

# DEVELOPING RESILIENCE FOR A COASTAL WILDLIFE REFUGE

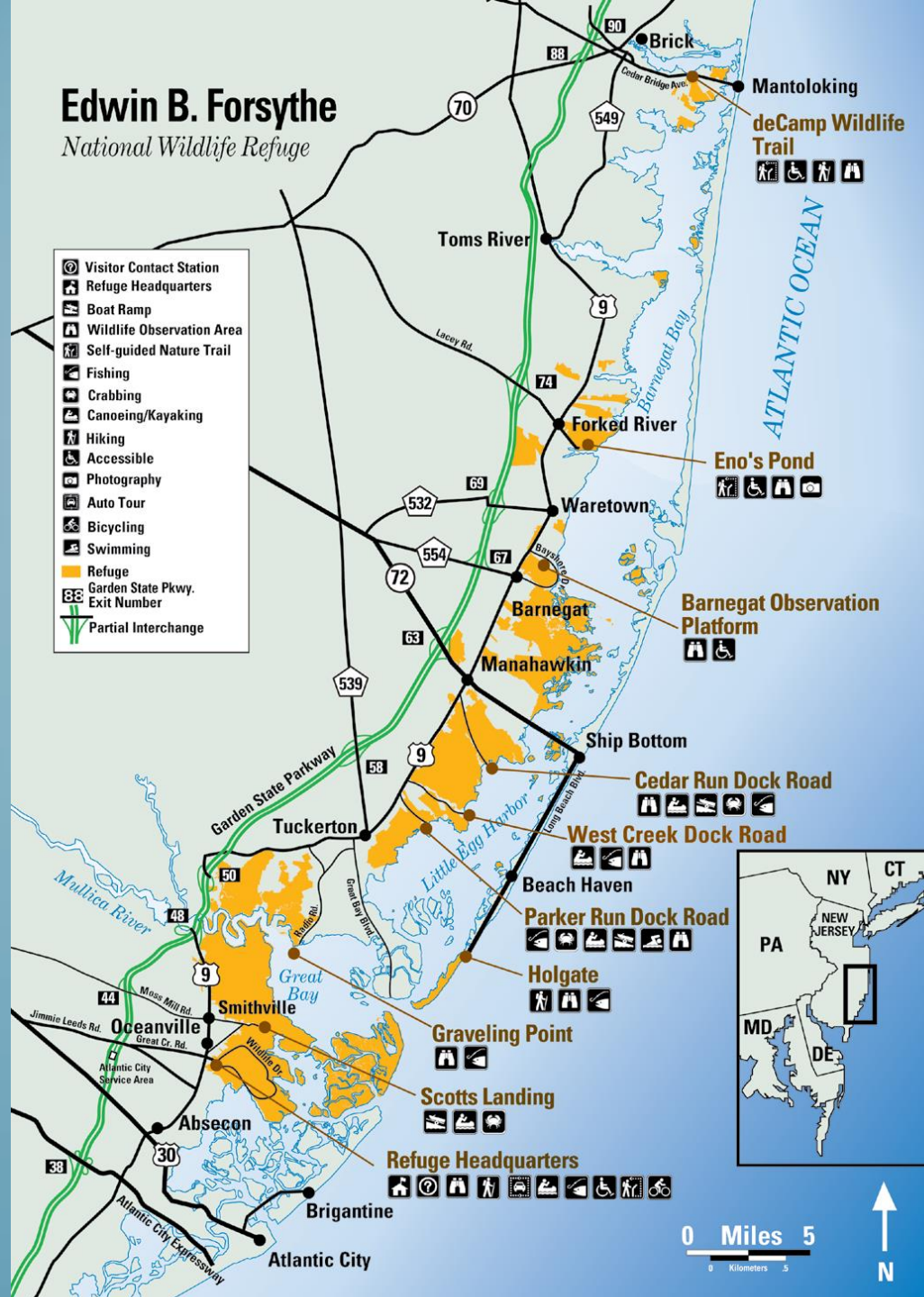
*Virginia Rettig*  
*Refuge Manager*  
*Edwin B. Forsythe National Wildlife Refuge*



# Edwin B. Forsythe

National Wildlife Refuge

- Visitor Contact Station
- Refuge Headquarters
- Boat Ramp
- Wildlife Observation Area
- Self-guided Nature Trail
- Fishing
- Crabbing
- Canoeing/Kayaking
- Hiking
- Accessible
- Photography
- Auto Tour
- Bicycling
- Swimming
- Refuge
- Garden State Pkwy. Exit Number
- Partial Interchange



