Audubon

AFTER DEEPWATER HORIZON:

A Decade of Audubon Efforts to Restore a Resilient Gulf of Mexico

April 2020

Photo: Brad Lewis

Photo: Collette Lauzau

Photo: Jean Hall

Introduction

On April 20, 2010, the *Deepwater Horizon* oil rig exploded: a tragedy taking 11 lives, injuring 17, and sending 210 million gallons of crude gushing into the Gulf of Mexico. The effects of the resulting oil spill, regarded as one of the worst environmental disasters in U.S. history, continue to reverberate across the region. The wellhead was so deep underwater that teams working around the clock could not plug the leak until mid-July, wreaking havoc in coastal communities from Texas to Florida. Those who loved the Gulf could do nothing but wait and watch, as the oil drifted ever-closer to their fisheries, beaches, and wildlife.

In the early days of the spill, Audubon stepped up to organize the rafts of volunteers wanting to help: setting up transports to move oiled birds from the shore to rehabilitation centers, protecting beach nesting birds from accidental harm by emergency clean-up teams, and planning for future restoration.

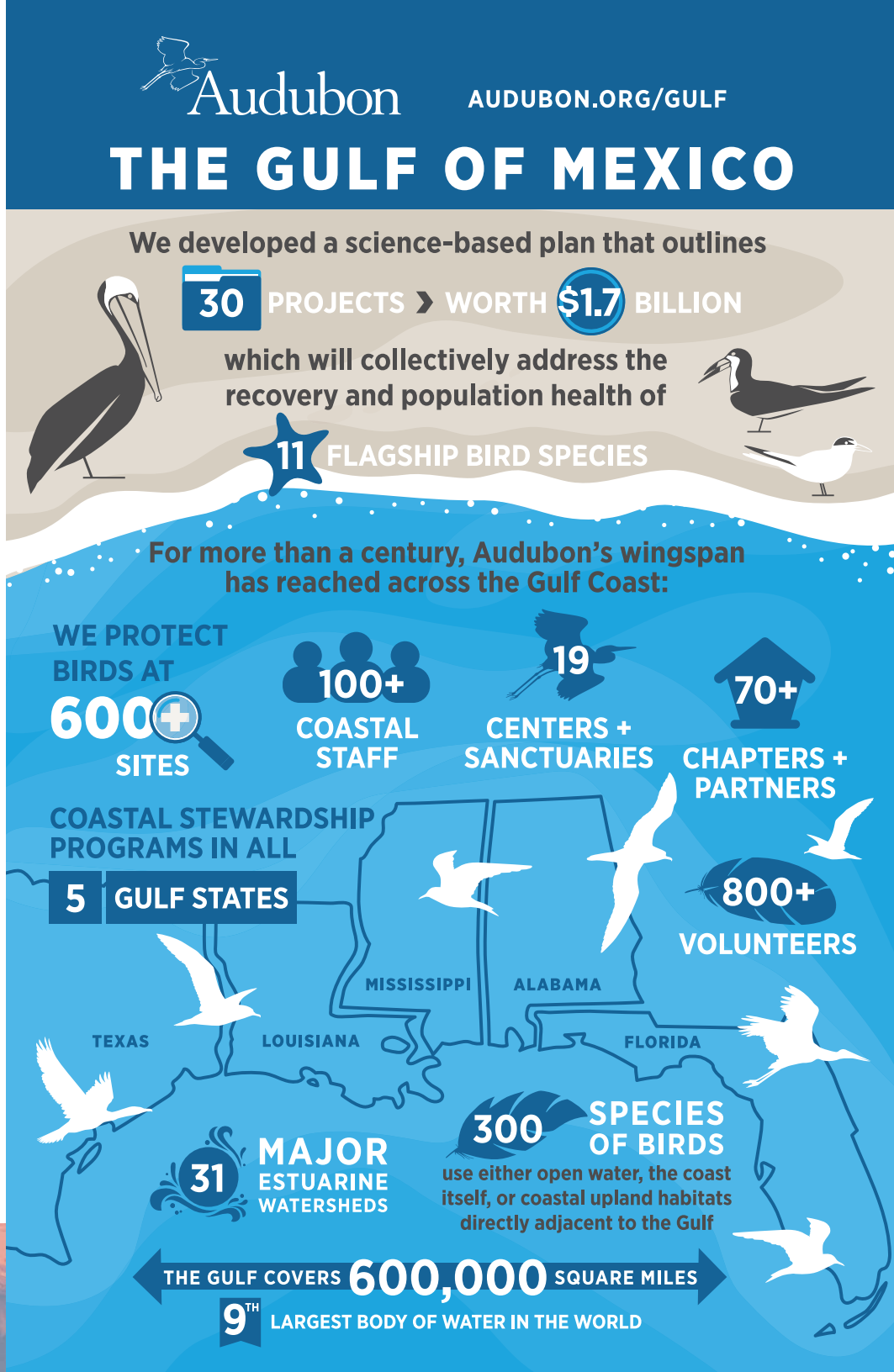
Despite efforts to burn, skim, disperse, or otherwise contain the spewing crude, an estimated 75% of the oil from the disaster still remained in the Gulf environment.

On December 15, 2010, the United States filed a complaint in District Court against British Petroleum Exploration & Production (BP) and several other defendants alleged to be responsible for the spill. A record-setting settlement resulted in an unprecedented $5.5 billion Clean Water Act penalty and up to $8.8 billion in natural resource damages. Additionally, BP paid $100 million for the incidental take of birds under the Migratory Bird Treaty Act.

As we mark the 10th anniversary of the *Deepwater Horizon* spill this year, Audubon continues to be a leader in Gulf coast resilience, science, and conservation, investing in multi-state bird monitoring efforts, education programs, habitat protection, living shorelines, and more. Though the spill remains in our rear-view mirror, a moratorium on oil and gas exploration in the eastern Gulf of Mexico drilling is scheduled to expire in 2022, making Florida and its coastal ecology and economy more vulnerable to future disasters.

Read on to join us as we trace the contours of the oil spill disaster to remind us how far we have come, and how far we still have to go to protect the Gulf and the resources its people and birds need now and into the future.

Photo: Kim Hubbard



Audubon staff and volunteers were the eyes and ears on the coast, identifying the unintended impact of spill response activities on birds and advocating for birds that can't speak for themselves.

Brown Pelican. Photo: Dennis Stewart

Brown Pelicans Return

A STORY OF HEALING AND RESILIENCE

After the spill, residents and visitors across the Gulf were enraged, upset, even hopeless. Quickly however, they united across states and coastal communities through their desire to help.

More than 12,000 volunteers joined the effort within a single week in May. The Audubon Volunteer Response Center was established in June 2010 in Moss Point. Over the course of five months, Audubon engaged more than 37,000 volunteers nationally.

Building on already existing coastal monitoring programs in Florida, Audubon recruited and trained 68 volunteers across four states to survey more than 60,000 birds on the coast for six straight months in 2010, and to watch for more oiled populations.

Thanks to this work, Audubon volunteers found 982 oiled birds across 33 species. The rescue effort was driven by Erik Johnson, then a graduate student at Louisiana State University (now Director of Bird Conservation at Audubon Louisiana), and has grown into the Audubon Coastal Bird Survey. Ten years later, the survey continues to record seasonal data on bird populations.

After rehabilitation, researchers gave oiled birds permanent jewelry to help them learn about the animals' recovery in the form of uniquely numbered leg bands.

In the aftermath of the BP *Deepwater Horizon* disaster, oiled Brown Pelicans became one of the tragedy's most iconic victims. As one of Florida's largest seabirds, Brown Pelicans flock together to breed in colonies. Flying low over the waves, they look for baitfish schooling at the water's surface, then rise into the air before spiraling back down in an aerial dive as majestic as it is powerful. A slight tilt to their heads prevents injury as they hit the water with a splash, scooping up fish in their large, expandable pouched bills.

Across the Gulf Coast, Brown Pelicans are now a common sight — but they were once quite rare.

Dispersants: Testing an Unknown Chemical

Dispersants: Chemicals that break down oil into small droplets, which are more likely to dissolve in sea water.

The U.S. Coast Guard Unified Command arranged planes to drop dispersants across the surface of the slick with hopes of preventing oil from reaching the shoreline. Even though the oil isn't technically removed from the water, dispersed or diluted oil was thought to be less damaging to marine life in the initial emergency stage of the disaster.

Audubon's Reid Bishop conducting a field assessment of oil levels on a beach five months after the Deepwater Horizon Oil Spill, Plaquemines Parish, Louisiana, September, 14, 2010.

