

Biological Assessment for Padre Island National Seashore's Proposed Project,
Expansion of Facilities Supporting Sea Turtle Science and Recovery

**EXPANSION OF FACILITIES SUPPORTING SEA TURTLE SCIENCE AND
RECOVERY, CONSTRUCTION OF SEA TURTLE PATROL CABINS AND
HEADQUARTERS SEA TURTLE EGG INCUBATION LAB EXPANSION
PADRE ISLAND NATIONAL SEASHORE, NATIONAL PARK SERVICE**

LOCATION:

Kenedy County, Texas
Potrero Lopeno SE and NE (USGS 7 ½ minute) Quadrangles

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The purpose of this biological assessment is to review Padre Island National Seashore's (National Seashore) proposed project of constructing two sea turtle patrol cabins, and the expansion of the Headquarters Egg Incubation Lab facility, in sufficient detail to determine to what extent the proposed project may affect any of the threatened, endangered, proposed, or sensitive species listed below. This biological assessment is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (ESA) [16 U.S.C. 1536(c)], and follows the standards established in the National Park Service's (NPS) National Environmental Protection Act (NEPA) and ESA guidance, and as per National Park Service Policy (August 31, 2006) 4.4.2.3 Management of Threatened or Endangered Plants and Animals.

After conferencing, the National Seashore determined there would be no effect or not likely to adversely affect the species found for the National Seashore's Egg Incubation Lab, and therefore only the federally-listed species within the analysis area for the construction of the patrol cabins would be addressed in this assessment.

The species considered in this document are:

Threatened, Endangered, Proposed Threatened or Proposed Endangered Species

Green sea turtle (*Chelonia mydas*) **T**

Piping plover (*Charadrius melodus*) **T**

Atlantic hawksbill sea turtle (*Eretmochelys imbricata imbricata*) **E**

Kemp's ridley sea turtle (*Lepidochelys kempii*) **E**

Leatherback sea turtle (*Dermochelys coriacea*) **E**

Loggerhead sea turtle (*Caretta caretta*) **E**

Northern aplomado falcon (*Falco femoralis septentrionalis*) **E**

Candidate Species, Sensitive species and Species of Concern

No candidate species, sensitive species or species of concern found within the analysis area.

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Critical Habitat

The National Seashore has no designated critical habitat within the park's boundary for any federal or state-listed species.

Consultation to Date

Employees of the National Seashore met with the Corpus Christi FWS ESA Section 7 coordinator March 16, 2010 and it was determined that because the proposed action of constructing the cabins would occur during the sea turtle nesting season, the proposed action "May Affect, Likely to Adversely Affect" certain sea turtle species, i.e., Kemp's ridley, green, and loggerhead. Due to the infrequency of nesting on the National Seashore, of hawksbill and leatherback sea turtles and temporary nature of impact to the northern aplomado falcon and piping plover these species were identified as "May Affect, But Is Not Likely to Adversely Affect" .

Current Management Direction

Currently, the National Park Service outlines management of threatened and endangered species as per *National Park Service Policy (August 31, 2006), 4.4.2.3 Management of Threatened or Endangered Plants and Animals*:

The National Park Service (Service) will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species.

To meet these obligations, the Service will:

- cooperate with both the U.S. Fish and Wildlife Service and the NOAA Fisheries to ensure that NPS actions comply with both the written requirements and the spirit of the Endangered Species Act. This cooperation should include the full range of activities associated with the Endangered Species Act, including consultation, conferencing, informal discussions, and securing all necessary scientific and/or recovery permits;
- undertake active management programs to inventory, monitor, restore, and maintain listed species' habitats;
- control detrimental nonnative species; manage detrimental visitor access; and reestablish extirpated populations as necessary to maintain the species and the habitats upon which they depend;
- manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species;
- cooperate with other agencies to ensure that the delineation of critical habitat, essential habitat, and/or recovery areas on park-managed lands provides needed conservation benefits to the total recovery efforts being conducted by all the participating agencies;

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- participate in the recovery planning process, including the provision of members on recovery teams and recovery implementation teams where appropriate;
- cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and
- conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species.

The Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance. The Service will determine all management actions for the protection and perpetuation of federally, state, or locally listed species through the park management planning process, and will include consultation with lead federal and state agencies as appropriate.

Under the approved 1992 U.S. Fish and Wildlife Service and National Marine Fisheries Service (NMFS) Kemp's Ridley Species Recovery Plan, the National Seashore has the responsibility of detecting and protecting nesting females and nests, and ensuring safe passage of hatchlings to the Gulf of Mexico. The FWS assigned monitoring actions to the National Seashore as part of this recovery plan. Specifically, the Kemp's Ridley Sea Turtle Recovery Plan lists patrolling and managing Padre Island's nesting beach as task priorities, with the NPS as the responsible agency.

Proactively managing nesting Kemp's ridley sea turtles is the park's number one natural resources management priority, as identified in the approved Padre Island National Seashore 1995 Resource Management Plan.

Background

Padre Island National Seashore proposes to construct two new sea turtle backcountry patrol cabins and to expand the Headquarters Sea Turtle Incubation Facility for supporting the Division of Sea Turtle Science and Recovery. Historically, a total of six bio-techs patrolled the backcountry (down-island), looking for nesting sea turtles. With the success of the program, the total number of down-island patrollers has doubled in size and the number of nests collected and incubated in the headquarters incubation facility has increased to a total of 127 in 2009. One backcountry patrol cabin is currently in place, providing overnight accommodations for six bio-techs, while the current incubation facility can accommodate approximately 250 nests. The number of nests has been doubling about every three years and the Sea Turtle Science and Recovery staff size will have grown from 24 people in 2007 to 35 people in 2011. Because of the growth of the program, new or expanded facilities are necessary. The proposal to decommission the current cabin and replace it with two new cabins would also allow for better

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distribution of sea turtle patrollers along the National Seashore's Gulf of Mexico shoreline, providing more thorough, efficient operations with greater nest detection.

Description of the Proposed Actions

Incubation Lab Expansion

The proposed action of expanding the sea turtle incubation lab would provide additional space for incubating sea turtle eggs within a temperature-controlled, predator-free facility, while also providing additional offices and work space for employees of the park's Division of Sea Turtle Science and Recovery. This proposed action is thought not to adversely affect any federally listed or federally proposed threatened or endangered species because of the location of the proposed action and the lack of presence of these species within the pre-disturbed Park Headquarters area. The global positioning system (GPS) measurement for Park Headquarters and the proposed action of expanding the sea turtle incubation laboratory, based on the Universal Transverse Mercator (UTM) coordinate system using the Continental US North American Datum of 1983 (NAD83 ConUS), is: Zone 14 North; X = 668,351 E, Y = 3,036,964 N.

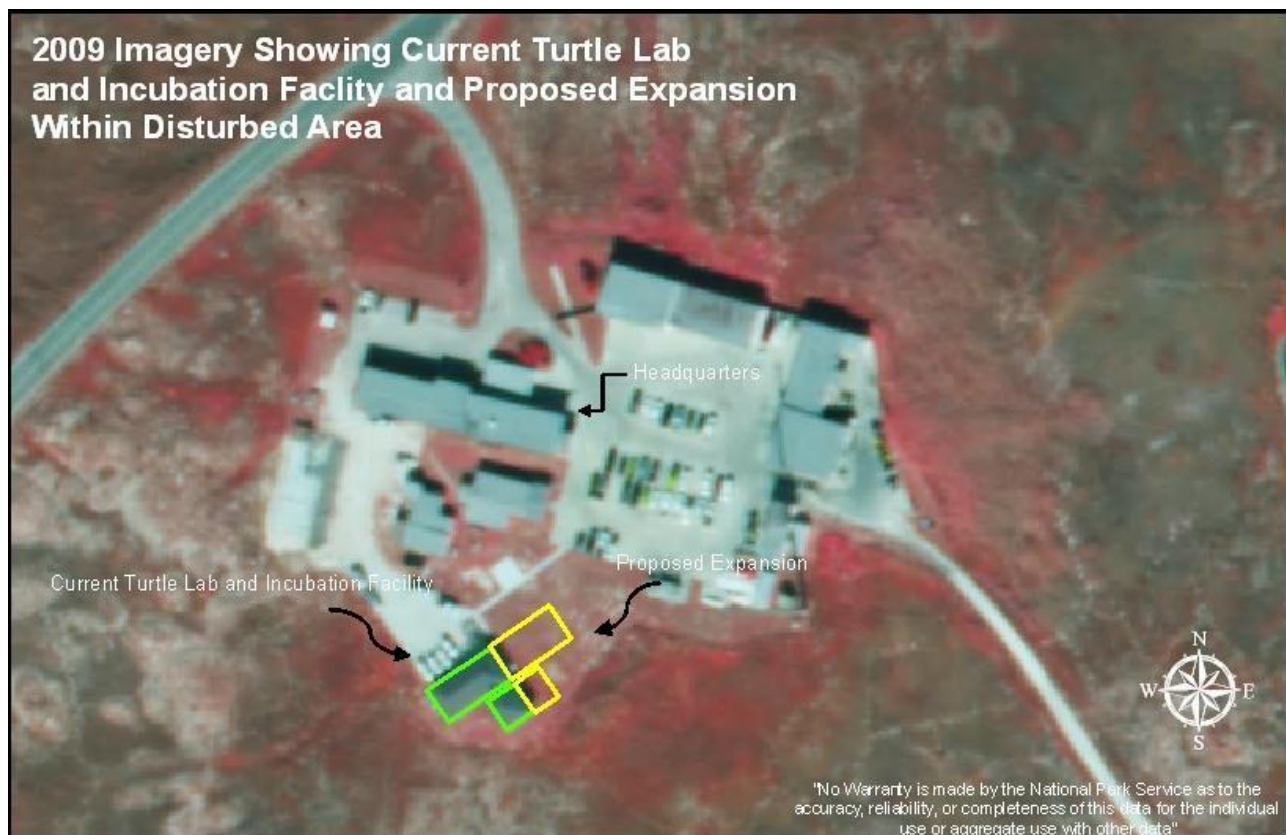


Figure 1. Park Headquarters Facility showing Sea Turtle Incubation Lab Expansion

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The incubation laboratory expansion would consist of adding space to the current incubation facility, with an expansion size of 2,700 square feet, or approximately twice the floor area of the present incubation facility (Figure 1).

