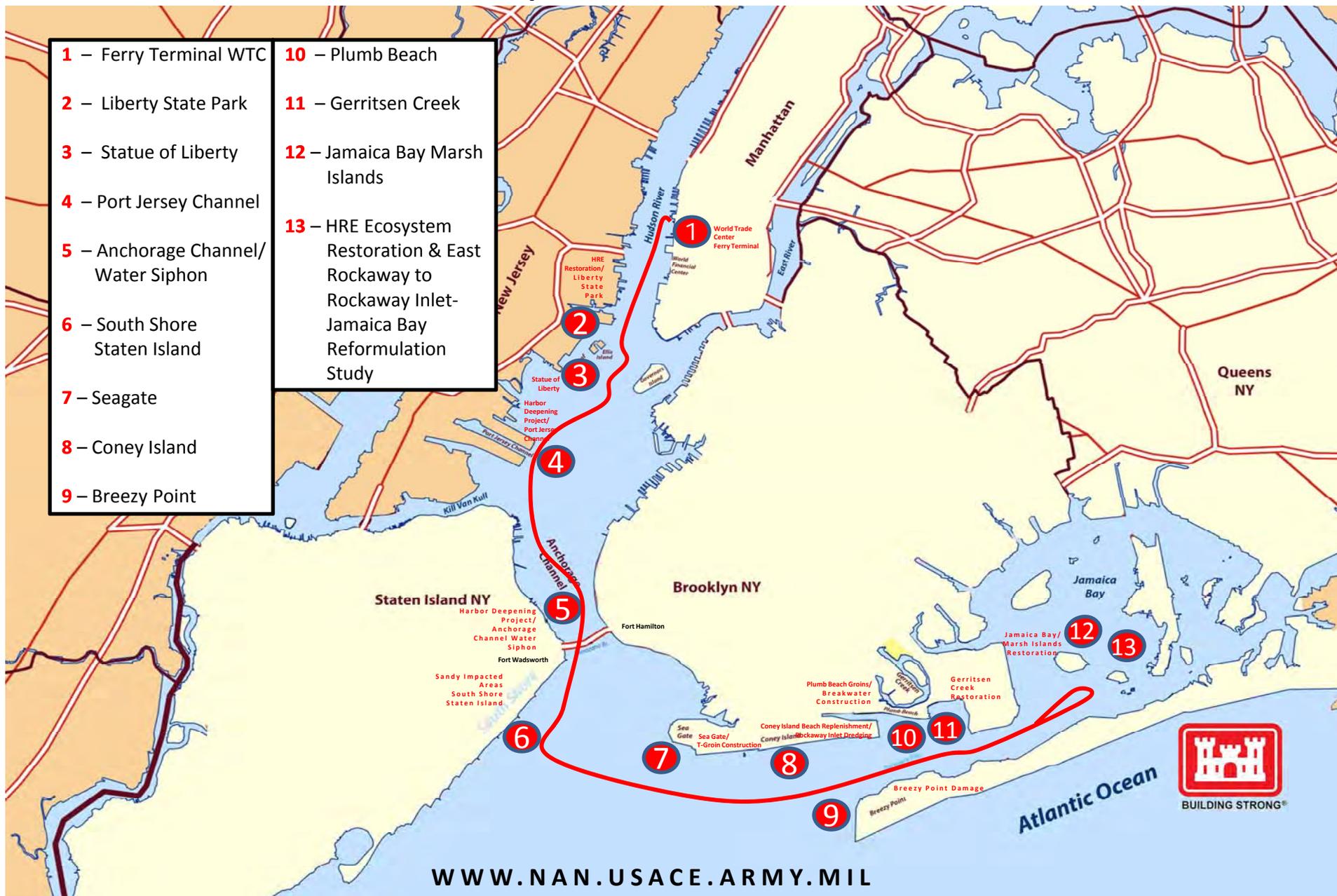


Harbor Inspection Points of Interest

- | | |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 1 – Ferry Terminal WTC | 10 – Plumb Beach |
| 2 – Liberty State Park | 11 – Gerritsen Creek |
| 3 – Statue of Liberty | 12 – Jamaica Bay Marsh Islands |
| 4 – Port Jersey Channel | 13 – HRE Ecosystem Restoration & East Rockaway to Rockaway Inlet-Jamaica Bay Reformulation Study |
| 5 – Anchorage Channel/Water Siphon | |
| 6 – South Shore Staten Island | |
| 7 – Seagate | |
| 8 – Coney Island | |
| 9 – Breezy Point | |





**US Army Corps
of Engineers®**

New York District
BUILDING STRONG®

Harbor Inspection Itinerary Tuesday, September 9, 2014



0715 Boarding at Caven Point
Safety Briefing for the *Hayward*

0800 MV *Hayward* departs Caven Point *Hayward's* Cell Phone #917-567-9062

0845 Boarding at Ferry Terminal at World Financial Center

0915 Departure for Jamaica Bay Inspection

Welcome.....Col. Paul Owen, Commander
Safety Brief.....Brian Aballo, Master, Hayward
Senior Partner Remarks.....

0945 Photo

Harbor Operations Overview.....Mr. Thomas Creamer
Chief, Operation Division

Civil Works/Harbor Program Overview.....Mr. Joseph Seebode
Deputy District Engineer for Programs and Project Management

Sandy Recovery Program Overview.....Mr. Anthony Ciorra
Chief, Coastal Restoration and Special Projects

Points of Interest

- 2 Hudson Raritan Estuary Ecosystem Restoration & Liberty State Park....Lisa Baron, Project Manager
- 4 Harbor Deepening Project, Port Jersey Channel, and Water Siphon
(last impediment to 50 ft. usage).....Bryce Wisemiller, Project Manager
- 5 South Shore Staten Island Feasibility Study.....Anthony Ciorra
- 7 Sea Gate-Coney Island Project Improvement.....Dan Falt, Project Manager
- 10 Plumb Beach Restoration, Groins and Breakwater
- 11 Gerritsen Creek Restoration
- 13 East Rockaway-Jamaica Bay Reformulation Study
- 13 Jamaica Bay Restoration (Perimeter sites and Marsh Islands).....Lisa Baron

1300 Depart Jamaica Bay (could be sooner)

1430 Return World Financial Center Ferry Terminal. Discharge Guests.

1500 Return to Caven Point. Discharge Guests.



Hudson-Raritan Estuary Liberty State Park, New Jersey Ecosystem Restoration

September 2014

U.S. ARMY CORPS OF ENGINEERS

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DESCRIPTION

Liberty State Park (LSP) is located in Jersey City, Hudson County, New Jersey, on the western side of Upper New York Bay. The project site is 234 acres of undeveloped semi-degraded parkland within a fenced area of LSP. LSP was built upon a former rail yard whose habitat has degraded over decades by fill, converting wetland habitat into an upland environment. Today, Liberty State Park is an extraordinary and unique public resource located in a metropolitan region of 20 million population, with five million visitors annually. The restoration of the 234 acre interior section will provide



substantial benefit to all 1,121 acres by linking previously restored components of the park into one cohesive whole. The restoration project will include the creation of 46 acres of salt marsh, 26 acres of freshwater wetlands, 50 acres of grasslands, and the enhancement of 100 acres of urban hardwood and maritime forest. This restoration will significantly enhance the ecological value of the wetlands, create habitat for fish and water birds, freshwater wetlands will restore bio-diversity to park habitat, habitat will provide for treatment of runoff and enhance the habitat for listed species.

With over five million visitors per year, two educational facilities, and existing relationships with several universities, Liberty State Park provides an unparalleled forum for the study and enjoyment of public open space and should be used as a model for the integration and maintenance of diverse habitat structure in an urban context.

PROJECT AUTHORIZATION

Liberty State Park constitutes the first interim response to the Hudson-Raritan Estuary Environmental Restoration Feasibility Study (HRE-Overall). The study was authorized by a resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives, dated 15 April 1999, Docket 2596. The Port Authority of New York and New Jersey is the non-Federal sponsor for the HRE-Overall study; the State of New Jersey will be the sponsor for LSP construction. The project was authorized in Water Resources Development Act (WRDA) 2007, Section 1001(31)



STATUS

The Feasibility Report and Environmental Impact Statement for Liberty State Park was completed in fall 2005, and approved by HQ. Chief of Engineers report issued in Aug 2006. Authorized in WRDA 2007. Contingent upon funding, next step is Pre-Construction Engineering and Design (PED) Phase. The New Jersey Department of Environmental Protection (NJDEP) will be the non-Federal sponsor for the project and has advanced the Pre-construction and Engineering Design (PED) phase for the freshwater wetlands through the USACE Interagency and International Services (IIS) Program. Contingent upon funding, construction could begin at Liberty State Park at any time.

Liberty State Park Restoration Project has not been appropriated since Office of Management and Budget (OMB) notified the Assistant Secretary of the Army in January 2009 indicating that the project was inconsistent with the policy and programs of the President. Currently, the Liberty State Park Project is being updated through the Hudson Raritan Estuary Feasibility Study where the selected design is being optimized and the costs are being updated. These activities should be effective to overcome the prior determination and subsequently be eligible for appropriations.

PROJECT COST

Estimated Federal Cost (65%) \$22,588,150
Estimated Non-Federal Cost (35%) \$12,162,850
Total \$34,751,000

CONTACT

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CONGRESSIONAL INFORMATION

NJ U.S. Sen. Robert Menendez
NJ U.S. Sen. Corey Booker
NJ-13 Rep. Albio Sires



New York & New Jersey Harbor (50 ft Deepening) Navigation Project

September 2014

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

DESCRIPTION (PROJECT AREA AND PURPOSE)

The Port of New York and New Jersey is the largest port on the East Coast and provides over 296,000 jobs and \$28.9 billion in personal income to the states of New York and New Jersey. The Port of New York and New Jersey comprises the waterways in the estuary of the New York-Newark metropolitan area with a port district encompassing an area approximately within a 25-mile radius of the Statue of Liberty. Through the Port's major container terminals waterborne cargo moves to all parts of the United States and throughout the world. Two of the terminals are located in New Jersey: Port Newark/Port Elizabeth and the Port Jersey Global Marine Terminal, and two are located in New York: New York Container Terminal in Staten Island and South Brooklyn Marine Terminal (deferred).



The container port by tonnage is the third largest in the Nation and the busiest on the East Coast. In 2010 4,811 ships entered the harbor transporting over 32.2 million metric tons of cargo valued at over \$175 billion. The Port is well connected via rail, truck, and inland waterway routes to transport goods to large segments of the northeast and mid-western states. The Port of New York and New Jersey receives container ships from the Far East, Atlantic and Gulf Coasts, the Caribbean, Africa and Persian Gulf. Prior to the initiation of the Harbor Deepening Program, channels to the Harbor were inadequate to provide access to the large post-Panamax ships, which have drafts of 48 feet or more.

PROJECT AUTHORIZATION

Section 101(a)(2), Water Resources Development Act of 2000 (P.L. 106-541)

AUTHORIZATION PROJECT

The project area is the main navigation channels in the Port of New York and New Jersey that support the container terminals. The non-federal partner is The Port Authority of New York & New Jersey.



