

sanibel sea school

SCCF SANIBEL-CAPTIVA CONSERVATION FOUNDATION

COASTAL WATCH

Mangrove Restoration at SCCF

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Community Conservation Coordinator



Outline

- Mangroves native to Sanibel
- Importance to the ecology and people of SW Florida
- Threats to mangroves
- SCCF Marine Lab Research
- Lessons from hurricanes
- Coastal Watch Restoration Programs

Three Mangrove Species in Florida









Red Mangroves (Rhizophora mangle) "walking trees"



Black Mangrove (Avicennia germinans) "straws to help roots breath"



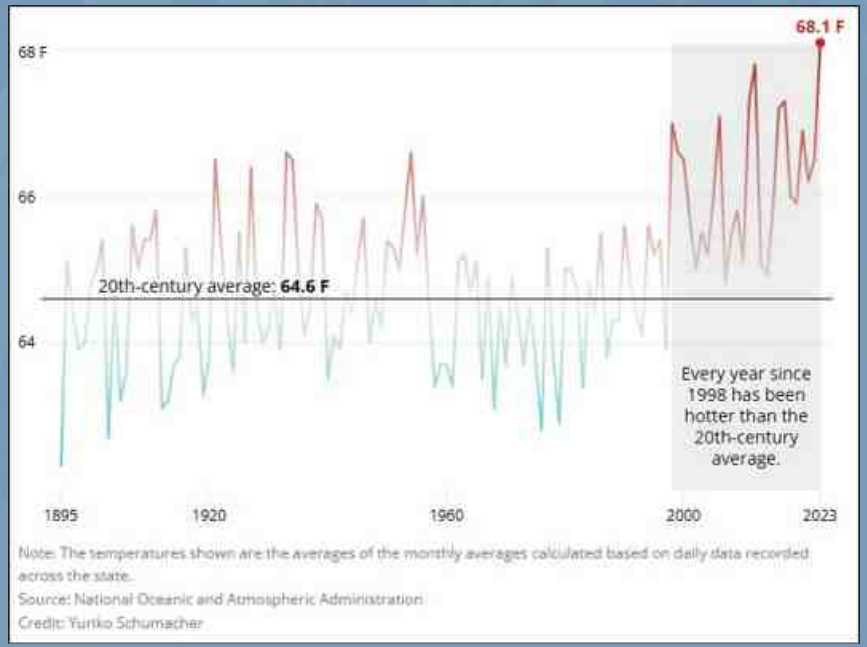
White Mangrove (Laguncularia racemosa) "heart shaped succulent"