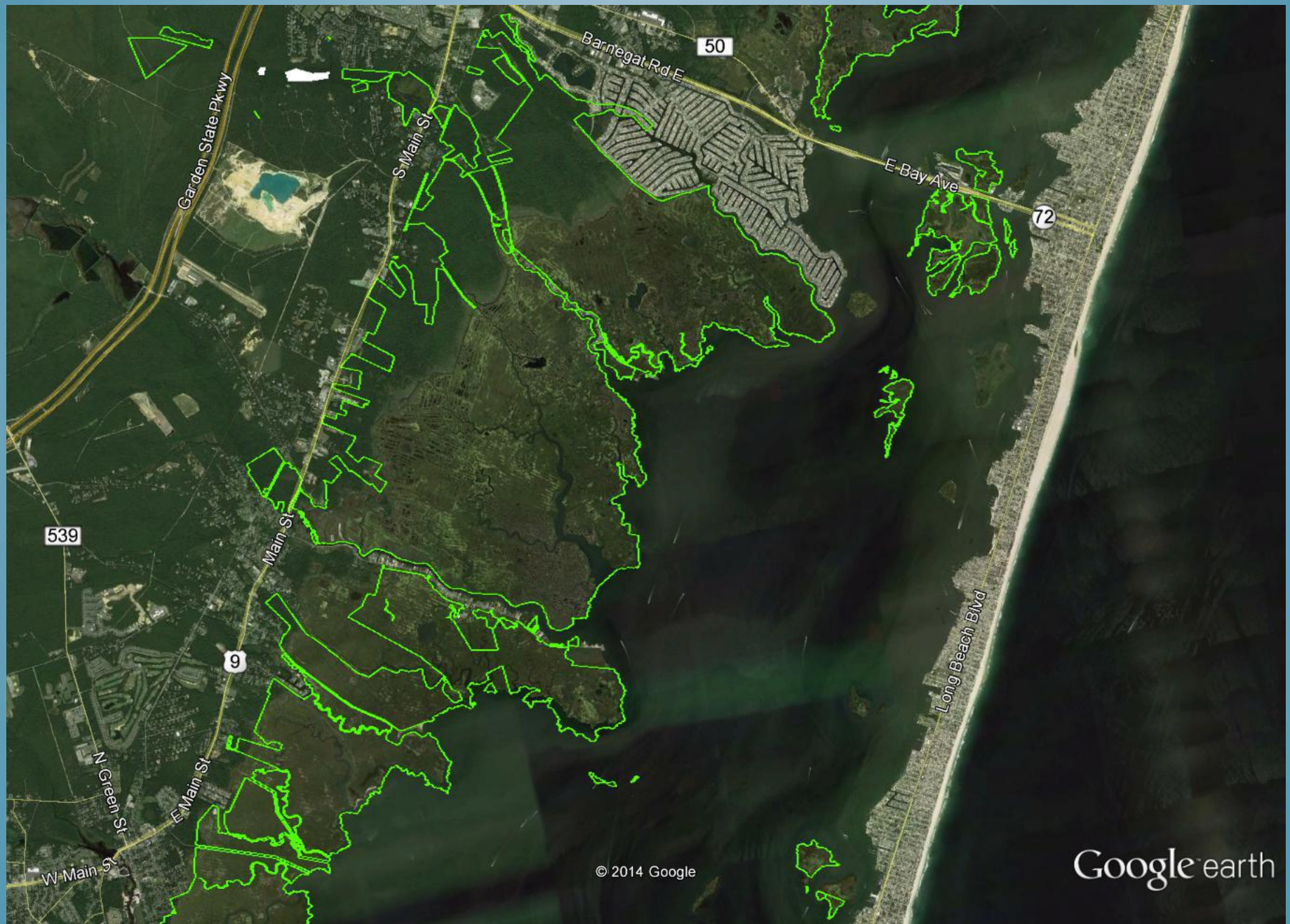




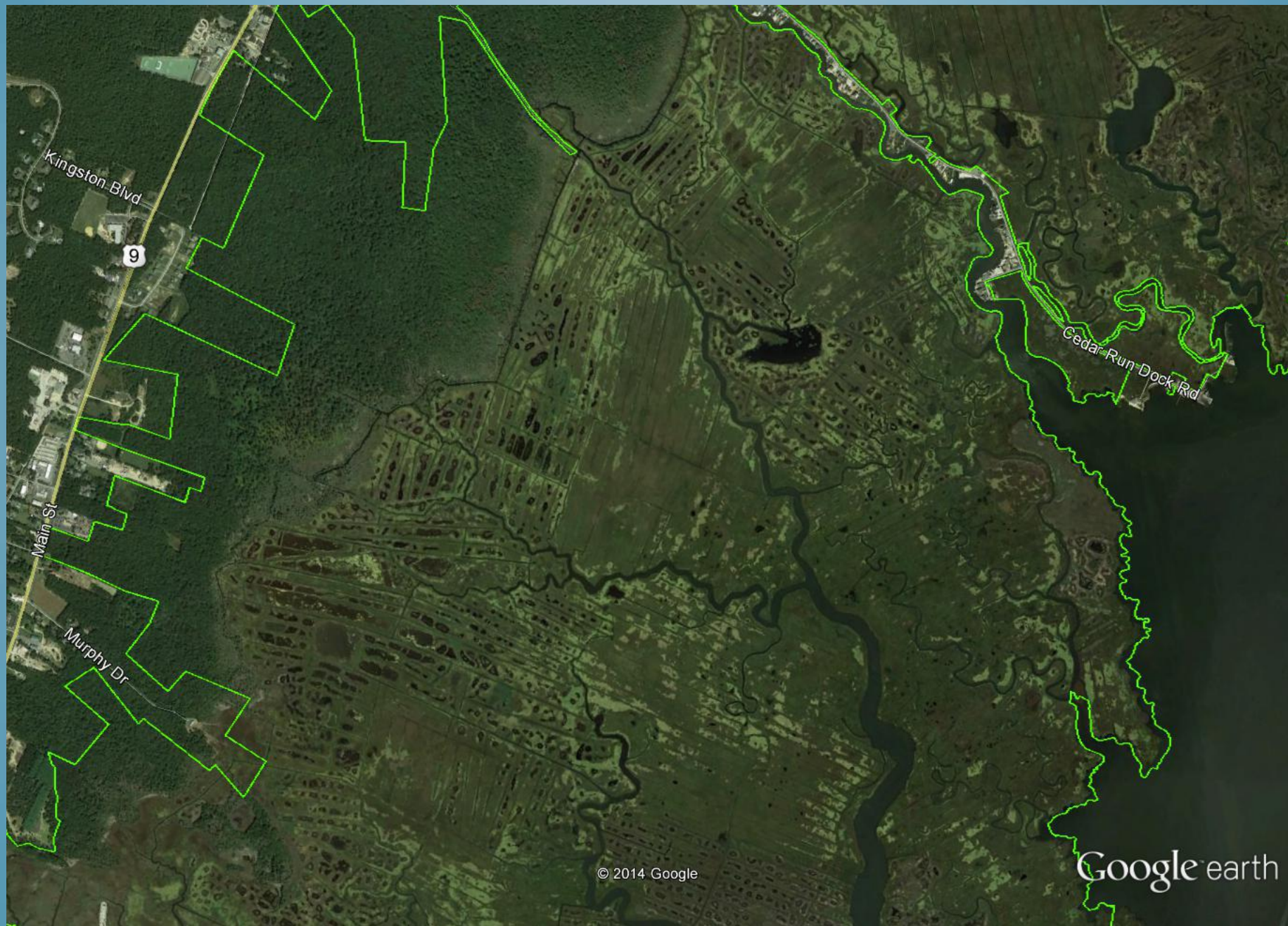












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# RESILIENCE

- *What do we mean?*
  - *Long-term*
  - *Benefit communities*
  - *Benefit economy*
  - *Looking forward with partners*
- *Why bother?*





