



The Gulf Breeze

The official newspaper of
Padre Island National Seashore

Spring 2007



The park protects the longest section of undeveloped barrier island in the world, preserving rare coastal prairie; a complex, dynamic dune system; and the Laguna Madre, one of the few hypersaline lagoon environments left in the world.

Greetings from the Superintendent

Welcome to Padre Island National Seashore. There have been several changes at the seashore and within the National Park Service since the last issue of The Gulf Breeze. In February, Superintendent Colin Campbell accepted the position of Deputy Superintendent of Yellowstone National Park. The park's facility manager also retired at the end of the year and the park is in the process of filling both of these positions.

The National Park Service underwent a change in management in October when the 17th director was sworn in. Mary Bomar started her career with the National Park Service in Texas as the Administrative Officer at Amistad National Recreation Area and served as the Assistant Superintendent at San Antonio Missions National Historical Park.

In 2016, the National Park Service will celebrate its 100th Anniversary. When President Bush announced his budget for Fiscal Year 2008, it included a proposed record increase for park operations and the Centennial Initiative for \$3 Billion Public/Private investment over 10 years. Director Bomar stated the "...money is above and beyond our regular budget. It includes \$100 million of discretionary funds for parks each year and up to \$200 million a year within the Centennial Initiative, which would provide \$100 million a year to match donations for signature programs." The staff of Padre Island National Seashore is working to develop signature projects that would tap this source for new seasonal employees, increases for park maintenance and resource improvements.

I also wanted to inform our readers that, the park recently suffered a great loss. On the afternoon of April 3, 2007, Marina Giggleman, a seasonal employee for the Division of Sea Turtle Science and Recovery was killed in an accident while on duty. Please read the "In Memorium" article on page 7.

The National Seashore hopes you enjoy your visit and return frequently to meet the new staff and follow the progress of the Centennial Initiative.

Sincerely,

Betty W. Frantum
Acting Superintendent

Oil and Gas Development at Padre Island National Seashore

By Mark Biel, Resource Management Specialist

MANY VISITORS TO PADRE ISLAND NATIONAL SEASHORE WONDER WHY they are seeing evidence of oil and gas development in a National Park Service unit. In fact, Padre Island NS is one of 13 NPS units whose enabling legislation specifically allows oil and gas exploration and development activities to occur within their boundaries. The federal government owns the land of Padre Island NS, but the mineral rights are privately owned, and the NPS is mandated to allow development of nonfederal oil and gas rights held by individuals, companies, nonprofit organizations, and state and local governments that pre-date the park units.



Wilson well just east of the entrance station

The National Park Service, however, regulates these activities. Based on authorities granted to the secretary of the interior by the U.S. Congress, the NPS created regulations at 36 CFR Part 9, Subpart B ("9B regulations") in December 1978. The 9B regulations govern oil and gas activities associated with the exploration and development of nonfederal oil and gas rights located within park boundaries where access is on, across, or through federally owned or controlled lands or waters.

Under the 9B regulations, any operator who intends to develop an oil and/or gas interest must first submit a plan of operations to the NPS describing all of the activities (from exploration to site reclamation) that will occur. The NPS uses this information to determine the effects of proposed operations on natural and cultural resources and values within the park, including sea turtles, vegetation, shorebirds, visitor use, cultural sites, and natural soundscapes—to name a few.

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**IN CASE OF EMERGENCY
DIAL: 911**

Park Rangers are available during normal working hours to provide assistance.

Lost and Found

Items may be reported at the visitor center.



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U.S. Department of the Interior

The Gulf Breeze

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National Park Service
Editor, Juan Rodriguez
Acting Superintendent,, Betty W. Frantum

Mailing Address:
P.O. BOX 181300
Corpus Christi, TX 78480-1300

Park Headquarters:
361-949-8173

Visitor Center:
361-949-8068

Internet Address:
www.nps.gov/pais

E-mail address:
pais_visitor_center@nps.gov

The National Park Service cares for the special places saved by the American people so that all may experience our heritage.

Interpretive Programs

Beach Walk	11:00 AM
Deck Talk	1:00 PM
History Program	2:00 PM (Sunday)
Star Program	(Seasonal)
Junior Ranger	(Self-paced program)

For more information please contact the visitor center, or visit the park's website at: www.nps.gov/pais

Note: All activities begin at the Malaquite Visitor Center

The park is open 24 hours a day, 365 days a year. The visitor center is open daily from 8:30 a.m. to 4:30 p.m., during the winter. Summer hours are extended to 5:00 p.m. The visitor center is closed on Christmas day.

Location

The physical address is 20301 Park Road 22. From Interstate Highway 37 turn onto Highway 358. The highway name changes from 358 to South Padre Island Drive, then crosses over the Laguna Madre on the JFK Causeway and becomes Park Road 22. At the end of Park Road 22 is the National Seashore. Traveling through the park takes one to the visitor center and a half- mile farther the road ends on the beach. The total driving distance from I-37 to the beach is 37 miles.

Special Programs Educational and interpretive programs are held year-round.

Deck Talks and Beach Walks are held every day. Deck Talks last 30 minutes and are an in-depth discussion of objects including shells, sea beans, and human-made items that are found along the shoreline. Beach Walks last 45 minutes and are guided walks along the beach in which a ranger talks about the natural/cultural history of the island. Discussions include anything seen along the shore including shells, birds, flotsam, and plants while touching upon environmental issues of importance to the park. Evening programs may be offered at the Malaquite Beach campground in summer and winter, normally lasting 45 minutes and may be on a variety of topics from wildlife to history to astronomical topics such as meteor showers, comets, and constellations. Bird-watching walks may be offered at the Malaquite Beach Visitor Center during spring migration. The National Seashore also offers environmental education programs for school groups of all ages. These professionally-presented programs teach children about such topics as habitat and migration while providing direct contact with nature. Contact the park environmental education specialist at 361-949-8068.

