

SUMMARY BIOLOGICAL OPINION  
ON THE EFFECTS TO THE ENDANGERED KEMP'S RIDLEY SEA TURTLE  
(*Lepidochelys kempii*), THE THREATENED GREEN SEA TURTLE (*Chelonia  
mydas*), THREATENED LOGGERHEAD SEA TURTLE (*Caretta caretta*), FROM THE  
PROPOSED CONSTRUCTION OF TWO SEA TURTLE SCIENCE AND RECOVERY  
DIVISION PATROL CABINS AT THE 30-MILE AND AT THE 50-MILE MARKERS  
SOUTH OF THE END OF PARK ROAD 22 ON THE PADRE ISLAND NATIONAL  
SEASHORE, KENEDY COUNTY, TEXAS

Consultation No. 21410-2010-F-0244

**Date of the Opinion:** January 19, 2011

**Action agency:** National Park Service, Padre Island National Seashore

**Proposed Action:** The construction of two cabins at Padre Island National Seashore's (PAIS) 30-mile and 50-mile markers where park staff and volunteers searching the remote areas of the park for nesting sea turtles and their nests will have bases of operation without having to return to the park's main headquarters area and offer a place of sanctuary or refuge during times of inclement weather or if a dangerous situation arises along the Gulf of Mexico.

**Listed species:** Kemp's ridley sea turtle, green sea turtle, and loggerhead sea turtle.

**Biological Opinion:** It is the opinion of the Service that the proposed construction of two cabins is not likely to jeopardize the continued existence of the Kemp's ridley, green, or loggerhead sea turtles.

**Incidental Take Statement:** Incidental take of nesting and hatchling sea turtles is anticipated to occur during project construction activities. Take will occur on nesting beach habitat on approximately 50 miles of beach. In addition, despite avoidance and minimization measures implemented, although minimal, adult sea turtles, nests, and their hatchlings could be taken during construction activities, therefore the Service also issued incidental take for:

- 1) 3 adult Kemp's ridley sea turtle and 3 nests per year, including all hatchlings and/or eggs (up to approximately 200 eggs per nest) could be taken.
- 2) 1 adult loggerhead sea turtle and 1 nest per year, including all hatchlings and/or eggs (up to approximately 200 eggs) could be taken.
- 3) 1 adult green sea turtle and 1 nest per year, including all hatchlings and/or eggs (up to approximately 200 eggs) could be taken.

**Reasonable and Prudent Measures:** Avoidance and minimization measures to reduce impacts to nesting adult sea turtles, their nests and hatchlings and piping plovers on approximately 50 miles of beach habitat are outlined under conservation measures and

reporting requirements.

**Conservation Recommendations:** Recommendations to assist the Service in assessing long-term impacts of global climate change on nesting beaches, ensuring nesting habitat is protected on Texas nesting beaches, and determining and monitor nesting female survival rates.



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Ecological Services  
c/o TAMU-CC, Campus Box 338  
6300 Ocean Drive  
Corpus Christi, Texas 78412

January 19, 2011

Joe Escoto, Superintendent  
Padre Island National Seashore  
PO Box 181300  
Corpus Christi, TX 78480-1300

Consultation No. 21410-2010-F-0244

Dear Mr. Escoto:

This transmits the U.S. Fish and Wildlife Service's (Service) Final Biological Opinion (BO) based on our review of the proposed construction of two Sea Turtle Science and Recovery Division patrol cabins by Padre Island National Seashore (PAIS) at the 30-mile and at the 50-mile markers south of the end of Park Road 22 on the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), threatened green sea turtle (*Chelonia mydas*), and the threatened loggerhead sea turtle (*Caretta caretta*) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §1531 et seq.). This BO is based on information provided in the *Final Biological Assessment (BA) for the 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, November, 2010*.

The PAIS requested initiation of formal consultation on November 17, 2010. A complete record of this consultation is on file in the Corpus Christi, Ecological Services Field Office in Corpus Christi, Texas.

#### Consultation History

A summary of the consultation history is included as Appendix A.

### BIOLOGICAL OPINION

#### I. Description of the Proposed Action

### Purpose of Project

The proposed action is the construction of two cabins at PAIS's 30-mile and 50-mile markers so that seasonal park staff and volunteers searching the remote areas of the park for nesting sea turtles and their nests will have bases of operation, where they can overnight, dine, and perform administrative and maintenance tasks without having to return to the park's main headquarters area. Along with providing additional accommodations for sea turtle patrollers, these cabins would offer a place of sanctuary or refuge during times of inclement weather or if a dangerous situation along the Gulf of Mexico beach should arise. This BO is strictly for this project; future work, as proposed, will require additional consultation and permitting (Figure 1 and 2).

### Duration of the Action

PAIS believes all construction will be completed within one year's time; however, unexpected events such as hurricanes or loss of staff may extend that time frame. While PAIS would try to schedule around the nesting sea turtle season (October 1 to March 15), the proposed project's scheduled time for construction could potentially be year-round. Because unexpected events may occur, this BO will be issued for a five-year period, after which a request for an extension of time will be required to continue permitted activities.

### Action Area

The project area is defined as the area where the actual construction will take place. It also includes the area to be affected directly and indirectly by the project. The cabins will be constructed approximately 30 and 50 miles south of the southern termination end of Park Road 22, and each cabin will be positioned landward of the primary frontal dune line along the Gulf of Mexico. Each construction site will be about one hundred feet across in order to allow for the specific area where the cabin will be built, the storage of construction materials in its vicinity, and to allow enough room so personnel may perform construction activity as necessary. Furthermore, materials for the construction of the cabins will have to be transported along the beach between the end of Park Road 22 to the proposed construction sites. Therefore, the Service considers the action area to be approximately fifty miles of beach, with an approximate radius of 100 feet behind the primary frontal dune line.

### Proposed Action

The proposed action consists of constructing two single-story cabins, each approximately 2,500 square 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. Both of the cabins are to each have a sea turtle predator enclosure, commonly referred to as a corral, where excavated nests can be reburied for safe incubation.

The proposed construction action would be performed and completed by, up to four park staff, a supervisor, and occasionally one heavy equipment operator. Construction materials will be transported periodically on an as needed basis to the construction sites and stored there. Personnel will be transported to and from the construction sites. Park staff will monitor and provide oversight for the ESA compliance. The Division of Sea Turtle Science and Recovery would provide all the necessary training required of onsite personnel for compliance with the ESA for nesting sea turtles.

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 marker locations. Some 4X4 vehicles with trailers in-tow and heavy equipment, i.e. one front-loader, would be accessing both sites. A travel trailer would be placed onsite during construction to minimize beach travel as a conservation measure, and for time efficiency.

The type and size of equipment that may be used for construction are as follows:

Articulated Front-end Loaders – This machinery will be used at the proposed construction sites to move heavy materials, and will be used to position pilings into the excavated holes for the cabins. Articulated front-end loaders have adjustable blades which can prevent the blades from going more than 2 inches into the sand.

Pick-up Trucks – Pick-up trucks will typically be used to carry staff and small amounts of materials and tools to the construction sites. In addition, pick-up trucks will be used to haul trailers for carrying construction material to the site, and for removal of leftover construction debris.

