



Appendix G - USFWS  
Biological Assessment

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## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407

January 27, 2016

Ms. Nicole Riddle  
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South Carolina Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

Re: Biological Assessment, US 21 Bridge Replacement, Harbor River, Beaufort County, SC  
FWS Log No. 2015-CPA-0112

Dear Ms. Riddle:

The U.S. Fish and Wildlife Service (Service) has received your January 15, 2016, Biological Assessment (BA) for the proposed replacement of the U.S. Highway 21 bridge over the Harbor River in Beaufort County, South Carolina. The South Carolina Department of Transportation (SCDOT) proposes to replace U.S. Highway 21 which connects St. Helena Island to Harbor Island, Fripp Island, and Hunting Island State Park. The SCDOT prepared the BA and is requesting the Service's consultation regarding potential impacts to species protected under the Endangered Species Act of 1973 (16 U.S.C. 1531-1543) (ESA). The BA will be incorporated into an Environmental Assessment which is being prepared pursuant to the National Environmental Policy Act of 1969, as amended (43 U.S.C. 4321 *et seq.*) (NEPA).

U.S. Highway 21 is a two-lane roadway with earthen shoulders on a causeway connecting St. Helena Island with Harbor Island, Hunting Island, and Fripp Island. The project corridor is approximately two miles long and 600 feet wide. Terrain in the corridor is flat with the surface runoff draining to the adjacent tidal wetlands through roadside ditches. Existing land uses along the corridor include small areas of residential and commercial development. The project involves the bridge replacement, the construction of a new roadway approach alignment to correct structural and functional deficiencies, and to upgrade the bridge and its approaches to current design standards.

The Services previously provided comments and recommendations to SCDOT, regarding the bridge replacement project on July 1, 2015. Our letter focused on measures to minimize impacts to resources as well as potential mitigation options. We also recommended that SCDOT perform a survey for threatened and endangered (T&E) species that may be in the project area. The BA provides SCDOT's assessment of T&E species, as well as designated critical habitat that may be

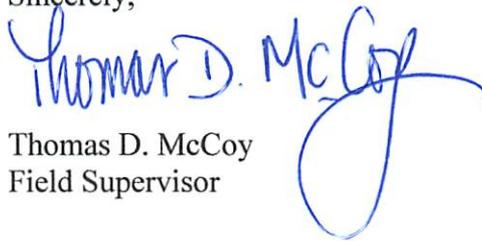
impacted by the bridge replacement project in Section 2. Table 2-1 lists each of the species that are known to occur within Beaufort County. The majority of the T&E species reviewed by SCDOT do not occur in the project area due to the lack of suitable habitat. Therefore, SCDOT concluded (Section 5 of the BA) that the proposed bridge replacement will have no effect upon those species. The ESA does not require section 7 consultation for no effect determinations; therefore, no further action is required regarding these species.

Of the T&E species that occur in Beaufort County, SCDOT determined that the project area contains suitable habitat for the American wood stork, piping plover, Rufa red knot, West Indian manatee, and four separate sea turtle species. An assessment was performed for each species to determine the project's potential impacts. Although no individuals of the above species were observed, SCDOT concluded that due to the presence of suitable habitat, the replacement of the U.S. Highway 21 bridge may affect, but is not likely to adversely affect, the wood stork, piping plover, red knot, or the West Indian manatee. The Service concurs with SCDOT's determination. No federally designated critical habitat for these species is present in the project area. Please contact the National Marine Fisheries Service – Protected Species Division for consultation requirements regarding sea turtles, as they maintain jurisdiction, while the turtles are in the marine environment.

Obligations under the ESA must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

The Service appreciates the opportunity to provide input at this early stage of the project's development. If you have any questions, please contact Mr. Mark Caldwell at (843) 727-4707 ext. 215, and reference FWS Log No. 2015-CPA-0112.

Sincerely,



Thomas D. McCoy  
Field Supervisor

TDM/MAC



# Biological Assessment for US Fish and Wildlife Species

US 21 Bridge Replacement over Harbor River  
(SCDOT Project ID P026862)

*Beaufort County, South Carolina*  
January 14, 2016



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# 1 Introduction

This biological assessment, prepared by HDR Inc. on behalf of the South Carolina Department of Transportation (SCDOT), addresses the proposed action in compliance with Section 7(c) of the Endangered Species Act (ESA) of 1973 (16 United States Code 1536 (c)), as amended. The biological assessment also follows standards established in Federal Highway Administration (FHWA) and SCDOT National Environmental Policy Act (NEPA) Guidance.

Section 7 of the ESA requires that, through consultation (or conferencing for proposed species) with the U.S. Fish and Wildlife Service (USFWS) and/or the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of critical habitat.

This biological assessment evaluates the potential effects of the proposed transportation project on species that are federally listed under the ESA and under the jurisdiction of USFWS. A separate biological assessment has been prepared for species under the jurisdiction of the NOAA-NMFS. Specific project design elements are identified that avoid or minimize adverse effects of the proposed project on listed species and/or critical habitat.

## 1.1 Project Description

The SCDOT proposes to replace the existing US 21 (Sea Island Parkway) Bridge over Harbor River, located in Beaufort County, South Carolina. The project involves the bridge replacement as well as the construction of a new roadway approach alignment. The purpose of the project is to correct structural and functional deficiencies of the US 21 Bridge over the Harbor River and to upgrade the bridge and its approaches to current design standards.

## 1.2 Project Area and Setting

US 21 is a two-lane roadway with earthen shoulders on a causeway connecting St. Helena Island with Harbor Island, Hunting Island, and Fripp Island. The project corridor terrain is flat with the surface runoff draining to the adjacent salt marsh or roadside ditches. The existing land use along the project boundaries is primarily tidal wetlands, with small areas of residential and commercial development.

The project study area consists of a corridor that is approximately two miles long and 600 feet wide, centered on the existing US 21 between St. Helena Island and Harbor Island (**Figure 1-1**). The study corridor begins 150 feet west of Gay Fish County Road on US 21, extends east across the bridge to Harbor Island, and ends 150 feet past the intersection of US 21 and Harbor Drive.



Figure 1-1 Project Location Map



## 1.3 Consultation History

A Letter of Intent (LOI) was distributed on June 23, 2015 to stakeholders to notify them of the commencement of the proposed project. The LOI provided general project information and requested comments on potential environmental issues and concerns within the project study area.

The USFWS provided a response letter and species list on July 1, 2015 (**Appendix A**). The list includes species under the sole jurisdiction of NOAA-NMFS and shared jurisdiction between USFWS and NOAA-NMFS.

## 2 Federally Proposed and Listed Species and Designated Critical Habitat

A list of Federally-protected species within the project study area was obtained from the USFWS Information for Planning and Conservation (IPaC) website (**Appendix B**). Federally-endangered and threatened species under the exclusive jurisdiction of USFWS and under shared jurisdiction with NOAA-NMFS and considered in this document are identified in **Table 2-1**. **Figure 2-1** shows areas of suitable habitat and critical habitat near the project area.

**Table 2-1. ESA Federally Threatened and Endangered Species**

Common Name	Scientific Name	Federal ESA Designation	Critical Habitat Designated?
American chaffseed	<i>Schwalbea americana</i>	Endangered	No
Canbys dropwort	<i>Oxypolis canbyi</i>	Endangered	No
West Indian manatee	<i>Trichechus manatus</i>	Endangered	Yes
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	Threatened	Yes
Kirtlands warbler	<i>Setophago kirtlandii</i>	Endangered	No
Green sea turtle	<i>Chelonia mydas</i>	Threatened	Yes
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	No
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	Yes
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	Yes
Piping plover	<i>Charadrius melodus</i>	Threatened	Yes
Pondberry	<i>Lindera melisifolia</i>	Endangered	No
Red-Cockaded woodpecker	<i>Picoides borealis</i>	Endangered	No
Rufa red knot	<i>Calidris canutus rufa</i>	Threatened	No
Wood stork	<i>Mycteria americana</i>	Threatened	No



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Figure 2-1. Critical and Suitable Habitat Surrounding Project Area

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The NOAA-NMFS and the USFWS share jurisdictional responsibility for sea turtles under the ESA. The USFWS has responsibility in the terrestrial environment (e.g., nesting beaches), while the NOAA-NMFS has responsibility in the marine environment. NOAA-NMFS has sole jurisdiction over the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and Shortnose sturgeon (*Acipenser brevirostrum*); these species are evaluated under a separate biological assessment that has been provided to NOAA-NMFS.

The Bald Eagle (*Haliaeetus leucocephalus*) is also protected under the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA) (see **Section 6**). No candidate species or USFWS-designated critical habitat for federally-listed species exists in the project area.

## 2.1 American chaffseed (*Schwalbea americana*)

American chaffseed was listed as an endangered species in 1992. American chaffseed is a perennial herb approximately 1 to 2 feet in height, with mostly unbranched stems. The 2-lipped flowers are yellow with purple highlights and bloom from April through June in its historical southern range. This plant is considered a parasite as it obtains nutrients directly from the roots of many other woody and herbaceous plants.

A recovery plan exists for this species and was issued in 1995 (USFWS 1995). American chaffseed is found primarily in the coastal plain along the Atlantic and Gulf Coasts. Its historic range is from Florida to Massachusetts and westward to east Texas. Currently, American chaffseed occurs in New Jersey, North Carolina, South Carolina, Georgia, and Florida (USFWS 2011a). The USFWS has not designated critical habitat for this species.

Its preferred habitat is in open pine flatwoods, bogs, palustrine pine savannahs, and lowland pine forests; as it requires acidic-sandy or peaty soils. Chaffseed is dependent on factors such as fire, mowing, or fluctuating water tables to maintain the crucial open to partly-open conditions that it requires (USFWS 2011a). The USFWS Recovery Plan (USFWS 1995) documented 42 occurrences of this species in South Carolina; however, none of these occurrences were located in Beaufort County. Threats to chaffseed include habitat destruction and fire exclusion (USFWS 2011a).

## 2.2 Canby's dropwort (*Oxypolis canbyi*)

Canby's dropwort was listed as an endangered species in 1986. Canby's dropwort is a perennial plant found in the South Carolina Coastal Plain with erect stems and stands 2.6 to 3.9 feet tall (USFWS 2010a). The leaves are slender, hollow and quill like, and the flowers are compound umbels with white petals that appear from mid-August to early October, giving off a slight dill odor. The flowers fruits are 4 to 6 millimeters (mm) in length, with prominent wings, and will split into multiple single seeded parts upon maturation. Canby's dropwort reproduces primarily via asexual means through rhizomes.

A recovery plan exists for this species and was issued in 1990. Canby's dropwort has been found in natural ponds dominated by pond cypress, grass-sedge dominated Carolina bays, wet pine savannas, shallow pineland ponds and cypress-pine swamps or

sloughs (USFWS 2011b). Canby's dropwort has been documented in Delaware, Georgia, Maryland, North Carolina and South Carolina (USFWS 2011b). The USFWS has not designated critical habitat for this species.

Populations have been identified in the following South Carolina counties: Allendale, Bamberg, Barnwell, Berkeley, Clarendon, Colleton, Florence, Hampton, Richland, Sumter, and Williamsburg (NatureServe 2014b). No occurrences were identified within Beaufort County. Loss or degradation of wetlands is the primary threat to Canby's dropwort (USFWS 2011b).

## 2.3 West Indian manatee (*Trichechus manatus*)

The West Indian manatee was listed as endangered in 1967 and critical habitat was designated in 1976. A recovery plan exists for this species and was issued in 1980 and updated in 1989 and 1996. In July 2014, the USFWS began a 5-year review and status review to reclassify the manatee as threatened.

The Florida manatee (*Trichechus manatus latirostris*), a subspecies of the West Indian manatee, is a large brown/gray herbivorous marine mammal reaching 10 to 13 feet in length and up to 1,000 pounds (lbs.) in weight. They are classified as sirenians, which are slow moving, herbivorous mammals found in coastal habitats. Manatees have large flattened tails and paddle-like forelimbs. Females reach breeding age from 7 to 9 years of age and males from 9 to 10 years of age with longevity extending more than 50 years. Manatees are usually solitary; however they sometimes cavort in large groups or can be found in mating herds.