Available Facilities

The Malaquite Visitor Center has an information desk, small museum, bookstore, concession stand, observation decks, restrooms, and showers (open 24 hours). The visitor center is fully wheelchair accessible with ramps to the main deck and an elevator to the main observation deck. Free beach wheelchairs are available.

Camping

There is a 14-consecutive day limit for camping in primitive sites or 30 days in the Malaquite Campground. Overnight camping is limited to a total of 56 calendar days per year.

Malaquite Open All Year

Semi-primitive, providing only toilets, rinse showers, picnic tables, and 48 designated sites (6 sites are for tent camping only, 26 are for tent or RV camping, and 16 are for RV's only). An \$8 fee is required; \$4 with a Golden Age or Golden Access passport. There are no hook-ups.



Malaquite Visitor Center

There is a gray water dump station and potable water filling station prior to entering the campground. Running generators after 10 p.m. is not allowed. The area is patrolled by rangers. Camping is accommodated on a first-come, first-served basis. No reservations are accepted. The campground is rarely full; except during February, March, and April. Also, no camping permit is needed at the Malaquite Campground and payment is done by Honor System.

North Beach Open All Year

Primitive and at no charge. A camping permit is required and is available from the Malaquite Beach Visitor Center. Open to RV and tent camping. No reservations are needed. There are no facilities or designated sites. Camping is permitted from the dunes to the water's edge (about a 100 ft. distance). Open to two-wheel drive vehicles, however, beach conditions may vary with weather and campers should always use caution to avoid becoming stuck in unexpectedly deep sand.

South Beach Open All Year

Primitive and at no charge. A camping permit is required and is available from the information desk at the Malaquite Beach Visitor Center. Open to RV and tent camping. No reservations are needed; space is usually available. Camping is on the beach within 100 feet of the water's edge. There are no designated sites. The camping area extends from the end of Park Road 22 south 60 miles to the boundary of the park at the Mansfield Channel. There are no roads, all driving is on the beach. The first five miles of south beach are open to two-wheel-drive vehicles.



South Beach

The lower 55 miles are accessible to four-wheel-drive vehicles.



South Beach

The beginning of the four-wheel-drive area is marked with the five mile marker sign. Please note that in Texas, beaches are considered highways and all vehicles on them must be street-legal and licensed. ATV's are not allowed to be driven in the park.

Be aware that driving conditions on the beach may vary with the weather and sometimes areas of soft sand may be found in the two-wheel-drive area making driving difficult and becoming stuck possible. Some areas within the four-wheel-drive area usually have very deep sand. A bulletin on how to prepare for driving down island is available by contacting the visitor center. Contact the visitor center before driving down island to check on beach conditions. Driving off the beach and into the dunes, grasslands, and mudflats is prohibited.

Yarborough Pass Open All Year

Primitive - there are no facilities. A camping permit is required and is available from the Malaquite Beach Visitor Center. Reservations are not needed. Located on the Laguna Madre 15.5 miles south of the visitor center. No fee is charged for use. Access to the area is possible only through the four-wheel drive area of South Beach. To find the campground (not a developed campground) drive to the 15- mile marker then backtrack approximately 100 yards and look for a notch in the dunes. Driving through the pass and following the road approximately 1-2 miles to the campground. Be aware that the notch through the dunes is sometimes filled with exceptionally deep and soft sand in which even four-wheel-drive vehicles become stuck occasionally. Do not drive on the mudflats surrounding the campground. Fines for damaging the mudflats are heavy.



Pond at Yarborough Pass

Help Find Nesting Kemp's Ridley Sea Turtles

By Donna J. Shaver, Ph.D., Chief, Division of Sea Turtle Science and Recovery

YOU CAN HELP RESTORE THE WORLD'S most endangered sea turtle species by watching for these two-foot-long, olive green turtles nesting on the beach and reporting them. Kemp's ridley turtles come ashore during daylight hours between April and mid-July to lay their eggs, only taking 45 minutes to crawl up the beach, bury the eggs in the sand, and return to the sea.



Kemp's ridley nesting

National Park Service staff and volunteers search for the nesting turtles and their eggs, but because of the large beach area that we patrol and nesting habits of this species, beach users are the first to find up to half of the nesters that we document each year. Each of these nesting reports is vital to the recovery effort and we greatly appreciate the public's assistance.

Long-term efforts showing progress

Kemp's ridley has been the focus of global recovery efforts for decades. In 1978, the U.S. joined conservation efforts that were on-going in Mexico, where most Kemp's ridleys nest. From 1978-1988, 22,507 Kemp's ridley eggs were transported from Mexico to re-establish nesting at the National Seashore, to form a secondary nesting colony of this native species as a safeguard against extinction. In 1986, we began efforts to try to find turtles from this project as well as Kemp's ridleys from the wild stock that were nesting. Some turtles from this project have returned to nest at the park, but most nesting here are from the wild stock.

Thanks to the hard work and dedication of many agencies and people in the U.S. and Mexico, the Kemp's ridley population is increasing. A record 102 nests were found on the Texas coast in 2006. Sixty percent of the Kemp's ridley nests documented in the U.S. have been found at the National Seashore, making it the most important nesting area in the U.S. for this endangered species.

Find and protect nests from April through mid-July

Each year, National Park Service staff and up to 140 volunteers conduct a program to detect, study, and protect nesting Kemp's ridley turtles and their eggs on North Padre Island. We use 4-wheel All-Terrain-Vehicles to repeatedly patrol the Gulf of Mexico beachfront, each day between 6:30 am and 6:00 pm, from April through mid-July.

