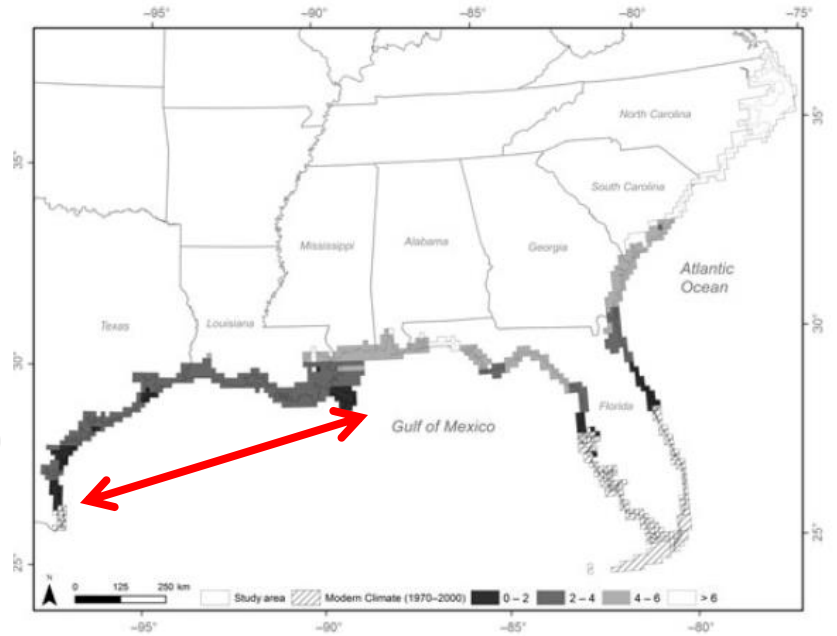
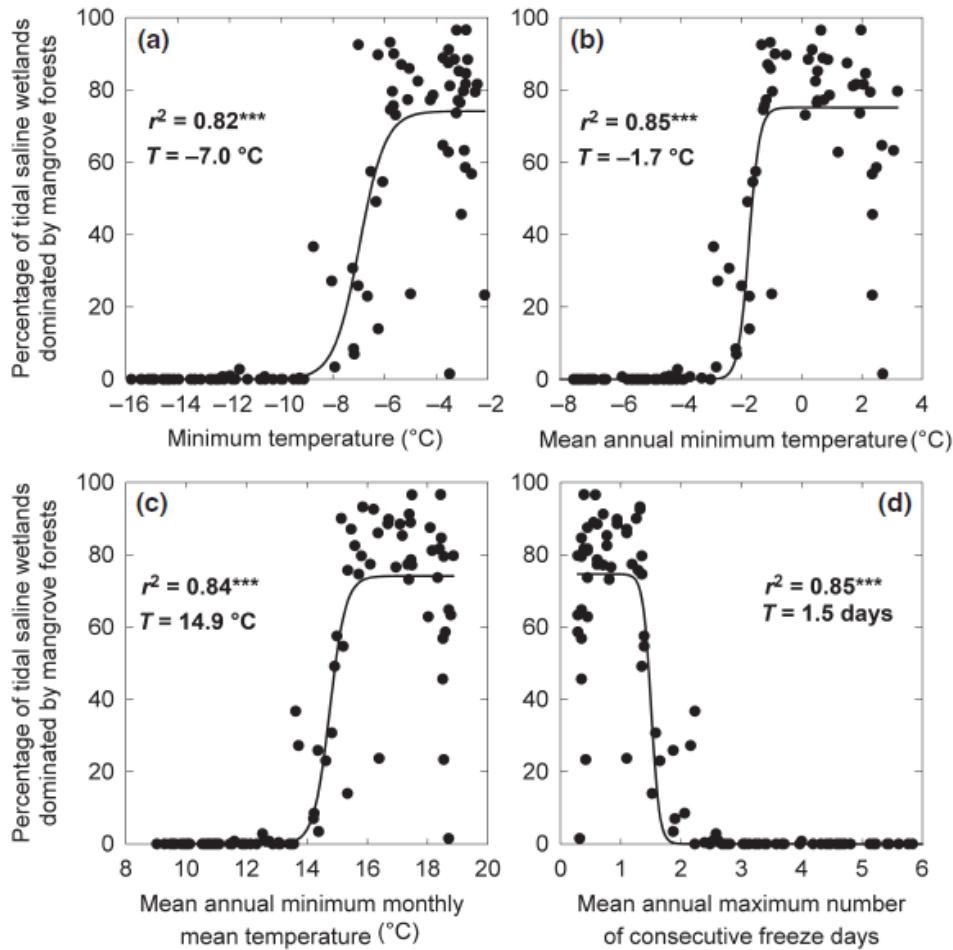