The Environmental Protection Agency identified Corexit® as a permissible dispersant based on toxicity data from the manufacturer; however, some toxicologists questioned the product's reliability and product testing effectiveness, which was limited to short-term studies on a limited number of species.

The effect of dispersants used in large quantities was another unknown. One Coast Guard captain was quoted as calling it a "tradeoff of bad choices," between applying dispersants or watching crude oil the shores. After twelve weeks of dropping these toxic chemicals on the surface, oil remained beneath the surface, out of reach of the dispersants, spread out in the water column where it could still harm marine life.

Subsequent research confirmed that dispersed oil is still toxic in both the short and long term. Bacteria is sensitive to oil, but phytoplankton, the primary producers of oxygen on the planet, are even more sensitive to chemical dispersants.

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. Deep Water: The Gulf Oil Disaster and Future of Offshore Drilling. Retrieved from: https://www.govinfo.gov/content/pkg/GPO-OILCOMMISSION/pdf/GPO-OILCOMMISSION.pdf

Nearly Gone — Brown Pelicans' Brush with Extinction

For decades, plume-hunting, overfishing, and pesticide use decimated their numbers, and pelican populations hit all-time lows in the mid-20th century. When Louisiana named the Brown Pelican its state bird in 1966, all breeding pelicans had already disappeared from the state. In order to bring pelicans back, Louisiana transported fledglings from Florida in a repopulation effort. However, only after naming the pelican to the Endangered Species list in 1970, followed by the banning of one of the worst pesticides — DDT — in 1972, did the large seabird begin to recover.

Since the 1970s, the Brown Pelican has symbolized what effective environmental regulation and conservation management can do for a resilient species. Once gone from Louisiana's shores and declining across its range, the Brown Pelican's population had exploded to such a degree that they were deemed "recovered" in 1996, removed from the Endangered Species list in 2009, and are now synonymous with coastal communities and tourist destinations across the Gulf of Mexico and the Atlantic Coast. Millions of Americans have memories of shading their eyes just in time to see a flock of pelicans gliding over a beach, or watching in awe as they plunge-dive into the waves for a fishy meal.

Pelicans are so closely associated with coastal life that the Brown Pelican became Pensacola, Florida's official mascot. Stroll the historic streets of downtown in any direction and visitors come upon colorful pelican statues representing branches of the military, universities, sports teams, and more. Known as the "Pelicans in Paradise" project and commissioned by the *Pensacola News Journal*, 41 of these fiberglass birds have become a source of identity for one of Florida's fastest growing cities.

How to De-Oil a Bird

DISH DETERGENT IS THE KEY INGREDIENT, BUT THE PROCESS TAKES MORE THAN SUDS.

Full article appeared in Audubon Magazine. Abridged version published here with permission. By Emma Bryce.

An oil spill happens and the inevitable image follows: a bird with its wings outstretched and dripping with oil. Barbara Callahan, a responsive services director who works with International Bird Rescue to rehabilitate marine birds, is an expert at getting rid of the gunk.

Callahan has worked in the aftermath of the Deepwater Horizon spill in the United States, the Prestige spill in Spain, and once oversaw the cleansing of 650 African penguins in one day, following the Treasure oil spill in South Africa. "I know it looks like a fun job, but it's tough," she says. And, she adds, it's impossible to save every oiled bird. "It's difficult to watch animals die."

Trying to cut that death count is where the dish soap comes in. De-oiling a bird takes vast quantities of detergent — Dawn was the official brand used to cleanse Deepwater Horizon birds — hot water, dryers and a bunch of kiddie pools. It might sound like a simple list of ingredients, but it's "very complex work," says Callahan.

A crack in the dry suit

Oil is particularly dangerous for birds because it disrupts the finely tuned system that keeps them warm. To stay dry, all birds have a layer of downy feathers that trap warm air close to the skin. Visible contour feathers, made up of barbs and barbules crisscross on top to create a Velcro-like structure that encloses the downier layers. Oil breaks open this close-knit arrangement. "The barbs and barbules can no longer lock together, and water passes right through to the downy feathers," Callahan says. Basically, it "opens a crack in the dry suit," making the birds susceptible to hypothermia. (Birds are also at risk of dehydration or anemia if they eat oil.)

Rehabbers first draw blood, weigh the victim, and check the bird's vitals. Then the birds rest for 24 hours. More testing follows, to assess if a bird is healthy enough to survive rehab. "These birds come in such bad condition," says Callahan. "We have to turn them around very quickly before we put them through cleaning," It's a case of prioritizing birds that are the worst off, as well as those that are most likely to survive. But sometimes, struggling birds don't reach a recovery threshold, which unfortunately means euthanasia for them—a fate far less cruel than setting the bird out to freeze or starve to death, Callahan says.

Those with a fighting chance move on to the washroom, a huge space filled with tubs and dish soap — lots and lots of the sudsy stuff. International Bird Rescue has seen several new cleaning agents and inventions — "there's even a bird washing machine out there," Callahan says — but so far they've stuck with one candidate: Dawn dish detergent. The soap hits its cleansing peak at a water temperature between 106 and 108 degrees Fahrenheit, which closely matches a bird's typical body temperature range.

Once a bird is in the water, though, there's no scrubbing — that would further ruffle feathers. Instead, water is swished around a bird, allowing the detergent to slowly lift oil from the feathers. A gentle hosing frees the head feathers of residue. An individual bird can require multiple tubs of water, and the rehab center can use up to 1,500 gallons an hour.

Photo: Kim Hubbard

Washers try to get all the goo off in one session, sniffing the bird's feathers up close as they rinse. "If you can still smell product you haven't gotten it clean enough," Callahan says.

Hose up, dry down

After the wash, volunteers hose the birds down. This is done against the feather grain, at up to 40 to 60 pounds of pressure per square inch in denser parts like the chest. It's a powerful blast — about half the strength of a fireman's hose — but birds can take it. Soon, feathers start behaving normally again. "This is where the magic happens," says Callahan. "All of a sudden those downy feathers start to fluff up and repel water."

Drying comes next. Depending on the species, it happens either individually or in groups. "Divers are always dried alone, for example, and guillemots feel more comfortable with lots of their buddies around," Callahan says. As the birds dry, they start to preen their feathers into alignment again, which preps them for returning to open water.

Survival After the Spill

An estimated 27,000 Brown Pelicans died as a result of the oil spill, and many others that were heavily oiled became a symbol of the harm the disaster wrought upon the avian world. Pelicans are especially vulnerable to long-running disasters because it takes them 3-5 years to reach full maturity, and they typically only produce one fledgling per year. A gap in fledging chicks can cause significant population declines. Moreover, Brown Pelicans' effective reproductive lifespan is only 4-7 years.

In the immediate days and weeks after the *Deepwater Horizon* disaster, rehabbers, veterinarians, and volunteers descended on the Gulf of Mexico coastline to de-oil the birds before they perished.

Brown Pelican. Photo: Lorenzo Cassina

Because so much oil remained in the Gulf for months after the spill, ornithologists worried that pelicans released in the same area would be oiled once more. To give them the best chance at survival, many were moved to neighboring states, including Florida.

"Banding oiled birds that were cleaned and released provides crucial information on long-term survival of birds exposed to crude oil," says Marianne Korosy, Ph.D., Director of Bird Conservation for Audubon Florida. "If/when there is a 'next time' we will know much more about the degree of harm to be expected for bird populations."

Spotting Wings of Hope 10 Years Later

One of the birds oiled during the disaster, an immature Brown Pelican, was admitted to the Fort Jackson Wildlife Center at Buras, Louisiana, for rehabilitation on June 11, 2010. Dr. Erica Miller assigned it a leg band numbered "78Z."

Once it was ready for release, 78Z, along with 30 other birds rehabilitated at the Center, was flown from New Orleans to the St. Petersburg/Clearwater Coast Guard Station on July 7 and released at Fort De Soto Park.

Fast forward to February 5, 2018.

Hundreds of miles from New Orleans, Audrey Albrecht, shorebird biologist with Sanibel-Captiva Conservation Foundation, was conducting her annual winter shorebird survey. Noticing some activity in the canopy of a nearby pine tree, Albrecht peered through her scope and, saw that it was a Brown Pelican, and was about to move on when she noticed a shiny metal band on the bird's leg. As she typically does, Albrecht took photos of the bird, making note of the band number, 78Z, for later reconnaissance. After doing some research, she was able to make contact with the bird's bander, Dr. Miller, who was ecstatic to learn about the bird's whereabouts. This was the first sighting of the bird she had received since it was released nearly eight years earlier.

Albrecht was equally ecstatic then, as she has been every time she has re-spotted the bird in her area; she saw it again on January 13, 2020, and again, during her winter survey, on February 7.

