

# ***Vision of a World Class Harbor Estuary***

## ***Restoration in the Bay***

***Jamaica Bay***  
***New York***

New York District

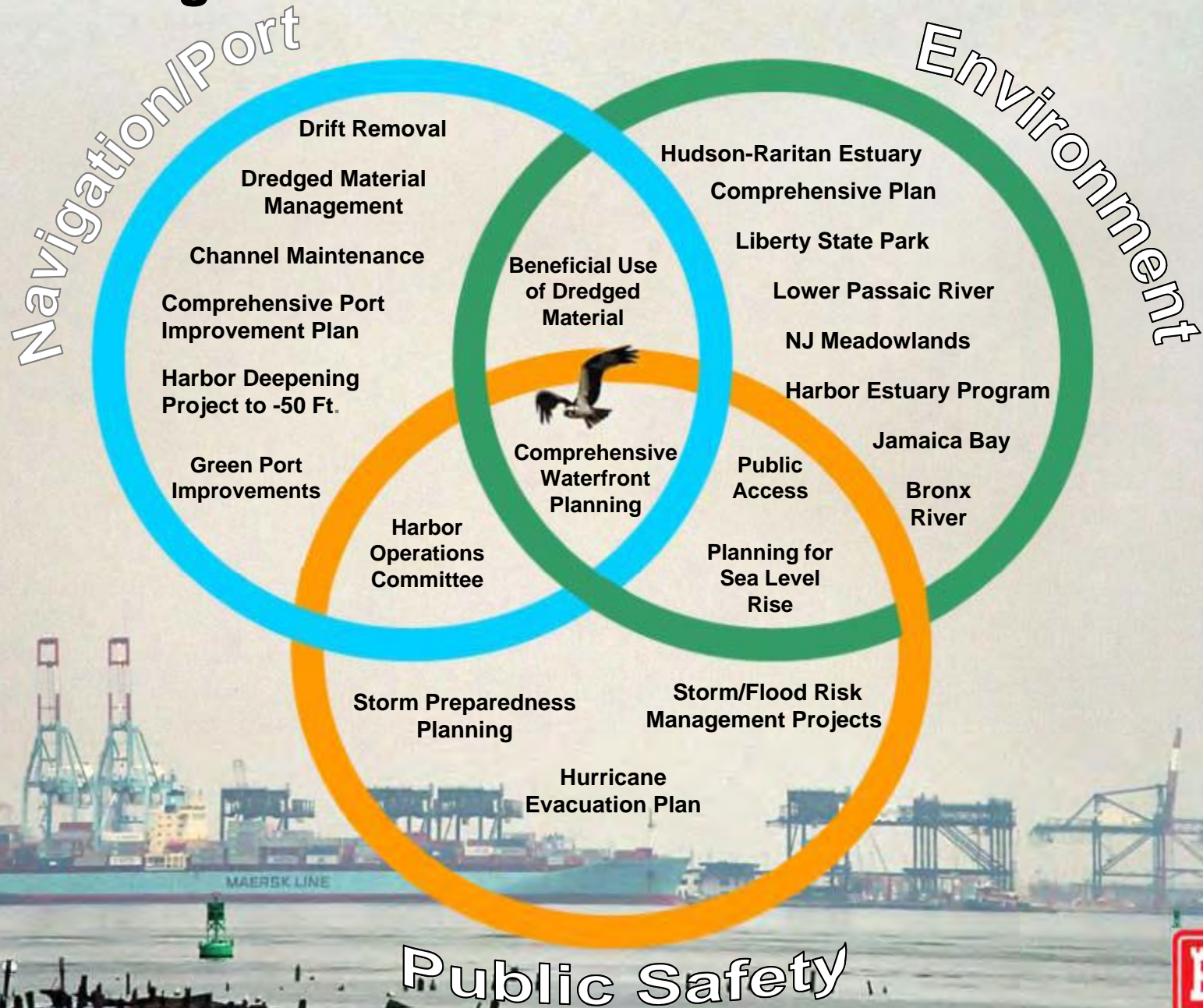


US Army Corps of Engineers  
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# The Evolving Vision of a World Class Harbor Estuary



# General Map of NY & NJ Harbor Deepening Contract Areas





# ***Hudson Raritan Estuary Comprehensive Restoration Plan***



- Provides a shared vision and blueprint for future restoration
- Coordinates and aligns regional restoration activities
- Identifies more than 300 Restoration Opportunities
- Harbor Estuary Program's Regional Master Plan for Restoration – Not just the USACE's Plan
- Feasibility Study evaluates all opportunities for future programmatic authorization
- Model for large-scale ecosystem restoration programs