Manatees are marine species, although they are attracted to freshwater outlets. They prefer slow moving waters 3 to 6 feet deep and feed on marsh grasses, floating vegetation, and algae. Manatees often inhabit areas with turbid and noisy conditions (FWC 2007). The most significant threat faced by manatees is death or serious injury from vessel strikes (USFWS 2001b, FWC 2007). Manatees also cannot survive prolonged exposure to water temperatures below 18°C (65°F) (MMC 2015). The U.S. populations appear to originate from Florida, but transient groups and individuals can be found in Alabama, Georgia, and South Carolina coastal waters during the summer months (NatureServe 2014c). The USFWS designated critical habitat for the West Indian manatee is not located in the project area and is limited to portions of coastal southern Georgia and Florida.

## 2.4 Frosted flatwoods salamander (*Ambystoma cingulatum*)

The frosted flatwoods salamander was listed as a threatened species in 1999. The frosted flatwoods salamander has a black body with varying amounts of gray dorsal markings that create a net-like appearance. Adults reach lengths of 1 to 1.3 inches and can weigh up to 0.4 ounces. Adults migrate to breeding waters (at distances up to 1.0 mile) on wet evenings with low barometric pressure between October and January. Breeding habitats are usually ephemeral freshwater wetlands less than 20 inches deep dominated by pond cypress (*Taxodium ascendens*), black gum (*Nyssa sylvatica* var. *biflora*), and slash pine (*Pinus elliotii*) as well as red maple (*Acer rubrum*), loblolly bay

(*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), and sweetgum (*Liquidambar styraciflua*). The preferred habitat for post larvae include longleaf pine and wiregrass flatwoods and savannas with poorly drained undersoils allowing pooling during seasonal rains (NatureServe 2014d).

A recovery plan does not exist for the frosted flatwood salamander. Frosted flatwoods salamanders range includes the lower southeastern coastal plain of the U.S. from South Carolina to north-central Florida and westward into southern Georgia, and from there southward into northern Florida. Populations have been identified Berkeley, Charleston, and Jasper Counties, South Carolina (NatureServe 2014d). No occurrences were identified in Beaufort County. USFWS critical habitat has been designated for the frosted flatwood salamander; the closest critical habitat is located in Jasper County, South Carolina, approximately 32 miles from the project area.

## 2.5 Kirtland's warbler (*Setophaga kirtlandii*)

The Kirtland's warbler was listed as an endangered species in 1967. A recovery plan exists for this species and was issued in 1985. The Kirtland's warbler is a coastal migrating songbird reaching 6 inches in length and 0.45 ounces in weight. They have blue-gray plumage with black streaks and a yellow underbelly. Eggs are usually laid between late May and June and chicks are fledged between 8 and 12 days after hatching. Nest mortality is generally a result of predation by American crows, blue jays, hognose and garter snakes, and squirrels (NatureServe 2014e).

Kirtland's warblers preferred breeding habitat is fire generated dense stands of jack pine with little or no hardwoods present. However, they also nest on the ground at the base of pine trees in their breeding ranges of upper Michigan, Wisconsin, and Ontario, Canada. Their diet primarily consists of berries, tree sap, and insects. Winter migration sightings occur along their route from their breeding habitats to their destination in the Bahamas, including areas of the southeastern coast of the U.S (NatureServe 2014e).

## 2.6 Sea Turtles

Sea turtles are highly migratory, long-lived reptiles that occur throughout the open ocean and coastal regions of the world, generally within tropical to subtropical latitudes. Habitat and distribution vary depending on species and life stages and are discussed further in the species profiles.

### 2.6.1 Green sea turtle (*Chelonia mydas*)

In 1978, the green turtle was listed under the ESA as a threatened species throughout its range except for the Florida and Mexican Pacific coast breeding populations, which were listed as endangered. A recovery plan exists for this species and was issued in 1991. This species is part of the NOAA-NMFS and USFWS 5-year review initiated in 2012 for four species of sea turtles. Currently, a public comment period is open to solicit input on a joint proposed rule to remove the range-wide listing and to list 11 Distinct Population Segments (DPS) as threatened or endangered. NOAA-NMFS and USFWS are also requesting comments on designation of critical habitat for these DPS in the U.S.

The green sea turtle has a carapace that is predominantly brown with wavy dark blotches and has a mostly white plastron. Adults generally weigh between 250 and 650 lbs. and have carapace lengths between 3 and 4 feet. Adults migrate up to 1,850 miles between their breeding habitats on beaches and feeding habitats. Adults prefer shallow low energy waters with adequate submerged vegetation, mollusks, sponges, crustaceans, and jellyfish for feeding. Female reproductive maturity varies greatly with geographic location but is generally between 20 and 40 years of age. They lay between 1 and 8 clutches with 90 to 140 eggs in two week intervals, every 2 to 5 years. Eggs and hatchlings generally experience high mortality resulting from aquatic and terrestrial predators, tidal extremes, and beach erosion (NatureServe 2014f). In South Carolina, their nesting and hatching season would occur between early May and late October (USFWS 2015). Critical habitat is not located within the project area and has been designated for the green sea turtle in Puerto Rico.

### 2.6.2 Kemp's ridley sea turtle (*Lepidochelys kempii*)

The Kemp's ridley sea turtle was listed as endangered in 1970. A recovery plan exists for this species and was issued in 1984 and updated in 1992 and 2011. This species is part of the NOAA-NMFS and USFWS 5-year review initiated in 2012 for four species of sea turtles. NOAA-NMFS and USFWS published the 5-year review for Kemp's ridley in July 2015 and recommended the species remain classified as endangered.

Adult Kemp's ridley sea turtles have an olive green nearly circular carapace with a yellow colored plastron; juveniles have a gray colored carapace. Adults generally weigh between 80 and 100 lbs. with carapace lengths between 23 and 30 inches. Female reproductive maturity occurs between 10 and 17 years. They usually lay 3 clutches containing between 95 and 100 eggs in intervals ranging from 10 to 28 days, every 1 to 4 years. Eggs are laid during daylight hours unlike most sea turtles that lay their eggs in the dark. Eggs, hatchlings, and nesting turtles experience high mortality primarily due to coyote predation. Adults prefer shallow marine and estuarine waters in the Gulf of Mexico where crabs are plentiful. Juveniles feed primarily on *Sargassum* and mollusks. In addition to the Gulf, juvenile Kemp's ridley sea turtles also inhabit waters in the Long Island Sound, New England, and Nova Scotia. Approximately 60 percent of all nesting occurs at the Rancho Nuevo Beach in Tamaulipas, Mexico, although sporadic nesting has been documented on North Carolina beaches (NatureServe 2014g). In South Carolina, their nesting and hatching season would occur between early May and late October (USFWS 2015). Critical habitat has not been designated for this species.

### 2.6.3 Leatherback sea turtle (*Dermochelys coriacea*)

The leatherback sea turtle was listed as endangered in 1970. A recovery plan exists for this species and was issued in 1992. This species is part of the NOAA-NMFS and USFWS 5-year review initiated in 2012 for four species of sea turtles. NOAA-NMFS and USFWS published the 5-year review for the leatherback sea turtle in November 2013 and recommended the species remain classified as endangered.

The leatherback is the largest of the sea turtles with a carapace length of 53 to 74 inches and weighs between 650 to 2,000 lbs. Their carapace is dark blue to blackish in color with seven prominent longitudinal ridges and no scutes. Female reproductive maturity varies greatly with geographic location, but 9 years is generally considered the minimum

age used for conservation purposes. They can lay 10 or more clutches each containing 70 to 90 eggs at 1 to 2 week intervals, every 2 to 3 years. Eggs and hatchlings experience high mortality from predation whereas adult mortality is usually the result of commercial fishing gear or from eating floating debris (commonly plastic) (NatureServe 2014h). Critical habitat is not located in the project area and has been designated for the leatherback sea turtle in the US Virgin Islands.

Adults have been documented migrating between hundreds and thousands of miles between nesting and feeding waters. The leatherback sea turtle's preferred nesting habitat is on sloping continental beaches with the absence of a fringing reef, often near deep and/or rough ocean waters. Those leatherback sea turtles nesting in the Caribbean migrate north along the Atlantic Coast, reaching New England by late summer. In South Carolina, their nesting and hatching season is from early May to late October (USFWS 2015). Leatherback sea turtle nests have been documented on Hunting Island, Pritchards Island, and Fripp Island, South Carolina. Two leatherback sea turtle nests have been documented in South Carolina in 2015; one nest was located at Hunting Island State Park less than 5 miles from the project area (SCDNR 2015b). A "false crawl" was documented at Harbor Island, South Carolina, in 2012, but as the term indicates, no nesting took place (SCDNR 2015c).

Considered almost entirely pelagic, leatherback turtles move from the open ocean to the edge of continental shelves, and consistently make dives to depths of 4,200 feet. Their pelagic lifestyle limits their diet to primarily jellyfish, although some fish, invertebrates, and seaweed are also consumed (NatureServe 2014h). Leatherback sea turtles prefer the open ocean, particularly the warmer parts of the Atlantic Ocean; however, they occasionally forage in shallow bays, estuaries, and the mouths of rivers.

#### 2.6.4 Loggerhead sea turtle (*Caretta caretta*)

The loggerhead sea turtle was listed as threatened in 1978. A recovery plan exists for this species and was issued in 1984 and updated in 1991 and 2008. In 2011, a final rule was issued to list four DPS as endangered and five DPS as threatened. The Northwest Atlantic Ocean DPS, which includes individuals in the project area, is designated as threatened.

The loggerhead sea turtle has a distinctively large head and a reddish-brown carapace measuring 28 to 49 inches in length and weighing between 155 to 500 lbs. In the southeastern U.S., female loggerheads reach reproductive maturity at 15 to 30 years and lay between 1 and 9 clutches of 45 to 200 eggs at 2 week intervals, every 2 to 3 years. In South Carolina, their nesting and hatching season is from early May to late October (USFWS 2015) on open sandy beaches above the high tide line. Egg and hatchling mortality is a result of predation (raccoons), tidal extremes, excessive rainfall, human disturbance, and disruption of nests by vegetation growth (NatureServe 2014i).

Some southeastern U.S. loggerhead sea turtles migrate north in the spring, and south at the beginning of fall. The NOAA-NMFS has determined that potential breeding habitat for the loggerhead sea turtle exists approximately 2,200 linear feet (seaward) from the southeastern boundary of the proposed project area. Adults are considered pelagic but generally remain near shore in bays, estuaries, lagoons, creeks, and mouths of rivers. Their diet is the most varied of the sea turtles consisting of several marine invertebrates,

vegetation, and fish. Their U.S. nesting range is from southern Florida to North Carolina (NatureServe 2014i).

Critical habitat is not located within the project area; however, critical habitat for loggerhead sea turtles is located approximately 0.5 mile from the project area on the beaches of Harbor Island (**Figure 2-1**). Loggerhead sea turtles have been documented nesting on the sandy beaches of Harbor Island, near the confluence of Harbor River and St. Helena Sound (SCDNR 2014a; SCDNR 2015c). Harbor Island has been part of the South Carolina Department of Natural Resources' (SCDNR) Sea Turtle Conservation Program since 1993 and averages just under 50 nests per year (SCDNR 2015c).

## 2.7 Piping plover (*Charadrius melodus*)

The piping plover was listed as a threatened species in 1985. This species is part of the USFWS 5-year review initiated in 2014. A recovery plan exists for the Atlantic Coast population of this species and was issued in 1996.

The piping plover is considered small for a shorebird averaging approximately 6.5 to 7.0 inches in length and between 1.6 and 2.3 ounces in weight. They are mostly white in color with a dark band across the front of the crown and black shoulder patches. During breeding season, adult females arrive at the breeding area several weeks after the males have arrived and have established territories. Although monogamous during the breeding season, both males and females usually pick new mates every year. Nests are created on beaches in small depressions in sand with an average clutch size of 4 eggs. The hatchlings fledge 2 hours after hatching but can only run and swim and therefore usually remain within 200 meters (m) of the nest. Flight usually occurs about 18 days after hatching (NatureServe 2014j).

