Wetlands Protection and Management in NYC since PlaNYC 2007

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Abstract

Momentum around wetlands protection and restoration in NYC was growing when PlaNYC was written in 2007 – environmental advocates, governmental agency representatives at local, state and federal levels, and elected officials were collaborating on several policy and restoration initiatives. Though wetlands protection was not the focus of any single initial PlaNYC goal or investment, PlaNYC pointed to the importance of wetland functions in contributing to water quality and flood control management, and to programs that utilized wetlands as nature-based solutions. PlaNYC, and several local laws, also committed to further analyses and policy development to manage wetlands, building on existing support for these actions. The resulting reports and plans included recommendations and specific commitments to wetland projects and programs that communicated the value of wetlands and helped secure grant funding. External catalyzing events, like Hurricanes Sandy and Ida, possibly played an even larger role in garnering support for funding for projects that included wetlands restoration and reconstruction or mitigation for wetland impacts. Importantly, the PlaNYC reports recognized wetlands as part of natural infrastructure critical to the social and physical well-being of NYC. However, the ongoing challenges of sea level rise, development pressure, space constraints, poor water quality, and physical and biotic process stressors mean fundamental conservation goals, such as no net loss of wetlands, have not been met and are becoming increasingly hard to achieve. Expanding mitigation options and enabling innovation through adaptive management can help slow wetland loss and degradation of existing wetlands from sea-level rise, while helping reduce regulatory concerns.

Thesis / Key Messages:

1. **Citywide commitment to wetlands.** For the first time in a mayoral document, PlaNYC (2007) communicated the importance of wetlands for a climate resilient city and committed to specific actions to protect wetlands across agencies and programs. This attention and local laws helped ensure accountability.

2. **Call for better data and assessment.** Subsequent PlaNYC reports found that wetland management and regulatory protection were limited by inadequate mapping, enforcement and understanding of conditions. This guided investment and partnerships to improve mapping, identify wetland threats and implement restoration actions even though the reports did not recommend new local wetland regulations.

3. **Focus on partnerships for funding, planning and implementation.** While budgets and political priorities varied, PlaNYC commitments helped secure support for city, state, federal and private funding, which encouraged continued advocacy by and partnerships with NGOs. Reports and plans with partners identified opportunities and needed actions. When major storms in 2012 and 2021 drew attention to contributions of wetlands to resiliency, these plans provided justification and priorities for funding.

4. **Four components of wetland management.** PlaNYC and subsequent work by the city and partners highlighted the concurrent need for protection, restoration, mitigation, and assessment. These actions require effective and supportive policy, engagement with partnerships, and project implementation and evaluation.

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5. **Wetland loss continues.** Despite PlaNYC and other planning efforts, NYC is still losing wetlands, particularly salt marshes, due to sea-level rise and other stressors, at a rate of approximately two horizontal feet per year along many coastal shorelines. Expanding mitigation options and enabling innovation through adaptive management offer the promise of accelerating restoration and slowing anticipated loss.

I. Introduction

Wetlands are highly productive ecological systems that provide refuge and forage habitat, support a diverse array of plants and animals, filter water, store carbon, and detain and hold storm and floodwaters. In dense urban environments, wetlands also provide the critical benefits of open space and access to nature and wildlife for recreation and health. This is particularly true in NYC, with a population of over 8 million people where only about 15% of the tidal wetlands and less than 5% of the freshwater wetlands remain from the vast array of salt marshes, streams, riparian floodplains, swamp forests, kettle ponds and other wetlands that covered the landscape prior to colonization (RPA 2002, Sanderson 2009). These wetlands and the estuary were critical to the indigenous communities in this region and later to its commercial and industrial development.

While New York City has experienced a devastating loss of wetlands, the remaining wetlands play an important role in the natural, social, and economic life of the region. Today, NYC still has approximately 6,400 acres of wetlands including 3,600 acres of salt marsh and 2,800 acres of freshwater wetlands (NYC Parks 2026). Urban wetlands are particularly valuable in making cities livable (Dooley and Stelk 2021). NYC still has thousands of wildlife and plant species that depend on wetlands for some part of their life cycle (NYC DEP 2007, Stinnette et al. 2018, Weldy et al 2019). Wetlands provide New Yorkers with places to birdwatch, hike, kayak and experience nature, and they provide services and value including absorbing wave action, trapping sediment, sequestering carbon, processing pollutants, and providing nursery and forage habitat for wildlife. But despite their presence in all five boroughs (from kettle ponds at the top of the glacial moraine in Forest Park, Queens, to the coastlines of northwest Staten Island, Pelham Bay Park in the Bronx, and Jamaica Bay in Queens) until PlaNYC, these natural systems were never centered in any comprehensive policy or planning effort. For the first time in a mayoral, citywide plan, PlaNYC: A Greater Greener New York (2007) stated the importance of wetlands to sustainability and climate resiliency and committed the city to take specific actions to protect wetlands across agencies and programs in recognition of the essential services wetlands provide.

II. The context and drivers for including wetlands in PlaNYC

Converging policy, scientific, and advocacy developments drove the inclusion of wetlands in PlaNYC. Decades of actions to correct for historical wetland loss and limit ongoing wetland degradation informed PlaNYC's content. By the 1970s, New York City had dredged, filled, and built on top of the thousands of acres of salt marsh along its shorelines, and had redirected, buried, and piped the thousands of acres of freshwater wetlands and hundreds of miles of streams that had defined the landscape. The Clean Water Act of 1972 was critical in saving the remaining tidal and freshwater wetlands in NYC. Specifically, Section 404 of the Act required the U.S. Army Corps of Engineers (USACE) to regulate the dredging and filling of waters of the United States, including navigable waters, lakes, ponds, rivers, streams and connected wetlands. This federal protection of tidal and freshwater wetlands slowed the fastest cause of wetland loss in NYC, which was filling. The definition of what features count as a Water of the

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United States continues to be litigated, but until this decade, protection was afforded to tidal or freshwater wetlands of any size with a nexus to navigable waters of the U.S.

New York State (NYS) implemented federal law with the passing of NYS tidal wetland protection laws in 1973 (ECL § 25-0101 *et seq.*) followed by the Freshwater Wetland Act (FWA) in 1975 (ECL § 24-0101 *et seq*.). These laws regulated actions in tidal wetlands of any size and in freshwater wetlands greater than 12.4 acres (5 ha), as well as smaller wetlands designated as having "Unusual Local Importance" as determined by procedures and standards set forth under the regulations. These regulations also provided protection to wetlands by regulating the adjacent 100-foot buffer of regulated freshwater wetlands, and the adjacent 300 feet (150 feet in NYC) of tidal wetlands of any size. Buffer protection was a critical addition to the state law, acknowledging that adjacent land uses can influence the quality and function of wetland habitat (Boyd 2001, Cooke 1992, MACC 2019). The FWA also required ranking of the value of freshwater wetlands by Class (I-V), requiring the most stringent protection for the most valuable Class 1 wetlands (ECL § 24-0105).