Access for vehicles bringing construction materials for the proposed incubation lab expansion would be via Park Road 22. All construction materials would be stored and staged from the parking lot found at Park Headquarters. No wetlands would be impacted. Any effect from this proposed action would be negligible, creating very little more impact than typical park operations. This expansion of the sea turtle incubation laboratory is being considered as wholly beneficial.

Construction of Two Sea Turtle Patrol Cabins

The proposed action of constructing two sea turtle patrol cabins along the Gulf of Mexico (Gulf) of the National Seashore would provide overnight accommodations for additional seasonal park staff, which have been recently added to the program as a response to the record number of Kemp's ridley sea turtle nests found along Padre Island over the past couple of years. This proposed action would also provide additional shelter or refuge for park staff, performing monitoring patrols for sea turtle nests, when inclement weather or a dangerous situation arises on the beach. Both of the cabins would each have a sea turtle predator enclosure, commonly referred to as a corral, where excavated nests can be reburied for safe incubation. With this proposed action, the existing sea turtle patrol cabin, found at the National Seashore

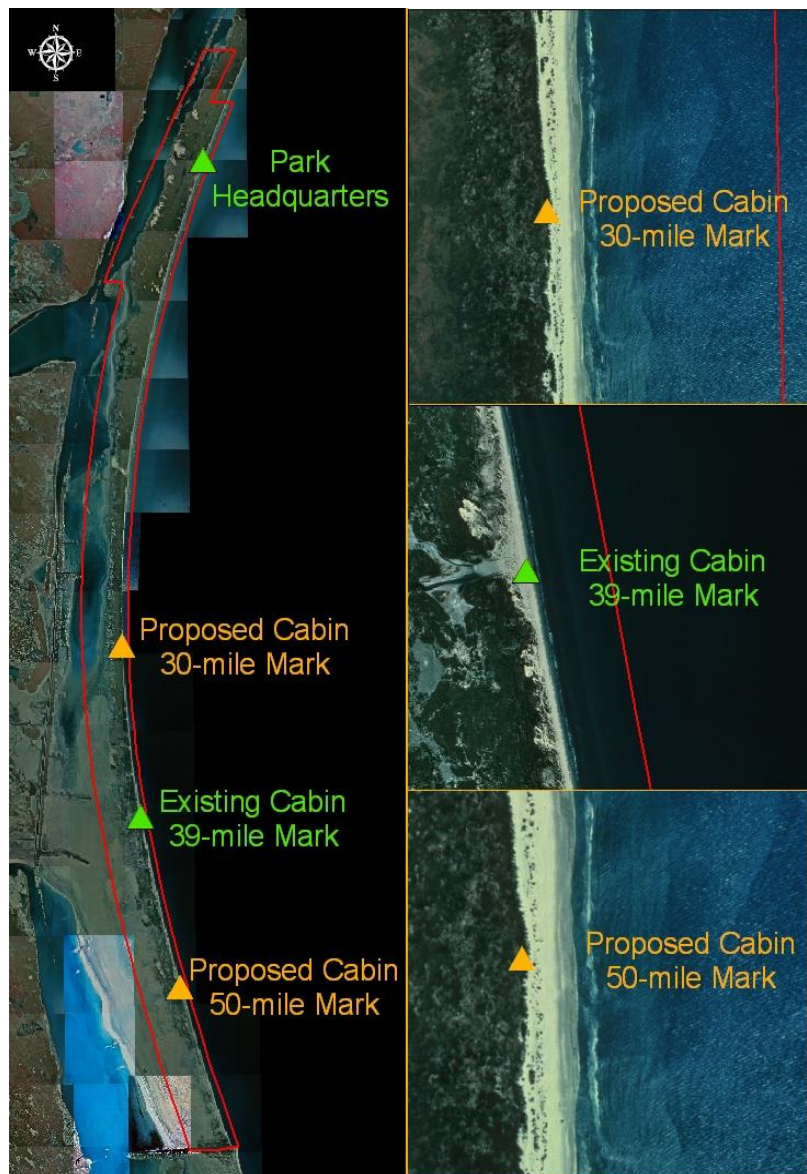


Figure 2. Proposed Cabin Locations

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39-mile Mark, would be decommissioned by the sea turtle program and gifted to the park's Division of Visitor Safety and Resource Protection.

The approximate locations for the proposed construction of two sea turtle patrol cabins is landward of the primary forward dune along the Gulf shoreline at the National Seashore's 30-mile and 50-mile mark locations, i.e. 30 and 50 miles south of Park Road 22's southern end (Figure 2). These two locations were chosen for better spatial distribution of sea turtle monitoring camps along the Gulf shoreline, thereby providing more efficient and safe operations. The GPS measurements for these two proposed locations are based on the UTM coordinate system using NAD83 ConUS, and are as follows:

30-Mile Mark Cabin Location: Zone 14 North; X = 660,782 E, Y = 2,988,601 N

50-Mile Mark Cabin Location: Zone 14 North; X = 666,589 E, Y = 2,955,017 N

The proposed project's scheduled time for construction would potentially be year-round. While the National Seashore would try to schedule around the nesting sea turtle season, it was determined it would be too difficult for the National Seashore to limit construction to only the months outside of the nesting sea turtle season, i.e. October 1 through March 15. To allow for construction to continue into the nesting sea turtle season, this biological assessment is being prepared.

This proposed construction action would be performed and completed by, up to four, trained park staff of the Division of Facilities Management, while the Division of Science and Resources Management and the Division of Sea Turtle Science and Recovery would provide the monitors and oversight for the ESA compliance. The Division of Sea Turtle Science and Recovery would also provide all the necessary training required for compliance with the ESA for nesting sea turtles.

Each of the two proposed cabins would be approximately 50 feet by 50 feet in size. They would consist of typical wood frame ("stick") construction, and be elevated on pilings above the minimum base floor elevations, as provided by Federal Emergency Management Agency Flood Insurance Rate Maps. Installation of the pilings would consist of jetting water into the substrate, thereby displacing sand and excavating a hole for the pilings to be placed within. A front loader would position the pilings into place. The roof of the cabins would be a sloped asphalt shingle. The color of the cabins would be of a sand color, to blend in with its surrounding environment. Each of the cabins would contain a kitchen, a common area, two full bathrooms, and sleeping quarters. The cabins would be powered by batteries with a photovoltaic recharging system. A freshwater cistern with filtration would be used for a potable water system. All graywater and solid waste would be contained within a closed system, utilizing park vehicles for disposal.

For access, all vehicles used during construction would enter the park and Gulf beach via Park Road 22 then proceed along the Gulf beach to approximately the 30 and 50-mile mark locations. Some 4X4 vehicles with trailers in-tow and heavy equipment, i.e. one front-loader, would be

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accessing both sites. A travel trailer would be placed onsite during construction to minimize beach travel for a conservation measure, and for time efficiency.

Proposed Conservation Measures by Padre Island National Seashore:

- Construction activities would be scheduled to the best of the park's ability to minimize construction-related impacts upon resources. The National Seashore would try to schedule all work outside of the nesting sea turtle season; however, this may not be achievable because of unforeseen events and responsibilities.
- All work would be completed by National Seashore employees, and the National Seashore's facility manager would be responsible for ensuring that their crew performs the necessary work in accordance with instructions, standards, and laws, i.e., ESA, provided by the NPS and the FWS.
- Construction workers and supervisors would be informed about endangered and threatened species by the Division of Science and Resources Management and the Division of Sea Turtle Science and Recovery. The NPS would require the cessation of construction activities if any threatened and endangered species were discovered in the project area, until park staff re-evaluates the project. Trained monitors would assist with identification of threatened and endangered species for the action area, as well as the entire analysis area.
- To minimize the potential for impacts to nesting sea turtles, a trained escort would accompany and lead vehicles down the beach during the nesting sea turtle season of March 15 through October 1. Monitoring for signs of sea turtle nesting, the escort would lead any truck with trailer or large, heavy equipment to be used for the proposed project.
- The number of vehicles transiting from upland areas to the project sites would be kept to a minimum, all vehicles would use the same ingress and egress routes, and access would be confined to the immediate project areas. As an added measure, a travel trailer located at each of the proposed construction sites would provide temporary housing for construction workers, thereby minimizing the number of vehicles transiting the Gulf beach each day.
- Materials and equipment required for the project would be stockpiled and staged in upland areas, then transported as needed to the proposed work sites, i.e., while also trying to keep the number of loads conveying freight across the beach to the least amount. Once material has been transported to proposed construction sites, material would be stockpiled and staged in upland areas, thereby minimizing obstructions along the Gulf beach. However, if any lumber or linear pieces of material or equipment should be stored on the beach overnight, during the sea turtle nesting season, then the material or equipment would be placed perpendicular to the shoreline.
- If necessary, overnight storage of a front-loader or other large equipment on the beach would be only temporary, lasting only the duration for the necessary use when work is conducted during the sea turtle nesting season (March 15 – October 1). Proper

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arrangements would be made prior to transport of large equipment to the Gulf beach so equipment can expeditiously perform the necessary work.

