



Landscape-Scale Non-structural Hurricane Surge Mitigation for the Texas Coast: The Role of Non-governmental Organizations



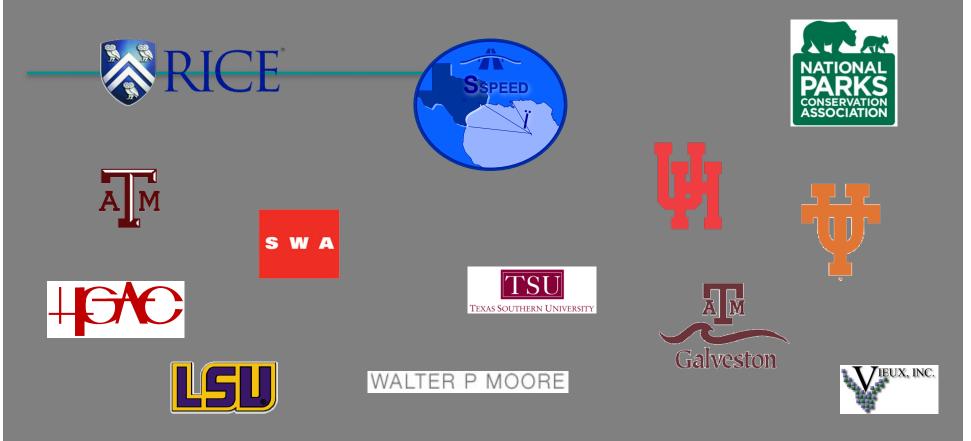
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SSPEED Center

The Center is based out of Rice University and collaborates with leading academic institutions, the private sector and public entities. Major funding from Houston Endowment



Hurricane Ike

Category 2 \$25+ billion in damages 4th costliest in U.S. History 112 deaths 2.6 million lost power

> Hurricane Ike Chinese FY1-D MVISR September 12, 2008 at 6:18 PM CDT

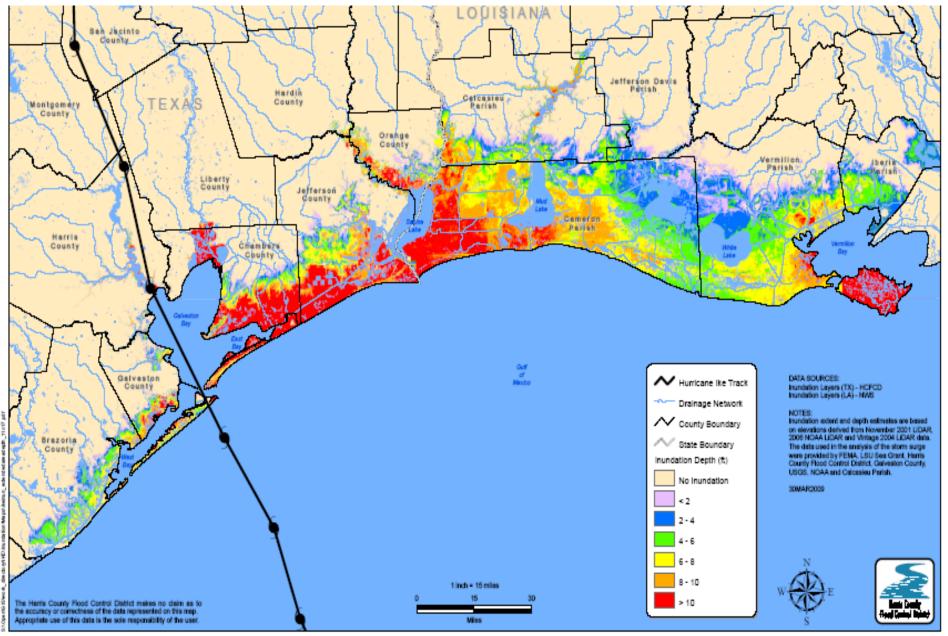
Galveston Seawall – Friday Morning – 9/12/2008



