Chester Island Bird Habitat Management and Protection

Contract # 25-003-008-E701

This report was funded in part by a Texas Coastal Management Program grant approved by the Texas Land Commissioner, providing financial assistance under the Coastal Zone Management Act of 1972, as amended, awarded by the National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management, pursuant to NOAA Award No. NA24NOSX419C0025. The views expressed herein are those of the author(s) and do not necessarily reflect the views of NOAA, the U.S. Department of Commerce, or any of their subagencies.

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FINAL REPORT

Contract #: 25-003-008-E701

Reporting Period: November 10, 2024 – March 31, 2026

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Cover photo: White Morph Reddish Egrets. Photo: Peggy Wilkinson.

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Project Overview

The Chester Island Bird Habitat Management and Protection project strengthened the resilience of Chester Island as a vital nesting site for colonial waterbirds along the central Texas coast. Implemented by Audubon Texas (National Audubon Society), the project enhanced and maintained nesting habitat, monitored breeding activity, and engaged the public about bird conservation through festivals, tours, and volunteer cleanups.

Key accomplishments included:

- Replacement and deployment of a tractor, which is essential habitat management equipment to support island management operations.
- Seasonal habitat management actions such as debris removal, invasive species control and predator monitoring to maintain productive colonial waterbird nesting habitat. Tree, shrub, unvegetated upland and beach habitat types occur on the island and were impacted by management actions
- Monitoring of 23 species of colonial waterbirds and submission of standardized data to the Texas Waterbird Society.
- Improved nesting habitat and outcomes for Black Skimmer, including a 2025 breeding season colony producing at least 26 chicks.
- Community outreach and education at regional events (e.g., Matagorda Bay BirdFest; Midcoast Birding Festival) and a community shoreline cleanup on Chester Island.

Task 1: Tractor Procurement

Audubon completed a lease-versus-purchase analysis with Shoppa's Farm Supply in Victoria, Texas, which confirmed that leasing was not available for the tractor size required for island operations. Following written approval from the Texas General Land Office (GLO), Audubon finalized purchase, removed the old tractor (photo 1), and delivered the new unit to Port O'Connor for barge transport to Chester Island on November 13, 2024 (photos 2 and 3). The tractor now supports vegetation management, bare-ground maintenance and overall stewardship activities for colonial waterbirds on Chester Island.

Photos 1 and 2. Left photo: Old tractor after removal from Chester Island and arrival onshore before hauled away. Right photo: New tractor arrival on Chester Island with attachment for bare ground restoration. Both photo credits: Tim Wilkinson.

Photo 3. New tractor on Chester Island shoreline with box blade attachment for bare ground restoration. Photo: Tim Wilkinson.

Task 2: Habitat Management

Seasonal habitat management ensured Chester Island remained suitable for colonial waterbirds. Site assessments in fall of 2024 and 2025 guided winter 2024 and 2025 management actions. Completed activities included shoreline debris removal (photos 4, 5, 6, and 7), mowing for invasive vegetation control, sign replacement and new sign installation (photo 9), bilingual sign installation (photo 8), fire ant treatment (photos 10, 11, and 12) and predator monitoring. Using the new tractor with a box blade attachment, staff restored and maintained bare-ground nesting areas for ground-nesting species such as Sandwich Tern, Royal Tern, Caspian Tern and Black Skimmers. Following use of the box blade, staff applied herbicide (photo 13) to reduce vegetation encroachment on bare ground nesting areas. The tractor purchased through this grant was used to maintain the bare ground habitat for these ground-nesting colonial waterbird species.

Photo 4 and 5. Volunteer work day at Chester Island to remove marine debris in 2024. Photo credits: Peggy Wilkinson.

Photo 6 and 7. Right: Volunteer work day to remove marine debris at Chester Island during winter 2025. Photo credit: Peggy Wilkinson. Left: Additional marine debris removal, February 2026. Volunteer Peggy Wilkinson shown helping lead clean-up efforts. Photo credit: Tim Wilkinson

Photo 8 and 9. Signs installed on Chester Island during winter 2025. Sign on the left is translated into Spanish and Vietnamese. Sign on the right is in English. Photo credit left: Tim Wilkinson. Photo credit right: Peggy Wilkinson.