The authorized project provides 50 ft water access to the four container terminals by deepening Ambrose Channel from deep water in the Atlantic Ocean to the Verrazano-Narrows Bridge, the Anchorage Channel (from the Verrazano-Narrows Bridge to its confluence with the Port Jersey Channel), the Kill Van Kull Channel, the main Newark Bay Channel to Pt. Elizabeth and the Port Elizabeth and South Elizabeth tributary channels, the Arthur Kill Channel adjacent to the New York Container Terminal), and the Port Jersey Channel. Also authorized but deferred is the deepening of the Bay Ridge channel to 50 ft to the South Brooklyn Marine Terminal. The project also facilitated the beneficial use of nearly all dredged material from the channel deepening project. Some of the beneficial uses include creating fishing reefs from blasted bedrock, creating and restoring numerous marshes, capping the Historic Area Remediation Site (HARS), and capping numerous existing impacted landfills and brownfields.

STATUS

The project includes 20 dredging contracts and construction of four marsh restoration projects. Two marsh restoration projects at Woodbridge, NJ and Elders Point East, Jamaica Bay, NY ('06-'07, 40 acres of wetlands) were constructed as mitigation for the channel deepening. In 2009 through 2012, the project was modified to include the restoration of two additional Jamaica Bay marsh islands (Elders West and Yellow Bar Hassock) through the beneficial reuse of dredged material. In 2010 with 100% non-federal sponsor funding, 339,235 CY sand was beneficially used for the restoration of Lincoln Park, New Jersey. Nineteen dredging contracts have been awarded with 16 physically complete and three underway. Two of the last 3 contracts will remove accumulated shoals and debris (partially due to Hurricane Sandy) in previously deepened channel areas inside the Narrows to facilitate transition of the project from construction to operation. These two shoal removal contracts were awarded in late FY 13 and are in construction. The last contract involves the removal of material in utility corridors in the Anchorage Channel. This last contract is planned to proceed in FY 2015, as New York City water supply siphons which underlie Anchorage Channel are relocated deeper. The water siphon relocation construction work by the Port Authority of NY & NJ and the NYC Economic Development Corporation was severely impacted and delayed by Hurricane Sandy but work has resumed and is being accelerated.

AUTHORIZED PROJECT COST

Estimated Federal Cost:	\$ 882,000.000
<u>Estimated Non-Federal Cost:</u>	<u>\$ 752,000.000</u>
Total Cost:	\$1,634,000,000

Benefit to cost ratio: 6.8

CONTACT

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CONGRESSIONAL INFORMATION

New Jersey

U.S. Sen. Robert Menendez
U.S. Sen. Cory A. Booker
NJ-06 – Rep. Frank Pallone, Jr.
NJ-08 – Rep. Albio Sires
NJ-10 – Rep. Donald Payne, Jr.

New York

U.S. Sen. Charles E. Schumer
U.S. Sen. Kirsten Gillibrand
NY-10 – Rep. Jerrold Nadler
NY-07 – Rep. Nydia M. Velazquez
NY-11 – Rep. Michael Grimm



South Shore of Staten Island, NY

September 2014

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

DESCRIPTION

The study area is located along the south shore of Staten Island, New York. The study area covers 13 miles of coastline on Staten Island, from Fort Wadsworth to Tottenville, extending along lower New York Bay and Raritan Bay. The area has a long history of storm damages and has experienced major storm damages from various recent storm events, including the Northeaster of December 1992, the March 1993 storm, and the October 2012 Sandy event. These storms caused flood damages, loss of structures, large scale evacuations and several deaths within several communities. The area is now increasingly vulnerable to severe damages even from moderate storms.



PROJECT AUTHORIZATION

The study is authorized by a resolution of the US House of Representatives Committee on Public Works and Transportation, adopted 13 May 1993. The purpose of this study is to identify possible risk management solutions for hurricane and storm damages in the area, and to determine whether Federal participation is warranted in constructing shore protection measures. In response to the 2012 Sandy event, P.L. 113-2, The Disaster Relief Appropriations Act of 2013, will provide authorization for construction.

STATUS

A Feasibility Cost Sharing Agreement was executed in May 1999 with the New York State Department of Environmental Conservation (NYSDEC). NYSDEC has also executed cost share sub-agreements with both the New York City Department of Environmental Protection and the New York City Department of Parks and Recreation. The feasibility study was initiated in August 2000. Study delays over the last few years were due to a lack of Federal and non-Federal funding. Due to recent funding provided by the American Recovery and Reinvestment Act of 2009 and P.L. 113-2, the Disaster Relief Appropriations Act of 2013, the study is currently under finalization. The study is currently optimizing a proposed plan of improvement for the Phase 1 area (Fort Wadsworth to Oakwood Beach) which will consist of a system of buried seawalls, floodwall, levee and acquisition, preservation and excavation of natural open space storage. The study is also assessing potential



STATUS (cont.)

alternatives for the Phase 2 area (Great Kills to Tottenville). A draft feasibility report and environmental impact statement is currently scheduled for public release in early 2015, with design and initiation of construction to immediately follow.

CONTACT

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CONGRESSIONAL INFORMATION

New York

NY	U.S. Sen. Charles E. Schumer
NY	U.S. Sen. Kirsten Gillibrand
NY-11	Rep. Michael Grimm



Sea Gate-Coney Island Improvement Project, NY

September 2014

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

DESCRIPTION

The project area is located on the south shore of Long Island in the Borough of Brooklyn, Kings County, New York, and consists of approximately 3 miles of beachfront. The project provides storm damage protection to the densely populated urban communities and infrastructure located along the shoreline of Coney Island. Shore protection was provided by constructing a 100-foot wide beach berm at an elevation of 13 feet above sea level. The project included the construction of an 850-foot long terminal groin on the westernmost end of the project at West 37th Street. A fillet of sand was placed in the private community of Sea Gate to protect the groin against flanking and to prevent down drift conditions from deteriorating beyond those that existed before construction of the project. The project also includes periodic nourishment of the restored beaches on 10-year cycle for a period of 50 years. The non-Federal sponsor for the project is the New York State Department of Environmental Conservation.

PROJECT AUTHORIZATION

Project Construction was authorized by the Water Resources Development Act of 1986, as modified by Section 1076 of the Intermodal Surface Transportation and Efficiency Act of 1991. Public Law 99-662 of the 1986 act called for Federal participation in beach restoration 250 feet beyond the historic shoreline at Coney Island with the construction and maintenance of the additional beach width to be cost shared between Federal and non-Federal interests. The project was further modified by the Water Resources Development Act of 2000 (Public Law 106-541) to include the construction of T-groins in the area west of the West 37th Street terminal groin.

STATUS

The initial construction of the Coney Island shoreline protection project (West 37th Street to Brighton Beach) was completed in January 1995. The total cost of the initial construction contract is cost shared at 65 percent Federal and 35% non-Fed.

Due to the rapid rate of beach erosion down drift of the West 37th Street groin in the community of Sea Gate, approximately 600 tons of stone were placed adjacent to the West 37th Street groin in April 1996 to prevent a possible flanking condition. In June 1996, approximately 35,000 cubic yards of sand was placed adjacent to this groin to provide additional protection from potential flanking. In 2001, a stone revetment was constructed in this area to protect the groin and the west end of the project area from the continued threat of flanking caused by storm induced waves. A contract to remove accumulated sand along the Gravesend Bay area in the community of Sea Gate was awarded in February 2004 to provide temporary relief to the area from wind blown sand while a long-term solution is developed.

A Reevaluation Report & Environmental Assessment was completed in January 2005, which recommended the construction of a series of T-groins to the west of the West 37th Street groin as a long-term solution to beach erosion and sand accumulation problems that have occurred in the Sea Gate area. A condition survey of the project area was completed in spring 2011.



STATUS (Cont.)

The Sea Gate Reach project consists of constructing four stand alone T-groin structures, one rock spur off the existing West 37th Street groin, additional stone armoring of the existing Norton Point dike, and removal of approximately 1,500 linear feet of beach fill currently accumulated in front of the Gravesend Bay bulkheads. This beach fill will be placed along approximately 2,000 linear feet of the Atlantic Ocean shoreline within the new T-groin field. The plans & specifications for this section are nearing completion, and a new Project Partnership Agreement, necessary to initiate project construction, is currently being coordinated with the project sponsors, the State and City of New York. The Sea Gate portion of the project is considered to be an Authorized but Unconstructed project according to P.L 113-2 (The Disaster Relief Appropriations Act of 2013). Because of this, the Sea Gate portions of the project will be funded at 100% Federal cost. Project construction is scheduled to begin by the spring of 2014.

CONTACT

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CONGRESSIONAL INFORMATION

New York

NY	U.S. Sen. Charles E. Schumer
NY	U.S. Sen. Kirsten Gillibrand
NY-08	Rep. Hakeem Jeffries
NY-09	Rep. Yvette Clarke

ENGINEERING SOLUTIONS FOR CONEY ISLAND

The **U.S. Army Corps of Engineers, New York State Department of Environmental Conservation, and New York City Department of Parks and Recreation** are committed to providing coastal storm risk management solutions for Coney Island.

The Sea Gate project will improve the functioning of the existing Coney Island coastal storm damage risk management project, which was constructed to reduce property damages due to storm surges and waves from the Atlantic Ocean.



THE PROBLEM AT SEA GATE

The Coney Island Project was completed in 1995. Soon after, the related problems of rapid sand erosion in Sea Gate west of the W 37th Street Terminal Groin and accretion of sand along Gravesend Bay were observed.

With continued erosion, there is a major risk of flanking the W 37th Street Terminal Groin, which may lead to groin failure and significant impact to the Coney Island Public Beach.

Repeated beachfill events were needed to mitigate the erosion at Sea Gate.

PROJECT FEATURES

Construction of 4 T-groins and one T-head spur

Reinforcement of the existing W 37th Street Terminal Groin and Norton Point Dike

Beachfill between the Norton Point Dike and the W 37th Street Terminal Groin

Sand will be sourced from the Jamaica Bay Federal Navigation Channel and the Gravesend Bay shoreline of Sea Gate

AUTHORIZATION

The Disaster Relief Appropriations Act of 2013, the Sandy Relief Bill (Public Law 113-2)

PROJECT COST

\$35 million at full Federal expense

SCHEDULE

Fall 2014	Contract Award
Fall 2014 - Winter 2016	T-groin Construct.
Spring 2016	Sand Placement
Spring/Summer 2016	Completion

PROJECT HISTORY

1986: Project authorized for construction by the Water Resources Development Act of 1986

1995: Initial construction of the Coney Island Project. The project included widening and elevating the beach from Corbin Place to W 37th Street, extension of the Terminal Groin, and placement of sand west of the W 37th Street Terminal Groin. Downdrift erosion observed soon after construction.

2000: USACE obtained authorization for the Sea Gate Project

2004: USACE completes Limited Reevaluation Report for the Sea Gate Project and designs project

2012: Hurricane Sandy significantly impacts Coney Island.

2013: The Disaster Relief Appropriations Act of 2013 (Public Law 113-2) is signed into law. It provides funding (100% Federal) to construct the Sea Gate Project.

2014: USACE completes Limited Reevaluation Report for the Sea Gate Project by updating it to post-Sandy conditions.



Rendering of Sea Gate Project one year post construction.

CONTACT US

For more information about this and other Hurricane Sandy projects please contact us.

