

# **APPENDIX L**

## **Essential Fish Habitat Assessment**

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**US 17 Widening and Bridge over Back River – From Hutchinson  
Island, GA to SC 315, SC**

**Jasper County, South Carolina and Chatham County, Georgia**

Project ID: P025999

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# 1. Introduction

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In conformance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (as amended 1996) this assessment was conducted to describe potential adverse effects on essential fish habitat (EFH). EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 USC 1802, 50 CFR 600.10). The National Oceanic and Atmospheric Administration (NOAA) – National Marine Fisheries Service (NMFS) works closely with the South Atlantic Fishery Management Council (SAFMC) to minimize adverse impacts to EFH in the southeast. Adverse effects are those that reduce the quality and/or quantity of EFH, including direct, indirect, site specific, or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions.

This assessment describes the proposed project including potential effects to EFH, measures to minimize harm to EFH, and conclusions regarding impacts. This assessment is being submitted by the South Carolina Department of Transportation (SCDOT).

SCDOT is preparing an Environmental Assessment (EA) for the proposed project in accordance with the National Environmental Policy Act of 1969, as amended. The Federal Highway Administration (FHWA) and United States Coast Guard (USCG) are cooperating agencies for the EA. The EFH Assessment will be an appendix to the EA.

## 2. Proposed Action

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SCDOT proposes widening and improvements of US 17 from Hutchinson Island in Savannah, Chatham County, Georgia to South Carolina (SC) 315 (South Okatie Highway) located southwest of Bluffton, South Carolina (See Appendix A - Figure 1). Approximately 3,000 feet of the project corridor is located in Chatham County, Georgia and approximately 3.6 miles is located in Jasper County, South Carolina for a total project length of approximately 4.2 miles. The proposed improvements include the widening of US 17 from two to four travel lanes, divided by a median. In addition, a new two-lane bridge structure would be constructed over the Back River to accommodate the additional travel lanes.

The primary purpose of this project is to increase capacity along US 17 between Hutchinson Island, Georgia and SC 315. Desirable objectives associated with this purpose consist of improving the level-of-service (LOS) within the project corridor and improving roadway and traffic-related safety conditions.

Traveling north from Savannah, US 17 tapers from four to two 12-foot wide travel lanes at the I-16 Spur in Georgia and then traverses north across the Back River into South Carolina. The Georgia Department of Transportation (GDOT) replaced the previous existing structurally deficient bridge over the Back River with a new 3,289-foot long bridge with two 12-foot wide travel lanes and 8-foot wide shoulders. The new bridge was completed by GDOT in 2015 and the existing bridge was demolished and removed. The current roadway on the north bank of the Back River in South Carolina continues the two lane facility and ties into the existing roadway north of the bridge.

As part of the proposed project, SCDOT would construct a new two-lane bridge parallel to the bridge constructed by GDOT in order to tie into the four-lane section of the Talmadge Memorial Bridge over the Savannah River. The proposed bridge over the Back River will consist of a 58.8-

foot bridge cross section that features two 12-foot lanes, two 10-foot shoulders, a 10-foot multi-use path, and three 1.6-foot parapets (See Figure 4 – Typical Section of Proposed Bridge). Upon completion of the proposed project, the two-lane GDOT bridge would accommodate southbound traffic and the two-lane SCDOT bridge would accommodate northbound traffic.

The proposed bridge is located west of the confluence of the Back River with the Savannah River. The approximate latitude and longitude coordinates of the beginning point of this project are 32.095312° and -81.093558° and the ending point coordinates are 32.157488° and -81.058262°. The proposed project corridor is located within the Lower Savannah watershed [Hydrologic Unit Code (HUC) 03060109].

The proposed project is currently in the concept stage and final design and construction would occur at a later date. A conceptual design has been developed and analyzed for three roadway alternatives, two bridge alternative locations, and a no-build alternative. While the final design will be completed at a later date, this EFH assessment has been prepared using conceptual designs of the current preferred alternative and typical construction methods.

SCDOT conducted a thorough alternatives analysis as part of the EA. A summary of the alternatives considered can be found in Section 6 of the EFH Assessment. The preferred alternative would widen US 17 to the west and the proposed bridge and would be constructed east of the existing new GDOT bridge. The proposed bridge would be constructed partially in the same footprint as the previous bridge.

### 3. Essential Fish Habitat Setting

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The SAFMC is tasked with conserving and managing fish stocks for a portion of the Atlantic coast. Habitat types that are designated as EFH by the SAFMC are present within the project survey area.

The project survey area extends approximately 150 feet from both sides of the existing US 17 centerline between just north of SC 315 and Wayne Shackleford Boulevard. The waters of the US within the survey area were surveyed, mapped, and classified to US Army Corps of Engineers (USACE) standards during the original fieldwork in July 2009. In areas adjacent to the existing US 17 roadway, the USACE classifications correspond with EFH habitat types; therefore, these boundary files were utilized as the EFH habitat type boundaries. Since some USACE classifications did not correspond with EFH habitat types in areas adjacent to the US 17 bridge, these EFH habitat types were mapped utilizing ESRI ArcGIS software, recent aerial imagery (2014), and 2003 color-infrared digital orthophotography ([www.dnr.sc.gov/GIS/descdoqqq.html](http://www.dnr.sc.gov/GIS/descdoqqq.html)). The habitat types associated with the proposed project are described below and are demonstrated in Appendix A – Figures 3a – f and Appendix C – Photographic Log.

#### **Estuarine emergent wetlands**

Estuarine emergent wetlands within the survey area mostly occur along the US 17 roadway and the banks of the Back River. Estuarine emergent wetlands are important areas for many invertebrates as well as nursery grounds for other species. The estuarine emergent wetlands within the survey area are an exposed area, flooded by tides and mostly dominated with smooth cordgrass (*Spartina alterniflora*) and scattered shrubs including sea-myrtles (*Baccharis* spp.), marsh-elder (*Iva frutescens*), and seaoxeye (*Borrchia frutescens*).

### **Intertidal non-vegetated flat**

An intertidal area is a subsystem of an estuarine system where sediments from the estuarine and freshwater environment are deposited (Cowardin, 1979). These areas are important in coastal systems as nursery, foraging, and refuge areas for a variety of species, their predators, and their prey (Peterson & Peterson, 1979). Non-vegetated intertidal flats are present at the southern limits of the project and are associated with the banks of the Back River, its adjacent tributaries, and interspersed between estuarine emergent wetlands.

### **Tidal creek**

Tidal creeks commonly drain the saltmarshes on the South Carolina coast. The water level and salinity of these creeks are affected by the tidal flow of the ocean. Tidal creeks and their associated wetlands serve as nurseries for fish, crustaceans, and mollusks, as well as habitat for adult species (SAFMC, 1998). The tidal creek habitat within the survey area is associated with an open water canal, which is located west of US 17 and approximately 0.5 mile south of Telfair Plantation Drive. This tidal creek has connectivity on both sides of US 17 via a culvert. West of US 17, this tidal creek is approximately 140 to 150 feet in width, appears to be an excavated channel, and has connectivity to the west with the Murray Hill Canal. East of US 17, the tidal creek is approximately 30 to 45 feet in width, has moderate sinuosity, and appears to be connected to the east with a drainage network associated with the Wright River.

### **Unconsolidated bottom**

Unconsolidated bottom includes all wetland and deepwater habitats with at least 25% cover of particles smaller than stones, a vegetative cover less than 30%, and subtidal, permanently flooded, intermittently exposed, or semipermanently flooded water regimes (Cowardin, 1979). This habitat type consists of soft sediments that are inhabited by macroinvertebrates that serve as prey to demersal fish species. The unconsolidated bottom habitat located within the survey area is associated with the Back River and adjacent tributaries. The Back River is a saltwater river that experiences a tidal range of approximately 8 feet, and the portion of the Back River within the survey area is approximately 2,520 feet in width at mean high water level.

### **Freshwater bottomland hardwoods/wooded swamps**

Freshwater bottomland hardwoods occur within the project corridor along the interface between freshwater and salt water communities with scrub-shrub areas on maintained fringes. Bottomland hardwoods are palustrine wetlands frequently flooded by and associated with river systems, creeks, or other drainages. Wooded swamps are also included in this habitat type. Dominant tree species contained within the bottomland hardwoods and scrub-shrub wetlands include sweetgum (*Liquidambar styraciflua*), bald cypress (*Taxodium distichum*), red maple (*Acer rubrum*), water tupelo (*Nyssa aquatica*), Chinese tallow (*Sapium sebiferum*), swamp chestnut oak (*Quercus michauxii*), and water oak (*Quercus nigra*). Dominant shrubs species include groundsel-tree (*Baccharis hamilifolia*), elderberry (*Sambucus canadensis*), wax myrtle (*Myrica cerifera*), and dwarf palmetto (*Sabal minor*). Dominant herbaceous species include lizard's tail (*Saururus cernuus*), netted chain fern (*Woodwardia areolata*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), soft rush (*Juncus effusus*), rice cutgrass (*Leersia oryzoides*), and spikerush (*Eleocharis* sp.). The freshwater bottomland hardwood communities within the survey area do not directly contribute to EFH. However, these communities can indirectly affect the water quality of EFH habitats.