We want to find the nests so that we can protect the eggs and hatch as many baby turtles as possible. If we do not find the eggs, far fewer hatchlings are born and survive due to predation, high tides, and other factors. Eggs from all nests found on North Padre Island and northward along the Texas coast are brought to the National Seashore's new, state-of-the-art incubation facility for protected care.

What to do if you see a nester

You can help by watching for nesting and immediately reporting it to a passing turtle patroller or me at (361) 949-8173, ext. 226. If you find a nesting turtle, please: 1. report immediately; 2. stay back while she is crawling up the beach to select a nest site; 3. protect her from passing traffic; 4. allow her to nest undisturbed; 5. photograph or record her after she has started to lay the eggs or when she is returning to the water; 6. mark where she nested, and 7. allow her to re-enter the water. If possible, keep people and vehicles away from the nest and remain there until a biologist arrives.

Hatchling releases

From June through August, after 45-53 days of incubation, the hatchlings born in the incubation facility are released on the beach at the northern end of the National Seashore. Each year, up to 10 releases are open to the public and over 2,000 visitors attend, free of charge. For more information on these releases, visit our website at www.nps.gov/pais/ or call the National Seashore's Malaquite Visitor Center at (361) 949-8068. As the projected date for a release approaches, call our recorded Hatchling Hotline at (361) 949-7163.

Oil and Gas con't from Page 1

After the NPS has completed its review and environmental compliance responsibilities, it may approve the operator's plan.

If a proposed operation cannot be sufficiently modified to prevent the impairment of park resources and values, the NPS may seek to eliminate the associated mineral right by purchasing it, subject to the appropriation of funds from Congress. Where funds are available, this option eliminates the possibility of oil and gas development.

Exploration, development, and production of oil and gas minerals have occurred on Padre Island since the early 1950s. Ninety-one operations have been conducted to date, including 60 abandoned and plugged wells, 9 seismic operations, 5 pipelines, 8 active gas wells, 1 water well, and 1 active drilling operation. Most of these operations took place between 1951 and 1981, with at least 14 operations pre-dating the establishment of Padre Island NS in 1962. The park is presently reviewing four plans of operation for permitting six new wells over approximately the next 12-18 months.



Wilson Well as seen from the Novillo Camp Line

The 12 other NPS units where oil and gas development activities are allowed to occur are those at Alibates Flint Quarries, Aztec Ruins, Big Cypress, Big South Fork, Big Thicket, and Tallgrass Prairie. These areas include national parks, monuments, preserves, recreation areas, rivers, wild and scenic rivers, and a historical park. At the other 391 NPS units, mineral resources are owned by the federal government and protected from development unless authorized by Congress.

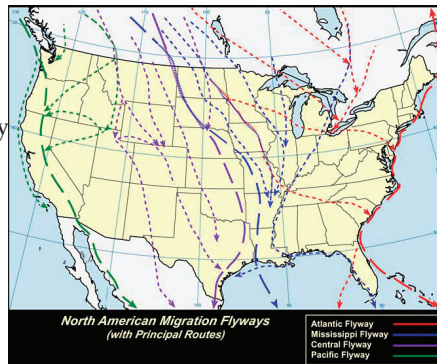
Padre Island National Seashore prides itself on proactive management of oil and gas operations within the park. Park staff and managers constantly strive to utilize cutting-edge technology, review and update established mitigation measures, evaluate past practices, apply current research findings, incorporate public comment, and coordinate with partners to ensure the preservation and protection of park resources. These actions help provide an enjoyable visitor experience and protect park natural and cultural resources while still allowing congressionally mandated access to nonfederal oil and gas minerals.

FOR MORE INFORMATION ON PADRE ISLAND NATIONAL SEASHORE'S OIL AND GAS PROGRAM, PLEASE VISIT OUR WEBSITE AT: WWW.NPS.GOV/PAIS

The Secret Travels of Migratory Birds

By Michelle Havens, Biological Technician

SPRING IS IN THE AIR, AND SO ARE THE birds! Most species of birds are migratory, meaning that they move to different geographic areas at different times of the year. Most migratory birds have three different homes. They spend the spring and summer seasons at their breeding grounds, where they meet their mate, build a nest, and raise young. Breeding grounds are usually abundant with food and space that the birds need to produce eggs and raise their young; however, migratory birds spend most of their year on their wintering grounds. Most birds nest in areas that are not stocked with food and may be too cold for them to survive in the winter so they fly, sometimes thousands of miles, to a place that they can be warm and have lots of food. The third place birds live are called stopover areas. Some migrations between breeding and wintering grounds are so far that the birds cannot make it without stopping for fuel. The birds may spend several hours, several days, or several weeks in their stopover areas so they can rest and eat enough food to finish their long journey. Padre Island provides breeding, wintering, and stopover homes for almost 400 bird species.



A Summer Tanager with a wasp, an example of a Neotropical migrant. Photo by: D. Sokoll

Because of its geographic location and great bird habitat and food resources, Padre Island National Seashore is a prime setting to witness spring bird migration. The park provides breeding and nesting, wintering, and stopover habitat to all types of neotropical migrants, raptors and owls, shorebirds and terns, waterfowl, and colonial nesting waterbirds.

Neotropical migrants include many tiny birds such as warblers, vireos, thrushes, and gnatcatchers that migrate huge distances for their small size. They spend their spring and summer breeding time in northern parts of North America where they build nests and raise young. When the food and temperature get low, they begin their long journey southward to their wintering grounds, some species traveling as far as Central and South America. In the spring time, they begin flying north in high air currents over the Gulf of Mexico. With nowhere to stop in the wide, deep Gulf of Mexico, they are exhausted by the time they reach land and seem to fall out of the sky, creating what we call a migratory bird “fallout.” In March, April, and even May, hundreds of tiny, bright colored birds stagger onto the first piece of land they see after a long stretch of Gulf: Padre Island. They are tired, weak, and in need of food. Neotropical migrants, although they stay for a short time, sometimes only several days, will eat enough food and regain their strength to continue the rest of their trek to their breeding grounds. During these fallouts, which usually occur with the approach of a strong cold front, neotropical migrants can be found almost anywhere in the park, especially in the trees around Bird Island Basin. Some examples of common neotropical migrants seen during spring migration are the bright blue Indigo Bunting, Yellow-rumped Warblers and many other warbler species, crimson colored Vermillion Flycatchers, and Summer Tanagers.



