



25 Park Place, 5th Floor  
New York, NY 10007

November 28, 2022

Dear Ms. Tompkins:

Michelle Tompkins  
NYS DEC  
625 Broadway  
4th Floor  
Albany, NY  
12233-3500

Since 2015, Friends of + POOL has been advocating for free and safe access to the East River for swimming to restore a lapsed tradition of river swimming dating back to the late 1800s, when the first floating bathing areas lined the East River. The organization is the driver of + POOL, a water-filtering, floating swimming pool that filters river water to create a safe swimming space. It also provides a variety of free public programs that educate the public on issues affecting our water quality and promote water stewardship.

In 2019, the New York City Economic Development Corporation (“NYCEDC”) released a Request for Expressions of Interest (“RFEI”) to bring an East River Swim Facility to the Two Bridges neighborhood of Lower Manhattan. Friends of + POOL responded with a thorough proposal for + POOL and the organization has since engaged with NYCEDC to perform further due diligence for the proposed + POOL.

As part of its due diligence, Friends of + POOL has been monitoring Enterococcus levels off Pier 35 in NYC’s Inner Harbor and sharing data collected with the New York City Department of Health & Mental Hygiene (“DOHMH”), and other relevant city agencies engaged in efforts to safely pilot East River swimming. Enclosed, please find additional information on Friends of + POOL’s proposed use for the waters and data collected using all Division of Water quality assurance requirements. It is our belief that our advanced engineering and process controls can support safe swimming access at the site and that the existing conditions support a reclassification with a wet weather limited use designation.

Thank you for the opportunity to submit our data for your review. Should you have any questions about the enclosed information or would like to review any additional reports referenced herein, please do not hesitate to contact me at 646.847.9719 or [kara@pluspool.org](mailto:kara@pluspool.org).

Regards,

Kara Meyer  
Managing Director

# Background

Friends of + POOL was founded in 2015 to provide free and safe access to the river for swimming, educate the public on the issues affecting water quality and promote water stewardship. The organization spawned from + POOL, an idea for a water-filtering floating swimming pool in NYC's inner harbor.

## ***11,000+ New Yorkers Demand Access to their Rivers for Swimming***

In August 2017, Friends of + POOL successfully led a campaign that collected more than 11,000 signatures through an online petition that was sent to Mayor Bill de Blasio expressing a desire for safe access to the river for swimming. As part of the campaign, hundreds of New Yorkers aged 5-85 wrote letters to the Mayor in support of + POOL and a variety of Op-Eds were published in support of + POOL, with more than 50,000 people engaging with + POOL's advocacy and conservation programs. Following this grassroots, community-driven effort to seek river access from the city to realize + POOL, the NYCEDC released a RFEI for the development, installation, and operation of a self-filtering floating swim facility in the East River along the Brooklyn Bridge Esplanade in Lower Manhattan.

## ***NYC Requests Ideas to Restore East River Swimming Access***

NYCEDC issued a RFEI known as the East River Swim Project ("ERSP") on September 18, 2019, in the Class I waters north of the Brooklyn Bridge and southwest of Pier 35. The ERSP is an NYCEDC procurement that seeks to fulfill citywide goals outlined in the NYC Comprehensive Waterfront Plan ("CWP") developed by the NYC Department of City Planning. The CWP seeks to identify projects that promote opportunities to get onto and into the water, and projects that encourage public access to the water where practical. It calls for continuing "to develop innovative approaches to pilot safe swimming solutions that complement traditional beaches, including floating pools and engineered coves, where appropriate safety and water-quality monitoring can be demonstrated." Friends of + POOL submitted a proposal to the 2019 RFEI, known as "+ POOL." On April 29, 2021, following some delays as a result of the Covid-19 pandemic, NYCEDC issued to Friends of + POOL a notice to proceed with due diligence for the project.

## Current Uses

### ***8,000 New Yorkers Currently Swimming***

The Inner Harbor of NYC is currently used by thousands of swimmers annually through a variety of open water swim events organized by New York Open Water (<https://www.nyopenwater.org/>) and Urban Swim (<https://urbanswim.org/>). In 2022 there were at least 43 scheduled open water swim events taking place in New York Harbor, the Hudson, East and Harlem Rivers - with no reported illnesses. An average of 3,600 swimmers, and as many as 8,000 swimmers, have participated in open water swim events in Class I waters annually. The current classification of waters along the East River do not meet this use.

