Beneficially Reusing Dredge Material to Rebuild a Marsh – one year later

Andrew M. Howard[1] presented by **Alison B. Rogerson[1]**,

Bartholomew Wilson[2], Matthew A. Jennette, Daniel J. Brower[1], Ariane K. Nichols[1], Maggie K. Pletta[1]

[1] *Delaware Department of Natural Resources and Environmental Control*
[2] *U.S. Fish and Wildlife Service*

Recap:

-2013 tidal marsh restoration via thin layer application of dredge material

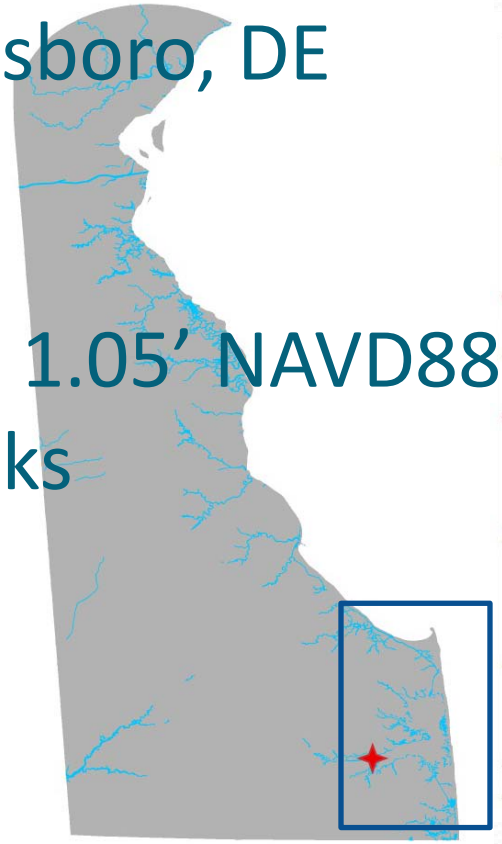
-Pepper Creek and Piney Point Tract of Assawoman Wildlife Area, Dagsboro, DE

