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Department of Environmental Protection Releases 2014 Jamaica Bay Watershed Protection Plan

Plan Provides Assessment of Completed and Ongoing Projects as well as Upcoming Initiatives to Improve Water Quality and Restore Natural Ecological Functions within the Bay

Photos of Projects are Available on [DEP's Flickr Page](#)

New York City Department of Environmental Protection (DEP) Commissioner Emily Lloyd today released the 2014 update to the Jamaica Bay Watershed Protection Plan. The plan, first issued in 2007, focuses on water quality improvements, ecological restoration and enhancing valuable natural resources. The update outlines the numerous initiatives DEP has undertaken, along with state and federal partner agencies, environmental advocates, leading educational institutions and community groups, to protect one of the most bountiful wildlife habitats in the Northeastern United States. Ongoing initiatives include wastewater treatment plant upgrades, oyster and ribbed mussel pilot restoration projects, wetlands restoration, green infrastructure projects and Geographic Information System mapping. The updated plan can be viewed on the DEP website [here](#).

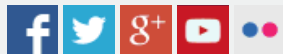
"Jamaica Bay is one of New York City's most unique natural environments and we are committed to protecting and enhancing its overall health and expanding public access," said **DEP Commissioner Emily Lloyd**. "The Jamaica Bay Watershed Protection Plan sets a framework for this critical work that will be accomplished through partnerships between many different levels of government, local educational institutions, environmental leaders and dedicated community

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groups.”

Jamaica Bay is a 31-square-mile water body with a broader watershed of approximately 142 square miles, which includes portions of Brooklyn, Queens, and Nassau County. The bay is a diverse ecological resource that supports multiple habitats, including open water, salt marshes, grasslands, coastal woodlands, maritime shrublands, and brackish and freshwater wetlands. These habitats support 91 fish species, 325 species of birds, and many reptile, amphibian, and small mammal species. Below are updates on some of the ongoing initiatives to protect and enhance the ecological health of Jamaica Bay:

Ribbed Mussel Pilot

In 2011, DEP established a demonstration project of Ribbed Mussels in Fresh Creek, a tributary to Jamaica Bay. Ribbed Mussels are naturally occurring in the Bay and filter water. The project is being monitored to determine whether a more robust population within the center of the channel could remove substantial quantities of impurities from the water, particularly near combined sewer and stormwater outfalls. Monitoring of the mussel colonization density and water quality will continue through late fall of 2014 and a report will be issued in 2015.

Paerdegat Basin Restoration

DEP has restored 52 acres of tidal wetlands and coastal grasslands adjacent to Paerdegat Basin, a tributary of Jamaica Bay. The \$35 million project also included the establishment of a five acre ecology park, which highlights many of the city's ecosystems. This work, in combination with the construction of a \$357 million combined sewer overflow retention facility at the head of the basin, has contributed to significant improvement in Paerdegat Basin water quality.

Wastewater Treatment Plant Upgrades

DEP operates four wastewater treatment plants located along Jamaica Bay or its tributaries that have the capacity to treat up to 240 million gallons of wastewater every day. Nitrogen is a naturally occurring element that is found in food and other organic materials and is present in wastewater when it enters treatment plants. Because nitrogen is not a pathogen and poses no threat to human health, the wastewater treatment plants were not originally designed to remove it from the treated water before it is discharged into the receiving water body. However, high levels of nitrogen can degrade the overall ecology of a waterway by reducing levels of dissolved oxygen and promoting excessive algae growth, especially in warm weather months. At a cost of \$230 million, DEP is implementing advanced technology at the four treatment plants that will reduce daily nitrogen discharges by up to 60 percent.

Science and Resilience Institute at Jamaica Bay

In 2011, the City and the federal government announced a new cooperative agreement to improve the parklands adjacent to the Bay. In 2013, the partners established the Science and Resilience Institute to act as a top tier research center, with invaluable local experience from the region's most respected scientific institutions, which will execute an intensive research program focused on the restoration of Jamaica Bay and advance the role of science in managing resources and building regional resilience to future storms. Earlier this summer, the Institute was awarded a \$7.7 million grant from New York State to build a new center to house the research activities as well as to purchase a new research vessel. It also secured a \$3.6 million grant to support research efforts.

Marsh and Wetland Restoration

Over the last 150 years, Jamaica Bay has lost a significant amount of marsh and wetland areas due to a variety of factors, including sea level rise, dredging and filling throughout the Bay, a loss of sediment, and increased tidal heights. Many of these changes have permanently altered sections of the bay. As such, habitat restoration along the periphery of Jamaica Bay continues to play a significant role in meeting the goals of creating highly productive ecological areas and improved habitat. The City has been leveraging \$7 million of its funds, along with

matching federal and state contributions, to help restore over 150 acres of salt marsh islands. In all, DEP has secured \$14 million in federal and state funding for wetland restoration in Jamaica Bay over the last 6-years. It is expected that the City can leverage another \$8 million to secure an additional \$16 million in matching funding over the next few years. Local communities are also taking a strong role in restoration through funding from the New York State Department of Environmental Conservation and DEP. Non-profit organizations such as EcoWatchers, Jamaica Bay Guardian, and the American Littoral Society have completed a community-based planting effort to vegetate thirty new acres created at Black Wall and Rulers Bar in June 2013.