Global Distribution



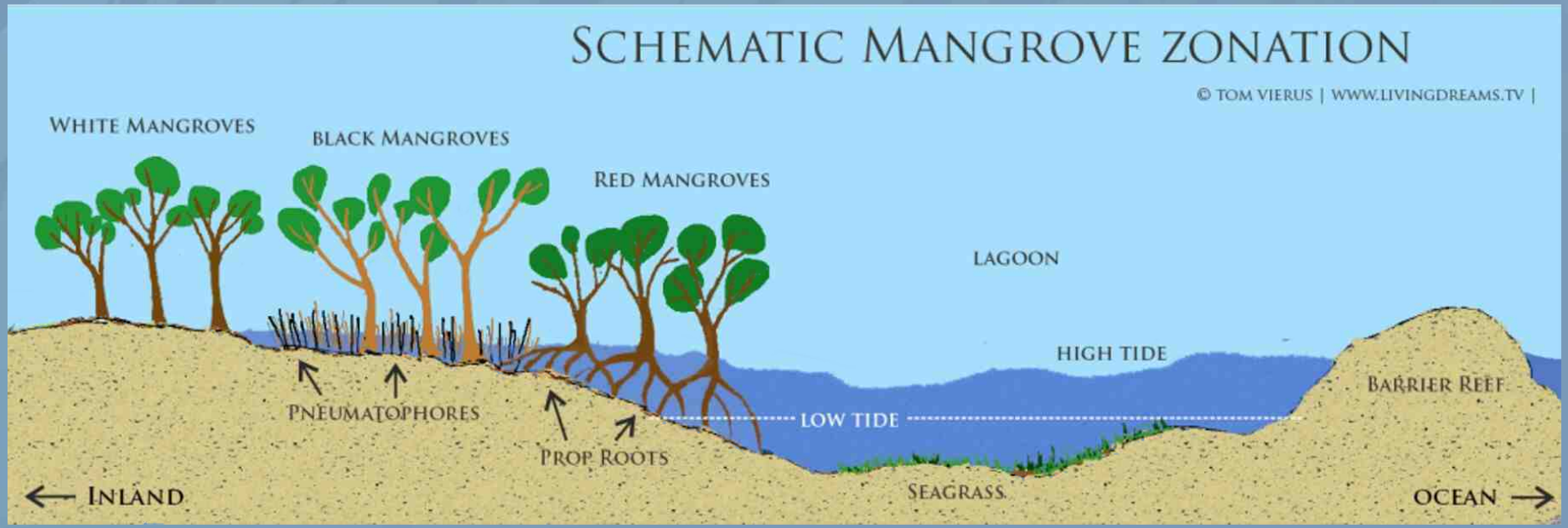
Mangrove Expansion Northward





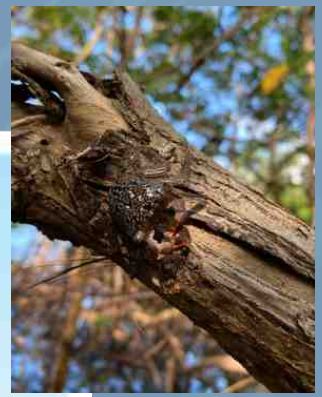
Mangrove Forest Growth

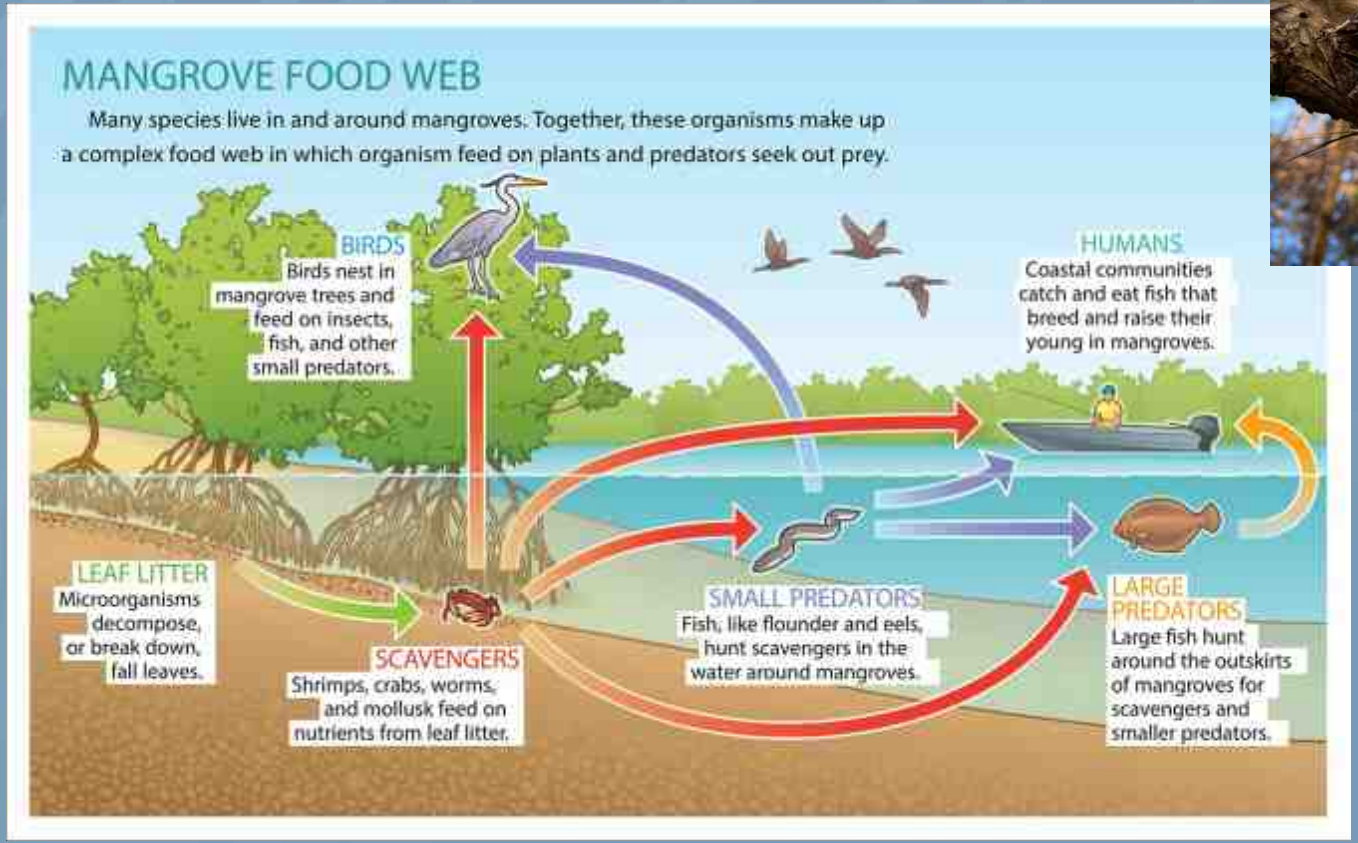
Factors: tidal changes, elevation, a salinity of the soil and water.



