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

Technical Report

Photo: © Bob Howen.

Prepared by
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for
National Parks Conservation Association
Lone Star Coastal Alliance
Houston Wilderness
Rice University SSPEED Center

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About the Harbinger Consulting Group
For more than 15 years, the Harbinger Consulting Group has worked with communities,
nearby protected public lands and heritage areas, and public lands advocates to
understand the local economic impacts of protected areas. We help communities make the
most of these natural, historical, and cultural assets through collaboration, investment,
management and legislative decisions, and sustainable tourism development. See our work
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EXECUTIVE SUMMARY

In 2011, a group of private property owners, local government leaders and managers of parks, preserves, refuges, and historic sites along the upper Texas Gulf Coast got together to strategize about regional economic development and coastal resilience. On the table was a strategy to enhance Texas-led stewardship and conservation, develop an economic sector compatible with periodic flooding, and expand and promote nature and heritage tourism and outdoor recreation opportunities. From this meeting, an idea was born: to engage the National Park Service (NPS)—with its domestic and international brand identity and marketing advantages—in a locally driven, regional scale, public/private partnership that would become the proposed Lone Star Coastal National Recreation Area (LSCNRA).

In an area still recovering from Hurricane Ike, which had devastated local communities and economies in 2008, the LSCNRA was proposed as a way to enhance coastal resilience while deriving additional benefits from the low-lying lands that underpin the region's extraordinary natural bounty.

This report examines potential economic impacts of the LSCNRA and its partnership with associated sites, driven by increased visitor spending in a four-county region (Brazoria, Galveston, Jefferson, and Matagorda) along the upper Texas Gulf coast.

The analysis finds that, by the tenth year of operation, the National Recreation Area and its associated sites could attract 3,800,000 visitors annually and support these annual economic impacts:

> **$535 million in local sales of goods and services**
> **$234 million in personal income (payroll and proprietor income)**
> **13,325 jobs (full-time and part-time)**

This is double the estimated economic impact of the associated sites prior to designation, sustaining a two percent increase in private employment in the region by the LSCNRA's 10th year of operation, including nine percent more jobs in the tourism industry.

INTRODUCTION

In 2011, a group of private property owners, local government leaders and managers of parks, preserves, refuges, and historic sites along the upper Texas Gulf coast got together to strategize about regional economic development and coastal resilience. On the table was a strategy to enhance Texas-led stewardship and conservation, strengthen and expand an economic sector compatible with periodic flooding with a focus on nature and heritage tourism and outdoor recreation opportunities. From this meeting, an idea was born: to engage the National Park Service (NPS)—with its interpretation and education expertise, domestic and international brand identity and marketing advantages—in a locally driven, regional scale, public/private partnership that would become the proposed Lone Star Coastal National Recreation Area (LSCNRA).

As a unit of the National Park System, the LSCNRA could offer the region's communities significant economic advantages, while retaining local governance and individual landowner control. It could provide a framework for economic development that supports private property rights, historic preservation, conservation, and traditional land uses; enhances employee recruitment and retention for local industry; and promotes small business. It is adaptive and resilient to the periodic flooding that characterizes this coastal region, and is fully compatible with structural approaches to storm and flood protection.

A national recreation area is one of a variety of National Park Service designations such as national parks, national historical parks, national seashores, and others. Created through Congressional action, national recreation areas encompass land and water areas with nationally significant outdoor recreation potential, and can promote coordinated conservation, land management, and visitor services. The proposed Lone Star Coastal National Recreation Area would engage a voluntary association of existing sites owned and managed by various public, private, and nonprofit landowners.

There are 18 national recreation areas in the United States, including Lake Meredith and Lake Amistad national recreation areas in 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 Boston Harbor Islands National Recreation Area, comprise a cluster of noncontiguous lands and structures owned by different public agencies and nonprofit organizations. The NPS provides a coordinating presence, but may own little land. The NPS can engage in customized partnerships for national recreation areas in which state and local governments, nonprofit organizations, and private landowners participate in management decisions.

