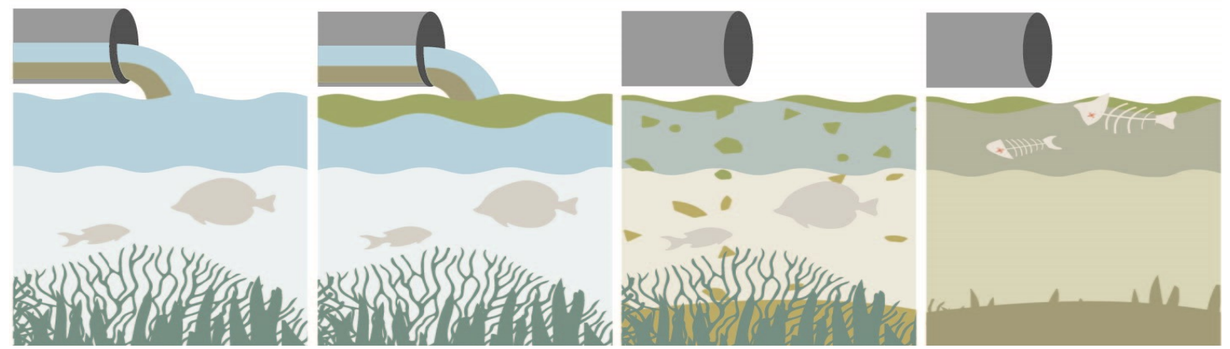
WHAT YOU NEED TO KNOW ABOUT

Water Pollution in Newtown Creek

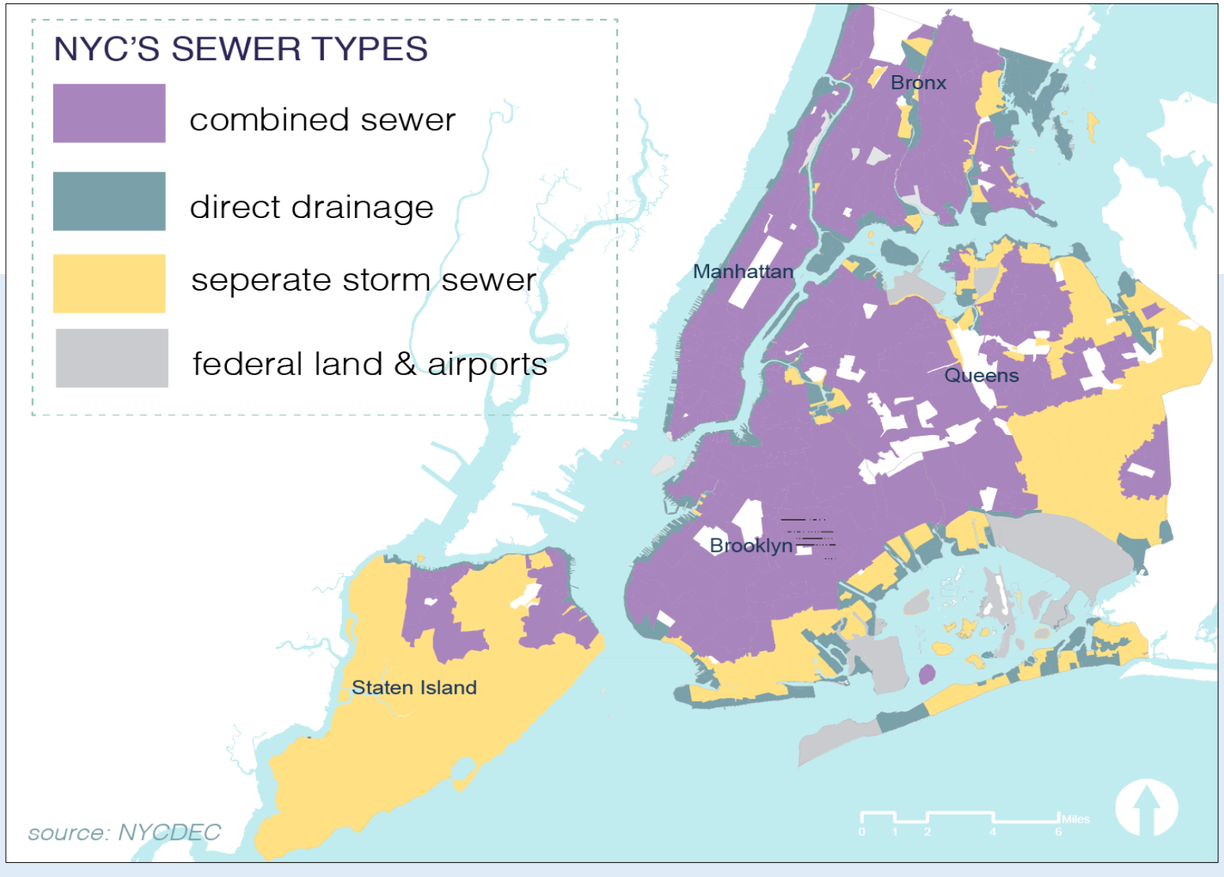
What is Combined Sewer Overflow (CSO)?

A combined sewer overflow—or CSO—occurs during and after wet weather like a rainstorm or snowmelt. Because the city is made of impervious surfaces, such as asphalt and concrete, most stormwater can't be absorbed like it would when it falls on plants and soil in a park or garden. Stormwater runs off hard surfaces into storm drains that eventually join the sewer pipes leading to one of NYC's 14 sewage treatment plants. This system often fills up with stormwater during rain, and the mixture of stormwater and sewage must be discharged—without treatment—to the nearest creek (such as Newtown Creek) to avoid sewage from backing up in homes.

