



# **Biological Assessment for NOAA-NMFS Species**

*October 4, 2019*

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# 1.0 Introduction

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This biological assessment, prepared by HDR Inc. on behalf of Charleston County, 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.

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 the NOAA-NMFS. A separate biological assessment has been prepared for species under the jurisdiction of the USFWS.

## 1.1 Project Description

To accommodate an increase in traffic volume, Charleston County, the Town of Mount Pleasant, and the South Carolina Department of Transportation (SCDOT) are partnering to improve roadway capacity and ease traffic congestion along Highway 41. The study corridor includes the existing SC 41 roadway and bridges from US 17 in Charleston County, to approximately 300 feet south of the intersection of Bennington Drive, in Berkeley County, SC. The project includes improvements to the intersection of SC 41 and US 17 and completion of the tie in of Gregory Ferry Road to SC 41 near US 17. The study corridor also includes US 17 from the intersection with Hamlin Road to the entrance to Oakland Plantation and an expanded study area around Laurel Hill County Park and the Phillips Community between Bessemer Road and Dunes West Boulevard. The purpose of the expanded study area is to fully evaluate the potential project effects on the county park, adjacent communities, and associated roadways. The study corridor also includes a 300-foot wide corridor on either side of the centerline on Dunes West Boulevard and Bessemer Road.

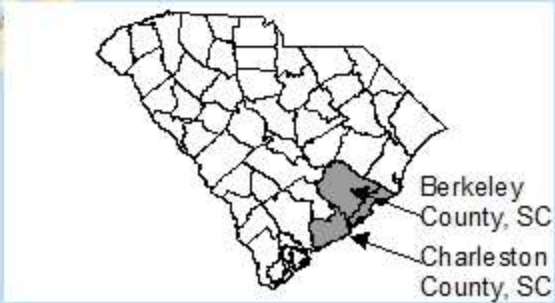
The study corridor includes crossings of Horlbeck, Mill and Wagner Creeks and the Wando River. This section of SC 41 serves as a minor arterial that has experienced an increase in traffic due to regional growth, and currently sustains operations that exceed capacity and are projected to worsen over time. The existing two-lane roadway would be widened to four lanes, with a center median and multi-use pathway. No construction work would occur within the Wando River, as the recently-replaced SC 41 Bridge over the Wando River would accommodate the proposed improvements.

As a result of more detailed analysis and public comment, two reasonable alternatives (Alternatives 1 and 7a) were identified that best meet the purpose and need while minimizing impacts to human and natural resources within the project study area. Field studies and surveys were conducted within 300 feet of each alternative for potential impacts to federally listed threatened and endangered species and critical habitat. These alternatives will be carried forward for public review and comment. The results of the surveys and recommended effects are listed in the following species descriptions. The study area surrounding Alternative 1 and Alternative 7a are included in Figure 3 through Figure 6. A proposed alternative will be submitted to the U.S. Army Corps of Engineers as part of a Joint Clean Water Act Section 404 application.

## 1.2 Project Area and Setting

The project area is located in southern Berkeley County and central Charleston County in the Lower Coastal Plain of South Carolina. The project area is located within the Cooper River watershed (Hydrologic Unit Code, or HUC 03050201) and Sea Islands/Coastal Marsh Level IV ecoregion. Specifically, the proposed project lies in the Wando River sub-watershed. The land uses within the immediate vicinity of the project study area include incorporated areas, vacant/undeveloped areas, agriculture, estuarine and marine wetlands and deepwater, freshwater wetlands, residential, commercial, industrial, public/institutional, and parks/recreation/open space.

This area of Berkeley and Charleston counties is experiencing tremendous growth, primarily due to planned residential and commercial developments. The commercial growth is primarily located in the Charleston County portion of the study area, whereas, residential growth is primarily located in the Berkeley County portion of the study area, to the north of the Wando River in and around the Cainhoy community.



