



Office of the NEW YORK STATE

COMPTROLLER

A Partially Treated Problem: Overflows From Combined Sewers



New York State Comptroller
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Introduction

Clean water is vital to public health, environmental and social well-being, and economic development. One of the most important elements in maintaining clean water in urban areas involves a system of sanitary sewers that direct wastewater to treatment before it is released into surrounding streams, rivers, lakes or oceans. This responsibility largely falls to local governments. Most large urban areas in New York State are served by municipal sewer systems, many of which commingle the water from rain and snow melt (“stormwater”) with the wastewater from homes and businesses in “combined sewer systems.” The flows from combined sewers can overwhelm treatment systems and have a harmful impact on the environment.

Numerous recent news reports have highlighted instances of systems unable to handle the increased volume stemming from major weather events. The details are troubling: raw sewage being flushed directly into rivers, streams and lakes that are also used for recreation including boating, swimming, fishing and in some cases, drinking water. For citizens who may have been unaware of the situation, this news brings into question long-held assumptions about the natural resources they enjoy on a daily basis.

The problem itself is not new, but State regulations now require that sewer system owners must report all discharges of untreated or partially treated waste into waterbodies in real time.¹ This change is both a challenge and an opportunity for local officials. On one hand, the negative press works against their efforts to encourage more recreation along their waterfronts, especially when any incident may be amplified on social media. On the other hand, increased awareness might cause residents and businesses to be more inclined to support the cost of fixing the problem.

The solutions are not simple or quick. These systems are some of the largest and oldest in the State. Full scale replacement with separated sanitary and storm sewers is often unrealistic, as it would be extremely costly and disruptive. However, many systems have seen improvements through a mix of retrofitting limited sections of sewer and treatment infrastructure, conducting basic repairs on others, and applying green infrastructure techniques that slow the movement of stormwater in order to prevent overflow in the first place.

Combined Sewer Systems by the Numbers

10+ million residents live in communities with combined sewer systems.

46 communities have combined sanitary and storm sewers, with

807 discharge points where combined sewer and stormwater are released either partially or wholly untreated into a waterbody.

6.5 billion gallons of untreated combined sewer and stormwater were released in 2017, affecting

220 waterbodies in New York State.

43 percent of combined sewer outflows are in urban upstate communities.

This approach requires thoughtful long-term planning and sustained effort, which can be challenging when other priorities compete for scarce budget resources. However, the implementation of such solutions is vital to the quality of life in many of New York’s metropolitan areas. Intense wet weather events have been occurring more frequently according to the United States Environmental Protection Agency (EPA), giving the issue greater urgency.² This report, as part of the Office of the State Comptroller’s infrastructure series, describes the current scale of the problem in the State and some of the steps being taken to remediate it.



Federal and State Roles

Combined sewer systems are regulated by both EPA and the New York State Department of Environmental Conservation (DEC). Federal laws including the Clean Water Act (CWA) and EPA rules set the basic regulatory structure and water quality standards, and standardize permitting.³ Within New York, State laws and DEC regulations implement and in some cases broaden these basic standards for public water systems. Several directly affect combined sewer systems, including:

- The **State Pollutant Discharge Elimination System (SPDES)**: This program, which is approved by EPA to control surface wastewater and stormwater discharges in accordance with the CWA, requires the operators of all potential “point sources” to obtain a permit through DEC.⁴ (A point source is any identifiable confined source of pollution, such as a wastewater treatment plant, from which effluent is discharged or emitted.)⁵ DEC permit amounts are based on the maximum amount of pollutants that can be discharged into a waterbody; the limits also largely determine the level of required treatment.⁶ Permit holders with combined sewer overflows (CSOs) are required to comply with DEC best practices, including projecting the frequency and volume of anticipated discharges. In addition, DEC requires most of them to prepare and abide by an approved long-term control plan to reduce overflows.⁷
- **Consent Orders**: A consent order is a negotiated agreement between DEC and a community with a CSO.⁸ The agency uses this method as one of the tools of enforcement when the quality or speed of follow-through on planned corrections is unsatisfactory. The order would include a schedule of compliance for the design, construction and implementation of the approved CSO control methods, and development of an operational plan and post-construction monitoring.
- The **Sewage Pollution Right to Know Act (SPRTK Act)**: When a municipal wastewater treatment facility discharges untreated or partially treated combined sewage into a waterbody, this law requires the facility operator to report the activity to DEC and the local health department immediately (but no later than two hours from the incident) and to local officials in nearby affected communities within four hours.⁹ DEC collects and publicly posts the self-reported data on both DEC and EPA websites. (See the “Number and Volume of Discharges” section below.)

