Stormwater Management

Protecting Our Waters

June 2016

Who Are We?

About the Department of Environmental Protection (DEP)

DEP protects public health and the environment by supplying clean drinking water, collecting and treating wastewater, and reducing air, noise, and hazardous materials pollution.

Quick facts about DEP:

- Distributes more than 1 billion gallons of clean drinking water each day
- Collects wastewater through a vast underground network of pipes, regulators, and pumping stations
- Treats 1.3 billion gallons of wastewater that New Yorkers produce each day

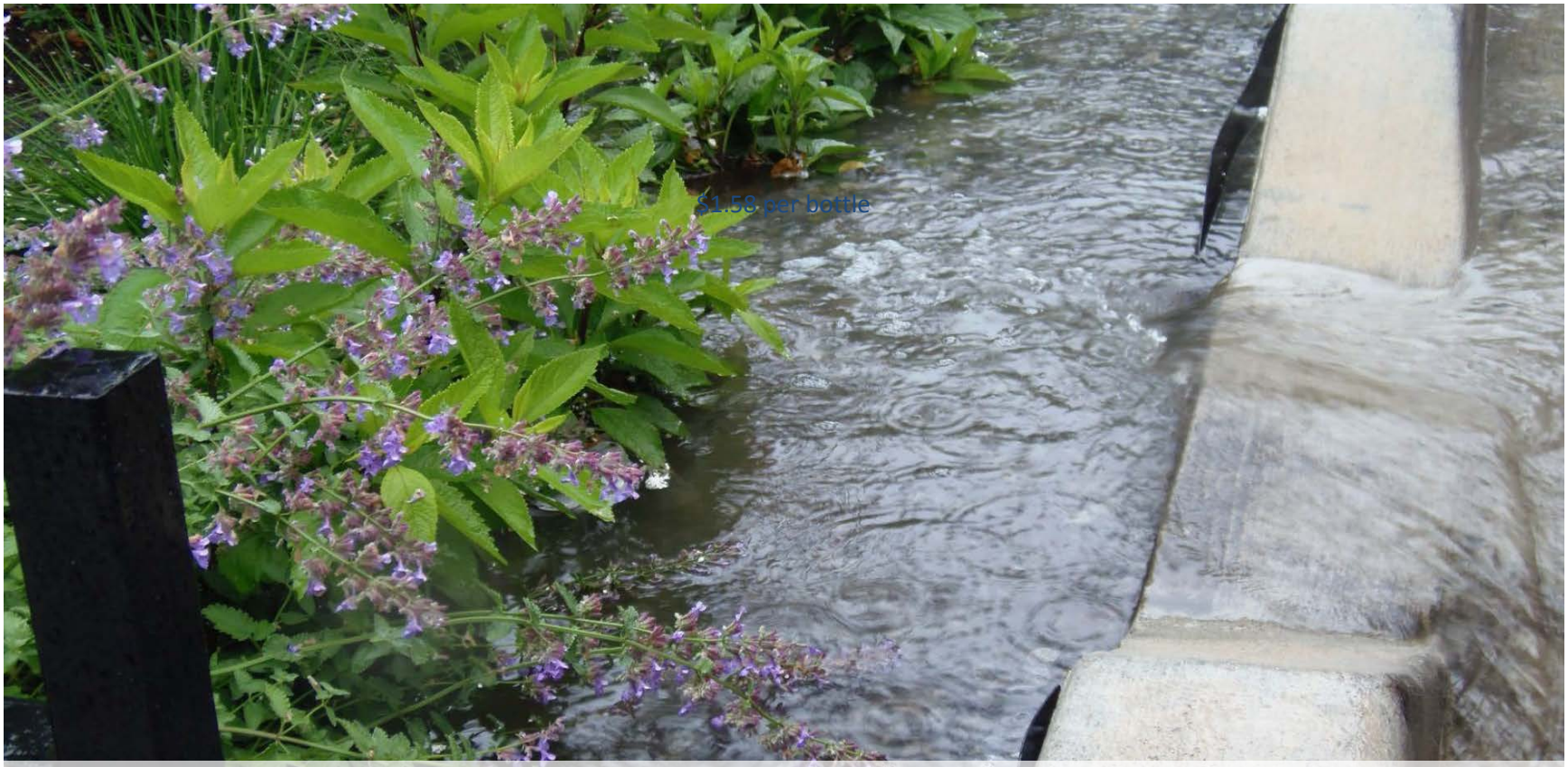
For more information, visit www.nyc.gov/dep

View from the top of the digester eggs at the Newtown Creek Wastewater Treatment Plant

What Is Stormwater?

