2	3
Site 13	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 13	6/10/2013	19.33	199.30	19.24	24.53	24.53	24.6	7.82	7.82	7.76	7.19	7.37	6.76	1.2	3.0	20.2	19.33	12	6	<.050	<.035	1.820	1.820	1.820		4	5		2	4	2	2	4
Site 13	6/17/2013	19.72	19.64	19.60	24.48	24.54	24.54	7.77	7.78	7.75	6.93	6.87	6.80	1.1	2.4	26.3	19.72	34	5						0	4	5	6	1	1	2	6	1
Site 13	6/24/2013	23.33	3.29		24.75	24.75		7.76	7.75		6.52	6.50		0.6	1.6	29.7	23.30	29	6							4	3	6	0	0	2	6	1
Site 13	7/1/2013	24.10	24.08	24.02	24.84	24.84	24.77	7.81	7.85	7.75	6.24	6.24	5.58	0.9	2.7	23.7	24.10	15	5	<.05	<.035	1.730	1.730	1.730	1	2	5	6	0	4	1	6	3
Site 13	7/8/2013	25.96	25.76		24.98	25.05		7.78	7.79		6.18	6.59		0.8	1.7	29.7	25.96	11	4						0	4	5	6	0	1	2	6	1
Site 13	7/15/2013	Run cancelled																															
Site 13	7/24/2013	26.38	26.32	26.09	25.99	26.06	26.19	7.48	7.49	7.50	5.74	5.79	5.62	0.6	3.4	29.2	26.38	170	30						1	4	5	6	0	2	1	7	1
Site 13	7/29/2013	23.96	23.97	23.97	25.90	26.18	26.32	7.38	7.37	7.35	5.50	5.53	5.50	1.2	1.8	25.6	23.96	62	13						1	2	5	6	0	1	1	6	1
Site 13	8/5/2013	23.66	23.65	23.62	26.53	26.52	26.52	7.50	7.48	7.41	5.73	5.71	5.92	1.1	3.6	20.6	23.66	10	<1						1	4	5	6	0	0	1	8	1
Site 13	8/12/2013	23.88	23.91	23.92	25.68	25.75	25.76	7.03	6.90	6.65	3.73	3.97	4.00	0.6	2.6	22.5		26	30	<0.050	<0.035	2.950	2.950	2.950	0	4	1	6	0	4	0	0	4
Site 13	8/19/2013	23.33	23.22	23.22	26.65	26.65	26.65	7.54	7.52	7.44	5.13	5.13	5.12	1.0	3.0	24.7		38	5						0	1	5	6	0	0	1	6	1
Site 13	8/27/2013	23.34	23.32		26.09	26.66		7.21	6.68		4.64	5.17		0.7	1.5	22.7	23.59	170	170						2	2	5	6	1	4	0		3
Site 13	9/3/2013	24.60	24.57	24.55	26.85	26.92	26.92	7.57	7.57	7.55	4.71	4.78	4.78	1.2	2.7	25.3		23	10	0.105	<0.035	1.620	1.520	1.620	0	1	5	6	0	4	0	8	6
Site 13	9/9/2013	20.87	20.88	20.85	26.28	26.27	26.34	7.74	7.72	7.68	5.96	5.90	5.78	0.9	2.2	18.7		52	8						0	4	5	6	0	1	1	2	1
Site 13	9/16/2013	21.18	21.18	21.19	27.21	27.21	27.21	7.63	7.59	7.23	5.92	5.95	5.98	1.2	2.3	18.3		22	11						0	4	5	6	0	4	1	6	3
Site 13	9/23/2013	17.28	17.68	18.64	24.46	25.09	26.47	7.55	7.51	7.38	5.46	5.60	5.50	0.6	2.4	14.1		130	120						0	2	5	6	0	0	0		1
Site 13	9/30/2013	19.17	19.18	19.20	27.19	27.19	27.20	8.03	8.03	8.01	6.82	6.83	6.67	1.8	3.9	18.0		10	13						0	1	5	6	0	1	0		1
Site 13	10/7/2013																																
Site 13	10/15/2013	16.64	16.63	16.63	27.58	27.57	27.57	8.28	8.26	8.22	8.03	7.98	7.89	1.5	2.8	11.4		8	14						0	1	5	6	0	0	0	0	1
Site 13	10/21/2013	14.68	14.74	14.86	27.06	27.06	27.07	7.79	7.59	7.27	6.68	6.65	6.65	1.6	2.3	9.20		22	32						0	3	5	6	0	0	1	6	1
Site 13	10/29/2013	12.19	12.31	12.33	27.84	27.85	27.85	8.40	8.40	8.41	7.97	8.05	8.04	2.4	3.5	6.10		2*	1						0	2	1	6	1	0	1	6	1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2013 Water Quality Data - **Site 14, Mill Neck Creek West**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 14	4/8/2013	8.93	8.32	8.2	24.98	25.02	25.08	8.39	8.41	8.33	11.83	11.79	10.58		2.4	16.8				ND	0.044	1.470	1.470	1.510		1	4	6	0	0	0	0	1
Site 14	4/15/3013	10.39	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	4	2	1	3
Site 14	4/22/2013	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	0	3	1	1
Site 14	4/30/2013	12.60			24.67			9.10			6.69			1.1	1.4	10.7		8*	55							2	4	6	2	4	2	3	3
Site 14	5/6/2013	15.53	15.48	15.43	25.56	25.56	25.56	9.57	9.56	9.55	7.61	8.40	8.99	1.6	2.3	11.1		<1	<1							2	3	6	0	2	2	3	1
Site 14	5/13/2013	13.33			24.47			9.04			6.81			1.2	0.9	10.8		35	18	ND	0.041	2.050	2.050	2.090		3	5		1	0	2	7	1
Site 14	5/20/2013	16.41	16.20	16.16	24.70	25.17	25.70	9.25	9.30	9.27	5.39	6.42	6.95	1.5	2.1	15.9		12	18*							4	5	6	0	4	0		6
Site 14	5/28/2013	16.86			17.36			7.66			6.74			0.7	0.9	16.5		49	19*							4	5	6	1	4	1	2	3
Ste 14	6/3/2013 Run cancelled due to wind and weather conditions.																																		
Site 14	6/10/2013	19.72	19.59	19.54	23.99	24.12	24.19	7.79	7.77	7.75	7.27	7.16	7.03	1.3	2.2	21.1	19.72	19	4	<.050	<.035	1.860	1.860	1.860		4	5		1	4	2	3	4
Site 14	6/17/2013	25.90	20.27	19.77	22.84	23.52	24.21	7.72	7.74	7.72	7.29	7.31	7.13	1.2	2.1	26.9	25.90	36	4						0	4	5	6	0	1	1	6	1
Site 14	6/24/2013	23.21	23.15	23.13	24.88	24.88	24.88	7.80	7.79	7.75	6.64	6.60	6.58	0.4	2.1	30.5	23.21	16	1							4	3	6	0	0	2	6	1
Site 14	7/1/2013	24.75	24.75	24.17	23.74	23.95	24.78	7.64	7.64	7.71	5.86	5.85	5.84	1.0	2.2	23.3	24.75	23	8	<.05	<.035	2.300	2.300	2.300	1	2	3	6	0	4	2	6	3
Site 14	7/8/2013	25.84	25.75	25.58	25.05	25.04	25.11	7.81	7.81	7.80	6.56	6.41	6.46	0.7	3.1		25.84	8	1						0	4	5	6	0	1	2	8	1
Ste 14	7/15/2013 Run cancelled																																		
Site 14	7/24/2013	26.35	26.22		25.98	26.12		7.43	7.44		5.26	5.46		0.6	2.0	29.60	26.35	120	36						1	4	5	6	0	3	1	7	2
Site 14	7/29/2013	24.10	24.02	24.10	25.05	25.55	26.26	7.37	7.36	7.21	5.67	8.69	5.18	1.0	2.4	24.30	24.100	71	18						1	2	5	6	0	1	0	0	1
Site 14	8/5/2013	23.64	23.64	23.59	26.52	26.45	26.52	7.49	7.48	7.43	5.69	5.67	5.71	1.1	3.6	21.80	23.640	9	<1						1	4	5	6	0	0	1	8	1
Site 14	8/12/2013	23.57			25.46			7.01			2.74			0.6	1.1	22.00		41	25	<0.050	<0.035	3.520	3.520	3.520	0	4	1	6	0	4	0	0	3
Site 14	8/19/2013	23.41	23.53	23.18	26.45	26.44	26.58	7.55	7.40	7.49	5.48	5.25	5.11	0.9	2.9	25.20		100	15						0	1	5	6	0	0	1	6	1
Site 14	8/27/2013	23.36			26.16			7.17			4.28			0.7	1.4	22.20	23.385	67	80						2	2	5	6	1	4	0		3
Site 14	9/3/2013	24.76	24.58	24.55	26.78	26.85	26.84	7.55	7.55	7.50	4.47	4.63	4.62	0.9	2.9	26.10		38	9	0.158	<0.035	1.790	1.630	1.790	0	1	5	6	0	4	0	0	6
Site 14	9/9/2013	20.43			25.83			7.65			5.64			0.6	1.2	20.10		63	<1						0	4	5	6	0	1	1	2	1
Site 14	9/16/2013	21.16	21.19	21.20	27.21	27.21	27.21	7.69	7.68	7.65	5.81	5.80	5.84	1.3	2.7	17.70		16	2						0	4	5	6	0	4	1	6	3
Site 14	9/23/2013			16.10			20.77			7.57			5.75	0.4	0.6	12.50		330	240						0	2	1	6	0	0	1	8	1
Site 14	9/30/2013	18.87	19.29	19.24	26.54	26.92	27.20	7.97	7.97	7.96	6.61	6.70	6.71	2.1	2.6	18.00		12	16						0	1	5	6	0	1	0		1
Site 14	10/7/2013																																		
Site 14	10/15/2013	16.50	16.51	16.57	27.50	27.50	27.50	8.26	8.24	8.19	5.38	5.37	5.38	1.3	3.1	10.70		2	46						0	1	5	6	0	0	0	0	1
Site 14	10/21/2013	12.90			26.00			7.55			5.86			1.10	1.10	7.90		80	80						0	3	5	6	0	0	0	0	1
Site 14	10/29/2013	10.88	10.95	11.33	26.53	26.53	26.68	8.31	8.31	8.31	7.75	7.81	7.84	1.80	2.50	6.10									0	2	1	1	1	0	1		1
		pH readings suspect: instrument out of calibration																																	

	Friends of the Bay 2013 Water Quality Data - **Site 15, Mill Neck Creek South**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 15	4/8/2013	**9.02**	8.97		14.54	14.54		8.24	8.23		10.78	8.15		1.3	1.4	18.7		3	1	ND	0.97	1.24	1.24	2.21		1	4	6	0	0	0	0	1
Site 15	4/15/2013	Site not done due to rain and tidal conditions																																	
Site 15	4/22/2013	11.71			24.57			8.84			5.95			0.8	1.7	7.2		11	<1							4	5		1	0	2	1	1
Site 15	4/30/2013	Site not done due to rain and tidal conditions																																	
Site 15	5/6/2013	**15.87**	15.75		24.95	25.23		9.53	9.55		7.67	7.95		1.3	1.7	11.6		11	6							2	3	6	0	1	1	3	1
Site 15	5/13/2013	Site not done due to rain and tidal conditions																		Not recorded														
Site 15	5/20/2013	16.55			24.29			9.15			5.82			1.1	1.3	15.7		27	25							4	5		0	4	0		6
Site 15	5/28/2013	Site not done due to rain and tidal conditions																																	
Site 15	6/3/2013	Run cancelled due to wind and weather conditions.																																	
Site 15	6/10/2013	Site not done, tide too low																																	
Site 15	6/17/2013	20.28			23.94			7.48			6.57			0.9	1.0	23.7	20.28	48	27						0	4	5	6	0	1	1	6	1
Site 15	6/24/2013	**24.35**			24.29			7.57			6.12			0.5	1.2	30.5	23.21	16	1							4	3	6	0	0	1	6	1
Site 15	7/1/2013	24.74	24.91		24.16	24.31		7.32	7.34		4.50	5.39		0.8	1.3	24.1	24.74	200	18	0.144	<.035	2.00	2.11	2.11	1	1	3	6	0	4	2	6	3
Site 15	7/8/2013	27.63			5.66			7.58			5.66			0.9	1.1	28.90	27.63	37	10						0	4	5	6	0	1	1	8	1
Site 15	7/15/2013	Run cancelled																																	
Site 15	7/24/2013	27.04	27.00		25.01	25.01		7.49	7.41		6.35	5.45		0.30	1.60	30.00	27.04	440	80						1	4	5	6	0	3	0	8	2
Site 15	7/29/2013	**24.31**			**24.50**			6.98			4.39			0.70	0.90	23.90	24.31	59	22						1	2	2	6	0	1	0	0	1
Site 15	8/5/2013	24.15	24.13		25.62	25.62		7.48	7.49		5.90	5.96		0.70	1.80	20.60	24.15	220	20						1	4	5	6	0	0	2	1	1
Site 15	8/12/2013																			tidal conditions														
Site 15	8/19/2013	23.32	23.15	23.29	25.17	25.80	26.51	7.70	7.59	7.42	7.32	5.56	5.03	0.50	2.60	24.70		780	130						0	1	5	6	0	0	1	8	1
Site 15	8/27/2013	23.53			25.39			7.11			3.76			1.20	1.40	22.20		120	130						2	2	5	6	2	4	6.5	8	3
Site 15	9/3/2013	24.95	25.06	x	20.61	25.94	x	7.41	7.33	x	5.60	3.58	x	0.40	2.00	27.80		510	270	0.066	<0.035	1.56	1.49	1.56	0.00	1.00	5	6	0	4	0	0	6
Site 15	9/9/2013	20.67			25.63			8.04			7.62			Bottom	0.90	23.00		210	23						0	4	2	1	0	1	1	2	1
Site 15	9/16/2013	20.40	20.68	20.87	25.84	26.48	26.56	7.56	7.56	7.59	4.62	4.91	5.16	0.60	2.10	17.10		62	53						0	4	1	6	0	4	0	0	3
Site 15	9/23/2013																																	
Site 15	9/30/2013	18.02	18.33		23.30	25.61		7.30	7.20		3.65	3.97		0.50	1.70	10.90		80	70						0	4	1	6	0		0		1
Site 15	10/7/2013																																	
Site 15	10/15/2013	15.26	15.60		24.57	25.97		7.93	7.91		6.18	6.55		0.70	1.60	9.30		63	170						0	1	5	6	0	0	0	0	1
Site 15	10/21/2013																																	
Site 15	10/29/2013	10.58	11.41		25.40	26.68		8.17	8.13		7.24	7.10		1.20	1.60	2.70	2.70		32	80*					0	1	1	6	1		1	4	1
		pH readings suspect: instrument out of calibration																																	

	Friends of the Bay 2013 Water Quality Data - **Site 16, Mill Neck Creek North**																																		
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 16	4/8/2013	9.12	8.87		24.24	24.36		8.28	8.23					1.5	1.5	18.9		5	1	ND	0.220	1.53	1.53	1.75		1	4	5	0	0	0	0	1
Ste 16	4/15/2013	Ste not done due to rain and tidal conditions																																	
Site 16	4/22/2013	11.15			24.06			8.81			5.86			1.4	1.9	7.6		53	49						4	5		1	0	3	1	1
Ste 16	4/30/2013	Ste not done due to rain and tidal conditions																																	
Site 16	5/6/2013	15.60			24.39			9.36			7.09			1.7	0.9	11.6		2	<1						2	3	6	0	1	2	3	1
Ste 16	5/13/2013	Ste not done due to rain and tidal conditions																		Not recorded														
Site 16	5/20/2013	16.52			24.15			9.08			4.92			1.3	0.8	15.8		190*	160*						4	5		0	4	0		6
Ste 16	5/28/2013	Ste not done due to rain and tidal conditions																																	
Ste 16	6/3/2013	Run cancelled due to wind and weather conditions.																																	
Ste 16	6/10/2013	Ste not done, tide too low																																	
Site 16	6/17/2013	20.16			23.31			7.34			5.04			0.7	0.9	28.1	20.16	730	160						0	4	5	6	0	1	1	6	1
Site 16	6/24/2013	24.34			24.01			7.5			5.32			0.4	1.1	34.3	24.35	550	36							4	3	6	0	0	0	6	1
Site 16	7/1/2013	24.96			23.96			7.28			4.17			0.9	1.2	23.8	24.96	33	7	0.153	<.035	2.09	2.24	2.24	1	1	3	6	0	4	0	6	3
Site 16	7/8/2013	27.69			24.47			7.44			6.81			0.7	1.0	28.4	27.69	30	8						0	4	5	6	0	1	1	8	1
Ste 16	7/15/2013																																		
Site 16	7/24/2013	27.26			25.09			7.32			0.91			0.2	1.0	31.50	27.26	390	110						1	4	1	6	0	2	1	1	2
Site 16	7/29/2013	23.89			25.33			6.73			3.06			0.4	1.1	23.90	23.89	100	31						1	2	1	5	0	1	0	0	1
Site 16	8/5/2013	22.90	23.01		24.88	25.02		7.38	7.38		5.90	5.98		0.6	1.8	22.20	22.90	260	39						1	4	5	6	0	0	1	1	1
Ste 16	8/12/2013			tidal conditions																															
Site 16	8/19/2013	23.50	23.48	x	26.02	26.02	x	7.46	7.41	x	5.53	5.74	x	0.8	2.0	25.20		390	70						0	1	5	6	0	0	1	8	1
Site 16	8/27/2013	23.32			25.17			6.94			2.11			0.6	1.1	22.30	n/a	130	120						2	2	5	6	2	4	0	8	3
Site 16	9/3/2013	24.98	24.97	x	25.58	25.86	x	7.37	7.29	x	3.65	3.22	x	0.5	2.1	25.80		460	100	0.094	0.041	4.31	4.22	4.35	2	1	5	6	0	4	0	0	6
Ste 16	9/9/2013																																		
Site 16	9/16/2013	20.35	20.29	20.29	26.18	26.18	26.55	7.45	7.45	7.42	4.21	4.21	4.44	0.4	2.0	17.60		48	74						0	4	1	5	0	4	0	0	4
Ste 16	9/23/2013																																		
Site 16	9/30/2013	19.01	19.14	19.13	26.55	26.63	26.84	7.88	7.90	7.89	4.96	4.92	4.84	1.50	2.40	13.10		**7**	**5**						0	4	5	6	0	1	1	2	1
Ste 16	10/7/2013																																		
Site 16	10/15/2013	15.37	15.65		26.25	26.55		7.84	7.80		5.66	5.54		0.90	1.80	9.40		80	150						0	1	1	5	0	0	0	0	1
Ste 16	10/21/2013																																		
Site 16	10/29/2013	9.70	10.40		26.13	26.51		8.08	8.08		6.61	3.99		1.00	1.60	3.90		29	130*						0	1	1	1	0	0	0		1
		pH readings suspect: instrument out of calibration																																	

	Friends of the Bay 2013 Water Quality Data - **Site 17, The Birches STP**																																			
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 17	4/8/2013	9.07			24.18			8.28			19.75				1.4	19.7		1	<1	ND	0.104	1.56	1.56	1.66		1	4	5	0	0	0	0	1
Ste 17	4/15/2013	Ste not done due to rain and tidal conditions																																		
Site 17	4/22/2013	10.68			22.88			8.78			5.44			1.20	1.8	7.7		66	40							4	5		1	0	2	1	1
Ste 17	4/30/2013	Ste not done due to rain and tidal conditions																																		
Site 17	5/6/2013	15.68			24.39			9.4			6.83			0.90	0.9	12.4		4	4							2	3	6	0	1	1	3	1
Ste 17	5/13/2013	Ste not done due to rain and tidal conditions																			Not recorded														
Site 17	5/20/2013	16.49			24.08			9.03			5.36			1.30	0.8	15.7		100*	100*							4	5		0	4	0		6
Ste 17	5/28/2013	Ste not done due to rain and tidal conditions																																		
Ste 17	6/3/2013	Run cancelled due to wind and weather conditions.																																		
Ste 17	6/10/2013	Ste not done, tide too low																																		
Site 17	6/17/2013	**no reading- sample only**													0.7	28.9		820	160						0	4	5	6	0	1	1	6	1
Site 17	6/24/2013	25.46			23.97			7.34			4.46			0.20	0.8	30.6	24.34	320	42							4	2	6	0	0	0		1
Site 17	7/1/2013	24.83			23.88			7.17			3.16			0.80	1.2	23.8	24.80	350	210	0.389	<.035	2.200	2.59	2.59	1	1	5	6	0	4	0	6	3
Site 17	7/8/2013	28.06			24.27			7.24			6.80			0.80	1.0	31.7	28.06	10	<1						0	4	5	6	0	1	1	8	1
Ste 17	7/15/2013	Run cancelled																																		
Site 17	7/24/2013	27.86			24.68	7.09		7.09			3.26			0.10	1.0	31.0	27.86	530	190						1	4	1	6	0	2	0		1
Site 17	7/29/2013	24.09			25.26			6.31			3.33			0.70	1.1	24.1	24.09	210	230						1	2	1	6	0	1	0	0	1
Site 17	8/5/2013	22.46	23.14		24.22	24.45		7.36	7.36		5.84	6.19		0.60	1.8	21.7	22.46	230	13						1	4	4	6	0	0	2	1	1
Ste 17	8/12/2013	tidal conditions																																		
Site 17	8/19/2013	23.04	x	x	25.43	x	x	7.54	x	x	6.4	x	x	0.40	1.80	27.7		440	110						0	1	5	6	0	0	1	8	1
Ste 17	8/27/2013																																			
Site 17	9/3/2013	24.90	24.90	x	25.01	25.72	x	7.22	7.25	x	2.35	2.93	x	0.60	1.80	24.2		250	43	0.013	<0.035	5.38	5.28	5.38	0	1	5	6	0	4	0	0	6
Ste 17	9/9/2013																																			
Site 17	9/16/2013	19.74	20.27		25.82	26.04		7.34	7.31		3.61	4.04		0.30	1.60	17.4		80	100						0	4	1	6	0	4	0	0	4
Ste 17	9/23/2013																																			
Site 17	9/30/2013	18.43	18.68		25.97	26.12		7.68	7.69		4.99	5.36		0.90	1.60	15.1		26	18						0	1	5	6	0	1	0		1
Ste 17	10/7/2013																																			
Site 17	10/15/2013	14.85	14.87		25.32	25.74		7.42	6.99		5.87	6.00		0.60	1.50	9.4		14	410						0	4	1	1	0	0	0		1
Ste 17	10/21/2013																																			
Site 17	10/29/2013	10.40	10.53		26.07	26.30		7.00	7.65		6.75	6.74		0.90	1.50	6.0		41	210						0	1	1	1	0	0	0		1
		pH readings suspect: instrument out of calibration																																		