### **Freshwater emergent wetlands**

Freshwater emergent wetlands are open wetlands with a widely fluctuating water level, usually dominated by emergent grasses, sedges, and rushes. This type of wetland is typically associated with deeper water wetlands, but can also be found where trees are kept at bay in power line and

roadway rights-of-way. The freshwater emergent wetland areas vary in vegetative composition. The dominant vegetation observed in these communities include sedges (*Carex* spp.), beaksedge (*Rhynchospora* spp.), Vasey's grass (*Paspalum urvillei*), marsh pennywort (*Hydrocotyle americana*), spikerush, soft rush, cattail (*Typha latifolia*), velvet panic grass (*Dichantheium commutatum*), alligator weed (*Alternanthera philoxeroides*), and giant cane (*Arundinaria gigantea*). The freshwater emergent wetland communities within the survey area do not directly contribute to EFH. However, these communities can indirectly affect the water quality of EFH habitats.

## 4. Managed Fishery Species

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### **White shrimp (*Litopenaeus setiferus*)**

Recruitment of white shrimp into estuarine waters generally begins in April and May (South Atlantic Fishery Management Council, 1998). The mud-silt substrate and salinity distribution of the estuary provide a suitable feeding environment for juvenile shrimp, providing benthic worms, plant matter, and decaying animals (Wenner, 2004). Juveniles forage and mature in tidally influenced nursery areas. Beginning in August and running through December, white shrimp egress to more saline waters. Some smaller adult individuals may remain in the estuary over the winter (South Atlantic Fishery Management Council, 1998). The onsite habitats include an abundance of smooth cordgrass dominated emergent wetlands, mud-silt substrate, and intermediate salinities that are important to the inshore life cycle of shrimp.

### **Brown shrimp (*Farfantepenaeus aztecus*)**

Year-round spawning of brown shrimp occurs offshore in deeper water habitat with the eggs hatching soon after release (Lassuy, 1983). Postlarvae begin moving into estuarine areas around February, with the peak movement periods occurring through March and April (Wenner, 2004). Postlarvae remain in the estuary, foraging and developing into juveniles. The shelter of the estuarine emergent wetlands provides an optimal area for shrimp to forage (South Atlantic Fishery Management Council, 1998). Egress of adult brown shrimp to offshore areas generally takes place during May through August (Lassuy, 1983). The onsite habitats include an abundance of smooth cordgrass dominated emergent wetlands, mud-silt substrate, and intermediate salinities that are important to the inshore life cycle of shrimp.

### **Snapper-Grouper Complex**

The snapper-grouper plan manages 73 species of fish in the snapper-grouper complex, including sea bass (*Centropristis* spp.), grouper (*Serranidae* spp.), snapper (*Lutjanidae* spp.), porgy (*Sparidae* spp.), grunt (*Haemulidae* spp.), jack (*Carangidae* spp.), tilefish (*Malacanthidae* spp.), triggerfish (*Balistidae* spp.), wrasses (*Labridae* spp.) and spadefish (*Eppiphidae* spp.) families (South Atlantic Fishery Management Council, 2009). Although species from eight of these families use estuaries opportunistically, there are only five species that are estuarine-dependent. These species include gag (*Mycteroperca microlepis*), goliath grouper (*Epinephelus itajara*), cubera snapper (*Lutjanus cyanopterus*), gray snapper (*L. griseus*), and dog snapper (*L. jocu*). In the fishery management plan for the snapper-grouper complex, near-shore essential fish habitat that would be applicable to the project area includes estuarine emergent wetlands, intertidal non-vegetated flats, and unconsolidated bottom (soft sediment).

### **Other Fishes**

The waters of the Back River and the surrounding area also serve as nursery and forage habitat for other species including black drum, red drum, Atlantic menhaden (*Brevoortia tyrannus*), and blue crab (*Callinectes sapidus*) that serve as prey for other species (e.g., mackerels, snappers,

and groupers) that are managed by the SAFMC, and for highly migratory species (e.g., billfishes and sharks) that are managed by the NMFS. Blue crab and many finfish prey upon penaeid shrimp. Commercially important larval fishes move through the estuarine waters in mid-winter to feed on plankton (South Atlantic Fishery Management Council, 1998). Red drum is an important state-managed fishery, and estuary wetlands within the project area provide habitat necessary for the development and survival of several life stages of red drum, as well as for several other fish species that serve as prey for species managed by the SAFMC.

### **Oysters and Shellfish**

The eastern oyster (*Crassostrea virginica*) and the hard clam (*Mercenaria mercenaria*) are harvested along the coast of South Carolina. The eastern oyster is very commonly found in the intertidal estuaries and the oyster beds provide stability to the shoreline. The hard clam is found in intertidal and subtidal areas. This species requires high salinity waters, but can live in a variety of substrates including sand, mud and shell (Walker, 2005).

The waters of the Back River within the survey area are not classified as Shellfish Management Areas (SMA) by the South Carolina Department of Health and Environmental Control (SCDHEC) or as State Shellfish Grounds by the South Carolina Department of Natural Resources (SCDNR). According to SCDNR data from 2010 of intertidal oyster reefs and shell deposits (oyster wash), no oyster reefs or wash are located within the survey area (South Carolina Department of Natural Resources, 2010).

### **Habitat Areas of Particular Concern**

Habitat Areas of Particular Concern (HAPCs) are discreet subsets of EFH that are considered high priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function. According to the NOAA EFH mapper, no HAPC for the snapper-grouper complex or for penaeid shrimp is located within the survey area; however, the estuarine emergent wetland, intertidal non-vegetated flats, and tidal creeks within the project area are considered valuable components for HAPCs for penaeid shrimp.

## **5. Analysis of Effects on Essential Fish Habitat**

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The potential for actions to impact managed species will vary based on life history stage, habitat use, distribution, and abundance. Fish managed in the snapper grouper complex, brown shrimp, and white shrimp all utilize the estuarine emergent wetlands, intertidal flats, and unconsolidated bottom at various stages in their life histories. Table 5-1 summarizes possible temporary and permanent impacts. This analysis is based on the conceptual design of the preferred alternative (Alternative 1).

### **5.1) Construction Methods**

Construction is expected to occur between 2019 and 2023. Construction methods cannot be finalized because the project is still in the concept stage and will go to final design and construction at a later date (similar to a Design Build Project). However, the proposed bridge would involve construction of a new bridge and its associated approaches in EFH. SCDOT has assumed the following construction scenario (See Table 5-2 – Summary of the Worst-Case Bridge Construction Scenario). This scenario is based on conceptual plans and a worst-case scenario involving pile driving techniques to install bridge support structures and a temporary trestle.

**Table 5-1. Potential Impacts to EFH**

Habitat Type	Temporary Impacts		Permanent Impacts	
	Indirect	Direct	Indirect	Direct
Estuarine emergent wetlands	Siltation	Clearing/Temporary Trestle Pilings*/Barges	Shading	Fill/Columns
Intertidal flats	Siltation	Temporary Trestle Pilings*	None	Fill/Columns
Tidal creek	Siltation	None	None	Fill/Culvert
Unconsolidated bottom	Siltation	Temporary Trestle Pilings*	None	Columns
Freshwater emergent wetland	Siltation	Clearing	None	Fill
Freshwater bottomland hardwoods/wooded swamps	Siltation	Clearing	None	Fill

\*The location of temporary trestle piles is unknown at this time. The location of temporary trestle pilings will be determined during final design and permitting.

**Table 5-2. Summary of the Worst-Case Bridge Construction Scenario**

	Installation Method	Diameter	Total Number Installed (Approximate Numbers)			Estimated Time per Unit	Total Estimated Pile Driving Timeframe
			Total	Unconsolidated Bottom	Intertidal Flats & Estuarine Emergent Wetland		
Concrete Piles	Diesel Hammer	24 Inches	540	459	81	2 Hours per Pile	1080 Hours
Temporary Trestle	Vibratory Hammer	24 Inches	335	177	158	2 Hours per Pile**	670 Hours**

\*\*The installation and removal of trestle piles would each take 335 hours, for a total of 670 hours.

During final design and permitting, the contractor would be responsible for coordinating with NOAA-NMFS regarding design changes that would alter the effects on EFH.

Construction of the proposed bridge would likely be completed through the exclusive use of pile driving for the bridge support structures. Bridge construction access would be located in upland areas to the maximum extent practicable. Work in deep water habitats is likely to occur from barges. Two temporary work trestles, approximately 800 and 300 feet long respectively, may be installed over the tidal marsh and some areas of open waters using pile driving (refer to Figure 3a). The temporary trestles would likely be used in areas where access from a barge is not

feasible. Methods to access areas unreachable by barge would ultimately be the decision of the contractor. However, the temporary trestles utilized in this assessment reflect the worst case scenario. An example of the temporary trestle that was used during the construction of the GDOT bridge can be seen on Photograph 4 in Appendix C, and the potential locations of the trestles are shown on Figure 3a. Timber mats and/or barges may be used over salt marsh areas. Temporary lighting would be used during construction.