Vegetation regime shift in coastal wetlands affects trapping of wrack subsidies from subtidal habitats

Steven Pennings, Hongyu Guo, Sayantani Dastidar,
Zoe Hughes, Anna Armitage, Carolyn Weaver,
Ashley Whitt, Sean Charles, John Kominoski

University of Houston
Texas A&M University
Texas A&M University at Galveston
Boston University
Florida International University





Osland et al. 2013 GCB



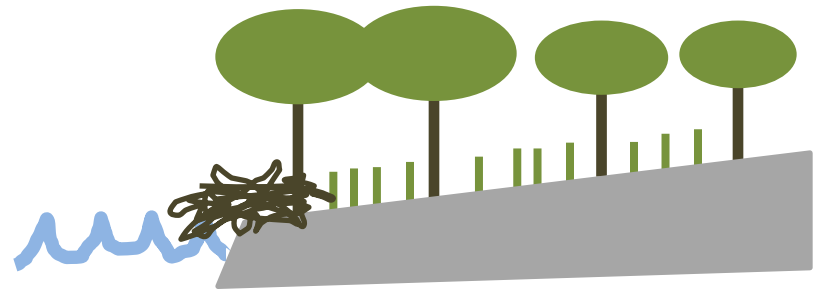
How will this regime shift affect wrack disturbance?



