



An Brief Introduction to the Billion Oyster Project

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AGENDA

- Introductions ✓
- Billion Oyster Project Intro
- Why Oysters?
- Oyster Research Stations
- Community Water Quality Testing
- Q+A





WHAT IS BILLION OYSTER PROJECT?

Billion Oyster Project (BOP) is an ecosystem restoration and public education project aimed at restoring a sustainable oyster population and re-igniting a passion and appreciation for New York Harbor by engaging New Yorkers directly in the work of restoring one billion oysters to the estuary by 2035.

Billion Oyster Project is a non-profit working towards restoring



1 BILLION OYSTERS 1 MILLION PEOPLE

into New York Harbor by 2035.

And we need your help!

EDUCATION THROUGH RESTORATION RESTORATION THROUGH EDUCATION

Beyond softening the blow of powerful waves that threaten our waterfront, oysters maintain a healthy ecosystem by filtering the water around them, and their reefs foster biodiversity.

Oysters also offer a **social solution to climate change**. Billion Oyster Project provides hands-on opportunities for our local community – from schoolchildren to retirees – to acknowledge the realities of climate change and actively adapt to them.





Our Process



Shell Collection

- Diverting restaurant shells from landfills
- Reclaiming a valuable resource for the restoration of oyster reefs.
- Collected shells are cleaned by and prepared by our volunteers for further use



Fabrication

- Structures are built in-house by volunteers on Governors Island
- ORS cages are fabricated, then filled with oysters upon deployment
- Reef balls are placed directly into the setting tank, and oysters grow right on the surface

Oyster Production

- Larvae are purchased from East Coast hatcheries
- Setting facility located next to Pier 101 at Governors Island
- Finished reef balls are placed directly into the setting tank, and oysters growth right on the surface



Deployment

- Reefs installations are completed by boat
- Installations can last multiple days and in multiple phases
- We deploy millions of oysters at a time
- ~19 acres of reef across the harbor so far

- Restored more than **150 million oysters** across 19 acres of NY Harbor
- Engaged **20,000+ local students**
- Engaged more than **15,000+ volunteers**
- Diverted **2.5 million pounds of shell** from landfills



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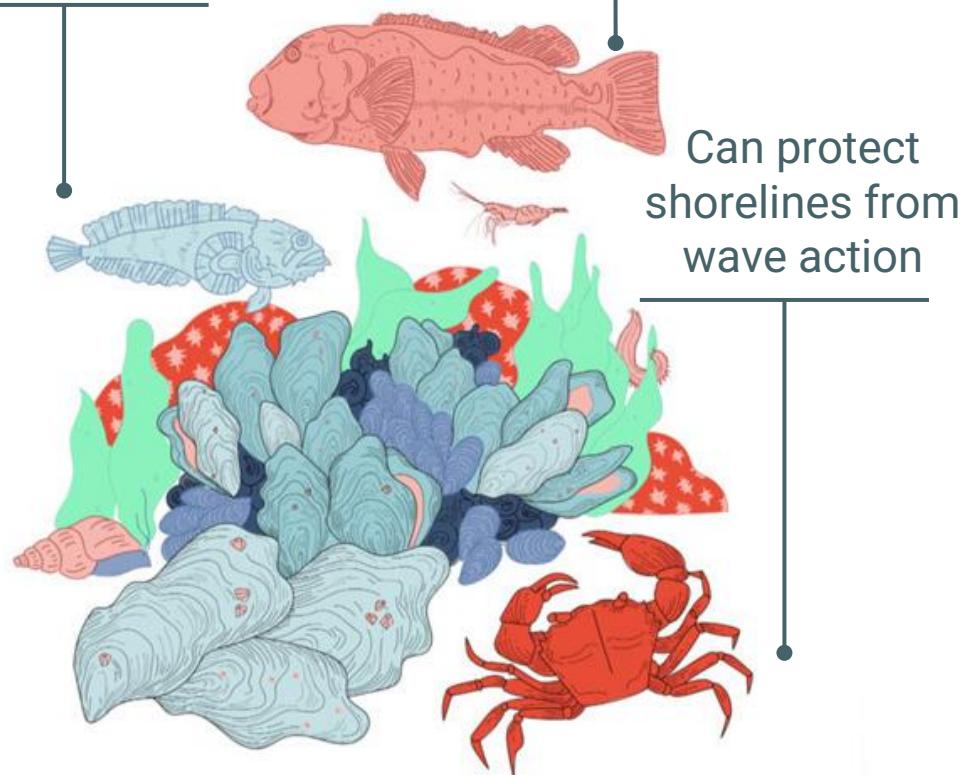


WHY OYSTERS?

Can clear the water and move nitrogen out of the water

Increases biodiversity

Can protect shorelines from wave action





Water Filtration

- Oysters **filter water** as they eat, which helps **clarify the water and remove excess nutrients**, like nitrogen.
- This is important to marine ecosystems, because excessive **nitrogen triggers algal blooms** that deplete the water of oxygen and create “dead zones.”
- An adult oyster can filter up to **50 gallons of water a day**, so the more live oysters you have in a body of water, the cleaner it should be.



HABITAT AND BIODIVERSITY



HABITA

EYE SPY



SHORELINE PROTECTION

- Oyster reefs reduce wave energy, thus reducing erosive capacity
- Historically, oyster reefs played a big role in **protecting our shorelines**, but that natural barrier was wiped out and can't be rebuilt at a pace that matches predicted sea-level rise.
- At just 33 feet above sea level, New York City is extremely vulnerable to the effects of climate change.
- Oyster reefs could protect NYC from wave damage better than hardened shoreline.

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OYSTER RESEARCH STATIONS

An Oyster Research Station (ORS) is an **in-situ experimental laboratory** attached to a dock, bulkhead, or floating buoy by a marine poly line. In layman's terms, it is a simple mesh cage fabricated in-house at Billion Oyster Project that will house up to 200 live oyster for scientific monitoring.

WHY PARTICIPATE IN THE PROGRAM?

- Contribute to the restoration of New York Harbor's ecosystem
- Join a community of like minded individuals interested in climate and sustainability

WE HAVE MANY DIFFERENT PARTICIPANT TYPES...



COMMUNITY SCIENTISTS

Community science is public participation and collaboration in scientific research initiatives to increase scientific knowledge.



COMMUNITY BASED ORGANIZATIONS

CBOs adopt ORSs and send us data. They also sometimes support us at our other field stations



TEACHERS AND STUDENTS

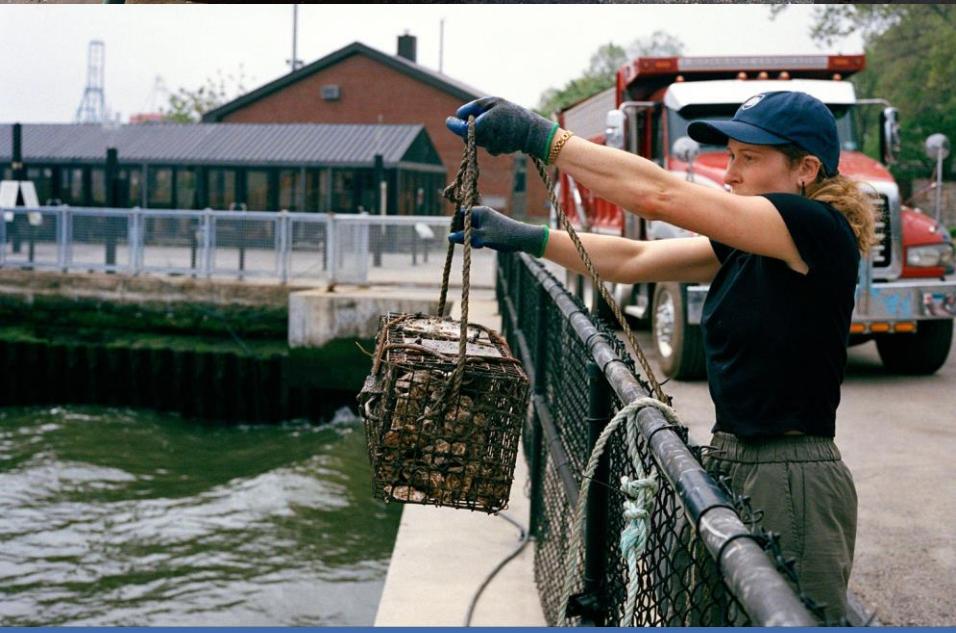
School groups can adopt ORSs and monitor them. Teachers use them as a classroom tool and bringing students out into the field.



