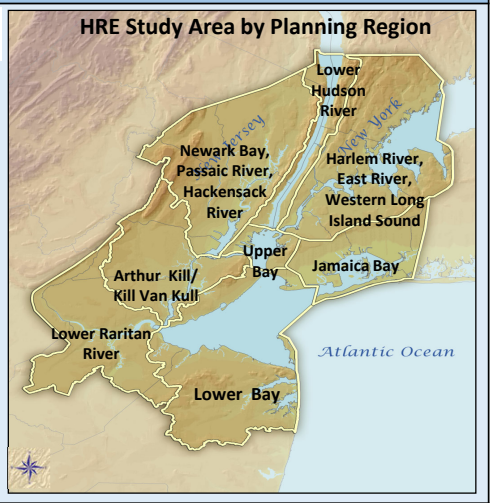
Hudson Raritan Estuary (HRE) Ecosystem Restoration Project, New York and New Jersey

Integration of six feasibility studies (four authorizations) with ten sponsors/partners:

- HRE (8 Planning Regions)
- HRE - Lower Passaic River
- HRE – Hackensack Meadowlands
- Flushing Creek and Bay
- Bronx River Basin
- Jamaica Bay Marine Park, and Plumb Beach

1



Purpose: The purpose of the study was to ***restore significant ecological function, structure, and dynamic process*** that have been degraded throughout the Hudson Raritan Estuary. Restoration is needed due to the long-term historic habitat degradation and loss via urbanization and industrialization.

Nationally Significant Estuary 2

Institutional Significance:
- Estuary of National Importance- National Estuary Program
- Ecosystems of National Significance
- One of the largest estuaries in the U.S
- Second largest Port in the U.S.
- HRE Comprehensive Restoration Plan (Regional Goals)
- Regionally Significant Coastal Habitat
- Migratory Bird Treaty Act
- Urban Waters Federal Partnership (Passaic & Bronx Rivers)
- National Estuarine Research Reserve System

Technical Significance:
- Wetland habitat is extremely scarce and actively declining nationally (99% freshwater >85% of estuarine wetlands)
- Provides habitat for 27 Federally-listed species of special status, 2 candidate species, 400 plant and animal species of special emphasis
- Atlantic Flyway - stop-over point for >500 avian species

Public Significance:
- Home to over 13 million people
- Collaboration with over 120 federal and state agencies, academic institutions, nonprofit and community organizations to restore the HRE

Objectives 4

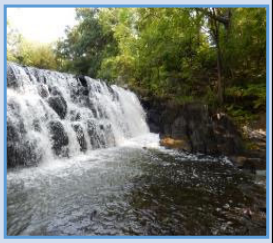
1. Restore the structure, function, and connectivity, and increase the extent of ***estuarine habitat.***
2. Restore the structure and function, and increase the extent of ***freshwater riverine habitat.***
3. Restore the structure and function, and increase the extent of ***marsh island habitat*** in Jamaica Bay.
4. Increase the extent of ***oyster reefs***.

Key Problems 3


Lost/Degraded Wetlands


Disappearing Marsh Islands


Hardened Shorelines


Fish Passage Barriers

- Significant habitat loss within study area:
  >85% estuarine wetlands lost
  > 99% freshwater wetlands lost
  ~2,000 acres of marsh islands in Jamaica Bay lost
- Filled, eroded, and hardened shorelines
- Loss of ~100% of oyster reefs
- Barriers to fish passage impede spawning and access to habitat
- Scarce habitat and lack of connectivity
- Bed and bank erosion
- Decrease in habitat diversity
- Increase in invasive species
- Poor benthic habitat
- Altered hydrology degrades habitat
- Straightened and deepened channels degrade habitat
- Loss of >95% of eelgrass beds
- Poor sediment and water quality


Degraded/Eroding Shorelines

Comprehensive Restoration Strategy 5

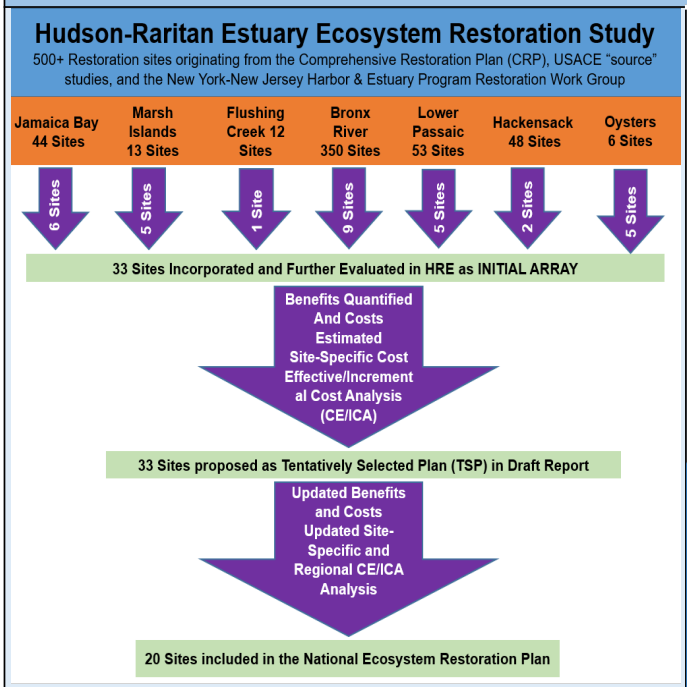
Estuary of National Importance / National Estuary Program	NY/NJ Harbor Estuary Program (HEP) Comprehensive Conservation Management Plan	HRE/Jamaica Bay/Bronx River/Flushing Creek Authorizations	HRE and Source Study Reconnaissance Reports	HRE Comprehensive Restoration Plan
1988	1996	1990-1999	1994-2001	2009/2016

Integration of all Source Studies into HRE	Coordination with HEP Restoration Work Group & Sponsors	Harbor Estuary Program Action Agenda	Long Term Control Plans and Green Infrastructure	WRDA Authorized Recommended Plan Significant Contribution to meet Regional Goals
2013-2016	ongoing	2018	2015-2020	2020

2022 → Design Funding

Plan Formulation

6



- Site Screening of 500+ Sites among the 6 "source" studies
- Criteria (including physical constraints, known upland contamination, real estate, sponsor readiness, habitat value, etc.)
- 99 Alternatives were developed at 33 sites
- Management Measures considered: excavation, invasives removal, regrading, native plantings, stream bed restoration, in-stream structures (j-hooks, cross vanes), streambank reestablishment, channel dredging, oyster reefs, fish ladders
- Cost estimated/benefits quantified with approved models including Evaluation of Planned Wetlands, Oyster Habitat Suitability Model and Watershed Scale Connectivity Toolkit
- Plan Evaluation and Comparison: Site and Regional (1,256 plans) Cost Effectiveness/Incremental Cost Analysis, planning objectives, secondary decision factors
- 20 Sites Recommended for construction

Environmental Compliance- 2020

- ✓ Environmental Assessment completed
- ✓ All coordination completed (Endangered Species Act, Fish and Wildlife Coordination Act Report, Essential Fish Habitat)
- ✓ Section 106, Programmatic Agreement
- ✓ Preliminary Water Quality Certificates and Coastal Zone Consistency
- ✓ Supported by State and Federal Resource Agencies

7

The Recommended Plan

- The **National Ecosystem Restoration (NER) Plan** is the restoration of **20 restoration sites** within the HRE that address long-term and large-scale degradation of aquatic habitat.
- Restoration supports Comprehensive Restoration Plan's regional goal, "to develop a mosaic of habitats that provides society with renewed and increased benefits from the estuary environment".
- **NER Plan** provides restoration of approximately:
  - ✓ 381 acres of **estuarine wetlands** including 16 acres/30,650 linear feet of tidal channels;
  - ✓ 50 acres of **freshwater riverine wetlands**;
  - ✓ 27 acres of **maritime forest/uplands**;
  - ✓ 39 acres of **shallow water habitat**;
  - ✓ 52 acres of **oyster habitat**;
  - ✓ 1.6 miles of **streambank restoration**;
  - ✓ 72 acres of **bed and channel restoration**; and
  - ✓ **Two fishways** would be installed and three weirs would be modified to re-introduce or **expand fish passage (24 miles)** along the Bronx River.
- **Future spin-off feasibility studies** to be carried out under the existing HRE authority.

