

Environmental Education Report

Friends of + POOL (+ POOL) is a nonprofit water stewardship organization founded in 2015 to provide free and safe access to New York City's rivers for healthful recreation for all.

The waterways surrounding New York City's five boroughs include 520 miles of shoreline. However, the city's inner harbor has been off-limits for swimming for over a century. NYC, like many other urban areas, operates a sewer system that releases untreated sewage overflow into nearby waterways during heavy rainfall. According to the Department of Environmental Conservation and NY/NJ Baykeeper, NYC has 426 Combined Sewage

Overflows (CSOs) that discharge a staggering 27 billion gallons of combined stormwater and raw sewage into its waters annually. Consequently, the Department of Environmental Protection has not designated the city's inner harbor as safe for swimming due to pollution from CSOs and street runoff.

In recent years, however, NYC's waterways have shown significant improvement, as reported by [NYCDEP](#). Average levels of fecal coliform and Enterococcus bacteria have decreased dramatically over the past three decades. This progress is largely attributed to the completion of New York City's Wastewater Resource Recovery Facilities, the elimination of illegal discharges, and reductions in CSOs.

Building on this momentum, + POOL is advancing access to these revitalized waterways. Our site-specific monitoring models, testing protocols, and innovative engineering controls aim to unlock the potential of this historically recreational resource. After years of advocacy, we have partnered with the City and State of New York to construct the world's first water-filtering floating swimming pool at Pier 35 on the East River. This groundbreaking project will create a unique public space for recreation, inspire new laws expanding access to swim lessons,

and pave the way for policies that restore New Yorkers' ability to swim in their rivers—something not seen in over a century.

While + POOL will serve as an active recreational space for the local community, it is much more than a river pool, it is a tool for helping educate the public on the issues affecting our water quality and promote better water stewardship. To this end, Friends of + POOL produces a robust calendar of environmental programs throughout the year highlighting the importance of our rivers to the city's environment, ecology, and economy. This report reflects on environmental programs produced in 2024, a landmark year where Friends of + POOL



In 2024, + POOL hosted six riversweeps, volunteer days of environmental stewardship that all originated at Pier 35, the future home of + POOL!

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built a filtration system prototype in the East River to support the final detailed design and construction of New York City's first water-filtering floating swimming pool.

Free Public Programs

Friends of + POOL produces free public programs throughout the year to make the research, development and construction of + POOL transparent, and to engage New Yorkers in the issues affecting our water quality and promote water stewardship.

Sea Pools (January 18th)

Friends of + POOL's first public program engaging New Yorkers in water advocacy was a free public program produced in partnership with the American Institution of Architects on the occasion of the launch of *Sea Pools: 66 Saltwater Sanctuaries from Around the World*, a book by Chris Romer-Lee. This program explored the architectural and social significance of sea pools, community spaces in natural bodies of water designed to offer swimmers a safe haven from the dangers of rough waters and unpredictable currents. As cities across the world invest in urban well-being infrastructure to support the health of their citizens and their economies, Friends of + POOL strives to raise awareness of the benefits of natural swimming spaces and the importance of connecting communities to their natural environments to promote water stewardship. At the event, + POOL's Managing Director Kara Meyer participated in a discussion with Chris Romer-Lee moderated by President and Chief Strategy Officer of Therme US, Robert Hammond. The goal of these swim spots is to show that by actively engaging in recreation in natural bodies of water helps us develop a relationship with these waters that makes us more eager to protect them from environmental degradation. The panel also discussed how this access to water is key to the health of the local NYC community in particular, with + POOL driving free and safe swimming access to the waters in the East River and Therme US striving to bring a reimagined Roman Bath to the city. The event was attended by approximately 100 New Yorkers.



+ POOL Program Director Nora Cronin welcomes volunteers to the Statewide Riversweep, presented in partnership with Riverkeeper, on May 4, 2024.

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NYC History of Public Pools Talk at Head-Hi Bookstore (March 21st)

On a cold March evening, Program Director Nora Cronin presented on the history of New York City's public pools. The lectures began with the history of the original river baths that dotted the shores of the East and Hudson River at the beginning of the century, then moved to the WPA-era pools of Robert Moses and Fiorella LaGuardia. The lecture then touched on the final closing of river bathhouses and subsequent environmental degradation of the rivers, and concluding with the revitalization of NYC Parks and Recreation pools following investment and improvements in the early 2000s. The lecture linked this rich history to + POOL's work to bring river swimming back to New Yorkers for the first time in 100 years

thanks to new focus on clean water and initiatives that have increased dialogue around safe public access to our city's waters.