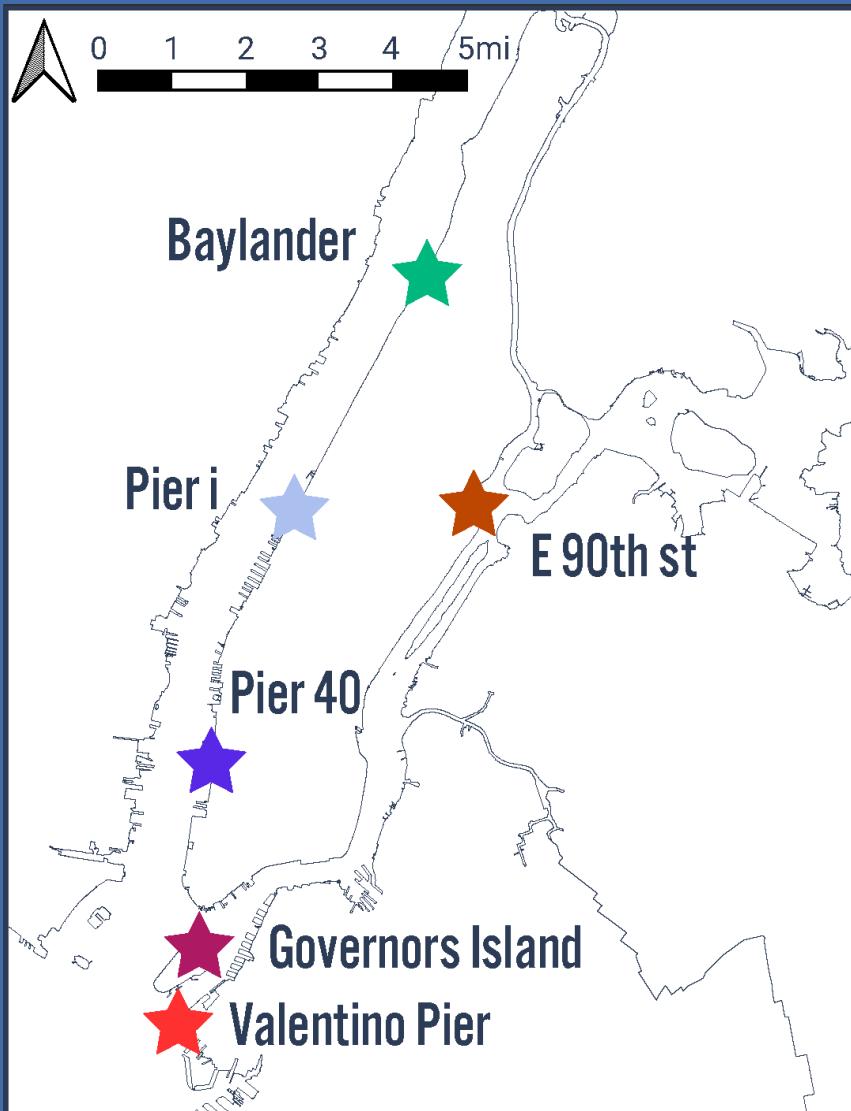
ORS AMBASSADOR

Ambassadors will support by monitoring our restoration structures as well as maintaining them. Additionally providing support at outreach, volunteer, and professional development events.