Rollover Pass and Gilchrist

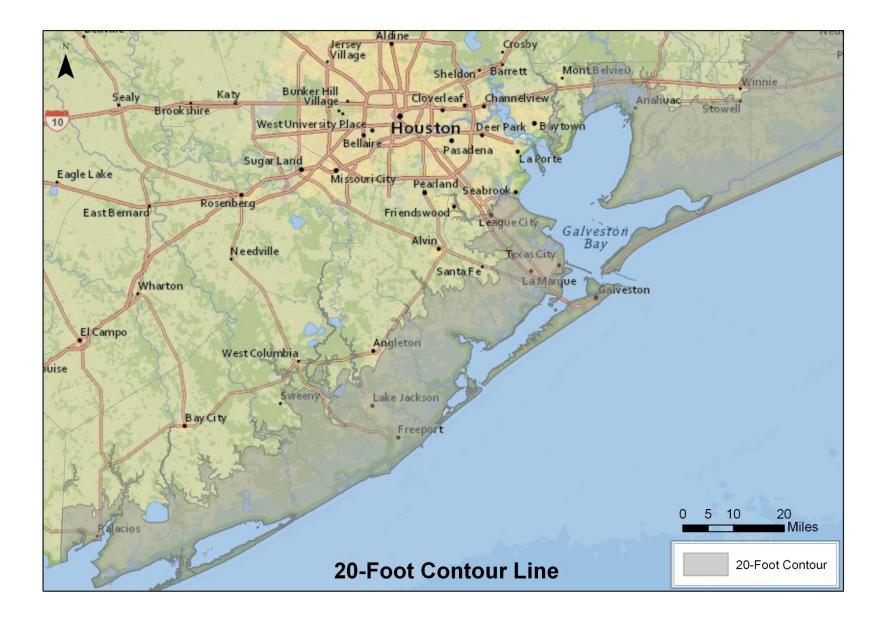


Hurricane Ike Missed Most of Us

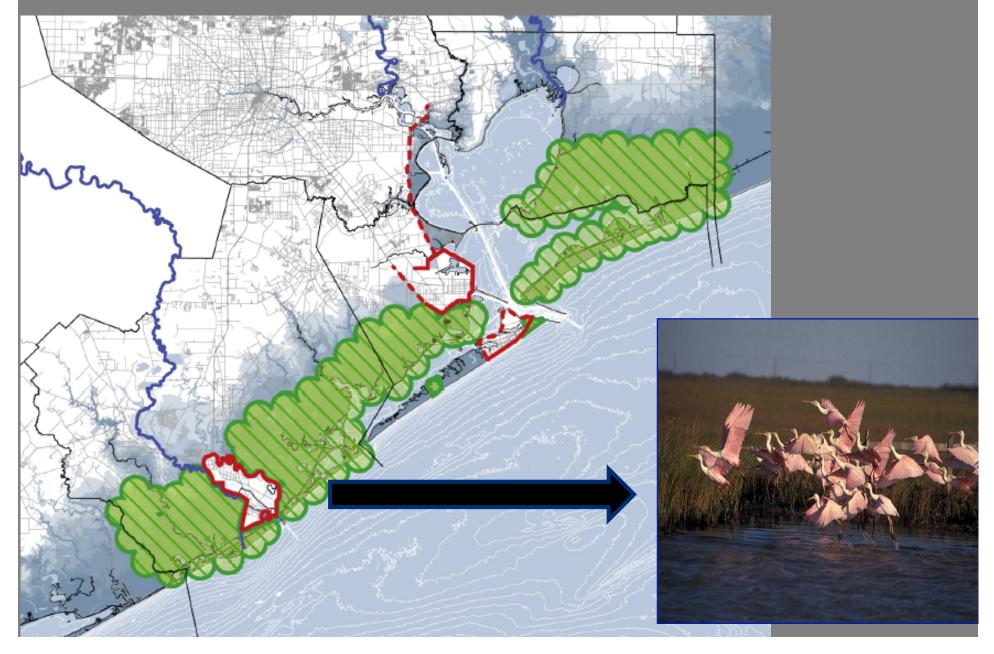


e Surge Flowing Back Into Gulf 4 Days After Landfall – Excellent Flood Storage





Landscape-Scale Non-Structural Concept



Spartina Alterniflora and Other Coastal Wetland Plants Define Resiliency –

> Learn From The Marsh Embrace It Emulate It

Non-Structural Constraints for the Texas Coast

- No New Regulation
- Minimal to No Expansion of Federal Ownership and Control
- Respect for Private Property
- Minimize Federal Dollars