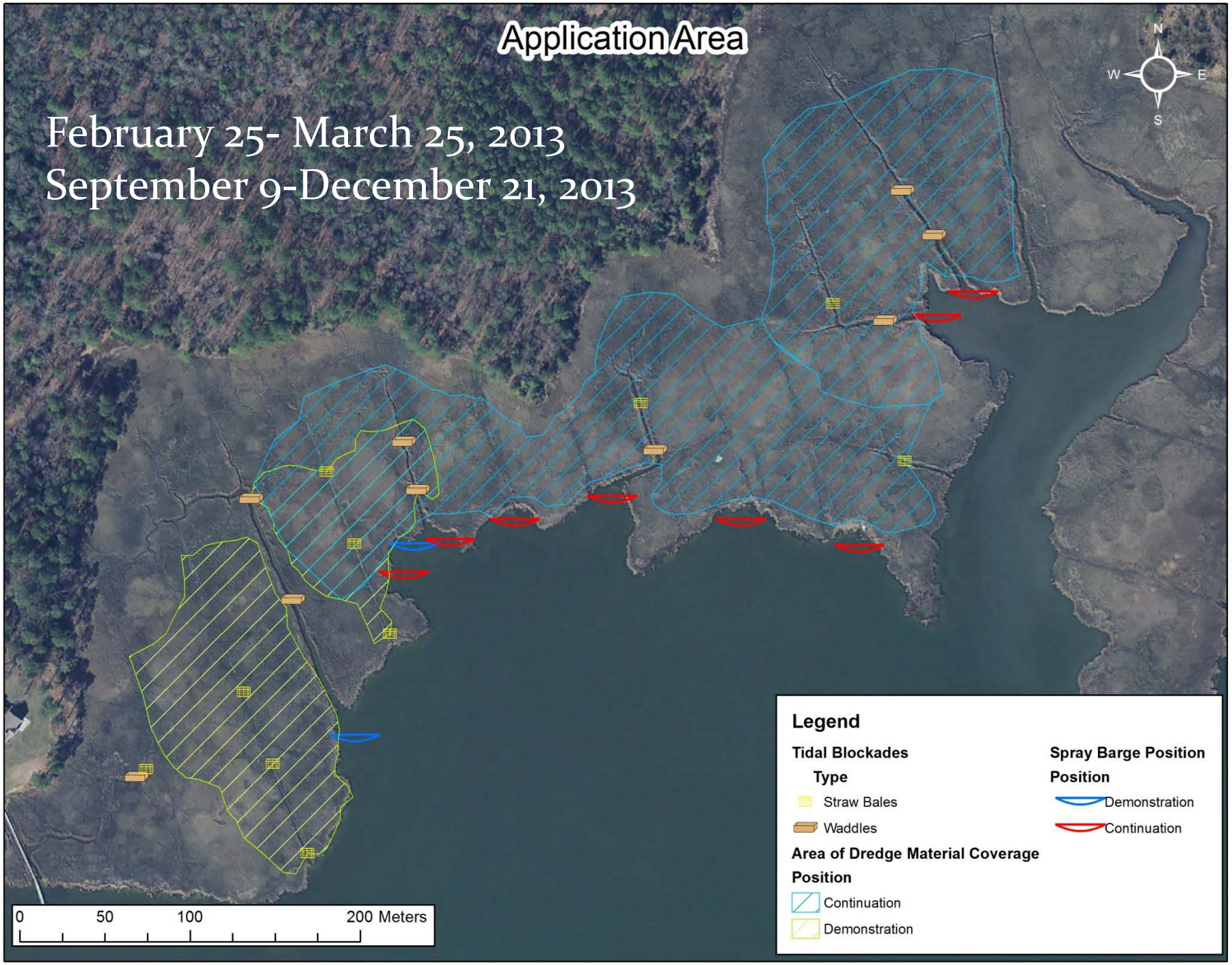
-47 acres

-9,000yd³

-raise elevation to 1.05’ NAVD88

-address hummocks




Application Area
February 25- March 25, 2013
September 9-December 21, 2013
N
W
E
S
Legend
Tidal Blockades
Type
Straw Bales
Waddles
Area of Dredge Material Coverage
Position
Continuation
Demonstration
Spray Barge Position
Position
Demonstration
Continuation
0
50
100
200 Meters

Did it work?
How is the site now?