Despite these transformative protections, the damage had been done, and remaining wetlands were still vulnerable to degradation and destruction through development in New York City, in part because protections depended on accurate wetland mapping and resources and commitment to enforcement. At the state level, to implement and establish a basis for wetland regulations, the New York State Department of Environmental Conservation (NYSDEC) mapped existing wetland extent and type using aerial photography from 1974 for tidal wetlands, and from 1987 for freshwater wetlands. But there is inherent inaccuracy in drawing wetland boundaries from aerial photos by hand at 1:24,000 scale without the hydrologic, soil, and vegetation indicators from the field. In NYC this is particularly true for freshwater wetlands, most of which had already been fragmented, reduced in size, and severely altered. Even with this flawed approach, NYSDEC mapped 2,746 freshwater wetlands in NYC, including 36 wetland complexes smaller than 12.4 acres designated as being of Unusual Local Importance. The U.S. Fish and Wildlife Service also conducted a National Wetlands Inventory (NWI), last updated in 1991, which aimed to assess freshwater wetlands uniformly across states. NWI used a different classification system and more field verification and identified more smaller freshwater wetlands in NYC than DEC had. However, the red parent material in areas of Staten Island made wetland soils difficult to distinguish, and the facultative quality of many forest tree species found in both wetlands and uplands could have led to underestimating wetland extent (NYSDEC 1995, Tiner 2000, PlaNYC 2009, Isleib et al. 2010). The NWI did not provide greater regulatory protection but did identify more sites with conservation and protection needs.

Ongoing wetlands degradation in the 1990s included the development of small freshwater wetlands on Staten Island at Graniteville Swamp, in the Lemon Creek watershed, and at Bloomingdale Woods. As noted above, forested wetlands at these sites may have been under-mapped, and thus unregulated, due to difficult-to-distinguish hydric soils and facultative woody vegetation. Also in the early 1990s, several oil spills in the Arthur Kill contaminated vast stretches of tidal salt marsh in Staten Island and New Jersey. These spills required immediate remediation, as well as legal actions that resulted in natural resource damages funding for salt marsh restoration, and ultimately increased attention to and awareness of threats to tidal wetlands (Bergen et al. 2000).

These recurring impacts further fueled community resolve and agency commitment to fight for investment in the city's remaining wetlands that, despite being fragmented and undervalued, supported iconic harbor herons and hundreds of other species (Partridge et al. 2026; Washburn

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et al. 2016). In 1997, a decade after its creation, the NY-NJ Harbor & Estuary Program (HEP)[1] issued its first Comprehensive Conservation and Management Plan (CCMP) in 1996, which identified the main causes of impairments and responses needed. NYC agencies and not-for-profit partners participating in HEP identified dozens of sites and properties across NYC where there were conservation and restoration opportunities (HEP 2001). Land conservation initiatives for the city's large wetland complexes in Jamaica Bay and Staten Island were launched by The Trust for Public Land and New York City Audubon[2] (Trust for Public Land, 1987, 1991, and Trust for Public Land & NYC Audubon 2001). At the state level, the legislature created the Environmental Benefit Fund and voters passed the 1996 Clean Water / Clean Air Environmental Bond Act. The latter brought tens of millions of dollars to the city to acquire dozens of acres of open space, including wetland and coastal land along the Arthur Kill, Hudson River, Kill van Kull, Raritan Bay, Jamaica Bay and Long Island Sound (Cleaver 2009). In addition, the 1996 Bond Act provided funding for ten stream and wetland restoration projects in all five boroughs of the city totaling over $6.3 million. Beginning in 2002, Congressman Serrano also directed tens of millions of dollars in grant funding to the Bronx River through the National Oceanic and Atmospheric Administration (NOAA) which funded numerous stream and floodplain restoration and watershed planning projects.

The NYC Department of Parks & Recreation (NYC Parks) and the NYC Department of Environmental Protection (NYC DEP) also opportunistically advanced wetland restoration and enhancement actions through their own programs in the 1990s. They reconstructed freshwater wetlands to mitigate impacts from excavation at sewer projects at Willowbrook and Idlewild Parks. NYC DEP also began reconstructing and enhancing stream and freshwater wetland systems as part of its Bluebelt program to manage stormwater and flooding on Staten Island.

Open space and community advocates (including the NYC Audubon, Regional Plan Association, and Soil and Water Conservation District) recognized the importance of protecting wetlands on city property and ensuring they would not be disposed of for development. They worked with NYC elected officials to legislate, through Local Law (LL) 83 of 2005, the establishment of a Wetland Transfer Task Force (WTTF) with the express purpose of inventorying and evaluating city parcels with wetlands and if feasible, transferring or reassigning those properties to either NYC Parks or NYC DEP for conservation. This task force of agency and non-governmental partners ultimately recommended the review or transfer to NYC Parks or NYC DEP of over 640 acres of wetlands across 269 parcels (see Table 2). The Task Force Report also called for a citywide wetlands policy as well as other specific recommendations intended to conserve and manage wetland resources.

Even in the absence of development or direct damage, loss of existing tidal wetlands continued at an alarming rate. This was most apparent in Jamaica Bay from the 1970s to the 1990s where research showed that vegetated marsh islands were shrinking and converting to mudflats at a rate that suggested these habitats and the ecological services they provide could be lost in decades (Muschacke & Picard 2000, Arnold et al. 2001, Hartig et al. 2002, NPS 2004). This loss

[1] The New York-New Jersey Harbor Estuary Program (HEP) is one of 28 National Estuary Programs established by Section 320 of the Clean Water Act and U.S. Environmental Protection Agency (EPA) at the request of the governors of New York and New Jersey. It is an ongoing effort to develop and implement a consensus-driven plan to protect, conserve, and restore the estuary. HEP decisions and activities are carried out by staff and partners organized through HEP's committees and work groups including the Restoration Work Group.

[2] Now known as NYC Bird Alliance.

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reflected the cumulative impacts of numerous anthropogenic actions including modification of bay bathymetry, hydrodynamics and sediment supply, nutrient loading from stormwater and sewage, boat wakes, and sea level rise. In response to this concern, the USACE, National Park Service (NPS), NYSDEC, and NYC DEP collaborated to beneficially reuse clean New York Harbor sand dredge material to reconstruct eroding Jamaica Bay marsh islands—the first effort of its kind in NYC, beginning with 40 acres of sand placement and salt marsh plantings at Elders Point East Marsh Island from 2006 to 2007. Local and regional environmental advocates, (primarily the Jamaica Bay Ecowatchers with the American Littoral Society and the Natural Resources Defense Council) also succeeded in passing LL 75 of 2005, which required the development of a Jamaica Bay Watershed Plan to address marsh loss through research and the development and implementation of wide-ranging pollution reduction and mitigation actions.

III. Overview of Wetland Initiatives in PlaNYC Reports from 2007to 2011

Under the broad goal of enhancing water quality and waterways, PlaNYC 2007 committed to assess the vulnerability of existing wetlands and identify additional policies to protect and manage them. This initiative (#10) consisted of commitments to complete the WTTF report and to conduct a regulatory gap analysis, including assessing the need to strengthen protections as the first step in a comprehensive policy to protect and manage wetlands in the city. PlaNYC authors at the NYC Mayor's Office of Long-Term Planning and Sustainability (OLTPS) worked closely with agencies and non-governmental partners to include other ongoing programs in PlaNYC that used wetlands (e.g. Bluebelts) or aquatic systems (e.g. shellfish reefs) to support the overarching goal of improved water quality and safe waterways. The well-established benefits of wetland for water quality, habitat, and flood management aligned with PlaNYC's broader sustainability objectives, while local legislative mandates—such as the establishment of the WTTF and requirements for Jamaica Bay watershed planning—provided a policy and legal foundation.

PlaNYC recognized that state and federal regulations and policies did not ensure protection of all wetlands and that these regulatory gaps needed to be assessed and protections potentially expanded. For example, freshwater wetlands smaller than 12.4 acres, unmapped wetlands, and freshwater wetland buffer areas had limited protection. Such an analysis of regulatory gaps was recommended in the CCMP a decade earlier but had not yet been undertaken by New York State or NYC. PlaNYC also included the city's legal requirement to complete the obligations of the WTTF and to produce an associated report. These steps were viewed as essential to developing a comprehensive policy to protect and manage wetlands in the city.