Cost Summary (FY27 Price Levels)

8

Project Total First Cost	$564,137,000	Project Total Fully Funded Cost	$792,774,000
Project Total Fully Funded Federal Cost (65%)	$515,302,810	Project Total Non-Federal Share (35%)	$277,470,740
Costs for each HRE Site in Following Table			

Significance of Recommended Plan

9

621 Total Acres of Nationally Significant Habitat Restored

- Restoration of 431 acres of wetland habitat that is extremely scarce and actively declining nationally
- Habitat supports 27 Federally-listed species
- Key stop-over points for migratory birds (>500 species) along the Atlantic Flyway
- Estuarine marshes/wetlands serve as nursery, feeding, spawning sites and refuge to predators
- Reconnecting scarce and fragmented habitat
- Connectivity for migratory fish (anadromous and catadromous)
- Marsh island restoration of 175 acres of habitat in Jamaica Bay to counteract the loss of >2,000 acres providing ecosystem benefits and secondary coastal storm risk management benefits to coastal communities

Authorized Recommended Plan Details

Recommended Sites and Measures/Habitat Type at Each Site

Restoration Measures/Habitat Types

1. Estuarine Wetlands
2. Tidal Channel Restoration
3. Maritime Forest
4. Oyster Reefs
5. Shallow Water Habitat
6. Freshwater Wetland
7. Streambank Restoration
8. Bed Restoration
9. Fish Passage
10. Sediment Forebay

Engineering and Design Phase: 2022- Stony Creek Marsh Island, Flushing Creek, Oysters at Naval Station Earle and Bronx Zoo & Dam/Stone Mill Dam Projects; **2024**- Fresh Creek Project and Duck Point Marsh Island

Feasibility Study Spin-Off: 2025- HRE-Harlem River Ecosystem Restoration Feasibility Study (pending Feasibility Cost Share Agreement)

HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION PROGRAM - AUTHORIZED PROJECTS (FY2027 Price Levels) [as of 10 April 2025]							
Site	**Project Description: Current Habitat Types and Actions (Acres/Linear Feet/Miles)**	**Local Sponsor**	**Phase Cost**	**Total ($)**	**Federal (65%)($)**	**Non-Federal (35%)($)**	**Status**
Jamaica Bay Planning Region – Perimeter Sites							
Dead Horse Bay	Low Marsh (19 acres); High Marsh (5.4 acres); Scrub/Shrub (6.2 acres); Upland (8 acres) Tidal Channels (2.31 acres) [Total Habitat: 40.91 acres]	NYCDEP NYSDEC NPS*	Total Project	$86,732,000	$56,375,800	$30,356,200	To be coordinated with NPS Remedial Action.
			Engineering & Design	$7,161,000	$4,654,650	$2,506,350	
			Construction	$79,571,000	$51,721,150	$27,849,850	
Fresh Creek	Low Marsh (16.1 acres); High Marsh (4.4 acres); Scrub/Shrub (3.6 acres); Maritime Forest (10.7 acres); Bed/Channel Restoration (45.08 acres) [Total Habitat: 79.88 acres]	NYCDEP NYC Parks*	Total Project	$55,927,000	$36,352,550	$19,574,450	*$500,000 provided in FY23 Appropriations Bill *$2,750,000 provided in FY24 Appropriations Bill *DA executed 5/29/24 *A/E Task Order in process to complete field work and P&S
			Engineering & Design (FY24)	**$5,000,000**	**$3,250,000**	**$1,750,000**	
			Construction	$50,927,000	$33,102,550	$17,824,450	
Total Cost:				**$142,659,000**	**$92,728,350**	**$49,930,650**	
Jamaica Bay Planning Region – Marsh Islands							
Stony Creek	Low Marsh (24.7 acres); Transition Zone (6 acres), High Marsh (8.9 acres); Scrub/Shrub (3.3 acres); Tidal Channels (1.1 acres); Shallows (3.6 acres) [Total Habitat ~48 acres using ~375,000 CYD of dredge material] (60% designs)	NYCDEP NPS*	Total Project	$35,920,000	$23,348,000	$12,572,000	* Funding provided in FY22 Appropriations Bill ($300,000) and Infrastructure and Investment and Jobs Act (IIJA) ($19,461,500) *DA executed 7/28/22 *Completed 60% designs 7/25
			Engineering & Design (FY22)	**$3,182,300**	**$2,068,495**	**$1,113,805**	
			Construction	$32,737,700	$21,279,505	$11,458,195	
Duck Point	Low Marsh (24.9 acres); High Marsh (5.6 acres); Scrub/Shrub (8.1 acres); Tidal Channels (1.03 acres); Shallows (7.57 acres) [Total Habitat: 47.2 acres using ~400,000 CYD of dredge material]	NYCDEP NPS*	Total Project	$34,293,000	$22,290,450	$12,002,550	*Funding provided ($2,275,000) from the IIJA FY23 Summer Spend Plan *DA executed 5/29/24 * Field Work Completed * 30% designs initiated 7/25
			Engineering & Design (FY24)	**$3,500,000**	**$2,275,000**	**$1,225,000**	
			Construction	$30,793,000	$20,015,450	$10,777,550	
Pumpkin Patch West	Low Marsh (13.7 acres); High Marsh (8.61 acres); Scrub/Shrub (.9 acres); Tidal Channels (0.74 acres); Shallows (3.88 acres) [Total Habitat: 27.83 acres using 327,686 CYD of dredge material]	NYCDEP NPS*	Total Project	$37,501,000	$24,375,650	$13,125,350	
			Engineering & Design	$3,706,000	$2,408,900	$1,297,100	
			Construction	$33,795,000	$21,966,750	$11,828,250	
Pumpkin Patch East	Low Marsh (15.6 acres); High Marsh (10.1 acres); Scrub/Shrub (3.1 acres); Tidal Channels (0.58 acres); Shallows (5.22 acres) [Total Habitat: 34.6 acres using 351,952 CYD of dredge material]	NYCDEP NPS*	Total Project	$45,302,000	$29,446,300	$15,855,700	
			Engineering & Design	$4,187,000	$2,721,550	$1,465,450	
			Construction	$41,115,000	$26,724,750	$14,390,250	
Elders Center	Low Marsh (15.2 acres); High Marsh (10.9 acres); Scrub/Shrub (1.4 acres); Tidal Channels (0.95 acres); Shallows (5.49 acres) [Total Habitat: 33.94 acres using 284,891 CY of dredge material]	NYCDEP NPS*	Total Project	$34,261,000	$22,269,650	$11,991,350	
			Engineering & Design	$3,139,000	$2,040,350	$1,098,650	
			Construction	$31,122,000	$20,229,300	$10,892,700	
	Total Cost:			**$187,277,000**	**$121,730,050**	**$65,546,950**	

HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION PROGRAM - AUTHORIZED PROJECTS (FY2027 Price Levels) [as of 10 April 2025]							
Site	**Project Description: Current Habitat Types and Actions (Acres/Linear Feet/Miles)**	**Local Sponsor**	**Phase Cost**	**Total ($)**	**Federal (65%)($)**	**Non-Federal (35%)($)**	**Status**
East River, Harlem River and Western Long Island Sound Planning Region							
Flushing Creek	Low Marsh (9.76 acres); High Marsh (2.47 acres); Scrub/Shrub (1.8 acres); Maritime Forest (3.89 acres); Shallows (1.37 acres)[Total Habitat = 19.29 acres]	NYCDEP MTA*	Total Project	$23,647,000	$15,370,550	$8,276,450	* Funding provided in FY22 Appropriations Bill ($300,000) and IIJA ($2,428,700) *DA executed 7/28/22 60% Designs completed 10/16/2025
			Engineering & Design (FY22)	**$4,198,000**	**$2,728,700**	**$1,469,300**	
			Construction	$19,449,000	$12,641,850	$6,807,150	
Bronx Zoo & Dam/Stone Mill Dam	Bronx Zoo & Dam: Shrub Swamp (1.8 acres); Forested Scrub/Shrub Wetland (0.5 acres); Bed and Channel (1.3 acres); Fish Passage Opening [partial dam removal](0.8 river miles opened) [Total Habitat: 3.6 acres] (EDR, 2024)	NYC Parks	Total Project	$20,732,000	$14,357,850	$7,731,150	* Projects Combined *Funding provided in FY22 Appropriations Bill ($300,000) and IIJA ($2,912,300) *DA executed 7/29/22 *Engineering Documentation Report approved 5/1/24 * Award pending on A/E Task Order to conduct field work and prepare P&S
			Engineering & Design (FY22)	**$4,942,000**	**$3,212,300**	**$1,729,700**	
	Stone Mill Dam: Emergent Wetland (.1 acre); Bed Restoration (0.4 acres); Fish Passage Opening [dam removal] (~7 river miles opened +16 miles following upstream weir modifications) [Total Habitat: 0.5] (EDR, 2024)		Construction	$15,790,000	$10,263,500	$5,526,500	
Shoelace Park	Emergent Wetland (2.07 acres); Forested Scrub/Shrub Wetland (1.1 acres); Invasives Removal/Native Planting (7.9 acres); Bed Restoration (5.7 acres); Streambank (7,415 linear feet) [Total Habitat: 16.77 acres]	NYC Parks	Total Project	$40,065,000	$26,042,250	$14,022,750	
			Engineering & Design	$5,827,000	$3,787,550	$2,039,450	
			Construction	$34,238,000	$22,254,700	$11,983,300	
Bronxville Lake	Emergent Wetland (0.86 acres); Forested Scrub/Shrub Wetland (2.49 acres); Invasives Removal/Native Planting (1.39 acres); Bed Restoration (0.65 acres); Sediment Forebay (0.3 acres) [Total Habitat: 5.69 acres]	Westchester County	Total Project	$29,458,000	$19,147,700	$10,310,300	
			Engineering & Design	$5,580,000	$3,627,000	$1,953,000	
			Construction	$23,878,000	$15,520,700	$8,357,300	
Garth Woods - Harney Road	Emergent Wetland (0.82 acres); Wet Meadow (1.67 acres); Forested Scrub/Shrub Wetland (0.57 acres); Invasive Removal/ Native Planting (1.63 acres); Bed Restoration (2.19 acres); Streambank (200 linear feet) [Total Habitat: 6.88 acres]	Westchester County	Total Project	$16,296,000	$10,592,400	$5,703,600	*$500,000 provided in IIJA FY23 Summer Spend Plan *DA pending
			Engineering & Design	$4,000,000	$2,600,000	$1,400,000	
			Construction	$12,296,000	$7,992,400	$4,303,600	
Total Cost:				**$130,198,000**	**$85,510,750**	**$46,044,250**	

HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION PROGRAM - AUTHORIZED PROJECTS (FY2027 Price Levels) [as of 10 April 2025]							
Site	**Project Description: Current Habitat Types and Actions (Acres/Linear Feet/Miles)**	**Local Sponsor**	**Phase Cost**	**Total ($)**	**Federal (65%)($)**	**Non-Federal (35%)($)**	**Status**
Newark Bay, Hackensack River and Passaic River Planning Region							
Oak Island Yards	Low Marsh (5.32 acres); High Marsh (0.85 acres); Scrub/Shrub (0.44 acres); Maritime Forest (2.85 acres); Tidal Channel Restoration (1.36 acres) [Total Habitat: 10.82 acres]	NJDEP	Total Project	$40,636,000	$26,413,400	$14,222,600	
			Engineering & Design	$5,997,000	$3,898,050	$2,098,950	
			Construction	$34,639,000	$22,515,350	$12,123,650	
Essex County Branch Brook Park	Emergent Wetland Creation (10.25 acres); Forested Scrub/Shrub Wetland (8.8 acres); Invasives Removal/Native Planting (8.91 acres); Bed Restoration (18.09 acres) [Total Habitat: 46.05 acres]	NJDEP	Total Project	$92,280,000	$59,982,000	$32,298,000	
			Engineering & Design	$4,908,000	$3,190,200	$1,717,800	
			Construction	$87,372,000	$56,791,800	$30,580,200	
Metromedia Tract	Low Marsh (26.5 acres); High Marsh (11.7 acres); Scrub/Shrub (13.8 acres); Tidal Channel Restoration (2.79 acres); Shallows (6.51 acres) [Total Habitat: 61.3 acres]	NJDEP NJSEA*	Total Project	$85,891,000	$55,829,150	$30,061,850	Restoration of this site would wait for USEPA remedial actions given the Hackensack River is a Superfund Site.
			Engineering & Design	$6,772,000	$4,401,800	$2,370,200	
			Construction	$79,119,000	$51,427,350	$27,691,650	
Meadowlark Marsh	Low Marsh (56.2 acres); High Marsh (6.5 acres); Scrub/Shrub (5.4 acres); Tidal Channel Restoration (4.6 acres) [Total Habitat: 72.7 acres]	NJDEP NJSEA*	Total Project	$70,939,000	$46,110,350	$24,828,650	Restoration of this site would wait for USEPA remedial actions given the Hackensack River is a Superfund Site.
			Engineering & Design	$8,063,000	$5,240,950	$2,822,050	
			Construction	$62,876,000	$40,869,400	$22,006,600	
	Total Cost:			**$289,746,000**	**$188,334,900**	**$101,411,100**	
Oyster Reef Restoration (Multiple Planning Regions)							
Naval Weapons Station Earle	Oyster restoration (8.75 acres) with a variety of reef structures including oyster castles/pyramids, gabions filled with shells, reef balls, Natrx Lattice and 2-Tier Cubes. (30% Designs)	NJDEP Navy* Monmouth U* Billion Oyster Program (BOP) /Harbor School*	Total Project	$20,076,000	$13,049,400	$7,026,600	* Funding provided in FY22 Appropriations Bill ($300,000) and BIL ($1,175,500) *DA executed 9/14/22 * Designs in progress
			Engineering & Design (FY22)	**$2,270,000**	**$1,475,500**	**$794,500**	
			Construction	$17,806,000	$11,573,900	$6,232,100	
Bush Terminal	Oyster restoration with spat on shell, oyster castles and gabions (31.9 acres)	NYC Parks NY Harbor School*	Total Project	$13,798,000	$8,968,700	$4,829,300	
			Engineering & Design	$3,328,000	$2,163,200	$1,164,800	
			Construction	$10,470,000	$6,805,500	$3,664,500	
Head of Jamaica Bay	Oyster restoration with spat on shell and gabions (10.1 acres)	NYCDEP NY Harbor School*	Total Project	$9,047,000	$5,880,550	$3,166,450	
			Engineering & Design	$3,525,000	$2,291,250	$1,233,750	
			Construction	$5,522,000	$3,589,300	$1,932,700	
	Total Cost:			**$42,921,000**	**$27,898,650**	**$15,022,350**	

HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION PROGRAM - AUTHORIZED PROJECTS (FY2027 Price Levels) [as of 10 April 2025]							
Site	**Project Description: Current Habitat Types and Actions (Acres/Linear Feet/Miles)**	**Local Sponsor**	**Phase Cost**	**Total ($)**	**Federal (65%)($)**	**Non-Federal (35%)($)**	**Status**
HRE Program Summary (Current Estimate)							
Jamaica Bay Planning Region: Perimeter Sites	Low Marsh (35.1 acres); High Marsh (9.8 acres); Scrub/Shrub (9.8 acres); Maritime Forest/Upland (18.7 acres); Tidal Channels (2.31 acres) and Bed/Channel (45.08 acres)[Total Habitat Restoration: 120.79 acres]	NYSDEC NYCDEP		$142,659,000	$92,728,350	$49,930,650	
Jamaica Bay Planning Region: Marsh Islands	Low Marsh (94.1 acres); Transition Zone (6 acres), High Marsh (44.1 acres); Shrub/Scrub (16.8 acres); Tidal Channel Restoration (4.4 acres); Shallows (25.8 acres) Using 1,739,529 CY of dredged material [Total Habitat Restoration: 191 acres]	NYCDEP		$187,277,000	$121,730,050	$65,546,950	
Harlem River, East River Western Long Island Sound Planning Region	Low Marsh (9.76 acres); High Marsh (2.47 acres); Scrub/Shrub (1.8 acres); Maritime Forest (3.89 acres); Shrub Swamp (1.8 acres); Shallows (1.37 acres); Emergent Wetland (3.91 acres); Wet Meadow (1.67 acres); Forested Scrub/Shrub (4.64 acres); Invasive Removal/Native Planting (10.92 acres); Bed Restoration (10.74 acres); Sediment Forebay (0.30 acres); Fishway Opening (23.70 miles opened); Streambank (8,365 linear feet) [Total Habitat Restoration: 52.70 acres]	NYCDEP NYC Parks Westchester County Planning		$130,198,000	$85,510,750	$46,044,250	
Newark Bay, Hackensack River, and Passaic River Planning Region	Low Marsh (88.02 acres); High Marsh (19.05 acres); Scrub/Shrub (19.64 acres); Maritime Forest (2.85 acres); Tidal Channel Restoration (8.75 acres); Shallows (6.51 acres); Emergent Wetland (10.25 acres); Invasive Removal/Native Planting (8.91 acres); Forested Scrub/Shrub (8.8 acres); Bed Restoration (18.09 acres) [Total Habitat Restoration: 191.57 acres]	NJDEP NJSEA*		$289,746,000	$188,334,900	$101,411,100	
Oyster Reef Restoration	Oyster restoration using oyster castles/pyramids, gabions filled with shell, spat on shell, reef balls and other structures [Total Habitat: 51.0 acres]	NJDEP NYC Parks Monmouth U* NY Harbor School*		$42,921,000	$27,898,650	$15,022,350	
All Sites	**Low Marsh (227 acres); Transition Zone (6 acres); High Marsh (75.43 acres); Scrub/Shrub (48 acres); Maritime Forest/Upland (25.44 acres); Emergent Wetland (14.16 acres); Shrub Swamp (1.8 acres); Shallows (33.6 acres); Wet Meadow (1.67 acres); Forested Scrub/Shrub (13.44 acres); Invasive Removal/Native Planting (19.83 acres); Tidal Channels (15.4); Channel/Bed Restoration (73.41 acres); Sediment Forebay (0.3 acres); Bank Stabilization (8,365 linear feet); Fish Passage (23.7 miles opened); Oyster Reef (51 acres) [Total Habitat Restored: ~606.5 acres]**	All		$792,801,000	$516,202,700	$12,002,550	

