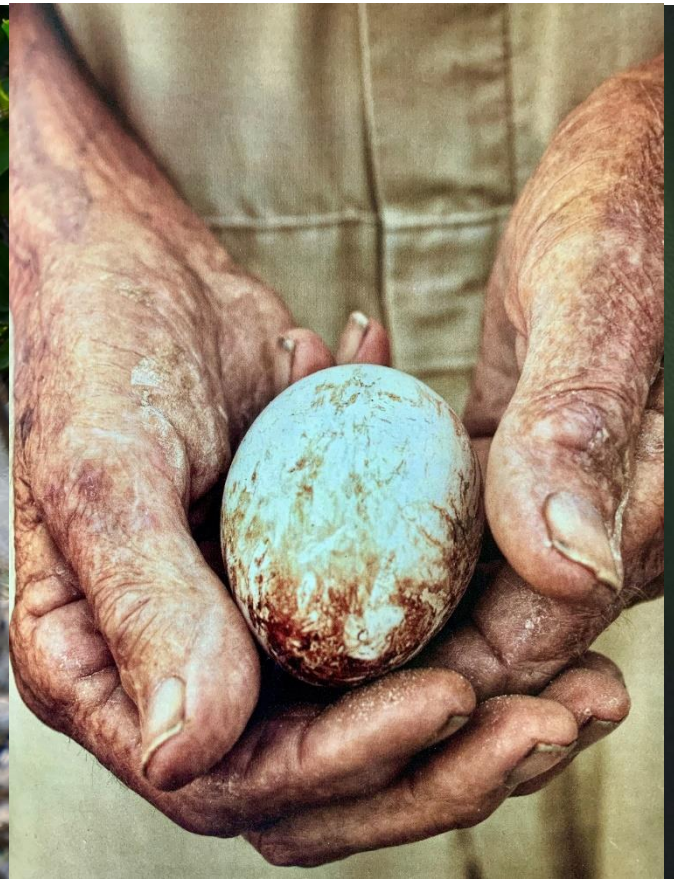
Audubon | TEXAS

CONSERVING CHESTER ISLAND



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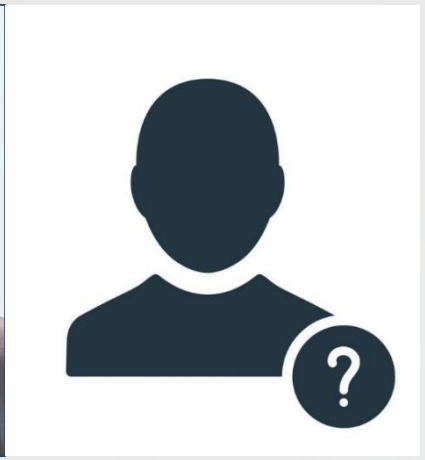
Suzanne Langley – Executive Director

Romey Swanson – Director of Conservation

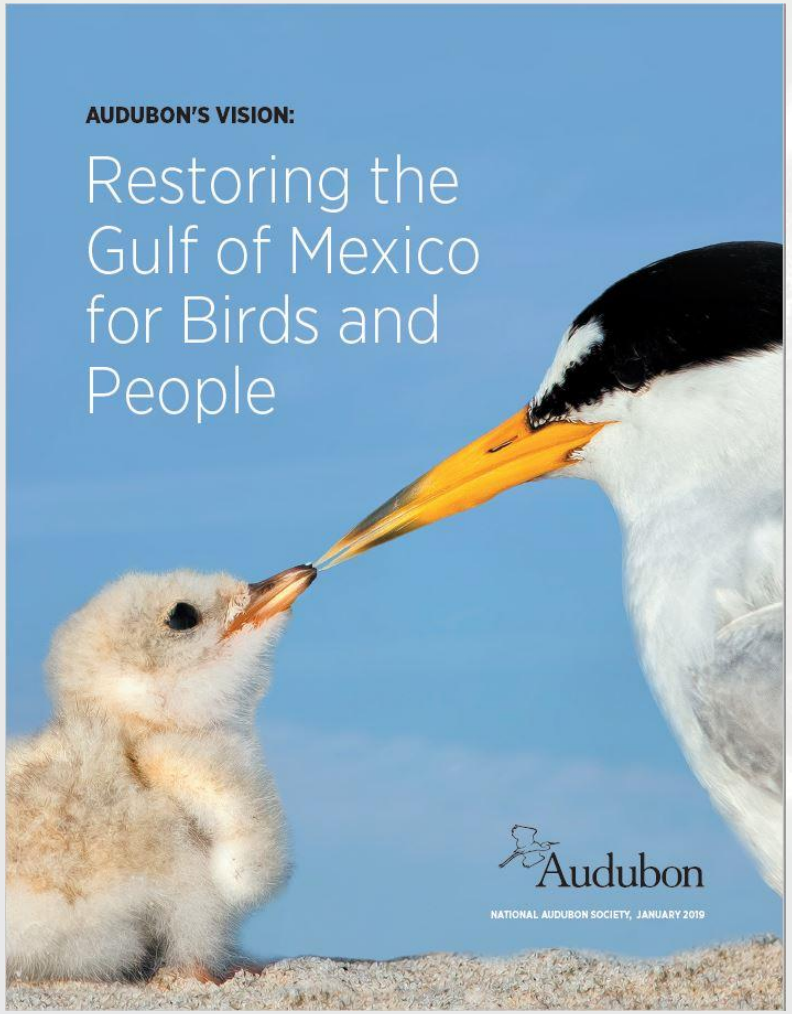
Alexis Baldera – Coastal Program Manager

Tim Wilkinson – Audubon Coastal Warden

Posted Positions – Coastal Biologist, TERN Manager



Strategic Visioning along the Gulf Coast



OUR VISION

Healthy, resilient coastal and marine ecosystems that support viable populations of birds and people from south Texas to the Florida Keys.