Piping plovers preferred foraging habitat consists of beach dunes, intertidal flats, and tidal pool edges where their diet is composed of worms, fly larvae, beetles, and marine invertebrates. U.S. breeding locations have been documented in the Great Plains, eastern Montana, Minnesota, the Dakotas, southeastern Colorado, Iowa, Nebraska, New York, New Jersey, Massachusetts, Virginia, and North and South Carolina. Wintering populations reside from Florida to North Carolina, and at various locations in the Gulf Coast States (NatureServe 2014j).

The USFWS has identified critical habitat for this species. The primary constituent elements for piping plover critical habitat are found in dynamic coastal areas that support intertidal beaches and flats and associated dune systems and flats above annual high tide (USFWS 2001a). Intertidal flats may include sand and/or mud flats with no or very sparse emergent vegetation. Adjacent unvegetated or sparsely vegetated sand, mud, or algal flats above high tide are also important, especially for roosting piping plovers. These habitat components are a result of the dynamic processes that occur on coastal landforms, including erosion, accretion, and storm events. Because of the ever-changing conditions, piping plovers are dependent on a mosaic of sites distributed throughout the landscape (USFWS 2001a). USFWS has identified critical habitat for piping plovers on the eastern side of Harbor Island (**Figure 2-1**). These flats and beaches are located approximately 0.5 mile from the eastern edge of the project area.

## 2.8 Pondberry (*Lindera melissifolia*)

Pondberry was listed as an endangered species in 1986. The USFWS prepared a recovery plan for this species in 1993. Pondberry is a dioecious deciduous shrub from 1.6 to 6.5 feet in height and usually grows in large clonal clumps. The small yellow flowers bloom from March to April and the fruits mature in early fall. When crushed, the leaves give off a lemony-sassafras odor.

The USFWS has not designated critical habitat for this species. Pondberry is known to occupy a variety of habitats from freshwater bogs, fens, and forested wetlands to hardwood forests, as long as its hydrological requirements are met. It's usually found in shaded areas but is able to tolerate full sun. The pondberry's range is primarily the Atlantic coastal plain from Florida to North Carolina and along the Gulf coastal plain from Alabama to Mississippi. South Carolina's documented populations have been found in Beaufort, Berkeley, and Colleton Counties (NatureServe 2014k). The major threat to the continued existence of pondberry is alteration or destruction of its habitat through land-clearing, drainage modification, or timber-harvesting.

## 2.9 Red-cockaded woodpecker (*Picoides borealis*)

The red-cockaded woodpecker (RCW) was listed as an endangered species in 1970. The USFWS issued a recovery plan for this species in 2003. The RCW is approximately 7 to 8 inches in length with a 13.5 to 15 inch wingspan. It has a dull white breast with black spots, barred back feathers of black and white, black wings, a black cap, and a tell tale large white patch on both cheeks. It gets its name from the distinctive red streaks or "cockades" on the sides of the head which are more visible on females and juveniles than on adult males (Chadwick 2003). RCWs lay their eggs between April and June and their offspring fledge between 26 and 29 days after hatching.

The USFWS has not designated critical habitat for this species. The RCW requires mature stands of longleaf and/or loblolly pine to excavate a living cavity and encircles the cavity with small holes to encourage the flow of tree sap which is believed to protect it from predators (USFWS 2003a). This habitat requires burning which eliminates scrub oaks and other hardwoods which discourage nesting of RCWs. The RCW's historic range extends from New Jersey to Texas and inland to Missouri, but its current range excludes New Jersey, Maryland, and Missouri (NatureServe 2014l). Populations have not been identified in Beaufort County (NatureServe 2014l).

## 2.10 Rufa red knot (*Calidris canutus rufa*)

The rufa red knot (RRK) was listed as a threatened species in 2015. The USFWS has not issued a recovery plan or critical habitat for this species. The RRK is approximately 9 to 11 inches in length with an average wingspan of 22 inches. The RRK is about the size of a robin with a mottled pattern of black, gray, and rose colored feathers on its back and a rose underbelly reaching up through the throat and around the eyes (Fretwell 2014). They feed primarily on horseshoe crab eggs along their US Atlantic Coast seasonal migration route but have also been known to feed on mollusks and marine worms (USFWS 2010b, NatureServe 2014m).

Delaware Bay and coastal Virginia remain their largest concentration areas during their spring and fall migrations, but overwintering populations have been observed on sandy beaches and in mud flats on the South Carolina coast. RRK nests are found on the ground in shallow depressions lined with leaves and lichens near water. Clutch size is between 3 and 4 eggs which are incubated for approximately 3 weeks. Chicks fledge between 18 and 20 days after hatching (SCDNR 2014b). Threats to the RRK include loss of habitat caused by shoreline hardening and development and the loss of prey. The RRK is known or believed to occur in Beaufort County. In particular, the RRK has been observed recently on Harbor Island, approximately 0.5 mile from the project area.

## 2.11 Wood stork (*Mycteria americana*)

The wood stork was listed as an endangered species in 1984. In 2014, the species was reclassified as threatened. The USFWS revised the recovery plan for the wood stork in 1997.

Adult wood storks are one of the largest wading birds in North America with a wingspan of 59 to 65 inches and a head to tail length of 33 to 45 inches (USFWS 1996). They are all white in color except for the black primary and secondary wing and tail feathers, and a long thick black bill.

The USFWS has not designated critical habitat for this species. Their habitats consist of cypress swamps, bottom-land hardwood forests, tidally influenced freshwater wetlands, and abandoned rice fields maintained for water fowl, but also feed in saltwater marshes (Brooks 2007). Narrow tidal creeks provide valuable feeding areas for wood storks (USFWS 1990). In estuarine environments, nesting and roosting sites may occur on islands surrounded by broad expanses of open water (USFWS 1990). Wood storks generally nest in colonies from February to April and lay eggs from March to late May. Hatchlings usually emerge from early May to mid June and fledge in July or August.

The wood storks historic breeding range is from South Carolina and Florida to Mexico, Central America, Cuba, and Northern Argentina. Today's North American populations are increasing in South Carolina primarily due to migration from Florida as a result of decreasing habitat. SCDNR conducts a wood stork monitoring program aimed at improving habitats and encouraging year long residents as oppose to the transient populations that traditionally returned to Florida for breeding. During the late 1980's and early 1990's, South Carolina nesting pairs have increased from 11 pairs to 829 pairs (USFWS 1997), and eventually increased to 2,010 pairs in 2006 (USFWS 2007). The wood stork species was recently reclassified to threatened when an average of 6,000 nesting pairs were recorded and more than 1.5 chicks per year reached fledgling age, over a 3 year period (USFWS 2014; Rodgers et al. 2008). Continuing threats for the wood stork include loss of wetland habitat, water management, predation, and human disturbance.

## 2.12 Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagles were listed as endangered species in 1978. Bald eagles were removed from the endangered species list in August 2007 because their populations recovered sufficiently. Bald eagles are now protected under the MBTA and the BGEPA.

The bald eagle gets its name from the distinctive white head of mature adults (6 years of age). Adults' tails are also white but their remaining plumage is dark yet they have a bright yellow bill and yellow eyes. Bald eagles are found in all 48 contiguous US states as well as Alaska (NatureServe 2014n). Their body length ranges from 31 to 37 inches and wingspan from 70 to 90 inches (NGS 1983), weighing upwards of 14 pounds. Bald eagles in South Carolina are smaller than their northern brethren however, with a mean weight of 7.14 pounds and a mean wing span of 188 centimeters (SCDNR 2010). Bald eagle breeding habitat is generally within approximately 2.5 miles of water bodies including rivers, lakes, reservoirs, bays, and other coastal areas with abundant fish and/or waterfowl populations. Nesting areas usually occur in large tall trees able to support their 4 to 6-foot-wide nests, and may be used year after year or may be alternated with another nest in successive years. Additionally, nesting sites are primarily chosen in areas with limited disturbance. Eggs are laid between October and March with clutch sizes of 1 to 3 eggs. Chicks usually fledge by 12 weeks but often remain in the same territory for an additional 6 weeks as they are still dependent on the adults for food (NatureServe 2014n).

## 3 Environmental Baseline

The proposed project is in an estuarine setting within the outer coastal plain of South Carolina and contains tidal salt marshes, ponds, creeks, and the Harbor River. Current land use near the project area is rural because of the extensive tidal wetlands, floodplains, and zoning designations.

### 3.1 Harbor River

The existing US 21 bridge over Harbor River is approximately 0.88 mile from St. Helena Sound and the confluence of Harbor River and St. Helena Sound is approximately 1.9 miles from the Atlantic Ocean. As shown on **Figure 3-1**, Harbor River narrows to the south, or upstream, of the existing bridge. Approximately 3 river miles south of the existing bridge, the tidal tributaries to Harbor River intersect with tidal tributaries to the Story River. Depths in this area are 6 to 10 feet at mean high water and 4 to 5 feet at mean low water.

Harbor River generally consists of unconsolidated bottom with soft sediments mixed with some sand. The bottom provides nutrient and pollutant storage and supports benthic organisms. Salinity levels within the Harbor River and adjacent St. Helena Sound can be characterized as marine or euhaline environments, where salinity levels are greater than 30 parts per trillion (ppt). The SCDNR and the South Carolina Department of Health and Environmental Control (SCDHEC) monitor the condition of South Carolina's estuarine habitats through the Estuarine and Coastal Assessment Program (SCECAP). Monitoring station RO08351 is located in St. Helena Sound approximately 3 miles west of the US 21 bridge over Harbor River. The latest available SCECAP data tables from 2008 indicate salinity levels Station RO08351 between 34.0 and 36.1 ppt on the channel bottom (SCDNR 2008). Salinity on the water surface was 32.2 ppt.



Figure 3-1. NOAA Navigation Chart

## 3.2 Coastal Habitats

The salt marshes are estuaries of Harbor River, St. Helena Sound, and Ward Creek. Shell banks and oyster beds can be found along the Harbor River and its associated tidal creeks. Salt marsh vegetation includes bushy seaside tansy (*Borrchia frutescens*), smooth cordgrass (*Spartina alterniflora*), glasswort (*Salicornia virginica*) and black needlerush (*Juncus roemerianus*). Common macrobenthic species in the salt marsh include marsh fiddler crabs (*Uca pugnax*), ribbed mussels (*Geukensia demissa*), and periwinkle snails (*Littoria irrorata*). No freshwater wetlands were identified within the Project Study Area.

Terrestrial or upland habitats adjacent to the salt marsh primarily consist of the US 21 causeways, the Beaufort County boat ramp, and property surrounding Gay Seafood Company. In the eastern portion of the project study area, the Harbor Key residential community comprises most of the upland area. Upland hammocks and berms in the Harbor Key community are interspersed among tidal ponds and marsh. Vegetation observed on the uplands includes eastern baccharis (*Baccharis halimifolia*), red cedar (*Juniperus virginiana*), live oak (*Quercus virginiana*), and saw palmetto (*Serenoa repens*).

## 3.3 Water Quality

Stations monitored in the Harbor River between 1999 and 2010 indicate an overall good water quality, sediment quality, and biotic condition (R.F. Van Dolah 2013). Harbor River between St. Helena Sound and Fripp Inlet is classified by the SCDHEC as an Outstanding Resource Water (ORW) (SCDHEC 2012). Class ORW includes saltwaters that constitute an outstanding recreational or ecological resource. St. Helena Sound and Ward Creek are classified by SCDHEC as Shellfish Harvesting Waters (SFH), which are tidal saltwaters protected for shellfish harvesting (SCDHEC 2012).