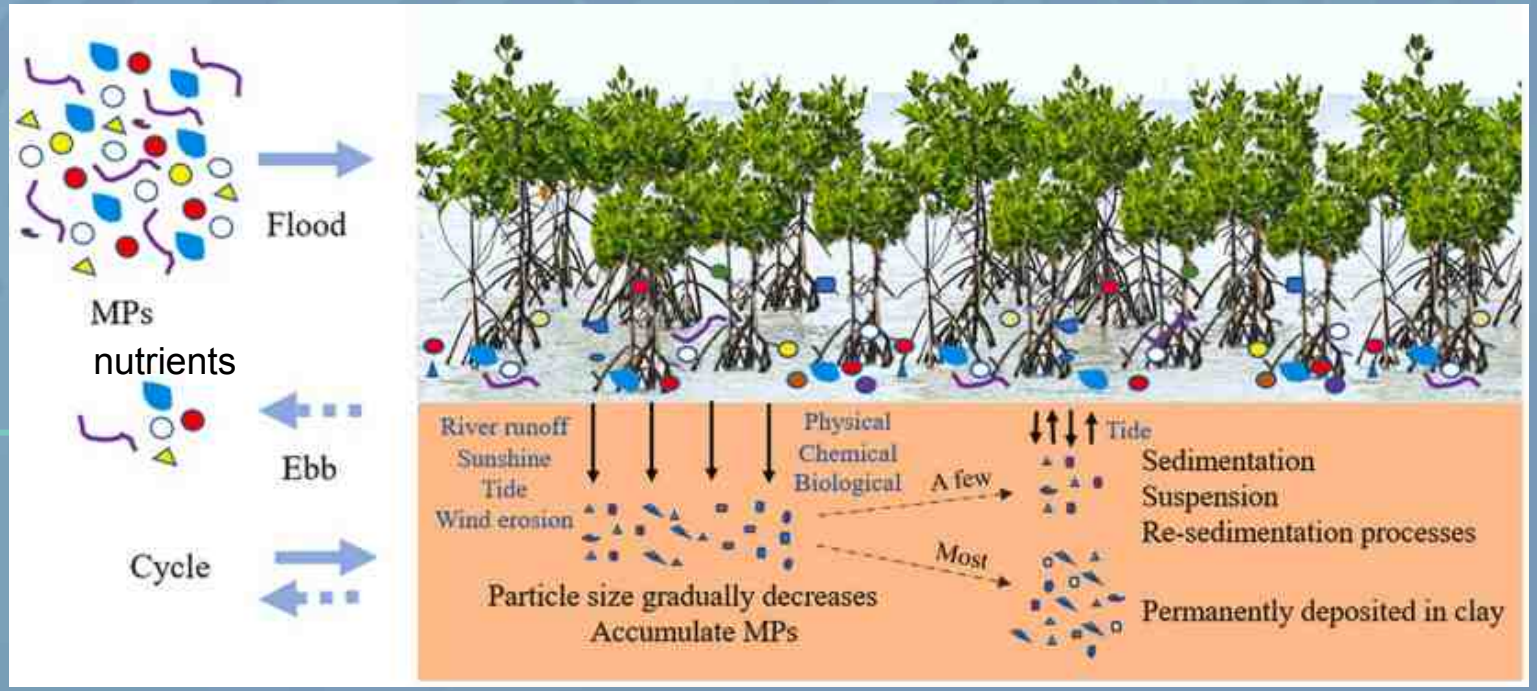

Why are mangroves important?
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Habitat and Food Source for Wildlife