- All associated vehicles for the proposed actions traveling along the Gulf beach to the proposed construction sites would coordinate times of work through an established dispatch, ahead of time, so scheduling of convoys may be organized and implemented.
- To minimize the amount of ground disturbance, staging and stockpiling areas would be restored to pre-construction conditions following construction. Any berms, ruts, or furrow created by equipment associated with this project would be smoothed out to a target height of 2 inches or less each day so that turtle tracks can be better identified and to prevent small turtles from becoming entrapped. If ruts are to be smoothed with a backhoe or tractor, a patroller will check for nesting turtles or tracks prior to smoothing the area.
- A monitor would be onsite for identification and protection of any rare, protected plant species.
- To minimize possible petrochemical leaks from construction equipment, the contractor would regularly monitor and check construction equipment to identify and repair any leaks.
- The use of night lights would be minimized. Direct lighting of the beach would be limited to the immediate construction area and would comply with safety requirements. Lighting on equipment would be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the water's surface and nesting beach. Construction activities for this project would occur only during daylight hours.

Action Area (Analysis area, including those areas directly and indirectly affected)

This proposed federal action May Affect, Likely to Adversely Affect some of the endangered and threatened species found along the Gulf of Mexico beach at the National Seashore during access to and from the proposed cabin sites, and also while construction is occurring at the proposed location sites. Therefore, the Action Area is the 50 mile stretch of Gulf beach from the southern-most end of Park Road 22, where beach driving begins, to the 50-mile mark, the southern-most location for the proposed project. Included in the action area would be the area directly behind the dunes approximately at the park's 30-mile and 50-mile marks. These two areas would be roughly 100 feet by 100 feet (10,000 square feet) in size to allow for positioning of the 50 feet by 50 feet (2,500 square feet) cabins, plus additional space for construction and storage of material.

General Park Description

Padre Island is a largely undeveloped barrier island in southern Texas, bordered on the east by the Gulf of Mexico and on the west by the Laguna Madre--a shallow, hyper-saline body of water. Reportedly the longest undeveloped barrier island in the world, it extends from south of Corpus Christi almost to the Mexican border. Padre Island National Seashore, located just south of

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Corpus Christi, encompasses more than 130,000 acres of the island and adjacent submerged lands; is approximately 70 miles in length (generally north-south); and varies in width (generally east-west) from one-half to three miles. It provides rare opportunities for primitive beach recreation, wildlife viewing, and scenic solitude.

The island itself is a dynamic system subject to many geologic forces and climatic events. It was formed, and is continually being reshaped, by the actions of wind, gulf currents, and waves. The National Seashore's landscape changes from broad, white, fine-sand beaches on the Gulf side, to ridges of fore-island sand dunes, to grassy interior upland flats dotted with smaller dunes and ephemeral ponds and freshwater wetlands. The western portion of the National Seashore includes a portion of the Laguna Madre and is characterized by back-island dunes and wind tidal flats that merge with the waters of the Laguna Madre. There are also two natural and 20 man-made spoil islands in the Laguna Madre within the National Seashore.

The park includes thousands of acres of wetlands that are important habitat for numerous aquatic species. Approximately 60 percent (78,000 acres) of the National Seashore consists of a rich variety of wetlands, including estuarine emergent wetlands, freshwater ponds, wind tidal algal flats, Laguna Madre inter-tidal zone, lagoonal sea grass beds, and marshes. The remaining 40 percent (approximately 52,000 acres) includes Gulf of Mexico waters to the two-fathom line, Gulf beach, coastal prairie grassland, and sparsely vegetated dunes.

The park provides habitat and protection for a variety of animal and plant species. Over 345 species of birds utilize the park, including neo-tropical migrants, grassland birds, colonial waterbirds, and other species (Chaney *et. al* 1995a, 1995b, 1998, McCracken and Clark, 1990, Blacklock 1997). Fifty-three mammal species have been documented, including marine and terrestrial mammals (Baccus and Horton 1979, Goetze *et. al.* 1997, Negrete *et. al.* 1999, Rabalais, 1975). Fifty-seven species of aquatic and terrestrial reptiles and 150 species of freshwater and marine fish are known to utilize the park (NPS 1971, Shaver 1984, Chaney 1988). Over 456 plant species occur within the park (NPS 1999, Nelson 1979).

VEGETATION CLASSIFICATIONS

The park contains a variety of vegetation classifications including emergent wetland, sparsely vegetated uplands, wind tidal flats, open water, and grasslands. Table 1 summarizes the land cover classification types at the National Seashore (Laine and Ramsey, 1998).

Land Classification Type	Acres	% Park
Inland Waters (ephemeral and permanent freshwater ponds)	2,342	1.8%
Laguna Madre	30,503	23.4%
Gulf of Mexico	12,775	9.8%

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Land Classification Type	Acres	% Park
Wind-Tidal Flats	28,287	21.7%
Sparse Vegetation	6,000	4.6%
Emergent Vegetation	19,273	14.8%
Grassland	13,427	10.3%
Beach/Sand	3,259	2.5%
Urban (park development)	391	0.3%
Dunes (fore-dunes and back island dunes)	6,127	4.7%
Unconsolidated Shore	6,518	5.0%
Washover Channels	1,192	0.9%
Rookery Islands	261	0.2%
Total	130,355	100.00%

Table 1. Vegetation Classes for Padre Island National Seashore

Higher elevations near the Gulf beach are made up of two rows of fore-dunes adjacent to the Gulf Beach and high dune fields with scattered upland swales. The two rows of fore-dunes are typically dominated by silver-leaf croton (*Croton punctatus*), beach morning-glory (*Ipomoea pescaprae*), camphorweed (*Heterotheca subaxillaris*), prairie clover (*Dalea sp.*), western ragweed (*Ambrosia psilostachya*), and sea oats (*Uniola paniculata*) (Figure 3). The high dune fields are generally dominated by camphorweed, Prairie clover, sea oats, seacoast bluestem (*Schizachyrium scoparium*), western ragweed (*Ambrosia psilostachya*), and some tropic croton (*Croton glandulosus* var. *lindheimeri*).

The majority of the area directly behind the fore-dunes is comprised of hummock uplands. Hummocky uplands are typically dominated by gulfdune paspalum (*Paspalum monostachyum*), and seacoast bluestem (Figure 4). Slim-leaf rosette grass (*Dichanthelium linearifolium*) tends to



Figure 3. Fore-dune vegetation.



Figure 4. Upland vegetation.

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dominate the lower areas. The transitional areas, from upland to lowland, are typically dominated by marsh hay cordgrass (*Spartina patens*), bulrush (*Schoenoplectus americanus*), and Gulf dune paspalum (*Paspalum monostachyum*), with sea ox-eye daisy (*Borrchia frutescens*), narrowleaf sumpweed (*Iva angustifolia*), bushy bluestem (*Andropogon glomeratus*), Carolina sea lavender (*Limonium carolinianum*), large-leaf pennywort (*Hydrocotyle bonariensis*), frog fruit (*Phyla nodiflora*), and slim-leaf rosette grass (*Dichanthelium linearifolium*).

Visitor Use

Most of the recreational development at the National Seashore is located in the northern portion of the park, where a paved road, known as Park Road 22, provides access to the visitor center, entrance station, park headquarters, maintenance facilities, Malaquite Campground, and Bird Island Basin.

Visitor use typically begins to increase in May and peaks in August, with the fewest visitors in December. Annual park visitation in 2009 was 642,163, representing a 1% increase from 2008. Scott and Lai's (2004) publication, "A Survey of Visitors to Padre Island National Seashore: A Final Report," in conjunction with Ditton and Gramann's (1987) publication, "A survey of Down-Island Visitors and Their Use Patterns at Padre Island National Seashore," indicated the following patterns:

1. Twenty-seven percent of visitors interviewed reported traveling no farther down-island than Milepost 0, the end of the paved road (Park Road 22).
2. Thirty-eight percent of beach users interviewed utilize the first ten miles of south beach for their visit.
3. Thirty-five percent of interviewed visitors travel south of Little Shell Beach, even though individual destinations south of Little Shell Beach do not display high visitation.
4. Visitation patterns are similar in July, August, and September.
5. More fishermen use areas south of Yarrowborough Pass (15-mile Mark) than beach users.