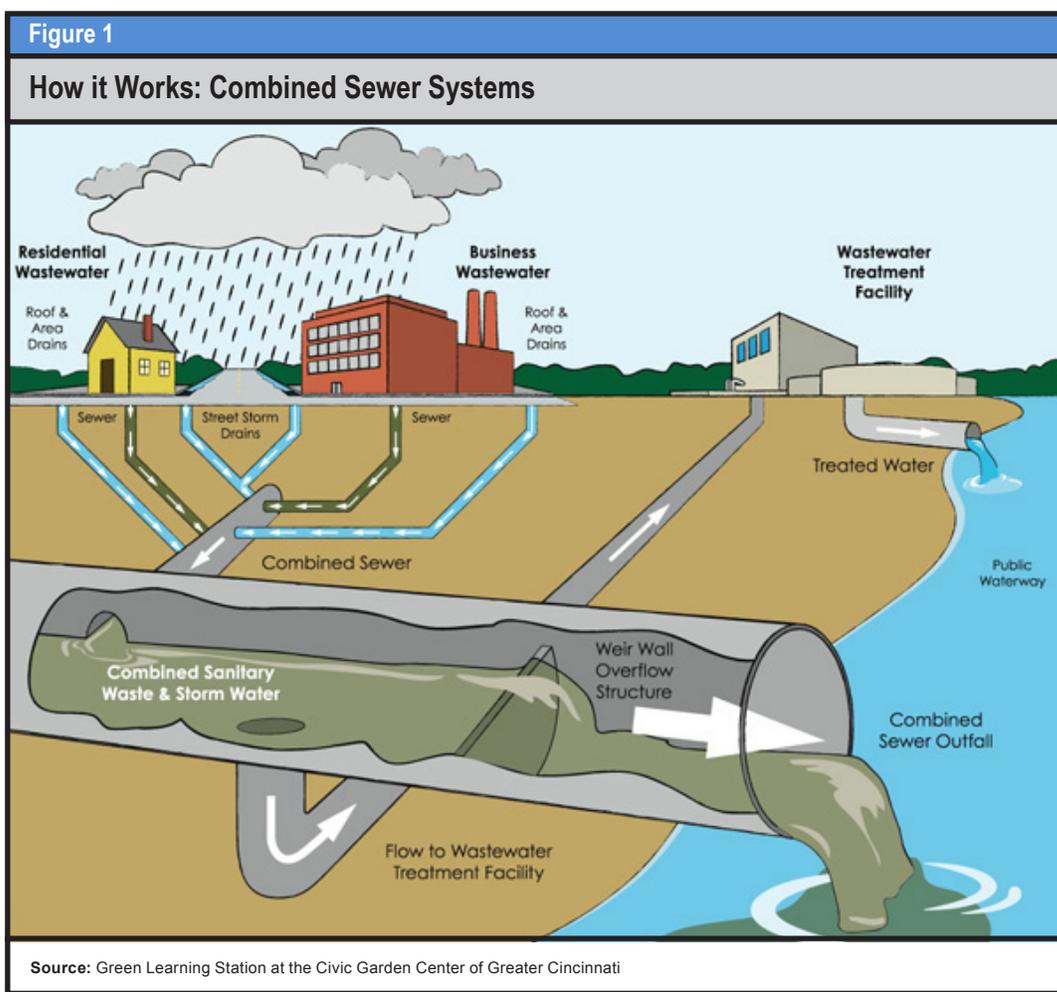
In 2018, EPA implemented the Public Notification Requirements for Combined Sewer Overflows to the Great Lakes Basin.¹⁰ The new rule is similar to New York’s SPRTK Act but adds new federal reporting requirements and increased signage at outfalls. Seventeen communities in New York State – including the Village of Massena (which releases to the St. Lawrence River), the City of Rochester (Lake Ontario) and the City of Niagara Falls (Lake Erie) – will be affected.

Municipal Combined Sewer Systems

Most of New York’s sewer systems were originally designed to collect residential, commercial and industrial sewage together with stormwater and other liquids and then discharge it all into a nearby river or other waterbody. When methods were developed to treat sewage, treatment plants were added to the existing infrastructure.

Today, sewage also includes a great deal of “gray water” from washing machines and bathtubs, and water collected in storm drains includes runoff from many human activities, such as lawn over-watering and car washing. Older infrastructure was not designed with these newer flows in mind, nor was it built to handle the increases in volume due to population growth and land development. Even newer, separated sanitary sewers can struggle with these challenges.

During wet weather events, when large quantities of stormwater enter combined sewers, treatment facilities may not have the capacity to treat the resulting large volume of combined water. Some of the untreated, or partially untreated, discharge is instead sent directly to receiving rivers, streams, estuaries and coastal waters.¹¹ These systems actually permit these overflows deliberately, so that the volume doesn’t damage the facility and the excess sewage doesn’t back up into people’s homes or onto public streets. (See Figure 1 below.)