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New York City Department of Parks and Recreation

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Printed June 2014



Improvement of the Atlantic Coast of New York City, Rockaway Inlet to Norton Point Project at Sea Gate

Coney Island, NY



NYC Parks



US Army Corps
of Engineers®



Plumb Beach

September 2014

U.S. ARMY CORPS OF ENGINEERS

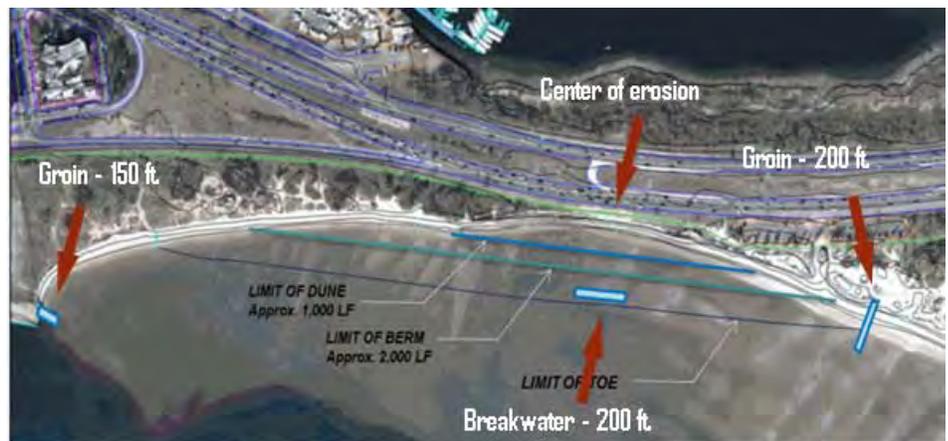
BUILDING STRONG®

DESCRIPTION

Located in the borough of Brooklyn, along the north shore of the bay just east of Knapp Street, Plumb Beach is a popular recreational site for sunbathers, wind surfers, hikers/bikers, nature watchers and others. Partly within Gateway National Recreation Area and partly under the jurisdiction of NYC Department of Parks and Recreation (NYCDPR), the beach has been subject to excessive erosion since the area was filled during construction of the Belt Parkway in the 1930s.

This erosion threatened critical infrastructure, including a major emergency route for New York City, significant buried utilities, as well as a popular bike path. Wave action from a storm event in the fall of 2009 destroyed portions of the bike path, and came within 25 feet of the Belt Parkway, forcing New York City Parks to award a contract to temporarily repair the eroded area with sandbags to prevent further losses that would threaten the parkway and utilities.

In response, the USACE developed an interagency team, including New York State Department of Environmental Conservation and Department of State, the National Park Service, New York City Department of Parks & Recreation, the New York City Department of Environmental Protection and the New York City Department of Transportation. This interagency team agreed on a comprehensive solution to afford long-term protection to this vital area and its adjacent infrastructure, while balancing the environmental and recreational impacts to Plumb Beach and the vicinity.



PROJECT AUTHORIZATION

1992 WRDA, as amended (33 U.S.C. 2326)

STATUS

The Army Corps of Engineers, New York District, received funding to initiate a Feasibility study for this project in 2010. The Feasibility Report was completed in 2011. The Feasibility study recommended a combination of stone groins, sand placement and a breakwater to provide a long-term fix to the erosion problem. After executing a Project Partnership Agreement with the NYCDP&R, sand placement dredged from the Ambrose Channel for the Harbor Deepening Project was completed in late 2012, along with the construction of a temporary geo-tube groin immediately prior to Hurricane Sandy. Phase II construction of the stone groins and breakwater began in April 2013 and the project was completed in November 2013.

CONTACT

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Programs and Project Management Division, Civil Works Programs Branch

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CONGRESSIONAL INFORMATION**New York**

NY	U.S. Sen. Charles E. Schumer
NY	U.S. Sen. Kirsten Gillibrand
NY-08	Rep. Hakeem Jeffries



Gerritsen Creek, Marine Park, NY Ecosystem Restoration

September 2014

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

DESCRIPTION

This ecosystem restoration project seeks to improve the aquatic and coastal grassland habitats located in the northeastern section of Marine Park, Brooklyn, NY near the junction of Gerritsen Creek and Mill Creek, immediately west of Floyd Bennett Field. The project purpose is to ameliorate the adverse impacts of past filling activities related to the construction, maintenance, and improvement of the large network of navigation channels within Jamaica Bay. The recommended plan is designed to increase the twice-daily tidal inundation across of the project site, and to convert the



Phragmites dominated areas that lie adjacent to the existing salt marsh fringes to more healthy tidal ecosystems.

The Gerritsen Creek project site targeted for ecosystem restoration is an approximate 67-acre site that lies within the Jamaica Bay watershed in Marine Park, Brooklyn, New York. Restore approximately 48.2 acres of wetland and upland habitat, which includes approximately 17 acres of inter tidal salt marsh and approximately 23 acres of coastal/maritime grassland. This will be accomplished by excavation, sediment placement, re-contouring and native species planting. The restoration of the historic intertidal marsh will require the removal of approximately 85,000 cubic yards of fill material which will then be placed in the upland areas to create the new coastal /maritime grassland. The areas to be restored will be planted with appropriate vegetation and a revised nature trail system will be established.



Located adjacent the Marine Park Nature Center, this project will provide a highly visible and accessible contribution to the overall restoration of greater Jamaica Bay. The project site is under the authority of the New York Department of Environmental Conservation. The Non-Federal sponsor for this project is the New York City Parks Department. The project was designed by the U.S. Army Corps of Engineers, New York District Engineering Division.

PROJECT AUTHORIZATION

Section 1135 (b) of WRDA 1996, as amended [33 U.S.C. 2309(a)]

STATUS

The Ecosystem Restoration Report (ERR) with integrated Environmental Assessment (EA) was completed in October 2003, and the Plans and Specifications phase was initiated in early Fiscal Year 2004. A Project Cooperation Agreement for construction implementation was executed with the New York City Department of Parks and Recreation, the non-Federal sponsor, on 30 September 2004. Federal funding to complete this project was allocated in 2008, and the initiation of construction began in December 2009. Final planting activities were completed by June 2011. Project was opened to the public in August 2012.

CONTACT

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CONGRESSIONAL INFORMATION

New York

NY	U.S. Sen. Charles E. Schumer
NY	U.S. Sen. Kirsten Gillibrand
NY-08	Rep. Hakeem Jeffries



Hudson-Raritan Estuary New York & New Jersey Ecosystem Restoration Feasibility Study

September 2014

**U.S. ARMY CORPS OF ENGINEERS
STRONG®**

BUILDING

DESCRIPTION

The Hudson Raritan Estuary (HRE) is within the boundaries of the Port District of New York and New Jersey, and is situated within a 25 mile radius of the Statue of Liberty National Monument. The HRE study area includes 8 Planning Regions: 1) Jamaica Bay; 2) Lower Bay; 3) Lower Raritan River; 4) Arthur Kill/Kill Van Kull; 5) Newark Bay, Hackensack River and Passaic River; 6) Lower Hudson River; 7) Harlem River, East River, and Western Long Island Sound; and 8) Upper Bay.

The study purpose is to identify the water resources problems, existing conditions and factors contributing to environmental degradation within the estuary in order to develop potential solutions aimed at ecosystem restoration, while building upon existing restoration efforts and management plans (e.g., Harbor Estuary Program's Comprehensive Conservation Management Plan).

The HRE Ecosystem Restoration Program will enable the U.S. Army Corps of Engineers (USACE), its non-Federal cost-sharing sponsors, and other regional stakeholders to restore and protect lost or degraded aquatic, wetland and terrestrial habitats within the HRE study area. These activities will be accomplished by implementing various site-specific ecosystem restoration projects formulated within the context of an overall strategic plan. As a first step, the USACE, with participation of the regional stakeholders, has developed a Comprehensive Restoration Plan (CRP) that serves as a master plan and blueprint for future restoration in the HRE region.



The CRP provides the framework for an estuary-wide ecological restoration program by utilizing restoration targets -Target Ecosystem Characteristics (TECs) developed by the region's stakeholders. The CRP Program goal is to develop a mosaic of habitats that provide society with renewed and increased benefits from the estuary environment. Each TEC is an important ecosystem property or feature that is of ecological and/or societal value including restoration of coastal wetlands, shellfish/oyster reefs, eelgrass beds, water bird islands, public access, maritime forest, tributary connections, shorelines and shallow habitat, fish crab and lobster habitat, reduction of contaminated sediments and improvement of enclosed and confined waters. The CRP provides a strategic plan to achieve the TEC goals, identify potential restoration opportunities and mechanisms for implementation.

PROJECT AUTHORIZATION

House of Representatives Committee on Transportation and Infrastructure Resolution dated April 15, 1999, Docket Number 2596.



STATUS

The USACE Reconnaissance Phase commenced in January 2000 and a Section 905(b) WRDA 86 Analysis was approved in June 2000. The Project Management Plan (PMP) was completed in May 2001 and the Feasibility Cost Sharing Agreement (FCSA) was executed on July 12, 2001 with The Port Authority of New York and New Jersey (PANYNJ), the non-Federal sponsor.

Overall goals and restoration targets were established as a collaborative effort among the region’s stakeholders through a series of stakeholder workshops in 2007 and 2008. A Draft Comprehensive Restoration Plan was released in April 2009 and has been adopted by the New York/New Jersey Harbor Estuary Program (HEP) as the path forward for restoration in the future. Intensive public outreach to build consensus for the CRP was completed in July 2011 and the CRP has been updated based on stakeholder and Harbor Estuary Program Restoration Work Group (HEP RWG) comments.

For the feasibility study, the District is evaluating opportunities that would result in construction authorization for a subset of sites outlined in the CRP, as well as a list of restoration opportunities for future feasibility study (pursuant to Civil Works Transformation SMART Planning principles). To date, more than 40 feasibility-level (FS) investigations are ongoing including: 2 sites on the Hackensack River (Meadowlark and MetroMedia Marshes), Flushing Creek, Jamaica Bay Marsh Islands, 6 Jamaica Bay perimeter sites, 9 Bronx River sites, Governors Island, up to 20 Lower Passaic River sites and Liberty State Park (authorized in WRDA 2007). Feasibility activities include ecological functional assessments, preparation of additional restoration alternatives, FS-level engineering designs and cost estimates, NEPA Environmental Assessments and Cost Effectiveness/Incremental Cost Analysis (CE/ICA) for each site.

In addition, other restoration opportunities outlined in the CRP will be recommended for further feasibility study investigation which would require subsequent Congressional construction authorization. The HRE Study Area includes restoration opportunities which have been studied in greater detail through the HRE-Lower Passaic River, Bronx River Basin, Jamaica Bay, Marine Park, Plumb Beach, HRE-Hackensack Meadowlands and Flushing Bay and Creek Restoration Feasibility Studies which have been integrated in the HRE-overall Feasibility Study.