Stormwater is any water that originates from a precipitation event, such as a rain or snow storm.

Stormwater runoff results from rain, snow, sleet, and other precipitation that lands on rooftops, parking lots, streets, sidewalks, and other impervious surfaces which run into our sewer system or local waterbodies.



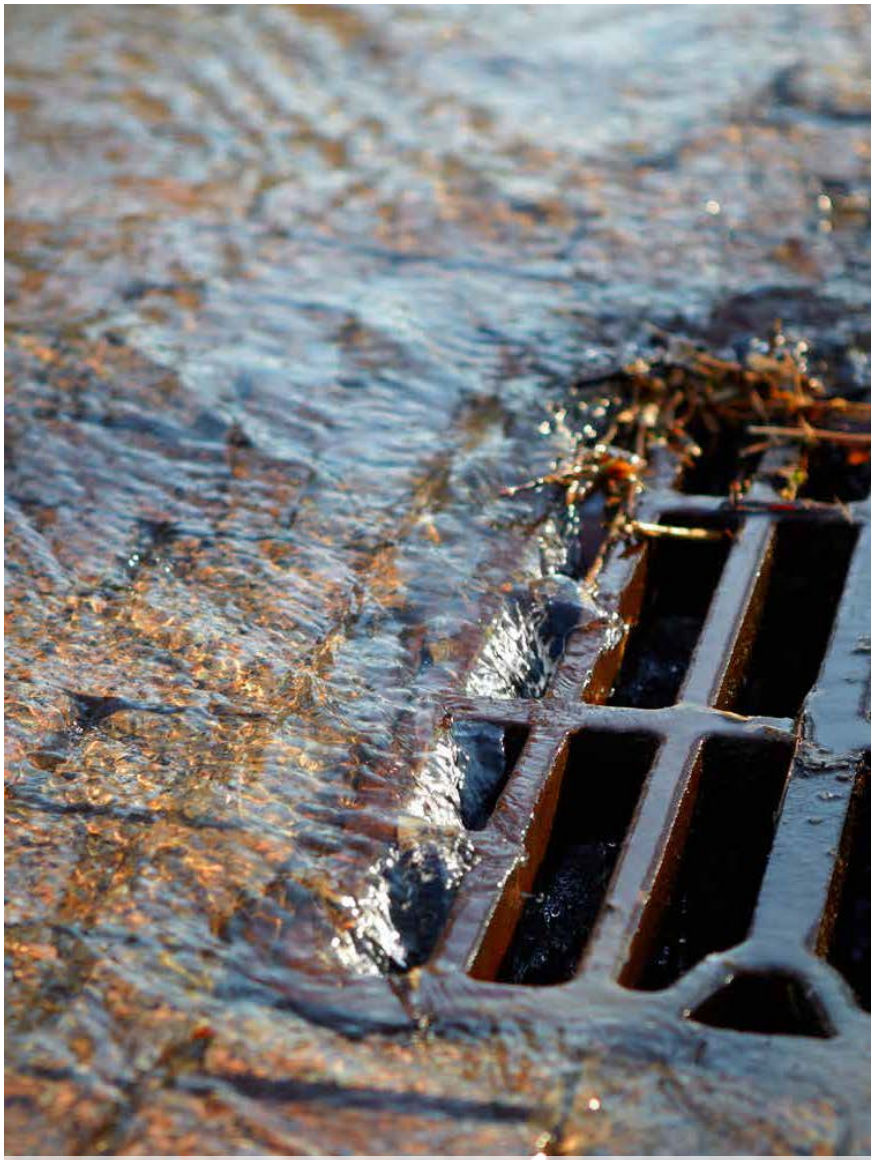
Stormwater runoff flows into a right-of-way bioswale

Where Does Stormwater Runoff Go?

Stormwater runoff travels over streets and sidewalks, picking up trash, dirt, and pollutants along the way.