Effects on Human and Environmental Health

Sewage discharges of any kind have a negative impact on the quality of the receiving waterbody. In most cases, wastewater does not come into direct contact with drinking water, since even the earliest sewer system outfalls were located far from drinking water intakes, but contaminants may still have the potential to affect drinking water systems downstream, or have other indirect effects.¹² A period of wet weather can also make a river, stream, lake or shoreline unfit for swimming or fishing, and if it is bad enough, the odor can be unpleasant, potentially affecting nearby residences and businesses. The closing of beaches for high levels of bacteria such as E.coli are a regular occurrence from Mamaroneck on Long Island Sound to Oneida Lake and Lake Ontario to countless other locations across the State.¹³ In 2017, releases by the Niagara Falls treatment plant received international press coverage, as discolored, odiferous water surrounded boating tourists who had come to experience the natural wonder of the Falls.¹⁴

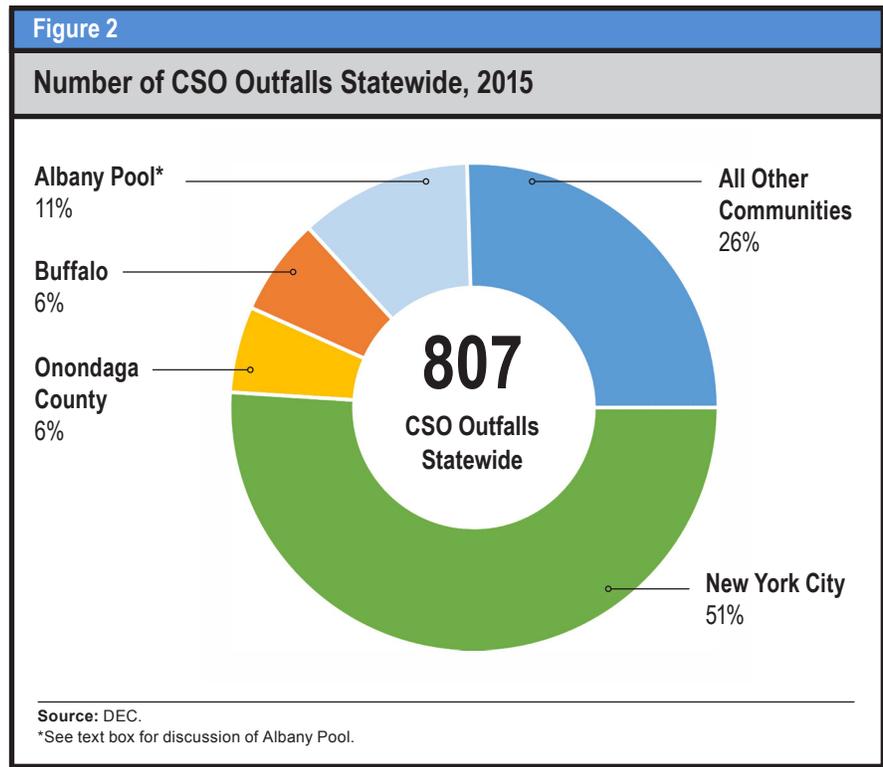
The release of sewage and collected runoff can also have negative effects on the environmental health of the receiving waterbody and its ecosystem, as it increases the nutrient density of the water. Harmful algal blooms (HABs) are overgrowths of algae in nutrient-rich water. They can produce dangerous toxins that sicken people, kill animals, create dead zones in the waterbody and harm local economies.¹⁵ They also raise treatment costs for drinking water, and even then, treatment may not produce desired results. The City of Auburn's drinking water source, Owasco Lake, was found to be contaminated by HAB toxins even after treatment.¹⁶ HABs have become such a problem in New York waterbodies (in 2017, DEC listed 150) that the State recently held a series of summits on the topic.¹⁷

Number and Distribution of Combined Sewer Systems

Combined sewer systems can be found in New York City and in many of the State's older cities and local communities. A single municipality – especially a large one – may have multiple sewer systems and treatment plants, and any given system may have many branches. The combined sewer system may only encompass a portion of the area, sometimes referred to as the “CSO community.” Multiple levels of government may also be involved in providing sewer services. For example, the Albany County Sewer District operates two treatment facilities and owns the primary collector (interceptor) sewer that immediately leads to each. However, the City of Albany, as well as parts of the cities of Cohoes and Watervliet, the towns of Colonie and Guilderland, and the villages of Colonie, Menands and Green Island all send their wastewater to these County Sewer District treatment plants. Each local government is responsible for its own infrastructure that leads to the interceptor pipe and ultimately to the plant.¹⁸

There are 46 CSO communities in the State.¹⁹ (See Appendix A for list.) They are responsible for 807 “CSO outfalls” – locations where the excess untreated combined sewer wastewaters are released from underground pipes, mostly into natural waters – down from 1,300 in 1993.²⁰ New York City is responsible for about half of the outfalls, and three other metro areas (Albany, Syracuse and Buffalo) together make up nearly another quarter. (See Figure 2 and textbox on New York City's CSOs on the next page.)