### Conservation Measures

Conservation measures represent actions, pledged in the project description, correspondence and/or meetings, that the action agency will implement to minimize the effects of the proposed action and further the recovery of the species under review. Such measures should be closely related to the action and should be achievable within the authority of the action agency. Since conservation measures are part of the proposed action, their implementation is required under the terms of the consultation. PAIS has proposed the following conservation measures.

### Sea Turtles

#### **Construction-related Activities**

- Construction activities will be scheduled to the best of the park's ability to minimize construction-related impacts upon resources. The PAIS will try to schedule all work outside of the sea turtle nesting season; however, this may not be achievable because

of unforeseen events and responsibilities.

- All work will be completed by PAIS employees, and PAIS's facility manager will be responsible for ensuring that their crew performs the necessary work in accordance with instructions, standards, and laws, i.e., ESA, provided by the PAIS and the Service.
- Construction workers and supervisors will 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 PAIS will require the cessation of construction activities if any threatened and endangered species are discovered in the project area, until park staff re-evaluates the project. Trained monitors will assist with identification of threatened and endangered species for the action area, as well as the entire analysis area.
- During the sea turtle nesting season, a PAIS patroller will conduct a morning patrol before large vehicles traverse the beach and will require authorization before construction workers drive large vehicles along the Gulf beach.
- If a turtle or turtle nest is located during construction, activities will immediately cease within 100 feet of the nest site and a staff member will immediately report the sighting to PAIS's Division of Sea Turtle Science and Recovery. Construction activities will not recommence until a designee from PAIS's sea turtle restoration program has arrived on site and has given approval to do so. If a designee from the Division of Sea Turtle Science and Recovery has not arrived on site within 3 hours of receiving the report, staff from the National Seashore's Division of Facilities Management will flag the nest area and recommence work making sure that the nest site is avoided.
- To minimize the potential for impacts to nesting sea turtles, a trained escort, on UTVs, will accompany and lead vehicles down the beach during the sea turtle nesting season of March 15 through October 1 at a reduced speed (15 mph maximum). Monitoring for signs of sea turtle nesting, the escort will lead any truck with trailer or large, heavy equipment to be used for the proposed project and will travel in caravans when possible.
- The number of work vehicles transiting the beach to the project sites will be kept to a minimum, all vehicles will use the same ingress and egress routes, and access will be confined to the immediate project areas. As an added measure, a travel trailer will be located at each of the proposed construction sites to provide temporary housing for construction workers, thereby minimizing the number of vehicles transiting the Gulf beach each day.
- PAIS will ensure that a sea turtle patroller and/or trained monitor will be stationed with active beach maintenance equipment during the peak sea turtle monitoring period of April 1 to July 15 (the most active period for nesting female sea turtles to be in the project area).
- During construction-related activities, equipment will be driven above the "wet line" on the beach to more easily identify sea turtle tracks.

- Materials and equipment required for the project will 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 will 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 will be placed perpendicular to the shoreline.
- If necessary, overnight storage of a front-loader or other large equipment on the beach will 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 will 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 will 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 will be restored to pre-construction conditions following construction. Any berms, ruts, or furrows created by equipment associated with this project will 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.
- If construction-related activities result in ruts greater than 2 inches deep, PAIS will explore the possibility of retrofitting equipment tires so that they are inflated to no greater than 10 PSI in order to reduce or eliminate rutting or using multiple pieces of equipment in tandem to attain this target. The results of inflating tires to no greater than 10 PSI will be monitored and reported at such time it is considered, tested and/or implemented. A certified patroller will monitor for nesting turtle or tracks prior to smoothing the area.
- A monitor will be onsite for identification and protection of any rare, protected plant species.
- To minimize possible petrochemical leaks from construction equipment, the contractor will regularly monitor and check construction equipment to identify and repair any leaks.
- The use of night lights will be minimized. Direct lighting of the beach will be limited to the immediate construction area and will comply with safety requirements. Lighting on equipment will 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 will occur only during daylight hours.

- All trash accumulated by staff during construction or by those using the cabins for accommodations will be removed by passenger truck and discarded appropriately at park Headquarters facility.

### **Education**

The PAIS will require all personnel involved in construction to receive training prior to the involvement of this project. The scope of the training will include: (1) identification of different turtle species; (2) recognition of turtle tracks or crawls; (3) basic procedures for recording turtle information if a turtle returns to the water prior to arrival of the turtle patrol team; (4) protection of nest areas; and (5) contact information for the National Seashore's Division of Sea Turtle Science and Recovery. If this project should extend beyond one year in time, then refresher training will be necessary and performed on an annual basis.

## **II. Status of the Species**

### **Sea Turtles**

The Service has jurisdiction for protecting sea turtles on the nesting beaches within PAIS. The National Marine Fisheries Service (NMFS) has jurisdiction for protecting sea turtles in the marine environment. Five species of sea turtles are found in U.S. waters and nest on U.S. beaches: leatherback, hawksbill, loggerhead, green and Kemp's ridley. All are known to nest in Texas. The leatherbacks, hawksbills, and Kemp's ridleys rarely nest in the southeastern U.S., but offshore waters are important feeding, resting, and migratory corridors. Only three sea turtles species (Kemp's ridley, loggerhead and green) that may be affected by the proposed project are discussed below. The hawksbill and leatherback sea turtles have been documented nesting on PAIS, but only once for each species within at least the last twenty (20) years. Therefore, it is very unlikely that during the relatively short time span of the construction that either species will nest or be affected by the proposed action.

### **Kemp's ridley sea turtle**

#### **Biology and Ecology**

The Kemp's ridley sea turtle was listed as endangered on December 2, 1970 (35 FR 18320). It is the smallest of the sea turtles, reaching about 2 feet in length and weighing up to 75-100 pounds 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 PAIS than at any other location in the U.S.

Kemp's ridley is a native nester at PAIS (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 of them at PAIS; however, a record 195 Kemp's ridley nests were found in Texas during 2008, including 93 at PAIS (Shaver 2008). The PAIS 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).

### **Population dynamics**

The Kemp's ridley sea turtle numbers have precipitously declined since 1947, when more than 40,000 nesting females were estimated in a single *arribada* (Service and NMFS 1992). Nesting in Mexico has been steadily increasing in recent years but, despite protection for the nests, turtles have been and continue to be lost to incidental catch by shrimp trawls (Service and NMFS 1992).

### **Status and distribution**

#### Reason for listing

For at least two decades, several factors have contributed to the decline of sea turtle populations along the Atlantic and Gulf coasts. Commercial over-utilization of eggs and turtle parts, incidental catches during commercial fishing operations, disturbance of nesting beaches by coastal housing, marine pollution, as well as entanglement and ingestion of debris threaten sea turtles (Service and NMFS 1992). The reproductive strategy of sea turtles involves producing large numbers of offspring to compensate for high natural mortality through the first several years of life. Additional threats are expanding human populations adjacent to important nesting beaches, degradation of coastal foraging habitats, and the potential for global warming to skew sex ratios (NMFS and Service 2007).