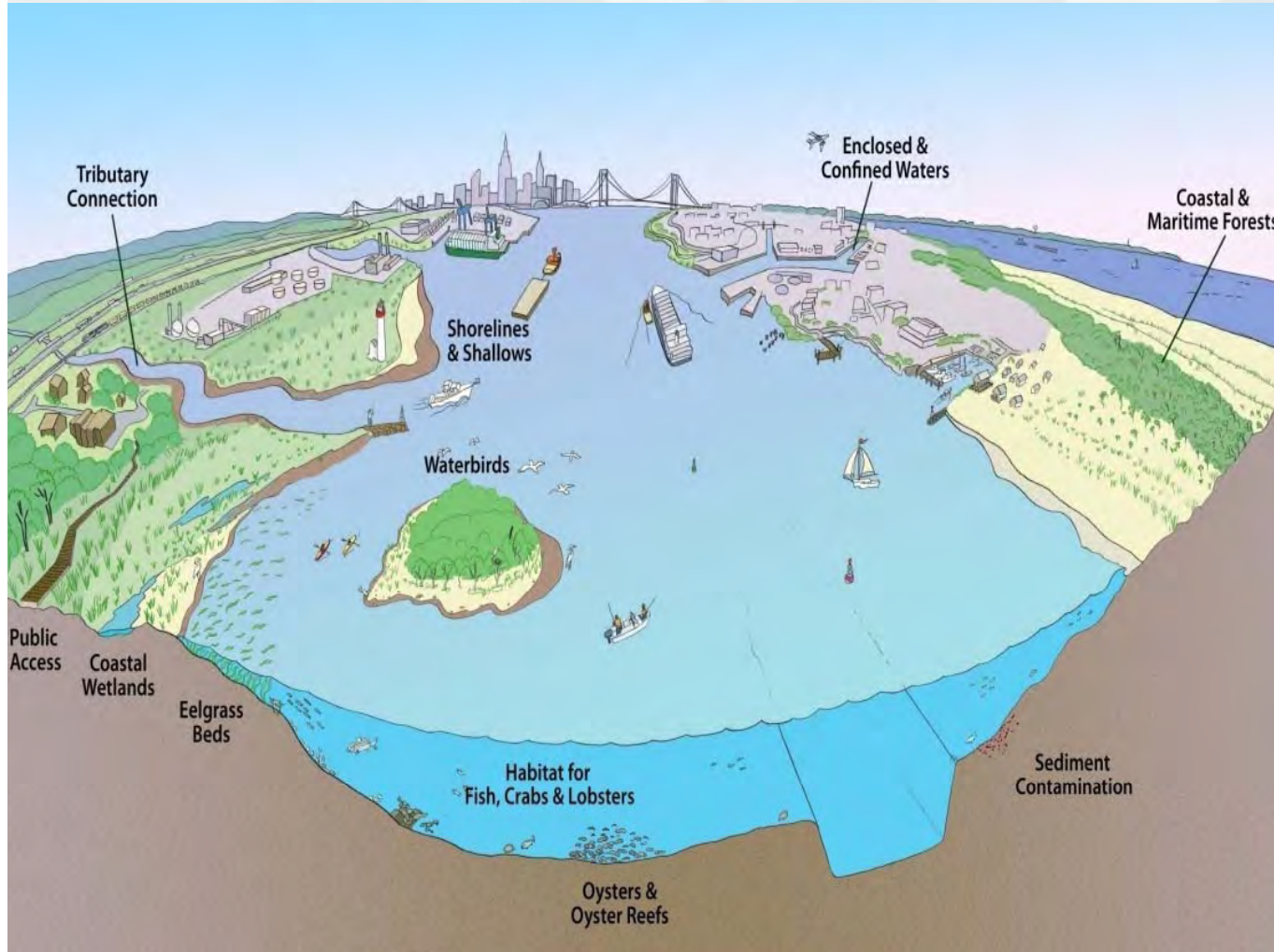


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# HRE Planning Regions



# Target Ecosystem Characteristics



TECs Illustrate:

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

**CRP Goal: Create and Restore a mosaic of habitats within a human-dominated landscape**



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## WHY RESTORE?



**Restoring lost or degraded habitats isn't just the right thing to do, *it's the sensible thing to do!***

### ECOLOGICAL BENEFITS



- Healthier fish/wildlife communities
- Greater population diversity
- Wide-spread (regional) benefits
- Long term value

### ECONOMIC BENEFITS



- Reduce damages/loses from storms, floods, etc.
- Reduce funds spent for structural solutions
- Reduce maintenance cost
- Enhance property values

### CLEANER SEDIMENT, WATER & AIR



- Less funds spent for treatment
- Self-sustaining over time
- Reduce/eliminate health advisories
- Open closed public lands

### IMPROVED QUALITY OF LIFE



- Visibly More Attractive
- Improved Recreational Opportunities
- Enhanced sense of well being
- Reduce affects on climate change

## WHY URBAN RESTORATION?

Restoring Habitats in Our Oldest Cities



- Reverses largest losses
- Addresses chronic problems
- Benefits the most people
- Protects the most investments

# Habitat Restoration in Jamaica Bay: Correcting the Past

*Enhancing a Resource for the Community*

- ▶ More natural diversity (plants, animals)
- ▶ Improved water quality
- ▶ Improved aesthetics (sight, odor)
- ▶ Enhanced recreational opportunities  
(Walking/Visiting, Boating, Fishing, Kayaking)