Many of New York City's 8.5 million residents and another 1.9 million people in the rest of the State live in communities with combined sewer systems, and others nearby (especially downstream) are also affected.²¹ Many use the receiving waterbodies for swimming, fishing and other amusements. In addition, much recent economic development has been based along these waterways. DEC provides a public map that shows the location of every CSO outfall in the State and identifies the waterbody into which each discharges.²²



Number and Volume of Discharges

As noted previously, the SPRTK Act requires all sewer system or water treatment plant operators to report any time their sewer system releases untreated or partially treated wastewater. In SFY 2016-17, municipalities reported thousands of discharges either directly into or potentially affecting 220 bodies of water around the State. Although many reports were non-CSO-related, those from combined sewer systems represent a significant portion of both the total number and volume of sewage discharge events.

The combined sewer discharge numbers are usually estimates, rather than actual observations, as most combined sewer system outfalls are not continually monitored. In some cases, a few CSO outfalls are equipped with sensors that can measure overflows, but there are both financial and technical hurdles to utilizing these. Financially, local governments may prefer to invest in actually reducing overflows if it is a choice between doing so and monitoring them; overflows can also be tricky to measure from an engineering standpoint.²³

Even so, municipalities with combined sewers can estimate the impact of a wet weather event based on prior experience and what they know about the current condition of their infrastructure. In total, sewer system operators reported 1,900 unique overflow events in SFY 2016-17, most of which (87 percent) made contact or potentially made contact with a waterbody.²⁴ The number of incidents had been much lower in the early years of the system (2013 through 2015), but this was almost certainly due to underreporting.²⁵ New York City, for example, reported almost no incidents during those years.

New York City's CSOs

In the 19th century, the design of New York City's sewer system was considered an engineering marvel, dwarfing other industrialized cities' efforts to move sewage and stormwater quickly out of sight. About 70 percent of the City's system is designed as combined sewers and these portions repeatedly get overwhelmed during rain storms.²⁶ When that happens, untreated sewage is released to the Hudson, Hutchinson, Bronx and East Rivers, and to the creeks and bays that wind through and around the City.²⁷

The New York City Department of Environmental Protection (DEP) has been working for decades to reduce the effects of CSOs on the waterways. DEP's website notes that overflows are down 80 percent since the mid-1980s.²⁸ Under a 2012 consent order with DEC, DEP initiated work on 11 long-term control plans (LTCPs), identifying the CSO controls necessary to meet water quality standards in each district.²⁹ Since then, many of the LTCPs have been approved, and both traditional and green infrastructure improvements are being implemented. Around 1.5 billion gallons of overflow will be removed annually by 2030, at a cost of about \$1.4 billion for traditional upgrades and \$2.4 billion for green upgrades.³⁰

Measuring the volume of overflows is even more challenging for local governments with combined sewers. Some of these municipalities estimate the release by subtracting the volume of water that a wastewater facility has successfully treated (a known number) from the estimated total volume of water in a given storm event. About 10 percent of all reports in 2016-17 excluded a volume estimate altogether, or reported it erroneously.³¹ Using this data, DEC estimated that the total volume of discharge of partially or untreated wastewater during SFY 2016-17 was 6.5 billion gallons.³² However, the New York City DEP separately reported that the City alone discharges nearly four times as much annually – about 30 billion gallons of raw sewage and polluted stormwater – in a 2010 report.³³

CSOs are Not the Only Problem

CSOs are not the only source of pollutants to enter a waterbody, nor necessarily the most threatening. Wastewater infrastructure issues could occur in any of New York's many older systems. For example, a broken wastewater treatment pipe caused contamination at Seneca Lake, and Lake George has been plagued by mysterious sewage leaks, despite having no combined sewers along its coast.³⁴

Chemical pollution is also a major concern and may arise from a variety of sources, such as old manufacturing plants, military bases, landfills or agricultural runoff. Recently, Newburgh's Washington Lake was determined to be contaminated by foam used in training exercises at Stewart Air National Guard Base.³⁵ In the Capital District, leachate from the Town of Colonie's landfill is being investigated as a potential contaminant to the water supply for the towns of Waterford and Halfmoon.³⁶

Notably, the only region of the State that does not have CSOs is Long Island.³⁷ Some parts of the Island (mainly in Nassau County) have publicly-owned separate sewer systems, but even these do not treat for nitrogen. In addition, many residents still have onsite septic systems (about 360,000 in Suffolk County), many of which are failing.³⁸ Both send nutrient-rich waters to coastal bays, the Long Island Sound and the ocean. DEC estimates that over 80 percent of the total nitrogen in Nassau County south shore bay areas was wastewater-derived.³⁹ In the 1970s, excess nitrogen contributed to the marked decline of the shellfish habitat and the industry that had flourished on its abundance until then. Currently, nitrogen is causing the loss of tidal marshes that provided resiliency against storm surges and a habitat for wildlife. Funding in the 2017 Clean Water Infrastructure Act could be used to implement newer, more effective wastewater treatment technologies.