SCDHEC monitors the Harbor River water quality at a shellfish monitoring station (16B-06) and an ambient water quality monitoring site (RO-11310) located approximately 2 miles south, or upstream of the US 21 bridge over Harbor River. Station RT-09099 is located in Ward Creek, just upstream of the Beaufort County boat ramp. Station RO-01163 is located in St. Helena Sound, in the closest proximity to the US 21 bridge over Harbor River. The SCDHEC water quality monitoring stations within Harbor River and Ward Creek are not listed for impairments. Station RO-01163 in St. Helena Sound was listed in the 2014 edition of the 303(d) list for turbidity impairments that affect aquatic life use (SCDHEC 2014).

## 4 Proposed Action

SCDOT proposes to replace the existing US 21 bridge over Harbor River in Beaufort County, South Carolina. The 2,851-foot long bridge over the Harbor River was constructed in 1939. The existing bridge includes a 170-foot long, 76-year-old metal truss swing span. The existing bridge deck consists of two 10-foot travel lanes, one in each direction, with a 1-foot curb and railing.

The SCDOT determined that the existing bridge no longer meets the state's safety and design requirements for its transportation system. The existing bridge was evaluated in terms of its structural integrity and functional efficiency and was found to be structurally deficient and functionally obsolete. The purpose of the project is to correct structural and functional deficiencies of the US 21 Bridge over the Harbor River and to upgrade the bridge and its approaches to current design standards.

## 4.1 Alternatives

The proposed bridge replacement is currently in the project development stage and a preferred alternative has not yet been selected. This project is being developed for Design-Build procurement, where a single entity is contracted to deliver the design and construction. Conceptual design is currently being developed for five alternative locations (**Figure 4-1**), while final design will be completed by the Design-Build contractor. This biological assessment has been prepared using conceptual designs and typical construction methods, since each alternative alignment would have similar effects on protected species in the surrounding estuarine environment. During final design and permitting, the Design-Build contractor would be responsible for coordinating with the USFWS and NOAA-NMFS regarding design changes that would alter the effect determination and the implementation of environmental commitments.



Figure 4-1. Alternative Alignments of Proposed US 21 Bridge

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The SCDOT is considering a No-Build alternative as well as shifting the location of the bridge to five alternative locations (**Figure 4-1**). The SCDOT is also evaluating the construction of both a fixed span bridge and a new moveable bridge. The vertical clearance of a new fixed span bridge over the river's channel is expected to be 65 feet above Mean High Water and is being determined through coordination with the US Coast Guard (USCG). The proposed bridge would have one travel lane in each direction that is 12 feet wide, and a shoulder in each direction of travel that is 10 feet wide (**Figure 4-2**).

The US 21 bridge over Harbor River provides the only vehicle access between St. Helena Island and Harbor Island, Hunting Island, and Fripp Island. US 21 is also a hurricane evacuation route for surrounding communities. Therefore, traffic must be maintained on the existing roadway during construction of the replacement bridge and approach roadway. The SCDOT considered other alternatives, including closing and abandoning the existing bridge and replacing the bridge on existing alignment; however, these alternatives were found to be unfeasible and were eliminated from further review. The SCDOT also considered rehabilitating the existing bridge; however, this alternative would not address the substandard geometry of the bridge deck, including the width of travel lanes and shoulders.

The SCDOT also considered constructing a new causeway and bridge south of Ward Creek and connecting to either Hunting Island or Fripp Island. The existing causeway and bridge would be removed. This alternative would have allowed for a lower bridge height, since it was assumed that most shrimp boats travel between Ward Creek and the St. Helena Sound. However, the Navigation Study (Available upon Request) identified other maritime users in the Harbor River and on Fripp Island that would prevent the bridge from being built at a lower height. This alternative was also eliminated because it has the potential for extensive impacts to the salt marsh and natural environment, as well as significantly higher cost.

In a letter dated July 1, 2015 (**Appendix A**), the USFWS recommended eliminating the use of fill for a causeway and instead constructing a bridge over the salt marsh between St. Helena Island and Harbor Island. The new bridge would be constructed parallel to the existing causeway and bridge, allowing US 21 to remain open to traffic during construction. Once the new bridge was opened, the SCDOT would remove the existing US 21 bridge and causeway and restore the underlying salt marsh. The SCDOT considered this alternative, but it was eliminated because of significantly higher design and construction costs. Also, the purpose and need for the project is to address deficiencies of the bridge and its approaches, not of US 21 along the causeway.

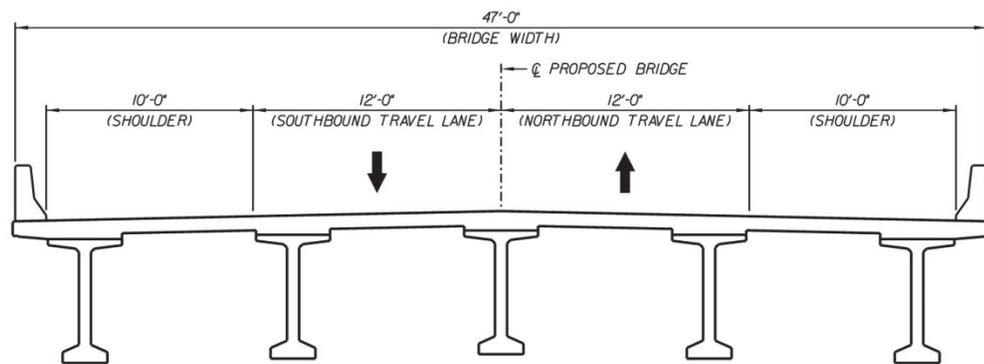


Figure 4-2. Typical Section of Proposed Bridge

## 4.2 Construction Methods

Construction methods cannot be finalized because the project will be constructed through Design-Build procurement. However, each alternative would involve construction of a new bridge and its associated approaches in the tidal marshes and channel of Harbor River.

Bridge construction methods will likely include a combination of drilling shafts and pile driving for the bridge support structures. Bridge construction access would be located in upland areas to the maximum extent practicable. However, the existing causeway must remain open during construction to provide access between St. Helena Island and Harbor Island. Work in deep water habitats is likely to occur from barges. Temporary work trestles may be installed over the tidal marsh using drilled shafts or pile driving. The SCDOT is still determining design and construction specifics, such as the size and number of drilled shafts, time estimates of in-water work, and construction access.

Direct impacts to deep water habitats, such as the Harbor River, would be limited to the construction of bridge support structures, such as drilled shafts and concrete columns. Areas of tidal wetlands may be filled as the new bridge connects to the existing causeway. Temporary clearing within the salt marsh may occur to install erosion and sediment control measures. Timber mats and/or barges may cause temporary impacts to salt marsh grasses during construction. However, the SCDOT would minimize these temporary impacts by regularly moving mats and barges to limit compaction of marsh soils and shading of marsh grasses. Portions of the upland causeway may be used to install stormwater management features. Construction is expected to occur between mid-2018 and mid-2020.

The existing bridge and unused causeway would be demolished upon completion of construction. The bridge would be demolished using standard practices to remove the existing piers and swing span. Concrete bridge decks and the existing swing span will likely be placed on barges and transported offsite for disposal and/or recycling. Standard deconstruction practices may include using vibratory methods to remove existing pilings. If explosives are used for demolition, the contractor would be responsible for evaluating

the potential effect on protected species and obtaining concurrence from the USFWS and NOAA-NMFS.

## 4.3 Construction Noise

A general increase in in-air and underwater noise would be expected during construction. Construction noise is generally considered to generate impulsive or non-impulsive sounds, as defined below.

- Impulsive sounds are transient, brief (less than 1 second), and typically consist of high peak pressure with rapid rise time and rapid decline (ANSI 1986; NIOSH 1998; ANSI 2005). Examples of impulsive sounds include airguns or impact pile drivers.
- Non-impulsive sounds can be brief or prolonged and continuous or intermittent, but typically do not have a high peak pressure with rapid rise time (ANSI 1995; NIOSH 1998). Examples of non-impulsive activities include sonar and vibratory pile drivers.

Noise levels are generally higher if impact pile driving is used to construct the bridge support structures, as compared to vibratory driving of drilled shafts. Pile driving creates an impulsive sound, with peak sound pressure levels between 182 and 220 decibels (dB), depending on the type and size of pile driven and surrounding water depth (CalTrans 2012). Cumulative sound exposure levels (SEL) can vary between 146 and 195 dB SELcum.

Vibratory hammers generate a continuous but low-level noise that is generally considered non-impulsive. Peak sound pressure levels from vibratory hammers can vary between 165 and 195 dB depending on the type and size of pile and surrounding water depth (CalTrans 2012). Cumulative sound exposure levels for vibratory hammers can vary between 150 and 180 dB SELcum. The effects of construction noise are discussed by species in the following Effects Analysis (**Section 5**).

## 4.4 Bridge Lighting

Roadway lighting requirements, as set forth in the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide, would be adhered to during the entire length of the proposed project. In an effort to avoid or minimize potential indirect impacts of bridge lighting to the movements of protected aquatic mammals, fish, and reptiles, no permanent lighting would be installed on the proposed bridge roadway. The proposed bridge would contain navigational lights in accordance with Part 118 of Title 33, Code of Federal Regulations (CFR) and as approved by the USCG.

## 4.5 Mitigation

Onsite mitigation for salt marsh habitat impacts is favored by the USFWS (Appendix A). The SCDOT plans to purchase credits from an approved mitigation bank with available salt marsh credits in accordance with US Army Corps of Engineers (USACE) and the Environmental Protection Agency published regulations (33 CFR Parts 325 and 332)

*Compensatory Mitigation for Losses of Aquatic Resources.* Multiple mitigation banks are available to provide mitigation services to the project area, including Congaree Carton Mitigation Bank (Charleston County), the SCDOT Huspa Creek Mitigation Bank (Beaufort County), and Clydesdale Club (Jasper County). Specific details of compensatory mitigation will be coordinated with the USACE during the permitting process.

## 5 Effects Analysis

A field study was conducted by HDR biologists on September 19<sup>th</sup>, 2014 to identify potential suitable habitat for federally protected species within the project area. Suitable habitat was identified for leatherback and loggerhead sea turtles, wood storks, red knots, and bald eagles. No suitable habitat for plant species was identified. Subsequent field surveys have occurred within the USFWS recommended survey windows (USFWS 2015) and are discussed further below.

### 5.1 American chaffseed (*Schwalbea americana*)

The project area does not contain suitable habitat for American chaffseed and there are no recorded observations of the species in Beaufort County. **Therefore, the proposed project would have no effect on this species.**

### 5.2 Canby's dropwort (*Oxypolis canbyi*)

The project area does not contain suitable habitat for Canby's dropwort and there are no recorded observations of the species in Beaufort County. **Therefore, the proposed project would have no effect on this species.**

### 5.3 West Indian manatee (*Trichechus manatus*)

The project study area may provide suitable habitat for West Indian manatees between May and October. As noted in **Section 2.3**, the most significant threat faced by manatees is death or serious injury from vessel strikes (USFWS 2001b, FWC 2007). Construction in the summer months may have a direct effect if a vessel (such as a barge or tug boat) strikes a manatee. The potential for striking a manatee would be minimized by following the *Manatee Protection Guidelines (Appendix C)* adapted from the USFWS North Florida Field Office, which require vessels associated with the project to operate at slow speeds.

Construction may indirectly affect manatees through a temporary increase in turbidity during placement of bridge pilings. However, this increase would be temporary and would likely dissipate within a few hours. Best management practices would be implemented to minimize turbidity. The indirect affect on manatees would be minimal because, as noted in **Section 2.3**, manatees often inhabit areas with turbid conditions (FWC 2007). In accordance with *Manatee Protection Guidelines (Appendix C)*, if siltation or turbidity barriers are used, they would be made of material in which manatees cannot become entangled, would be properly secured, and would be regularly monitored to avoid manatee entanglement or entrapment.