The beach areas can be divided up into two-wheel drive accessible, four-wheel drive recommended, and "closed" beach (no vehicle use). Most camping and a large portion of beach day use occur within the first five miles of "South" beach, which is two wheel drive accessible. South of the 5-mile mark, at the four-wheel drive only sign, the number of visitors traveling south towards Mansfield Channel decreases considerably.

The most recent statistics show that about 37% of annual visitors (237,600) utilize Bird Island Basin to camp and provide access to the Laguna Madre for their recreational opportunities. This

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is a 12% increase from the Dinton study. Approximately 11% of these visitors (26,136) will also use the Gulf for day use activities.

The Gulf shoreline is used for recreational opportunities such as surf fishing, swimming, shell collection, sunbathing, camping, and vehicle access to more remote areas of the beach, by an estimated 381,449 visitors. The National Seashore estimates that 27% (102,991) of beach users concentrate their use on the Gulf shoreline at "North beach," the Malaquite Visitor Center adjacent to "closed" beach, and the 0-mile marker of "South beach."

Extrapolating visitation figures, the park estimates approximately 144,950 people recreate on the Gulf shoreline between the 0 and the 10 mile marker of South Beach each year. Of these users, 70% (101,465 visitors) utilize only the first 5 miles (denoted by "4 wheel drive only" sign). Thirty-five percent (133,507 visitors) take the opportunity to access remote beach areas south of the 10-mile marker, such as Yarrowborough Pass and the Port Mansfield Channel, that are accessible (recommended) only to four-wheel drive vehicles.

Use of the backcountry, behind the dune line and across the island to the Laguna Madre, are of more limited interest in part because of the lack of access, and National Seashore regulations and restrictions regarding the use of the dunes and wind tidal mud flats, etc., found in the center of the island.

Species Accounts and Status of the Species in the Action Area

Sea Turtles

Including Kemp's Ridley Turtle, Loggerhead Sea Turtle, Green Sea Turtle, Atlantic Hawksbill Sea Turtle, and Leatherback Sea Turtle

Biology and Ecology:

The **Kemp's ridley sea turtle** (*Lepidochelys kempii*) is federally listed as an endangered species. It is the smallest of the sea turtles, and adults reach maturity at about 10-15 years of age. Kemp's ridley turtles nest mostly during the daytime, often in groups called "arribadas." An individual Kemp's ridley may nest as many as three times a season (USFWS and NMFS 1992), with an average of 2.5 clutches per season. Clutch size averages around 100 eggs. Hatchlings emerge after about 50 days of incubation and hatchling emergence occurs during the night or day. Kemp's ridleys are found in the Gulf of Mexico and Atlantic Ocean and some adjoining estuarine areas. Nesting occurs primarily near Rancho Nuevo, Tamaulipas, Mexico. Each year, some nests are also found at scattered locations between the Texas coastline and Veracruz, Mexico. Very rarely, Kemp's ridleys nest at other locations in the U.S. outside of Texas. More Kemp's ridley nests are consistently found at Padre Island National Seashore than at any other location in the U.S.

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Kemp's ridley is a native nester at the National Seashore (Hildebrand 1963, 1981, 1983; Shaver 1998a; Shaver and Caillouet 1998); however, historic nesting frequency of this sea turtle on the south Texas coast is poorly known. Only six Kemp's ridley turtles were documented there prior to 1979 (Shaver and Caillouet 1998). A total of only 199 Kemp's ridley nests have been documented along the Texas coast between 1979 and 2004, 104 for of them at the National Seashore; however, a record 195 Kemp's ridley nests were found in Texas during 2008, including 93 at the National Seashore (Shaver 2009). The National Seashore is now the most important nesting beach for Kemp's ridley turtles in the U.S., with 55% of the nests documented in the U.S. from 1989-2004 found at the park (Shaver 2006).

Since 1978, an international, experimental project involving the Service at the National Seashore, USFWS, NMFS/NOAA, etc., has been on-going to establish a secondary nesting colony of Kemp's ridley turtles at the park. Eggs were collected in Mexico, transported to the National Seashore, and placed into a Service incubation facility in the park. Hatchlings were released on the beach, allowed to enter the surf and were recaptured. They were then shipped to the National Marine Fisheries Service Laboratory in Galveston, Texas, for 9-11 months of rearing in captivity (head-starting) and the yearling turtles were subsequently released into the Gulf of Mexico. It was hoped that these procedures would cause the turtles to be imprinted to the National Seashore and return there to nest when they were sexually mature. Since 1996, some turtles from this project have been documented returning to the National Seashore and nearby vicinity to lay eggs (Shaver 1997, 1998a, 1999a, 1999b; Shaver and Caillouet 1998).

In 1986, a Service program was initiated to detect, monitor, and protect sea turtle nests at the National Seashore. Detection involves patrols to look for nesting activity, public education, and investigation of reports from patrollers, beach workers, and the public. Patrollers (Service staff members and volunteers) use UTVs to search the park and adjacent State beaches to the north of the park for sea turtle tracks and nesting Kemp's ridley turtles each day, from April through mid-July. From 1979 through 2009, 479 Kemp's ridley nests have been confirmed in the park, but additional nests were likely missed, especially when patrols were not conducted or were less comprehensive. During 2002, three Kemp's ridley nests were found at hatching on the Texas coast, including one within the patrol route at the park. Of the 479 Kemp's ridley nests were distributed along the entire Gulf beachfront length of the National Seashore.

The date of the nesting season varies slightly each year. In Mexico, Kemp's ridley nests have been recorded as early as March and as late as August. The 479 nests documented at the National Seashore from 1979-2009 were found during the months of April, May, June, and July; the months that beach surveys were conducted most intensively. Nesting may also occur at the National Seashore during other months, but this has not been confirmed. A dead Kemp's ridley turtle containing eggs was found washed ashore at the National Seashore during July.

At the park, some Kemp's ridley turtle's nest every year and many are found stranded (washed ashore, alive or dead) (Shaver 1997, 1998a, 1998b, 1999a, 1999b; Shaver and Caillouet 1998).

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Additionally, Kemp's ridley turtles sometimes inhabit nearshore Gulf of Mexico waters at the National Seashore for foraging or migration.

As mentioned above, a Service and USFWS program was initiated in 1986 to detect, study, and protect Kemp's ridley turtle nests at the National Seashore and this on-going program has expanded to include the four other species of sea turtle. Detection for the following four species of sea turtles involves patrols to look for nesting activity, public education, and investigation of reports from patrollers, beach workers, in-park contractors, and the public. Patrollers (NPS staff members and volunteers) use UTVs to search the National Seashore and the adjacent northern area of State beaches for sea turtle tracks and nesting turtles. Each day, from April through mid-July, they repeatedly patrol the entire Gulf beachfront of the national seashore during daylight hours. The patrol season and procedures are designed primarily to detect nesting by Kemp's ridley turtles, but the other sea turtle nests have also been documented and recovered. Daily runs to the Mansfield Channel and back are made from mid-July through August to look for signs of nesting activity, but these patrols are subject to funding and staff availability, and reports from the public.

The **loggerhead sea turtle** (*Caretta caretta*) is federally listed as a threatened species. It occurs in temperate and tropical waters of both hemispheres. The species inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian oceans. Historic nesting frequency on the Texas coast is poorly known. Hildebrand (1981) suggested that nesting likely occurred within the last 300 years, but the earliest loggerhead nest that he was able to confirm for the Texas coast was found in 1977.

Adult loggerhead sea turtles reach maturity in 25 to 30 years. Loggerheads are nocturnal nesters, although some daytime nesting occurs. They nest from one to seven times within a nesting season (average of approximately 4.1 clutches); clutch size averages 100-125 eggs along the southeastern U.S. coast (NMFS and USFWS, 1991b). Hatchling emergence typically occurs at night. In the Gulf of Mexico, there are distinct nesting populations on the coast of the Florida panhandle and the Yucatan Peninsula. Scattered nests can be found occasionally along other areas of the U.S. Gulf coast including the Chandeleur Islands, Louisiana, in the north and to the U.S./Mexico border in the south.

At the park, loggerhead sea turtles sometimes inhabit nearshore Gulf of Mexico waters for foraging or migration. Additionally, a few occasionally nest at the National Seashore and many more are found stranded there (Shaver 1998b, 1999b). From 1979-2009, 35 loggerhead nests were documented at the National Seashore (at various locations scattered along the coast of the National Seashore), but additional nests were likely missed, especially when patrols are reduced and less comprehensive after the mid-July Kemp's ridley patrol season ends. Loggerhead nests are found on North Padre Island from mid-May through early August, although nesting has been documented in the southeastern U.S. from late-April through early September. No loggerheads were documented for nesting along the beaches of the National Seashore during 2009.

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The **green sea turtle** (*Chelonia mydas*) is federally listed as threatened in all of its range except the waters of Florida and the Pacific coast of Mexico, where it is endangered. It is circumglobal in tropical and sub-tropical waters. A green turtle fishery, operating almost exclusively within inshore waters (bays, estuaries, passes), began in Texas in the mid-1800's. By the early 1900's, the catch declined to such an extent that the turtle fishing and processing industry collapsed (Hildebrand 1981). Although historic nesting by green turtles on the Texas coast is suspected, the first confirmed nest was not documented there until 1987 (Shaver 2000).