Construction along the mainline of US 17 would consist of the placement of clean fill material with the purpose of widening the roadway from two to four lanes. Silt fence would be installed along the toe of fill slope prior to fill placement, and would involve mechanical clearing. Work would be completed from uplands outward towards the wetlands as much as possible. Timber mats may be used when upland access is not feasible. Geotechnical reinforcement may be required along the proposed roadway shoulder. These areas would need to be accessed from the wetland area and work would likely occur utilizing timber mats.

## **5.2) Temporary Impacts**

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 Savannah and South Carolina via US 17. A majority of the work in unconsolidated bottom habitats of the Back River is likely to occur from barges. Temporary work trestles may be installed over the estuarine emergent wetlands and intertidal flats to support cranes during construction and to potentially load/unload barges in the Back River.

For the proposed bridge, temporary trestles, including spurs for bent construction, would be approximately 1,100 feet long and would require approximately 335 steel piles (refer to Figure 3a). The steel piles would be approximately 24-inches in diameter and would be installed using a vibratory hammer. Since most of the work within the Back River channel is expected to occur from barges, some of the 335 piles would be installed in unconsolidated bottom habitat, but most of the temporary trestles would be constructed over the estuarine emergent wetland and intertidal flat habitats. Total construction time for the temporary work trestles is expected to take four to six months. Piles would be constructed at the beginning of each span; each span typically would take three to five days to construct. The vibratory hammer typically would take one hour to install one pile. Removal of the piles typically would take one hour per pile.

Temporary clearing within the estuarine emergent wetlands habitats as well as the freshwater wetland habitats would occur to install erosion and sediment control measures throughout the project area. The temporary clearing for erosion control would impact 5.347 acre of estuarine emergent wetlands, 0.014 acre of freshwater emergent wetland, and 2.557 acre of freshwater bottomland hardwoods/wooded swamps (See Table 5-3 – Quantities of Temporary Impacts). After construction, these habitats will be able to return to their typical functions. Timber mats and/or barges may cause temporary impacts to grasses during construction.

During construction, temporary indirect impacts such siltation may occur along the margins of the EFH and wetland habitats. Temporary siltation may cause indirect impacts by affecting thermal loading in the environment as well as temporarily increasing turbidity. Alterations in light attenuation in the water column can cause decreased visibility for organisms, affecting feeding, movement, and predator avoidance. Redistribution of sediments can alter nutrient distribution, dissolved oxygen levels, and primary productivity locally and throughout the estuarine waters. When suspended sediments begin to settle on the floor of the estuary, this can cause indirect impacts to benthic communities by smothering and burying organisms (Berry, Rubenstein, &

Melzian, 2003). However, impacts from the proposed project are expected to be relatively minor. Impacts should be minimal and would be limited to the immediate area of the construction.

**Table 5-3. Quantities of Temporary Impacts**

Habitat Type	Temporary Clearing (Acres)	Temporary Fill (Acres)
Estuarine emergent wetlands	5.347	0.024*
Intertidal flats	0	
Unconsolidated bottom	0	
Tidal Creek	0	0
Freshwater emergent wetland	0.014	0
Freshwater bottomland hardwoods/wooded swamps	2.557	0
<b>Total</b>	<b>7.918</b>	<b>0.024</b>

\* Design for the temporary work trestle will not be completed until the project is awarded to a contractor; therefore, impacts to estuarine emergent wetland, intertidal non-vegetated flats, and unconsolidated bottom could not be separated.

### 5.3) Permanent Impacts

Direct impacts to unconsolidated bottom habitat in the Back River channel would be limited to the construction of bridge support structures, such as prestressed concrete piles. The proposed bridge would have approximately 540 24-inch-diameter prestressed concrete piles. The piles would be installed using typical pile driving installation methods, which typically includes:

1. Driving spud piles to secure the pile driving template
2. Installing the pile driving template
3. Drive production piling

Typically, the prestressed piling would be installed in two hours using a diesel hammer. Multiple piles may be installed within a single day. Approximately 81 of the 540 concrete piles would be installed in estuarine emergent wetlands/non-vegetated intertidal flats and the remaining 459 piles would be installed within unconsolidated bottom habitat. The proposed piles would impact 0.006 acre of estuarine emergent wetland/non-vegetated intertidal flats and 0.033 acre of unconsolidated bottom for a total of 0.039 acre.

Areas of estuarine emergent wetlands and intertidal flats would be filled as the new bridge connects to the existing causeway; therefore, the proposed project would also result in permanent direct impacts due to fill materials at both approaches. In addition, permanent fill impacts to estuarine emergent wetlands, tidal creeks, freshwater emergent wetlands, and freshwater bottomland hardwoods/wooded swamps would occur as a result of the widening of the existing US 17 roadway. As a result of the bridge approaches and roadway widening, the proposed project would result in 13.063 acres of fill materials in estuarine emergent wetland, 0.063 acre of tidal creek, 0.037 acre of freshwater emergent wetland, 6.423 acres of freshwater bottomland hardwoods/wooded swamps, and 0.063 acre of freshwater channel for a total of 19.649 acres. The tidal creek would be impacted by a culvert extension associated with the roadway widening

of US 17. There would be no impact on the hydrological surface connection and no channel function would be lost.

The proposed project would indirectly impact estuarine emergent wetland by shading salt marsh grasses underneath the proposed bridge. The shading effects could potentially result in areas of sparse vegetation or the existing vegetation dying off. The extent of adverse indirect impact is dependent on several factors, including the proposed bridge orientation and height to width ratio. Impacts to salt marsh vegetation generally occur when the bridge height to bridge width ratio is less than 0.70 (Broome et al, 2005). The proposed bridge width is 58.8 feet; based on the 0.70 bridge height to bridge width ratio, indirect impacts to vegetated salt marsh may occur in areas where the bridge height is 41.2 feet or lower. Salt marsh vegetation may become sparse in these areas, with the greatest percentage of die-off near the ends of the bridge where it connect to the existing causeway. The proposed bridge would shade approximately 0.545 acre of estuarine emergent wetland (Table 5-4 – Quantities of Permanent Impacts).

**Table 5-4. Quantities of Permanent Impacts**

<b>Habitat Type</b>	<b>Proposed Permanent Indirect (Acres)</b>	<b>Proposed Permanent Direct (Acres)</b>
Estuarine emergent wetlands	0.545	13.076*
Intertidal flats	None	
Tidal creek	None	0.063
Unconsolidated bottom	None	0.026
Freshwater emergent wetlands	None	0.037
Freshwater bottomland hardwoods/wooded swamps	None	6.423
Freshwater channel	None	0.063
<b>Total</b>	<b>0.588</b>	<b>19.66</b>

\*Design for the proposed bridge will be completed at a later date; therefore, impacts to estuarine emergent wetland and intertidal non-vegetated flats could not be separated.

## 6. Avoidance and Minimization Measures

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SCDOT analyzed several alternatives in the planning process to avoid and minimize impacts to the environment. SCDOT considered a No-Build alternative as well as three reasonable roadway build alternatives and two bridge location alternatives. The alternatives differ based on construction locations. Alternative 1 (preferred) would widen US 17 to the west, Alternative 2 would widen US 17 symmetrically along the existing centerline, and Alternative 3 would widen US 17 to the east. The two bridge alternative are comprised of the same design, but differ by locations. The proposed bridge may be constructed either 35 or 60 feet to the east of the centerline of the existing newly constructed GDOT bridge. The impacts from the two bridge alternatives were not considered during this analysis since the EFH impacts would be the same

for both bridge alternatives. Both bridge alternatives would have the same number of bents and pilings and only the deck length would be adjusted for any length differences.

All of the considered alternatives propose to construct the new bridge east of the new US 17 bridge, which was completed in 2015, and utilize the same proposed approaches. The currently proposed approaches minimizes impacts by utilizing, to the greatest extent possible, the embankments of the previous bridge and the newly constructed GDOT bridge. Among other factors, Alternative 1 has the least amount of direct impacts on EFH as compared to the other Build alternatives (See Table 6-1 – Direct Impacts Comparison).

**Table 6-1 – Permanent Direct Impacts Comparison**

Habitat	No-build	Alternative 1 (Preferred)	Alternative 2	Alternative 3
Estuarine emergent wetland	0	13.063*	15.119*	17.430*
Intertidal flats	0	0*	0*	0*
Tidal Creek	0	0.063	0.042	0.039
Unconsolidated bottom	0	0*	0*	0*
Freshwater emergent wetland	0	0.037	0.037	0.045
Freshwater bottomland hardwoods/wooded swamps	0	6.423	5.026	4.750
Freshwater channel	0	0.063	0.060	0.058
Total	0	19.649	20.284	22.322

\*The impacts for bridge alternatives were not considered for this analysis since the EFH impacts would be the same for both alternatives.