While thousands of individuals use the waters for swimming through these organized events, swimming access is not accessible to all New Yorkers. The cost of the 20 Bridges Swim in 2022 was \$4,600 per swimmer, making it out of reach for a majority of New Yorkers. Costs to participate in Urban Swim events in 2023 are high enough that the group offered a Black Friday sale on November 25, 2022 for all 2023 events.

### ***Potential for 40,000 New Yorkers to Access***

Friends of + POOL's proposed pilot swim facility, which is currently in permitting phases under the ERSP procurement, seeks to provide more equitable access to the river for swimming and provide more regular access to the river than what is currently provided in open water swim events. This serves the dual purpose of offering New Yorkers free and safe access to the natural resources that surround them; and positioning NYC as a leader in urban swimming while taking meaningful steps towards the goals of the Clean Water Act. The project is currently being designed under City purview to serve more than 40,000 New Yorkers each summer. The project proposes advanced engineering and process controls to monitor river conditions daily for public access, adopting a stringent closure policy during wet weather advisories and other anomalies identified through sanitary surveys and bypass reports. Friends of + POOL submitted a permit application for its facility under the existing regulatory code requesting a waiver on account of the facility's siting in Class I waters. The facility's comprehensive water quality monitoring plan and closure policy (Attachment 2) forms the basis for the justification of its waiver request. The application is currently pending.

Friends of + POOL has held regular meetings with DOHMH and the Mayor's Office to assess the plan's details as well as the project's engineering and safety plans that protect swimmers from currents. The project has been designed to meet goals outlined in NYC's latest CWP (NYC Planning, 2021), including Goal 2 to "promote opportunities to get onto and into the water" and Strategy 2.2 to "Expand swimming opportunities where appropriate safety, ambient water quality, and routine monitoring and reporting can be demonstrated.

# Water Quality

## ***Site Studied***

The proposed + POOL project site is located in the East River, on the west face of Pier 35 adjacent to the FDR Drive north of the Manhattan Bridge in Manhattan, New York. The site (260 South Street, Manhattan, NY 10002) and the adjacent site it will be accessed by (Pier 35, 270 South Street, Manhattan, NY 10002) are owned by the New York City Department of Small Business Services (DSBS) in Tax Block 241, Lot 13. The site is bounded by the East River to the south and west, FDR Drive to the north, and Pier 35 to the east. The coordinates for the project location are approximately N40° 42' 33.86000", E286° 00' 40.66000".

As has been reported by the New York City Department of Environmental Protection (DEP), New York's rivers and harbors are the cleanest they've been in years. The average fecal coliform and Enterococcus levels have dramatically decreased over the last three decades, due in large part to the cessation of raw sewage dumping through the full build-out of New York City's Wastewater Resource Recovery Facilities, the elimination of illegal discharges into the water body and the reduction of CSOs.

As part of its due diligence, Friends of + POOL has been monitoring Enterococcus levels off Pier 35 in NYC's Inner Harbor and sharing data collected with the DOHMH. The data collected by Friends of + POOL demonstrates raw river water meets swimming criteria a majority of the time and can be protective of swimmers with regular water quality monitoring and process controls, as is practiced at other NYC Bathing Beaches.

## ***Water Quality Testing (2021)***

In 2021 during the Covid-19 pandemic, water quality monitoring included weekly testing throughout the Summer Season via the Citizen Water Quality Testing Program ("CWQT"), a collaboration between the New York City Water Trail Association, the Billion Oyster Project, and Hudson River Park's River Project.

Data collected in 2021 showed that water quality met or exceeded standards for swimming a majority of the samples (12 of 18 samples), in an unusually wet season. According to the DOHMH's 2021 Beach Report, water quality data collected by Friends of + POOL from Pier 35 actually exceeded standards at two existing city beaches that are currently monitored by DOHMH, including Douglaston Manor, where only 9 of 17 daily samples met swimming standards; and White Cross Fishing Club, where 8 of 15 daily samples met swimming standards in 2021.