The event, ticketed to the public but free to monthly lappers (members of + POOL) saw a lively crowd of 40 guests join for the lecture at Head Hi bookshop in Brooklyn. Head Hi is a bookstore that focuses on books highlighting art, architecture and design, the perfect location for the event. The lecture was followed by a DJ set in the event space and guests lingered after having all their public pool questions answered.



+ POOL Creative Director (left) and Deputy Director Raphael Miles (right) talk about 520 miles of NYC waterfront at the School at Columbia University during a STEM education visit to their sixth grade science classes.

NYC History of Public Pools Talk at Salmagundi Club (May 31st)

After the success of the first lecture, another event was scheduled during the day at the Salmagundi Club at their lunchtime lecture series. The club is one of the oldest art organizations in the United States and New York's oldest art club. The event was open to their members as well as + POOL's monthly lappers, bringing + POOL to a brand new audience. Approximately 25 people attended the event in Salmagundi's historic space on 5th Avenue.

Earth Day 2024 Festival (April 14th)

Since 1970, Earth Day has been a catalyst for ongoing education, action, and change, recognized on April 22nd each year, but celebrated with events and programming throughout

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its surrounding days. On April 14th, we participated with the Earth Day Initiative, a one-day event that promotes environmental awareness and solutions through partnerships with schools, community organizations, businesses, and governments at their event on a sunny Sunday afternoon in Union Square. As part of our participation in the Earth Day Festival,

Riversweeps are two-to-three hour volunteer events open to all, and each event fosters a sense of community and ownership of the water that surrounds us.

we work to create unique creative interventions that raise awareness of water quality issues. For this year’s activity, we partnered with NYC H2O to present educational activities in the form of a scavenger hunt to families who stopped by the + POOL booth. The scavenger hunt taught New Yorkers about water systems, such as the Croton Aqueduct, by leveraging landmarks across Union Square. Over 500 people attended the event, and those who participated in the scavenger hunt received a + POOL bracelet as a prize.

Riversweeps (April 27th, May 4th, June 8th, July 13th, September 14th, October 19th)

+ POOL Riversweeps are one of our signature environmental initiatives that help keep New York City’s waterways beautiful for the city’s citizens. Part of being a good steward of public space includes keeping the rivers free from debris that can harm water



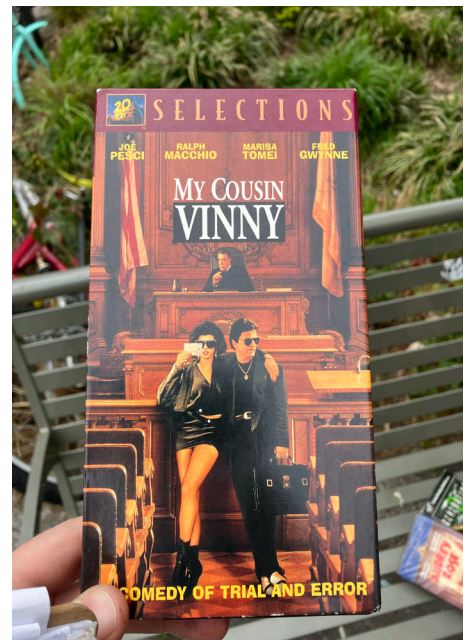
Members of Gay 4 Good pose at our site during their April riversweep.

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quality, change the river's ecology, and hurt marine wildlife. These volunteer events gather citizens for a day of service to build community and raise awareness of the issues impacting our waterways.

We conduct Riversweeps during the warm-weather months along the East River Esplanade to steward the area near our future home at Pier 35. Our kick-off event on April 27th was a special collaboration with Gays for Good, a volunteer organization led by members of the LGBTQ+ community who use days of service as a way to socialize and give back to the community. We had over 30 volunteers on that date participate as an opportunity to both clean the East River Esplanade from debris, and also were provided with ideas about how to lead sweeps in their own waterfront neighborhoods.

Following the April launch, we then held Riversweeps on May 4th and June 8th that were promoted and sanctioned by Riverkeeper, a non-profit environmental organization dedicated to the protection of the Hudson River and its tributaries, as well as the watersheds that provide New York City with its drinking water. The sweep on May 4th was a statewide riversweep which coincided with partner organizations from all over New York State also doing stewardship projects along their waterfronts. Participants 21+ were rewarded following the sweep with drink tickets to local breweries to enjoy a beer after a day of hard work!



*Pics or it didn't happen!
Some interesting trash found during
May's riversweep.*

Thanks to over 150 amazing volunteers, 500 pounds of trash that would have otherwise polluted our rivers was responsibly disposed of in trash compactors. We also cleared sharps that posed a safety hazard to anyone walking in the area, returning to area hospitals for medical waste disposal. Riversweep participants also enjoyed some humorous finds among the debris, and we challenged participants to record their most unusual finds, which ranged from a Michael Kors jacket, to bicycle tires, and a VHS copy of the film *My Cousin Vinny*.