Nesting Terns on the Laguna Madre

Spring also brings welcoming and farewell parties for several raptor species. The long-time winter resident, the Peregrine Falcon, makes its way back to the north and west to begin nesting on cliffsides. Following it are the American Kestrel, which visits South Texas only in the fall and winter, and the Merlin that returns to the upper reaches of North America for its breeding season. Although the Peregrine Falcon, American Kestrel, and Merlin find south

Texas much too warm in the summer time, the Crested Caracara and the White-tailed Hawk find it a perfect place to nest and raise young. Both of these species are found year-round almost exclusively in southern coastal Texas, and nest in small trees and shrubs. These two species have only one home here and can find abundant food and habitat all year. Keep your eyes open, however, for other raptor species that might be passing through the area, or using the park as their stopover. Hawks such as the Sharp-shinned Hawk and Cooper’s Hawk may fly over while on their journey to their breeding grounds.

Anyone would expect to see thousands of shorebirds and terns at a national seashore.

Padre Island provides a home to hundreds of thousands of shorebirds and terns each year. Some of them live here all year, but many find homes in other places also. The Piping Plover, considered federally threatened, spends more than 9 months basking and foraging on Padre Island beaches and tidal flats. When the weather starts getting warmer, Piping Plovers fly to Canada and the northern Great Plains to build small nests on the ground near lakes and rivers. Their cousin, the Snowy Plover, sticks around Padre Island all year, and builds its tiny nest on the ground in the park’s washover passes and tidal flats with their ground nesting neighbor, the Least Tern. Alongside the Snowy Plovers and Least Tern nests, Wilson’s Plovers, who travel north from their winter home in Mexico to nest at Padre Island, make nests on the ground along the edges of salt-tolerant vegetation. Other terns, such as the Black Tern and Common Tern, use Padre Island as a stopover on their journey of thousands of miles between their wintering and breeding grounds. Masses of sandpipers, Black-bellied Plovers, and Long-billed Curlews leave the area in the spring to find a good place to nest. As far as migration goes, Red Knots take the cake with an amazing journey beginning in the Northern Arctic, where they nest in the summer, all the way to the southern tip of South America, where they spend their winters. They visit Padre Island National Seashore by the hundreds while making this huge trip. They can be found in large groups running uniformly up and down the beach with the waves.



Piping Plover

Our largest migrating birds are the colonial nesting waterbirds and cranes. Sandhill Cranes can be seen leaving the area during the spring after spending a good fattening winter in the Padre Island grasslands. As the cranes are leaving, the colonial nesting waterbirds, such as Great Blue Herons and Reddish Egrets are finding their way to the islands in the Laguna Madre. Along with Roseate Spoonbills, Little Blue Herons, and Snowy Egrets, these species stick around all year and wait for the opportune moment to build huge nests in trees and amongst the prickly-pear cactus on these tiny islands. They nest in large colonies, sometimes including up to 50 or more birds. The smaller gulls and terns, such as the Laughing Gull and Caspian Tern, will nest on the bare ground in the same area in large colonies of more than 100 birds. Large numbers of birds nesting together in colonies offer more protection from predators than a single bird nesting alone. The large colonies will often bombard a predator or a person that comes too close to the area to chase them away and protect their nests and young. These birds do not have to migrate far between their wintering and breeding grounds and can be seen along the Gulf of Mexico and Laguna Madre shorelines in the fall and winter.



Sandhill Cranes

Padre Island National Seashore celebrates the hundreds of thousands of birds that spend time here, even the ones that stay only a few hours, with an International Migratory Bird Day Celebration. The celebration normally occurs in mid-March and consists of birding tours, educational activities, and presentations of scientific research occurring in the area. International Migratory Bird Day is a world-wide celebration of the migration of birds between their wintering and breeding grounds, no matter how short or long the journey. Because birds do not know political boundaries between states, countries, and hemispheres, we all work together to protect them, research them, and celebrate them. Watch for next year’s International Migratory Bird Day Celebration at Padre Island National Seashore, or other celebrations here and in other areas.

Seaweed-Love It or Hate It?

By William Botts, Park Ranger

SPRINGTIME! ALONG THE TEXAS COAST, WE THINK OF STUDENTS ON SPRING break, warming sea breezes, improved fishing, and lots of seaweed. Just as predictably, visitors begin to ask questions such as “where does all the seaweed come from” or another frequent question - “why doesn’t the park staff clean it up”? The abundant algae that returns each spring as predictably as our migratory birds is more correctly known as “Sargassum”. Of the varieties of marine plants that come ashore on Padre Island, Sargassum is the genus (or grouping) that scientists have placed these closely related species of “seaweeds” into. They are classified as brown algae, and like all plants, they produce oxygen. Since the ocean’s surface is vast, Sargassum has virtually limitless space to grow so long as conditions are right. Botanists believe that if all of the Sargassum could be collected and weighed it would be the most abundant plant in the world. That means it produces a sizeable percentage of the planet’s oxygen, the all important part of our atmosphere that helps make life possible. Regardless of what you call it, we depend on it for our very survival.