STUDY COST

Estimated Feasibility Federal Cost: \$ 9,500,000
Estimated Feasibility Non-Federal Cost: \$ 9,500,000
Total: \$19,000,000

CONTACT

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CONGRESSIONAL INFORMATION

New Jersey

NJ U.S. Sen. Robert Menendez
NJ U.S. Sen. Corey Booker
NJ-04 Rep. Chris Smith
NJ-05 Rep. Scott Garrett
NJ-06 Rep. Frank Pallone, Jr.
NJ-07 Rep. Leonard Lance
NJ-08 Rep. Albio Sires
NJ-09 Rep. William Pascrell, Jr.
NJ-10 Rep. Donald Payne, Jr.
NJ-11 Rep. Rodney Frelinghuysen
NJ-12 Rep. Rush Holt
NJ-13 Rep. Albio Sires

New York

NY U.S. Sen. Charles E. Schumer
NY U.S. Sen. Kirsten Gillibrand
NY-02 Rep. Peter King NY-11 Rep. Michael Grimm
NY-03 Rep. Steve Israel NY-12 Rep. Carolyn Maloney
NY-04 Rep. Carolyn McCarthy NY-13 Rep. Charles Rangel
NY-05 Rep. Gregory Meeks NY-14 Rep. Joseph Crowley
NY-06 Rep. Grace Meng NY-15 Rep. Jose Serrano
NY-07 Rep. Nydia Velazquez NY-16 Eliot Engel
NY-08 Rep. Hakeem Jeffries NY-17 Rep. Nita Lowey
NY-09 Rep. Yvette Clarke
NY-10 Rep. Jerrold Nadler



Jamaica Bay Marsh Islands

SEPTEMBER 2014

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Jamaica Bay Marsh Islands



DESCRIPTION

Jamaica Bay is situated within the Boroughs of Brooklyn and Queens, New York City. Approximately 8 miles long by 4 miles wide, it covers 26 square miles, and opens into the Atlantic Ocean via the Rockaway Inlet. Jamaica Bay is recognized by the United States Fish and Wildlife (USFW) as a coastal habitat deserving preservation and restoration of habitats which contribute to sustaining and expanding the region's native living resources. Jamaica Bay is a highly productive habitat for a variety of fish and wildlife species. These species breed and use the area as a nursery for juvenile birds that reside in the area during winter and migratory birds that stop-over during fall and spring.

The Jamaica Bay Marsh Islands are at the heart of the complex urban ecosystem of Jamaica Bay that is a part of the National Park Service, U.S. Department of the Interior - Gateway National Recreation Area (GNRA), first urban National Park, established in 1972 and is a key component of the President's America's Great Outdoors initiative.

The Marsh Islands Complex is an integral part of Jamaica Bay Ecosystem and has been targeted for restoration. It is estimated that approximately 1,400 acres of tidal salt marsh have been lost from the marsh islands since 1924, with the system wide rate of loss rapidly increasing in recent years. From 1994 and 1999, an estimated 220 acres of salt marsh were lost at a rate of 47 acres per year. Left alone, the marshes were projected to vanish by 2025, destroying wildlife habitat and threatening the bay's shorelines.



To date, there is no consensus among ecological experts on the cause of the erosion of the marsh islands, which range from rising sea levels and warmer temperatures to nitrogen input from storm water run-off. Representatives from federal, state and local agencies have helped to "jumpstart" the ecological process acknowledging that these daunting challenges to restoring an urban estuary need to be overcome.

STATUS

In response to these losses, under the U.S. Army Corps of Engineers' Continuing Authorities Program (CAP), the New York City Department of Environmental Protection (NYCDEP) and New York State Department of Environmental Conservation (NYSDEC) requested assistance in implementing one or more marsh island restoration projects.

A 2006 Report titled "Jamaica Bay Marsh Islands, Jamaica Bay, NY, Integrated Ecosystem Restoration Report" recommended restoration of three marsh islands: Elders Point East, Elders Point West and Yellow Bar Hassock.

As of 2005, Elders Point was comprised of two islands, Elders East and Elders West totaling only 21 vegetated acres. Originally one island comprised of 132 acres, the loss of marsh in the center portion severed the two ends, resulting in two separate islands connected by mudflat. U.S. Army Corps of Engineer activities at Elders Point East Marsh Island in 2006-2007 involved restoring 40 acres of marsh constructed for mitigation purposes to offset environmental impacts of the New York & New Jersey Harbor Deepening Project (HDP).

In 2010, the USACE, in partnership with the Port Authority of New York and New Jersey, NYSDEC, NYCDEP, and the National Park Service (NPS) restored approximately 40 additional acres at Elders Point West as a result of the beneficial use of dredged material from the HDP. The restoration plan for Elders East and West included restoring the existing vegetated areas and the sheltered and exposed mudflats by placing dredged sand up to an elevation suitable for low marsh growth. This included hand planting more than 700,000 plants (grown from local seed stock by the National Resources Conservation Service (NRCS) on East and replanting more than 200,000 plants on West. On Elders East, smooth cordgrass or saltmarsh cordgrass (*Spartina alterniflora*) was planted throughout the low marsh zone. A mixture of saltmarsh cordgrass, *saltmeadow cordgrass* or *salt hay* (*Spartina patens*), and spike grass (*Distichis spicata*) were planted in the zones between low marsh and upland.

As part of the NY/NJ Harbor-Jamaica Bay Multi-Project Initiative, sand from the Ambrose Channel was beneficially reused from the Harbor Deepening project to create an additional 87 acres of marsh island habitat within Jamaica Bay. During February and March 2012, 375,000 cubic yards of sand was placed at Yellow Bar Hassock Marsh Island resulting in 67 acres of new marsh island and approximately 45.4 acres of wetlands (including ~ 13.3 acres of hummock relocation, 28 acres of low marsh seeding, 17,175 high marsh plants, and 21,859 high marsh transition plants). Marsh construction was completed on 2 August 2012. Replanting damaged/lost vegetation from Hurricane Sandy will take place in Spring 2014.

In September and October 2012, Ambrose Channel sand was also beneficially used to restore an additional 30 acres of marsh islands at Black Wall (155,000 cubic yards of sand, 20.5 acres) and Rulers Bar (95,000 cubic yards of sand, 9.8 acres) as part of the USACE's Beneficial Use Program with local partners (NYCDEP, NYSDEC, and The Port Authority of New York and New Jersey).

NYCDEP and the NYSDEC with local non-profit organizations (EcoWatchers, Jamaica Bay Guardian and the American Littoral Society) completed a community based planting effort to vegetate the 30 new acres created at Black Wall and Rulers Bar with the above referenced plants in June 2013.

Repairs have been made on Yellow Bar following Hurricane Sandy including debris removal, repair of fencing and replanting of ~700,000 plants on the island (recently completed in June 2014). The marsh island restoration efforts are being monitored by the project team, in coordination with NPS, and are providing valuable data on the cause of the problems and helping identify the most effective future restoration options. This program also has significant implications for the future success of restoration activities from beneficially using sand from the Operations and Maintenance (O&M) Program.

SUMMARY OF MARSH ISLAND WETLAND ACRES RESTORED

Elders East	Approximately 40 acres
Elders West	Approximately 40 acres
Yellow Bar Hassock	Approximately 46 acres
Black Wall	Approximately 20 acres
Rulers Bar	Approximately 10 acres



AUTHORIZATION

Section 204 of the Water Resources Development Act of 1992, Public Law 102-580, as amended by Section 207 of the Water Resources Development Act of 1996 (codified as amended at 33 U.S.C. § 2326), and as amended by Section 2037 Regional Sediment Management of the Water Resources Development Act of 2007.

PROJECT COST

Yellow Bar Hassock
 Total Project Cost: \$19,642,857
 Federal: \$12,767,857
 Non-Federal: \$6,875,000

Black Wall
 Total 100% Non-Federal: \$2,100,000

Rulers Bar
 Total 100% Non-Federal \$1,311,000

For information, contact: **Lisa Baron, Project Manager**
 Email: lisa.a.baron@usace.army.mil
 Telephone: 917-790-8306



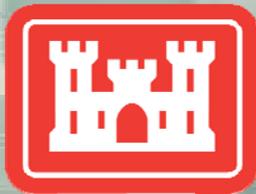
U.S. Army Corps of Engineers, New York District

Harbor Inspection
September 9, 2014

*Vision of a World Class Harbor
Estuary*



New York District



US Army Corps of Engineers
BUILDING STRONG

NY & NJ Harbor Deepening Project Overview

Description:

- Deepens 35 miles of navigation channels to 50 - 53 ft (mean low water) to provide deep draft access to the major container terminals within the Port of NY & NJ.
- Key features of the 50 ft. project include:
 - 21 large dredging contracts, 16 complete, 3 underway
 - Mitigation restoring 143 acres of tidal wetlands
 - Offsets NOx air emissions
 - Beneficial use of dredged material (>154 acres of marsh islands, > 40 acres of sublittoral habitat, artificial reefs, etc.)
- **Fiscal Year 2014 Federal Funding:** \$69M
- **Remaining Work:** remove accumulated shoals (some due to Sandy), develop and implement plans to dredge over NYC water siphons, complete 50 ft. deepening to NYCT, and start last 40 ft. contract in Arthur Kill to Phillips 66 Refinery.



Total Project Cost
\$1.6 Billion

Cost Share
Approx. 54% Fed, 46% Non-Fed

Non-Federal Sponsors

Port Authority of New York & New Jersey
New Jersey Department of Transportation Office of Maritime Resources



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New York and New Jersey Harbor Construction Schedule

50 ft. Channel Deepening

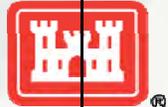
CHANNEL/CONTRACT	STATUS	CY:	2012	2013	2014	2015	2016
Ambrose							
Contract 1 (S-AM-1)	Completed Jun 2008						
Contract 2a (S-AM-2a)	Completed May 2010						
Contract 3a (S-AM-3a)	Completed Oct 2012						
Contract 3b (S-AM-3b)	Completed Jan 2013						
Anchorage							
Contract 1 (S-AN-1a)	Completed Oct 2008						
Contract 1b (S-AN-1b & S-AM-2b)	Completed Jan 2011						
Contract 2 (S-AN-2)	Completed Mar 2011						
Port Jersey							
Contract 3 (PJ-3)	Completed Jul 2010						
Contract 4 (PJ-4) (over PVSC Outfalls)	Completed Oct 2012						
Kill Van Kull							
Contract 1 (KVK-5)	Completed Dec 2004						
Contract 2 (S-KVK-2)	Completed Mar 2007						
Contract 3 (S-KVK-1)	Completed Sep 2011						
Newark Bay							
Contract 1 (S-NB-1)	Completed Jan 2011						
Contract 2 (S-E-1)	Completed Apr 2010						
Contract 3 (S-NB-2/S-AK-1)	Completed Sep 2012						
Arthur Kill							
Contract 1 (S-AK-2)	Completed Mar 2013						
Contract 2 (S-AK-3, incl PE, KVK)	Awarded Jan 13						
Shoal Removal & Utility Corridor	FY 13/14-> (3 contracts)						
Water Siphon Replacement (PA/NYC Contract)	Awarded Aug 2010						
Arthur Kill 41/40 ft. Channel Deepening							
Arthur Kill Channel Contract #4 (to Phillips 66 Refinery, Linden, NJ)	Early FY 15 Award						
Mitigation							
Woodbridge Creek, NJ	Completed						
Elders East - Jamaica Bay, NY	Completed						
Beneficial Use of Dredged Material							
Elders West, Jamaica Bay, NY	Completed Aug 2010						
Yellow Bar, Jamaica Bay, NY	Completed Jul 2012						
Black Wall and Rulers Bar, Jamaica Bay	Completed Nov 2012						

Key

Prior year contracts

FY '13 & 15 -> Awards

Sandy Impact



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As of July 30, 2014

Beneficial Use of Dredged Material from Harbor Deepening

Brownfield Remediation



Bayonne Landfill: 4MCY
(+ many other landfills & Brownfields remediated)