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# Jamaica Bay

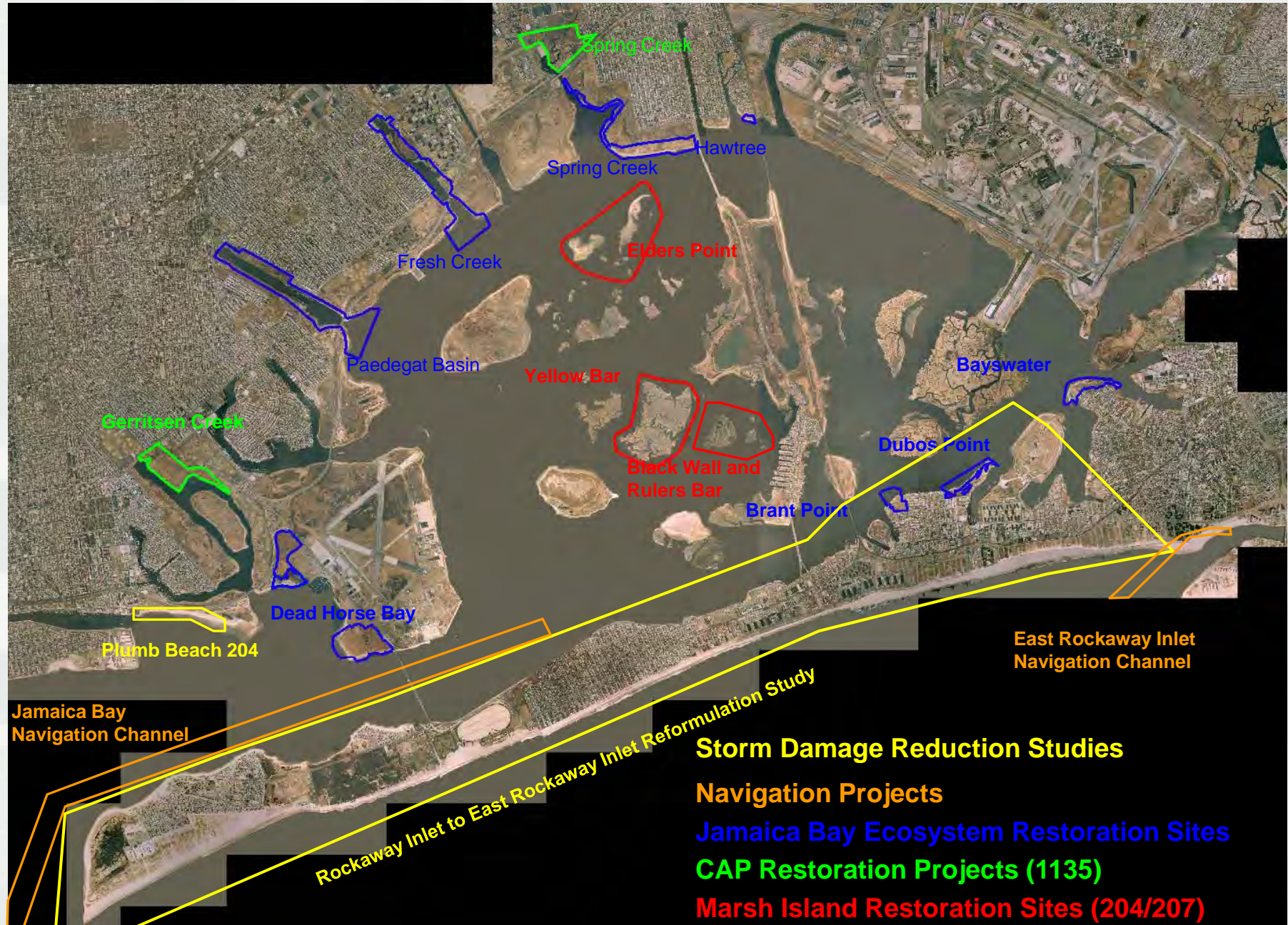
## Marsh Islands Restoration



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# Overview of Ongoing Jamaica Bay Efforts





# Restoration Activities in Jamaica Bay

- Two Main Kinds of Ecosystem Projects

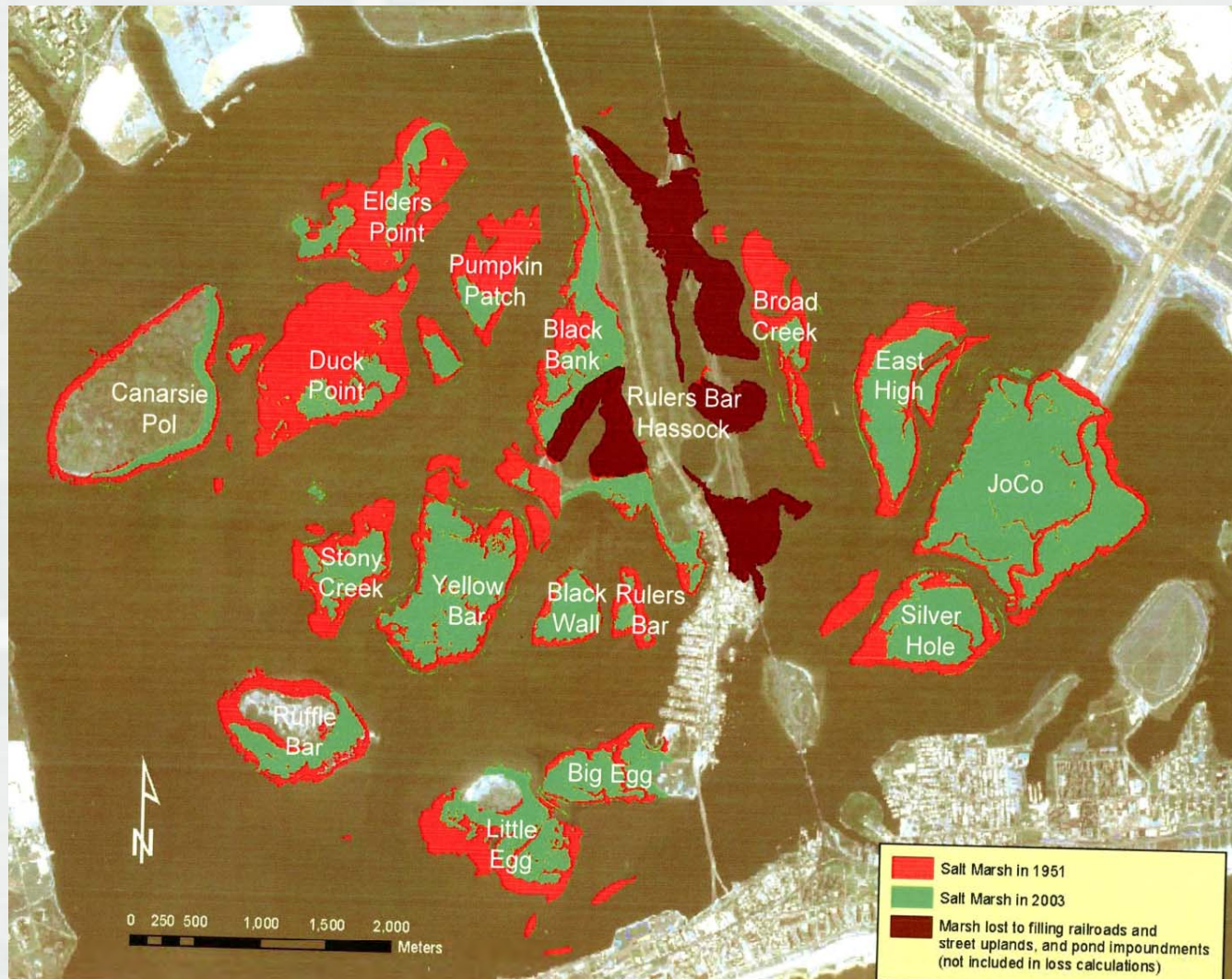
- ▶ Projects that bring in sand and plants to restore what has been lost from erosion (Marsh Island Projects)
- ▶ Projects that remove excess and/or unsuitable fill to restore proper elevations for salt marsh and other related habitat (Gerritsen Creek)