Friends of + POOL used data collected in 2021 to design a water quality monitoring plan (Attachment 2) that would support its proposed floating swimming facility that is currently under review by NYC regulatory agencies. The proposed monitoring plan analyzes water samples for the chemical and biological pollutants regulated by NYSDEC under the "SB"

## Water Quality (continued)

classification (protective of swimming), pollutants identified from nearby potential sources the could impact swimmer health, and the bacterial and surface water stressors used to determine if the site is permitted to be open and remain open. The plan is also built off of Friends of + POOL's extensive research on East River water quality over the past decade and follows recommendations outlined by Health Risk Assessors at Gradient.

### ***Water Quality Testing (2022)***

In 2022, Friends of + POOL's samples were analyzed by the Interstate Environmental Commission ("IEC"), a NYS Department of Health Environmental Laboratory Approval Program (ELAP)-certified laboratory, following EPA-certified analytical methods and state laboratory certification regulations. IEC's mission is to protect and enhance environmental quality through cooperation, regulation, coordination, and mutual dialogue between government and citizens in the Tri-State Region. (IEC has also agreed to provide daily testing of the proposed swimming facility once open.) As demonstrated in the enclosed report (Attachment 1), Enterococcus levels at the site regularly meet swimming standard of 35 cells per 100 ml.

Water quality samples were collected by IEC trained volunteers using quality assurance project plans (QAPPs). Samples were collected off Pier 35 in Lower Manhattan at the middle of the pier (approx. 40.709269,-73.988655). Weekly samples were collected on Thursday mornings. Following heavy rains on Week 11, Friends of + POOL collected two samples daily for five consecutive days (7/26/2022-7/30/2022) to capture impacts on the site from wet weather. Beginning Week 12 (8/4/2022), Friends of + POOL continued to collect two samples at the site, one at the middle of the pier (approx. 40.709269,-73.988655) and one at the pierline (approx. 40.709107, -73.988613). Following heavy rains on Week 15, Friends of + POOL collected a second set of daily samples for five consecutive days (8/23/2022-8/27/2022).

# Attachment 1

## Water Quality Data

**Interstate Environmental Commission Laboratory**

*NELAP Certified Laboratory*- NY Lab ID 10437, NJDEP Lab ID NY240, CTDPH Reg. No. PH-0320

**710 Parkside Avenue, Brooklyn, NY 11226**

**Organization:** +POOL

**Sampling Dates:** 7/26/2022-7/30/2022

**Site Name:** Pier 35

**Sampler:** Kate Roney

Sampling Day	Investigation Number	Location	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)	Rain 24 Hours Before Sampling	Rain During Sampling
7/26/2022	18416	Middle	10:15	31	70	3.81	Y	N
		End	10:30	10	180	3.74		
7/27/2022	18417	Middle	9:45	20	79	2.80	N	N
		End	9:53	10	59	2.28		
7/28/2022	18422	Middle	10:41	20	44	3.51	Y	N
		End	10:47	10	57	3.47		
7/29/2022	18427	Middle	9:30	10	30	6.37	Y	N
		End	9:37	<10	47	7.02		
7/30/2022	18428	Middle	10:25	10	41	5.51	Y	N
		End	10:30	10	20	6.54		

<b>Geometric Mean</b>	<b>Middle</b>	<b>16.5</b>	<b>49.6</b>
	<b>End</b>	<b>10.0</b>	<b>56.4</b>

Results relate only to samples submitted. Analyses performed by Interstate Environmental Commission Laboratory.

**Methodologies:**

Enterococcus SM9230D-2013 (Enterolert)

Fecal Coliform SM9221E-2014 (Membrane Filtration)

Turbidity: EPA 180.1 Revision 2 (1993)

**Interstate Environmental Commission Laboratory**

*NELAP Certified Laboratory*- NY Lab ID 10437, NJDEP Lab ID NY240, CTDPH Reg. No. PH-0320

**710 Parkside Avenue, Brooklyn, NY 11226**

**Organization:** +POOL

**Sampling Dates:** 8/23/2022-8/27/2022

**Site Name:** Pier 35

**Sampler:** Rose Lazala

Sampling Day	Investigation Number	Location	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)	Rain 24 Hours Before Sampling	Rain During Sampling
8/23/2022	18466	Middle	9:32	<10	62	4.97	Y	N
		End	9:37	<10	70	4.35		
8/24/2022	18468	Middle	9:32	20	29	1.54	N	N
		End	9:36	10	23	1.23		
8/25/2022	18470	Middle	9:41	<10	15	2.39	N	N
		End	9:46	<10	13	2.05		
8/26/2022	18477	Middle	9:35	<10	10	3.59	N	N
		End	9:39	<10	10	3.71		
8/27/2022	18478	Middle	9:32	41	27	4.55	Y	N
		End	9:36	<10	49	4.02		

<b>Geomteric Mean</b>	<b>Middle</b>	<b>15.2</b>	<b>23.6</b>
	<b>End</b>	<b>10.0</b>	<b>25.2</b>

Results relate only to samples submitted. Analyses performed by Interstate Environmental Commission Laboratory.