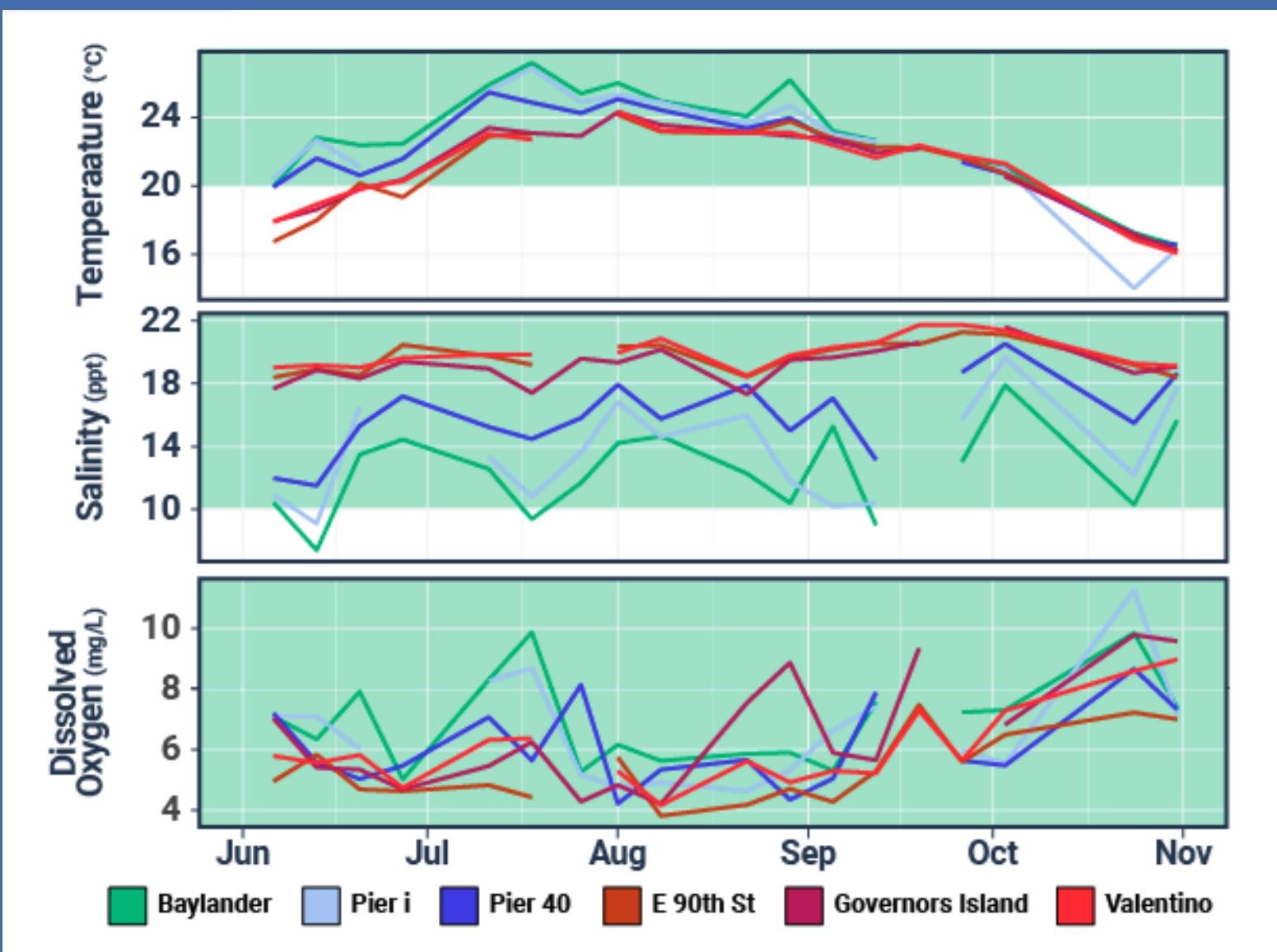
OYSTER RESEARCH STATION MONITORING



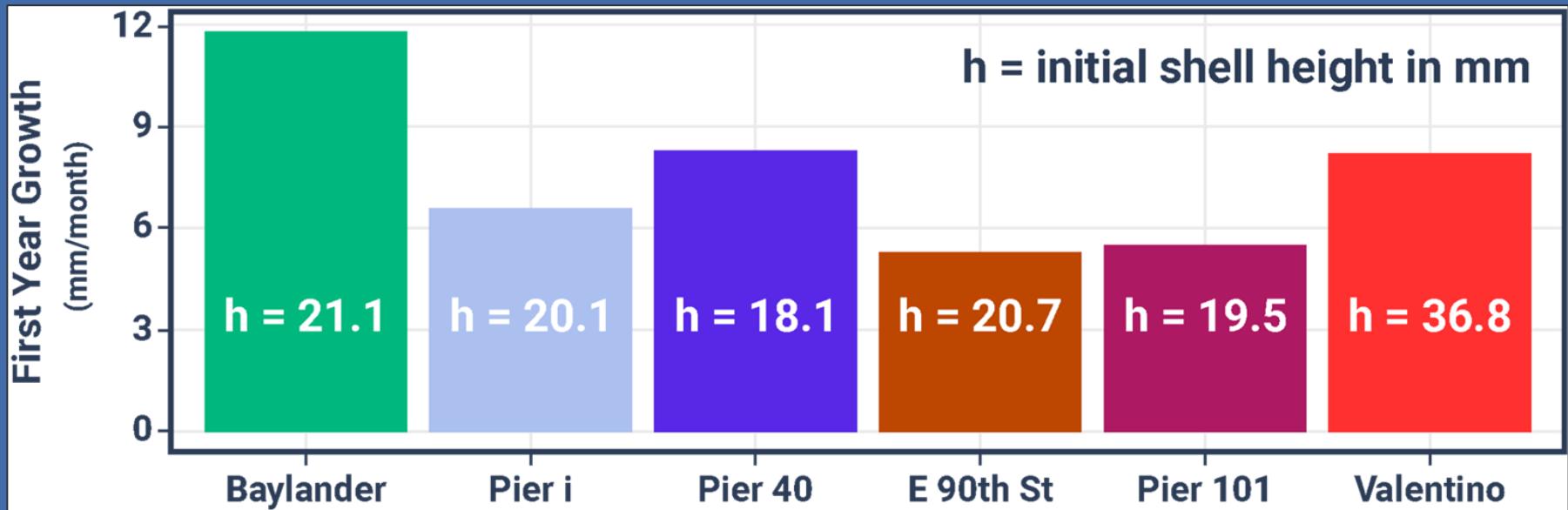
OYSTER RESEARCH STATION MONITORING



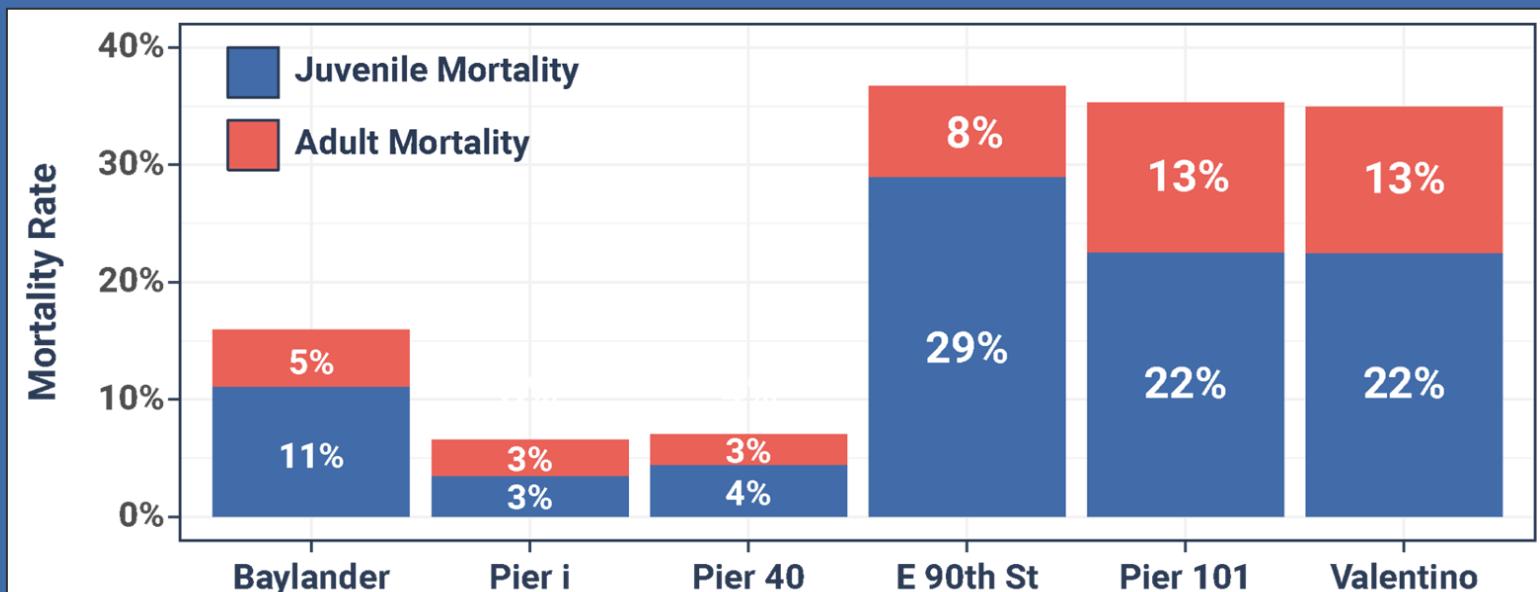
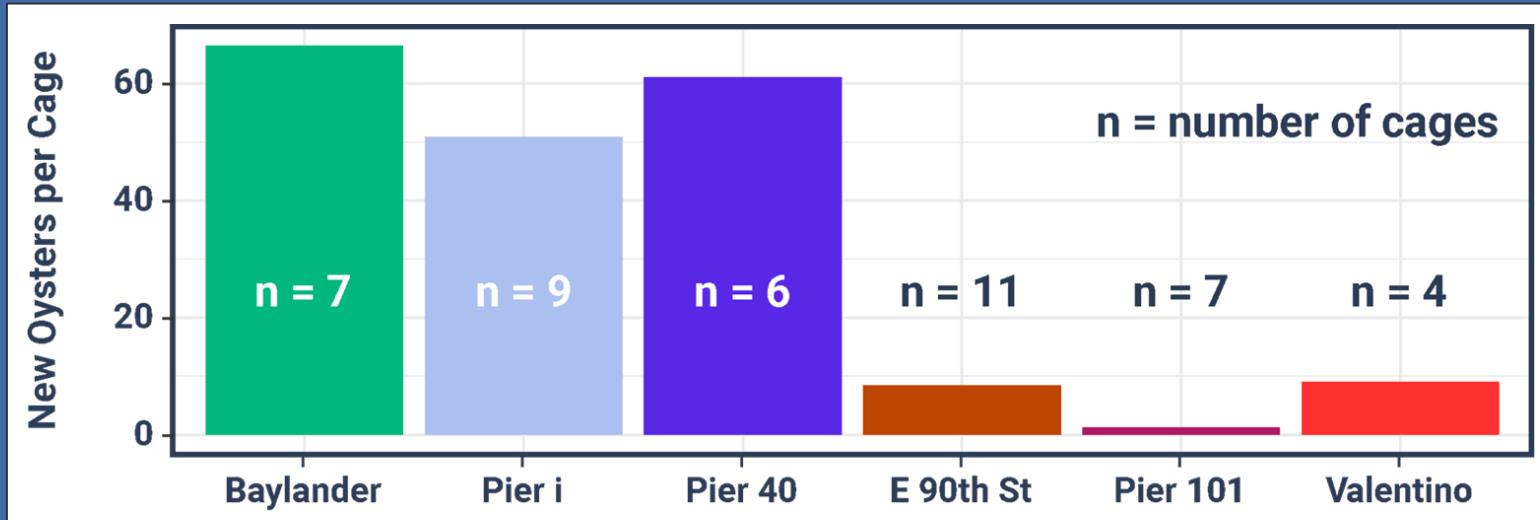
OYSTER RESEARCH STATION MONITORING



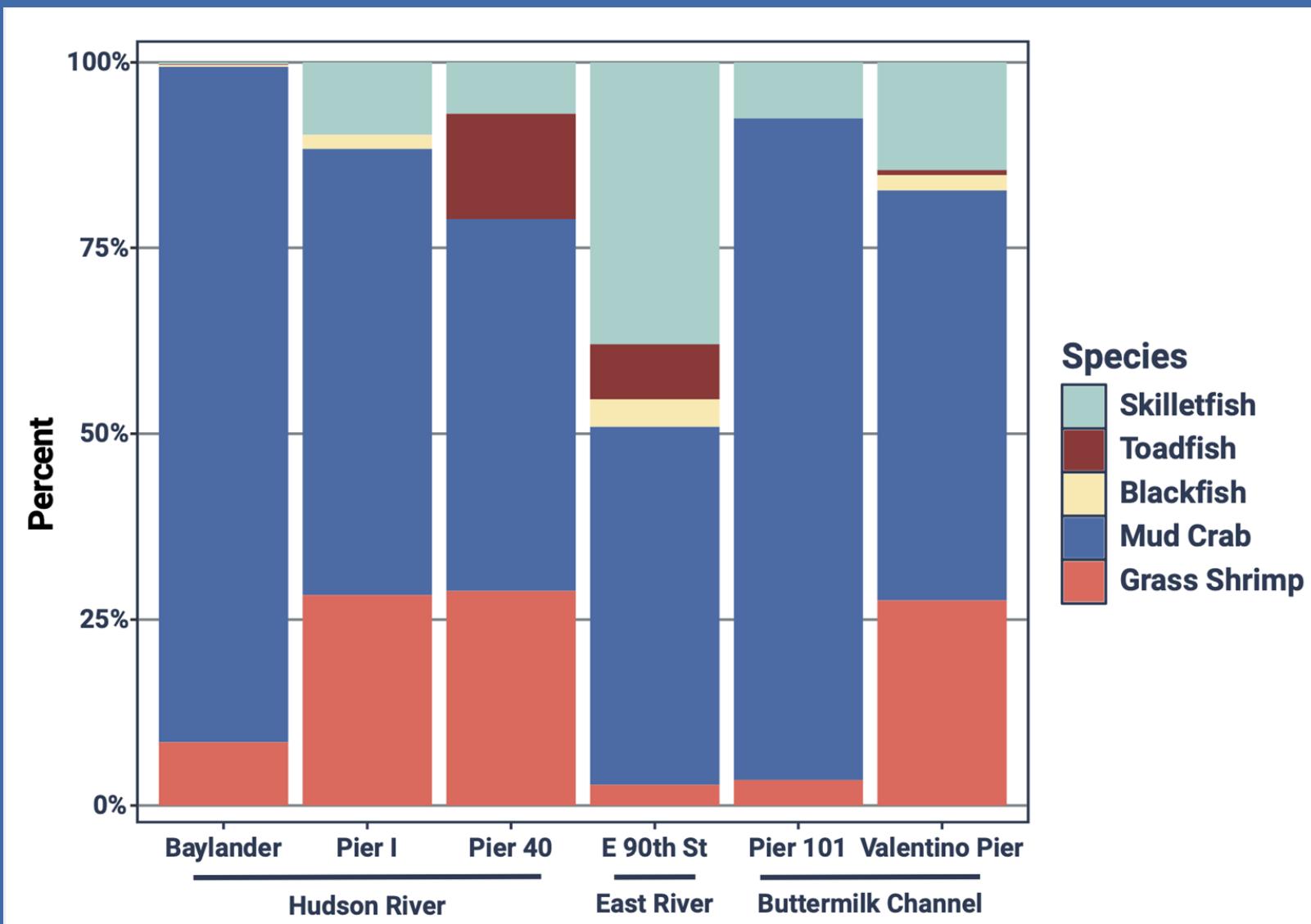
Oyster Growth



Recruitment and Mortality



Biodiversity



Summary

- Impressive first-year growth across all sites
- Mortality rates are within the expected range
- Amazing recruitment in our Hudson River sites
- Together, these findings suggest that **restoring a healthy, self-sustaining oysters population to New York Harbor is well within our reach!**
- Data from the Oyster Research Stations is used to inform our larger restoration efforts.
- This information helps us target areas where we know deployed oysters will have the best chance to thrive for future restoration efforts



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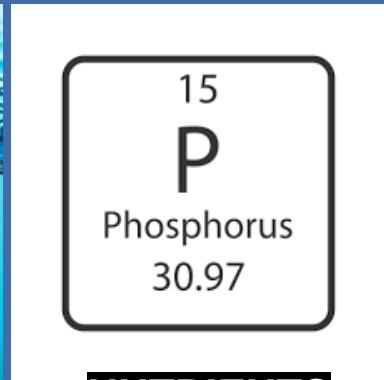


community
water
quality
testing

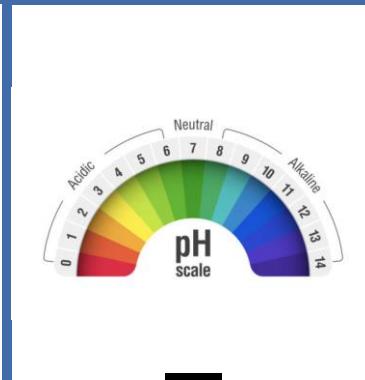
What is water quality?