Photo 10 and 11. Red invasive fire ant control measures. Ant bait spreading actions during winter 2024. Photo credit, right: Tim Wilkinson. left: Peggy Wilkinson.

Photo 12. Areas treated with ant bait during winter 2025-2026 management season. Photo: Hank Arnold.

Photo 13. Herbicide treatment, winter 2024, after box blade treatment. Photo credit: Peggy Wilkinson.

Task 3: Breeding Season Monitoring

Audubon conducted breeding season monitoring to assess nesting activity and potential disturbances. In May 2025, the team completed a rookery survey using both drone-based imagery and ground-based counts, following Texas Waterbird

Society protocols. Audubon staff coordinate volunteers (photo 14) to assist with the on-the-ground counts. Monitoring documented 23 species of colonial waterbirds during May of 2025. The total estimate for breeding pairs during the 2025 count was 21,681 pairs. Black Skimmers had a successful colony producing at least 26 chicks in 2025. Disturbance monitoring identified one minor trespass incident, which informed future multilingual signage enhancements. Annual monitoring data and the disturbance summary were submitted to the Texas Waterbird Society and the GLO. Annual monitoring workbook and disturbance summary included in Appendix A. Photos of nesting waterbirds included in photos 15, 16, 17, 18 and 19.

Photo 14. Chester Island monitoring crew including Audubon staff and volunteers for 2025 breeding season ground count. Photo credit: Brigid Berger.


Photo 15 and 16. Two species of nesting birds observed on Chester Island during 2025 monitoring survey. Left: Reddish Egret (white morph). Right, Brown Pelicans. Photo credits: Peggy Wilkinson.


Photo 17 and 18. Right: Black Skimmers nesting on Chester Island, photo: Tim Forrester. Left: Black Skimmer chicks on Chester Island. Taken from a safe distance with a high magnification zoom lens, photo: Hank Arnold.

Photo 19. Black Skimmer colony photographed from a drone. Red circles indicate presence of a chick. Photo: Hank Arnold.

Task 4: Outreach and Community Engagement

Audubon staff engaged residents and visitors through educational outreach and hands-on events. Activities included participation in the Matagorda Bay BirdFest in March 2025 with a parade float, education table, and presentations (photos 20 and 21). Audubon also attended the Midcoast Birding Festival and guided coastal birding tours and shared a presentation about Chester Island (photos 22, 23 and 24). Audubon partnered with the San Antonio Bay Partnership to conduct a Chester Island shoreline cleanup (October 13, 2025). Outreach emphasized responsible recreation, habitat protection, and minimizing disturbance to nesting birds. Throughout our outreach activities we emphasized our Share the Shore campaign (materials included in Appendix B) and encourage coastal residents and visitors to be "bird-friendly beach goers.

Photo 20 and 21. Left: Matagorda Bay Birdfest float, photo: Marisa Heymach. Right: Richard Gibbons presenting.


Photo 22 and 23. Midcoast Birding Festival outreach. Left: Alexis Baldera presenting about Chester Island. Right: Tim Forrester leading a birding tour. Photo credits: Brigid Berger.

Photo 24. Midcoast Birding Festival outreach. Audubon team on boat to guide community tour of Matagorda Bay with emphasis on Chester Island. Photo: Brigid Berger.

Project Milestones

Date	Milestone / Outcome
Nov 13, 2024	New tractor delivered to Port O'Connor; barged to Chester Island and deployed for management. Old tractor removed.

Dec 2024 – Feb 2025	Winter habitat management: debris removal, mowing, fire ant treatment, predator monitoring, box blade bare ground grading, herbicide application.
Mar 7–9, 2025	Matagorda Bay BirdFest outreach: parade float, education booth, two presentations.
May 1–4, 2025	Midcoast Birding Festival: six tours and five presentations.
May 21–22, 2025	Annual rookery survey (drone + ground methods); data processing and submission initiated.
Jun–Jul 2025	Data digitization and Texas Waterbird Society submission; Black Skimmer colony monitored (26 chicks).
Oct 13, 2025	Community shoreline cleanup on Chester Island with San Antonio Bay Partnership.
Nov 13–14, 2025	Texas Waterbird Society conference participation and project update.
Dec 2025 – Feb 2026	2025 winter management: sign installation, marine debris removal, ant control, moving, predator monitoring (no mammals detected).

