

**NEW YORK CITY**

**2019**

**BEACH SURVEILLANCE AND  
MONITORING PROGRAM**



Photo by DOHMH Beach Program Staff

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# SECTION 1

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## INTRODUCTION

In accordance with the New York City Administrative Code §18-131(c)(4), this annual report summarizes the 2019 New York City Beach Surveillance and Monitoring Program for beaches permitted by the Department of Health and Mental Hygiene (DOHMH or the “Department”). This law requires that the Health Commissioner “forward a combined report of the dates and results of all inspections of all beaches and the dates and reasons for any warning advisory or closure, and such other information deemed appropriate by the Commissioner of Health and Mental Hygiene, for the Friday proceeding the last Monday of May until the Friday after the first Monday of September of each year, to the mayor, the public advocate and the speaker of the council.”

With the principal goal of protecting ocean beachgoers from potential health and safety hazards, the Department closely monitors and conducts surveillance of permitted beaches in New York City. Under the regulatory directive and authority of both Article 167 of the New York City Health Code (Article 167) and Subpart 6-2 of the New York State Sanitary Code (Subpart 6-2), the Department administers the Beach Surveillance and Monitoring Program for all beaches operating within the city limits and with a permit issued by the Department. The Program responsibilities include: 1) beach monitoring and surveillance 2) public notification and communication, and 3) safety inspections.

The city’s beaches function as an important recreational resource for city residents and neighboring communities. As shown in Figure 1 (page 2) and Table 1 (page 3), there are eight public beaches operated by the Department of Parks and Recreations (the Parks Department) and 17 privately operated beaches permitted within New York City limits.

This year, public beaches remained open an additional week – until September 8<sup>th</sup> – for the 2019 beach season to coincide with the school calendar.

**FIGURE 1: NEW YORK CITY PERMITTED BEACHES**



 = Public Beach (NYC Dept. Parks and Recreation)



**TABLE 1: NEW YORK CITY PERMITTED BEACHES AND WATER BODY IDENTIFICATION**

Borough	Beaches	Water Body
Brooklyn	<i>Public:</i> Coney Island, Manhattan <i>Private:</i> Seagate, Kiddie Gerritsen, Kingsborough	Lower New York Harbor
Bronx	<i>Public:</i> Orchard Beach <i>Private:</i> American Turner, Danish American, Manhem, White Cross Fishing, Morris Yacht Club, Schuyler Hill, Trinity Danish, Locust Point Yacht Club, West Fordham Street	Eastchester Bay, Western Long Island Sound
Queens	<i>Public:</i> Rockaway <i>Private:</i> Breezy Point	Atlantic Ocean
	<i>Private:</i> Douglaston Manor, Whitestone Booster Civic Association	Western Long Island Sound
Staten Island	<i>Public:</i> South Beach, Midland, Cedar Grove, Wolfe’s Pond Park <i>Private:</i> Staten Island YMCA	Lower New York Bay

**1.1 Public Risk Communication**

The Department continued its effort to improve public notification and risk communication during the 2019 beach season. Easy-to-interpret signs shown in Figure 2 were used for beach closures and warnings in 2019.

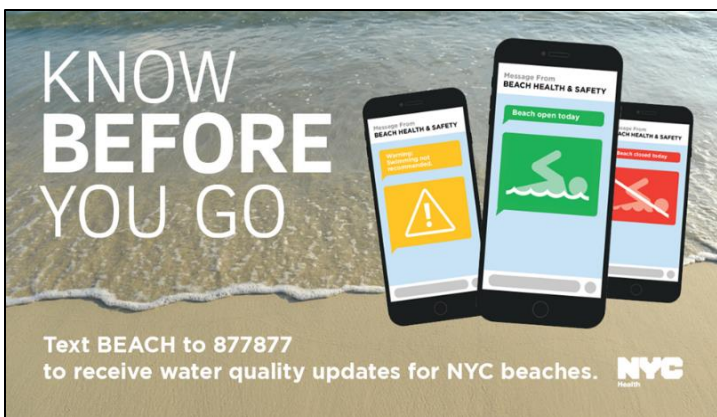
**FIGURE 2: BEACH WARNING AND CLOSED SIGNS**



“Know Before You Go”, a free texting service introduced in 2014, was continued for the 2019 beach season. The service enables subscribers to make informed decisions before they go to a public beach by checking if the beach is open or closed or if there are any warnings due to wet weather conditions or water quality concerns. Subscribers simply text “BEACH” to 877-877 to learn the status of any of the eight public beaches in New York City. This tool also can be used by the Department to deliver notifications of high priority water quality warnings or closures, as well as safety-related messages such as warnings for high rip currents, closures for extreme weather and when beaches open and close for the season.

In 2019, the Department’s outreach strategy included promotional posts on its social media platforms (Twitter, Facebook and Instagram), examples of which are shown in Figure 3. At the beginning of the season, the texting service had 12,225 English-language subscribers and 574 Spanish-language subscribers. By the close of the beach season, there were 13,086 English-language subscribers (7% increase) and 588 Spanish-language subscribers (2% increase).

**FIGURE 3: KNOW BEFORE YOU GO TEXTING PROGRAM**



## SECTION 2

### BACKGROUND INFORMATION

This chapter provides background information on the New York City Beach Surveillance and Monitoring Program.

#### 2.1 Water Quality Criteria

Under the New York State Sanitary Code §6-2.15, Article §167.13 of the New York City Health Code and the Federal Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH) Act, enterococcus is the indicator organism mandated for evaluating the microbiological quality of marine (saline) recreational beach water.

Under the New York State Sanitary Code and the New York City Health Code, enterococci concentrations for a single sample shall not exceed 104 Colony Forming Units (CFU's) per 100 mL (61 CFU's per 100 ml for fresh water), and the enterococci geometric mean shall not exceed 35 CFU's per 100 mL (33 CFU's per 100 ml for fresh water) for a series of five or more samples collected during a 30-day period. The geometric mean and single sample maximum are determined by analyzing samples for the presence and quantification of enterococci using membrane-filtration, EPA method 1600.