Given the potential for temporary siltation and erosion, the contractor would be required to minimize these actions through implementation of construction Best Management Practices (BMP), reflecting policies contained in 23 CFR 650B and SCDOT’s Supplemental Specifications on Seeding and Erosion Control Measures of August 15, 2001. In addition, no contaminants will be released into the water. SCDOT has emergency spill recommendations to the contractor in the event of an accident. If a leak is evident or a spill occurs, the contractor would be notified and would verify that it is mitigated as soon as practical by authorized personnel. Any unused or contaminated materials would be disposed of in accordance with Federal, State, and local laws.

## 7. Conclusions

It is the determination of SCDOT that the proposed project would adversely impact the EFH in the project area. Since there would be impacts to the EFH and possibly aquatic species managed by the SAFMC, an EFH Mitigation Plan would be established. The EFH Mitigation Plan would be developed during the Section 404 permitting phase of the project. The EFH Mitigation Plan would be developed in coordination with SCDOT and NOAA-NMFS. Potential options for impacts to EFH include the purchase of credits from a commercial mitigation bank. For estuarine impacts (approximately 348.36 credits) the Clydesdale Mitigation Bank (for the SC portion) and the Salt Creek Mitigation Bank (for the GA portion) could likely provide in-kind mitigation for EFH impacts.

For palustrine impacts (108.38 credits), credits could be obtained from the Sweetleaf Swamp Mitigation Bank.

## 7.1) Commitment Summary

The proposed project is currently in the concept stage and will require further evaluation and analysis as the project design develops. As such, SCDOT commits to the following:

- As a component of the USACE Section 404 permitting phase of the project, a EFH Mitigation Plan would be developed in coordination with SCDOT and NOAA-NMFS.
- Bridge construction access would be located in upland areas to the maximum extent practicable.
- The contractor would be required to minimize these actions through implementation of construction Best Management Practices (BMP), reflecting policies contained in 23 CFR 650B and SCDOT's Supplemental Specifications on Seeding and Erosion Control Measures of August 15, 2001. In addition, no contaminants will be released into the water. SCDOT has emergency spill recommendations to the contractor in the event of an accident. If a leak is evident or a spill occurs, the contractor would be notified and would verify that it is mitigated as soon as practical by authorized personnel. Any unused or contaminated materials would be disposed of in accordance with Federal, State, and local laws.

## 8. References

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## 9. Appendices

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### 9.1) Appendix A – Figures



**Legend**

Survey Area

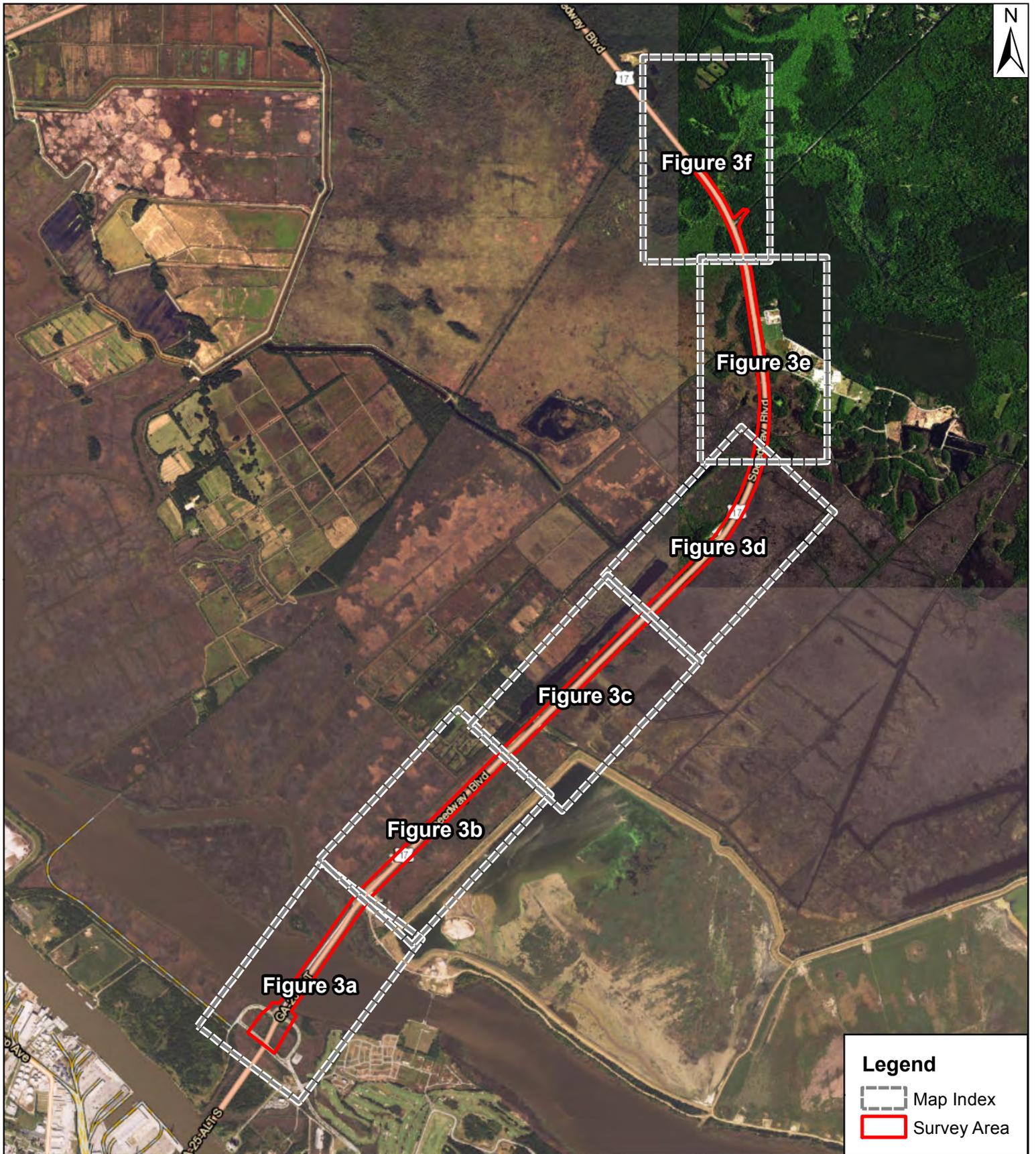
**Michael Baker**  
INTERNATIONAL

**Figure 1**  
**Project Location**  
US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016

1      0.5      0      1 Miles

Source: ESRI OpenStreetMap





**Legend**

-  Map Index
-  Survey Area



**Michael Baker**  
INTERNATIONAL

**Figure 2**  
**EFH Map Index**  
US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016

1      0.5      0      1 Miles

Source: ESRI World Imagery & Transportation





See Figure 3b

**Michael Baker**  
INTERNATIONAL

**Figure 3a**  
**Essential Fish Habitat**  
 US 17 Widening and Bridge over Back River  
 SCDOT PIN# P025999  
 Jasper County, SC & Chatham County, GA  
 August 2016

500 250 0 500 Feet





**Legend**

- Final Roadway Lanes
- Paved Shoulder/Median
- Construction Limits
- Erosion Control Limits
- Proposed New ROW
- Temporary Trestle
- Tidal Creek
- Intertidal Non-Vegetated Flats
- Unconsolidated Bottom
- Estuarine Emergent
- Freshwater Wetlands
- Survey Area
- Matchline

