Fourth National Conference on Ecosystem Restoration
August 1-5, 2011, Baltimore, Maryland

the WATERS we SHARE

Restoration Planning for the Hudson Raritan Estuary - An Example of Collaboration

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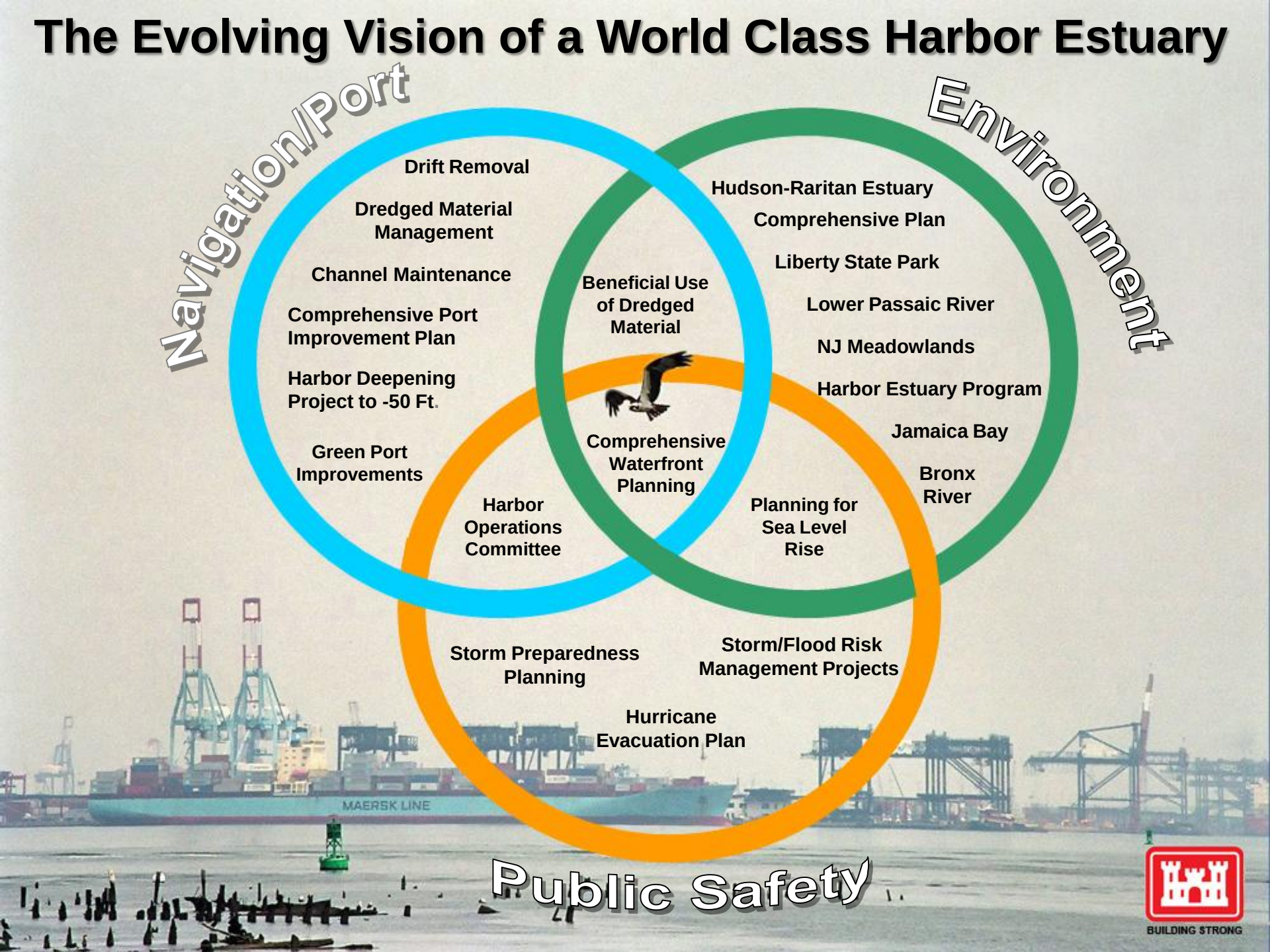
Significance of the Hudson Raritan Estuary

The Estuary was designated an "Estuary of National Significance" in 1988 by the US Environmental Protection Agency

- One of the Largest Estuaries in the US
  - 16,212 square miles
  - 1000 miles of coastline
  - Home to 20 million people
  - Port of NY/NJ, Largest Port on East Coast
- 3 States
  - New York
  - New Jersey
  - Connecticut
- Major Tributaries
  - Hudson River
  - Raritan River
  - Passaic River
  - Hackensack River
  - Bronx River
  - Elizabeth River
  - Rahway River
  - Shrewsbury River

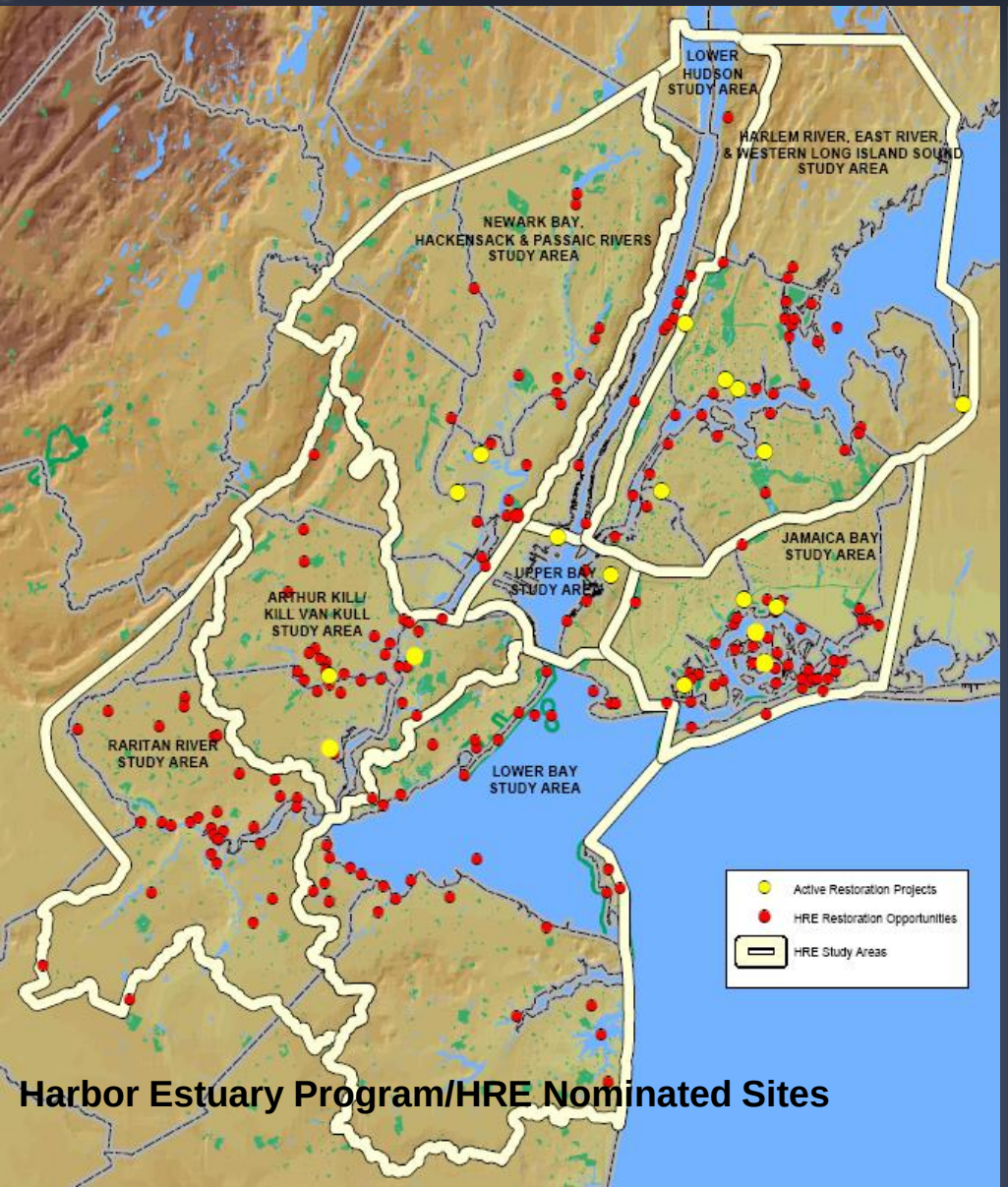
The Evolving Vision of a World Class Harbor Estuary