1. Plant regrowth
2. Sediment sills
3. Condition assessments
4. Biomass
5. Elevation
6. Feldspar

1. Plant Regrowth

Worse before better

February 25, 2013

March 21, 2013

April 17, 2013

May 30, 2013

October 29, 2013

August 15, 2014

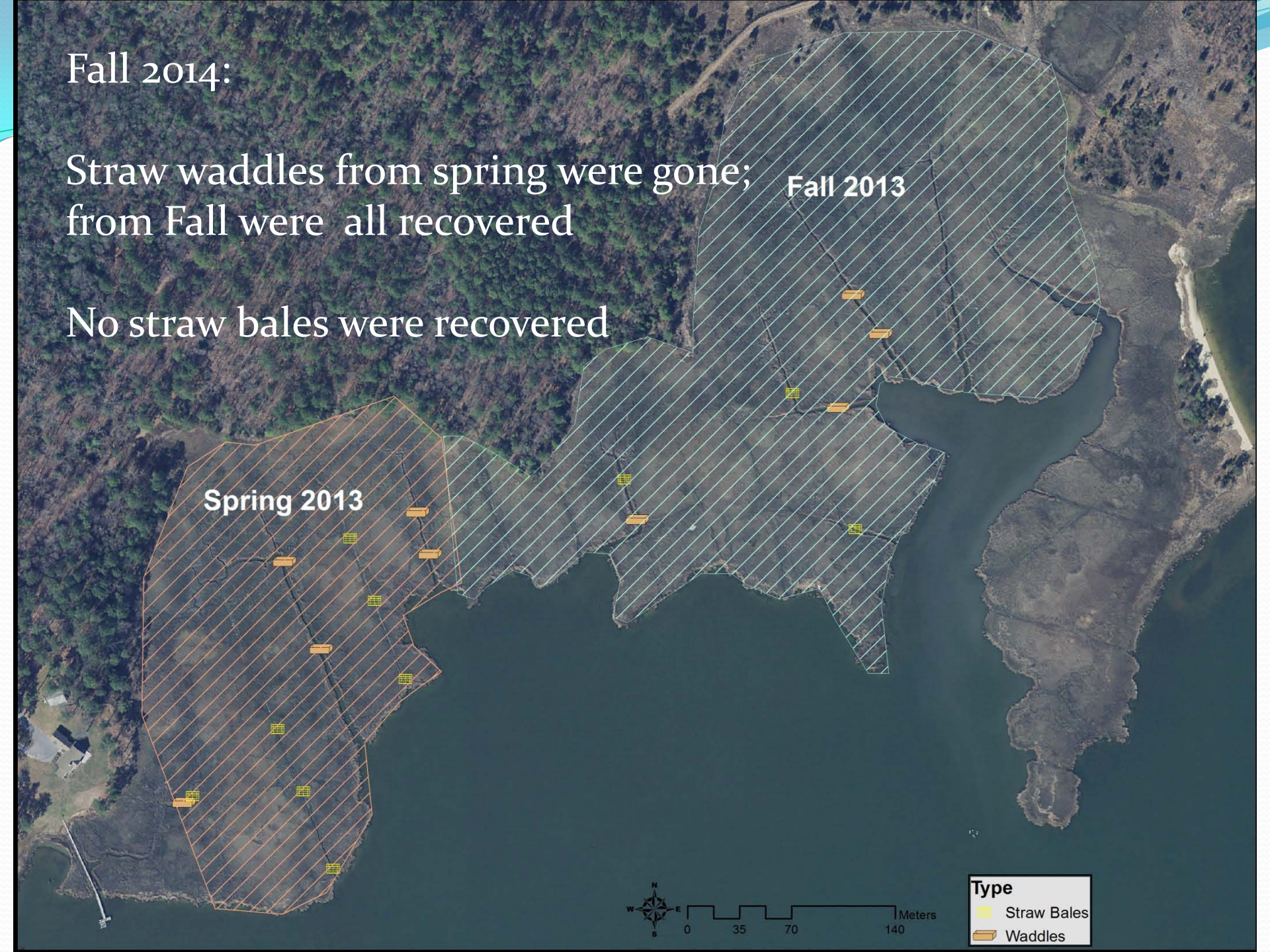
January 20, 2015

2. Sediment sills: straw bales and waddles

Fall 2014:

Straw waddles from spring were gone; from Fall were all recovered

No straw bales were recovered

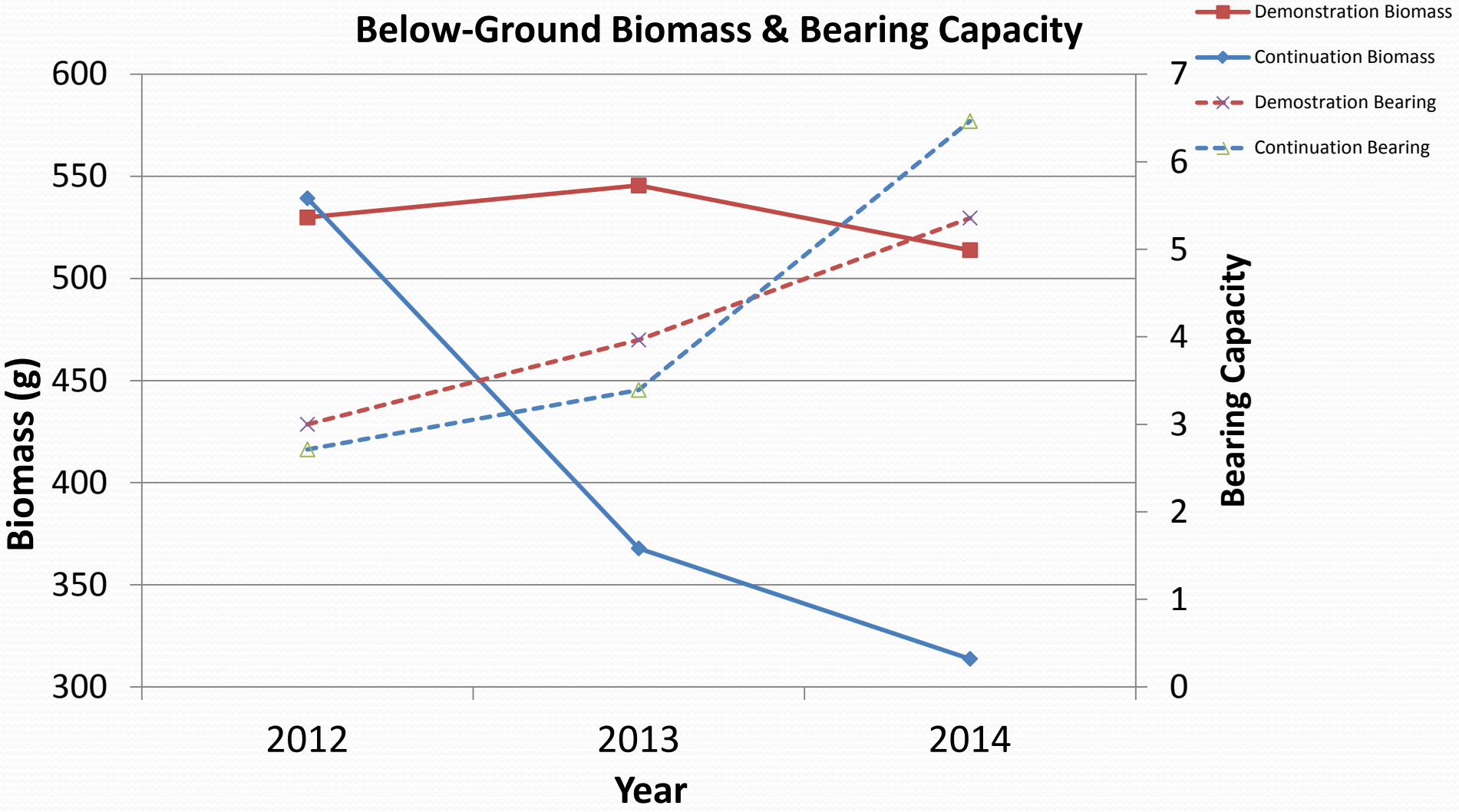


3. Condition Assessments