Sargassum

So where does it all come from? Most originates in the Sargasso Sea several hundred miles out in the open Atlantic Ocean. Currents carry it from there down through the Caribbean and finally into the Gulf of Mexico. Along the way, the mats of algae continue to proliferate and grow. Eventually, due to an unusual current convergence that occurs off of Padre Island, large quantities arrive in the area and are driven ashore in the spring by the strong offshore winds. During the worst years, it can stack up two or three feet deep along the water’s edge. While that may be an unsightly problem for beach going human visitors, there are many species that benefit from it – especially birds and marine animals.

If you wish to see how animals utilize it, join a ranger on a beach walk. Using a small mesh net provided by the ranger, visitors wade out into the surf and dip up the sargassum. The algae is taken ashore and shaken vigorously over a container of sea water. What often falls out is a cornucopia of tiny crabs, shrimps, fishes, and other strange creatures like the Sargassum Angler Fish (*Histrio histrio*). To migrating shorebirds this represents a feast to gorge on before journeying northward. For birds nesting here, the creatures washing ashore with the algae will provide a dependable source of food for themselves and their hungry chicks well into mid summer when diminishing winds finally cease pushing Sargassum onto the beach. Even tiny Kemp’s ridley sea turtle hatchlings born here swim out to sea to hide and feed within the algae mats until they grow large enough to safely venture away from their refuge. The thick mats of algae also provide a sanctuary for any of several dozen fish species as they too seek to escape hungry predators. Consider, too, that those big tuna and mackerel that we eat didn’t start out big. They also hid around and among the Sargassum as they grew from being prey themselves into full grown predators.



Sargassum Angler Fish
Histrio histrio

One last consideration if you enjoy our vast beach is that the algae help the beach grow. After washing ashore, sargassum lays exposed in the hot Texas sun. As it dries, it turns black and becomes extremely light weight. The strong winds that forced it ashore now push it to the base of the sand dunes where it is buried by blowing sediments. Rotting occurs beneath the hot sand that frees up organics that newly emerging plants utilize for nutrients. Those plants in turn collect and hold sand thereby allowing the beach to expand and stabilize itself.



Kemp's ridley hatchlings
crawling over Sargassum

So is Sargassum bad? To some degree it will always be a matter of personal opinion. However, when you consider that it provides oxygen, creates a food web that feeds us, stabilizes our beaches, and provides so many benefits to wildlife, you have to admit that love it or hate it, we need it.

Shoreline Trash-An Unsolved Problem

By Darrell Echols, Chief of Resources Management and Science

SHORELINE TRASH IS UNPLEASANT AND OFTEN HAZARDOUS TO BOTH humans and wildlife. In an attempt to clean the beaches of trash, many coastal communities spend millions of dollars each year and conduct numerous volunteer clean-ups. Such measures, however, resolve the problem only temporarily and trash usually reappears on the shoreline within a short period of time.



For much of the year, the beach at Padre Island National Seashore is heavily littered with trash. A five-year study demonstrated that Padre Island National Seashore received far more beach trash than any other national park. Shoreline trash at Padre Island National Seashore frustrates both managers and visitors, and continues to be the most difficult natural resource and visitor management problem facing the park.

Shoreline trash is not just an aesthetic problem, but also an ecological, safety, and economic problem. Trash includes non-hazardous wastes, such as commercial and household trash and debris, and numerous types of hazardous wastes, such as toxic chemicals and medical waste. Visitors not only must deal with the unsightliness of the trash, but may also be exposed to dangerous waste. Additionally, each year an unknown number of marine and terrestrial animals appear on the shores of Padre Island that have been maimed or killed by entanglement in or ingestion of ocean-borne trash.

The primary reason for trash accumulation on Padre Island is the convergent currents that occur along the Gulf coastline. These currents deposit trash floating in the Gulf of Mexico onto the park’s coastline. The amount of trash on the beach is directly related to the amount that is placed into the Gulf, the strength, direction, and duration of the wind, the height of the incoming tides, and the presence of offshore storm events such as hurricanes and tropical storms.

Legislation has been passed to help resolve the shoreline trash issue. In 1988, Congress passed the Marine Plastic Pollution Research and Control Act to reduce the amount of trash dumped into U.S. waters. The United States joined 39 other nations ratifying Annex V of the International Convention for the Prevention of Pollution from Ships, known as MARPOL. Annex V of MARPOL makes it illegal for U.S. and foreign ships to discharge plastics into the world’s oceans. In 2006, President Bush signed into law the Marine Debris Research, Prevention, and Reduction Act, which authorized National Oceanic and Atmospheric Administration to map, identify, and assess impacts; increase removal and prevention activities; research and develop alternatives to gear posing threats to the marine environment; and establish outreach activities.

These legislative initiatives help provide the political and economical support necessary to help federal, state, local, and private communities address the issue of shoreline trash, but what about local efforts?

Padre Island National Seashore staff studied the type, presence, distribution, and possible source of marine debris for over ten years. While it may seem that trash found on the beach is left by uncaring park visitors, research indicates that the vast majority of trash washes into the park from sources outside of the park’s boundary. The oil and gas industry was responsible for items such as hardhats, wooden pallets, and 55-gallon drums. The commercial shrimping industry was responsible for items that included rubber gloves, plastic woven vegetable sacks, and plastic salt bags. However, many items such as condiment and beverage containers could not be identified to a particular source, which may include commercial shipping, recreational fishing, or cruise ship activities, or coastal and inland sources affected by flooding events that deposit items into the Gulf of Mexico.

Organized beach cleanups and individual park visitors have helped remove hundreds of tons of debris from park beaches and have improved the visitor experience and protection of the parks resources. If you are interested in supporting our beach clean-up efforts, please stop by the Malaquite Visitor Center or Entrance Station to pick up free trash bags and gloves.