Centuries of Urbanization and Industry

- Degraded and contaminated sediments
  - Human health and ecological risks
  - Costly dredged material management
- Lost and degraded habitat
  - 80% wetlands are gone
  - Oyster reefs and eelgrass have disappeared
- Poor water quality
- Impediments to fish passage
- Minimal and dilapidated public access

Ongoing Ecosystem Restoration in HRE



Harbor Estuary Program/HRE Nominated Sites

Diverse Environmental Stakeholder Community

- USACE
- PANYNJ
- USEPA
- NOAA
- NPS
- USFWS
- NYSDEC
- NJDEP
- NYCDEP
- NY/NJ Baykeeper
- NY/NJ Harbor Estuary Program
- Hudson Riverkeeper
- NYC Audubon
- American Littoral Society
- Jamaica Bay EcoWatchers
- Passaic River Coalition
- Save the Sound
- Scenic Hudson
- Hackensack Riverkeeper
- Metropolitan Waterfront Alliance
- Go Gowanus
- National Parks Conservation Association
- National Parks of NY Harbor Conservancy
- Meadowlands Conservation Trust
- Fish and Wildlife Federation
- Hudson River Park Trust
- Clean Ocean Action
- Scenic Hudson
- And Many More

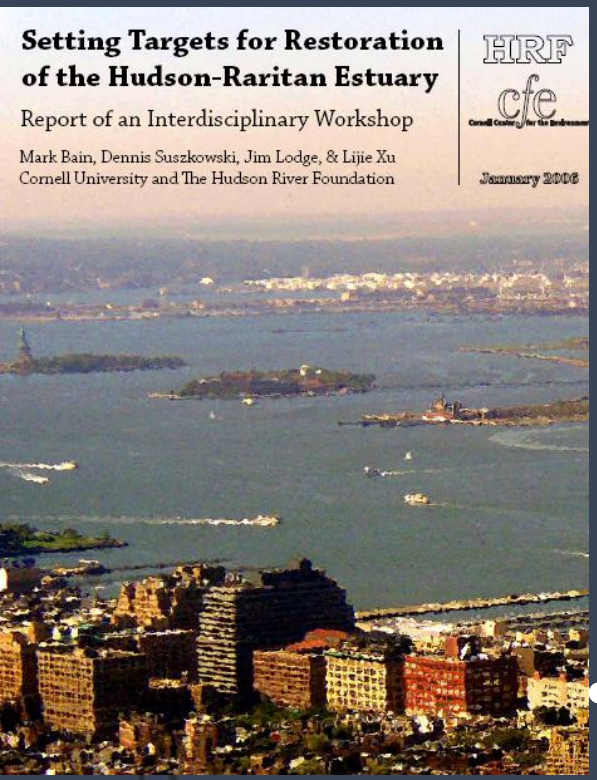
Background

- 1996 - The Harbor Estuary Program's (HEP) CCMP called for the creation of a *"comprehensive regional strategy"* for habitat protection.
- 1999 - Congress authorized the Hudson-Raritan Estuary Ecosystem Restoration Study (HRE).
- 1999 – HRE Reconnaissance Study
- 2001 – Needs and Opportunities Report
- 2005 – Scientific workshop sponsored by the Hudson River Foundation (HRF) developed "*Target Ecosystem Characteristic (TEC)*" concept for restoration planning.
- 2007 – HRF and Cornell University complete TEC report.
- 2009 – Draft CRP is completed.
- 2009 – December: CRP is adopted by the HEP Policy Committee as the path forward to restore the Estuary.

Project Partners

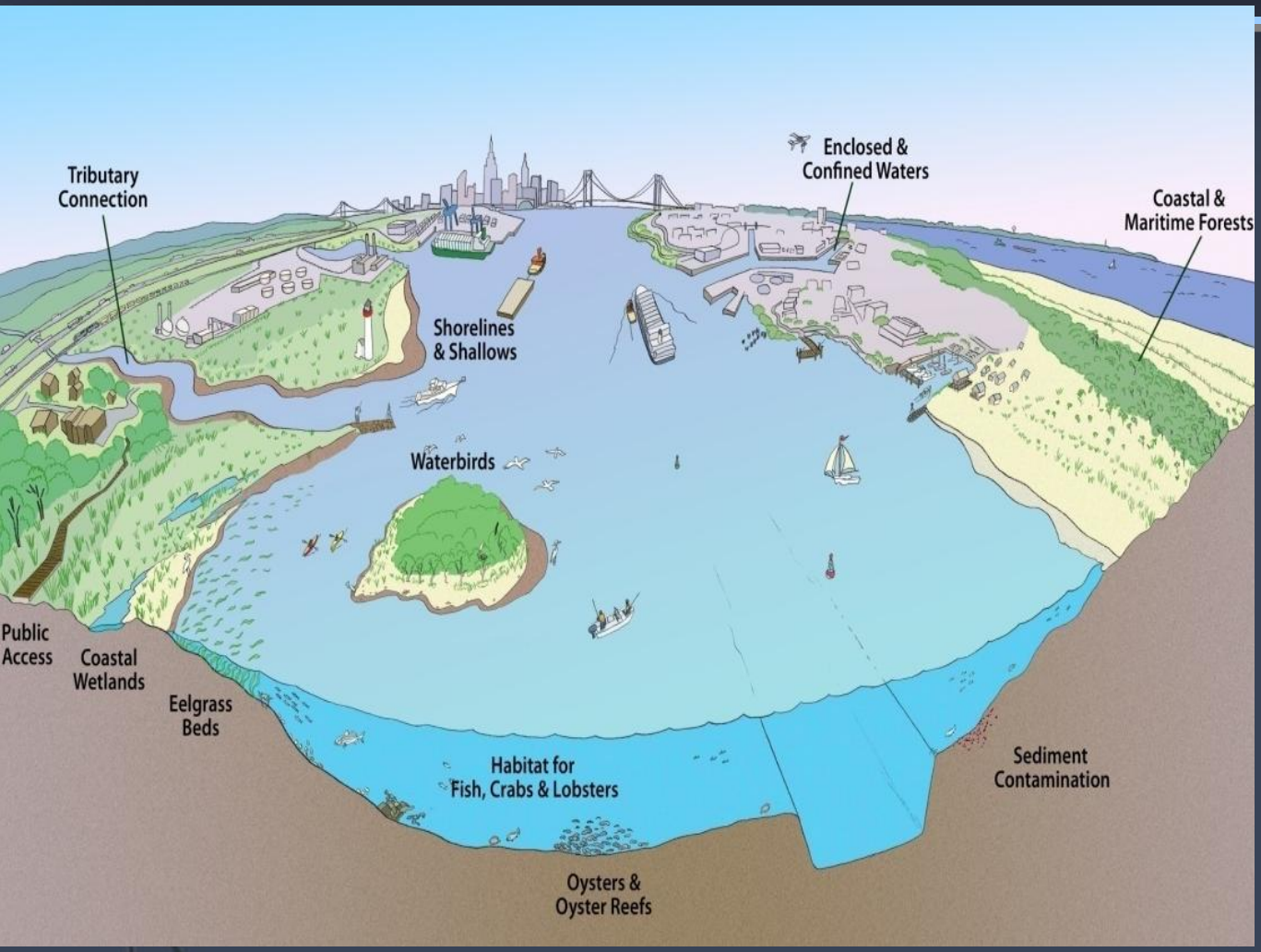
- US Army Corps of Engineers
- Port Authority of NY/NJ (*Local sponsor)
- NY/NJ Harbor Estuary Program
- Hudson River Foundation
- Cornell University
- Many more….
  - 4 Federal and 8 State/City Agencies
  - 13 Research Institutions
  - 28 Non-Profit Organizations
  - 5 Private Consulting Firms

