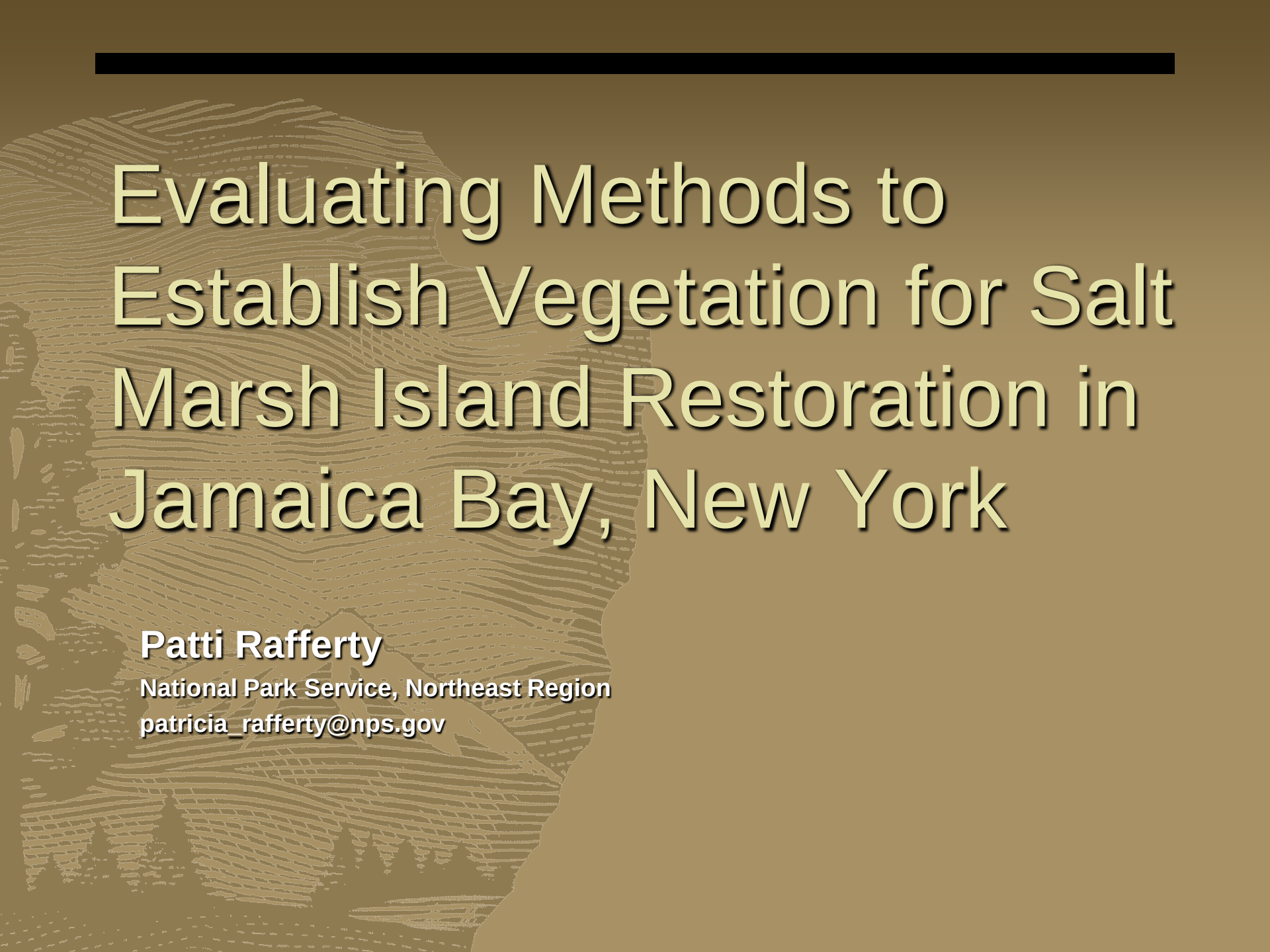


The background of the slide features a light brown map of New York State. Overlaid on the western and central parts of the map is a detailed, textured illustration of a salt marsh landscape, showing various types of vegetation and water channels. At the top of the slide, there is a solid black horizontal bar.