**Methodologies:**

Enterococcus SM9230D-2013 (Enterolert)

Fecal Coliform SM9221E-2014 (Membrane Filtration)

Turbidity: EPA 180.1 Revision 2 (1993)



# IEC District Coordinated Volunteer Pathogen Monitoring Program

May 19, 22 +POOL Run 1

IEC Investigation number: 18321

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 22 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

## Results:

Site Name	Time Sampled	Enterococcus (MPN)	Fecal Coliform (CFU)
Pier 35	8:10	464	900

"TNTC" is an abbreviation for "Too Numerous To Count." These results are preliminary and awaiting Quality Control. Final data will only be reported if the value lies within the detection range. Values less than 10 will be report as "<10". Values greater than each parameter's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

\*Please refer to the lab sheet; this result is inconsistent and may be subject to change.

## EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN). 1CFU = 1MPN

## Geometric Mean:

As there have not been 5 sampling evets yet, this table has been intentionally left blank.

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35		

# IEC District Coordinated Volunteer Pathogen Monitoring Program

May 26, 22: +POOL Run 2

IEC Investigation number: 18325

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 22 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

## Results:

Site Name	Time Sampled	Enterococcus (MPN)	Fecal Coliform (CFU)
Pier 35	8:15	10	<10

"TNTC" is an abbreviation for "Too Numerous To Count." These results are preliminary and awaiting Quality Control. Final data will only be reported if the value lies within the detection range. Values less than 10 will be report as "<10". Values greater than each parameter's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

\*Please refer to the lab sheet; this result is inconsistent and may be subject to change.

## EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN). 1CFU = 1MPN

## Geometric Mean:

As there have not been 5 sampling evets yet, this table has been intentionally left blank.

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35		

# IEC District Coordinated Volunteer Pathogen Monitoring Program

June 2, 22: +POOL Run 3

IEC Investigation number: 18332

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 22 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

## Results:

Site Name	Time sampled	Enterococcus (MPN)	Fecal Coliform (CFU)
Pier 35	8:10 am	703	900

"TNTC" is an abbreviation for "Too Numerous To Count." These results are preliminary and awaiting Quality Control. Final data will only be reported if the value lies within the detection range. Values less than 10 will be report as "<10". Values greater than each parameter's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

\*Please refer to the lab sheet; this result is inconsistent and may be subject to change.

## EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN). 1CFU = 1MPN

## Geometric Mean:

As there have not been 5 sampling evets yet, this table has been intentionally left blank.

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35		

# IEC District Coordinated Volunteer Pathogen Monitoring Program

June 9, 22: +POOL Run 4

IEC Investigation number: 18341

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. +POOL samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

## Results:

Site Name	Time sampled	Enterococcus (MPN)	Fecal Coliform (CFU)
Pier 35	7:47 am	512	230

"TNTC" is an abbreviation for "Too Numerous To Count." These results are preliminary and awaiting Quality Control. Final data will only be reported if the value lies within the detection range. Values less than 10 will be report as "<10". Values greater than each parameter's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

\*Please refer to the lab sheet; this result is inconsistent and may be subject to change.

## EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN). 1CFU = 1MPN

## Geometric Mean:

As there have not been 5 sampling evets yet, this table has been intentionally left blank.

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35		

# IEC District Coordinated Volunteer Pathogen Monitoring Program

June 16, 22 +POOL Run 5

IEC Investigation number: 18351

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

## Results:

Site Name	Time sampled	Enterococcus (MPN)	Fecal Coliform (CFU)
Pier 35	8:18	63	21

"TNTC" is an abbreviation for "Too Numerous To Count." These results are preliminary and awaiting Quality Control. Final data will only be reported if the value lies within the detection range. Values less than 10 will be report as "<10". Values greater than each parameter's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

\*Please refer to the lab sheet; this result is inconsistent and may be subject to change.

## EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN). 1CFU = 1MPN

## Geometric Mean:

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35	160.1	131.4

# IEC Coordinated Volunteer Pathogen Monitoring Program

## June 23, 2022: +POOL Run 6

### IEC Investigation number: 18361

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

**Results:**

Site Name	Time sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)
Pier 35	8:01	<10	28

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

**EPA and NYSDEC Recommended Recreational Water Quality Criteria:**

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

**Geometric Mean:**

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35	74.3	65.6

# IEC Coordinated Volunteer Pathogen Monitoring Program

## June 30, 2022: +POOL Run 7

### IEC Investigation number: 18373

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

**Results:**

Site Name	Time sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)
Pier 35	8:11	41	29

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

**EPA and NYSDEC Recommended Recreational Water Quality Criteria:**

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

**Geometric Mean:**

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35	98.6	81.2

# IEC Coordinated Volunteer Pathogen Monitoring Program

## July 7, 2022: +POOL Run 8

### IEC Investigation number: 18384

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

**Results:**

Site Name	Time sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)
Pier 35	8:24	<10	12

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

**EPA and NYSDEC Recommended Recreational Water Quality Criteria:**

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35 CFU/100mL and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130 for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200 CFU/100mL. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

**Geometric Mean:**

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35	42.1	34.2



# IEC Coordinated Volunteer Pathogen Monitoring Program

## July 14, 2022: +POOL Run 9

### IEC Investigation number: 18395

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

**Results:**

Site Name	Time sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)
Pier 35	8:11	31	12

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

**EPA and NYSDEC Recommended Recreational Water Quality Criteria:**

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

**Geometric Mean:**

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35	24.0	19.0

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## July 21, 2022: +POOL Run 10

### IEC Investigation number: 18406

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)
Pier 35	8:19	63	43

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35	24.0	21.9

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## August 4, 2022: +POOL Run 12

### IEC Investigation number: 18436

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	9:36	41	37	4.48
Pier 35 (End)	9:45	<10	16	4.64

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	30.1	27.6
Pier 35 (End)	N/A	N/A

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## August 11, 2022: +POOL Run 13

### IEC Investigation number: 18445

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	8:15	<10	45	4.84
Pier 35 (End)	8:17	31	46	4.73

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	25.1	31.4
Pier 35 (End)	N/A	N/A

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## August 18, 2022: +POOL Run 14

### IEC Investigation number: 18458

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	8:35	146	580	3.43
Pier 35 (End)	8:39	173	550	4.34

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	32.2	57.7
Pier 35 (End)	N/A	N/A

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## September 1, 2022: +POOL Run 16

### IEC Investigation number: 18482

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	9:11	20	21	4.39
Pier 35 (End)	9:17	30	19	4.35

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	35.0	70.0
Pier 35 (End)	N/A	N/A

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## September 8, 2022: +POOL Run 17

### IEC Investigation number: 18495

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	9:10	75	130	4.65
Pier 35 (End)	9:04	<10	140	4.13

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	22.8	25.6
Pier 35 (End)	12.5	27.9

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## September 15, 2022: +POOL Run 18

### IEC Investigation number: 18505

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	8:45	10	170	5.07
Pier 35 (End)	8:51	52	160	4.97

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	22.8	41.6
Pier 35 (End)	17.3	46.1

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.



# IEC Coordinated Volunteer Pathogen Monitoring Program

## September 22, 2022: +POOL Run 19

### IEC Investigation number: 18516

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	7:40	30	160	3.5
Pier 35 (End)	7:45	52	70	3.0

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	28.4	72.5
Pier 35 (End)	24.1	68.1

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# IEC Coordinated Volunteer Pathogen Monitoring Program

## September 29, 2022: +POOL Run 20

### IEC Investigation number: 18523

IEC's volunteer monitoring project generally runs fifteen to twenty weeks. This season includes seven groups, each sampling between 1 and 6 sites, for a total of 21 sites. Sampling events are scheduled in advance and occur regardless of recent precipitation unless conditions are dangerous. **+POOL** samples on **Thursdays**. One additional sampling event every 30 days will target wet weather, though if the month is dry, volunteers do a fifth run regardless of precipitation. These results are preliminary and pending Quality Control.