Thanks to banding programs, researchers have a much better idea of the survivability of birds that they have rehabilitated. It seems 78Z has found a new winter home.

Rehabilitated Pelicans Spotted at Alafia Bank

After the disaster, two additional pelicans released in Florida were re-sighted at Audubon's Alafia Bank Bird Sanctuary near Tampa. Set free in Fort De Soto Park in St. Petersburg, about a dozen miles from the Sanctuary, the pair revealed their identities as *Deepwater Horizon* survivors through the multi-colored bands on their legs.

In all, researchers estimate that the United States lost 10% of its Brown Pelican population as result of the *Deepwater Horizon* oil spill.

Alafia Bank Bird Sanctuary, which includes Bird Island to the east and Sunken Island to the west, is located in Hillsborough Bay at the mouth of the Alafia River and is leased from The Mosaic Company who collaborates with Audubon Florida for managing the site. These two manmade islands were formed from spoil material when a channel was constructed in the 1920s to connect an industrial facility at the mouth of the Alafia River with the main Tampa Bay shipping channel. Gulls, terns, and Black Skimmers immediately flocked to the islands to use the space as nesting grounds. As shrubs and trees replaced low-lying vegetation, nesting herons, egrets, ibis, and later pelicans moved from the historic nesting site at nearby Green Key.

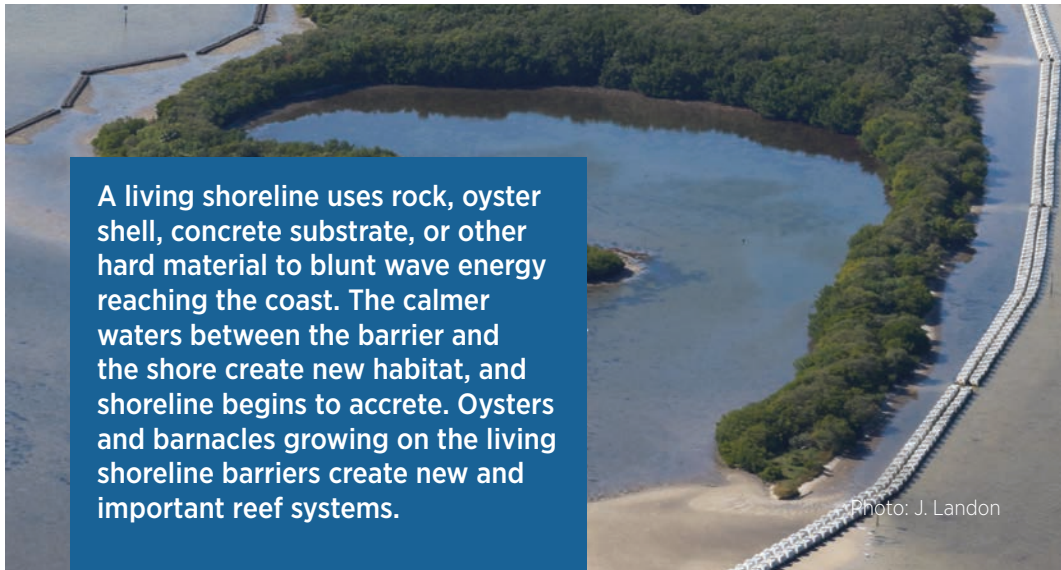
In 2019, Audubon staff and volunteers monitored 10,000 pairs of 15 species nesting on the Alafia Bank Bird Sanctuary, making it one of the largest colonies in Florida and one of the most diverse colonies in the continental United States. Today, the sanctuary also hosts one of the largest Brown Pelican breeding colonies in the Tampa Bay region. In fact, the Florida Fish & Wildlife Conservation Commission has listed Alafia Bank as the most important colony in the state, due to its size (number of birds nesting), longevity of nesting activity, and species diversity. It has earned Critical Wildlife Area (CWA) designation.

Biologists believe that the two rehabilitated pelicans not only feed at Alafia Bank, but are also using the sanctuary to breed — repopulating after the oil spill wiped out so many other birds in nearby states. These two survivors serve as a poignant reminder of just how important Audubon Florida's work is to the region, state, and entire Gulf of Mexico.

Photo: John Herrick

"The Gulf of Mexico is one ecosystem," says Korosy. "Birds can spend some or all of their lives moving across the Gulf coastlines searching for food, nesting habitat, and mates. Though most of the oiled birds appeared on Louisiana's shores, the hundreds of thousands of birds lost directly to oil or subsequent food shortages impact populations from Florida to Texas and beyond. An oil spill along the shores of Louisiana may affect birds thousands of miles away."

To continue bolstering the Brown Pelican population, Audubon Florida is investing in resilient coastlines and living shorelines to safeguard this iconic species.



A living shoreline uses rock, oyster shell, concrete substrate, or other hard material to blunt wave energy reaching the coast. The calmer waters between the barrier and the shore create new habitat, and shoreline begins to accrete. Oysters and barnacles growing on the living shoreline barriers create new and important reef systems.

Photo: J. Landon

Living Shorelines

Mark Rachal steps into the 20-foot center console skiff, throwing rope lines back into the boat and motoring towards the Alafia Bank Bird Sanctuary. As he moves away from the boat launch, Brown Pelicans, Forster's Terns, and Great Egrets wheel across the blue sky overhead, a testament to the importance of the bird habitat here, not only during nesting season, but year-round.

As Sanctuary Manager at Alafia, Rachal is charged with inspecting nearly 5,000 feet of newly installed living shoreline breakwater arrays along the north shores of both Sunken and Bird Islands, the two islands of the Alafia Bank Bird Sanctuary that comprise a state CWA.

Over the years, erosion from ship wakes and storm events threatened these nesting sites. Audubon has been working to devise a more resilient future by protecting crucial nesting islands from sea level rise as well as battering storm surges and ship wakes.

In 2011, Audubon began construction of a new living shoreline breakwater near the edge of Sunken Island. The concrete wave attenuation devices — known as WADs — that make up the breakwater intercept incoming wave energy before it hits the shoreline, slowing or even stopping erosion altogether. The calm water between the island and the breakwater provides foraging and nesting habitat. Phases 1 and 2 — encompassing 1,000 linear feet near the shore of Sunken Island — were completed in 2014.

Hurricanes have demonstrated the effectiveness of these measures; trees behind the structures survived the storm surge while those along adjacent, unprotected shorelines did not. Rachal cruises past the long-finished segments of the living shoreline to the just-completed segment along the north shore of the two islands. In 2019, Rachal and his team worked with Living Shorelines Solutions and Cypress Gulf Development to install an additional 5,000 feet — nearly a mile! — of additional living shoreline along both Bird and Sunken Islands, bringing the total area of protected coastline to over 6,000 linear feet. Set in 500-foot sections separated by 12-foot gaps for marine animal access, the breakwater allows water to flow through to the shallow, quiet water lagoon.

Now complete, the living shoreline protects the Brown Pelicans and 14 other species, providing additional nesting habitat not only for the birds translocated after the *Deepwater Horizon* spill, but also for future generations born here.

Bird Banding: Revealing Seabird Mysteries Along Florida Coastlines

AUDUBON'S BIRD BANDING PROGRAM HELPS US UNDERSTAND HOW BIRDS ARE RECOVERING ON THE GULF COAST.

On a hot, windy beach last year in Pinellas County, Florida, two Black Skimmers found each other after spending a winter apart. Striking black-and-white birds with orange and black bills, the species is named for the way they skim their prey from the surface of the water.

Digging a scoop nest in the dune sand, this particular pair laid eggs and, later in the summer, fledged a handful of fluffy chicks. Nearby, Audubon Florida staff and volunteers celebrated, as the skimmer duo had been trying to nest together for three years in a row. How do we know?

Bird banding.

Audubon Florida's banding program began in 2009, when staff carefully weighed and measured Least Tern chicks nesting on rooftops in Pinellas County.

Least Terns are small seabirds that nest throughout much of the continental United States during the summer months before migrating south for the winter. While historically they have nested in mixed-species colonies directly

Photo: Jean Hall

on sand, human development, disturbance, and increased predation have sent many to gravel rooftops, which resemble their preferred habitat while protecting their chicks from on-the-ground dangers. Audubon staff both monitor the rooftop colonies and install fencing to prevent as many chicks from falling off the roof as possible.

However, since banding began we have learned that the majority of chicks that fall off of their rooftop nesting sites actually survive and fledge. Moreover, baby terns born in these rooftop colonies can go on to nest on beaches or roofs, and do not necessarily choose to nest on the sites where they were born. In fact, once a colony breaks up, birds disperse to different beaches and wintering grounds.