	Friends of the Bay 2013 Water Quality Data - **Site 18, Mill Neck Cove**																																				
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 18	4/8/2013	8.59	8.42	8.17	24.98	24.96	24.94	8.36	8.36	8.33	12.08	12.51	12.73	2.4	3.0	18.4		<1	<1	ND	ND	1.670	1.670	1.670		2	4	6	0	0	0	0	1
Site 18	4/15/2013	9.61			25.22			8.45			7.58			1.8	1.8	6.9		2	<1							3	5		0	4	2	2	3
Site 18	4/22/2013	11.39	11.43	11.43	25.51	25.52	25.45	9.06	9.03	9.01	7.07	6.91	7.20	1.8	3.3	8.3		<1	<1							4	5		2	0	2	1	1
Site 18	4/30/2013	12.57			22.01			9.24			5.60			1.8	1.2	11.3		<1	1							2	4	6	0	4	2	3	3
Site 18	5/6/2013	15.53	15.37	15.26	25.63	25.62	25.65	9.57	9.56	9.55	7.46	7.88	8.55	1.8	2.4	14.0		1	<1							2	3	6	0	1	1	2	1
Site 18	5/13/2013			14.08										Bottom	0.3	9.8		2	1	ND	ND	1.780	1.780	1.780		2	3		2	0	2	6	1
Site 18	5/20/2013	16.16	16.16	16.16	25.70	25.17	25.17	9.36	9.34	9.33	5.55	6.12	6.65	2.1	1.8	16.1		7	14*							1	5		0	4	0		6
Site 18	5/28/2013	16.05			25.24			8.01			7.66			1.3	1.4	16.5		13	14*							4	5	6	2	4	1	2	3
Ste 18	6/3/2013	Run cancelled due to wind and weather conditions.																																			
Site 18	6/10/2013	19.80	19.60	19.40	23.78	24.26	24.60	7.85	7.85	7.75	7.95	7.94	6.41	1.3	2.0	19.7	19.80	18	6	<.050	<.035	1.74	1.74	1.74		4	5		2		2	1	4
Site 18	6/17/2013	20.02	19.22	19.59	24.56	24.62	24.61	7.77	7.79	7.76	7.26	7.49	7.01	1.4	2.2	25.0	20.02	7	3						0	4	3	6	1	1	2	6	1
Site 18	6/24/2013	23.32	23.37	23.30	24.82	24.82	24.89	7.79	7.79	7.89	6.52	6.54	6.35	0.7	2.7	30.8	25.32	390	28							4	3	6	0	0	2	6	1
Site 18	7/1/2013	24.12	24.02	23.86	24.70	24.77	24.84	7.83	7.81	7.76	6.02	6.28	6.06	1.0	2.3	23.6	24.12	2	<1	0.05	0.035	2.06	2.06	2.06	1	2	5	6	0	4	1	6	3
Site 18	7/8/2013	26.03	25.96		25.05	25.11		7.82	7.81		6.68	6.98		1.1	1.5	28.9	26.03	9	<1						0	4	5	6	0	1	1	8	1
Ste 18	7/15/2013																																				
Site 18	7/24/2013	26.04	26.09	26.09	26.19	26.19	26.26	7.55	7.55	7.49	6.13	6.05	5.80	0.7	2.5	32.2	26.04	90	22						1	4	3	6	0	3	1	7	2
Site 18	7/29/2013	24.06	24.00	23.89	26.33	26.32	26.39	7.37	7.42	7.44	5.59	5.92	5.88	1.5	2.1	24.1	24.06	4	3						1	2	3	6	0	3	2	8	2
Site 18	8/5/2013	23.71	23.71	23.67	26.53	26.53	26.53	7.49	7.47	7.44	6.00	5.93	5.99	0.7	3.2	22.5	23.71	6	1						1	4	3	6	0	0	3	1	1
Site 18	8/12/2013	23.73			26.60			7.39			2.92			1.3	1.3	22.0		91	190	<0.050	<0.035	2.30	2.30	2.30	0	4	1	6	0	4	1	0	3
Site 18	8/19/2013	23.52	23.51	23.24	26.59	26.59	26.65	7.58	7.55	7.53	5.54	5.56	5.65	1.2	3.0	24.8		45	8						0	1	5	6	0	0	1	6	1
Site 18	8/27/2013	23.25			26.72			7.40			5.61			1.2	1.4	22.4	23.46	14	28						2	2	5	6	1	4	1	8	3
Site 18	9/3/2013	24.62	24.56	24.48	26.78	26.92	27.05	7.53	7.54	7.50	4.41	4.59	4.63	1.1	2.5	25.6		23	6	0.107	<0.035	1.90	1.79	1.90	0	1	5	6	0	4	1	7	6
Site 18	9/9/2013	21.47	21.47		26.94	26.93		7.77	7.73		6.35	6.44		0.9	1.7	18.3		18	6						0	4	5	6	0	1	1	1	1
Site 18	9/16/2013	21.11	21.09	21.08	27.11	27.13	27.13	7.69	7.66	7.63	5.78	5.76	6.12	1.4	2.2	16.7		14	2						0	4	5	6	0	4	0	0	4
Site 18	9/23/2013			18.72			26.75			7.84			6.11	1.0	1.2	10.7		23	6						0	2	5	6	2	0	1	8	1
Site 18	9/30/2013	19.12	19.25	19.26	27.05	27.20	27.27	8.03	8.07	8.07	7.42	7.03	6.80	2.10	2.40	16.0		5	1						0	4	5	6	0	1	1		1
Site 18	10/7/2013	20.58	20.57	20.56	27.40	27.40	27.39	8.01	8.00	8.01	6.47	6.45	6.46	1.30	3.00	20.0		49	120	<0.050	<0.035	1.39	1.39	1.39	0	4	5	6	2	4	1	5	3
Site 18	10/15/2013	16.55	16.53	16.67	27.43	27.43	27.58	8.30	8.29	8.27	8.15	8.05	7.97	5.50	3.50	12.9		7	6						0	1	5	6	0	0	0	0	1
Site 18	10/21/2013	15.28			27.27			7.96			5.12			1.10	1.10	9.2		12	10						0	3	5	6	0	0	1	6	1
Site 18	10/29/2013	12.28	12.27	12.26	27.92	27.92	27.85	8.43	8.42	8.42	8.01	7.89	8.40	2.80	3.00	6.70		1*	1						0	2		6	0	0	1	6	1
		pH readings suspect: instrument out of calibration																																			

	Friends of the Bay 2013 Water Quality Data - **Site 19, Flowers Oyster Hatchery**																																
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 19	4/8/2013	8.77	8.57	8.07	18.85	18.78	18.96	8.39	8.37	8.28	18.12	16.60	10.82	2.70	5.5	22.7		<1	<1	ND	Nd	1.660	1.660	1.660	0	2	4	6	0	0	0	0	1
Site 19	4/15/2013	9.93	9.76	9.49	24.89	25.02	25.35	8.47	8.48	8.46	7.38	7.38	7.31	1.70	3.3	7.3		<1	3						0	3			0	4	3	2	3
Site 19	4/22/2013	11.52	11.52	11.45	25.38	25.45	25.52	9.07	9.06	9.02	7.71	7.20	5.97	2.00	5.9	7.4		1	<1						0	4	5		3	0	3	1	1
Site 19	4/30/2013	12.71	12.71	12.66	25.58	25.58	25.57	9.51	9.29	9.24	5.56	5.81	5.49	2.00	3.6	11.9		<1	2						1	2	4		0	4	1	3	3
Site 19	5/6/2013	15.60	15.55	15.12	25.57	25.57	25.48	9.58	9.51	9.54	6.52	7.41	7.08	1.90	5.2	14.2		3	1						0	2	3	6	0	1	1	3	1
Site 19	5/13/2013	14.79	14.76	14.76	24.91	24.98	25.11	9.24	9.23	9.20	6.86	8.22	7.06	1.25	2.8	11.0				ND	ND	1.930	1.930	1.930		2	3		2	0	2	7	1
Site 19	5/20/2013	16.22	16.22	16.01	25.11	25.11	25.31	9.36	9.37	9.36	5.04	5.50	7.52	2.00	5.1	16.3		2	5							1	5		0	4	0		6
Site 19	5/28/2013	16.09	16.07	16.15	25.38	25.38	25.45	8.05	8.04	8.03	7.45	7.71	9.59	1.40	3.7	15.3		7	11							4	5	6	2	4	1	2	3
Ste 19	6/3/2013	Run cancelled due to wind and weather conditions.																															
Site 19	6/10/2013	19.75	19.64	19.34	24.13	24.27	24.06	7.82	7.82	7.77	7.65	7.58	6.92	1.4	4.2	20.9	19.75	23	3	<.050	<.035	1.74	1.74	1.74		4	5		1	4	2	2	4
Site 19	6/17/2013	20.06	19.99	19.44	24.28	24.48	24.61	7.85	7.85	7.76	7.81	7.85	6.86		4.8	25.6	20.06	2	2						0	4	3	6	1	1	2	6	1
Site 19	6/24/2013	23.54	23.50	23.26	24.75	24.82	24.81	7.77	7.77	7.75	6.51	6.51	6.33	0.70	5.4	31.4	23.54	40	6							4	3	6	0	0	2	6	1
Site 19	7/1/2013	24.06	24.03	23.75	24.77	24.77	24.90	7.79	7.81	7.80	6.21	6.36	5.78	0.90	4.8	23.6	24.06	8	1	<.05	<.035	2.14	2.14	2.14	1	2	5	6	0	4	1	6	3
Site 19	7/8/2013	26.50	26.32	25.74	24.92	24.99	25.75	7.79	7.80	7.81	7.02	6.68	6.83	1.20	5.50	29.80	26.50	39	<1						0	4	5	6	1	1	1	8	1
Ste 19	7/15/2013	Run cancelled																															
Site 19	7/24/2013	26.57	26.50	26.23	25.78	25.85	26.05	7.54	7.54	7.51	6.45	6.41	5.73	0.70	5.7	31.0	26.57	170	18						1	4	5	6	0	2	1	1	1
Site 19	7/29/2013	23.93	23.91	23.85	26.39	26.39	26.39	7.47	7.46	7.43	6.09	5.95	5.68	1.30	4.7	24.3	23.93	21	4						1	2	3	6	0	2	2	6	2
Site 19	8/5/2013	23.67	23.66	23.63	26.38	26.38	26.45	7.48	7.48	7.47	5.85	5.86	5.84	1.30	5.7	21.2	23.67	19	3						1	4	3	6	0	0	2	1	1
Site 19	8/12/2013	23.81	23.80	23.76	26.18	26.25	26.32	7.42	7.42	7.39	4.83	4.83	4.95	1.00	3.5	22.0		82	13	<0.050	<0.035	2.31	2.31	2.31	0	4	1	6	0	4	0	0	3
Site 19	8/19/2013	23.48	23.40	23.27	26.66	26.59	26.65	7.57	7.55	7.53	5.55	5.48	5.48	1.10	5.8	24.4		56	9						0	1	5	6	0	0	1	6	1
Site 19	8/27/2013	23.27	23.26	23.28	26.65	26.65	26.72	7.56	7.56	7.57	5.58	5.57	5.58	1.20	4.2	22.4	23.49	43	110						2	2	5	6	1	4	1	8	3
Site 19	9/3/2013	25.00	24.80	24.55	26.08	26.36	26.77	7.37	7.38	7.12	3.94	4.23	4.10	0.90	4.4	23.4		170	23	0.273	<0.035	2.34	2.07	2.34	0	4	5	6	0	4	0	0	6
Site 19	9/9/2013	21.41	21.42	21.41	27.01	27.08	27.08	7.75	7.75	7.73	6.21	6.24	6.21	1.00	3.8	18.3		57	3						0	4	5	6	0	1	1	1	1
Site 19	9/16/2013	21.03	21.11	21.17	27.13	27.14	27.21	7.72	7.72	7.70	5.85	5.87	5.87	1.30	6.1	16.7		25	8						0	4	5	6	1	4	1	6	4
Site 19	9/23/2013	18.93	18.98	19.30	26.69	26.76	27.27	7.90	7.90	7.87	6.70	6.29	6.10	1.50	3.7	12.1		90	23						0	2	5	6	1	0	1	8	1
Site 19	9/30/2013	19.21	19.27	19.24	27.12	27.13	27.27	8.05	8.06	8.06	6.97	6.93	6.73	2.40	5.6	17.0		12	100						0	1	5	6	0	1	1	1	1
Site 19	10/7/2013	20.52	20.49	20.45	27.18	27.25	27.32	7.93	7.94	7.95	6.01	6.05	6.02	1.30	5.5	23.0		80	42	<0.050	<0.035	1.51	1.51	1.51	0	4	5	6	1	4	2	5	3
Site 19	10/15/2013	16.54	16.53	16.71	27.43	27.50	27.65	8.30	8.30	8.23	8.01	8.01	7.71	1.50	6.2	12.8		11	9						0	1	5	6	0	0	0	0	1
Site 19	10/21/2013	15.64	15.63	15.70	27.53	27.53	27.53	8.20	8.17	8.09	7.34	7.29	7.18	2.00	3.6	11.2		11	23						0	3	5	6	1	0	1	6	1
Site 19	10/29/2013	12.23	12.23	12.23	27.84	27.85	27.92	8.42	8.40	8.40	8.04	8.06	7.74	2.70	5.7	7.8		22	12*						0	2	1	6	1	0	1	6	1
		pH readings suspect: instrument out of calibration																															

	Friends of the Bay 2014 Water Quality Data - **Site 1, Cold Spring Cove South**																																		
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 1	4/7/2014	7.00	6.97	5.40	25.97	26.11	28.07	8.18	8.19	8.17	9.52	9.35	8.83	1.7	5.7	7.7		<1	<1						0	2	5	6	3	4	1	2	1
Site 1	4/14/2014	8.92			27.12			7.89			8.56			1.3		14.0		3	3						0	4	3		0	6	2	1	2
Site 1	4/21/2014	9.96	9.97	7.76	25.51	26.62	27.87	8.29	8.27	8.17	8.91	8.38	4.13	1.7	4.6	8.8									0	2	2	1	0	1	1	1	1
Site 1	4/28/2014	10.93	11.11	10.92	25.71	25.98	26.80	7.88	7.87	7.75	7.48	7.35	6.85	2.0	3.7	8.1		<1	83							4	3	6	0	1	2	1	2
Ste 1	5/5/2014																																		
Site 1	5/12/2014	15.80	14.65	12.70	24.67	25.56	26.76	8.23	8.20	8.14	9.46	9.09	8.18	1.2	5.4	19.1		<1	3	<.1	.16/ <.1	0.34	0.34	0.50		4	5		2	8	1	1	0
Site 1	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 1	5/27/2014	17.19	17.10	16.42	26.26	26.26	26.30	7.70	7.65	7.56	5.84	5.78	5.36	1.6	4.0	22.1		5	2						0	4	5	6	3		0	3	0
Site 1	6/2/2014	17.31	17.22	16.50	25.64	26.06	25.54	8.11	8.03	7.72	8.41	7.97	6.24	1.5	3.6	20.3		>60	10	<0.10	<0.10	0.46	0.46	0.46	0	2	3	6	0		0	1	1
Site 1	6/9/2014	**NO SAMPLES TAKEN ** WEATHER CONDITION**																																	
Site 1	6/16/2014	20.15	19.98	19.03	24.70	25.11	26.20	8.26	8.17	7.85	9.23	7.95	5.65	0.7	4.5	32.2		370	13						0	4	5	6	1	1	1	1	1
Site 1	6/23/2014	20.48	20.95	19.35	25.41	25.92	26.78	7.73	7.61	7.21	5.86	5.14	3.51	0.9	5.8	25.2		210	44							4	1	1	0	0	0	1	0
Site 1	6/30/2014	20.45	20.57	19.63	25.48	26.27	26.50	7.55	7.34	6.83	4.64	3.60	2.07	1.3	5.7	22.6		52	17							4	3	6	2	5	1	1	1
Site 1	7/72014	22.75	22.45	21.60	23.18	23.45	24.05	7.95	7.92	7.58	37.41	37.61	21.71	1.0		28.2		52	3	<0.10	<0.10	0.71	0.62	0.71		2	3	6	0	5	1	1	1
Site 1	7/14/2014	**NO SAMPLES TAKEN ** WEATHER CONDITION**																																	
Site 1	7/21/2014	22.62	22.29	21.29	25.43	26.40	27.50	7.70	7.59	7.32	5.73	4.86	0.89	1.3	5.5	24.4		36	<1							2	3	6	0	0	1	1	1
Site 1	7/28/2014	22.85	22.61	22.49	27.34	27.48	27.76	7.59	7.55	7.49	3.43	3.21	2.39	1.0	7.8	25.2		220	37						3	4	5	6	4	5	2	3	1
Site 1	8/4/2014	23.47	23.07	22.08	24.82	26.08	28.03	7.89	7.65	7.38	6.62	4.39	1.28	1.4	3.9	28.4		140	41	0.21	<0.10	0.22	<0.10	0.22		2	5	6	2	0	0	1	0
Site 1	8/11/2014	24.18	23.96	24.09	26.62	26.75	27.68	7.31	7.22	7.07	3.46	2.13	1.67	0.9	3.2	24.1		270	180*						0	4	5	6	0	0	0	1	0
Site 1	8/18/2014	23.09	23.07	23.12	26.22	26.22	26.36	8.25	8.16	7.71	8.69	8.14	4.56	0.7	4.6	22.2		53	4						0	2	5	6	0	0	0	1	0
Site 1	8/25/2014	23.27	23.23	22.95	27.36	27.65	28.28	7.33	7.29	7.19	2.37	1.86	0.89	1.4	6.8	20.5		43	13						0	3	5	6	0	1	0	1	0
Site 1	9/2/2014	24.26	24.14	23.79	27.19	27.54	28.17	7.79	7.76	7.67	4.46	4.19	3.03	0.8	4.4	28.3		28	8	0.58	<0.10	0.14	<0.10	0.14	0	2	5	6	2	0	0	1	0
Site 1	9/8/2014	24.29	24.43	24.50	27.33	27.55	27.70	7.65	7.68	7.65	3.46	3.59	3.50	1.2	6.8	19.4		48	31						0	4	5	4	3	2	1	3	1
Site 1	9/15/2014	20.83	21.66	21.80	24.90	25.26	28.16	8.50	8.36	7.96	10.18	9.21	4.88	1.4	5.0	17.1		13	2						0	3	5	6	1	3	1	1	1
Site 1	9/22/2014	20.90	21.01	21.38	27.27	27.63	28.35	7.81	7.74	7.57	5.65	4.94	4.26	1.3	5.7	20.2		44	57						1	4	5	6	0	2	1	1	2
Site 1	9/29/2014	19.83	20.08	20.25	26.94	27.52	28.38	7.91	7.76	7.68	5.60	5.09	4.64	1.1	5.0	17.0		90	37						0	2	5	6	4	5	1	3	1
Site 1	10/6/2014	18.15	18.40	18.53	27.58	27.65	28.16	8.01	8.04	8.09	6.28	6.22	6.55	2.0	2.8	11.4		57	11	<0.1	0.15 / <0.1	0.14	0.13	0.29	0	4	5	6	0	5	1	1	0
Site 1	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 1	10/20/2014	15.82	16.22	16.30	26.48	26.99	27.91	8.28	8.23	8.08	7.23	6.60	5.77	1.6	5.8	11.5		350	42						0	2	5	6	4	6	1	3	1
Site 1	10/27/2014	13.23	13.71	14.07	25.52	26.32	27.10	7.95	7.96	7.90	8.13	8.01	8.27	1.6	3.9	10.90		46	11						0	2	5	6	0	8	1	1	0
		DO readings suspect																																	

	Friends of the Bay 2014 Water Quality Data - **Site 2, Cold Spring Cove North**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 2	4/7/2014	6.46	6.02	5.47	25.80	26.41	28.00	8.19	8.19	8.18	9.45	9.44	9.44	2.0	5.7	7.8		<1	<1							2	5	6	3	4	1	2	1
Site 2	4/14/2014	9.59	9.55	8.44	26.73	26.73	27.50	7.90	7.99	7.95	8.28	8.37	8.09	2.3		14.0		<1	<1							4	3		0	6	2	1	2
Site 2	4/21/2014	8.97	8.78	8.13	26.97	26.96	27.69	8.21	8.20	8.19	9.01	8.93	8.70	1.7	4.7	10.1										2	1	6	0	1	1	1	1
Site 2	4/28/2014	10.76	10.87	10.87	25.48	26.25	26.94	7.94	7.95	7.93	7.69	7.68	7.54	2.1	5.7	8.4		<1	<1							4	3		0	8	1	1	1
Site 2	5/5/2014																																	
Site 2	5/12/2014	15.13	14.82	12.06	25.61	26.09	26.88	8.23	8.22	8.03	9.35	8.98	7.80	1.6	6.9	16.4		<1	<1	<.1	<.1 / <.1	0.18	0.18	0.18		4	3		2	8	1	1	0
Site 2	5/19/2014	**NO SAMPLES TAKEN **																																
Site 2	5/27/2014	**17.58**	17.33	15.78	25.72	25.85	26.76	7.76	7.75	7.67	5.96	5.85	5.13	1.6	5.7	22.7		11	21							4	3	6	4		0	3	0
Site 2	6/2/2014	16.77	16.37	16.07	24.71	26.02	26.78	8.12	7.87	7.77	8.46	7.13	6.00	1.5	4.9	20.1		>60	28	<0.10	<0.10	0.72	0.72	0.72		2.000	6.000	0.000	0.000	7.000	1.000	1.000	0.000
Site 2	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																
Site 2	6/16/2014	20.40	19.69	18.89	24.57	24.97	26.20	8.33	8.13	7.88	9.88	8.47	6.04	0.8	4.6	30.4		110	10							4	5	6	2	2	1	1	1
Site 2	6/23/2014	20.17	20.05	19.02	26.18	26.31	26.91	7.74	7.63	7.35	5.50	4.95	3.33	1.0	7.0	22.8		58	14							4	3	1	0	0	0	1	0
Site 2	6/30/2014	20.28	20.04	19.91	25.69	26.24	26.87	7.49	7.40	7.26	4.46	3.82	3.54	1.1	4.8	23.4		140	61							4	3	6	1	6	1	1	1
Site 2	7/7/2014	22.20	22.35	21.52	22.91	23.51	24.12	7.94	7.85	7.62	37.50	37.84	20.81	0.9		27.6		47	11	<0.10	0.35	0.45	0.38	0.80		2	3	6	0	5	1	1	1
Site 2	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																
Site 2	7/21/2014	22.41	21.72	20.91	27.11	27.44	27.83	7.52	7.41	7.36	3.49	2.18	1.73	1.5		22.7		40	4							2	3	6	8	1	1	1	0
Site 2	7/28/2014	22.68	22.65	22.38	27.34	27.41	27.97	7.56	7.54	7.48	3.44	2.94	2.10	0.8	6.7	25.3		230	33							4	5	1	5	2	1	1	3
Site 2	8/4/2014	23.02	22.41	21.83	26.64	27.41	28.23	7.95	7.58	7.42	5.30	3.34	1.23	0.9	5.0	26.2		57	9	0.35	<0.10	0.34	<0.10	0.34		2	5	6	2	8	1	1	1
Site 2	8/11/2014	24.18	24.33	23.91	26.76	27.12	27.96	7.36	7.29	7.14	2.97	2.28	1.60	1.2	5.0	26.8		230	100*						0	4	5	1	0	0	0	1	0
Site 2	8/18/2014	22.86	23.05	23.06	26.21	26.72	27.43	8.06	7.94	7.72	7.16	5.96	4.24	0.7	5.3	21.2		40	3						0	2	1	6	0		0	0	0
Site 2	8/25/2014	22.84	22.90	22.79	27.49	27.56	28.34	7.28	7.27	7.25	1.22	1.15	1.27	1.4	5.4	20.6		24	14						0	3	5	6	0	0	0	1	0
Site 2	9/2/2014	24.10	23.65	23.75	26.75	27.52	28.10	7.67	7.67	7.67	3.51	2.97	2.95	1.3	4.9	27.8		46	12	0.23	<0.10	0.16	<0.10	0.16	0	2	5	6	3	8	1	2	1
Site 2	9/8/2014	24.15	24.15	24.29	27.61	27.54	27.69	7.79	7.77	7.27	4.38	4.31	4.28	1.2	5.3	19.5		53	28						0	4	5	6	3	2	1	3	1
Site 2	9/15/2014	21.67	21.65	21.77	26.94	27.51	28.02	8.15	8.09	7.99	6.60	6.55	5.30	1.6	5.0	16.6		21	11						0	3	5	6	1	3	1	1	1
Site 2	9/22/2014	20.81	20.85	21.37	27.05	27.05	28.21	7.94	7.94	7.78	5.66	5.49	4.28	1.5	6.3	19.7		32	28						1	4	5	2	0	1	1	1	2
Site 2	9/29/2014	20.20	20.06	20.19	27.51	27.66	28.16	7.77	7.76	7.64	4.80	7.78	4.60	1.0	5.0	18.0		140	30						0	2	5	6	4	0	0	3	0
Site 2	10/6/2014	18.49	18.49	18.75	28.16	28.23	28.52	8.12	8.17	8.12	6.38	6.53	6.67	2.1	8.0	13.8		52	12	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	0	0	1	0
Site 2	10/13/2014	**NO SAMPLES TAKEN **																																
Site 2	10/20/2014	15.66	16.04	16.38	26.83	27.26	28.20	8.22	8.19	8.18	6.49	6.27	6.29	1.7	7.2	10.9		29	4						0	2	5	6	4	6	1	3	1
Site 2	10/27/2014	12.88	13.35	14.05	25.09	26.10	27.17	8.07	8.07	8.05	8.80	8.14	8.83	1.2	5.0	11.8		26	10						0	2	5	6	0	8	1	1	1
		DO readings suspect																																