This analysis explores the potential economic impact of the proposed Lone Star Coastal National Recreation Area in a four-county region (Brazoria, Galveston, Jefferson, and Matagorda) along the upper Texas Gulf coast. The study finds that this impact would be largely driven by increased tourism.

While a range of economic benefits from a new LSCNRA is likely, this study looks specifically at effects on local jobs, personal income (payroll and proprietor income), and

economic activity (sales of goods and services) that are likely to accompany the designation and operation of the Lone Star Coastal National Recreation area.

Tourism is already big business in this region. Across the four counties, about one in five jobs is related to tourism, with the highest concentration in Galveston County.[1] The Texas Gulf Coast region hosts one in four Texas visitors, and ranks second among the state's seven tourism regions.[2] Nature and cultural tourism are more important here than in Texas as a whole: 17 percent of Gulf Coast visitors participated in nature-based recreation, compared to 11 percent statewide. In large measure, the difference is due to presence of ocean and bay coastal areas. Hunting and fishing are more popular among the region's visitors (four percent participate, versus two percent statewide). And 12 percent of Gulf Coast visitors participate in cultural activities, compared to 11 percent statewide.[3]

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[1] Profiles of Industries that Include Travel and Tourism (Brazoria, Galveston, Jefferson and Matagorda counties). Generated using the Economic Profile System-Human Dimensions Toolkit (https://headwaterseconomics.org/tools/economic-profile-system/). November 2017.

[2] D.K. Shifflet & Associates. 2016 Texas Tourism Region and MSA Visitor Profile. Gulf Coast Region.

[3] The Office of the Governor, Economic Development Tourism Division. 2010.

TECHNICAL BACKGROUND

ECONOMIC IMPACT ANALYSIS METHODS
Overview
This economic impact analysis uses an "input-output" model. This model assumes that money spent locally—for example, by visitors paying for meals, lodging, fuel, and gifts—supports further economic activity. Businesses spend these dollars to pay employees, purchase goods, and pay for rent, fuel, taxes, and other expenses. Some of these expenditures are made locally, where the money can then be spent "again" by the businesses and persons who receive it, and so on.

"Direct impacts" are calculated as the amount of spending for an activity or by an organization or group—such a nonprofit preserve manager or non-local visitors—and the jobs this spending immediately supports. "Total impacts" reflect the "multiplier effect" of portions of those direct expenditures being circulated through the local economy, as described above.

Impacts of visitor spending are estimated based on non-local visitor spending only. Their expenditures are clearly "new" dollars that originated outside the study area and can be clearly linked to the presence of the sites and entities that together could comprise the Lone Star Coastal National Recreation Area. Spending by local visitors does have an economic impact, but it is difficult to determine how much of that money would *not* have been spent locally if the national recreation area did not exist. Given these difficulties, and the relatively small contribution of local visitor spending would make to the economic impacts examined in this study, this analysis takes a conservative approach, calculating the economic impact of visitor spending based solely on the expenditures of out-of-area visitors (those from outside the four-county study area).

Impact Model Used
This study—originally completed in 2011—used what was, at the time, the established National Park Service economic analytical model, the Money Generation Model (MGM2), to estimate the potential economic impacts of the proposed national recreation area. MGM2 is an update of the NPS Money Generation Model as originally developed by Ken Hornback. Daniel Stynes and Dennis Propst at Michigan State University.

The 2017 update to this study was completed using the original analysis, adjusted to reflect the current geographic scope and likely associated sites for the proposed Lone Star Coastal National Recreation Area.

COMPONENTS USED IN ESTIMATING ECONOMIC IMPACTS
Overview
To arrive at projections of future economic impacts, the analysis begins by estimating visitation to the area using likely associated sites as proxies, during the year prior to the designation of the LSCNRA.[4] That estimate is used as a foundation upon which to project future visitation levels after ten years of operating the national recreation area and developing new facilities, programs, and marketing efforts associated with it.

Estimating First-Year Visitation
If created, the national recreation area would establish partnerships with a suite of associated sites owned and managed by entities other than the National Park Service. These sites currently provide natural recreation opportunities and historic and cultural recreational experiences. They range from preserves managed by nonprofit organizations to the national wildlife refuges and state wildlife management areas that provide critical cores of wildlife habitat while providing for public recreational access.