In November 2012, the Environmental Protection Agency (EPA) released revised recreational water quality criteria (RWQC). The revised criteria use a geometric mean and a statistical threshold value to indicate whether waters designated for primary contact recreation use are protective of human health. The 2012 revised criteria for marine waters are a 30-day geometric mean of 35 enterococci (CFU/100 mL) and a statistical threshold value of 130 enterococci (CFU/100 mL); the statistical threshold value is calculated as no more than 10% of samples within 30 days shall exceed the criteria. The EPA also introduced a Beach Action Value (BAV) of 70 enterococci (CFU/100 mL) to be used as a precautionary notification threshold for beach management, replacing earlier guidance that provided single sample maximum values. These water quality criteria have been adopted at the State level by the New York Department of Environmental Conservation (DEC), and become effective November 1, 2019. The New York State Department of Health (NYSDOH) plans to also promulgate equivalent bathing beach water quality standards in the State Sanitary Code, which may then be implemented by local beach programs in future seasons.

Also in the revised 2012 RWQC, EPA published criteria and standards for molecular analysis to detect and quantify *Enterococcus* spp. with rapid Polymerase Chain Reaction (qPCR) (EPA method 1609 and 1611). These are not required standards, but are optional methods of analysis which may be used by beach managers to potentially inform same-day decision making. In 2019, the Department initiated a pilot project to assess qPCR sampling and analysis implementation for



New York City beach surveillance and monitoring. The Department collected additional, paired samples from a selection of sites from July through September. These additional samples will be analyzed with methods qPCR method 1609 and Droplet Digital PCR (with use of Bio Rad’s QX 200 system). Based on these results, along with an assessment of the logistical viability of implementation, a larger validation study may be performed in 2020.

## 2.2 Rainfall Events

Pre-emptive rainfall thresholds have been developed for New York City beaches through statistical modeling of historical precipitation and water quality data. These preemptive thresholds are used as a management tool to provide a quick and reliable indication of water quality conditions. Because the majority of the city has combined stormwater and sewer conveyance systems, high levels of precipitation may result in combined sewage and stormwater runoff bypassing the treatment system and overflowing into local waterbodies. This phenomenon, known as Combined Sewer Overflow (CSO), poses a public health threat to nearby beaches. When preemptive rainfall thresholds are met, as defined in Table 2, a public notification or warning takes effect for the predetermined duration.

**TABLE 2: NEW YORK CITY PRE-EMPTIVE RAINFALL THRESHOLDS**

Beach (Borough)	Rainfall Threshold (within 24 hrs)	Duration of Warning
South Beach, Midland Beach, Cedar Grove, Staten Island YMCA (Staten Island), Manhattan Beach, Kingsborough Community College (Brooklyn)	1.5 – 2.5 inches	12 hours
	> 2.5 inches	24 hours
Orchard Beach (Brooklyn)	> 2.5 inches	24 hours
Coney Island (Brooklyn)	> 2.5 inches	12 hours
Gerritsen/Kiddie Beach (Brooklyn) Whitestone Booster (Queens)	0.3 - 0.6 inches	18 hours
	> 0.6 inches	40 hours
American Turner, Danish American, Manhem, White Cross, Morris Yacht, Schuyler Hill, Trinity Danish, Locust Point Yacht Club, West Fordham Street Association (Bronx)	0.6 – 2.5 inches	36 hours
	> 2.5 inches	48 hours
Douglaston Manor (Queens)	0.3 – 0.6 inches	30 hours
	> 0.6 – 2.5 inches	60 hours
	> 2.5 inches	72 hours

## 2.3 Beach Classifications

There are three swimming classifications for New York City beaches which are determined by assessing water quality, rainfall and pollution events, on-site sanitary surveys, and/or historical information. Beaches, except those specifically restricted under Article §167.05, are classified as follows:

**Class A: Open for Swimming and Wading.** Beaches may be classified as open and approved for swimming and wading when *all* of the following conditions are met:

1. Beach water quality is in accordance with standards defined under Article §167.13;
2. Sanitary and safety surveys are satisfactory in accordance with Article §167.25; and
3. The epidemiological history is satisfactory to the Department, i.e., no repeated complaints or reports of illness/injury received from the public or from owners/operators of city beaches.

**Class B: Warning – Not Recommended for Swimming and Wading.** Beaches may be classified as “Not Recommended for Swimming and Wading,” resulting in notifications to the public that swimming should be avoided to prevent contracting a swimming-related illness, when *one or more* of the following conditions exists:

1. Rainfall events exceed the pre-emptive rainfall thresholds; and/or
2. A water quality sample exceeds the water quality standard or a beach notification threshold. The notification should remain in effect until resampling indicates that the beach water quality standard and/or notification thresholds are being met; and/or
3. An on-site sanitary survey or investigation reveals the presence of floatable debris, medical/infectious waste or toxic contaminants, petroleum products and/or other contamination on the beach; or evidence of sewage and wastewater discharge.

**Class C: Closed – Temporarily Restricted for Swimming and Wading:** Beaches may be classified as “Temporarily Restricted for Swimming and Wading” when *one or more* of the following conditions exists:

1. Sampling by bacteriological testing that finds beach water quality exceeding the statutory water quality standard for marine water beaches; and/or
2. Epidemiological data indicates a significant incidence of related illnesses or repeated complaints/reports of illness/injury received from beach patrons; and/or
3. A sanitary and safety survey or an investigation reveals the presence of potentially hazardous amounts of floatable debris, medical/infectious waste, toxic contaminants, petroleum products or other contaminants on the beach, or there is evidence of sewage and wastewater discharges in sufficient quantities that will adversely affect the quality of the beach water; and/or

4. Any other environmental factors determined to be a public health or safety hazard by the Department.

## **2.4 Beach Monitoring and Surveillance**

Starting one month before the beach season, the Department monitors and samples each beach on a weekly basis with the exception of the Rockaway and Breezy Point beaches, which are sampled bi-weekly. In addition to routine water quality monitoring, the Department monitors on a daily basis the regional wet weather conditions and occasional Waste Water Treatment Plant (WWTP) bypasses, operational upsets and spills through interagency communication and cooperation. This information can be used to assess and make beach status determinations.