#### Range-wide trend

Since 1978, an international, experimental project involving the NPS, PAIS, Service, 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 PAIS and placed into a PAIS incubation facility. 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 PAIS and return there to nest when they were sexually mature. Since 1996, some turtles from this project have been documented returning to PAIS and nearby vicinity to lay eggs (Shaver 1997, 1998a, 1999a, 1999b; Shaver and Caillouet 1998).

In 1986, a program was initiated to detect, monitor, and protect sea turtle nests at PAIS. Detection involves patrols to look for nesting activity, public education, and investigation of reports from patrollers, beach workers, and the public. This on-going program has expanded to include the four other species of sea turtles. Patrollers (PAIS 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. 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.

Historic nesting frequency on the south Texas coast is poorly known and only six Kemp's ridley turtles were documented prior to 1979 (Shaver and Caillouet 1998). Of the 722 sea turtle nests found on the Texas coast between 1979 and 2008, 649 were Kemp's ridley nests, 361 of which were found on the National Seashore (Shaver 2008). Today, through conservation efforts with Mexico and commercial fisheries, the population of Kemp's ridley appears to be in the early stages of recovery (Shaver 2008, NMFS and Service 2007).

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. The 479 nests documented at PAIS 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 PAIS during other months, but this has not been confirmed. During 2002, three Kemp's ridley nests were found hatching on the Texas coast, including one within the patrol route at the park. The 479 Kemp's ridley nests were distributed along the entire Gulf beachfront length of PAIS. A dead Kemp's ridley turtle containing eggs was found washed ashore at the National Seashore during July 2009. In 2010, 140 Kemp's ridley sea turtles were found along the Texas coast and 74 of those were located at PAIS.

### **Critical Habitat**

Critical habitat has not been designated for this species.

## **Loggerhead sea turtle**

### **Biology and Ecology**

The loggerhead sea turtle was listed as a threatened species on July 28, 1978 (43 Federal Register [FR] 32800). Adults grow to an average weight of about 200 pounds. 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. Age at sexual maturity is believed to be between 25 to 30 years. 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 PAIS and many more are found stranded there (Shaver 1998b, 1999b).

From 1979-2009, 35 loggerhead nests were documented at PAIS (at various locations scattered along the coast of PAIS), 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 PAIS during 2009. In 2010, nine loggerheads were documented on the Texas coast, all were on PAIS.

### **Population Dynamics**

In the continental U.S., the population of loggerheads has declined, but most of that decline occurred prior to 1979. There has been no significant decline in recent years (Turtle Expert Working Group 1998; 2000).

### **Status and Distribution**

#### Reason for Listing:

From a global perspective, the southeastern U.S. nesting aggregation is second in size only to that on islands in the Arabian Sea off Oman (Ross 1982, Ehrhart 1989, NMFS and Service 1991b). The status of the Oman loggerhead nesting population, reported to be the largest in the world (Ross 1979), is uncertain because of the lack of long-term standardized nesting or foraging ground surveys and its vulnerability to increasing development pressures near major nesting beaches and threats from fisheries interactions on foraging grounds and migration routes (Service 2007). The loggerhead nesting aggregations in Oman, the southeastern U.S., and Australia have been estimated to account for about 88 percent of nesting worldwide (NMFS and Service 1991b).

Threats include incidental take from channel dredging and commercial trawling, longline, and gill net fisheries; loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and disease.

#### Range-wide Trend:

Hildebrand (1981) suggested that loggerhead nesting along the Texas coast has occurred within the last 300 years, but the earliest loggerhead nest that he was able to confirm for Texas was found in 1977. Total estimated loggerhead nesting in the southeastern U.S. is

approximately 50,000 to 70,000 nests per year (NMFS and Service 1991b). Of the 921 sea turtle nests found on the Texas Coast between 1979 and August 2009, 45 were loggerhead sea turtle nests of which 33 were found on PAIS, and it is possible that a few were left undetected (Shaver 2008). During the last decade, nesting has remained stable on the Texas coast, with 1-5 nests per year. No loggerhead nests were recorded in 2009. In 2010, nine were located at PAIS. Like the worldwide population, the population of loggerheads in Texas has declined.

### **Critical Habitat**

Critical habitat has not been designated for this species.

## **Green sea turtle**

### **Biology and Ecology**

The green sea turtle was listed as threatened in all of its range except the waters of Florida and the Pacific coast of Mexico, where it is endangered under the Act on July 28, 1978 (43 FR 32800). Adult green sea turtles can grow to a shell length of 4 feet and range from 250 to 450 pounds. It is distributed circumglobally in tropical and subtropical 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 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 PAIS, 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 PAIS and many are found stranded there each year (Shaver 1989, 1998b, 2000). In 1979-2009, 25 green turtle nests were documented at PAIS, 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. In 2010, five green sea turtles were documented on the Texas coast, all at PAIS.

### **Population Dynamics**

Within the U.S., green sea turtles nest in small numbers in the U.S. Virgin Islands, Puerto Rico, and Texas, and in larger and growing numbers along the east coast of Florida (NMFS and Service 1991a). Total population estimates for the green turtle are unavailable, and trends based on nesting data are difficult to assess because of large

annual fluctuations in numbers of nesting females. For instance, in Florida, where the majority of green turtle nesting in the southeastern U.S. occurs, estimates range from 150 to 2,750 females nesting annually (FWC 2006). Populations in Surinam, and Tortuguero, Costa Rica, may be stable, but there is insufficient data for other areas to confirm a trend.

### **Status and Distribution**

#### Reason for Listing:

Of the 921 sea turtle nests found on the Texas coast between 1979 and 2009, 26 were green sea turtle nests. There were 25 found on PAIS and one on South Padre Island, outside the project area (Shaver 2008). Although they are still impacted by several mortality factors, their most significant threat in Texas is hypothermic stunning. However, if hypothermic stunning victims are found alive and taken to rehabilitation facilities, many of them survive and are later released (<http://www.nps.gov/pais/naturescience/green.htm>). Other major factors contributing to the green turtle's decline worldwide is commercial harvest for eggs and food, fibropapillomatosis or the development of multiple tumors on the skin and internal organs, loss or degradation of nesting habitat from coastal development and beach armoring, disorientation of hatchlings by beachfront lighting, excessive nest predation by native and non-native predators, degradation of foraging habitat, marine pollution and debris; watercraft strikes, and incidental take from channel dredging and commercial fishing operations.

#### Range-wide Trend:

Most green turtles in Texas waters are juveniles and their numbers are increasing. About 150 to 2,750 females are estimated to nest on beaches in the continental U.S. annually (FWC 2006). In the U.S. Pacific, over 90 percent of nesting throughout the Hawaiian archipelago occurs at the French Frigate Shoals, where about 200 to 700 females nest each year (NMFS and Service 1998). Elsewhere in the U.S. Pacific, nesting takes place at scattered locations in the Commonwealth of the Northern Marianas, Guam, and American Samoa. In the western Pacific, the largest green turtle nesting group in the world occurs on Raine Island, Australia, where thousands of females nest nightly in an average nesting season (Limpus et al. 1993). In the Indian Ocean, major nesting beaches occur in Oman where 30,000 females are reported to nest annually (Ross and Barwani 1995).