Critical information on rooftop Least Terns has taught researchers that these colonies produce fledglings for future roof nesting, but also that many of these fledglings join other colonies up and down the Florida coastline. Put simply, protecting the roofs protects an important breeding pool that can pump up beach-nesting colonies as well.

Building on the Least Tern research, Audubon Florida — in partnership with Dr. Beth Forys of Eckerd College — began to band Black Skimmer chicks in 2015 in an ongoing effort to unravel the mysteries of their annual movements.

Audubon coastal biologists protect and steward state-threatened Black Skimmer colonies nesting on urban Pinellas County beaches each year. Until recently, little information was known about the age, birthplace, and winter whereabouts of the nesting skimmers at these sites. Additionally, in 2017, Audubon's staff began banding skimmer chicks on Marco Island. With all the sighting records of banded birds since 2015, we know a lot more about the birds' movements, population dynamics, and habitat, including the fate of repeat nesters.

Audubon joins organizations from across the United States to report banded birds and share monitoring information. Last fall, during the fading light of sunset on Key West, one of Audubon's dedicated community scientists reported two banded skimmers. After looking through records, Marianne Korosy, Ph.D., Director of Bird Conservation for Audubon Florida, discovered that the first was born and tagged less than a year earlier on Indian Rocks Beach, 230 miles up the Florida coast, and the second was banded in 2017, traveling all the way from New York!

"Black Skimmer nesting sites are vulnerable to storms, sea level rise, and human disturbance," says Korosy. "The more we know about their movements, the better we can protect them into the future."

Audubon is working across the Gulf Coast to fill in the gaps in our knowledge of our coastal bird populations. Ten years ago, when the *Deepwater Horizon* oil disaster began, we learned that this knowledge is critical, not only to determine how many birds were lost during that time, but also to monitor the recovery of our coastal bird populations.

Black Skimmer. Photo: Jean Hall

Photo: Kim Hubbard

Coastal Stewardship Answers Critical Questions

10 YEARS AFTER THE DEEPWATER HORIZON SPILL

Collette Lauzau, Audubon Florida Shorebird Biologist, checks over her bright orange and yellow kayak one more time before slipping into the seat and nosing out of the Lanark Village Harbor. Smack in the middle of the Forgotten Coast, she sets her sights on a barrier island about a half-mile from shore and one of the most important bird breeding sites in the region: Lanark Reef Critical Wildlife Area.

Calmer waters prevail in the summer months, and the flats sit beneath a layer of shallow water. Lauzau spies young stingrays and small sharks as she paddles, keeping her eyes out for green sea turtles amidst the waving seagrasses. Once a week, she makes the 20-minute journey to the island, spending half a day counting sea and shorebirds.

“The most abundant bird nesting here is the Laughing Gull, but there are also hundreds of nesting Brown Pelicans,” Lauzau explains, “American Oystercatchers and Willets use the area, as do wading birds like Great Egrets and Tricolored Herons. My personal favorites are the Black Skimmers and the Gull-billed Terns. The Gull-billed Terns have so much attitude - they always make me laugh!”

Almost ten years before, panicked locals watched the same horizon line, shielding their eyes from the April sunshine and imagining the raft of oil from the *Deepwater Horizon* disaster headed their way. With so much gushing from the underground leak, the brown slick had already covered the Louisiana coastline, and was now making slow but steady progress towards Florida. How, and when, it would arrive remained anyone’s guess.

As crews worked frantically to plug the spill and contain the spewing oil, specialized ships skimmed as much as possible from the surface. This oil remained usable, a commodity that BP sold back to the market. The company devoted all the proceeds from these recovered oil sales to the National Fish and Wildlife Foundation as the Recovered Oil Fund for Wildlife, jumpstarting the wildlife recovery work that has continued for a decade.

In early 2011, Audubon received a call from the fund's administrators. Birds had already been devastated by the oil spill. While some lucky birds recovered from oil-drenched feathers, others faced disturbance on the nesting beaches that remained, and scores of additional birds struggled to find sustenance in the wake of the disaster that effectively sealed their food supply in gunk. The grants from the Recovered Oil Fund for Wildlife were available now to start mitigating the blows to wildlife.

Audubon Florida's Executive Director Julie Wraithmell, then the Director of Wildlife Conservation, had just the project.

Lanark Reef stretches for six miles along the Gulf coast, partially submerged and partially made up of barrier islands and sand bars. Because the State of Florida conveyed the islands into private ownership in the 1950s, the precious 3-acre upland beach nesting habitat remained vulnerable to development. In fact, one such owner was determined to develop the last parcel on the island into condos — all but guaranteeing elimination of sea and shorebirds nesting there.

With a grant from the Recovered Oil Fund for Wildlife, Audubon stepped in, purchasing the three acres of upland for $50,000 in 2012 and assigning staff and volunteers to monitor the species that used the island. Together with the adjacent Dog Island, Audubon gained a Globally Important Bird Area (IBA) designation.

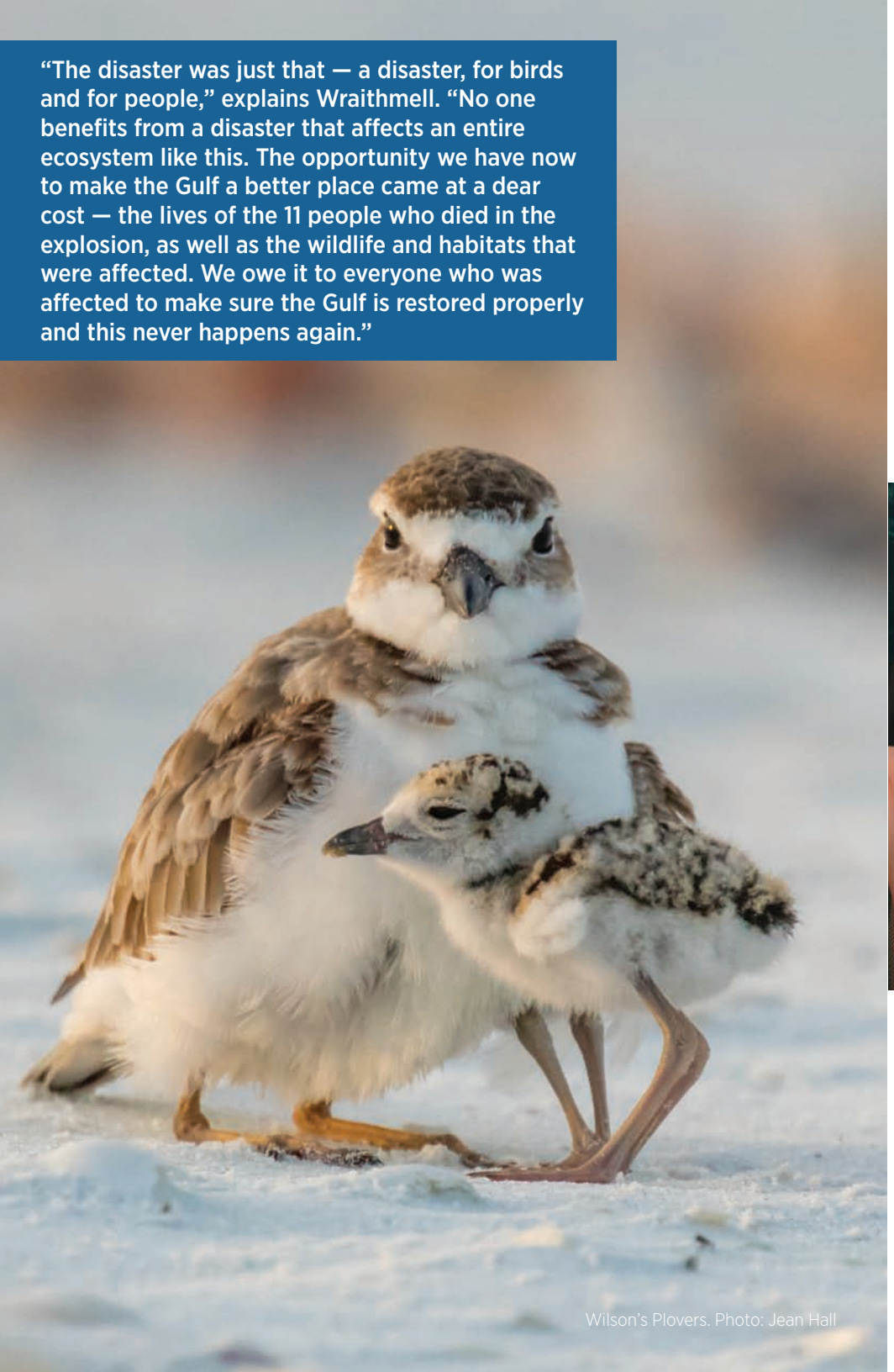
The Lanark Reef-Dog Island IBA is now one of the most important wintering shorebird areas in Florida, especially for Piping Plovers, American Oystercatchers, and mixed flocks of migratory shorebirds. Lanark Reef was ranked as the biologically most important site in Florida for winter shorebirds. Lanark Reef also supports breeding Brown Pelicans, wading birds, American Oystercatchers, and seabirds. In the early 1990s, a banding station at Jeff Lewis Wilderness Preserve on Dog Island recorded large numbers of neotropical migrants, including over 6,000 Gray Catbirds in a single day. The bird list for Dog Island is 274 native and three exotic species.