A list of potential associated sites in the LSCNRA was used to estimate visitation in the year prior to designation of the LSCNRA. Visitation to these sites was quantified, where possible, using existing data, and estimated for sites where visitor numbers were not available. In estimating baseline visitation, the total number of reported visitors was reduced to avoid double counting persons who visit multiple sites on the same trip. (The list of sites and visitation estimates appears in the appendix.)

Estimating Tenth-Year Visitation
The baseline visitation estimate serves as the foundation for projecting visitation in the tenth year of LSCNRA operation. This analysis projects visitation growth across the national recreation area's entire gateway region and area of associated sites, rather than pegging growth to specific sites or gateway communities.

At some mature sites or those that operate close to their capacity, dramatic visitor growth is unlikely. However, the development of new facilities, services, and programs, along with a regional "brand" or identity connected with the national recreation area and broader exposure because of affiliation with the National Park Service are likely to result in increased visitor traffic. This increased activity can be viewed as an opportunity for communities across the region to both help create and use to their economic benefit.

A clear trend in visitation across multiple natural and historic/cultural sites in the region is difficult to establish. Two observations provide relevant context for this analysis:

1) Visitation at many natural and cultural sites and events has been generally increasing, with some notable exceptions:

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[4] Since it is not clear when the LSCNRA will be designated, assumptions about visitation in the year prior to designation are drawn from estimates of visitation from 2016. Depending on when the LSCNRA is designated, visitation in the year prior to designation may vary from these estimates.

a) Periodic hurricanes often depress visitation in recovery years following the storm, and sometimes take out infrastructure that can take a long time to replace; and

b) Visitation tends to be relatively static at sites that operate near their capacity (e.g., parks with popular campgrounds and small private nature preserves).

2) Across the region, events are used to attract concentrated visitation. Because of the difficulty estimating event visitation, in many cases determining trends in participation is difficult. Anecdotal evidence suggests that some of these events are growing in popularity, while others hover around a fairly consistent level of attendance.

In calculating visitation growth, and the resulting change in economic impact, we estimate that some growth is likely to occur regardless of whether the LSCNRA is designated. Visitation trends at specific sites vary tremendously, and for the various scenarios developed for this analysis, the aggregated growth over ten years ranged from 10 percent to 34 percent.

On top of this assumed growth, there are several reasons to project that visitation at the Lone Star Coastal National Recreation Area would grow at a greater rate.

1) At seven National Park Service units that are, in various ways, peers to the proposed Lone Star Coastal National Recreation Area, visitation grew an average of 565% during the first ten years of operation. The NPS units used for comparison and the visitation growth rate in the first ten years of operation at each follow.
   a) C&O Canal National Historical Park (69%);
   b) Cuyahoga Valley National Park (148%);
   c) Delaware Water Gap National Recreation Area (201%);
   d) Gateway National Recreation Area (125%);
   e) Indiana Dunes National Lakeshore (2,903%);
   f) Padre Island National Seashore (530%); and
   g) Santa Monica Mountains National Recreation Area (-22%).

2) Interviews with local community and business leaders, and managers of natural and cultural sites suggest that the proposed LSCNRA and surrounding region are replete with opportunities for new, expanded, or better-developed sites, facilities, and programs. For example:
   a) New NPS or other visitor center(s);
   b) New, expanded, or rebuilt nature lodges;
   c) New nature centers and expanded facilities at existing sites;
   d) Development of more bayside access for canoes/kayaks and fishing;
   e) Development of more visitor facilities and lodging;

f) Installation of photography blinds and other facilities, and development of "photography trail" linking those facilities;

g) Coordinated promotion of recreation and heritage tourism opportunities in and around the LSCNRA, perhaps along thematic lines that build from and expand on existing "trails" such as heritage, kayaking, and birding trails;

h) Expansion of educational, interpretive, and recreational programming; and

i) Growth in attendance at nature and cultural festivals.