### Figure 1. Overview of Project Location



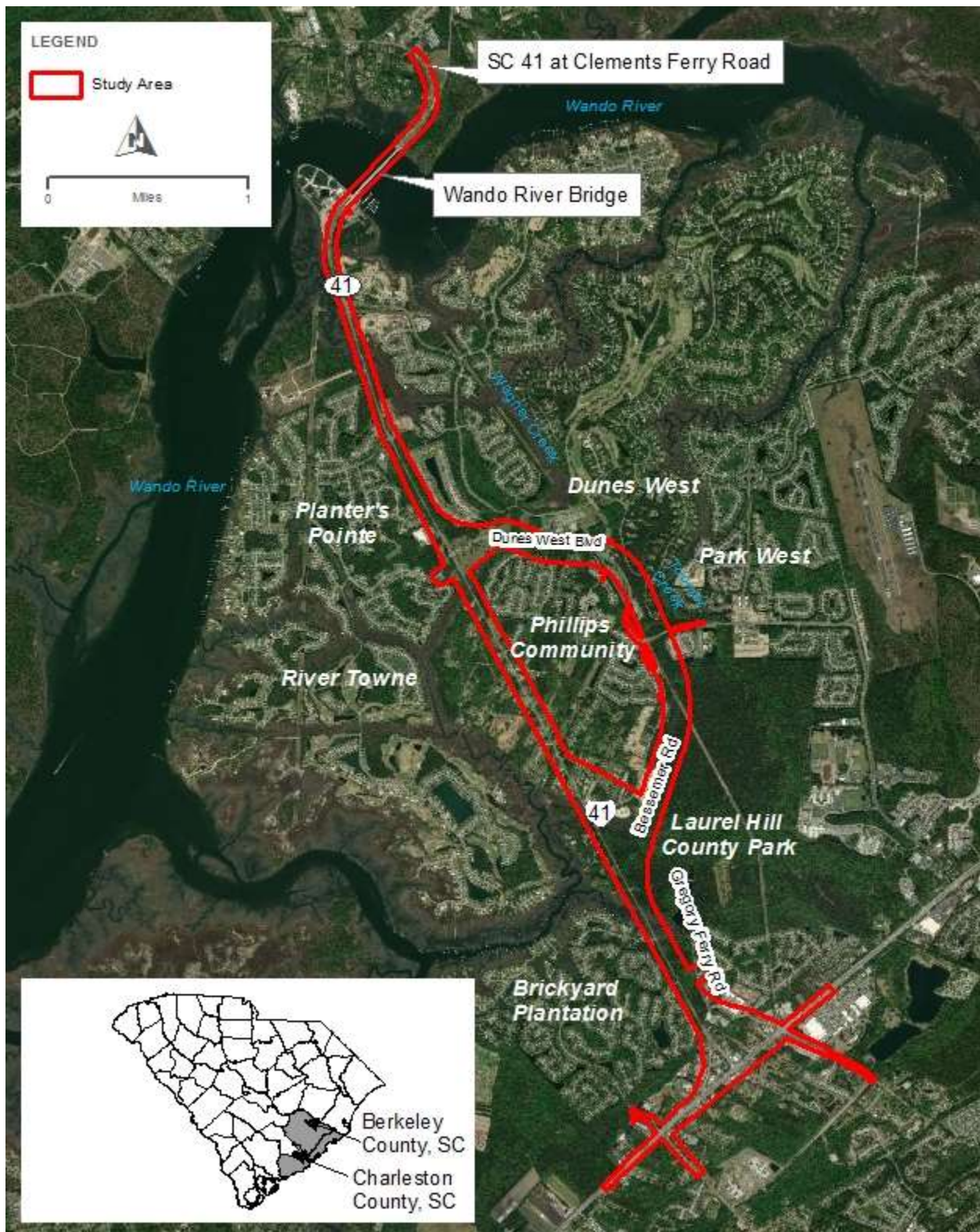


Figure 2. Detailed View of Project Location

## 1.3 Consultation History

A Letter of Intent (LOI) was distributed on July 13, 2017, to stakeholder agencies 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. NOAA-NMFS provided a response letter on August 18, 2017 (Appendix A) that focused on Essential Fish Habitat (EFH). According to the NOAA-NMFS letter, the study area includes high quality tidal salt marsh with tidal creeks and oyster reef/shell. The South Atlantic Fishery Management Council (SAFMC) designates these habitats as EFH within the fishery management plans for penaeid shrimp and the snapper-grouper complex, which also includes oyster/shell habitat as a Habitat Area of Particular Concern (HAPC). The waters of the Wando River, Mill Creek, Horlbeck Creek, the tidal creeks connected to them, and the surrounding coastal marsh also serve as a nursery and forage habitat for other species, such as red drum (*Sciaenops ocellatus*), black drum (*Pogonias cromis*), Atlantic menhaden (*Brevoortia tyrannus*), and blue crab (*Callinectes sapidus*). Many of these species are prey for fish managed under the Magnuson-Stevens Act, such as mackerels, snappers, groupers, billfish, and sharks. NOAA-NMFS recommends the project's environmental documentation address these species as well as those managed under the Magnuson-Stevens Act. Additionally, the NOAA-NMFS letter stated that "tidal freshwater wetlands may be present." However, after further wetland surveys, it has been determined that tidal freshwater wetlands are not present. An updated EFH analysis is being drafted and will be submitted to NOAA-NMFS upon its completion.

A biological assessment was completed for the SC 41 Bridge Replacement over the Wando River, which is within the Highway 41 study area, and is included as part of the SC 41 Bridge Environmental Assessment dated May 2010.





Figure 3. Alternative 1 (North)