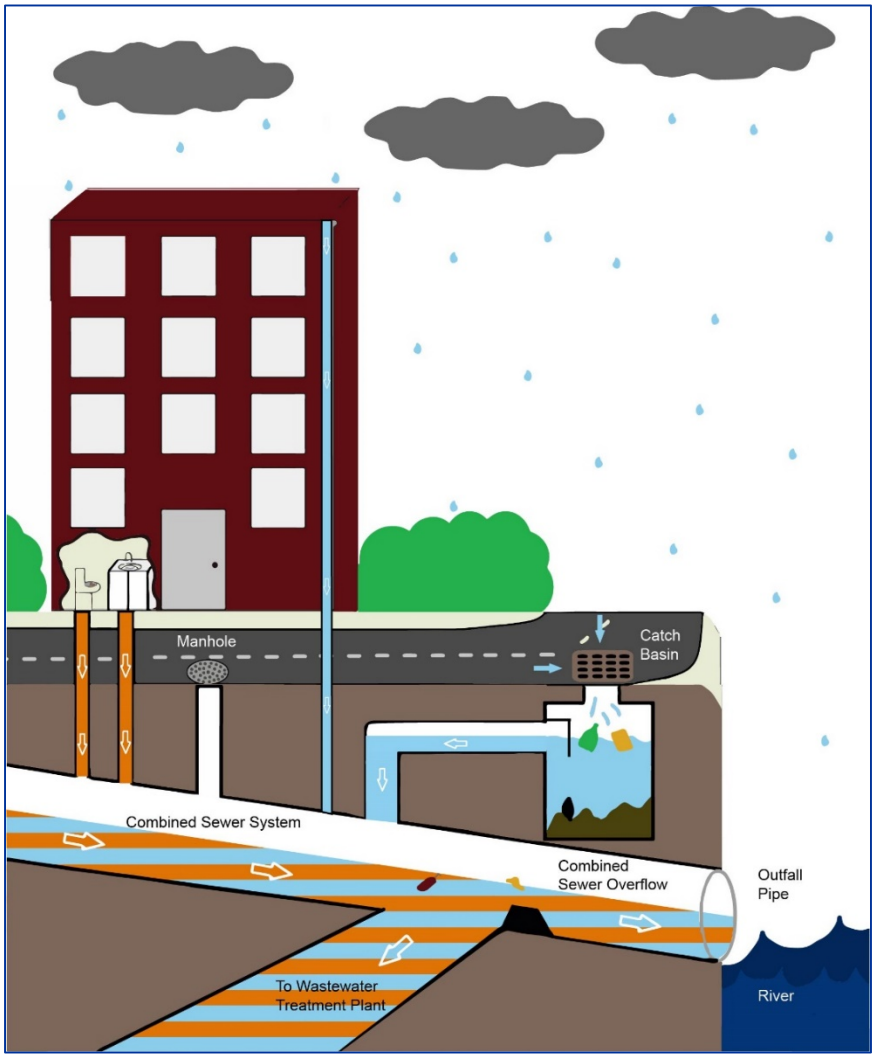
Eventually, this stormwater runoff will reach a **catch basin** and enter the sewer system.

New York City has two types of sewer systems that handle stormwater runoff.



Stormwater runoff flows over the street and into a catch basin

Combined Sewer System



Some parts of New York City have a **combined sewer system**.

In a combined sewer system, there is a single pipe that carries both stormwater runoff and sewage from buildings.

This mix of stormwater and sewage is usually sent to a wastewater treatment plant.