- Infrastructure Protection

- ▶ Critical Transportation corridors such as Belt Parkway (Plumb Beach)
- ▶ Recreational Beaches (East Rockaway)



# Jamaica Bay Marsh Loss





# Completed Island Restorations

## ■ Elders East

- ▶ Mitigation for Harbor Deepening Port Authority NY/NJ)
- ▶ Completed 2006
- ▶ 43 acres (249,000 cyds) at cost of approximately \$13,000,000

## ■ Elders West

- ▶ Beneficial Use of dredged material (CAP 204)
- ▶ Completed 2010
- ▶ 40 Acres (302,000 cyds) at cost of approximately \$17,200,000



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# Elders Point



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# Building the Island – Sand Delivery



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# Building the Island – Containment



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# Building the Island - Grading



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# Vegetating the Island – Transplanting



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# Vegetating the Island – New Plants



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# Elders Point East



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# Transitioning: East to West



Completing Elders East (2006)

Starting Elders West (2009)

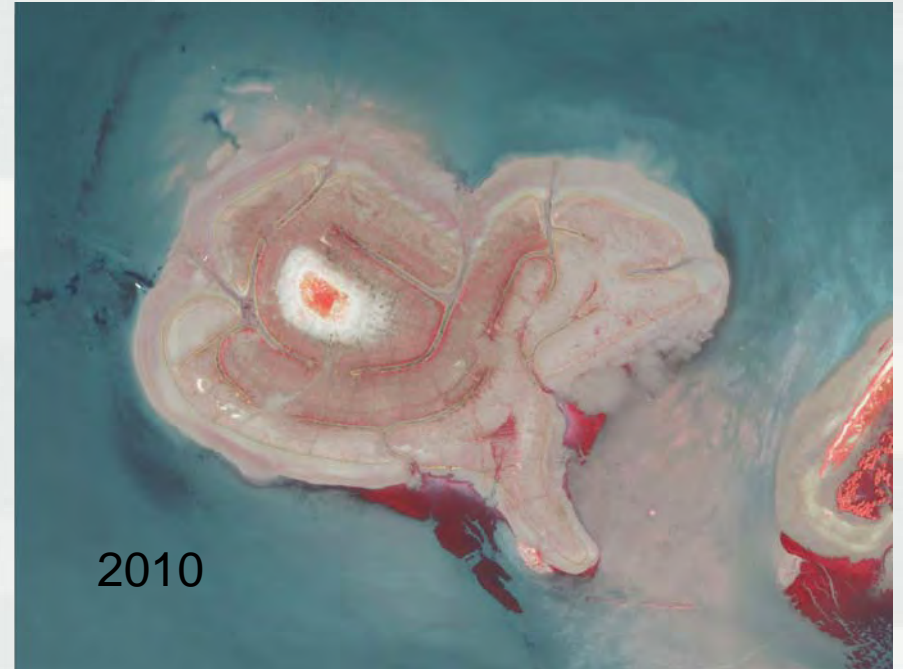


Photos Courtesy of Galvin Brothers, Inc

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# Elders Point West



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# **Elders Point East and West October 18, 2010 Aerial**



**For more Information:**

**<http://www.nan.usace.army.mil/harbor/index.php?crp>**



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# Completed Restoration of Degraded Habitats



## ■ Gerritsen Creek

- ▶ Aquatic Restoration (CAP 1135)
- ▶ Completed 2010
- ▶ 20 tidal marsh acres, 20 coastal grassland acres
- ▶ Cost of approximately \$8,000,000



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# Fill Removal and Recontouring



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# Vegetating the Site – New Plants



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# Gerritsen Creek Progress



2010

Early 2011

Late 2011



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# Future Marsh Island Projects

- **Yellow Bar Hassock**
  - ▶ Beneficial Use of dredged material (CAP 204)
  - ▶ Approximately 40 acres at cost of approximately \$19,000,000
  - ▶ Sand placement, grading and planting (Similar to Elders)
  
- **Rulers Bar Hassock and Black Wall**
  - ▶ Beneficial Use of dredged material (CAP 204)
  - ▶ Black Wall: 150,000 cyds - approx 22.2 acres
  - ▶ Rulers Bar: 95,000 cyds - approx 12.2 acres
  - ▶ Cost of \$2,000,000 - \$4,000,000
  - ▶ 100% Non-Federal Placement of sand only (NYCDEP and NYSDEC to fund)







Source: Aero Graphics, 2003

**YELLOW BAR INFRARED MAPPING**  
JAMAICA BAY ECOSYSTEM RESTORATION PROJECT  
BROOKLYN, KINGS COUNTY, NY

# Yellow Bar Marsh Restoration



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# Yellow Bar Marsh Restoration Current Site Conditions



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# Black Wall and Rulers Bar



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# Proposed Habitat Restoration

## ▪ **Spring Creek**

- ▶ Aquatic Restoration study (CAP 1135) partnered w/ NYC Parks
- ▶ Approximately 17 acres of inter-tidal salt marsh, 20 acres of coastal grassland and maritime shrubland
- ▶ Cost of TBD