### **Critical Habitat**

NMFS designated critical habitat for the green sea turtle on October 2, 1998. Critical habitat included waters extending seaward 3.5 miles from the mean high water line of Isla de Culebra (Culebra Island, Puerto Rico). Critical habitat has not been designated in Texas.

### **Environmental Baseline**

Under section 7(a)(2) of the Act, when considering the effects of an action on Federally-listed species, the Service is required to consider the environmental baseline which includes past and ongoing natural factors, impacts of all Federal, State, or private actions

in the action area, including Federal projects in the action area that have already undergone Section 7 consultation and the impacts of State or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

### **Status of the Species within the Action Area**

In Texas, nesting sea turtle season occurs from March 15 to October 1. Kemp's ridley turtles are historic nesters at PAIS (Hildebrand 1963, 1981, 1983; Shaver 1998a; Shaver and Caillouet 1998) with more Kemp's ridley nests consistently being found in PAIS than at any other location in the U.S. Over a 31-year period (1979 thru 2009), 920 nests have been documented on the Texas coast, with 197 Kemp's ridley and one green documented during the 2009 season. In 2010, 140 Kemp's ridley, nine loggerhead and five green sea turtles were documented along the Texas coast. Of those, 74 Kemp's ridley, nine loggerhead and five green sea turtles were found at PAIS.

From 1979-2010 a total of 479 Kemp's ridley, 33 loggerhead, 26 green and 1 leatherback sea turtles have been documented nesting at PAIS within the action area. The highest nesting activity ever documented at the park and along the Texas coast since 1986 occurred in 2009, with over 100 nests being found within the action area. Of these nests, they were documented nesting primarily at the toe of the dunes; however, nesting area spanned the entire width of the beach, with some sea turtles crossing over the top of the primary frontal dune to nest.

### **Factors Affecting Species Environment**

A wide range of past, present and ongoing beach disturbance activities occur within the action area. Nourishment activities, or the placement of channel dredge spoil, can widen beaches, change sediments and stratigraphy, alter coastal processes, plug dune gaps, and remove overwash areas. Beach driving may impact island accretion by disturbing the beachfront fore-dunes and change sediment distribution patterns, or by destroying sand stabilizing vegetation. During the 1970s and 1980s, PAIS management restored much of the dunes for stabilization of the island, adding protection from high tides and storm waters; however, Padre Island is still extremely vulnerable to strong storm events. Excessive recreational use of beaches may also pose a threat to the species by making it unsuitable or dangerous. Oil and gas exploration and development, if not managed properly, could add an element of threat to these species and their habitat. Beach cleaning activities do not occur within the action area.

Land ownership within the action area is public, under the Federal government's management and the Texas General Land Office. Development and recreational activities such as walking, jogging, walking pets unleashed and operating vehicles increases the potential for sea turtles to be impacted by disruption of nesting habitat and activities. Following PAIS's leash policy, which requires pets to be under the control of an owner or person by means of a chain, rope, cord or leash of not more than six (6) feet in length may reduce some of the impacts from pets.

Species that prey on sea turtle nests include coyotes (*Canis latrans*), raccoons (*Procyon lotor*), and skunks (*Mephitis mephitis*). Other species that may injure sea turtle nest include various types of fire ants (*Soleropsis sp*), as well as different crab and rat species.

All of these actions or factors may have adverse effects on sea turtles and habitat by destroying, diminishing, or altering the habitats on which they depend.

### **Effects of the Action**

Under section 7(a)(2) "effects of the action" refers to the direct and indirect effects of an action on a species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action. The effects of the proposed action are added to the environmental baseline to determine the future baseline that serves as the basis for the determination in this biological opinion. The impacts discussed below are the Service's evaluation of the direct and indirect effects of the proposed action. Indirect effects are those caused by the proposed action that occur later in time, but are still reasonably certain to occur (50 CFR 402.02). The Service has determined that there are no interrelated or interdependent actions apart from the action under consideration.

#### **A. Factors to be considered**

##### **Sea Turtles**

Construction activities of the cabins and corrals that may affect sea turtles addressed in the BO include collisions with equipment and/or maintenance vehicles, equipment and/or maintenance vehicles disturbing or harassing nesting sea turtles or hatchlings, tire ruts impeding hatchling sea turtle migration to the sea, lighting effects, egg damage due to vibration; and increased vehicular disturbance.

The majority of direct and indirect effects on sea turtles and their nests, eggs, and hatchlings are anticipated to occur primarily during the sea turtle nesting and hatching seasons from March 15 to October 1 and during summer and fall storm events until about November 30 when post-hatchlings may wash ashore. Direct impacts to live stranded turtles may occur year round. Although sea turtle nesting surveys will be performed continuously every day from sunrise to 6:30 p.m. from March 15 to October 1, nesting events may be overlooked. Overlooked nests will not be marked and are at risk. Similarly, undetected sea turtle nests laid late in the summer result in hatchlings emerging in the fall after October 1. The effects of the proposed action are likely to continue year round for one year or until the construction is complete.

#### **B. Analysis for effects of the action**

The effects include impacts associated with the project construction within the action area. The work will have short-term impacts while the presence of the cabins and corrals will have long-term impacts.

## Sea turtles

### Beneficial effects:

As a beneficial effect to sea turtles, PAIS currently removes all sea turtle eggs located on the beach and transfers them to the incubation facility at the PAIS headquarters facility area. Hatching success is elevated substantially for eggs that are transferred to this facility rather than left on the beach in-situ. PAIS also protects nesting turtles while they are on the beach and removes stranded turtles for rehabilitation or study. As an added benefit, observers and vehicle operators from this project will provide additional observation and reporting opportunities and assist PAIS's efforts to detect, investigate, monitor, and protect nesting sea turtles, their nests, hatchlings, and stranded turtles.

### Direct Effects:

Potential effects to the green sea turtle, Kemp's ridley sea turtle, and loggerhead sea turtle within the proposed action area include: destruction of nests by construction activities; harassment in the form of disturbing or interfering with females attempting to nest; disturbance of hatchling turtles as they emerge from the nest and crawl to the water as a result of deep ruts caused by vehicles and equipment; and, behavior modification of nesting females resulting in false crawls or choosing marginal or unsuitable nesting areas to deposit eggs. Potential indirect effects include post-construction changes in the beach environment, including compaction or slope change.

### *Collisions and/or Crushing or Excavation of undetected nests*

While a nest monitoring and egg relocation program would reduce these impacts, nests may be inadvertently missed (when crawls are obscured by rainfall, wind, and/or tides) or misidentified as false crawls during daily patrols. Even under the best of conditions, about 7 percent of the nests can be misidentified as false crawls by experienced sea turtle nest surveyors (Schroeder 1994). Operation of any vehicle (pickup, trailer, heavy equipment) traversing the 50 miles of beach and other areas within the action area 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). Eggs could be crushed in undetected nests. Eggs located close to the surface would be most vulnerable to crushing.