Hypothesis



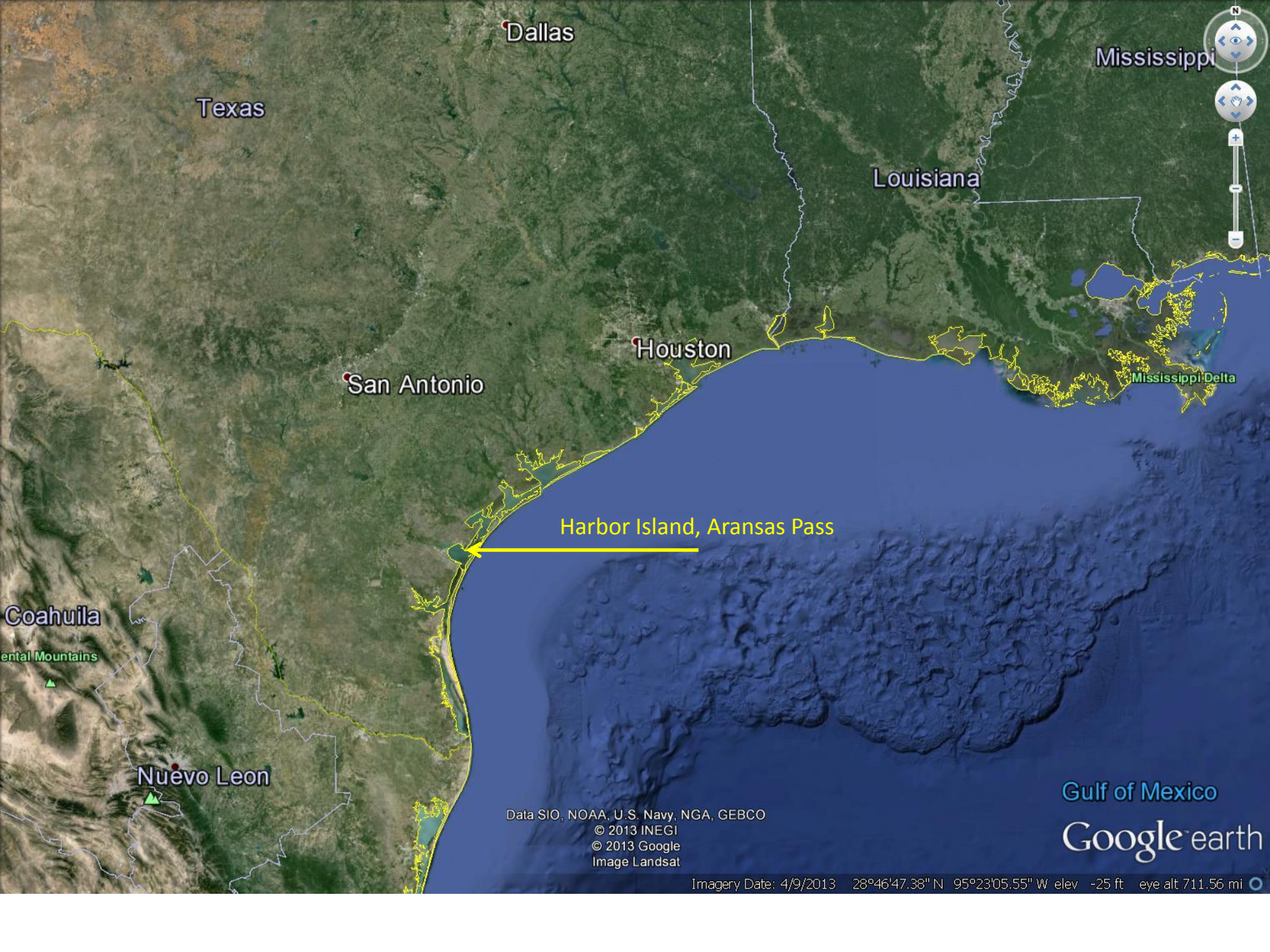
Beach



Mangrove



Marsh



Dallas

Mississippi

Texas

Louisiana

San Antonio

Houston

Mississippi Delta

Harbor Island, Aransas Pass