1. Monitoring of flagship and priority bird species
2. Strategic conservation planning and advocacy
3. Coastal conservation and restoration through collaborative partnerships and programs
4. Long-term stewardship

Region-Wide

Birds and other animals do not adhere to the same geopolitical boundaries as people. Species move between and around these man-made boundaries, and restoration and conservation activities should do the same. Region-wide projects cross multiple jurisdictions to address bird injury.

1 AUDUBON COASTAL BIRD STEWARDSHIP

Restoration Approach	Project Location	Cost Estimate	Time Frame
Restore and conserve bird nesting habitat	Gulf-wide	$15 million/year total across five states; existing funding toward this goal could be used as cost sharing and matching	Coastal nesting bird stewardship is already underway in many areas, and gaps in coverage and protection could be filled immediately in parts of all five states.

Flagship Species

Snowy Plover, American Oystercatcher, Least Tern, Black Skimmer

Likely Implementing Agency or Partnership

National Audubon Society and its chapter network, state and federal conservation agencies, NGO partners

Project Overview

Beach-nesting birds across the Gulf of Mexico encounter a wide array of challenges in an effort to reproduce successfully. Because of this, a multidisciplinary approach is needed, with adaptive flexibility built in to address ever-changing conditions and threats like human disturbance, unbalanced predator populations, habitat loss, sea level rise, and increasingly intense storms. Building on a successful foundation already created by Audubon, a sustained region-wide program includes monitoring for reproductive success and assessment of threats, community engagement and education, habitat and predator management, policy action, and law enforcement training and support. Audubon's vision for beach-nesting bird management includes buy-in from a coalition of federal and state agencies, local municipalities, public and private land managers, and other conservation organizations.

Link to Injury

A variety of beach-nesting bird species were directly affected by the BP *Deepwater Horizon* oil spill, cleanup activities during and after the spill, and subsequent habitat loss.

Benefits and Rationale

Nesting colonial waterbirds (terns, skimmers, and wading birds) and solitary nesting species (plovers, sandpipers, and allies) face a range of challenges, but are particularly vulnerable to human disturbance[23]. Addressing predator and human-disturbance threats has improved nesting and breeding productivity, and ultimately population size, in several populations of Piping Plovers. This can serve as an important conservation model for other species and regions. Improving reproductive success in beach-nesting birds across the Gulf Coast by implementing a sustained, coordinated, multidisciplinary approach is needed to reverse population declines by buffering populations against future sea level rise, human disturbance and habitat loss, unbalanced predator populations, and other threats like oil spills[24].

BLACK SKIMMER
Primary Habitat: **Barrier Islands**
Secondary Habitat: **Beaches**

SNOWY PLOVER
Primary Habitat: **Beaches**
Secondary Habitat: **Barrier Islands**

CLAPPER RAIL
Primary Habitat: **Estuarine Marsh**
Secondary Habitat: **Mangrove Swamp**

RED KNOT
Primary Habitat: **Intertidal Bars and Flats**
Secondary Habitat: **Barrier Islands**

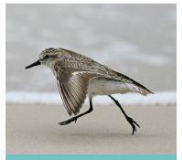
LEAST TERN
Primary Habitat: **Barrier Islands**
Secondary Habitat: **Beaches**

PIPING PLOVER
Primary Habitat: **Beaches**
Secondary Habitat: **Barrier Islands**

BROWN PELICAN
Primary Habitat: **Bay Islands**
Secondary Habitat: **Barrier Islands**

WESTERN SANDPIPER
Primary Habitat: **Intertidal Bars and Flats**
Secondary Habitat: **Beaches**

AMERICAN OYSTERCATCHER
Primary Habitat: **Intertidal Bars and Flats**
Secondary Habitat: **Barrier Islands**



SEMIPALMATED SANDPIPER
Primary Habitat: **Intertidal Bars and Flats**
Secondary Habitat: **Beaches**

REDDISH EGRET
Primary Habitat: **Bay Islands**
Secondary Habitat: **Intertidal Bars and Flats**

Texas

Audubon has been managing rookery islands along the Texas coast since 1923, when it established the first bird sanctuary, Green Island, in the state. Audubon leases and manages many of these islands, overseen by coastal wardens, for the protection of nesting birds. From Sabine Lake to the Laguna Madre, coastal islands support globally important bird populations, including 80 percent of the Reddish Egrets in the U.S. Despite great efforts to protect these birds, many islands are deteriorating in the face of increasing human encroachment, and adjacent foraging habitat is suffering from degraded water quality. RESTORE and NRDA dollars could help many of these islands, which serve as important refugia away from the immediate effects of the BP *Deepwater Horizon* oil spill, and could serve as a source population for regions to the east that may have been heavily affected by oil.

