

THE LONE STAR COASTAL NATIONAL RECREATION AREA: ECONOMIC PROSPERITY, RECREATION *and* FLOOD MITIGATION BASED *on* NATURAL ASSETS

A CONCEPT FOR THE UPPER TEXAS COAST



Prepared by the SSPEED Center of Rice University and Houston Wilderness



The kayak glides where you cannot walk, moving at eye level with a white ibis that rams her scythe-like beak up and down into the sulfurous marsh soil. As you paddle from the marsh into the shallow bay, you discover an island that serves as a rookery for a rainbow of fish-eating birds — roseate spoonbills, tri-colored and great blue herons, white egrets and black-crowned night herons — birds that gather in the spring to mate and raise their young.



Further from shore, the oyster reefs reveal themselves, grey ghosts barely visible above the water line, each living oyster spurting its contribution of filtered seawater. A pair of birds called oyster catchers let you come respectfully close, watching with orange eyes set in a brown head, unlike the grey and white willet who flies up as you approach, crying out that you are in her territory.

From the oyster reefs it is a short cruise into the marsh channel. Mullet flee before you. A blue crab raises its orange dagger claws, warning you to stay away. Brown shrimp flip out of the shallows as you slip quietly up the channel. The wake in the water turns out to be a redfish moving past. The day is clear and cool. You are deep within a thriving ecosystem only minutes from the fourth largest city in the US, one of the world's largest petrochemical complexes, and three bustling international ports.

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The concept for the Lone Star Coastal NRA is envisioned as a completely voluntary partnership among local, state and federal governments as well as non-governmental organizations and private parties that choose to participate in the NRA.



In 2008, Hurricane Ike demonstrated unequivocally that the undeveloped lands of the upper Texas coast store vast amounts of surge tide – in places with elevations of up to 15 feet. The storage capacity of this natural landscape helps diminish flooding and property damage to inland communities. These lands provide a coastal system protection network and it makes sense to use these natural assets as part of a long-term non-structural flood mitigation system. Beyond protection from economic loss, the upper Texas coast is a bountiful estuary. Galveston Bay alone generates \$3 billion annually for the seafood industry, second only to Chesapeake Bay in productivity. Yet this region has the capacity to offer even more. The vibrant patchwork of natural, cultural and historical sites woven throughout represents largely undeveloped economic potential that perhaps could be best tapped by seeking designation as a National Recreation Area (NRA).

When custom built from the ground up by local engagement and ideas, an NRA can function as an organizing framework for the long-term resiliency of the economies, inhabitants and resources of the area. A primary benefit of this framework is economic development driven by geotourism—tourism linked to the region’s geography, history, and natural resources—and outdoor recreation, including fishing, hunting, kayaking, crabbing, bird-watching, bicycling and sailing, to name a few. An NRA can also support historic and cultural preservation and encourage environmental conservation. Another benefit is that the same resources that underpin the recreation economy serve inland communities as a buffer against flooding and function as part of a larger coastal protection system.