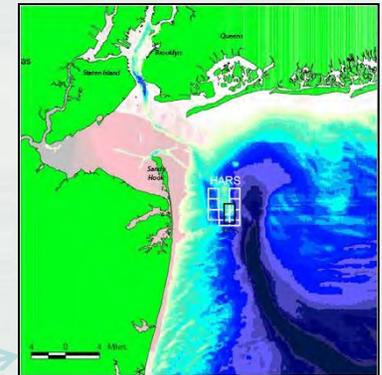
Lincoln Park: 339,000 CY

Beach Nourishment/Shoreline Stabilization



Plumb Beach: 155,000 CY

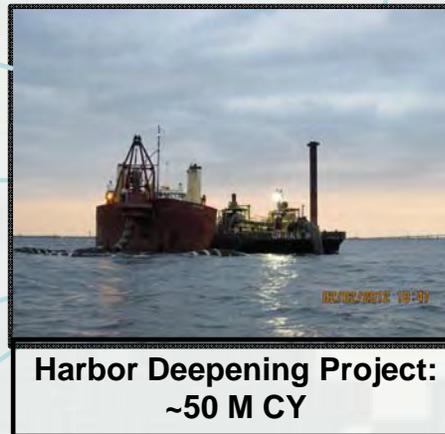
Remediation



Capping HARS (+O&M): ~56 MCY



Capping NBCDF: 235,000 CY



Harbor Deepening Project:
~50 M CY



Fish Reefs: ~11 MCY rock

Ecosystem Restoration: Jamaica Bay Marsh Islands



Elders East: 249,000 CY
40 acres



Elders West: 302,000 CY
40 acres



Yellow Bar: 375,000 CY
47 acres



Black Wall: 155,000 CY
20 acres



Rulers Bar: 92,000 CY
10 acres

Coney Island



- Noteworthy
 - Sea Gate T-Groins Purpose is to protect the authorized project (beach fill)



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Construction of first hydraulically pumped beachfill
at Coney Island NY, 1922

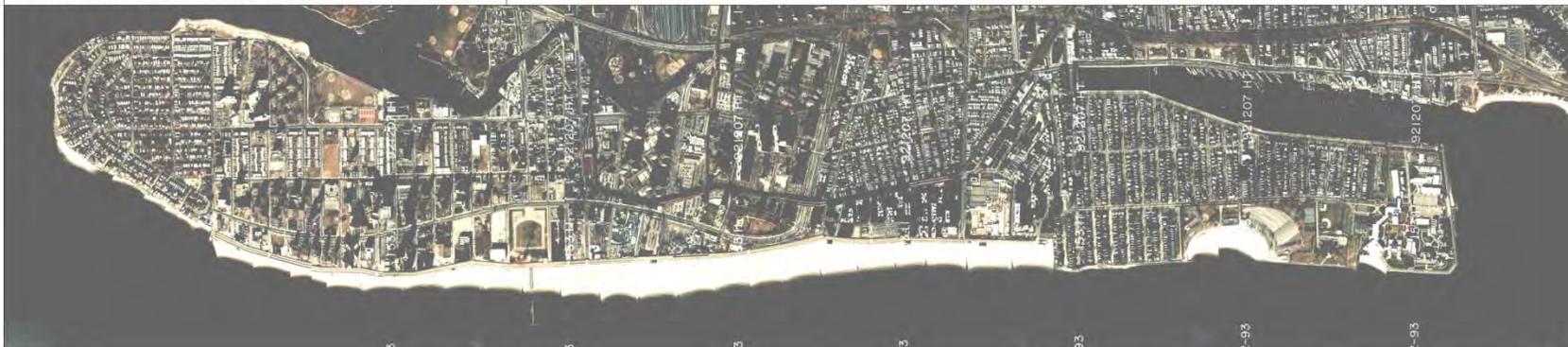


Note the elevation of the boardwalk piers

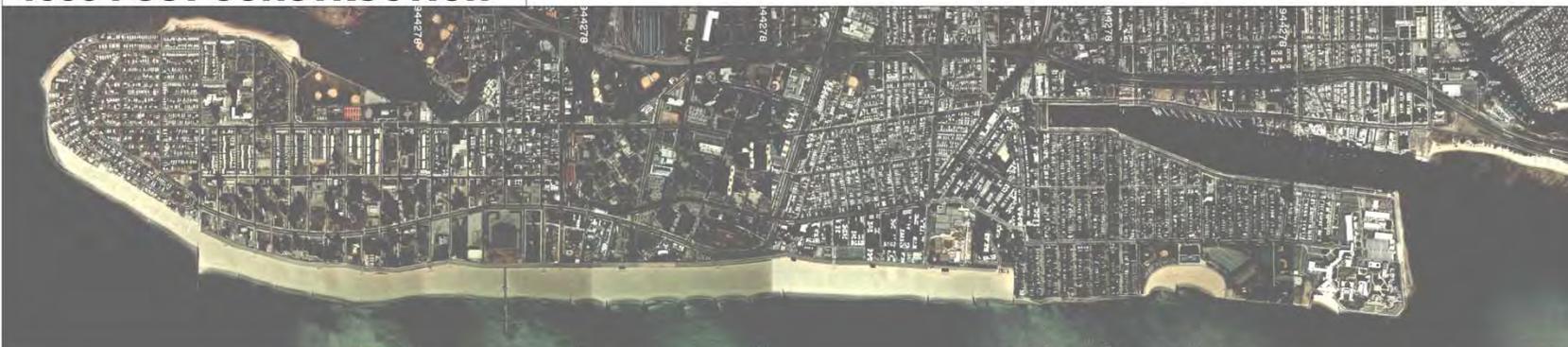


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1993 PRE-CONSTRUCTION



1995 POST-CONSTRUCTION



2005 10-YEARS POST-CONSTRUCTION

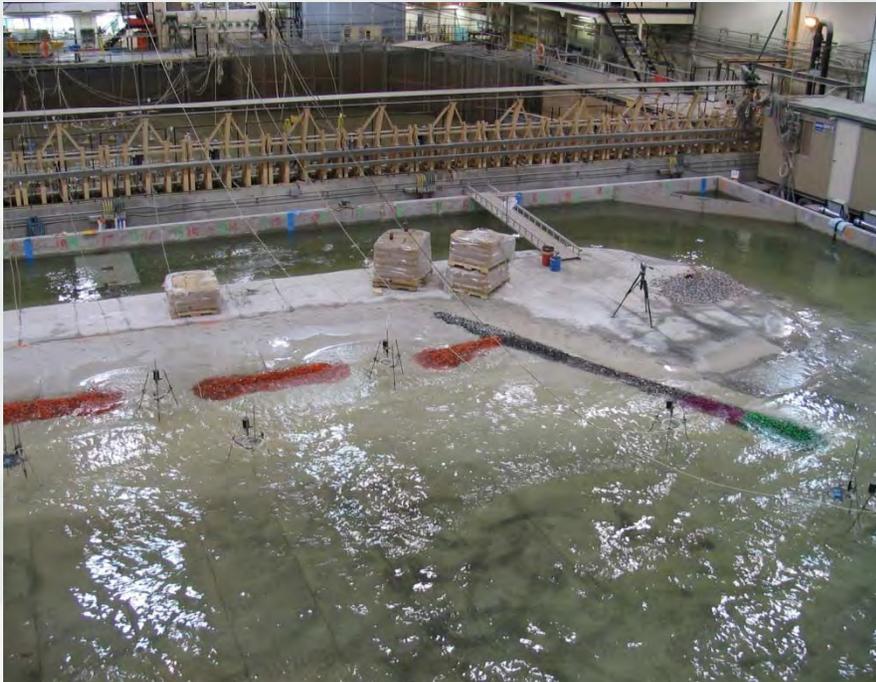


Coney Island – Sea Gate T-Groins Conceptual Drawing



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Physical Modeling of the T-Groins in 2005



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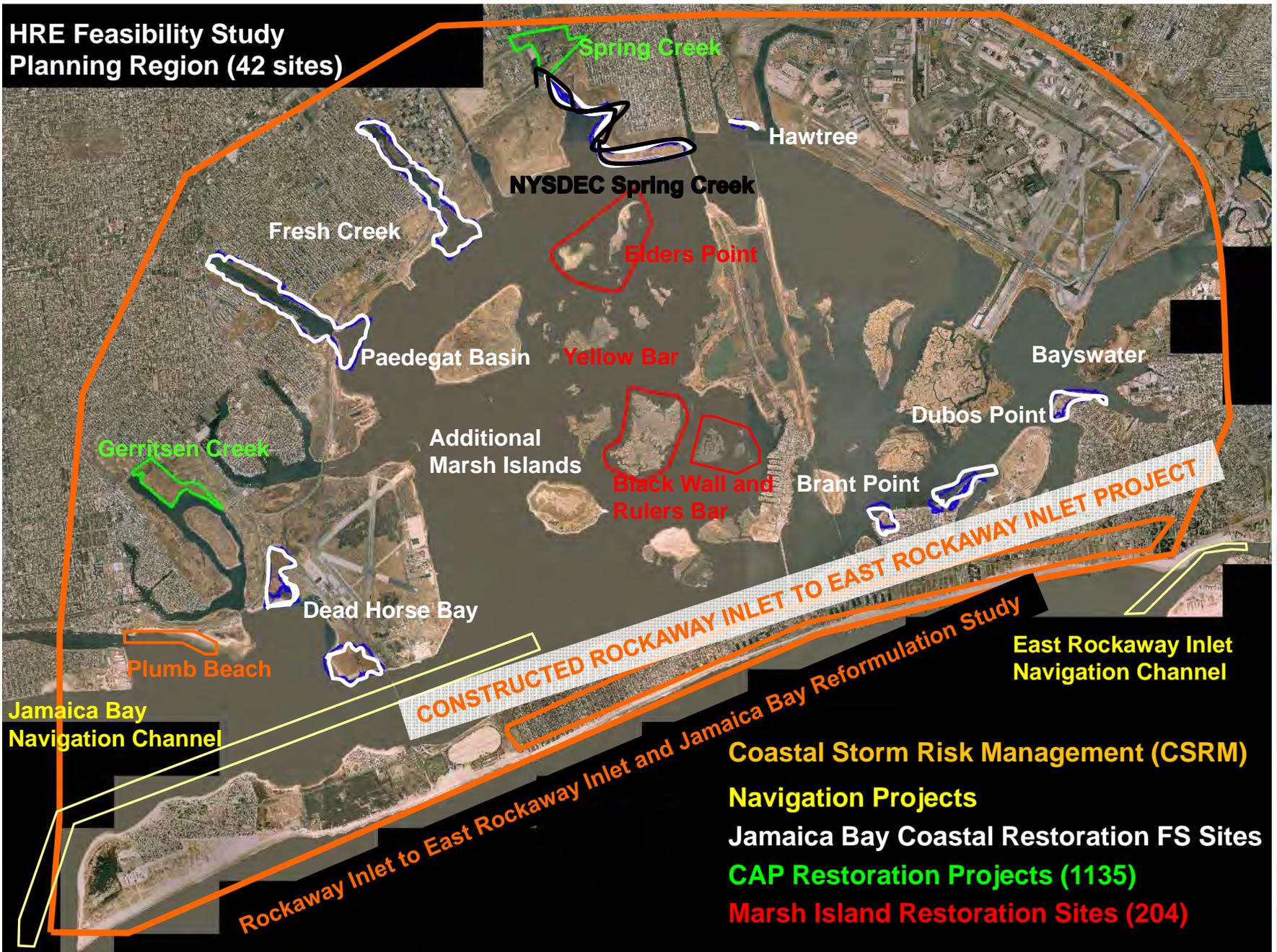
Rendering of Coney Island T-Groin Project After Initial Construction



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Overview of Ongoing Jamaica Bay Efforts

HRE Feasibility Study
Planning Region (42 sites)



NYSDEC Spring Creek

Hawtree

Fresh Creek

Elders Point

Paedegat Basin

Yellow Bar

Bayswater

Gerritsen Creek

Additional
Marsh Islands

Dubos Point

Black Wall and
Rulers Bar

Brant Point

Dead Horse Bay

Plumb Beach

CONSTRUCTED ROCKAWAY INLET TO EAST ROCKAWAY INLET PROJECT

Jamaica Bay
Navigation Channel

East Rockaway Inlet
Navigation Channel

Rockaway Inlet to East Rockaway Inlet and Jamaica Bay Reformulation Study

Coastal Storm Risk Management (CSRM)

Navigation Projects

Jamaica Bay Coastal Restoration FS Sites

CAP Restoration Projects (1135)

Marsh Island Restoration Sites (204)

Hudson-Raritan Estuary (HRE) Ecosystem Restoration Program Comprehensive Restoration Plan

- Vision, Master Plan and Blueprint for a future restored estuary (Revision 2013).