Marsh Island Wave Attenuator Study

DEP will construct a floating wetland wave attenuator at Brant Point along the southern shoreline of Jamaica Bay. A wave attenuator is an anchored island of floating material offshore of a wetland or shoreline which deflects and reduces the energy of waves. The pilot study will evaluate the potential for wave attenuation on a specific section of eroding wetland shoreline to investigate the growth of beneficial wetland building sediments and the anticipated decreased rate of shoreline loss. The temporary floating wetland structures will be a "proxy" for potential future oyster beds around wetlands to evaluate their wave energy reduction value. DEP has obtained the permits needed for construction to proceed and it is expected that work will begin later this year or in early 2015. Once completed, the attenuator and adjacent shoreline will be monitored for a period of time and the data will be included in a summary report.

Belt Parkway Green Infrastructure Installations

DEP is partnering with the New York City Department of Transportation to build green infrastructure along the medians and shoulder areas of the Belt Parkway. The stormwater that falls on the Parkway, including its bridges, rather than be diverted directly into the Bay and its tributaries, is directed to the green infrastructure where it can be naturally absorbed into the ground. During construction, the installations are excavated and then backfilled with layers of stone and engineered soil. These layers contain void spaces that store the stormwater and promote infiltration. The addition of hardy plants further encourages infiltration through root growth and increases its capacity through evapotranspiration. In addition to naturally filtering and absorbing excess stormwater, the green infrastructure provides important habitats for native plants. Construction is complete at the Paerdegat and Rockaway sites and preliminary observations indicate that they are meeting project objectives. Similar installations for the Gerritsen Bridge are being planned.

Jamaica Bay Watershed Green Infrastructure

DEP is currently engaged in a citywide effort to soften the impervious urban landscape to help absorb rainwater that would otherwise drain into the combined sewer system and contribute to combined sewer overflows into local waterways. A focal point of this effort is the installation of specially designed curbside gardens, or bioswales, in sidewalks throughout neighborhoods that are served by combined sewers, including the Jamaica Bay watershed. The bioswales resemble standard street tree pits, except that they vary in size, have curb cuts that allow stormwater to enter and overflow, and have been designed in a way that will allow them to manage between 1,300 and 3,000 gallons each during a storm. The construction of bioswales throughout the Jamaica Bay watershed will accelerate significantly in 2014-2015.

Area-Wide Sewer Upgrades

The post-World War II commercial and residential development of southeast Queens outpaced the extension of the City's sewer system and many neighborhoods in the area are not yet equipped with catch basins or storm sewers to drain precipitation from the roadways. The multi-year, \$6 billion effort to construct a comprehensive storm sewer system for the area includes projects such as the final stages of the \$175 million Springfield Gardens upgrade that will

bring nine miles of storm sewers and eight miles of sanitary sewers to the area, a \$26 million upgrade for the Brookville Boulevard area, an \$18 million project that will bring high level storm sewers to the Twin Ponds neighborhood, and a \$5 million project to install an additional sewer line under 183rd Street at Jamaica Avenue.

Oyster Bed Pilot

The restoration of oyster colonies within Jamaica Bay could potentially help regenerate the natural environment of the Bay and also improve water quality. To evaluate whether environmental and climactic conditions are suitable for oyster growth in the Bay, DEP installed an oyster bed off of Dubos Point in Queens and oyster reef balls in Gerristen Creek, in Brooklyn. Monitoring showed adequate conditions for oyster survival and growth and they did in fact reproduce over several years, although there was no sign of new oysters joining the colonies. With \$1 million in new funding obtained through the Hurricane Sandy Resiliency Grant Program, the pilots will be scaled up to a half-acre in size in early 2015.

Jamaica Bay Watershed Ecological Atlas

To better inform area-wide wetland protection programs, DEP has developed a Geographic Information System (GIS) based Jamaica Bay Watershed Ecological Atlas. It provides a complete and updated inventory of all vacant City-owned properties and a characterization of their habitat and stormwater attributes, a GIS-mapping and data layer that can be used to develop and leverage future stormwater management ecological restoration designs, and a prioritized list and map of potential sites for stormwater management and ecological restoration and conservation. The Atlas will be available on DEP's website later this fall.

The 2007 Jamaica Bay Watershed Protection Plan was the result of research and dialogue with stakeholders and consultation with the Jamaica Bay Watershed Protection Plan Advisory Committee. The plan was undertaken in accordance with Local Law 71, which requires DEP to assess the technical, legal, environmental and economic feasibility of protection measures for Jamaica Bay and produce a report every three years. A portion of the money used for the marsh and wetland restoration projects was from environmental benefit funds paid by the City as part of the resolution of an enforcement matter brought by the State pursuant to the First Amended Nitrogen Consent Judgment.

DEP manages New York City's water supply, providing more than one billion gallons of water each day to more than nine million residents, including eight million in New York City. The water is delivered from a watershed that extends more than 125 miles from the city, comprising 19 reservoirs and three controlled lakes. Approximately 7,000 miles of water mains, tunnels and aqueducts bring water to homes and businesses throughout the five boroughs, and 7,500 miles of sewer lines and 96 pump stations take wastewater to 14 in-city treatment plants. DEP has nearly 6,000 employees, including almost 1,000 in the upstate watershed. In addition, DEP has a robust capital program, with nearly \$14 billion in investments planned over the next 10 years that will create up to 3,000 construction-related jobs per year. This capital program is responsible for critical projects like City Water Tunnel No. 3; the Staten Island Bluebelt program, an ecologically sound and cost-effective stormwater management system; the city's Watershed Protection Program, which protects sensitive lands upstate near the city's reservoirs in order to maintain their high water quality; and the installation of more than 820,000 Automated Meter Reading devices, which allow customers to track their daily water use, more easily manage their accounts, and be alerted to potential leaks on their properties. For more information, visit nyc.gov/dep, like us on Facebook at [facebook.com/nycwater](https://www.facebook.com/nycwater), or follow us on Twitter at twitter.com/nycwater.

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