	Friends of the Bay 2014 Water Quality Data - **Site 3, Cold Spring Harbor South**																																	
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 3	4/7/2014	6.42	6.36	5.47	27.65	27.72	28.21	8.18	8.19	8.17	9.42	9.50	9.61	2.2	4.4	7.5		<1	<1							2	5	6	3	4	1	2	1
Site 3	4/14/2014	8.97	8.93	6.40	27.32	27.39	20.06	8.07	8.06	7.99	8.69	8.66	8.49	1.7		15.5		3	<1							4	3		0	6	2	1	2
Site 3	4/21/2014	8.82	8.24	7.14	27.38	27.83	28.18	8.20	8.20	8.23	9.18	9.37	10.12	2.1	4.4	7.9										2	1	3	0	1	1	1	1
Site 3	4/28/2014	10.61	10.62	10.31	26.79	26.86	27.47	8.02	8.01	7.96	7.88	7.81	7.81	2.4	4.7	9.3		1	<1							4	3		0	1	1	1	2
Ste 3	5/5/2014																																	
Site 3	5/12/2014	14.99	14.92	11.43	26.03	26.16	26.97	8.24	8.24	8.08	9.44	9.25	8.03	1.7	5.8	17.2		2	<1	0.180	<.1 / <.1	0.140	<.1	0.140		4	3		1	6	1	1	0
Site 3	5/19/2014	**NO SAMPLES TAKEN **																																
Site 3	5/27/2014	17.39	17.01	15.79	26.13	26.61	26.96	7.86	7.86	7.76	6.46	6.22	5.28	1.5	5.0	22.3		3	5							4	5	6	4		0	3	0
Site 3	6/2/2014	16.38	16.04	15.61	26.51	26.84	27.11	7.94	7.09	7.84	7.78	6.36	6.12	1.3	4.1			>60	18	<0.10	<0.10	0.340	0.340	0.340		2	3	6	0	8	1	1	0
Site 3	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																
Site 3	6/16/2014	19.86	19.45	18.71	25.88	26.36	26.75	8.14	8.07	7.87	8.61	7.26	6.17	0.8	3.8	28.4		46	5							4	5	6	2	2	1	1	1
Site 3	6/23/2014	20.40	20.13	18.09	26.26	26.53	27.08	7.86	7.77	7.48	6.29	5.60	4.22	1.4	6.2	19.9		7	1							4	3	1	0	8	1	1	0
Site 3	6/30/2014	20.20	20.09	19.55	26.67	26.74	27.21	7.69	7.62	7.46	4.82	4.76	4.02	1.6	4.0	26.5		48	3							4	3	6	1	0	0	1	1
Site 3	7/7/2014	22.37	21.99	21.14	23.94	24.00	24.32	8.04	7.96	7.64	37.53	37.07	29.61	0.9		27.6		16	<1	<0.10	<0.10	0.410	0.350	0.410		2	3	6	0	5	1	1	1
Site 3	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																
Site 3	7/21/2014	22.30	21.96	20.40	26.90	27.17	28.03	7.64	7.61	7.46	4.38	4.45	2.68	1.4	5.2	24.7		11	1							2	3	6	0	1	0	1	0
Site 3	7/28/2014	22.89	22.81	22.15	27.78	27.85	28.10	7.84	7.78	7.60	5.02	4.96	2.67	1.1	5.4	27.8		41	1							4	5	6	5	2	1	1	3
Site 3	8/4/2014	22.80	22.69	21.02	27.63	27.63	28.70	7.98	7.89	7.40	6.38	4.91	0.94	0.8	4.5	26.1		64	2	<0.10	<0.10	0.250	0.250	0.250		2	5	6	2	8	1	1	1
Site 3	8/11/2014	24.11	24.10	23.69	26.47	27.90	28.31	7.51	7.53	7.40	3.15	3.65	2.80	1.0	4.4	23.8		38	11						0	4	3	6	0	0	0	1	0
Site 3	8/18/2014	23.24	23.04	22.43	27.15	27.21	28.11	8.15	8.11	7.54	7.28	7.03	2.57	0.8	4.7	22.6		6	1						0	2	1	6	0	7	1	1	1
Site 3	8/25/2014	22.80	22.82	22.47	27.98	28.06	28.69	7.48	7.44	7.31	3.02	2.90	2.05	x	4.8	24.8		16	2						0	3	3	6	0	0	0	1	0
Site 3	9/2/2014	23.97	23.93	23.47	28.04	28.11	28.66	7.82	7.87	7.66	4.11	4.62	2.48	1.2	4.7	27.3		24	1	0.120	<0.10	<0.10	<0.10	<0.10	0	2	5	6	3	8	1	2	1
Site 3	9/8/2014	24.34	24.31	24.83	27.98	27.98	28.43	7.91	7.91	7.95	5.24	5.32	5.26	1.5	5.2	19.6		13	2						0	4	5	6	3	2	1	3	1
Site 3	9/15/2014	21.63	21.55	21.79	27.94	28.01	28.59	8.20	8.19	8.17	6.68	6.69	6.55	1.9	4.3	16.1		4	2						0	2	5	6	1	2	1	1	2
Site 3	9/22/2014	21.27	21.25	21.19	28.28	28.28	28.70	8.13	8.12	7.88	6.73	6.60	4.90	1.5	5.3	19.6		3	1						1	4	5	3	0	1	2	1	2
Site 3	9/29/2014	20.18	20.21	20.32	28.38	28.30	28.81	7.86	7.85	7.72	4.91	5.08	4.40	1.0	4.2	18.1		18	23						0	2	5	6	4	0	0	3	0
Site 3	10/6/2014	18.09	18.09	18.76	28.14	28.21	28.67	8.06	8.05	7.96	6.76	6.67	5.96	2.0	6.0	12.5		18	7	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	5	1	1	1
Site 3	10/13/2014	**NO SAMPLES TAKEN **																																
Site 3	10/20/2014	16.01	16.09	16.73	28.04	28.04	28.71	8.28	8.33	8.19	7.01	6.77	6.51	1.8	6.3	11.6		5	<1						0	2	5	6	4	0	0	3	0
Site 3	10/27/2014	13.85	13.86	14.50	27.23	27.23	28.24	8.15	8.15	8.15	8.64	7.90	8.64	1.6	3.9	11.8		2	3						0	2	5	6	0	2	2	1	2
		DO readings suspect																																

	Friends of the Bay 2014 Water Quality Data - **Site 4, Cold Spring Harbor North**																																		
	Date	**H20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 4	4/7/2014	5.66	5.90	5.19	27.95	28.10	28.26	8.18	8.19	8.16	9.32	9.28	7.99	2.2	5.4	7.4		<1	<1						2	5	6	3	4	1	2	1
Site 4	4/14/2014	9.09	9.10	8.49	27.47	27.46	27.57	8.09	8.09	8.06	8.75	8.66	7.56	2.0		14.0		<1	<1						4	3		0	6	3	1	2
Site 4	4/21/2014	9.23	9.18	6.92	27.33	27.33	28.24	8.24	8.23	8.14	8.97	8.83	8.25	2.8	4.8	8.2									2	1	6	0	1	1	1	1
Site 4	4/28/2014	9.84	9.83	9.15	27.58	27.58	27.82	8.02	8.00	7.95	7.84	7.81	7.67	3.0	5.5	10.1		<1	1						4	3		0	8	1	1	2
Site 4	5/5/2014	11.21	11.20	11.18	26.96	26.89	26.89	8.04	8.04	8.04	7.67	7.67	7.68	1.7	5.2	12.1									3	5		0	8	2	1	4
Site 4	5/12/2014	14.61	14.35	11.93	26.57	26.56	27.07	8.33	8.33	8.20	9.79	9.68	8.00	1.8	6.9	15.7		<1	<1	<.1	<.1 / <.1	0.100	0.100	0.100	4	3	6	1	8	1	1	0
Site 4	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 4	5/27/2014	**17.42**	17.24	15.50	26.69	20.06	18.59	8.05	8.08	7.93	7.70	8.01	6.80	2.3	6.1	23.4		<1	<1						4	5	6	4		0	3	1
Site 4	6/2/2014	17.12	17.08	15.30	26.54	26.61	27.23	8.17	8.11	7.82	8.28	7.09	6.23	1.6	5.0	20.7		>60	<1	<0.10	<0.10	0.400	0.400	0.400	2	3	3	0		0	1	0
Site 4	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																	
Site 4	6/16/2014	20.15	19.70	18.43	25.76	26.16	26.80	8.25	8.16	7.83	9.13	8.05	5.80	1.0	4.7	22.1		6	<1						4	5	6	2	8	1	1	1
Site 4	6/23/2014	20.82	20.59	17.44	26.63	26.69	27.26	7.96	7.91	7.74	6.43	6.20	5.10	1.7	7.0	20.6		3	<1						4	3	1	0	0	0	1	0
Site 4	6/30/2014	20.88	20.82	17.56	26.84	26.84	27.61	7.86	7.81	7.46	5.80	5.57	3.66	1.8	5.0	23.4		<1	<1						4	3	5	1	7	1	1	1
Site 4	7/7/2014	22.59	22.56	20.26	24.16	24.09	24.63	8.04	8.02	7.78	37.21	37.31	39.08	1.3		27.2		<1	<1	<0.10	<0.10	0.370	0.310	0.370	2	3	6	0	5	1	1	1
Site 4	7/7/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																	
Site 4	7/21/2014	22.18	21.76	19.70	27.68	27.80	27.78	7.89	7.84	7.60	5.87	5.60	2.12	1.8	6.7	25.2		2	<1						2	3	6	0	1	0	1	0
Site 4	7/28/2014	23.43	23.37	22.80	27.87	27.87	27.99	7.91	7.88	7.79	5.75	5.67	4.70	1.2	6.0	23.0		2	<1						4	5	3	5	3	1	3	4
Site 4	8/4/2014	23.42	23.15	20.45	27.80	27.93	28.96	8.11	8.12	7.55	7.17	6.64	2.13	1.4	5.2	28.0		9	<1	<0.10	<0.10	<0.10	<0.10	<0.10	2	5	6	2	0	0	1	0
Site 4	8/11/2014	24.99	24.70	23.40	27.79	27.92	28.51	7.98	7.89	7.71	6.36	5.85	4.60	1.5	5.4	24.3		2	<1						0	4	3	6	0	0	1	0
Site 4	8/18/2014	22.99	22.79	22.45	28.80	28.13	28.33	8.18	8.12	7.89	7.66	6.96	5.45	1.2	5.4	21.8		<1	1						0	2	5	6	0	7	1	1	1
Site 4	8/25/2014	23.10	23.07	22.48	28.29	28.28	28.83	7.92	7.87	7.60	6.14	5.88	4.34	1.6	5.6	23.2		<1	<1						0	3	3	6	0	0	1	0
Site 4	9/2/2014	24.33	24.28	23.57	28.12	28.19	28.74	8.12	8.09	7.86	6.26	6.06	4.03	1.4	5.2	28.9		9	<1	<0.10	<0.10	<0.10	<0.10	<0.10	0	2	5	6	3	6	1	2	1
Site 4	9/8/2014	24.36	24.36	24.38	28.63	28.63	28.55	7.86	7.83	7.79	5.10	4.98	4.99	1.7	5.6	18.9		5	1						0	4	5	6	3	2	1	3	1
Site 4	9/15/2014	21.51	21.51	21.75	28.50	28.50	28.98	8.25	8.22	7.97	7.11	6.94	5.65	2.0	5.1	15.8		<1	1						0	2	5	6	1	2	2	1	3
Site 4	9/22/2014	21.24	21.24	21.24	28.85	28.92	28.85	7.98	7.98	7.95	5.64	5.72	5.57	1.4	6.1	20.3		<1	<1						1	4	5	3	0	1	2	1	4
Site 4	9/29/2014	20.25	20.30	20.66	28.38	28.45	29.04	8.06	8.06	7.91	6.44	6.47	5.80	1.1	5.0	18.6		7	21						0	2	5	6	4	0	0	3	0
Site 4	10/6/2014	18.60	18.58	18.58	28.80	28.94	28.87	8.01	8.00	7.96	6.16	6.31	6.41	2.4	6.9	12.9		2	<1	<0.10	<0.10		<0.10	<0.10	0	4	5	6	0	5	2	1	1
Site 4	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 4	10/20/2014	17.23	17.24	17.18	28.81	28.81	28.81	8.21	8.19	8.16	6.57	6.50	6.48	1.9	6.9	11.4		2	<1						0	2	5	6	4	6	1	3	1
Site 4	10/27/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																	
		DO readings suspect																																	

	Friends of the Bay 2014 Water Quality Data - **Site 5, Plum Point**																																
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 5	4/7/2014	5.66	5.65	5.12	27.95	27.95	28.18	8.17	8.17	8.17	9.44	9.45	9.4	2.5	10.5	9.3		<1	<1							2	5	6	3		0	2	0
Site 5	4/14/2014	8	7.91	7.25	28.24	27.47	27.56	8.12	8.13	8.10	9.15	9.14	8.95	1.60	10.5	14.5		2	<1							4	3		0	6	3	1	2
Site 5	4/21/2014	8.83	8.84	8.19	27.73	27.73	27.83	8.17	8.16	8.16	8.54	8.51	8.44	2.1	10.5	8.1										2	3	6	0	2	1	1	1
Site 5	4/28/2014	9.56	9.56	9.31	27.70	27.70	27.76	8.02	8.02	8.01	7.80	7.78	7.81	1.6	10.0	10.2		<1	<1							4	3		0	8	2	1	2
Site 5	5/4/2014	11.12	11.07	11.03	26.75	26.74	26.74	7.99	8.00	8.00	7.39	7.37	7.33	2.0	10.0	12.7										3	5		0	8	1	1	2
Site 5	5/12/2014	14.37	13.98	12.91	26.56	26.54	26.77	8.33	8.37	8.29	10.02	10.23	9.26	1.9	10.5	13.9		<1	<1	<.1		<.1	<.1			4	5		1	2	1	1	1
Site 5	5/19/2014	**NO SAMPLES TAKEN **																															
Site 5	5/27/2014	**16.64**	16.60	16.56	26.66	26.66	26.87	8.18	8.13	7.99	7.89	7.66	6.99	1.8	10.5	20.5		<1	<1							4	5	6	4	8	1	3	1
Site 5	6/2/2014	16.72	16.73	16.22	27.02	27.01	27.13	7.98	7.97	7.93	6.97	6.96	6.83	1.7	10.0	19.8				<0.10	<0.10	0.350	0.350	0.350		2	3	3	0	8	1	1	1
Site 5	6/9/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																														
Site 5	6/16/2014	19.61	19.54	18.62	26.65	26.64	26.75	7.93	7.92	7.82	6.60	6.44	5.85	1.0		22.7		2	<1							4	5	5	2	0	0	1	1
Site 5	6/23/2014	20.26	20.20	18.90	26.81	26.75	27.02	7.80	7.80	7.79	5.45	5.46	5.46	1.7	10.0	20.5		10	2							1	3	1	0	2	1	1	1
Site 5	6/30/2014	20.89	20.77	19.57	27.12	27.12	27.28	7.84	7.84	7.74	5.55	5.50	5.30	1.6		29.0		2	4							4	3	6	1	8	1	1	1
Site 5	7/7/2014	21.92	21.88	19.81	24.35	24.27	24.62	7.89	7.86	7.74	37.71	37.71	39.13	1.8	10.0	27.7		2	1	<0.10	<0.10	0.350	0.270	0.350		2	3	6	0	5	1	1	1
Site 5	7/14/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																														
Site 5	7/21/2014	20.67	20.61	20.07	28.07	28.04	28.08	7.70	7.68	7.63	4.26	4.06	4.52	1.7	10.0	27.7		<1	<1							2	3	6	0	1	0	1	0
Site 5	7/28/2014	23.23	23.22	23.21	28.01	28.01	27.93	7.83	7.85	7.80	5.07	5.11	4.94	1.4	10.0	23.6		1	<1							4	5	3	4	5	2	3	3
Site 5	8/4/2014	22.81	22.64	21.11	28.13	28.19	28.70	7.92	7.90	7.67	5.58	5.43	3.38	1.0	10.0			2	12	<0.10	<0.10	0.200	0.200	0.200		2	5	6	2	0	0	1	0
Site 5	8/11/2014	24.35	24.20	23.91	28.27	28.26	28.32	7.90	7.84	7.75	5.27	5.07	4.83	1.5	10.6	24.9		<1	<1						0	4	3	6	0	0	0	1	0
Site 5	8/18/2014	22.64	22.60	22.58	28.27	28.34	28.34	7.98	7.95	7.95	6.09	5.93	5.73	1.5	10.0	24.0		4	<1						0	2	5	6	0	7	1	1	1
Site 5	8/25/2014	23.06	**23.04**	22.78	28.50	28.57	28.63	7.89	7.83	7.70	6.01	5.72	5.14	1.5	10.0	23.6		<1	<1						0	4	3	6	0	2	1	1	0
Site 5	9/2/2014	24.41	24.42	24.29	28.48	28.49	28.48	8.05	8.05	8.01	6.01	6.04	5.78	1.3	10.0	29.9		5	1	<0.10	<0.10	<0.10	<0.10	<0.10	0	2	5	3	1	8	1	2	0
Site 5	9/8/2014	24.47	24.48	24.50	28.63	28.56	28.56	7.98	7.98	7.96	5.30	5.27	5.27	1.6	10.0	19.7		2	1						0	4	5	3	2	3	2	2	3
Site 5	9/15/2014	21.69	21.69	21.68	28.73	28.80	28.73	8.05	8.05	7.99	6.39	6.37	6.18	1.9	10.0	17.3		<1	<1						0	2	5	3	1	2	2	1	3
Site 5	9/22/2014	21.20	21.20	21.22	28.85	28.85	28.99	7.99	7.99	7.98	5.67	5.62	5.50	2.0	10.0	20.5		<1	1						1	4	5	6	1	8	1	1	4
Site 5	9/29/2014	20.47	20.45	20.50	28.74	28.67	28.74	8.00	8.00	8.00	6.40	6.47	6.43	1.7	12.5	18.7		6	36						0	3	5	6	4	0	1	3	1
Site 5	10/6/2014	18.79	18.81	18.73	29.02	29.02	28.95	7.93	7.90	7.86	5.98	6.04	5.87	2.3	10.0	13.2		<1	1	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	5	2	1	1
Site 5	10/13/2014	**NO SAMPLES TAKEN **																															
Site 5	10/20/2014	16.99	16.98	16.40	28.72	28.72	28.72	8.18	8.18	8.16	6.48	6.48	6.58	2.6	10.0	10.2		3	<1						0	2	5	6	4	6	1	3	1
Site 5	10/27/2014	14.56	14.59	14.84	28.53	28.53	28.90	8.70	8.17	8.16	9.85	11.03	9.86	2.0	10.0	14.3		1	<1						0	2	5	6	0	1	2	1	1
		DO readings suspect																															

	Friends of the Bay 2014 Water Quality Data - **Site 6, Seawanhaka Yacht Club PSTP outfall**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 6	4/7/2014	5.91	5.49	5.23	27.9	27.95	28.06	8.16	8.17	8.16	9.32	9.34	9.32	2.1	5.2	7.8		<1	<1							2	5	6	3	6	1	2	1
Site 6	4/14/2014	9.44	9.12	9.00	27.49	27.49	27.53	8.10	8.09	8.08	8.53	8.54	8.38	2.1		14.0		<1	<1							4	3		0	6	3	1	2
Site 6	4/21/2014	8.73	8.58	8.43	27.79	27.78	27.84	8.16	8.16	8.17	8.50	8.87	8.15	2.5	4.70	9.1										2	3	6	0	2	1	1	0
Site 6	4/28/2014	9.85	9.78	9.56	27.65	27.64	27.7	8.03	8.02	8.02	7.59	7.76	7.64	1.6	6.1	9.6		2	<1							4	3		0	8	0	1	1
Site 6	5/5/2014	11.23	11.17	11.06	26.68	26.68	26.81	7.97	7.98	7.99	6.95	7.01	7.1	2.0	4	11.9										2	5		0	1	1	1	1
Site 6	5/12/2014	12.93	12.94	12.83	26.84	26.83	26.83	8.25	8.26	8.25	9.20	9.09	8.66	1.4	6.10	16.6		<1	<1	<.1	<.1 / <.1	<.1	<.1	<.1		4	5		2	6	1	1	0
Site 6	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 6	5/27/2014	17.02	16.72	16.48	26.82	26.87	26.86	7.98	8.01	8.01	6.98	7.03	6.92	1.6	6.30	22.6		<1	<1							4	5	6	4	8	1	3	1
Site 6	6/2/2014	16.07	6.71	16.57	27.01	27.01	27.01	7.98	7.97	7.94	7.08	7.02	6.97	1.6	4.50	20.3		>60	1	<0.10	<0.10	0.40	0.40	0.40		2	3	6	0	8	1	1	0
Site 6	6/9/2014	** NO SAMPLES TAKEN**	** WEATHER CONDITION**																																
Site 6	6/16/2014	19.50	19.36	19.17	26.67	26.64	26.63	7.89	7.87	7.77	6.63	6.55	6.16	1.2	4.2	25.3		<1	<1							4	5	5	2	0	0	1	1
Site 6	6/23/2014	20.66	20.50	18.72	26.69	26.68	27.03	7.90	7.91	7.79	6.03	6.03	5.35	1.7	7.7	22.3		4	1							1	3	1	0	2	1	1	0
Site 6	6/30/2014	21.30	21.28	19.94	27.07	27.07	27.23	7.89	7.86	7.75	5.86	5.69	5.18	1.2	6.9	27.0		2	3							1	3	6	1	7	1	1	1
Site 6	7/7/2014	21.88	21.92	21.53	24.27	24.35	24.34	7.89	7.89	7.80	37.70	37.68	28.14	1.6	6.6	28.9		1	18	<0.10	<0.10	0.31	0.21	0.31		2	3	6	0	5	2	1	1
Site 6	7/14/2014	** NO SAMPLES TAKEN**	** WEATHER CONDITION**																																
Site 6	7/21/2014	21.65	21.39	20.50	27.87	27.86	28.03	7.86	7.78	7.63	5.39	5.19	4.27	1.3	8.6	22.3		1	<1							2	3	6	0	0	0	1	0
Site 6	7/28/2014	23.43	23.43	23.27	27.94	27.94	27.93	7.77	7.75	7.71	4.83	4.79	4.59	1.8	5.6	23.5		1	<1							4	5	3	4	6	2	3	2
Site 6	8/4/2014	23.29	23.24	22.71	28.08	28.08	28.20	7.96	7.97	7.89	6.13	6.20	5.55	1.6	7.1	25.3		1	1	<0.10	<0.10	0.14	0.14	0.14		2	5	6	1	0	0	1	0
Site 6	8/11/2014	24.12	24.11	24.07	28.83	28.33	28.33	7.83	7.83	7.81	5.20	4.95	4.87	1.3	6.9	27.8		<1	<1						0	4	3	6	0	0	0	1	0
Site 6	8/18/2014	22.71	22.65	22.61	28.27	28.27	28.27	8.02	7.98	7.94	6.49	6.28	6.02	1.1	8.5	21.6		<1	<1						0	2	5	6	0	7	1	1	1
Site 6	8/25/2014	22.97	**22.95**	22.76	28.50	28.57	28.70	7.86	7.82	7.72	5.56	5.24	4.65	1.6	8.5	28.8		1	<1						0	4	3	6	0	2	1	1	0
Site 6	9/2/2014	24.56	24.51	24.22	28.49	28.56	28.55	8.02	8.01	7.92	5.91	5.77	5.20	1.4	7.1	29.3		4	<1	<0.10	<0.10	0.14	0.14	0.14	0	2	5	3	2	0	0	1	0
Site 6	9/8/2014	24.47	24.49	24.48	28.56	28.56	28.49	7.97	7.96	7.94	5.30	5.18	5.06	1.7	7.8	20.3		3	<1						0	4	5	6	1	3	1	3	3
Site 6	9/15/2014	21.73	21.70	21.54	28.80	28.80	28.86	8.05	8.02	7.90	6.38	6.25	5.62	1.8	5.5	16.4		1	<1						0	2	5	6	1	2	1	1	3
Site 6	9/22/2014	21.15	21.14	21.19	28.70	28.77	28.78	7.49	7.97	7.96	5.53	5.48	5.22	2.0	7.9	19.2		1	<1						1	4	5	6	1	8	2	1	3
Site 6	9/29/2014	20.51	20.50	20.52	28.82	28.75	28.89	8.05	8.00	7.95	6.39	6.39	6.04	1.7	5.6	18.9		1	20						0	3	5	6	4	0	0	3	0
Site 6	10/6/2014	18.57	18.57	18.57	28.80	28.80	28.80	8.06	8.04	8.04	5.82	5.99	5.90	2.5	6.2	14.3		6	2	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	5	2	1	1
Site 6	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 6	10/20/2014	17.04	17.04	17.07	28.65	28.65	28.73	8.18	8.16	8.14	6.49	6.50	6.44	2.6	7.7	12.4		7	<1						0	2	5	6	4	6	1	3	1
Site 6	10/27/2014	14.44	14.43	14.87	28.45	28.45	28.83	8.18	8.18	8.18	10.09	8.86	9.29	2.4	6.5	13.2		4	2						0	4	5	6	0	1	1	1	1
		DO readings suspect																																	