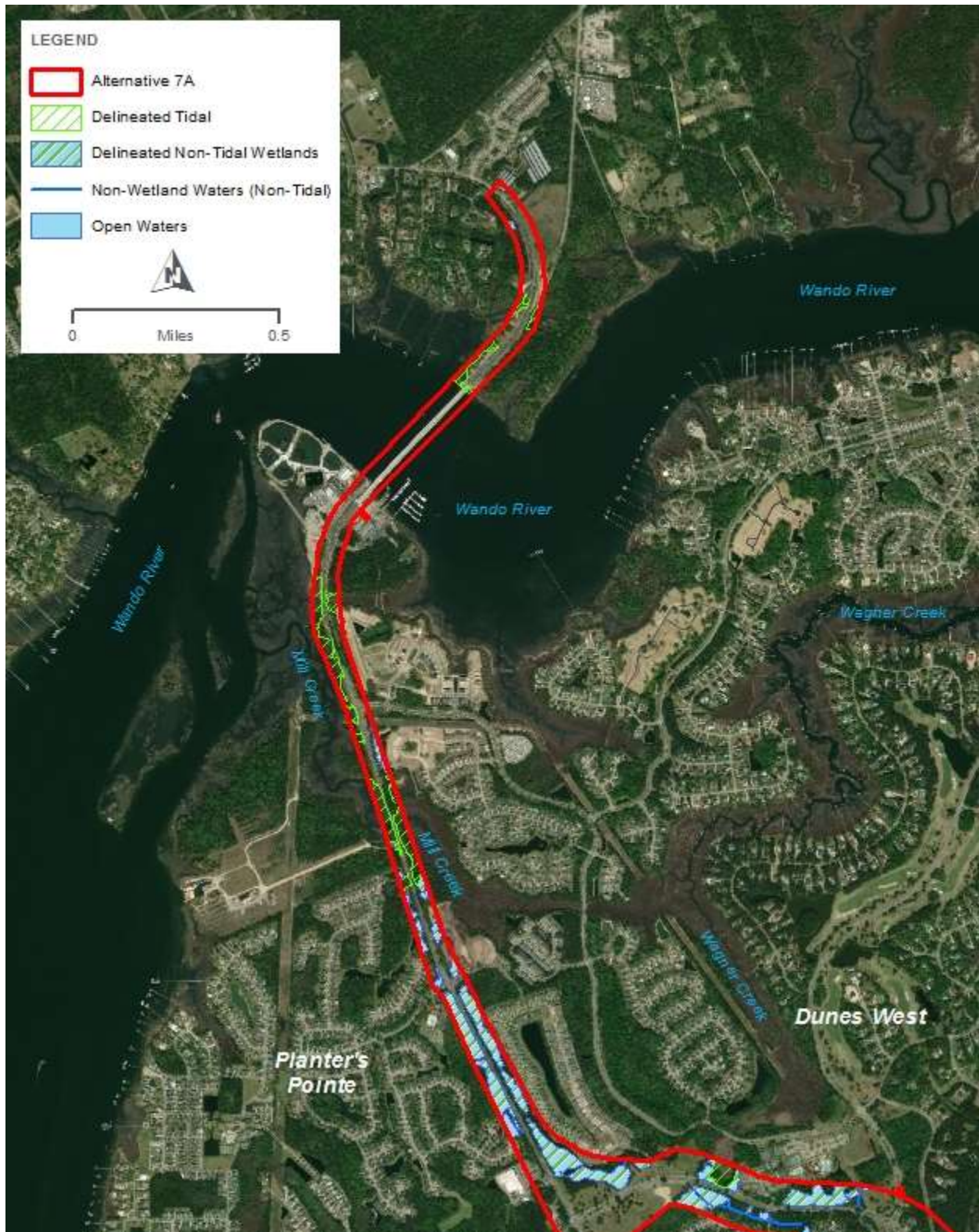


Figure 5. Alternative 7A (North)





Figure 6. Alternative 7A (South)



## 2.0 Environmental Baseline

The proposed project is in an estuarine setting within the outer coastal plain of South Carolina and contains tidal salt marshes, Horlbeck Creek (tidal), Mill Creek (tidal), and the Wando River (tidal), as well as extensive freshwater wetlands. Current land use near the project area is comprised of residential communities along SC 41, including the Phillips Community, Dunes West, Park West, Rivertowne, and Planters Point. There are also several areas of commercial development within the project study area, predominantly at the intersection of SC 41 and US 17.

### 2.1 Coastal Habitats

The salt marshes are estuaries of Horlbeck Creek, Mill Creek, and the Wando River. The salt marsh throughout the surveyed project area is a mosaic of high marsh; dominated by sea oxeye (*Borrchia frutescens*) and black needlerush (*Juncus roemerianus*) and fully inundated or low marsh; dominated by smooth cordgrass (*Spartina alterniflora*) and mud flats. Common macrobenthic species in the salt marsh include fiddler crabs (*Uca pugnax*), ribbed mussels (*Geukensia demissa*), and periwinkle snails (*Littoria irrorata*).

Freshwater wetlands identified within the project study area are characterized by a tree canopy consisting of laurel oak (*Quercus laurifolia*), sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), slash pine (*Pinus elliotti*). The shrub stratum consists primarily of dwarf palm (*Sabal minor*), wax myrtle (*Morella cerifera*), Chinese privet (*Ligustrum sinense*), and sweet gum. The herbaceous strata is composed of bladder sedge (*Carex intumescens*), royal fern (*Osmunda regalis*), netted chain fern (*Woodwardia areolata*), and slender spike grass (*Chasmanthium laxum*).

Terrestrial or upland habitats adjacent to the salt marsh primarily consist of the current Hwy 41 roadway, along with residential and commercial developments. Upland habitats associated with the undeveloped forests include a tree stratum consisting of water oak (*Quercus nigra*), loblolly pine (*Pinus taeda*), sweet gum, and red maple with a shrub stratum of wax myrtle and Chinese privet. The herbaceous/woody vine stratum in these habitats is primarily composed of yellow jasmine (*Gelsemium sempervirens*), common green briar (*Smilax rotundifolia*), muscadine (*Vitis rotundifolia*), and Japanese honeysuckle (*Lonicera japonica*).

### 2.2 Water Quality

The project area is located within the Cooper River watershed (HUC 03050201) and the Wando River sub-watershed. The watershed is located in Berkeley and Charleston Counties and consists primarily of the Wando River and its tributaries. The watershed occupies 72,340 acres of the Coastal Zone region of South Carolina. Land use/land cover in the watershed includes: 33.1% forested land, 22.6% forested wetland, 17.0% non-forested wetland, 16.8% urban land, 7.7% water, 2.4% agricultural land, and 0.4% barren land (SCDHEC, 2017a).