Reddish Egret

1 OPTIMIZING BENEFICIAL USE MATERIAL FOR COLONIAL WATERBIRD CONSERVATION ON CHESTER ISLAND

Restoration Approach	Project Location	Cost Estimate	Time Frame
Restore and conserve bird nesting and foraging habitat	Matagorda Bay, Texas	$820,000	2 years

Flagship Species	Likely Implementing Agency or Partnership
Brown Pelican, Reddish Egret, Least Tern	Audubon Texas, U.S. Army Corps of Engineers

Project Overview

Chester Island (previously Sundown Island) was constructed in 1963 with sediment dredged from the Matagorda Ship Channel. The island is a U.S. Army Corps of Engineers (USACE)-designated placement area for sediment dredged from the MSC and Gulf Intracoastal Waterway navigation channels. Audubon leases Chester Island from the Texas General Land Office and has managed it as a bird sanctuary since 1973. Audubon adaptively manages sediment placement on the island in a manner consistent with newly created design templates, thus minimizing the loss of new material to ongoing erosional forces and improving benefits to nesting birds. New material will be available from upcoming USACE projects and will be applied according to the design templates and the USACE's dredge schedule. Monitoring for post-placement sediment loss and bird nesting use will be conducted using high-resolution photography captured with drones and GIS spatial analysis of the photographs.

Link to Injury

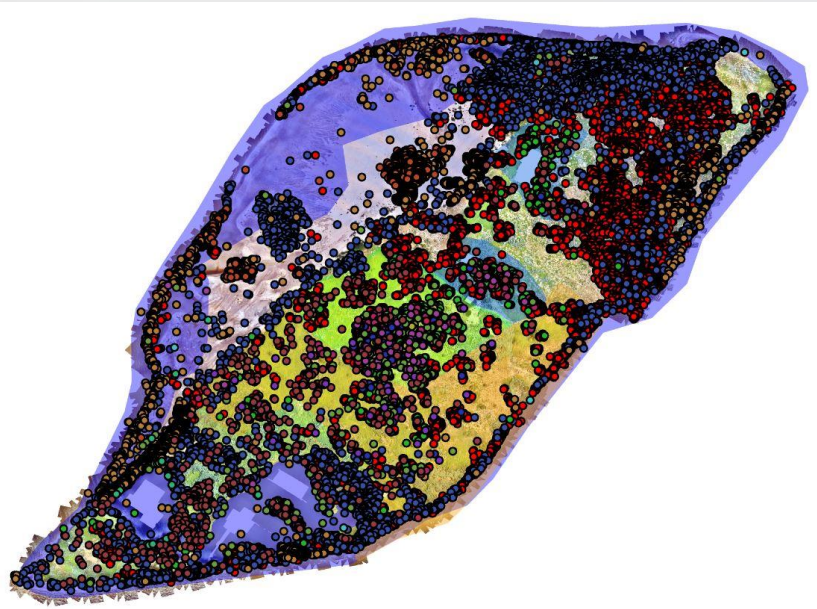
Chester Island is the largest and most productive colonial waterbird nesting site in Matagorda and San Antonio Bays. There are very few nesting islands available in the upper and middle coasts; therefore, restoration of this site is important to both sustain and recover populations of Reddish Egrets, Black Skimmers, Least Terns and Brown Pelicans, all of which were affected by the BP *Deepwater Horizon* oil spill.

Benefits and Rationale

Chester Island is one of only three islands consistently supporting more than 10,000 breeding pairs of colonial waterbirds in Texas. In 2017, Chester Island had 18,204 breeding pairs of birds, including Black Skimmers and Reddish Egrets. Repeated placement of dredged sediments has, in the past, buffered the island from erosion, and boosted both the diversity of colonial waterbird nesting habitat and the number of nesting pairs by as much as 25 percent in the year following sediment placement.

