

NEW YORK STATE

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The Fishing is Great in New York State

**New York's Native Pollinators
Return of the Whip-poor-will
American Shad Recovery**



Team visiting the successful Elders West marsh island restoration project in Jamaica Bay, New York.

RESTORING THE HUDSON RARITAN ESTUARY

Partners Work to Reverse More Than a Century of Industrialization

BY JOANNE CASTAGNA

I have a vivid memory as a child while living in Brooklyn, New York in the 1970s. I'm in the car with my family and we're driving along the Belt Parkway, when suddenly the vehicle fills with a familiar stench that tells me we've reached Jamaica Bay. I hold my breath and look out the window. I see a mountain of raw garbage—a dump 100 feet high, with tiny bulldozers plowing through it, hungry seagulls circling the top, while contaminated soil falls into the bay.

Today, the dump and pungent smell are gone, but not the negative effects it's had on the bay. However, the estuary is slowly improving with work being performed by the United States Army Corps of Engineers (Army Corps), New York District.

Working with community partners, the Army Corps is using funds from the Bipartisan Infrastructure Law (BIL) to restore the degrading Hudson Raritan Estuary in New York and New Jersey. This project fulfills some of the goals of the BIL, which was passed in spring 2022 by Congress and signed into law by President Biden. The BIL is providing investments in the transportation sector: improving public safety and climate resilience; repairing and rebuilding roads and bridges; improving public transportation (including rail and freight efficiency and safety); creating jobs across the country; and delivering a more equitable future.

The Army Corps received funding that will be applied to more than 500 projects throughout the United States. The Army Corps' New York District will be applying these funds to a number of projects, including the Hudson Raritan Estuary New York and New Jersey Ecosystem Restoration Project. The Hudson Raritan Estuary is

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Landfill operations at Jamaica Bay, New York, in 1973

located within the boundaries of the Port District of New York and New Jersey, and is within a 25-mile radius of the Statue of Liberty National Monument.

An estuary is a partially enclosed, coastal waterbody where fresh water from rivers and streams mixes with salt water from the ocean. Estuaries can include a variety of habitats, including salt marshes, mangrove or maritime forests, mud flats, tidal streams, rocky intertidal shores, reefs, and barrier beaches. The Hudson Raritan Estuary is a complex ecological system located within a highly urbanized region of 20 million people that includes the New York Harbor, rivers, wetlands, coastlines, and open waters.

Over the years, industrialization has degraded the Hudson Raritan Estuary—1,000 miles of its natural shorelines have been replaced with piers, docks, and bulkheads. This industrialization has destroyed some of the naturally sloped shorelines that provide habitat for fish and other marine life. Restoring the estuary is important because the ecosystem provides habitat for birds, fish, shellfish, and other wildlife. The estuary also maintains water quality by filtering out contaminated sediments, provides recreational opportunities, boosts the region's economy, and acts as a buffer from flooding for coastal communities during destructive and powerful storms.

Lisa Baron, project manager of the United States Army Corps of Engineers, New York District, explained, "The plan for the overall Hudson Raritan Estuary Program is to restore a mosaic of 621 acres of habitat at 20 project sites. These projects will restore estuarine and freshwater wetlands, shorelines, fish passages, oyster reefs, shallow water habitats, coastal forests, and Jamaica Bay marsh islands, while providing ecological and societal benefits to the region."

The BIL funds will help kickstart several projects during the next few years. This article highlights two of these projects in New York State: the Stony Creek Marsh Island Restoration Project in Jamaica Bay; and the Bronx Zoo and Dam and Stone Mill Dam Restoration Project in the Bronx.

USACE



Aerial photo of the restoration project in Jamaica Bay, New York.

Stony Creek Marsh Island Restoration Project

Jamaica Bay is located in portions of the boroughs of Brooklyn and Queens in New York City. It is part of the Jamaica Bay Park and Wildlife Refuge, the country's first national urban park and one of the Gateway National Recreation Areas visited by millions of people each year.

The bay covers 26 square miles and opens to the Atlantic Ocean. The land surrounding the bay is heavily developed and includes John F. Kennedy International Airport, the Belt Parkway, and several closed landfills, including the ones I saw as a child, the Fountain Avenue and Pennsylvania Avenue landfills.

Inside the bay, there is a marsh island complex. During the last century, these once vibrant islands have been rapidly disappearing, resulting in extensive habitat loss. Since 1924, more than 2,000 acres of marsh islands and 85 percent of the wetlands have been lost.

In general, historic wetland loss in the region is due to human development, including the filling in of marshes and open water areas, hardening of shorelines, the discharge of raw and treated sewage, sewer overflows, and landfill leachate (water containing contaminants seeping from landfills). The disappearing marshes pose a threat to wildlife and coastal communities.

It had been estimated that the marsh islands, if left alone, would vanish completely by 2025. Fortunately, due to work the Army Corps conducted over the years, this

won't happen. The Army Corps, along with partnering agencies, has restored approximately 180 acres of marsh in Jamaica Bay through a number of successful restoration projects.

According to Baron, "Restoring these marsh islands provides significant benefits to the region, and combats many of the reasons for their loss. The restored marsh islands keep the sediment within the Jamaica Bay system: wetland vegetation stabilizes the island; the islands reduce waves and erosion of surrounding shorelines and adjacent islands; the wetlands improve water quality within the bay; and the marsh islands that we construct will continue to build the ecological resilience of the bay to respond to increasing sea level rise."

Now with BIL funds, the Army Corps, in collaboration with the New York City Department of Environmental Protection, will restore 62 acres of Stony Creek Marsh Island, which sits in the heart of Jamaica Bay. To perform this work, approximately 150,000 cubic yards of sand will be beneficially used from the dredging of the Jamaica Bay Federal Navigation Channel or Ambrose Channel and placed on the island.