## ▪ **Jamaica Bay Environmental Restoration Project (JBERP)**

- ▶ \$5M Feasibility study partnered with NYCDEP
- ▶ Focused on habitat losses along perimeter of bay
- ▶ Proposes 8 separate restoration sites, 550 Acres of restoration
- ▶ Construction Costs total \$161M Fed for all 8 sites
  - Can be built in smaller phases over time
  - Various non-Fed construction partners (NYCDEP, NYSDEC)



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# CAP 1135 - Spring Creek

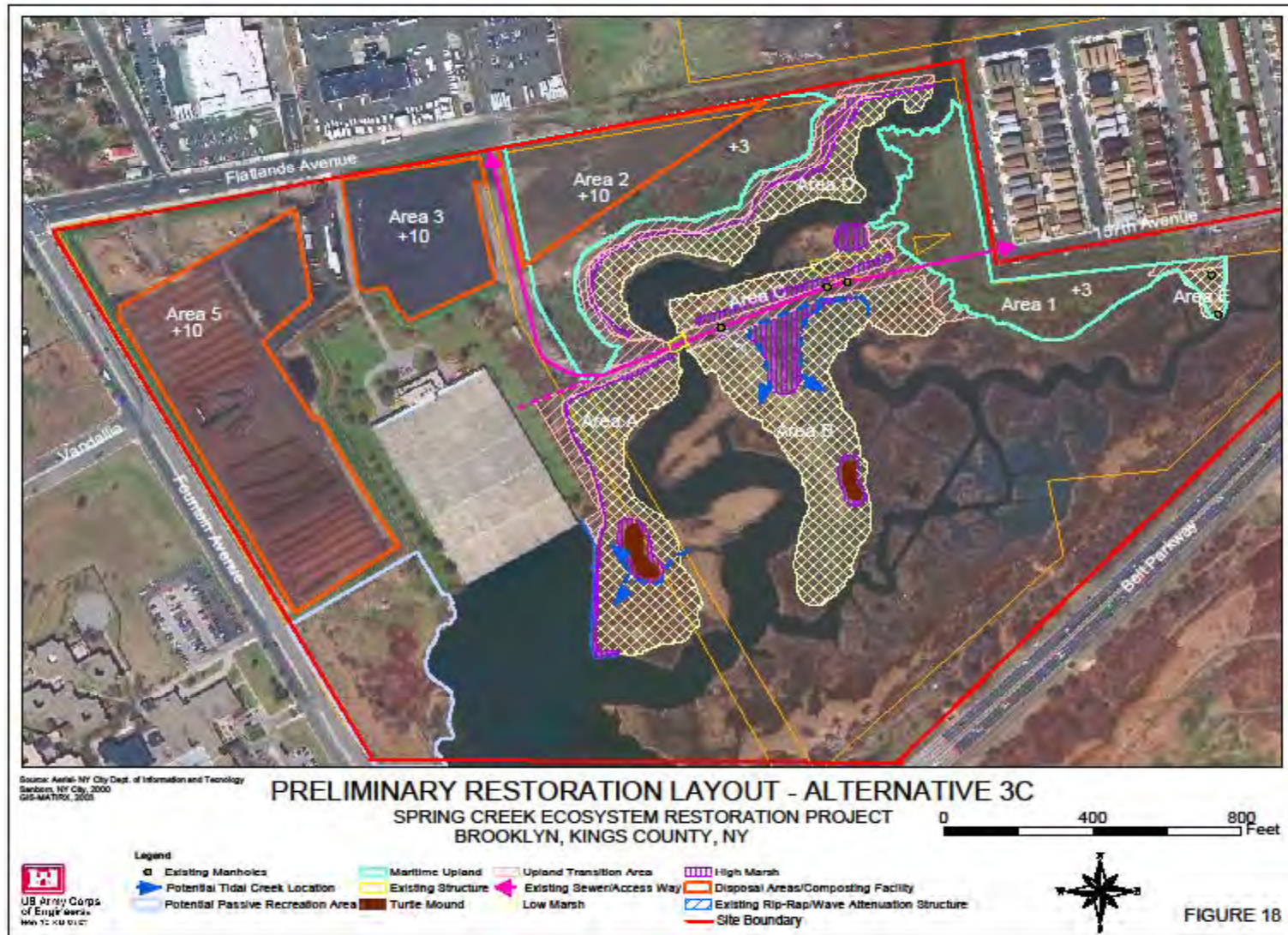
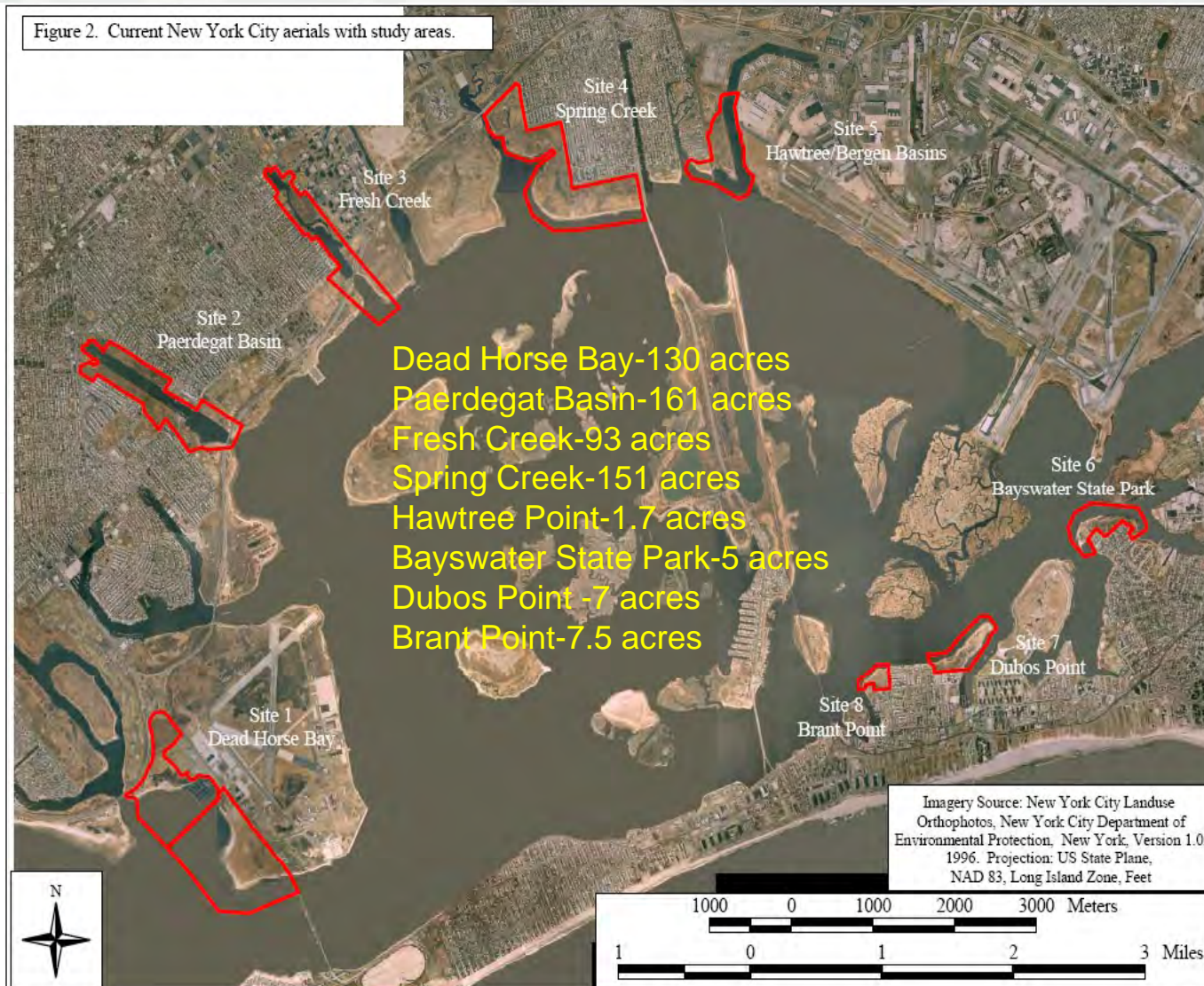