Project Outcomes

Chester (Sundown) Island in Matagorda Bay remains a cornerstone of colonial waterbird conservation, supporting more than 20,000 nesting pairs annually across a variety of habitats. Over the course of this project, Audubon Texas strengthened its capacity to actively manage and protect this critical habitat through the acquisition and deployment of a replacement tractor, ensuring the continuation of essential vegetation management activities. These efforts were complemented by habitat restoration actions, including the removal of invasive species and enhancement of bare-ground nesting habitat. Ongoing monitoring documented a robust community of 23 colonial waterbird species, with notable improvements in Black Skimmer nesting success, while routine predator surveys confirmed the absence of mammalian predators during the reporting period.

Beyond on-the-ground habitat work, the project advanced community engagement and data-driven conservation. Audubon Texas connected with local audiences through festivals, tours, presentations and volunteer shoreline cleanups. Audubon also submitted standardized monitoring data and disturbance reports to relevant agencies. Key lessons from this work highlight the importance of aligning equipment capacity with ecological needs to maximize habitat gains, expanding multilingual signage to reduce human disturbance, and integrating drone imagery with traditional ground surveys to improve monitoring efficiency and accuracy. Additionally, maintaining dedicated, on-island equipment proved critical for ensuring timely and reliable habitat management. Together, these outcomes position Chester Island for continued success as a resilient and productive nesting site, while reinforcing its role in supporting both coastal bird populations and the regional ecotourism economy.

Appendix A: 2025 Monitoring Worksheet

2025 Chester Island Nest Survey - Combo 5/20 (Aerial), 5/22 (Ground)

	Pink+Blue+Yellow+Green Teams (DAN, TREY, BOB, BRENT)		Orange Team (BRIGID)		Drone-only Remaining Area (HANK, TIM)		Total	Total	Factor for Adults (from Brent)	2025 DRONE + HUMAN COUNT OF NESTING PAIRS
	Nests	Adults	Nests	Adults	Nests	Adults	Nests	Adults		
Brown Pelican	1720		780		2,185		4,685		1	4,685
N. Cormorant		84						84	1	84
Great Blue Heron	223			5		1	223	6	1	229
Great Egret	562			2		1	562	3	1	565
Snowy Egret		66		149		2		217	1	217
Little Blue Heron		1		2				3	1	3
Tricolored Heron		472		363		285		1,120	1	1,120
Reddish Egret		33		2		1		36	1	36
red		27		2		1		30	1	30
white		6		0		0		6	1	6
Cattle Egret		16		213				229	1	229
B-c Night-Heron		131		18				149	2	75
White Ibis		737		14		12		763	1	763
Roseate Spoonbill		143		12				155	1	155
Laughing Gull		1,052		1,100		1,117		3,269	1.111	2,942
Gull-billed Tern	17						17		1.4	17
Caspian Tern	4						4		1.42	4
Royal Tern	7307				575		7,882		1.4285	7,882
Sandwich Tern	2569				27		2,596		1.4285	2,596
Sooty Tern	1						1			1
Black Skimmer	72						72		2	72
Cr. Caracara		4						4	2	2
American Avocet				2				2	1	2
Black-necked Stilt						1		1	1	1
American Oystercatcher		2						2	2	1
TOTALS	12,475	2,741	780	1,882	2,787	1,420	16,042	6,043		21,681

Chester Island 2025 Seasonal Disturbance Summary
Audubon Texas Coastal Program
Reporting period: March – August 2025

Overview
The 2025 nesting season at Chester Island was marked by low levels of human and natural disturbance. Two discreet disturbance events were documented, one related to recreational boating and one related to Audubon's monitoring efforts. Due to low disturbance, including no tropical storm or predator events, the colony remained strong throughout the season and 21,681 pairs of nesting birds were documented nesting on the island. No tropical storms or hurricanes occurred during the 2025 season. Warden, Tim Wilkinson, observed recreational fishermen fishing the waters surrounding Chester Island on nearly all of his island visits during the breeding season. No boats were observed close enough to the colony to cause birds to leave their nests this season.