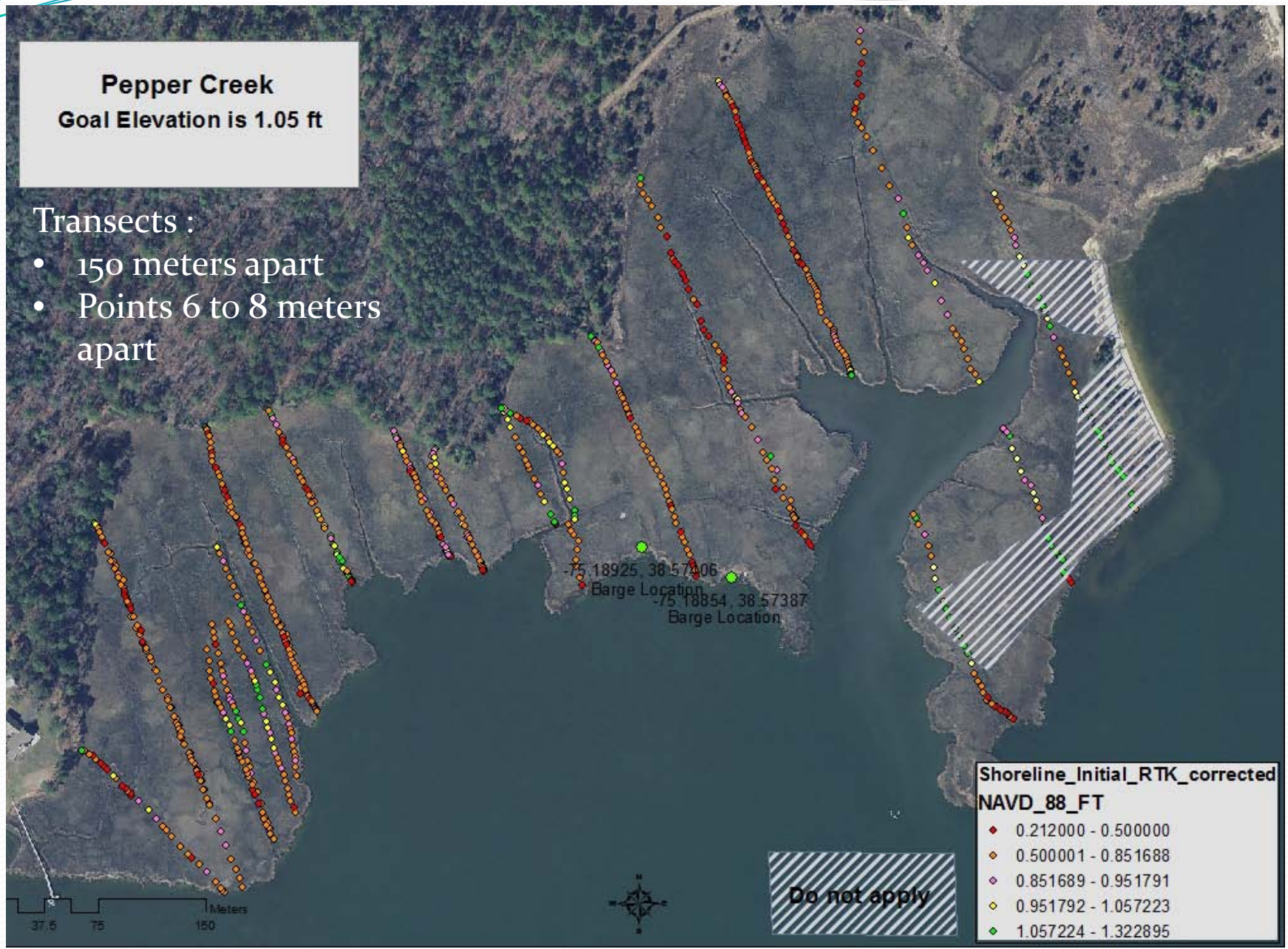
-using Mid-Atlantic tidal rapid assessment method
-completed once per year July-September
-2012, 2013, 2014