Mangroves Trap Pollution and Debris



Erosion Prevention







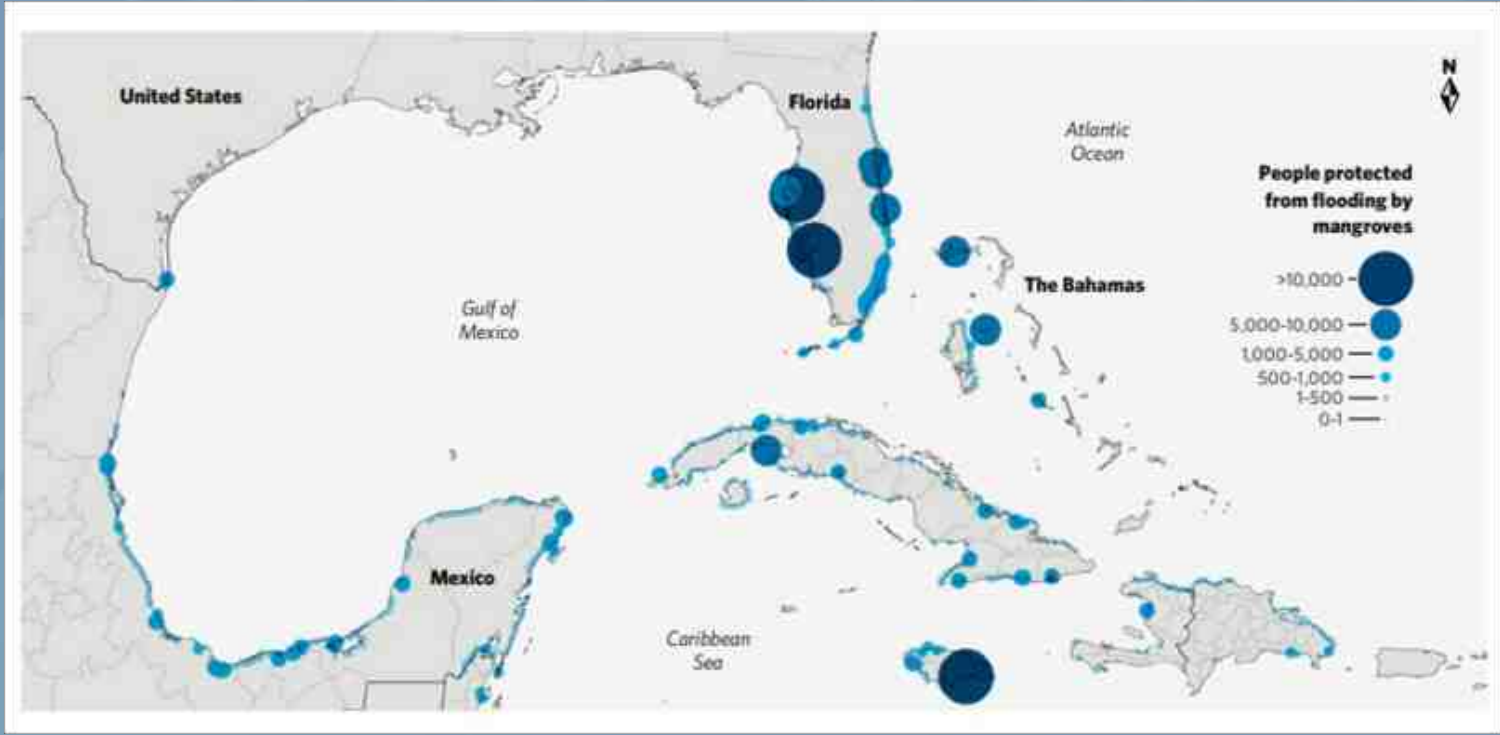


Reduced Storm Impacts



(TNC, 2023)

Mangrove Flood Protection in Florida



In Florida, 191,820 people receive direct flood protection from mangroves every year (TNC, 2023)

Mangroves reduced surge losses in H. Irma by $725 million(14%) and H. Ian by $4 billion (30%) (Narayan, 2025)