DISSOLVED OXYGEN



NUTRIENTS



pH



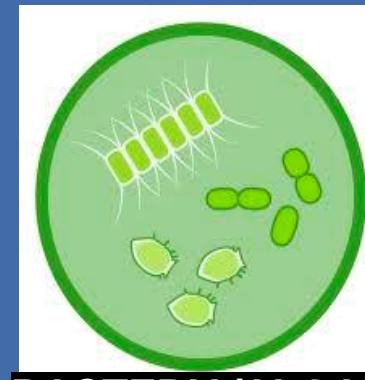
LITTER/DEBRIS



OIL/PETROLEUM



CHEMICAL WASTE



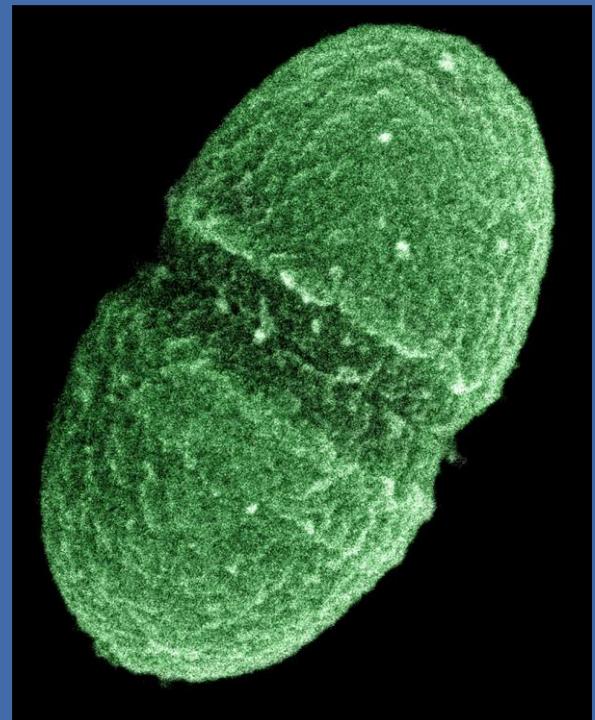
BACTERIA/ALGAE



TURBIDITY

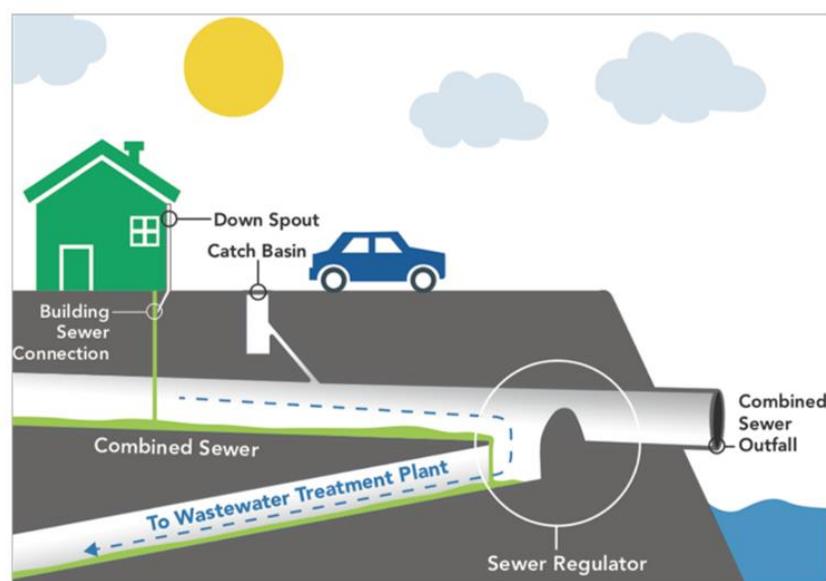
CWQT only tests for enterococcus

- Enterococcus is a family of bacteria that lives in the intestinal tracts of warm-blooded animals
- When found in water, it is a fecal indicator which tells you that there is poop in the water
- **Fecal bacteria can be harmful to human health, and prevent safe primary contact, making activities like swimming and wading more risky**
- Enterococcus has a higher tolerance to salt water compared to other fecal indicators like e coli

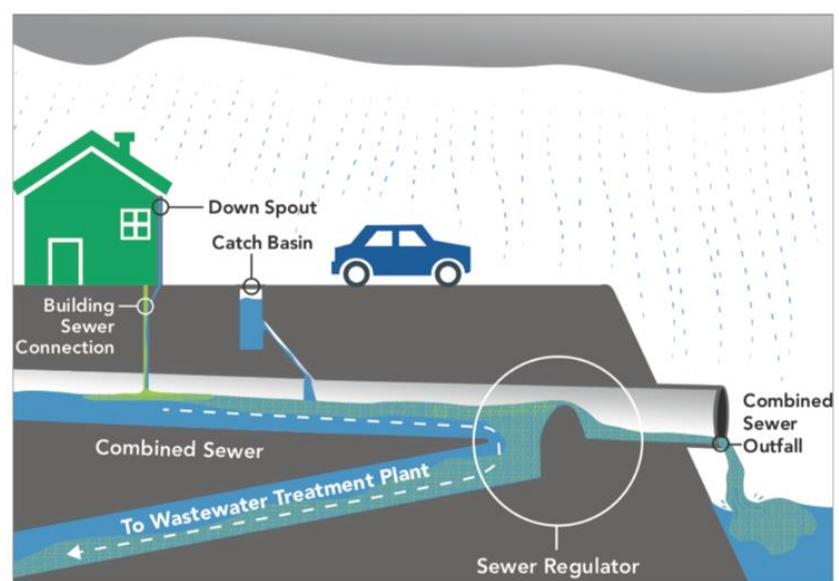


How does enterococcus get into the Harbor?

Combined Sewage Overflow



Dry Weather Conditions in the Combined Sewer System*



Wet Weather Conditions in the Combined Sewer System

*If you see discharge coming from any of New York City's 700 combined sewer outfalls (an outfall is an outlet along the waterfront connecting the City's sewers to the open waters) **during dry weather conditions**, report it to 311 or [file a complaint online](#). Each outfall has a sign with an identification number. Be sure to give the 311 operator the outfall number.

Quick shout out to geese!



How does enterococcus get into the Harbor?

NYC has a wastewater + stormwater problem

NYC's sewer system pollutes the Harbor!