PlaNYC 2007 also committed to expanding wetlands for the water quality benefits they provide, referencing multiple, existing programs. These included the NYC DEP Bluebelt program, which included dozens of projects on NYC parkland, and piloting intertidal shellfish reefs for water filtration. In upland combined sewer system drainage areas, PlaNYC committed to expand stormwater green infrastructure, such as tree beds and rain gardens, through a watershed approach to reduce combined sewer overflows and improve downstream water quality. These initiatives were linked under the umbrella of Best Management Practices, all codifying existing commitments to use and construct wetlands or wetland-like systems for ecological services and to indirectly help protect wetlands themselves through pollution reduction.

In the years immediately following PlaNYC 2007, several key reports were produced, and several local laws were passed which fulfilled or codified the wetlands protection recommendations named in PlaNYC. New legislation, whether local or state, helped ensure actions were taken and, to various degrees, ensured accountability. In 2008, NYC DEP

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published a sustainable stormwater plan for NYC, mandated by LL 5/2008, and pledged to construct more wetlands for stormwater management and reduce pollution loads to help protect tidal marshes. NYS-mandated Long Term Control Plans across the city, negotiated by NYC DEP over four years, compelled the implementation of stormwater green infrastructure, as well as some wetlands restoration, to improve the quality of the city's waterways.

A year later, OLTPS produced a report analyzing wetland regulatory gaps and other threats, which examined effectiveness of wetland protection laws and other causes of wetland loss in NYC (PlaNYC 2009). The report suggested that inaccurate wetlands mapping was a significant problem and recommended improved wetland and floodplain mapping to further assess risk to wetlands and to gather the data needed to recommend local policy changes and help inform restoration and management. The report also stressed the importance of continuing the related work of implementing the WTTF, the Jamaica Bay watershed plan, stormwater best management practices, acquiring property for Bluebelts, adapting wetlands management for sea level rise, improving mitigation practices, and exploring more approaches to management and stewardship.

In 2009, two local laws passed to address wetlands protection. First, LL 21 required the NYC Department of Buildings (DOB) to coordinate with regulators to ensure permits are not issued for development on wetlands, a problem that the Regulatory Gap Analysis Report noted (Environmental Protection 2009). This protocol of requiring DOB to check on wetland status results in a large portion of the requests for wetland jurisdictional determinations that NYSDEC receives today (Steven Watts, personal communication). Second, LL 31 mandated steps to improve wetland maps and required the city to develop and implement a wetland protection strategy (both recommendations also made in PlaNYC 2007). Subsequently, city agencies and partners continued to work closely, both on the development of improved wetland maps (NYC DEP 2010) and on developing collaborative research and assessment priorities as well as restoration objectives (NYC Parks 2010).

In the first update to PlaNYC, in 2011, the wetland protection objectives were articulated in the goals for public open space, including calling for the establishment of a Natural Areas Conservancy. Under the goal of establishing clean and safe waterways, PlaNYC 2011 articulated four initiatives related to wetlands: enhancing wetland protection, expanding wetlands restoration, improving wetlands mitigation, and enhancing habitat for aquatic species. Each represented existing programs and projects that provided the basis for the legally mandated Wetlands Strategy to follow.

IV. Development and Implementation of the Wetlands Strategy of 2012

The NYC Wetlands Strategy espoused a multi-pronged approach for wetlands restoration and protection that recommitted to existing laws and programs and called for new analyses and planning. Its authors at OLTPS[3] worked closely with agency and non-governmental partners to develop this approach and incorporate critical initiatives and findings from previous reports. For the first time, the Wetlands Strategy articulated a goal of no net loss of wetlands in NYC, in alignment with federal nationwide goals[4]. The Wetland Strategy named 35 milestones to complete within 19 months, focusing on increasing protection of vulnerable wetlands, improving mitigation guidance, completing restoration projects, and improving metrics for assessing

[3] Aaron Koch was the primary author of the NYC Wetland Strategy.

[4] USEPA and USACE articulated goals of no net wetland loss beginning in 1989 and culminating in the mitigation rule of 2008: https://www.sac.usace.army.mil/Portals/43/docs/regulatory/Final_Mitigation_Rule.pdf

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wetlands restoration. Most of the projects identified were in some stage of development, and many were first referenced in the PlaNYC 2011 update. The Wetlands Strategy reflected close interagency collaboration to establish commitments, as well as the distinct missions and interests of agencies contributing to the plan.

Protection goals in the Wetlands Strategy included transferring wetlands on public property to NYC Parks and DEP and recognizing areas of ecological significance in the NYC Waterfront Revitalization Program (WRP)[5]. Improving the wetlands mitigation process was also identified as a goal both to achieve better functioning wetlands and to reduce cost, time and unpredictability in wetland permitting for waterfront infrastructure projects.

The Wetlands Strategy completed the policy evaluation called for in the Regulatory Gap report (PlaNYC 2009). The authors determined that, while creating new local regulation could be easier than changing state or federal policies, it would only improve protection for approximately 100 acres, and have potentially significant administrative, political, and economic costs for a relatively small acreage distributed across hundreds of properties. Consequently, the Wetlands Strategy focused on using other levers to improve wetlands protection, including mitigation.

When wetland impacts cannot be avoided, wetlands **mitigation** offsets those impacts through restoration. However, wetland mitigation was inconsistently implemented and enforced in NYC, as it became increasingly difficult and expensive to find suitable and sufficiently large sites to re-establish wetlands. The Wetlands Strategy championed the ongoing interagency effort, led by the NYC Economic Development Corporation (EDC), to pilot a wetland mitigation bank for that purpose. EDC partnered with NYC Parks to identify a parkland site (Saw Mill Creek on Staten Island) and obtain grant funding[6], which helped secure city legal and financial support.

Restoration goals in the Wetlands Strategy largely committed to actions associated with long planned, funded or partially funded projects or programs, rather than new initiatives. These included 16 tidal and freshwater marsh restoration, shoreline stabilization, and habitat connectivity projects funded by various governmental programs and mostly led by NYC Parks and NYC DEP, as well as a federal, state and city collaboration to reuse dredge material for Jamaica Bay marsh island reconstruction. Some of the project commitments in the Wetlands Strategy also fulfilled regulatory requirements, such as the NYC DEP's Long Term Control Plans, which linked water quality improvements to ecosystem restoration.

There were several new initiatives that were also part of the Wetlands Strategy, in particular the commitment to assess the vulnerability of existing wetlands and identify additional policies to protect and manage them. This emphasis on **assessment** reflected the need to not only map the extent of wetlands in NYC, but also characterize their condition and then determine and prioritize appropriate management interventions.

This was the last NYC Mayor's Office report focused entirely on wetlands. Over the years, the initiatives and recommendations in the Wetlands Strategy were largely implemented as summarized in Table 1. These restoration actions, studies, and assessments informed the next

[5] The WRP serves as a supplement to the State's Coastal Management Program (New York Executive Law, Article 42 (Sections 910–922); 19 NYCRR Part 600), which supersedes the Federal Coastal Zone Management Act (Coastal Zone Management Act, 16 U.S.C. §§ 1451–1464) in New York State. The WRP and state coastal program include policies and a framework that help guide implementation and protection of water uses with coastal resource protection, which can provide an additional layer of regulation for wetlands.

[6] Funding came from New York State Department of State's Local Waterfront Revitalization Program, NYS Empire State Development, and the NYC Capital budget.