Engineering and Design Phase Initiated

* Design and Construction Partner

DA: Design Agreement

EDR: Engineering Documentation Repor

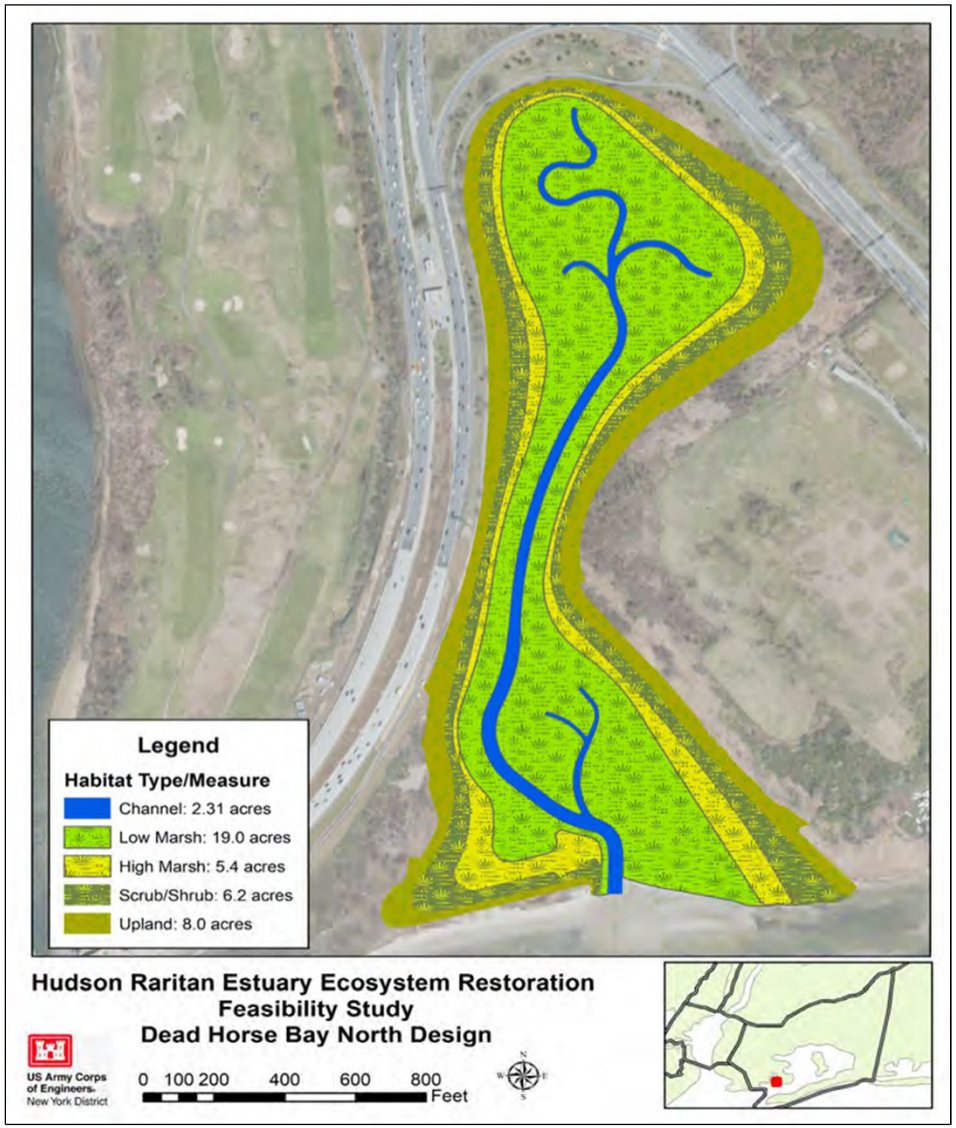
IIJA: Infrastructure Investment and Jobs Act

Note: Total costs are rounded.

BOP: Billion Oyster Program

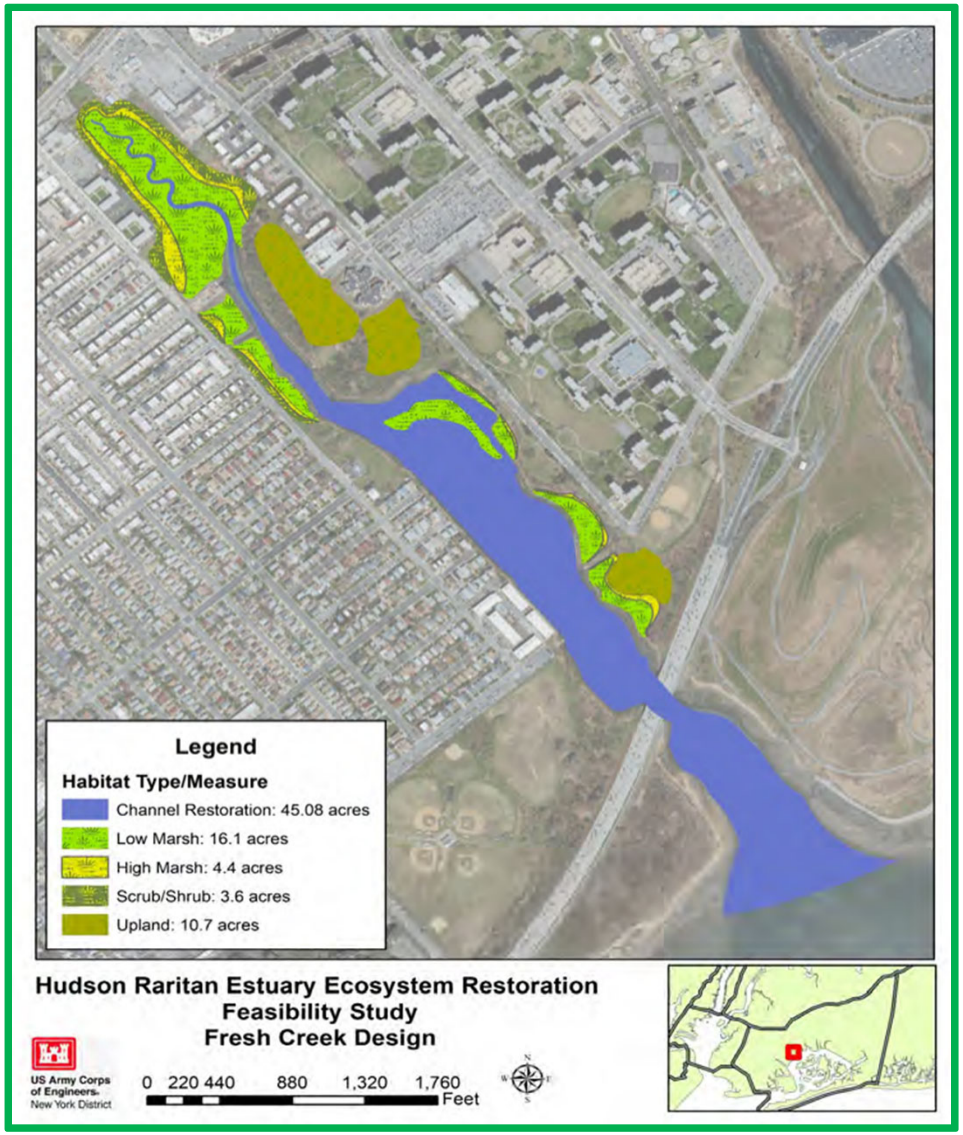
Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Jamaica Bay Perimeter Sites

Dead Horse Bay



~40.91 acres of Habitat Restoration

Fresh Creek



~79.88 acres of Habitat Restoration

Engineering and Design Initiated 2024

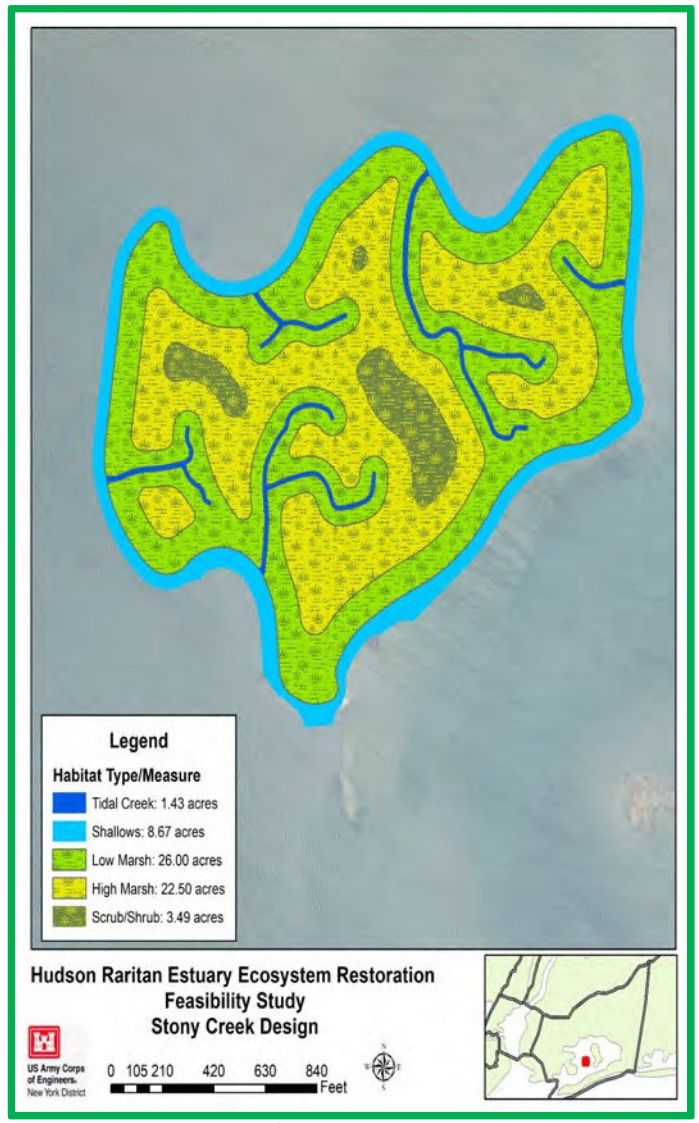
Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Jamaica Bay Marsh Island Sites

