50,000 Oysters Being Installed in Jamaica Bay to Help Improve Water Quality and Protect Wetlands

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Oyster beds will be composed of broken porcelain, harvested from recycled toilets as part of City's Water Conservation Program

Oyster beds deflect and reduce the energy of waves, helping to protect critical wetlands

50,000 oysters contribute to the Harbor School's Billion Oyster Project

Photos of the project are available on DEP's Flickr Page

NEW YORK––Mayor Bill de Blasio and the Department of Environmental Protection (DEP), in partnership with the Billion Oyster Project, today announced that a project is underway that will see the installation of 50,000 oysters in Jamaica Bay – the largest single installation of breeding oysters in New

York City.

The New York/New Jersey Harbor was once blanketed by oysters, but due to over harvesting, dredging and pollution, they became functionally extinct decades ago. Oysters are widely recognized as a key component of a healthy marine ecosystem as they filter pollutants from the water, help to protect wetlands and shoreline from erosion and storm surge, and provide habitat for communities of fish and other aquatic organisms. Once the oyster installation is complete, water quality in the vicinity of the beds will be monitored for anticipated improvements in dissolved oxygen, nitrogen removal and turbidity. In addition, the beds will be evaluated for the recruitment of new oysters. The project is being funded with a $1 million grant from the U.S. Department of Interior, which is administered by the National Fish and Wildlife Foundation (NFWF). DEP is contributing $375,000. The Billion Oyster Project and students from the Urban Assembly New York Harbor School will assist with the installation and monitoring of the oyster beds.

“This oyster bed will serve multiple purposes – protecting our wetlands from erosion, naturally filtering our water and providing a home for our sea dwellers are just a few. More broadly, this oyster bed is a small but necessary step in our broader OneNYC commitment to create a more sustainable and more resilient City. I’d like to thank the Billion Oyster Project and the students of the Urban Assembly New York Harbor School for assisting us in the installation of this oyster bed,” said **Mayor Bill de Blasio**.

“Jamaica Bay is one of our city’s greatest natural assets and supports vital natural resources of regional significance,” said **Dani el Zarrilli, Senior Director for Climate Policy and Programs and Chief Resilience Officer for the Office of the Mayor.** “Today’s announcement is a critical step in the effort to restore healthy oyster populations in the bay. Not only are we protecting critical wetland habitats and demonstrating the resiliency dividend of natural infrastructure as we are preparing the waterfront communities around Jamaica Bay for the impacts of climate change, we are also building the next generation of environmental stewards. The City’s partnership with the Billion Oyster Project is a great example of the creative collaboration that is necessary to enhance the resiliency of the city’s waterways.”

“Jamaica Bay is one of New York City’s most treasured natural environments, and we are excited to begin work with our partners on the establishment of the largest oyster bed installation in the Bay to date,” said **DEP Acting Commissioner Vincent Sapienza**. “Water quality monitoring and prior pilot projects show that oysters can survive in Jamaica Bay, and we hope this research effort will demonstrate that recruitment of new oysters and the establishment of a self-sustaining oyster population is within reach.”

“Restored oyster reefs are the foundation of an ecologically robust estuary, and participating in the launch of this effort alongside DEP, the Hudson River Foundation, Cornell Cooperative Extension, and HDR Inc., is a real thrill,” said **Katie Mosher-Smith, Billion Oyster Project’s Restoration Manager**. “The participation of skilled young vessel operators and aquaculture technicians from New York Harbor School expands the reach of this environmental effort, building a stronger community that understands the need and has the know-how to sustain restoration of their own heavily urbanized coastline."

“This innovative project will buffer New York from future storms; it will help clean up the water in the bay; and it will create wildlife habitat,” said **NFWF’s Northeastern Director Amanda Bassow**. “That’s a tremendous win, and exactly the kind of resilience solutions the Hurricane Sandy Coastal Resiliency Program hoped to inspire.”

"More oysters can mean more coastal resiliency, cleaner water and healthier ecosystems," said **State Senator Daniel Squadron**. "That's why I've supported the Billion Oyster Project since the beginning, and I am so excited the City is getting behind it with the Jamaica Bay installation – hopefully the first step in reaching a billion oysters across the New York Harbor. Thank you to the City, NFWF, DEP, Billion Oyster Project and the Harbor School, and colleagues."

Council Member Costa Constantinides, Chair of the Committee on Environmental Protection, said, "Installing oysters in Jamaica Bay will bring long-lasting ecological, environmental and biological effects to our waterfront. As a city surrounded by water, we must make sure we take care of our greatest resource. The 50,000 oysters will filter pollutants, help prevent erosion, and protect our wetlands. This innovative project will help improve our city's environment while teaching students about urban ecology and marine life. I thank DEP and the Billion Oyster Project for their leadership, as well as the National Fish and Wildlife Foundation for this grant."

"The restoration of oysters back into the waters of Jamaica Bay is one of the key remaining goals to fully restore this great and unique ecosystem,” said **Dan Mundy, Jamaica Bay Ecowatchers**. “This vital species naturally filters the waters of the Bay while providing unique habitat for fish. DEP is to be commended for taking the leading role on this critical effort. This project will see the first major initiative to bring back this keystone species to Jamaica Bay where they once flourished!”