Additionally, Audubon partnered with the Florida Fish and Wildlife Conservation Commission (FWC) to designate Lanark Reef as a Critical Wildlife Area, preventing landings by all boats except those expressly permitted by the FWC. Though the birds of Lanark Reef could still face impacts from the oil spill if they traveled throughout the wider Gulf of Mexico, at least these nesting grounds would remain protected.

When Lauzau and her team visit the island to continue monitoring the sea and shorebird nesting efforts, they add their data to counts across the state of Florida and across the Gulf of Mexico. Working together, Audubon staff and state and federal researchers can monitor shifting population centers while protecting the areas these birds need to breed.

Photo: Collette Lauzau

"The disaster was just that — a disaster, for birds and for people," explains Wraithmell. "No one benefits from a disaster that affects an entire ecosystem like this. The opportunity we have now to make the Gulf a better place came at a dear cost — the lives of the 11 people who died in the explosion, as well as the wildlife and habitats that were affected. We owe it to everyone who was affected to make sure the Gulf is restored properly and this never happens again."



Wilson's Plovers. Photo: Jean Hall

Continued Monitoring Across Florida

It's a hot and steamy morning in the Florida Panhandle, more than 200 miles west of Lanark Reef. Cars whiz by Audubon Anchor Steward Moira Conley as she stands at the edge of the Navarre Bridge, the only major thoroughfare connecting this barrier island with the mainland for miles in either direction.

From her vantage point, she can easily see the waves of the Santa Rosa Sound crashing against the concrete barriers of the causeway, and just about make out the undulating dunes that border the emerald waters of the Gulf of Mexico. Even at the early hour, the summer traffic is intense, both visitors and locals alike heading towards the beach. On this particular bridge, the din and breezes created by the traffic mix with another, uniquely Florida sound: the calls of a seabird colony.

Executive Director Julie Wraithmell with Senator Nelson of Florida and chapter leaders as they advocated for RESTORE funding from BP.

Beach-nesting birds face risky odds each season as they scoop out shallow nests in the sand with little to no cover or protection from predators. Coming together in large, multi-species colonies affords seabirds with protection in numbers. The colonies are chaperoned by Audubon bird stewards who are funded by grants originating in the *Deepwater Horizon* settlement and aided by the Audubon Florida coastal team, volunteers, as well as sea and shorebird partners across the state.

For centuries, birds have spread out across our sparsely populated beaches and dunes, but today they compete for space with development and beachgoers, while facing ongoing threats from native predators as well as feral cats, intense storms, and red tide. In an effort to aid the beach nesters, Audubon Florida's 24-person coastal team uses grants flowing from the *Deepwater Horizon* settlement to protect, survey, and manage 166 beach- and tree-nesting sites and 139 rooftop-nesting sites. In 2019, more than 760 volunteers generously invested over 8,000 hours in bird stewardship and public outreach to protect vulnerable colonies and to clean up beach trash and hurricane debris.

Conley takes out her data form as she adjusts her steaming sunglasses. A seasonal bird steward, Conley was in her second summer with Audubon and the Navarre colonies, which are focused on the bridge but include pockets of nesting on the barrier island and the nearby border of Gulf Islands National Seashore. At first glance, the bridge appears to be a terrible place for vulnerable chicks, barely the size of ping-pong balls as they hatch out of eggs perfectly camouflaged in the sand.

The sides of the bridge slope gently to the seawalls below, and Audubon has erected a small fence to keep wandering chicks off the road. Still, adults facing strong winds can be buffeted straight into oncoming traffic when they take flight, and more than a few are killed each year through accidental collisions. Tufts of grass here and there provide the only relief from the hot sun, other than the shade from the concrete barriers, themselves.

And yet, the thriving colony demonstrates that the site has distinct advantages that draw Black Skimmers and Least Terns here year after year. Because of the heavy traffic, few people actually walk on the edges of the bridge, which reduces the chances of them wandering into the colony and accidentally stepping on the eggs. Moreover, predators — including cats, coyotes, raccoons, and crabs — don't make the journey across the highway, leaving the young chicks less vulnerable. Finally, because some of the colonies lie along Santa Rosa Sound instead of the along the Gulf, they face fewer risks from storm surges and damaging offshore winds.

In 2019, Black Skimmers here fledged 52 chicks. With long, orange bills attached to black and white bodies, it's nearly impossible to mistake this seabird for any other species. Mixed in, Least Terns — which fledged at least ten chicks that year — appear like tiny gulls, delicate and graceful with black caps and bright yellow bills. Skimmer chicks learn from their parents how to feed in the shallow waves.

Black Skimmers. Photo: Erika Zambello

It was just before the July Fourth weekend, the biggest holiday of the year on Florida beaches. Though the official fireworks in this area are shot offshore, people bring their illegal, personal fireworks much closer. The constant noise and explosions cause the adult birds to spook from their nests again, and again, and again, expending valuable energy while leaving chicks and young birds alone and frightened. Conley — along with 35 other volunteers — patrolled the edge of the colony until night (and quiet) finally settled on the bridge, shepherding the chicks back into the colony and watching for people who approached too closely. The Navarre Beach colony lost no birds to fireworks last year.

After Conley counts all the chicks and adults, noting the weather and general traffic conditions, she stops to talk to a jogger. While her work protecting the birds is critical, her outreach to those who ask questions is equally important. People have long felt an affinity for our avian friends, yearning for their freedom in the skies. Each person Conley speaks with about the importance of the colony — and what they can do to help — is one more advocate for these vulnerable birds. Many are inspired to become bird stewards here or elsewhere.

With funding from the BP oil spill penalties, better protection during busy summer beach seasons, like that created by Conley and her fellow stewards, bolsters the very sea and shorebird populations devastated by the oil spill.

Captain Gary Jarvis, Destin FL

April 10, 2010
Florida Panhandle: It was a beautiful April evening. Captain Gary Jarvis pulled back the throttle as he and his party arrived at the *Deepwater Horizon* rig for a sunset fishing charter. Leaving from the Destin harbor, Jarvis' 57-foot vessel, the *Backdown 2*, had provided overnight, offshore charters for families and fishing enthusiasts from around the country for two decades. Rigs like the *Deepwater Horizon*, standing in more than 5,000 feet of water, attract smaller reef fish and also larger pelagic species like marlin and tuna that were sure to give his clients a rush of adrenaline. Fishing that evening was perfect — dolphin and a huge yellowfin tuna; the family onboard made some real memories. The *Backdown 2's* last charter trip to the rig would provide a stark comparison to the Gulf disaster only ten days later.

As news of the *Deepwater Horizon* explosion broke, Jarvis knew the consequences would be dire.

"When I first heard about the explosion, I was incredulous... I mean, I was just there," said Jarvis, recounting the numerous times he'd watched the oil workers walking around on the platform, running pipe and bolting manifolds. He remembered when the rig moved there a few months earlier, and somehow felt a personal connection to it. His first concern was for the safety of those workers.

Jarvis, born into a military family, moved to Eglin Air Force Base in 1975 with his parents and never left the area. As updates traveled around the docks in the days after the explosion occurred, the tension in the air felt palpable.

Like many of his colleagues, Jarvis continued fishing in the northern Gulf as much as possible in the weeks that followed, until mid-June when oil started reaching Florida Panhandle beaches. As the crude arrived, the National Marine Fisheries Service closed off portions of the Gulf's federal waters to fishing.

That's when the stress hit. Some people couldn't take it. Some moved away.

But the *Deepwater Horizon* had an appropriate name. The rig — tasked with drilling the Macondo well, under 5,000 feet of water — pulled oil from a natural reservoir more than 13,000 feet beneath the sea floor. Locating and drawing oil out of the ground under that much water is a complex undertaking, similar to the difficulties encountered when astronauts explore outer space.