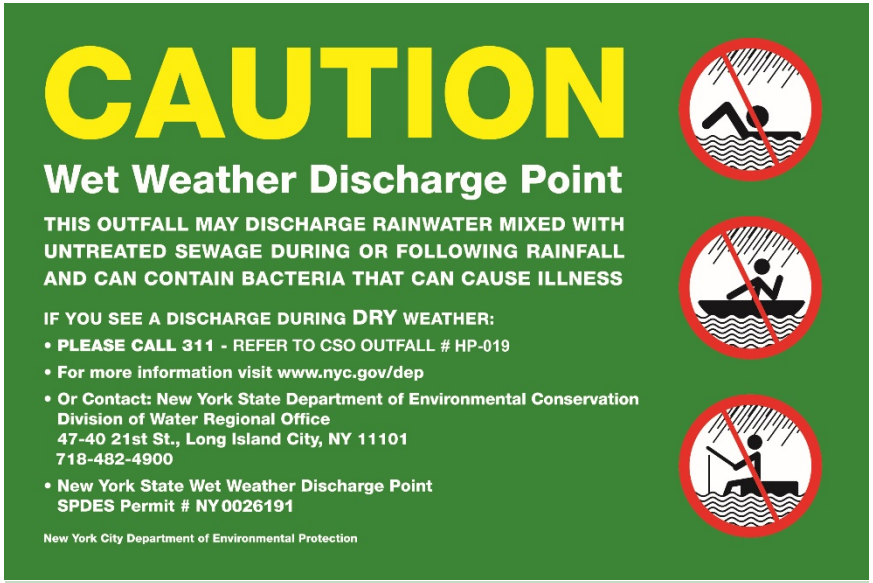
Stormwater and Our Waterways

Combined Sewer System

During heavy rainstorms, combined sewers receive higher than normal flows. Treatment plants are unable to handle flows that are more than twice the design capacity.

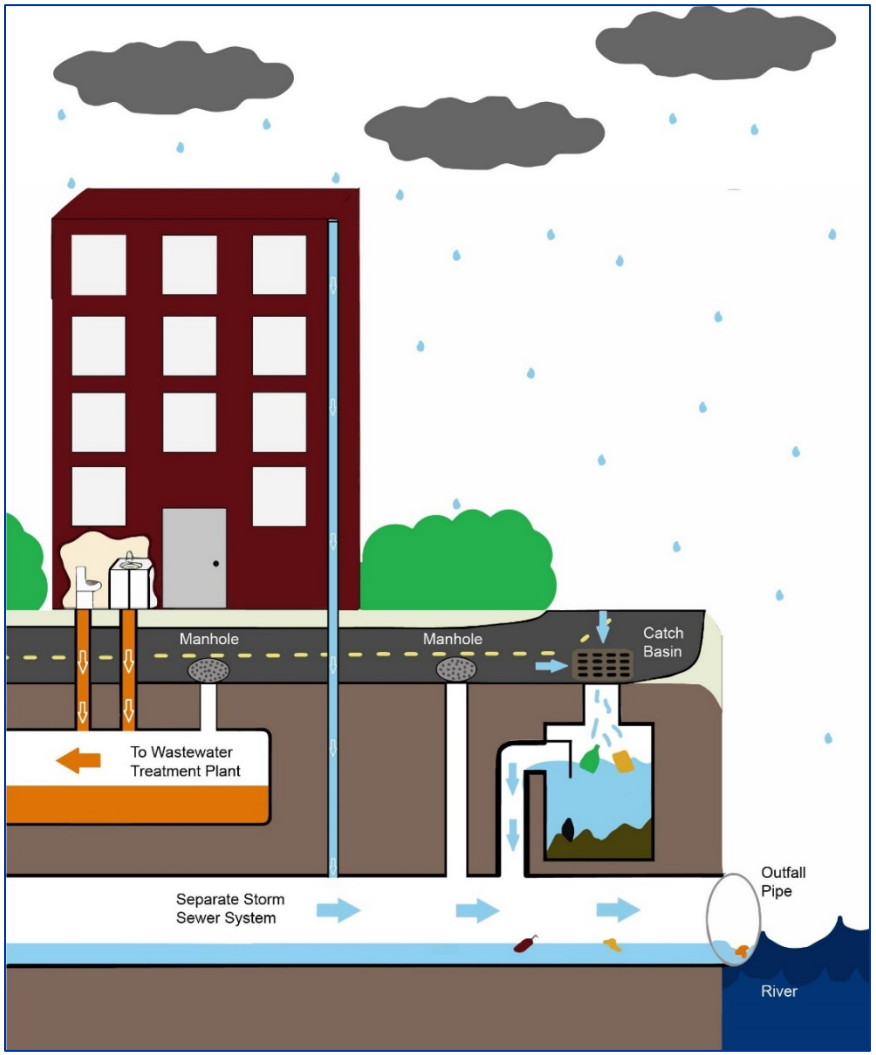
When this occurs, a mix of stormwater and **untreated sewage** discharges directly into the City's waterways. These events are called combined sewer overflows (CSOs).

We are concerned about CSOs because of its effect on water quality and the recreational use of local water bodies.



Signs alert the public to the dangers of swimming, boating, and fishing near CSO outfalls

Separate Sewer System



Other parts of New York City have a **separate sewer system**.

In a separate sewer system, there are two pipes. One carries stormwater runoff and the other carries wastewater from buildings.