Adult green turtles reach maturity at 30 to 50 years of age. Female green turtles nest at night. From one to seven clutches are deposited within a breeding season (the average number is usually two to three clutches) (NMFS and USFWS 1991a). Average clutch size is usually 110-115 eggs. Hatchling emergence occurs at night. In this region, nesting sites include southern Florida and scattered locations in Mexico, although nesting occasionally occurs in south Texas.

At the park, juvenile green sea turtles inhabit waters of the nearshore Gulf of Mexico, the Laguna Madre, and the Mansfield Channel. Additionally, a few green turtles occasionally nest within the National Seashore and many are found stranded there each year (Shaver 1989, 1998b, 2000). 1979-2009, 25 green turtle nests were documented at the park, all in roughly the southern two-thirds of the park (Shaver 1989, 2000, 2010). The 25 green turtle nests were found during June and July, although nesting occurs from May through September in this region. Only one green was documented nesting within the National Seashore during 2009.

The **hawksbill sea turtle** (*Eretmochelys imbricata*) is federally listed as endangered. It occurs in tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans. Young hawksbills occur with some regularity in Texas waters, since northern currents carry them from nesting beaches in Mexico (Hildebrand 1981). Historic nesting by this species on the Texas coast is unknown. Female hawksbill turtles nest mostly during the night, but rare daytime nesting is known. They nest an average of 4.5 times per season (up to 12 clutches); clutch size averages approximately 140 eggs (NMFS and USFWS 1993). Hatchling emergence occurs at night. Hawksbills nest on scattered islands and beaches between 25 degrees North and South latitude including beaches in southeastern Florida and the states of Campeche and Yucatan in Mexico. Nesting does not regularly occur on the Texas coast.

At the park, young hawksbills occasionally inhabit waters of the nearshore Gulf of Mexico and Mansfield Channel. Additionally, many are found stranded in the park each year, but nesting very rarely occurs here (Shaver 1998b, 1999b).

The **leatherback** sea turtle (*Dermochelys coriacea*) is federally listed as an endangered species. It ranges throughout the tropical waters of the Atlantic, Pacific, and Indian oceans, but has also been recorded from the North Atlantic, North Pacific, South Atlantic, and South Pacific. The leatherback is the largest and most pelagic sea turtle species and is normally found in the deeper waters of the Gulf of Mexico where it may undertake extensive migrations.

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Nesting occurs primarily at night and diurnal nesting occurs only occasionally. They nest five to seven times per year, with an average clutch size of 110-116 eggs (NMFS and USFWS 1992). Hatchling emergence typically occurs at night. Leatherback nesting grounds are distributed circumglobally. Leatherbacks infrequently strand at the National Seashore (Shaver 1998b).

Hildebrand (1963 and 1981) reported leatherback nesting at Little Shell on the National Seashore, including one documented nesting in 1928 and at least one observed nesting in the mid 1930's. No leatherback nests have been confirmed on the Texas coast since that time.

One leatherback nest was recorded within the park in 2008. It is possible that more were present over the past years, however, missed when patrols were not conducted or were less comprehensive. In the U.S. and Caribbean, nesting begins in February and continues through July.

Critical Habitat for Sea Turtles:

No critical habitat has been designated in the park for any sea turtle species.

Potential Effects of Proposed Project to Sea Turtles:

There may be times when eggs, nesting turtles, hatchlings, and stranded turtles could be directly vulnerable to activities within the project action area.

Operation of any vehicle (including oil and gas heavy equipment) on the beach could crush unobserved nesting turtles, stranded turtles, hatchlings, and some eggs, producing an immediate, lethal impact (Mann, 1977; NMFS and USFWS, 1991a, 1991b, 1992-1993; Ernest et al., 1998).

Visitors are permitted to operate their vehicles along most of the Gulf beachfront at the National Seashore, with driving occurring from the water's edge to the dunes. In the areas where beach driving is permitted, sea turtles that nest and hatchlings that emerge from undetected nests cross at least one vehicular roadway and hence could be vulnerable to crushing from vehicles. Sea turtles have been documented nesting in the vehicular roadway at the National Seashore. No nesting sea turtles, hatchlings, or eggs have been documented as struck or killed by vehicles at the National Seashore.

Eggs could be crushed in undetected nests. Eggs located close to the surface would be most vulnerable to crushing. Patrollers and monitors locate nests primarily by searching for the tracks left in the sand by the nesting females. However, the nesting turtles do not always leave visible tracks on the beach, particularly in areas with very hard packed sand, very soft and blowing sand, and thick seaweed. Vehicles could also remove sea turtle tracks, making it impossible for the Service to find a nest for investigation and protection.

Vibrations and noise caused by moving vehicles could frighten nesting turtles, causing them to abandon their nesting attempt (false crawl) (NMFS and USFWS 1991a, 1991b, 1992; Ernest et

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al. 1998). Vibrations could also harm incubating eggs. It is difficult to assess these areas as scientific data is lacking for sea turtles related to traffic vibrations or noise. Vibrations could affect them either during nest site selection after exiting the water or once the eggs are laid. Vibrations could cause sea turtles to abandon a nesting attempt resulting in a false crawl and causing a sea turtle to re-enter the water and nest in another location. Once a sea turtle digs a nest cavity and begins laying her eggs, vibrations would not cause a sea turtle to abandon its nesting attempt since the turtle enters into a temporary trance where she is oblivious to outside vibrations. Through monitoring efforts during nesting season, all eggs are retrieved from each nest that is located and the eggs transported to an incubation facility. Therefore, vibrations from vehicles or people would not affect these eggs but could affect eggs that are not located and consequently excavated.

Vehicle and camp lights can also cause direct and indirect impacts on nesting turtles leading to false crawls and can disorient hatchlings so that they crawl in the wrong direction rather than enter the sea, thereby becoming directly vulnerable to crushing, predation, and dehydration (NMFS and USFWS 1991a, 1991b; Fletemeyer 1996). No construction will occur during the night, therefore, no beach driving will take place and there will be no effects from vehicle lights.

Lights from the operations behind the dunes could indirectly cause false crawls and disorientation, if the lights are visible from the beach. Conservation measures implemented within the park reduce this potential to an unlikely occurrence.

An existing recovery plan for the Kemp's ridley defines specific park tasks in the recovery efforts, which are being conducted (patrols, monitoring, and habitat management). This is the only federally listed species in the park with recovery plan responsibilities assigned to this park.

Conservation Measures for Sea Turtles:

This project potentially may impact threatened and endangered sea turtles that occur at the National Seashore in the action area, but mitigation measures and monitoring of the action will be implemented to avoid and minimize potential impacts on these species, and help to ensure that the project is not likely to adversely affect these species.

Currently, the Service removes all sea turtle eggs located from the beach and transfers them to the incubation facility at the National Seashore headquarters facility area. Hatching success is elevated substantially for eggs that are transferred to this facility rather than left on the beach in-situ. The Service also protects nesting turtles while they are on the beach and removes stranded turtles for rehabilitation or study. However, some nests missed by the patrol and monitoring effort may go undetected and unprotected from predation, insect infestation, tidal inundation, and crushing. Additionally, some nesting and stranded turtles are not immediately found and protected by the Service.

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To reduce the direct impacts that could occur from crushing/covering nests or turtles, all vehicle operators associated with this project will attend a training class held by the Service. A Service patroller will conduct a morning patrol before large vehicles traverse the beach and will require authorize before construction workers drive large vehicles along the Gulf beach. Monitors will travel in front of large vehicles and vehicles moving equipment, and drive at a reduced speed (15 mph maximum) to look for and help ensure that sea turtles, nests, and their tracks are protected. Observers will use UTVs during the sea turtle nesting and hatchling emergence season (March 15 through October 1) since it is much easier to see faint Kemp's ridley and other sea turtle tracks from UTVs. Vehicles will travel above the wet portion of the beach, thereby reducing the chance of crushing stranded sea turtles. In addition, the National Seashore would like to carry out most, if not all of the construction outside of the sea turtle nesting season, which would reduce the potential to encounter nesting Kemp's ridley and other sea turtles or their tracks. There is potential, however, that this project would extend into the nesting the sea turtle season; therefore, this biological assessment is being completed with the idea a *take* may occur.

Vehicles will travel in caravans when possible, and truck numbers will be limited by implementing existing measures to decrease the amount of time that vehicles are traversing the beach during the sea turtle nesting season. Existing measures will include greater storage space at the pad for storing drilling by-products, which will aid in the scheduling of disposal trucks, and the use of larger trucks, which will reduce the number of trucks and consequently the number of trips along the beach. This will further reduce the potential for affecting nesting turtles or hatchlings through vibrations and noise. As a beneficial effect to sea turtles, observers and vehicle operators from this project will provide additional observation and reporting opportunities and assist with Service efforts to detect, investigate, monitor, and protect nesting sea turtles, their nests, hatchlings, and stranded turtles.

Night sky protection currently being implemented by the park includes the use of directional and shielded lighting. This, in addition to no construction-related activities after dusk, is thought to be adequate to prevent this impact, given current scientific data.