NATIONAL RECREATION AREA CONCEPT

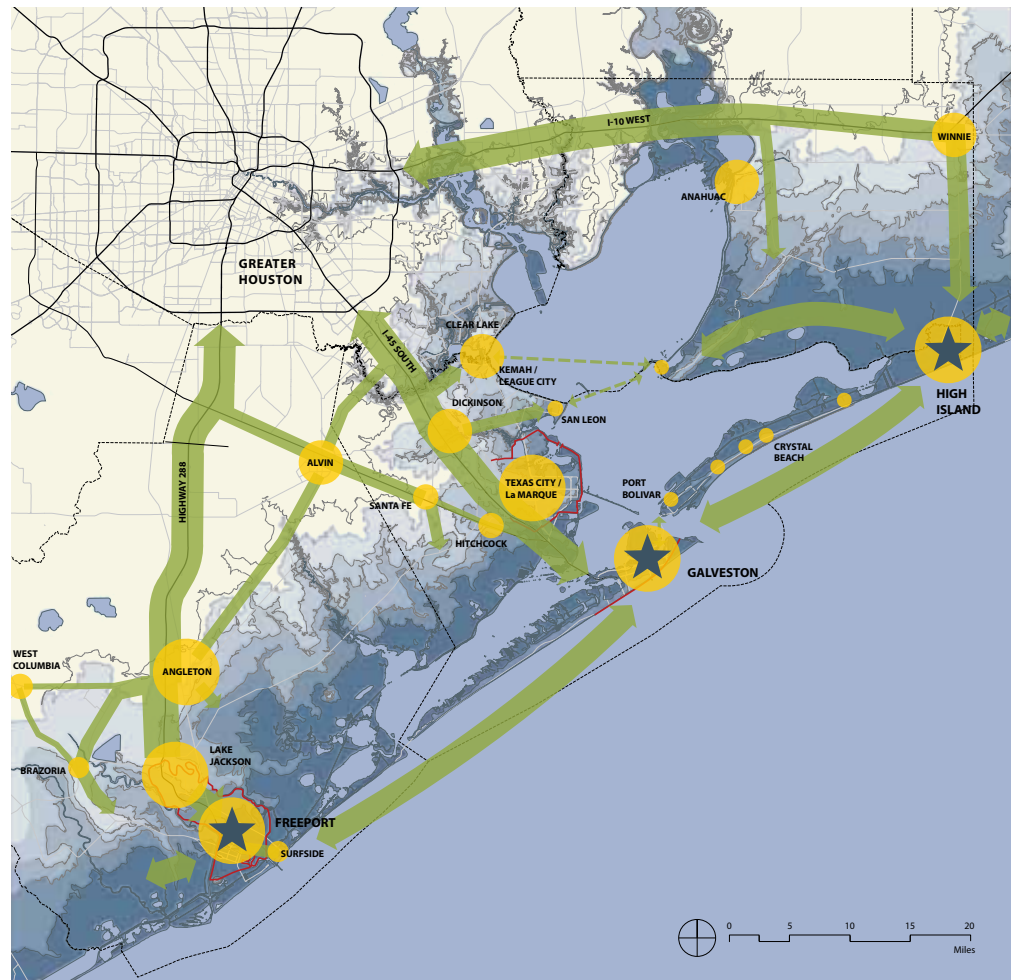
A National Recreation Area is a designation given by Congress to land and water with significant outdoor recreation potential of national significance. There are 18 NRAs in the US within the National Park Service (NPS), including Lake Meredith and Amistad NRAs in west Texas. Most emphasize water-based recreation. They range in size, contiguity, land ownership structure, governing institutions and functional purposes. Some are stand-alone units; others such as the Golden Gate NRA comprise a cluster of noncontiguous lands and structures. The NPS provides a coordinating presence, but may own little of the managed lands. However, the NPS can forge customized management partnerships in which state and local governments, nonprofit organizations and private landowners choose to play a formal governing and management role.

The upper Texas coastal region has the benefit of being highly accessible. The key transportation corridors linking Houston, Galveston Bay and the key gateways



Figure 1.
Houston-Galveston Region
 Inundation Zones and
 Surrounding Communities

- Existing Community
- Access Route
- 0-5' Inundation Zone
- 5-10' Inundation Zone
- 10-15' Inundation Zone
- 15-20' Inundation Zone
- 20-25' Inundation Zone
- Existing Levees



of Winnie/High Island, Galveston and Freeport are shown on Figure 1. Low-lying wetlands and prairie (five feet and under in elevation) are shown in dark blue. Ideally, built infrastructure such as housing, restaurants and retail would be concentrated primarily within the more protected gateways while recreation opportunities would be developed within the unprotected natural areas.

POTENTIAL ECONOMIC BENEFITS ASSOCIATED WITH NRA DESIGNATION

National Recreation Areas enjoy an enhanced stature among the universe of recreational designations. They are part of our national system of park units, including Yellowstone and the Grand Canyon. They are chosen because of their unique recreational potential and are recognized and valued by tourists from around the nation



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and the world. Visits to these national parks, recreation areas and monuments reach over 275 million each year. In 2005, the National Park System generated some \$12 billion in revenues from visitation fees and associated sales in parks and their surrounding communities.

