Habitat Selection of Wintering AMOY in Cedar Key, FL

Photo By: Pat Leary

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Project Overview

1. What features are selected for roosts?

2. Where do AMOY forage within the complex of reefs?

3. Within reefs selected for foraging, what features are used?

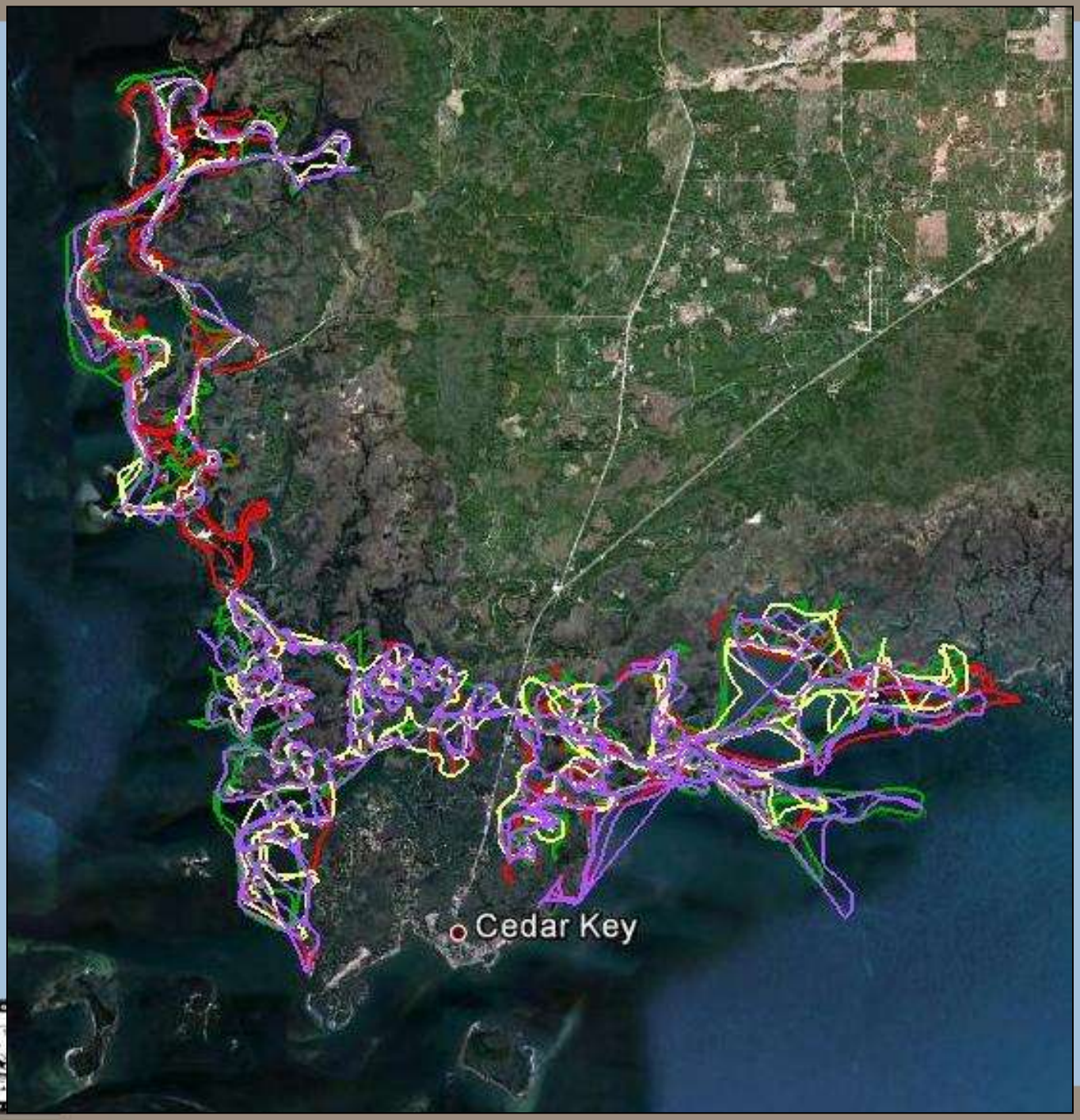
4. How can restoration affect these habitat values?