All of the safety measures to prevent a disaster of this magnitude failed. By April 25, five days after the explosion, it was clear that the blowout preventer, and all efforts to plug the wellhead quickly, had broken down. To stop the spewing oil, they would need to drill a relief well, a lengthy process. How to keep the oil from reaching the shoreline in the meantime?

On April 22, the decision was made to use dispersants. As hundreds of thousands of gallons of crude oil gushed out of the wellhead, planes sprayed additional hundreds of gallons of chemicals over the water's surface. With relief wells underway, further efforts to stop the oil at the wellhead were employed to no avail. By May 6, oil slicks reached the shores of Louisiana.

On June 2, Jarvis found himself on the front line of the *Deepwater Horizon* disaster as part of the Vessels of Opportunity program. With his knowledge of local waters and onboard experience, Jarvis captained an offshore skimming rig for 60 days. The Vessels of Opportunity program was a welcome opportunity for fisherfolk like Jarvis to replace lost income while assisting the complicated, multi-agency effort, shuttling first responders, researchers, air quality monitors, and others. That summer, approximately 47,000 people and 7,000 vessels worked in the response effort.

A half-dozen shrimp boats, no longer able to haul their intended catch, towed oil containment booms to other offshore rigs, where pumps worked overtime to separate crude from seawater. Over time, as crude degraded, it went from black liquid to brown sludge. Mats of tar-like crude sank at night while microbes consumed it, but by day, giant patches of brown sludge rose to the surface once more. Because the thick crude burned out the pumps working to remove it from the surface, septic tank trucks were barged out to the rig to suck the captured crude out of the water and transfer it to the refinery.

A decade later, Jarvis, now the Mayor of Destin, no longer runs charter boats into the Gulf of Mexico but has found new success as a local restaurateur. He will never forget the efforts made in 2010 to save the wildlife they could from the ravages of the oil spill.

Protection Works: New Nesting Sites on Florida's Coast

Northeast Florida is far from the epicenter of the *Deepwater Horizon* disaster but clearly still affected by the dispersing oil, as confirmed by a 2020 study reported in the *Washington Post*. Past protections and new monitoring in 2019 meant a successful summer breeding season for the first time in recent memory at Little Talbot Island. In addition to Black Skimmers and Least Terns, Northeast Florida provides nesting habitat for American Oystercatchers, Gull-billed Terns, Wilson's Plovers, and Snowy Plovers.

The sand-strewn beach along Little Talbot Island is one of the few places remaining on Florida's Atlantic coast with no buildings and few roads in sight. Located just south of Amelia Island where Nassau County and Duval County meet, the emergent sands within Nassau Sound have long provided the perfect topography for beach-nesting birds, with direct access to fish and no trees to harbor predators. In the summer of 2019, Little Talbot Island experienced one of the most successful nesting seasons in recent memory.

Unfortunately, nesting success here has been stymied in recent years because the same gorgeous beaches that attract the birds also attract people. Despite its remoteness and previous attempts to provide a nesting-area buffer, the northern end of Little Talbot Island has been a favorite recreational spot for thousands of beachgoers and boaters each year, especially when waters are warm and beach-nesting birds are trying to raise their young.

Thanks to the dedication of the Timucuan Shorebird Partnership, which includes staff and volunteers from Audubon Florida, the Florida Fish and Wildlife Conservation Commission, the Florida Park Service, and the City of Jacksonville, beach-bird nesting failure at Little Talbot Island may not be an annual disappointment.

"The nesting success on Little Talbot Island this year was the result of many years of effort," explains Chris Farrell, Audubon's Northeast Florida Policy Associate.

Decades ago, thousands of birds used the emergent islands in Nassau Sound, but human disturbance has reduced their nesting habitat. With fewer areas capable of supporting imperiled beach-nesting birds, protection of the remaining nesting sites became paramount. Recognizing the need for additional management tools, Audubon collaborated with the Florida Fish and Wildlife Conservation Commission to both renew and enlarge the Critical Wildlife Area designation for beach-nesting bird habitat in Nassau Sound.

Audubon's coastal team showcases that the protective efforts put forth on Lanark Reef and the Navarre bridge allow existing colonies to thrive. But additional conservation initiatives can create new nesting sites as well.

Least Tern. Photo: Erika Zambello

Photo: Jean Hall

Florida Fish and Wildlife Conservation Commission's (FWC) Critical Wildlife Area (CWA) program is one way the state provides extra protection for concentrations of wildlife where there is the greatest exposure to human disturbance. CWAs are discrete sites, such as mangrove islands or sandbars, where species gather daily or seasonally for essential activities, such as breeding, feeding, or resting.

In 2015, Audubon started to work closely with FWC and other stakeholders to reestablish this protection for Little Talbot Island. Audubon's Chris Farrell, FWC staff, and long-time advocate Pat Leary presented information on the importance of the sound for nesting birds during FWC's local stakeholder meetings.

On November 16, 2016, they got good news: the old "Bird Islands" CWA was redesignated as the "Nassau Sound Islands" CWA in the vote that created 13 new CWAs in the state and improved five existing ones. The most critical aspect of the redesignation was the inclusion of the northern tip of Little Talbot Island.

Little Talbot is ideal habitat for beach-nesting birds and has long been the site of nesting attempts by Least Terns and American Oystercatchers. These attempts yielded few fledged chicks, if any. Park staff marked off the nesting habitat each year, but they could never post an area large enough to prevent disturbance to the birds for fear of losing signs to the dynamic tides of the region.

Fortunately, the new CWA designation brought additional resources and focus to this nesting site. The most impactful change was the addition of seven large "No Landing" signs installed around the breeding area to let boaters know they could not disembark near the nesting birds.

Additionally, Audubon Florida and FWC have hired seasonal staff to steward this remote nesting site, where it can be difficult to recruit help from volunteers. FWC also produced informational postcards explaining the closure of the nesting area with details on its location and a map. Park rangers hand out cards at the station, as do stewards when speaking with visitors on-site.

Continued efforts, including meeting with local outfitters, installing signs at boat ramps, and outreach programs, are helping to improve compliance with the CWA closure. Audubon Anchor Stewards and CWA biologists have been critical in this regard, handling more than 150 boat landings and speaking with over 500 people at the nesting site in 2019 alone.

The cumulative result of these partnership efforts has been a significant increase in nesting success by several species. Least Terns, which managed to fledge a few chicks from the site last year, made more than 100 nests in 2019 with dozens of chicks fledging. The big surprise in 2019? The return of sizable numbers of nesting Black Skimmers and Gull-billed Terns. Skimmers made a whopping 30 nests, and at least 25 chicks survived. Gull-billed Terns had more than 20 nests and many successful offspring. Four pairs of American Oystercatchers also produced young, with Wilson's Plovers rounding out the list of successful nesters at this site, bringing the total number of species to five.

Farrell notes, "The positive response from multiple species is a testament to how improved management can benefit our beach-nesting birds. Hard work from our partners at Little Talbot Island State Park and the Florida Fish and Wildlife Conservation Commission made 2019 a successful nesting season at the Nassau Sound Islands CWA and should inspire others to replicate their success."

This example serves as a model for how partners can work together to make positive strides after an environmental crisis like an oil spill. Nesting success in 2019 and in future seasons will create a population buffer for the inevitable stresses of climate change and potential future oil spills. As we progress into the 21st century, sea level rise threatens to swamp the narrow strip of beach and dune habitat that birds need to survive. Oil spills that coat the shoreline not only impede nesting, but also can poison adult birds and coat their feathers with toxic crude. By investing in conservation and bird stewardship now, Audubon works to create a more secure future for some of Florida's most iconic species.

Learn more about Audubon Florida's coastal program at FLBeachBirds.org

American Oystercatcher. Photo: Harry Collins

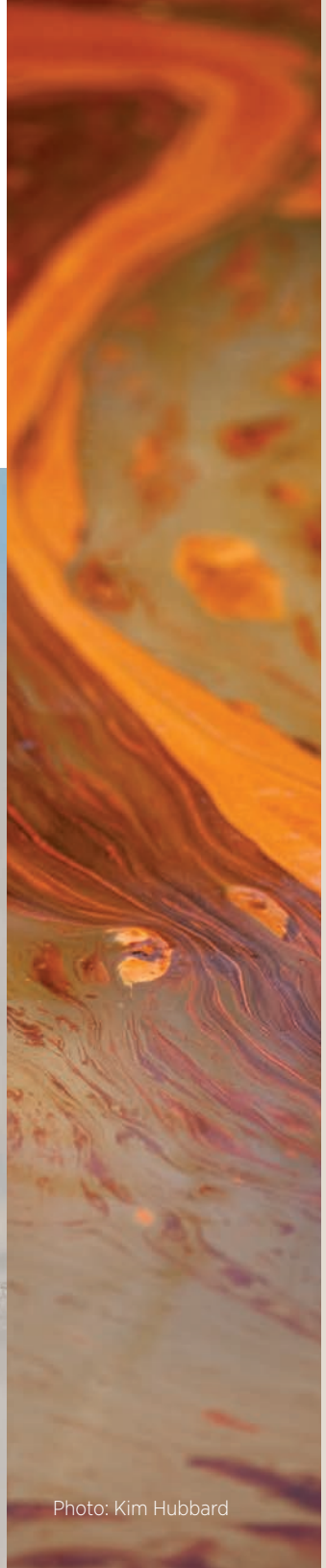


Photo: Kim Hubbard

History of Oil Drilling

The U.S. petroleum industry was forever changed in the mid-19th century when a former railroad conductor drilled a well 69.5 feet deep in Northwestern Pennsylvania, accessing what would essentially become liquid gold. Just a few decades later in the 1890s, engineers and prospectors applied the same techniques and technology to offshore oil wells in Ohio. In 1896, offshore oil wells in California were drilled from piers. According to the American Oil & Gas Historical Society, four million wells had been drilled by 2009.