Stakeholder Workshop



- Hudson River Foundation and Cornell University hosted Workshop
  - 33 Federal, State and City Regulators, Resource Agency Scientists, Academia and Non-Government Organizations to Determine Types of Restoration Needed
- Team of National and Local Estuarine Scientists Refined the Restoration Targets

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

TEC Workshops

- 11 TEC-Specific Workshops With Local Environmental Stakeholders
  - Refine Targets
  - Set Goals
  - Determine Criteria to Identify Restoration Opportunities

HRE Planning Regions

Comprehensive Restoration Plan

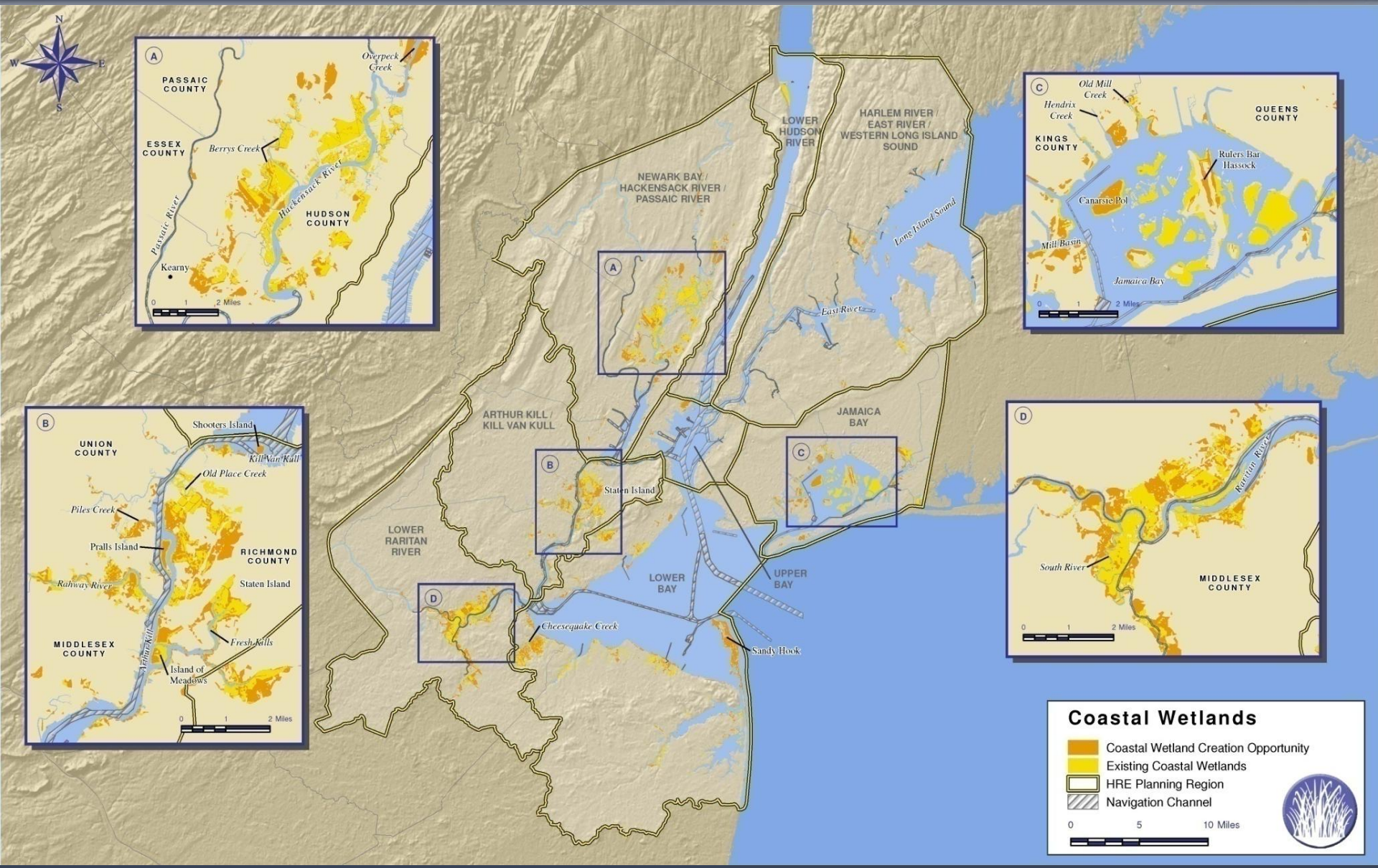
It IS intended to:

- Provide a shared vision of a restored estuary
- Serve as a Blueprint for future restoration
- Coordinate and align regional restoration activities
- Build upon HEP Structure
- Serve as living document actively managed to track progress
- Be HEP's Regional Master Plan for Restoration – Not just the USACE's Plan