#### Results:

Site Name	Time Sampled	Enterococcus (MPN/100mL)	Fecal Coliform (CFU/100mL)	Turbidity (NTU)
Pier 35 (Mid)	8:37	10	44	2.85
Pier 35 (End)	8:46	<10	59	2.80

Final data will only be reported if the value lies within the detection range. All results that are less than 10 will be reported as "<10". Results that are greater than each method's upper detection limit will be reported as ">6000 CFU/100mL" for enterococcus via membrane filtration, ">2419 MPN/100mL" for enterococcus via IDEXX, and ">8000 CFU/100mL" for fecal coliform via membrane filtration.

#### EPA and NYSDEC Recommended Recreational Water Quality Criteria:

The EPA recommends that a single Enterococcus sample be less than 110 CFU/100mL and the geometric mean over a 30-day period be less than 30 CFU/100mL to be considered safe for primary contact such as swimming. NYSDEC recommends that the geometric mean over a 30-day period for enterococcus be below 35/100mL<sub>1</sub> and no more than 10 percent of samples collected in the same 30-day period (one of five samples) exceed 130<sub>1</sub> for primary contact such as swimming. NYSDEC recommends that the monthly geometric mean for fecal coliform from a minimum of five examinations shall not exceed 200/100mL<sub>1</sub>. Recommendations in CFU are based on *EPA Method 1600* via membrane filtration (CFU), or any other equivalent method that measures culturable enterococci, such as Standard Methods 9320 D using IDEXX (MPN).

#### Geometric Mean:

Site Name	Geometric Mean (Enterococcus)	Geometric Mean (Fecal Coliform)
Pier 35 (Mid)	21.4	80.0
Pier 35 (End)	24.1	70.6

New York State Department of Environmental Conservation (NYSDEC) Water Quality Surface Criteria does not specify the units for bacteria count recommendations in CFU or MPN.

# Attachment 2

## Water Quality Monitoring Plan

# Water Quality Monitoring

Friends of + POOL has proposed “+ BEACH WQ Monitoring Plan” to ensure public safety for its proposed pilot swim facility known as “+ BEACH.” The plan meets the standards outlined in the existing bathing beach code during operational hours and incorporates additional process controls on account of the facility’s siting in Class I waters. Additional process controls above and beyond the code include:

- Daily water quality testing for Enterococci, dissolved oxygen, total algae, total dissolved solids, pH and turbidity, where traditional bathing beaches only require that the Enterococci geometric mean not exceed 35 per 100 ml for a series of five or more over a 30 day period.
- Sanitary surveys conducted hourly at every lifeguard rotation
- Regular review of bypass reports

The facility has been designed to keep large debris and floatables out of the swimming area and the facility’s monitoring and operations plan has been specifically designed to ensure staff assess any physical anomalies regularly during daily operations. Any physical anomalies would result in immediate closure, as detailed in the closure policy.

Friends of + POOL has also proposed a stringent closure policy during wet weather advisories. As noted in the proposed sampling framework, exceedance of an Enterococci water quality threshold dictated by DOHMH from daily testing (not currently practiced at traditional bathing beaches) would result in an immediate shut down of the swimming facility to eliminate potential exposures and operations will not resume until all water quality standards are met. Regular sanitary surveys conducted prior to daily start of operations and throughout operations are also key to + BEACH monitoring.

# + BEACH WQ Monitoring Plan

*This WQ Monitoring Plan has been prepared for review and discussion with DOHMH and other regulatory agencies, as appropriate.*

*The final regular monitoring plan will be incorporated into the + BEACH's Standard Operating Procedures.*

## **Overview**

+ BEACH is NYC's first river-sourced, floating swim facility and Manhattan's first swimmable beach that provides recreational access to NYC's East River when river conditions allow. To ensure that waters at + BEACH are protective of health for swimmers on a regular basis, the following protocols must be followed.