Presently, the upper Texas coast is not effectively marketed to outdoor recreation enthusiasts so it fails to capture a fair share of their considerable spending - over \$280 billion nationwide, according to the Outdoor Recreation Foundation. Outdoor recreation retail sales exceed the automobile and light truck manufacturing, pharmaceutical manufacturing, power generation, legal services and motion picture sectors. This direct expenditure of \$280 billion amounts to over \$730 billion in indirect economic benefits.

Of the various subsets comprising the outdoor recreation industry, wildlife viewing generates 66 million participants, 70 percent of whom are birders. Birding alone generates \$82 billion in indirect economic benefits, including 671,000 jobs and \$11 billion in local, state and federal taxes. One of the fastest growing outdoor sports in the United States is recreational kayaking, growing by 7 percent from 2008 to 2009.

If the upper Texas coast achieves NRA stature, more visitors would be drawn from beyond the boundaries of the Houston-Galveston region. For example, the Golden Gate National Recreation Area, situated in a population area of 7.4 million, draws over 14 million visitors annually; and, Gulf Islands National Seashore in the Florida Panhandle, situated in a population of 800,000, draws over 2 million per year.

This visitation results in part because the NRA designation serves to package and promote to the nation, and the world, the recreational resources of an area as a whole, the sum representing a more powerful draw than the parts. Showcasing the unique character of individual destinations, each with a full array of activities and all within the four-county region, increases tourism by broadening appeal. It also tempts non-resident visitors to extend their stays.

A Lone Star Coastal NRA would further enrich our existing tourism industry by extending the tourist season to a full 12 months and effectively tripling the miles of potential waterfront destinations. While beaches are busiest during summer, the cooler months are best for kayaking the bay's marshes and rookeries. Peak bird migration observation periods occur during early spring and fall.

Finally, an economy enriched by bayside geotourism and outdoor recreation provides a powerful incentive to maintain our low-lying areas in their natural state. This supports corollary benefits such as reducing the economic losses associated with storm surge and maintaining healthy and productive habitat for fish and shellfish.





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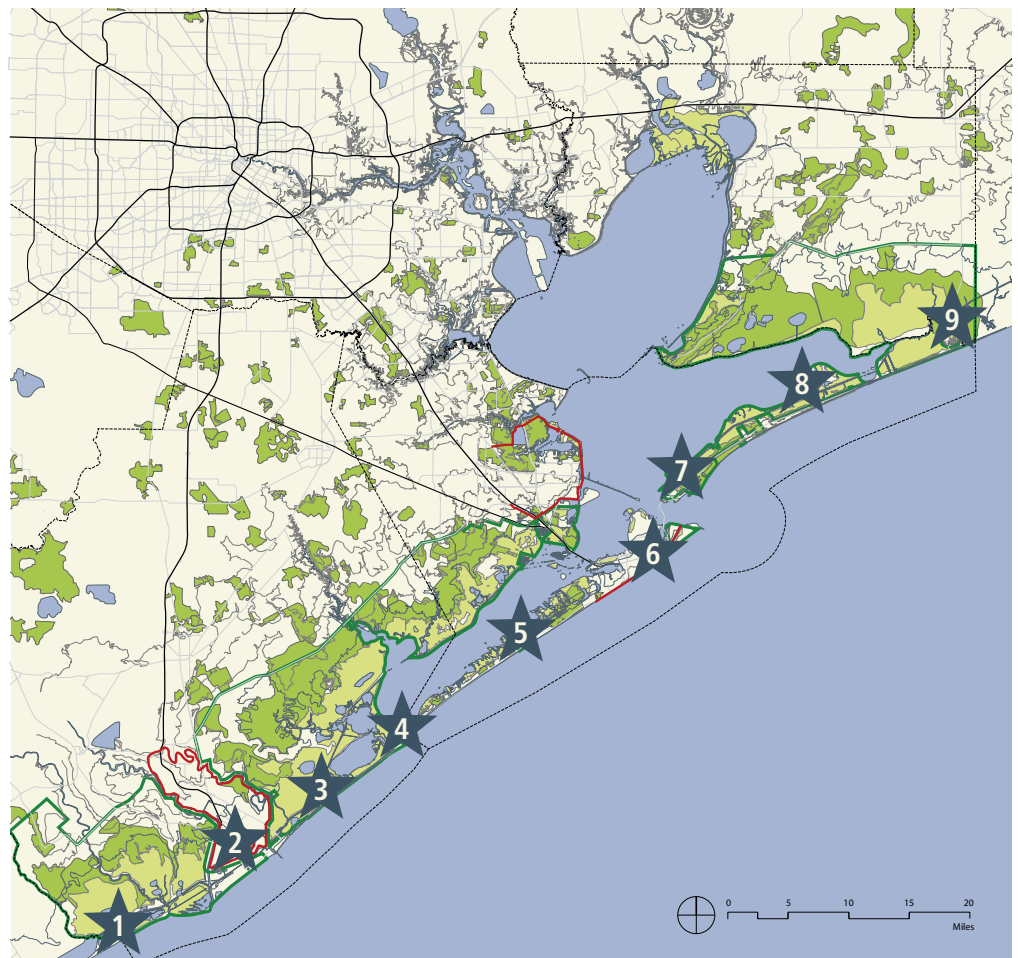
STUDY AREA OF THE PROPOSED LONE STAR COASTAL NRA