Slight decrease in Bearing Capacity at both sites
Slight decrease in Horizontal Vegetation Obstruction at continuation site

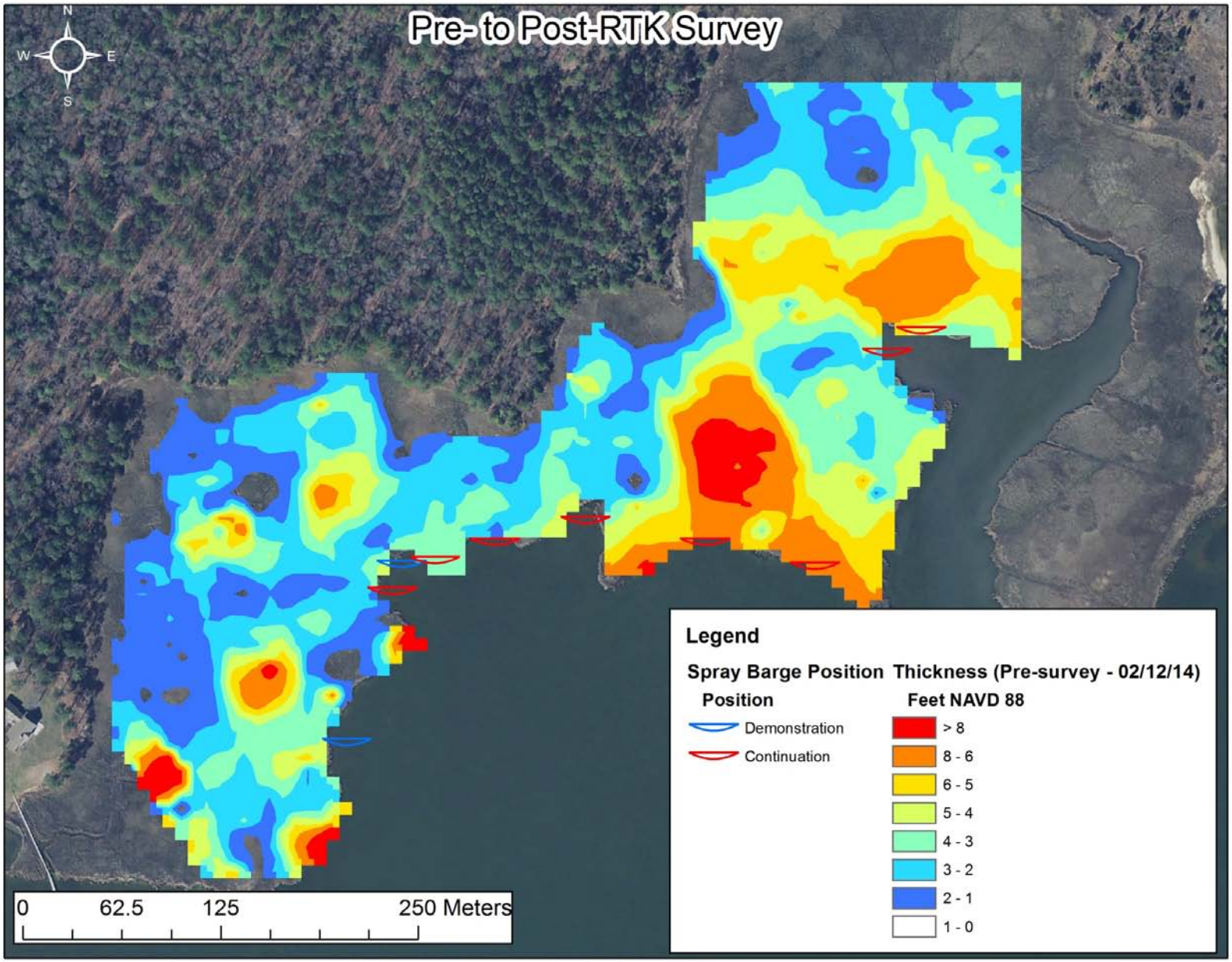
4. Biomass and Bearing Capacity



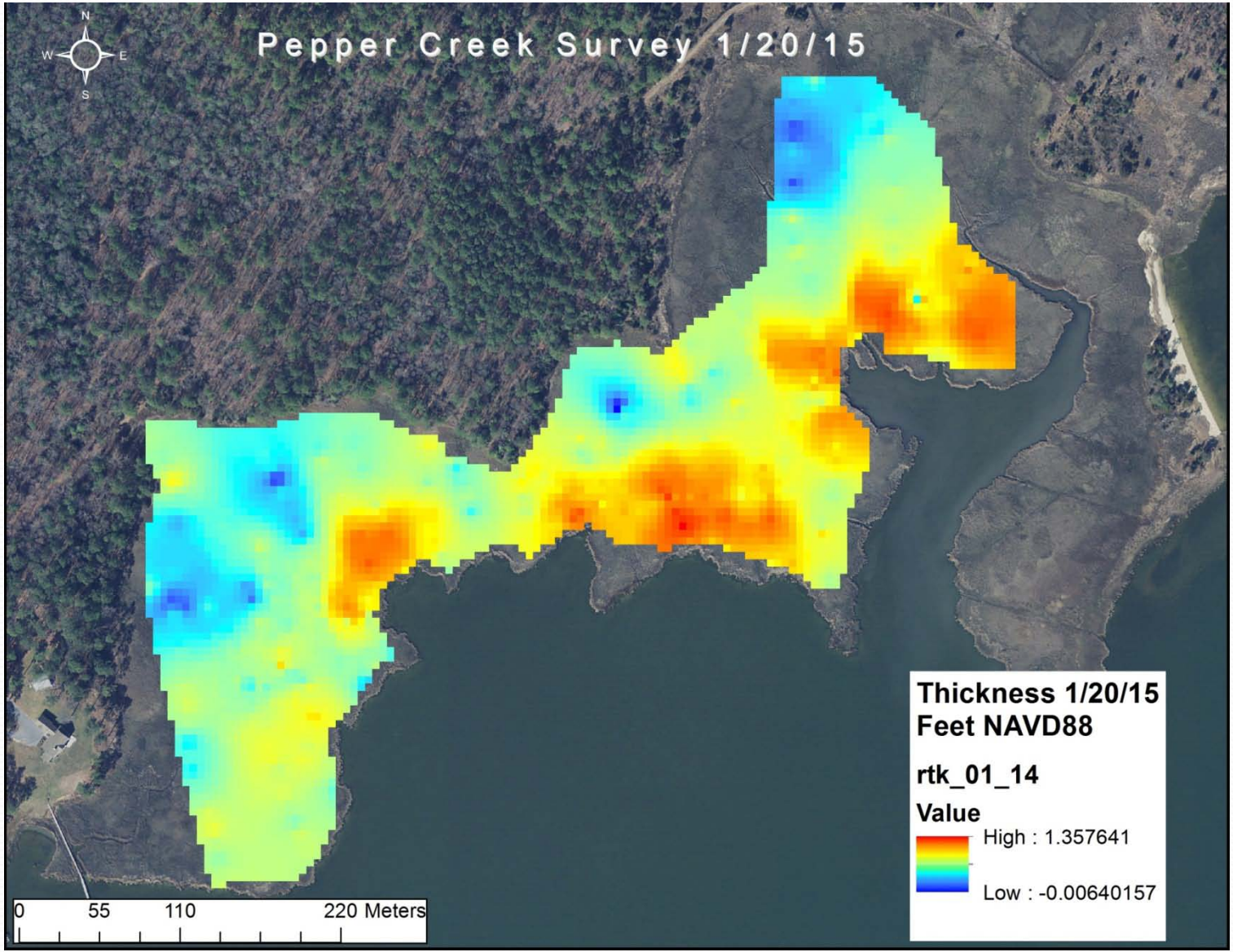