Horseshoe Beach 29.7 km

Barge Canal 25.9 km

Methods - Surveys

- Methods
  - Get to inter-tidal bars at low tide heights and different tidal stages
  - Done by airboat, multiple crews simultaneously
  - High tide and night time surveys as well


Cedar Key

Methods – Habitat Selection

- Roost and foraging bars
- Microhabitat and Landscape
- Habitat variables
- Elevations
- Spatial Analysis GIS

Minimum Population Size

- Average count: 1,134 (SD = 90)
- High count: 1,176
- Low count: 988

Roosts vs Random

- Compare roosts with random bars using GLM
- High tide roosts: further from woody veg, larger in area, closer to deep water
- Loafing roosts: further from woody and marsh veg, larger in area


N
Cedar Key
Image © 2012 TerraMetrics
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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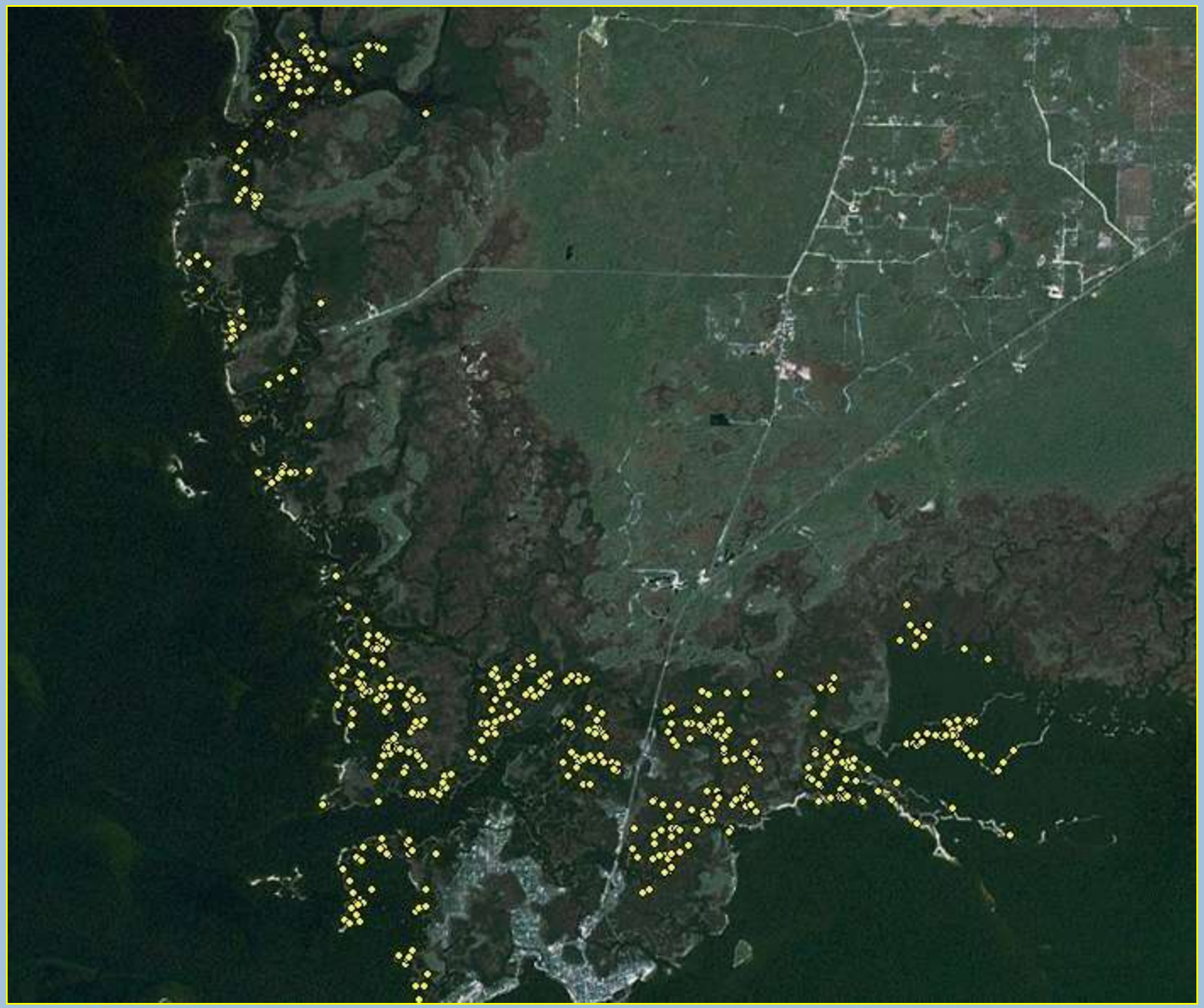
Google earth
Imagery Date: 1/18/2012
lat 29.171819° lon -83.032706° elev 3 ft
Eye alt 10.71 mi