Conclusion for Sea Turtles:

There has been vehicle traffic, both from visitors and heavy equipment operators, on the Gulf of Mexico shoreline for over thirty years with no documented case of a crushing of a nesting sea turtle within the park. The risk to a sea turtle in the action area of this project is reduced when looking at past nesting activity. In 2009, the highest nesting activity ever documented at the park and along the Texas coast, since the beginning of the program (1986), there were nearly 100 nests found within the action area. Current nesting activity does not seem to indicate compaction from vehicles, either by the public or from the operator, is causing a negative effect.

During 2009, 197 Kemp's ridley nests were documented on the Texas coast with 117 of these occurring within the National Seashore, which has taken place with approximately 666,000 visitors coming to the park. Looking at nesting data collected over the past 24 years for the

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action area, and given that most nests are found and removed from the beach by Service staff, the potential impact of vibrations to eggs and crushing of nests would appear to be minimal. The chance that hatchlings could be killed by vehicle use at night along the stretch of beach within the action area of the project is minimal, because all project activities are scheduled to occur during daylight hours.

While pedestrian or vehicle caused injury is thought to be minimal, if this proposed action is to occur during the nesting sea turtle season, there is the likelihood that a sea turtle could be scared or harassed, resulting in a false crawl. Dependent upon beach conditions, it is estimated that there would be somewhere in the range of 30-50 vehicle (sometimes with trailer) loads of material going to each site for each cabin. This equates to this project potentially having up to approximately 100 trips traveling either to or from the National Seashore's 30-mile mark, and 100 trips traveling either to or from the National Seashore's 50-mile mark. Any vehicle towing a trailer, or that is a front-end loader, would have trained sea turtle monitors escorting at the front and rear of the vehicles on UTVs during the nesting sea turtle season.

Given the moderate potential to negatively impact sea turtle species in the action area (there are possibilities to directly impact this species), and the likelihood that either Kemp's ridley, green and loggerhead sea turtle species may be encountered, the overall conclusion for this biological assessment is that the proposed project, with mitigation and conservation measures implemented, may affect the Kemp's ridley, green, and loggerhead sea turtles, and likely to adversely affect the species.

Lighting of facilities could have a direct effect on sea turtle hatchlings if not addressed; therefore, lighting for the cabins would be low wattage and pointed inward and away from the Gulf beach to prevent disorientation for sea turtle hatchlings. Lights which lean towards the red spectrum frequency will be favored by the park, e.g. low pressure sodium vapor.

Birds

Including Piping Plover and Northern Aplomado Falcon

Biology and Ecology:

The **piping plover** (*Charadrius melodus*) is federally listed as a threatened and endangered species throughout its range in 1985 (USFWS 1985). The Piping Plover is a migratory shorebird that breeds from Nova Scotia south to North Carolina and winters along the Gulf Coast from Florida to Mexico, along the Atlantic Coast from Florida to North Carolina, and in the Caribbean. They are found on sandy beaches, lakeshores, dunes, and often well above the water line (Sibley, 2000). Several studies have shown that more than 50% of wintering Piping Plovers are found along the Texas coast (Haig and Oring 1985). Piping plovers depend on the National Seashore as crucial wintering and foraging habitat.

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Piping plovers breed along prairie rivers and on alkali wetlands of the Northern Great Plains, sandy beaches along Great Lakes shorelines, and Atlantic coast beaches. These birds nest in shallow depressions built in the sand with both parents incubating the eggs and exhibiting a monogamous mating system. Breeding generally occurs between March and August with both fledglings and parents leaving the nest by September. It is clear that direct interference of nests by vehicles, humans, and dogs significantly affects breeding success (TPWD, <http://tpwd.state.tx.us/nature/ending/birds/piplover.htm>). Piping Plovers disturbed during nesting by flooding or other disturbance may abandon the nest and establish an additional nest in the vicinity at a new location (USFWS, <http://pipingplover.gws.gov/overview.html>).

The National Seashore protects substantial acreage of wintering habitat for the piping plovers. The most important area used by piping plovers is the broad wind tidal flat located at the north boundary of the park. It is estimated that between 60-65% of all piping plovers winter in South Texas (Chaney *et. al.*, 1995a). Piping plovers forage mostly on benthic invertebrates, insects, and crustaceans found within the inter-tidal areas of ocean beaches, wash over areas, mudflats, sand flats, wrack lines, and shorelines of coastal ponds, lagoons or salt marshes. Piping plovers have been documented throughout the park as a winter resident and fall/spring migrant (Chaney *et. al.*, 1993a, 1993b, 1995a, and 1995b). Piping Plovers are generally found along the Laguna Madre, Gulf beach, and washover channels within the park. Piping plovers occur at the National Seashore 11 months of the year with the exception of February (Chaney *et. al.*, 1993a and 1993b). The highest concentrations of piping plovers within the park occur between August and December with September being the month with the highest numbers (Chaney *et. al.*, 1995b).

In 1992 – 1993, a study documented 602 plovers over the entire 60 miles of south beach with 400 of these being found along the Gulf beach foreshore (Chaney *et. al.*, 1993a). Of the 600 birds observed, 87 piping plovers occurred between the zero and twelve-mile mark accounting for nearly 14% of the total number of piping plovers counted (Chaney *et. al.*, 1993a). In 1994 – 1995, 150 piping plovers were documented between the zero and fifteen-mile mark on the Gulf Beach with the majority of these inhabiting the Gulf beach foreshore (Chaney *et. al.*, 1995b).

The **northern aplomado falcon** (*Falco femoralis septentrionalis*) is one of three subspecies of the aplomado falcon and the only subspecies recorded in the United States. This subspecies was listed as an endangered species on February 25, 1986 (51 FR 6686). This falcon is classified in the Order Falconiformes, Family Falconidae. Historically, northern aplomado falcons occurred throughout coastal prairie habitat along the southern Gulf coast of Texas, and in savanna and grassland habitat along both sides of the Texas-Mexico border, southern New Mexico, and southeastern Arizona. Habitat is variable throughout the species range and includes palm and oak savannahs, various desert grassland associations, and open pine woodlands. Within these variations, the essential habitat elements appear to be open terrain with scattered trees, relatively low ground cover, an abundance of insects and small to medium-sized birds, and a supply of nest

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sites. Northern aplomado falcons were also present in the Mexican States of Tamaulipas, Veracruz, Chiapas, Campeche, Tabasco, Chihuahua, Coahuila, Sinaloa, Jalisco, Guerrero, Yucatan, and San Luis Potosi, and on the Pacific coast of Guatemala and El Salvador (Keddy-Hector 2000). Northern aplomado falcons were fairly common in suitable habitat throughout these areas until the 1940s, but subsequently declined rapidly.

Northern aplomado falcons feed on a variety of prey, including birds, insects, rodents, small snakes, and lizards. The species nests in abandoned stick platforms of corvids and other raptors. The species appears to be non-migratory throughout its range. Radio-tagged fledglings in south Texas suggest that most pairs use the vicinity of previous season's nesting platform as a hunting, roosting, and display area throughout the year. The average clutch size is 3 eggs. Disturbance at nest sites and destruction of habitat are threats to the species.

The causes for decline of this subspecies have included widespread shrub encroachment resulting from control of range fires and intense overgrazing (Service 1986; Burnham et al. 2002) and agricultural development in grassland habitats used by this falcon (Hector 1987; Keddy-Hector 2000). Pesticide exposure was likely a significant cause of the subspecies' extirpation from the United States with the initiation of widespread DDT (dichloro-diphenyl-trichloroethane) use after World War II, which coincided with the falcon's disappearance (51 FR 6686, February 25, 1986).

Recovery Efforts

In 1977, the Chihuahuan Desert Research Institute (Alpine, TX) began a study of the effects of DDT on Mexican-bird eating raptors. As an outgrowth of this program, W.G Hunt, J. Langford, and D.P. Hector were able to obtain multiple pairs of falcons. These birds were bred, which ultimately provided the Peregrine Fund with multiple breeding pairs, able for release in the hopes of re-establishment and recovery.

In 1985, four northern aplomado falcons were released on the King Ranch by the Peregrine Fund. Two of the falcons were killed by great horned owls (*Bubo virginianus*), and the other two were soon lost from radio-telemetry range when they dispersed because of intense harassment from scissor-tailed flycatchers (*Tyrannus forficatus*). The advance age of the nestlings at the time of their release may also have had a factor. Four nestlings were successfully fledged in 1986 and in 1987, and five in 1988 and 1989 by the Peregrine Fund at Laguna Atascosa National Wildlife Refuge, Texas.

In 2005, there were 46 pairs of aplomado falcons in the captive population, which produced more than 100 young per year. From this captive population, 1,142 captive-bred falcons had been released in Texas (Juergens and Heinrich 2005). Though the Peregrine Fund conducted its pilot release project in Texas from 1985 to 1989, the actual increased restoration efforts did not

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begin until 1993. These releases have established at least 44 pairs in southern Texas and adjacent Tamaulipas, Mexico, where no pairs had been recorded since 1942 (Jenny et al. 2004). Moreover, pairs of reintroduced falcons began breeding in 1995, and to date have successfully fledged more than 244 young (Juergens and Heinrich 2005). Nests have been located on a variety of structures, both artificial and natural. Predation by great horned owls, raccoons (*Procyon lotor*), and coyotes (*Canis latrans*) is significant, affecting more than half of all nesting attempts (Jenny et al. 2004). Nesting productivity increased by approximately 40 percent in 2003 and 2004, when falcons were provided artificial nesting structures with barred sides arranged so that falcons can enter the nest while predators cannot (Jenny et al. 2004). Pairs of falcons in south Texas successfully fledged young where they had never been successful prior to the use of the new artificial nests. Beginning in 2002, falcons have also been released in west Texas under a Safe Harbor Agreement with The Peregrine Fund.