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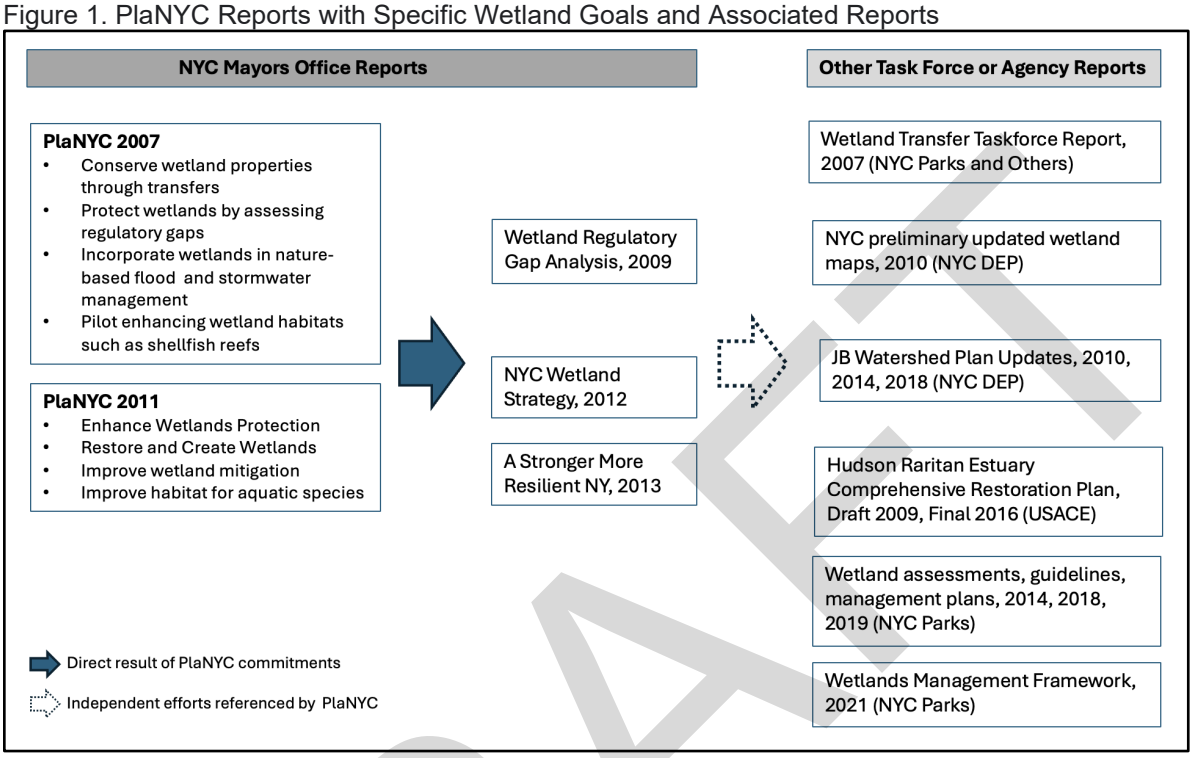
comprehensive plan for wetland management, the Wetlands Management Framework, discussed below, which was written by NYC Parks in 2021.

Figure 1. PlaNYC Reports with Specific Wetland Goals and Associated Reports



V. Drivers of PlaNYC implementation

The multiple strategies, initiatives, and recommendations for wetlands protection and management in the PlaNYC reports were advanced without any new dedicated financial commitment from the city. Implementation of plan recommendations proceeded largely due to: 1) existing agency budgets and programs, 2) robust partnerships, 3) regulatory requirements, 4) catalytic storm events, and 5) state and federal grants.

Existing agency budgets and programs

Beginning with PlaNYC 2007, the global financial crisis in 2008 impacted the city budget. Partly as a result, PlaNYC 2011 and the NYC Wetlands Strategy identified NYC Parks-led initiatives for wetland restoration projects that had already secured at least partial funding through state and federal grants, such as the 1996 Clean Water Clean Air Bond Act or the USACE Hudson-Raritan Estuary Program. The city provided required matching funds. NYC DEP largely met PlaNYC commitments via its existing Capital program and city funding allocated to meet regulatory obligations. For example, by 2012, the city had invested over $9 billion to improve waterways and the waterfront by reducing combined sewer discharges and improving water quality in New York Harbor (PlaNYC 2012).

Partnerships

Developing and strengthening partnerships with non-profits and community groups allowed the city to work towards its goals despite limited resources. For example, in 2012, the Natural Areas

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Conservancy (NAC) formed to champion urban natural areas and increase the health and resiliency of forests and wetlands in NYC through innovative research, partnerships, and advocacy. NYC Parks and NAC received a U.S. Environmental Protection Agency (USEPA) grant in 2012 to fund an assessment of the condition and vulnerability of tidal wetlands to sea level rise—a key recommendation from PlaNYC 2011. This grant and ongoing partnership with USEPA and NAC led to reports like the NYC Salt Marsh Conditions Assessment Report (2017) and others (Haight et al. 2019) that allowed NYC Parks to shift more towards data-driven restoration planning and expand opportunities for funding.

Storms

Catalytic events like Hurricanes Irene (2011) and Sandy (2012) drew attention to the importance of wetlands, natural riparian floodplains and undeveloped vegetative shorelines to buffer and manage floodwater. Sandy hit NYC in October 2012, devastating neighborhoods across NYC and prompting the Special Initiative for Rebuilding and Resiliency—the final PlaNYC report of the Bloomberg administration (PlaNYC 2013), as well as numerous subsequent local plans for hurricane-impacted neighborhoods, including through the New York Rising Community Reconstruction Program. Sandy increased city government awareness of the importance of wetlands and the role that they play in resiliency, particularly as wetlands were not damaged by the hurricane, but development on former wetlands was. After Sandy, owners of eligible properties damaged during the hurricane were offered buyouts, funded through a U.S. Department of Housing & Urban Development Community Development Block Grant for Disaster Relief. The city acquired these properties to both reduce the risk of repeated damage in a flood zone, with the commitment to preserve these properties as open space, creating opportunities for wetlands expansion and restoration.

Individual community-supported wetland projects outlined in post-Sandy neighborhood plans received significant grant funding and the city provided matching funds. One example was Sunset Cove, in Broad Channel, Queens, which received funding from the U.S. Department of the Interior and the National Fish and Wildlife Foundation's Hurricane Sandy Coastal Resiliency Program. This site, within the Jamaica Bay Watershed bordering a neighborhood heavily flooded by Sandy, was first identified in the WTTF Report. The site was acquired by the city following the closure of a marina with numerous environmental violations. After being assigned jurisdiction of the property, NYC Parks restored the site to tidal wetland, with a coastal upland for marsh migration, and a pathway surrounding the site that serves as a protective berm. In addition to city and grant funding, wetland mitigation funds directed by NYSDEC supported the project.

In 2021, Hurricane Ida demonstrated the city's vulnerability to inland as well as coastal flooding as a consequence of increased frequency of high-intensity storms and loss of natural drainage pathways for stormwater from filling of historic streams, wetlands and floodplains (Royte and Sanderson 2026). Though this extreme event happened toward the end of the COVID pandemic, while funding dipped and hiring freezes impacted all city agencies, the city allocated capital funding to new specific wetland restoration and green infrastructure projects in flood-impacted neighborhoods, including funding for NYC DEP for daylighting Tibbetts Brook, in partnership with NYC Parks (PlaNYC 2021).

Regulatory Requirements

Regulations, and particularly mitigation have also significantly driven funding and implementation of wetland projects. Both the state and the federal government require mitigation to offset the wetland impacts associated with dredging and filling. Wetland mitigation funding was a significant component of many of the restoration projects named in PlaNYC that

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could be expanded to accommodate mitigation needs from city or private projects. These mitigation and restoration projects required permits from NYSDEC and USACE that included post-construction performance monitoring standards. In 2016, under the de Blasio Administration, this obligation to conduct environmental compliance monitoring was key to NYC Parks, for the first time, receiving city staffing lines dedicated to wetland management.