Nonpoint sources of stormwater runoff are also problematic.⁴⁰ Accumulating from agricultural land, residential development, urban hardscapes (parking lots, roadways, rooftops, etc.) or poorly managed construction or forestry sites, runoff in the form of rainwater or snowmelt moves through and over the ground, picking up pollutants that are ultimately delivered to waterbodies or wetlands. Nonpoint sources contribute to high levels of E. coli and algal blooms that can cause beach closures, harm fish and damage wildlife habitats.⁴¹

Funding Sources in New York

Municipalities with combined systems often find the cost of updating those systems to be prohibitive. EPA estimates from 2012 show that CSO corrections would cost New Yorkers \$5.1 billion over 20 years.⁴² These corrections are in addition to the \$26.3 billion needed for other wastewater infrastructure improvements.⁴³ While there are some grant and loan programs available in New York State, in many cases most of the cost, and the ultimate responsibility for identifying funds, lies with the local government.

New York State's Environmental Facilities Corporation (EFC) administers the Clean Water State Revolving Fund (CWSRF), which is funded by EPA with a State match.⁴⁴ This program provides low-cost or zero-interest financing to many municipalities to finance upgrades to wastewater systems, including combined sewer systems. For Federal Fiscal Year 2018, EFC will make available zero-percent interest or low-cost financing for approximately \$903 million in clean water project costs, including sewer system and wastewater treatment plant improvements of all kinds – about a quarter of the identified need of \$4.1 billion.⁴⁵

The New York State Clean Water Infrastructure Act of 2017 authorized an investment of \$2.5 billion in clean water and drinking water infrastructure projects and water quality protection over multiple years.⁴⁶ Clean water projects at municipally owned sewage treatment facilities may be eligible for a grant of \$5 million or 25 percent of the total net project costs, whichever is less.⁴⁷

Extreme Weather and Sewage Overflows

The Binghamton-Johnson City Joint Sewage Treatment Plant made headlines in 2011 when flooding from Tropical Storm Lee inundated the plant, toppling walls and rendering much of the facility inoperable.⁴⁸ The City of Binghamton and the Village of Johnson City both have combined sewer systems, so as part of their rehabilitation efforts, they have each opted to separate some of their sewage and stormwater infrastructure.⁴⁹ This is intended to alleviate the burden on the new system and reduce the amount of untreated sewage flowing into the Susquehanna River.

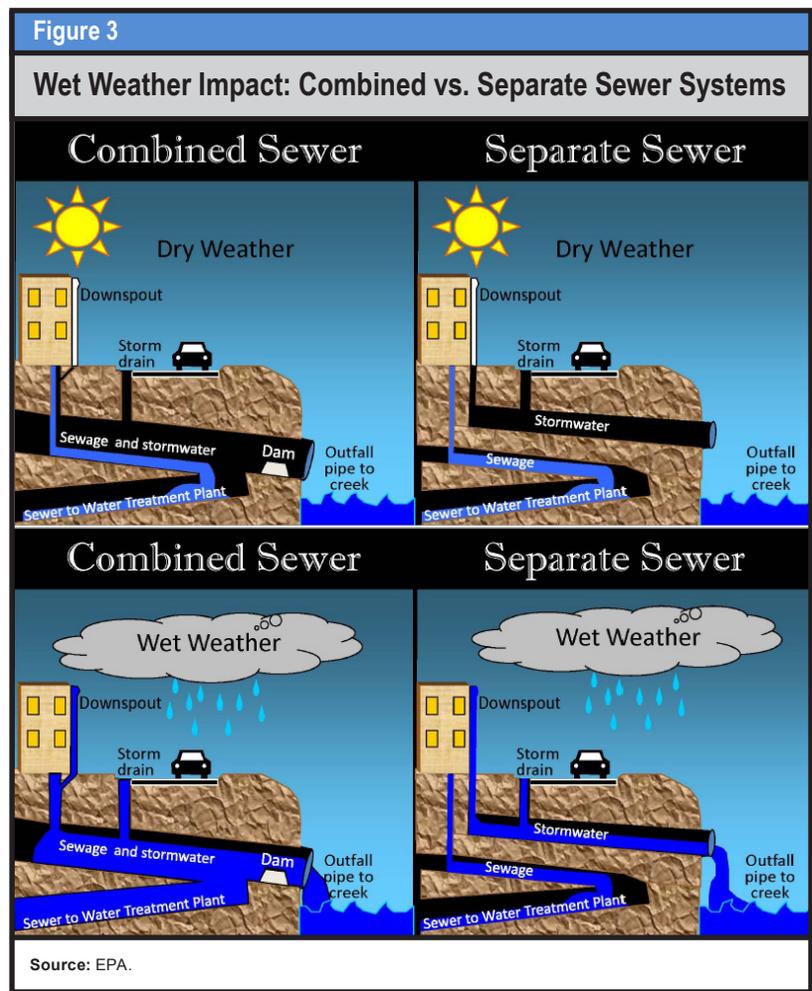
In 2012, Superstorm Sandy's high winds, severe flooding and power outages caused widespread damage to the Bay Park Sewage Treatment Plant (STP), which services 40 percent of Nassau County. Bay Park STP was inundated with up to 12 feet of water during Sandy's storm surge, forcing the whole system to fail for nearly three days.⁵⁰ Although Bay Park does not have a combined sewer system, the resulting overflow was of a similar nature to that of a CSO: about 100 million gallons of untreated sewage overflowed into the streets and into Hewlett Bay, and another 2.2 million gallons of partially treated effluent was discharged into the Bay.⁵¹ Residents in the low-lying hamlet of Baldwin (in the Town of Hempstead) had raw sewage back up into their homes; some houses had to be condemned but most were left to residents to clean up and continue living in.