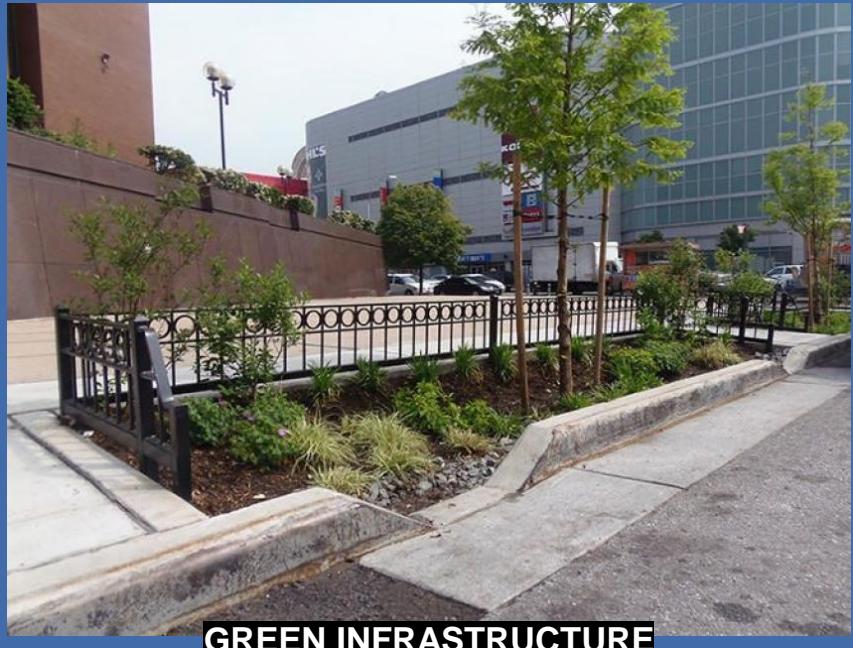
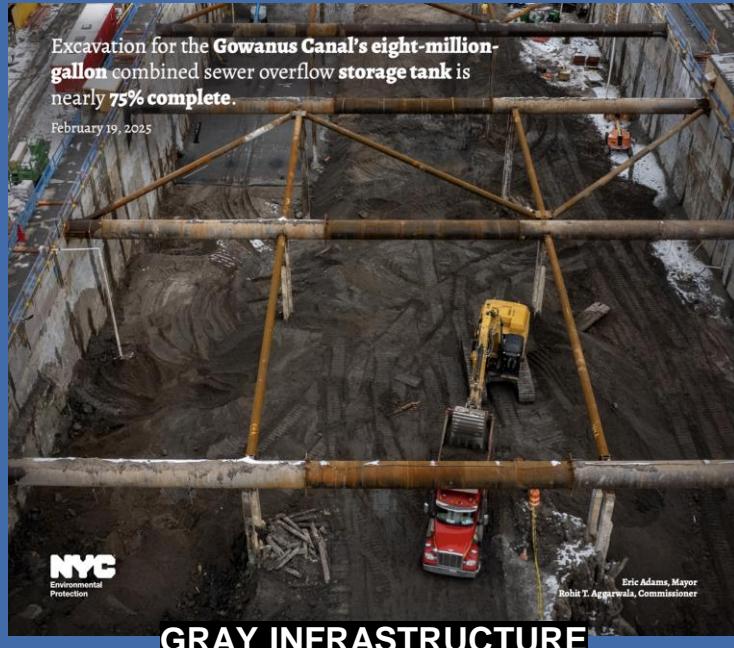
- **60-70% of NYC has a Combined Sewage System**
 - Raw sewage and untreated stormwater is expelled through 418 combined sewage overflows (CSOs) when wastewater treatment plants are overloaded during wet weather events
 - 27 billion gallons of CSO discharged into the harbor annually
 - as little as 1/10th of an inch of rain can trigger CSO in NYC
- **30-40% of NYC has a Municipal Separate Storm Sewer System (MS4)**
 - Strict regulations allow separate storm sewers that carry untreated stormwater runoff directly to local water bodies during wet weather
 - Pet waste, litter, heavy metals from fuel emissions, and other debris flow into the Harbor when stormwater drains of roads and other surfaces
- **~5% Direct Drainage (unpermitted???)**



What can we do to help mitigate this issue? *How can we capture stormwater and waste?*

Mitigation of overflow and pollution into the Harbor primarily relies on a combination of:

- Upgrades to Wastewater Treatment Facilities, interceptors, pumps, etc.
- Detention of stormwater/sewage
(ex. storage tanks and grey infrastructure)
- Retention of stormwater
(ex. rain gardens and green infrastructure)

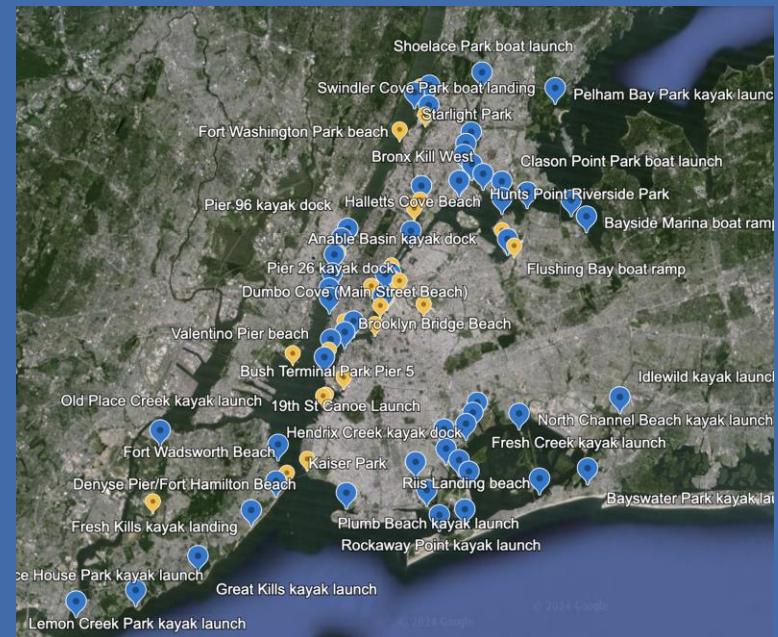




What is CWQT?

Why do we do this, and what are we doing?

- Started in 2012 by **NYC Water Trails Association** – 2024 was our 13th season! Focused on testing for bacteria near public access points on shoreline edge
- Over 10,000 samples collected from 140 locations, proceed by 17 partner labs
- Fills in data gaps left by City, State and Federal agencies
- Historically has compared entero. data to NYC Dept of Health standard for swimming
- Thursday mornings for 20 consecutive weeks during recreational boating season, samples are collected by community scientists, students, paddlers, and partner organization staff, to measure weekly enterococcus data



What we do, when we do it + why:

*Thursday morning entero. samples →
Thursday afternoon lab processing →*

*****24hrs in the incubator*****

*Friday afternoon entero. results →
Friday evening newsletter →
Weekend recreation with the latest possible results!*



CWQT NEWSLETTER 2023

Week 17 Results



Week 17: September 8

Though Central Park received trace amounts of measurable rainfall this week, only about 40% of our reporting sites tested safe for primary contact. With a forecast of rain predicted from Friday afternoon through Monday, our reported enterococcus values are sure to change due to combined sewage overflow.

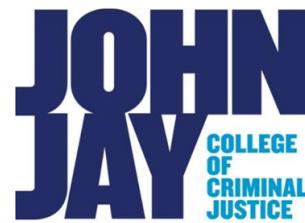
Check back next week to see how this weekend's rainfall will impact water quality!

[Read our Weekly Water Quality Roundup](#)

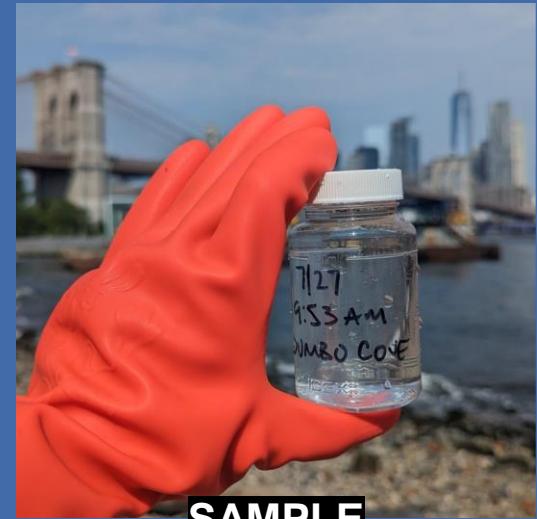
Or go straight to [this season's results](#)

Questions, comments, or concerns? Contact us at our new email waterquality@billionoysterproject.org.

CWQT Partner Organizations



In the lab, we use the IDEXX enteroalert system, an EPA-approved testing method. The amount of Enterococcus bacteria in each sample is determined by counting the number of UV reactive wells after 24 hours of incubation.



**SAMPLE
COLLECTION**



**SAMPLE
DROP OFF**



**SAMPLE
PROCESSING**



24 hours later...



How can we use CWQT data?

- The CWQT program provides access to water quality data that informs boaters, swimmers, and other water users when and where it's safe to explore and enjoy their local waterways
 - CWQT data can be paired with rainfall and tide information to make informed decisions about water quality and its potential impact on human health throughout the NY - NJ Estuary
 - Using NYC Dept Health enterococcus standards for primary contact, like swimming, we color code results our results
 - Data can also be compared to State and Federal standards as needed



CWQT Site Map

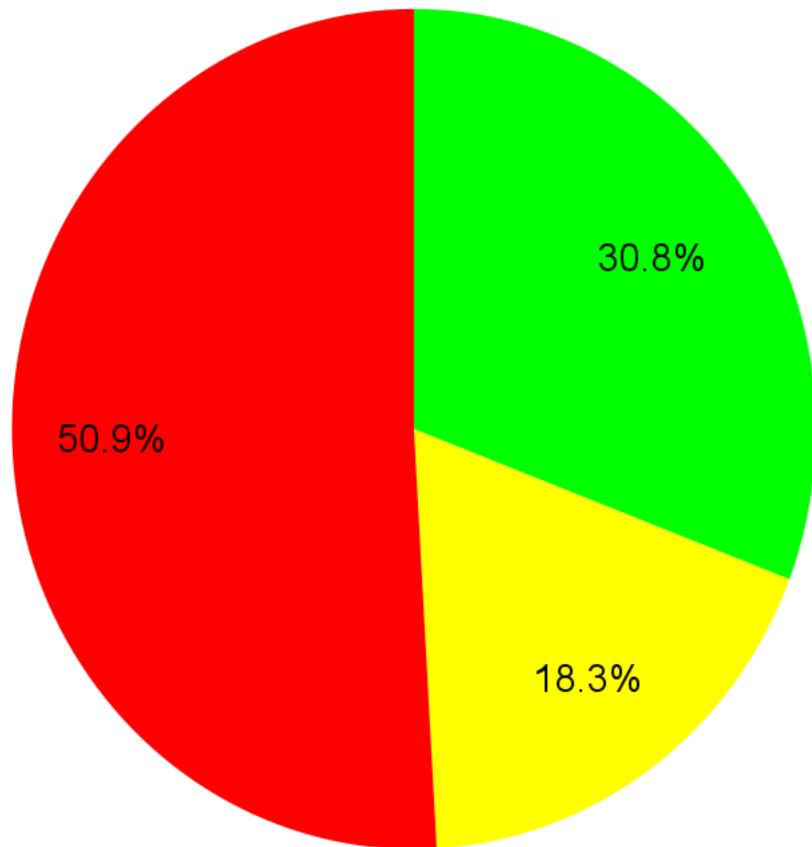
- Data sheets for each current and past site that include all years sampled
 - Location of current and past CWQT labs
 - Site photos
 - Updated before and after each CWQT season