Construction could also affect manatee behavior by generating a temporary increase in underwater noise. Manatee's functional hearing range and responsiveness to noise has been disputed in recent studies (Gerstein et al. 2008; Gerstein et al. 1999, Mann et al. 2009). Impact thresholds for manatees have not been developed at this time. Loud levels of intermittent or continuous construction noise from impact pile-driving and drilled shaft installation could harm manatees if they were close to the noise source for prolonged periods. The effect of increased underwater noise on manatees depends on the type of construction activities. As discussed in **Section 4.3**, noise levels are generally higher if impact pile driving is used to construct the bridge support structures, as compared to vibratory driving of drilled shafts. During construction, the potential effect of underwater noise impacts would also be minimized through the use of "slow starts", where pile-driving ramps up slowly in an effort to deter manatees from the work area. In accordance with *Manatee Protection Guidelines (Appendix C)*, if manatees are observed within 50 feet of active construction equipment, that equipment would be shut down. Utilizing these guidelines would minimize potential adverse effects of underwater construction noise on manatees in the project area.

No recent sightings of the West Indian manatee have occurred in this area (SCDNR 2014a). However, the proposed project would impact marine waters that provide suitable manatee habitat between May and October. Adverse effects on manatees are not expected to occur within the project area because construction operations would follow the *Manatee Protection Guidelines (Appendix C)*. Furthermore, manatees would likely avoid the construction area given the increased vessel traffic and noise. **Therefore, the proposed project may affect, but is not likely to adversely affect this species.**

#### 5.4 Frosted flatwoods salamander (*Ambystoma cingulatum*)

The project area does not contain suitable habitat for frosted flatwood salamanders and there are no recorded observations in Beaufort County. **Therefore, the proposed project would have no effect on this species.**

#### 5.5 Kirtland's warbler (*Setophago kirtlandii*)

While the Kirtland's warbler migrates along the southeastern coast of the US between Canada and the Bahamas, there have been no sightings near the project area. **Therefore, the proposed project would have no effect on this species.**

#### 5.6 Sea Turtles

Nesting habitat for loggerhead turtles and leatherback turtles occurs near the project area. Additionally, the project area may contain foraging or migratory pathways for non-nesting species.

##### 5.6.1 Green sea turtle (*Chelonia mydas*)

There have been no recent or historic sightings within the project area. In 2015, only two green sea turtle nests have been documented in South Carolina at Garden City Beach

and North Island, located over 100 miles to the north of the project area (SCDNR 2015b). **Therefore, the proposed project would have no effect on this species.**

#### 5.6.2 Kemp's ridley sea turtle (*Lepidochelys kempii*)

There have been no sightings or nesting activities documented near the proposed project area. In 2015, only one Kemp's ridley sea turtle nest has been documented in South Carolina at Lighthouse Island, located over 75 miles to the north of the project area (SCDNR 2015b). **Therefore, the proposed project would have no effect on this species.**

#### 5.6.3 Leatherback sea turtle (*Dermochelys coriacea*)

As discussed in **Section 2.6.3**, leatherback turtle nests have been found on Fripp, Hunting, and Pritchard's Islands near the project area as recently as 2015. This species generally prefers deeper marine waters than what exists near the proposed project area. While the project study area does not contain suitable nesting habitat for the leatherback sea turtle, it may contain suitable foraging habitat.

#### 5.6.4 Loggerhead sea turtle (*Caretta caretta*)

The project study area does not contain critical habitat or suitable nesting habitat for loggerhead sea turtles. The closest loggerhead critical habitat area is located 0.5 mile from the project study area and there would not be any direct or indirect effects from construction and demolition activities. Therefore, critical habitat would not be affected by the construction activities. However, the species is likely found in the estuarine waters of the Harbor River because of the close proximity of critical habitat and nesting habitat at Harbor Island (**see Section 2.6.4**).

#### 5.6.5 Effects Analysis for Leatherback and Loggerhead sea turtles

Potential direct impacts to sea turtles associated with project are behavioral disturbances or physical injuries caused by pile driving noise and physical strikes during construction. Possible indirect impacts may include decreased water quality and lighting. No loss of nesting habitat is anticipated.

##### Noise

Sea turtle hearing is limited to low-frequency sounds, which may be used as guideposts during migration and to identify nesting beaches (Lenhardt et al. 1983). Possible effects of sound from pile driving range from behavioral effects such as startle reactions and behavioral changes to injurious effects such as temporary or permanent loss of hearing and damage to internal organs.

The NOAA-NMFS threshold for onset of injury to sea turtles due to both impact pile driving and vibratory pile driving is 190 dB. As discussed in **Section 4.3**, impact pile driving creates an impulsive sound with peak sound pressure levels between 182 and 220 dB. Vibratory hammers generally produce a lower-level noise varying between 165 and 195 dB. Both impact pile driving or vibratory hammers could exceed the 190 dB threshold. The potential for impacts is greatest during the nesting and hatching season

from early May to late October. During construction, the potential effect underwater noise impacts would also be minimized through the use of “slow starts”, where pile-driving ramps up slowly in an effort to deter turtles from the work area. Construction personnel would also be aware of the potential presence of sea turtles in the area and would monitor for turtles in the water during pile driving or drilled shaft installation.

### Construction Vessel Strikes

Vessel movements have the potential to affect sea turtles directly by accidentally striking or disturbing individual animals. Behavioral changes in response to vessel presence include avoidance reactions, alarm/startle responses, and other behavioral and stress-related changes. Sea turtles in the Harbor River encounter vessel traffic associated with recreational and shrimping vessels; therefore, the turtles have likely habituated to existing levels of vessel activity. Construction vessel traffic would potentially pass near sea turtles on an incidental basis, but short-term behavioral reactions to vessels are not expected to result in long-term impacts, or to sea turtle populations in waters surrounding the project area. Construction vessels would operate at low speeds within the relatively limited project area. Construction personnel would be aware of the potential presence of sea turtles in the area and would monitor for turtles in the water to avoid a vessel strike.

### Water Quality

Turbidity associated with construction would be limited to the placement of fill for bridge approaches and pile driving or construction of drilled shafts. Turbidity from pile driving may temporarily decrease water quality and the foraging efficacy of sea turtles, which are visual predators. The increased turbidity is expected to dissipate over a matter of hours and will not permanently degrade water quality or sea turtles' ability to forage.

Turbidity would be controlled through the use of SCDOT Best Management Practices. These activities would occur in portions of the Harbor River and would not limit travel by sea turtles between ocean, river, and sound habitats. Also, it is unlikely that highway runoff would have a negative affect on sea turtles. Stormwater runoff from bridges would be contained within a closed drainage system and filtered prior to discharging into the waters surrounding the Harbor River.

### Lighting

The effects of lighting on leatherback and loggerhead sea turtles while they are in the aquatic environment would be minimal. The SCDOT would avoid or minimize potential indirect impacts from bridge lighting on the leatherback and loggerhead sea turtles by eliminating permanent lighting on the bridge roadway and implementing protective measures for temporary lighting. As discussed in **Section 4.4**, the proposed bridge would contain navigational lights in accordance with Part 118 of Title 33, CFR and as approved by the USCG. Navigational lighting on the bridge is for use by mariners and therefore does not cast direct light onto the river surface. The existing swing span bridge contains navigational lighting; therefore, the likelihood of impact is reduced because sea turtles are accustomed to this type of lighting over the Harbor River.

Based on the information provided above, **the proposed project may affect, but is not likely to adversely affect on leatherback or loggerhead sea turtles.**

## 5.7 Piping plover (*Charadrius melodus*)

USFWS has identified critical habitat for piping plovers on the eastern side of Harbor Island (**Figure 2-1**). These flats and beaches are located approximately 0.5 mile from the eastern edge of the project area. The project area does not contain suitable nesting habitat for piping plovers. The project area contains unvegetated intertidal flats that may be suitable for foraging. Biologists have observed the intertidal flats near the existing bridge during various tidal conditions in October 2015, which is within the piping plover's migration and wintering season. No piping plovers have been observed. **Therefore, the proposed project may affect, but is not likely to adversely affect this species.**

## 5.8 Pondberry (*Lindera melissifolia*)

The project area does not contain suitable freshwater habitats for pondberry. **Therefore, the proposed project would have no effect on this species.**

## 5.9 Red-cockaded woodpecker (*Picoides borealis*)

The project area does not contain suitable habitat for RCWs. **Therefore, the proposed project would have no effect on this species.**

## 5.10 Rufa red knot (*Calidris canutus rufa*)

Potential foraging habitat for the red knot is located on shell banks and unvegetated flats near the eastern end of the existing bridge (**Figure 2-1**). Surveys were performed in October and November within the migration season and during various tidal conditions. No red knot individuals were observed. There is an abundance of similar habitat types in the immediate vicinity outside of the project area which provide suitable alternative foraging areas. **Therefore, the proposed project may affect, but is not likely to adversely affect this species.**

## 5.11 Wood stork (*Mycteria americana*)

No wood stork nesting or roosting sites have been identified within the project area. Salt marshes and tidal creeks within the project area contain suitable foraging habitat for wood storks. Biologists have observed wood storks foraging within the project area.

The proposed project would affect salt marsh foraging habitats. While impacts would be minimized, areas of tidal wetlands may be filled as the new bridge connects to the existing causeway. Timber mats and/or barges may cause temporary impacts to salt marsh grasses during construction. Foraging wood storks would likely avoid the construction area given the increased activity and noise. However, the project area is located in a large expanse of salt marsh and network of tidal creeks, which provide alternative feeding habitats nearby. **Therefore the proposed project may affect, but is not likely to adversely affect this species.**

## 5.12 Bald eagle (*Haliaeetus leucocephalus*)

Bald eagles have been observed at Harbor Island and Hunting Island State Park. Bald eagle nesting sites consists of large tall pine trees in generally less disturbed areas, within relative close proximity to water bodies containing sufficient amounts of fish and/or waterfowl. The project area is adjacent to a frequently used roadway and bridge and would therefore be classified as moderately disturbed.

During the suitable habitat survey conducted in September 2014, a large nest was observed within the project area near the intersection of US 21 and Harbor Drive (**Figure 2-1**). The large nest (3 feet in diameter), located in a pine tree, is a suitable size for a bald eagle. The project would not require removal of the nest, but construction would occur within close proximity of the nest.

The nest was monitored monthly for activity between September 2014 and May 2015, and between September and December 2015, which correspond to the bald eagle nesting season. No activity was observed and the nest is likely abandoned. During the December 2015 monitoring, the nest appeared deteriorated and portions have fallen out of the tree. Any change in nest activity would be reported to the USFWS.

The proposed project would impact potential foraging habitat for bald eagles in the area. **Therefore, the proposed project may affect, but is not likely to adversely affect this species.**

## 5.13 Cumulative Effects

The project may affect but is not likely to adversely affect the loggerhead sea turtle, the leatherback sea turtle, red knot, piping plover, West Indian manatee, bald eagle, and the wood stork. Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR§1508.7).

The proposed project would not promote development on the surrounding islands that may affect terrestrial, marine, or estuarine habitats. The proposed US 21 bridge would not include additional travel lanes or increase the capacity for additional vehicles on the roadway. Overall, there is a low potential for growth and development because of the extensive tidal wetlands, floodplains, and zoning designations. Neighborhood mixed-use areas, such as Harbor Island, Harbor Key, and Fripp Island, are not expected to expand beyond their current boundaries (Beaufort County 2010). Beaufort County’s Open Land Trust maintains conservation easements on the tidal marsh surrounding Harbor Key. Hunting Island is protected as a state park. St. Helena Island to the west is both zoned Rural and occurs within a Cultural Protection Overlay that discourages certain types of development. Projects that impact marine habitats would be required to obtain permits from the USACE and undergo review by NOAA-NMFS and USFWS. Future authorizations would have to take the bridge construction activities into consideration when addressing cumulative effects.

The proposed project is located approximately 0.5 mile from the beaches on Harbor Island, where a sand scraping project is proposed by the Harbor Island Owners Association. The USACE released a public notice on August 26, 2015 requesting

comments on the project, which would impact approximately two acres of ocean front habitat. The project would require coordination with NOAA-NMFS and USFWS to identify potential impacts to federally-protected species.