Coahuila

Central Mountains

Nuevo Leon

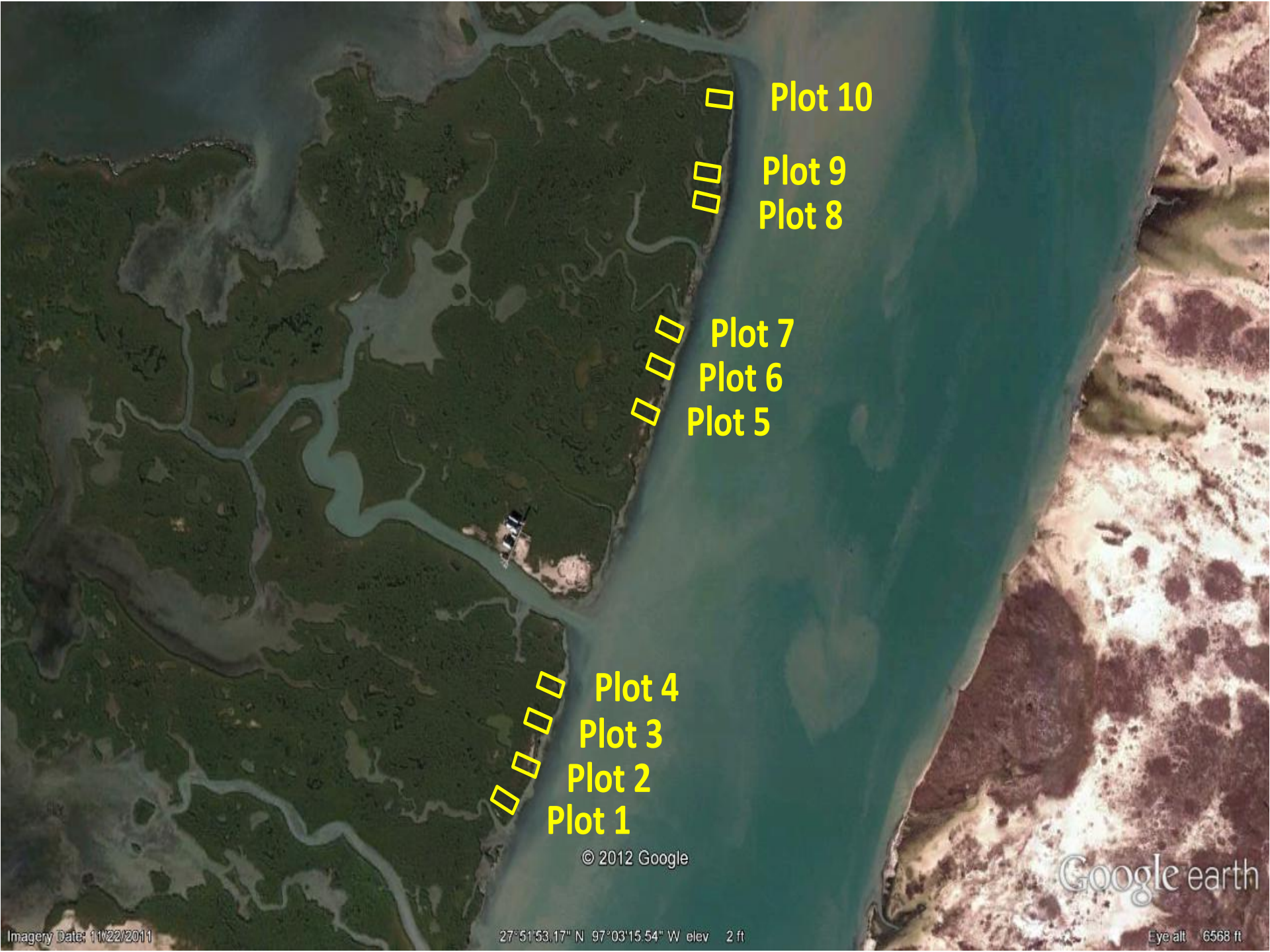
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2013 INEGI
© 2013 Google
Image Landsat