Constraint Requires Creativity, Cooperation and NGO Involvement

Low-Lying Lands of Galveston Bay

Economy As Non-Structural Alternative

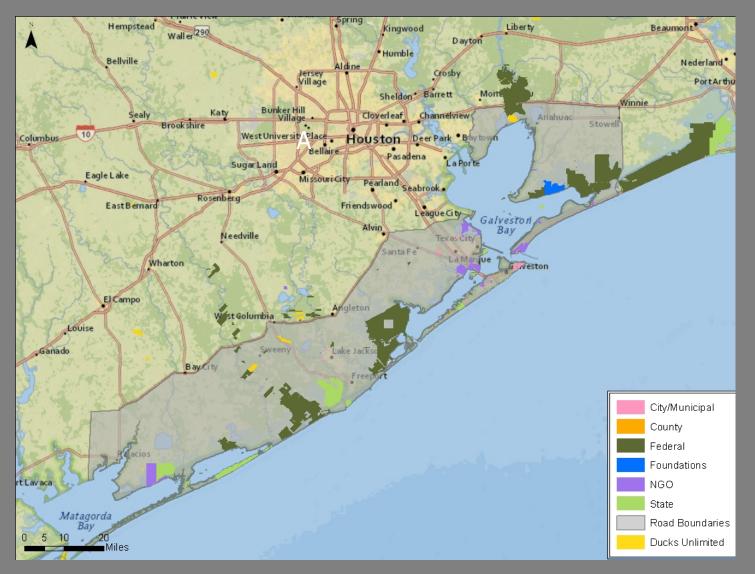
Could We Develop a **Different Economy Here A Resilient Economy Based** on Use, Appreciation and **Protection of our Natural** Values?

Possible Non-Structural Economic Concepts

1. Recreation/Eco-Tourism

2. Natural Resource Value Trading Concept

Proposed Lone Star Coastal National Recreation Area



ACTIVE OUTDOOR RECREATION PARTICIPANTS BY THE NUMBERS

					6	\$0	BICYCLING 60 MILLION
					Į	Δ	CAMPING 45 MILLION
					~	1	FISHING 33 MILLION
						4	HUNTING 13 MILLION
					7	É.	PADDLING 24 MILLION
						×.	SNOW SPORTS 16 MILLION
					- 6	ˈ λ	TRAIL 56 MILLION
					l	Ä	WILDLIFE VIEWING 66 MILLION
	1 1						
10	20 30	40	50	60	70		
Source:	Outdoor Industry Foundation						