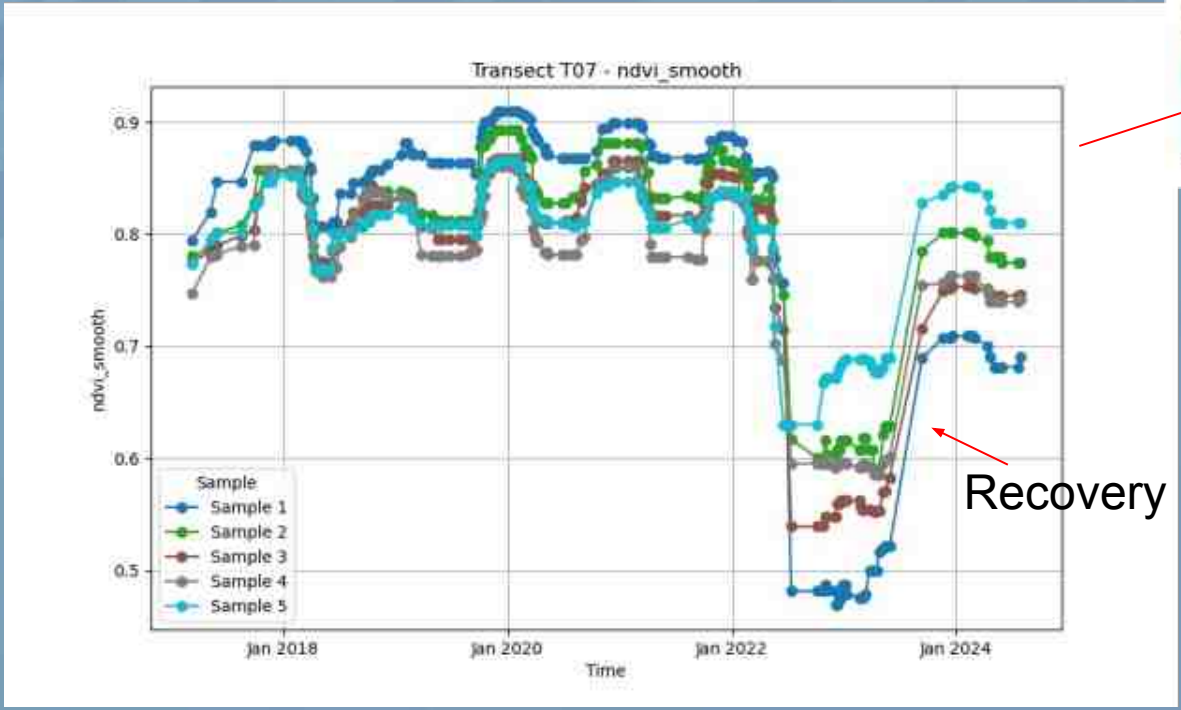
SCCF and Natrix: Carbon Storage in Mangroves

Goal:

1. Use satellite data to determine carbon stocks in remote areas
2. Test hypothesis in J.N. “Ding” Darling National Wildlife Refuge
3. Conduct ground truthing by collecting new data on below ground carbon using cores
4. Integrate existing data (SCCF and USFWS) about tree size and density to calculate total carbon