Echinoderms: Spiny Specimens of the Sea

By Ardrianna McLane, Park Ranger

WHAT HAS FIVE ARMS, NO HEAD, NO EYES, AND NO BRAIN, BUT CAN DIGEST a clam inside of its shell and cruise along the sea floor on thousands of tiny feet? Did you guess an animal like a sea star? Sea stars, commonly called starfish, are echinoderms that are part of a phylum, or grouping, called Echinodermata. Echinodermata is the largest phylum that does not have any freshwater or terrestrial representatives. The name echinoderm comes from the Greek meaning, *spiny skin*. There are over 7,000 living species that can be found in most of the world's oceans. Some of these species include animals like the sea star, sand dollar, urchins, sea lilies, sea cucumbers, brittle stars, and basket stars. All echinoderms have thousands of tiny suction cup tube feet that help them cruise along the sea floor, grab a snack at the coral reef, or hang out in the current. Many echinoderms have amazing survival strategies to avoid predators by regenerating lost limbs, creating camouflage, or throwing up their own digestive system. Echinoderms are simple animals without a brain or complex sensing organs and they are characterized by their radial symmetry and central mouth. They also have a special fluid-filled system, called a water vascular system, that operates their tube feet, helps them move, feed, and circulate fluids.

One echinoderm, commonly called starfish or sea stars, possess a well-developed sense of smell, touch, and taste. Sea stars respond to the presence of light. Normally, they like to eat their prey whole. To digest larger prey, they extrude their stomachs outside of their bodies. If snacking on a tasty clam or other bivalve, sea stars will use their suction cup tube feet to pry open the shell and slip their stomach in between the two shells. They will then digest the soft parts of the animal by slathering digestive enzymes secreted by their stomach all over their lunch.



Armored Seastar
Courtesy: Shawn McLane

Sea urchins and sand dollars cruise along the sea floor using short to long movable spines. In between the spines are small, pincer-like organs that scientists suggest that they use to clean, defend themselves, capture prey, or disguise themselves from predators. The skeleton of the sea urchin is a rigid shell made up of flat and fused calcareous plates called ossicles. Most sea urchins have a special plate inside of their central disk called Aristotle's lantern that they use to snack on algae. Sea urchins will overgraze their habitat if their population is left unchecked by predators. Many beachgoers search along the tide line for the round remains of sand dollars washed ashore in a recent storm. Sand dollars live and breed in the shallows along the gulf beaches. Live sand dollars are a muddy brown color with short movable spines that cover their shell with a furry bristled coating.



Sand dollar

After a strong winter storm along the beach or while scuba diving near a reef, you may discover an echinoderm that wears its calcareous shell just below its skin. Sea cucumbers are sausage shaped and covered in warty bumps, or soft spines. When threatened, or handled, sea cucumbers will contract their muscles and shoot out water to become a short, thick, and hard cylinder shape. Some species of sea cucumbers will throw up their entire digestive system to distract predators. The predator will go after the tasty stomach pieces while the cucumber moves away on its tube feet. They will grow back their internal organs over several months. Feeding primarily upon plankton and debris, sea cucumbers will position themselves in a current to catch plankton and food as it floats by. Other species of sea cucumbers will burrow in the sand like an earthworm, munching on sand and the food particles attached to it. They use hundreds of tiny, suction cup tube feet to move along the floor. Amazingly, sea cucumbers make up over 90% of the biomass of the deep ocean floor.

If you find a member of the echinoderm clan or any other marine organism alive, be sure to return them to the water as they are protected at Padre Island National Seashore and we want to ensure that future generations may enjoy these amazing spiny creatures.

The Nature of Dunes

By Wade Stablein, Biological Technician

IMAGINE A PLACE THAT IS CONSTANTLY CHANGING; A PLACE THAT CAN BE found in all climates, from the tropics to the arctic. A place so resilient, it and its components can sustain extreme temperatures and strong, desiccating winds that blow sand and salt; yet so fragile the simplest of footsteps can lead to its degradation. This dynamic place we are referring to is the coastal dune ecosystem, and with its sixty-six miles of beachfront, Padre Island National Seashore is rich with this bio-diverse environment.

Coastal dunes are found along beaches and barrier islands that are self-sustaining by the natural deposition of sand from the ebb and flow of the ocean's tides. Sand that is brought in by high tide will soon dry after the tide recedes; wind then carries and deposits the sand to some form of a stumbling block. Plants, shells, marine debris, fencing, or just about anything may act as a good anchoring point for a sand dune to form. Once a small mound has developed, it's usually just a matter of time before more sand will collect and the creation of a non-vegetated dune has begun.

The first dunes along the beach are referred to as the fore dunes, and those behind them, the back dunes. The heavily vegetated back dunes, commonly known as "the ridge," will then quickly transition into a new ecosystem. At Padre Island National Seashore, these new ecosystems can be recognized as either grasslands or wetlands.

The fore dunes contain much less vegetation than the back dunes, as they are frequently exposed to waves from storm events. Many of the stabilizing plants are lost to these events, and plants never have an opportunity to reestablish themselves before another storm surge occurs. One common plant at Padre Island National Seashore seen trying to take advantage of the non-vegetated space is the familiar pink to purple flowered railroad vine or goat's foot morning glory (*Ipomoea pescaprae*). This extremely fast growing plant can send runners out thirty feet in all directions. Their runners stabilize the sand, and if it were not for railroad vine, many of the dunes of Padre Island National Seashore would not exist. Much like sea oats (*Uniola paniculata*), railroad vine is extremely resistant to heat, salt, wind, and arid climates. Once established, railroad vine can endure many months of little or no rain.

Moving further inland from the fore dunes, the back dunes take on a different shape and size. Away from most storm waters' reach, grasses such as bitter panicum (*Panicum amarum*), gulfdune paspalum (*Paspalum monostachyum*), seacoast bluestem (*Schizachyrium scoparium*), and seashore dropstem (*Sporobolus virginicus*) begin to dominate the land. As vegetation stabilizes the dunes, it also acts as a trap; gathering more sand and ultimately increasing the height of the dunes.