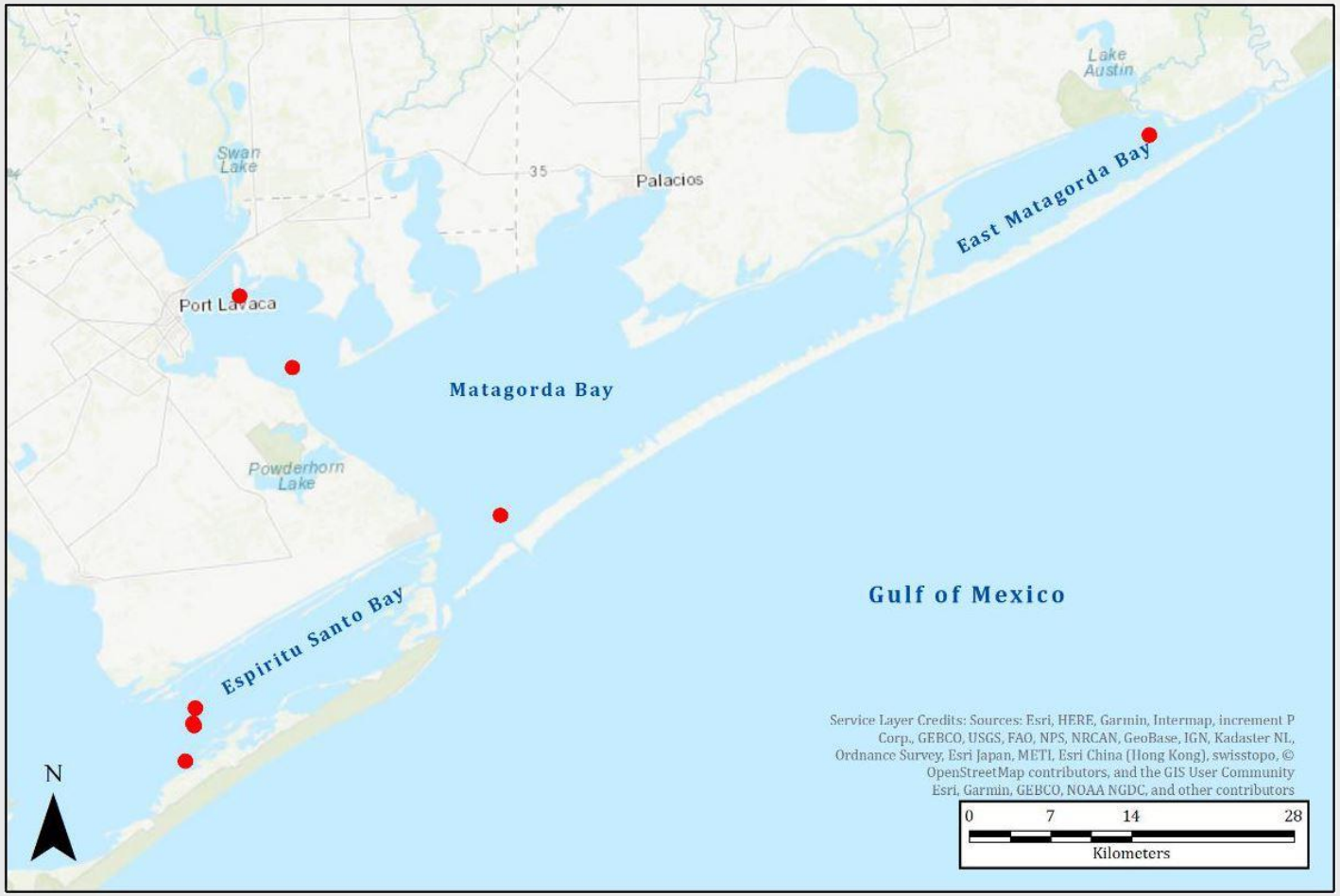
Chester Island is one of only three islands consistently supporting more than 10,000 breeding pairs of colonial waterbirds in Texas.

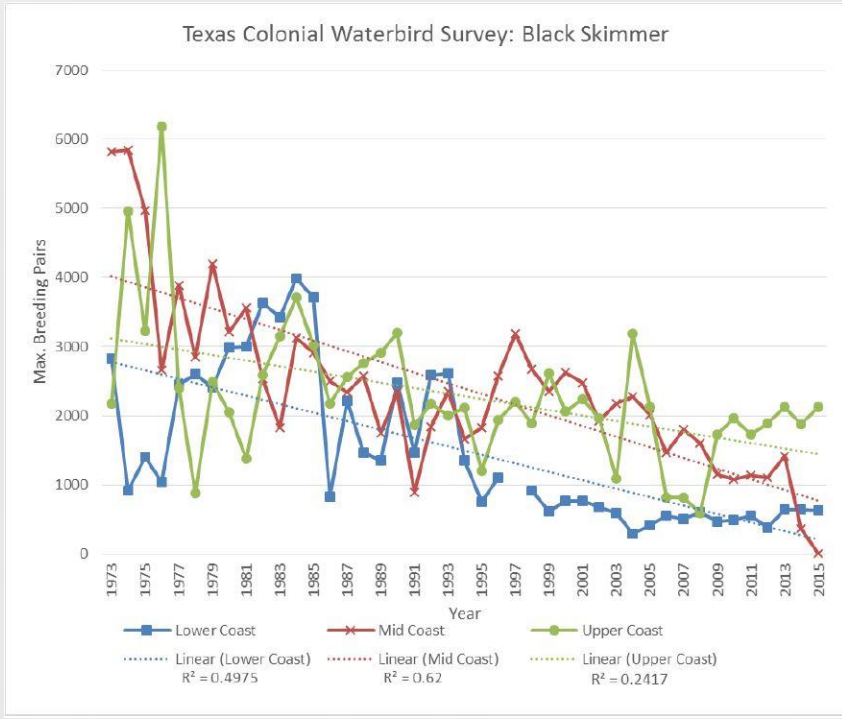
Surveys and Monitoring



	Estimated Breeding Pairs						
Species	2012	2013	2014	2015	2016	2017	Nesting Habitat
Black Skimmer	45	1	19	170	165	75	ground
Black-crowned Night-I	73	112	25	28	52	40	tree
Brown Pelican	2,922	3,375	3,274	3,572	4,069	3797	ground/tree
Caspian Tern		22	19		88	63	ground
Cattle Egret	30	107	30	33	46	30	tree
Great Blue Heron	134	80	140	105	63	57	tree
Great Egret	175	185	206	116	153	119	tree
Gull-billed Tern	32	6			8	2	ground
Laughing Gull	3,329	4,440	5,200	5,340	5,139	3950	ground
Little Blue Heron	6	1	16	1	25	7	tree
Neotropic Cormorant	2	9	27	3	29	43	tree
Reddish Egret - Red	179	99	95	75	56	62	tree
Reddish Egret - White	7	17	20	5	6	20	tree
Roseate Spoonbill	44	293	262	69	237	94	tree
Royal Tern	3,031	3,008	4,550	6,412	5,800	6410	ground
Sandwich Tern	582	350	1,050	4,340	2,800	2566	ground
Snowy Egret	203	207	158	22	89	161	tree
Sooty Tern				1			ground
Tricolored Heron	865	633	774	314	642	366	tree
White Ibis	185	273	205	241	285	342	tree
White-faced Ibis	9						tree
Total breeding pairs	**11,853**	**13,218**	**16,070**	**20,847**	**19,752**	**18,204**	