Birdwatching

NECKY

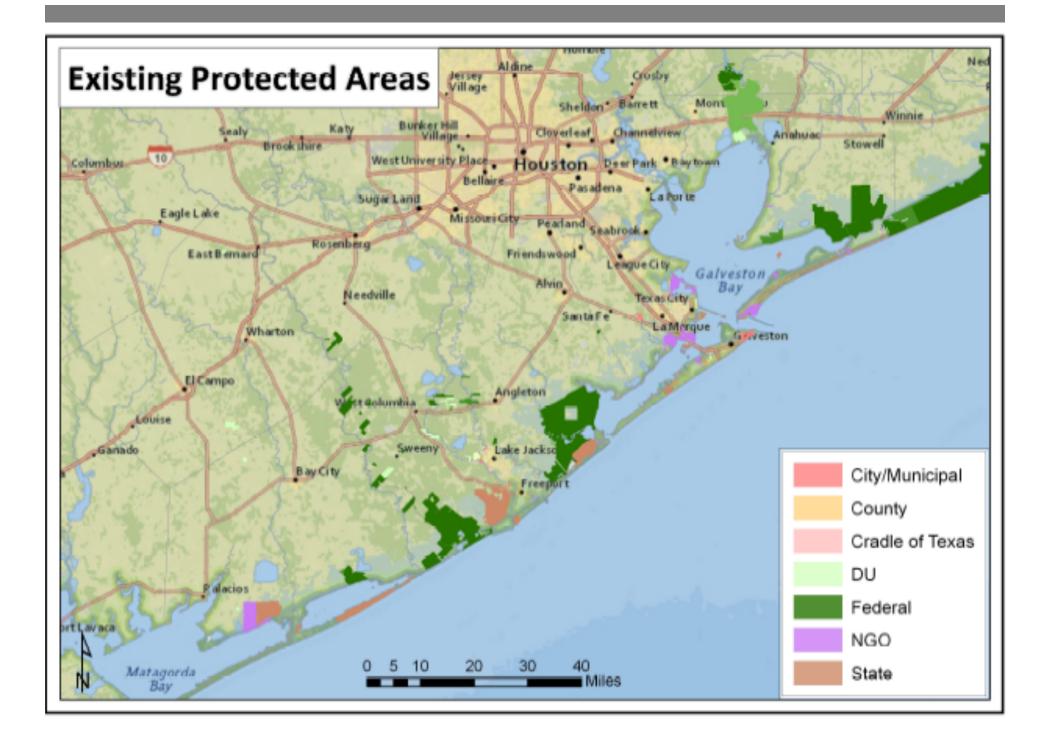
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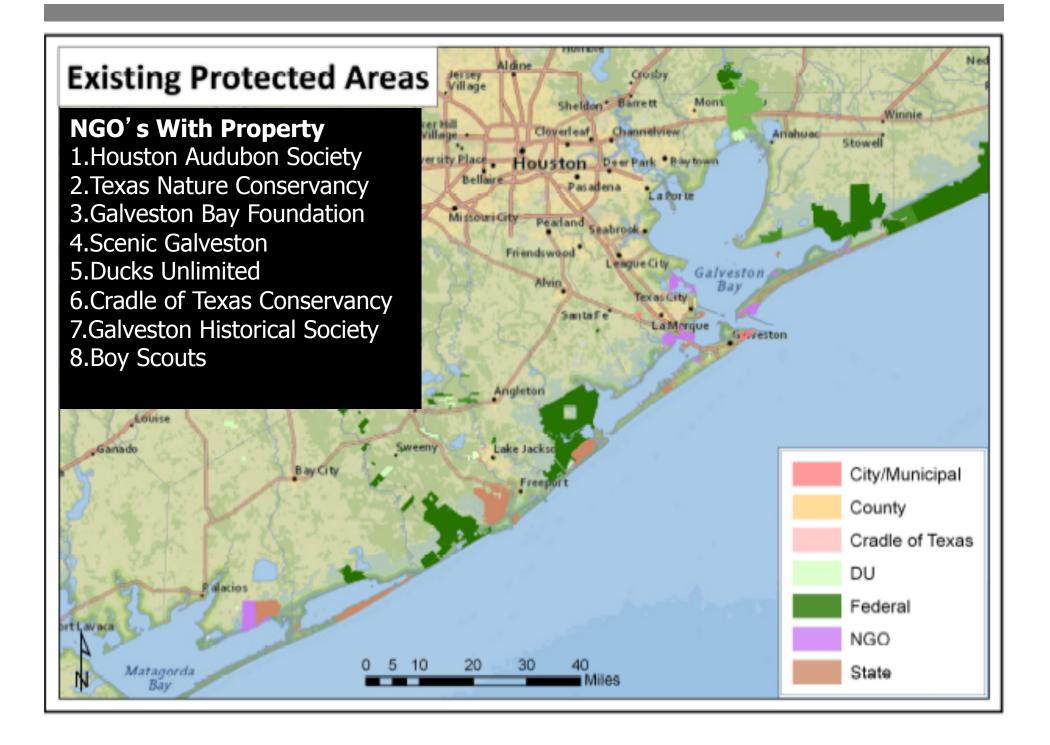
Coastal Kayaking

Creative Recreation-Tourism Organizational Concepts

- Lynn Scarlett suggested some form of National Recreational Area based on Boston Harbor Islands NRA
- National Parks Conservation Association arrived to assist in the development of National Park Service-focused proposals