-- See Figure 3a --

-- See Figure 3c --



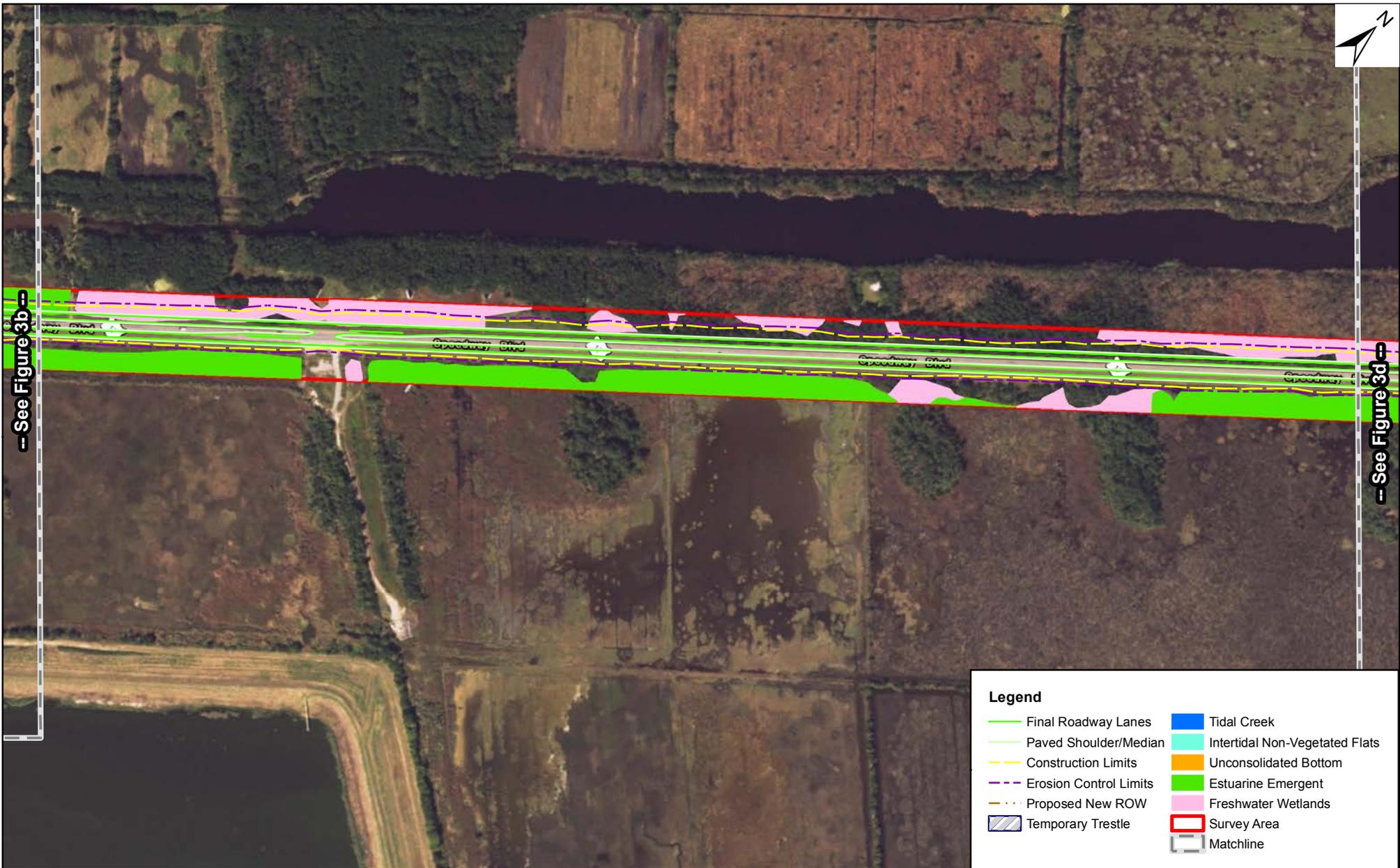
**Michael Baker**  
INTERNATIONAL

Source: ESRI World Imagery & Transportation

**Figure 3b**  
**Essential Fish Habitat**

US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016





**Legend**

- Final Roadway Lanes
- Paved Shoulder/Median
- Construction Limits
- Erosion Control Limits
- Proposed New ROW
- Temporary Trestle
- Tidal Creek
- Intertidal Non-Vegetated Flats
- Unconsolidated Bottom
- Estuarine Emergent
- Freshwater Wetlands
- Survey Area
- Matchline



**Michael Baker**  
INTERNATIONAL

Source: ESRI World Imagery & Transportation

**Figure 3c**  
**Essential Fish Habitat**

US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016





**Legend**

- Final Roadway Lanes
- - - Construction Limits
- - - Erosion Control Limits
- · - · Proposed New ROW
- Temporary Trestle
- █ Tidal Creek
- █ Intertidal Non-Vegetated Flats
- █ Unconsolidated Bottom
- █ Estuarine Emergent
- █ Freshwater Wetlands
- Survey Area
- Matchline



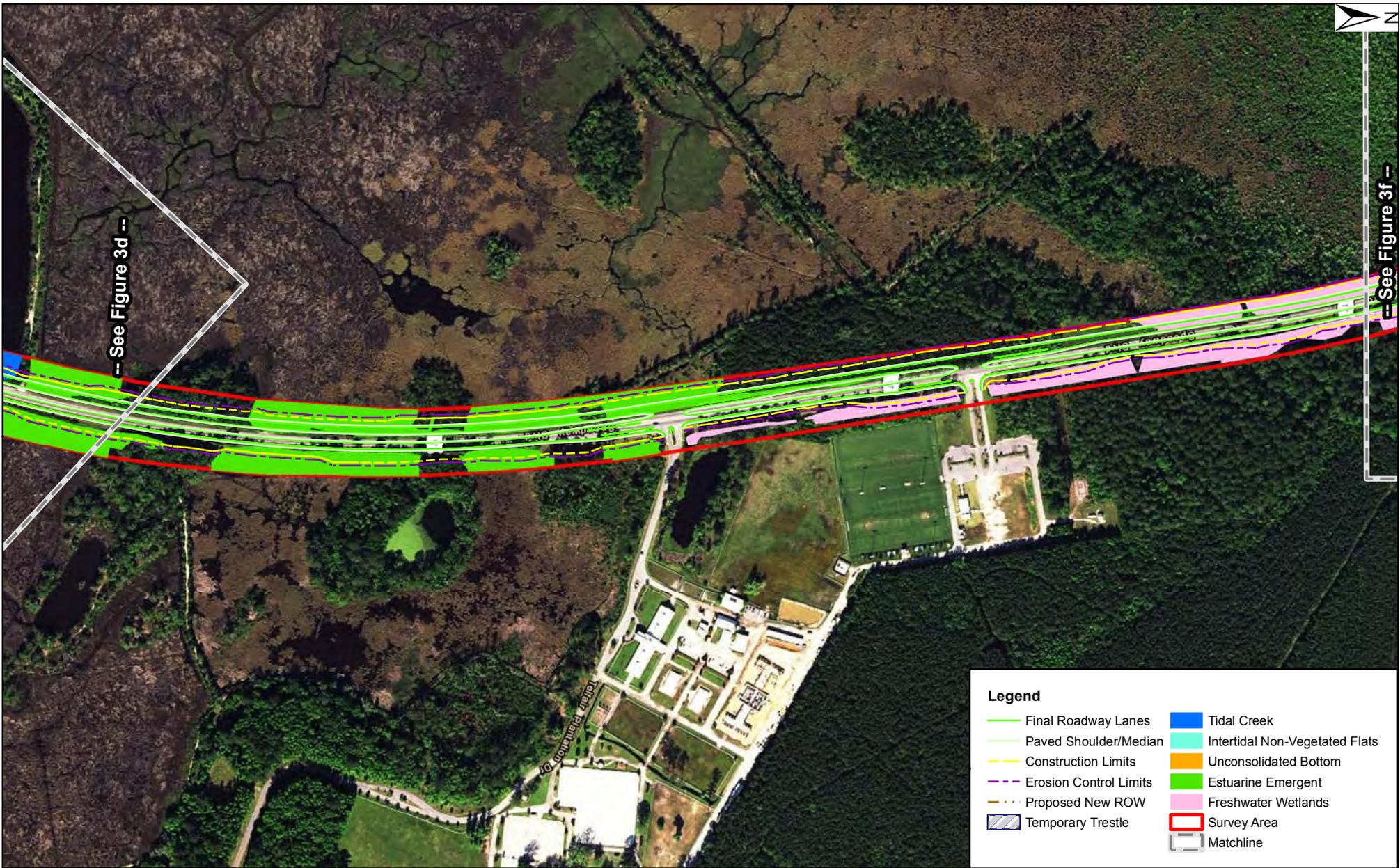
**Michael Baker**  
INTERNATIONAL

Source: ESRI World Imagery & Transportation

**Figure 3d**  
**Essential Fish Habitat**

US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016





-- See Figure 3d --

-- See Figure 3f --

**Legend**

- Final Roadway Lanes
- Paved Shoulder/Median
- Construction Limits
- Erosion Control Limits
- Proposed New ROW
- Temporary Trestle
- █ Tidal Creek
- █ Intertidal Non-Vegetated Flats
- █ Unconsolidated Bottom
- █ Estuarine Emergent
- █ Freshwater Wetlands
- Survey Area
- Matchline



**Michael Baker**  
INTERNATIONAL

Source: ESRI World Imagery & Transportation

**Figure 3e**  
**Essential Fish Habitat**

US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016





**Michael Baker**  
INTERNATIONAL

Source: ESRI World Imagery & Transportation

**Figure 3f**  
**Essential Fish Habitat**

US 17 Widening and Bridge over Back River  
SCDOT PIN# P025999  
Jasper County, SC & Chatham County, GA  
August 2016



## **9.2) Appendix B - Agency Coordination**



**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

<http://sero.nmfs.noaa.gov>

January 13, 2017

F/SER47:KH/pw

(Sent via Electronic Mail)

Mr. Chad Long  
Archaeologist/NEPA Coordinator  
S.C. Dept. Of Transportation, P.O. Box 191  
Columbia, South Carolina 29201

J. Shane Belcher  
Environmental Coordinator  
Federal Highway Administration  
1835 Assembly Street, Suite 1270  
Columbia, South Carolina 29201

Attention: Nicole Riddle

Dear Mr. Long and Mr. Belcher:

NOAA's National Marine Fisheries Service (NMFS) reviewed the letter dated, December 19, 2016, from the South Carolina Department of Transportation (SCDOT) and Federal Highway Administration (FHWA) responding to essential fish habitat (EFH) conservation recommendations the NMFS provided for the proposed U.S. Highway (US) 17 widening and bridge over the Back River<sup>1</sup>. By letter dated December 1, 2016, the NMFS provided four conservation recommendations to protect EFH:

1. The project design should further avoid and minimize impacts to EFH by reducing the amount of fill and shading in wetlands areas.
2. The existing, undersized culvert on the north end of the project should be replaced with a bridge.
3. In-water turbidity and sedimentation control methods and noise attenuation methods should be used to avoid and minimize impacts to EFH, federally managed fisheries and their prey, and anadromous fishes and their habitat from in-water work activities.
4. The SCDOT should adjust mitigation calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee responsible mitigation.