The initial study area for a Lone Star Coastal NRA covers about 450,000 acres of tidal marshland and adjacent brackish wetlands and coastal prairie along with about 150,000 acres of bay and estuarine area. Although much of upper Galveston Bay is heavily developed and industrialized, most of the area adjacent to East and West Bays, as well as the coastal areas in Chambers and Jefferson Counties, remains in its natural state and is highly ecologically productive. Galveston Bay and these adjacent lands are shown in Figure 2.

The recreational opportunities of this area are as impressive as they are varied. High Island and Bolivar Flats are world-class bird-watching areas along with the East End Lagoon, San Luis Pass on Galveston Island, the rookeries of Drum Bay and the coastal and forested habitats of Freeport and the San Bernard area. Fishing and crabbing are family friendly endeavors that pay off at the dinner table. Seasonal hunting is available within the wildlife refuges and management areas and on private

Figure 2.
Houston-Galveston Study Area
2010 Existing Prime Coastal Ecoregions
(+10 acre parcels) + Areas of Interest

- Coastal Prairie
- Tidal Wetlands
- Existing Levees
- Proposed National Recreation Area



property. The potential for kayaking is an untapped recreational bonanza existing on the backside of the Bolivar Peninsula, the marsh lakes of the mainland of Chambers, Galveston, and Brazoria Counties and the oyster reefs and sea grass flats of Christmas Bay. Galveston and the Village of Surfside have scenic bicycling trails that could be extended into an interconnected system. This area is also rich with cultural, architectural, military and maritime history of both Texas and the United States.

Key areas with unrealized potential are shown as stars on Figure 2.

- 1 and 2 are, respectively, the San Bernard and Freeport Bird Count areas, which are both in the top 10 in the United States in terms of species diversity. To access these areas one passes through the Columbia Bottomland area settled by Stephen F. Austin's Old Three Hundred. West Columbia, the first capital of the Republic of Texas, where the first congress was held and Sam Houston took office as President, is considered a birthplace of Texas.
- 3 is the Drum Bay/Christmas Bay area, home to several rookeries, numerous oyster reefs and substantial marsh areas that offer excellent kayaking.
- 4 is San Luis Pass, an area of shifting sand bars and significant bird and fishing activity. Combined, the areas represented by 3 and 4 are also home to three Civil War era shipwrecks.
- 5 is Galveston Island State Park, with its restored sea grass areas, it has boardwalks for bird-watching and nature study as well as access for crabbing and fishing.
- 6 is the City of Galveston and the East End Lagoon, a major marsh and beach area with excellent bird-watching and fishing on the South Jetty. Once a seasonal home to Karankawa Indians and outpost for the pirate Jean Laffite, Galveston has over 60 structures listed on the National Register of Historic Places. Along with the historic Strand, cultural and historic museums abound.
- 7 is the Bolivar Flats, Horseshoe Bay and Fort Travis. The Bolivar Flats is one of the premier places in the United States to observe wading birds. Fort Travis was a gun emplacement used during the US Civil War.
- 8 is the backside of Bolivar, with two washover fans it offers excellent kayaking, bird-watching and fishing destinations.
- 9 is High Island, a renowned bird-watching destination during spring migration. High Island is surrounded by public and private wetlands, where excellent duck hunting occurs in the fall and winter.