All of these releases in Texas have occurred on Service refuges or on private property under Safe Harbor Agreement permits, currently with an enrollment of more than 728,000 ha (1.8 million ac). Safe Harbor Agreements are between a private land owner and the Service that permit future incidental taking of listed species on their private land. Releases on Service refuges include Laguna Atascosa, Matagorda Island, and Aransas National Wildlife Refuges in Texas. The Service believes that it is also possible to accelerate the establishment of a breeding population in the Southwest through reintroductions of captive-raised birds in New Mexico. The experience in Texas, where the population went from no known pairs in 1994, to 44 known pairs that produced at least 244 young by 2005, illustrates the rapidity with which a population can be established through reintroductions.

Over the past few years, the National Seashore periodically locates aplomado falcons wintering within its boundaries. A pair has been identified near Park Road 22 foraging at the Novillo Cultural Landscape and the Grassland Nature Trail. One aplomado falcon, with a metal band around each tarsus, has also been identified foraging on shorebirds at the National Seashore's 18-mile mark. No nesting for this species is known to be occurring within the park.

Critical Habitat for Birds:

No critical habitat has been designated for any bird species at the National Seashore. In 2000, 80% of the park was proposed as Piping Plover critical habitat but based on a suit (March 2006), falling in favor of the Texas General Land Office, as well as existing Service regulations, policies, and management measures, no critical habitat was designated.

Potential Effects of Proposed Project to Birds:

The action area includes 50 miles of habitat utilized by the piping plover for foraging and resting. No known nesting habitat exists within the action or project areas. Direct effects of the

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proposed project are associated with displacement caused by pedestrian and vehicular traffic necessary for construction-related activities within the action area.

Heavy equipment and trucks would be traveling along the Gulf beach shoreline to access the proposed construction sites at the 30-mile and 50-mile marks. This vehicular traffic may displace piping plovers and aplomado falcons causing them to take flight and either fly along the shoreline to another suitable location or fly offshore. This displacement will be temporary, similar to other birds disturbed by park visitors or park operations, where the birds will generally be seen landing a short distance away and continuing to perform their pre-disturbance behavior.

The proposed project is could take place anytime of the year, and would occur during the months of August to December, which is the time of the year when the highest concentrations of Piping Plovers occur at the park. However, based on previous studies, the impact is expected to be minimal. This determination is based on:

- When disturbed, the response by piping plovers is to take flight and move along the shoreline to a more suitable area (aplomado falcon have a tendency to stay perched),
- More vehicles are driven daily by the public than the maximum number of vehicles that will be permitted for this project,
- That piping plovers migrate to and from both sides of the (island) park depending on available habitat and time of day, and
- No impact to piping plover or northern aplomado falcon nesting is expected.

Indirect effects of the proposed project may include impacts to benthic invertebrate populations that occur within the inter-tidal area of the Gulf beach. Benthic invertebrates are the primary food source for piping plovers. The effects may include changes in interstitial spacing between sand grains necessary for benthic organisms and crushing caused by compaction of the substrate associated with vehicular traffic.

Conservation Measures for Birds:

Vehicular traffic associated with the proposed project will be directed to drive above the high tide line. This area of the beach is generally farther away from the shorebirds that are found on the Gulf beach including piping plover and helps reduce impacts to benthic invertebrate populations. Additionally, vehicles associated with this project are grouped together prior to entering the beach and limited to no more than 15 mph despite a maximum posted speed limit of 25 mph. This should limit the amount of disturbance by limiting the disturbance to fewer instances. For example, instead of five trucks spaced a mile apart and therefore displacing an individual bird five times, the five trucks are grouped together so the individual is displaced only once. A travel trailer will also be positioned at the construction sites, thereby reducing the number of vehicle loads for park staff traveling to and from the construction site each day.

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Additional conservation measures undertaken by the park include:

- Prohibition on off-road vehicle driving in habitats such as wind tidal flats, which are highly preferred by the species for foraging,
- Speed limits enforced for the Gulf beach,
- Service harassment laws for wildlife, which includes Endangered Species Act and Migratory Bird Treaty Act enforcement
- Leash laws for visitors pets, set at a 6 feet length
- Conducting inventorying and monitoring of piping plovers throughout the year, as well as the international shorebird survey, USGS piping plover survey conducted every five years, and periodic park research projects,
- Submitting funding requests and proposals to allow the park to monitor the plover population within the park and address management concerns,
- Creation of restrictions in timing, placement, and methods of oil and gas development outlined in the park's Oil and Gas Management Plan, and
- Partnering with other state and federal agencies to help ensure that impacts from projects located outside of the park do not impact wind tidal flat habitats that are located within the park.

Conclusion for Birds

Based on the preceding analysis, the overall conclusion of the Biological Assessment is that the proposed project May Affect, but Not Likely to Adversely Affect the piping plover or northern aplomado falcon. Neither federally listed bird species nest within the boundaries of the National Seashore, and the only disturbance from this action would be the temporary displacement of bird species from vehicles or pedestrians from construction-related activities. This disturbance is considered minimal, when taking into account the number of beach driving, beach recreating visitors the park has.

Construction-related vehicles will be required to travel no faster than 15 mph while travel to and from the construction site, and they must drive above the high tide line; therefore, minimizing the risk of injury to invertebrates and shorebird forage

Cumulative Effects

The National Seashore's development consists of the Malaquite Visitor Center and concession facility, the park headquarters, two park residences, a 40-site recreational vehicle and tent campground, a hazardous waste facility, a wastewater treatment facility, Bird Island Basin and Yarbrough Pass visitor use areas, a 185' communications monopole, and a 1 mile paved Grasslands Nature Trail. The paved, two-lane Park Road 22 provides access into the park, westward to Bird Island Basin, and south to the Gulf of Mexico beach. The beach then becomes the primary transportation corridor, 60 miles to the south end of the park. The beach is hard and

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accessible by both two and four-wheel drive vehicles for the first five miles of Gulf beach, at which point the remaining 55 miles of beach corridor is accessible only by four-wheel drive vehicles. Access to the park is also available via boat in the Laguna Madre and Gulf shorelines. In total, existing park development occupies approximately 400 acres or 0.3% of the park. There are no past park developments or activities that continue to impact the park's resources or values. New developments are planned in the future and include the installation of a new 200' communications tower and a new Law Enforcement facility. Park operations that could contribute to impacts on park resources and values include prescribed fires, routine maintenance of the park roads, future park development, park and visitor vehicle use, and public recreational activities such as motor boating, and burning of campfires.

Cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at the National Seashore and, if applicable, the surrounding region. Because the scope of this project is relatively small, the geographic and temporal scope of the cumulative analysis is similarly small. The geographic scope for this analysis includes actions within the National Seashore's boundaries, while the temporal scope includes projects within a range of approximately ten years. Given this, the following projects were identified for the purpose of conducting the cumulative effects analysis, listed from past to future:

- Oil and Gas Management Plan, 2000: The 2000 Oil and Gas Management Plan for Padre Island National Seashore was prepared for the purpose of guiding the management of activities associated with the exploration and development of nonfederal oil and gas within the park. The Oil and Gas Management Plan identifies those park resources and values most sensitive to oil and gas exploration and development disturbance, and defines impact mitigation requirements to protect such resources and values. In order to protect park resources and values, the plan establishes performance standards for oil and gas exploration and development, and it provides pertinent information to oil and gas owners and operators to facilitate compliance with applicable regulations (NPS 2000).
- Septic System Conversion to Wetland Lagoons, 2001: The National Seashore converted the septic system from agitation pools to wetland lagoons, benefiting wildlife that use the facility, in addition to lowering operational costs and maintenance of the facility.
- Development of BNP Petroleum's Peach Pad, 2004: Two plans of operations with 5 wells were approved and developed at the end of Pan Am Rd. The site consists of a 2.92 acres pad, and a 0.7 mile extension of Pan Am Rd. The site is currently scheduled to be plugged, abandoned, and reclaimed.
- Development of Fire Management Plan, 2004: The National Seashore's fire management plan was completed in December 2004. One of the primary actions prescribed by the plan is the reduction of hazardous fuels around the National Seashore's northern end of the park,

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where urban interface and park developments occur. The prescribed area for fire, the Malaquite Beach Fire Management Unit, encompasses 5,018 acres, consisting of five rotating annual treatment areas that vary in size from a few hundred acres to over 3,300 acres. There are three other fire treatment areas in the Down Island Fire Management Unit, totaling 38,000 acres.