The condition of the Bay Park Sewage Treatment Plant and its discharges are an ongoing concern. By 2014, FEMA and the State had awarded at least \$730 million for repairs and upgrades to the facility.⁵² And on the fifth anniversary of Superstorm Sandy (October 2017), authorities announced a \$350 million plan to redirect the treated sewage from Bay Park and another treatment plant to an outfall away from the sensitive bay area.⁵³

The State Budget for SFY 2018-19 has funding that can be used for projects that affect CSO communities. Press releases and other documents accompanying the budget announced that \$20 million would be used to overhaul the Niagara Falls Wastewater Treatment Plant and \$65 million to study and remediate the issue of harmful algal blooms in New York’s waterbodies.⁵⁴

Strategies

DEC requires that certain CSO communities periodically commit to long-term control plans that include implementation schedules and performance measures. In some cases, as in New York City or the six-community “Albany Pool,” the commitment is formalized and enforceable through a consent order.⁵⁵ (See “Albany Pool” text box on next page.) Plans to reduce and control overflows may include separating sections of the combined sewers where feasible, building storage tanks to keep excess water out of the treatment plant until the surge from a wet weather event subsides, regulating private development to reduce strain on vulnerable portions of existing sewer systems, and educating businesses and residents in an effort to change behaviors.⁵⁶



Separating Stormwater from Sewers

The most obvious solution is to keep stormwater separate from sanitary sewage throughout the system. Most sewer systems built later in the twentieth century (once wastewater treatment became commonplace) follow this model, as it directs a much smaller and less variable quantity of sewage to the treatment plant. Separating storm from sanitary sewers can be prohibitively expensive, however, as it requires a great deal of disruption to development on the surface – roadways must be dug up, major construction equipment used, etc. Typically, this type of change is undertaken only on portions of sewer systems, selected either because a change to that segment will significantly benefit the system as a whole, or because other necessary repairs to that section of the sewer already require major construction.

At least 14 municipalities are taking steps to separate some of their storm sewers from their sanitary systems currently or in the near future.⁵⁷ EFC lists projects costing nearly \$154 million in total for this very specific category of endeavor over the next several years.⁵⁸

Albany Pool: Long-Term Control Plan

In 2007, six Capital District communities—along with the Albany County and Rensselaer County sewer districts—collaborated on a plan to implement long-term pollution reduction.⁵⁹ The six communities include:

- The Albany Water Board;⁶⁰
- The cities of Cohoes, Rensselaer, Troy and Watervliet; and
- The Village of Green Island.

The Albany Pool communities together have 92 CSO outfall points, making up 11 percent of the State's outfalls. Most of these outfalls open directly to the Hudson River, but others are to the Mohawk River and smaller local rivers.⁶¹

The communities in the Albany Pool have identified over \$147.4 million in need, nearly half of which (\$71.7 million) is specifically attributed to CSO-related projects in the cities of Albany, Cohoes and Troy. Another \$11.8 million is designated for separating combined sewers in areas within these cities.⁶²

When the plan is fully implemented, 85 percent of the expected releases into the Hudson River watershed will be treated first, improving water quality and allowing for swimming and fishing to resume within hours instead of days after a typical rainstorm event.⁶³

Green Infrastructure Practices

Other solutions are designed to keep stormwater out of the combined system by managing and slowing the movement of water at all sources before it reaches the pipe.⁶⁴ This requires making land-use decisions and investing in green infrastructure to retain water onsite longer. In some cases, municipalities have required developers to install pervious pavement in parking lots, which allows water to permeate the hardscaping rather than moving quickly across the lot and carrying chemicals down the storm drain. Preserving open space or creating naturalized features that use vegetation and soil can slow and filter stormwater, and adding low areas or catchments can store runoff until the treatment plants can handle it.