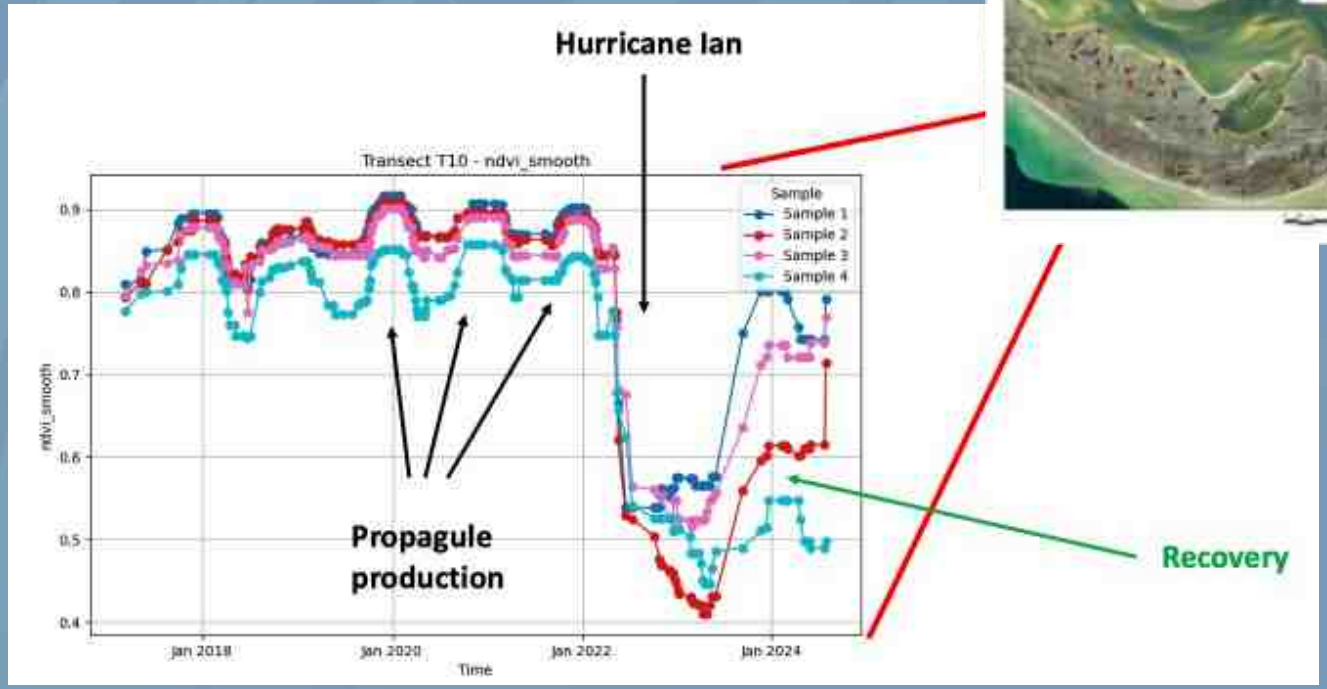
Time Series Showing Mangrove Recovery





Recovery

Mangrove Recovery: TB Site



Groundtruthing Satellite Estimates





Groundtruthing Satellite Estimates







State of Florida

1996- Florida Department of Environmental Protection (FDEP) implemented the Mangrove Trimming and Preservation Act





Threats to Mangroves and SCCF Marine Lab Research



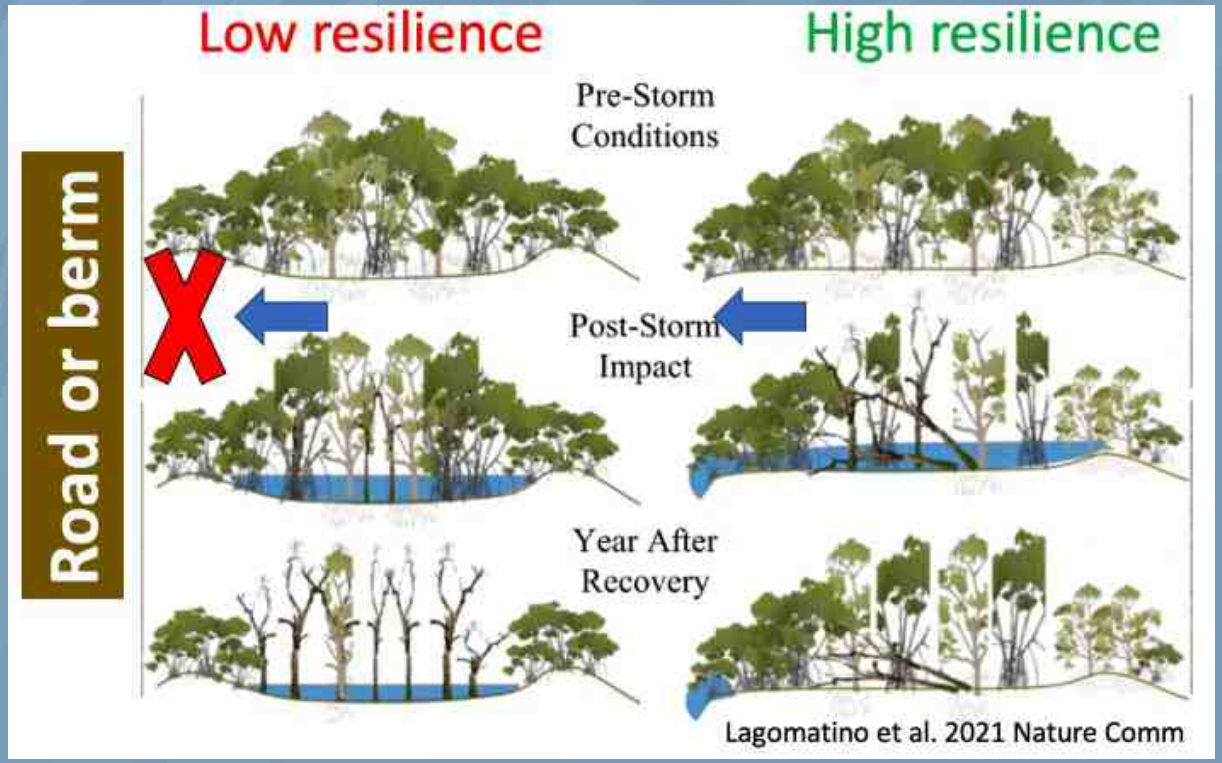
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Urban Development

1960s Cape Coral
“Breathtaking”
“14,794 homesites that lead to the Gulf (of Mexico) with the promise of sea trout, tarpon, snook, bonita, and channel bass and luxury of gracious living!”