Sewage is sent to the wastewater treatment plant for treatment. Stormwater runoff is sent directly into local waterways.

Stormwater and Our Waterways

Separate Sewer System

As stormwater runoff travels over streets and other impervious surfaces, it sweeps up pollutants such as **oils, chemicals, sediments, pathogens and trash.**

In areas with a separate storm sewer system, pollution is carried by stormwater runoff through underground pipes directly into the City's waterways without receiving any treatment.

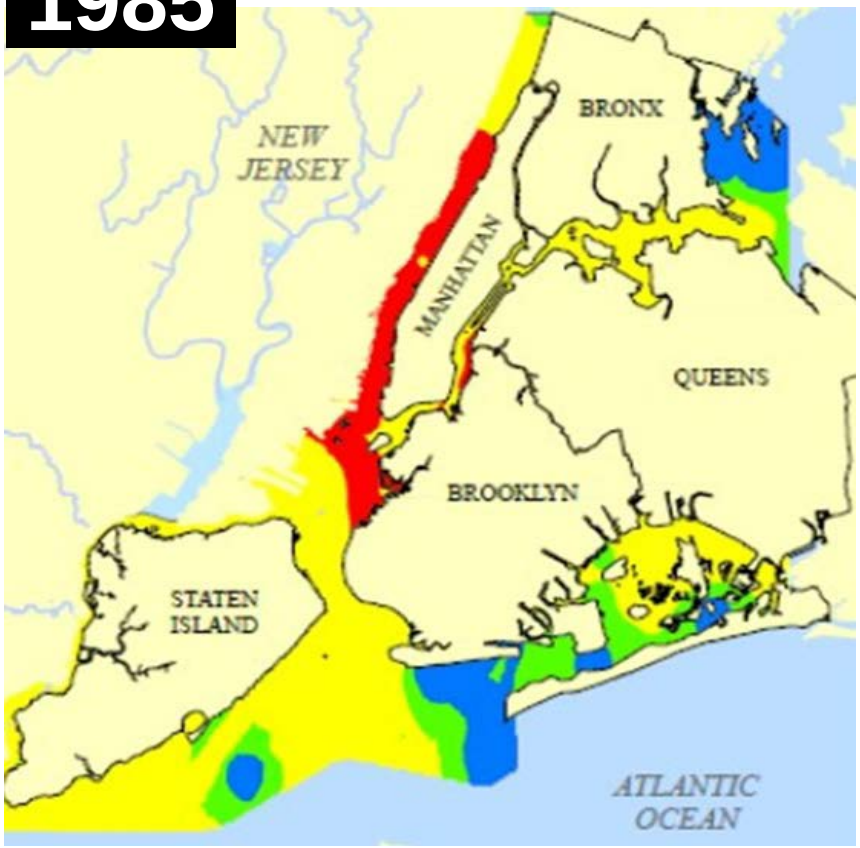
We are concerned about these discharges because they can harm fish, wildlife, and prevent the recreational use of local waterbodies.

Trash and debris is transported by stormwater runoff

NYC Water Quality Improvement Program

DEP has invested over $10 billion since the early 2000s to improve water quality, and today water quality is the best it has been in over 100 years of testing! We are working hard to manage stormwater runoff so that we can keep improving the health of our waterways.