The Wando River headwaters flow through I'on Swamp (Mayrants Reserve) and accepts drainage from Alston Creek, Darrell Creek, Deep Creek, Toomer Creek, and Wagner Creek before receiving Guerin Creek drainage (Lachicotte Creek, Old House Creek, Fogarty Creek) near Cat Island. I'on Swamp and Guerin Creek drainages flow through the Francis Marion National Forest. Johnfield Creek enters the river downstream followed by Horlbeck Creek, Boone Hall Creek, Foster Creek, Beresford Creek (Martin Creek,

Sanders Creek, Hopewell Creek), Ralston Creek, Rathall Creek, Bermuda Creek, Hobcaw Creek, and Molasses Creek. The Wando River then drains into the Cooper River, which flows into the Charleston Harbor. There are a total of 46.3 stream miles, 38.7 acres of lake waters, and 5,408.6 acres of estuarine areas in this watershed (SCDHEC 2017a).

SCDHEC has classified the Wando River at SC 41 as a Shellfish Harvesting Water (SFH). Class SFH waters are tidal saltwaters protected for shellfish harvesting and uses listed in Class SA and Class SB. Class SA and SB waters are suitable for primary and secondary contact recreation, crabbing, fishing, and for the survival and propagation of a balanced indigenous aquatic community of marine fauna and flora. However, SCDHEC may designate prohibited areas where shellfish harvesting for market purposes or human consumption shall not be allowed (SCDHEC 2017a).

In addition to determining water quality classifications and standards, SCDHEC develops a priority list of water bodies that do not currently meet State water quality standards pursuant to Section 303(d) of the CWA and 40 CFR 130.7. This list is developed by SCDHEC on a biannual basis, and reviewed and approved by the U.S. Environmental Protection Agency (USEPA). It is commonly referred to as the 303(d) List of Impaired Waters and can be obtained from SCDHEC, Bureau of Water (SCDHEC 2017b).

To monitor the Wando River's water quality, SCDHEC has established 22 shellfish monitoring stations, 8 of which are located within 1.6 miles of the project study area, and 8 ambient water quality monitoring sites, 2 of which are located within 1 mile of the project study area (Table 1). Shellfish monitoring station 09B-03 and ambient water quality monitoring site (MD-115) are the closest, located on the Wando River at the SC 41 Bridge.

A TMDL addressing dissolved oxygen was developed for the Charleston Harbor, which covers the Charleston Harbor, Cooper River, Ashley River, and Wando River. A TMDL addressing fecal coliform was developed specifically for the Wando River shellfish sites (SCDHEC 2017c).

**Table 1. SCDHEC Monitoring Stations near the Project Area**

Station #	Location	Distance from study area (mi)	Use	Impairment Status	Cause of Impairment
<b>MD-115</b>	Wando River at SC 41 Bridge	0 mi	Aquatic Life	Not Impaired	N/A
<b>RT-052100</b>	Boone Hall Creek, 1.5 mi WNW of Intersection of US 17 and SC 41	1.0 mi SW	Recreation	Impaired	Enterococci
<b>09B-02</b>	Wando River at Horlbeck Creek	1.6 mi SW	Shellfish Harvesting	Not Impaired	N/A
<b>09B-03</b>	Wando River at SC 41 Bridge	0 mi	Shellfish Harvesting	Not Impaired	N/A
<b>09B-07</b>	Boone Hall Creek, Opposite County Recreation Area	1.1 mi SW	Shellfish Harvesting	Impaired	Fecal Coliform
<b>09B-08</b>	Wando River at Marker #29	1.0 mi W	Shellfish Harvesting	Not Impaired	N/A
<b>09B-11</b>	Wando River at Guerin Creek	1.1 mi E	Shellfish Harvesting	Not Impaired	N/A
<b>09B-17</b>	Wando River Midway Between Stations 3 and 11 (at Old Dry Dock)	0.3 mi E	Shellfish Harvesting	Not Impaired	N/A
<b>09B-21</b>	Horlbeck Creek at Power Line Crossing	1.1 mi SW	Shellfish Harvesting	Not Impaired	N/A
<b>09B-22</b>	Wando River at Foster Creek	1.4 mi W	Shellfish Harvesting	Not Impaired	N/A

## 3.0 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 NOAA-NMFS and under shared jurisdiction with USFWS considered in this document are identified in Table 2.

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

Common Name	Scientific Name	Federal ESA Designation	Critical Habitat Designated?	Presence of Suitable Habitat Within Project Area	Effects Determination
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Endangered	Yes	Yes	No Effect
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered	No	Yes	No Effect
Green sea turtle	<i>Chelonia mydas</i>	Threatened	Yes	No	No Effect
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	No	No	No Effect
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	Yes	No	No Effect
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	Yes	No	No Effect

NOAA-NMFS and 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 Shortnose sturgeon (*Acipenser brevirostrum*) and the Atlantic sturgeon (*Acipenser oxyrinchus*).

### 3.1 Atlantic sturgeon (*Acipenser oxyrinchus*)

The Atlantic sturgeon is considered a large fish, reaching up to 14 feet in length. It has a characteristic shovel shaped snout with fleshy barbells. Adults spawn between February and March in southern U.S. fresh waters, and then move into brackish and fully saline waters when not spawning. In salt water, adults have been documented migrating up to 1,500 miles to find spawning areas (NMFS 2007). When in salt water, they occupy benthic near shore habitats, feeding primarily on invertebrates and small fishes. USFWS designated critical habitat for the Atlantic Sturgeon is located in coastal areas between Louisiana and



Florida along the Gulf of Mexico. The Wando River is not designated as critical habitat for the Atlantic Sturgeon. The Cooper River, approximately 7.4 miles southwest of the study area, has been designated as critical habitat (NOAA 2018). In South Carolina, Atlantic sturgeon have been found in the Edisto, Pee Dee, Savannah, Cooper, Congaree, Santee, Winyah, and Waccamaw Rivers (NatureServe 2014a). The Wando River within the study area may provide suitable habitat for the Atlantic sturgeon during winter months; however, construction is not anticipated to occur within the Wando River as part of this project. As such, the project is expected to have **“no effect”** on the Atlantic sturgeon.