Gulf of Mexico

Google earth

Imagery Date: 4/9/2013 28°46'47.38" N 95°23'05.55" W elev -25 ft eye alt 711.56 mi





Plot 10

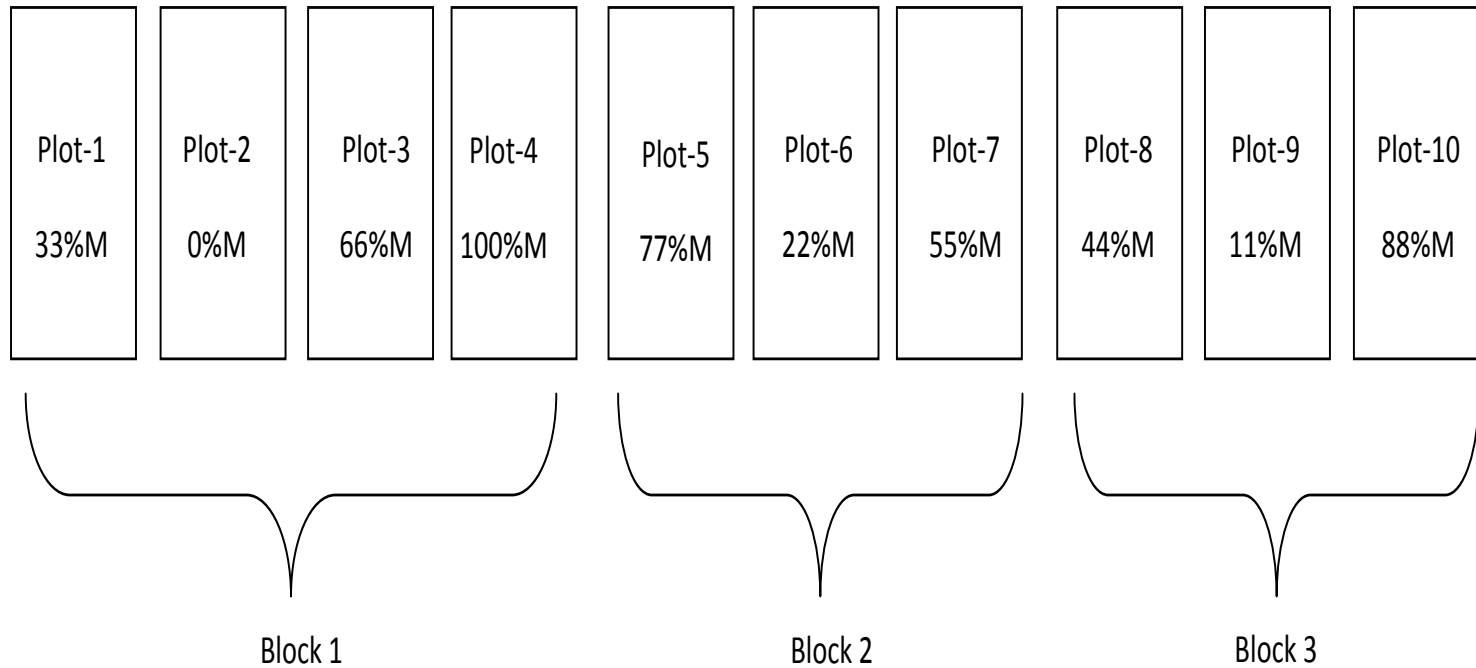
Plot 9
Plot 8

Plot 7
Plot 6
Plot 5

Plot 4
Plot 3
Plot 2
Plot 1

© 2012 Google

Google earth



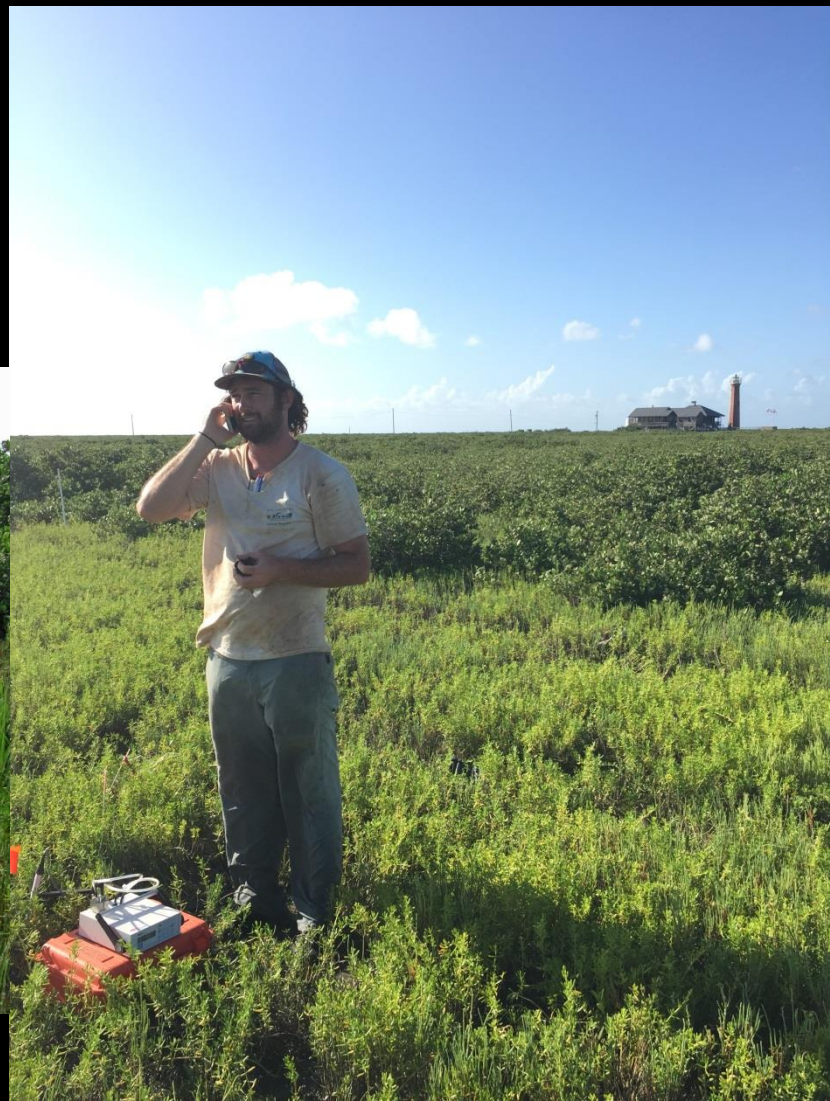
Layout of the 24 x 42 m experimental plots on Harbor Island in Port Aransas. Cleared over summer of 2012. M: mangrove cover











Wrack composition

Brown algae: *Sargassum* spp.