Grants
Federal grant funding was critical for the wetland assessment work by NYC Parks, in particular the USEPA Wetland Program Development Grant (WPDG), which supported staff to conduct field monitoring and analysis at unprecedented scale with grant funding in 2012, 2014, 2015, 2017 and 2019. In addition to evaluating the health of existing salt marshes, freshwater wetlands and streams, NYC Parks used this grant program to evaluate 20 years of restoration and mitigation projects and produce updated monitoring and design guidelines. The WPDGs also provided funding for NYC Parks and NAC to develop the 2021 NYC Wetlands Management Framework, which served as a road map for wetlands wetland protection, restoration and management and is described below.

Finally, the Saw Mill Creek mitigation bank was constructed in 2019 and successfully streamlined regulatory approvals for private mitigation needs. However, the city recognized that public projects similarly needed a more predictable process for addressing unavoidable wetland impacts, as but failure to secure timely wetland mitigation approvals was delaying critical city-led waterfront infrastructure projects. This led to the first baselining of capital funding for NYC Parks for wetland projects in 2025. Although that funding is not sufficient to address all wetland mitigation needs it was a recognition that programmatic funding is critical for timely restoration efforts.

VI. Progress towards goals and the Wetlands Management Framework

From 2007 to 2012, the scope and scale of wetlands goals in PlaNYC documents expanded significantly. The 2007 PlaNYC report focused on protection as a key strategy for maintaining the city's wetlands. The 2011 PlaNYC update and the 2012 NYC Wetlands Strategy were more comprehensive. The NYC Wetlands Strategy laid out four overarching strategies aimed at improving the quality of wetlands to maximize the functions they provide—protection, mitigation, restoration, and assessment—while recognizing the challenges climate change presents to achieving these goals.

To date, NYC has made significant investments in wetlands. Despite regulations protecting wetlands, mitigation requirements compensating for loss, and other voluntary restoration programs, however, NYC continues to lose wetlands due to sea level rise and other anthropogenic stressors. Below we discuss the status of the initiatives identified in the PlaNYC documents and progress toward the wetland goals.

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Table 1. Status of wetland goals and initiatives named in PlaNYC 2007, PlaNYC 2011 and Wetlands Strategy (2012). “Complete” is used when a task, initiative or project is clearly defined and has no directly related follow up actions. “Not complete” is used when a goal has not been substantially met and there is no clear path to achieving it. “On-going” is used when the initiatives lacked specific success criteria, or related efforts continue today.

Strategy	Initiatives in PlaNYC 2007 only (*), PlaNYC 2011 only (**) and in Wetlands Strategy 2012	Responsible	Status
Protection			
Assess the vulnerability of existing wetlands and identify additional policies to protect and manage them		OLTPS	Complete
Expand the Bluebelt program, included acquiring 4,000 acres of land with wetlands to conserve for stormwater management*		DEP	Ongoing
Evaluate the vulnerability of salt marshes through additional monitoring **		Parks	Complete
Develop a comprehensive strategy for wetlands**		OLTPS	Complete
Strengthen protection of vulnerable wetland parcels	Complete the transfer of 10 city-owned parcels to NYC Parks**	Parks	Complete
	Complete the transfer of 9 city-owned parcels to NYC DEP for inclusion in the Staten Island Bluebelt system**	DEP	Complete
	Evaluate funding needs for the necessary improvements that are required for future transfers to NYC Parks	Parks	Ongoing
Increase wetlands acquisition efforts	Seek to acquire additional acres of private lands for inclusion in the Staten Island Bluebelt system	DEP	Ongoing
	Work with local, State, and Federal partners to evaluate opportunities for additional wetlands acquisitions	Parks, DEP	Ongoing
Update the Waterfront Revitalization Program to enhance wetlands protection**		DCP	Complete
Mitigation			
Work with State and Federal partners to revise wetlands mitigation guidance and provide clear, transparent, and scientifically-sound guidelines		OLTPS	Not complete
Develop a mitigation banking or in-lieu fee mechanism for public projects (vs non-city funded or private projects)		OLTPS	Not complete
Restoration			
Complete city-funded wetlands restoration projects	Pugsley Creek; Randalls Isl. shoreline**; Tallapoosa Wetland; Turtle Cove; Soundview Lagoon, Calvert Vaux Park; Pralls Island; Crescent Beach; Bronx River Riparian Floodplain & Tributary Connection; Inwood Hill; Meadow Lake; Freshkills at North Park	Parks	Complete
	Paerdegat Basin; Yellow Bar; Black Wall and Rulers Bar; Brookfield Landfill; $15M investment in restoration in Jamaica Bay.	DEP	Complete
Create a natural areas conservancy	Incorporate the Natural Areas Conservancy and raise funding for staffing and management	Parks	Complete
Work with state, federal and regional partners to finalize the USACE/EPA Hudson Raritan Estuary Comprehensive Restoration Plan and seek opportunities for implementation		DEP, Parks	Complete/ Ongoing
Improve habitat for aquatic species	Complete eel grass and ribbed mussel bed pilot; expand oyster pilot project, conduct additional research; strategy to advance these restoration efforts**	OLTPS DEP	Complete / Ongoing
Assessment			
	Create a one-foot contour Digital Elevation Model utilizing LiDAR data	DEP	Complete

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Improve wetlands mapping in New York City	Create a new preliminary wetlands survey incorporating one-foot contour Digital Elevation Model	DEP	Compete
	Work with DEC and other partners to turn the preliminary wetlands surveys into a final wetlands regulatory map	DEP	Not complete
Monitor tidal wetlands and analyze the potential impacts of sea level rise	Establish Surface Elevation Tables at two more parks, including one of the large marsh complexes in Staten Island	Parks	Complete
	Determine data needs and seek funding to conduct horizontal marsh migration analyses	Parks	Complete
Assess the conditions and functions of New York City wetlands	Conduct tidal rapid assessments at six NYC Parks' sites where long-term monitoring is being conducted	Parks	Complete
	Collect data on vernal pools and make comparisons across sites within and outside the city	Parks	Complete
Develop a research agenda to address wetlands challenges	Work with regional partners to develop and implement a research agenda to address wetlands challenges	OLTPS, DEP, Parks	Complete
	Work with regional partners to evaluate the feasibility of establishing an enhanced urban ecology research center in Jamaica Bay	OLTPS, DEP, Parks	Complete

Wetlands Protection - Progress in acquisition, but not yet in regulations

To protect wetlands, the first PlaNYC report embraced existing efforts to protect publicly held wetlands through the Wetlands Transfer Task Force (WTTF), and subsequently focused on planning, policy and regulatory analysis to help secure open space and manage threats.

The WTTF reviewed over 1,020 city parcels of land that contained wetlands and recommended which parcels should be transferred to NYC DEP or NYC Parks for protection or undergo further review. By 2026, most of the recommended areas had been transferred to NYC Parks, the largest being Arlington Marsh, a 70-acre parcel with over 25 acres of wetlands.[7] Most of the recommended area had also been transferred to NYC DEP to support the Bluebelt Program. The WTTF accomplished critical conservation goals, but it was constrained. Some city agencies decided to retain parcels that had future development potential, and NYC Parks and NYC DEP did not want to accept some parcels that were small and not contiguous with their other properties, would require remediation and resources for maintenance, or did not meet a clear agency need. To date, approximately 88 parcels recommended remain un-transferred (see Table 2).

[7] Arlington Marsh was identified as a conservation priority in numerous city plans and waterfront policies. Arlington Marsh is a Special Waterfront Natural Area identified in the 1990s NYC Waterfront Revitalization Program and was described as a priority conservation area in the NY-NJ Harbor & Estuary Program's Hudson Raritan Estuary Comprehensive Restoration Plan in 2009 and in the 2011 NYC Comprehensive Waterfront Plan (LL55, 2011).