	Friends of the Bay 2014 Water Quality Data - **Site 7, Oyster Bay Cove**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 7	4/7/2014	6.10	6.04	5.91	28.04	28.04	28.03	8.16	8.16	8.16	9.37	9.36	9.33	2.2	2.5	7.7		<1	<1							2	5	6	3	6	1	2	1
Site 7	4/14/2014	10.15	9.97	9.94	27.46	27.46	27.44	8.08	8.07	8.04	8.24	8.11	7.81	2.0		14.0		4	1							4	3		0	6	3	1	2
Site 7	4/21/2014	9.05	9.05		27.33	27.53		8.08	8.12		7.86	7.82		1.8	1.6	5.4										2	1	6	0	1	1	1	0
Site 7	4/28/2014	10.87	10.62	10.69	27.14	27.20	27.28	7.96	7.97	7.98	7.43	7.52	7.60	1.6	2.3	12.1		<1	5							4	3		0	8	1	1	1
Site 7	5/5/2014																					*weather											
Site 7	5/12/2014	14.41	13.63	13.53	26.61	26.73	26.86	8.15	8.15	8.18	8.44	8.36	8.43	1.6	3.1	18.8		5	2	<.1	<.1/ <.1	0.26	0.26	0.26		4	3		2		0	1	0
Site 7	5/19/2014	**NO SAMPLES TAKEN **																															
Site 7	5/27/2014	**17.69**	17.45	17.11	**26.77**	26.77	26.82	7.92	7.93	7.90	6.76	6.71	6.42	1.4	3.2	23.5		<1	6							4	5	6	4	7	1	3	1
Site 7	6/2/2014	17.52	17.24	x	26.71	26.90	x	7.84	7.75	x	6.45	6.23	x	1.5	1.8	22.0		>60	3	<0.10	<0.10	0.36	0.36	0.36		2	3	6	0	8	1	1	0
Site 7	6/9/2014	**NO SAMPLES TAKEN **	**	** WEATHER CONDITION**																													
Site 7	6/16/2014	19.65	x	x	26.51	x	x	7.66	x	x	5.75	x	x	0.8	1.2	25.8		24	4							3	5	6	2	2	1	1	1
Site 7	6/23/2014	20.87	20.15	20.18	26.49	26.48	26.69	7.81	7.79	7.73	5.71	5.65	5.30	1.4	2.9	22.3		21	3							4	3	1	0	8	1	1	0
Site 7	6/30/2014	21.73	21.48	x	26.74	26.80	x	7.70	7.62	x	4.97	4.96	x	1.3	1.6	26.0		15	8							1	3	6	0	7	1	1	1
Site 7	7/7/2014	22.29	21.61	21.56	24.29	24.21	24.26	7.75	7.65	7.56	37.48	37.51	28.66	1.5	2.1	28.8		10	<1	<0.10	0.130	0.28	0.20	0.42		2	3	6	0	5	1	1	1
Site 7	7/14/2014	**NO SAMPLES TAKEN **	**	** WEATHER CONDITION**																													
Site 7	7/21/2014	22.09	22.03	22.00	27.53	27.60	27.60	7.84	7.82	7.73	5.77	5.75	5.53	1.3	2.7	26.3		3	<1							2	5	6	0	0	0	1	0
Site 7	7/28/2014	23.59	23.31	x	27.66	27.94	x	7.65	7.53	x	4.55	4.14	x	1.4	1.9	23.1		90	4							4	5	6	4	5	1	3	1
Site 7	8/4/2014	23.52	22.83	22.70	27.80	28.07	28.20	7.80	7.72	7.70	5.89	4.57	4.50	1.7	2.0	27.7		6	<1	<0.10	<0.10	0.20	0.20	0.20		2	5	6	2	7	0	1	0
Site 7	8/11/2014	24.39	24.35	24.16	28.12	28.27	28.33	7.76	7.78	7.60	4.75	4.54	3.86	1.7	2.2	25.8		23	14						0	4	3	6	0	0	0	1	0
Site 7	8/18/2014	23.10	23.13	22.99	27.86	28.00	28.07	7.98	7.95	7.88	6.68	6.29	5.91	1.3	2.2	22.0		10	<1						0	2	5	6	0		0	1	0
Site 7	8/25/2014	23.03	23.10	23.00	28.21	28.36	28.35	7.89	7.89	7.81	5.70	5.89	5.55	1.5	2.4	22.3		12	2						0	4	3	6	0	2	1	1	0
Site 7	9/2/2014	24.42	24.50	24.39	28.34	28.42	28.41	8.03	7.96	7.88	6.44	6.03	5.54	1.3	2.2	30.8		160	9	0.270	<0.10	0.30	<0.10	0.30	0	2	5	6	2	0	0	1	0
Site 7	9/8/2014	24.54	24.59	24.52	28.35	28.42	28.34	7.93	7.93	7.90	5.42	5.35	5.15	1.2	3.1	20.2		35	9						0	4	5	6	1	3	1	1	3
Site 7	9/15/2014	20.85	20.85	x	28.26	28.26	x	7.91	7.92	x	5.87	5.99	x	1.7	1.7	17.3		43	<1						0	2	5	6	1	2	1	1	2
Site 7	9/22/2014	20.91	20.92	20.92	28.48	28.48	28.48	7.98	7.96	7.97	5.43	5.48	5.42	1.6	2.6	19.5		29	8						1	4	5	3	2	8	2	1	4
Site 7	9/29/2014	20.32	x	x	28.59	x	x	7.99	x	x	6.15	x	x	1.5	1.5	18.3		260	54						0	3	5	6	4	0	1	3	0
Site 7	10/6/2014	16.99	16.99	17.15	28.23	28.23	28.30	8.15	8.15	8.16	6.79	6.69	6.55	2.2	3.3	15.1		43	22	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	5	1	1	0
Site 7	10/13/2014	**NO SAMPLES TAKEN **																															
Site 7	10/20/2014	16.02	15.89	15.25	28.32	28.24	28.29	8.17	8.17	8.15	6.56	6.76	6.73	2.0	3.3	11.8		23	3						0	2	5	6	4	6	1	2	1
Site 7	10/27/2014	13.34	x	x	27.83	x	x	8.13	x	x	7.30	x	x	0.8	1.3	12.4		39	23						0	4	5	6	0	1	2	1	1
		DO readings suspect																															

	Friends of the Bay 2014 Water Quality Data - **Site 8, Oyster Bay STP at White's Creek**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 8	4/7/2014	5.65	5.61	5.58	27.95	28.01	28.08	8.14	8.14	8.15	9.37	9.35	9.35	2.0	2.0	7.7		<1	<1							2	5	6	3	4	1	2	0
Site 8	4/14/2014	9.39	9.37	9.29	27.28	27.14	27.41	8.12	8.12	8.12	8.42	8.33	8.16	1.8		14.0		<1	<1							4	3		0	6	3	1	2
Site 8	4/21/2014	9.02	8.71		27.52	27.58		8.12	8.11		7.94	7.94		1.5	1.4	8.3										2	1	6	0	2	1	1	0
Site 8	4/28/2014	10.75	10.68	10.65	27.29	27.28	27.35	8.02	8.02	8.01	7.69	7.75	7.76	1.6	1.7	10.2		<1	<1							4	3		0	8	1	1	1
Site 8	5/5/2014																					*weather											
Site 8	5/12/2014	13.77	13.60	13.50	26.66	26.66	26.72	8.14	8.13	8.12	8.37	8.34	8.19	1.5	3.1	18.6		<1	2	<.1	.11 / <.1	<.1	<.1	0.110		4	1		1		0	1	0
Site 8	5/19/2014	**NO SAMPLES TAKEN **																															
Site 8	5/27/2014	**17.47**	17.16	17.15	26.77	26.83	26.82	7.95	7.94	7.94	6.87	6.72	6.62	1.5	3.1	24.1		1	3							4	5	6	4		0	3	0
Site 8	6/2/2014	16.96	16.96	x	26.88	26.89	x	7.87	7.83	x	6.74	6.70	x	1.5	1.7	20.8		>60	5	<0.10	<0.10	0.330	0.330	0.330		2	3	6	0	6	1	0	1
Site 8	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																															
Site 8	6/16/2014	19.23	x	x	26.49	x	x	7.74	x	x	6.30	x	x	0.8	0.7	25.2		210	43							3	5	6	2	7	1	1	1
Site 8	6/23/2014	21.62	21.31	20.56	26.52	26.57	26.76	7.84	7.82	7.70	5.89	5.78	5.25	1.8	3.5	22.9		11	<1							1	3	1	0	8	1	1	0
Site 8	6/30/2014	21.31	21.16	x	27.01	27.00	x	7.84	7.78	x	5.76	5.72	x	1.4	1.6	26.0		7	12							2	3	6	1	7	1	1	1
Site 8	7/7/2014	21.30	21.24	21.13	24.26	24.32	24.39	7.64	7.63	7.61	35.96	22.12	38.23	1.3	2.6	28.9		22	<1	0.110	<0.10	0.370	0.250	0.370		2	3	6	0	5	1	1	1
Site 8	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																															
Site 8	7/21/2014	22.39	22.07	21.57	27.54	27.74	27.80	7.81	7.70	7.60	5.91	5.06	4.47	1.3	3.0	27.3		2	1							2	5	6	0	0	0	1	0
Site 8	7/28/2014	23.25	23.23	x	27.87	28.01	x	7.71	7.62	x	4.92	4.62	x	1.2	1.9	23.4		7	5							4	5	6	4	5	1	3	1
Site 8	8/4/2014	23.28	23.22	22.98	28.01	28.00	28.00	7.85	7.85	7.83	5.82	6.02	5.63	1.3	1.9	26.1		6	6	<0.10	<0.10	0.210	0.210	0.210		2	5	6	2	0	1	1	1
Site 8	8/11/2014	24.39	24.35	24.32	28.27	28.27	28.26	7.81	7.79	7.72	4.95	4.98	5.05	1.6	2.4	24.6		15	4						0	4	3	6	0	0	0	1	0
Site 8	8/18/2014	22.94	22.86	22.85	28.07	28.13	28.20	7.89	7.86	7.79	6.16	5.88	5.77	1.2	2.5	26.3		2	<1						0	2	5	6	0	7	1	1	1
Site 8	8/25/2014	23.40	23.40	23.16	28.30	28.44	28.36	7.94	7.94	7.88	6.13	6.08	5.95	1.8	2.5	22.2		2	<1						0	4	5	6	0	2	1	1	1
Site 8	9/2/2014	24.33	24.27	24.27	28.41	28.48	28.41	7.86	7.81	7.75	5.54	4.98	5.09	1.5	2.0	31.6		17	2	<0.10	<0.10	<0.10	<0.10	<0.10	0	2	5	3	2	0	0	1	0
Site 8	9/8/2014	24.64	24.62	24.61	28.42	28.42	28.42	7.98	7.99	7.97	5.47	5.51	5.47	1.5	3.3	20.7		6	1						0	4	5	3	2	3	1	2	3
Site 8	9/15/2014	21.23	21.23	x	28.42	28.49	x	8.02	7.95	x	6.60	6.60	x	1.5	1.5	16.3		5	2						0	2	5	6	1	2	1	1	2
Site 8	9/22/2014	20.94	20.93	20.94	28.59	28.55	28.55	7.97	7.97	7.96	5.35	5.36	5.37	2.2	3.2	18.4		9	1						1	4	5	3	2	8	2	1	4
Site 8	9/29/2014	20.14	x	x	28.60	x	x	7.98	x	x	6.38	x	x	1.3	1.3	19.0		5	29						0	3	5	6	4	0	0	3	0
Site 8	10/6/2014	18.47	18.42	18.30	28.65	28.65	28.64	8.10	8.09	8.08	6.16	6.04	6.06	2.5	2.8	17.7		15	7	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	0	0	1	0
Site 8	10/13/2014	**NO SAMPLES TAKEN **																															
Site 8	10/20/2014	16.04	16.27	16.38	28.33	28.26	28.41	8.14	8.14	8.10	6.61	6.60	6.64	2.1	3.5	10.2		34	16						0	1	5	6	4	6	1	3	1
Site 8	10/27/2014	13.81	13.83	x	28.07	28.14	x	8.13	8.11	x	9.20	7.69	x	1.2	1.5	12.4		15	6							4	5	6	0	8	2	1	1
		DO readings suspect																															

	Friends of the Bay 2014 Water Quality Data - **Site 9, Roosevelt Beach**																																		
	Date	**H_20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 9	4/7/2014	5.71	5.7	5.7	27.95	27.95	27.95	8.15	8.15	8.15	9.27	9.25	9.24	1.9	2.5	5.4		<1	1							2	5	6	3		0	2	0
Site 9	4/14/2014	9.34	9.34	9.31	27.48	27.55	27.55	8.13	8.13	8.12	8.27	8.18	7.98	1.80		18.0		<1	<1							4	3		0	6	2	1	2
Site 9	4/21/2014	8.86	8.80		27.66	27.66		8.13	8.12		8.88	7.96		1.40	1.7	7.3										2	1	6	0	8	1	1	0
Site 9	4/28/2014	10.55	10.55	10.54	27.41	27.41	27.41	8.02	8.02	8.02	6.99	6.93	6.85	1.60	2.7	10.1		1	<1							4	3		0	8	2	1	2
Site 9	5/5/2014	11.39	11.41		26.48	26.48		7.95	7.15		7.16	7.15		1.30	1.6	12.1		7	<1							2	5		0	8	2	1	3
Site 9	5/12/2014	13.15	13.00	12.85	26.78	26.84	26.90	8.11	8.11	8.09	8.34	8.20	8.02	1.3	2.3	16.7		1	2	<.1	<.1 / <.1	0.21	0.21	0.21		4	3		2		0	1	0
Site 9	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 9	5/27/2014	17.14	17.03	16.94	26.82	26.82	26.88	7.95	7.96	7.96	6.78	6.81	6.73	1.6	3.0	25.3		1	2							4	5	6	4		0	3	0
Site 9	6/2/2014	17.38	x	x	26.91	x	x	7.84	x	x	6.47	x	x	1.3	1.2	21.8		>60	<1	<0.10	<0.10	0.51	0.51	0.51		3	3	6	0	6	2	1	0
Site 9	6/9/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																																
Site 9	6/16/2014	19.63	x	x	26.44	x	x	7.82	x	x	6.40	x	x	0.8	1.1	25.3		6	<1							3	5	5	2	0	0	1	0
Site 9	6/23/2014	21.49	20.98	20.13	26.51	26.57	26.81	7.77	7.73	7.66	5.47	5.24	5.05	1.5	3.2	23.4		6	<1							1	3	1	0	0	0	1	1
Site 9	6/30/2014	21.29	21.18	x	27.00	26.99	x	7.78	7.74	x	4.80	4.64	x	1.0	1.6	26.9		3	6							1	3	6	1	7	1	1	1
Site 9	7/7/2014	21.50	21.41	21.42	24.26	24.33	24.24	7.68	7.67	7.65	38.01	38.01	99.00	1.0	2.4	25.9		2	2	0.14	<0.10	0.33	0.18	0.33		2	3	6	0	6	1	1	1
Site 9	7/14/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																																
Site 9	7/21/2014	22.17	22.16	21.55	27.61	27.61	27.72	7.78	7.73	7.65	5.42	5.18	4.39	1.2	3.0	24.2		3	<1							2	5	6	0	0	0	1	0
Site 9	7/28/2014	23.27	23.26	x	27.94	27.94	x	7.71	7.70	x	4.42	4.44	x	1.5	1.8	23.6		21	2							4	5	6	4	6	1	3	1
Site 9	8/4/2014	23.45	23.03	22.87	27.80	27.94	28.06	7.87	7.83	7.77	5.62	5.51	5.06	1.4	2.3	27.1		3	13	0.11	<0.10	0.25	0.14	0.25		2	5	6	2	0	0	1	1
Site 9	8/11/2014	24.50	24.50	24.48	28.27	28.27	28.27	7.84	7.83	7.82	5.04	5.09	5.19	1.5	2.6	29.0		1	<1						0	4	5	6	0	0	0	1	0
Site 9	8/18/2014	22.75	22.75	22.75	27.99	28.06	27.98	7.86	7.85	7.80	5.72	5.63	5.70	1.3	2.5	25.0		1	1						0	2	5	6	0	7	1	1	2
Site 9	8/25/2014	23.25	23.10	23.09	28.43	28.50	28.50	7.84	7.80	7.79	5.39	5.11	5.02	1.6	2.7	30.9		5	2						0	4	5	6	0	8	1	1	1
Site 9	9/2/2014	24.27	24.25	24.23	28.41	28.41	28.33	7.86	7.85	7.85	4.87	4.94	5.00	1.1	2.0	31.2		8	2	<0.10	<0.10	<0.50	<0.10	0.42	0	2	5	6	1	0	0	1	0
Site 9	9/8/2014	24.73	24.74	24.74	28.43	28.50	28.43	7.98	7.96	7.96	5.35	5.45	5.45	1.5	2.6	21.5		5	<1						0	4	5	6	2	2	2	2	2
Site 9	9/15/2014	21.39	21.36	x	28.64	28.64	x	7.99	7.96	x	6.25	6.23	x	1.8	1.9	15.4		4	1						0	2	5	6	1	1	1	1	2
Site 9	9/22/2014	21.02	21.01	21.05	28.55	28.55	28.56	7.98	7.98	7.95	5.48	5.46	5.41	2.1	3.1	19.9		5	<1						1	4	5	3	1	8	1	1	3
Site 9	9/29/2014	20.37	x	x	28.60	x	x	7.92	x	x	6.58	x	x	1.0	1.0	19.8		10	<1						0	3	5	6	4	0	0	3	0
Site 9	10/6/2014	18.25	18.24	18.24	28.57	28.57	28.64	8.06	8.04	8.04	5.83	5.81	5.92	2.9	3.2	19.8		8	2	<0.10	<0.10	<0.10	<0.10	<0.10	0	4	5	6	0	5	2	1	1
Site 9	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 9	10/20/2014	16.52	16.49	16.53	28.42	28.42	28.34	8.12	8.12	8.07	6.44	6.50	6.65	2.5	3.1	9.6		100	5						0	1	5	6	3	6	1	1	1
Site 9	10/27/2014	14.20	14.23	x	28.30	28.37	x	8.16	8.14	x	8.11	7.42	x	1.5	1.7	12.7		10	5						0	4	5	6	0	8	2	1	2
		DO readings suspect																																	

	Friends of the Bay 2014 Water Quality Data - **Site 10, Beekman Beach**																																
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 10	4/7/2014	5.83	5.78	5.56	27.96	28.02	28.08	8.14	8.14	8.12	9.18	9.17	9.23	1.9	5.2	5.4		<1	<1							2	5	6	3		0	2	0
Site 10	4/14/2014	9.78	9.75	9.50	27.44	27.43	27.49	8.12	8.12	8.06	8.16	8.13	6.02	1.50		18.0		3	<1							4	3		0	6	2	1	2
Site 10	4/21/2014	9.03	8.98	8.87	27.53	27.60	27.66	8.10	8.11	8.05	7.95	7.92	7.93	2.00	4.60	6.9										2	1	6	0		0	1	0
Site 10	4/28/2014	10.99	10.93	10.88	26.60	27.22	27.36	8.03	8.06	8.07	6.71	6.69	6.60	1.6	5.40	10.3		<1	<1							4	3		0	8	1	1	3
Site 10	5/5/2014	11.50	11.48	11.28	26.42	26.49	6.35	7.97	7.98	7.97	6.44	6.40	6.35	1.80	5.30	11.8		<1	1							2	5		0	8	1	1	2
Site 10	5/12/2014	15.01	14.84	13.34	26.38	26.37	26.79	8.08	8.05	7.93	7.91	7.13	4.59	1.7	5.5	16.1		<1	1	<.1	<.1 < .1	0.29	0.29	0.29		4	3		1	6	1	1	0
Site 10	5/19/2014	**NO SAMPLES TAKEN **																															
Site 10	5/27/2014	18.12	17.55	17.11	26.58	26.71	26.82	8.00	7.97	7.90	7.28	6.99	6.53	1.4	5.20	24.7		4	<1							4	5	6	4	7	1	2	1
Site 10	6/2/2014	17.43	17.29	16.79	26.69	26.09	27.02	7.92	7.91	7.79	6.58	6.48	6.37	1.7	3.50	24.7		>60	2	<0.10	<0.10	0.36	0.36	0.36		3	3	6	0	6	2	1	0
Site 10	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																															
Site 10	6/16/2014	19.58	19.49	19.35	26.36	26.50	26.50	7.88	7.85	7.72	6.58	6.40	6.16	0.8	3.5	21.7		43	51							3	5	6	2	0	0	1	0
Site 10	6/23/2014	22.67	21.57	20.58	26.14	26.32	26.76	7.78	7.75	7.72	5.93	5.50	5.23	1.3	6.2	29.0		30	13							1	3	1	0	0	0	1	0
Site 10	6/30/2014	23.03	22.95	21.76	26.36	26.78	26.81	7.96	7.93	7.79	6.24	5.80	5.12	1.0	4.3	31.2		15	11							1	3	6	1	6	1	1	1
Site 10	7/7/2014	21.65	21.48	21.24	24.20	24.26	24.25	7.69	7.70	7.65	x	x	x	1.2	x	26.2		15	5	0.12	0.14	0.40	0.28	0.54		2	3	6	0	6	1	1	2
Site 10	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																															
Site 10	7/21/2014	22.25	22.25	21.73	27.61	27.61	27.80	7.76	7.75	7.76	5.67	5.17	4.74	1.2	6.0	25.7		2	1							2	5	6	0	0	0	1	0
Site 10	7/28/2014	23.64	23.71	23.40	27.67	27.81	27.87	7.75	7.71	7.54	5.10	4.62	3.81	1.4	4.3	23.2		58	23							4	5	6	4	6	1	3	1
Site 10	8/4/2014	23.28	23.10	22.27	27.93	27.93	28.32	7.81	7.74	7.61	5.59	4.68	3.53	1.4	5.0	27.0		70	est.80*	<0.10	0.70/<0.10	0.31	0.31	1.01		2	5	6	2	0	0	2	0
Site 10	8/11/2014	25.20	24.91	24.63	27.94	28.15	28.13	7.88	7.85	7.70	5.56	5.33	4.61	1.2	5.5	31.7		21	<1						0	4	5	6	0	0	0	1	0
Site 10	8/14/2014	22.76	22.71	22.78	27.99	27.70	28.13	7.86	7.84	7.78	5.79	5.61	5.45	1.2	5.0	22.7		8	3						0	2	5	6	0	8	1	1	1
Site 10	8/25/2014	23.76	23.69	23.43	28.03	28.10	28.30	8.04	8.00	7.75	6.79	6.58	4.63	1.1	5.4	29.4		210	20						0	4	5	6	0	8	1	1	0
Site 10	9/2/2014	24.45	24.35	24.19	28.27	28.34	28.55	7.94	7.87	7.80	5.86	5.27	4.73	1.6	5.0	28.1		19	19	<0.10	<0.10	<0.10	<0.10	<0.10	0	2	5	6	1	0	0	1	1
Site 10	9/8/2014	24.61	24.83	24.79	28.36	28.21	28.35	7.99	7.98	7.89	5.63	5.48	4.66	1.3	6.3	20.7		80	13						0	4	5	6	2	3	1	2	3
Site 10	9/15/2014	21.04	21.00	21.14	28.19	28.33	28.56	7.99	7.96	7.92	6.07	5.96	5.88	1.9	4.5	15.6		170	est.90*						0	2	5	6	1	1	1	1	2
Site 10	9/22/2014	20.98	21.00	21.22	28.27	28.34	28.56	7.98	7.96	7.88	5.38	5.33	4.40	2.8	6.0	19.4		120	4						1	4	5	6	1	8	2	1	2
Site 10	9/29/2014	20.26	20.32	20.34	28.38	28.45	28.45	8.03	8.00	7.87	6.54	6.63	6.22	1.8	4.0	19.9		720	20						0	3	5	6	4	0	0	3	0
Site 10	10/6/2014	18.30	18.24	18.17	28.43	28.43	28.50	8.05	8.04	8.04	5.81	5.87	5.79	3.1	5.2	19.1		15	4	<0.10	0.31/<0.10	<0.50	<0.10	0.31	0	1	5	6	0	5	2	1	1
Site 10	10/13/2014	**NO SAMPLES TAKEN **																															
Site 10	10/20/2014	16.54	16.62	16.39	28.35	28.35	28.41	8.12	8.10	8.06	6.31	6.39	6.33	2.5	5.5	8.5		5	8						0	4	5	6	3	6	1	1	1
Site 10	10/27/2014	13.35	14.36	14.52	28.24	28.24	28.46	8.15	8.16	8.09	7.29	7.44	7.98	2.9	4.4	14.0		2	1						0	4	5	6	0	8	1	1	1
		DO readings suspect																															