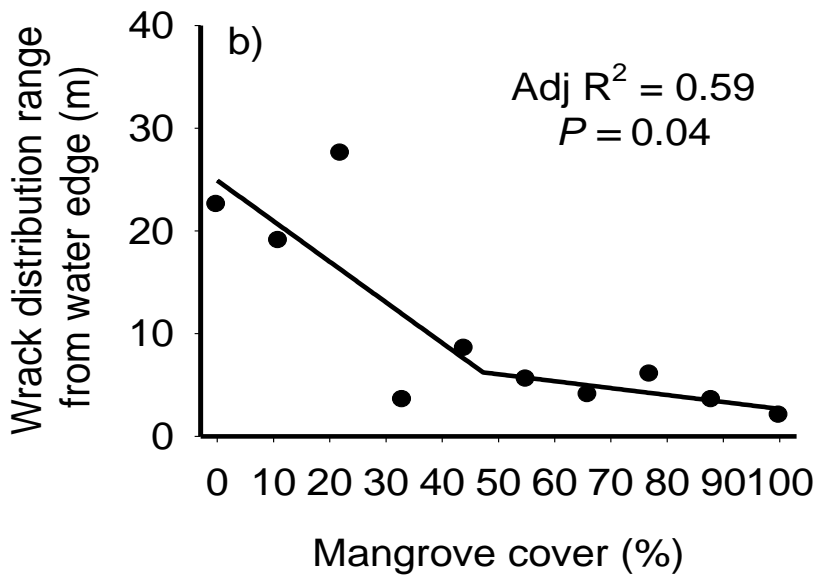
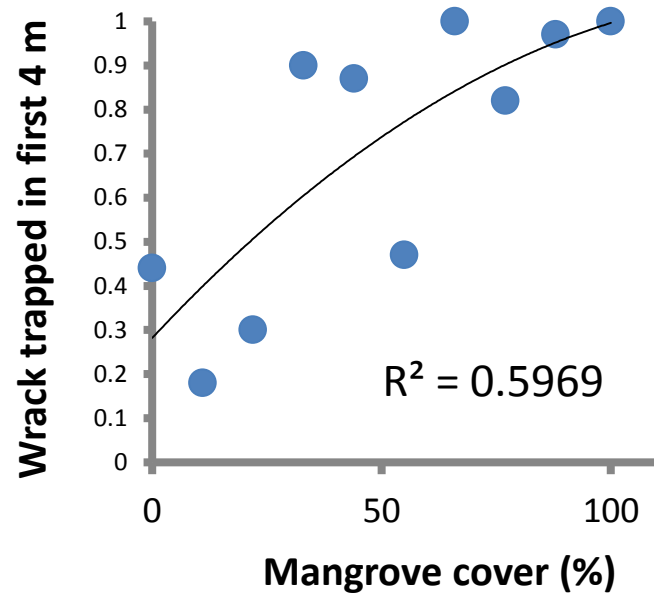
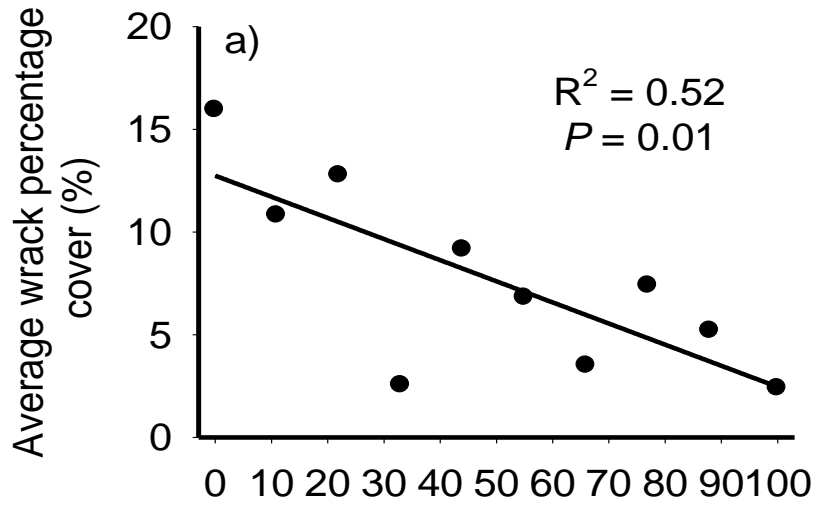
Red algae: several species


Green algae: *Enteromorpha* sp. and *Ulva* sp.