During a sample event, a routine on-site sanitary survey inspection is performed to identify any existing and/or potential sources of pollution that are likely to affect beach water quality. Water samples are collected at knee-depth (18 inches) in three feet of water, from the center, left and right of the beach. At larger beaches, such as Coney Island and Rockaway, samples are taken from multiple locations to ensure adequate representation and reliable results. The collected samples are delivered to the Department's Public Health Laboratory for analysis. The analytical turnaround time for enterococci is 24 hours.

The water quality of the samples analyzed is reviewed and assessed for conformance to applicable standards. If the regulatory limit for enterococci is exceeded or conditions exist that may pose a threat to the health and/or safety of the public, the Department initiates one of the following actions: conducts immediate re-sampling; issues a warning and conducts re-sampling; and/or closes the beach and conducts re-sampling. The determining factors for additional sampling may include: proximity to suspected pollution sources; extent of pollution; beach use; historical water quality data; and other health risk factors.

## **2.5 Public Notification and Risk Communication**

When beach status changes based upon evaluation and assessment of beach water quality as specified above, the Department notifies the public through on-site beach signage, website postings, 311 non-emergency government service hotline, Notify NYC (via Twitter, RSS feed, e-mail, and SMS), "Know Before You Go" texting service, and Department press releases when necessary. Beach operators are notified by phone, email and/or text as to the necessary on-site postings. The specific notification procedures and requirements for each of the above conditions are as follows:

**On-Site Signage:** When notified by the Department, the permittee is required to post or remove the warning or closure signs in designated areas visible to beach users such as beach entrances, bulletin boards, comfort stations or the general vicinity of the common swimming areas.

**“Know Before You Go” Texting Service:** Subscribers text “BEACH” to 877-877 to learn the beach status for any of the eight public beaches in New York City.

**Website Postings:** The Department has developed an easily accessible website with up-to-date information for all permitted beaches: [www.nyc.gov/health/beach](http://www.nyc.gov/health/beach). The website contains background information on the beach program, explains the causes and sources of surface water pollution, and summarizes the beach classification system, including the different types of warnings. A list of city beaches by borough, along with their respective status (Open, Closed, or Warning) and sample results are promptly updated on the website.

**Notify NYC:** When notified by the Department of status changes relating to public beaches, the Office of Emergency Management will share this information with members of the public who have signed up for Notify NYC status information via Twitter, RSS feed, e-mail and SMS.

**311:** The 311 telephone operators monitor the Department’s website for updates on warning or closure information, as described above, and convey that information to 311 callers. The public can also report a swimming-related illness via 311.

**NYC Press Release:** Press releases are disseminated to various types of media (newspaper, radio, website, television), as well as elected officials.

## **2.6 Inspections**

The Department conducts annual safety inspections and complaint inspections at bathing beaches to assure that (1) all staff, especially lifeguards and supervisors, have proper certificates and coverage, including CPR certification; (2) all required life-saving equipment is available, including rescue tubes, spine boards, first aid kits, and resuscitation equipment; (3) there is proper signage posted on site. Direct observations of conditions are supplemented by interviews with lifeguards and other personnel. The inspections also evaluate beach facility hygiene.

## SECTION 3

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### FINDINGS

#### **3.1 Water Quality and Illness Reporting**

Routine water quality monitoring and sample collection was performed at all 25 permitted beaches. Between April and September 2019, 1584 samples were collected and analyzed from these beaches. In 2019, the Department received two complaints in July regarding a potential illness caused by beach recreation activity at the Bronx private beach, Schuyler Hill Civic Association. These complaints were referred to the Bureau of Communicable Disease epidemiologists for follow-up investigation. After multiple attempts the respondents could not be contacted, and so the exposure and/or cause could not be verified.

Water quality sample results, including 30-day geometric mean and daily averages and any associated criteria exceedances can be found in Appendix A (pages 12 to 18). Warnings and closures issued by the Department throughout the season are summarized in Appendix B (pages 19 to 23).

In general, for private beaches, Douglaston Manor had the highest daily exceedance rate (25.8%), while Breezy Point 219, Breezy Point Reid, Sea Gate Beach Club, and West Fordham had no exceedances. Among public beaches, Cedar Grove, Manhattan, and Midland had the highest daily exceedance rates (5.0%), while Orchard, Rockaway, and South Beaches had no exceedances.

These exceedances may be due, in part, to particular precipitation and temperature patterns this year, which are consistent with recent increases in the summer heat index, as well as increases in total precipitation in the Northeast United States. According to the National Oceanic and Atmospheric Administration's National Climate Report (NOAA, 2019), average temperatures and precipitation in the lower regions of New York State were much above average and at record highs from June to August 2019.

#### **3.2 Public Notification for Warnings and Closures**

There are 8 public beaches, all of which were issued at least one swimming advisory warning notice during the 2019 bathing season. However, there were no warnings or closures issued as a result of a water quality exceedances; all 22 notification days were a result of preemptive wet weather or tropical storm conditions. The length of notification ranged from 1 to 2 days.



There are 17 private beaches, of which 13 were issued at least one swimming advisory warning notice during the 2019 bathing season. Of the private beaches that were issued notifications, there were 517 total warning days (153 of which were a result of preemptive wet weather conditions). The length of the notifications ranged from 1 to 35 days, most of which ranged between 1 and 3 days. Douglaston Manor and Whitestone Booster had 74 and 70 notification days, respectively. The specific warning dates for each beach are shown in Appendix B (pages 19 to 23).