Disturbance Summary Table

Date	Disturbance Type	Source	Duration / Intensity	Species Affected	Observed Impact	Management Response
May 15	Human	Recreational boat landing and walking through colony	Moderate	Black Skimmer, Royal Tern, Sandwich Tern	Extended flushing	Enhance signage; expand outreach
May 22	Human	Monitoring	Low	Mixed colony	Temporary flushing	Shorten on site monitoring duration by expanding drone use.

Notable event
The largest disturbance events occurred in mid-May, when three people were observed landing on Chester Island and walking through the colony. Photos of the event were captured by graduate students at Harte Research Institute and are included below. This human disturbance event was concentrated along the western shoreline, suggesting continued need for expanded signage, and possible trespassing enforcement. Harte Research Institute graduate student biologists were nearby monitoring the colony with a drone. When the disturbance event was observed they consulted with Warden Wilkinson before engaging with the people. The people on the island only spoke Spanish which presents a language barrier to reading posted signs. To prevent future language barriers, Audubon will be adding signs in Spanish and Vietnamese during winter 2025 management activities. Following this event, the disturbed tern colony returned to their nests. The disturbed tern colony was monitored throughout the season and successfully fledged chicks.

Planned Management Actions for winter 2025:

- Replace and add multilingual “Do Not Land” signs,
- Conduct outreach with local boating groups,
- Continue early-season warden patrols for 2026.

Photo 1. People walking on Chester Island during nesting season. Photo credit: Liam Wolff.

Photo 2. People walking on Chester Island during nesting season. Photo credit: Liam Wolff.

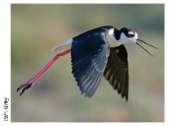
Photo 3. Route of observed disturbance.

Appendix B: Outreach and Engagement Materials

Share the Shore postcard and sticker:

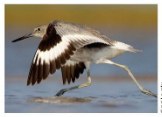
Boater Guide: Six Ways to Protect Texas Birds

Breeding Birds of the Texas Coast: Trifold Brochure



Black-necked Stilt • L 14" • Common, trend unknown • Slender shorebird with long reddish-pink legs, black upperparts, white underparts, and long, thin, black bill • Nests on vegetation clumps over water • Stands or wades slowly through shallow water to catch prey

Willet • L 15" • Common, status unknown • Large, drab, gray-brown shorebird with long bill and legs – in flight shows distinctive black and white wing stripe • Solitary ground nester amid marsh or beach grasses • Forages on beaches and tidal flats



Laughing Gull • L 16" • Abundant, increasing • Breeding adult has black hood, reddish-black bill, and dark gray back with white underparts –juveniles are varying shades of brown • Nests in large colonies • Opportunistic feeder; will take eggs and young of other birds

Caspian Tern • L 21" • Common, stable • Large tern with thick red bill and black cap • Nests with other terns and gulls on bare or sparsely vegetated ground • Dives to capture fish near the water's surface

Gull-billed Tern • L 14" • Local, declining • Mid-sized tern – breeding adults have black cap, short, sturdy, black bill, pale gray upperparts • Nests in small colonies on bare to sparsely vegetated ground • Makes long, swooping dives to capture aquatic prey

Royal Tern • L 20" • Common, increasing • Similar to Caspian Tern, but with thinner orange bill – adults have black cap, non-breeders partial cap • Nests in large, mixed-species colonies on bare to sparsely vegetated ground • Plunge-dives to catch fish, also eats crabs and shrimp

Sandwich Tern • L 15" • Common, increasing • Mid-sized tern with shaggy black cap, slender, black bill with yellow tip • Nests in groups, usually with Royal Terns, on sandy or shelly ground with little vegetation • Dives to catch fish near water's surface – also eats crustaceans

Forster's Tern • L 13" • Local, declining • Mid-sized tern with black cap, orange bill with black tip, and orange legs • Nests on the ground in smaller colonies amid marsh and grasses • Plunge-dives to capture prey