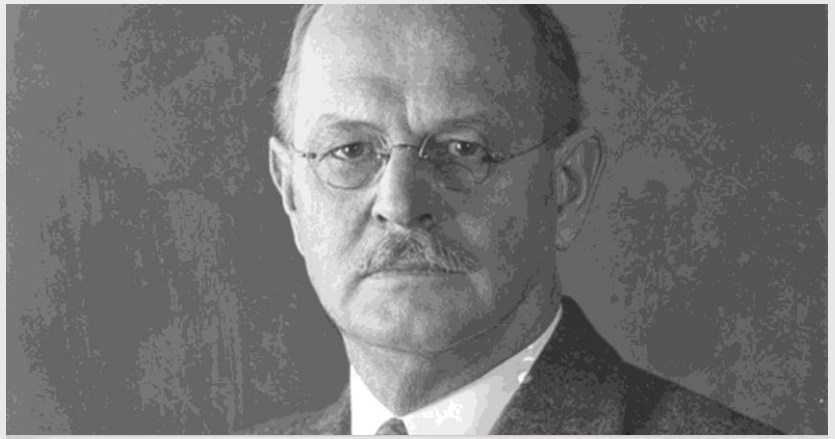
Chester Island's Importance





Texas Coastal Rookery Conservation Plan (2016)

- Threats to Colonial Waterbird Rookeries
  - HISTORICAL THREATS
  - Pollution, Trash, and Debris
  - Human Disturbance
  - Predation
  - Habitat Loss and Degradation



Texas Coastal Rookery Conservation Plan (2016)

- Threats to Colonial Waterbird Rookeries
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  - Human Disturbance
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Texas Coastal Rookery Conservation Plan (2016)

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  - Pollution, Trash, and Debris
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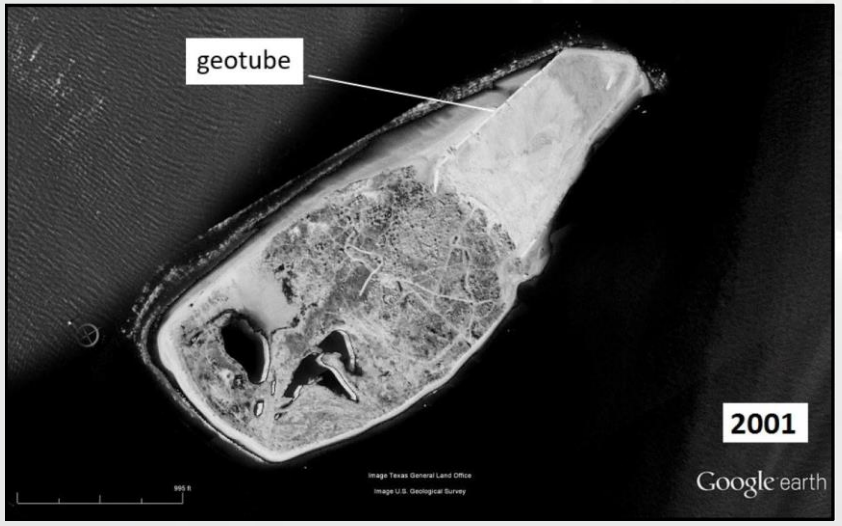
Texas Coastal Rookery Conservation Plan (2016)

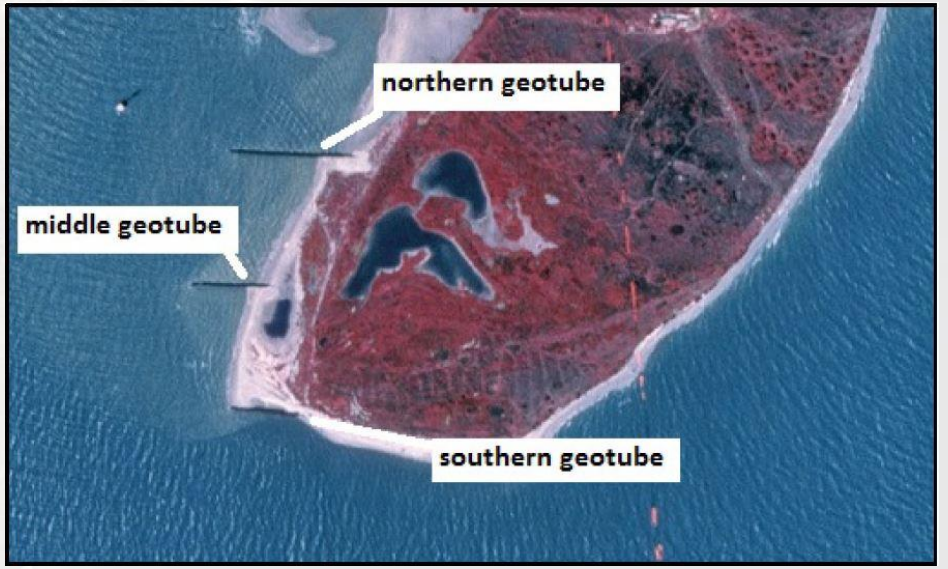
- Threats to Colonial Waterbird Rookeries
  - Historical Threats
  - Pollution, Trash, and Debris
  - Human Disturbance
  - Predation
  - HABITAT LOSS AND DEGRADATION