Seagrasses: *Halodule wrightii*, *Syringodium filiforme*, *Thalassia testudinum*

Other: wood, angiosperm leaf litter, animals

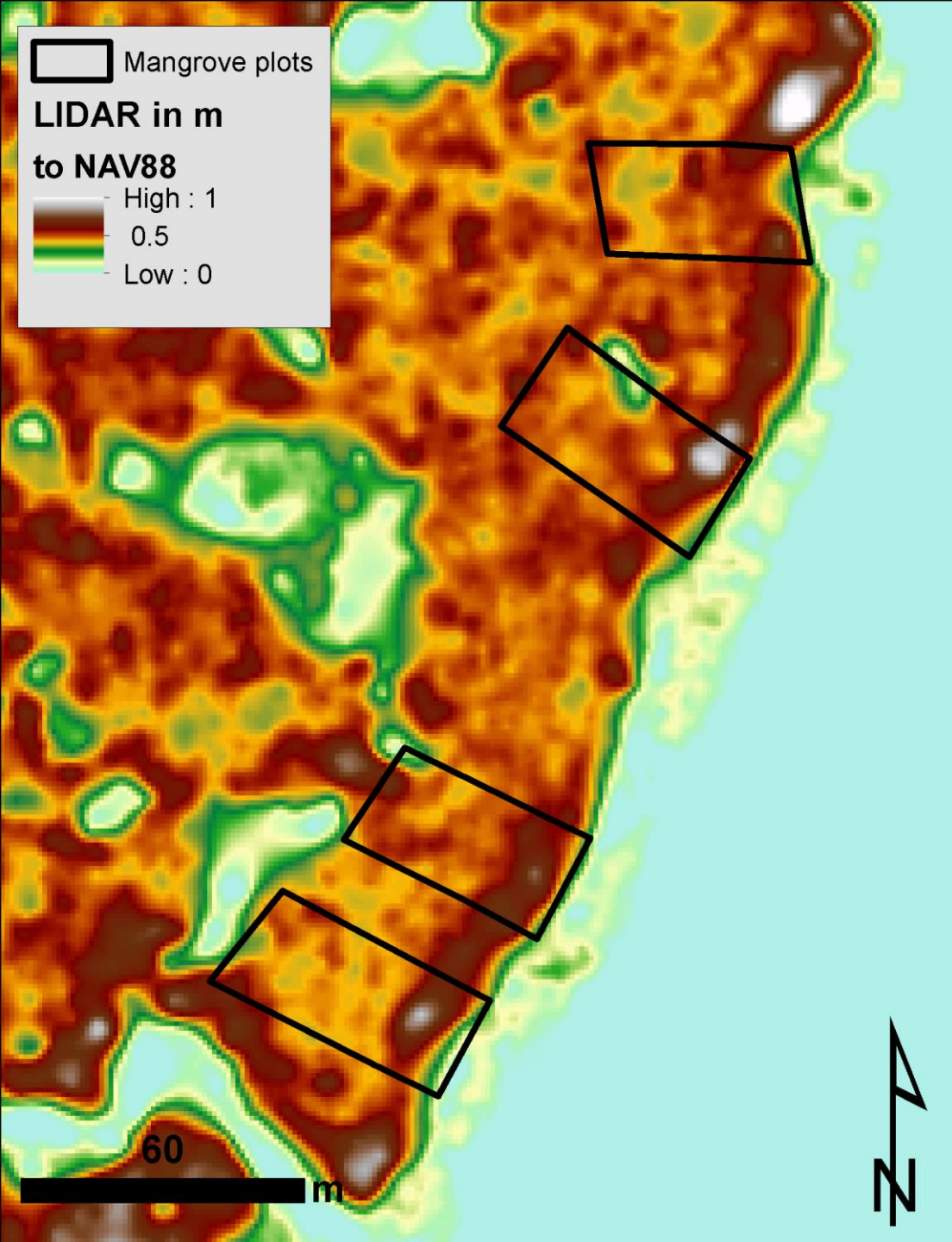
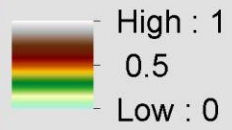




 Mangrove plots

LIDAR in m

to NAV88



Consequences?

- Levee
- Soil organic content
- Plant growth
- Invertebrate community



Invertebrate community

Total density greater in middle

Amphipod densities higher at front

Insect, polychaete, snail densities higher in middle



Conclusions

- Mangroves less permeable than marsh
- Wrack concentrated at front edge
- May affect geomorphology, soils, vegetation and invertebrates