Due to storm warnings from the National Weather Service, all eight public beaches were preemptively closed to swimming on Friday September 6<sup>th</sup> through September 7<sup>th</sup> ahead of the landfall of Hurricane Dorian. On September 8<sup>th</sup>, all city beaches except Cedar Gove and Wolfe's Pond beaches, reopened until the end of the day for the season.

### **3.3 Inspections**

During the 2019 beach season, inspections of all 25 public and private beaches were successfully conducted by the Department. Four facilities were cited for violations at the time of inspection as detailed in Appendix C (page 24).

# APPENDIX A: 2019 WATER QUALITY RESULTS AND EXCEEDANCE

**Table A1-1: Brooklyn Beaches Water Quality Results**

**Enterococci 30 Day Geometric Mean/Daily Average (Count/100ml)**

*Water Quality Standards: 30-day geomean limit: 35cfu/100ml, Daily average limit: 104cfu/100ml*

Date of Week Ending	CONEY ISLAND BEACH (public)		MANHATTAN BEACH (public)		GERRITSEN/ KIDDIE BEACH (private)		KINGSBOROUGH COMMUNITY COLLEGE (private)		SEA GATE 42 <sup>ND</sup> (private)		SEA GATE BEACH CLUB (private)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/25/2019	6	5	12	15	35	13	12	11	12	7	7	4
6/1/2019	7	9	12	8	41	20	9	4	10	7	7	4
6/8/2019	6	4	17	20	63	77	14	92	14	66	8	11
6/15/2019	5	5	21	12	47	25	19	59	15	7	9	5
6/22/2019	5	5	10	5	21	15	16	12	8	4	5	4
6/29/2019	6	11	8	5	19	7	15	7	7	4	5	4
7/6/2019	5	5	7	4	16	11	15	4	6	4	5	7
7/13/2019	6	11	8	43	12	17	13	52	4	4	5	9
7/20/2019	6	7	7	4	8	4	8	4	4	5	5	4
7/27/2019	11	17	7	4	7	8	8	8	5	17	6	17
8/3/2019	10	37	6	4	7	5	8	8	8	39	7	8
8/10/2019	11	12	10	40	12	143	10	16	11	23	7	4
8/17/2019	10	4	6	4	10	4	6	4	11	4	7	16
8/24/2019	10	5	8	19	11	11	8	15	11	5	8	8
8/31/2019	6	5	11	23	12	11	15	395	16	79	7	5
9/7/2019	5	6	12	5	25	230	23	89	15	43		

Values highlighted in red indicate exceedance of recreational water quality criteria.

**Table A1-2: Bronx Beaches Water Quality Results**

**Enterococci 30 Day Geometric Mean/Daily Average (Count/100ml)**

*Water Quality Standards: 30-day geomean limit: 35cfu/100ml, Daily average limit: 104cfu/100ml*

Date of Week Ending	ORCHARD BEACH (public)		AMERICAN TURNER (private)		DANISH AMERICAN BEACH CLUB (private)		LOCUST POINT YACHT CLUB (private)		MANHEM CLUB (private)		MORRIS YACHT AND BEACH CLUB (private)		SCHUYLER HILL CIVIC ASSOC. (private)		TRINITY DANISH (private)		WEST FORDHAM STREET ASSOC. (private)		WHITE CROSS FISHING CLUB (private)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/25/2019	5	4	15	20	18	5	9	5	15	4	6	7	10	7	29	7	7	12	12	5
6/1/2019	7	29	23	39	33	128	12	17	26	65	7	17	11	11	49	59	9	21	21	64
6/8/2019	6	4	27	13	26	15	12	4	22	12	7	4	11	4	25	13	10	7	24	12
6/15/2019	6	4	52	100	72	747	26	380	49	243	10	25	20	97	50	265	14	25	46	113
6/22/2019	7	16	57	747	29	4	14	4	21	7	11	24	9	4	32	48	11	9	23	20
6/29/2019	8	12	139	2087	56	162	19	25	30	24	12	13	30	2533	56	103	14	28	45	159
7/6/2019	6	5	108	17	33	8	22	39	18	5	13	31	37	36	41	16	11	7	32	12
7/13/2019	6	4	90	5	26	4	22	4	14	4	13	4	37	4	34	4	11	4	30	9
7/20/2019	6	4	51	7	14	59	9	4	6	4	9	4	21	5	15	4	8	7	15	4
7/27/2019 *	8	29	20	7	25	12	14	49	17	16	10	29	45	197	21	12	11	33	21	5
8/3/2019	7	9	15	4	22	17	11	7	15	9	10	11	22	87	19	20	8	8	23	36
8/10/2019	8	15	17	21	25	15	8	9	16	15	8	13	18	16	25	65	8	7	21	8
8/17/2019	8	4	17	5	27	7	10	12	18	7	8	4	22	13	26	5	10	12	19	4
8/24/2019	8	4	27	99	35	200	10	7	31	113	12	25	28	23	45	104	10	7	35	160
8/31/2019	6	4	13	9	21	28	6	4	13	12	8	4	15	9	21	13	7	5	17	21
9/7/2019	5	4	13	4	17	5	6	7	11	4	16	240	14	40	17	4	7	8	11	4
9/14/2019							5	4			14	7					6	4		
9/21/2019											14	4					5	4		
9/28/2019											10	4								

\* mid-week sample result on 7/27/2019 at American Turner, Danish American, Manhem, Trinity Danish and White Cross Beaches resulted in water quality exceedance and not indicated in end-of-week table due to subsequent resample, indicated by shaded cells, see appendix B for description.

Values highlighted in red indicate exceedance of recreational water quality criteria.