## **Water Quality**

The water within the swimming area of + BEACH is sourced from the East River. The East River is the cleanest it has been in years, thanks to major municipal efforts since the Clean Water Act of 1972. The NYC Department of Health current regulations state that water quality is safe for swimming when the Enterococci geometric mean does not exceed 35 per 100 ml for a series of five or more samples over a 30 day period. This standard is for waters already classified for swimming and bathing. Given the waters within the + BEACH are not classified for swimming and bathing, the + BEACH will monitor and measure Enterococci regularly when the facility is open. In addition, the facility will observe a strict pre-emptive closure policy when weather conditions are anticipated to trigger CSO discharges, when daily bacteria testing Enterococci levels exceed specified thresholds outlined identified by the NYC Department of Health, or when other point source or non point source contamination is anticipated. Based on historical data and Friends of + POOL's own monitoring programs, Friends of + POOL estimates the facility will be open for swimming 60-80% of the summer season. All Maintenance Staff must complete an 8 hour training on the unique conditions of + BEACH, proper water quality monitoring techniques and technical protocols to monitor water quality in the facility safely.

Friends of + POOL's monitoring plan analyzes the bacterial and surface water stressors used to determine if waters are suitable for swimming. Specifically, this includes a daily sanitary and safety survey prior to opening the + BEACH, as per NYC Health guidance for bathing beaches, as well as ongoing biological and water quality testing. Daily ongoing monitoring is necessary prior to the opening and during the operational hours of the + BEACH swimming facility to monitor for potential changes that could require closures of the facility.

## **Facility Closure**

+ BEACH is the first urban-river sourced swimming facility in New York City and observes a strict closure policy in anticipation of wet weather events that could explicitly or potentially have a dramatic impact on water quality. In the event that there is any doubt as to the anticipated impact of a qualifying weather event, the facility will be closed to the public and no one is allowed to enter the water. Under no circumstances will the facility operate when:

## + BEACH WQ Monitoring Plan

- Regularly measured rainfall exceeds 0.XX<sup>1</sup> inches within 24 hours
- Physical anomalies have been observed
- Repeated complaints/reports of illness are received
- Significant changes are made to the water quality parameters.
- Bypass reports indicate untreated or partially treated wastewater has been discharged from nearby water resource facilities (WRRFs) or CSOs
- Enterococci is measured at X<sup>2</sup> per 100 ml in a single sample
- The Enterococci geometric mean exceeds 35 per 100 ml for a series of five or more samples over a 30 day period.

*Rainfall Threshold (“RT”).* In the event that rainfall exceeds 0.XX inches within 24 hours (RT), the facility will close immediately. Once RT exceeds 0.XX inches (RT), operators should close the facility for a minimum of 3 days, or until Enterococci levels are recorded as <35 per 100 ml, whichever comes first. The RT and duration of swimming facility closure were selected as the most health protective of any of the current preemptive rainfall thresholds and durations of closure.

*Physical Anomaly.* The facility must close immediately if physical anomalies are observed in the facility water. The sanitary and safety survey inspection is performed to observe the presence of physical anomalies that could affect water quality including, but not limited to sewage discharge, floatable debris, waste, or oil/grease. In addition, these routine surveys assert that no flora or fauna have been observed within 200 feet from the facility and that there are no significant visible changes in color, odor, or water clarity.

*Reports of Illness.* The facility should close immediately following repeated complaints/reports of illness (as per NYC Health, 2012 guidance RCNY §167.17). Reported illnesses can include, but are not limited to, gastrointestinal issues [diarrhea, vomiting, nausea, stomachache], upper respiratory illness [cough, runny nose, cold, fever], rash, eye ailments [watery eyes, eye infection], earache [ear pain, ear infection or runny ears], and infected cuts.

*Water Quality Parameters.* The facility must close immediately if significant changes are made to the water quality parameters, including dissolved oxygen, total algae, total dissolved solids, nutrients, pH or turbidity. A description of significant changes that warrant closure and additional sample collection are outlined in the field form and are posted next to the data log.

*Bypass Reports.* As the location is in the vicinity of the Red Hook Wastewater Resource

<sup>1</sup> Rainfall thresholds to be determined by DOHMH for the specified site through NYCDEP modeling, as is practiced at NYC Bathing Beaches..

<sup>2</sup> Beach Action Value (BAV) / Thresholds for a single sample to trigger closure to be discussed with DOHMH

## + BEACH WQ Monitoring Plan

Recovery Facility, bypass reports will be monitored by trained + BEACH staff for wastewater discharges or other infrastructure failures (pump failures, pump station failures, CSO discharges not tied to rain events, etc.) that could impact local water quality. The facility will close if bypass reports or other notifications indicate water quality in the area could be compromised.