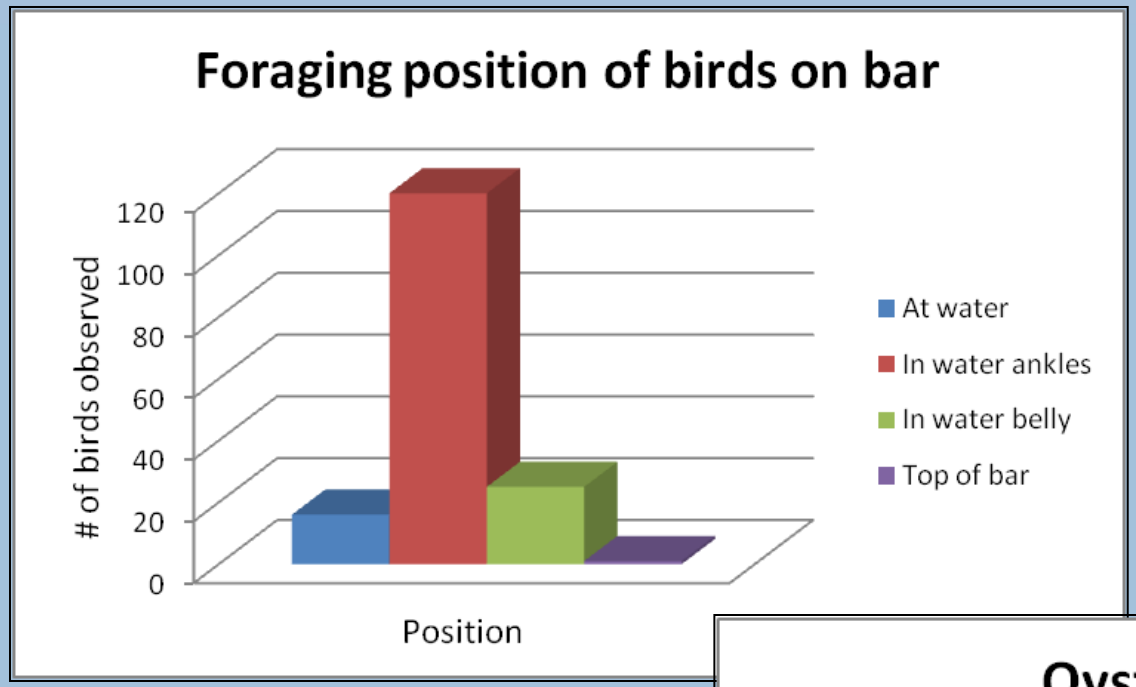
Disappearing Roosts

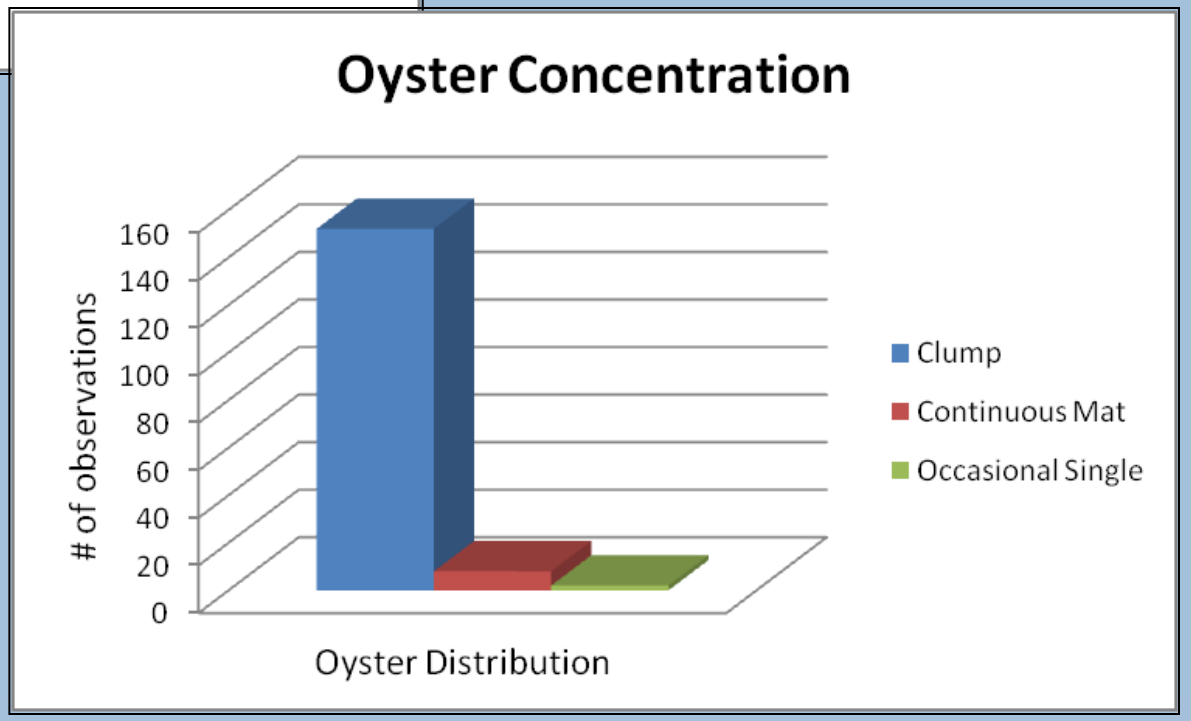
Image courtesy Pat Leary



Foraging Behavior & Prey Selection

- All prey items we could identify were oysters
  - 80.4% oysters, 19.6% unknown
  - Search time 29sec avg, handling time 14sec avg
- Average oyster size = 37.8 mm


Foraging position of birds on bar
# of birds observed
120
100
80
60
40
20
0
Position
At water
In water ankles
In water belly
Top of bar