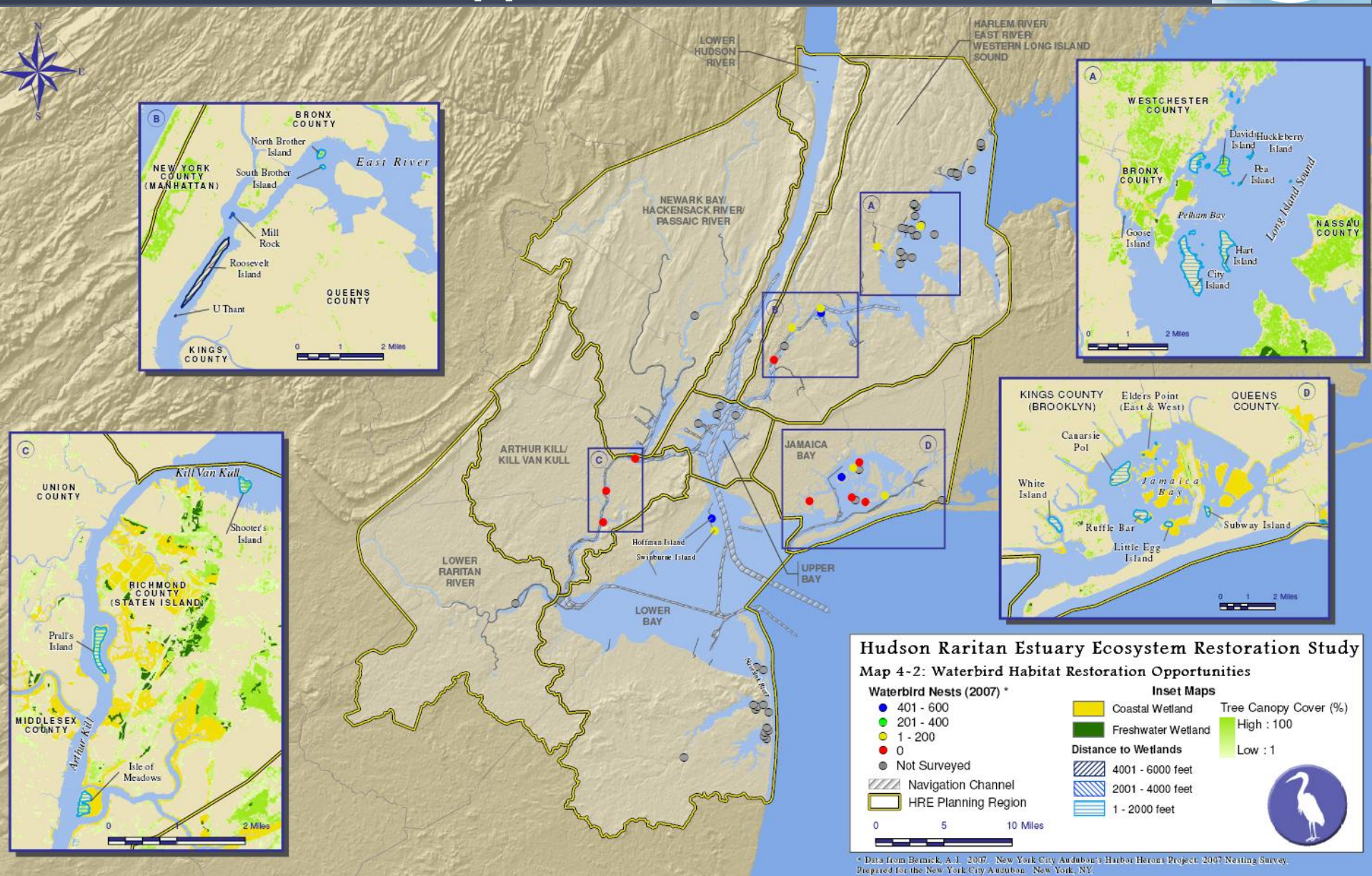
The CRP includes…

- What are we trying to Restore?
  - Regional Restoration Goals/TECs
- Where can we restore?
  Restoration Opportunities for each TEC
  - Existing HEP-nominated sites
  - Geographic Information System
- Planning Considerations
  - Conceptual designs and costs
  - Technical, legal, regulatory constraints, data gaps
- Implementation strategies
  - Potential sponsors and possible funding mechanisms
- Performance measures of progress and success