While the advent of offshore rigs was a gamechanging invention and engineering advancement, the process proved risky from the very beginning. Oil engineers recognized that explosions were not only possible, but likely, and loss of human lives became a reality associated with the industry. In 1901, a high-pressure blowout led to the loss of hundreds of thousands of barrels of oil over the course of nine days until the flow was stopped with a shut-off valve.

Faced with these disasters, industry experts created new technology called a "blowout preventer" in 1922 as a way to end dangerous oil gushers and save lives. Subsequent improvements continued to increase the capability of the device, which subsequently became an industry standard.

Fast forward to 1947, and the first offshore rig was launched in the Gulf of Mexico, out of sight of land. By the end of 1949, prospectors marked 11 oil and natural gas fields in the Gulf, and the offshore industry boomed. The economy and environment along the Gulf Coast would never be the same again.

American Oil and Gas Historical Society (n.d.). "Offshore Oil History." Retrieved from: https:// aoghs.org/offshore-oil-history/

Royal Terns. Photo: Peter Brannon

Into the Future

WE MUST EXTEND THE DRILLING MORATORIUM TO PROTECT OUR COASTLINES

Florida's biggest economic driver is not tourism, or agriculture, or even development. The most important engines in our economic system remain the vast military bases that call our Florida coastlines home, helping to train men and women across the Navy, Air Force, Army, and more. In fact, the military is directly responsible for nearly $85 billion in economic impact annually. Expanded drilling in the eastern Gulf of Mexico not only threatens our marine resources and wildlife populations, it also threatens to drive base closures and impact America's military readiness, which is already under duress from rising sea levels.

In an op-ed, Congressman Francis Rooney explains:

> *"The Eastern Gulf is home to the Gulf Test Range, a 120,000 square mile range that stretches from the Florida Panhandle to Key West. This unimpeded flight training and testing area is of critical importance to our military now and will become even more important in the future, as hypersonic planes and drone testing increase. Our military has no better location to carry out these exercises and there is no compelling reason to place drilling interests ahead of military necessities."*

Initially enacted by President George W. Bush, the moratorium halts drilling in the Eastern Gulf of Mexico until 2022. Safeguarding the waters closest to the Sunshine State, the moratorium protects the open Gulf, critical to the safe operation of military planes, in addition to our thriving seafood, charter, and tourism industries. Beyond the moratorium's boundaries, more than 2,500 active leases and 3,200 active drilling platforms operate, providing a solemn window into the future if the moratorium is not extended past 2022.

Most Floridians support a ban on offshore drilling. In the 2018 election, 68% voted to ban offshore drilling as part of Amendment 9. However, without an extension of the moratorium, rigs and wells could be drilled as close as nine nautical miles to Florida's shoreline.

In 2019, the United States House of Representatives passed HR 205, which extends the moratorium indefinitely east of the Military Mission Line. By a vote of 248 to 180, the House made clear its commitment to protecting the vast resources of the Gulf of Mexico from the ever-present danger that oil exploration brings in its wake. As the United States is now an oil exporter, there is no need to disturb fragile habitat and military readiness for the sake of additional exploration and extraction.

Now the Senate must take up the case, and needs 60 votes to extend the moratorium before the measure can land on the president's desk. Both senators from Florida are leading the charge on this legislation, with state representatives, municipalities, nonprofits, and concerned citizens creating the momentum for permanent protection.

Sea Turtles

The *Deepwater Horizon* spill proved devastating to Gulf wildlife. The first oiled bird was recorded on April 30, and from then on, crude-impacted animals covered not only the coastline, but international media outlets as well. The U.S. Fish and Wildlife Service, NOAA, and other wildlife agencies oversaw animal response and rehabilitation efforts. Wildlife responders took recovered animals to treatment centers to be washed and cared for.

By August, the first batch of sea turtles rehabilitated at Sea World and other Florida hospitals was ready for release, but where? Oil remained in the waters of the Gulf where they were originally rescued. Green Turtles and Kemp's Ridley, both endangered species, spend their juvenile years in the Gulf. They are steered by the loop current to northern Gulf waters during spring, and follow it along the coast south toward the Florida peninsula, where they forage on hard bottom habitat in fall and winter.

To keep the sea turtles from becoming oiled once more after rehabilitation, biologists tagged the turtles and trucked them south to the Ten Thousand Islands Aquatic Preserve in the far reaches of southwest Florida. In total, more than 100 endangered turtles were rehabilitated and released in Florida waters, well away from the spill site.

Kemp's Ridley Sea Turtle. Photo: Renee Wilson

Looking Toward the Future

As Audubon looks to the future and continued recovery from the *Deepwater Horizon* oil spill, we are working across the Gulf coast to realize a new vision: Healthy, resilient coastal and marine ecosystems that support viable populations of birds and people from south Texas to the Florida Keys.

Audubon is dedicated to seeing the Gulf of Mexico ecosystem made whole and resilient in the wake of past disasters and future obstacles. We have made a long-term commitment to this invaluable ecosystem and have dedicated significant resources and staff to the recovery of the Gulf for people and birds. Through sound science, policy leadership, and habitat conservation and restoration, Audubon and partners are protecting and revitalizing ecosystems battered by man-made and natural disasters and advancing measures to protect birds in the face of overdevelopment, pollution, extreme weather events, sea level rise, and other climate change impacts.

We are implementing four strategies to protect, enhance, and rebuild habitat:

1. MONITORING OF FLAGSHIP AND PRIORITY SPECIES
2. STRATEGIC CONSERVATION PLANNING AND ADVOCACY
3. COASTAL CONSERVATION AND RESTORATION THROUGH COLLABORATIVE PARTNERSHIPS AND PROGRAMS
4. LONG-TERM STEWARDSHIP

1 MONITORING: USING SCIENCE TO GUIDE OUR WORK

Audubon is continuing to monitor sea and shorebird populations across both our Gulf and Atlantic coasts, expanding our efforts to include additional bird banding and analysis.

We use the findings to assess threats to birds, identify species in the greatest need of help, and determine the most effective conservation actions. Audubon will augment these monitoring and research efforts by continuing standardized surveys of birds and their habitats during breeding, migration, and wintering periods. Staff will work with partner organizations to further develop compatible monitoring protocols and data-sharing technologies so that we can combine our efforts to gain a broader understanding of bird populations.

Photo: Kim Hubbard

2 STRATEGIC CONSERVATION PLANNING AND ADVOCACY: ADVANCING POLICIES THAT SUPPORT HIGH IMPACT CONSERVATION PROJECTS

Audubon played a lead role in developing, supporting, and passing legislation ensuring that billions of dollars of BP penalty fines are used for habitat restoration. Now, working with the Gulf Coast Ecosystem Council (RESTORE), the NFWF, and the Natural Resource Damage Assessment (NRDA) Trustees — the governing bodies in control of recovery dollars — along with federal, state, and local decision-makers, we will:

Ensure transparency and public participation in the processes that guide Gulf conservation and restoration funding, and advocate to ensure recovery dollars are dedicated to science-based projects that will improve habitat along the coasts and within watersheds affecting the Gulf Coast.

Photo: Jean Hall

3 COASTAL CONSERVATION AND RESTORATION: CREATING NATURAL INFRASTRUCTURE TO PROTECT BIRDS AND COMMUNITIES

Audubon continues to work with partners and communities to create islands, shorelines, and marshes to help birds and people adapt to a changing climate. With benefits to multiple species and coastal communities, these projects set the stage for us to expand on-the-ground restoration efforts throughout the Gulf.