Figure 2. Current New York City aerals with study areas.





# JBERP – Bayswater State Park



Bayswater State Park

5 acres \$ 3.2M Fed  
- 4.1 acres marsh/creek  
- 0.9 acres beach/dune

More Natural Diversity  
Improved Water Quality  
Improved Aesthetics  
Enhanced Recreation



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# JBERP – Dubos Point



Dubos Point

7 acres \$5.3 M Fed

- 5 acres marsh/creek
- 2 acres maritime forest

More Natural Diversity  
Improved water Quality  
Improved Aesthetics



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# JBERP – Brant Point



Brant Point

7.5 acres \$ 5.2 M Fed

- 2.6 acres marsh
- 2.5 acres salt meadow
- 2.4 acres maritime forest

More Natural Diversity  
Improved Water Quality  
Improved Aesthetics  
Enhanced Recreation



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# JBERP – Hawtree



Hawtree Point

2 acres \$ 1.1M Fed  
- Coastal shrub/grassland

More Natural Diversity  
Improved Water Quality  
Improved Aesthetics  
Enhanced Recreation



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# JBERP – Dead Horse Bay



131 acres \$ 40 M Fed

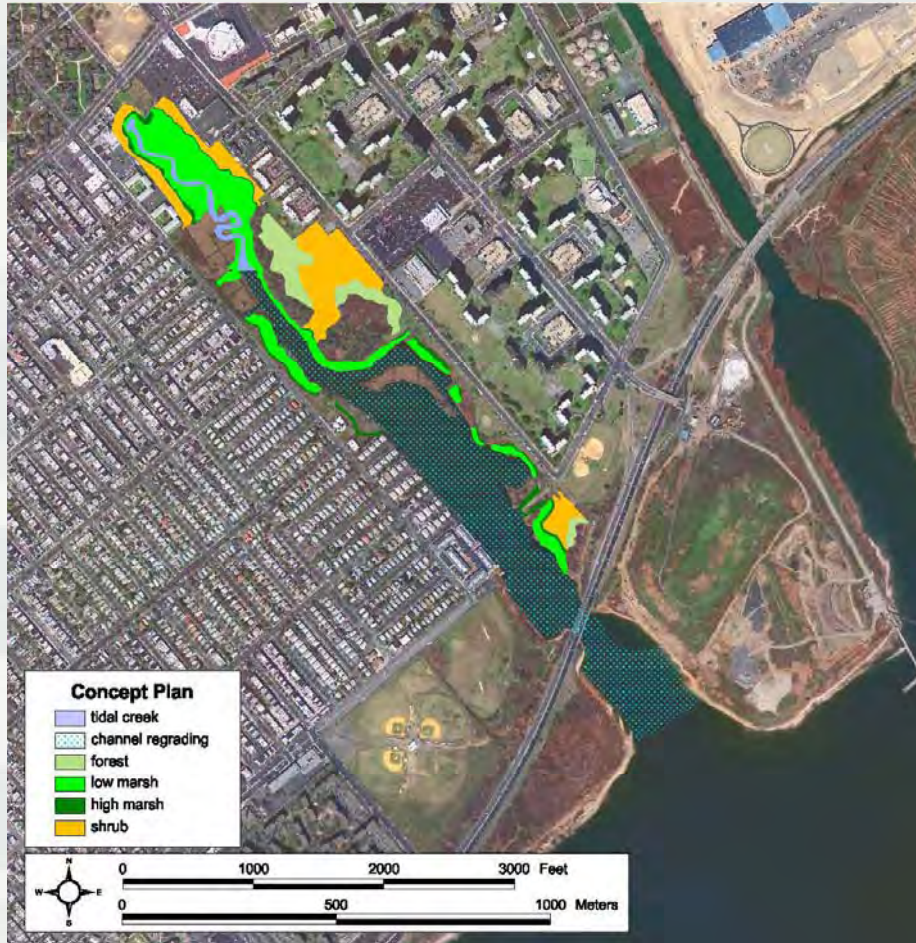
- 42 acres marsh/creek
- 28 acres beach/dune
- 61 acres maritime forest