- Construction of Sea Turtle Lab Facility, 2005: New Sea Turtle Science offices and incubation laboratory, supporting the recovery of Kemp's ridley and four other sea turtle species.
- Construction of Communications Monopole, 2005: Installation of a 185 foot communication monopole at Park Headquarters in 2005 for improved park communication and border related safety issues.
- Improvements to Bird Island Basin Recreational Area, 2005: This development included the repair and enlargement of Bird Island Basin's boat ramp and parking facilities. A 0.6 mile road was constructed, separating the boat ramp from the wind surfing facility, while also restoring hydrology to one of the park's sensitive wind tidal flats. Three vault toilet systems were installed, and a building to facilitate sales was constructed by the National Seashore's wind surfing recreation concessionaire.
- Development of Kindee Oil and Gas Texas' Wilson Pad and Road, 2006: The National Seashore is currently awaiting a reclamation plan from Kindee Oil and Gas Texas to restore the 2.6 acre pad and 0.8 mile road. The other approved well has been abandoned by Kindee Oil and Gas.
- Reclamation of Malaquite Beach Visitors Center's Parking Lot, 2008: The National Seashore removed 2.3 acres of the over-engineered Malaquite Beach Visitors Center's parking lot. This parking lot was completed in 1969 with expectations of larger numbers of visitors than what the park experiences. Because the parking lot has never been utilized to its full extent, the National Seashore removed approximately one quarter of the area, restoring the area to the natural landscape.
- Boundary Installation, 2010: The National Seashore is currently installing buoys for water marking the Laguna Madre boundary to support law enforcement and jurisdiction over wildlife poaching cases.
- Development of BNP Petroleum Lemon Pad, Ongoing: The 2002 approved plan of operations was developed in 2008, drilling one of the two wells for this site, consisting of a 2.7 acre pad and a 200 meter road. One well is still permitted and may be developed anytime in the near future.
- Development of BNP Petroleum DM 11A, ST 991 #1, and ST991 #2, Ongoing: The 2007 approved plan of operations still has one of three wells that may be developed on this 1.5 acre site.
- Exotic Vegetation Management, Ongoing: The National Seashore has been treating its exotic vegetation for the past five years. In fiscal year 2007, stands of *Arundo donax* were treated. Because success is achieved by treating the same areas for 4 to 5 years, future work would

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focus on maintaining the already treated areas and limiting the number of new areas treated. Currently, Resource Management is having some genetic work completed to determine if the park's *Phragmites australis* is of the old or new world phenotypes.

- Implementation of the NMFS and USFWS 1992 Recovery Plan for Kemp's ridley Sea Turtle, Ongoing: The National Seashore continues to comply with Section 7 of the Endangered Species Act and follow guidance of the U.S. Fish and Wildlife Service and National Marine and Fisheries Service Kemp's ridley recovery plan.
- Reclamation of BNP Petroleum A6 Pad and Road, Ongoing: The National Seashore is currently awaiting a reclamation plan from BNP Petroleum to restore this site's 0.4 acre pad and the associated 0.3 mile road.
- Construction of Law Enforcement Ranger Station, Ongoing: During late winter, 2005, the National Seashore's Law Enforcement and Resources Management facility burnt down due to electrical problems. While Resources Management moved operations into the Administration building at Park Headquarters, Law Enforcement moved to a temporary facility in the Malaquite Visitor Center parking lot. The park has secured funding to build a new facility that will be within the footprint of the temporary facility currently in place. Construction is scheduled to begin in 2011.
- Maintenance Activities, Ongoing: Throughout the park unit, regularly-scheduled maintenance activities are conducted to ensure visitor health and safety. These activities have involved infrastructure maintenance and upkeep, such as ensuring water quality and access. Regular repairs to roads and concrete ramps have also occurred on a continuing basis. Regular park facility maintenance is continually occurring at the National Seashore. To ensure historic structures remain in good condition, the Service continually monitors the condition of the Novillo Line Camp to ensure that if any degradation occurs, funding can be sought to stabilize and repair the structure (NPS 2008a). The potential for impacts to soils, vegetation, park operations, and visitor experience exists from maintenance activities.
- Increasing Demand for Regional Public Lands; Ongoing: Padre Island National Seashore is the largest stretch of undeveloped public beach within the United States, providing numerous opportunities for access to diverse, affordable outdoor land- and water-based recreation activities. In the State of Texas, only 3% of total land base is open to the public; this reflects a relative dearth of public recreational opportunities compared to other states (NPS 2007c). Increasing demand for regional public lands can affect visitor use and experience.
- Reclamation of Non-federal mineral sites, Future: As wells are plugged and abandoned within the park, reclamation of the pads and road would occur. There is potential for half of the sites to be reclaimed within the next five years.
- Installation of 200 Foot Communications Tower, Future: The Department of Homeland Security (DHS) has proposed installing a 200 foot communications tower within the park boundary to better support communications and national security. If developed, the National Seashore would dismantle the current tower and move all park communications to the DHS tower.

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Proposed Conservation Measures by Padre Island National Seashore:

In order to minimize impacts to federally protected species, the conservation measures outlined below will be applied to the proposed project conducted by the NPS. The NPS defines large vehicles as any vehicle that is (1) a pickup truck or full-sized sport utility styled vehicle larger than $\frac{3}{4}$ ton, (2) towing a trailer, or (3) any construction machinery such as a grader, backhoe, or bulldozer.

- Construction activities would be scheduled to the best of the park's ability to minimize construction-related impacts upon resources. The National Seashore would try to schedule all work outside of the nesting sea turtle season; however, this may not be achievable because of unforeseen events and responsibilities.
- All work would be completed by National Seashore employees, and the National Seashore's facility manager would be responsible for ensuring that their crew performs the necessary work in accordance with instructions, standards, and laws, i.e., ESA, provided by the NPS and the FWS.
- Construction workers and supervisors would be informed about endangered and threatened species by the Division of Science and Resources Management and the Division of Sea Turtle Science and Recovery. The NPS would require the cessation of construction activities if any threatened and endangered species were discovered in the project area, until park staff re-evaluates the project. Trained monitors would assist with identification of threatened and endangered species for the action area, as well as the entire analysis area.
- To minimize the potential for impacts to nesting sea turtles, a trained escort would accompany and lead vehicles down the beach during the nesting sea turtle season of March 15 through October 1. Monitoring for signs of sea turtle nesting, the escort would lead any truck with trailer or large, heavy equipment to be used for the proposed project.
- The number of vehicles transiting from upland areas to the project sites would be kept to a minimum, all vehicles would use the same ingress and egress routes, and access would be confined to the immediate project areas. As an added measure, a travel trailer located at each of the proposed construction sites would provide temporary housing for construction workers, thereby minimizing the number of vehicles transiting the Gulf beach each day.
- Materials and equipment required for the project would be stockpiled and staged in upland areas, then transported as needed to the proposed work sites, i.e., while also trying to keep the number of loads conveying freight across the beach to the least amount. Once material has been transported to proposed construction sites, material would be stockpiled and staged in upland areas, thereby minimizing obstructions along the Gulf beach. However, if any lumber or linear pieces of material or equipment should be stored on the beach overnight, during the sea turtle nesting season, then the material or equipment would be placed perpendicular to the shoreline.

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- If necessary, overnight storage of a front-loader or other large equipment on the beach would be only temporary, lasting only the duration for the necessary use when work is conducted during the sea turtle nesting season (March 15 – October 1). Proper arrangements would be arranged prior to transport of large equipment to the Gulf beach so equipment can expeditiously perform the necessary work.
- All associated vehicles for the proposed actions traveling along the Gulf beach to the proposed construction sites would coordinate times of work through an established dispatch, ahead of time, so scheduling of convoys may be organized and implemented.
- To minimize the amount of ground disturbance, staging and stockpiling areas would be restored to pre-construction conditions following construction. Any berms, ruts, or furrow created by equipment associated with this project would be smoothed out to a target height of 2 inches or less each day so that turtle tracks can be better identified and to prevent small turtles from becoming entrapped. If ruts are to be smoothed with a backhoe or tractor, a patroller will check for nesting turtles or tracks prior to smoothing the area.
- A monitor would be onsite for identification and protection of any rare, protected plant species.
- To minimize possible petrochemical leaks from construction equipment, the contractor would regularly monitor and check construction equipment to identify and repair any leaks.
- The use of night lights would be minimized. Direct lighting of the beach would be limited to the immediate construction area and would comply with safety requirements. Lighting on equipment would be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the water's surface and nesting beach. Construction activities for this project would occur only during daylight hours.

RECOMMENDATION:

Proceed with the construction for the expansion of Padre Island National Seashore's Division of Sea Turtle Science and Recovery facilities with the approved avoidance, minimization and conservation measures.

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CONCURRENCE FORM

ENDANGERED SPECIES BIOLOGICAL ASSESSMENT

The USFWS has reviewed the Service's Final Biological Assessment for the expansion of the Division of Sea Turtle Science and Recovery facilities, Padre Island National Seashore, Kleberg County, Texas.

_____ We concur with your findings that the proposed National Park Service action , may affect, but is not likely to adversely affect the hawksbill sea turtle, leatherback sea turtle, northern aplomado falcon and the piping plover. There is no designated critical habitat for either species listed on the National Seashore therefore, none will be impacted.

_____ We concur with your Biological Assessment and believe your project “may affect” the Kemp’ s ridley, green, and loggerhead sea turtlesand a section 7 formal consultation is appropriate..

Stipulations as necessary: (Attach additional sheets as necessary)

Signed: _____

USFWS Office:

Title: _____

Date:

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