	Friends of the Bay 2014 Water Quality Data - **Site 11, West Harbor**																																
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 11	4/7/2014	6.69	6.89	5.94	27.73	27.89	27.97	8.14	8.13	8.14	9.07	8.95	8.90	1.1	3.3	5.6		1	<1							2	5	6	3		0	2	0
Site 11	4/14/2014	9.55	9.53	9.53	27.49	27.49	27.56	8.14	8.15	8.14	8.51	8.45	8.07	1.4		17.0		1	<1							4	3		0	6	3	1	3
Site 11	4/21/2014	9.77	9.62	9.64	27.36	27.36	27.36	8.13	8.14	8.13	8.19	8.14	8.08	1.9	2.2	6.5										2	1	6		0	0	1	0
Site 11	4/28/2014	10.82	10.81	10.74	27.42	27.42	27.49	8.01	8.01	8.01	7.40	7.37	7.34	1.4	4.1	10.2		1	<1							4	3		0	8	1	1	3
Site 11	5/5/2014	11.21	11.21	11.21	26.68	26.68	26.68	7.94	7.93	7.93	7.37	7.34	7.35	1.5	2.8	12.5		1	<1							2	5		0	8	2	1	3
Site 11	5/12/2014	15.15	14.80	13.68	26.32	26.44	26.73	8.06	8.04	8.01	8.16	8.09	8.00	1.5	3.2	16.3		1	<1	<.1	<.1 < .1	0.26	0.26	0.26		4	3		1	6	1	1	0
Site 11	5/19/2014	**NO SAMPLES TAKEN **																															
Site 11	5/27/2014	17.32	17.07	17.01	26.83	26.82	26.82	7.95	7.96	7.95	6.82	6.76	6.64	1.7	4.3	26.3		2	2							4	5	3	3	7	1	3	1
Site 11	6/2/2014	18.13	18.01	17.66	26.66	26.65	26.07	8.00	7.99	7.94	7.05	6.95	6.66	1.1	2.3	22.1				<0.10	<0.10	0.44	0.44	0.44		3	3	6	0	6	2	1	0
Site 11	6/9/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																														
Site 11	6/16/2014	19.75	19.60	x		26.16	26.30	x		7.78	7.74	x		6.44		6.41	x		0.7	1.8	20.5		24	7							3	5	6	2	0	0	1	1
Site 11	6/23/2014	22.72	22.26	20.56	26.49	26.54	26.76	7.91	7.88	7.77	6.40	6.13	5.43	1.4	4.0	23.1		1	<1							1	3	1	0	2	1	1	1
Site 11	6/30/2014	23.71	23.20	22.64	26.60	26.92	26.78	7.96	7.96	7.86	6.00	5.92	5.45	1.2	2.4	27.7		8	5							1	3	1	1	6	1	1	1
Site 11	7/7/2014	22.82	22.75	21.93	24.17	24.24	24.28	7.83	7.81	7.74	x		x		x		1.4	x		25.2		3	1	<0.10	<0.10	0.37	0.28	0.37		2	5	6	0	6	1	1	3
Site 11	7/14/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																														
Site 11	7/21/2014	22.73	22.80	21.95	27.63	27.63	27.74	7.88	7.85	7.60	6.45	6.44	4.25	1.2	4.2	27.6		<1	<1							2	5	6	0	0	0	1	0
Site 11	7/28/2014	24.26	24.25	24.26	27.76	27.69	27.69	7.78	7.76	7.71	5.33	5.35	5.30	1.1	2.5	22.4		<1	<1							4	5	6	4	8	2	3	2
Site 11	8/4/2014	23.55	23.50	22.89	27.80	27.80	27.92	7.88	7.84	7.74	5.96	5.69	4.55	1.4	3.2	25.7		1	<1	0.11	<0.10	0.42	0.31	0.42		2	5	6	1	7	1	1	1
Site 11	8/11/2014	24.83	24.75	24.72	20.14	28.14	28.14	7.78	7.77	7.72	4.64	4.58	4.73	1.2	4.0	29.7		<1	<1						0	4	5	6	0	0	0	1	0
Site 11	8/18/2014	22.88	22.87	22.83	27.99	27.99	27.99	7.90	7.88	7.83	6.10	6.01	5.85	1.0	3.5	20.1		<1	<1						0	2	5	6	0	8	1	1	2
Site 11	8/25/2014	23.96	**23.72**	23.61	28.18	28.07	28.24	7.98	7.92	7.87	6.15	5.75	7.49	1.3	3.7	29.1		<1	<1						0	4	3	6	0	0	0	1	0
Site 11	9/2/2014	25.11	25.06	24.72	28.15	28.15	28.35	7.93	7.92	7.91	5.59	5.46	5.34	0.9	2.9	26.4		4	<1	<0.10	<0.10	<0.50	<0.10	<0.10	0	2	5	6	1	5	1	1	0
Site 11	9/8/2014	24.78	24.77	24.78	28.43	28.50	28.43	7.96	7.96	7.94	5.37	5.39	5.27	1.7	4.5	21.1		3	1						0	4	5	6	2	3	2	2	3
Site 11	9/15/2014	20.88	20.86	20.80	28.40	28.40	28.40	8.01	8.01	7.98	6.26	6.27	6.15	1.3	3.1	16.8		5	2						0	2	5	3	1	1	1	1	2
Site 11	9/22/2014	20.96	20.96	20.95	28.41	28.41	28.41	7.98	7.97	7.95	5.50	5.42	5.41	2.3	3.9	20.8		2	2						1	4	5	3	1	1	1	1	3
Site 11	9/29/2014	20.35	20.36	x		28.10	28.17	x		8.09	8.10	x		6.83		6.95	x		1.4	1.7	20.3		11	4						0	4	5	6	4	0	0	3	0
Site 11	10/6/2014	18.51	18.50	18.49	28.65	28.65	28.65	8.10	8.10	8.07	6.05	5.97	5.98	2.1	5.3	18.3		4	1	<0.10	<0.10	1.13	1.13	1.13	0	1	5	6	1	5	2	1	2
Site 11	10/13/2014	**NO SAMPLES TAKEN **																															
Site 11	10/20/2014	16.70	16.70	16.75	28.42	28.43	28.43	8.09	8.09	8.07	6.49	6.45	6.21	2.5	4.5	8.1		1	<1						0	4	5	6	3	6	1	1	2
Site 11	10/27/2014	13.67	13.67	13.68	27.99	27.99	27.99	8.15	8.15	8.13	7.52	7.55	8.37	1.60	2.70	13.20		8	1						0	4	5	6	0	8	1	1	1
		DO readings suspect																															

	Friends of the Bay 2014 Water Quality Data - **Site 12, Turtle Cove**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 12	4/7/2014	7.49	7.57	7.59	27.79	27.79	27.78	8.05	8.05	8.04	8.56	8.5	8.45	1.7	2.2	4.8		<1	<1							2	5	6	3		0	2	0
Site 12	4/14/2014	12.62	12.61	12.49	27.45	27.45	27.30	7.97	7.98	7.98	6.94	6.40	7.09	1.2		17.0		5	5							4	3		0	6	2	1	2
Site 12	4/21/2014	10.31	10.29		27.40	27.40		8.05	8.02		7.92	7.72		1.4	1.9	6.7										2	1	6	0	2	1	1	1
Site 12	4/28/2014	11.28	11.23	11.12	27.45	27.45	27.51	7.97	7.96	7.94	7.19	7.10	6.96	1.6	3.3	10.6		<1	<1							4	3		0	8	1	1	2
Site 12	5/5/2014	11.40	11.86	11.57	26.60	26.16	26.49	7.87	7.86	7.87	6.97	7.00	7.09	1.3	2.1	12.9		1	<1							2	1		0	8	1	1	2
Site 12	5/12/2014	15.32	14.70	14.25	26.39	26.50	26.55	7.93	7.96	7.87	7.62	8.24	7.89	1.6	2.2	16.6		6	2	<.1	<.1 / ?	0.27	0.27	0.27		4	1		1	6	1	1	0
Site 12	5/19/2014	**NO SAMPLES TAKEN **																																
Site 12	5/27/2014	20.10	16.97	16.64	26.74	26.73	26.72	8.03	8.04	8.04	7.45	7.42	7.17	1.8	3.3	25.8		<1	<1							4	5	3	3	8	1	2	1
Site 12	6/2/2013	18.56	18.57	x	26.89	26.74	x	7.91	7.49	x	6.63	6.56	x	1.2	1.4	21.7		>60	<1	<0.10	<0.10	0.62	0.62	0.62		3	3	6	0	6	2	1	0
Site 12	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																
Site 12	6/16/2014	19.38	x	x	26.43	x	x	7.70	x	x	7.64	x	x	1.0	1.0	20.1		21	14							3	5	6	3	0	0	1	0
Site 12	6/23/2014	23.66	23.23	22.84	26.52	26.51	26.50	7.72	7.72	7.58	4.84	4.93	4.37	1.1	3.0	22.8		1	<1							1	3	1	0	2	1	1	1
Site 12	6/30/2014	25.27	24.86	x	26.87	26.86	x	7.88	7.88	x	5.13	5.32	x	1.2	1.7	28.1		1	8							1	3	1	1	6	1	1	1
Site 12	7/7/2014	23.78	23.77	23.69	24.27	24.20	24.27	7.80	7.79	7.74	x	x	x	1.0	x	25.1		4	1	<0.10	<0.10	0.54	0.46	0.54		2	5	6	0	6	2	1	3
Site 12	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																
Site 12	7/21/2014	23.13	23.12	23.00	27.57	27.57	27.57	7.51	7.47	7.18	4.17	4.14	3.49	1.6	3.1	20.9		<1	<1							1	5	6	0	0	0	1	0
Site 12	7/28/2014	24.85	24.90	x	27.57	27.64	x	7.68	7.64	x	4.72	4.86		1.0	1.3	22.6		6	1							4	5	6	4	6	2	3	2
Site 12	8/4/2014	23.75	23.65	23.41	27.74	27.74	27.73	7.69	7.69	7.55	4.58	4.61	3.70	1.3	2.3	24.8		2	<1	0.11	<0.10	0.20	<0.10	0.20		2	5	6	1	7	1	1	1
Site 12	8/11/2014	25.31	25.07	24.66	28.09	28.15	28.06	7.85	7.79	7.71	5.13	4.98	4.55	1.0	3.2	30.6		<1	<1						0	4	5	6	0	0	0	1	0
Site 12	8/18/2014	22.42	22.43	22.42	27.76	27.76	27.83	7.70	7.68	7.63	4.64	4.53	4.58	1.0	2.6	20.7		<1	1						0	2	5	6	0	7	1	1	1
Site 12	8/25/2014	23.92	**23.85**	23.75	28.18	28.17	28.10	7.82	7.78	7.73	4.95	4.77	4.33	0.9	3.0	26.0		2	<1						0	4	3	6	0	0	0	1	0
Site 12	9/2/2014	26.57	26.53	26.40	28.21	28.21	28.13	7.98	7.96	7.92	5.84	5.64	5.35	0.8	2.5	26.3		2	<1	<0.10	<0.10	<0.50	<0.10	0.49	0	2	5	6	1	6	1	1	1
Site 12	9/8/2014	24.76	24.74	24.67	28.35	28.28	28.35	7.89	7.88	7.84	4.63	4.49	4.27	1.3	2.9	21.8		1	<1						0	4	5	6	1	3	1	2	3
Site 12	9/15/2014	20.30	20.26	20.23	28.45	28.45	28.38	7.88	7.85	7.75	5.34	5.26	5.26	1.8	1.9	15.4		8	<1						0	2	5	6	1	1	1	1	1
Site 12	9/22/2014	20.50	20.48	20.37	28.39	28.31	28.38	7.95	7.94	7.94	5.16	5.04	4.40	1.8	3.1	20.8		4	<1						1	4	5	6	1	8	2	1	2
Site 12	9/29/2014	20.92	x	x	28.26	x	x	8.14	x	x	6.68	x	x	1.0	1.0	20.7		4	1						0	4	5	6	4	0	0	3	0
Site 12	10/6/2014	17.21	17.20	16.57	28.17	28.16	28.13	8.23	8.23	8.10	6.64	6.72	6.01	2.2	3.8	18.3		5	<1	<0.10	<0.10	<0.10	<0.10	<0.10	0	1	5	6	1	5	2	1	1
Site 12	10/13/2014	**NO SAMPLES TAKEN **																																
Site 12	10/20/2014	15.73	15.55	15.50	28.45	28.44	28.36	8.07	8.04	7.96	6.39	6.54	6.92	1.8	1.8	9.3		3	<1						0	4	5	6	3	6	1	1	2
Site 12	10/27/2014	13.21	13.13	13.13	27.97	28.03	28.03	8.18	8.19	8.16	8.12	7.99	8.76	1.70	1.90	12.90		1	2						0	4	5	6	0	8	2	1	2
		DO readings suspect																																

	Friends of the Bay 2014 Water Quality Data - **Site 13, Mill Neck Creek East**																																		
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 13	4/7/2014	6.72	6.33	6.32	27.66	27.71	27.71	8.19	8.09	8.09	8.96	9.01	9.01	1.8	2.3	5.1		2	3							2	5	6	4		0	3	0
Site 13	4/14/2014	11.93	11.84	11.55	27.21	27.26	27.32	8.09	8.10	8.10	7.88	7.80	7.42	1.6		19.0		<1	3							4	3		1	6	3	1	3
Site 13	4/21/2014	10.36			27.12			7.89			8.23			1.2	1.2	7.1										2	1	6	0	0	0	1	0
Site 13	4/28/2014	11.30	11.28	11.24	27.17	27.17	27.24	8.00	7.99	7.99	7.25	7.25	7.18	1.6	2.3	11.7		1	3							4	3		0	8	1	1	0
Site 13	5/5/2014	11.53	11.47	11.45	25.73	26.14	26.35	7.78	7.79	7.80	6.85	6.87	6.96	1.2	3.1	11.2		2	1							2	5		0	8	1	1	2
Site 13	5/12/2014	14.88	14.74	14.68	26.30	26.37	26.36	8.10	8.11	8.10	7.07	6.82	5.37	1.4	3.0	16.1		<1	<1	<.1	<.1 / <.1	0.20	0.20	0.20		1	3		1	2	1	1	0
Site 13	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 13	5/27/2014	18.15	18.11	18.01	26.65	26.58	26.65	7.93	7.94	7.93	6.76	6.72	6.64	1.4	4.3	25.1		<1	1							1	5	3	3	8	1	2	1
Site 13	6/2/2014	18.89	18.84	18.78	26.05	26.05	26.05	7.85	7.85	7.81	6.38	6.35	6.28	1.0	2.0	22.5				<0.10	<0.10	0.41	0.41	0.41		3	3	6	0	6	2	1	0
Site 13	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																	
Site 13	6/16/2014	19.96	x	20.10	25.05	x	25.61	7.21	x	7.28	4.63	x	4.95	0.8	1.8	22.3		620	470							3	1	6	2	0	0	1	0
Site 13	6/23/2014	23.23	22.64	x	26.36	26.35	x	7.75	7.68	x	5.47	5.19	x	1.3	1.8	31.3		7	1							1	3	1	0	0	0	1	0
Site 13	6/30/2014	23.93	23.78	x	26.46	26.39	x	7.85	7.73	x	5.42	5.33	x	1.0	1.6	28.5		7	5							1	3	6	2	7	1	1	1
Site 13	7/7/2014	22.83	x	22.81	26.42	x	26.42	7.66	x	7.58	12.63	x	11.11	1.4	x	24.8		4	4	<0.10	<0.10	0.45	0.37	0.45		1	3	6	1	6	1	2	0
Site 13	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																	
Site 13	7/21/2014	23.12	23.12	23.12	27.36	27.43	27.43	7.66	7.63	7.56	5.46	5.36	5.25	1.2	2.6	19.3		3	<1							1	5	6	0	0	0	1	0
Site 13	7/28/2014	24.58	24.60	24.64	27.06	27.06	27.06	7.39	7.35	7.33	3.40	3.27	3.40	1.4	1.9	22.3		100	37							3	4	6	4	6	1	3	1
Site 13	8/4/2014	23.75	x	x	27.47	x	x	7.51	x	x	3.80	x	x	0.9	1.3	25.8		29	2	0.20	<0.10	0.38	0.18	0.38		2	5	6	1	1	7	1	1
Site 13	8/11/2014	25.10	25.10	X	27.94	27.94	X	7.72	7.70	X	4.65	4.59	X	0.9	2.6	27.3		7	4						0	4	5	6	0	2	1	1	0
Site 13	8/18/2014	22.76	22.76	22.77	27.70	27.84	27.84	7.71	7.71	7.66	5.20	5.11	5.02	1.0	3.5	20.1		3	<1						0	2	5	6	0	7	1	1	0
Site 13	8/25/2014	23.93	23.92	23.92	27.96	27.96	27.96	7.83	7.82	7.79	5.30	5.28	5.19	1.3	3.5	26.0		17	17						0	4	3	6	0	0	0	1	0
Site 13	9/2/2014	25.14	25.09	24.95	27.56	28.08	21.72	7.62	7.62	7.43	4.12	4.10	1.06	0.9	2.4	25.4		29	9	<0.10	<0.10	<0.50	<0.10	0.37	0	2	5	6	1	6	1	1	0
Site 13	9/8/2014	24.73	24.72	24.74	28.21	28.21	28.28	7.92	7.92	7.91	5.12	5.05	5.14	1.2	2.6	21.7		18	7						0	4	5	3	3	2	1	3	1
Site 13	9/15/2014	20.76	20.74	20.67	28.11	28.04	28.04	7.79	7.74	7.48	5.54	5.54	5.53	1.3	2.8	15.2		12	18						0	2	5	6	1	3	1	1	2
Site 13	9/22/2014	20.95	20.93	x	28.12	28.19	x	7.93	7.93	x	4.97	5.12	x	1.7	1.7	19.9		20	10						1	4	5	6	2	7	1	1	1
Site 13	9/29/2014	20.41	20.28	x	27.74	27.74	x	7.90	7.90	x	6.38	5.89	x	0.6	1.6	21.0		110	22						0	4	5	6	4	0	0	3	0
Site 13	10/6/2014	17.71	17.71	17.70	27.98	28.05	28.12	8.14	8.12	8.10	6.44	6.26	6.13	2.2	3.5	19.6		16	13	<0.10	<0.10	<0.50	<0.10	<0.10	0	2	5	6	1	5	2	1	2
Site 13	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 13	10/20/2014	15.85	15.89	15.95	28.24	28.24	28.25	7.92	7.91	7.82	6.15	6.21	6.29	1.9	2.5	5.5		29	12						0	4	5	6	4	6	0	3	0
Site 13	10/27/2014	13.51	x	x	27.64	x	x	8.10	x	x	7.60	x	x	1.1	1.3	13.6		30	21						0	4	5	6	0	1	1	1	0
		DO readings suspect																																	

	Friends of the Bay 2014 Water Quality Data - **Site 14, Mill Neck Creek West**																																	
	Date	**H_20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 14	4/7/2014	7.07	7.24		27.01	27.22		8.06	8.06		9.00	8.94		1.7	1.6	5.4		8	7							2	5	6	4		0	3	0
Site 14	4/14/2014	12.41	12.29	11.94	27.09	27.15	27.21	8.07	8.07	8.08	7.86	7.83	7.78	1.5		19.0		3	<1							4	3		1	6	2	1	1
Site 14	4/21/2014	10.76			26.52			7.98			7.45			1.4	1.3	7.7										2	1	6	0		0	1	0
Site 14	4/28/2014	11.32	11.27	11.26	27.24	27.24	27.24	8.00	7.99	7.99	7.19	7.13	6.92	1.4	2.4	12.3		<1	<1							4	3		0	8	1	1	1
Site 14	5/5/2014	11.64	11.59	11.42	25.53	25.66	25.79	7.70	7.70	7.67	6.78	6.81	6.70	0.9	2.1	12.1		4	2							2	5		0	8	1	1	2
Site 14	5/12/2014	15.20	14.76	14.67	26.17	26.30	26.29	8.10	8.10	8.10	7.99	7.88	7.70	1.2	2.6	17.7		<1	<1	<.1	<.1 / <.1	0.25	0.25	0.25		1	5		1	2	1	1	0
Site 14	5/19/2014	**NO SAMPLES TAKEN **																																
Site 14	5/27/2014	18.13	18.05	18.00	26.58	25.65	25.65	7.93	7.93	7.92	6.80	6.71	6.50	1.2	3.4	25.5		<1	1							1	5	6	3	7	1	2	1
Site 14	6/2/2014	19.12	18.73	x	25.43	25.07	x	7.66	7.69	x	5.55	5.95	x	0.7	1.4	22.0		>60	5	<0.10	<0.10	0.56	0.56	0.56		3	5	6	0	6	2	1	0
Site 14	6/9/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																															
Site 14	6/16/2014	19.98	x	x	25.12	x	x	7.06	x	x	0.34	x	x	0.3	0.8	22.4		350	110							3	1	6	2	6	1	1	0
Site 14	6/23/2014	23.51	23.15	22.51	26.09	26.15	26.41	7.82	7.79	7.71	5.93	5.71	5.01	1.1	2.8	27.5		12	1							1	3	1	0	8	1	1	1
Site 14	6/30/2014	24.15	24.08	x	26.12	20.18	x	7.67	7.46	x	4.10	3.02	x	0.4	1.4	29.7		15	6							1	5	6	1	7	1	1	1
Site 14	7/7/2014	23.18	23.19	22.85	25.16	25.94	26.28	7.69	7.66	7.65	19.53	12.64	5.71	1.0	x	24.2		36	12	<0.10	<0.10	0.43	0.36	0.43		1	5	6	1	6	1	2	1
Site 14	7/14/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																															
Site 14	7/21/2014	23.27	23.37	23.11	27.01	27.15	27.43	7.63	7.62	7.49	5.26	5.23	5.32	1.1	3.1	20.3		37	4							1	5	6	0	0	0	1	0
Site 14	7/28/2014	24.44	x	x	26.98	x	x	6.95	x	x	3.11	x	x	0.4		22.4		270	210							3	4	6	4	6	1	3	1
Site 14	8/4/2014	23.77	23.93	23.95	27.31	26.61	26.54	7.38	7.41	7.44	3.63	3.84	3.97	1.3	2.8	25.8		38	9	0.29	<0.10	0.40	0.11	0.40		2	5	6	1	8	1	1	1
Site 14	8/11/2014	25.11	25.09	25.06	28.01	28.01	28.01	7.78	7.78	7.75	4.88	4.88	4.80	1.0	3.1	29.9		6	1						0	4	5	6	0	3	1	1	0
Site 14	8/18/2014	22.65	22.68	22.78	26.98	27.06	27.84	7.65	7.68	7.61	4.86	4.87	4.85	1.1	3.2	20.6		13	3						0	2	5	6	0	8	1	1	0
Site 14	8/25/2014	23.98	23.89	23.87	27.96	27.96	27.96	7.84	7.82	7.78	5.28	5.12	4.89	1.1	2.8	26.1		7	2						0	4	3	6	0	7	1	1	0
Site 14	9/2/2014	25.25	x	x	27.23	x	x	7.39	x	x	4.09	x	x	1.1	1.1	25.4		34	4	<0.10	<0.10	0.14	0.14	0.14	0	2	5	6	1	6	1	1	0
Site 14	9/8/2014	24.72	24.68	24.71	28.28	28.21	26.07	7.91	7.88	7.85	4.97	4.64	1.24	1.2	3.4	22.1		23	2						0	4	5	6	3	2	1	3	2
Site 14	9/15/2014	20.41	20.43	20.56	27.74	27.82	27.96	7.71	7.68	7.56	5.50	5.46	5.50	1.1	2.3	16.9		24	19						0	2	5	6	1	3	1	1	1
Site 14	9/22/2014	20.81	20.81	20.86	27.90	27.97	28.12	7.96	7.93	7.91	5.32	5.28	5.04	1.4	3.0	19.9		43	12						1	1	5	6	1	8	2	1	2
Site 14	9/29/2014	20.06	x	x	27.38	x	x	7.88	x	x	5.95	x	x	0.4	1.0	20.6		80	13						0	4	5	6	4	8	2	3	0
Site 14	10/6/2014	17.52	17.51	17.56	27.62	27.54	27.69	8.13	8.14	8.08	6.41	6.41	6.01	2.0	2.5	19.9		32	9	<0.10	<0.10	<0.10	<0.10	<0.10	0	1	5	6	1	5	2	1	2
Site 14	10/13/2014	**NO SAMPLES TAKEN **																																
Site 14	10/20/2014	15.93	15.98	x	28.25	28.25	x	7.95	7.91	x	6.28	6.32	x	2.1	2.1	5.6		35	5						0	4	5	6	4	6	1	1	0
Site 14	10/27/2014	13.43	13.47	13.49	27.49	27.49	27.63	8.15	8.14	8.12	7.40	7.38	7.84	1.00	2.00	12.80		32	3						0	4	5	6	0	8	1	1	1
		DO readings suspect																																