Together, these "star destinations" represent a possible organizational focus for a non-contiguous yet thematically related Lone Star Coastal NRA.



ADDITIONAL BENEFITS OF NRA DESIGNATION



These recreational and economic opportunities for the upper Texas coast are only available as a result of the ecological value of the area. In determining NRA feasibility, the recreational, cultural, and ecological importance and uniqueness of the proposed Lone Star Coastal NRA are paramount. These same assets are also the region's natural barriers to storm surge, the bay's natural filter for run-off water and the nursery for our region's prolific recreational and commercial fishing industries. An NRA designation would create a positive feedback loop in which the economic incentive to maintain the natural resources for outdoor recreation safeguards inland communities, water quality and our fishing industries and drives habitat conservation. As the region prospers from geotourism and outdoor recreation, public and private investments will follow in order to ensure that land is preserved in its natural state.

Moreover, the coordination among public, private and non-governmental interests required by an NRA designation will set the stage for the upper Texas coast to create unique partnerships that contribute to a healthy Gulf of Mexico.

One such partnership opportunity is derived from tragedy. On April 20, 2010, the Deepwater Horizon rig suffered a blow-out and explosion that killed 11 workers, injured 17 more and initiated an oil spill that promises to forever change the ecological reality of the Gulf Coast. Initially, there was concern that the spill would move toward the Texas coast, though ultimately it did not flow westward due to the structure of currents in the Gulf.

Environmental impacts from accidents such as this one can devastate entire ecosystems. Resilience, or the ability to absorb and recover from such catastrophic impacts, is best assured if coastal regions create a distributed system of protected "ecological reserves" along the Gulf Coast, so an impacted region has a chance to be repopulated by the marine population of another, non-impacted region. Galveston Bay is an excellent location for an ecological reserve because the Gulf currents and barrier islands offer some protection from spills that occur in the Gulf. Houston's oil and gas companies and offshore support industry are potential partners to further explore the ecological reserve concept.

NRA DESIGNATION PROCESS

An NRA designation requires a charter, which governs the partnership of local, state and federal government agencies, nonprofit organizations, and private landowners willing to take part in the NRA. As envisioned, the NRA would be crafted to local

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needs and requirements. Pursuant to the NRA congressional designation process, a charter would be developed locally, tailored to local circumstances and preferences. Private landowners within the NRA study area could participate or not, depending upon their needs and desires. **All participation would be voluntary.** If individual private landowners choose not to opt-in to the NRA, they would not be subject to any guidelines or management criteria that might be adopted under the charter, now or in the future.

Eligibility for NRA congressional designation requires that an area display unique natural, cultural or recreational resources and that it is suitable and feasible for addition to the park system. The area must represent a natural or cultural theme not already adequately represented in the park system and must be of sufficient size and configuration to ensure long-term protection and accommodate public use. The area must also have potential for efficient administration at reasonable cost. The National Park Service (NPS) may evaluate an area's eligibility through a fact-finding reconnaissance study. Congress could also decide to authorize a more comprehensive "Special Resource Study" of the proposed NRA that would be the basis for authorizing the area as a unit of the park system. Once an area is found to be eligible by NPS, Congress writes the designation into law. Congress does not have to wait for an NPS study to create a new park. Authorizing legislation of individual NRAs is tailored to the geographic, governance and functional purposes intended for the particular unit. The process of developing specific enabling legislation, therefore, provides for significant flexibility in the design of the NRA with extensive local involvement.

BOSTON HARBOR EXAMPLE

The Boston Harbor Islands NRA is a good example of a collaborative effort that capitalizes on its national designation while keeping local, state, and private concerns at the forefront. Boston Harbor Islands NRA has three distinguishing features: 1) it is urban; 2) it combines conservation, recreation and historic preservation benefits; and 3) it is managed through a partnership of federal, state, local and nonprofit organizations. The purposes behind designating this NRA were to 1) preserve and protect a drumlin island system within the harbor, along with associated natural, cultural and historic resources; 2) provide public access; and 3) tell the islands' stories. The Partnership recently completed its second strategic plan to guide the NRA operations through 2016.