The SCDOT has agreed to implement recommendation 3 and 4, and has agreed to replace the existing, undersized culvert on the north end of the project (recommendation 2). Specifically, the selected contractor will be required to minimize potential stormwater impacts through implementation of construction stormwater best management practices (BMPs), reflecting policies contained in the National Pollutant Discharge Elimination System (NPDES), 23 CFR 650 B and SCDOT's Supplemental Specifications on Seed and Erosion Control Measures (latest edition). The design and implementation of these BMPs will be evaluated by the South Carolina

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<sup>1</sup> SCDOT Project ID: P025999: Located in Jasper County, SC and Chatham County, GA



Department of Health and Environmental Control to meet the NPDES permit requirements, and these requirements will include the use of turbidity curtains where practicable. Additionally, between October 1 and April 15, SCDOT will require the contractor to implement a noise reduction technique for all pile-driving activities, which will be submitted to the SCDOT Environmental Services Office for review prior to implementation. Furthermore, the SCDOT will account for additional shading impacts that the bridge may cause from being in close proximity to the existing bridge during final design. The SCDOT will use these updated calculations when determining the wetland credits needed for mitigation.

The SCDOT also agrees to replace the existing, undersized culvert on the north end of the project. Due to the cost of constructing a bridge at this location, SCDOT plans to replace the existing culvert with two twin-box culverts. The exact size and dimensions will be determined in final design. While the proposed culverts are less damaging to the environment than those currently in place, the NMFS continues to prefer a bridge at this location to reduce impacts to EFH, federally managed species, and their prey. Bridges typically require less fill and channel alteration, lead to less bank and bed instability, and maintain greater ecological connectivity and organism passage than culverts. The NMFS recommends SCDOT select a culvert design that promotes ecological connectivity, aquatic organism passage, and normative physical processes. Various publications from the FHWA and NMFS detail these principles and design elements<sup>2</sup>. The NMFS also encourages the SCDOT to coordinate with the USACE Savannah District regarding culvert design and installation/construction.

Regarding recommendation 1, SCDOT's response focuses on constructability issues and design standards. The SCDOT selected the proposed alignment due to the need to maintain traffic throughout the project, avoid additional wetlands impacts of approximately eight acres, safely stage construction, and accommodate drainage during construction. Additionally, the shift in alignment had to be a certain distance away from the existing roadway in order to perform necessary geotechnical ground modifications in order to construct the new two-lane section, without influencing the existing roadway. Furthermore, the 36-foot median is the narrowest median possible to maintain a safe rural connector and the outside shoulder widths will accommodate bike lanes. The NMFS understands safety, functionality, and maintenance of traffic issues, and understands preliminary design impacts outlined in the draft Environmental Assessment represent a "worst case scenario." However, further avoidance and minimization measures appear practicable. The NMFS recommends SCDOT further avoid and minimize impacts to EFH by reducing fill and/or shading during refinement of the final design. Suggestions for how this might occur include decreasing inside roadway shoulder widths (where bike lanes are not planned), steepening side slopes of the roadway and bridge approaches, reducing approach fills for the bridge over the Back River, using mechanically stabilized earth (MSE) walls, utilizing deep-depth guardrails, or a combination of these.

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<sup>2</sup> Culvert design for aquatic organism passage. FHWA. 2010.

[https://www.fhwa.dot.gov/engineering/hydraulics/library\\_arc.cfm?pub\\_number=204&id=145](https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=204&id=145)

Hydraulic design of highway culverts, Third Edition. FHWA. 2012.

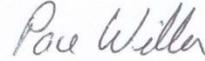
[https://www.fhwa.dot.gov/engineering/hydraulics/library\\_arc.cfm?pub\\_number=7&id=13](https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=7&id=13)

Anadromous salmonid passage facility design. NMFS, 2011; Guidelines for salmonid passage at stream crossings. NMFS, 2001.

<http://www.westcoast.fisheries.noaa.gov/publications/>

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  
FHWA, Jeffrey.Belcher@dot.gov  
SCDNR, DavisS@dnr.sc.gov  
EPA, Laycock.Kelly@epa.gov  
FWS, Karen\_Mcgee@fws.gov  
F/SER4, David.Dale@noaa.gov  
F/SER47, Keith.Hanson@noaa.gov



South Carolina  
Department of Transportation

December 19, 2016

Virginia Fay  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service, Habitat Conservation Division  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701-5505

Re: US 17 Widening and Bridge Replacement over Back River in Jasper County, SC and Chatham County, GA: PIN 39168RD01; Response to NOAA-NMFS letter regarding conservation recommendations for EFH

Attention: Keith Hanson

Dear Virginia Fay:

The South Carolina Department of Transportation (SCDOT) in coordination with the Federal Highway Administration (FHWA) is issuing this joint response to your December 1, 2016 letter which included EFH Conservation Recommendations for the proposed US 17 Widening and Bridge Replacement over Back River in Jasper County, SC and Chatham County, GA.

In response to your recommendation: *“The NMFS recommends reducing the amount of permanent fill associated with the proposed project by using a combination of east and west widening (asymmetrical widening) that would concentrate impacts in existing upland areas and avoid impacts to wetlands. Additionally, the NMFS recommends further reducing the amount of permanent impacts by reducing the bridge width, decreasing inside and/or outside roadway shoulder widths, decreasing the median width, and by steepening side slopes of the roadway and bridge approaches, or a combination of these.”*

The original design for the widening project had the widening centered in the R/W corridor but problems were encountered with staging construction and accommodating drainage during construction. The road design group and traffic engineering worked together to improve constructability and determined a 16' shift would provide the ability to maintain traffic while still staging construction and reducing the impacts to adjacent wetlands. A 16' shift right was considered but the impacts to the wetlands were approximately 8 acres higher than doing a 16' shift to the left. Also as part of the project is the geotechnical ground modifications and the shift in alignment had to be far enough away from the existing roadway to construction the new 2 lane section ground improvements without influencing the existing roadway. The widening to each side creates a constructability issue and with the presence of wetlands on each side of the roadway is minimized to the greatest extent possible with the current alignment. Additionally, the 36' median is the narrowest median possible to maintain a safe rural connector condition. The safety concerns with reducing the median further are far too great for it to be a plausible alternative. The outside shoulder widths cannot be reduced due to the presence of the stripped bike lanes.



In response to your recommendation: *“The NMFS also recommends replacing the undersized culvert on the north end of the project with a bridge to avoid further adverse impacts to habitats and species and to restore ecological connectivity and habitat function to the surrounding area; bridging this tidal creek would also reduce the amount of permanent fill.”*

SCDOT has plans to replace the existing culvert with two ‘twin’ box culverts. The exact size and dimensions will be determined in final design. Constructing a bridge at this location is too costly.

In response to your recommendation: *“The SCDOT should include In-water turbidity and sedimentation control methods and noise attenuation methods should be used to avoid and minimize impacts to EFH, federally managed fisheries and their prey, and anadromous fishes and their habitat from in-water work activities.”*

Stormwater control measures, both during construction and post-construction, are required for SCDOT projects with land disturbance. The selected contractor would be required to minimize potential stormwater impacts through implementation of construction best management practices (BMP’s), reflecting policies contained in the NPDES, 23 CFR 650 B and SCDOT’s Supplemental Specifications on Seed and Erosion Control Measures (latest edition). The design and implementation of these BMP’s will be evaluated by SCDHEC to meet the NPDES permit requirements, and these requirements will include the use of turbidity curtain where practicable. Additionally, between October 1-April 15, SCDOT will require the contractor to implement a noise reduction technique for all pile-driving activities. The proposed minimization techniques will be submitted to the SCDOT Environmental Services Office for review prior to implementation.

In response to your recommendation: *The SCDOT should adjust mitigation calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee responsible mitigation.*

SCDOT will account for additional shading impacts that the bridge may cause from being in close proximity to the existing bridge during final design. SCDOT will use these updated calculations when determining the wetland credits needed for mitigation.

We appreciate your agency’s cooperation throughout the development of this project. Please let me know if you have any comments or concerns related to this response. I can be reached at (803) 737-0841.