Public Leadership and Rules



Sec. James Baker

John Nau

Partnership Among Local, State and Federal Governments and NGOs

No New Regulation

No Involuntary Participation

Opportunity Knocks: Potential Economic Impact of the Proposed Lone Star Coastal National Recreation Area

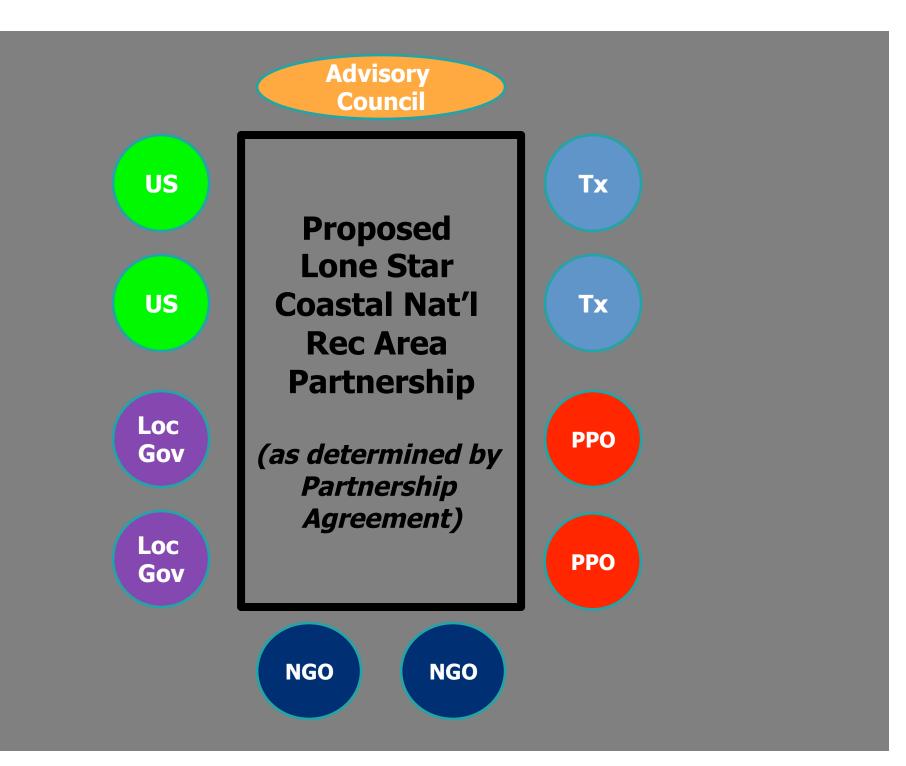




By the 10th year, tourist visitation triples, economic impact quadruples to \$192 M in sales, and local tourism-related jobs increase by 11%.

Network Governance

- Partnership between federal, state and local governments, NGOs and private landowners
- Participate only by agreement of parties
- No new land use rules and regulations
- All pursued on willing buyer, willing seller basis



Drafting of Proposed Legislative Concepts

- Partnership Committee and Steering Committee Met Over 6 Months
 15+ NGOs
- Partnership Committee Comprised
 Predominantly of Vested NGOs and Local,
 State and Federal Vested Agencies
- Process Under Overall Guidance of
 National Parks Conservation Association

Proposed Administration of LSCNRA

- Partnership Comprised of NPS + landowning entities including NGOs
- Lone Star Coastal Alliance NGO formed to raise money in support of LSCNRA
- LSCNRA Advisory Committee comprised of non-vested partner NGOs.

Next Stop in the Process



Possible Non-structural Economic Concepts

Recreation/Eco-Tourism

2. Natural Resource Value Trading Concept

What is the Value of This Spartina Marsh?

Fish Habitat Value? Bird Habitat Value? Carbon Sequestration Value?

Natural Resource Value Trading System

- Intended to Offer Second Economic Engine to Lone Star Coastal National Recreation Area (Complements outdoor and historic recreational tourism)
- Based on Existence and Development of Private Sector Demand For Certain Natural Resource Functions and Values
- Examples:
 - Florida
 - Oregon
 - Chesapeake Bay

Non-Regulatory Market for Ecological Services?