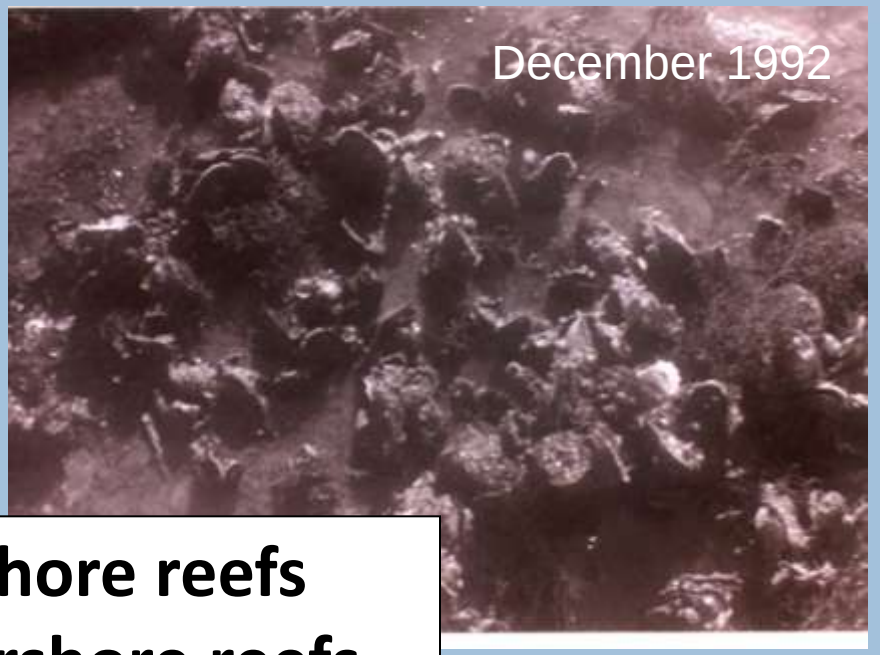

Oyster Concentration
# of observations
160
140
120
100
80
60
40
20
0
Oyster Distribution
Clump
Continuous Mat
Occasional Single

Foraging Habitat Selection

- Compared foraging and random bars using GLM
- Foraging bars: greater average % live oysters, more complex shape of bar, further from marsh vegetation

Take Home

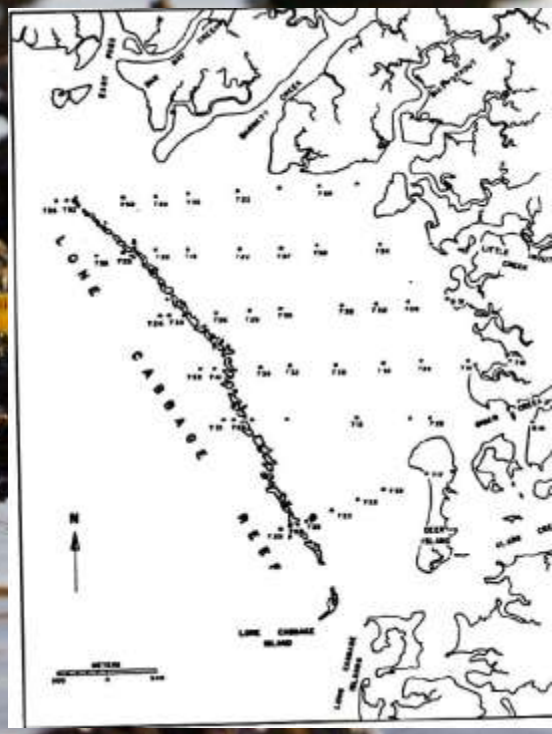
- Limited number of high tide roosts
- High tide roost are vulnerable to erosion, SLR
- A lot of foraging habitat exists – right now