More Natural Diversity  
Improved Water Quality  
Improved Aesthetics  
Enhanced Recreation



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# JBERP – Fresh Creek



93 acres \$ 25.3 M Fed

- 18 acres marsh/creek
- 60 Acres shallow water
- 15 acres coastal shrub/forest

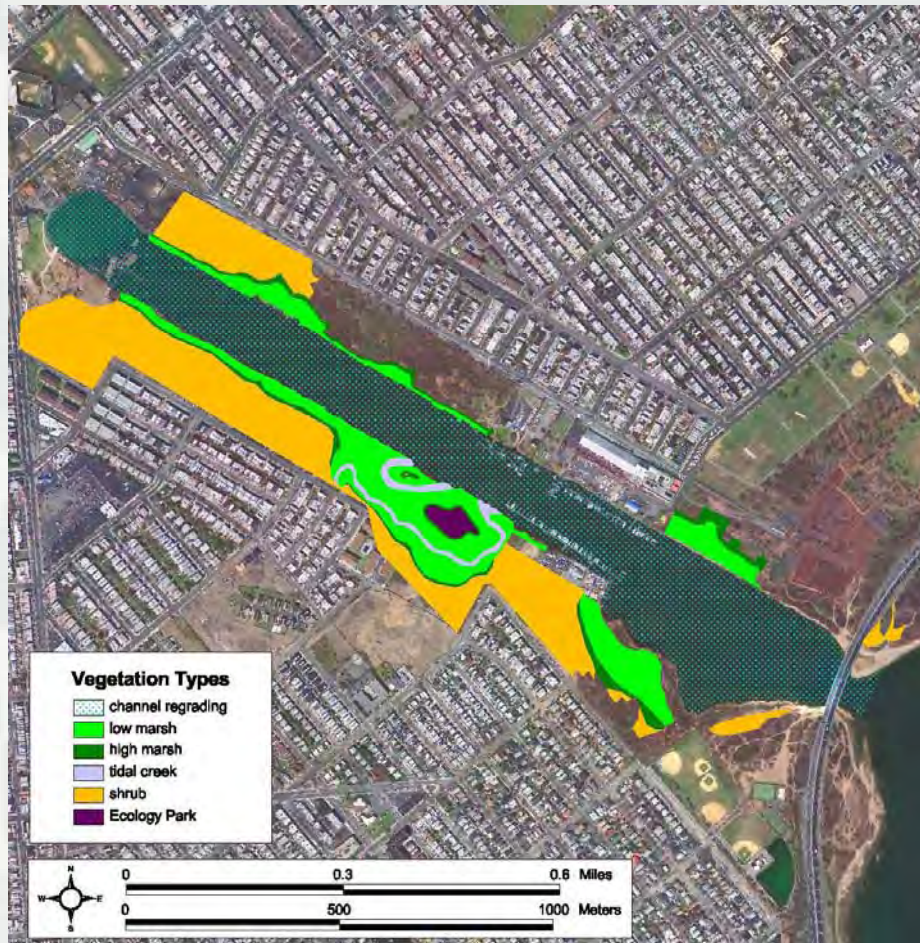
More Natural Diversity  
Improved Water Quality  
Improved Aesthetics



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# JBERP – Paerdegat Basin



162 acres \$47.1 M Fed

- 33 acres marsh/creek
- 45 acres coastal shrub
- 82 acres shallow water

More Natural Diversity  
Improved Water Quality  
Improved Aesthetics



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# JBERP – Spring Creek (South)



152 acres \$39.6 M Fed

- 66 acres marsh/creek
- 42 acres beach/dune
- 44 acres coastal forest

More Natural Diversity  
Improved Aesthetics  
Enhanced Recreation



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# Jamaica Bay

## Marsh Islands Restoration

### Jamaica Bay

- 26 square miles
- 13,000 acres
- Ecosystem degraded by urbanization

Studies ongoing to restore wetlands & improve aquatic habitat





# Jamaica Bay

This historical map of Jamaica Bay, dated 1927, illustrates the proposed park area in pink. The map shows the bay's complex waterways, including the Jamaica Bay, Fresh Pond, and various channels like the Hempstead Harbor and the Narrows. The surrounding urban areas are depicted in green and yellow, with a dense grid of streets and buildings. The map also shows the proposed park's boundaries and the locations of various islands and points of land.