## 3.2 Shortnose sturgeon (*Acipenser brevirostrum*)

The shortnose sturgeon can reach up to 3.3 feet in length, has a heterocercal tail, a short shovel-shaped blunted snout, ventral mouth, and large bony scutes on the head, back, and sides. Adults feed at the freshwater/saltwater boundary in their southern range and swim upstream into freshwaters to spawn. Spawning generally begins in late winter or early spring and lasts a few days to several weeks and usually does not occur in consecutive years. Females can live up to 67 years and males up to 30 years (NMFS 2007). The USFWS has not designated critical habitat for this species. The shortnose sturgeons’ historic range is along the Atlantic Coast of North America from New Brunswick to the St. Johns River in Florida. The federal recovery plan (NMFS 1998) identified 4 distinct populations in South Carolina: Winyah Bay, Santee River Basin, Cooper River, and the ACE Basin (NatureServe 2014b). The Wando River within the study area may provide suitable foraging habitat for the shortnose sturgeon during winter months; however, construction is not anticipated to occur within the Wando River as part of this project. As such, the project is expected to have **“no effect”** on the shortnose sturgeon.

## 3.3 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.

### 3.3.1 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 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 2014c). In South Carolina, their nesting and hatching season would occur between early May and late October (USFWS 2015). Critical habitat has been designated for the green sea turtle in Puerto Rico. Neither reasonable

alternative contains suitable habitat for the green sea turtle. Due to the lack of suitable habitat, the project is expected to have “**no effect**” on the Green sea turtle.

### 3.3.2 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 2014d). 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. Neither reasonable alternative contains suitable habitat for the Kemp's ridley sea turtle. Due to the lack of suitable habitat, the project is expected to have “**no effect**” on the Kemp's ridley sea turtle.

### 3.3.3 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 2014e).

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. The 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). Twenty one leatherback sea turtle nests have been documented in South Carolina since 1996 (SCDNR 2015).

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 2014e). 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. Critical habitat has been designated for the leatherback sea turtle in the US Virgin Islands. Neither reasonable alternative contains suitable habitat for the leatherback sea turtle. Due to the lack of suitable habitat, the project is expected to have “**no effect**” on the leatherback sea turtle.

### 3.3.4 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 2014f).

Some southeastern U.S. loggerhead sea turtles migrate north in the spring, and south at the beginning of the 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 2014f). The closest critical habitat to the project area is located approximately 12.27 miles south west of the project area, at Folly Beach, SC (USFWS, GIS Layer, 2017). Neither reasonable alternative contains suitable habitat for the loggerhead sea turtle. Due to the lack of suitable habitat, the project is expected to have “**no effect**” on the Loggerhead sea turtle.

## 4.0 Conclusion

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The review of the habitat requirements and previous records for the federally listed marine species for Berkeley and Charleston Counties, along with the field observations, conclude that there is very low potential for the presence of any federally protected marine species due to the limited suitable habitat, and the fact that no work would be conducted in the Wando River with respect to potential impacts to the Atlantic or shortnose sturgeon. Therefore, the proposed roadway improvements are expected to have “**No Effect**” on the marine species listed for Berkeley and Charleston Counties.



## 5.0 References

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- National Marine Fisheries Service. 2007. Status Review of Atlantic Sturgeon (*Acipenser oxyrinchus*). Atlantic Sturgeon Status Review Team.  
[http://www.nero.noaa.gov/prot\\_res/CandidateSpeciesProgram/AtlSturgeonStatusReviewReport.pdf](http://www.nero.noaa.gov/prot_res/CandidateSpeciesProgram/AtlSturgeonStatusReviewReport.pdf)
- National Marine Fisheries Service. 1998. Final Recovery Plan for the Shortnose Sturgeon. U.S. Department of Commerce.
- NatureServe. 2014a. "*Acipenser oxyrinchus oxyrinchus*." NatureServe Explorer: An Online Encyclopedia of Life. Accessed October 3, 2014.  
<http://explorer.natureserve.org/servlet/NatureServe?searchName=Acipenser+oxyrinchus>
- NatureServe. 2014b. "*Acipenser brevirostrum*." NatureServe Explorer: An online Encyclopedia of Life. Accessed October 9, 2014.  
<http://explorer.natureserve.org/servlet/NatureServe?searchName=Acipenser+brevirostrum>
- NatureServe. 2014c. "*Chelonia mydas*." NatureServe Explorer: An online Encyclopedia of Life. Accessed October 9, 2014.  
<http://explorer.natureserve.org/servlet/NatureServe?searchName=Chelonia+mydas>
- NatureServe. 2014d. "*Lepidochelys kempi*." NatureServe Explorer: An online Encyclopedia of Life. Accessed October 9, 2014.  
<http://explorer.natureserve.org/servlet/NatureServe?searchName=Lepidochelys+kempi>
- NatureServe. 2014e. "*Dermochelys coriacea*." NatureServe Explorer: An online Encyclopedia of Life. Accessed October 9, 2014.  
<http://explorer.natureserve.org/servlet/NatureServe?searchName=Dermochelys+coriacea>
- NatureServe. 2014f. "*Caretta caretta*." NatureServe Explorer: An online Encyclopedia of Life. Accessed October 9, 2014.  
<http://explorer.natureserve.org/servlet/NatureServe?searchName=Caretta+caretta>
- NOAA. 2018. GIS Layer: Atlantic Sturgeon Critical Habitat. Accessed January 5, 2018.
- NOAA. 2017. GIS Layer: Loggerhead Sea Turtle Critical Habitat. Accessed December 4, 2017.
- SCDNR. 2015. Leatherback sea turtle. Supplemental Volume: Species of Conservation Concern. SC SWAP.
- USFWS. 2015. Occurrences of Federally Threatened, Endangered, and Candidate Animal Species in South Carolina. [http://www.fws.gov/charleston/pdf/Regulatory/Survey\\_Windows\\_Animals.pdf](http://www.fws.gov/charleston/pdf/Regulatory/Survey_Windows_Animals.pdf)