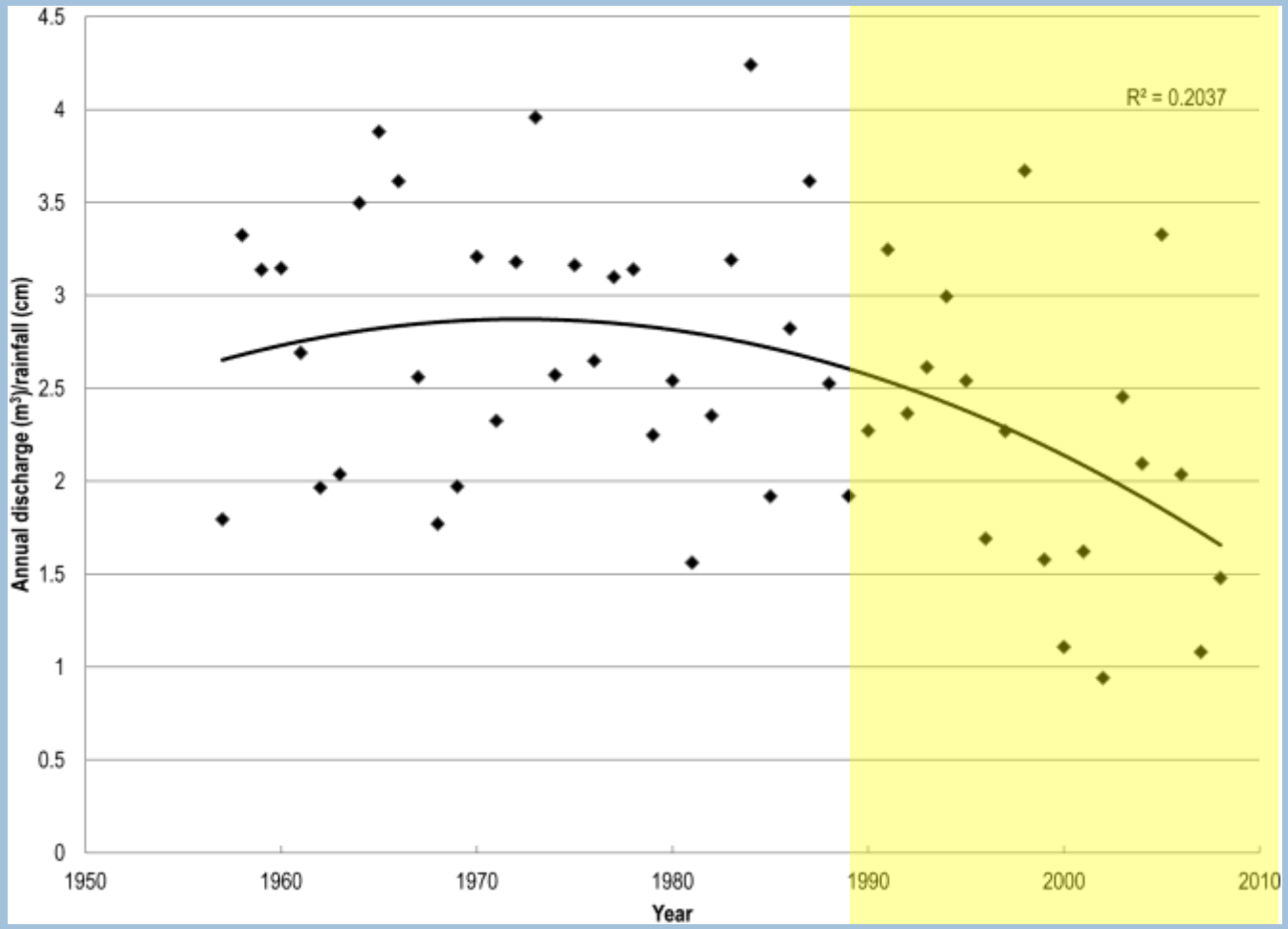
88% loss of offshore reefs
61% loss of nearshore reefs
50% loss of inshore reefs