There is both anecdotal and quantitative evidence that capitalizing on opportunities like these will increase visitation. For example, visitation to the J.J. Mayes Wildlife Trace at the Army Corps of Engineers Wallisville Lake Project grew by nearly 800 percent to 26,000 during the first three years that it was open (2004-2007). The J.J. Mayes Wildlife Trace is a complex of roads, trails, boardwalks, and picnic facilities designed to bring visitors a close-up view of marsh and riparian habitats along the Trinity River. Overall visitation at the Wallisville Lake Project nearly doubled between 2004 and 2010, despite hurricane damage to, and temporary closure of, the J.J. Mayes Trace in 2008.[5]

3) Regional identities or attractions for tourism can spark collaboration and coordination among local participants, attracting more visitors than typical approaches to tourism promotion in which neighboring localities compete for visitation. For example, along the Crooked Road, a music heritage trail spanning ten counties in southern Virginia, collaborative marketing efforts led to measurable benefits. Accommodations sales in one county increased 90% in the first four years, and more than tripled in one town on the route. Existing music events experienced a five percent annual increase in attendance. The region experienced two percent higher growth in tourism share over other parts of the state.[6]

Another example: At 14 rural museums along Montana's "Dinosaur Trail," visitation grew more than 14 percent during the first two years of coordinated promotion.[7]

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[5] Visitation data provided by the U.S. Army Corps of Engineers.

[6] Robert R Jones. Economic Impact Assessment of the Crooked Road; Virginia's Heritage Music Trail. Lebanon, VA: Sustainable Development Consulting International. 2008.

[7] National Trust for Historic Preservation. Dinosaur Trail Links Sites in Eastern and Central Montana (http://www.preservationnation.org/issues/heritage-tourism/survival-toolkit/dinosaur-trail-links-sites-in-montana.html). Accessed December 10, 2011, information no longer available on site.

In the 2011 analysis, we considered three scenarios for visitation growth at the Lone Star Coastal National Recreation Area. The first, most conservative, scenario projected only a doubling of visitation beyond a ten percent assumed growth rate for the existing sites potentially associated with the national recreation area. The second scenario is the most optimistic growth projection, estimating growth in visitation using the 565 percent average drawn from evaluating visitation growth at comparable NPS sites. The third scenario projects a tripling of visitation during the first ten years. The third scenario was used to create the impact estimates for the 2011 analysis.

In 2017, the list of potential associated sites had changed from that used to underpin the 2011 analysis. Notably, it now includes Moody Gardens, the popular educational tourist destination in Galveston, which attracts some two million visitors each year, more than 75 percent of all visitation anticipated in the year prior to the LSCNRA designation.

To create updated Year Ten visitation estimates, we held Moody Gardens visitation constant at two million throughout the period, and projected a tripling only on estimated pre-designation visitation to sites other than Moody Gardens. About a third of this visitation growth over the ten-year period was attributed to growth that would happen whether the LSCNRA is designated. This equates to a three-percent annual growth in visitation regardless of LSCNRA designation. (See "Economic Impact Projections" section below.)

Visitor Spending Model
To estimate visitor spending, which drives most of the economic impact of units of the National Park System such as national parks and national recreation areas, we used inflation-adjusted average visitor expenditures for the Gulf Coast tourism region as reported in a study of Texas tourism.[8] These averages include the spending of day-trip visitors traveling more than 50 miles from their homes, as well as overnight visitors.

Average Total Expenditure (Per Person Per Day) $126.86
Transportation	$41.66
Food	$28.00
Room	$22.62
Shopping	$14.87
Entertainment	$12.99
Miscellaneous	$6.72

These averages do not break out differences in spending between overnight visitors and day visitors. Across Texas, overnight visitors' daily spending average of $263 is nearly three times greater than the $91 spent by an average day visitor.[9] Rather than attempting to parse out the proportion of day-use and overnight visitors for these projections, in this analysis, we use a multiplier of 2.39 days to calculate total spending per visitor,

[8] D.K. Shifflet & Associates. *Texas Destinations 2009-2010.* The Office of the Governor, Economic Development Tourism Division. 2011.
[9] D.K. Shifflet & Associates. *Texas Destinations 2009-2010.* The Office of the Governor, Economic Development Tourism Division. 2011.

reflecting the average length of stay for all visitors.[10]

Attributing Visitor Spending to the LSCNRA

Based on the information outlined above and in the appendix, we estimated total economic impacts of out-of-town national recreation area visitor spending in the baseline year prior to designation and tenth year of operation. We calculated the impacts on the spending of out-of-area visitors only, which we estimated at 70 percent of all visitors to the LSCNRA and associated sites.