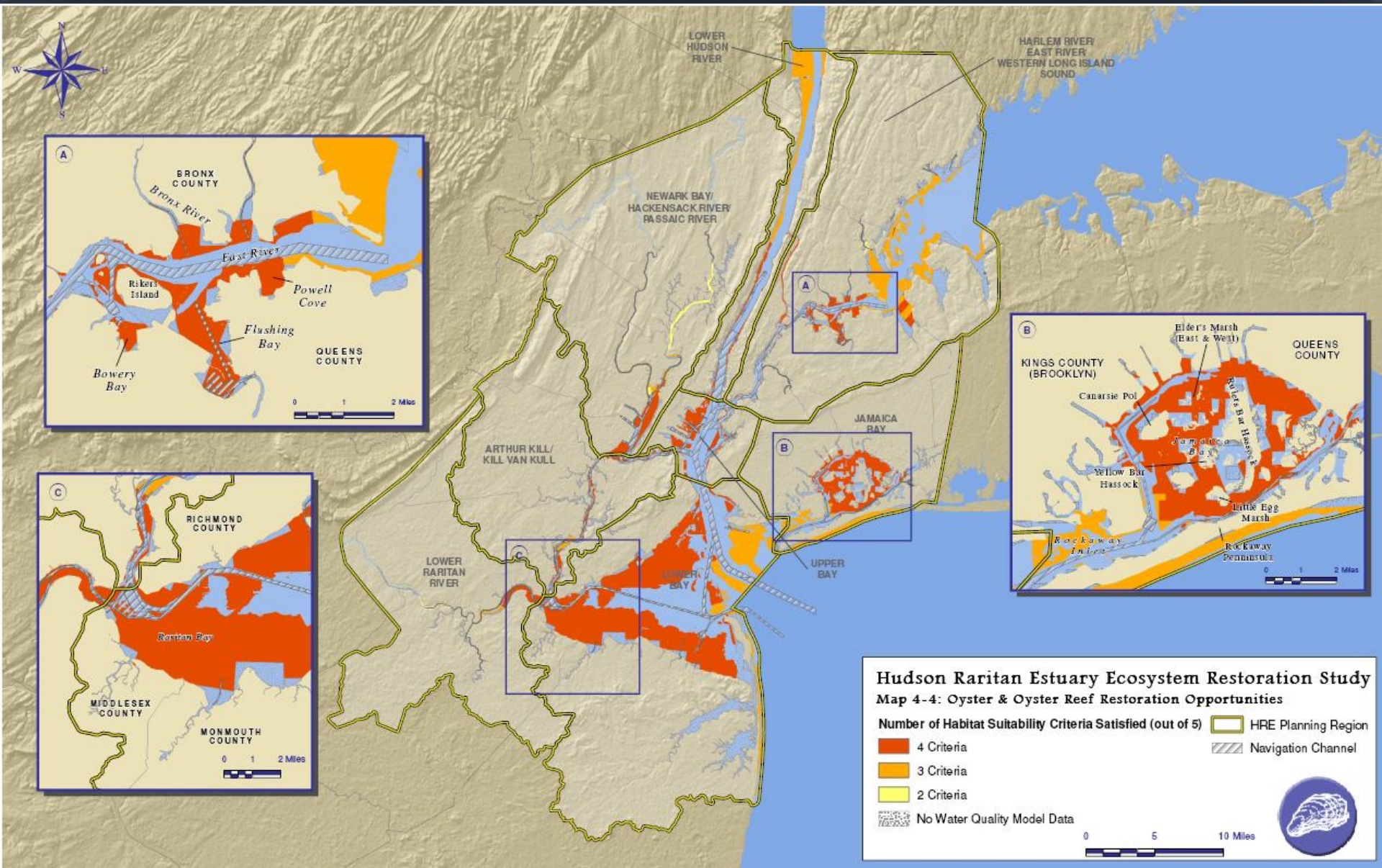
Coastal Wetland TEC Opportunities



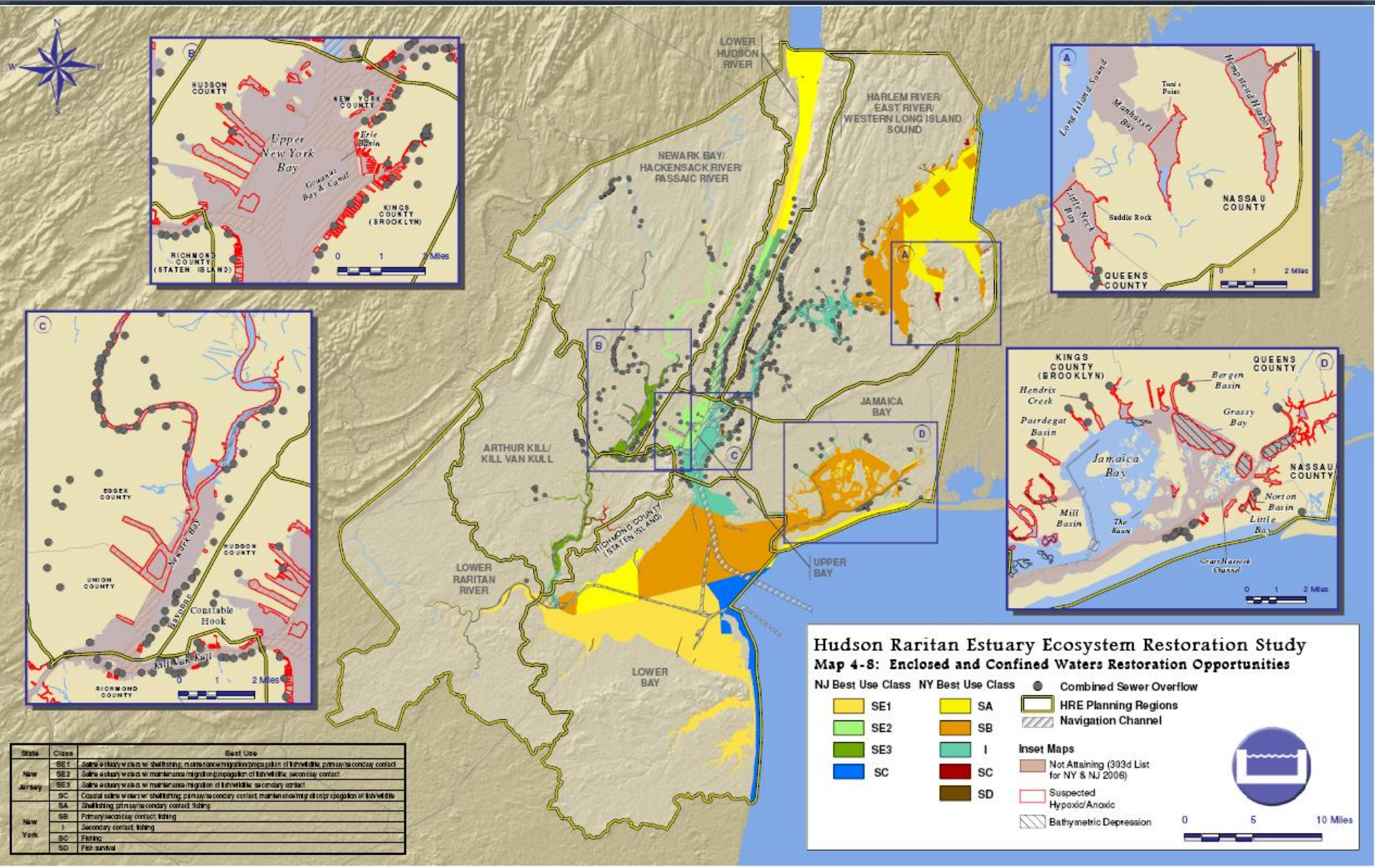
Islands for Waterbirds Restoration Opportunities



Oyster Reef Restoration Opportunities



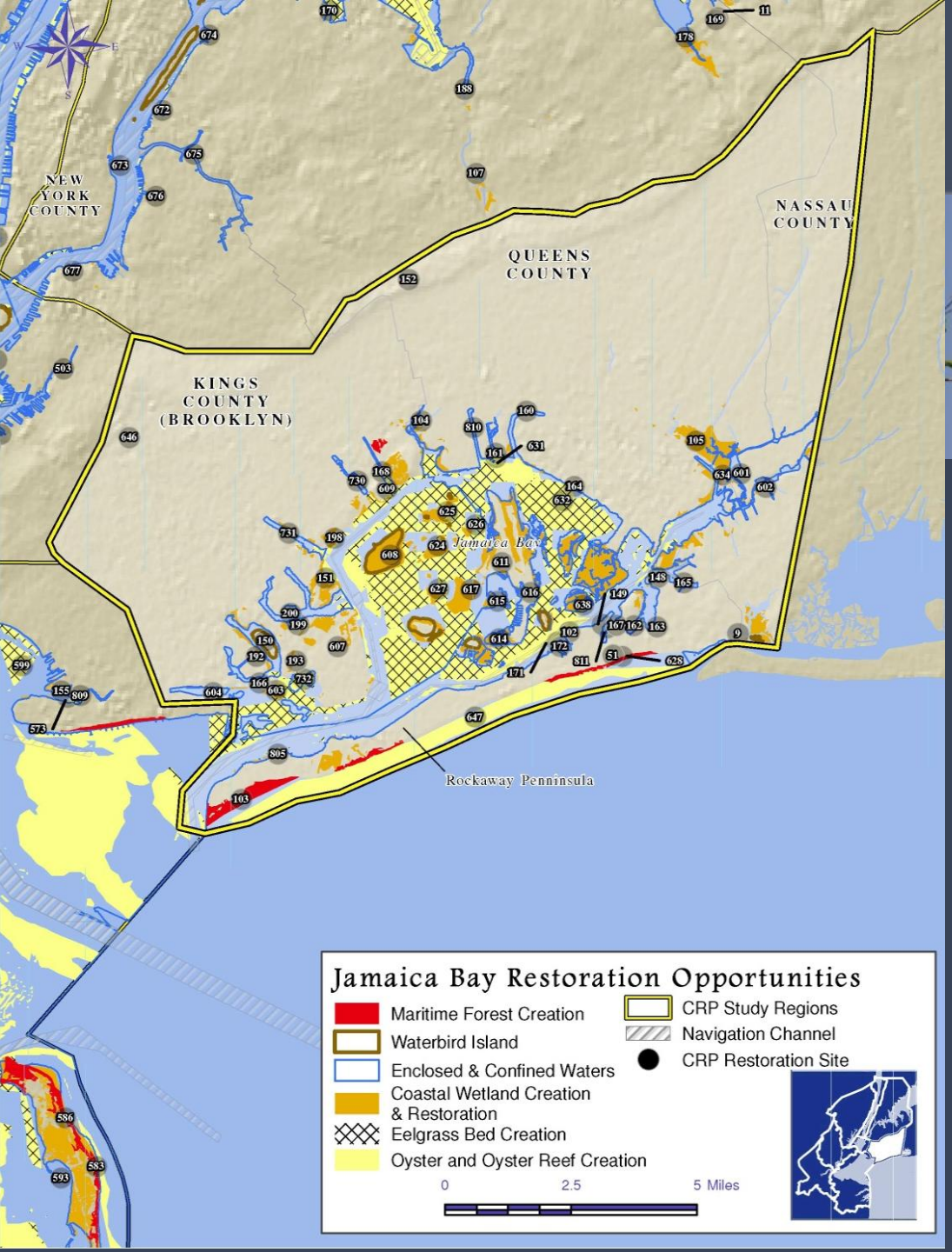
Enclosed and Confined Waters Reduction Opportunities