Duck Point

~47 acres of Habitat Restoration using 400,000 CY of dredged material

Engineering & Design Initiated 2024

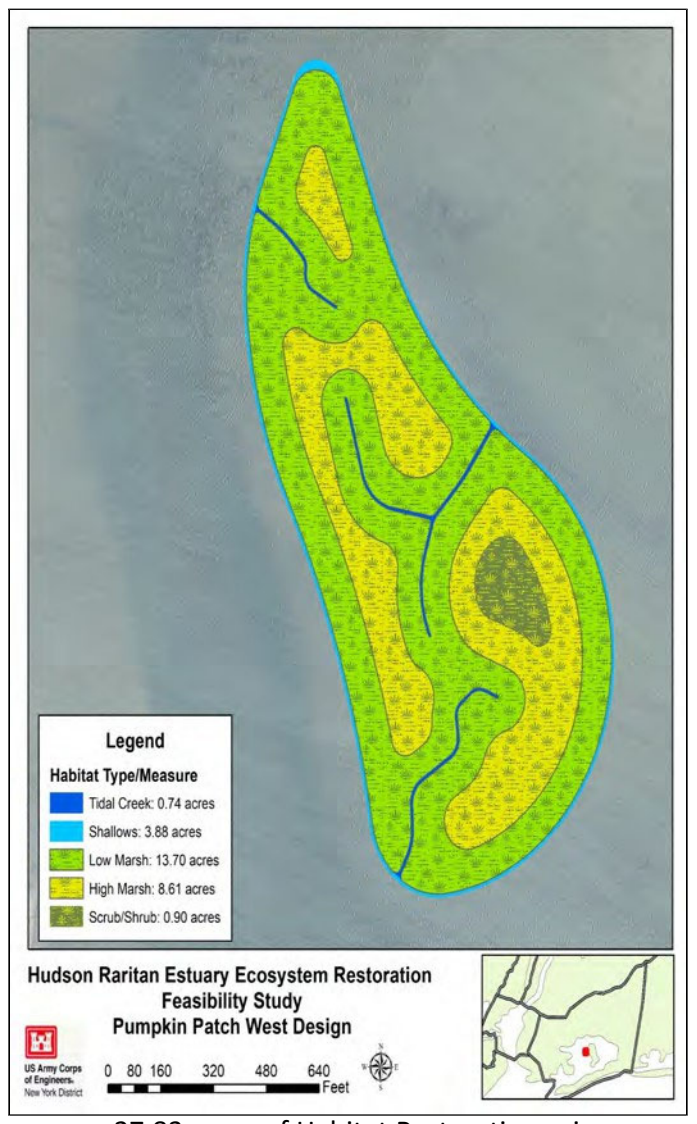
Stony Creek



~48 acres of Habitat Restoration using ~375,000 CY of dredged material

Engineering and Design Initiated 2022

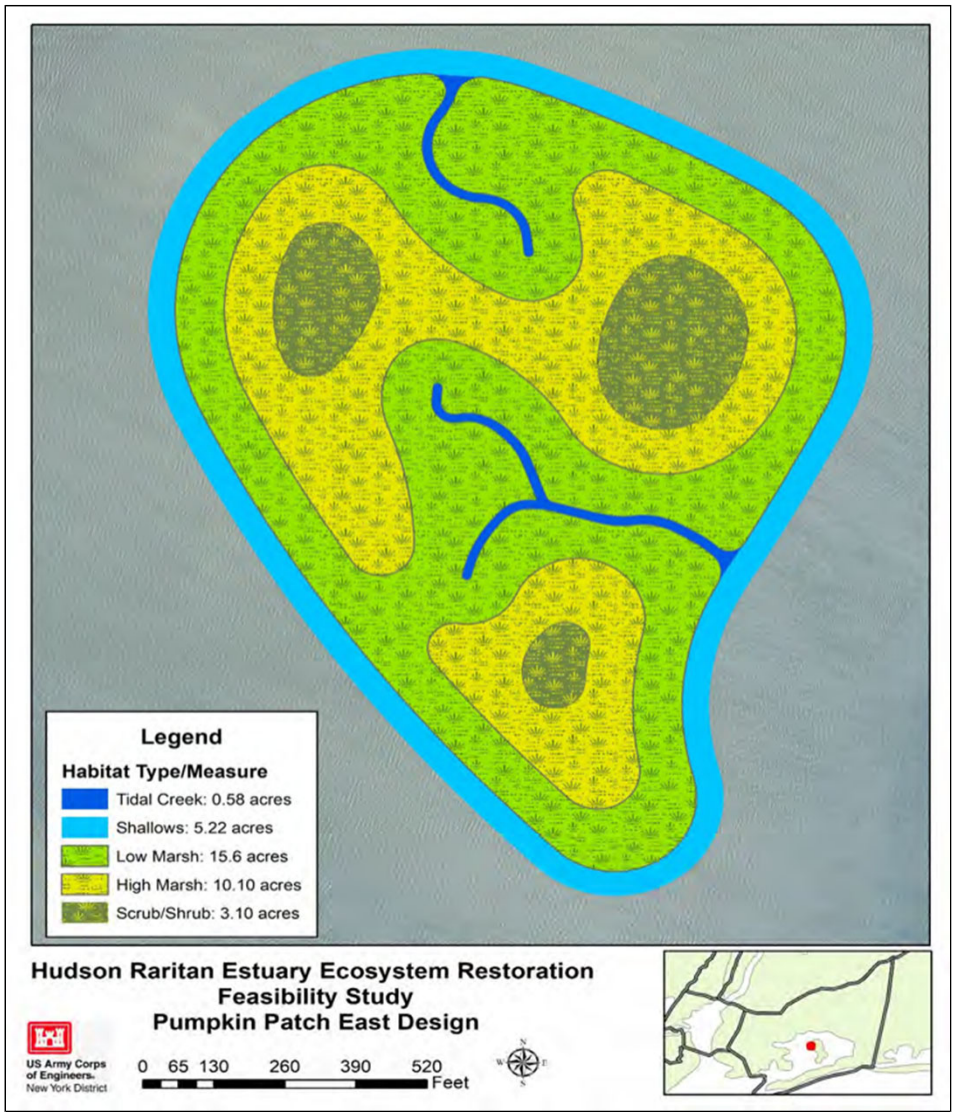
Pumpkin Patch West



~27.83 acres of Habitat Restoration using 327,686 CY of dredged material

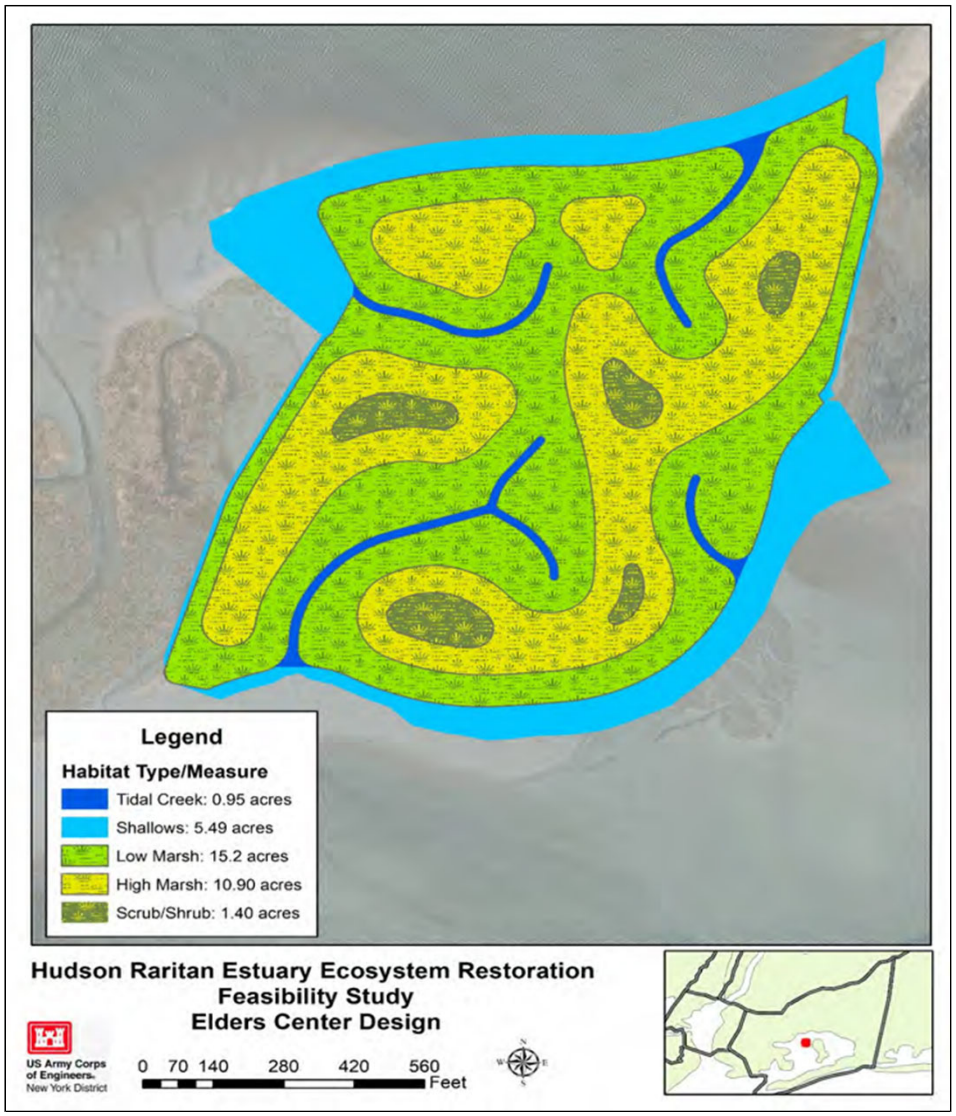
Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Jamaica Bay Marsh Island Sites