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## Appendix A - NOAA-NMFS Letter of Intent Response Letter

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**UNITED STATES DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration

**NATIONAL MARINE FISHERIES SERVICE**

Southeast Regional Office

263 13th Avenue South

St. Petersburg, Florida 33701-5505

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August 18, 2017

F/SER47:KH/pw

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Attention: Nicole Riddle and Mark Mohr

Dear Mr. Long:

NOAA's National Marine Fisheries Service (NMFS) reviewed the request by Charleston County, dated July 13, 2017, requesting input on the Letter of Intent and Exhibit for the proposed SC Highway 41 Corridor Improvements in Charleston and Berkeley Counties. Charleston County coordinated this request with the South Carolina Department of Transportation (SCDOT) and Federal Highway Administration (FHWA). Charleston County proposes to improve approximately 4.6 miles of SC 41 from US 17 in Mt. Pleasant across the new Wando River Bridge to Clements Ferry Road. While Charleston County, SCDOT, and FHWA have yet to identify all proposed improvements, the project will likely include widening the highway and realigning some intersections. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the NMFS provides the following comments and recommendations pursuant to authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

*Essential Fish Habitat in the Project Area*

The project study area (shown in Exhibit Figure 1) includes high quality tidal salt marsh with tidal creeks and oyster reef/shell. Additionally, tidal freshwater wetlands may be present. The South Atlantic Fishery Management Council (SAFMC) designates these habitats as essential fish habitat (EFH) within the fishery management plans for penaeid shrimp and the snapper-grouper complex. Also, please note the fishery management plan for the snapper-grouper complex includes oyster/shell habitat as a Habitat Area of Particular Concern (HAPC). HAPCs are a subset of EFH that are either rare, particularly susceptible to human-induced degradation, especially important ecologically, or located in an environmentally stressed area. The SAFMC



provides additional information on EFH for federally managed species in Volume IV of the *Fishery Ecosystem Plan of the South Atlantic Region*<sup>1</sup>.

The waters of the Wando River, Mill Creek, Horlbeck Creek, the tidal creeks connected to them, and the surrounding coastal marsh also serve as nursery and forage habitat for other species, such as red drum (*Sciaenops ocellatus*), black drum (*Pogonias cromis*), Atlantic menhaden (*Brevoortia tyrannus*), and blue crab (*Callinectes sapidus*). Many of these species are prey for fish managed under the Magnuson-Stevens Act, such as mackerels, snappers, groupers, billfish, and sharks. Red drum is an important state-managed fishery, and estuarine wetlands within the project area provide habitat necessary for development and survival of several life stages of red drum. The NMFS recommends the project's environmental documentation address these species as well as those managed under the Magnuson-Stevens Act.

#### *Comments on Potential Effects to EFH and Federally Managed Fisheries*

While the County, SCDOT, and FHWA are at the early planning stages for many project elements, the NMFS anticipates temporary and permanent impacts to EFH from the proposed project based on the information provided. These impacts will result from clearing, grading, filling, and stabilizing the shoreline for roadway widening and bridge construction. Where the highway intersects or is in close proximity to tidally influenced waters or wetlands, the NMFS recommends use of bridges to the maximum extent practicable to avoid and minimize impacts to marsh habitat. On the northern end of the study area near Mill Creek, there are large sections of the roadway where marsh and tidal creek habitat occurs directly adjacent to the existing side slopes. This is also true on the southern side of the study area near Horlbeck Creek, though to a lesser extent. The NMFS recommends the environmental documentation include a detailed alternatives analysis for various bridging and widening options and for the analysis to include detailed information on the type, amount, and site-specific function of wetlands directly and/or indirectly impacted by each alternative.

Generally, the NMFS recommends designing projects to affect the minimum amount of wetlands necessary to accomplish the project purpose. Activities that may adversely affect fishery habitat should be avoided when less environmentally harmful alternatives are available. For example, projects should avoid filling aquatic habitats, avoid temporary fills for construction purposes, and use only clean fill when filling is necessary. In many locations, permanent fill can be avoided or minimized by bridging aquatic areas. The project should also avoid construction practices that smother marsh vegetation. The NMFS has documented the impacts to salt marsh vegetation from barges and barge mats lasting longer than three years at Shem Creek Park and the Folly River Bridge. These and similar projects should be reviewed for adjusting best management practices to improve impact forecasts.