# WHAT'S THE SITUATION AT E.B. FORSYTHE REFUGE?

- *We know:*
  - *Historical alterations*

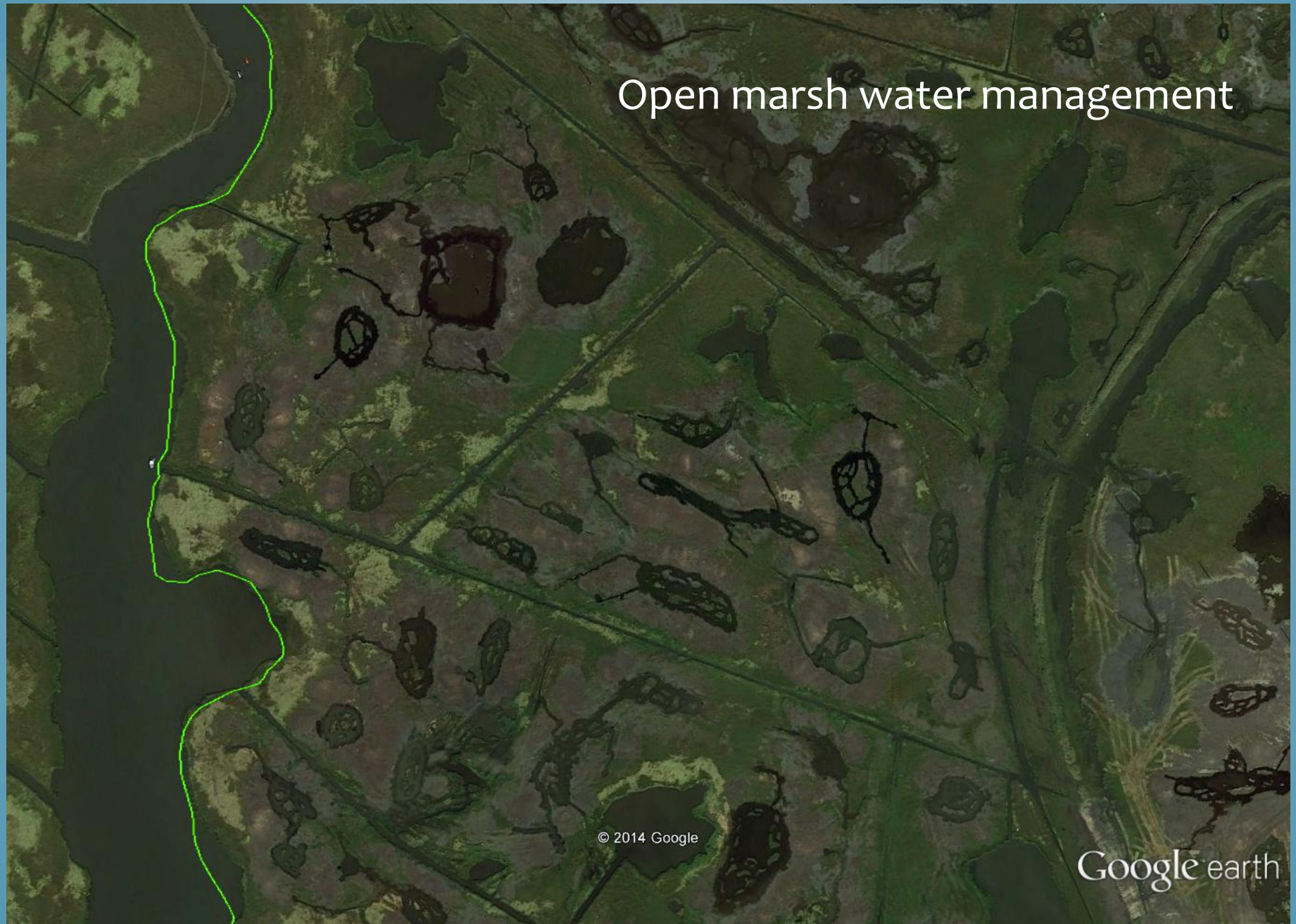
An aerial photograph showing a landscape with a grid of ditches. The ditches are dark, straight lines forming rectangular plots. The plots are filled with green vegetation, likely salt hay. There are several large, dark, irregular shapes scattered throughout the grid, which appear to be water bodies or wetlands. The overall color palette is dominated by dark greens and browns.