Sincerely,



Nicole Riddle  
EFH Coordinator



**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

<http://sero.nmfs.noaa.gov>

December 1, 2016

F/SER47:KH/pw

(Sent via Electronic Mail)

Mr. Chad Long  
Archaeologist/NEPA Coordinator  
S.C. Dept. of Transportation, P.O. Box 191  
Columbia, South Carolina 29201

J. Shane Belcher  
Environmental Coordinator  
Federal Highway Administration  
1835 Assembly Street, Suite 1270  
Columbia, South Carolina 29201

Attention: Nicole Riddle

Dear Mr. Long and Mr. Belcher:

NOAA's National Marine Fisheries Service (NMFS) reviewed the Essential Fish Habitat (EFH) Assessment<sup>1</sup>, dated September 2016, and draft Environmental Assessment, dated November 2016, prepared by the South Carolina Department of Transportation (SCDOT) for the proposed U.S. Highway (US) 17 widening and bridge over the Back River in Jasper County, SC, and Chatham County, GA (SCDOT Project ID: P025999). In an email dated September 22, 2016, the SCDOT stated it was submitting the EFH Assessment on behalf of the Federal Highway Administration. The SCDOT's initial determination is the project would adversely affect EFH or federally managed fishery species. 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.

*Description of the Proposed Project*

The SCDOT proposes to improve US 17 from Hutchinson Island in Savannah, GA, to South Carolina Highway 315 (South Okatie Highway) southwest of Bluffton, SC, by widening US 17 from two to four travel lanes, adding a 36-foot grassed median, and constructing a new bridge over the Back River. The total approximate project length is 4.2 miles, with approximately 3,000 feet in GA and 3.6 miles in SC. In 2015, the Georgia Department of Transportation (GDOT) replaced the existing structurally deficient bridge over the Back River with a new 3,289-foot long bridge north (west) of the existing bridge featuring two 12-foot travel lanes and 8-foot shoulders; the existing bridge was later demolished. The SCDOT proposes to construct a new two-lane bridge parallel to the GDOT Bridge in order to tie into the four-lane section of the Talmadge Memorial Bridge over the Savannah River. The proposed SCDOT Bridge would be approximately 58.5 feet wide, featuring two 12-foot travel lanes, two 10-foot shoulders, a 10-foot multi-use path, and three 1.5-foot parapets (barriers). The current preferred alternative for the project would widen US 17 to the west (north) and the proposed bridge would be constructed 35 feet or 60 feet east of the centerline of the new GDOT Bridge, partially in the same footprint as the previous bridge. The

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<sup>1</sup> The EFH Assessment was completed using conceptual designs and typical construction methods.



proposed bridge would be approximately the same length as the current GDOT Bridge. Upon completion, the GDOT Bridge would accommodate southbound traffic, and the SCDOT Bridge northbound traffic.

Proposed project activities would consist of placing clean fill material to widen the roadway and establish bridge approaches. Silt fences would be installed along the toe-of-fill prior to fill placement, which would require mechanical clearing. Work would be completed from uplands outward towards wetland areas as much as possible, but timber mats may also be used when upland access is not feasible. Geotechnical reinforcement may be required along the proposed roadway shoulder, which would require access from wetland areas and additional timber mats. Widening activities would necessitate extending an existing culvert located in a tidal creek on the north end of the project. Bridge construction would likely be completed using pile driving, which would occur from upland areas, to the extent practicable. In deep water areas, pile driving would take place from barges, while two temporary work trestles (approximately 300 feet and 800 feet in length) would likely be used over tidal marsh and portions of unconsolidated bottom habitat. Approximately 335 24-inch steel piles would be used for the temporary work trestle and approximately 540 24-inch pre-stressed concrete piles will be used for the permanent bridge. Temporary piles would be installed and removed using a vibratory hammer over 670 hours; permanent piles would be installed using a diesel impact hammer over 1080 hours<sup>2</sup>.

#### *Essential Fish Habitat and Anadromous Fish in the Project Area*

The site of the proposed project includes tidal freshwater (palustrine) emergent wetlands and forested areas, and tidal salt marsh habitat, specifically estuarine emergent wetlands, intertidal non-vegetated flats, tidal creeks, and unconsolidated bottom. The South Atlantic Fishery Management Council (SAFMC) identifies these tidal palustrine habitats, estuarine emergent wetlands, and intertidal non-vegetated flats as EFH for penaeid shrimp, including white shrimp (*Litopenaeus setiferus*) and brown shrimp (*Farfantepenaeus aztecus*). These habitats are EFH because larvae and juveniles concentrate and feed extensively and shelter within these habitats. As a consequence, growth rates are high and predation rates are low, which makes these habitats effective nursery areas. The SAFMC also identifies estuarine emergent vegetated wetlands, tidal creeks and unconsolidated bottom as EFH for estuarine-dependent species of the snapper-grouper complex. 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>3</sup>.

The waters of the Back River, tidal creeks connected to it, 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 other 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 several life stages of red drum. Furthermore, the Back River includes foraging and migration habitat for several anadromous fish species, including shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and American shad (*Alosa sapidissima*), within, upstream, and downstream of the proposed bridge crossing.

#### *Impacts to Essential Fish Habitat and Anadromous Fish*

The proposed project would result in 20.17 acres of permanent impacts and 7.942 acres of temporary impacts to EFH. Specifically, the proposed project would permanently fill 13.076 acres of estuarine emergent wetlands or intertidal flats, or a combination of these habitats, 0.063 acres of tidal creek, 0.026 acres of unconsolidated bottom, 0.037 acres of palustrine emergent wetlands and 6.423 acres of palustrine

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<sup>2</sup> The SCDOT has assumed a “worst-case bridge construction scenario” for environmental impact analysis.

<sup>3</sup> Available at <http://safmc.net/EcosystemLibrary/FEPVolumeIV>

forested areas. The proposed project would also result in the permanent shading of 0.545 acres of estuarine emergent wetlands. Additionally, the proposed project would temporarily fill 0.024 acres of estuarine emergent wetlands, intertidal flats, or unconsolidated bottom, or a combination of these habitats, and temporarily clear 5.347 acres of estuarine emergent wetlands, 0.014 acres of palustrine emergent wetlands and 2.557 acres of palustrine forested areas.

Permanently filled habitats would not provide nursery and foraging habitat for fishery species and their prey. Additionally, as light energy drives the photosynthetic process, which in turn controls plant growth and survival, permanently shaded areas would have lower primary productivity and reduced vegetation compared to non-shaded areas. This reduction in vegetation can lead to sediment erosion and decreased diversity and densities of benthic prey species<sup>4</sup>. Areas shaded by temporary elevated work structures for multiple growing seasons may also experience these adverse impacts, though recovery would likely occur following removal of structures. Furthermore, the presence of in-water structures, such as temporary and permanent piles, can alter hydrodynamic processes and sediment transport and deposition, degrading surrounding habitats. These processes and others have been altered and surrounding habitats degraded as a result of the existing culvert on the north end of the project, which is undersized. Undersized culverts can adversely impact habitats and species by decreasing ecological connectivity and tidal exchange, creating movement barriers for aquatic organisms and causing channel instability and increased erosion up and downstream of the culvert. Lastly, permanent impacts, including those from shading, will likely be greater for two bridges as opposed to a single, larger bridge due to the excess impacts created by two separate structures. Impact calculations should be adjusted to reflect these excess impacts.

Sediment input into aquatic habitats, mainly rivers and streams, is a major threat to anadromous fishes and their habitat and can reduce the quality of EFH and adversely affect federally managed species and their prey. This input can directly impact individuals and spawning aggregations as well as permanently eliminate migration and spawning habitat. Additionally, impacts from noise, vibrations, and other elements associated with construction activities can adversely affect anadromous fish spawning, foraging, migratory patterns and behavior, and can reduce the value of EFH.

#### *Avoidance and Minimization*

The SCDOT has taken steps to avoid or minimize impacts to EFH from the proposed project, including selecting Alternative 1, which constituted the least impacts to EFH of the four build alternatives. Top-down construction strategies would be used. Appropriate erosion and sedimentation control Best Management Practices (BMPs) would be installed, inspected, and maintained throughout all stages of construction in accordance with local and state stormwater guidelines and bridge construction would occur from temporary work trestles and upland areas, to the maximum extent practicable. Furthermore, the new SCDOT Bridge over the Back River will utilize, to the greatest extent possible, the same approaches and embankments of the previous and newly constructed GDOT Bridges.

While the NMFS appreciates SCDOT's avoidance and minimization efforts, further avoidance and minimization measures appear practicable. The NMFS recommends reducing the amount of permanent fill associated with the proposed project by using a combination of east and west widening (asymmetrical widening) that would concentrate impacts in existing upland areas and avoid impacts to wetlands. Additionally, the NMFS recommends further reducing the amount of permanent impacts by reducing the bridge width, decreasing inside and/or outside roadway shoulder widths, decreasing the median width,

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<sup>4</sup>Whitcraft, C.R. and L.A. Levin. 2007. Regulation of benthic algal and animal communities by salt marsh plants: Impact of shading. *Ecology* 88:904-917.

Alexander, C. 2012. *Field Assessment and Simulation of Shading from Alternative Dock Materials*. Final report to the NOAA Office of Ocean and Coastal Resource Management under grant award #NA08NOS4190461. 114 pages.