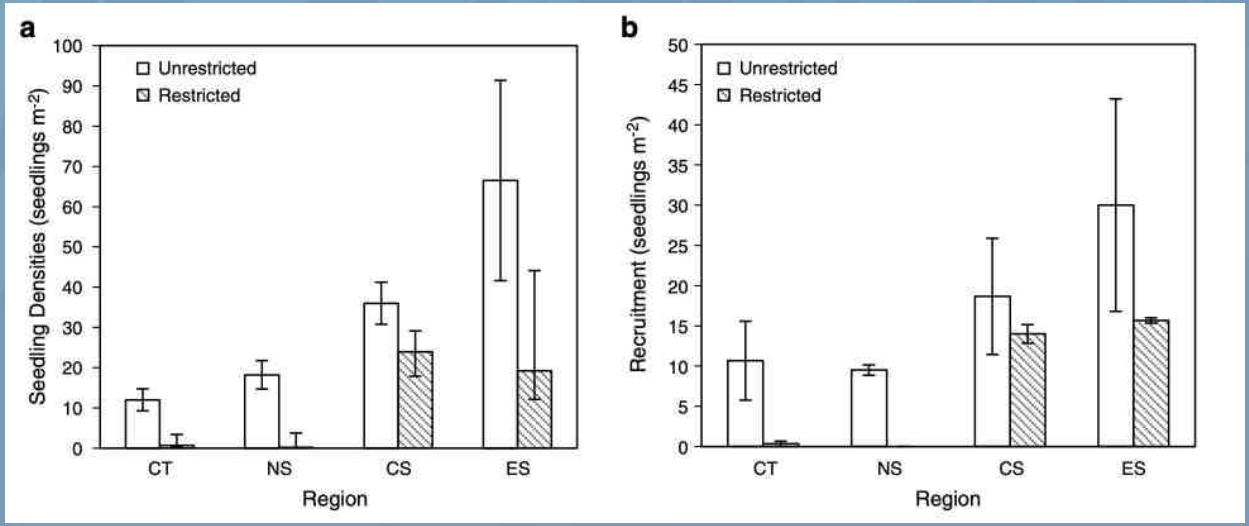


Tidal Flushing and the Impact of Roads/Berms



Changes in Recruitment in Low Resiliency/Restricted Areas

"Three years after hurricane Charley, seedling densities in tidally unrestricted locations (32.0 seedlings m^{-2}) were significantly greater than in restricted locations (10.1 seedlings m^2)."



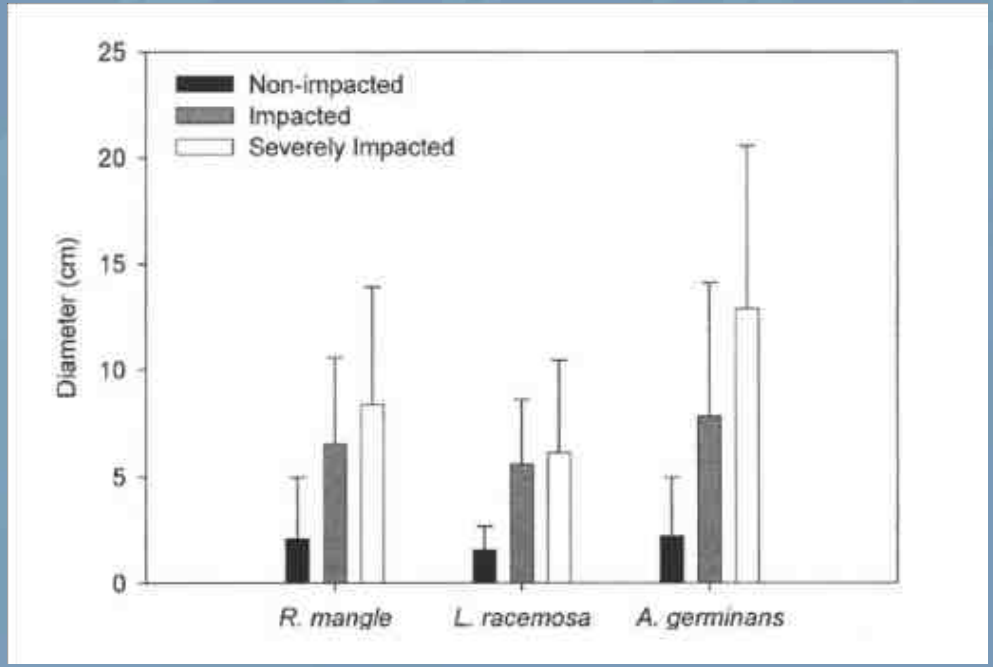
Harris, R.J., E.C. Milbrandt, B. Brovard, E. Everham, 2010. The effects of reduced tidal flushing on mangrove structure and function across a disturbance gradient. Estuaries and Coasts 33(5): 1176-1185

Size as a Factor in Loss Trends in Hurricane Impacted Trees

Larger trees felt a greater impact from Hurricane Charley

TABLE 1. Percentage of severely damaged stems in East Sanibel and Central Sanibel.