No other projects have been identified near the project area. Based on the information presented herein, and the conservation measures proposed in **Section 7.1**, the proposed project would not have cumulative impacts on federally threatened or endangered species under the jurisdiction of USFWS or NOAA-NMFS.

## 6 Migratory Bird Treaty Act

The federal MBTA 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The migratory bird species protected by the Act are listed in 50 CFR 10.13. The USFWS have statutory authority and responsibility for enforcing the MBTA (16 U.S.C. 703–712). Any activity which results in the take of migratory birds is prohibited unless authorized by the USFWS.

The USFWS IPaC online consultation program was used to identify potential migratory birds existing within the project area, and 42 species of migratory birds were listed as “may” occur with the project area (**Appendix B**). The Harbor Island Nature Guide and eBird website were used to determine if the migratory bird has been recently observed by others near the project area. Migratory birds observed within the project area during biologist’s surveys are also documented in **Table 6-1**.

**Table 6-1. MBTA Species**

Common Name	Scientific Name	Season	Observed in or near Project Area? Yes [Y]	Source (within past 5 years)
American Kestrel	<i>Falco sparverius paulus</i>	Year-round		
American Oystercatcher	<i>Haematopus palliatus</i>	Year-round	Y	Red Knot Survey 10/7/15, eBird
American Bittern	<i>Botaurus lentiginosus</i>	Wintering		
Bachman's Sparrow	<i>Aimophila aestivalis</i>	Year-round		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Year-round	Y	Harbor Island Nature Guide, eBird
Black Rail	<i>Laterallus jamaicensis</i>	Breeding		
Black Skimmer	<i>Rynchops niger</i>	Year-round	Y	Harbor Island Nature Guide, eBird
Black-capped Petrel	<i>Pterodroma hasitata</i>	Year-round		



Common Name	Scientific Name	Season	Observed in or near Project Area? Yes [Y]	Source (within past 5 years)
Brown-headed Nuthatch	<i>Sitta pusilla</i>	Year-round		
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	Breeding	Y	Harbor Island Nature Guide, eBird
Common Ground-dove	<i>Columbina passerina exigua</i>	Year-round	Y	eBird
Fox Sparrow	<i>Passerella iliaca</i>	Wintering		
Gull-billed Tern	<i>Gelochelidon nilotica</i>	Breeding		
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Wintering		
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	Wintering		
Least Bittern	<i>Ixobrychus exilis</i>	Breeding		
Least Tern	<i>Sterna antillarum</i>	Breeding	Y	Egg Bank in St. Helena Sound, Harbor Island Nature Guide, eBird
Lesser Yellowlegs	<i>Tringa flavipes</i>	Wintering	Y	eBird
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Year-round	Y	eBird
Marbled Godwit	<i>Limosa fedoa</i>	Wintering	Y	Harbor Island Nature Guide, eBird
Mississippi Kite	<i>Ictinia mississippiensis</i>	Breeding		
Nelson's Sparrow	<i>Ammodramus nelsoni</i>	Wintering		
Painted Bunting	<i>Passerina ciris</i>	Breeding	Y	eBird (Harbor Island and Butchers Island)
Peregrine Falcon	<i>Falco peregrinus</i>	Wintering	Y	eBird
Prairie Warbler	<i>Setophaga discolor</i>	Breeding	Y	eBird (Butchers Island & Causeway)
Prothonotary Warbler	<i>Protonotaria citrea</i>	Breeding		
Purple Sandpiper	<i>Calidris maritima</i>	Wintering		
Red Knot	<i>Calidris canutus rufa</i>	Wintering	Y	Harbor Island Nature Guide, eBird
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Year-round		
Red-throated Loon	<i>Gavia stellata</i>	Wintering	Y	eBird
Rusty Blackbird	<i>Euphagus carolinus</i>	Wintering		
Saltmarsh Sparrow	<i>Ammodramus caudacutus</i>	Wintering	Y	eBird

Common Name	Scientific Name	Season	Observed in or near Project Area? Yes [Y]	Source (within past 5 years)
Seaside Sparrow	<i>Ammodramus maritimus</i>	Year-round	Y	eBird
Sedge Wren	<i>Cistothorus platensis</i>	Wintering		
Short-billed Dowitcher	<i>Limnodromus griseus</i>	Wintering	Y	eBird (Butchers Island, Harbor Island, & North of Causeway)
Swainson's Warbler	<i>Limnothlypis swainsonii</i>	Breeding		
Swallow-tailed Kite	<i>Elanoides forficatus</i>	Breeding		
Whimbrel	<i>Numenius phaeopus</i>	Wintering	Y	eBird (Butchers Island, Harbor Island, & North of Causeway)
Wilson's Plover	<i>Charadrius wilsonia</i>	Breeding	Y	Harbor Island Nature Guide
Wood Thrush	<i>Hylocichla mustelina</i>	Breeding		
Worm Eating Warbler	<i>Helmitheros vermivorum</i>	Migrating		
Yellow Rail	<i>Coturnicops noveboracensis</i>	Wintering		

The National Audubon Society designated several Beaufort County barrier islands, including Harbor Island (within the project area), as an Important Bird Area. The National Audubon Society's Important Bird Area program is a global effort to identify areas that are most important for maintaining bird populations, and focus conservation efforts at protecting these sites. This designation is intended to identify and protect habitat for resident and migrating birds (Nahmias 2010).

## 6.1 Nests

Bald eagles have been observed at Harbor Island and at nearby Hunting Island State Park. As discussed in **Section 5.12**, a potential bald eagle nest was identified in the project area, on the southern side of US 21 near Harbor Drive (**Figure 2-1**). The nest has been monitored monthly for activity between September 2014 and May 2015, and September and December 2015. These dates coincide with bald eagle nesting season (SCDNR 2010); therefore the lack of activity and deteriorating conditions suggest that the nest is likely abandoned.

A nest platform is also located on Butchers Island, north of US 21, near the Beaufort County water utility. The metal pole and platform appears to have been constructed for use by osprey (*Pandion haliaetus*), which typically use these elevated, exposed structures to locate fish and protect their eggs from terrestrial predators. No nesting activity has been observed at this platform.

Bridge piers can provide suitable nesting areas for barn swallows (*Hirundo rustica*). In September 2014, biologists reviewed underneath the existing US 21 bridge to determine if bird nests were present. No nests or barn swallows were observed during this survey.



## 6.2 Waterbird Colonies

The SCDNR Heritage Trust Inventory of Rare, Threatened and Endangered Species identifies a waterbird colony and egg bank near the confluence of Harbor River and St. Helena Sound, approximately 2 miles north of the project study area (SCDNR 2014a). The egg bank is a sandbar that supports colonies of waterbirds, including black skimmers, royal terns, brown pelicans, least terns, and laughing gulls. Least terns are designated State Threatened by SCDNR, while brown pelicans (*Pelecanus occidentalis*) are considered a rare, imperiled species by the SCDNR. The proposed project would have no effects on this colony or the egg bank.

A waterbird rookery is located within the project study area on Harbor Island. The man-made brackish pond is surrounded by houses, but shrubs and trees support a diverse nesting area for egrets and herons. The proposed project would not directly impact the rookery. While there is the potential for indirect effects from construction noise, these effects would be temporary.

## 7 Conclusions and Effect Determinations

The loggerhead sea turtle, leatherback sea turtle, red knot, piping plover, the West Indian manatee, wood stork, and bald eagle are the only species under singular USFWS jurisdiction or joint USFWS and NOAA-NMFS's jurisdiction which may be affected by the proposed project (**Table 7-1**). This Biological Assessment analyzes the proposed action to determine the potential adverse effects to these species as a result of bridge construction. Risk factors include being struck by construction equipment (piles, barges, trestles), construction-associated noise and turbidity, temporary or permanent loss of habitat, and temporary disruption of spawning/migratory behaviors.

**Table 7-1. Effect Determination**

Common Name	Scientific Name	Federal ESA Designation	Effect Determination	Justification
American chaffseed	<i>Schwalbea americana</i>	Endangered	No Effect	Project area does not contain suitable habitat
Canby's dropwort	<i>Oxypolis canbyi</i>	Endangered	No Effect	Project area does not contain suitable habitat
West Indian manatee	<i>Trichechus manatus</i>	Endangered	May Affect, Not Likely to Adversely Affect	Conservation measures will be implemented to minimize impact to manatees
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	Threatened	No Effect	Project area does not contain suitable habitat
Kirtland's warbler	<i>Setophaga kirtlandii</i>	Endangered	No Effect	No Kirtland's warblers have been observed within the project area
Green sea turtle	<i>Chelonia mydas</i>	Threatened	No Effect	Project area does not contain suitable habitat

Common Name	Scientific Name	Federal ESA Designation	Effect Determination	Justification
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	No Effect	Project area does not contain suitable habitat
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	May Affect, Not Likely to Adversely Affect	Project area does not contain suitable nesting habitat; Conservation measures will be implemented to minimize impact to turtles in the aquatic environment
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	May Affect, Not Likely to Adversely Affect	Project area does not contain suitable nesting habitat; Conservation measures will be implemented to minimize impact to turtles in the aquatic environment
Piping plover	<i>Charadrius melodus</i>	Threatened	May Affect, Not Likely to Adversely Affect	Project area contains suitable foraging habitat; No piping plovers have been observed within project area
Pondberry	<i>Lindera melisifolia</i>	Endangered	No Effect	Project area does not contain suitable habitat
Red-Cockaded woodpecker	<i>Picoides borealis</i>	Endangered	No Effect	Project area does not contain suitable habitat
Rufa red knot	<i>Calidris canutus rufa</i>	Threatened	May Affect, Not Likely to Adversely Affect	Project area contains suitable foraging habitat; No red knots have been observed within project area
Wood stork	<i>Mycteria americana</i>	Threatened	May Affect, Not Likely to Adversely Affect	Project area contains suitable foraging habitat; species has been observed within project area.
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA	May Affect, Not Likely to Adversely Affect	Project area contains suitable foraging habitat

## 7.1 Conservation Measures

The SCDOT commits to implementing the following conservation measures, or actions, to minimize or compensate for effects to each species (**Table 7-2**). In general, the contractor would follow SCDOT Best Management Practices during construction to avoid potential turbidity impacts within the Harbor River. Stormwater runoff from bridges would be contained within a closed drainage system and filtered prior to discharging into the waters surrounding Harbor River. A National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act will be required for construction activities. The NPDES permit application will include a Stormwater Pollution Prevention Plan.

Equipment and materials used during the construction of the bridge would not obstruct or impede passage through more than 50 percent of the channel. Vibratory driving of new piles or bridge support structures generates a continuous but low-level noise that is unlikely to cause more than non-injurious, insignificant behavioral effects to marine species. During construction, the potential effect of noise impacts would be minimized by using vibratory hammers, where practicable. Underwater noise impacts would also be minimized through the use of “slow starts”, where pile-driving ramps up slowly in an effort to deter marine species from the work area.

The bridge would be demolished using standard practices to remove the existing piers and swing span. If explosives are used for demolition, the contractor would be responsible for evaluating the potential effect on protected species and reinitiating consultation with the USFWS and NOAA-NMFS.

### 7.1.1 West Indian Manatee

West Indian manatees have not been sighted near the proposed project corridor. However, manatees have been observed to the south and north of the site, and the Harbor River Bridge waters may provide suitable habitat during summer months. The highest likelihood of manatees within the project area is between May 15 and October 15, when waters are warm enough to support migration from or to Florida.

The contractor would adhere to the established federal Manatee Protection Guidelines (**Appendix C**) during project construction to eliminate the possibility of construction-related manatee injury or death. The project manager and/or contractor would inform all project personnel that manatees may be present in the project area. The project manager would ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water.

To avoid striking manatees, construction vessels would operate at low speeds (no-wake or idle) within the project area and when operating with less than a 4-foot clearance from the bottom. The use of a designated spotter between May 15 and October 15 would provide reasonable assurance against impacts resulting from in-water work. In-water moving equipment would be halted if a manatee is spotted within 50 feet of the in-water construction area. Any collision or injury to manatees will be reported immediately to the USFWS South Carolina Field Office.