*Beach Action Value (BAV)*. Should the results of a single daily sample exceed the identified threshold or BAV of  $X^3$  per 100 ml in a single sample, the facility will close immediately. Maintenance staff will be notified of lab results immediately and take swift action for closure.

### Reopening

In order to reopen the facility, after facility closure, Enterococci levels must be measured and recorded as 35 per 100 ml or less before the facility can reopen.

In addition, water quality parameters should be measured at the start of each day and prior to re-opening the facility after a facility closure using the multiparameter water quality meter. Water quality parameters including dissolved oxygen, total algae, total dissolved solids, nutrients, pH or turbidity must meet identified thresholds as outlined in the filed forms and be recorded before the facility can reopen to the public.

### Monitoring Plan

Once the facility is open to the public for the day, the following ongoing monitoring is required to ensure the safety of swimmers:

#### *Hourly:*

- Monitor and record the water quality using the multiparameter water quality meter and/or the Fluidion ALERT System V2
- Conduct a sanitary and safety survey.

#### *Once a day:*

- Collect water samples for bacteria analysis

For regular water testing, Maintenance Staff should monitor Enterococci bacteria following the specific introductions and protocols for lab testing as outlined below. Water samples should be collected by a Qualified Water Quality Sampler (QWQS) directly from within the facility to best represent potential exposures and immediately transported to the IEC, a NYSDOH accredited laboratory, using ELAP and EPA approved methods per NYC Health (2012) guidance (RCNY §167.15). All lab results will be recorded immediately and the new geometric mean over a 7 day period determined upon the recording of lab results.

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<sup>3</sup> Beach Action Value (BAV) / Thresholds for a single sample to trigger closure to be discussed with DOHMH

## + BEACH WQ Monitoring Plan

In addition to in-lab testing happening daily, Maintenance Staff should regularly monitor data collected through the Fluidion ALERT System V2, an autonomous sampler installed in the swimming area that contains an automatic contamination-free sampling in-situ, complete with reagent mixing and incubation that detects bacterial contamination immediately onsite. Maintenance staff must ensure the ALERT System V2 is functioning properly daily, replacing reagents when required and ensuring all data is recorded. When functioning properly, the analyzer issues automatic alerts if a threshold is exceeded, enabling greater operator responsiveness in case of pollution events.

Water quality parameters should be measured consistently throughout operational hours, using the multiparameter water quality meter. Water quality parameters including dissolved oxygen, total algae, total dissolved solids, nutrients, pH or turbidity will be measured consistently, and logged hourly throughout operational hours, using a automated multiparameter water quality meter. Parameters should be consulted upon every lifeguard rotation shift to ensure identified thresholds for each parameter are not exceeded.

### **Sanitary Surveys**

In addition, as per NYC Health (2012) guidance (RCNY §167.25), + BEACH personnel should conduct a sanitary and safety survey or visual inspection of the Site on a regular basis throughout operational hours to observe any hazards that could pose a potential public health threat. As per NYC Health (2012) guidance (RCNY §167.25), potential hazards that could be observed include, but are not limited to, untreated sewage discharge, petroleum slick, floatable debris, medical/infectious materials, and other sources of contamination.

All water quality measurements and visual inspections must be recorded on the appropriate field forms.<sup>4</sup> All water quality parameters and sampling results will be recorded daily in the + BEACH database.

The ongoing monitoring plan will be reviewed regularly to determine if additional changes are needed based on trends of the ongoing monitoring data and/or reviews of data from other nearby sources. + BEACH water quality monitoring personnel will regularly review health-based data from other certified sampling stations, as a comparison for water quality conditions in nearby waters.

### **Methodology, Lab Requirements & Results**

Prior to collecting a water sample, photographs and field observations of the sampling location (including depth of surface water, presence of debris and flora and fauna, water flow, turbidity using a secchi disk) should be collected on the field forms. Sample

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<sup>4</sup> Sample field forms found on pages 72-76 of this Bathing Beach Permit Application



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information, including date and time, location, sample number, depth to the surface water, and pertinent observations should also be recorded on the appropriate field forms. Once all field and water quality information is acquired, surface water samples should be taken directly into sample containers supplied by the laboratory by lowering the containers below the water surface using proper PPE to avoid contamination. All water samples should be placed on ice in a cool or container immediately after collection, to cool them to 4 degrees centigrade (°C) and transported to the laboratory for analysis.