- Collaboration among more than 80 organizations

- Adopted by the NY/NJ Harbor Estuary Program

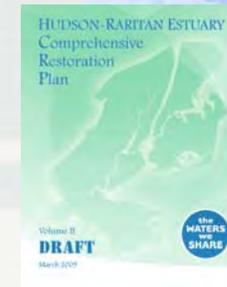
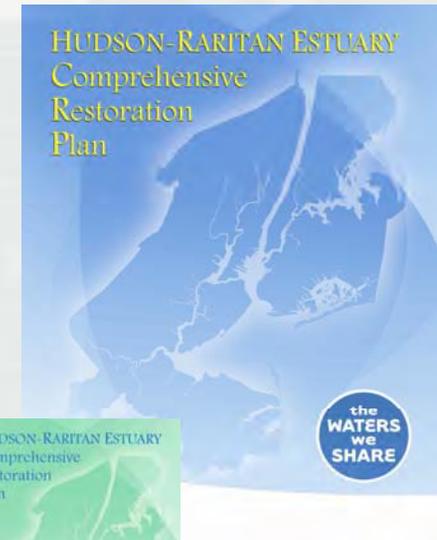


- Established Priority Restoration Goals or Target Ecosystem Characteristics

- Restores wetlands, improves water quality, and quality of life for region

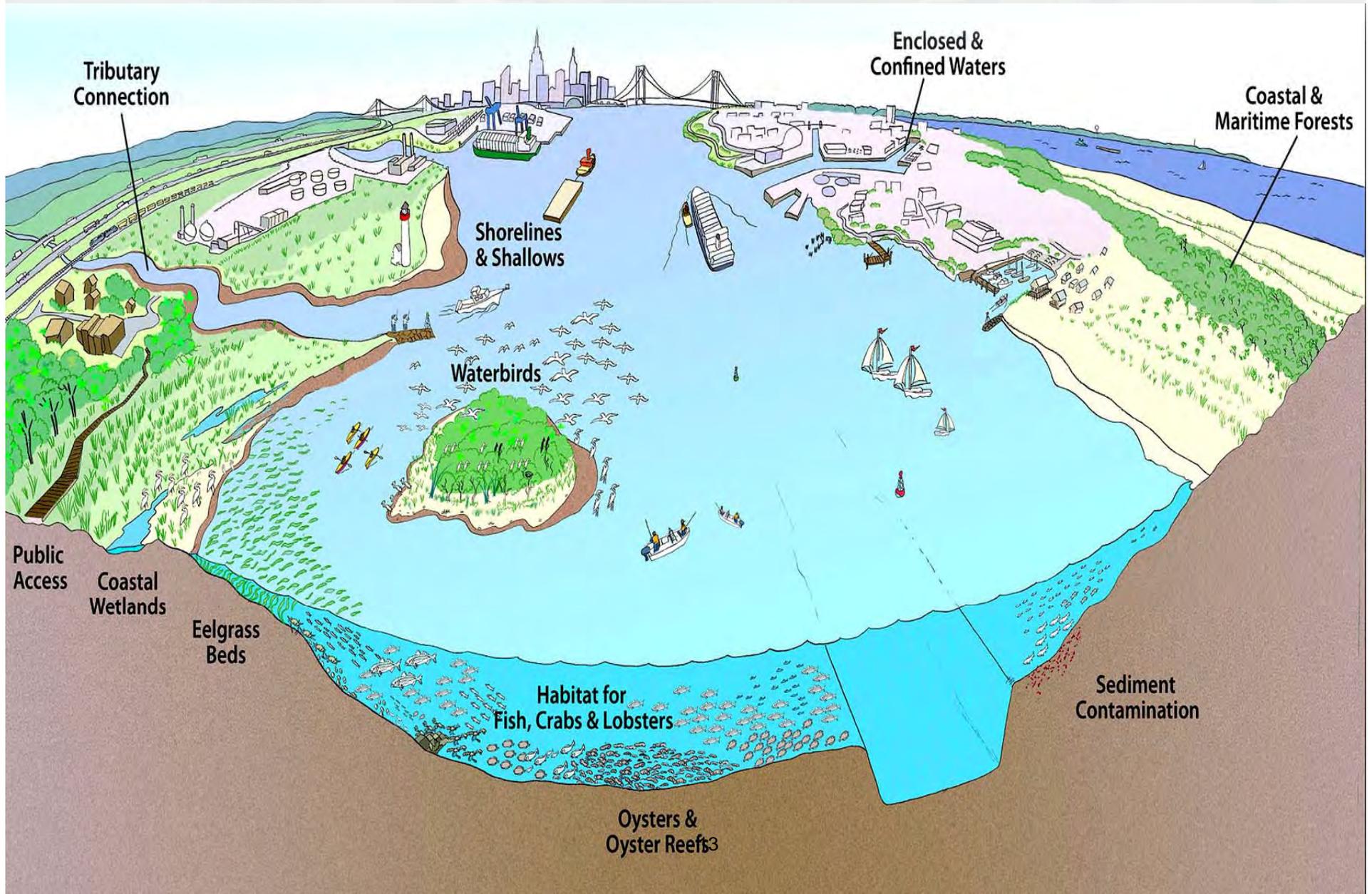
- Integration of Post-Sandy Recovery and Coastal Restoration

- ~280 Restoration Opportunities outlined in CRP can be integrated into ongoing studies



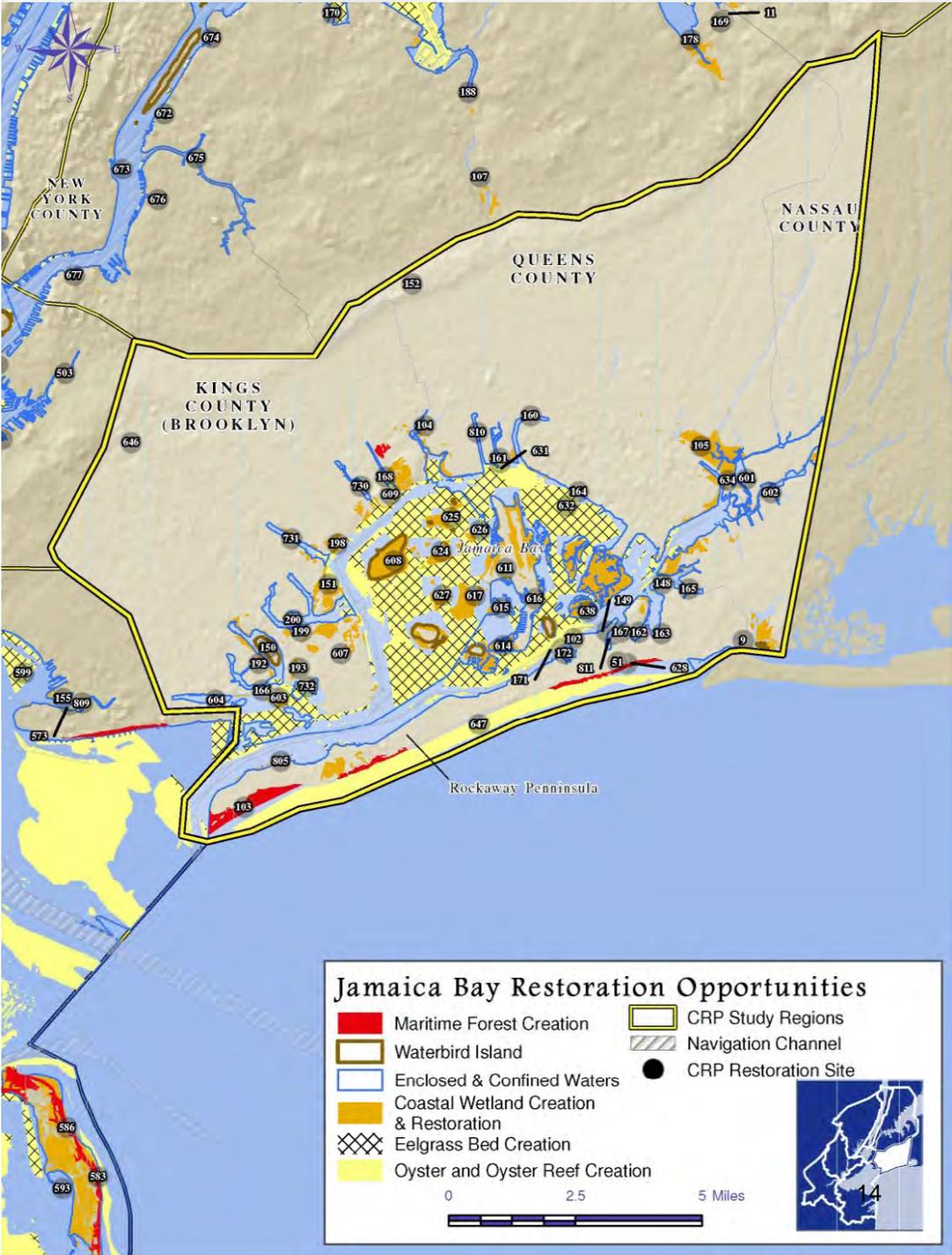
Target Ecosystem Characteristics

[What] [Where] [How Much] [By When]



HRE Feasibility Study

- Mosaic of Habitats
- Opportunities for many TECs: coastal wetland creation, oyster reefs, eelgrass beds, maritime forests, islands for waterbirds
- 42 Restoration Opportunities
- New Authorization - Recommending First Phase Construction and Future Studies



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CRP Restoration Opportunities in Jamaica Bay

9. Seagirt Avenue Wetlands
51. Arvene Urban Renewal Area
102. **Brant Point**
103. Breezy Point
104. **Spring Creek**
105. Idlewild Park/ Brookville Marsh
148. **Bayswater Park**
149. **Dubos Point**
151. Bergen Beach
160. Bergen Basin
161. **Hawtree Point**
162. Conch Basin
165. Mott Basin
166. Shellbank Creek
810. Shellbank Basin
167. Somerville Basin
168. Hendrix Creek
172. Vernam Barbadoes
193. Gerritsen Inlet Dead Horse Bay
198. Canarsie Beach
200. Mill Basin
601. Hook Creek