From the beach environment to the different types of dunes and their specific plants, to either the grasslands or wetlands, Padre Island National Seashore offers habitat that is suitable for many different species of animals. Snakes, lizards, beetles, ants, centipedes, flying insects, birds, amphibians, spiders, as well as small and large mammals use the coastal dune ecosystem for shelter, food and water. The white-tailed deer (*Odocoileus virginianus*) is frequently seen browsing and grazing on new growth found in the dunes, while the American badger (*Taxidea taxus*) can sometimes be seen with its nose to the ground on the hunt for a Texas pocket gopher (*Geomys personatus*), a Padre Island kangaroo rat (*Dipodomys compactus*), or other small mammal.

One of the lesser known small mammals found in the dunes of Padre Island National Seashore is the aggressive northern grasshopper mouse (*Onychomys leucogaster*). Despite the fact they may be only the size of a small hamster (six-and-a-half inches long with tail), don't let their small size fool you. The grasshopper mouse dines on grasshoppers, other insects, scorpions, worms, snakes, lizards, spiders, and other small mice. They stalk their prey, and when the moment is right, they'll leap and grasp their prey with their long claws, while giving a death bite to their prey's neck. It is reported that eighty-nine percent of their diet is carnivorous, with only eleven percent being made up of plant material. They are wanderers and can have a home range size of six acres. They have a tendency to usurp or parasitize other small mammals' burrows rather than spend the time and energy building their own. The other interesting characteristic of the grasshopper mouse is it will howl in search of its mate. The mouse will stand on its hind legs, tilt its head back, and with its mouth open, will take on the form of a howling wolf. Researchers report calls from over 100 yards away. This unique species is indicative of the complexity of dune ecosystems.

Spotlight on Volunteers In Memorium

By Ardrianna McLane, VIP Coordinator

CREATED IN 1970, THE NATIONAL PARK SERVICE Volunteers-In-Parks Program (VIP) was created to partner potential volunteers with parks to help achieve the National Park Service mission. Volunteers-In-Parks, (VIPs), are an integral part of and contribute greatly to the success of the National Park Service. During 2006, over 929 volunteers contributed 19,202 hours of service to Padre Island National Seashore. Volunteers performed many different tasks which included working as campground hosts, conducting bird surveys on the beach, gathering scientific data, compiling reports, collecting marine debris, repairing and maintaining park facilities, greeting visitors, providing information, guiding bird tours, and maintaining library and research collections. In the Division of Sea Turtle Science and Recovery, 134 volunteers contributed 8,849 hours to support the Kemp's Ridley Sea Turtle Recovery Program. Volunteers patrolled 115,017 miles of beach for nesting turtles, necropsied turtles for scientific research, and helped release 7,479 sea turtle hatchlings.

Volunteers from all over the world help protect and preserve America's natural and cultural heritage and resources for future generations to enjoy. Volunteers of any age have a special talent or skill that fills a need within a park. In addition to the many individual volunteers that contribute their time and energy, organized groups can volunteer, too. Volunteers are always needed for marine debris removal on over 63 miles of gulf beach. Converging currents and strong seasonal winds bring tons of marine debris to Padre Island National Seashore each year. Volunteers can work at their own pace by helping to clean beaches or participate in planned beach clean-up events. Trash bags, gloves, and information about marine debris are available at the Malaquite Visitor Center. Scout groups, students, or individuals seeking community service hours can volunteer for marine debris removal or a special project by contacting a ranger at the visitor center. Other positions that are available throughout the year include campground host positions, assisting with educational programs for school groups, as well as assisting with natural resources projects and research. Each winter, new volunteers are welcome to sign up to volunteer as trained sea turtle observers and patrollers to look for and detect nesting sea turtles. Volunteer sea turtle patroller training usually takes place each year in March and includes sea turtle biology, identification, and safety and beach driving procedure. If you are interested in signing up for any of these unique volunteer opportunities or you would like to find out more information about how you can help support your National Parks, check out the following websites for more information.

Visit [Volunteer.gov](http://www.volunteer.gov) for online opportunities to work with many land management agencies like the National Park Service, U.S. Fish and Wildlife Service, U.S. Forest Service, Bureau of Land Management, and our many partners. Also, explore this website more to find out about special volunteer events throughout the year so that you can get involved in your community.

<http://www.volunteer.gov/>

Visit the National Park Service Volunteer website to find out about volunteer opportunities or programs that might interest you in parks across the country or in your backyard.

<http://www.nps.gov/volunteer/>

A park's volunteer coordinator will work to match your special skills and interests to a job that helps fulfill the park's needs and mission. Please remember that volunteers are accepted from the public without regard to race, creed, religion, age, sex, sexual orientation, national origin, or disability. With a parent or guardian's permission, children under 18 may also volunteer.



On April 3, 2007 Padre Island National Seashore suffered a great loss. Marina Giggleman, a biological science technician with the Division of Sea Turtle Science and Recovery passed away while patrolling for nesting Kemp's ridley sea turtles. Marina was beginning her second season with the Kemp's ridley recovery project.

While working as a biological science technician at Padre Island National Seashore, Marina patrolled North Padre Island each day searching for nesting Kemp's ridley sea turtles, protecting them, their eggs, and hatchlings from threats. Marina was committed to environmental conservation and was very passionate about fostering environmental awareness at the park and in the community.

Her passion for the ocean and the life within it did not go unnoticed. Dr. Donna Shaver indicated that "Marina was a vibrant and committed employee. . . she loved Padre Island National Seashore, the ocean, and the work that she performed for the park's sea turtle recovery program." Marina's devotion went beyond the boundaries of the park and extended beyond the ocean.