### 7.1.2 Leatherback and Loggerhead Sea Turtles

To avoid striking sea turtles, construction vessels would operate at low speeds (no-wake or idle) within the project area. Construction personnel would be aware of the potential presence of sea turtles in the area and would monitor for turtles in the water during pile driving, drilled shaft construction, and while operating vessels. Any collision or injury to sea turtles will be reported immediately to the USFWS South Carolina Field Office.

In an effort to avoid or minimize potential indirect impacts of bridge lighting to the movements of protected aquatic mammals, fish, and reptiles, no permanent lighting would be installed on the proposed bridge roadway. During the turtle nesting season (May 1 through October 31), the contractor would use the minimum number and lowest wattage of lights that are necessary for construction. Lights would be positioned to focus

on the work area to minimize the amount of light on the water surface. The contractor would turn off all lights when not needed during construction.

### 7.1.3 Bald Eagles

Changes in activity at the potential bald eagle nest near the intersection of US 21 and Harbor Drive will be reported to the USFWS. The contractor will resurvey the project corridor during permitting and design. If a bald eagle nest is identified within 660 feet of the project prior to or during construction, SCDOT will reinstate consultation with the USFWS in accordance with the BGEPA and MBTA and will adhere to the USFWS *Bald Eagle Management Guidelines*.

### 7.1.4 Migratory Birds

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The SCDOT will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests. Prior to construction/demolition of the bridges, the Resident Construction Engineer (RCE) will coordinate with SCDOT Environmental Services Compliance Office to determine if there are any active nests on the bridge. After this coordination, it will be determined whether construction/demolition can begin. After construction/demolition has begun, measures can be taken to prevent birds from nesting, such as screens, noise producers, and deterrents etc. If during construction or demolition a nest is observed on the bridge that was not discovered during the biological surveys, the contractor will cease work and immediately notify the RCE, who will contact SCDOT Environmental Services Compliance Office. SCDOT biologists will determine whether the nest is active and the species utilizing the nest. After this coordination, it will be determined whether construction/demolition can resume or whether a temporary moratorium will be put into effect.



**Table 7-2. Conservation Measure Summary**

Common Name	Scientific Name	Conservation Measure Section	Environmental Commitment
<b>All Species</b>		Section 7.1	<ul style="list-style-type: none"> <li>Follow SCDOT Best Management Practices during construction</li> <li>Contain and filter stormwater runoff from bridges within a closed drainage system</li> <li>Obtain NPDES permit and prepare a Stormwater Pollution Prevention Plan</li> <li>Use of vibratory hammers, where practicable</li> <li>Use of “slow starts”</li> <li>Reinitiating consultation with USFWS and NOAA-NMFS if explosives are used for demolition.</li> </ul>
West Indian manatee	<i>Trichechus manatus</i>	Section 7.1.2	Adherence to the <i>Manatee Protection Guidelines</i> in <b>Appendix C</b>
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Section 7.1.2	<ul style="list-style-type: none"> <li>Low speeds for construction vessels</li> <li>No permanent roadway lighting</li> <li>Reduced or shielded construction lighting during nesting season (May 1 through October 31)</li> </ul>
Loggerhead sea turtle	<i>Caretta caretta</i>		
Bald eagle	<i>Haliaeetus leucocephalus</i>	Section 7.1.3	<ul style="list-style-type: none"> <li>Notify USFWS of changes in potential eagle nest activity</li> <li>Survey for bald eagle nests prior to construction</li> </ul>
Migratory Bird Treaty Act		Section 7.1.4	<ul style="list-style-type: none"> <li>Survey for active nests on the bridge prior to construction</li> <li>Use of preventative measures during construction</li> </ul>

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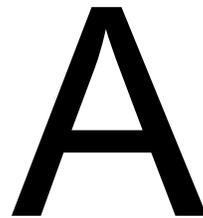
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Appendix A - USFWS  
Letter of Intent Response  
Letter and Species List



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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



July 1, 2015

Mr. Chad Long  
Archaeologist/NEPA Coordinator  
South Carolina Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

Re: Letter of Intent, U.S. Highway 21 Bridge Replacement, Harbor River,  
Beaufort County, SC, FWS Log No. 2015-CPA-0112

Dear Mr. Long:

The U.S. Fish and Wildlife Service (Service) has received your June 23, 2015, Letter of Intent (LOI) for the proposed replacement of the U.S. Highway 21 Bridge over Harbor River in Beaufort County, South Carolina. The South Carolina Department of Transportation (SCDOT) is proposing to replace U.S. Highway 21, which connects St. Helena Island to Harbor Island, Fripp Island, and Hunting Island State Park. The SCDOT is soliciting comments for consideration and incorporation into an Environmental Assessment (EA) which is being prepared pursuant to the National Environmental Policy Act of 1969, as amended (43 U.S.C. 4321 *et seq.*) (NEPA).

The Service believes it is imperative that the EA is designed to conserve local natural resources to the maximum extent possible. As such, we recommend that project planning efforts incorporate all possible means to avoid and/or minimize impacts wetlands along the corridor through a rigorous alternatives analysis. Analyses should include the consideration of a longer bridge span rather than a causeway to span the salt marsh critical area. Once a range of alternatives has been identified, we recommend that SCDOT schedule a multi-agency site visit in order to review each alternative.

The LOI stated that a threatened and endangered species survey was performed for the site in September 2014, and determined that the project area contains suitable habitat for several federally protected threatened and endangered (T&E) species. The Service recommends the project efforts continue to consider potential impact to these species as well as species that may be listed in the future. The Service has included with this letter a list of species that are currently protected under the Endangered Species Act of 1973 (ESA), species that are considered as a candidate for listing under the ESA, and those that have been petitioned for listing under the

ESA. The species which have been petitioned for listing are considered "At-Risk Species" (ARS) and may occur in Beaufort County, South Carolina. Although there are no Federal protections afforded to ARS, please consider including ARS in your survey efforts. Incorporating proactive measures to avoid or minimize harm to ARS may improve their status and assist with precluding the need to list these species. Additional information on ARS can be found at:

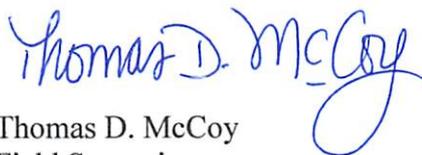
<http://www.fws.gov/southeast/candidateconservation>

The Service finds that this project is similar in nature to recent SCDOT projects where the subject corridor serves as the single access and egress route. Replacement of the Folly Road bridges leading to Folly Beach, South Carolina, and the US Hwy 701 bridges connecting Horry and Georgetown Counties are similar in that the roadways were or will be required to remain open during construction of the new, adjacent structures. Detouring traffic for these projects was not considered feasible, as they served as the sole transportation route in the project area. With this understanding we find that a new alignment is the most likely alternative for US 21.

Construction of U.S. Highway 21 on a new alignment presents an opportunity SCDOT to develop a Permittee Responsible Mitigation plan to minimize impacts while performing onsite restoration, thereby satisfying future mitigation requirements. The Service recommends SCDOT consider eliminating the use of fill for a causeway and bridge the entire span of salt marsh between St. Helena Island and Harbor Island for the new U.S. Highway 21 corridor. Once the new bridge is completed and traffic re-routed SCDOT could remove the abandoned U.S. Highway 21 Bridge and causeway and restore the underlying land to salt marsh wetlands. This onsite wetland restoration would serve as compensatory mitigation for impacts associated with the new bridge's construction.

The Service appreciates the opportunity to provide input at this early stage of the project's development. If you have any questions, please contact Mr. Mark Caldwell at (843) 727-4707 ext. 215, and reference FWS Log No. 2015-CPA-0112.

Sincerely,



Thomas D. McCoy  
Field Supervisor

TDM/MAC

# South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Beaufort County

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
<b>Amphibian</b>	Frosted flatwoods salamander (T, CH)	<i>Ambystoma cingulatum</i>	January 1-April 30	Larvae present in breeding ponds
<b>Bird</b>	American wood stork (T)	<i>Mycteria americana</i>	February 15-September 1	Nesting season
	Bald eagle (BGEPA)	<i>Haliaeetus leucocephalus</i>	October 1-May 15	Nesting season
	Black rail (ARS)	<i>Laterallus jamaicensis</i>	May-July	
	MacGillivray's seaside sparrow (ARS)	<i>Ammodramus maritimus macgillivrayi</i>	May-June	
	Piping plover (T, CH)	<i>Charadrius melodus</i>	July 15-May 1	Migration and wintering
	Red-cockaded woodpecker (E)	<i>Picoides borealis</i>	April 1-July 31	Nesting season
	Red knot (T)	<i>Calidris canutus rufa</i>	August 1-May 31	Migration and wintering
<b>Crustacean</b>	None Found			
<b>Fish</b>	American eel (ARS)	<i>Anguilla rostrata</i>	March 1-May 30; October 1-December 15	Temperature dependent: normally (17-20°C); can be found between 13-25°C
	Atlantic sturgeon* (E)	<i>Acipenser oxyrinchus*</i>	February 1-April 30	Spawning migration
	Blueback herring (ARS)	<i>Alosa aestivalis</i>	Mid-January-mid May	Peak: March-April
	Shortnose sturgeon* (E)	<i>Acipenser brevirostrum*</i>	February 1-April 30	Spawning migration
<b>Insect</b>	Monarch butterfly (ARS)	<i>Danaus plexippus</i>	August-December	Overwinter population departs: March-April
	Rare skipper (ARS)	<i>Problema bulenta</i>	May; July-September	Two brood periods
<b>Mammal</b>	Finback whale* (E)	<i>Balaenoptera physalus*</i>	November 1-April 30	Off the coast
	Humpback whale * (E)	<i>Megaptera novaengliae</i>	January 1-March 31	Migration off the coast
	Rafinesque's big-eared bat (ARS)	<i>Corynorhinus rafinesquii</i>	Year round	Found in mines, caves, large hollow trees, buildings, and bat towers
	Right whale* (E)	<i>Balaena glacialis</i>	November 1-April 30	Off the coast
	Tri-colored bat (ARS*)	<i>Perimyotis subflavus</i>	Year round	Found in mines and caves in the winter
	West Indian manatee (E)	<i>Trichechus manatus</i>	May 15-October 15	In coastal waters
<b>Mollusk</b>	None Found			
<b>Plant</b>	Canby's dropwort (E)	<i>Oxypolis canbyi</i>	Mid-July-September	
	Carolina bishopweed (ARS)	<i>Ptilimnium ahlesii</i>	May-July	
	Godfrey's privet (ARS)	<i>Forestiera godfreyi</i>	April-June	
	Pondberry (E)	<i>Lindera melissifolia</i>	February-March	
	Raven's seedbox (ARS)	<i>Ludwigia ravenii</i>	June-October	
<b>Reptile</b>	Eastern diamondback rattlesnake (ARS)	<i>Crotalus adamanteus</i>	Most of the year	Peak: April-November
	Green sea turtle ** (T)	<i>Chelonia mydas **</i>	May 1-October 31	Nesting and hatching
	Kemp's ridley sea turtle ** (E)	<i>Lepidochelys kempii**</i>	May 1-October 31	In coastal waters
	Leatherback sea turtle ** (E)	<i>Dermochelys coriacea **</i>	May 1-October 31	Nesting and hatching
	Loggerhead sea turtle ** (T, CH)	<i>Caretta caretta **</i>	May 1-October 31	Nesting and hatching
	Southern hognose snake (ARS)	<i>Heterodon simus</i>	Most of the year	