5. Elevation surveys using RTK



- Red areas are thickest



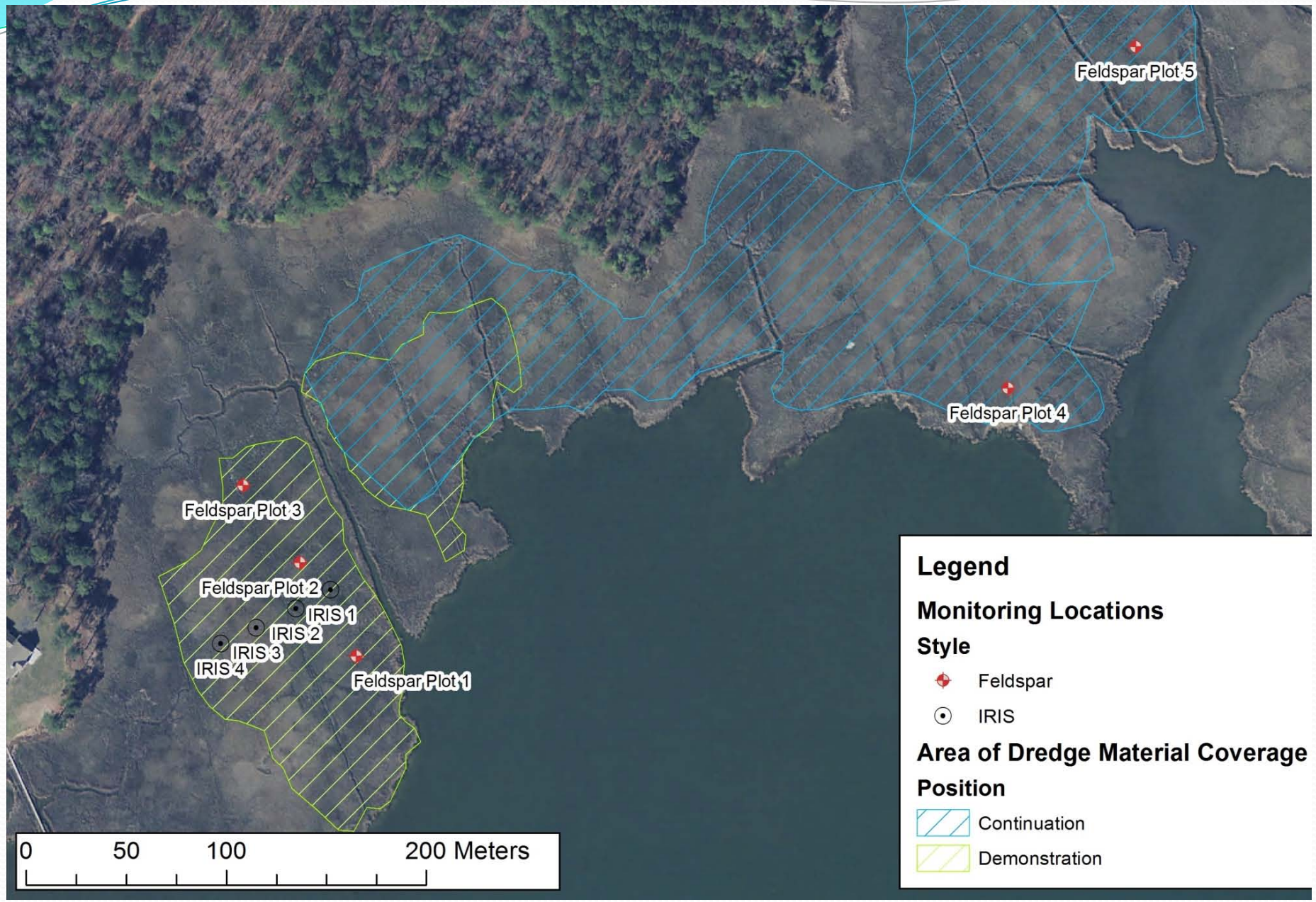
- Red areas are thickest
- Is spreading done yet?
- Did spraying before winter freeze prevent spreading?