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Table 2. Status of Wetlands Transfer Task Force Recommendations as of 2026.[8]

Borough	Status	Acres (Parcels) for Special Review*	Acres (Parcels) recommended for transfer to NYC Parks	Acres (Parcels) recommended for transfer to NYC DEP	Total Acres (Parcels)
Bronx	Recommended	258.6 (36)	64.9 (1)	0	323.5 (37)
	Transferred	17.1 (2)	64.9 (1)	0	82 (3)
	Remaining	241.5 (34)	0	0	241.5 (34)
Brooklyn	Recommended	16.9 (16)	0	0	16.9 (16)
	Transferred	0.3 (3)	0	0	0.3 (3)
	Remaining	16.6 (13)	0	0	16.6 (13)
Queens	Recommended	46.9 (35)	63.3 (68)	0	110.2 (103)
	Transferred	19.9 (7)	31.3 (4)	0	51.2 (11)
	Remaining	27 (28)	32 (64)	0	59 (92)
Staten Island	Recommended	50.6 (24)	127.2 (13)	12.2 (76)	190 (113)
	Transferred	2 (3)	95.1 (11)	10.3 (54)	107.4 (68)
	Remaining	48.6 (21)	32.1 (2)	1.9 (22)	82.6 (45)
Total	Recommended	373 (111)	255.4 (82)	12.2 (76)	640.6 (269)
	Transferred	39.3 (15)	191.3 (16)	10.3 (54)	240.9 (85)
	Remaining	333.7 (96)	64.1 (66)	1.9 (22)	399.7 (184)

Note: *Special Review parcels were all transferred to NYC Parks

Other recommendations for wetland acquisition in PlaNYC were focused on evaluating opportunities, but did not address the resource needs for acquiring properties. Some large private properties that contained wetlands could not be acquired and some were sold and developed. For example, two large sites in northwest Staten Island near the Goethals Bridge and Graniteville Swamp, containing extensive emergent and forested freshwater wetlands were developed despite protests from the community and environmental advocates. In contrast, however, a partnership between NYSDEC, the Trust for Public Land, and NYC Parks protected Pouch Camp, a 120-acre private property on Staten Island. The site was at risk of being sold for potential development and this acquisition protected dozens of acres of freshwater wetlands and forests.

PlaNYC's Regulatory Gap report in 2009 highlighted that NYC freshwater wetlands were vulnerable, since New York State only regulated wetlands greater than 12.4 acres or mapped wetlands of "Unusual Local Importance" (examples shown in Figure 2). In the NYC Wetlands Strategy report, further analysis using the National Wetlands Inventory maps estimated a total of 100 acres of these unprotected freshwater wetlands existed across the city. The authors recommended against developing additional new local regulations to protect these small wetlands across dozens of properties, however, due to the anticipated administrative and political burden of enforcement. Instead, the Strategy supported NYSDEC's efforts to expand regulatory protections for small wetlands, and relied on NYC Parks' efforts to continue more

[8] Some discrepancies may arise due to differences in how project area or cost is tracked across agencies.

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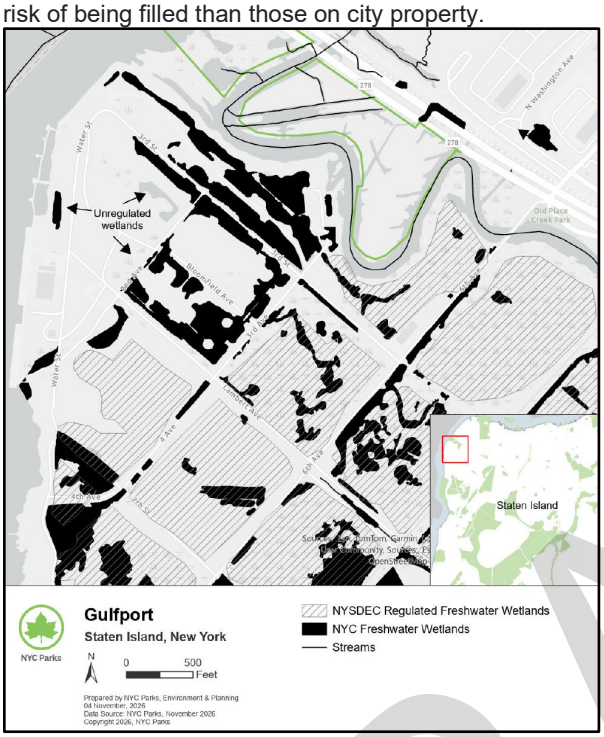
accurate wetland mapping. NYC Parks currently estimates that over a hundred more acres of small wetlands than originally estimated may be unregulated across NYC on private property (NYC Parks 2021, 2026).

Figure 2. Examples of NYSDEC regulated wetlands (hatched) and mapping of additional freshwater wetlands by NYC Parks (black). Where small wetlands are not adjacent to regulated wetlands, they are not protected and at greater risk of being filled than those on city property.



The Wetlands Strategy noted that wetland buffers are critical, particularly to protect small freshwater wetlands. These buffers remain vulnerable however, since development in these buffers is evaluated on a site-by-site basis, with no mandatory setback. In contrast, tidal wetland buffers require 30-foot setbacks for development. Tidal wetland buffers can also, under suitable conditions, offer a path for marsh migration with sea level rise and thus help conserve salt marsh. NYC Parks has assessed the potential impacts of sea level rise on salt marshes in city parks and recommended acquisition and other protection actions (NYC Parks 2017, 2026).

Separately, local protection of ecologically sensitive waterfront and wetland areas was enhanced through the 2013 update to the Waterfront Revitalization Program. One of the updates included the addition of the Special Area Designation of Recognized Ecological Complexes where the ecological resources must be integrated into the planning and design of any project on those sites. The designations in the program, in combination with the State and Federal permit reviews, allow for more scrutiny and review, which helps ensure minimal impacts to wetlands.

Wetland Mitigation - A successful bank, but not for public projects

The Saw Mill Creek Mitigation Bank was constructed in 2019 on NYC parkland and EDC completed the final credit sales for the first phase in 2026. The Bank succeeded in accelerating

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permitting and creating functional wetlands for primarily private projects with mitigation needs.[9] Now, with more city waterfront infrastructure and coastal resiliency projects in planning, mitigation sites for public projects will be needed. NYC Parks and EDC are currently exploring formal mitigation banking options that public agencies can utilize.

Eligible actions for meeting mitigation requirements also need to be reassessed. Typically, when a project results in unavoidable wetland impacts regulators require creation of new wetlands to offset wetland loss. In NYC, wetland creation is primarily done through fill removal, usually at a ratio of two or three times the area of impact. Today, however, most remaining sites for wetland creation have extremely deep or contaminated fill, making wetland mitigation extremely slow and expensive. This is especially problematic, because in NYC today the pace of salt marsh loss exceeds that of creation. Consequently, several NYC public agencies, and others, are seeking the opportunity to meet mitigation requirements through enhancement actions that could help prevent the loss of existing wetlands. This would have to occur at a higher ratio than wetland creation.