Friends of the Bay 2014 Water Quality Data - **Site 15, Mill Neck Creek South**

	Date	H20 Temp TOP (0.5m) (°C)	H_20 Temp 1 m (°C)	H_20 Temp 0.5m from BTM (°C)	Salinity TOP (0.5m) (ppt)	Salinity 1 m (ppt)	Salinity 0.5 m from BTM (ppt)	pH Top (0.5m)	pH 1 m	pH 0.5m from BTM	DO TOP (0.5m) (ppm)	DO 1 m (ppm)	DO 0.5m from BTM (ppm)	Secchi (m)	Depth (m)	Air Temp (°C)	H_2O Temp BTM monthly AVG (°C)	Fecal Coliform Bacteria (CFU/100ml)	Enterococci (CFU/100ml)	Ammonia (NH_3) (mg/l)	Nitrate/Nitrite (NO_3-NO_2) (mg/l)	Total Kjeldahl Nitrogen (TKN) (mg/l)	Organic Nitrogen (N) (mg/l)	Total Nitrogen (mg/l)	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Wave Height	Cloud Cover	Wind Speed	Wind Direction	Weather
Site 15	4/7/2014	7.55			26.89			7.98			9.53			0.8	0.9	8.0		<1	2							2	5	6	4		0	3	0
Site 15	4/14/2014	12.94	12.99	12.79	26.36	26.56	26.62	8.02	8.02	8.03	7.33	7.22	6.32	1.0		18.0		12	8							4	3		1	6	2	1	2
Site 15	4/21/2014	11.32			26.20			7.92			7.76			1.1	0.9	9.2										2	1	6	0	0	0	1	0
Site 15	4/28/2014	12.24	12.29		25.21	25.70		7.81	7.83		6.49	6.52			1.8	11.0		<1	14							4	3	5	0	8	1	1	1
Site 15	5/5/2014																																
Site 15	5/12/2014	16.08			25.24			8.00			7.39			0.8	1.9	22.2		1	1	0.22	.36 / <.1	0.59	0.37	0.94		2	4		1		0	1	0
Site 15	5/19/2014	**NO SAMPLES TAKEN **																															
Site 15	5/27/2014	19.28			26.00			7.70			5.47			0.6	1.2	25.3		3	11							1	5	6	3	8	1	2	1
Site 15	6/2/2014	**NO SAMPLES TAKEN **																															
Site 15	6/9/2014																																
Site 15	6/16/2014																																
Site 15	6/23/2014	23.10	x	x	25.66	x	x	7.57	x	x	4.80	x	x	1.0	0.8	29.6		140	8							1	3	1	0	8	1	1	0
Site 15	6/30/2014	**NO SAMPLES TAKEN **																															
Site 15	7/7/2014	23.45	x	x	25.60	x	x	7.28	x	x	10.17	x	x	0.8	x	25.0		110	21	0.16	<0.10	0.72	0.55	0.79		1	5	6	1	6	1	2	1
Site 15	7/14/2014	**NO SAMPLES TAKEN WEATHER CONDITION **																															
Site 15	7/21/2014	23.30	23.61	x	26.37	26.16	x	7.36	7.32	x	3.23	3.60	x	0.7	x	20.2		110	7							1	5	6	0	0	0	1	0
Site 15	7/28/2014	**NO SAMPLES TAKEN **																															
Site 15	8/4/2014	24.04	x	x	21.14	x	x	6.84	x	x	0.45	x	x	0.5	0.9	23.3		51	19	0.38	<0.10	0.47	<0.10	0.47		2	5	6	1	0	0	1	0
Site 15	8/11/2014	25.43	25.38	X	27.67	27.81	X	7.65	7.67	X	3.94	4.16	X	1.1	1.5	32.5		43	10						0	4	5	6	0	3	1	1	0
Site 15	8/18/2014	23.46	23.49	x	26.87	26.87	x	7.37	7.12	x	3.86	3.68	x	0.9	1.4	20.4		38	11						0	2	5	6	0	8	1	1	0
Site 15	8/25/2014	24.31	24.27	x	27.05	27.05	x	7.67	7.76	x	4.44	4.36	x	1.2	1.4	28.1		17	9						0	4	3	6	0	8	1	1	0
Site 15	9/2/2014	**NO SAMPLES TAKEN **																															
Site 15	9/8/2014	23.87	x	x	26.96	x	x	7.71	x	x	3.81	x	x	0.5	1.4	22.9		340	240						0	4	5	6	3	2	1	3	0
Site 15	9/15/2014	20.50	x	x	27.25	x	x	7.28	x	x	4.81	x	x	0.7	0.7	14.5		160	est. 130*						0	2	5	6	1	3	1	1	1
Site 15	9/22/2014	20.08	20.70	x	26.25	27.12	x	8.21	7.99	x	7.34	5.81	x	0.5	1.4	19.9		320	46						1	1	5	6	1	8	1	1	1
Site 15	9/29/2014	**NO SAMPLES TAKEN **																															
Site 15	10/6/2014	16.71	17.01	x	26.80	27.09	x	8.11	8.08	x	6.54	6.48	x	1.5	1.7	19.1		70	51	0.12	<0.10	0.48	0.36	0.48	0	1	5	6	1	5	2	1	1
Site 15	10/13/2014	**NO SAMPLES TAKEN **																															
Site 15	10/20/2014	14.10	x	x	27.11	x	x	7.86	x	x	5.70	x	x	0.6	1.2	3.9		140	80* (est.)						0	4	5	6	0	5	1	1	0
Site 15	10/27/2014	13.24	x	x	27.06	x	x	7.99	x	x	8.57	x	x	0.4	1.1	13.5		37	9						0	4	5	6	0	8	2	1	1
		DO readings suspect																															

	Friends of the Bay 2014 Water Quality Data - **Site 16, Mill Neck Creek North**																																				
	Date	**H20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Ste 16	4/7/2014																																				
Site 16	4/14/2014	13.34	13.25	13.25	26.44	26.50	26.50	7.95	7.85	7.85	6.55	5.71	5.71	1.3		18.0		19	3							4	3		1	6	2	1	2
Ste 16	4/21/2014																																				
Site 16	4/28/2014	12.28	12.20		26.25	26.32		7.84	7.85		6.97	7.02		1.2	1.9	12.4		<1	2							1	3		0	8	1	1	0
Site 16	5/5/2014																																				
Site 16	5/12/2014	15.78	15.69		25.51	25.50		8.01	8.01		7.53	7.52		1.3	1.7	23.3		9	3	0.11	<.1 / <.1	0.43	0.33	0.43		2	5		1		0	1	0
Site 16	5/19/2014	**NO SAMPLES TAKEN **																																			
Site 16	5/27/2014	**19.19**	19.01		25.93	26.07		7.77	7.79		6.03	5.87		0.9	1.9	26.4		<1	4							1	5	6	4	8	1	3	1
Site 16	6/2/2014	**NO SAMPLES TAKEN **																																			
Site 16	6/9/2014																																				
Site 16	6/16/2014																																				
Site 16	6/23/2014	23.24	x	x	25.59	x	x	7.48	x	x	4.40	x	x	1.3	1.2	24.7		42	8							1	3	1	0	1	1	1	0
Site 16	6/30/2014	**NO SAMPLES TAKEN **																																			
Site 16	7/7/2014	23.52	x	x	25.53	x	**x**	7.38	x	x	8.61	x	x	0.8	x	30.0		22	5	0.18	<0.010	0.64	0.46	0.64		2	5	6	1	6	0	1	1
Site 16	7/14/2014	**NO SAMPLES TAKEN **WEATHER CONDITION**																																			
Site 16	7/21/2014	23.32	23.33	x	26.52	26.66	x	7.29	7.31	x	3.84	3.93	x	1.1	x	22.7		100	8							1	5	6	0	0	0	1	0
Site 16	7/28/2014	**NO SAMPLES TAKEN **																																			
Site 16	8/4/2014	23.76	x	x	25.82	x	x	6.93	x	x	2.44	x	x	0.8	0.8	25.4		43	26	0.54	<0.10	0.58	<0.10	0.58		2	5	6	1	0	0	1	0
Site 16	8/11/2014	25.43	25.42	X	27.74	27.73	X	7.60	7.52	X	4.05	4.16	X	1.0	1.2	31.1		38	10						0	4	5	6	0	3	1	1	0
Site 16	8/18/2014	22.74	23.18	x	26.42	26.50	x	7.21	7.04	x	3.57	3.21	x	1.1	1.4	20.6		47	8						0	2	5	6	0	8	1	1	0
Site 16	8/25/2014	24.07	24.13	x	26.83	27.12	x	8.00	7.58	x	4.27	4.47	x	0.4	1.5	35.0		43	10						0	4	3	5	0	1	1	1	0
Site 16	9/2/2014	**NO SAMPLES TAKEN **																																			
Site 16	9/8/2014	24.31	24.20	24.22	27.83	27.76	27.83	7.85	7.83	7.83	4.85	4.85	4.92	1.0	2.3	24.3		70	26						0	4	5	6	3	2	1	3	1
Site 16	9/15/2014	**NO SAMPLES TAKEN **																																			
Site 16	9/22/2014	20.72	20.71	x	27.33	27.40	x	8.20	8.14	x	7.64	7.60	x	0.6	1.7	20.1		170	21						1	1	5	6	2	8	2	1	1
Site 16	9/29/2014	**NO SAMPLES TAKEN **																																			
Site 16	10/6/2014	16.97	16.96	x	27.38	27.38	x	8.12	8.11	x	6.55	6.69	x	1.8	1.8	19.8		49	25	<0.10	<0.10	<0.10	<0.10	<0.10	0	1	5	6	1	5	2	1	2
Site 16	10/13/2014	**NO SAMPLES TAKEN **																																			
Site 16	10/20/2014	13.43	x	x	26.67	x	x	7.81	x	x	6.14	x	x	0.9	1.4	5.8		70	13						0	4	5	6	3	5	1	1	0
Site 16	10/27/2014	13.28	x	x	27.13	x	x	8.06	x	x	7.77	x	x	0.4	1.1	13.9		28	3						0	4	5	6	0	8	1	1	0
		DO readings suspect																																			

	Friends of the Bay 2014 Water Quality Data - **Site 17, The Birches STP**																																		
	Date	**H20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Ste 17	4/7/2014																																		
Site 17	4/14/2014	13.7			26.11			7.96			6.74			0.9	1.0	18.0		11	6							4	3		1	6	2	1	1
Ste 17	4/21/2014																																		
Site 17	4/28/2014	12.42			27.98			7.79			6.83			1.2	1.2	13.3		<1	8							1	3		0	8	1	1	0
Site 17	5/5/2014																																		
Site 17	5/12/2014	**16.01**			24.97			7.97			7.17			0.4		23.2		<1	<1	0.29	<.1 / <.1	0.32	<.1	0.32		2	1	6	1		0	1	0
Site 17	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 17	5/27/2014	**19.20**			25.66			7.65			5.27			0.7	1.2	26.8		<1	4							1	5	6	3		0	2	1
Site 17	6/2/2014	**NO SAMPLES TAKEN **																																	
Site 17	6/9/2014																																		
Site 17	6/16/2014																																		
Site 17	6/23/2014	23.28	x	x	25.38	x	x	7.49	x	x	4.25	x	x	0.7	0.7	25.2		180	47							1	3	1	0	0	0	1	0
Site 17	6/30/2014	**NO SAMPLES TAKEN **																																	
Site 17	7/7/2014	**NO SAMPLES TAKEN **																																	
Site 17	7/14/2014	**NO SAMPLES TAKEN **																																	
Site 17	7/21/2014	23.27	23.35	x	26.30	26.51	x	7.26	7.35	x	3.55	3.49	x	0.8	x	24.3		120	33							1	5	6	0	0	0	1	0
Site 17	7/28/2014	**NO SAMPLES TAKEN **																																	
Site 17	8/4/2014	**NO SAMPLES TAKEN **																																	
Site 17	8/11/2014	**NO SAMPLES TAKEN **																																	
Site 17	8/18/2014	22.74	22.96	x	26.06	26.64	x	6.99	6.67	x	2.90	1.40	x	0.9	1.2			32	13						0	2	5	3	0	0	0	1	0
Site 17	8/25/2014	23.90	x	x	26.75	x	x	7.55	x	x	3.92	x	x	0.8	1.2	35.0		47	4						0	4	5	3	0	1	1	1	0
Site 17	9/2/2014	**NO SAMPLES TAKEN **																																	
Site 17	9/8/2014	23.82	x	x	27.24	x	x	7.73	x	x	4.32	x	x	1.0	1.2	22.6		250	59						0	4	5	6	3	3	1	3	1
Site 17	9/15/2014	**NO SAMPLES TAKEN **																																	
Site 17	9/22/2014	20.05	x	x	27.09	x	x	7.97	x	x	6.27	x	x	0.5	1.0	21.8		140	22						1	1	5	6	1	8	1	1	2
Site 17	9/29/2014	**NO SAMPLES TAKEN **																																	
Site 17	10/6/2014	16.74	16.78	x	27.30	27.30	x	8.16	8.15	x	6.91	6.84	x	1.4	1.4	18.8		80	39	0.21	<0.10	0.50	0.28	0.50	0	1	5	6	1	5	2	1	0
Site 17	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 17	10/20/2014	12.64	x	x	25.78	x	x	7.79	x	x	6.02	x	x	0.7	1.0	6.4		180	33						0	4	5	6	3	0	0	1	0
Site 17	10/27/2014	**NO SAMPLES TAKEN **																																	
	DO readings suspect																																		

	Friends of the Bay 2014 Water Quality Data - **Site 18, Mill Neck Cove**																																		
	Date	**H20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 18	4/7/2014	6.33	6.36		27.71	27.17		8.10	8.08		9.20	9.17		2.1	1.9	5.2		<1	<1							2	5	6	4		0	3	0
Site 18	4/14/2014	11.73	11.76	11.64	27.33	27.27	27.33	8.11	8.10	8.09	7.92	7.84	6.71	1.5		18.0		2	<1							4	3		1	6	3	1	3
Site 18	4/21/2014	10.05	10.60		27.24	27.24		8.04	8.04		8.55	8.27		1.6	1.7	5.8										2	1	6	0		0	1	1
Site 18	4/28/2014	11.67	11.62	11.43	27.19	27.19	27.25	7.98	7.99	7.96	7.49	7.90	7.46	1.6	2.4	17.8		<1	1							1	3		1	8	1	1	1
Site 18	5/5/2014	11.25	11.25		26.41	26.47		7.82	7.82		7.04	7.01		1.4	1.9	12.4		2	<1							2	5		0	7	1	1	1
Site 18	5/12/2014	15.14	14.99	14.47	26.31	26.38	26.42	8.11	8.11	8.11	8.12	8.03	7.83	1.6	2.6	19.4		3	<1	0.15	<.1 / <.1	0.20	<.1	0.20		2	3		1	6	1	1	0
Site 18	5/19/2014	**NO SAMPLES TAKEN **																																	
Site 18	5/27/2014	18.11	18.08	17.94	26.65	26.58	26.65	7.93	7.92	7.89	6.78	6.61	6.39	1.4	3.2	28.5		2	<1							1	5	6	3	7	1	2	1
Site 18	6/2/2014	18.83	x	x	26.04	x	x	7.08	x	x	6.84	x	x	1.0	0.9	21.0		>60	<1	<0.10	<0.10	0.44	0.44	0.44		3	3	6	0	6	2	1	0
Site 18	6/9/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																																
Site 18	6/16/2014	20.17	19.93	19.88	25.75	25.89	25.95	7.64	7.63	7.60	5.81	5.66	5.80	0.8	2.1	23.2		70	36							3	1	6	2	2	1	1	0
Site 18	6/23/2014	23.10	22.55	22.41	26.36	26.41	26.41	7.82	7.78	7.71	5.85	5.46	5.21	1.4	2.5	24.6		20	10							1	3	1	1	8	1	1	1
Site 18	6/30/2014	24.36	24.36	x	26.27	26.27	x	7.87	7.86	x	6.12	6.16	x	1.1	1.4	29.1		5	3							1	3	6	2	6	1	1	1
Site 18	7/7/2014	22.83	x	22.82	26.35	x	26.42	7.67	x	7.67	8.29	x	11.89	1.5	x	24.3		22	19	0.11	<0.10	0.64	0.53	0.72		1	3	6	1	6	1	2	0
Site 18	7/14/2014	**NO SAMPLES TAKEN **	** WEATHER CONDITION**																																
Site 18	7/21/2014	23.09	23.09	23.06	27.29	27.36	27.43	7.64	7.65	7.60	5.66	5.57	6.10	1.1	2.8	21.8		8	2							4	5	6	0	0	0	1	0
Site 18	7/28/2014	24.23	x	x	27.33	x	x	7.47	x	x	4.52	x	x	0.7	0.7	23.5		23	10							3	4	6	3	6	1	2	1
Site 18	8/4/2014	23.76	23.70	x	27.53	27.59	x	7.64	7.61	x	4.79	4.48	x	1.4	1.7	23.2		51	16	<0.10	<0.10	<0.10	<0.10	<0.10		2	5	6	1	7	1	1	1
Site 18	8/11/2014	25.13	25.13	25.11	28.01	28.01	28.01	7.77	7.71	7.72	4.85	4.85	4.83	1.1	2.7	30.2		1	1						0	4	5	6	0	3	1	1	0
Site 18	8/18/2014	22.69	22.70	22.74	27.77	27.77	27.77	7.75	7.76	7.75	5.34	5.43	5.42	1.1	2.4	20.1		6	7						0	2	5	6	0	7	1	1	0
Site 18	8/25/2014	24.23	24.13	23.99	27.97	27.97	28.04	7.89	7.88	7.86	5.54	5.66	5.53	0.9	2.9	25.8		7	<1						0	4	3	6	0	8	1	1	0
Site 18	9/2/2014	25.07	25.07	25.04	28.08	28.08	28.15	7.22	7.72	7.70	4.76	4.80	4.660	1.2	2.0	26.3		17	3	<0.10	<0.10	<0.50	<0.10	0.43	0	2	5	6	1	6	1	1	0
Site 18	9/8/2014	24.77	24.77	24.79	28.21	28.28	28.28	7.95	7.95	7.94	5.22	5.16	5.25	1.2	3.2	22.0		13	4						0	4	5	6	3	2	1	3	1
Site 18	9/15/2014	20.67	20.65	x	28.18	28.18	x	7.91	7.85	x	6.02	5.99	x	1.6	1.7	17.2		11	7						0	2	5	6	1	1	1	1	1
Site 18	9/22/2014	21.05	21.02	20.98	28.13	28.13	28.27	7.94	7.95	7.95	5.18	5.25	5.12	1.9	2.7	21.4		21	1						1	1	5	6	2	8	1	1	2
Site 18	9/29/2014	20.41	x	x	27.90	x	x	8.00	x	x	6.60	x	x	0.6	0.6	22.1		200	17						0	4	5	6	4	0	0	3	0
Site 18	10/6/2014	17.88	17.87	17.85	28.13	28.13	28.13	8.17	8.15	8.14	6.40	6.35	6.29	2.5	3.1	19.7		18	3	<0.10	<0.10	<0.10	<0.10	<0.10	0	2	5	6	1	5	2	1	2
Site 18	10/13/2014	**NO SAMPLES TAKEN **																																	
Site 18	10/20/2014	15.95	15.91	15.96	28.25	28.25	28.25	8.02	8.10	7.92	6.25	6.42	6.45	1.9	2.8	6.1		24	2						0	4	5	6	3	6	1	1	1
Site 18	10/27/2014	13.91	13.88	13.92	27.79	27.86	28.01	8.17	8.14	8.13	7.52	8.33	7.65	1.60	2.0	14.4		12	2						0	4	5	6	0	8	1	1	1
	DO readings suspect																																		

	Friends of the Bay 2014 Water Quality Data - **Site 19, Flowers Oyster Hatchery**																																			
	Date	**H20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
Site 19	4/7/2014	6.41	6.42	6.34	27.72	27.72	27.85	8.12	8.13	8.11	9.12	8.82	8.84	1.3	4.5	5.8		1	<1						2	5	6	3		0	2	0
Site 19	4/14/2014	12.32	12.10	11.18	27.14	27.27	27.38	8.09	8.10	8.08	7.74	7.69	6.99	1.7		19.0		4	<1						4	3		1	6	3	1	3
Site 19	4/21/2014	10.42	10.45	10.09	26.64	26.50	27.18	8.05	8.06	8.08	8.32	8.33	8.40	1.2	4.0	6.3									2	1	6	0	1	1	1	0
Site 19	4/28/2014	11.52	11.53	11.38	27.18	27.18	27.25	8.00	7.99	7.99	7.27	7.26	7.21	1.4	5.5	15.9		1	3						1	3		0	8	1	1	1
Site 19	5/5/2014	11.28	11.29	11.30	26.41	26.41	26.48	7.87	7.87	7.86	7.04	7.01	7.06	1.4	4.7	12.3		3	<1						2	5		1	8	1	1	2
Site 19	5/12/2014	15.27	15.02	14.09	26.25	26.31	26.55	8.11	8.11	8.10	8.08	7.94	7.66	1.5	5.3	28.7		12	<1	<.1	<.1 / <.1	0.18	0.18	0.18	2	3		1		0	1	0
Site 19	5/19/2014	**NO SAMPLES TAKEN **																																		
Site 19	5/27/2014	18.52	18.43	17.81	26.60	26.60	26.71	7.94	7.93	7.92	6.85	6.69	6.36	1.2	5.7	27.0		1	<1						1	5	6	4		0	3	1
Site 19	6/2/2014	18.82	18.59	18.15	26.12	26.18	26.37	7.95	7.91	7.87	6.91	6.74	6.39	1.1	3.8	22.8		>60	1	<0.10	<0.10	0.38	0.38	0.38	3	3	6	0	6	2	1	0
Site 19	6/9/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																		
Site 19	6/16/2014	20.27	20.21	20.01	25.83	25.90	25.96	7.72	7.72	7.64	5.80	6.12	6.80	0.7	2.7	22.7		110	33						3	1	6	3	0	0	1	1
Site 19	6/23/2014	23.21	23.10	22.42	26.37	26.36	26.41	7.87	7.84	7.72	6.15	5.95	7.73	1.5	5.5	24.3		5	1						1	3	1	1	8	1	1	1
Site 19	6/30/2014	24.60	23.82	23.53	26.28	26.47	26.59	7.85	7.92	7.91	6.11	6.00	5.82	1.5	3.9	27.3		11	17						1	3	6	1	6	1	1	1
Site 19	7/7/2014	22.85	22.84	22.73	26.28	26.35	26.56	7.67	7.67	7.60	10.15	9.29	10.33	1.0	x	22.8		12	3	0.10	<0.10	0.55	0.44	0.55	1	3	6	2	6	1	2	0
Site 19	7/14/2014	**NO SAMPLES TAKEN ** ** WEATHER CONDITION**																																		
Site 19	7/21/2014	23.11	23.10	22.99	27.22	27.29	27.57	7.59	7.58	7.45	6.11	6.49	5.84	1.3	6.1	22.7		15	1						4	5	6	0	0	0	1	0
Site 19	7/28/2014	24.59	24.57	24.49	27.20	27.27	27.34	7.53	7.50	7.41	4.28	4.12	3.93	1.1	3.0	22.8		23	5						3	4	6	3	6	1	3	1
Site 19	8/4/2014	23.71	23.70	23.64	27.31	27.45	27.59	7.68	7.65	7.60	4.87	4.73	4.21	x	4.5	23.5		24	8	0.17	<0.10	0.38	0.21	0.38	2	5	6	1	7	1	1	1
Site 19	8/11/2014	25.20	25.18	25.06	27.94	27.94	28.01	7.77	7.76	7.70	4.79	4.88	4.72	1.1	6.0	30.4		10	5						0	4	5	6	0	3	1	1	0
Site 19	8/18/2014	22.75	22.74	22.75	27.84	27.77	27.77	7.73	7.74	7.73	5.08	5.10	5.18	1.2	4.8	19.3		9	<1						0	2	5	6	0	7	1	1	0
Site 19	8/25/2014	24.24	24.08	23.88	27.90	27.90	28.03	7.85	7.85	7.81	5.50	5.38	5.02	1.3	5.7	25.2		8	9						0	4	5	6	0	0	0	1	0
Site 19	9/2/2014	25.06	25.06	25.06	28.08	28.08	28.08	7.75	7.74	7.17	4.76	4.76	4.63	0.9	4.4	28.4		bottle	cracked	0.13	<0.10	<0.50	<0.10	0.44	0	2	5	3	1	0	0	1	0
Site 19	9/8/2014	24.74	24.73	24.72	28.21	28.21	28.21	7.94	7.94	7.92	5.16	5.07	5.00	1.2	5.9	22.3		15	6						0	4	5	6	3	3	1	3	2
Site 19	9/15/2014	20.87	20.86	20.85	28.26	28.26	28.26	7.91	7.90	7.85	5.69	5.55	5.58	1.3	4.1	17.2		26	29						0	2	5	6	1	1	1	1	1
Site 19	9/22/2014	20.99	20.96	21.03	28.12	28.12	28.33	7.93	7.93	7.96	5.09	4.97	5.10	2.1	5.4	20.7		29	15						1	1	5	6	2	8	1	1	3
Site 19	9/29/2014	20.39	20.39	20.37	27.99	27.96	28.03	8.06	8.00	8.03	6.39	6.44	6.45	1.4	4.0	22.1		20	6						0	4	5	6	4	0	0	3	0
Site 19	10/6/2014	17.93	17.88	17.77	28.13	28.13	28.05	8.17	8.16	8.10	6.37	6.33	5.93	2.2	5.5	20.4		9	1	<0.10	<0.10	0.14	0.13	0.14	0	2	5	6	1	5	2	1	2
Site 19	10/13/2014	**NO SAMPLES TAKEN **																																		
Site 19	10/20/2014	15.37	15.69	15.83	28.16	28.09	28.17	8.04	8.04	8.04	6.26	6.31	6.31	1.9	5.6	7.5		53	4						0	4	5	6	3	6	1	1	2
Site 19	10/27/2014	13.54	13.57	13.58	27.57	27.78	27.92	8.15	8.14	8.10	7.51	7.50	7.24	1.9	5.2	13.9		9	2						0	4	5	6	0	8	1	1	0
	DO readings suspect																																			

	Friends of the Bay 2014 Water Quality Data - **Laurel Hollow LH1**																																
	Date	**H20 Temp TOP (0.5m) (°C)**	**H_20 Temp 1 m (°C)**	**H_20 Temp 0.5m from BTM (°C)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (°C)**	**H_2O Temp BTM monthly AVG (°C)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
LH1	6/23/2014	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		13	4							4	1	1	0	0	0	1	0
**	6/30/2014	**bacteria only**																5	<1														
LH1	7/7/2014	**bacteria only**																24	2														
LH1	7/14/2014	** NO SAMPLES TAKEN** ** WEATHER CONDITION**																															
LH1	7/21/2014	**bacteria only**																1	<1														
LH1	7/28/2014	**bacteria only**																7	<1							4	5	1	4	0	0	3	1
LH1	8/4/2014	**bacteria only**																9	4														
LH1	8/11/2014	**bacteria only**																20	<1						0	4	5	6	0	0	0	1	0