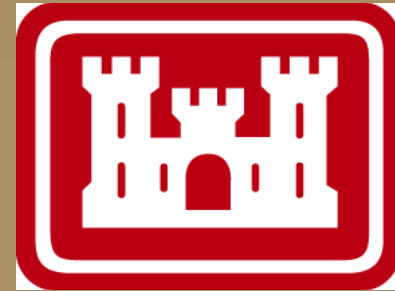
Evaluating Methods to Establish Vegetation for Salt Marsh Island Restoration in Jamaica Bay, New York

Patti Rafferty

National Park Service, Northeast Region

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Jamaica Bay Marsh Island Restoration Planning, Monitoring & Adaptive Management Team



A topographic map of a coastal area, showing contour lines and a body of water. The map is rendered in a monochromatic brown and tan color scheme. The title "Marsh Restoration Monitoring Goals" is overlaid on the map in a large, bold, yellow font.

Marsh Restoration Monitoring Goals

- Determine factors contributing to the success or failure of the restoration
- Evaluate various techniques to establish vegetation
- Identify problems requiring remedial action
- Inform future restoration efforts
- Better understand factors contributing to salt marsh loss

Jamaica Bay Marsh Island Restoration Project Sites



Elders East Marsh Restoration

Construction: 2006

Area: 16 ha (10 ha)

Planting Method: Planted with Plugs and Perimeter Quart Pots

Monitoring: 2005-2012



Elders East Marsh Restoration

Planting Method:

Planted plugs and
Quart pots





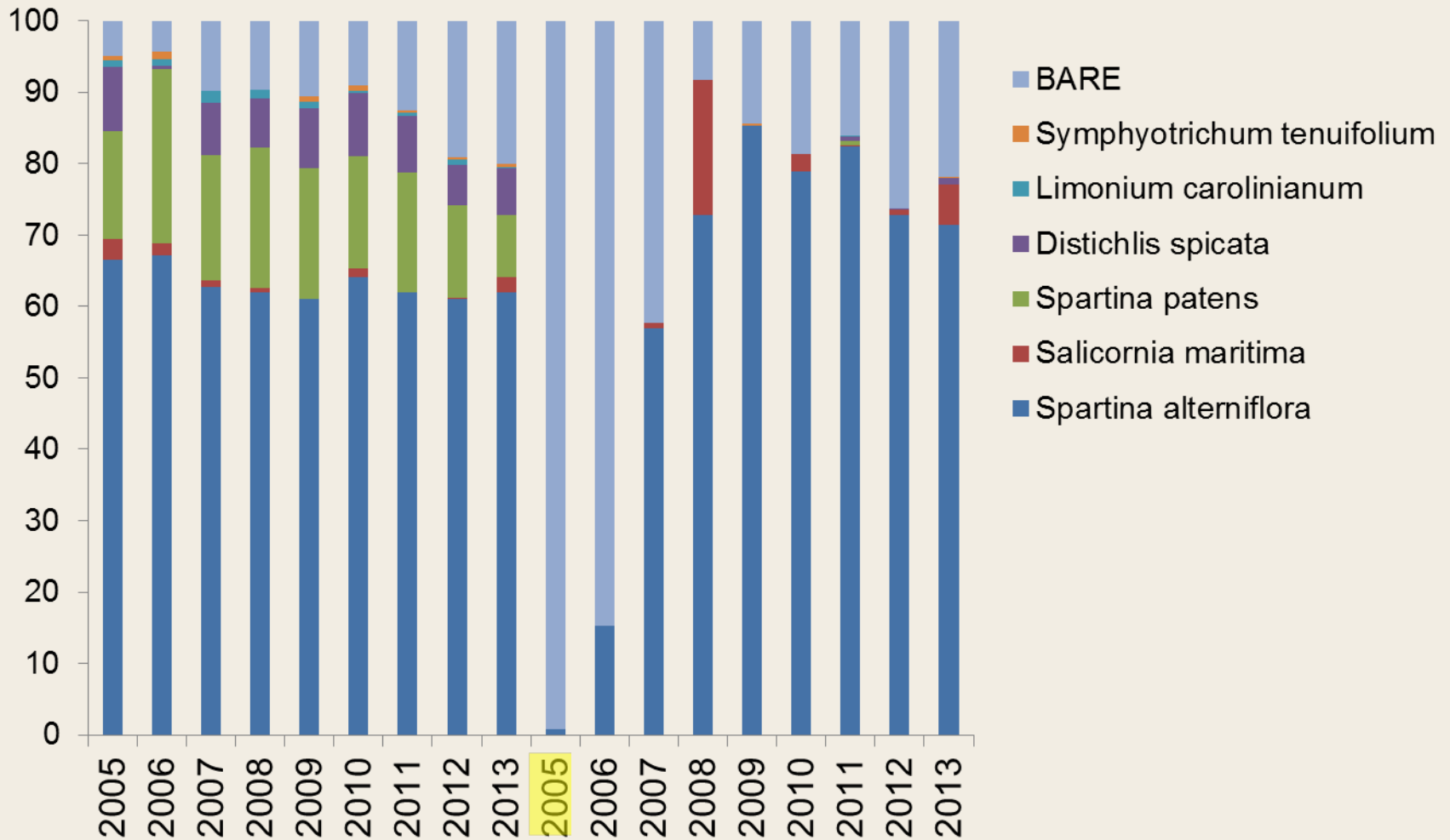
Elders East

September, 2103

EXPERIENCE YOUR AMERICA

Mean Live Canopy Cover

% Live Canopy Cover



Reference (JoCo)

Restoration (Elders East)

Year

Elders West Marsh Restoration

Construction: 2010

Area: 16 ha

Planting Methods: Hummock Transplants
Planted Plugs (high marsh)
Natural Recruitment

Monitoring: 2005 and 2010-2014

05/20/2010



Elders Point West Marsh Restoration



Hummock Transplants:

- Conserve Existing Vegetation
- Vegetative Propagation
- Conserve Benthic Community