EFC's Green Innovation Grants, supported by the CWSRF, are available for green infrastructure related to stormwater to improve water quality through projects ranging from rain gardens to stream bank stabilization.⁶⁵ In Federal Fiscal Year 2018, EFC has allocated \$6 million for such projects.⁶⁶

CSO communities may implement multiple green infrastructure projects simultaneously with traditional infrastructure updates to address the CSO problem. The Onondaga County Department of Water Environment Protection is an example of such an integrated approach, introducing green infrastructure to the Syracuse metropolitan area.⁶⁷ The strategy has contributed to reduction in the number of outfalls, but the County also had to spend about \$107 million to build two underground detention basins (holding over 11 million gallons in total) to meet its court-ordered goals. (See "Save the Rain" textbox below.) As a result, the County reports that it has captured or eliminated 95 percent of the combined storm and sewer water that was flowing into Onondaga Lake and its tributaries per year.⁶⁸

Save the Rain: Onondaga County Green Infrastructure Initiative

The Syracuse Metropolitan Wastewater Treatment Plant has already cut its number of operational CSO outfalls from 72 to 21 and is on track to close even more as it continues to implement its long-term control plan.⁶⁹ The Onondaga County Department of Water Environment Protection has undertaken over 180 green infrastructure projects that include planting trees; planting rain gardens; creating low marshy areas that detain water; implementing a community rain barrel program, building green roofs on commercial, academic and residential structures; and introducing stormwater cisterns and reuse systems at public places like the Carrier Dome, the Rosamund Gifford Zoo's buildings and the War Memorial event center.⁷⁰

Conclusion

Discharge of raw sewage into New York's lakes and rivers is an ongoing problem, threatening our health, tarnishing our image, and diminishing residents' enjoyment of our waters. While some progress is being made – nearly all combined sewer systems have long-term control plans, and many have taken steps toward implementation – much more remains to be done. Wet weather events are expected to increase in severity and frequency and the infrastructure investments necessary to address the problem are long-term and capital intensive.⁷¹

The State is already very involved in assisting CSO communities with the creation of their long-term control plans through DEC and providing low-cost financing through EFC. Funding in the Clean Water Infrastructure Act may also help finance some combined sewer projects. To guide investments in the most pressing capital projects (including CSO abatement) that are significantly funded with State resources, Comptroller DiNapoli has proposed the creation of a New York State Capital Asset and Infrastructure Council.⁷²

However, the ultimate financial and operational responsibility rests with the local governments that have these systems. Implementation of multiple phases, over numerous years and often decades, is necessary. Local officials must take a long-term approach, including the use of capital planning and asset management tools. Maintaining such a farsighted, deliberate and persistent response can be a challenge, especially for municipalities struggling with fiscal stress. However, the cost of inaction is also large, as evidenced by increasing beach closures, harmful algal blooms, fish consumption limits and countless other related impacts on human and environmental health.

Ongoing reporting on sewage releases can serve to sustain public interest and help prevent hazardous exposures over the long run. Officials should use these events as an opportunity, and harness the headlines to motivate residents, businesses and taxpayers to take action. The SPRTK Act has been especially instrumental in making the public aware of releases. Compliance with the Act has improved dramatically in the past two years, but it could still be improved.⁷³ In particular, local governments with CSOs must strengthen efforts to estimate the volume as well as number of releases, in order to help local residents gauge the severity of the problem. Many environmental advocates also argue that more should be done to measure the health of the receiving waterbody, as the ultimate goal of reducing sewage, runoff and other pollutants is to achieve cleaner water for the people who use it and for the plants and wildlife that depend on it.⁷⁴

Appendix A

CSO Communities (Facility Information)	
City of Albany*	Monroe County - Frank E. VanLare STP
City of Amsterdam	City of Newburgh WPCP
City of Auburn	New York City DEP
(City of) Binghamton CSO	(City of) Niagara Falls Water Board
Village of Boonville	(City of) North Tonawanda WWTP
(City of) Buffalo Sewer Authority	City of Ogdensburg
Village of Canastota WWTP	City of Oswego East Side
Village of Catskill	City of Oswego West Side
(Villages of) Carthage/West Carthage	City of Plattsburgh
Chemung-Elmira Sewer District WWTP	(Village of) Potsdam WPCP
Village of Clayton	City of Poughkeepsie
City of Cohoes*	City of Rensselaer*
City of Dunkirk	(Village of) Saugerties (Dock Street)
City of Glens Falls	Syracuse Metropolitan WWTP (Onondaga County)
Village of Green Island*	Target Hill WWTP (West Point Academy)
Village of Gouverneur STP	(Town of) Ticonderoga Sewer District #5
City of Hudson	City of Troy*
Village of Johnson City	City of Utica
City of Kingston	Washington County WWTP
City of Little Falls	Town of Waterford WWTP
City of Lockport	(City of) Watertown
Village of Massena	City of Watervliet*
Village of Medina	(City of) Yonkers Joint WWTP

Source: DEC, *Combined Sewer Overflows: 2017 Annual Report*, draft as of October 10, 2017. Facility names are as listed in report, with information in parentheses added by OSC for clarity.
 *Members of the Albany Pool – each (including the Pool itself) have separate SPDES permits.