#### *Comments on Potential Compensatory Mitigation*

Compensatory mitigation may be necessary for the proposed project. The NMFS prefers onsite, in-kind mitigation for impacts to salt marsh habitat at this location. Should there be unavoidable impacts to oyster reef/shell habitat, mitigation could be coordinated with the South Carolina Department of Natural Resources South Carolina Oyster Restoration and Enhancement or Shellfish Research Section and may be one component of a larger mitigation plan. The NMFS

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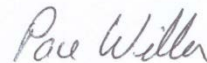
<sup>1</sup> Available at <http://safmc.net/EcosystemLibrary/FEPVolumeIV>

would be happy to assist Charleston County, SCDOT, and FHWA by providing preliminary reviews of any mitigation plan during its development.

The Magnuson-Stevens Act requires federal agencies to consult with NMFS regarding actions that may adversely affect EFH. Based on the information provided, NMFS believes adverse impacts to EFH are likely, and this project will benefit from an EFH assessment. The level of detail in the EFH assessment should be commensurate with the complexity and magnitude of the potential adverse effects of the action. The SCDOT and FHWA may provide the EFH assessment as a stand-alone document or within documents addressing obligation under the National Environmental Policy Act. In either case, the NMFS recommends coordination during development of the EFH assessment to ensure all issues are adequately covered and to avoid unnecessary delays in final evaluations.

The NMFS appreciates the opportunity to provide these comments. Please direct related questions or comments to the attention of Keith M. Hanson at our Charleston Area Office, 219 Fort Johnson Road, Charleston, South Carolina 29412-9110, Keith.Hanson@noaa.gov or by phone at (843)762-8622.

Sincerely,



/ for

Virginia M. Fay  
Assistant Regional Administrator  
Habitat Conservation Division

cc: SCDOT, LongCC@scdot.org, RiddleNL@scdot.org,  
MohrAM@scdot.org  
Charleston County, Coyer@charlestoncounty.org  
FHWA, Jeffery.Belcher@dot.gov  
F/SER47, Keith.Hanson@noaa.gov



## Appendix B - USFWS Information for Planning and Conservation Report

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# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Berkeley and Charleston counties, South Carolina



# Local office

South Carolina Ecological Services

☎ (843) 727-4707

📠 (843) 727-4218

176 Croghan Spur Road, Suite 200  
Charleston, SC 29407-7558

<http://www.fws.gov/charleston/>

## Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).

4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

### Listed species

<sup>1</sup> are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
West Indian Manatee <i>Trichechus manatus</i> There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. <a href="https://ecos.fws.gov/ecp/species/4469">https://ecos.fws.gov/ecp/species/4469</a>	Threatened

## Birds

NAME	STATUS
Bachman's Warbler (=wood) <i>Vermivora bachmanii</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/3232">https://ecos.fws.gov/ecp/species/3232</a>	Endangered
Kirtland's Warbler <i>Setophaga kirtlandii</i> (= <i>Dendroica kirtlandii</i> ) No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/8078">https://ecos.fws.gov/ecp/species/8078</a>	Endangered
Piping Plover <i>Charadrius melodus</i> There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a>	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a>	Threatened

Red-cockaded Woodpecker *Picoides borealis* Endangered  
No critical habitat has been designated for this species.  
<https://ecos.fws.gov/ecp/species/7614>

Wood Stork *Mycteria americana* Threatened  
No critical habitat has been designated for this species.  
<https://ecos.fws.gov/ecp/species/8477>

## Reptiles

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/6199">https://ecos.fws.gov/ecp/species/6199</a>	Threatened
Kemp's Ridley Sea Turtle <i>Lepidochelys kempii</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/5523">https://ecos.fws.gov/ecp/species/5523</a>	Endangered
Leatherback Sea Turtle <i>Dermochelys coriacea</i> There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. <a href="https://ecos.fws.gov/ecp/species/1493">https://ecos.fws.gov/ecp/species/1493</a>	Endangered
Loggerhead Sea Turtle <i>Caretta caretta</i> There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. <a href="https://ecos.fws.gov/ecp/species/1110">https://ecos.fws.gov/ecp/species/1110</a>	Threatened

## Amphibians

NAME	STATUS
Frosted Flatwoods Salamander <i>Ambystoma cingulatum</i> There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. <a href="https://ecos.fws.gov/ecp/species/4981">https://ecos.fws.gov/ecp/species/4981</a>	Threatened



# Fishes

NAME	STATUS
Shortnose Sturgeon <i>Acipenser brevirostrum</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/6635">https://ecos.fws.gov/ecp/species/6635</a>	Endangered

# Flowering Plants

NAME	STATUS
American Chaffseed <i>Schwalbea americana</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1286">https://ecos.fws.gov/ecp/species/1286</a>	Endangered
Canby's Dropwort <i>Oxypolis canbyi</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/7738">https://ecos.fws.gov/ecp/species/7738</a>	Endangered
Pondberry <i>Lindera melissifolia</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1279">https://ecos.fws.gov/ecp/species/1279</a>	Endangered
Seabeach Amaranth <i>Amaranthus pumilus</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/8549">https://ecos.fws.gov/ecp/species/8549</a>	Threatened

# Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

<sup>3</sup>. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data <http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The migratory birds species listed below are species of particular conservation concern (e.g. [Birds of Conservation Concern](#)) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the [AKN Histogram Tools](#) and [Other Bird Data Resources](#). To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
American Bittern <i>Botaurus lentiginosus</i> <a href="https://ecos.fws.gov/ecp/species/6582">https://ecos.fws.gov/ecp/species/6582</a>	Wintering