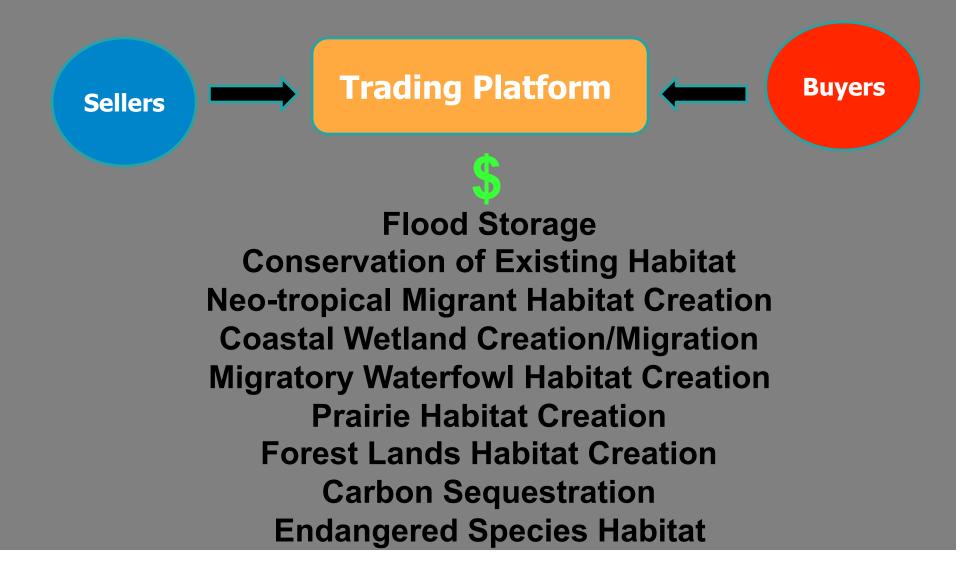
- 1.3 million acres of private land below 20 foot contour in Chambers, Galveston, Brazoria and Matagorda Counties
- Most have evaluated and rejected wetland mitigation banking
- Private sector farming and ranching running dry (e.g. no water, low profits)
- Would respond to private market overtures – but are there any?