Pumpkin Patch East



~35 acres of Habitat Restoration using 351,952 CY of dredged material

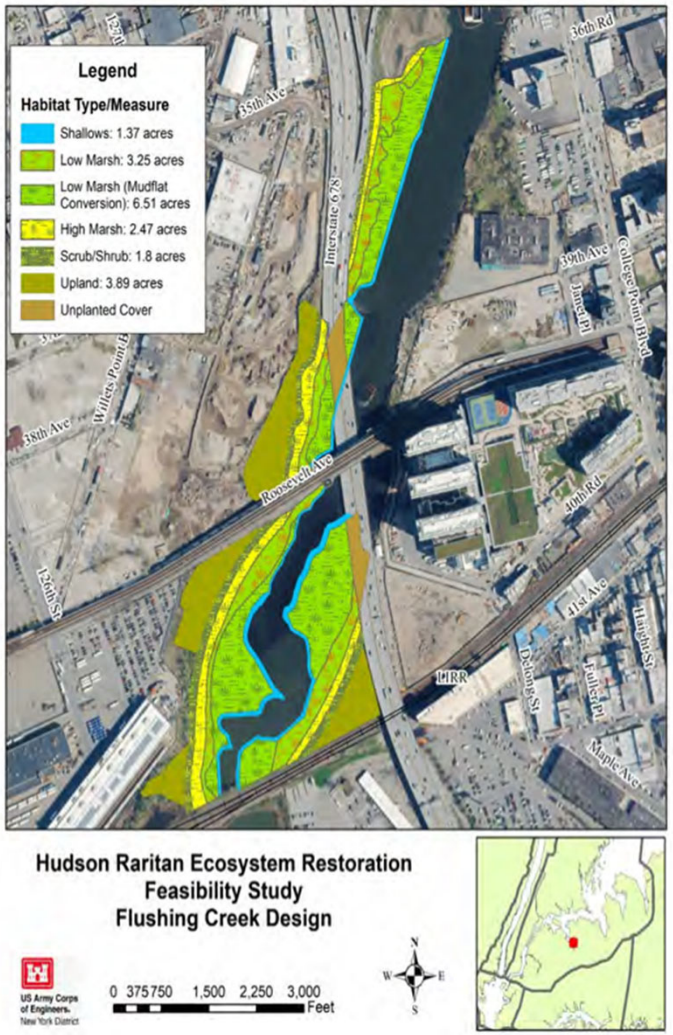
Elders Center



~34 acres of Habitat Restoration using 284,891 CY of dredged material

Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Flushing Creek and Bronx River Sites

Flushing Creek

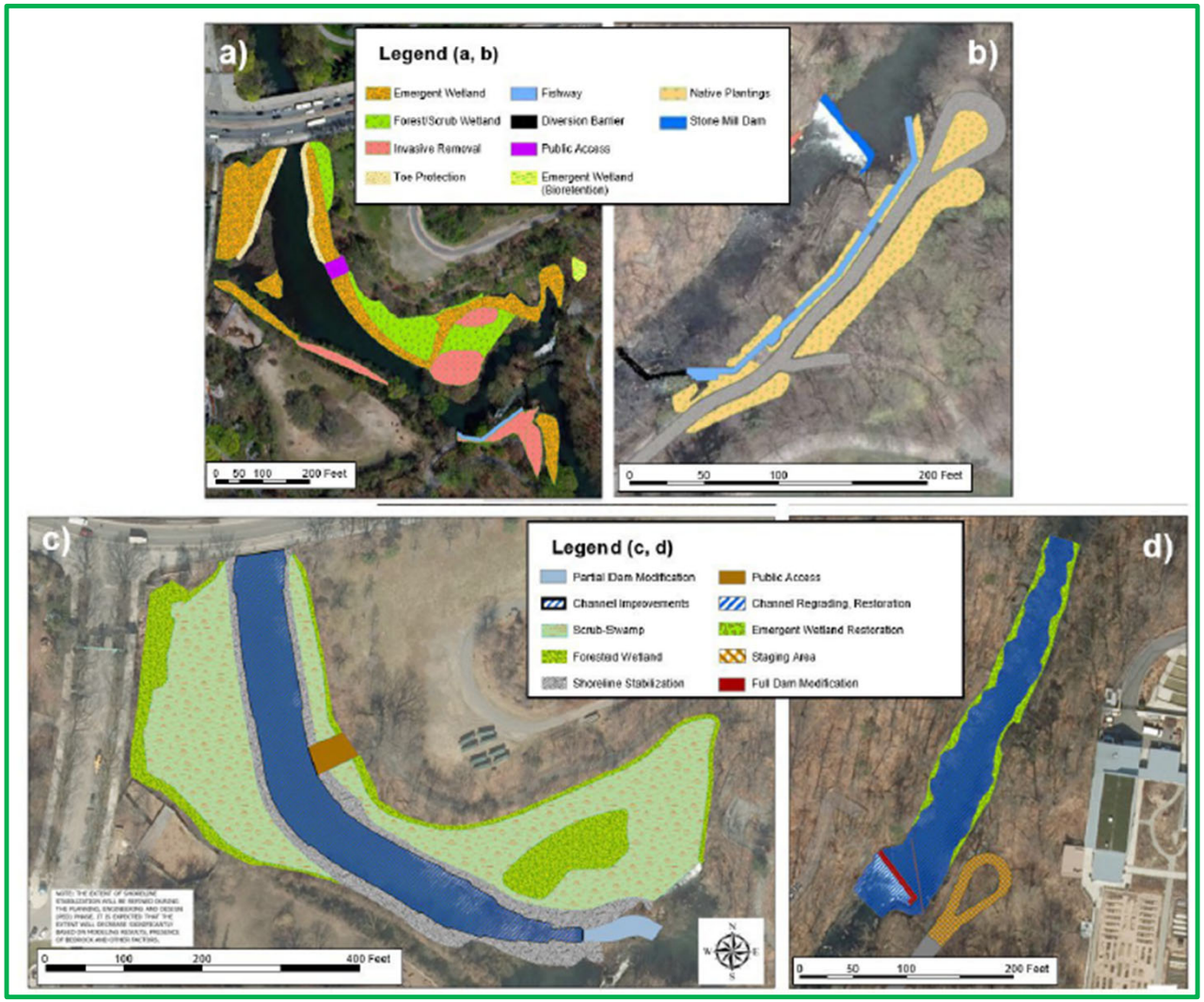


~19.29 acres of Habitat Restoration

Engineering and Design Initiated 2022

Bronx Zoo and Dam (a/c)

Stone Mill Dam (b/d)



a and b: Authorized Project (2020)

c and d: Engineering Documentation Report (2024)

c) ~3.6 acres of Habitat Restoration

0.8 River Miles Opened

Engineering and Design Initiated 2022

d) ~0.5 acres of Habitat Restoration

~7 River Miles Opened

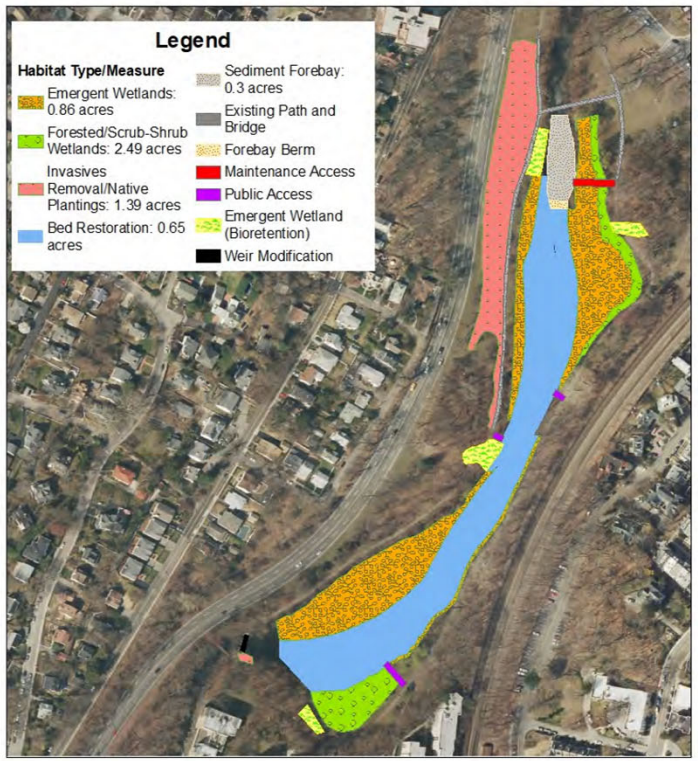
Engineering and Design Initiated 2022

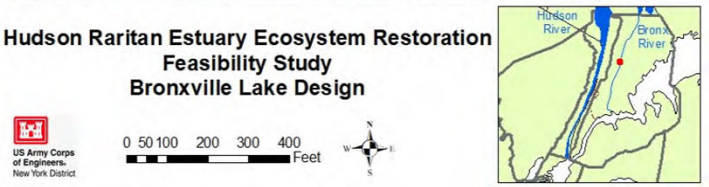
Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Flushing Creek and Bronx River Sites