1985



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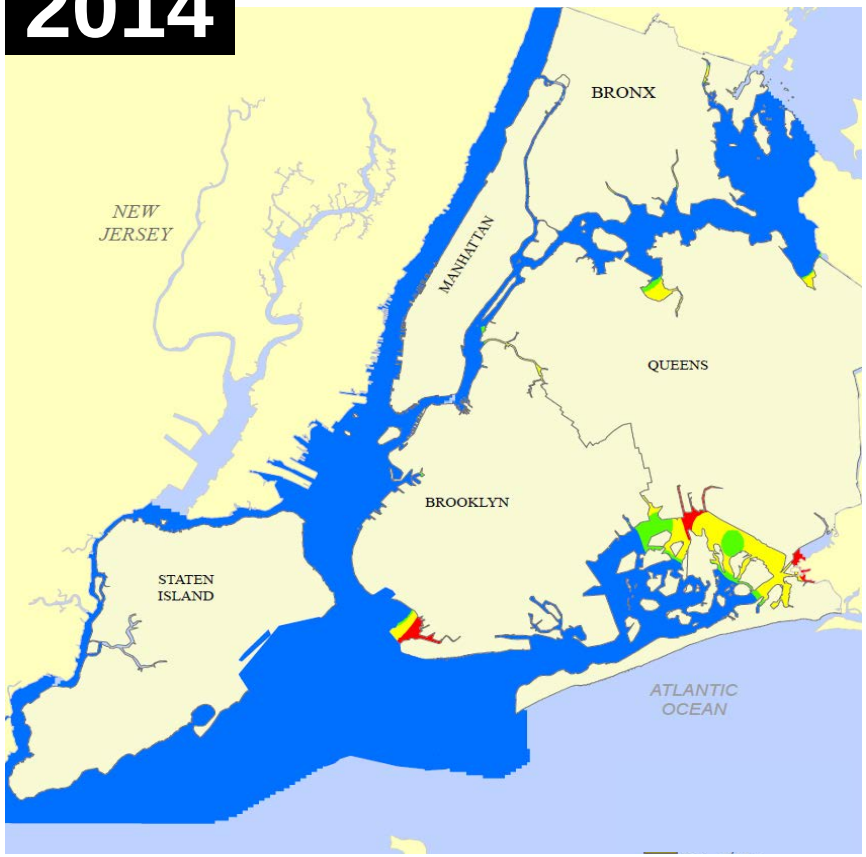


Fecal Coliform Bacteria: < 100 cfu/100 mL | 100 – 200 | 201 – 2,000 | >2,000

What is DEP Doing?

Building Green Infrastructure

Green infrastructure practices are designed and constructed to manage stormwater runoff when it rains. Green infrastructure slows down, absorbs, and filters stormwater runoff before it can enter the sewer system or local waterbodies. This helps reduce the occurrence of combined sewer overflows and the amount of pollution carried by stormwater runoff.

Permeable pavers allow water to pass through and be absorbed by the ground

Right-of-way bioswales collect, filter, and absorb stormwater runoff from the street

Expanding Grey Infrastructure

Grey infrastructure typically refers to traditional infrastructure such as sewers, tunnels, and treatment plants. Expanding grey infrastructure and making better use of existing grey infrastructure will enable DEP to store and treat more stormwater runoff. This reduces the occurrence of CSOs, helping keep untreated sewage and other pollutants out of our waterways.

The Paerdegat CSO Retention Facility in Brooklyn prevents up to 50 million gallons of combined sewer overflows during heavy rain from being discharged into Paerdegat Basin

What is DEP Doing?

Pollution Prevention

Keeping our streets clean helps keep stormwater runoff and ultimately local waterways clean. Our pollution prevention efforts include regular street sweeping and educating average New Yorkers on the ways they can prevent water pollution.

DEP partners with the Department of Sanitation (DSNY) to remove trash and debris from city streets

A public awareness campaign that highlights the effects of litter

What Can You Do?

Your actions can have a big impact on our waterways.

We need your help to protect them!

Jamaica Bay is a diverse ecological resource that supports a wide variety of fish and wildlife. Stormwater from portions of Brooklyn, Queens, and Nassau County drains to Jamaica Bay, impacting both water quality and the fish and wildlife that rely on it.

What Can You Do?

Keep Streets and Shorelines Litter Free

Litter on the streets can end up in our waterways and negatively affect harbor water quality and marine ecosystems.

- Always put trash and recycling in the proper place.
- Follow DSNY's instructions for putting out trash and recycling.
- Get involved in community or shoreline clean-ups.
- Report evidence of illegal dumping to 311.
- If you see illegal dumping in progress, call 911.

Volunteers clean a Bluebelt in Staten Island

Properly Dispose of Potentially Polluting Waste

Many common household and car products can be harmful to the environment. Solvents, automotive materials, flammables and electronics should be treated with extra care and properly discarded.