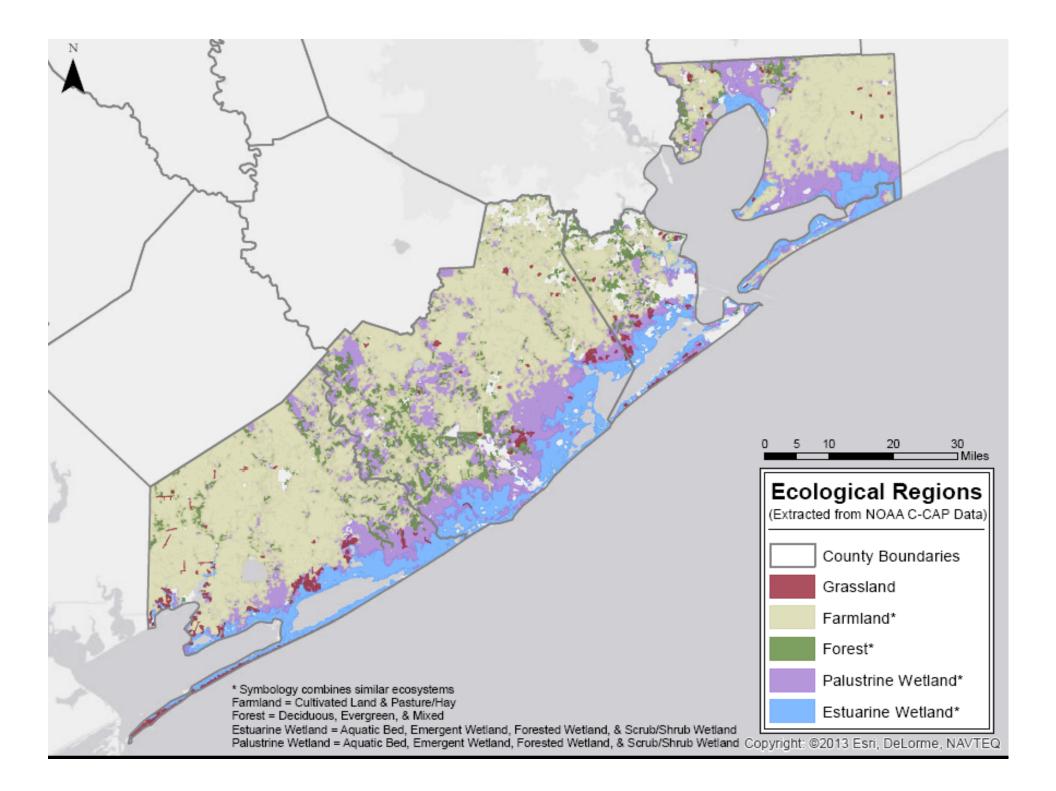
Potential Opportunities

- Natural Resource Damages
- Changing Corporate Attitude
 - Corporate Web Sites
 - Coca Cola and attitude about water
 - Zero footprint
 - Carbon
 - Water
 - Ecological
- Philanthropic

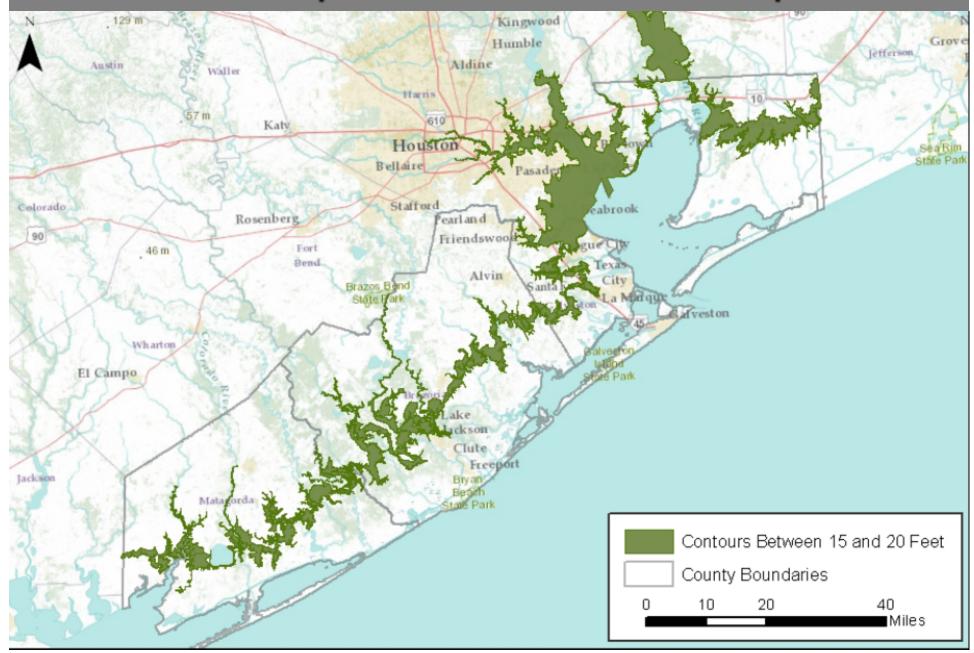
Gift

Proposed Lone Star Coastal Exchange (LSCE)





Potential Corps or FEMA Value Proposition



Elements of Trading Platform

- Geographic Information System
- Standard Setting
- Process for Determining Landowner Eligibility
- Project Development
- Verification
- Transaction Platform

Transaction Platform

- Connects Buyers and Sellers
- Provides Long-Term Project Registration
- Provides Credit Tracking
- Design Based on Type of Standards and Credits
- References:
 - www.thebaybank.org/marketplace
 - <u>http://www.markit.com/sites/en/products/</u> <u>environmental/markit-environmental-registry.page</u>

Role of NGO's in LSCE

- Working with sellers on creation of habitat values
 - freshwater wetland creation expertise
 - prairie creation expertise
 - seed supply source
 - marsh creation
- Hosting the transaction platform
 Assessment of credit value
 Verification of credit value
 Maintaining the accounts

Conclusion

 NGOs essential to implementation of creative non-structural surge damage reduction concepts

- Flexible
- Not a government
- Willing to innovate
- Willing to pursue creative ways to achieve their more general goals

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 SSPEED Center -<u>http://sspeed.rice.edu/sspeed/</u>.