6. Cryogenic coring for feldspar horizon markers

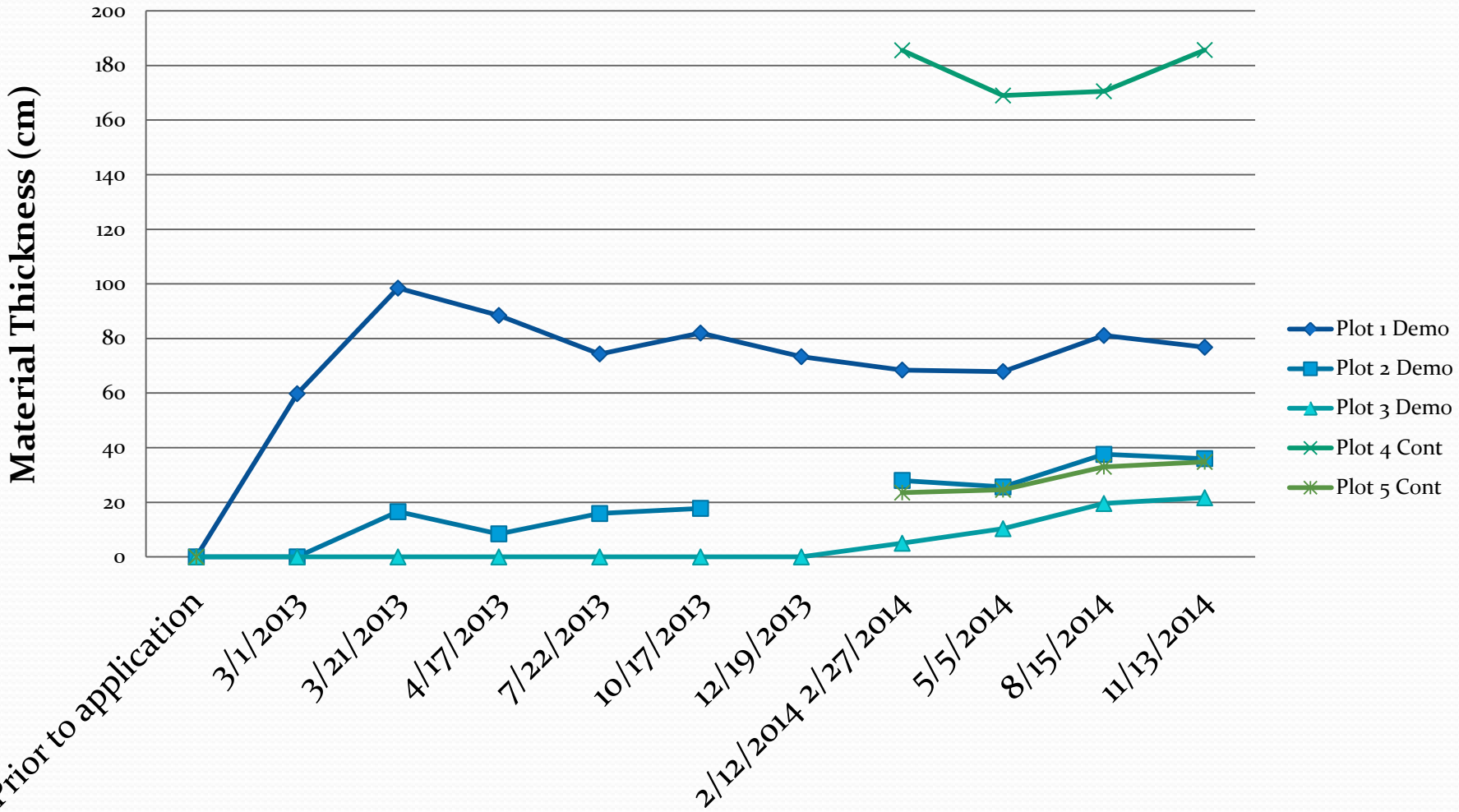
measuring accretion thickness and movement

Feldspar marker horizons



Feldspar marker horizons

- Uptick after intense demonstration spraying
- Decreased as sediment settled and spread back
- Upticks in two other demo sites confirm sediment spreading back
- Small upticks at 2 continuation sites



Where does that leave us?

- Planning to plant *Spartina alterniflora* in April/May
- Continue all monitoring for 3-4 more years
- Focus on project hits and misses
- Summarize all details for public benefit