CWQT Data Sheets

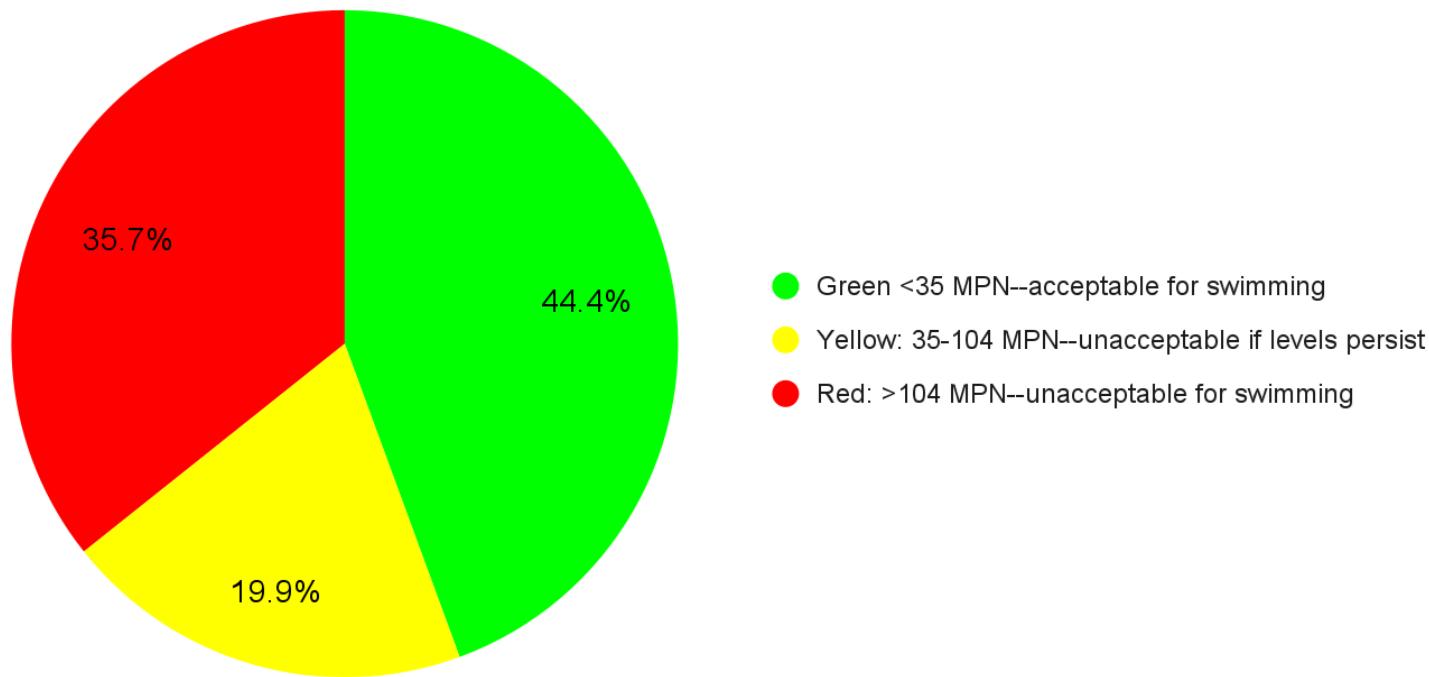
- Datasheets show entero. concentrations, sample time, rainfall numbers for Central Park and Battery high tide by sample season
 - Each sheet includes tabs with historic data from previous years

% Swimmable, Moderate, and Unswimmable Tests of 2024

- Green <35 MPN--acceptable for swimming
- Yellow: 35-104 MPN--unacceptable if levels persist
- Red: >104 MPN--unacceptable for swimming



% Swimmable, Moderate, and Unswimmable Tests of 2023



2024 Geometric Means (MPN)

- Despite less rain than previous years, 2024 entero. results were worse than 2023's
- Areas in open water with strong current tend to have less bacteria, while narrow tributaries with limited current and tidal flushing tendy to have higher bacterial levels
- In 2024 the cleanest site in NYC was Pier 40 on the Hudson River, and the dirtiest was Dutch Kills in Newtown Creek, Queens

| Sampling Sites | Year to Date |
|---|--------------|
| Raritan Bay, Midland Beach | 10.00 |
| Raritan Bay, Great Kills Beach | 14.14 |
| Raritan Bay, New Dorp Beach | 14.14 |
| Raritan Bay, Oakwood Beach | 14.14 |
| Hudson River, Pier 40 | 21.90 |
| Hudson River, Pier 26 | 26.19 |
| Hudson River, JFK Marina | 26.97 |
| Upper Harbor, Pier 69 | 27.58 |
| Buttermilk Channel, Valentino Pier | 30.14 |
| Raritan Bay, Waterfront Park, South Amboy, NJ | 30.16 |
| Kill Van Kull, Brady's Dock, Bayonne NJ | 30.80 |
| Hudson River, Pier 84 | 31.62 |
| Arthur Kill, Conference House Park | 32.41 |
| Hudson River, Gansevoort Peninsula, North | 32.57 |
| Hackensack River, Bayonne City Park, Bayonne NJ | 33.93 |
| Buttermilk Channel, Pier 101, Governors Island | 34.40 |

| Sampling Sites | Year to Date |
|---|--------------|
| Hudson River, Pier 96 | 36.01 |
| East River, SUNY Maritime Waterfront Center (MAR) | 36.05 |
| East River, SUNY Maritime Campus Entrance (IT) | 36.11 |
| East River, Pier 2 Kayak Dock, Brooklyn Bridge Park | 41.26 |
| Kissena Lake | 41.57 |
| Hudson River, Pier 13, Hoboken, NJ | 42.53 |
| Hudson River, Gansevoort Peninsula, South | 42.57 |
| East River, Pier 4 Beach, Brooklyn Bridge Park | 46.06 |
| Hudson River, Weehawken Cove, Hoboken NJ | 46.86 |
| Hudson River, Pier 66 | 47.07 |
| Rahway River, Carteret Waterfront Park | 54.94 |
| Little Neck Bay | 55.17 |
| Upper Harbor, Bush Terminal Park (North Embayment) | 58.85 |
| East River, E 90th St Ferry | 62.92 |
| East River, Gantry State Park | 63.24 |
| Gravesend Bay, Calvert Vaux Cove | 67.76 |
| Hackensack River, Rutkowsky Park, Bayonne NJ | 68.26 |
| Hudson River, West 172nd Street, Riverside Park | 70.28 |
| Gravesend Bay, OH-015 | 81.84 |
| East River, Stuy Cove Park | 86.25 |
| East River, Bushwick Inlet | 87.46 |
| Harlem River, Lincoln Avenue 2 | 88.63 |
| East River, Hammond Creek (HC) | 88.95 |
| East River, Hallets Cove | 89.16 |
| East River, Grand Ferry Park | 89.66 |
| Upper Harbor, Bush Terminal Park (Inner Lagoon) | 91.66 |
| East River, Dumbo Cove | 95.50 |
| Hudson River, Yonkers Paddling and Rowing Club | 98.79 |
| Hackensack River, Laurel Hill Park, Secaucus NJ | 99.34 |
| Hudson River, Pier 99 Boat Launch | 104.53 |
| Raritan River, Ken Buchanan Park, Sayreville NJ | 107.24 |
| East River, Esplanade (+Pool) | 109.97 |
| East River, South 5th Street/Domino Park | 114.03 |
| Bronx River, Soundview Park (mouth) | 121.92 |
| Harlem River, Water's Edge Garden Beach | 128.37 |
| Hudson River, Frank Sinatra Park, Hoboken NJ | 130.24 |
| Bronx Kill, west end | 134.72 |
| Bronx Kill, east end | 140.36 |
| East River, India Street | 140.82 |
| Flushing Bay, 28th Avenue, Big Rock Beach | 148.27 |
| East River, Marsha P Johnson State Park | 149.18 |
| Harlem River, Little Hell Gate | 163.28 |
| Raritan River, Edison Boat Basin, Edison NJ | 166.19 |
| East River, South 8th St | 167.81 |
| East River, Brooklyn Bridge Beach, Manhattan | 170.95 |
| East River, Wallabout Channel, Brooklyn Navy Yard | 186.52 |
| East River, North 3rd Street | 196.42 |
| Hudson River, Hoboken Cove Beach, Hoboken NJ | 205.75 |
| Jamaica Bay, Paerdegat Basin, Sebago Canoe Club | 241.22 |
| Raritan River, Rutgers Boathouse, New Brunswick NJ | 266.53 |
| East River, Bushwick Inlet Park Beach | 268.89 |
| Coney Island Creek, Kaiser Park | 269.34 |
| East River, WNYC Transmitter Park | 272.25 |
| Gowanus Canal, Lowlands Nursery | 331.24 |
| Flushing Bay, World's Fair Marina Pier 1 East | 338.93 |
| Newtown Creek, Apollo Street | 412.68 |
| Meadow Lake, Flushing Meadows-Corona Park | 455.29 |
| Newtown Creek, Pulaski Bridge, Queens | 488.62 |
| Newtown Creek, Second Street Kayak Launch | 526.06 |
| Gowanus Canal, Second Street Sponge Park | 539.17 |
| Hackensack River, River Barge Park, Carlstadt NJ | 570.14 |
| Flushing Bay, World's Fair Marina Boat Ramp | 603.38 |
| Bronx River, Soundview Park, HP009 CSO | 666.59 |
| Bronx River, Concrete Plant Park Canoe Launch | 746.97 |
| Newtown Creek, East Branch | 748.63 |
| Rahway River, Rahway Valley Sewerage Authority | 789.06 |
| Bronx River, Hunts Point Riverside Park | 932.75 |
| Hackensack River, Ridgefield Park, NJ | 984.87 |
| Flushing Creek | 1048.35 |
| Rahway River, Riverfront Park | 1078.66 |
| Raritan River, Riverside Park, Piscataway NJ | 1109.94 |
| Bronx River, Starlight Park, North Dock | 1120.66 |
| Saw Mill River, daylighted section | 1321.00 |
| Newtown Creek, English Kills | 1590.32 |
| Prospect Park Lake | 1665.77 |
| Newtown Creek, Dutch Kills (head) | 1886.59 |
| Raritan River, Second Street Park, Perth Amboy NJ | 2876.48 |