4 LONG-TERM STEWARDSHIP: PROTECTING AND ENHANCING BIRD HABITAT

Each year, thousands of Audubon staff and volunteers steward beaches, bays, and barrier islands across all five Gulf states to protect bird nesting habitat and to help people better coexist with birds in these areas.

In Florida, more than 760 volunteers contributed over 8,100 hours to bird stewardship, public outreach, and coastal cleanups in 2019.

Audubon's volunteers and stewards fence off beach-nesting sites, post signs warning of the beach-nesting birds' vulnerability to disturbance, and teach beachgoers about the need to protect coastal habitat for birds. At other sites, professional stewards and volunteers protect and enhance the critical island breeding habitat for thousands of colonial waterbirds.

Wilson's Plover Eggs. Photo: Alli Smith

Julie Wraithmell, Executive Director

Julie Wraithmell stood on the white sand of a Florida Panhandle beach, staring at the crashing waves of the Gulf of Mexico. Though everything seemed normal, a feeling of dread lodged in the pit of her stomach: the oil from the *Deepwater Horizon* disaster moved towards the coast, and there was little anyone could do to stop it.

Wraithmell worked for Audubon Florida as the Director of Wildlife Conservation in 2010; today she is Audubon Florida's Executive Director. While BP and government entities took the lead on most of the response operations out of concern for the impending prosecution of BP, Audubon staff and volunteers were among the first to respond to the spill and have been involved ever since.

"Because Audubon already had a substantial presence on Florida's Gulf Coast protecting birds, Audubon could quickly work with the community to engage in the primarily government-managed response," says Wraithmell.*

Volunteers managed the phone lines to organize the raft of people and supplies arriving on the Gulf coast, arranged transportation to rehab for oiled birds, and began collecting data on the spill's ramifications. They documented existing resources so that spill impacts could be accurately valued in the prosecution of BP. And when spill response teams unwittingly threatened the bird colonies that remained, Audubon stepped up its protection efforts.

Perhaps most importantly, the community scientists and volunteers effectively advocated for the Gulf's natural resources, drawing from their sweat equity and experience directly after the spill.

"The birds need people to fight for them," Wraithmell continues, "It is still crucial for local communities and citizenry to engage in the restoration process."

In her Tallahassee office, Wraithmell keeps a glass baby food jar filled with tar balls collected from a Walton County beach. At the time, she wondered if her toddler would ever be able to swim in the Gulf of Mexico again. Now that her daughter is almost a teenager, and luckily has swam in the Gulf countless times, the jar reminds Wraithmell of the paramount importance of protecting this ecosystem for both birds and people.

Though the oil is no longer visible, she remains committed to understanding the long-term effects of the spill, and making the sea and shorebird populations along Florida's coastline even more resilient than they were before the disaster. The newest threat? The moratorium on oil and gas exploration that currently excludes drilling from the eastern Gulf of Mexico will expire in 2022. "If Congress doesn't renew the moratorium, we could have rigs 10 miles off our coast," says Wraithmell. "Florida's economy IS our ecology. If we learned nothing from Deepwater Horizon, all those bird, turtle, dolphin and human deaths were in vain."

*As told to John Davis on NPR:
https://news.wgcu.org/post/5-years-after-deepwater-horizon-rig-explosion

Photo: Lucy Duncan

Future Priorities

1 CAPE SABLE

In a changing climate, South Florida needs to buy time to improve resilience. Restoring the Everglades offers the opportunity for both.

The Everglades is South Florida's natural defense against the effects of climate change. Wetlands are carbon sinks, floodwater retention areas, and barriers to extreme wind and storm surge. Additionally, fresh water from wetlands helps slow saltwater intrusion into wellfields.

Cape Sable, tucked into the southwest corner of Florida, epitomizes both the consequences of wetland degradation and the urgency of restoration. Canals constructed across the state during the 1920s have allowed saltwater to advance inland, collapsing marshlands and impacting wildlife habitat. Decaying peat soils reduce elevation, furthering saltwater encroachment.

The Cape Sable restoration project aims to restore habitat by plugging manmade canals to eliminate the unnatural exchange of salt and freshwater in sensitive freshwater wetlands. Drainage ditches were constructed in the 1930s to allow access to the interior of Cape Sable from Florida Bay and the Gulf of Mexico; these ditches breached the Flamingo Embankment, allowing saltwater intrusion into the historically freshwater wetlands of Cape Sable, with subsequent tidal action further eroding the embankment. In an effort to minimize the damage, Everglades National Park constructed dams at breached areas along the Flamingo Ridge, but time and continued erosion have undermined several of these structures, permitting unrestricted tidal flow from the Gulf and Bay into the Everglades' freshwater marshes.

Everglades National Park has made great strides in this effort by replacing two failed dams on the East Cape Canal and Homestead Canal between October 2010 and March 2011. However, this accomplishment could be futile if all of the remaining breaches through the ridge are not also addressed. Audubon proposes to repair the failed dams at Raulerson Canal and possibly East Side Creek, thereby restoring the natural function of the Flamingo Embankment and protecting the unique and vital habitat of the interior marshes. This will restore natural ecological processes to the Cape Sable region, slowing saltwater intrusion and allowing wildlife time to adjust to the changing conditions.

Audubon is continuing to spearhead the effort to secure the funding needed to complete the project. With the first phase completed in 2011, completing phase two of the Cape Sable restoration will set a precedent for the importance of restoring habitat on the front lines of sea level rise and increasing South Florida's resilience through comprehensive restoration efforts across the Everglades region.

Recognizing the vital role of wetlands, Audubon's climate action plan prioritizes investing in green infrastructure and accelerating Everglades restoration, as well as tracking bird migration patterns that are key to protecting vital habitat.

2 GULL ISLAND ACQUISITION

Gull Island is a ten-acre, privately owned island along the coast of the Florida Panhandle. The island is within the optimum acquisition boundary for the St. Marks National Wildlife Refuge and would be a strategic asset for the refuge's wildlife management. It is an important island for nesting and wintering waterbirds, comprised of multiple habitats: salt marsh, upper beach with a mosaic of native grass cover and bare sand, adjacent mudflats, and seagrass beds. Audubon is working with the USFWS and the owner to purchase the island and transfer management to the refuge.

Marshes and bird nesting islands comprise the same habitat types that were oiled during the BP *Deepwater Horizon* oil spill, and subsequent cleanup activities disrupted bird nesting. The acquisition of similar habitat provides resiliency for nesting and migratory shorebirds across the Gulf of Mexico.

Additionally, low-lying islands to the southeast, along Florida's Big Bend coastline, continue to be lost as sea level rises, eliminating suitable nesting habitat for American Oystercatchers. The acquisition of Gull Island would secure ten acres of pristine habitat historically used by nesting oystercatchers

and ground-nesting Brown Pelicans. The island also provides critical wintering habitat for federally listed Piping Plovers, Red Knots, and other migratory shorebirds.

3 GREATER TAMPA BAY WATERBIRD ROOKERIES PROTECTION INITIATIVE

Rising sea levels and powerful tropical storms continue to erode shorelines of waterbird rookeries in the Greater Tampa Bay region. At all sites, ongoing erosion is toppling mangroves, palms, and other native vegetation used as nesting substrate. Nearshore breakwaters will be installed around four regionally important rookery islands to intercept wave energy, creating a calm lagoon between the breakwater and shoreline. The lagoon will provide foraging habitat for birds, retain native marsh grasses and mangrove vegetation communities, and protect nesting habitat for colonial waterbirds at historically used island refuges that are typically free of mammalian predators. Similar breakwater installation projects at Alafia Bank Bird Sanctuary and other regional rookeries have been successful at slowing or halting shoreline erosion and will continue to protect nesting waterbirds for decades.

Funded by NFWF, project design is complete and permitting is underway.

Mark Rachal, Melanie Higgins, Sandy Reed, and Ann Paul Count Birds at Alafia.

Photo: Carol Cassels

Ten years have passed since the BP oil spill, and we are still on the road to recovery. The *Deepwater Horizon* disaster showcased not only the havoc one event can wreak across the Gulf of Mexico, but also the resilience of native bird species and coastal communities. At Audubon, we see a future grounded in research and science, where sea and shorebirds nest in colonies that wow locals and visitors alike but are protected from disturbance. We see a future where the Gulf's beauties are enjoyed by all and its waters are off-limits to additional oil explorations. Climate change and sea level rise remain critical threats to our shoreline, but together we can work across state lines to create a better future for birds and people.

To support our team, visit fl.audubon.org/supportcoasts

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Designer: Frances Roy Agency
Cover Photo: Brad Lewis

To request a copy of our works cited list, email flconservation@audubon.org


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