602. Doxey Creek
603. Plumb Beach
604. Sheepshead Bay
607. Floyd Bennett Field
608. Canarsie Pol
611. West Pond
615. **Black Wall Marsh** **
616. Goose Pond Marsh
624. Duck Point Marsh
626. Pumpkin Patch Marsh
627. Stony Creek Marsh
628. Rockaway Peninsula
631. Frank Charles Park
632. Grassy Bay
634. Thurston Basin
638. Silver Hole Marsh
647. Rockaway Reef
730. **Fresh Creek**
731. **Paerdegat Basin**
732. **Dead Horse Bay**
Marsh Islands

** Constructed
Bolded Sites: First Phase Implementation/Jamaica Bay Feasibility Study



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Plumb Beach and Belt Parkway



2010



2009



Plumb Beach Progress 2012/2013



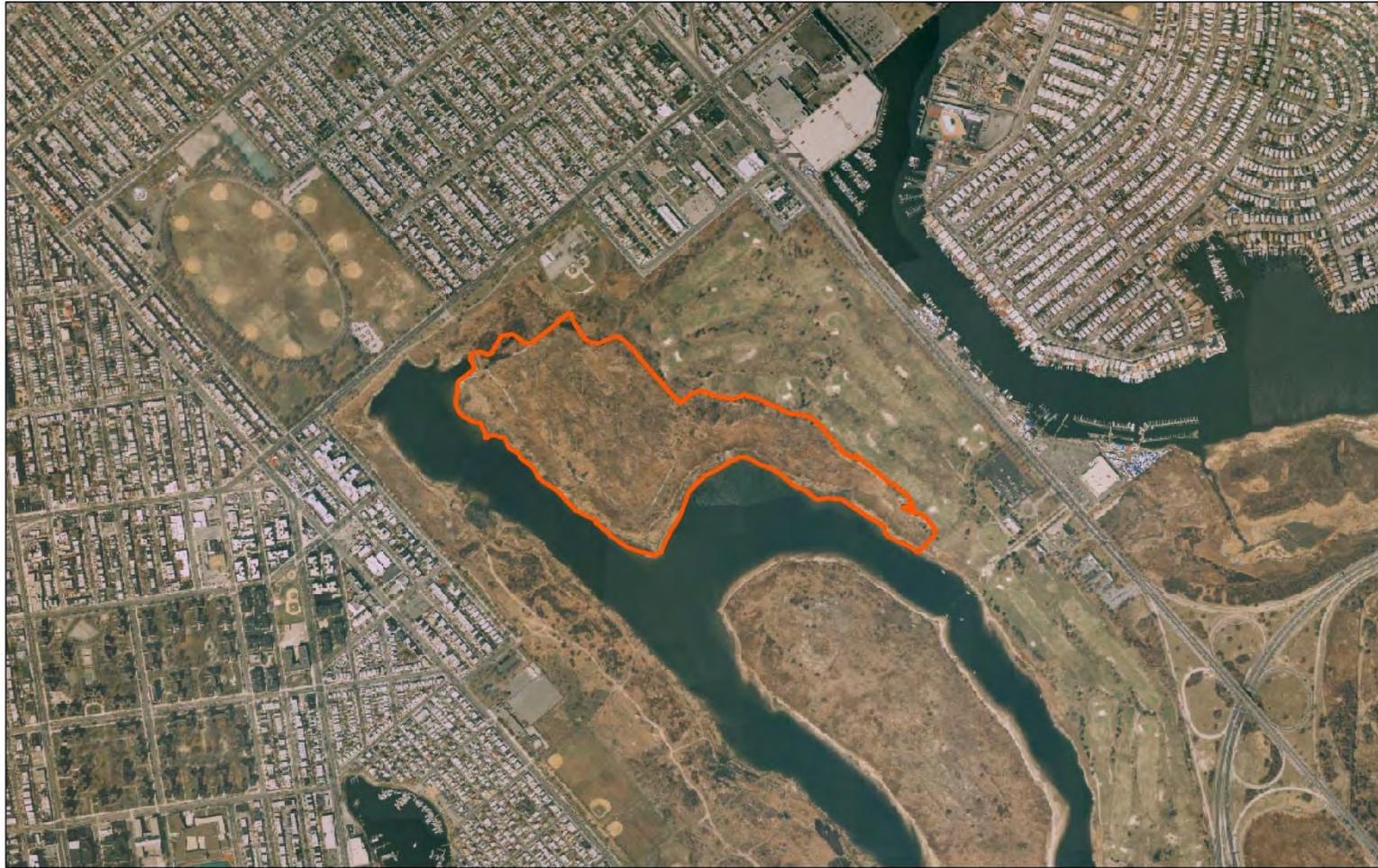
An aerial photograph of Plumb Beach in New York City. The beach is wide and sandy, with a breakwater and two groins visible. The ocean is to the left, and a multi-lane highway runs along the right side of the beach. In the background, a dense urban area with many buildings is visible.

Plumb Beach- 2012/2013

**127,000 cubic yards of sand
Breakwater and 2 Groins
\$ 5M**

Local Sponsor: NYCDP&R

Gerritsen Creek, Marine Park Brooklyn Aquatic Ecosystem Restoration



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Gerritsen Creek Historical Map



Gerritsen Creek: Fill Removal and Recontouring



Gerritsen Creek: Vegetating the Site – New Plants



Gerritsen Creek Progress



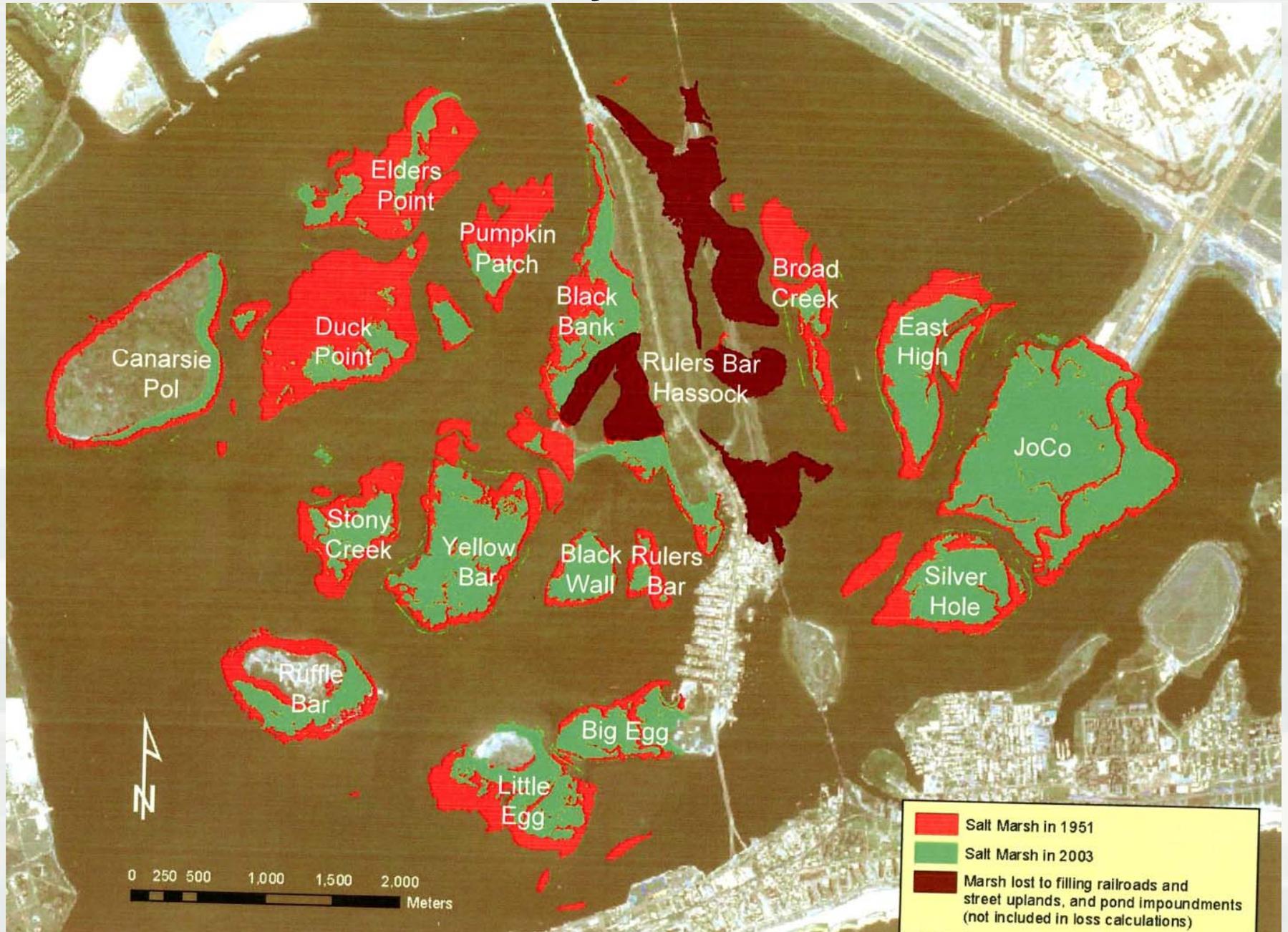
2010

Early 2011

Late 2011



Jamaica Bay Marsh Islands



Elders East 2006



Jamaica Bay

Marsh Islands Restoration
>1 million CY

**Elders
West
2010**



2007



40 acres, \$17.2M



Elders East 2011

40 acres, \$15M



Building the Island – Sand Delivery



Building the Island – Containment



Vegetating the Island – Transplanting



Building the Island - Grading



Yellow Bar, Black Wall and Rulers Bar Marsh Island Restoration 2012



Yellow Bar: 46 acres, \$17.3M
Black Wall: 20 acres, \$2.1M 2007
Rulers Bar: 10 acres, \$1.311M