Friends of the Bay 2014 Water Quality Data - **Laurel Hollow LH2**

	Date	H20 Temp TOP (0.5m) (^{o}C)	H_20 Temp 1 m (^{o}C)	H_20 Temp 0.5m from BTM (^{o}C)	Salinity TOP (0.5m) (ppt)	Salinity 1 m (ppt)	Salinity 0.5 m from BTM (ppt)	pH Top (0.5m)	pH 1 m	pH 0.5m from BTM	DO TOP (0.5m) (ppm)	DO 1 m (ppm)	DO 0.5m from BTM (ppm)	Secchi (m)	Depth (m)	Air Temp (^{o}C)	H_2O Temp BTM monthly AVG (^{o}C)	Fecal Coliform Bacteria (CFU/100ml)	Enterococci (CFU/100ml)	Ammonia (NH_3) (mg/l)	Nitrate/Nitrite (NO_3-NO_2) (mg/l)	Total Kjeldahl Nitrogen (TKN) (mg/l)	Organic Nitrogen (N) (mg/l)	Total Nitrogen (mg/l)	Rainfall in 24 hours	Tidal Stage	Water Color	Surface Conditions	Wave Height	Cloud Cover	Wind Speed	Wind Direction	Weather
LH2	6/23/2014	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
LH2	6/30/2014	**bacteria only**																4	<1														
LH2	7/7/2014	**bacteria only**																1	<1														
LH2	7/14/2014	** NO SAMPLES TAKEN** ** WEATHER CONDITION**																														
LH2	7/21/2014	**bacteria only**																3	<1														
LH2	7/28/2014	**bacteria only**																2	<1							4	5	6	4	0	0	3	1
LH2	8/4/2014	**bacteria only**																5	4														
LH2	8/11/2014	**bacteria only**																8	3						0	4	5	6	0	0	0	1	0

	Friends of the Bay 2014 Water Quality Data -**Laurel Hollow LH3**																																	
	Date	**H20 Temp TOP (0.5m) (^oC)**	**H_20 Temp 1 m (^oC)**	**H_20 Temp 0.5m from BTM (^oC)**	**Salinity TOP (0.5m) (ppt)**	**Salinity 1 m (ppt)**	**Salinity 0.5 m from BTM (ppt)**	**pH Top (0.5m)**	**pH 1 m**	**pH 0.5m from BTM**	**DO TOP (0.5m) (ppm)**	**DO 1 m (ppm)**	**DO 0.5m from BTM (ppm)**	**Secchi (m)**	**Depth (m)**	**Air Temp (^oC)**	**H_2O Temp BTM monthly AVG (^oC)**	**Fecal Coliform Bacteria (CFU/100ml)**	**Enterococci (CFU/100ml)**	**Ammonia (NH_3) (mg/l)**	**Nitrate/Nitrite (NO_3-NO_2) (mg/l)**	**Total Kjeldahl Nitrogen (TKN) (mg/l)**	**Organic Nitrogen (N) (mg/l)**	**Total Nitrogen (mg/l)**	**Rainfall in 24 hours**	**Tidal Stage**	**Water Color**	**Surface Conditions**	**Wave Height**	**Cloud Cover**	**Wind Speed**	**Wind Direction**	**Weather**
LH3	6/23/2014	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
LH3	6/30/2014	**bacteria only**																2	1														
LH3	7/7/2014	**bacteria only**																4	<1														
LH3	7/14/2014	** NO SAMPLES TAKEN** ** WEATHER CONDITION**																															
LH3	7/21/2014	**bacteria only**															LA * BOTTLE RECEIVED CRACKED	NO TESTING*	LA													
LH3	7/28/2014	**bacteria only**																5	<1							4	5	6	4	0	0	3	1
LH3	8/4/2014	**bacteria only**																9	1														
LH3	8/11/2014	**bacteria only**																8	<1						0	4	5	6	0	0	0	1	0

Appendix F

Stream and Outfall Monitoring Program Data and Preliminary Plots

FUSS & O'NEILL

Friends of the Bay Stream and Outfall Water Quality Monitoring Results

GENERAL							QUALITATIVE				FIELD PARAMETERS					BACTERIA		NUTRIENTS				PHYSICAL				METALS							QA/QC		HARDNESS - DEPENDENT STANDARD						NOTE
Sample ID	Location Description	Sampling Round	Wet or Dry Weather Event	Event Precipitation	Sample Collection Date	Sample Collection Time (Field Data Sheet)	Odor (0-3)	Color (0-3)	Particulate (0-3)	Floatables (0-3)	D.O., mg/L	Spec. Cond. (mS/cm)	pH	Temperature, °C	Estimated Flow Rate (cfs)	E. Coli, /100 mls.	Fecal Coliform, /100 mls.	Ammonia as N, mg/L	Nitrate as N, mg/L	TKN, mg/L	Phosphorus as P, mg/L	BOD, mg/L	COD, mg/L	TSS, mg/L	Turbidity, NTU	Hardness as CaCO3, mg/L	Lead, mg/L	Copper, mg/L	Zinc, mg/L	Magnesium, mg/L	Calcium, mg/L	Alkalinity as CaCO3, mg/L	D.O., mg/L	D.O. RPD (%)	Lead, mg/L EPA CMC (acute)	Lead, mg/L EPA CCC (chronic)	Copper, mg/L EPA CMC (acute)	Copper, mg/L EPA CCC (chronic)	Zinc, mg/L EPA CMC (acute)	Zinc, mg/L EPA CCC (chronic)	
Standard 6 NYCRR 703											4	780	6.5 - 8.5	32.2	-	-	-	TABLE	10 mg/L	mg/L - Nit	-	-	-	-	-	-	CALC	CALC	CALC	-	-	-								
Sample																																							
VAR - OBS-1	DeForest outfall		W	0.69"	8/14/2013	10:50 AM	1	1	1	1	7.18	0.573	7.000	17.04		480	230	0.962	3.83	2.84			<10.0	<10.0		103	<0.040	0.012	0.032	9.2	25.9										
OBS-2	Beaver Lake		W	0.69"	8/14/2013	12:38 PM		1	1		11.28	0.284	9.460	24.20		27	49	<0.050	<0.035	3.11			<10.0	14		60.6	<0.040	<0.004	<0.020	7.04	12.7										
OBS-3	Beekman Creek		W	0.69"	8/14/2013	12:02 PM	1	1	1	1	9.05	0.179	7.610	14.86		620	200	<0.050	2.74	1.58			<10.0	<10.0		52.4	<0.040	<0.004	0.030	5.35	12.2										
OBS-4	Mill River Headwaters		W	0.69"	8/14/2013	12:21 PM	1	1	1	1	8.00	0.262	7.100	16.36		1200	270	<0.050	2.8	1.98			<10.0	<10.0		62.9	<0.040	0.007	0.051	6.25	14.9		8.00	0.0							
OBS-5	Mill River Outlow		W	0.69"	8/14/2013	11:49 AM				1	14.29	0.203	7.470	20.42		8	210	<0.050	1.07	1.57			<10.0	<10.0		49.2	<0.040	0.005	0.045	4.82	11.7										
OBS-6	White's Creek		W	0.69"	8/14/2013	11:24 AM	1	1	1	1	8.50	0.390	7.050	15.65		260	130	<0.050	4.47	0.544			<10.0	<10.0		80.0	<0.040	0.004	0.020	7.41	19.8										
OBS-7	Tiffany Creek		W	0.69"	8/14/2013	11:10 AM	1	1	1	1	7.22	0.161	7.370	17.85		730	33	<0.050	1.13	0.919			<10.0	<10.0		44.4	<0.040	<0.004	0.023	4.04	11.1										
OBS-8	DeForest Pond		W	0.69"	8/14/2013	10:40 AM	1	1	1	1	9.53	0.208	7.940	16.83		10	80	<0.050	3.39	0.882			<10.0	<10.0		52.2	<0.040	<0.004	<0.020	5.08	12.5										
OBS-9	St. John's Pond		W	0.69"	8/14/2013	10:18 AM	1	1	1	1	11.08	0.141	8.670	22.92		37	80	<0.050	1.47	1.85			<10.0	<10.0		28.0	<0.040	0.004	0.021	2.9	6.41										
OBS-1b	Adams Ave outfall B'ville		W	0.69"	8/14/2013	1:01 PM	1	1	1	1	7.81	3.330	8.370	21.35		2500	1500	<0.050	0.961	0.949			<10.0	<10.0		308.0	<0.040	0.004	0.038	61.7	21.5										
Field Duplicate																																							
Reporting Limit																																							
Standard Reported																																							

X - sample cracked

GENERAL							QUALITATIVE				FIELD PARAMETERS					BACTERIA		NUTRIENTS				PHYSICAL				METALS							QA/QC		HARDNESS - DEPENDENT STANDARD						NOTE
Sample ID	Location Description	Sampling Round	Wet or Dry Weather Event	Event Precipitation	Sample Collection Date	Sample Collection Time (Field Data Sheet)	Odor (0-3)	Color (0-3)	Particulate (0-3)	Floatables (0-3)	D.O., mg/L	Spec. Cond. (mS/cm)	pH	Temperature, °C	Estimated Flow Rate (cfs)	E. Coli, /100 mls.	Fecal Coliform, /100 mls.	Ammonia as N, mg/L	Nitrate as N, mg/L	TKN, mg/L	Phosphorus as P, mg/L	BOD, mg/L	COD, mg/L	TSS, mg/L	Turbidity, NTU	Hardness as CaCO3, mg/L	Lead, mg/L	Copper, mg/L	Zinc, mg/L	Magnesium, mg/L	Calcium, mg/L	Alkalinity as CaCO3, mg/L	D.O., mg/L	D.O. RPD (%)	Lead, mg/L EPA CMC (acute)	Lead, mg/L EPA CCC (chronic)	Copper, mg/L EPA CMC (acute)	Copper, mg/L EPA CCC (chronic)	Zinc, mg/L EPA CMC (acute)	Zinc, mg/L EPA CCC (chronic)	
Standard 6 NYCRR 703											4	780	6.5 - 8.5	32.2	-	-	-	TABLE	10 mg/L	mg/L - Nit	-	-	-	-	-	-	CALC	CALC	CALC	-	-	-								
Sample																																							
VAR - OBS-1	DeForest outfall				12/5/2013																																		
OBS-2	Beaver Lake		W	0.03"	12/5/2013	9:13 AM	1	1	1	1	10.04	0.191	6.510	6.32		51	<1	0.153	1.28	1.12			16.4	<10.0		50.6	<0.040	<0.004	<0.020	4.95	12.1		X								
OBS-3	Beekman Creek		W	0.03"	12/5/2013	9:31 AM	1	1	1	1	8.40	0.193	6.680	10.25		80	1900	0.056	2.76	0.374			<10.0	<10.0		57.9	<0.040	<0.004	0.222	5.78	13.6										
OBS-4	Mill River Headwaters		W	0.03"	12/5/2013	9:43 AM	1	1	1	1	7.75	0.272	6.500	10.62		130	9	0.07	2.99	0.731			<10.0	20		70	<0.040	<0.004	<0.020	6.9	16.7		7.6	0.2							
OBS-5	Mill River Outlow		W	0.03"	12/5/2013	9:58 AM	1	1	1	1	8.40	0.232	6.650	7.80		1500	58	0.212	2.32	0.854			<10.0	12		51.2	<0.040	<0.004	0.037	4.96	12.3										
OBS-6	White's Creek		W	0.03"	12/5/2013	10:17 AM	1	1	1	1	7.94	0.406	6.810	13.00		3200	4400	<0.050	4.22	0.376			<10.0	34		88.2	<0.040	<0.004	0.021	8.08	22										
OBS-7	Tiffany Creek		W	0.03"	12/5/2013	10:41 AM	1	1	1	1	8.09	0.170	7.030	8.30		50	23	0.06	1.64	0.71			<10.0	26		46.9	<0.040	<0.004	<0.020	4.3	11.7										
OBS-8	DeForest Pond		W	0.03"	12/5/2013	11:15 AM	1	1	1	1	7.10	0.230	6.440	10.40		12	9	0.198	3.97	0.839			12.1	36		54.5	<0.040	<0.004	0.021	5.09	13.4										
OBS-9	St. John's Pond		W	0.03"	12/5/2013	11:00 AM	1	1	1	1	10.16	0.149	6.960	6.70		<1	43	0.066	1.35	0.687			<10.0	12		28.7	<0.040	<0.004	<0.020	2.92	6.67		10	0.2							
OBS-1b	Adams Ave outfall B'ville		W	0.03"	12/5/2013	8:53 AM	1	1	1	1	9.44	1.600	6.040	9.20		10500	1900	<0.050	0.551	0.449			14.1	24		676.0	<0.040	<0.004	<0.020	136	46.1										
Field Duplicate																																							
Reporting Limit																																							
Standard Reported																																							

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Friends of the Bay Stream and Outfall Water Quality Monitoring Results

GENERAL							QUALITATIVE				FIELD PARAMETERS					BACTERIA				NUTRIENTS				PHYSICAL				METALS							QA/QC		HARDNESS - DEPENDENT STANDARD						NOTE
Sample ID	Location Description	Sampling Round	Wet or Dry Weather Event	Event Precipitation	Sample Collection Date	Sample Collection Time (Field Data Sheet)	Odor (0-3)	Color (0-3)	Particulate (0-3)	Floatables (0-3)	D.O., mg/L	Spec. Cond. (mS/cm)	pH	Temperature, °C	Estimated Flow Rate (cfs)	Fecal Coliform, /100 mls.		enterococci, /100 mls.		Ammonia as N, mg/L	Nitrate as N, mg/L	TKN, mg/L	Phosphorus as P, mg/L	BOD, mg/L	COD, mg/L	TSS, mg/L	Turbidity, NTU	Hardness as CaCO3, mg/L	Lead, mg/L	Copper, mg/L	Zinc, mg/L	Magnesium, mg/L	Calcium, mg/L	Alkalinity as CaCO3, mg/L	D.O., mg/L	D.O. RPD (%)	Lead, mg/L EPA CMC (acute)	Lead, mg/L EPA CCC (chronic)	Copper, mg/L EPA CMC (acute)	Copper, mg/L EPA CCC (chronic)	Zinc, mg/L EPA CMC (acute)	Zinc, mg/L EPA CCC (chronic)	
Standard 6 NYCRR 703											4	780	6.5 - 8.5	32.2	-	-		-		TABLE	10 mg/L	10 mg/L - Nitrate	-	-	-	-	-	-	CALC	CALC	CALC	-	-	-								
Sample																																									
OBS-1b	Adams Ave outfall B'ville		W	1.76"	7/16/2014	8:27	0	0	0	0	6.59	7.37	7.16	22.33		530	6	2800	8																							
OBS-2	Beaver Lake		W	1.76"	7/16/2014	8:48	0	1	1	0	6.70	0.22	8.50	25.04		86	4	110	5																							
OBS-3	Beekman Creek		W	1.76"	7/16/2014	9:00	0	0	0	0	7.60	0.19	7.24	13.90		43	4	630	6																		3.8	7.60							
OBS-4	Mill River Headwaters		W	1.76"	7/16/2014	9:14	0	0	0	0	7.10	0.29	7.22	15.10		220	5	2500	8																							
OBS-5	Mill River Outlow		W	1.76"	7/16/2014	9:28	0	0	0	1	6.51	1.06	7.30	21.37		146	5	230	5																		6.8	6.51							
OBS-6	White's Creek		W	1.76"	7/16/2014	9:38	0	0	0	0	7.70	0.45	7.25	15.92		270	6	580	6																							
OBS-7	Tiffany Creek		W	1.76"	7/16/2014	10:10	0	0	0	0	6.10	0.18	7.19	19.79		220	5	1100	7																							
OBS-8	DeForest Pond		W	1.76"	7/16/2014	10:48	0	0	0	0	6.71	0.93	6.87	16.87		182	5	230	5																							
OBS-9	St. John's Pond		W	1.76"	7/16/2014	10:33	0	0	0	0	7.07	0.17	7.42	25.25		32	3	15	3																		10.2	10.65							
VAR - OBS-10	44 Shore Rd. CSH - outfall		W	1.76"	7/16/2014	10:55	0	0	0	0	6.93	0.18	6.89	15.41		53	4	2100	8																							
VAR-OBS-11	Laurel Hollow Beach outfall		W	1.76"	7/16/2014	11:28	0	0	0	0	3.45	26.80	7.07	22.37		1700	7	5200	9																							
Field Duplicate																																									
Reporting Limit																																									
Standard Reported																																									

X - sample cracked

GENERAL							QUALITATIVE				FIELD PARAMETERS					BACTERIA				NUTRIENTS				PHYSICAL				METALS							QA/QC		HARDNESS - DEPENDENT STANDARD						NOTE
Sample ID	Location Description	Sampling Round	Wet or Dry Weather Event	Event Precipitation	Sample Collection Date	Sample Collection Time (Field Data Sheet)	Odor (0-3)	Color (0-3)	Particulate (0-3)	Floatables (0-3)	D.O., mg/L	Spec. Cond. (mS/cm)	pH	Temperature, °C	Estimated Flow Rate (cfs)	Fecal Coliform, /100 mls.		enterococci, /100 mls.		Ammonia as N, mg/L	Nitrate as N, mg/L	TKN, mg/L	Phosphorus as P, mg/L	BOD, mg/L	COD, mg/L	TSS, mg/L	Turbidity, NTU	Hardness as CaCO3, mg/L	Lead, mg/L	Copper, mg/L	Zinc, mg/L	Magnesium, mg/L	Calcium, mg/L	Alkalinity as CaCO3, mg/L	D.O., mg/L	D.O. RPD (%)	Lead, mg/L EPA CMC (acute)	Lead, mg/L EPA CCC (chronic)	Copper, mg/L EPA CMC (acute)	Copper, mg/L EPA CCC (chronic)	Zinc, mg/L EPA CMC (acute)	Zinc, mg/L EPA CCC (chronic)	
Standard 6 NYCRR 703											4	780	6.5 - 8.5	32.2	-	-		-		TABLE	10 mg/L	10 mg/L - Nitrate	-	-	-	-	-	-	CALC	CALC	CALC	-	-	-								
Sample																																									
OBS-1b	Adams Ave outfall B'ville		D	0	10/29/2014	9:44	0	0	0	0	9.12	5.590	7.300	15.31		1100	7	800*																								
OBS-2	Beaver Lake		D	0	10/29/2014	9:26	0	1	0	1	11.18	0.252	7.78	14.04		54	4	6	2																							
OBS-3	Beekman Creek		D	0	10/29/2014	10:08	0	0	0	0	9.61	0.196	7.270	12.22		21	3	110*																			9.4	9.61							
OBS-4	Mill River Headwaters		D	0	10/29/2014	9:07	0	0	0	1	8.40	0.295	7.080	12.97		64	4	45	4																							
OBS-5	Mill River Outlow		D	0	10/29/2014	8:55	0	1	0	1	9.21	0.323	7.520	13.10		73	4	460	6																							
OBS-6	White's Creek		D	0	10/29/2014	8:37	0	0	0	0	9.12	0.440	7.390	15.54		3400	8	4400	8																							
OBS-7	Tiffany Creek		D	0	10/29/2014	10:55	0	0	0	1	7.82	0.181	7.310	16.88		73	4	100*																								
OBS-8	DeForest Pond		D	0	10/29/2014	11:57	0	0	0	0	10.35	0.234	7.320	13.97		26	3	7	2																							
OBS-9	St. John's Pond		D	0	10/29/2014	11:40	0	1	0	0	10.65	0.160	7.620	13.92		22	3	2	1																		10.2	10.65							
VAR - OBS-10	Laurel Hollow Beach outfall		D	0	10/29/2014	11:21	0	0	0	0	2.52	44.400	7.510	16.01		280	6	1800*																								
VAR - OBS-11	DeForest / Main St. outfall		D	0	10/29/2014	12:06	0	1	0	0	8.10	0.599	7.320	14.64		700	7	70*																								
Field Duplicate																																									
Reporting Limit																																									
Standard Reported																																									

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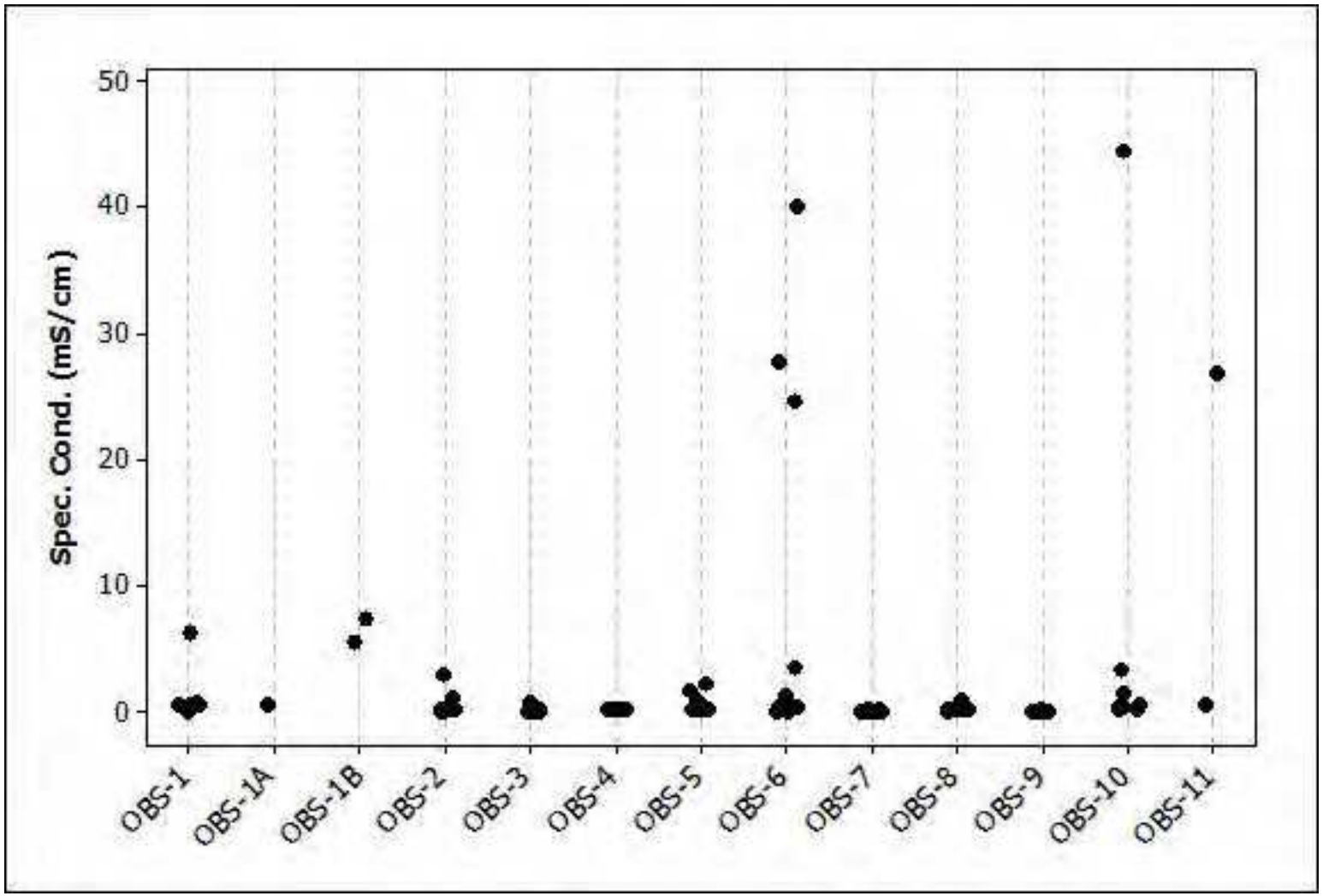

Figure 1. Specific Conductivity locational plot for all monitoring locations, 2007-2014.