NYC Parks and partners continue to discuss how to address these challenges through mitigation guidance with regulators. There are no written NYSDEC tidal wetlands mitigation guidelines and there have been no updates to the 1993 Freshwater Wetland Guidelines. Existing guidance differs between state and federal agencies and allows for regulator discretion, leading to an appearance of inconsistency. The successful establishment of the mitigation bank for the private market and demand for mitigation credits for public projects highlight a continued need to explore how the mitigation process can more effectively help preserve existing wetlands in the city.[10]

Wetland Restoration - Major investments, due to grants, partnerships and regulations

The restoration goals in PlaNYC, which largely involved completing capital projects, were mostly achieved by the end of Michael Bloomberg's mayoral administration (with remaining projects finished by 2015). This period included the largest investment in wetland restoration from city, state, and federal agencies of the last decades (Table 3), primarily due to existing funding commitments rather than any new initiatives funded under PlaNYC. Restoration and mitigation projects included freshwater wetlands and streams, but the vast majority of the projects were salt marshes. The area of salt marsh restoration and mitigation led by city and state agencies over the last decades is shown in Figure 3. A total of 218 acres of salt marsh were restored (63 acres on NYC Parks property), and 122 acres were created as mitigation across NYC (including 73 acres on NYC Parks property). The largest projects were those restoring over 150 acres of the salt marsh islands in Jamaica Bay National Park, completed by the National Park Service in partnership with USACE and NYC DEP.

[9] NYC agencies are only eligible to purchase credits from the Saw Mill Creek Mitigation Bank if they use funds not derived from the fiscal budget of the City of New York, due to the capital funding already used to develop the bank. Two exceptions were the East Side Coastal Resilience project and the Tottenville Shoreline Protection project.

[10] NAC mitigation report: https://naturalareasnyc.org/wp-content/uploads/2024/11/Wetlands-Mitigation-Report-%E2%80%93-NAC.pdf

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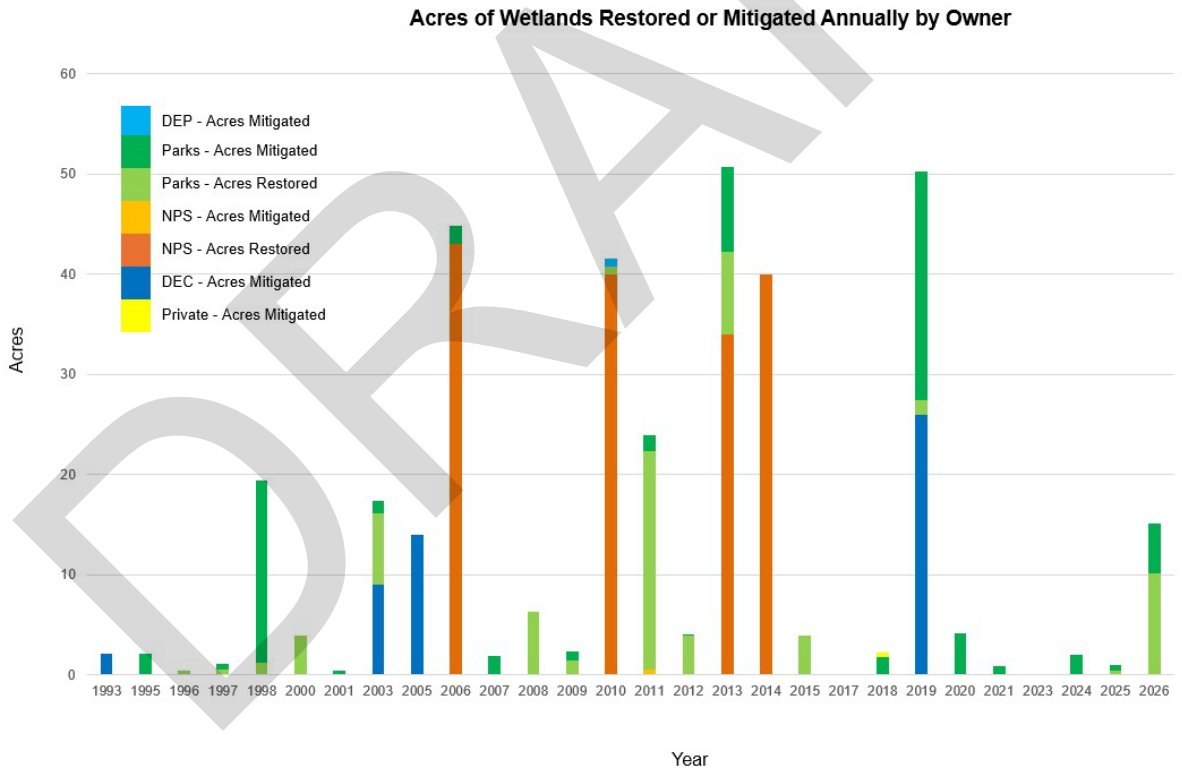
Table 3. Total estimated acres of wetland restored, mitigated and enhanced and approximate costs before, during, and after the initial PlaNYC era, which we define as from 2007, the first PlaNYC, to 2015, the target milestone for most of the wetland restoration referenced in PlaNYC 2007, PlaNYC 2011, and the Wetlands Strategy.[11]

Timeline	Restored (ac)	Mitigation (ac)	Enhancement (ac)	Total (ac)	Total Cost
Pre- PlaNYC (1993-2006)	72	49	4	125	$39,800,000
PlaNYC (2007-2015)	171	14	27	213	$117,600,000
Post-PlaNYC (2016 to 2025)	2	59	53	114	$56,903,855
Totals (ac)	246	122	84	452	$214,378,107

Figure 3. Salt marsh restoration and mitigation projects led by NYC Parks, NYC DEP, NYS DEC and the National Park Service (NPS) across NYC from 1993 to 2025.[12]



[11] Some discrepancies may arise due to differences in how project area or cost is tracked across agencies.

[12] Acreage was estimated from a variety of sources including primarily NYC Parks reports to NY-NJ HEP and the Long Island Sound Estuary programs. Some discrepancies may arise due to differences in how project area or cost is tracked across agencies.

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Beyond implementing restoration projects, continued restoration planning remains critical. NYC worked closely with the NY-NJ HEP and the USACE to draft the Final Hudson Raritan Estuary Comprehensive Restoration Plan (CRP) in 2016, and the Hudson Raritan Ecosystem Restoration Feasibility Study, four years later, to identify 20 priority, large-scale and long-term aquatic habitat restoration opportunities, 14 of which are in NYC (USACE 2020). The CRP and the partnership with USACE brought critical federal funding to ecosystem restoration projects in NYC, with the city serving as the local sponsor and typically providing a 25-35% cost contribution.[13] NYC agencies leveraged this USACE funding to secure additional federal and state grants, as well as additional city funding to complete numerous large restoration projects between 2007 and 2012 (see Table 1). NYC Parks and DEP continue to be active leading members of NY-NJ HEP and its Restoration Work Group developing restoration targets and tracking restoration opportunities and progress across the region.

To better define the remaining restoration opportunities of all sizes within NYC, NYC Parks also worked with the Natural Areas Conservancy (NAC) to document feasible sites in coastal areas (NAC 2016). NYC Parks continues to refine and expand a revised database version of this restoration opportunity inventory.

Wetland Assessment - Improved understanding to inform management

The Wetlands Strategy stated the need for a comprehensive assessment of wetland conditions and threats in NYC to inform appropriate management. Recognizing this need, NYC Parks partnered with The Nature Conservancy, and the NAC to secure funding[14] and conduct an ecological assessment of salt marsh conditions and vulnerability across NYC Parks property (NYC 2019). The assessment determined that over 160 acres of salt marsh had been lost along the parks shoreline between 2014 and 1974; that all of the marshes exhibited signs of degradation; and that fewer than 260 acres of space remained for marshes to migrate inland with sea-level rise (Clough et al. 2014)[15]. NYC Parks identified property that could be critical to acquire for salt marsh conservation in the future, and highlighted the urgency of advancing pilot projects and restoration techniques aimed at preserving and protecting the functions of existing marshes. This ecological assessment also confirmed that, with the slow pace of securing funding and implementing capital projects, the city has not been able to restore or mitigate wetlands at a rate that matches ongoing tidal wetland loss. Thus, the city is still falling short of meeting its goal of no net loss for wetlands.