EROSION – Baseline and Storm Accelerated

Figure 23. Tall escarpment on southwest shoreline of island (photograph taken January 18, 2014)

EROSION – Existing Infrastructure





EROSION – Existing Infrastructure

Figure 13. Articulated concrete mat revetment along northeast shoreline of Sundown Island

Sundown Island Shoreline Protection and Restoration Project

Conceptual Design Alternatives Analysis

ATKINS

Audubon Texas

Audubon TEXAS

August 26 2014

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Chester Island Shoreline Protection and Habitat Restoration

Prepared for:

Audubon Texas
2201 Main St., Suite 600
Dallas, TX 75201

Audubon TEXAS

Prepared by:

FREESE AND NICHOLS, INC.
10431 Morado Circle, Suite 300
Austin, TX 78759
512-617-3100

December 2017

TEXAS COASTAL RESILIENCY MASTER PLAN

MARCH 2019

George P. Bush, Commissioner, Texas General Land Office

Chester Island Restoration *(Project ID R2-10)*

Region: 2

Location:
Island in southwest Matagorda Bay, east of Port O'Connor

County:
Matagorda

Status:
Shovel-ready

Stakeholders:
- Audubon Texas
- U.S. Army Corps of Engineers
- Texas General Land Office
- San Antonio Bay Partnership

Project Type:
Habitat Creation & Restoration; Shoreline Stabilization

Action:
Rookery Island Enhancement

Resiliency Strategy:
Ecological Resiliency (Rookery Island Protection, Restoration and Creation)

Jobs Created:
Creates approximately 65 jobs during construction.

Project Description
The project would slow the erosion of Chester Island by adding 30 acres of land using nearshore breakwaters to retain and build back soils. This project is shovel-ready and potential sites for beneficial use of dredged material (BUDM) have been identified to rebuild the eroded land. Funding for this project would pay for additional time and resources to place the BUDM material in a manner beneficial to the island's avian inhabitants.

Project Need
Chester Island is a U.S. Army Corps of Engineers dredged placement site that is eroding at a faster rate than material is being placed. The primary causes of erosion are high currents near the Matagorda Ship Channel jetties, wakes from the ship channel and Gulf Intracoastal Waterway, high tides, and strong wind-driven wave forces.

Project Benefit
Enhancing this critical bird habitat for the millions of migrating birds that fly through and nest on this rookery island will continue to allow the colonial waterbirds to flourish.

Estimated Total Project Cost: $4,500,000

Project Benefits Per Issues of Concern

Project Specific
Average for Region 2

Region 2 Action Locations

The Region 2 Actions enhance one of the least developed stretches of the Texas coast. This region looks towards implementing projects that restore, adapt and maintain ecological systems to continue to provide iconic habitats for outdoor recreational activities, such as fishing and bird watching.

The Colorado River Watershed extends to New Mexico before emptying in Matagorda Bay. (Photo Credit: Colorado River Alliance)

Rookery Island Enhancement
Matagorda Bay and San Antonio Bay are the central hubs that connect the upper and lower coasts' rookery islands, yet the bays are home to few large islands that serve this purpose. Similar to the entire Texas coast, this region's rookery islands play a role in the ability to support a wide range of bird species, benefiting nesting areas to grow bird populations and providing a food source for migratory species critical to the ecosystem's health. Within Region 2, this Action will focus on protecting the successful islands in Matagorda Bay and recreating islands in San Antonio Bay that used to exist along the barge canal, prior to their erosion.

Watershed Planning
One of the greatest needs for the region is to determine a sustainable path forward for Matagorda Bay's freshwater inflows. The numerous watersheds that feed the bay are under stress from pesticides, pollutants and water consumption, both from agricultural and urban communities. More extreme weather patterns have created cyclical drought and flood conditions, weakening the bay's ecological systems. This Action will focus on a collaborative effort between state agencies, researchers and communities. Leveraging the studies and monitoring that are underway will benefit development of a comprehensive path forward to stabilize and adapt the Matagorda Bay system to current and future inflow conditions.