Mann (1977) reported that driving directly above incubating egg clutches can cause sand compaction, which may decrease nest success and directly kill pre-emergent hatchlings and eggs potentially by physical crushing or collapse of the nest chamber. Vehicles can also compact the sand, making it more difficult or impossible for nesting turtles to excavate a nest cavity. This can lead to increased false crawls and nests with shallow egg chambers (Fletemeyer 1996). Compaction could also make it more difficult for hatchlings to emerge from an undetected nest. Excavation of an undetected nest by beach cleaning equipment penetrating the surface deeper than 2 inches could reach the top layer of the nests. This could result in the scooping up of eggs and/or eggs being broken and yolks spreading throughout the nest, ruining the rest of the nest, and mortality or injury

occurring to eggs and pre-emerging hatchlings.

Vehicle collisions with adult sea turtles and hatchlings during the daytime have been recorded. Incidents occurred in 2006 on North Padre Island south of Bob Hall Pier, Boca Chica Beach south of the project area, and an adult stranded turtle was hit by a vehicle on South Padre Island (Shaver 2007). Sea turtles have been documented nesting in the vehicular roadway at PAIS, but no nesting sea turtles, hatchlings, or eggs have been documented as struck or killed by vehicles at PAIS.

The probability of impacting the nests is potentially reduced because turtle monitors remove all sea turtle eggs from nests that are detected on the beach and transfer them to the incubation facility within PAIS. Hatching success is usually substantially elevated for eggs that are transferred to this facility rather than left undisturbed.

#### Equipment

The placement of materials and the use of heavy equipment and haul trucks on the beach during this project may also have adverse effects on sea turtles. They can create barriers to nesting females emerging from the surf and crawling up the beach, causing a higher incidence of false crawls and unnecessary energy expenditure and create impediments to hatchlings. Since the project is expected to be conducted during the sea turtle nesting season, measures can be implemented to reduce the impacts of equipment on the beach and include how and where they are placed on the beach and the length of time.

#### Tire Ruts and Berms

It is reported that vehicular ruts and berms create obstacles for hatchlings moving from the nest to the ocean. Upon encountering a vehicle rut, hatchlings may be disoriented and crawl along the vehicle track rather than crossing over it to reach the water. Apparently, hatchlings become diverted not because they cannot physically climb out of the rut (Hughes and Caine 1994), but because the sides of the track cast a shadow and the hatchlings lose their line of sight to the ocean horizon. If trapped for a period of time, this could cause them to weaken, invert, or succumb due to predation, disorientation, crushing, or dehydration (Hosier et al. 1981; Fletemeyer 1996; Ernest et al. 1998). The depth and slope of the ruts influence the amount of impact, with deeper and more steeply sloped ruts causing a greater impact. Hosier et al. (1981) found that 3.9 to 5.9-inch deep tracks may serve as a significant impediment to loggerhead hatchlings.

#### Compaction of beach sediments

Sediments surrounding the egg chamber largely influence the incubation environment of the clutch. Temperature, moisture content, and gas exchange, all extremely important factors in the development of sea turtle embryos, are influenced by sediment characteristics (Ackerman et al. 1985). Thus, hatching success, emerging success, sex ratios, and hatchling fitness (size and vitality) may be different in compact sediments than in more loosely configured sediments of comparable grain size.

Beach driving and equipment use likely contribute to sand compaction, but the additive effects of sand compaction due to vehicle traffic on nesting and reproductive success are

not well understood. Operation of vehicles on the beach can cause direct impacts to the sand that can adversely affect sea turtle nesting and incubation habitat (Mann 1977; NMFS and Service 1991a, 1991b, 1992-1993; Ernest et al. 1998).

#### *Vibration and Noise Impacts on Adults and/or Hatchlings*

Vibrations and noise caused by moving maintenance vehicles and/or equipment on the beach could frighten nesting turtles, causing them to false crawl (NMFS and Service 1991a, 1991b, 1992, Ernest et al. 1998). Vibrations could also harm incubating eggs, but are difficult to assess because scientific data are lacking to fully understand the level of impact on sea turtles from traffic vibrations or noise.

#### *Lighting*

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). Those species of sea turtles that nest primarily at night (green, loggerhead) are likely to be the most affected by lighting. Lights from the operations behind the dunes could indirectly cause false crawls and disorientation, if the lights are visible from the beach. However, no construction or beach driving will occur during the night, and conservation measures implemented within PAIS are expected to reduce the potential to an unlikely occurrence.

#### *Indirect Effects*

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur as a result of the action being an essential cause of the effect. These indirect effects include increased susceptibility of relocated nests to catastrophic events.

#### *Increased susceptibility to catastrophic events*

Nest relocation into the corrals may concentrate eggs in an area making them more susceptible to catastrophic events. Hatchlings released from concentrated areas also may be subject to greater predation rates from both land and marine predators, because the predators learn where to concentrate their efforts (Glenn 1998, Wyneken et al. 1998). Cabin construction is expected to be conducted during a portion of the sea turtle nesting season.

#### *Nest relocation*

Besides the potential for missing nests during a nest relocation program, there is a potential for eggs to be damaged by nest movement or relocation, particularly if eggs are not relocated within 12 hours of deposition (Limpus et al. 1979). Nest relocation can have adverse impacts on incubation temperature (and hence sex ratios), gas exchange parameters, hydric environment of nests, hatching success, and hatchling emergence (Limpus et al. 1979, Ackerman 1980, Parmenter 1980, Spotila et al. 1983, McGehee 1990). Relocating nests into sands deficient in oxygen or moisture can result in mortality, morbidity, and reduced behavioral competence of hatchlings. Water availability is known to influence the incubation environment of the embryos and

hatchlings of turtles with flexible-shelled eggs, which has been shown to affect nitrogen excretion (Packard et al. 1984), mobilization of calcium (Packard and Packard 1986), mobilization of yolk nutrients (Packard et al. 1985), hatchling size (Packard et al. 1981, McGehee 1990), energy reserves in the yolk at hatching, and locomotory ability of hatchlings (Miller et al. 1987).

### **Sea Turtles Response to Proposed Action**

Approximately 666,000 visitors visit PAIS annually. 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 PAIS. 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 PAIS's 30-mile marker, and 100 trips traveling either to or from the PAIS's 50-mile marker.

Looking at nesting data collected over the past 24 years for the action area, and given that most nests are found and removed from the beach by PAIS 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 vehicles would also be minimal because trucks and equipment would have trained sea turtle monitors escorting at the front and rear of the vehicles on UTVs during the sea turtle nesting season. Effects from lighting would be minimized because no project activities are scheduled to occur during daylight hours and lighting of the cabins would be low wattage and pointed inward and away from the Gulf beach and lean towards the red spectrum frequency with low pressure sodium vapor.

### **Cumulative Impacts**

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Cumulative effects can result from many different activities, including the addition of materials to the environment from multiple sources; repeated removal of materials, ecosystem components, or organisms from the environment; and repeated environmental changes over large areas and long periods. More complicated cumulative effects occur when stresses of different types combine to produce a single effect or suite of effects. Large, contiguous habitats can be fragmented, making it difficult for organisms to locate and maintain populations between disjunctive habitat fragments. Cumulative impacts may also occur when the timings of disturbances are so close that the effects of one are not dissipated before the next occurs, or when the timings of disturbances are so close that their effects overlap.