**Table A1-3: Queens Beaches Water Quality Results**

**Enterococci 30 Day Geometric Mean/Daily Average (Count/100ml)**

*Water Quality Standards- 30-day geomean limit: 35cfu/100ml, Daily Average limit: 104cfu/100ml*

Date of Week Ending	ROCKAWAY BEACH* (public)		BREEZY POINT 219 (private)		BREEZY POINT Reid Ave (private)		WHITESTONE BOOSTER CIVIC ASSOCIATION (private)		DOUGLASTON MANOR ASSOCIATION (private)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/25/2019	4	5	4	4	4	4	37	24	67	183
6/1/2019							76	260	113	1633
6/8/2019	4	4	4	4	4	4	49	5	104	35
6/15/2019							59	147	253	427
6/22/2019	4	4	4	4	5	8	48	109	131	13
6/29/2019							58	57	100	48
7/6/2019	4	4	4	4	5	4	29	8	36	11
7/13/2019							34	23	28	13
7/20/2019	4	5	4	4	5	4	27	59	12	7
7/27/2019 *							38	460	24	13
8/3/2019	4	5	4	4	4	4	34	35	24	29
8/10/2019							36	12	30	47
8/17/2019	5	7	4	4	4	4	35	12	35	28
8/24/2019	5	14					26	9	46	32
8/31/2019							13	32	29	32
9/7/2019	6	8	6	12	4	4	12	33	28	27
9/14/2019									20	7

\* mid-week sample result on 7/27/2019 at Douglaston Beaches resulted in water quality exceedance and not indicated in end-of-week table due to subsequent resample, indicated by shaded cells, see appendix B for description.

Values highlighted in red indicate exceedance of recreational water quality criteria.

**Table A1-4: Staten Island Beaches Water Quality Results**

**Enterococci 30 Day Geometric Mean/Daily Average (Count/100ml)**

*Water Quality Standards- 30 day Geomean limit: 35cfu/100ml, Daily Average limit: 104cfu/100ml*

*Fresh Water Standards- 30 day Geomean limit: 33cfu/100ml, Daily Average limit: 61cfu/100ml*

Date of Week Ending	SOUTH BEACH (public)		MIDLAND BEACH (public)		CEDAR GROVE BEACH (public)		WOLFE'S POND BEACH (public)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/25/2019	9	7	10	4	15	4	10	4
6/1/2019	9	4	10	4	14	5	10	5
6/8/2019	9	5	11	7	15	12	11	7
6/15/2019	7	4	9	4	13	16	9	5
6/22/2019	4	4	4	4	6	5	5	4
6/29/2019	4	4	4	4	6	4	5	4
7/6/2019	4	4	4	4	6	4	4	4
7/13/2019	4	8	4	8	6	9	5	11
7/20/2019	4	4	4	4	5	4	5	4
7/27/2019	5	35	4	4	5	9	5	5
8/3/2019	5	4	4	4	6	5	6	9
8/10/2019	7	20	4	4	6	4	6	4
8/17/2019	7	9	4	4	5	5	5	4
8/24/2019	7	5	4	4	7	21	5	4
8/31/2019	6	4	4	4	6	8	6	21
9/7/2019	9	47	4	8	11	81	6	12



**Table A2-1: 2019 Summary of Beach Samples and Single-Sample Exceedances**

Beach	Sample Location	Total # of Samples	# of Sample exceed 104	% of Sample exceed 104
<b>ALL Beaches TOTAL</b>		<b>1584</b>	<b>149</b>	<b>9.4%</b>
<b>Public Beaches TOTAL</b>		<b>568</b>	<b>13</b>	<b>2.3%</b>
<b>Private Beaches TOTAL</b>		<b>1016</b>	<b>136</b>	<b>13.4%</b>

**Table A2-2: 2019 Public Beaches Samples and Single-Sample Exceedances**

Beach	Sample Location		Total # of Samples	# of Sample exceed 104	% of Sample exceed 104 (Location)	% of Sample exceed 104 (Beach)
CEDAR GROVE	CEDAR GROVE	Left	20	0	0.0%	5.0%
	CEDAR GROVE	Center	20	1	5.0%	
	CEDAR GROVE	Right	20	2	10.0%	
CONEY ISLAND	CONEY ISLAND BR. 15TH - 6TH	Center	20	1	5.0%	1.7%
	CONEY ISLAND BR. 6TH - OCEAN PKWY	Center	20	0	0.0%	
	CONEY ISLAND OCEAN PKWY - WEST 8TH	Center	20	0	0.0%	
	CONEY ISLAND WEST 8TH - PIER	Center	20	0	5.0%	
	CONEY ISLAND WEST 16TH - WEST 27TH	Center	20	0	0.0%	
	CONEY ISLAND WEST 28TH - WEST 37TH	Center	20	1	5.0%	
MANHATTAN BEACH	MANHATTAN BEACH	Left	20	1	5.0%	5.0%
	MANHATTAN BEACH	Center	20	1	5.0%	
	MANHATTAN BEACH	Right	20	1	5.0%	
MIDLAND BEACH	MIDLAND BEACH	Left	20	1	5.0%	5.0%
	MIDLAND BEACH	Center	20	1	5.0%	
	MIDLAND BEACH	Right	20	1	5.0%	
ORCHARD BEACH	ORCHARD BEACH	Left	20	0	0.0%	0.0%
	ORCHARD BEACH	Center	20	0	0.0%	
	ORCHARD BEACH	Right	20	0	0.0%	
ROCKAWAY BEACH	ROCKAWAY BEACH 9TH - 13TH	Center	11	0	0.0%	0.0%
	ROCKAWAY BEACH 15TH - 22TH	Center	11	0	0.0%	
	ROCKAWAY BEACH 23RD - 59TH	Center	11	0	0.0%	
	ROCKAWAY BEACH 59TH - 80TH	Center	11	0	0.0%	
	ROCKAWAY BEACH 80TH - 95TH	Center	11	0	0.0%	
	ROCKAWAY BEACH 95TH - 116TH	Center	11	0	0.0%	
	ROCKAWAY BEACH 116TH - 126TH	Center	11	0	0.0%	
	ROCKAWAY BEACH 126TH - 149TH	Center	11	0	0.0%	
SOUTH BEACH	SOUTH BEACH	Left	20	0	0.0%	0.0%
	SOUTH BEACH	Center	20	0	0.0%	
	SOUTH BEACH	Right	20	0	0.0%	
WOLFE'S POND BEACH	WOLFE'S POND BEACH	Left	20	0	0.0%	3.3%
	WOLFE'S POND BEACH	Center	20	1	5.0%	
	WOLFE'S POND BEACH	Right	20	1	5.0%	
<b>Public Beaches (Locations) Total</b>			<b>568</b>	<b>13</b>	<b>2.3%</b>	