EROSION – Proposed Interventions

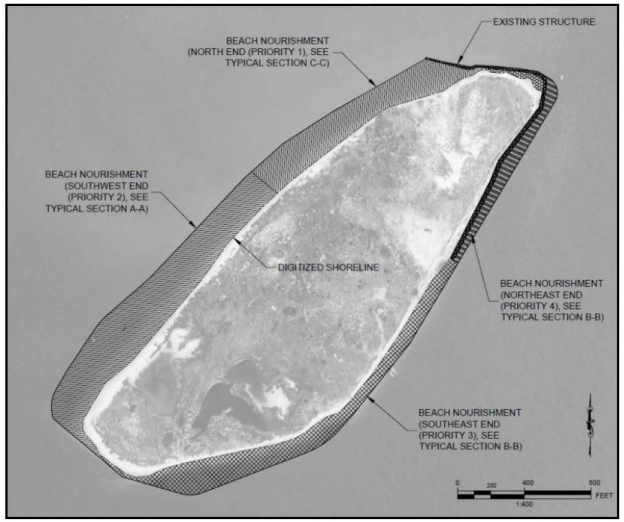
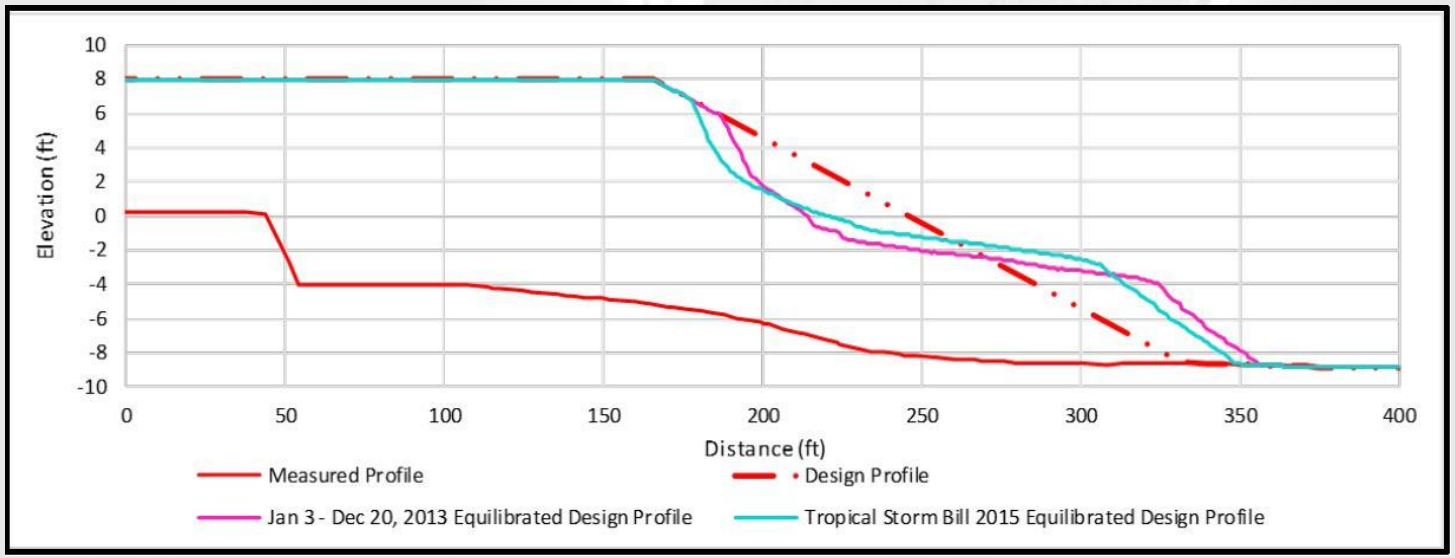


Figure 18. Beach nourishment conceptual plan view and priority areas

Alternative		Description	Item	Unit Costs Low	Unit Costs High	Quantities		Estimated Construction Costs Low	Estimated Construction Costs High
Alternative 1		Beach Nourishment	Mobilization/Demobilization	$350,000	$1,350,000	1	LS	$350,000	$1,350,000
			Dredge, Place, and Grade Sand	$7	$12	450,000	CY	$3,150,000	$5,400,000
							Total:	$3,500,000	$6,750,000
Alternative 2	Priority 1	Partial Nourishment	Mobilization/Demobilization	$140,000	$460,000	1	LS	$140,000	$460,000
			Dredge, Place, and Grade Sand	$10	$15	120,000	CY	$1,200,000	$1,800,000
	Priority 2		Mobilization/Demobilization	$220,000	$740,000	1	LS	$220,000	$740,000
			Dredge, Place, and Grade Sand	$10	$15	195,000	CY	$1,950,000	$2,925,000
	Priority 3		Mobilization/Demobilization	$130,000	$380,000	1	LS	$130,000	$380,000
			Dredge, Place, and Grade Sand	$15	$20	75,000	CY	$1,125,000	$1,500,000
	Priority 4		Mobilization/Demobilization	$100,000	$300,000	1	LS	$100,000	$300,000
			Dredge, Place, and Grade Sand	$15	$20	60,000	CY	$900,000	$1,200,000
							Total:	$5,765,000	$9,305,000
Alternative 3		Beach Nourishment with Structures including Terminal Jetties, Breakwaters, Y-Groins, & Groin Field	Mobilization/Demobilization (Sand Placement Only)	$350,000	$1,350,000	1	LS	$350,000	$1,350,000
			Dredge, Place, and Grade Sand	$7	$12	450,000	CY	$3,150,000	$5,400,000
			Rock Groins	$1,500	$2,000	1,100	LF	$1,650,000	$2,200,000
			Rock Breakwaters	$1,500	$2,000	1,400	LF	$2,100,000	$2,800,000
			Rock Y-Groin	$1,500	$2,000	800	LF	$1,200,000	$1,600,000
			Rock Terminal Jetties	$1,500	$2,000	1,100	LF	$1,650,000	$2,200,000
							Total:	$10,100,000	$15,550,000
Alternative 4		Beach Nourishment with Structures including Groin Fields and Submerged Breakwaters	Mobilization/Demobilization (Sand Placement Only)	$350,000	$1,350,000	1	LS	$350,000	$1,350,000
			Dredge, Place, and Grade Sand	$7	$12	450,000	CY	$3,150,000	$5,400,000
			Rock Groins	$1,500	$2,000	3,400	LF	$5,100,000	$6,800,000
			Submerged Rock Breakwaters	$1,500	$2,000	900	LF	$1,350,000	$1,800,000
							Total:	$9,950,000	$15,350,000
Alternative 5		Beach Nourishment with Structures including Terminal Jetties, T-Groins and Groin Field	Mobilization/Demobilization (Sand Placement Only)	$350,000	$1,350,000	1	LS	$350,000	$1,350,000
			Dredge, Place, and Grade Sand	$7	$12	450,000	CY	$3,150,000	$5,400,000
			Rock Terminal Jetties	$1,500	$2,000	1,100	LF	$1,650,000	$2,200,000
			T-Groins	$1,500	$2,000	2,200	LF	$3,300,000	$4,400,000
			Groin Field	$1,500	$2,000	1,600	LF	$2,400,000	$3,200,000
							Total:	$10,850,000	$16,550,000