The material will be graded and contoured to appropriate elevations suitable for a marsh and then planted with native vegetation. When completed, the island will have 26 acres of low marsh, 22.5 acres of high marsh, 3.5 acres of scrub-shrub wetland, 8.7 acres of shallow marine habitat, and 1.4 acres of tidal channels or narrow inlets.

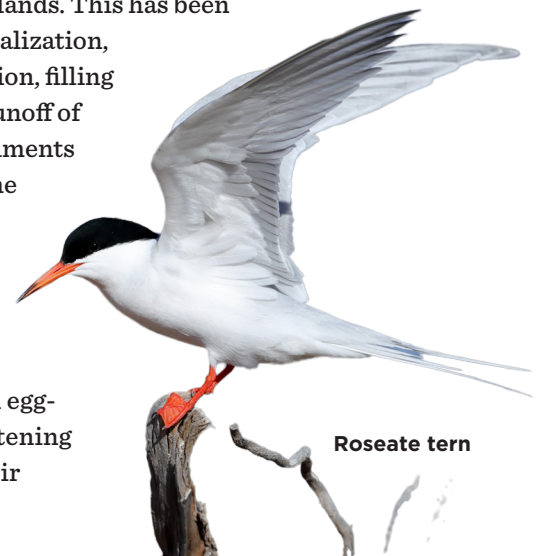
This will create a healthy marsh for one of the most biodiverse regions in the Northeastern United States. Jamaica Bay provides critical spawning and nursery habitat for more than 80 migratory and estuarine fish species, as well as terrapins and four species of endangered or threatened turtles. In addition, 300 bird species—20

percent of the nation's birds—call the bay their home and visit it every year, as a stopover along the Atlantic Flyway migration route to their breeding grounds. These birds include the federally threatened piping plover and endangered roseate tern.

Bronx Zoo and Dam, and Stone Mill Dam Restoration Project

Another project that will help preserve critical spawning and nursery habitats is the Bronx Zoo and Dam and Stone Mill Dam Restoration Project, located in the Borough of the Bronx, New York City. These two dams are located close to each other along the Bronx River, which flows through highly urban communities that include roads, parking lots, the Bronx River Parkway, the Metro North Harlem commuter rail line, the Bronx Zoo, and the New York Botanical Garden.

Over the years, the Bronx River's complex ecosystem has degraded, losing more than 99 percent of its freshwater wetlands. This has been caused by industrialization, channel modification, filling of wetlands, and runoff of contaminated sediments from roadways. The construction of these two dams have created barriers to fish movement upstream to reach egg-laying sites, threatening the survival of their populations.



Roseate tern

United States Army Corps of Engineers, New York District

The United States Army Corps of Engineers' mission is to deliver vital public and military engineering services; partnering in peace and war to strengthen our nation's security, energize the economy, and reduce risks from disasters.

The New York District is responsible for the United States Army Corps of Engineers' water resource development, navigation, and regulatory activities in northeastern New Jersey, eastern and south-central New York State, including the New

York Harbor and Long Island, and parts of Vermont, Massachusetts, and Connecticut. The District is also responsible for design and construction at United States Army and Air Force installations in New Jersey, New York, and Greenland.

The District's area of responsibility encompasses more than 20 million people spread throughout 37 congressional districts. The District's civil works water resource development projects span eight major river basins and Lake

Champlain, the Port of New York/New Jersey, and 400 miles of coastline. The projects entail the planning and construction of environmental remediation projects, responding to military contingencies and civil emergencies, regulating impacts to wetlands and navigable waterways, and providing real estate support services to nearly 400 United States Armed Forces recruiting stations and numerous military installations.



Stone Mill Dam

Now with BIL funding, the Army Corps, in collaboration with New York City Parks and Recreation, will provide fish access and connections to key spawning and nursery habitats upstream. The work will remove or modify fish passage barriers, which may include installing fish ladders and opening or removing the dams at both locations to allow fish access to and from an additional seven miles of upstream habitat.

Providing habitat for migratory fish is important socially, economically, and ecologically. Migratory fish, such as river herring, are a source of food for birds, including great blue heron and osprey, and commercial fish, such as striped bass, cod, and haddock, whose populations have been declining. These and many other fish and wildlife species will benefit from better connections between Bronx waterways and upstream rivers.

In addition, the river and its shoreline will be improved. This will include restoring the bottom of the channel, removing invasive plant species, like knotweed, and replacing it with vegetation that will improve wildlife habitat and stabilize the shoreline to prevent soil erosion.

Today, when I drive past Jamaica Bay, I'm instinctively prepared to be struck by that putrid dump smell and to hold my breath, but instead I'm stunned by the change that's occurring in the area. The landfills have been closed and are now a 400-acre, 130-foot-high New York State Park. Instead of seagulls hunting for food, families picnic on wooden tables, and instead of toxic soil leaking into the bay, there is a healthy mix of trees, shrubs, and wildflowers growing along the park's walking paths and grounds.



Galvin Brothers

Picnic area at Shirley Chisholm State Park in Brooklyn. Former site of the Fountain Avenue and Pennsylvania Avenue landfills in Jamaica Bay.

Park visitors also have spectacular panoramic views of the Empire State Building to the northwest, the Verrazano-Narrows Bridge and New York Harbor to the west, and Jamaica Bay to the south. As restoration work moves forward on the Hudson Raritan Estuary New York and New Jersey Ecosystem Restoration Project, the views of the bay are sure to take the breath away of future generations, in a good way.

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