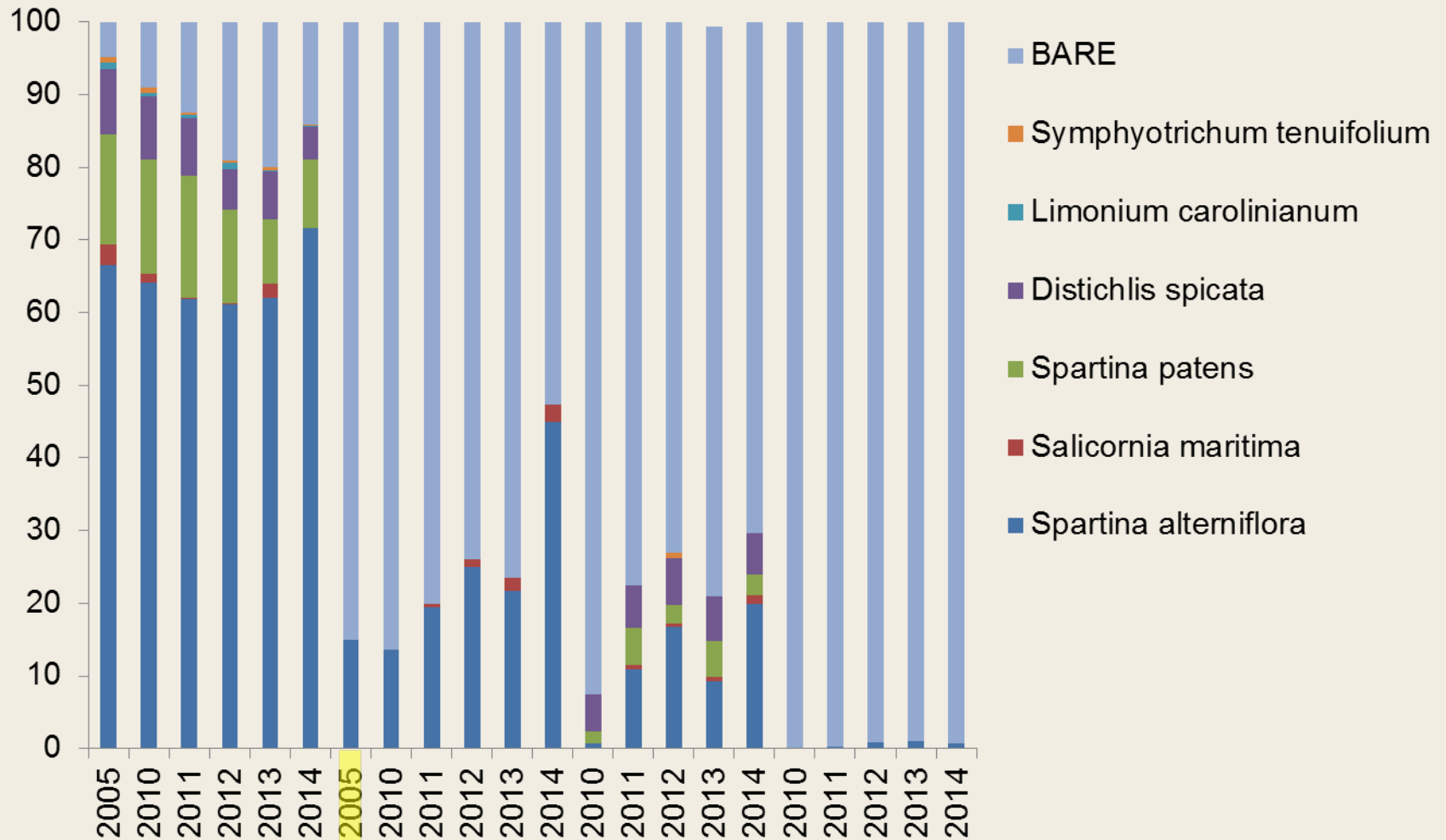


Elders West, September 2013



Mean Live Canopy Cover

% Live Canopy Cover

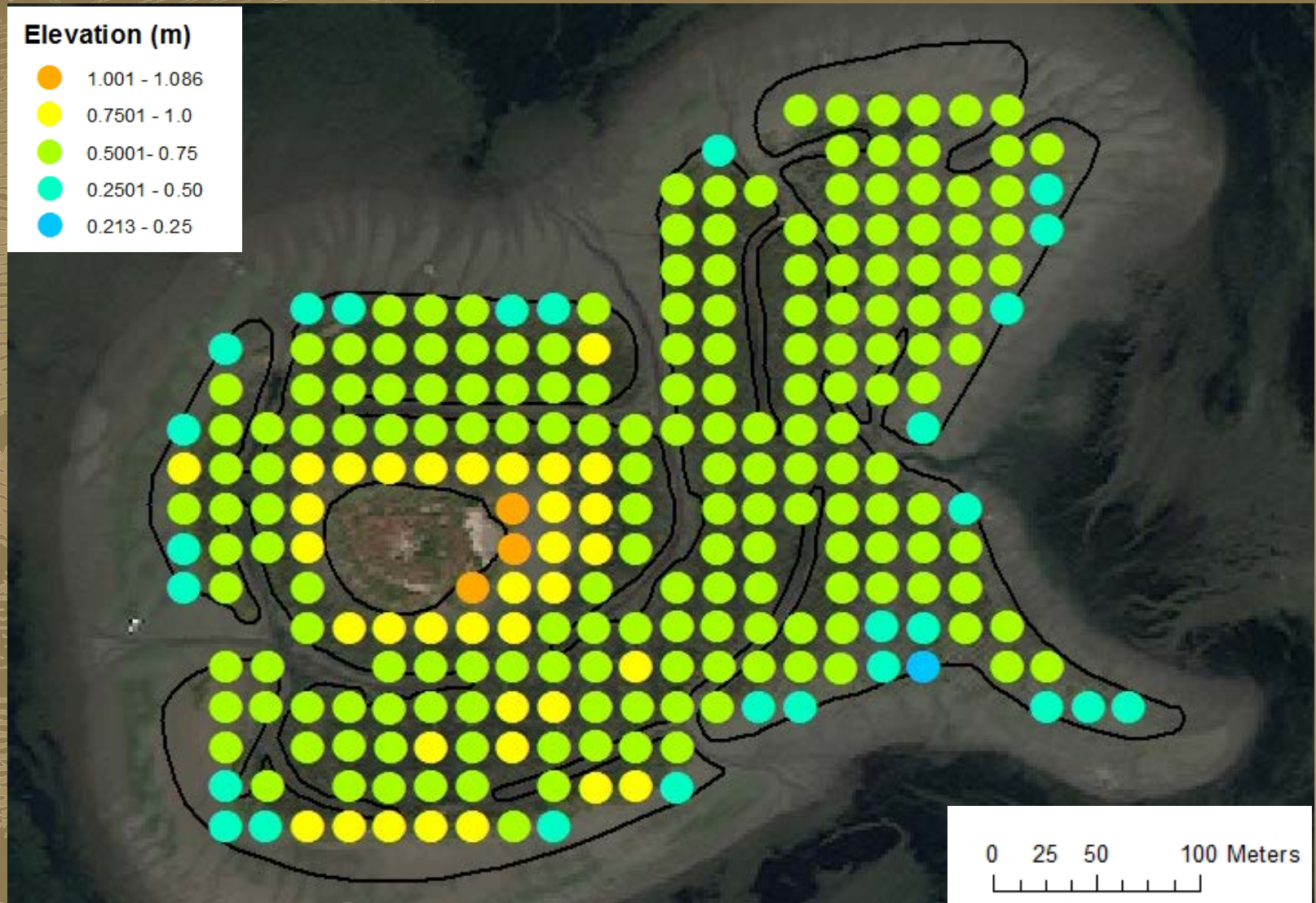


Reference
(JoCo)

Hummock
High Marsh
No Plant
Restoration (Elders West)

Year

Elders West, September 2013



Yellow Bar Marsh Restoration

Construction: 2012

Area: 18 ha

Planting Methods: Hummock Transplants
Planted Plugs (high marsh)
Seeding

Monitoring: 2011-2016



Yellow Bar Marsh Restoration

Planting Methods:

- Seed Drill
- Hummock Transplants
- Planted Plugs (high marsh)