Cumulative impacts to nesting sea turtles would result primarily from vehicle access along the Gulf beach from the public and possible commercial operations. Visitors are permitted to operate their vehicles along most of the Gulf beachfront at PAIS, 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. The increase in the number of visitors to the area may include increase of vehicles, pedestrians, and pets, all of which will have associated effects to Federally-listed species within the action area. Such actions include increased lighting that may affect the sea turtle nesting habitat of the beachfront, or increased predators associated with people.

#### **IV. Conclusion**

##### **Sea Turtles**

Avoidance and minimization measures such as the PAIS egg relocation program, beach patrols, certified turtle monitors, reducing vehicular beach cleaning activity, establishing protocols for notification, scheduling maintenance work, improving beach conditions, does not remove all potential impacts but does reduce the likelihood of sea turtle impacts occurring. Therefore, after reviewing the current status of the Kemp's ridley, loggerhead, and green sea turtles, the environmental baseline for the action area, 50 miles of Gulf beachfront for the action area, the effects of the proposed PAIS cabin construction project and the cumulative effects, it is the Service's biological opinion that the construction of these two cabins, whose ultimate purpose is to foster the recovery of the Kemp's ridley and other sea turtle species, as proposed is not likely to jeopardize the continued existence of the listed Kemp's ridley, loggerhead, or green nesting sea turtle species under the Service's jurisdiction. There is no critical habitat listed in the state of Texas for these species of sea turtles, therefore none will be affected.

#### **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take

statement.

The measures described below are non-discretionary, and must be undertaken by PAIS so that they become binding conditions of any grant or permit or project agreement issued to PAIS as appropriate, in order for the exemption in section 7(o)(2) to apply. PAIS has a continuing duty to regulate the activity covered by this incidental take statement. If PAIS (1) fails to assume and adhere and implement the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, PAIS must report the progress of the action and its impacts on the species to the Service as specified in the incidental take statement (50 CFR 402.14(i)(3)).

### **Amount or Extent of Take Anticipated**

#### **Sea Turtles**

Based on the review of biological information and other information relevant to this action, incidental take is possible in the form of harassment, injury, and/or death from:

1. Construction-related vehicles and/or equipment driving over an adult sea turtle, hatchling, stranded or post-hatchling washback sea turtles and/or eggs from an undetected, unmarked/unprotected sea turtle nest,
2. Construction-related vehicles or equipment causing the loss of a nest or individual eggs by compaction, excavation, or vibration,
3. Hatchling sea turtles emerging from undetected, unmarked/unprotected nests and subsequently caught in vehicle ruts created by construction activities in areas where no rut removal has taken place,
4. Disorientation of adults and/or hatchlings by mobile or stationary lights, or
5. Behavior modification or physiological stress during the adult turtle's attempt to nest and potentially increasing the number of false crawls during the nesting season or situations where they choose marginal or unsuitable nesting areas to deposit eggs.

The Service anticipates that incidental take of hatchlings and eggs will be difficult to detect for the following reasons: (1)(a) turtle nests are difficult to find, especially for greens and loggerheads, which are primarily nocturnal nesters, (b) natural factors, such as rainfall, wind, and tides may obscure crawls, and (c) human-caused factors, such as pedestrian traffic, may obscure crawls, resulting in nests being destroyed because they were missed during the nesting survey and egg relocation program; (2) the total number of hatchlings per undiscovered nest is unknown; (3) the reduction in percent hatching and emerging success per relocated nest over the natural nest site is unknown; (4) an unknown number of females may avoid the project beaches and be forced to nest in less optimal areas; and (5) lights may disorient an unknown number of hatchlings and cause death. However, the level of take of sea turtle adults, nests, hatchlings and eggs can be

anticipated because: 497 sea turtle nests were documented within the action area from 1986 to 2009, 100 in 2009 alone.

The Service anticipates the proposed project could potentially "take" a maximum of three nesting sea turtles prior to any avoidance and minimization measures being implemented. Implementation of avoidance and minimization measures by PAIS further reduces the estimated number of sea turtles that could be taken. If these measures are to be deviated from, PAIS must contact the Service. The Kemp's ridley is the most frequently documented sea turtle occurring in the action area and the loggerhead is a very infrequent second. Thus, the potential for construction-related-activities interacting with Kemp's ridley adults, hatchlings or nests would be greater, thus the number of Kemp's ridley adults, hatchlings and nests at risk of "take" would also be greater.

Therefore, the Service anticipates that, despite avoidance and minimization measures implemented throughout the life of the project during construction, a risk still exists, although minimal, that adult sea turtles could be struck by vehicles and nests could go undetected by the egg relocation program surveys within the proposed action area and:

- 1) 3 adult Kemp's ridley sea turtle and 3 nests per year, including all hatchlings and/or eggs (up to approximately 200 eggs per nest) could be taken.
- 2) 1 adult loggerhead sea turtle and 1 nest per year, including all hatchlings and/or eggs (up to approximately 200 eggs) could be taken.
- 3) 1 adult green sea turtle and 1 nest per year, including all hatchlings and/or eggs (up to approximately 200 eggs) could be taken.

If the agreed upon avoidance and minimization measures are deviated from or if the level of take is reached for any one of the species, we request that PAIS to contact the Service immediately to review the circumstances and revisit the take analysis. Although incidental take is anticipated for three Kemp's ridley nests per year, if one nest is taken the Service also would appreciate the opportunity to review the circumstances and the avoidance and minimization measures.

### **Effect of Take**

In the accompanying BO, the Service determined that this level of anticipated take is not likely to result in jeopardy to sea turtles.

### **REASONABLE AND PRUDENT MEASURES**

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize the impact of incidental take on sea turtle species and assist the Service in improving methods to minimize impacts of incidental take on these listed species.

1. Establish a protocol to notify the Service immediately of direct take of a sea turtle, excavated eggs, or an undetected nest.

## Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, PAIS must comply with the following terms and conditions, which implement the reasonable and prudent measure, described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. In the event that activities result in the direct take (killing, harming, or maiming) of a sea turtle, hatchling, and/or eggs, the person(s) responsible for monitoring sea turtles shall notify the Service's Corpus Christi Ecological Services Office (361/994-9005) and PAIS's Sea Turtle Coordinator (361/949-8173, ext. 226). A standard methodology for handling dead or stranded sea turtles found during the monitoring program will also be cooperatively established by the Sea Turtle Coordinator and the Service. This methodology shall be directed at determining the cause of death and ensuring that all data is recorded. The finder has the responsibility to ensure that evidence intrinsic to the specimen is not disturbed.
2. Submit a summary report to the Service's Corpus Christi Ecological Services Field Office annually during construction and one year post construction. The summary report should include measures implemented during project activities, success of such measures, incidences, and any recommendations on improvements to those measures. Reports should be sent to: U.S. Fish and Wildlife Service, Corpus Christi Ecological Services Field Office, ATTN: Field Supervisor, c/o TAMU-CC, 6300 Ocean Drive, Campus Box 338, Corpus Christi, Texas 78412.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal action agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or develop information.

For the benefit of sea turtles the Service recommends the following:

1. Assist the Service in assessing long-term impacts of global climate change on nesting beaches.
2. Ensure nesting habitat is protected on Texas nesting beaches
3. Determine and monitor nesting female survival rates.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of

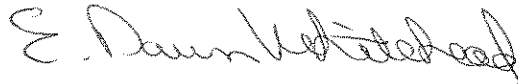
the implementation of any conservation recommendations.


#### REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in your request for formal consultation on the construction of two cabins and corrals on PAIS. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take should cease pending reinitiation.

If you or your staff has any questions concerning this opinion, please contact Allan Strand or Mary Orms at (361) 994-9005 or via email at [mary\\_orms@fws.gov](mailto:mary_orms@fws.gov).

Sincerely yours,



 Allan M. Strand  
Field Supervisor

cc: Texas State Administrator, Service, Austin, TX  
Regional Director, ATTN: Assistant Regional Director, Ecological Services,  
Albuquerque, NM  
Sandy MacPherson, USFWS, Sea Turtle Coordinator, Region 4

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## Consultation History

**March 17, 2010** – PAIS and Service staff met to discuss the proposed construction of two 50X50, 2500 square feet cabins, to replace the two 30X50 foot cabins destroyed by Hurricane Bret. The cabins will be built behind the dunes or at the toe of the dunes on 6-8 foot stilts jettied into the island near mile marker 39. The cabins will be able to accommodate up to 23 people, include full kitchens, living rooms, dining rooms, sleeping quarters, one or two bathrooms that will require occasional pumping and lighting as appropriate. Travel trailers and stockpiling of material will be staged within dune. It is estimated it will take 3 months for each cabin to be built. PAIS is proposing to build one in May, during turtle nesting season and one in the winter before the turtle season. Since one will be built during the sea turtle nesting season it is recommended they write a BA and enter into formal consultation and the Service would attempt to expedite.

**March 18, 2010** – The Service emailed copies of completed final BO's and BO format to PAIS.

**April 6, 2010** – The Service emailed information on section 7(a)(1), which directs Secretaries of Interior and Commerce to review other programs administered by them and use those programs to further the purposes of the ESA and all other federal agencies to use their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of listed species.

**May 4, 2010** – Email received from PAIS responding to an inquiry I had made regarding the BA for this project and they stated they are working on the EA, BA and BO. Informed them they did not have to write the BO, that was our responsibility. PAIS also asked how long it may take to receive a BO from the Service once a BA was received. We stated we would expedite the project therefore, depending on workload it may be possible to have it out in a few weeks.

**June 6, 2010** - Service emailed a request for an update on the BA to be submitted for this project and others.

**August 20, 2010** – Email received from PAIS regarding wholly beneficial effects. Service called PAIS and explained that for a project to be wholly beneficial you cannot have an adverse effect of any kind prior to reaching the beneficial effect. PAIS requested a visit to discuss various projects that were going to affect the same species and if batching them would work.

**September 13, 2010** – The Service received a notice from the National Park Service that the EA for the proposed construction of two cabins along the Gulf of Mexico beach and the expansion of the sea turtle egg incubation laboratory at park Headquarters was out for public review and comment on their website and comments were being accepted through October 11, 2010.

**September 14, 2010** – PAIS and Service staff met to discuss another project, and informed the Service they had included the expansion of the laboratory in this EA and were working on the BA.

**September 20, 2010** – Service left a telephone message requesting an update on the BA.

**September 28, 2010** – Service called PAIS requesting further update on the BA and they stated it was still being worked on. The Service suggested they could submit a preliminary BA for review prior to submitting the final.

**October 15, 2010** – PAIS submitted preliminary BA for review.

**November 10, 2010** – Service provided comments on preliminary BA.

**November 22, 2010** – Final BA received with request for initiation of formal consultation.

**December 13, 2010** – The Service provided PAIS with a letter stating the BA was complete and initiating formal consultation. The Final BO would be completed no later than April 6, 2010.

**December 17, 2010** – Draft BO submitted for internal Service review.

**January 4, 2011** – Requested additional sea turtle data from PAIS.

**January 5, 2011** – PAIS responded with a telephone call and additional information incorporated in Draft BO. Draft BO sent to PAIS for review and comment.

**January 11, 2011** – PAIS received Draft BO for finalizing.

**January 13, 2011** – PAIS submitted Draft BO with their comments for finalizing.

**January 19, 2011** – Comments were addressed and clarified by email and the Final BO was issued.

## Appendix B. Concurrences

The PAIS determined that the proposed project would have no effect on the endangered Gulf Coast jaguarundi (*Herpailurus yagouaroundi cacomitli*), endangered ocelot (*Leopardus pardalis*), endangered slender rush-pea (*Hoffmannseggia tenella*), South Texas ambrosia, (*Ambrosia cheiranthifolia*), endangered West Indian manatee (*Trichechus manatus*), and the endangered whooping crane (*Grus americana*) as these species are not known to occur in the project area.

It was also determined the expansion of the sea turtle egg incubation lab to approximately twice the floor area (2,700 square feet) of the present lab would not impact the listed species above and the five species of sea turtles because the construction would occur outside the sea turtle nesting season and no habitat is found on the facility where the expansion is to occur (Figure 3).

The Service does not provide concurrences with "no effect" determinations but by making a determination the Service agrees that PAIS has complied with section 7(a)(2) of the ESA by making a determination. No further action is required from the CCESFO.

Also, based on current research and information, the Service concurred with PAIS determination of "may affect, but is not likely to adversely affect" for the endangered Atlantic hawksbill sea turtle, endangered leatherback sea turtle and endangered northern aplomado falcon (*Falco femoralis*) and threatened piping plover (*Charadrius melodus*). Critical habitat was not designated for the piping plover on PAIS, therefore, none will be impacted.

### **PAIS Proposed Conservation Measures for "may affect, but is not likely to adversely affect".**

The leatherback and hawksbill turtles should benefit from all conservation measures implemented for the Kemp's ridley, green and loggerhead sea turtles outlined in the BO.

#### *Education*

The NPS will insure that all employees working at the construction sites are provided information as to the identification, status and habitat utilization of these species. The PAIS will require all personnel involved in construction to receive training prior to the involvement of this project. The scope of the training will include: (1) identification of piping plovers, leatherback and hawksbill sea turtles, northern aplomado falcon; (2) Recognition of habitat; (3) Basic procedures for recording sightings; and (4) Contact information for different rehabilitation agencies in the area. If this project should extend beyond one year in time, then refresher training will be necessary and performed on an annual basis.

#### *Monitoring*

The PAIS currently conducts regular shorebird (international shorebird survey, USGS piping plover survey conducted every five years, and periodic park research projects) and

sea turtle monitoring by the Division of Sciences and Resources Management. This monitoring will continue and will include the action areas. Funding requests and proposals to allow the park to monitor the piping plover population within the park and address management concerns will continue to be submitted.

#### *Vehicular movement*

During construction-related activities, equipment will be driven above the "wet line" on the beach to minimize disturbance of birds and benthic invertebrate populations. Speed limit for associated construction vehicles will be at no more than 15 mph despite a maximum posted speed limit of 25 mph. Trucks will caravan therefore avoiding displacing individual birds once and not several individual times. Off-road vehicle driving will be prohibited in habitats such as wind tidal flats which are highly preferred by piping plovers for foraging.