Monitoring and assessment through U.S. EPA grant funding also helped NYC Parks complete freshwater wetland and stream assessments, as well as a review of past restoration projects and updated restoration guidelines (NYC Parks 2017, 2018, NAC 2019).

Recommendations to update freshwater wetland mapping were initially pursued through a collaboration between the city and Columbia University using remote sensing technology. However, the extensive ground-truthing of this mapping that would be required was not funded, and the goal of state adoption of the map required a regulatory action, which was infeasible for the city to pursue on its own.

[13] USACE ecosystem restoration program authorization is described in Section 206 - Aquatic Ecosystem Restoration of the 1996 Water Resources Development Act

[14] Funding came from the U.S. EPA Wetlands Program Development Grant and the Rockefeller Foundation.

[15] Sea level rise scenarios are taken from the New York City Panel on Climate Change 2010 and 2019.

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The NYC Wetlands Management Framework

In 2021, NYC Parks and the Natural Areas Conservancy's Wetlands Management Framework (WMF) outlined a 30-year roadmap for wetlands management with a focus on those located on NYC parkland. The WMF came to serve as an unofficial update and continuation of the 2012 NYC Wetlands Strategy because it presents a comprehensive set of goals for wetlands in NYC as well as strategies for protection, restoration and management based on the past decade of work. This framework drew on the previous multi-year studies that made a range of recommendations across disparate sites, conditions, and wetland types but did not present a comprehensive statement of need or actions for these ecosystems across the city. Rather, it identified resources needed by NYC Parks to implement management recommendations.

The WMF policy recommendations were to plan for marsh migration; expand sediment placement approaches to retain existing wetlands; invest in permanent staff to manage wetlands and stormwater green infrastructure; and increase monitoring and assessment. All of these recommendations require time and resources, and each is making incremental progress, through pilot projects, opportunistic acquisitions, grant funding, inter-agency collaboration and partner advocacy. The WMF also outlined 19 projects that were a priority for the agency in the near term—over 60 percent are in progress with various levels of funding (Swadek et al. 2021, Table 3).

Many of the wetlands restoration and mitigation projects since the 1990s and included in the WMF relied on removing historical fill as a key strategy for re-establishing the elevations and hydrology to support wetland vegetation. NYC Parks evaluated past salt marsh projects and determined that these projects, which usually involved removal of historical landfill, were largely successful (NYC Parks 2018). However, as the area of remaining undeveloped land on filled wetlands diminishes, and remaining sites have deeper and more contaminated fill material, there are fewer opportunities for this kind of restoration or wetland creation in NYC.

Opportunities to preserve existing marshes, however, are more abundant than ever. The disruption of historical sediment supplied to salt marshes due to dredging, burial of inland streams, and landscape and shoreline hardening for industry has made salt marshes more vulnerable to degradation and erosion from sea level rise. Projects that place sand on existing marshes that are not accreting at the same rate as sea level rise provide a substitute for the natural process of sediment deposition from floodwaters. Placing and planting clean sand on recently exposed mudflat where salt marsh has eroded is another critical nature-based approach for protecting and re-establishing wetlands (sometimes referred to as a living shoreline).

Table 4. Wetland Restoration Actions and cost in NYC over time.

Restoration Action	Completed Restoration Actions		Active Restoration Actions in 2027		Future Restoration Opportunities	
	Acres	Approx. Cost	Acres	Estimated Cost	Acres	Projected Cost
Fill Removal/ Excavation	217.5	$155,903,000	51	$516,328,000	80	$931,664,000
Invasives Removal	45.9	$100,000	1.8	$135,000	40	$16,419,000
Sand Nourishment	160	$54,390,000	17.1	$21,984,000	480	$1,042,227,000

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Waterward Expansion	4	$1,880,000	3.9	$11,982,000	70	$209,718,000
Other Approaches	44.4	$14,205,000	NA	$0	30	$12,159,000
Total	471.8	$226,478,000	73.8	$550,429,000	700	$2,212,187,000

VII. Lessons learned and Challenges for the Future

Recognizing wetlands in a citywide plan matters
PlaNYC, for the first time at the mayoral level, called for wetlands protection to solve water quality and flooding challenges, thereby raising awareness of wetlands for the public and across city agencies. PlaNYC brought together agencies and city partners with various missions, promoting ongoing efforts and new analyses and strategic planning for long-term wetland protection, restoration and management. The mayor-level focus helped align agencies, encourage cooperation, and get funding approval, though dedicated funding was lacking to support some initiatives.

Wetland regulations do not address all threats
Small freshwater wetlands are still vulnerable in NYC. In 2025, New York State increased regulatory protection statewide for wetlands larger than 7.4 acres and all urban wetlands[16]. This would have increased wetlands protection in NYC, and offset the rollback of federal wetland protection under the 2023 Supreme Court decision[17]. In April 2026, however, a NYS court annulled the NYSDEC regulations, and it is not clear how the NYSDEC's remaining statutory authority over wetlands will be implemented.

Salt marshes continue to degrade across the city as vegetated tidal wetlands convert to mudflat. Regulations primarily help prevent impacts from direct dredging and filling. But there are no clear regulatory tools to prevent ongoing loss of tidal wetlands due to sea level rise, altered sediment and hydraulic regimes, water quality degradation, herbivory and other factors. Continued work by city agencies to better map tidal wetlands change over time, as well as to assess where salt marsh has space to migrate landward, will be important to inform future regulations and policy.

Expanding regulatory mitigation actions will help preserve wetlands
In 2012, the Wetlands Strategy highlighted the need for formal mitigation guidance, particularly for tidal wetlands, including more predictable rationale for mitigation ratios and metrics. Today, it is just as important to adapt mitigation regulations to protect and expand existing salt marshes, since the pace of salt marsh loss exceeds that of creation. Currently, hundreds of acres of low lying salt marsh is vulnerable, and would benefit from interventions, or enhancement, to offset erosion and collapse. Enhancement actions could include removing anthropogenic debris that has accumulated on a marsh and placing clean sand on marshes drowning due to sea level rise. The city will continue to need to do mitigation for unavoidable impacts along the waterfront while repairing and upgrading roads, bridges and esplanades and building coastal protection

[16] ECL § 24-0701 *et seq*.; https://www.nysenate.gov/legislation/laws/ENV/24-0701

[17] Sackett v. Environmental Protection Agency narrowed the definition of when a wetland has a nexus to navigable waters: 598 U.S. 651: https://supreme.justia.com/cases/federal/us/598/21-454/

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infrastructure. Expanding mitigation strategies, particularly to preserve existing wetlands in NYC, will become increasingly critical as this resiliency work continues.

Nature-based solutions are needed to protect wetlands

Placing clean sand on collapsing low marsh and recently exposed mudflat where salt marsh has been eroded is an example of a nature-based approach to slowing wetland loss. These can be challenging to implement and permit in part because of the fundamental regulatory prohibition against placing fill in wetlands. To expand the interventions considered restoration, or as eligible for mitigation, regulators will require research and evidence that these actions are effective, sustainable and provide more ecological benefits than the alternatives. Continued research collaborations are needed to assess threats to the city's wetlands from sea level rise and increased flooding and inform restoration needs and promotion of these approaches. By learning how to successfully implement new techniques through adaptive management and where to most successfully and cost-effectively implement the most critical projects, agencies can improve the outcomes of both restoration practices and reduce impacts to existing wetlands from sea level rise, while helping reduce regulatory concerns.

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