**Sponsors: NYSDEC,
NYCDEP, PANYNJ, NPS**

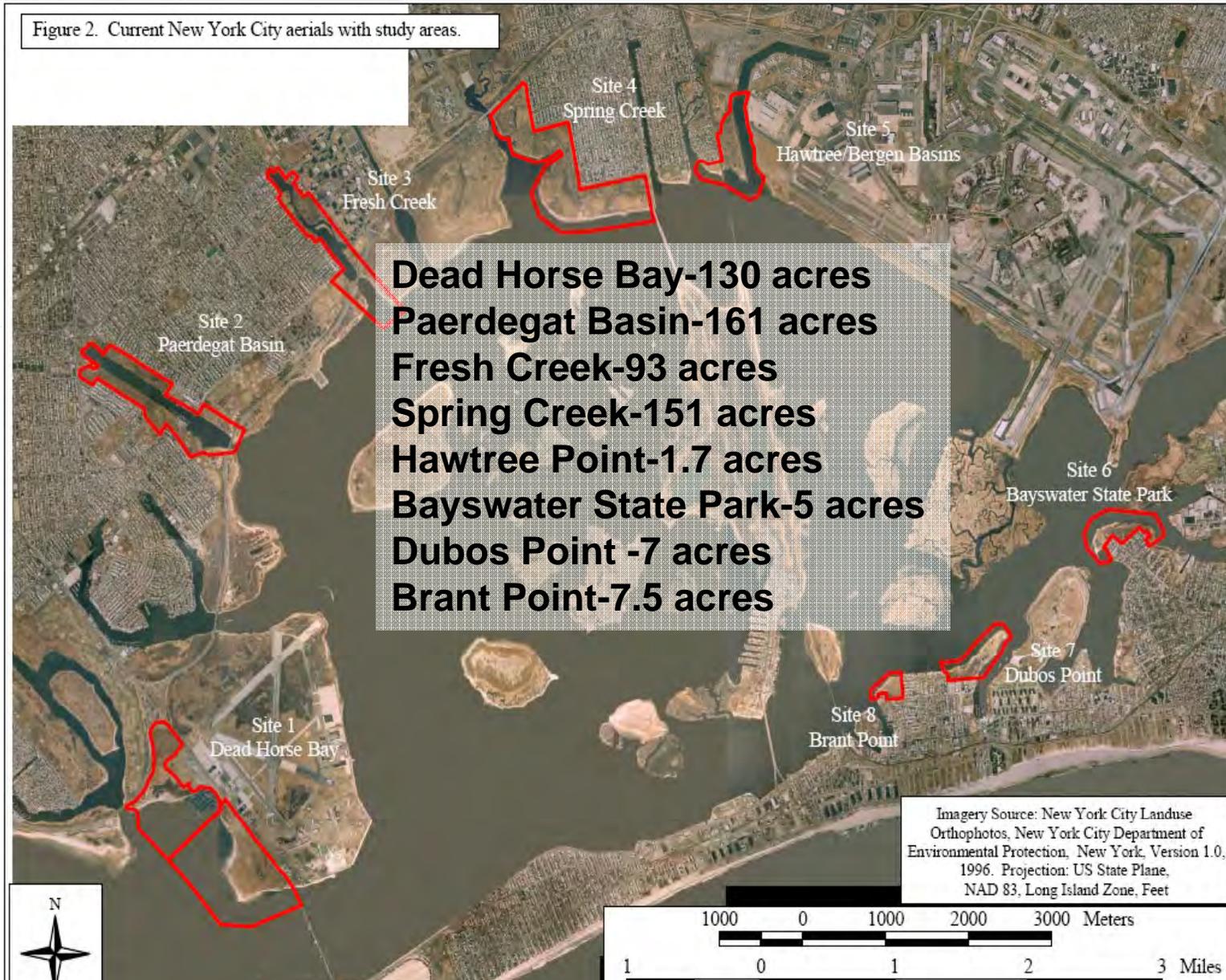
Black Wall and Rulers Bar Pre-Restoration



**Planting Effort at Black Wall and Rulers Bar (July 2013):
Jamaica Bay EcoWatchers, American Littoral Society, Jamaica Bay
Guardian and Community Volunteers**

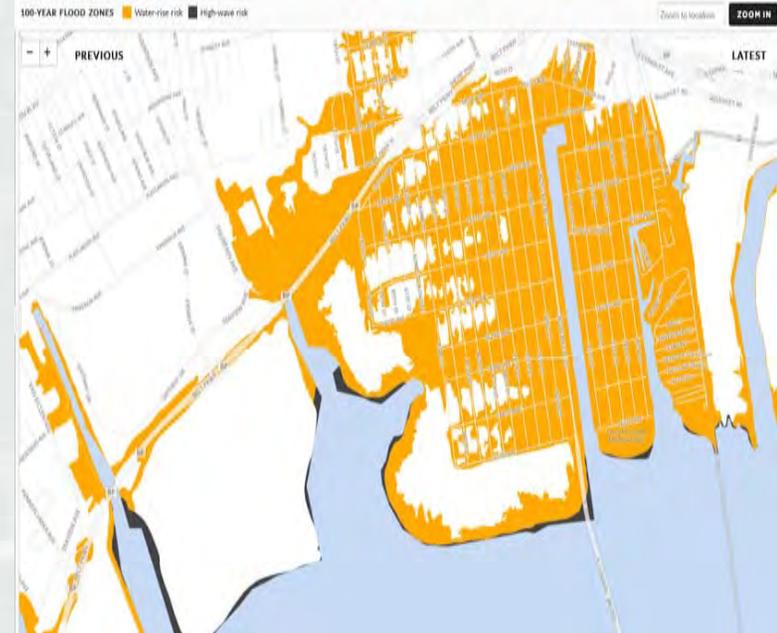


Jamaica Bay, Marine Park, Plumb Beach Feasibility Study Areas (included in Reformulation or HRE)



Spring Creek South FEMA Hazard Mitigation Grant

- Awarded to NYSDEC with goal to reduce future disaster damages
- Integrated Approach: Ecosystem and CSRM benefits



- \$50.8 (2 Phases)
- Based on Ecosystem Restoration design from USACE Feasibility Study



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Integrated Approach Coastal Storm Risk Management and Ecosystem Services

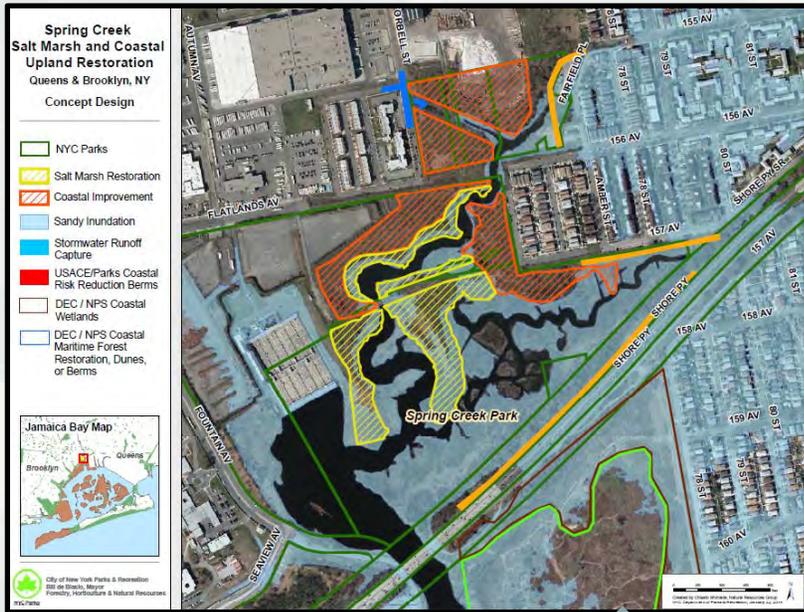
Potential Components of solution:

- ▶ Restore 150+ acres of habitat
- ▶ Create higher inland contours
- ▶ Optimize target elevation (based on new flood maps)
- ▶ Create low & high marsh, tidal creeks, berm, maritime forest and grasslands
- ▶ Breakwaters
- ▶ Replace invasive plants with native species
- ▶ Maintain and enhance public access to park (NPS Greenway)



Spring Creek Coastal Restoration and Marsh Islands





Spring Creek North

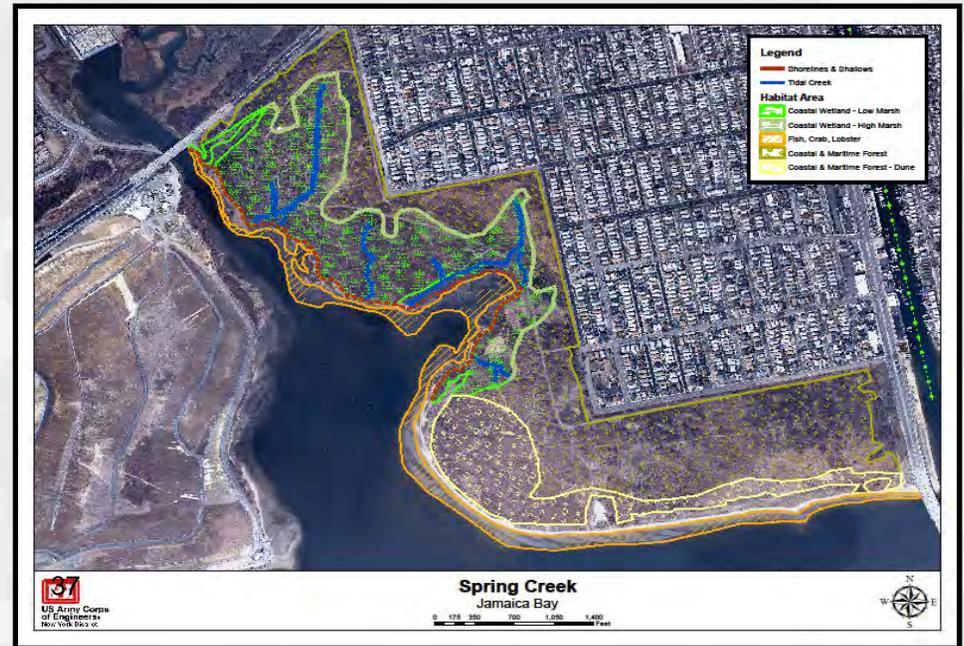
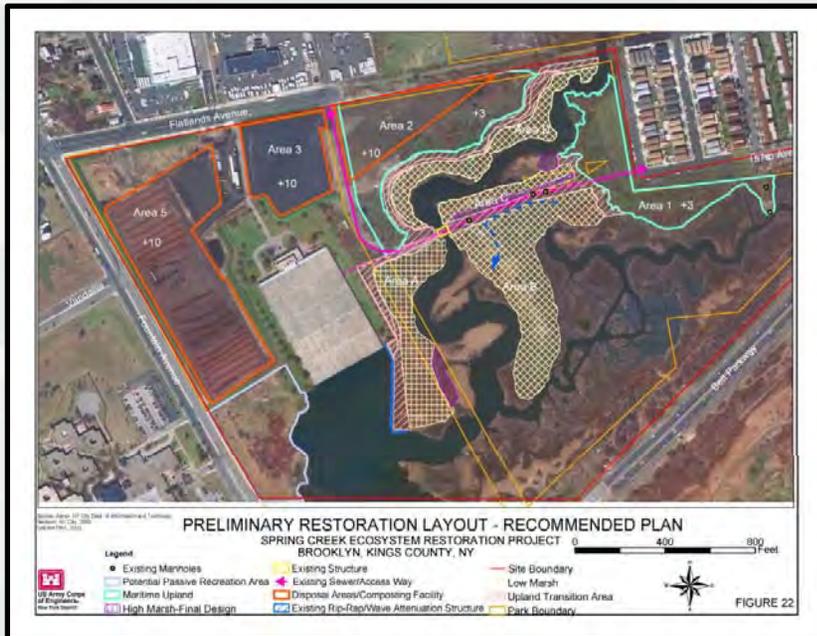
NY RISING (\$18.4M)

Spring Creek South

Continuing Authorities Program (\$10M Fed)

NYCDP&R NFWF Grant (\$4.27M)

NYSDEC- FEMA Hazard Mitigation Grant (\$51M)



Other Resiliency Proposals



Sunset Cove Park Habitat Restoration

Preliminary Conceptual Plan*

- NYC Parks Property
- NPS Property
- Low Marsh
- High Marsh
- Coastal Forest

* Indicates potential areas for habitat restoration, which are subject to revision during the design process.

City of New York Parks & Recreation
Wildlife, Soaring & Marine
Department of Environmental Conservation
Planning, Design and Construction
S&P/PLN



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Sea Gate

Gravesend
Bay

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37th Street Terminal Groin



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