Connectivity	*Avicennia germinans*	*Laguncularia racemosa*	*Rhizophora mangle*
Restricted	7	27	3
Open	55	50	37



Milbrandt, E.C., J.M. Greenawalt, P.D. Sokoloff, S.A. Bortone, 2006, Impact and response of southwest Florida mangroves to the 2004 hurricane season, *Estuaries and Coasts* 29(6A): 979-984.

Coastal Watch Mangrove Restoration



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Propagule Collection Program (August-October)



Propagule collection buckets







Propagule wild and horticultural plantings

Coastal Watch Mangrove Nursery



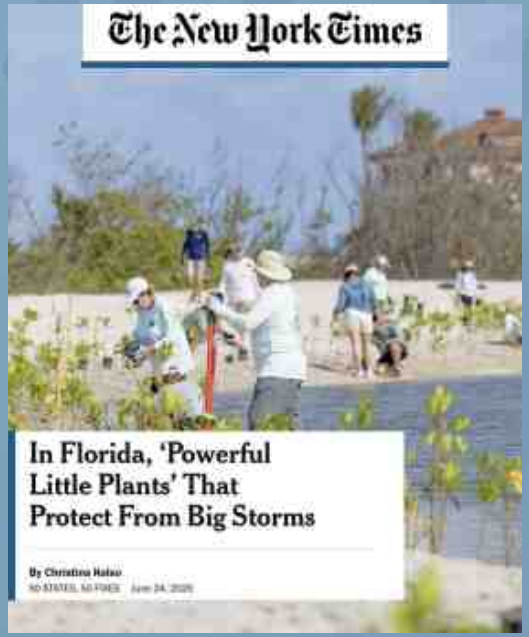


Saltwart and black mangrove paired growth



FGCU Student Volunteers

Adopt-A-Mangrove
















What Success Looks Like

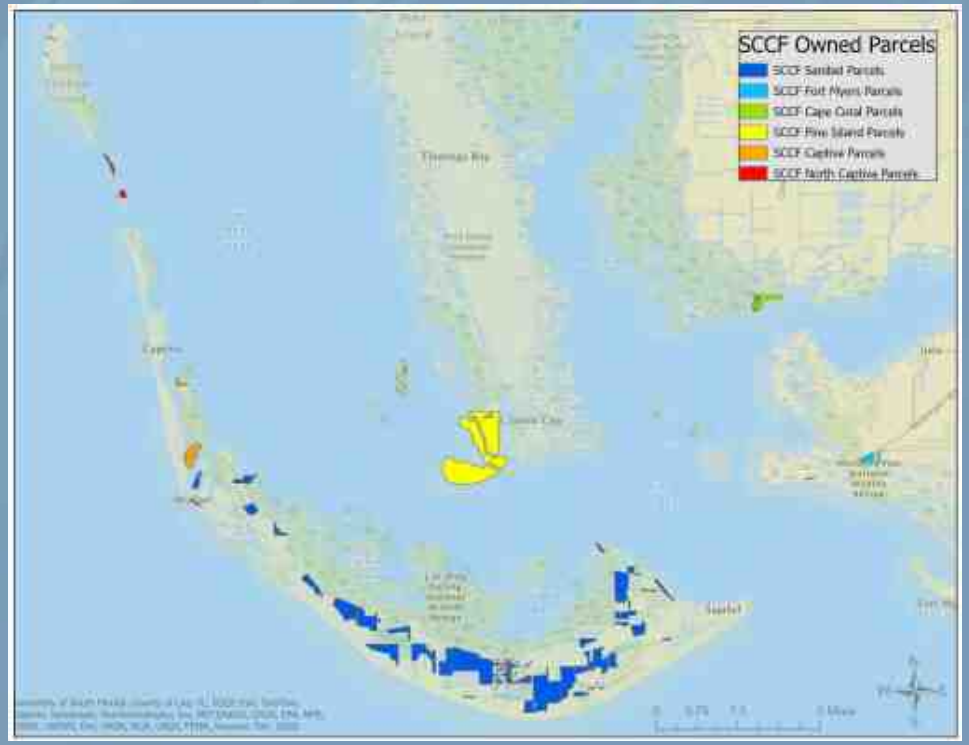





Locally

Mangrove shorelines and habitat are purchased and protected from development.

SCCF protects 1,800 acres of habitat on and around Sanibel





Thank You!

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COASTAL WATCH

sccf.org


JOIN SCCF. HELP US KEEP CONSERVATION COOL.
We need as many people as possible behind our mission — *To protect and care for Southwest Florida's coastal ecosystems*. Through June 2025, you can join us as an SCCF member for FREE.
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SIGN UP NOW
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