Shoelace Park

~16.77 acres of Habitat Restoration

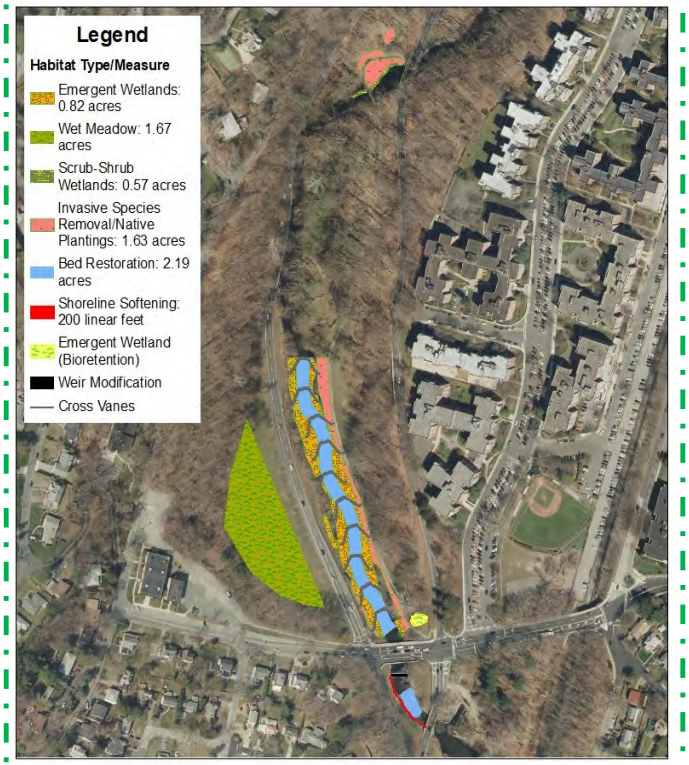
Bronxville Lake

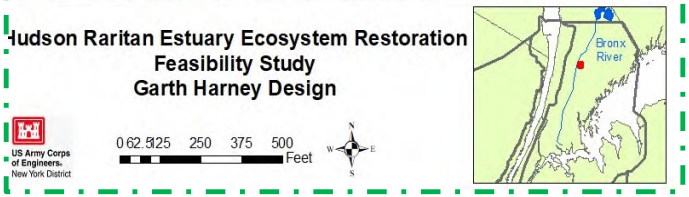




~5.69 acres of Habitat Restoration

Garth Woods – Harney Road

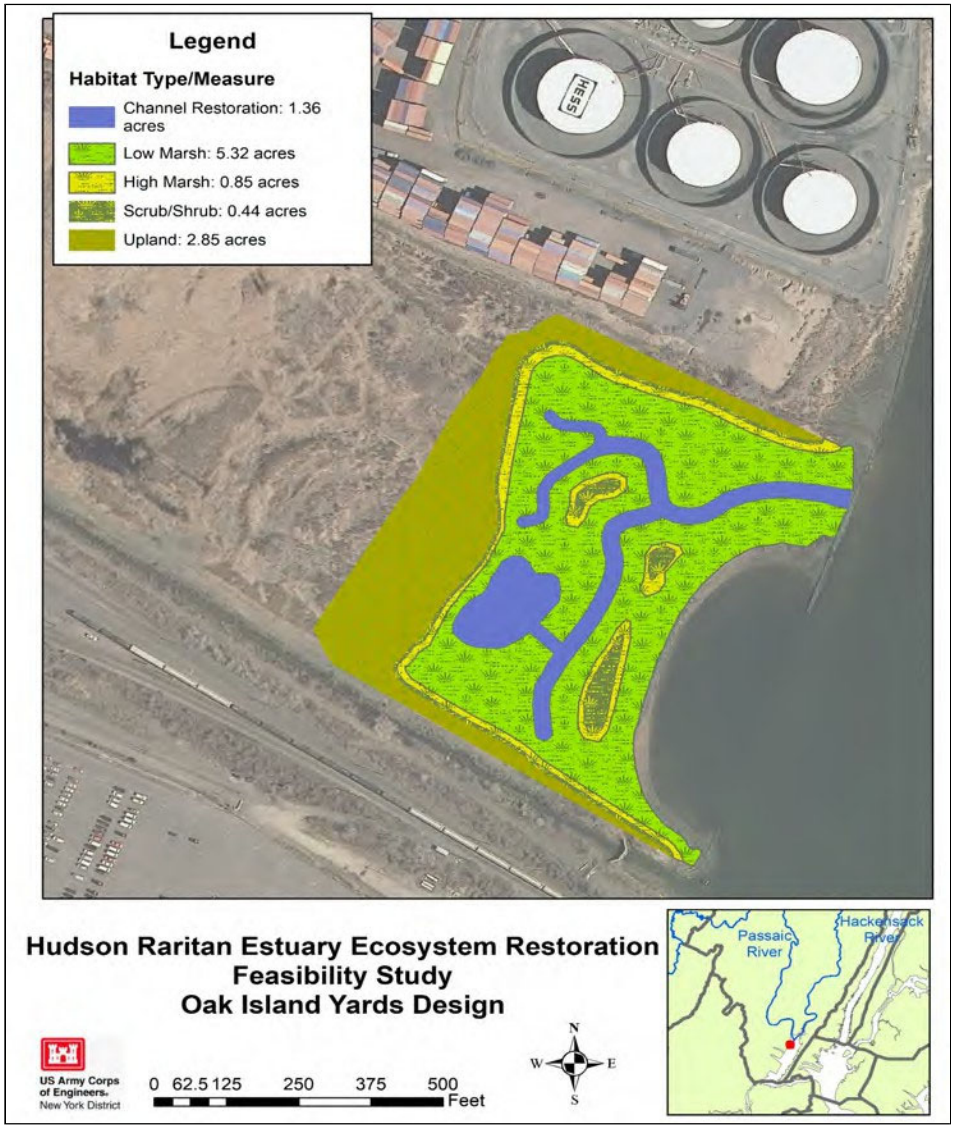




~6.88 acres of Habitat Restoration
Design Agreement Pending

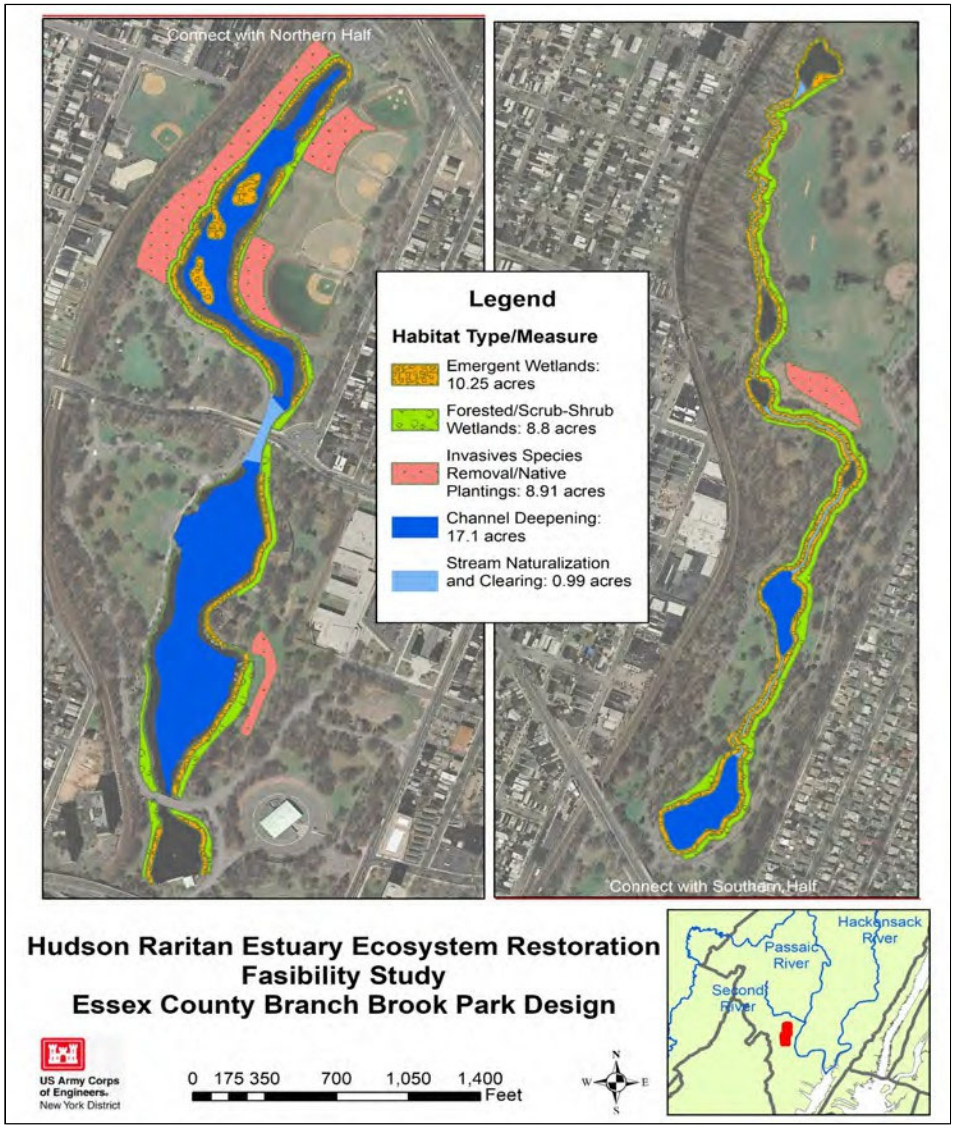
Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Lower Passaic Sites