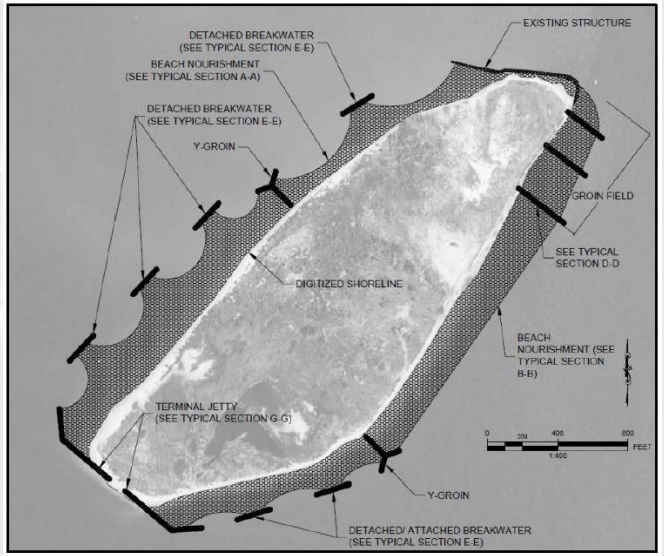


Figure 22. Plan View of beach nourishment with structures (Alternative 3)

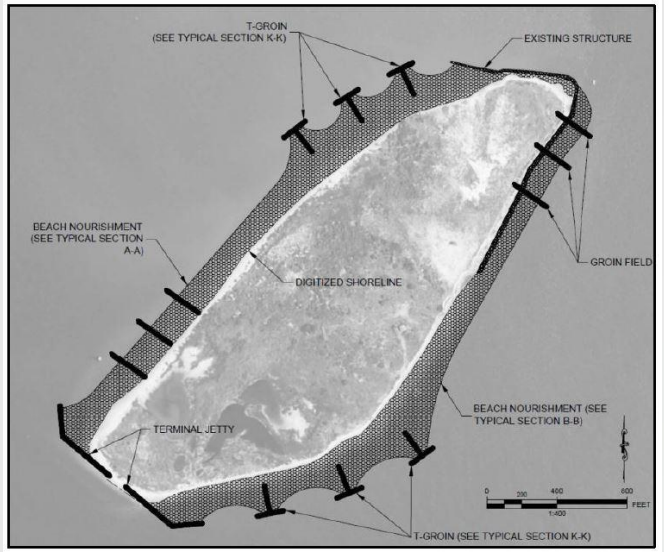


Figure 25. Plan view of beach nourishment with structures plan view layout (Alternative 5)

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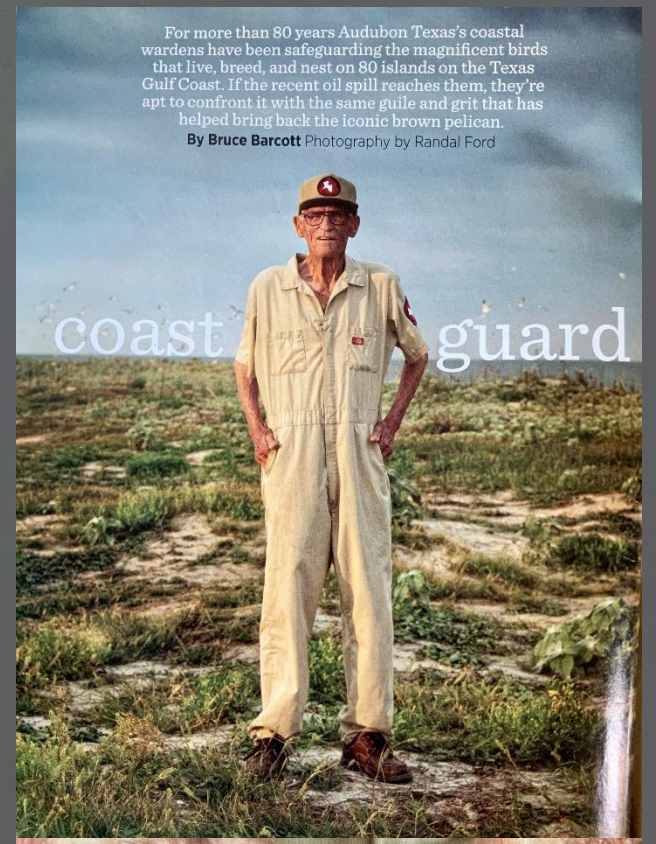

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Google Earth