#### *Materials and Equipment*

A travel trailer will be position at the construction sites to reduce the number of vehicle loads for park staff traveling to and from the construction site each day.

#### *Timing of construction*

The PAIS will take precautionary steps, to the best of their ability, to avoid construction-related work in the foredune area after 2:00 p.m. The majority of the work for this project will take place behind the foredune area.

#### *Enforcement of Laws*

Speed limits on the Gulf beach will be enforced. Harassment laws for wildlife, which includes ESA and Migratory Bird Treaty Act, will be enforced. Leash laws for visitor's pets require leashes no longer than 6 feet.

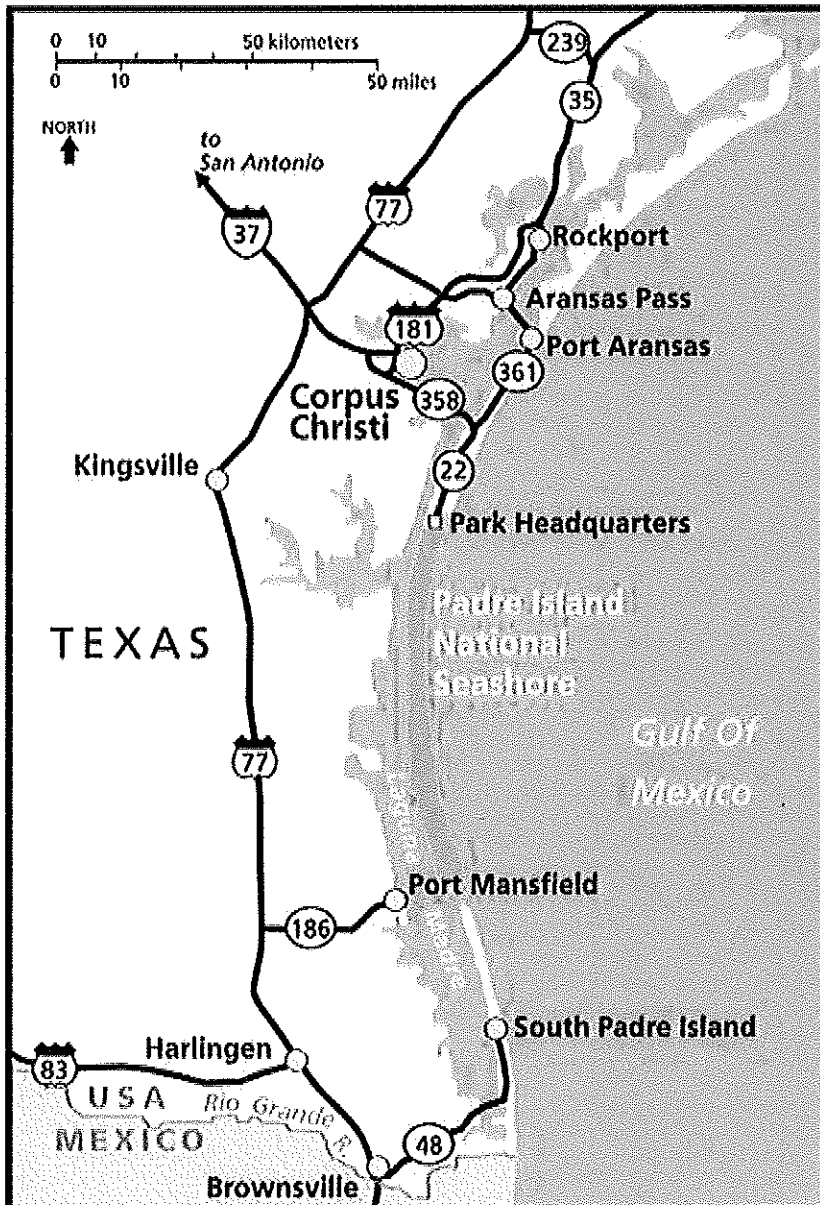
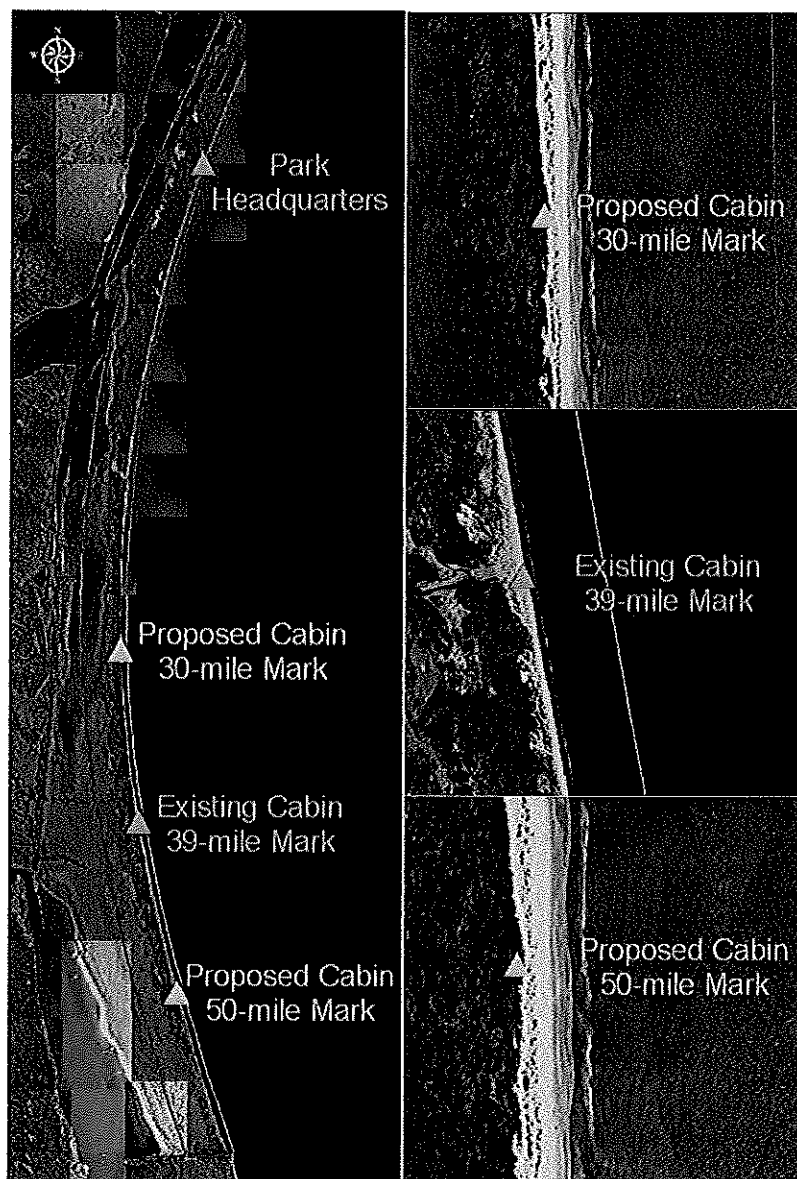


Figure 1. Padre Island National Seashore Location



**Figure 2. Proposed Cabin Locations**



**Figure 3. Park Headquarters Facility showing Sea Turtle Incubation Lab Expansion**