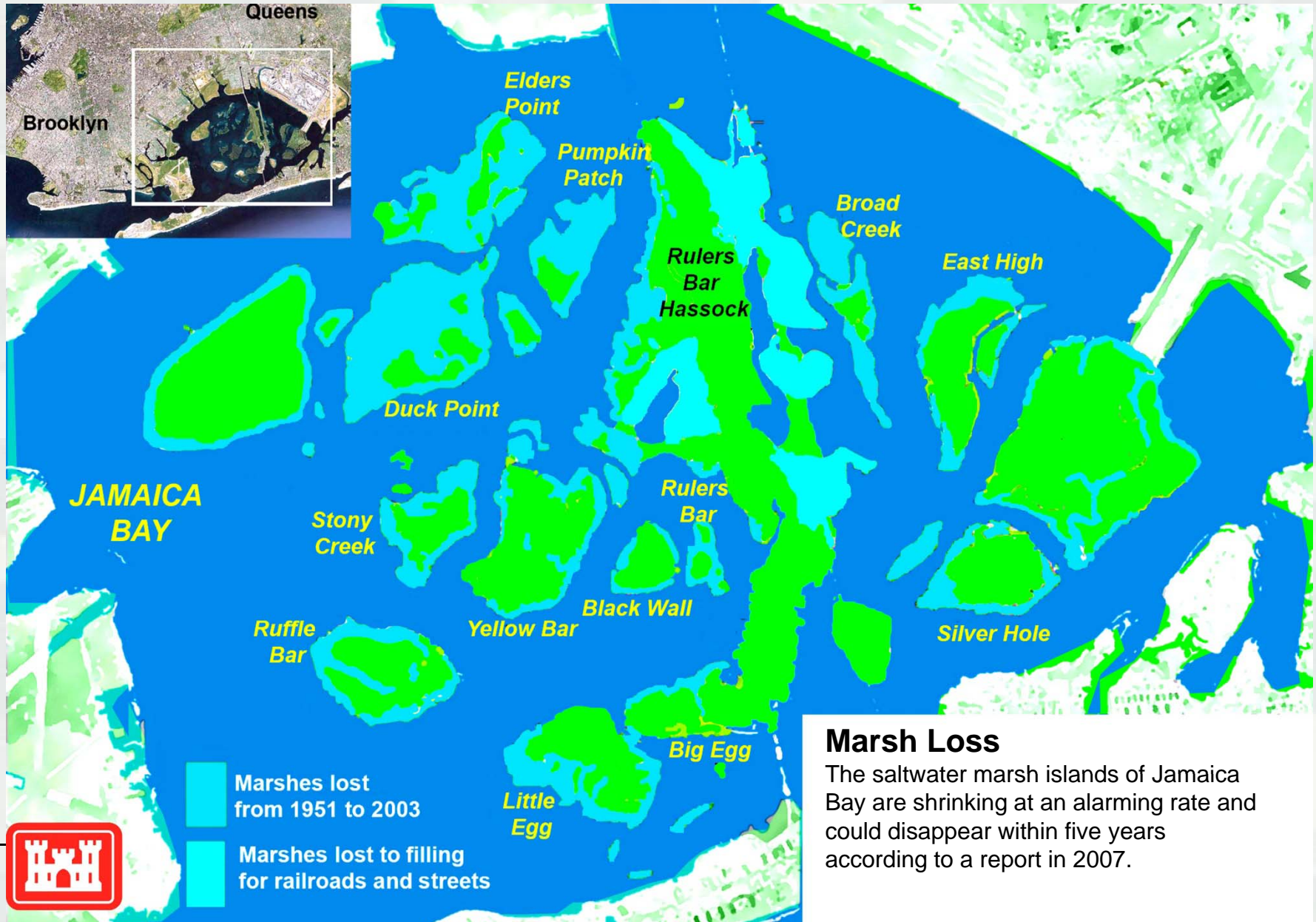
**Jamaica Bay**  
**1927**

**Jamaica Bay  
1927**



# Jamaica Bay

## Marsh Islands Restoration








Design and Construction Supervised by



**US ARMY CORPS of Engineers**  
New York District



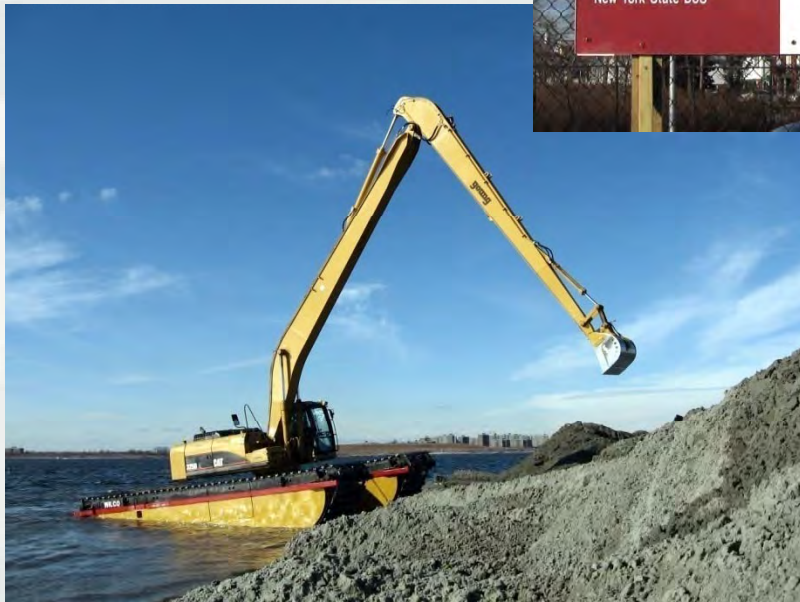
**Project Partners:**  
National Park Service.  
New York State DEC  
The Port Authority of NY & NJ.  
New York City DEP  
Natural Resources Conservation Service.  
New York State DOS



**Elders Point West Restoration**  
Jamaica Bay, New York

**Contractor:**  
**GALVIN BROTHERS INC.**  
149 STEAMBOAT ROAD  
GREAT NECK, NY 11024



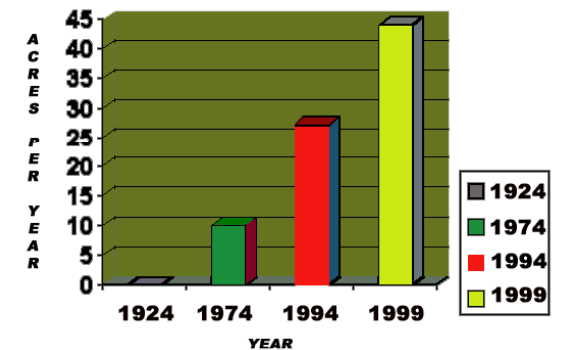
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# Wetland Loss within Jamaica Bay



**DRAFT JAMAICA BAY TIDAL WETLANDS  
LOSSES PER YEAR 1924 - 1999**



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# Marsh Island Construction Process







## Balancing Navigation, The Environment and The Port

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