The impacts of visitor spending to be attributed to the Lone Star Coastal National Recreation Area are adjusted to reflect the role the designation of the national recreation area is likely to play in attracting those visitors and their dollars to the region. Many LSCNRA visitors are likely to come to the area primarily for other reasons (e.g., visiting other attractions, renting a beach house, visiting friends or family). Taking that into consideration, we "credit" only part of the impact of their spending to the national recreation area.

In the first year of operation, we estimate that 30 percent of visitors to the Lone Star Coastal National Recreation Area would come to the region primarily to visit the national recreation area and its associated sites, while the remaining 70 percent would come primarily for other reasons, and visit the LSCNRA and associated sites while in the area. All of the spending (and resulting economic impact) of the primary national recreation area visitors is attributed to the LSCNRA. A quarter of the spending of the visitors who came to the region for other reasons is attributed to the LSCNRA.

By the tenth year of operation, we project that the Lone Star Coastal National Recreation Area would be a stronger destination in its own right, and that 50 percent of its visitors would visit the region primarily because of the national recreation area and its associated sites. All of their spending is attributed to the LSCNRA, while a quarter of the spending of the visitors who came to the region for other reasons is attributed to the national recreation area.

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[10] D.K. Shifflet & Associates. *Texas Destinations 2008-2009*. The Office of the Governor, Economic Development Tourism Division. 2010.

ECONOMIC IMPACT PROJECTIONS

Economic impacts are estimated for the four-county region in the year prior to designation of the Lone Star Coastal National Recreation Area, and in the tenth year.

BASELINE ANNUAL ECONOMIC IMPACTS PRIOR TO DESIGNATION
VISITOR SPENDING

Total number of visitors	2,600,000
Number of out-of-town visitors (70%)	1,820,000

Adjusted economic impacts of out-of-town
visitor spending

Sales	$263 million
Personal income (payroll and proprietor income)	$10 million
Jobs (full-time and part-time)	6,240

YEAR TEN ANNUAL ECONOMIC IMPACTS

Total number of visitors	3,800,000
Number of out-of-town visitors (70%)	2,660,000

Adjusted economic impacts of out-of-town
visitor spending

Sales	$535 million
Personal income (payroll and proprietor income)	$234 million
Jobs (full-time and part-time)	13,325

PROPORTION OF YEAR TEN ADDITIONAL ECONOMIC IMPACTS ATTRIBUTED TO LSCNRA-RELATED ACTIVITIES

Total number of additional annual visitors *(Year Ten over Year One)*	1,200,000
Number of additional visitors expected regardless of designation[11]	206,000
Number of additional visitors attributed to the Influence of the LSCNRA designation	994,000

Adjusted economic impacts of out-of-town
visitor spending attributed to LSCNRA designation

Sales	$140 million
Personal income (payroll and proprietor income)	$61 million
Jobs (full-time and part-time)	3,485

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[11] Our projections assume that the LSCNRA associated sites will experience three percent annual growth regardless of LSCNRA designation. The exception is Moody Gardens, where visitation is held constant throughout at 2,000,000 annual visitors.

APPENDIX

This list of sites and annual visitation was used to support initial visitation estimates. "Baseline annual visits" are based on data or estimates provided by the managing agency, or estimates based on partial data or visitation at similar sites. Blanks represent sites for which data or reliable estimates were not available. Total visitation at all of these sites is estimated at 2,583,000.