# B

## Appendix B - USFWS Information for Planning and Conservation (IPaC) Report



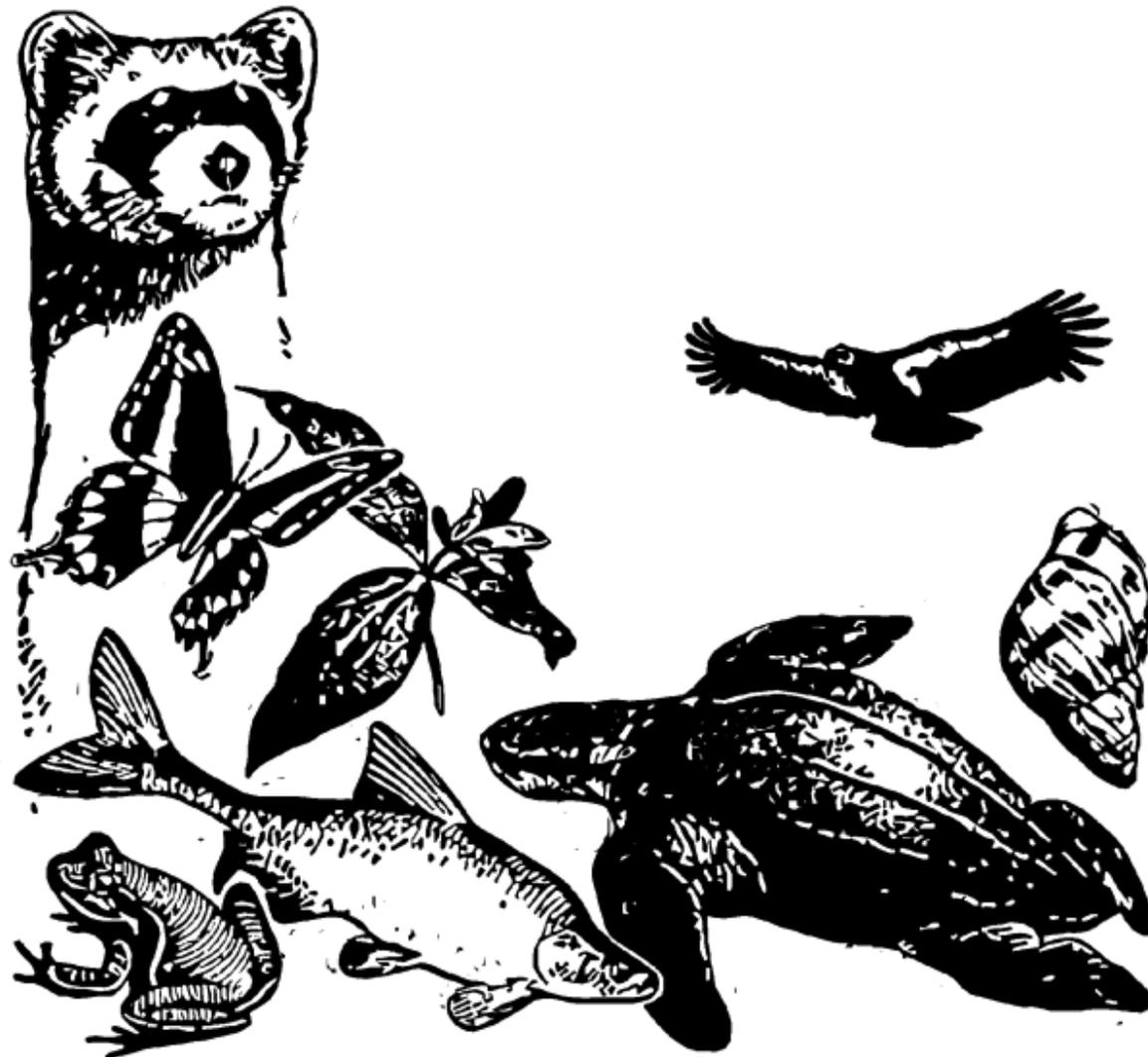
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# US 21 Bridge Replacement over Harbor River

## *IPaC Trust Resource Report*

Generated November 18, 2015 02:12 PM MST

This report is for informational purposes only and should not be used for planning or analyzing project-level impacts. For projects that require FWS review, please return to this project on the IPaC website and request an official species list from the Regulatory Documents page.



US Fish & Wildlife Service

# IPaC Trust Resource Report



## Project Description

NAME

US 21 Bridge Replacement over Harbor River

PROJECT CODE

P7YUT-RJ5SN-FX3OS-N5JCL-KUNBTM

LOCATION

Beaufort County, South Carolina

DESCRIPTION

No description provided



## U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

**South Carolina Ecological Services**

176 Croghan Spur Road, Suite 200

Charleston, SC 29407-7558

(843) 727-4707

# Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the [Endangered Species Program](#) and should be considered as part of an effect analysis for this project.

This unofficial species list is for informational purposes only and does not fulfill the requirements under [Section 7](#) of the Endangered Species Act, which states that Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action." This requirement applies to projects which are conducted, permitted or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can be obtained by returning to this project on the IPaC website and requesting an official species list on the Regulatory Documents page.

## Amphibians

**Frosted Flatwoods Salamander** *Ambystoma cingulatum*

Threatened

### CRITICAL HABITAT

There is **final** critical habitat designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=D013>

## Birds

**Kirtland's Warbler** *Setophaga kirtlandii* (= *Dendroica kirtlandii*) Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B03I>

**Piping Plover** *Charadrius melodus* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B079>

**Red Knot** *Calidris canutus rufa* Threatened

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0DM>

**Red-cockaded Woodpecker** *Picoides borealis* Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B04F>

**Wood Stork** *Mycteria americana* Threatened

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06O>

## Fishes

**Shortnose Sturgeon** *Acipenser brevirostrum* Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E00B>

## Flowering Plants

**American Chaffseed** *Schwalbea americana* Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2I4>

**Canby's Dropwort** *Oxypolis canbyi* Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2EL>

**Pondberry** *Lindera melissifolia* Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2CO>

## Mammals

**West Indian Manatee** *Trichechus manatus* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A007>

## Reptiles

**Green Sea Turtle** *Chelonia mydas* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C00S>

**Kemp's Ridley Sea Turtle** *Lepidochelys kempii* Endangered

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C00O>

**Leatherback Sea Turtle** *Dermochelys coriacea* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C00F>

## Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

**There is no critical habitat within this project area**

# Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

<b>American Kestrel</b> <i>Falco sparverius paulus</i> Year-round	Bird of conservation concern
<b>American Oystercatcher</b> <i>Haematopus palliatus</i> Year-round <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0G8">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0G8</a>	Bird of conservation concern
<b>American Bittern</b> <i>Botaurus lentiginosus</i> Season: Wintering <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0F3">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0F3</a>	Bird of conservation concern
<b>Bachman's Sparrow</b> <i>Aimophila aestivalis</i> Year-round <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07F">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07F</a>	Bird of conservation concern
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> Year-round <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B008">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B008</a>	Bird of conservation concern
<b>Black Rail</b> <i>Laterallus jamaicensis</i> Season: Breeding <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B09A">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B09A</a>	Bird of conservation concern
<b>Black Skimmer</b> <i>Rynchops niger</i> Year-round <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0E0">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0E0</a>	Bird of conservation concern
<b>Black-capped Petrel</b> <i>Pterodroma hasitata</i> Year-round <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AS">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AS</a>	Bird of conservation concern
<b>Brown-headed Nuthatch</b> <i>Sitta pusilla</i> Year-round	Bird of conservation concern
<b>Chuck-will's-widow</b> <i>Caprimulgus carolinensis</i> Season: Breeding	Bird of conservation concern
<b>Common Ground-dove</b> <i>Columbina passerina exigua</i> Year-round	Bird of conservation concern
<b>Fox Sparrow</b> <i>Passerella iliaca</i> Season: Wintering	Bird of conservation concern

<b>Gull-billed Tern</b> <i>Gelochelidon nilotica</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0JV">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0JV</a>	
<b>Henslow's Sparrow</b> <i>Ammodramus henslowii</i>	Bird of conservation concern
Season: Wintering <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B09D">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B09D</a>	
<b>Le Conte's Sparrow</b> <i>Ammodramus leconteii</i>	Bird of conservation concern
Season: Wintering	
<b>Least Bittern</b> <i>Ixobrychus exilis</i>	Bird of conservation concern
Season: Breeding	
<b>Least Tern</b> <i>Sterna antillarum</i>	Bird of conservation concern
Season: Breeding	
<b>Lesser Yellowlegs</b> <i>Tringa flavipes</i>	Bird of conservation concern
Season: Wintering	
<b>Loggerhead Shrike</b> <i>Lanius ludovicianus</i>	Bird of conservation concern
Year-round <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FY">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FY</a>	
<b>Marbled Godwit</b> <i>Limosa fedoa</i>	Bird of conservation concern
Season: Wintering <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0JL">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0JL</a>	
<b>Mississippi Kite</b> <i>Ictinia mississippiensis</i>	Bird of conservation concern
Season: Breeding	
<b>Nelson's Sparrow</b> <i>Ammodramus nelsoni</i>	Bird of conservation concern
Season: Wintering	
<b>Painted Bunting</b> <i>Passerina ciris</i>	Bird of conservation concern
Season: Breeding	
<b>Peregrine Falcon</b> <i>Falco peregrinus</i>	Bird of conservation concern
Season: Wintering <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FU">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FU</a>	
<b>Prairie Warbler</b> <i>Dendroica discolor</i>	Bird of conservation concern
Season: Breeding	
<b>Prothonotary Warbler</b> <i>Protonotaria citrea</i>	Bird of conservation concern
Season: Breeding	
<b>Purple Sandpiper</b> <i>Calidris maritima</i>	Bird of conservation concern
Season: Wintering	
<b>Red Knot</b> <i>Calidris canutus rufa</i>	Bird of conservation concern
Season: Wintering <a href="https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0DM">https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0DM</a>	
<b>Red-headed Woodpecker</b> <i>Melanerpes erythrocephalus</i>	Bird of conservation concern
Year-round	
<b>Red-throated Loon</b> <i>Gavia stellata</i>	Bird of conservation concern
Season: Wintering	
<b>Rusty Blackbird</b> <i>Euphagus carolinus</i>	Bird of conservation concern
Season: Wintering	
<b>Saltmarsh Sparrow</b> <i>Ammodramus caudacutus</i>	Bird of conservation concern
Season: Wintering	

**Seaside Sparrow** *Ammodramus maritimus*

Year-round

Bird of conservation concern

**Sedge Wren** *Cistothorus platensis*

Season: Wintering

Bird of conservation concern

**Short-billed Dowitcher** *Limnodromus griseus*

Season: Wintering

Bird of conservation concern

**Swainson's Warbler** *Limnothlypis swainsonii*

Season: Breeding

Bird of conservation concern

**Swallow-tailed Kite** *Elanoides forficatus*

Season: Breeding

Bird of conservation concern

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B0GB>**Whimbrel** *Numenius phaeopus*

Season: Wintering

Bird of conservation concern

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B0JN>**Wilson's Plover** *Charadrius wilsonia*

Season: Breeding

Bird of conservation concern

**Wood Thrush** *Hylocichla mustelina*

Season: Breeding

Bird of conservation concern

**Worm Eating Warbler** *Helmitheros vermivorum*

Season: Migrating

Bird of conservation concern

**Yellow Rail** *Coturnicops noveboracensis*

Season: Wintering

Bird of conservation concern

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B0JG>

## Refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

**There are no refuges within this project area**

# Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate [U.S. Army Corps of Engineers District](#).

## DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

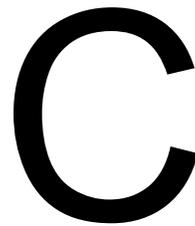
## DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

## DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Wetland data is unavailable at this time.



Appendix C – Manatee  
Protection Guidelines



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## Manatee Protection Guidelines

To reduce potential construction-related impacts to the manatee to discountable and insignificant levels, the Service recommends implementing the *Standard Manatee Construction Conditions*.

The permittee will comply with the following manatee protection construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatee(s) during May 15 - October 15.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the ESA.
- c. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid manatee entrapment.
- d. All vessels associated with the project shall operate at “no wake/idle” speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- e. If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.
- f. Any collision with and/or injury to a manatee shall be reported immediately to Mr. Mark Caldwell of the U.S. Fish and Wildlife Service, South Carolina Field Office, at 843-727-4707, Ext 215.

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