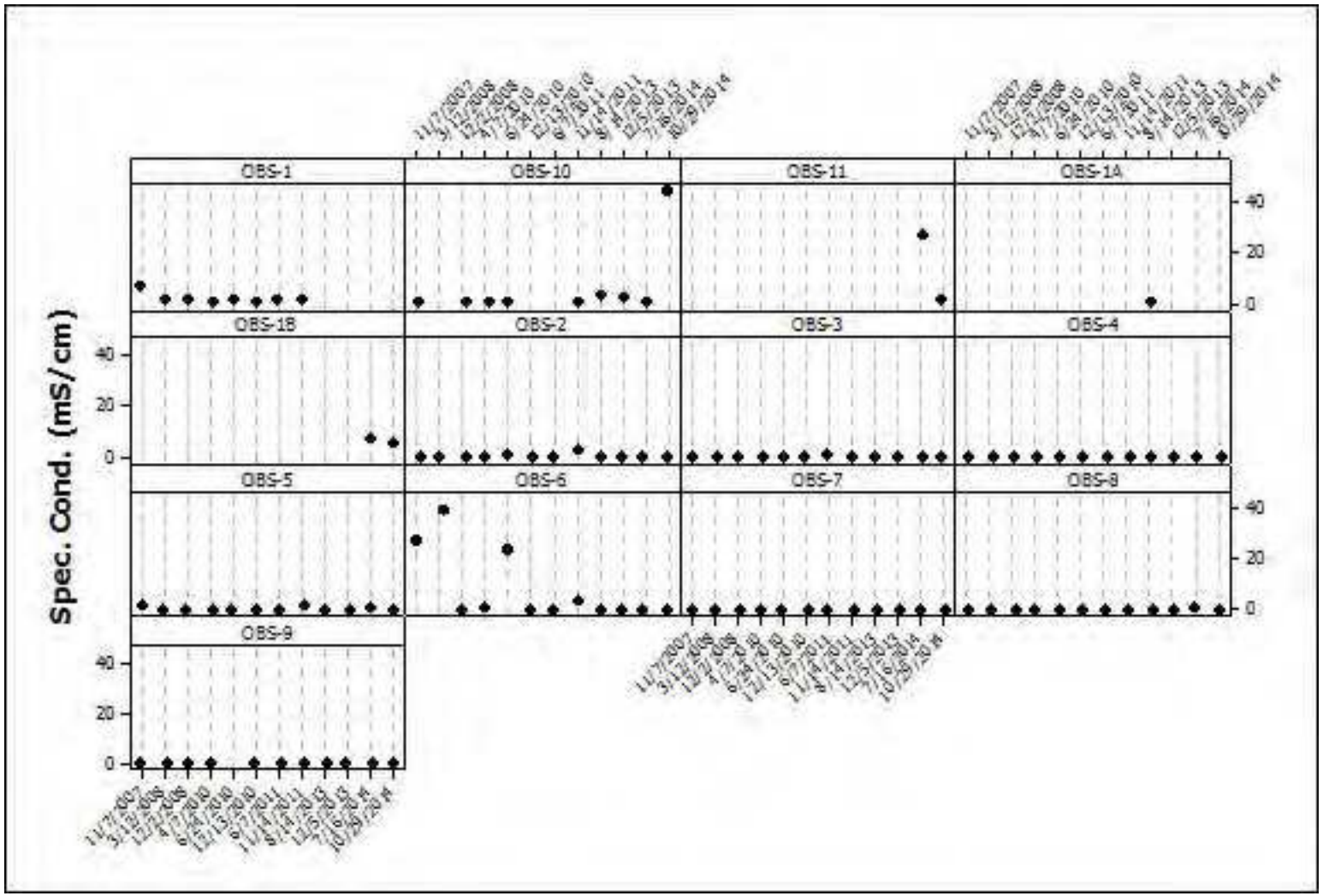

Figure 2. Specific Conductivity time series plot for all monitoring locations, 2007-2014.

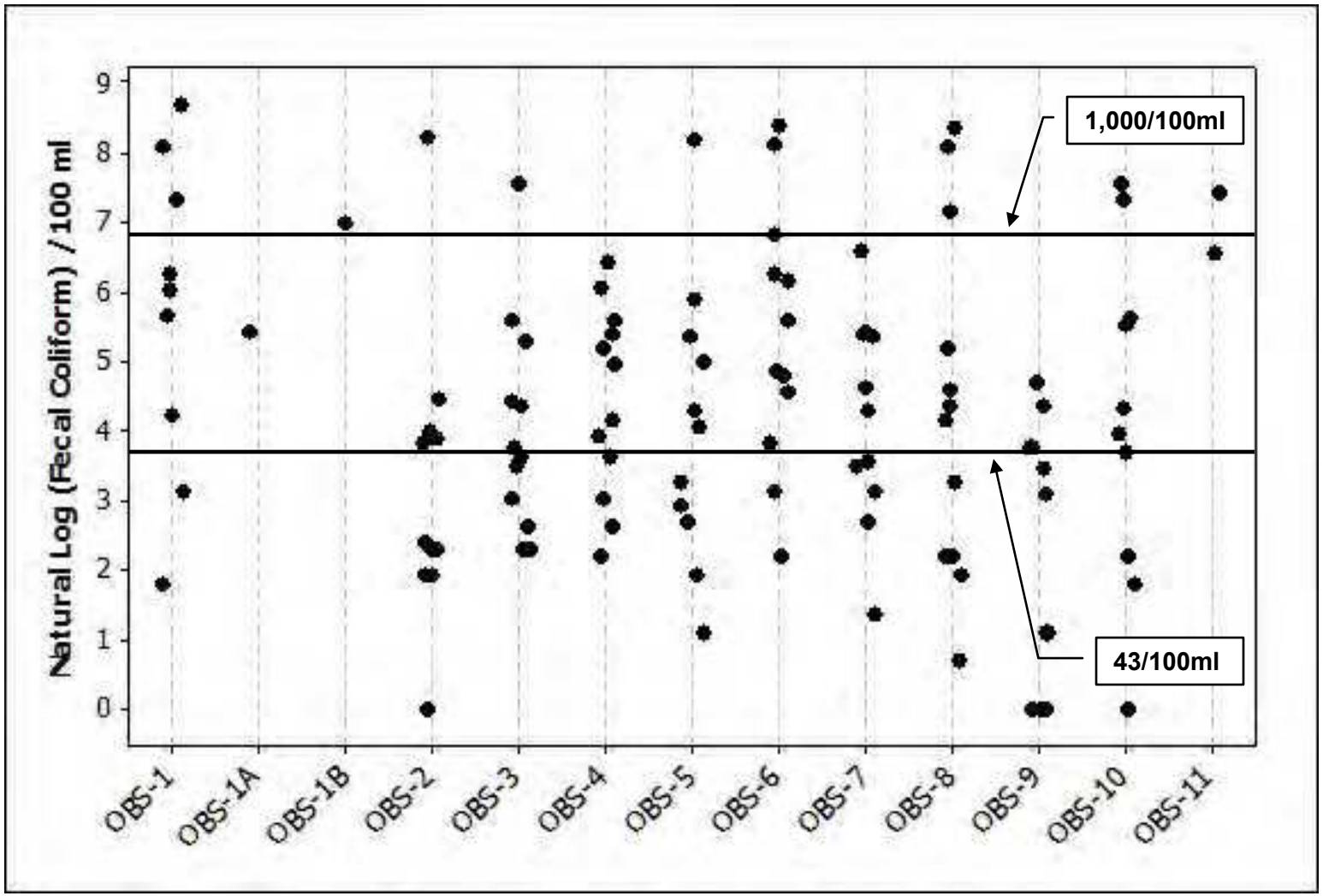

Figure 3. Fecal Coliform locational plot for all monitoring locations, 2007-2014.
(NYS Standards for Individual Samples: Shellfish = 43 MPN/100 mL; Swimming = 1,000 MPN/100 mL)

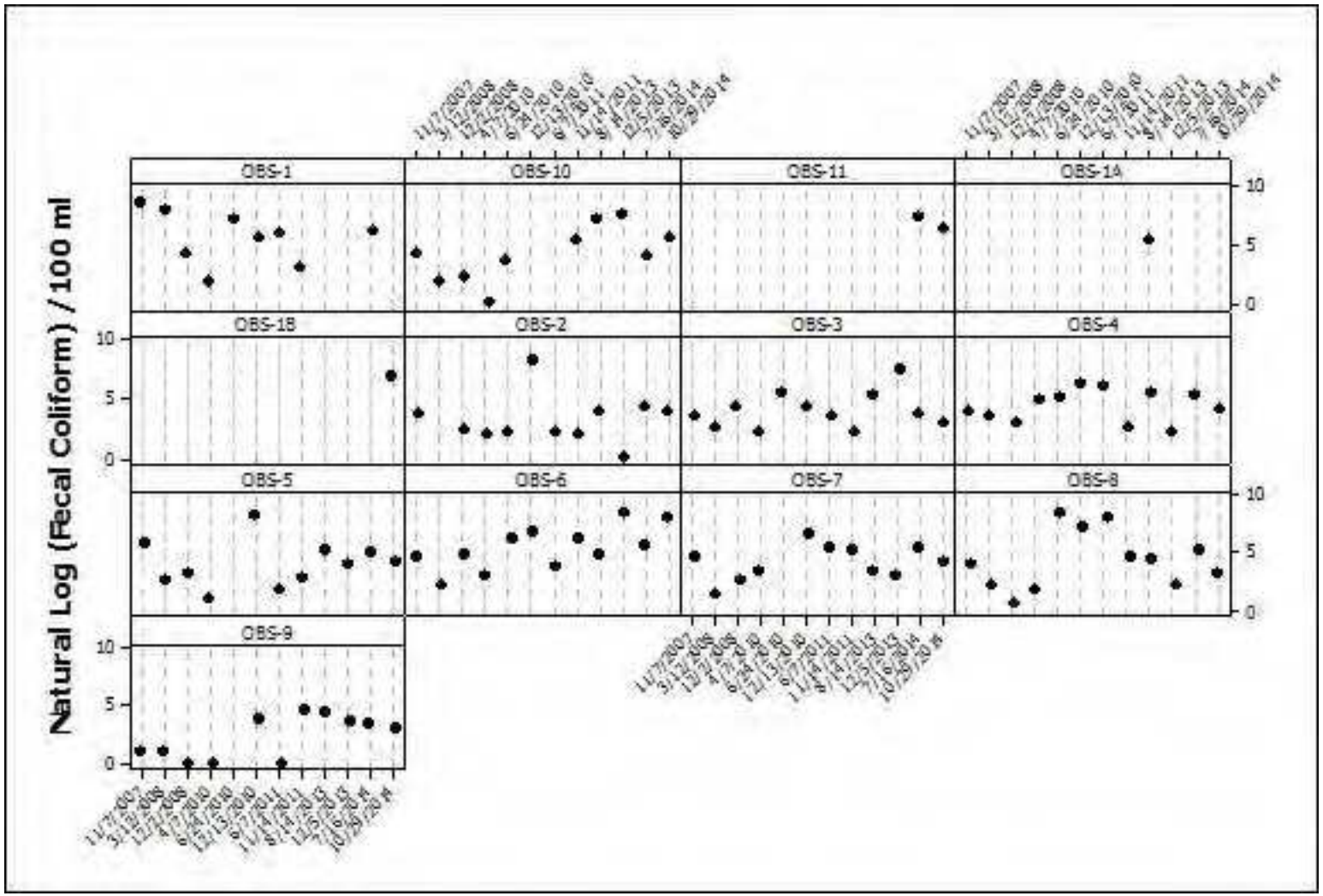

Figure 3. Fecal Coliform time series plot for all monitoring locations, 2007-2014.

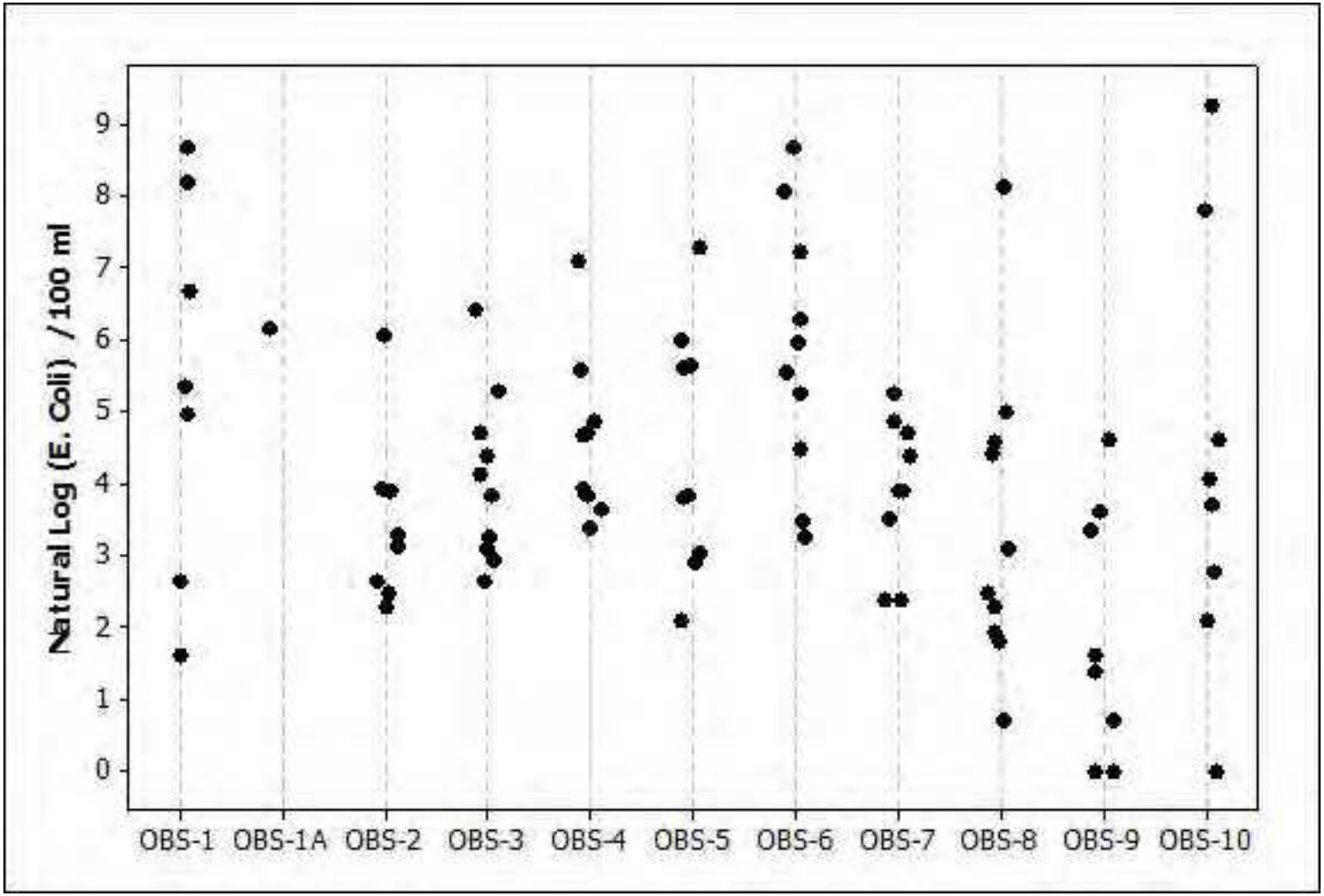

Figure 4. E. Coli locational plot for all monitoring locations, 2007-2013.

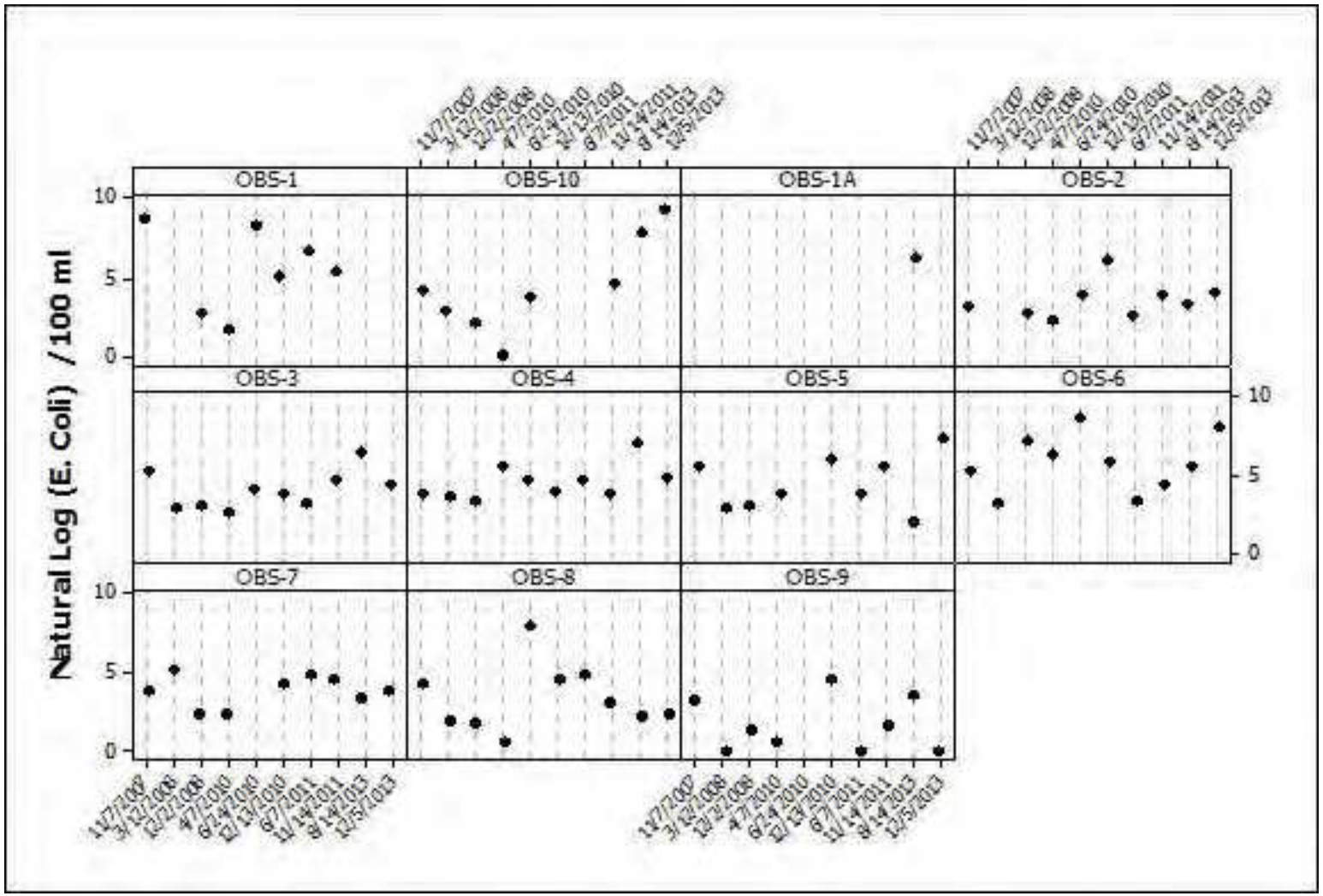

Figure 5. E. Coli time series plot for all monitoring locations, 2007-2013.

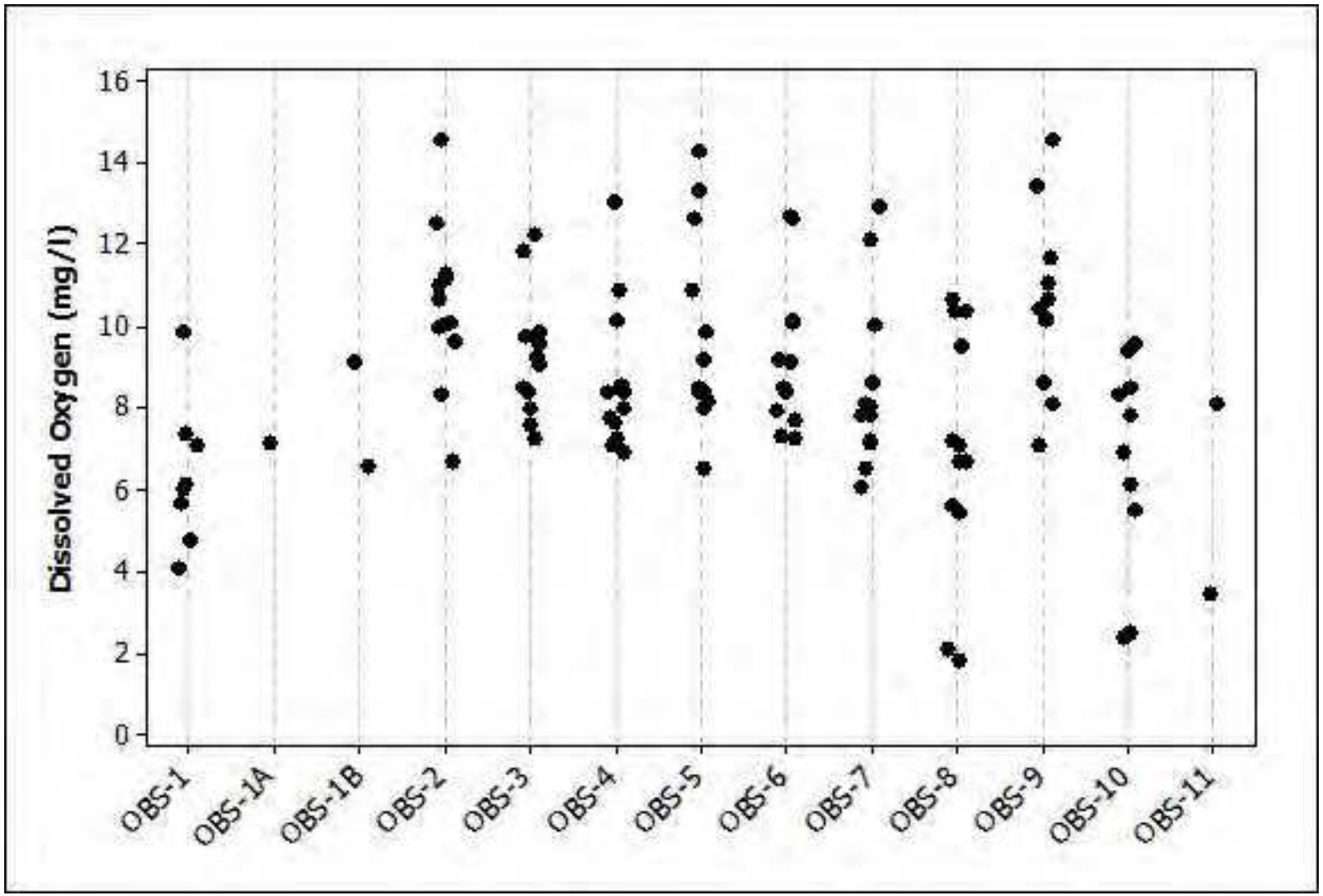

Figure 6. Dissolved oxygen locational plot for all monitoring locations, 2007-2013.

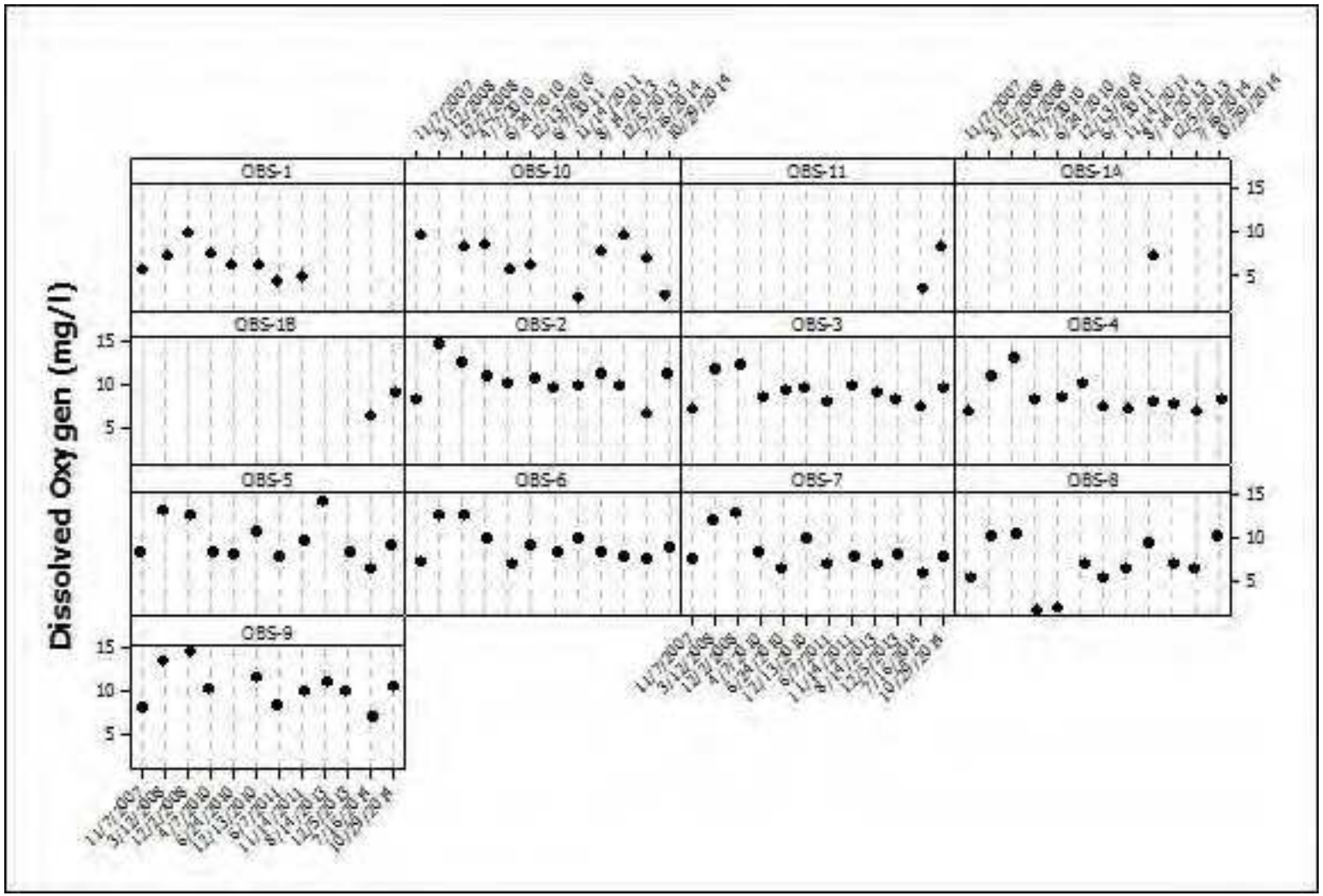

Figure 7. Dissolved oxygen time series plot for all monitoring locations, 2007-2013.