Salt hay farming  
Parallel grid-ditching

Google earth



# Open marsh water management



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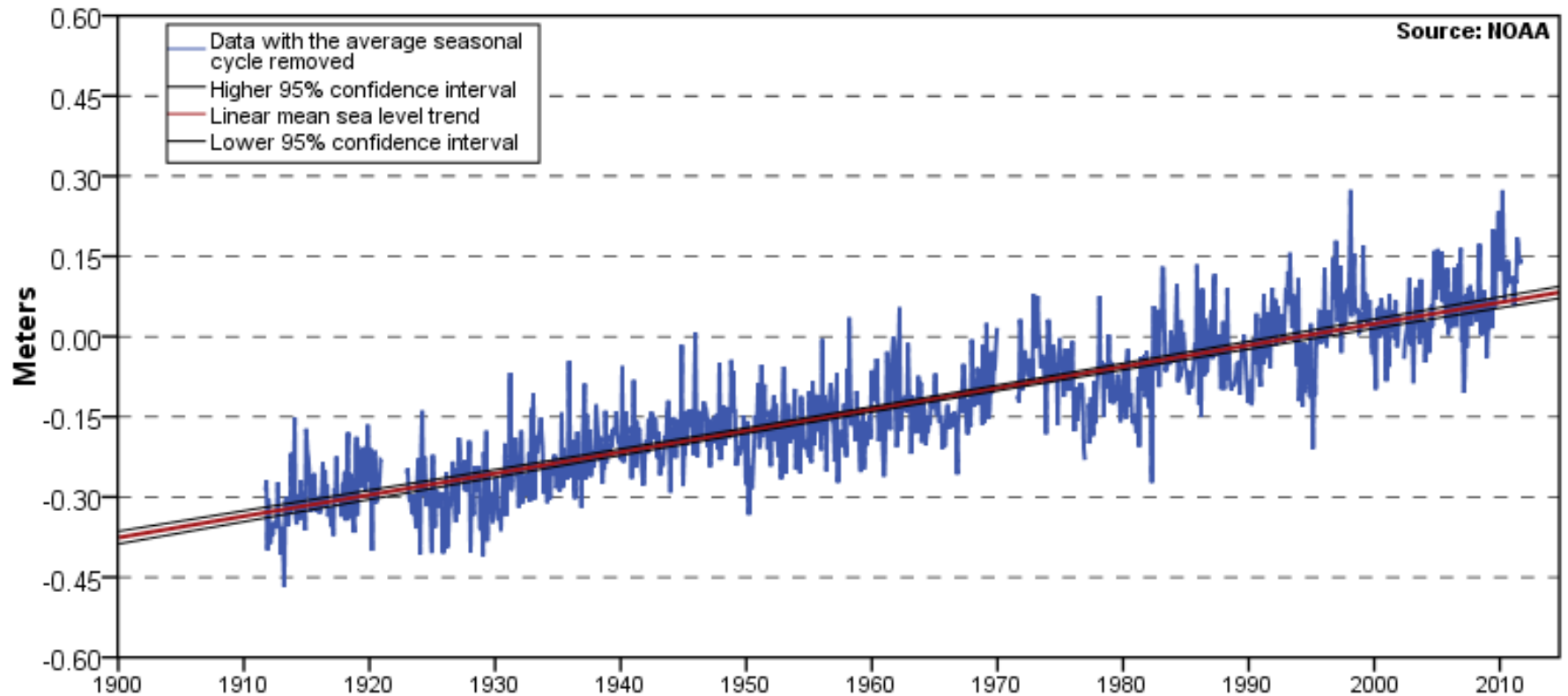
# WHAT'S THE SITUATION AT E.B. FORSYTHE REFUGE?

- *We know:*
  - *Historical alterations*
  - *Sea level is rising*



Atlantic City, NJ

3.99 +/- 0.18 mm/yr



# WHAT'S THE SITUATION AT E.B. FORSYTHE REFUGE?

- *We know:*
  - *Historical alterations*
  - *Sea level is rising*
  - *Sediment starved system*
    - *2/3 of our marshes*



# WHAT'S THE SITUATION AT E.B. FORSYTHE REFUGE?

- *We know:*
  - *Historical alterations*
  - *Sea level is rising*
  - *Sediment starved system*
  - *Marsh accretion rates are low*

# SURFACE ELEVATION TABLES











# SO WHAT CAN WE DO ABOUT IT?

- *Large-scale marsh integrity work*
- *Get funding!*
- *Identify needs*
- *Work with partners to identify projects*
- *Develop restoration plans at key locations*
- *Implement projects to benefit marsh*