2024 MPN Geometric Means Compared to NYS Waterbody Classification Standards

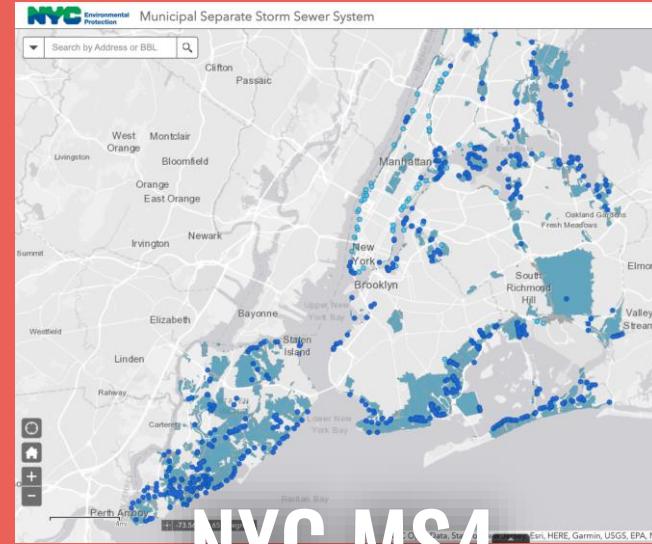
| Sampling Sites | | Site ID | | Water Body Classification | | 2024 | 5/9 | | 5/30 | | 6/6 | | 6/27 | | 7/11 | | 8/1 | | 8/8 | | 8/29 | | 9/5 | | 9/26 | | | |
|---|-----|---------|---------|---------------------------|---------|------------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|---------|---------|
| | | | | | | | May | | June | | July | | | | August | | | | | | | | | | | | | |
| | | | | | | | Geometric Mean (cannot exceed 72 MNM over 30 days) | | % of samples over 266 MPN (cannot exceed more than 10% of samples per month) | | Geometric Mean (cannot exceed 72 MNM over 30 days) | | % of samples over 266 MPN (cannot exceed more than 10% of samples per month) | | Geometric Mean (cannot exceed 72 MNM over 30 days) | | % of samples over 266 MPN (cannot exceed more than 10% of samples per month) | | Geometric Mean (cannot exceed 72 MNM over 30 days) | | % of samples over 266 MPN (cannot exceed more than 10% of samples per month) | | Geometric Mean (cannot exceed 72 MNM over 30 days) | | % of samples over 266 MPN (cannot exceed more than 10% of samples per month) | | | |
| Hudson River, JFK Marina | 006 | I | 162.84 | 50.00% | 22.75 | 0.00% | 10.00 | 0.00% | 49.95 | 0.00% | 20.25 | 0.00% | 179.25 | 50.00% | 34.94 | 0.00% | 10.00 | 0.00% | 32.88 | 0.00% | 10.00 | 0.00% | 32.88 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Yonkers Rowing and Rowing Club | 012 | I | 378.08 | 50.00% | 208.61 | 50.00% | 304.55 | 50.00% | 354.37 | 50.00% | 461.10 | 100.00% | 216.00 | 0.00% | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data |
| Bronx River, Stratford Park, North Dock | 034 | I | 2169.77 | 100.00% | 2045.65 | 50.00% | 257.75 | 0.00% | 62.37 | 25.00% | 173.18 | 50.00% | 168.00 | 100.00% | 8564.90 | 100.00% | 85.00% | 0.00% | 10.00 | 0.00% | 33.93 | 0.00% | 10.00 | 0.00% | 33.93 | 0.00% | 10.00 | 0.00% |
| Bronx River, Concrete Plant Park/Canoë Launch | 145 | I | 1543.40 | 50.00% | 1657.03 | 50.00% | 2205.31 | 50.00% | 280.82 | 50.00% | 943.47 | 100.00% | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | | |
| Bronx River, Hunts Point/Riverside Park | 033 | I | 1943.75 | 50.00% | 762.50 | 50.00% | 239.09 | 50.00% | 355.69 | 25.00% | 61.95 | 0.00% | 118.92 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Bronx River, Soundview Park (mouth) | 085 | I | 233.99 | 50.00% | 61.45 | 0.00% | 125.88 | 50.00% | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | | |
| Fish River, SUNY Maritime Waterfront Center (MAR) | 075 | I | 52.00 | 0.00% | 95.96 | 25.00% | 50.96 | 25.00% | 42.34 | 25.00% | 25.52 | 0.00% | 11.51 | 0.00% | 35.25 | 0.00% | 10.00 | 0.00% | 41.32 | 0.00% | 35.65 | 0.00% | 10.00 | 0.00% | 35.65 | 0.00% | 10.00 | 0.00% |
| East River, SUNY Maritime Campus Entrance (IT) | 069 | I | 63.00 | 0.00% | 25.75 | 0.00% | 62.37 | 25.00% | 81.97 | 50.00% | 173.18 | 50.00% | 168.44 | 100.00% | 16.64 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% |
| East River, Hammond Creek (HC) | 088 | I | 41.00 | 0.00% | 163.60 | 50.00% | 371.38 | 50.00% | 227.37 | 50.00% | 94.78 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Bronx Kill, west end | 013 | I | 122.61 | 0.00% | 68.40 | 50.00% | 239.09 | 50.00% | 355.69 | 25.00% | 61.95 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Bronx Kill, east end | 043 | I | 98.60 | 25.00% | 217.90 | 50.00% | 118.92 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hallem River, Little Hell's Gate | 071 | I | 194.78 | 50.00% | 239.09 | 50.00% | 355.69 | 25.00% | 61.95 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hallem River, Water's Edge Garden Beach | 118 | I | 247.62 | 25.00% | 75.78 | 25.00% | 239.29 | 50.00% | 68.92 | 25.00% | 117.41 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hallem River, Lincoln Avenue 2 | 129 | I | 2900.37 | 100.00% | 112.25 | 0.00% | 118.92 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, West 172nd Street, Riverside Park | 041 | I | 91.78 | 50.00% | 602.00 | 100.00% | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | No Data | |
| Hudson River, Pier 99 Boat Launch | 059 | I | 359.95 | 50.00% | 108.05 | 25.00% | 154.33 | 50.00% | 23.52 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Pier 56 | 009 | I | 251.18 | 50.00% | 69.10 | 25.00% | 10.00 | 0.00% | 21.51 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Pier 84 | 038 | I | 59.51 | 25.00% | 33.89 | 25.00% | 61.16 | 100.00% | 30.19 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Pier 65 | 008 | I | 250.43 | 50.00% | 37.85 | 0.00% | 35.60 | 0.00% | 48.45 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Gansevoort Peninsula, North | 132 | I | 125.55 | 25.00% | 36.13 | 0.00% | 25.05 | 0.00% | 22.86 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Gansevoort Peninsula, South | 098 | I | 96.10 | 0.00% | 54.02 | 0.00% | 14.21 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Pier 40 | 001 | I | 63.25 | 0.00% | 21.61 | 0.00% | 19.55 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Pier 26 | 007 | I | 124.11 | 25.00% | 32.24 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Weehawken Cove, Hoboken NJ | 060 | I | 68.28 | 25.00% | 75.93 | 25.00% | 109.30 | 50.00% | 24.46 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Pier 13, Hoboken NJ | 052 | I | 91.71 | 25.00% | 59.01 | 0.00% | 38.76 | 0.00% | 28.74 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Hoboken Cove Beach, Hoboken NJ | 051 | I | 230.72 | 50.00% | 429.96 | 100.00% | 767.62 | 100.00% | 145.41 | 33.33% | 50.29 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Hudson River, Frank Sinatra Park, Hoboken NJ | 058 | I | 194.35 | 50.00% | 63.55 | 0.00% | 590.44 | 100.00% | 189.23 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Flushing Bay, 28th Avenue, Big Rock Beach | 109 | I | 119.96 | 33.33% | 626.47 | 50.00% | 364.11 | 25.00% | 38.54 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Flushing Bay, World's Fair Marina Pier 1 East | 022 | I | 1450.78 | 66.67% | 558.61 | 50.00% | 377.00 | 50.00% | 102.69 | 25.00% | 205.35 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Flushing Bay, World's Fair Marina Boat Ramp | 056 | I | 1482.81 | 66.67% | 2125.22 | 75.00% | 1004.57 | 50.00% | 230.28 | 50.00% | 137.36 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| Flushing Creek | 070 | I | 1628.20 | 100.00% | 1583.06 | 75.00% | 118.27 | 75.00% | 479.93 | 50.00% | 56.45 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, E 90th St Ferry | 140 | I | 75.70 | 0.00% | 38.77 | 0.00% | 228.84 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Hell's Gate | 018 | I | No Data | No Data | 301.00 | 100.00% | 222.52 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Gantry State Park | 045 | I | 101.63 | 25.00% | 93.99 | 33.33% | 129.49 | 25.00% | 21.58 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Stay Cove Park | 021 | I | 81.98 | 33.33% | 67.45 | 0.00% | 115.54 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, India Street | 123 | I | 355.90 | 25.00% | 668.47 | 50.00% | 88.47 | 25.00% | 48.30 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, WNYC Transmitter Park | 126 | I | 275.60 | 25.00% | 3050.08 | 75.00% | 115.58 | 50.00% | 91.54 | 25.00% | 107.24 | 50.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Manhasset Johnson State Park | 124 | I | 103.16 | 0.00% | 376.71 | 50.00% | 179.27 | 50.00% | 115.93 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Bushwick Inlet | 055 | I | 33.38 | 0.00% | 370.97 | 33.33% | 281.01 | 25.00% | 33.35 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Bushwick Inlet Park Beach | 068 | I | 95.67 | 25.00% | 292.45 | 50.00% | 161.48 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, North 3rd Street | 005 | I | 117.92 | 50.00% | 62.65 | 0.00% | 234.11 | 25.00% | 308.41 | 25.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | 10.00 | 0.00% | | |
| East River, Grand Ferry Park | 087 | I | 44.91 | 25.00% | 178.06 | 25.00%</td | | | | | | | | | | | | | | | | | | | | | | |