State	Class	Best Use
New Jersey	SE1	Saline estuary waters w/ shellfishing, maintenance/migration/propagation of fish/wildlife, primary/secondary contact
	SE2	Saline estuary waters w/ maintenance/migration/propagation of fish/wildlife, secondary contact
	SE3	Saline estuary waters w/ maintenance/migration of fish/wildlife, secondary contact
	SC	Coastal saline waters w/ shellfishing, primary/secondary contact, maintenance/migration/propagation of fish/wildlife
New York	SA	Shellfishing, primary/secondary contact, fishing
	SB	Primary/secondary contact, fishing
	I	Secondary contact, fishing
	SC	Fishing
	SD	Fish survival

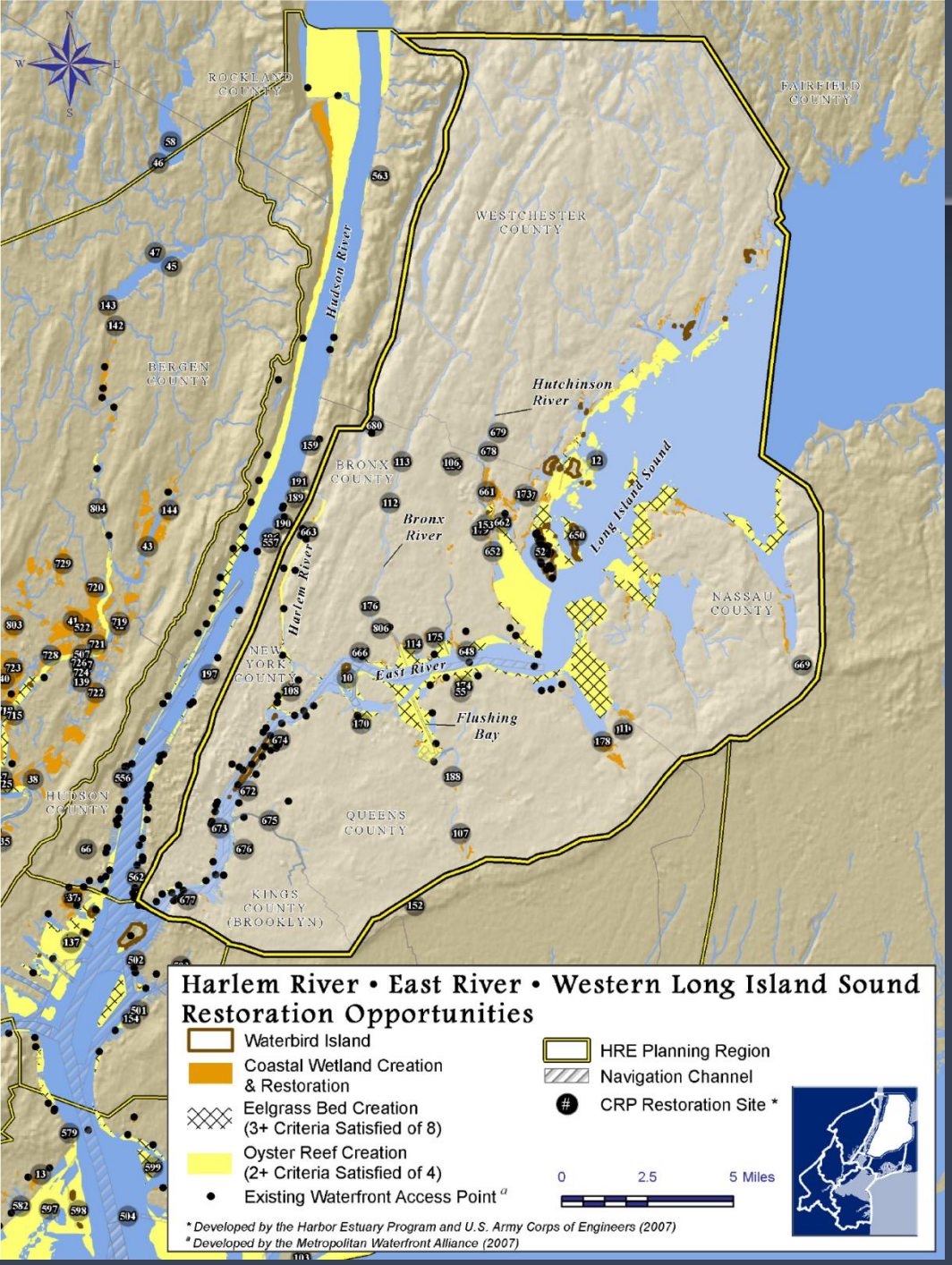
Jamaica Bay Planning Region

- Mosaic of Habitats
- Opportunities for many TECs: coastal wetland creation, oyster reefs, eelgrass beds, maritime forests, islands for waterbirds