Marina first came to Texas from Venezuela in 1990 to pursue her doctorate degree in Biology from the University of North Texas. Fluent in Spanish, Marina quickly mastered English. While at the University of North Texas, Marina successfully completed her degree and also met the love of her life, her husband, Craig Giggleman. Marina worked for the City of Carrollton as a storm water coordinator before moving to Corpus Christi in 2005. She also served on the Board of Directors for the Coastal Bend Bays Foundation.

Friends remember Marina for her engaging personality, generosity of spirit, kindness, and the sound of her voice. When she spoke, her rich accent held a lyrical quality that was as engaging as her laughter. Marina left behind a loving husband, Craig Giggleman, their wonderful son, Erik Giggleman, as well as many family members and friends who were touched by her warmth, passion, laughter, and beautiful smile. We will miss her very much.



Book Review

By Aubrieta Hope, Photographer

Texas Coast with
Photographs by
Laurence Parent,
Text by Joe Nick
Patoski



Shoreline, Texas:

Biting creatures, wind-driven sand, and relentless heat can make it seem like a boot camp for beach bums. If you arrive on a day like that, stay awhile. The conditions will change (or you will) and soon you'll discover the textures, sounds, and colors illustrated in Texas Coast by photographer Laurence Parent and writer Joe Nick Patoski. Organized geographically, the book begins on the northern end of the coast, near Sabine Pass and concludes at Boca Chica on the Mexican border. All along the way, in communities large and small on the barrier islands and the mainland, Texas Coast celebrates the complexity of this remarkable 377-mile sandy stretch of shoreline.

At first glance, this hard-cover coffee table book is a collection of strikingly beautiful images by master photographer, Laurence Parent. But Parent's photographs face heavy competition from writer Joe Nick Patoski. Equal parts travel guide, history lesson, and nature journal, Patoski's entertaining text enhances the photos. "The coast is nature at her best and worst. . . seagulls squawking, mullet jumping. . . pelicans flying in squadron formation, swirls of shorebirds spiraling. . . mosquitoes descending. . ." He reveals where to find the rarest birds, the biggest tree, and the best seashells: "There are three hot zones for sunrise shelling on the Texas coast." If you're lucky enough to read this book while in Texas, you'll be inspired to venture to new places. And if modern-day discoveries aren't enough, Patoski offers an historic perspective with details about native tribes, Spanish explorers, Civil War battlefields, and 19th century pirates and natural disasters.

Tightly organized and concise, Texas Coast is easy to read -- an undistracted reader could finish it in a couple of hours. But the photographs invite meditation, if not outright daydreaming. No matter where you are, it's possible to get lost in Texas. I started the book more than a thousand miles away on a white winter's day. Though snow was falling, I could hear waves slipping onto a yielding shore, see soft sand settling into drifts beneath a blue sky, and feel my hand reaching for a map to plan my

Health and Safety Tips when Visiting Padre Island National Seashore

Swimming: Use caution when swimming and never swim alone. Strong currents flowing parallel to the beach, tides flowing to and from the beach, and sudden drop-offs in the surf can be dangerous for swimmers and waders alike. If caught in a rip tide, do not panic. Swim parallel to the beach until you are free from the flow, then swim to shore. Do not attempt to swim to shore against the flow. You will not make it.

Hazardous materials: These periodically wash ashore and range from 55 gallon barrels containing unknown substances to used medical products. If you come upon hazardous materials, note the location and alert a park ranger.

Metal detectors: Possession or use of metal detectors is prohibited in the park. Items such as seashells and driftwood, washed in by the tide, may be collected as long as the items are not used for commercial purposes. All other collecting is prohibited. Collection of live sea creatures is prohibited.

Pets: Pets must be on a leash and under physical restraint at all times. Pets are not permitted at the Malaquite Beach Visitor Center area including the designated swim beach in front of the visitor center. Pet waste is becoming a growing problem. Please clean up after your animals.

Gray water and sewage: Gray water and sewage must be disposed of only at the dump station at the Malaquite Beach campground.

Beaches are Texas public highways. Only street legal and licensed vehicles may be driven in the park. All Terrain Vehicles (ATV's) are prohibited. Driving in dunes, grasslands, or mudflats is prohibited. Drive with caution and strictly observe posted speed limits. Pedestrians have the right-of-way at all times and do not always watch for approaching vehicles.

Portuguese Man-of-War: These dangerous critters are found at the park throughout the year. These attractive, blue jellyfish cause a painful sting, which is usually accompanied by redness and some swelling of the affected skin area. If stung, seek first aid. A very small percentage of those stung will experience an allergic reaction, which can cause difficulty breathing, numbness in the arms, legs or elsewhere, severe pain and/or disorientation or unconsciousness. Visitors experiencing these or other symptoms should notify a park ranger immediately and seek medical attention.

Sting Rays: These relatives of the shark can inflict a puncture wound in the lower leg that can be extremely painful. If you are in the water we recommend doing the "sting ray shuffle"; instead of walking, visitors should shuffle along, so instead of stepping on them you actually nudge them thereby causing them to swim away.

Rattlesnakes: Rattlesnakes live in the dunes, grasslands, and mudflats. Visitors should use extreme caution when walking in these areas.

Hunting: Hunting is not permitted in the park, except for the taking of waterfowl in the Laguna Madre in accordance with applicable state and federal regulations. The transportation of lawfully taken wildlife, including exotic species, through the park, is prohibited, except for waterfowl and fish.

Medical Emergency: If you have a medical emergency during your visit, contact a park ranger immediately or go to the First Aid station at the Malaquite Beach Visitor Center. If an employee is not immediately available you may summon assistance for any emergency by dialing 911.

The closest hospital is Bay Area Medical Center located at the corner of South Padre Island Drive and Rodd Field Road in Corpus Christi. This facility is 24 miles from the Visitor Center.