Does NYC need cleaner water?



- Federal regulation require “swimmable and fishable water”
- Without sizable investment in grey and green infrastructure, pollution from NYC’s sewer system will get worse due to climate change fueled extreme rainfall
- While extreme heat events become more common due to climate change, NYC residents will inevitably turn to the Harbor as a place to cool down
 - High bacteria concentrations can prevent people from swimming safely in NYC’s waterways, pollution from bacteria and pathogens is a climate justice issue, and public health issue

Research and information for you!



NYC MS4
AREA MAP



FIND YOUR
CSO ON OPEN
SEWER ATLAS



DEP MAP OF
CSOs

Stay in touch with CWQT:

Community Water Quality Testing Email Sign Up

Thank you for your interest in the Community Water Quality Testing (CWQT) Program. This Harbor-wide initiative, currently facilitated by Billion Oyster Project alongside 15+ partner labs and community based organizations, has engaged community scientists in the testing of NY - NJ Estuary water for bacteria that can be harmful to humans for over 10 years.

For 20 weeks of the year volunteers and community partners test surface water for sewage pollution typically caused by combined sewage overflows. Data can be paired with rainfall and tide information to make informed decisions about water quality and its potential impact on human health throughout the NY - NJ Estuary.

This program — initially organized by the New York City Water Trail Association — aims to increase equitable access to our local waterfront by consistently reporting on the health of New York Harbor and advocating for a change to New York City's antiquated combined sewer system.

Want to receive weekly water quality results in your inbox? Sign up below.

First Name

Last Name

Email Address



SUBSCRIBE TO THE CWQT NEWSLETTER

2025 CWQT Sampler Interest Form

Hello prospective water quality samplers!

Are you interested in volunteering with Billion Oyster Project and the Community Water Quality Testing (CWQT) program during the 2025 season? Please read the following questions and complete the form below. A member of the Billion Oyster Project team will follow up with responses at the end of the week.

What is the Community Water Quality Testing (CWQT) Program?

The Community Water Quality Testing Program, currently facilitated by Billion Oyster Project alongside 20+ partner labs and community organizations, engages citizen scientists in the testing of the NY-NJ Harbor Estuary water for bacteria that can be harmful to humans health.

The CWQT program provides access to water quality data that informs boaters, swimmers, and beachgoers about where it's safe to swim and where it's safe to explore and enjoy their local waterways. Testing focuses on sewage pollution from combined sewage overflows. CWQT data can be paired with rainfall and tide information to make informed decisions about water quality and its potential impact on human health throughout our waters.

What does CWQT test for?

CWQT tests for *Enterococcus*. "Enterococcus" is found in the fecal matter of warm-blooded animals. The presence of *Enterococcus* in the water is an indicator of fecal pollution as well as the possible presence of other pathogens that can be harmful to humans. The New York State Number of *Enterococcus* is recorded and compared to the NYC Department of Health standards for swimmers.

How to get involved: Prospective volunteers commit to attend a training and collecting water samples, from one or more sample sites, for 20 consecutive weeks. Volunteers work individually or in groups on a rotating schedule to sample, with the expected time commitment being 2 hours per week for 20 consecutive weeks. Training is on Thursday mornings, and dropped off at one of 10 partner labs before 12PM the same day. Training occurs on Saturday, June 2, 2023, Sunday, June 3, 2023, Monday, June 4, 2023, with a break for June 19 and July 4, 2023. Below is a non-exhaustive list of sites we are looking to recruit potential samplers for, however we encourage potential samplers to independently identify alternative sites that align with their own interest and experience:

- Harlem River, Lincoln Avenue, Morrisania, Mott Haven
- Lupton Creek, Astoria
- East River, Gantry State Park
- East River, Pier 2 Kayak Park, Brooklyn Bridge Park
- East River, Pier 14, Brooklyn Bridge Park
- Hudson River, Battery Park City
- Gowanus Canal, Gowanus Canal
- Coney Island Creek, Calvert Vaux Beach
- Piermont Basin, Jamaica Bay (Seabago Canoe Club)
- Rockaway Beach, Rockaway Beach
- Floyd Bennett Field, Jamaica Bay
- Brooklyn Bridge Park, Brooklyn Bridge Park
- Sheepshead Park Canoe Launch
- Gowanus Canal, Gowanus Canal
- Bronx Zoo - Mitsubushi瑞穗
- Bronx River Park, 182nd St
- Starlight Park, Bronx
- Concrete Plant Park Canoe Launch
- Morris Canal, Morris Canal
- Soundview Park - HP009 outfall
- Soundview Park - Morris Canal

Please note that we do not guarantee participation. After collecting interest forms, Billion Oyster Project staff will reach out to partner labs to understand lab capacity and potential sampler placement. We look forward to updating responses in early August 2023.

More information and CWQT data can be found [here](#). Please reach out to waterquality@billionoysterproject.org with any questions, and stay in touch by subscribing to the CWQT newsletter [here](#).

First and Last Name *

Preferred Email Address *

Please list any institution or community-based organization you are affiliated with that may have been involved in conducting monitoring for CWQT bacteria monitoring. Please note your role in the organization

Would you like to participate as a sampler in the 2025 CWQT program? * Selected

If you responded "Yes" please explain here:

Have you participated in CWQT before? * Selected

If you answered "Yes," please describe your role - what site(s) did you sample previously, in what year(s), and what lab did you bring it to for processing?

In which borough(s), neighborhood(s), and/or waterbody(s) would you like to sample for *Enterococcus* bacteria this season? Please provide an address, intersection, and/or coordinates if you have a particular location(s) in mind.

Are you able to commit to collecting samples for 20 consecutive Thursday mornings from mid-May through September 2025? * Selected

If you answered "No" or "Maybe" please explain here:

Do you plan to use or review the CWQT data you will collect? If yes, for what purpose will you use the data?

Will you use the data to inform recreational swimming or boating, independent or academic research, or both?



BECOME A WATER SAMPLER

GET INVOLVED!



VOLUNTEER



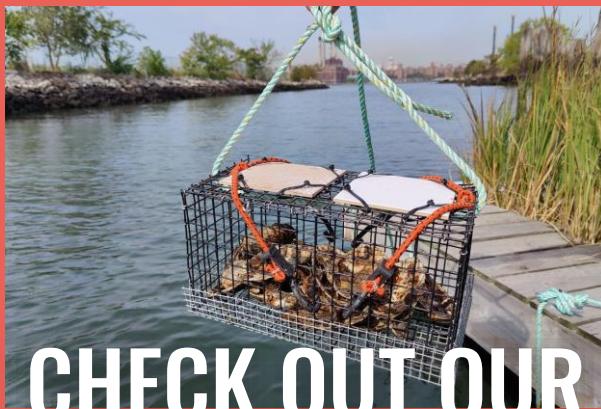
DONATE



COMMUNITY
SCIENCE



VISIT A
RESTAURANT



CHECK OUT OUR
EVENTS



COME TO THE
BILLION OYSTER
PARTY

AGENDA

- Introductions ✓
- Billion Oyster Project Intro ✓
- Why Oysters? ✓
- Oyster Research Stations ✓
- Community Water Quality Testing ✓
- Q+A





Thank you!!

Visit billionoysterproject.org for more info!



QUESTIONS