Notes

- ¹ Title 6 of New York Codes, Rules and Regulations (NYCRR), 6 NYCRR §750-1.13 and 621.
- ² “Climate Change Indicators: Heavy Precipitation,” EPA, August 2016, accessed April 9, 2018, www.epa.gov/climate-indicators/climate-change-indicators-heavy-precipitation.
- ³ “Summary of the Clean Water Act,” EPA, accessed January 24, 2018, www.epa.gov/laws-regulations/summary-clean-water-act.
- ⁴ “SPDES Compliance and Enforcement SFY 2016/2017 Annual Report,” DEC, October 1, 2017, accessed January 24, 2018, pp.9-10. www.dec.ny.gov/docs/water_pdf/2016annualrpt.pdf. Environmental Conservation Law Article 17, Title 8, and Implementing Regulation - See also 6 NYCRR Part 750, which expands on the National Pollutant Discharge Elimination System.
- ⁵ According to DEC regulations (6 NYCRR § 750-1.2(67)), a point source is “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which pollutants are or may be discharged.” See also, EPA, “What is Nonpoint Source?” accessed March 23, 2018, www.epa.gov/nps/what-nonpoint-source.
- ⁶ The CWA requires states to develop Total Maximum Daily Load (TMDL) plans for waterbodies that have been identified and listed as “impaired” (i.e., not fully supporting their best use). A TMDL calculates the maximum amount of a single pollutant that a waterbody can receive and still meet water quality standards. In relation to wastewater treatment, TMDLs help set the permitted amount of pollutant that each treatment plant can discharge into the waterbody. See also, “Clean Water Plans,” DEC, accessed April 11, 2018, www.dec.ny.gov/chemical/23835.html.
- ⁷ DEC, “SPDES Compliance and Enforcement SFY 2016/2017 Annual Report,” p.18.
- ⁸ “DEE-2: Order on Consent Enforcement Policy,” DEC, August 28, 1990, accessed April 9, 2018, www.dec.ny.gov/regulations/25229.html.
- ⁹ 6 NYCRR § 750-1.13 and 621. See also “Revised Express Terms Summary for SPRTK 6 NYCRR Parts 750 and 621,” DEC, accessed February 15, 2018, www.dec.ny.gov/regulations/106408.html. (If there is no local health department, the facility owner would notify the State Department of Health.)
- ¹⁰ Federal Register 40 CFR 122 and 123, accessed March 5, 2018, www.federalregister.gov/d/2017-27948/p-3. The list of communities can be found at “Combined Sewer Overflows in the Great Lakes Basin”, USEPA, January 8, 2018, accessed April 19, 2018, www.epa.gov/npdcs/combined-sewer-overflows-great-lakes-basin.
- ¹¹ “Combined Sewer Overflows,” DEC, accessed October 25, 2017, www.dec.ny.gov/chemical/48595.html.
- ¹² “Impacts of Sanitary Sewer Overflows and Combined Sewer Overflows on Human Health and on the Environment: A Literature Review,” Office of Water Programs, California State University Sacramento, August 2008, accessed April 12, 2018, www.owp.csus.edu/research/wastewater/papers/SSO-Lit-Review.pdf.
- ¹³ The examples are numerous and include: “Beach Closures,” Westchestergov.com, accessed March 12, 2018, <http://health.westchestergov.com/beach-closures>; “The show goes on after E. Coli at Oneida Shores,” LocalSYR.com, August 6, 2017, accessed March 12, 2018, www.localsyr.com/news/e-coli-at-oneida-shores-shut-down-iron-girl-swimming/783238670; Steve Orr, “Advisory days and drought keep local beaches open,” *Democrat & Chronicle*, July 24, 2016, accessed March 12, 2018, www.democratandchronicle.com/story/news/2016/07/22/advisory-days-help-beaches-open/87392190/; and “Lake George Beach Report,” DEC, accessed March 12, 2018, www.dec.ny.gov/lands/109877.html.
- ¹⁴ “Niagara Falls: Smelly black water shocks visitors,” BBC News, July 31, 2017, accessed April 16, 2018, www.bbc.com/news/av/world-us-canada-40784194/niagara-falls-smelly-black-water-shocks-visitors. See also “Another black, smelly discharge in Niagara Falls near Maid of the Mist,” WKBW Buffalo, October 9, 2017, accessed April 16, 2018, www.wkbw.com/news/another-black-smelly-discharge-in-niagara-falls-near-maid-of-the-mist.
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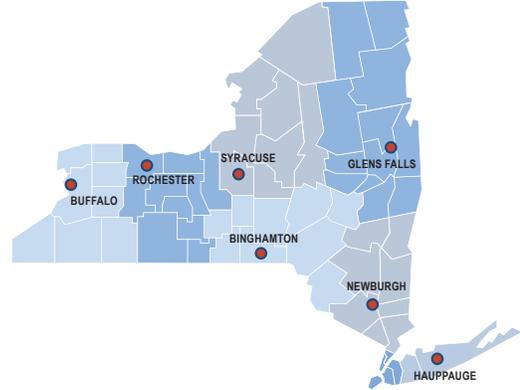


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