STEM Education (June 4th, October 1st, 9th, and Nov. 8th)

Friends of + POOL's STEM education spanned four different dates in 2024. We partnered with four schools, serving more than 150 students through innovative curriculums, dynamic lectures presented by + POOL staff, and play!

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PS 150

We kicked off our STEM education curriculum in summer 2024 with 4th graders at the elementary school PS 150 on June 4th. The students were actively engaged with the lecture on the green infrastructure and design concepts embedded in the + POOL project, which was presented by Managing Director Kara Meyer, with an active filtration experiment led by Program Director Nora Cronin. Working with the students and faculty at this school was particularly rewarding given the close proximity to the Pier 35 site and location of our learn-to-swim program.



Each STEM education session begins with an interactive lesson and then students are guided through an experiment.

The School at Columbia University

In the fall, + POOL staffers visited 60 sixth grade students at The School at Columbia University on the Upper West Side to demonstrate the engineering and environmental science behind the + POOL project. We taught the students the importance of clean water, the city's efforts to improve water quality through various green infrastructure projects, and the environmental design concepts behind + POOL. Each session included a water filtration experiment, teaching concepts including hypothesis and iteration as they tested the effectiveness of three different types of filters to clean water polluted with paper debris, dirt, oil, and plastic. Before we visited the 6th graders were given a video to watch that demonstrated the filtration system that is used by the + POOL project. It was evident

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Managing Director Kara Meyer kicking off the discussion of green infrastructure at PS 150 on June 4th.

during our presentation that they did watch the video, based on the questions and answers they had for us during our presentation.

We created a presentation that was informative, concise, and visibly appealing to capture the attention span of the young students. We gave them information about the importance of water and what it's used for, the mileage of NYC's waterways, the sewer system and how it

pertains to the river. We allowed the students to come to the front of the class to participate in activities. After the presentation, the students participated in our filtration experiment. Each class session was divided into groups working together on the experiment as it was being explained. After each step of the experiment, students were to complete a section of the worksheet that was provided to them.

East Side Community High

Working with the students at East Side Community High was particularly important to us as the teacher of the class who invited us, Soleil Sabalja, has partnered with us on several riversweeps. We worked with a small group of ten students in her specialized science class giving a presentation and using the filtration experiment as a small group activity for further discussion.

Following the presentation, Soleil wrote to us, "The kids had a great time and were very engaged! I definitely think it helped get them more excited about their research projects about the NYC Harbor and water quality." Two volunteers from School of Visual Arts supported + POOL staff at this presentation.

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Hunters Point Community School

During the fall we also presented at Hunter's Point Community School to 7th graders. We lectured about the importance of clean water and how green infrastructure supports improvements to our city's waters. We also shared the design thinking process and how design of the + POOL filtration system was iterated to become what it is today. Following the lecture at Hunter's Point, we hosted a Q&A to 100 students. By the end of the session, all students gained knowledge around the city's CSO system and how it impacts NYC's waterways.

Filtration Pilot (August- November)

This summer, great strides were made in our project to create the first self-filtering floating swimming pool in New York City's East River. As part of funding and approval for our first pilot facility Friends of + POOL is obliged to create a filtration pilot facility to test the underlying technology at scale to demonstrate that this technology meets the new requirements for permitting our first facility as a 'novel beach.' The state-of-the-art filtration system was designed in partnership with global consultancy Arup, and constructed in partnership with Sciame Construction. For three months, the pilot tested the filtration system by treating gallons of river water, all without the use of chemicals. Water Quality Engineers, Pilot Operators, and representatives from the Interstate Environmental Commission (IEC) conducted daily testing of the water across six different points of our treatment process. In all, continuous testing proved that the filtration system could regularly bring water directly from the river and filter it to meet swimming standards.

In conjunction with this pilot, we also hosted filtration tours for select guests to explore the state-of-the-art filtration system and a series of public programs for the community to engage with the pilot, which are detailed below. Events were promoted to + POOL's network of 16,000 email subscribers and 24,456 social media followers, as well as through cross promotion by event partners.



Panelists from the October 16th Science Talk on Water Quality join + POOL staff and supporters at Henry Street Settlement for a group photo following their talk.

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Evelyn Powers (right) and members of IEC staff demonstrate use of a Sonde instrument at their lab.

IEC Tour w/BioBAT Exhibit (September 19th)

Friends of + POOL organized a tour for the general public of the Interstate Environmental Commission (IEC) lab, + POOL's collaborator on all water quality testing for the filtration pilot. IEC is a tri-state agency that monitors and regulates air and water pollution in New York, New Jersey, and Connecticut. The IEC's district includes New York City, Long Island Sound, and parts of the Atlantic Ocean. The IEC's laboratory is nationally accredited and conducts research projects to improve the environment. Staff at IEC analyzed samples that they collected daily, to assess the effectiveness of + POOL's filtration system. The lab tour included a showcase of the methodologies and processes for analyzing water quality in the lab from samples taken from our facility, following our Quality Assurance Project Plan (QAPP).