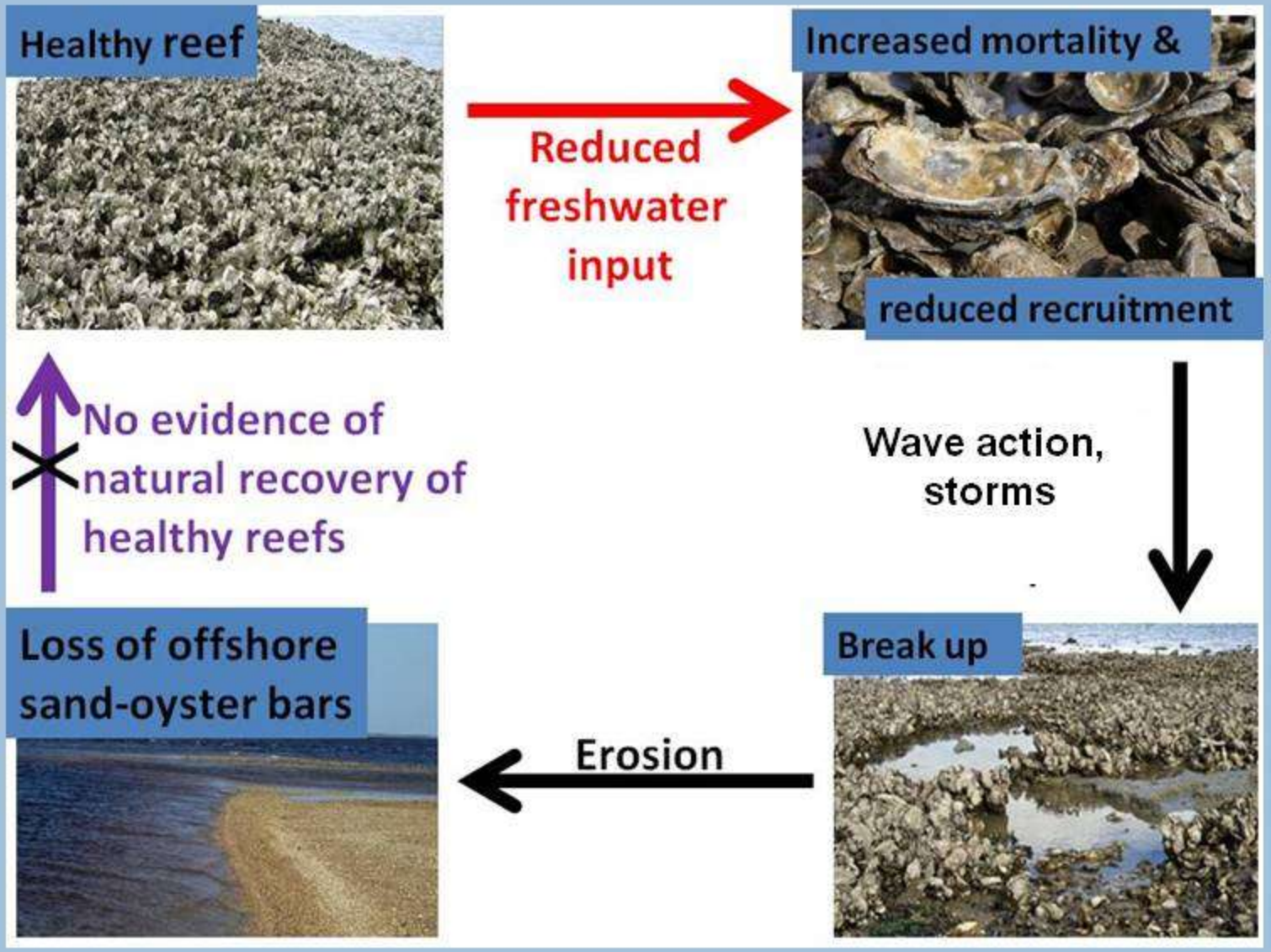
Significance of loss…

Reefs are estimated to be **2,800 to 4,000** yrs old suggesting a **fundamental change** has occurred to induce such a sudden (30-40yrs) decline.