**Table A2-3: 2019 Private Beaches Samples and Single-Sample Exceedances**

Beach	Sample Location		Total # of Samples	# of Sample exceed 104	% of Sample exceed 104 (Location)	% of Sample exceed 104 (Beach)
AMERICAN TURNER	AMERICAN TURNER	Left	21	5	23.8%	20.6%
	AMERICAN TURNER	Center	21	4	19.0%	
	AMERICAN TURNER	Right	21	4	19.0%	
BREEZY POINT 219	BREEZY POINT 219	Center	10	0	0.0%	0.0%
BREEZY POINT Reid	BREEZY POINT Reid Ave	Center	10	0	0.0%	0.0%
DANISH AMERICAN BEACH CLUB	DANISH AMERICAN BEACH CLUB	Left	21	5	23.8%	22.2%
	DANISH AMERICAN BEACH CLUB	Center	21	4	19.0%	
	DANISH AMERICAN BEACH CLUB	Right	21	5	23.8%	
DOUGLSTON MANOR ASSOCIATION	DOUGLSTON MANOR ASSOCIATION	Left	22	7	31.8%	25.8%
	DOUGLSTON MANOR ASSOCIATION	Center	22	5	22.7%	
	DOUGLSTON MANOR ASSOCIATION	Right	22	5	22.7%	
GERRITSEN/KIDDIE BEACH	GERRITSEN/KIDDIE BEACH	Left	20	4	20.0%	18.3%
	GERRITSEN/KIDDIE BEACH	Center	20	4	20.0%	
	GERRITSEN/KIDDIE BEACH	Right	20	3	15.0%	
KINGSBOROUGH COMMUNITY COLLEGE	KINGSBOROUGH COMMUNITY COLLEGE	Left	20	3	15.0%	10.0%
	KINGSBOROUGH COMMUNITY COLLEGE	Center	20	1	5.0%	
	KINGSBOROUGH COMMUNITY COLLEGE	Right	20	2	10.0%	
LOCUST POINT YACHT CLUB	LOCUST POINT YACHT CLUB	Left	21	1	4.8%	4.8%
	LOCUST POINT YACHT CLUB	Center	21	1	4.8%	
	LOCUST POINT YACHT CLUB	Right	21	1	4.8%	
MANHEM CLUB	MANHEM CLUB	Left	21	4	19.0%	17.5%
	MANHEM CLUB	Center	21	3	14.3%	
	MANHEM CLUB	Right	21	4	19.0%	
MORRIS YACHT AND BEACH CLUB	MORRIS YACHT AND BEACH CLUB	Left	23	1	4.3%	4.3%
	MORRIS YACHT AND BEACH CLUB	Center	23	1	4.3%	
	MORRIS YACHT AND BEACH CLUB	Right	23	1	4.3%	
SCHUYLER HILL CIVIC ASSOCIATION	SCHUYLER HILL CIVIC ASSOCIATION	Left	20	4	20.0%	20.0%
	SCHUYLER HILL CIVIC ASSOCIATION	Center	20	4	20.0%	
	SCHUYLER HILL CIVIC ASSOCIATION	Right	20	4	20.0%	
SEA GATE 42ND	SEA GATE 42ND	Left	20	0	0.0%	3.3%
	SEA GATE 42ND	Center	20	1	5.0%	
	SEA GATE 42ND	Right	20	1	5.0%	
SEA GATE BEACH CLUB	SEA GATE BEACH CLUB	Left	19	0	0.0%	0.0%
	SEA GATE BEACH CLUB	Center	19	0	0.0%	
	SEA GATE BEACH CLUB	Right	19	0	0.0%	
TRINITY DANISH	TRINITY DANISH	Left	21	3	14.3%	22.2%
	TRINITY DANISH	Center	21	5	23.8%	
	TRINITY DANISH	Right	21	6	28.6%	
WEST FORDHAM STREET ASSOCIATION	WEST FORDHAM STREET ASSOCIATION	Left	22	0	0.0%	0.0%
	WEST FORDHAM STREET ASSOCIATION	Center	22	0	0.0%	
	WEST FORDHAM STREET ASSOCIATION	Right	22	0	0.0%	
WHITE CROSS FISHING CLUB	WHITE CROSS FISHING CLUB	Left	21	5	23.8%	20.6%
	WHITE CROSS FISHING CLUB	Center	21	4	19.0%	
	WHITE CROSS FISHING CLUB	Right	21	4	19.0%	
WHITESTONE BOOSTER CIVIC ASSOCIATION	WHITESTONE BOOSTER CIVIC ASSOCIATION	Left	20	5	25.0%	23.3%
	WHITESTONE BOOSTER CIVIC ASSOCIATION	Center	20	4	20.0%	
	WHITESTONE BOOSTER CIVIC ASSOCIATION	Right	20	5	25.0%	
<b>Private Beaches (Locations) Total</b>			<b>956</b>	<b>133</b>	<b>13.9%</b>	