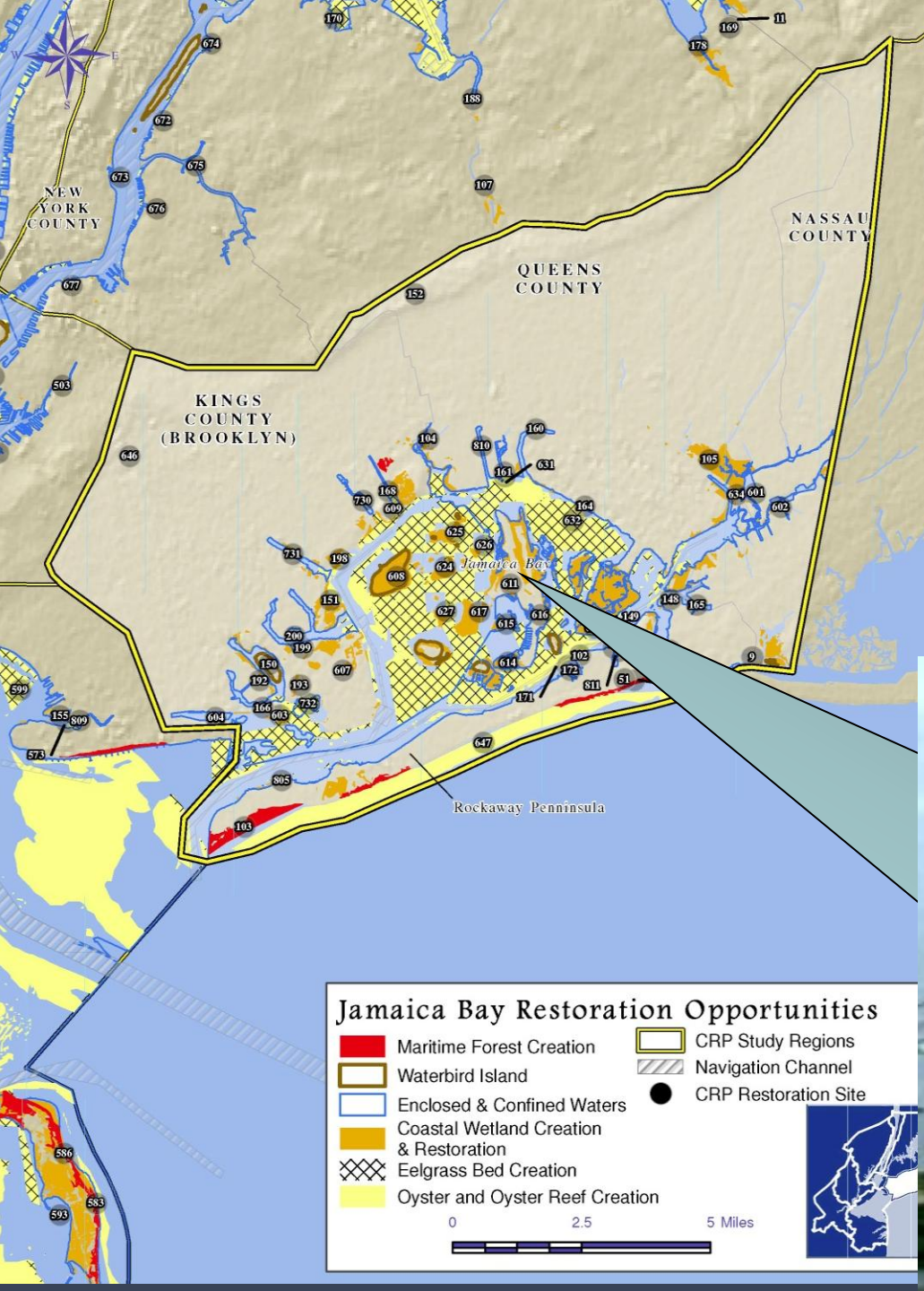
Restoration Opportunities

- Coastal Wetlands
- Eelgrass Beds
- Oyster Reefs
- Islands for Waterbirds
- Enclosed and Confined Waters