American Kestrel	<i>Falco sparverius paulus</i>	Year-round
American Oystercatcher	<i>Haematopus palliatus</i> <a href="https://ecos.fws.gov/ecp/species/8935">https://ecos.fws.gov/ecp/species/8935</a>	Year-round
Bachman's Sparrow	<i>Aimophila aestivalis</i> <a href="https://ecos.fws.gov/ecp/species/6177">https://ecos.fws.gov/ecp/species/6177</a>	Year-round
Bald Eagle	<i>Haliaeetus leucocephalus</i> <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Year-round
Black Rail	<i>Laterallus jamaicensis</i> <a href="https://ecos.fws.gov/ecp/species/7717">https://ecos.fws.gov/ecp/species/7717</a>	Breeding
Black Skimmer	<i>Rynchops niger</i> <a href="https://ecos.fws.gov/ecp/species/5234">https://ecos.fws.gov/ecp/species/5234</a>	Year-round
Black-throated Green Warbler	<i>Dendroica virens</i>	Breeding
Brown-headed Nuthatch	<i>Sitta pusilla</i>	Year-round
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	Breeding
Fox Sparrow	<i>Passerella iliaca</i>	Wintering
Gull-billed Tern	<i>Gelochelidon nilotica</i> <a href="https://ecos.fws.gov/ecp/species/9501">https://ecos.fws.gov/ecp/species/9501</a>	Breeding
Henslow's Sparrow	<i>Ammodramus henslowii</i> <a href="https://ecos.fws.gov/ecp/species/3941">https://ecos.fws.gov/ecp/species/3941</a>	Wintering
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	Wintering
Least Bittern	<i>Ixobrychus exilis</i> <a href="https://ecos.fws.gov/ecp/species/6175">https://ecos.fws.gov/ecp/species/6175</a>	Breeding

Least Tern	<i>Sterna antillarum</i>	Breeding
Lesser Yellowlegs	<i>Tringa flavipes</i> <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a>	Wintering
Loggerhead Shrike	<i>Lanius ludovicianus</i> <a href="https://ecos.fws.gov/ecp/species/8833">https://ecos.fws.gov/ecp/species/8833</a>	Year-round
Long-billed Curlew	<i>Numenius americanus</i> <a href="https://ecos.fws.gov/ecp/species/5511">https://ecos.fws.gov/ecp/species/5511</a>	Wintering
Marbled Godwit	<i>Limosa fedoa</i> <a href="https://ecos.fws.gov/ecp/species/9481">https://ecos.fws.gov/ecp/species/9481</a>	Wintering
Mississippi Kite	<i>Ictinia mississippiensis</i>	Breeding
Nelson's Sparrow	<i>Ammodramus nelsoni</i>	Wintering
Painted Bunting	<i>Passerina ciris</i>	Breeding
Peregrine Falcon	<i>Falco peregrinus</i> <a href="https://ecos.fws.gov/ecp/species/8831">https://ecos.fws.gov/ecp/species/8831</a>	Wintering
Prairie Warbler	<i>Dendroica discolor</i>	Breeding
Prothonotary Warbler	<i>Protonotaria citrea</i>	Breeding
Purple Sandpiper	<i>Calidris maritima</i>	Wintering
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Year-round
Rusty Blackbird	<i>Euphagus carolinus</i>	Wintering
Saltmarsh Sparrow	<i>Ammodramus caudacutus</i>	Wintering



Seaside Sparrow	<i>Ammodramus maritimus</i>	Year-round
Sedge Wren	<i>Cistothorus platensis</i>	Wintering
Short-billed Dowitcher	<i>Limnodromus griseus</i> <a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a>	Wintering
Short-eared Owl	<i>Asio flammeus</i> <a href="https://ecos.fws.gov/ecp/species/9295">https://ecos.fws.gov/ecp/species/9295</a>	Wintering
Swainson's Warbler	<i>Limnothlypis swainsonii</i>	Breeding
Swallow-tailed Kite	<i>Elanoides forficatus</i> <a href="https://ecos.fws.gov/ecp/species/8938">https://ecos.fws.gov/ecp/species/8938</a>	Breeding
Whimbrel	<i>Numenius phaeopus</i> <a href="https://ecos.fws.gov/ecp/species/9483">https://ecos.fws.gov/ecp/species/9483</a>	Wintering
Wilson's Plover	<i>Charadrius wilsonia</i>	Breeding
Wood Thrush	<i>Hylocichla mustelina</i>	Breeding
Worm Eating Warbler	<i>Helmitheros vermivorum</i>	Migrating
Yellow Rail	<i>Coturnicops noveboracensis</i> <a href="https://ecos.fws.gov/ecp/species/9476">https://ecos.fws.gov/ecp/species/9476</a>	Wintering

**What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?**

**Landbirds:**

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some

ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

#### **Atlantic Seabirds:**

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAA/NCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAA/NCCOS models: the models were developed as part of the NOAA/NCCOS project: [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#). The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the [Northeast Ocean Data Portal](#), which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

**Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?**

#### **Landbirds:**

The [Avian Knowledge Network \(AKN\)](#) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the [Migratory Bird Programs AKN Histogram Tools](#) webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

#### Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAAANCCOS [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project](#) webpage.

## Facilities

### Wildlife refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### **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.

**Not for  
consultation**