Least Tern • L 9" • Uncommon, declining • Smallest local tern – yellow bill and legs, white forehead, black cap • Nests in sparse colonies on bare, sandy or shelly ground • Hovers and plunge-dives to catch small fish and shrimp

Black Skimmer • L 18" • Common, decreasing • Large, black bird with white underparts, neck, and forehead – large, red and black bill with lower bill longer than upper • Nests in groups on bare ground, sometimes with Least Terns • Feeds by skimming surface of water with bill, snapping up prey by feel

American Oystercatchers: Chuck Tague

Fun Waterbird Facts

- Waterbirds take a wide variety of prey, including fish, crustaceans, snails, shellfish, worms, amphibians, reptiles, and insects. **Roseate Spoonbills** are pink because the crustaceans they eat contain pink pigmentation.
- The **Killdeer**, like many plovers, will feign a wing injury if you get too close to its nest. This behavior is called a broken-wing display, and is used to lure predators away from the nest.
- Like owls, many fish-eating birds, such as terns and **Black Skimmers**, regurgitate "pellets" – non-digestible parts of their prey such as bones or scales.
- The **American Oystercatcher** has a laterally compressed bill that allows it to easily pry open shellfish to reach its soft-bodied prey inside.
- **Terns** and **Black Skimmers** display a behavior called "mobbing", flying up as a group to dive-bomb people, dogs, or predators that approach their nesting colonies. Agitated birds will peck at and defecate on intruders, so steer clear of nesting colonies!
- **Black Skimmers** rest in a strange position – they lay flat on the ground with their heads stretched out in front of them. "Rest assured" they aren't dead!

Coastal Bend Bays & Estuaries Program
1305 N. Shoreline Blvd., Suite 205
Corpus Christi, Texas 78401
361.885.6202 • www.cbbep.org

Gulf Coast Bird Observatory
103 Hwy 332 West
Lake Jackson, TX 77566
979.480.0999 • www.gcbo.org

American Bird Conservancy
4249 Loudoun Avenue
The Plains, VA 20198
540.253.5780 • www.abcbirds.org

Audubon Texas
510 S. Congress Ave., Suite 102
Austin, TX 78704
512.782.0895 • www.tx.audubon.org

Sources: *Sibley Field Guide to Birds* (2003), Birds of North American Online (Cornell Lab of Ornithology, 2011)

Great Egret: ClipArt.com
COVER PHOTO: Naples Daily News/David Albers

Breeding Birds of the Texas Coast

A Fisherman's and Boater's Bird Guide

February – August

Fish, Swim, and Play From 50 Yards Away!

Why Birds are Important

- Bird abundance is an important indicator of the health of coastal ecosystems
- Revenue generated by hunting, photography, and birdwatching helps support the coastal economy in Texas

Threats to Island-Nesting Bay Birds

- Habitat loss from erosion and wetland degradation
- Predators such as raccoons, feral hogs, and Laughing Gulls that eat eggs and young
- Disturbance from humans and their pets
- Entanglement in discarded or lost fishing tackle and other debris


Cattle Egret nestlings


Tricolored Heron nestlings

How to Avoid Disturbing Birds

"Fish, Swim, and Play From 50 Yards Away!"

— Gary P Nunn, the Music Ambassador of Texas

- Obey posted areas where groups of birds are nesting on islands
- Anchor your vessel at least 50 yards away from nesting islands
- Keep children and pets away from nesting islands
- Move away from nesting birds if they increase vocalization, fly off their nests, or otherwise move away from you
- Do not leave discarded fishing tackle behind–dispose of it properly on the mainland
- If you see someone destroying nests or disturbing a nesting colony of birds, please contact:

Texas Parks & Wildlife at 1-800-792-GAME (4263)

Breeding Birds *of the* Texas Coast

American White Pelican • L 62" • Common, increasing • Large, white bird with black flight feathers and bright yellow bill and pouch • Nests in groups on islands with sparse vegetation • Preys on small fish in groups

Brown Pelican • L 51" • Endangered in Texas, but common and increasing • Large gray-brown bird with distinctive bill and pouch – breeding adults have yellow head with dark brown neck • Colonial nesters on islands with dense vegetation and low shrubs • Plunge-dives to feed on fish