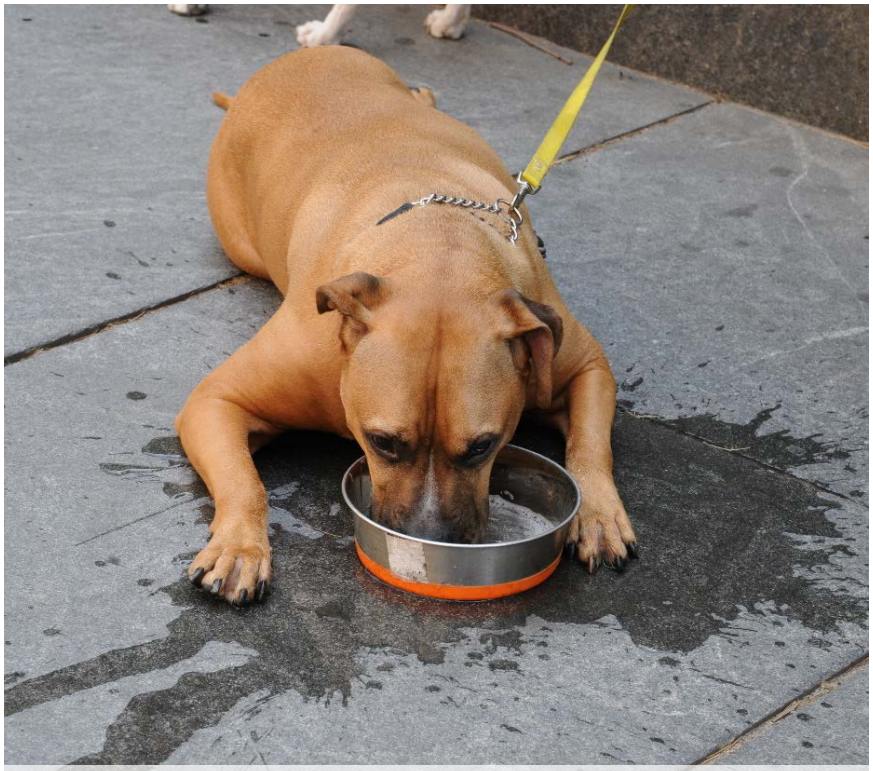
A New Yorker brings potentially hazardous household items to a DSNY SAFE Disposal Event for safe handling, recycling, and disposal.

- Learn which items you can't discard in the trash.
- Bring harmful household products to DSNY SAFE Disposal Events; certain common items can be taken to DSNY Household Special Waste Drop-Off Sites.
- Donate working electronics and usable paint.
- **NEVER dump anything in a catch basin**.
- If you see illegal dumping in progress call 911.

Pick Up After Your Pet

Pet waste contains bacteria that can make people sick and excess nutrients that can deprive fish of oxygen. If left on the ground, it can wash into our waterways, harming the fish, wildlife and communities that depend on the waterways. Leaving pet waste on the ground is also illegal and can come with a $250 fine.

- Use a pooper scooper or plastic bag to pick up waste.
- Dispose of the waste in your own litter basket or in a DSNY litter basket if it is in a sealed, non-leaking bag.
- Do NOT throw it out in your neighbor's garbage can.
- If people are failing to pick up after their pets, you can file a complaint by dialing 311.



Dogs like clean water too

Mind Your Car

Our cars use many products that can be harmful to marine ecosystems, such as antifreeze, motor oil, transmission fluid, car batteries and tires. Even some of the products designed to clean our cars can be harmful.

Pollutants from cars can be washed into the sewer system

- Promptly fix any fluid leaks and clean up any spills that occur.
- Properly dispose of used or unwanted products. Follow DSNY guidance on how to discard products.
- Take your car to a professional car wash.
- Do NOT send car wash water or any other product into a catch basin.
- If you see illegal dumping in progress, call 911.

Harvest Your Rainwater

By connecting your gutters and downspouts to a cistern or rain barrel, you can collect and store rainwater from your roof. This keeps stormwater runoff out of the sewer system and helps keep pollution from reaching the waterways. Though you cannot drink, cook or bathe with this water, you can use it to water your garden, which has the added benefit of saving money on your water bill.

Cistern

Rain Barrel

Reduce Your Impervious Cover

Roofs, driveways and patios are often impervious. These impervious areas increase the amount of stormwater runoff and contribute to the pollution of local waterways. By reducing impervious cover on your property, you can help keep stormwater from entering the storm sewer system.

- Install permeable pavers in your driveway or patio
- Add a green roof to your building
- Build a rain garden on your lawn
- Choose plants over pavement

Rain Garden

Green Roof

Permeable Pavers

Wait During Heavy Rain

When there's heavy rain, the City's combined sewer system can fill to capacity and a mix of stormwater and wastewater can end up in our waterways.