**Table A2-3: 2019 Private Freshwater Beach Samples and Single-Sample Exceedances (continued)**

Beach	Sample Location		Total # of Samples	# of Sample exceed 61	% of Sample exceed 61 (Location)	% of Sample exceed 61 (Beach)
Staten Island YMCA	Staten Island YMCA	Left	20	2	10.0%	6.7%
	Staten Island YMCA	Center	20	1	5.0%	
	Staten Island YMCA	Right	20	1	5.0%	
<b>Private Freshwater Beaches (Locations) Total</b>			<b>60</b>	<b>4</b>	<b>6.7%</b>	

## APPENDIX B: 2019 WARNINGS AND CLOSURES

**Table B-1: Summary of Beach Warnings and Closure**

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
<b>NYC ALL Beaches (N=25)</b>	Warning or Closure	Enterococci Exceedance or Rainfall Event	5/25/2019	9/08/2019	<b>2136</b>	<b>539</b>	<b>497</b>	<b>42</b>	<b>539</b>

**Table B-2 Public Beaches Warnings and Closures**

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)				
							Warning	Closure	Total		
<b>CEDAR GROVE</b>	Warning	Rainfall Event	07/23/2019	07/23/2019	104	1	1	2	3		
	Closure	Tropical Storm	09/06/2019	09/07/2019		2					
<b>CONEY ISLAND</b>	Warning	Rainfall Event	07/23/2019	07/23/2019	104	1	1	2	3		
	Closure	Tropical Storm	09/06/2019	09/07/2019		2					
<b>MANHATTAN BEACH</b>	Warning	Rainfall Event	07/23/2019	07/23/2019	104	1	1	2	3		
	Closure	Tropical Storm	09/06/2019	09/07/2019		2					
<b>MIDLAND BEACH</b>	Warning	Rainfall Event	07/23/2019	07/23/2019	104	1	1	2	3		
	Closure	Tropical Storm	09/06/2019	09/07/2019		2					
<b>ROCKAWAY BEACH</b>	Closure	Tropical Storm	09/06/2019	09/07/2019	105	2	0	2	2		
<b>ORCHARD BEACH</b>	Warning	Rainfall Event	07/18/2019	07/18/2019	104	1	1	2	3		
	Closure	Tropical Storm	09/06/2019	09/07/2019		2					
<b>SOUTH BEACH</b>	Warning	Rainfall Event	07/23/2019	07/23/2019	104	1	1	2	3		
	Closure	Tropical Storm	09/06/2019	09/07/2019		2					
<b>WOLFE'S POND PARK</b>	Closure	Tropical Storm	09/06/2019	09/07/2019	105	2	0	2	2		
<b>Public Beaches TOTAL</b>							<b>834</b>	<b>22</b>	<b>6</b>	<b>16</b>	<b>22</b>

**Table B-3 Private Beaches Warnings and Closures**

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
<b>AMERICAN TURNER</b>	Warning	Rainfall Event	05/30/2019	05/31/2019	51	2	47	9	56
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Enterococci Exceedance	06/13/2019	06/26/2019		14			
	Closure	Enterococci Exceedance	06/27/2019	07/03/2019		7			
	Warning	Enterococci Exceedance	07/04/2019	07/24/2019		21			
	Closure	Enterococci Exceedance	07/25/2019	07/26/2019		2			
	Warning	Enterococci Exceedance	07/27/2019	07/31/2019		5			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Rainfall Event	08/23/2019	08/24/2019		2			
<b>BREEZY POINT 219</b>					107	0	0	0	0
<b>BREEZY POINT REID</b>					107	0	0	0	0
<b>DANISH AMERICAN BEACH CLUB</b>	Warning	Rainfall Event	05/30/2019	05/30/2019	61	1	44	2	46
	Warning	Enterococci Exceedance	05/31/2019	06/05/2019		6			
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Enterococci Exceedance	06/13/2019	06/19/2019		7			
	Warning	Rainfall Event	06/20/2019	06/22/2019		3			
	Warning	Enterococci Exceedance	06/27/2019	07/03/2019		7			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Closure	Enterococci Exceedance	07/25/2019	07/26/2019		2			
	Warning	Enterococci Exceedance	07/27/2019	07/31/2019		5			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Enterococci Exceedance	08/22/2019	08/28/2019		7			
<b>DOUGLSTON MANOR ASSOCIATION</b>	Warning	Enterococci Exceedance	05/25/2019	05/30/2019	33	6	68	6	74
	Closure	Enterococci Exceedance	05/31/2019	06/05/2019		6			
	Warning	Enterococci Exceedance	06/06/2019	07/10/2019		35			
	Warning	Rainfall Event	07/12/2019	07/13/2019		2			
	Warning	Rainfall Event	07/18/2019	07/20/2019		3			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Enterococci Exceedance	07/25/2019	07/26/2019		2			
	Warning	Rainfall Event	08/01/2019	08/01/2019		1			
	Warning	Rainfall Event	08/08/2019	08/09/2019		2			
	Warning	Enterococci Exceedance	08/15/2019	08/28/2019		14			
	Warning	Rainfall Event	09/03/2019	09/03/2019		1			