Yellow Bar

September, 2013

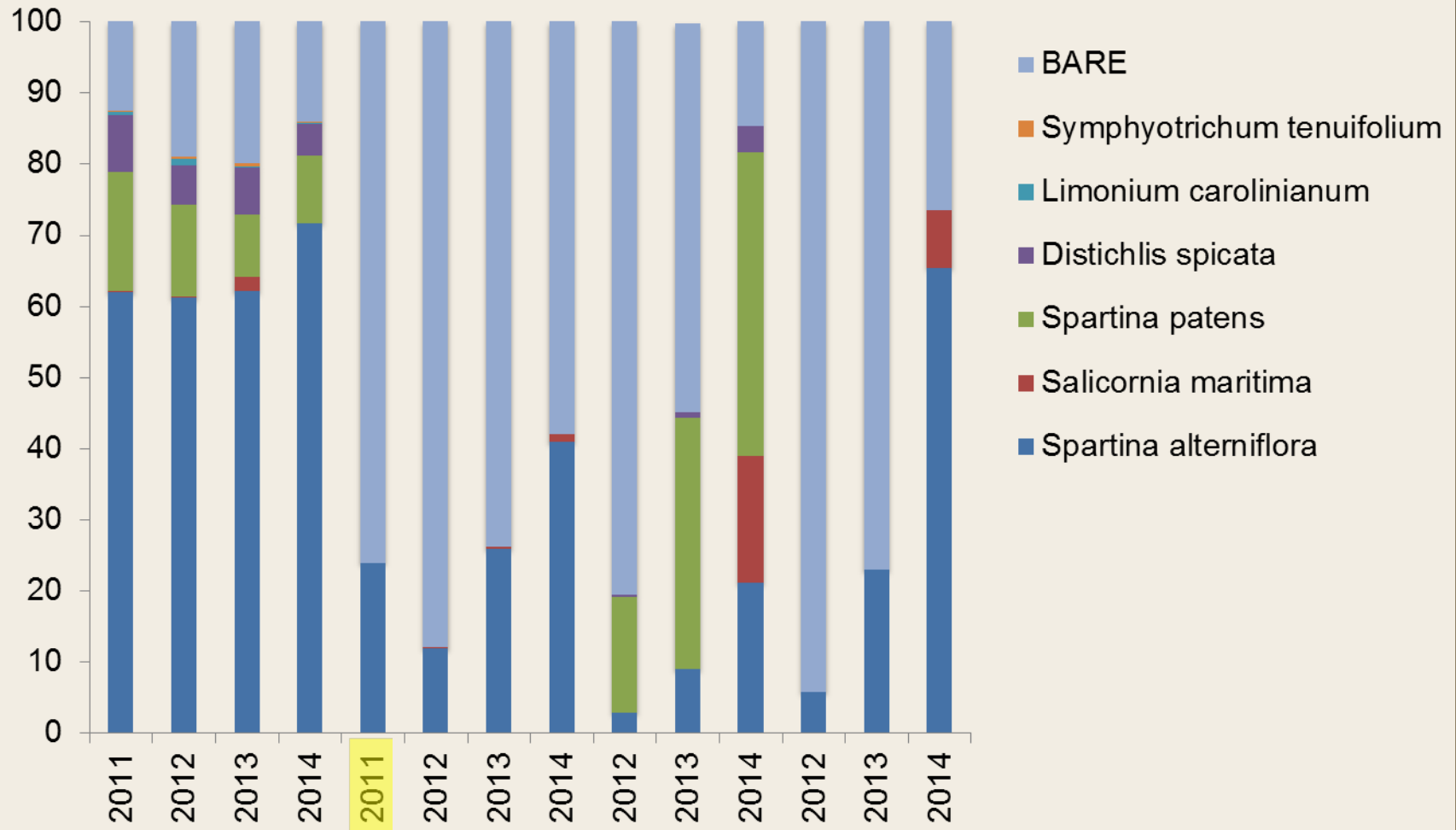
0 50 100 200 Meters



EXPERIENCE YOUR AMERICA

Mean Live Canopy Cover

% Live Canopy Cover



Reference
(JoCo)

Hummock High Marsh Seeded
Restoration (Yellow Bar)

Year

Funding and Project Support:

US Army Corps of Engineers, New York District

Port Authority of New York and New Jersey

New York State Department of Environmental Conservation

New York City Department of Environmental Protection

National Park Service, Gateway National Recreation Area

National Park Service, Northeast Region

Project Staff, Volunteers and Interns

2005

Katie Hietala
Jon Fradua
Jessica Browning
Ajoa Perkins
Lara Peterson
Rita Papagian
Kilian Stehfest
Jolene Willis
Nicholas VanVoorthuysen
Becca Bannon

2006

Katie Hietala
Sarah Maier
Katy Brown
Tim Chu
Kathryn Seaver
Damien Drisco
Emily Voigt
Catherine Donohue

2007

Jolene Willis
Tim Hearn
Eileen Jones
Dan Kleinman
Susan McCormick

2008

Jolene Willis
Dawn Sierer
Mark Peterson
Kathryn Bradley
Brian Tate

2009

Dan Landgrebe
Leah Wilson
Anthony Locatelli
Danielle Iulucci
Sarah Lumban Tobing
Erin Wood

2010

Scott Breeman
Tom Clifford
Ian Hartzler
Jennifer Pati
Mike Demasi
Oceane Peiffer-Smadja
Madeline Cutting
Danielle Regis

2011

Josh Rudder
Mike Tanis
Alecio Lopez
Guthrie Bridge
Jenny Li
Dan Parker
Martin Angelo
Sarah Parkin
Ross Diamond
Nicholas Medina
Pierpaolo Bellachioma
Sonia Kumar
Isabelle Stinnette

2012

Jolene Willis
Jacob Plotnick
Susan Robinson
Josh Rudder
Guthrie Bridge
Farshad Shafiei
Brooke Costanza
Katharine Perry
Andrew Ferreira
Olivia Richter

2013

Jolene Willis
Megan Dethloff
Sarah Uihlein
Jose Alvarez
Ashley Bruno

2014

Jolene Willis
Barry Udelson
Scott Quigley
Joshua Helms
Evan Kwityn
Michael Henkin
Rachael Dye



10/22/2010

Summary – Jamaica Bay

Reference and restored marshes are more resilient to sea level rise when compared to control marshes

Live vegetated cover and aboveground biomass have increased annually at the restored marsh

Total live vegetated canopy cover, aboveground biomass, and belowground productivity do not differ between the restored and reference marsh

Low root:shoot ratios could indicate allocation of resources to aboveground annual tissue which could limit sediment organic accumulation