Great Blue Heron • L 46" • Common, slightly decreasing • Largest heron– overall gray-blue with yellowish bill – will extend and coil long neck • Nests colonially on islands in mangroves • Wades to feed on a wide variety of prey

Great Egret • L 39" • Common, slightly decreasing • Large, white wading bird with long, orange-yellow bill and black legs; during breeding season has long plumes on back and lime-green skin around eyes • Nests in groups among other species on mangrove islands • Wades or waits motionlessly to capture fish or other prey

Snowy Egret • L 24" • Common, decreasing • Small, white egret with long black bill - yellow feet contrast with dark legs; yellow skin around eye • Nests in mixed-species colonies among shrubs • Slowly wades through water with neck extended in search of prey

Tricolored Heron • L 26" • Common but decreasing • Mid-sized heron; slate gray back and dark breast with contrasting white belly • Nests in mixed-species colonies on islands in dense vegetation • Chases fish through water, crouching low and quickly stabbing bill to catch prey

Reddish Egret • L 30" • Threatened in Texas, decreasing • Dark morph has slate-gray body with reddish breast, neck, and head; white morph completely white – both have pink bill with black tip; shaggy-looking plumage • Nests in mixed-species colonies in low vegetation or on ground • Uses quick, erratic movements to stir up prey

Little Blue Heron • L 24" • Uncommon, decreasing • Smaller wader; entirely blue-gray with long, greenish legs and bluish bill – immature birds are white with or without blue mottling • Nests in mixed-species colonies on islands in low shrubs or mangroves • Slowly wades through water with a stiff, extended neck in search of prey

Cattle Egret • L 20" • Common, stable • Smallest white egret, with stocky body, short legs, rusty-buff plumes on back, chest, and head, and reddish-orange bill • Nests in mixed-species groups on vegetated coastal islands • Usually seen foraging in agricultural areas inland; feeds on insects

Black-crowned Night-Heron • L 25" • Common, decreasing • Mid-sized, nocturnal heron with short legs and neck – black cap and back, gray wings and tail, and red eyes. Juveniles are brown with white streaking • Nests in groups on islands in shrubs or mangroves • Crouches at water's edge waiting to strike and capture fish and other prey

White Ibis • L 25" • Common, stable • White, mid-sized wader with long, downward-curving, red-orange bill and legs. Juveniles mottled brown • Nests on mangrove islands • Uses touch-sensitive bill to probe shallow water and soft mud in search of food

Roseate Spoonbill • L 32" • Uncommon, declining • Unmistakable pale pink wading bird with a long bill ending in flat "spoon" • Nests on islands in vegetation • Wades slowly through water, sweeping touch-sensitive bill side to side in search of prey

Black-bellied Whistling-Duck • L 21" • Locally common, increasing • Goose-like duck with long neck and pink legs, pinkish-red bill, black belly, and white eye-ring • Nests in tree cavities • Occasionally nests in mesquite and other woody vegetation on bay islands • Feeds on plants and seeds in shallow water

Clapper Rail • L 14.5" • Locally common, trend unknown • Thin, chicken-like bird, grayish to rusty brown with long, orange bill • Nests in clumped grasses or low in forks of woody vegetation • Forages alone among mangroves and along marsh edges

Killdeer • L 10.5" • Common, decreasing • Large plover with double black neck band and red eye ring • Solitary nester on bare ground, gravel, or sandy/shell-based surfaces • Forages on land or water's edge

Snowy Plover • L 6.25" • Uncommon, decreasing • Small pale brown-gray plover with black forehead stripe and ear patch, and partial neck band –black bill and gray legs • Solitary nester on sandy or shelly ground • Feeds on ground or on tidal flats

Wilson's Plover • L 8" • Uncommon, decreasing • Mid-size plover with single neck band, thick black bill, and white forehead • Nesting on sandy bare ground, often among Least Tern colonies • Eats mostly crustaceans, including crabs, crayfish, and shrimp

American Oystercatcher • L 17" • Common, stable • Black and brown with white underside; large, laterally-flattened, reddish-orange bill and red eye ring • Nests on shores and dredge spoil islands with little to no vegetation • Forages on tidal flats for shellfish