Potential Associated Sites	County Location	Baseline Annual Visits
Artist Boat	All	1,500
Sea Center Texas	Brazoria Co	6,000
Christmas Bay Coastal Preserve	Brazoria Co	5,000
Columbia Bottomlands	Brazoria Co	1,000
Neo-tropical Bird Sanctuary Quintana	Brazoria Co	1,000
Gulf Coast Bird Observatory	Brazoria Co	1,000
San Luis Pass County Park	Brazoria Co	18,200
San Bernard NWR	Brazoria Co	38,000
Brazoria NWR	Brazoria Co	35,000
Camp Karankawa (BSA)	Brazoria Co	2,500
Hanson Riverside County Park	Brazoria Co	
Justin Hurst WMA	Brazoria Co	2,000
Varner-Hogg Plantation	Brazoria Co	6,000
Levi Jordan Plantation	Brazoria Co	6,000
Bryan Beach State Recreation Area	Brazoria Co	
Cradle of Texas Conservancy	Brazoria Co	1,000
Birding Wetlands/Conservation Park (City of Freeport)	Brazoria Co	1,000
Freeport Municipal parks and golf course	Brazoria Co	
Camp Mohawk County Park	Brazoria Co	
Surfside Village park/trail	Brazoria Co	
Feather Fest	Galveston Co	4,000
Rollover Pass (fishing area)	Galveston Co	
High Island Sanctuaries (Boy Scout/Smith)	Galveston Co	2,500
Bolivar Flats Shorebird Sanctuary	Galveston Co	10,000
Galveston Island State Park	Galveston Co	243,560
Fort Travis Seashore Park	Galveston Co	20,000
Big Reef Nature Park	Galveston Co	10,000
Sunset Cove (Galveston Bay Foundation)	Galveston Co	300
Dos Vacas Muertas Bird Sanctuary (Houston Audubon)	Galveston Co	2,500
Bob Moore Island (Galveston Bay Foundation)	Galveston Co	300
Seawolf Park (Galveston Island Parks)	Galveston Co	20,000
Stewart Beach (Galveston Island Parks)	Galveston Co	20,000

Site of Interest	Location	Baseline Annual Visits
East End Lagoon Nature Preserve (Galveston Island Parks)	Galveston Co	6,000
R.A. Apffel Park/East Beach (Galveston Island Parks)	Galveston Co	6,000
Other Galveston Island parks	Galveston Co	
Coastal Heritage Preserve (managed by Artist Boat)	Galveston Co	1,500
Sweetwater Preserve (Galveston Bay Foundation)	Galveston Co	300
Moody Gardens	Galveston Co	2,000,000
Scenic Galveston Inc (2,000+ acres)	Galveston Co	300
Pierce Marsh (Galveston Bay Foundation)	Galveston Co	300
St Josephs Church (Galveston Historical Foundation)	Galveston Co	6,000
Moody Mansion (Galveston Historical Foundation)	Galveston Co	6,000
Texas City Preserve (Galveston Bay Foundation)	Galveston Co	300
Galveston Bay Megasite/Pryor (TNC)	Galveston Co	1,000
Horseshoe Marsh Bird Sanctuary (Houston Audubon)	Galveston Co	1,500
Elm Grove Preserve (TNC)	Galveston Co	1,000
Other smaller Galveston Bay Foundation sites	Galveston Co	300
Mundy Marsh Bird Sanctuary	Galveston Co	1,500
Sea Star Base Galveston	Galveston Co	10,000
Matagorda Bay Nature Park (Lower Colorado River Authority)	Matagorda Co	40,000
Big Boggy NWR	Matagorda Co	20,000
Matagorda County Birding and Nature Center	Matagorda Co	6,000
LeTuelle Park (Bay City)	Matagorda Co/Bay City	
Riverside Park (Bay City)	Matagorda Co/Bay City	
Runnells Family Mad Island Marsh Preserve (TNC)	Matagorda Co	1,000
Mad Island Wildlife Management Area (TPWD)	Matagorda Co	2,000
Matagorda Island WMA	Matagorda Co	2,000
Palacios Prairie Wetlands	Matagorda Co	1,000
Sabine Pass Battleground SHS	Jefferson Co	6,000
Sea Rim State Park	Jefferson Co	37,522
Texas Point NWR	Jefferson Co	10,000
JD Murphree WMA	Jefferson Co	2,000
McFaddin NWR	Chambers/Jeff	26,801