**Table B-3 Private Beaches Warnings and Closures (continued)**

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
GERRITSEN/ KIDDIE BEACH	Warning	Enterococci Exceedance	05/30/2019	06/18/2019	63	20	44	0	44
	Warning	Rainfall Event	06/19/2019	06/22/2019		4			
	Warning	Rainfall Event	07/12/2019	07/13/2019		2			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Enterococci Exceedance	08/07/2019	08/13/2019		7			
	Warning	Rainfall Event	08/23/2019	08/24/2019		2			
	Warning	Rainfall Event	09/03/2019	09/03/2019		1			
	Warning	Enterococci Exceedance	09/05/2019	09/08/2019		4			
KINGSBOROUGH COMMUNITY COLLEGE	Warning	Rainfall Event	07/23/2019	07/23/2019	98	1	9	0	9
	Warning	Enterococci Exceedance	08/28/2019	09/04/2019		8			
LOCUST POINT YACHT CLUB	Warning	Rainfall Event	05/30/2019	05/31/2019	85	2	22	0	22
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Enterococci Exceedance	06/13/2019	06/19/2019		7			
	Warning	Rainfall Event	06/20/2019	06/22/2019		3			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Rainfall Event	08/23/2019	08/24/2019		2			
MANHEM BEACH CLUB	Warning	Rainfall Event	05/30/2019	05/31/2019	78	2	29	0	29
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Enterococci Exceedance	06/13/2019	06/19/2019		7			
	Warning	Rainfall Event	06/20/2019	06/22/2019		3			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Enterococci Exceedance	07/25/2019	07/26/2019		2			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Enterococci Exceedance	08/22/2019	08/28/2019		7			

**Table B-3 Private Beaches Warnings and Closures (continued)**

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
<b>MORRIS YACHT AND BEACH CLUB</b>	Warning	Rainfall Event	05/30/2019	05/31/2019	88	2	19	0	19
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Rainfall Event	06/19/2019	06/22/2019		4			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Rainfall Event	08/23/2019	08/24/2019		2			
	Warning	Enterococci Exceedance	09/06/2019	09/08/2019		3			
<b>SCHUYLER HILL CIVIC ASSOCIATION</b>	Warning	Rainfall Event	05/30/2019	05/31/2019	64	2	43	0	43
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Rainfall Event	06/19/2019	06/22/2019		4			
	Warning	Enterococci Exceedance	06/27/2019	07/17/2019		21			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Enterococci Exceedance	07/25/2019	07/31/2019		7			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
Warning	Rainfall Event	08/23/2019	08/24/2019	2					
<b>SEAGATE 42nd</b>					107	0	0	0	0
<b>SEAGATE BEACH CLUB</b>					107	0	0	0	0
<b>TRINITY DANISH YOUNG PEOPLE'S SOCIETY</b>	Warning	Rainfall Event	05/30/2019	05/30/2019	59	1	48	0	48
	Warning	Enterococci Exceedance	05/31/2019	06/05/2019		6			
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Enterococci Exceedance	06/13/2019	06/19/2019		7			
	Warning	Rainfall Event	06/20/2019	06/22/2019		3			
	Warning	Enterococci Exceedance	06/27/2019	07/10/2019		14			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Enterococci Exceedance	07/25/2019	07/26/2019		2			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Enterococci Exceedance	08/22/2019	08/28/2019		7			

**Table B-3 Private Beaches Warnings and Closures (continued)**

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
WEST FORDHAM STREET ASSOCIATION	Warning	Rainfall Event	05/30/2019	05/31/2019	91	2	16	0	16
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Rainfall Event	06/19/2019	06/22/2019		4			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
	Warning	Rainfall Event	08/23/2019	08/24/2019		2			
WHITE CROSS FISHING CLUB	Warning	Rainfall Event	05/30/2019	05/31/2019	66	2	39	2	41
	Warning	Rainfall Event	06/11/2019	06/12/2019		2			
	Warning	Enterococci Exceedance	06/13/2019	06/19/2019		7			
	Warning	Rainfall Event	06/20/2019	06/22/2019		3			
	Warning	Enterococci Exceedance	06/27/2019	07/03/2019		7			
	Warning	Rainfall Event	07/12/2019	07/12/2019		1			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Closure	Enterococci Exceedance	07/25/2019	07/26/2019		2			
	Warning	Enterococci Exceedance	07/27/2019	07/31/2019		5			
	Warning	Rainfall Event	08/08/2019	08/08/2019		1			
Warning	Enterococci Exceedance	08/22/2019	08/28/2019	7					
WHITESTONE BOOSTER CIVIC ASSOCIATION	Warning	Enterococci Exceedance	05/25/2019	06/19/2019	37	26	63	7	70
	Closure	Enterococci Exceedance	06/20/2019	06/26/2019		7			
	Warning	Enterococci Exceedance	06/27/2019	07/03/2019		7			
	Warning	Rainfall Event	07/12/2019	07/13/2019		2			
	Warning	Rainfall Event	07/18/2019	07/19/2019		2			
	Warning	Rainfall Event	07/23/2019	07/24/2019		2			
	Warning	Enterococci Exceedance	07/25/2019	07/31/2019		7			
	Warning	Rainfall Event	08/01/2019	08/01/2019		1			
	Warning	Enterococci Exceedance	08/08/2019	08/21/2019		14			
Warning	Rainfall Event	08/23/2019	08/24/2019	2					
<b>Private Beaches TOTAL</b>					<b>1302</b>	<b>517</b>	<b>491</b>	<b>26</b>	<b>517</b>

# APPENDIX C: 2019 INSPECTION SUMMARY

**Table C-1: Inspection Non-Compliance Summary \***

Beach Name	Public Health Hazard Violations**	General Violations***		
	167.19(c)(1)	167.09(b)	167.29(b)(12)	167.09 (13)
DOUGLASTON MANOR ASSOCIATION	√			
LOCUST POINT YACHT CLUB	√	√		
ORCHARD BEACH			√	
CONEY ISLAND BEACH			√	√

\* All other beaches were in full compliance of the regulations at the time of inspection.

**\*\* Public Health Hazard Violations:**

§167.19(c)(1) Failure to provide required qualifications and certificates.

**\*\*\* General Violations:**

§167.09(b) Most recent inspection report is not readily available at facility for inspection.

§167.29(b)(12) Presence of glass container on the beach.

§167.09(13) Any other condition determined to be a Public Health Hazard by the department (e.g. sewage/ wastewater, medical waste, petroleum or other hazardous materials in beach area).