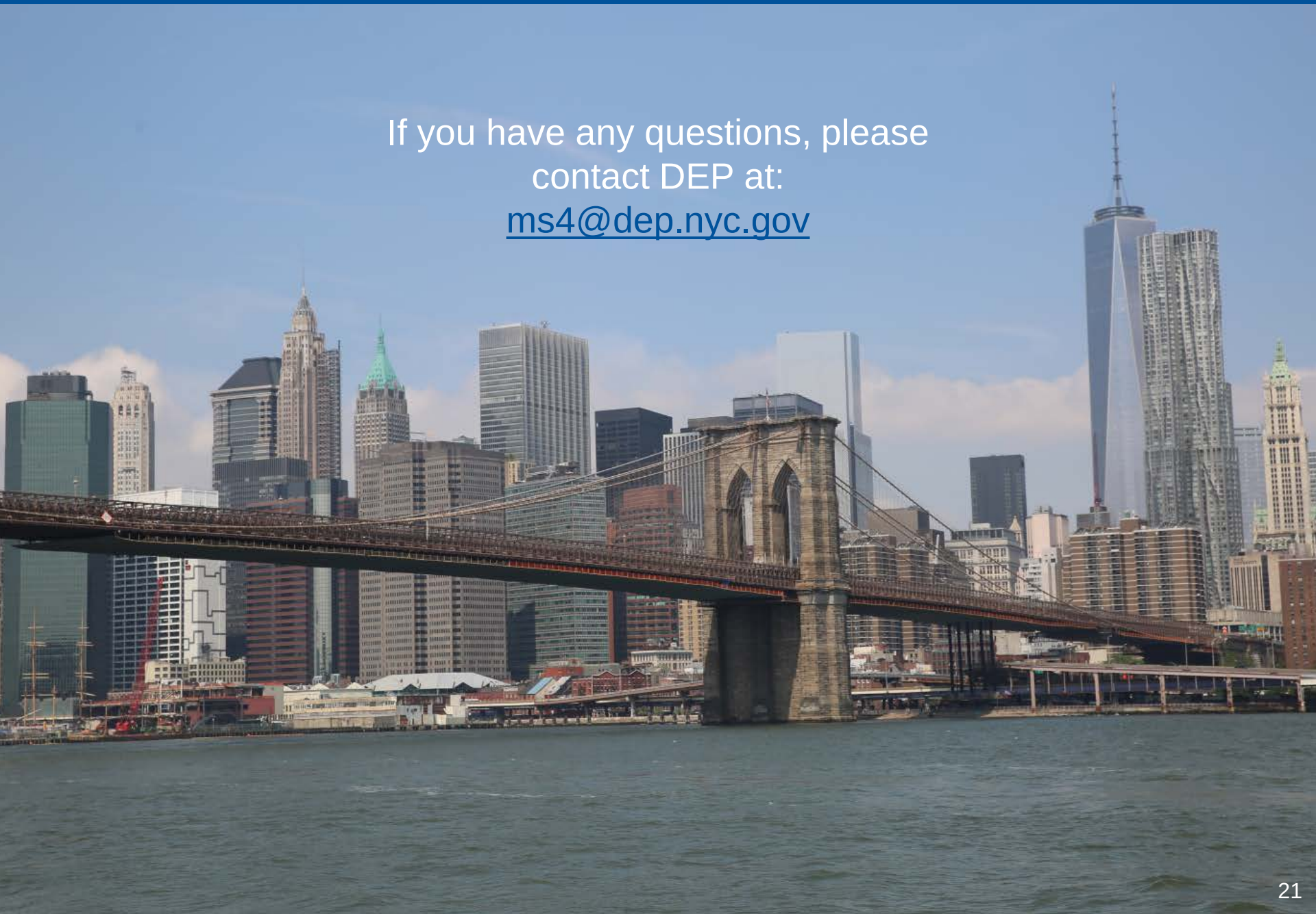
You can help keep our waterways clean for our community and wildlife by waiting to do water-intensive activities in your home during heavy rain events.

By voluntarily postponing your water use, you can help free up capacity and reduce the concentration of wastewater in combined sewer overflows (CSOs).

Ride out the heavy storm and:

- Do laundry later
- Take a shorter shower (or have one later)
- Delay dishwashing
- Wait to flush the toilet

Questions



If you have any questions, please contact DEP at:
ms4@dep.nyc.gov