## Restoration of former salt hay farms

Thin layer deposition using clean dredged material

3,814 acres identified for potential restoration



0 2 4 8 12 16 Kilometers









# Thin Layer Deposition



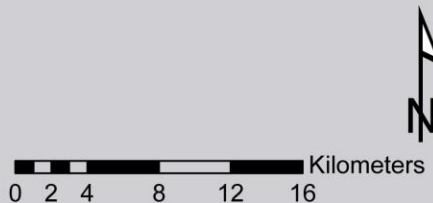
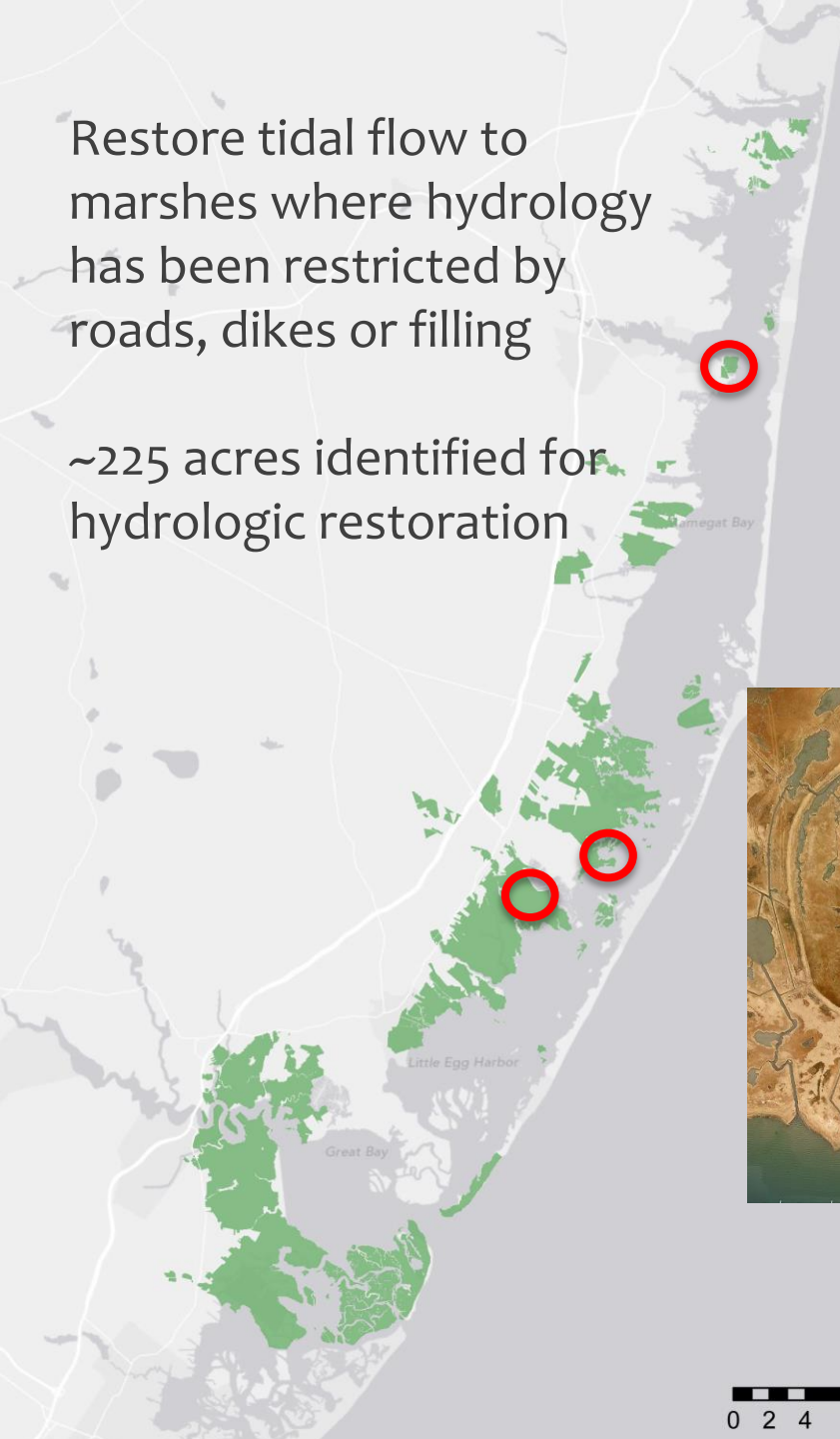
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Restore tidal flow to  
marshes where hydrology  
has been restricted by  
roads, dikes or filling

~225 acres identified for  
hydrologic restoration





# IMPOUNDMENT ASSESSMENT AND MANAGEMENT



# CHALLENGES

- *Funding (that lasts long enough)*
- *Coordination*
- *Administration*
- *Monitoring*





Thank you...Questions?