There was also an opportunity to see the BioBAT Art Space's Water Stories exhibit which featured a collaborative set of artworks based on IEC's monitoring created by artist Yoko Shimuzu.

H2ShO Fitness on Land (September 28th)

Right next to our filtration pilot, we sponsored an H2shO outdoor workout that was accessible for all fitness types, set to surf-themed music and using choreography that helped demonstrate the workings of our filtration system. Erwin Gonzalez, creator of the aqua fitness workout H2ShO, created custom choreography for the class that included "Snap that UV light!" and "Flow through the filtration system!" using colored bandanas to represent the water flow.

Science Talks (October 2nd, 9th and 16th)

During these discussions, we brought the work on the barge into the community in an effort to make the research and development of + POOL transparent for local communities and all New Yorkers. We hosted a three-part series of Science Talks to demystify the filtration system and hear from the community. Experts from Arup and the Interstate Environmental Commission (IEC) broke down the technology behind our river-water filtration system. With partners from Henry Street Settlement, we explored new career paths in water safety and system maintenance, as well as our career development plans that will be crucial for + POOL's long-term success. Finally, we brought in scientists to explain how real-time monitoring guides us towards a safe river access the East River. These programs were presented both in-person at Henry Street Settlement's Lower East Side meeting space and online on Instagram with over 1800 views.

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The + POOL Filtration Pilot installed in the East River from August-November provided multiple opportunities for public engagement and education.

On Filtration

Our October 2nd talk was an engaging discussion hosted both in-person and on Instagram live with our team testing water quality samples as part of our groundbreaking filtration pilot in the East River. Panelists discussed the science behind the filters, how they impact various water quality parameters, and what is being learned on deck to bring clean, swimmable water to New Yorkers. The panel was moderated by Nicole Feliz Okumu, design strategist and co-founder of the Grey Area Collective, with panelists Evelyn Powers, Executive Director of IEC, Kara Meyer, Managing Director at + POOL, and Vincent Lee, Principal at Arup.

On Careers & Operations

Following our first talk, our next online and in-person panel focused on workforce development

aspects of the + POOL pilot and additional opportunities as the full project is realized. Speaking as an aquatics expert, Team New York Aquatics Board Member and Coach Cailin Wolff spoke about her experience with + POOL as a Program Assistant in April, and how + POOL is leveraging expansion of swimming in the city to help develop programs to certify new lifeguards and increase water safety throughout the five boroughs (more detail in the [+ POOL 2024 Swim Programs Report](#)). + POOL Program Director Nora Cronin spoke about the new roles the Filtration Pilot Operators filled during the pilot project, which included learning how to perform regular cleanings of the filters, and engineering aspects of the pool to help the pilot operate efficiently daily. Friends of + POOL shared its plans for developing a workforce training program for local residents to learn quality systems maintenance and testing that can also be used as a pipeline for future + POOL employment.



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On Water Quality

Moderated by Kara Meyer, the finale of our three-part science talk series was on water quality data. Evelyn Powers, Executive Director of IEC returned as a panelist to discuss the results of the water quality testing her team was conducting daily. Powers was able to demonstrate the significance of the data collected and how it showed the filtration system was effective at creating swimmable water for + POOL from raw river water. We were also joined by two other panelists, Jonathan Dahan of Reaktor, who created a + POOL Water Quality Dashboard to show river water quality is in real-time, and Wade McGillis, professor of civil and environmental engineering and earth science at the University of Notre Dame, who engineered a predictive algorithm to power the dashboard. Our in-person and attendees viewing online through Instagram live learned about various water quality parameters being tested, how they impact swimmer experiences, and how we are working to educate the public on the issues affecting our water quality through design.

Conclusion

Through innovative programming and hands-on activities, Friends of + POOL's environmental education initiatives empower communities to connect with and protect NYC's waterways. By combining engaging public events, STEM-focused curricula, and opportunities to explore cutting-edge water filtration technology, we foster a deeper understanding of water quality issues and the steps needed to safeguard our rivers. In addition to our direct water stewardship activities, we focused on creating opportunities to educate and inform on how our technology works as we tested our technology at scale. This was an opportunity to get people excited and demystify the piloting process to prepare people to swim in our first facility, currently under construction. Our environmental programs provide multiple touchpoints and avenues to engage and learn about their lived environment through + POOL. With the goal of not only highlighting the ecological and economic importance of our waterways but also inspiring the next generation to become active stewards of their environment, ensuring a more sustainable future for all.