Established in 1996, Boston Harbor Islands NRA covers a 50-square mile area and includes an island complex of 1,483 acres of land and 35 miles of relatively



After Hurricane Ike, the Houston Endowment, Inc. funded the SSPEED (Severe Storm Prediction, Education and Evacuation from Disasters) Center at Rice University to study lessons learned and identify steps to mitigate the vulnerability of the upper Texas coastal region to future storms.

undeveloped shoreline. None of the land within the area is federally owned. The authorizing legislation also specifies a single management plan and requires that all land units within the NRA be managed in cooperation with the private sector, municipalities surrounding Massachusetts and Cape Cod bays, the Commonwealth of Massachusetts and historical, business, cultural, civic, recreational and tourism organizations. (U.S. Code: Boston Harbor Islands National Recreation Area, Title 16, Chapter 1, Section 460 kkk.)

To fulfill this cooperative vision, the NRA is managed through the Boston Harbor Islands Partnership comprising 13 members. This governing Partnership includes representatives from the NPS and the U.S. Coast Guard; the Commonwealth of Massachusetts including the Massachusetts Port Authority, the City of Boston, the Boston Redevelopment Authority; and several non-profits. The NPS Northeast Regional Director provides the Partnership with technical assistance and staff, including a park superintendent. The federal government provides some base funding for the NRA, with federal law specifying federal funding at 25 percent of the total, with the remainder coming from state and private landowners within the NRA. State and local authorities and the U.S. Coast Guard provide law enforcement.

PROPOSED NEXT STEPS TOWARD A LONE STAR COASTAL NRA DESIGNATION

After Hurricane Ike, the Houston Endowment, Inc. funded the SSPEED (Severe Storm Prediction, Education and Evacuation from Disasters) Center at Rice University to study lessons learned and identify steps to mitigate the vulnerability of the upper Texas coastal region to future storms. The concept of a National Recreation Area first emerged from this work at the SSPEED Center and from collaborative work at the Green Think Tank of Houston Wilderness.

Given current federal budgetary issues, significant federal funding is unlikely to be available to implement an NRA. Fortunately, this region is used to paying its own way and has often generated the resources necessary to reap economic benefits. In addition to further fundraising to support activities associated with refining and advancing the NRA concept, the following next steps are proposed:

- Form a steering committee to head up a coalition of public and private leaders to further shape the NRA concept and build community support for congressional action.
- Continue the technical and analytical work at the SSPEED Center, emphasizing the development of the NRA concept as an economically beneficial, non-structural flood mitigation approach to address the region's flooding problems in low-lying areas.



Hurricane Ike caused substantial damage to beachfront homes located on the barrier islands and peninsulas of the upper Texas coast.

- Establish a working partnership among local, state and federal agencies, not-for-profits and private landowners that want to be a part of the designation process and ultimately the NRA. This working partnership concept arose at an initial meeting of 40 potential partners held on January 21, 2011. Such a partnership would be facilitated by Houston Wilderness as part of its Sam Houston Greenbelt project.
- Seek opportunities to coordinate with the Sustainable Communities planning process, just underway at H-GAC (Houston-Galveston Area Council), and integrate aspects of other local parks, recreation and green space plans into the detailed implementation concepts for the NRA.
- Explore the reasonableness of an ecological reserve to be maintained as insurance against further damages associated with offshore oil and gas development and, if appropriate, coordinate and pursue in conjunction with local oil and gas companies.

CONCLUSION

Old Faithful erupts. Wild horses pound through coastal waters at Assateague. Sailors aboard the U.S.S. Constitution in Boston Harbor unfurl the sails of this oldest still-commissioned ship in the U.S. Navy. And Galveston Bay tends nature's second largest marine nursery, an asset of equal national significance. The upper Texas coast and its surrounding metropolitan areas have been previously overlooked for recreation potential and deprived of the economic benefits that are associated with designation as an NRA. Achieving this distinction is within reach and worth pursuing.

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