CSO events happen over 70 times a year, and discharge more than 20 billion gallons of polluted water into the City's waterways, over 2 billion gallons of which are raw, untreated sewage.



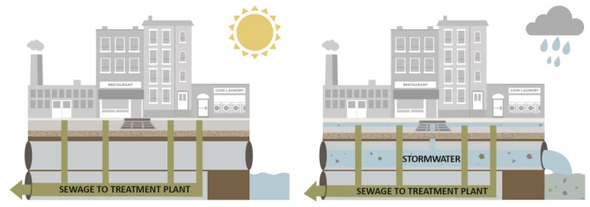
It is easy enough to understand why we don't want to swim or boat in water contaminated with CSO discharges. But there are impacts on the ecosystem as well. Raw sewage carries a lot of organic materials that are decomposed by bacteria. The decomposition process uses up oxygen in the water, leading to conditions known as hypoxia (low oxygen) or worse, anoxia (no oxygen). These conditions can lead to fish kill and degrade ecosystems.



What is Municipal Separate Storm Sewer System?

In NYC municipal separate storm sewer system– or MS4—is the system designed to collect and carry only stormwater using city-owned drainage systems, streets, catch basins, curbs, gutters, ditches, channels and specialized storm drains. The separate storm sewer system is not connected to wastewater treatment plants, which means the stormwater is not cleaned before it discharges into our local waterways. This means the stormwater carries with it litter, oil, and other pollutants on the land and building surfaces.

About half of the City's land area is in separately sewered, unsewered or direct discharge areas. Of the sewered areas in the City, about 40% have separate storm sewers or direct drainage and the rest are served by the combined sewer system.



How Do We Fix Water Pollution from CSOs and Stormwater ?

The City of New York has been making investments to upgrade facilities and developing plans and programs to address these pollution sources. There is a Long Term Control Plan for Combined Sewer Overflows for 11 different waterways in NYC including Newtown Creek. There will also be a Stormwater Management Plan that will address the separately sewered areas of the City. However, we have a long way to go until we are done cleaning up our waterways.

Luckily there are many actions ordinary citizens can take.:

1. **Wait until after the rain passes** to flush the toilet, take a shower, run the dishwasher or do laundry. Reducing the amount of wastewater that goes into the sewer system helps reduce CSOs.
2. **Create more planted areas.** Plants and soils act as sponges, absorbing rainwater instead of allowing it to go into the storm drains or the sewer system.
3. **Participate in the City's planning processes.** There are public meetings for the Long Term Control Plan and Stormwater Management Plan development. Learn what is being proposed and weigh in with your ideas!
4. **Educate other people.** Most people do not know where waste water or rainwater goes. It is important for people to understand how our system works because every one of us is paying for it!
5. **Join a local group** working to clean up the water, creating recreational opportunities or educating children and adults.

For more information, visit www.soilandwater.nyc

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WHAT YOU NEED TO KNOW ABOUT
Green Infrastructure

New York City Soil & Water Conservation District
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What is Green Infrastructure?

Our waterways, like Newtown Creek, are polluted by Combined Sewer Overflow and stormwater discharges (see the back of this fact sheet for more on these). One of the ways we can reduce pollution from these sources is to increase the amount of areas that have plants in soils. Vegetated areas can absorb rainwater instead of sending that water into our overtaxed sewer system or directly into our waterways. This approach is often referred to as green infrastructure.

Benefits of green infrastructure are many. Here are some of them.

1. Green infrastructure creates habitat for native insects and birds. In a highly urbanized city like ours, creating more native habitats is important in supporting biodiversity of our region.
2. Vegetation around properties—whether street trees, parks, or planted yards—enhance the aesthetics of the properties and the neighborhood (good for your property value, too!).
3. Plants remove pollutants from the air and give us clean air in return. This is an important benefit in areas that have heavy traffic or industrial activities with trucks.
4. Plants cool the air during the heat of the summer through a process called evapotranspiration. For example, green roofs can significantly reduce your cooling costs (and extend the life of the roof). Street trees have also been shown to reduce ambient temperatures.
5. Because green infrastructure absorbs rainwater, it can reduce flooding in some areas.
6. Green infrastructure is often more cost effective than conventional waste water or stormwater treatment facilities, which often require large footprints or extensive construction.
7. Private property owners can install their own green infrastructure on their property!

Living Wall and Green Wall

You can grow plants vertically to create a “living” or “green” wall. While a green wall is not as effective in capturing rain water it helps reduce ambient temperature, improve air quality and enhance the aesthetics of the building.

Rain Water Harvesting

Rain water can be harvested off the roof in a rain barrel or a cistern. The water is then used to irrigate a garden or a planter. Rain water harvesting can be a practical solution for community gardens without easy access to a water source.

Rain Gardens

Rain gardens are vegetated areas, planted with native plants, that are designed to receive rainwater running off surrounding paved areas. Water is taken up by plants or infiltrates into the ground. Rain gardens may not be appropriate in areas where there is suspected groundwater contamination.

Stormwater Planters

Stormwater planters are large planters connected to downspouts from the roof and planted with native plants that can withstand dry periods. They are relatively easy to install and beautify the property tremendously.

Green Roofs

Green roofs are vegetated roofs designed to hold rain water. Vegetation can be ornamental (native plants preferred!) or edible plants (there are commercial farms on rooftops in NYC!).

Bioswales

Bioswales are linear features along the street that are designed to receive water from surrounding sidewalks and streets. In many neighborhoods in NYC they look like enlarged tree pits but with native flowering plants and native grasses. These bioswales collect rain water runoff and infiltrate the water into the ground.