Oak Island Yards



~10.82 acres of Habitat Restoration

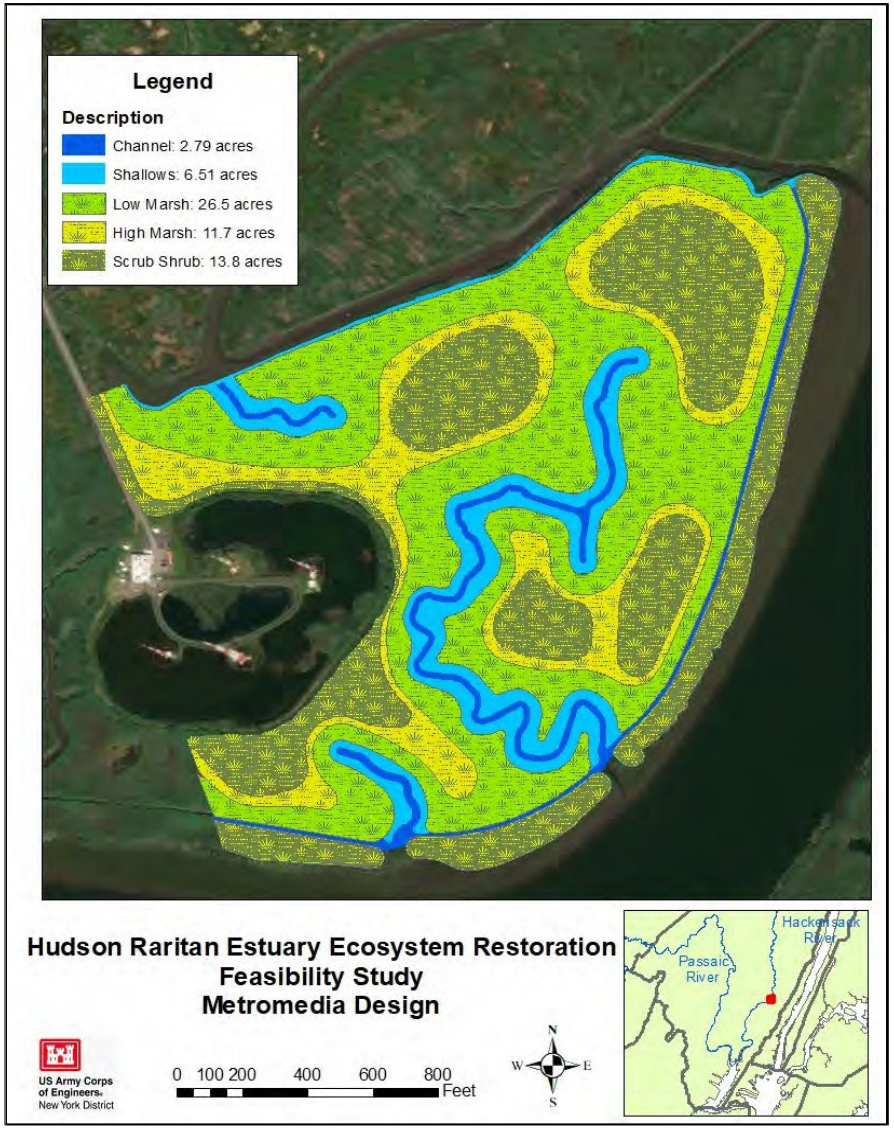
Essex County Branch Brook Park



~46.05 acres of Habitat Restoration

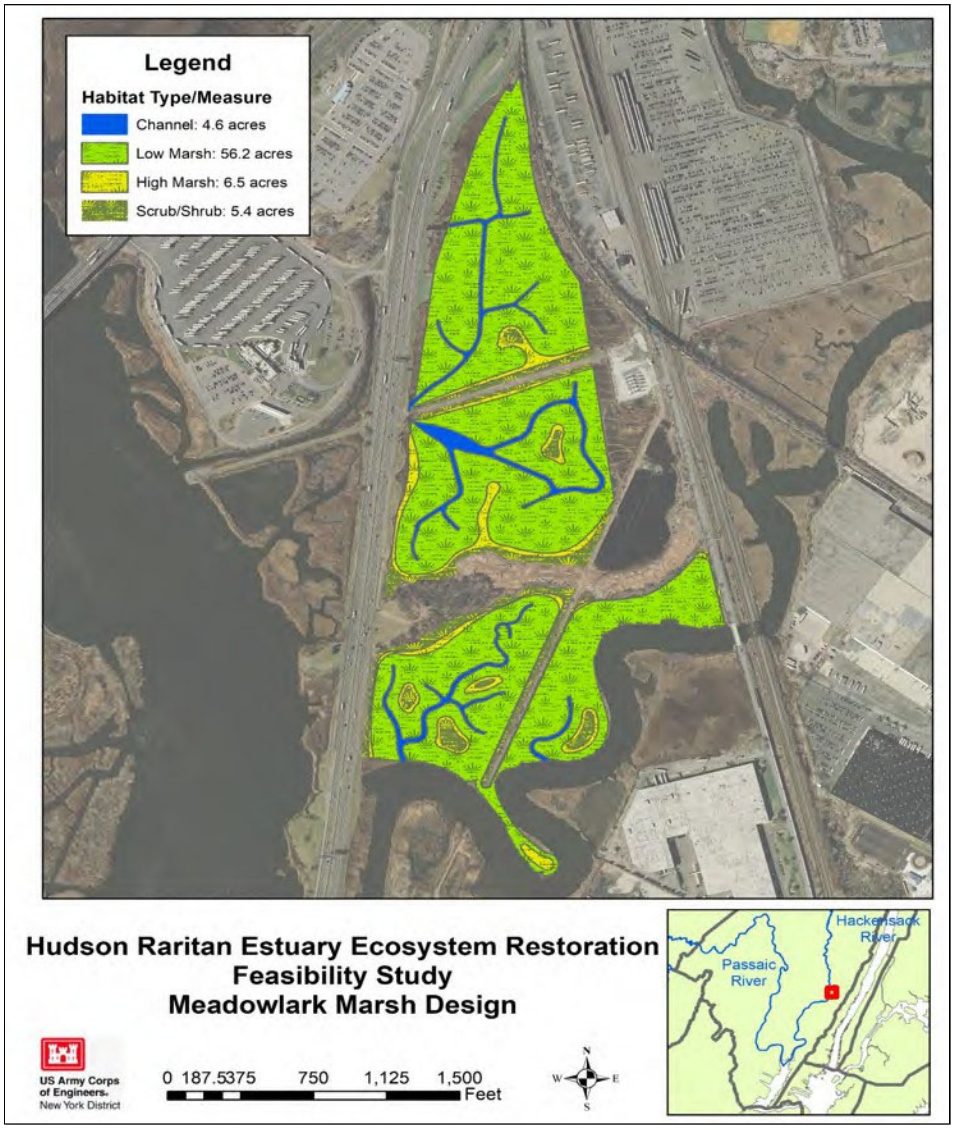
Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Hackensack River Sites

Metromedia Tract



~61.3 acres of Habitat Restoration

Meadowlark Marsh



~72.7 acres of Habitat Restoration

Hudson Raritan Estuary Ecosystem Restoration Recommended Plan – Oyster Reef Restoration Sites

Naval Weapons Station Earle

Restoration of ~8.75 acres using Oyster Pyramids, Reef Balls, Gabions, etc.

Engineering and Design Initiated 2022

Bush Terminal

Restoration of ~31.9 acres using Spat on Shell and Gabions

Head of Bay

Restoration of ~10.1 acres using Gabions, Hanging Super Trays, Oyster Pyramids and Spat on Shell