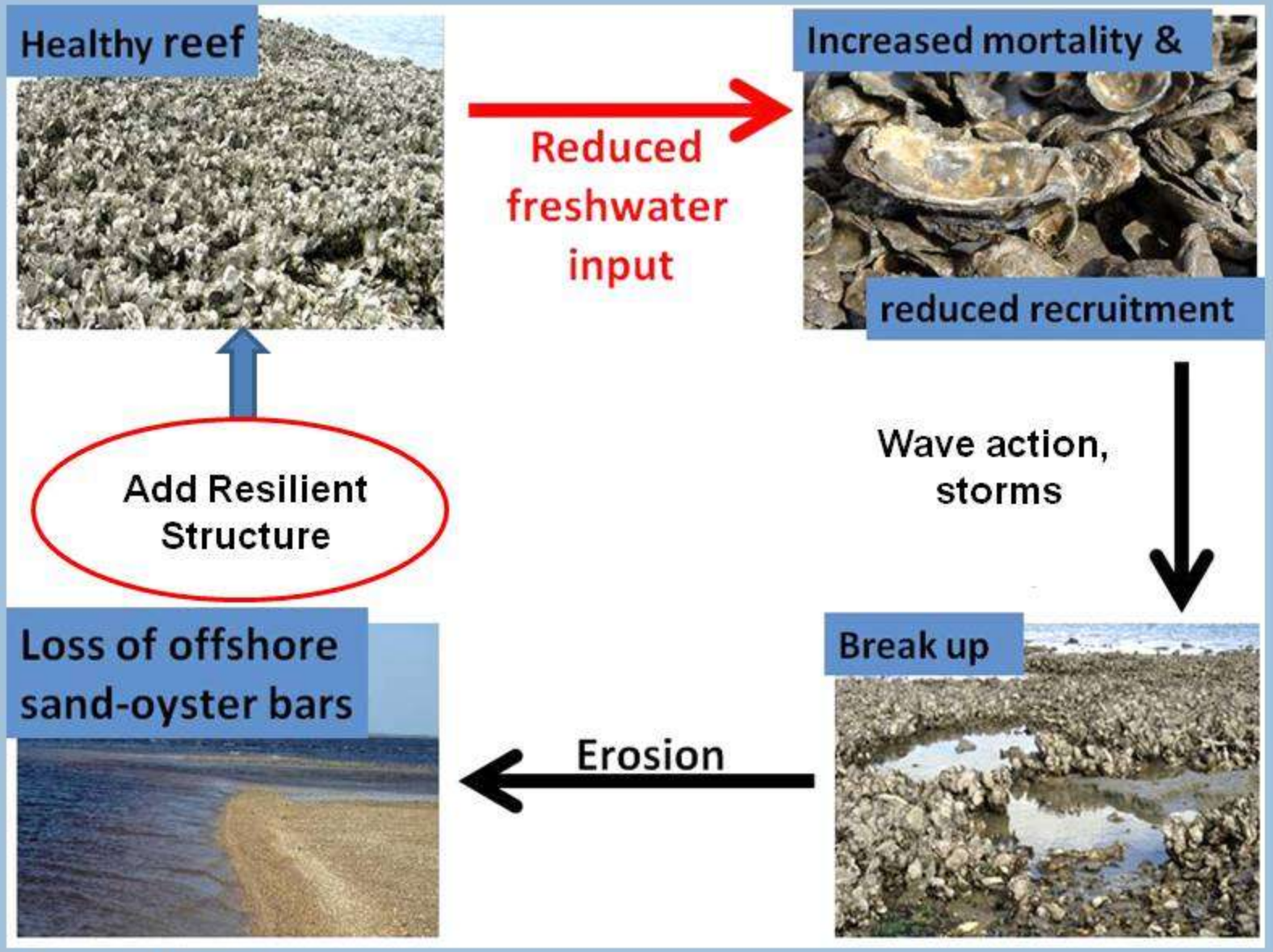


Less Flow per Drop of Rainfall




Healthy reef
Reduced freshwater input
Increased mortality &
reduced recruitment
Wave action, storms
Break up
Erosion
Loss of offshore sand-oyster bars
No evidence of natural recovery of healthy reefs


DRINKING WATER


Healthy reef
Reduced freshwater input
Increased mortality &
reduced recruitment
Wave action, storms
Break up
Erosion
Loss of offshore sand-oyster bars
Add Resilient Structure

“Fouled” clam bags or oyster building blocks?

- Estimated over 20,000 “derelict” clam bags on clam leases in Cedar Key


Restoration Site
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Tidal Flow
Restoration Site
Restoration Site
Restoration Site
Restoration Site
N
0.5km

P. Leary

Acknowledgements

Funding: NFWF

Pat & Doris Leary

Field Staff: Jeremy Wood, Carolyn Enloe, Bobbi Carpenter, Katie Malachowski, Jeanne Baker, Nick Vitale

Thanks to Jenn Seavey, Ryan Butryn, Erin Leone and Danny Caudill.

Questions & Discussion

Who is this guy?? →