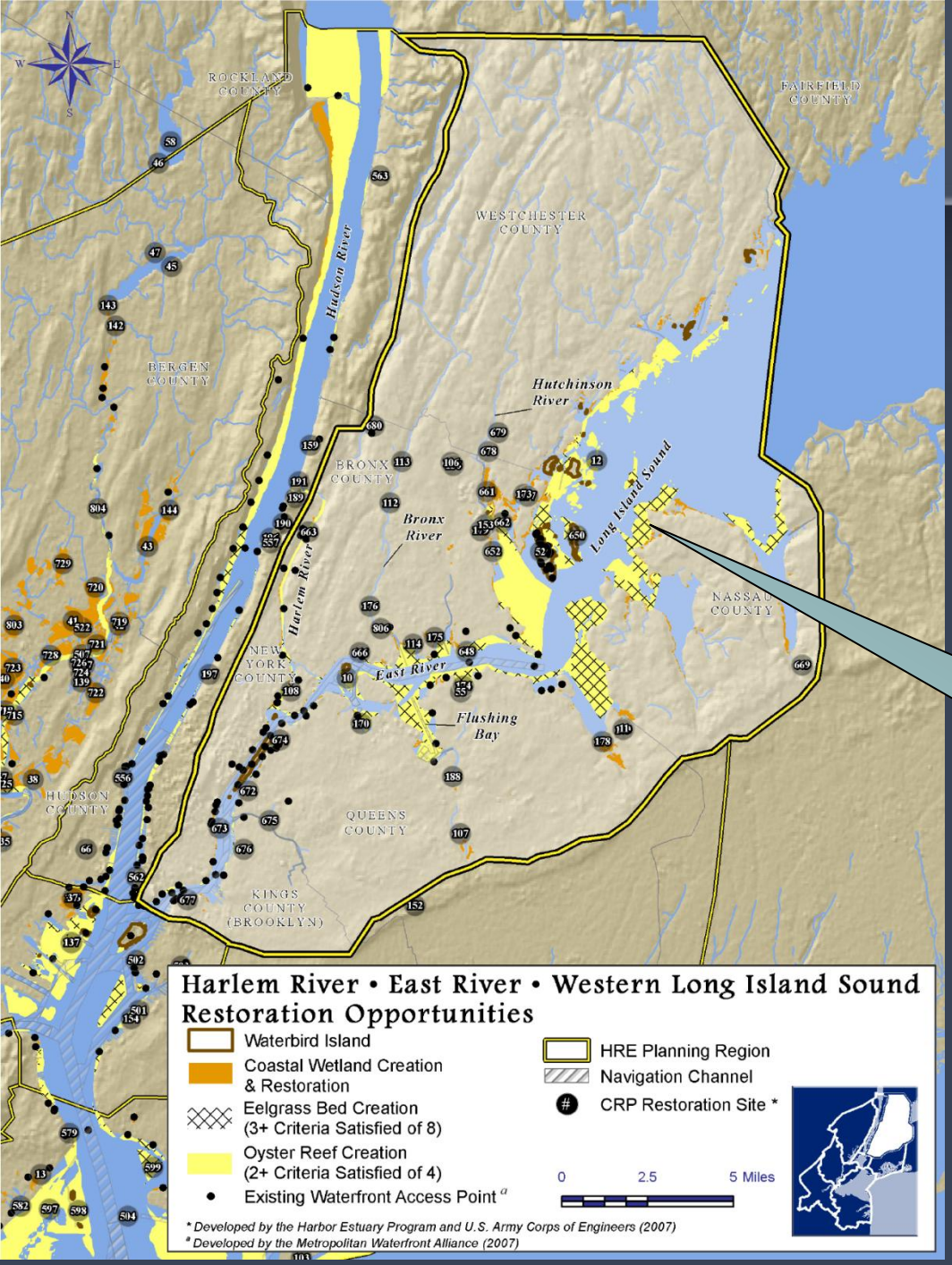
Coastal Wetlands

- TEC Goal: 1,200 acres by 2015 and 15,200 acres by 2050



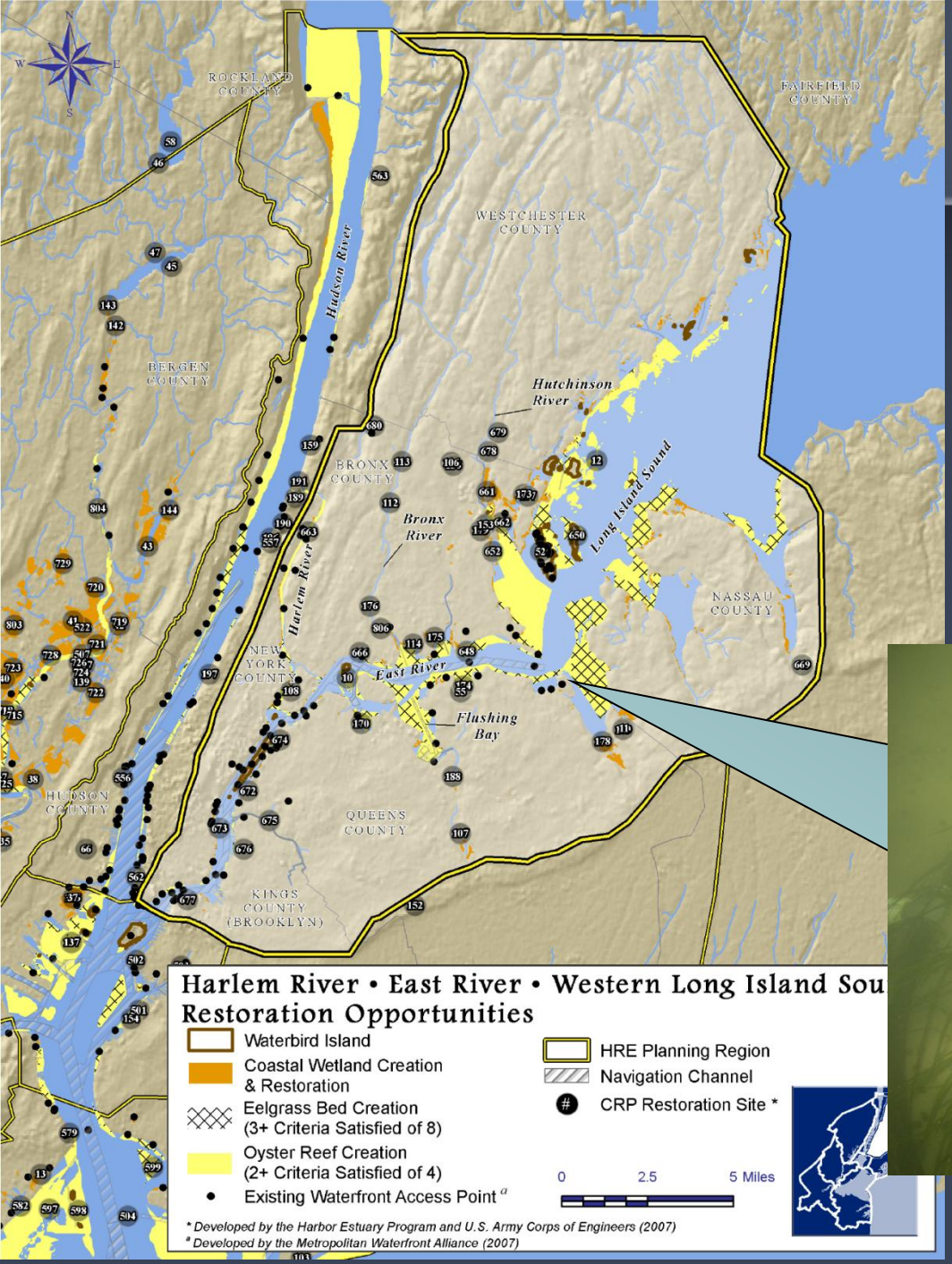
Oyster Reefs

- TEC Goal: 500 acres by 2015 and 5,000 acres by 2050
- Potentially 50,000 acres could be suitable



Eelgrass Beds

- TEC Goal: One test bed in each Planning Region by 2015 and three established beds by 2050



Policy Considerations

Challenges to Implementation….

- Placement of fill in Open Waters
- Habitat Trade-off / Exchange
- Attractive Nuisance
  - Sediment Contamination
  - Oyster Reef Policies
- Existing protected in-water Structures
- Streamlined and Flexible Permitting Process
- Funding

Align agency policies and programs to encourage and promote restoration

Significant Challenge: Funding

Potential Costs for Selected TECs

TEC	Unit of Restoration	Low ($/unit)	Median ($/unit)	High ($/unit)
Coastal Wetlands	Acres	$218,587	$277,009	$713,569
	Cyd excavated	$49	$53	$144
Oyster Habitat	Acres	$51,457	$52,478	$109,776
	Cyd shell placed	$30	$65	$75
Eelgrass	Acres	$1,080	$16,600	$170,083

To Achieve Coastal Wetland Goal:

- 1200 acres by 2015: $262 to $856 million
- 15,200 acres by 2050: $3.3 to $10.8 billion

Hudson Raritan Estuary Restoration Feasibility Study

Recent Activities and Engagements

- Public Outreach for Comprehensive Restoration Plan
  - Completed Jamaica Bay (May 2010), Newark Bay/Hackensack River/Passaic River (June 2010), Upper Bay (June 2010) and Lower Raritan River (Sept 2010) Lower Hudson River/HEP Restoration conference (Jan 2011), AK/KVK (Jan 2011) Lower Bay (April 2011) Planning Regions and Harlem River, East River and Western Long Island Sound (July 2011)
- Department of Interior (Sec. Salazar) commitment to advance the Restoration Plan following Restoration Summit (30 July 10); recommendations outlined in DOI Drat Report (29 Sept) and Secretary Salazar/Mayor Bloomberg America's Great Outdoors Collaboration Draft Report for Jamaica Bay (July 2011)
- Ongoing integration of HRE Comprehensive Restoration Plan with NYC ‘s Comprehensive Waterfront Plan and revised Waterfront Revitalization Program

CRP Implementation

- Federal, State, local and Private Funding Sources and Mechanisms
  - Mitigation
  - Natural Resource Damages Trustees
- HEP Restoration Work Group and Policy Committee
  - Strategies for coordination to achieve the TEC goals
  - Alignment of Agency policies to achieve CRP goals

Implementation using Existing Authority	Mitigation NRDA	New Programmatic Authorization

Current Activities

- Evaluation of CRP Sites/Projects Harbor-wide and within each Planning Region
  - Analysis of ecological benefits and costs
- Identification of New Restoration Opportunities

- Develop Implementation strategies
- Further State of the Science for each TEC through detailed investigations for oysters, waterbirds, etc.

Feasibility Study

- GOAL: Provide the Opportunity for Federal Cost Sharing for Ecosystem Restoration Beyond Existing Authority

- Existing USACE Authority:
  - **Continuing Authorities Program**
    - Sections 204/207: Beneficial Use of Dredged Material
    - Section 206: Aquatic Ecosystem Restoration
    - Section 1135: Project Modification
- **Future USACE Authority:**
  - **HRE Ecosystem Restoration Program**

Oyster Restoration Research Partnership

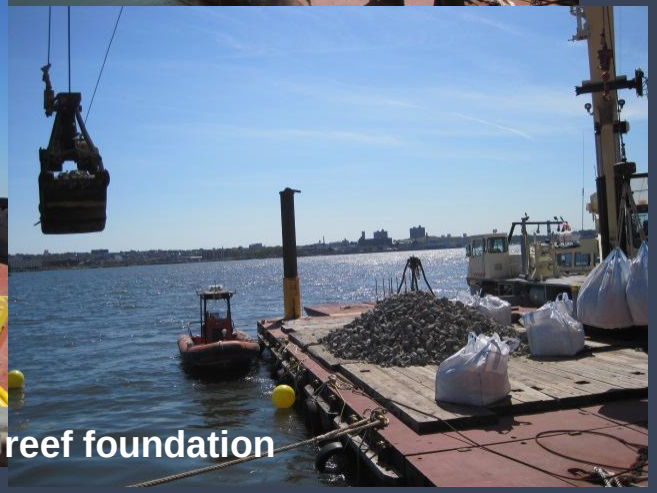
The Army Corps-NY District/Port Authority of New York & New Jersey and Partners (Hudson River Foundation, NY/NJ Baykeeper, Harbor School, Univ. of New Hampshire, NYCDEP, and others) initiated construction of Oyster Reef Pilots within the NY/NJ Harbor Estuary. The data collected from this effort will advance the state of the science for the oyster reef Target outlined in the HRE Comprehensive Restoration Plan as part of the HRE Ecosystem Restoration Feasibility Study.

Oyster Reef Locations

9 tons of shell placed atop rubble

Oyster spat on shell will be placed on the reef end of October followed by long-term monitoring by our Partners

23 tons of rubble placed as reef foundation



US Army Corps of Engineers® New York District

New York · New Jersey Harbor Estuary Program

BAYKEEPER

What Have We Asked the Stakeholders to Do?

- Identify New Restoration Sites and Projects
  - www.OasisNYC.net
- Partner with the USACE on Restoration Projects
- Spread the Word

For More Information on NY/NJ Harbor Estuary go to:
www.nan.usace.army.mil/harbor
www.watersweshare.org

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