"DEP has been a leader in promoting and conducting projects that help improve water quality in Jamaica Bay,” said **Don Riepe, Jamaica Bay Guardian, American Littoral Society**. “Restoring oyster populations to the Bay is another example of their long-term commitment to one of New York City's major natural ecosystems.”

“Jamaica Bay is home to a tremendous amount of wildlife as well as to many New Yorkers,” said **Adam Parris, Executive Director of the Jamaica Bay Science and Resiliency Institute**. “This is an exciting opportunity to advance science that can be used to revitalize and transform Jamaica Bay. Oysters have been shown to improve water quality and ecosystem health in other locations, and it can provide an important teaching tool to residents living near wetland habitats about the environment. We look forward to working with DEP and BOP to bring awareness to vital inhabitants of Jamaica Bay, like oysters and wetlands, and overall, promote resilience in coastal communities in New York City.”

The installation will include a central donor bed composed of 50,000 adult and spat-on-shell oysters as well as four smaller receiving beds composed of clam/oyster shell and broken porcelain. The porcelain was harvested from nearly 5,000 inefficient toilets that were recycled from the citywide water conservation

program. Having reached reproductive maturity, it is anticipated that the adult oysters will spawn. The resulting fertilized eggs will grow as free-floating larvae in the water column until the young oysters will attach themselves to the shells of the parent oysters on the donor bed or onto any one of the four receiver beds. With successful establishment and recruitment, the donor bed and the receiving beds are anticipated to show a measurable increase in oyster larvae attachment as well as an increase in the growth of mature oysters. Once established, the hope is that the oysters will become self-sustaining, spawning seasonally and providing new recruits.

Existing water quality monitoring at the site of the oyster beds will serve as a baseline for future comparison. This includes temperature, pH, salinity, conductivity, turbidity, dissolved oxygen and chlorophyll. Monitoring will continue for two years after the installation of the beds in order to establish water quality benefits provided by the oysters. Measurements will also be taken to better understand the rate at which the oysters are removing nutrients from the water.

Beginning in 2010, DEP conducted two oyster reintroduction pilot studies within Jamaica Bay – the design and construction of an oyster bed off of Dubos Point, Queens, and the placement of oyster reef balls in Gerritsen Creek, Brooklyn. These pilot projects were conducted to evaluate whether climatic and environmental conditions within the bay are suitable for oyster growth, survival and reproduction. The study also measured how effective the bivalves are at filtering various pollutants that affect the Bay, such as nitrogen, other nutrients, and particulate organic matter.

After four years, an analysis showed that many of the oysters were still alive and appeared healthy. Monitoring results also showed adequate environmental conditions for oyster growth and survival within Jamaica Bay, including water quality within normal tolerances for the eastern oyster. The results also indicated that the oysters had reproduced. In addition, an increase in biodiversity was observed, including many species using the pilot sites for breeding and feeding amongst the establishment of new plants. However, no recruitment of new oysters was observed. It is believed that the lack of recruitment is mainly due to the relatively small size of the pilot sites and the overall lack of oyster populations in and around Jamaica Bay and the New York/New Jersey Harbor.

The oyster bed and reef balls that were placed in Jamaica Bay were small pilot studies to determine if oysters could survive and reproduce. The next step in restoring oysters in Jamaica Bay is to determine the effect of placing larger oyster beds in areas that could protect salt marshes from further erosion while improving water quality. It has been well documented that marshes and shorelines are eroding at an accelerated rate in Jamaica Bay due to a number of changes over time, including dredging and filling and climate change. Efforts are underway to restore some of the lost marshes. This study would test the effectiveness of living shorelines in the form of a relatively large oyster bed to slow erosive forces on these habitats.

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. To learn more, visit DEP's Jamaica Bay Watershed Protection Plan which 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 Unites 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.

DEP manages New York City's water supply, providing approximately 1 billion gallons of water each day to more than 9 million residents, including 8.5 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 a planned $14 billion in investments 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 will 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, or follow us on Twitter.

The mission of Billion Oyster Project is to restore a sustainable oyster population and reignite a passion and appreciation for New York Harbor by engaging New Yorkers directly in the work of restoring one billion oysters. The hands-on science of reef construction and monitoring is executed through in-school, restoration based education, citizen science, restaurant shell collection and volunteer programs.

Billion Oyster Project is an initiative of New York Harbor Foundation, which also supports the programs of Urban Assembly New York Harbor School. On September 16, 2016, the Harbor Foundation will hold the Sixth Annual New York Harbor Regatta and Regatta Bash to help fund the work of BOP and the School. For tickets, visit www.nyharborregatta.com/tickets; for more information about BOP, visit billionoysterproject.org,like uson Facebook, orfollow uson Twitter and Instagram.

Chartered by Congress in 1984, the *National Fish and Wildlife Foundation* (NFWF) protects and restores the nation's fish, wildlife, plants and habitats. Working with federal agencies, corporations, foundations and individual partners, NFWF has funded more than 4,500 organizations and committed more than $3.5 billion to conservation projects. Learn more at www.nfwf.org.