Alexander, C. and M. Robinson. 2006. *Quantifying the Ecological Significance of Marsh Shading: The Impact of Private Recreational Docks in Coastal Georgia*. Final report to the Coastal Resources Division, GADNR. 47 pages.

and by steepening side slopes of the roadway and bridge approaches, or a combination of these. The NMFS also recommends replacing the undersized culvert on the north end of the project with a bridge to avoid further adverse impacts to habitats and species and to restore ecological connectivity and habitat function to the surrounding area; bridging this tidal creek would also reduce the amount of permanent fill.

The NMFS also recommends SCDOT avoid construction practices that adversely impact habitats and species. The NMFS has documented the impacts to salt marsh vegetation from barge grounding and timber mats lasting longer than three years at numerous project sites in coastal SC. If barge grounding and timber mats are used in salt marsh, temporary and permanent impact forecasts should be adjusted. Floating work barges and low ground bearing pressure track equipment can be used in combination with temporary work trestles in salt marsh habitat in lieu of barge grounding and timber mats. The NMFS also recommends the SCDOT utilize methods to avoid and minimize turbidity, sedimentation, and acoustic impacts to EFH, federally managed species and their prey, and anadromous fishes and their habitat. To the maximum extent practicable, vibratory hammers and cast-in-place (drilled-shaft) piles should be used to install piles. If impact hammers are necessary, vibratory hammers should be used to first drive the pile as deep as possible. Additionally, sound attenuation methods should be used to reduce in-water noise levels generated by pile installation activities, including air bubble curtains, isolation casings, coffer dams, proprietary methods, or a combination of these. Some sound attenuation methods can also control turbidity and sedimentation, but silt curtains are also recommended for this purpose. Additionally, installing piles during periods of low tide, when sediments are exposed, will further minimize turbidity, sedimentation and acoustic impacts. Lastly, the SCDOT should conduct work affecting salt marsh habitats during periods of low biological use (October 15 to January 31), to the extent practicable, and restrict in-water work in the Back River to daylight hours from April 16 to August 31 of each year (i.e., no in-water work conducted between September 1 and April 15). Conducting work during these periods would minimize impacts to EFH, federally managed species and their prey, and anadromous fish species.

#### *Compensatory Mitigation*

For unavoidable impacts to EFH from the proposed project, SCDOT stated an EFH Mitigation Plan would be developed in coordination with the NMFS during the U.S. Army Corps of Engineers (USACE) Section 404 permitting process. The SCDOT stated potential mitigation options include purchasing credits from Clydesdale Mitigation Bank (CMB; SC) and Salt Creek Mitigation Bank (SCMB; GA) for estuarine impacts (approximately 348.36 credits) and Sweetleaf Swamp Mitigation Bank (SSMB; SC) for palustrine impacts (approximately 108.38 credits). The impact site (HUC 03060109) and CMB and SSMB sites are located in the same watersheds, while the SCMB site is located one watershed away (HUC 03060204); the sites share similar hydrological and biological characteristics. The NMFS has expressed numerous concerns with the service area, amount of functional lift, habitat value, and resource types provided by CMB from the conversion of fully functional freshwater wetlands to salt marsh habitat. However, due to the extremely close proximity of the project site and the bank, as well as the types of impacts, the NMFS does not object to using CMB in this specific instance. Furthermore, the NMFS does not object to SCDOT using SSMB to offset impacts to tidal freshwater wetlands. However, because SSMB does not provide tidal freshwater credits, SCDOT should recognize this is out-of-kind and adjust the mitigation calculations accordingly. Lastly, the NMFS recommends SCDOT adjust credit calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee-responsible mitigation as one component of a larger EFH Mitigation Plan. The NMFS will assist SCDOT by providing preliminary reviews of the mitigation plan during its development.

#### **EFH Conservation Recommendations**

Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH Conservation Recommendations for any federal action or permit which may result in adverse impacts to EFH. Therefore, NMFS recommends the following to ensure the conservation of EFH and associated fishery resources:

- The project design should further avoid and minimize impacts to EFH by reducing the amount of fill and shading in wetlands areas. Suggestions for how this might occur are provided above.
- The existing, undersized culvert on the north end of the project should be replaced with a bridge.
- In-water turbidity and sedimentation control methods and noise attenuation methods should be used to avoid and minimize impacts to EFH, federally managed fisheries and their prey, and anadromous fishes and their habitat from in-water work activities.
- The SCDOT should adjust mitigation calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee responsible mitigation.

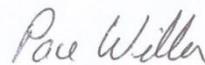
Section 305(b)(4)(B) of the Magnuson-Stevens Act and implementing regulation at 50 CFR Section 600.920(k) require the FHWA and SCDOT to provide a written response to this letter within 30 days of its receipt. If it is not possible to provide a substantive response within 30 days, an interim response should be provided to the NMFS. A detailed response then must be provided ten days prior to final approval of the action. The detailed response must include a description of measures proposed by the FHWA and SCDOT to avoid, mitigate, or offset the adverse impacts of the activity. If the response is inconsistent with an EFH conservation recommendation, a substantive discussion justifying the reasons for not following the recommendation must be provided.

In accordance with section 7 of the Endangered Species Act of 1973, as amended, it is the responsibility of the Federal Highway Administration to review and identify any proposed activity that may affect endangered or threatened species and their designated critical habitat. Determinations involving species under the NMFS jurisdiction should be reported to the NMFS Protected Resources Division at the letterhead address.

The NMFS also encourages the SCDOT to coordinate with the Savannah District, USACE regarding potential impacts from the proposed project. As a result of the Savannah Harbor Expansion Project, the Savannah District has numerous mitigation commitments in the area of the proposed project.

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  
FHWA, Jeffrey.Belcher@dot.gov  
SCDNR, DavisS@dnr.sc.gov  
EPA, Laycock.Kelly@epa.gov  
FWS, Karen\_Mcgee@fws.gov  
F/SER4, David.Dale@noaa.gov  
F/SER47, Keith.Hanson@noaa.gov

## Murphy, Gordon

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**From:** Long, Chad C. <LongCC@scdot.org>  
**Sent:** Monday, November 03, 2014 10:11 AM  
**To:** Murphy, Gordon  
**Subject:** FW: US 17 Back River Bridge information request  
**Attachments:** Information needed by NMFS for pile driving analyses.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

fyi

---

**From:** Frierson, Ed W  
**Sent:** Monday, November 03, 2014 10:11 AM  
**To:** Long, Chad C.  
**Subject:** FW: US 17 Back River Bridge information request

Chad,

I talked to the biologist from NOAA, David Rydene, and he said he needs more detailed description of the work to be done to build the bridge. Especially in water work, such as kind and size of piles, how they will be installed, (see attached document). He also said new research has determined that we will need to change the times that we stop in- water work. It will be in his response, but it looks like it will be the last two weeks in Dec., the first two weeks in Jan., all of April and May, and all of Aug. and Sept. Just send me the info and I will pass it on to Dr. Rydene.

Thanks,  
Ed

**From:** David Rydene - NOAA Federal [<mailto:david.rydene@noaa.gov>]  
**Sent:** Monday, November 03, 2014 9:41 AM  
**To:** Frierson, Ed W  
**Subject:** US 17 Back River Bridge information request

Hi Ed,

The attached document shows what types of pile driving information we need to do the ESA consultation.

Thanks, Dave

--

David Rydene, Ph.D.  
Fish Biologist  
National Marine Fisheries Service  
Habitat Conservation Division  
263 13th Avenue South  
St. Petersburg, FL 33701  
Office (727) 824-5379  
Cell (813) 992-5730  
Fax (727) 824-5300

## **Information needed by NMFS for Pile Driving Analyses**

Some basic information on the pile driving activity is required to conduct an effects analysis. The basic information required includes:

- the material composition of the piles (steel, concrete, wood, composite);
- the type of pile (e.g., sheet, H, tubular, square, etc.);
- the diameter of the piles;
- the number of piles driven;
- the number of hammer strikes per pile;
- the duration to drive a single pile;
- the number of piles driven per day;
- the time of year of the activity;
- the type of pile driving method (e.g., hydraulic, diesel, vibratory hammer);
- other pile driving methods (e.g., drilling, jetting);
- vessels required;
- the total duration of the project and the duration of the active pile driving portion;
- depth, bottom, type, and habitat characteristics; and
- a map of the project area.



South Carolina  
Department of Transportation

December 8, 2010

Mr. Robert Hoffman  
NOAA Fisheries  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701

RE: Biological Assessment and Avoidance of Construction Impacts to the Endangered Shortnose Sturgeon – Road Widening and Bridge Widening on US 17 in Jasper County, South Carolina, File No. 27.480, PIN 25999

Dear Mr. Hoffman:

This letter is intended to request informal consultation regarding potential impacts to the shortnose sturgeon (*Acipenser brevirostrum*) for the above referenced project. The project would involve widening the bridge over the Back River. Improvements also include widening of the roadway from Hutchinson Island (Chatham County, Georgia) to SC 170 in Jasper County, South Carolina. This project is a joint endeavor of the SC Department of Transportation (SCDOT) and the Georgia Department of Transportation (GDOT). GDOT has already received concurrence from your office in January, 2009 for their section of the project which includes replacing the bridge (see attached correspondence). SCDOT will only be widening the roadway leading up to the bridge and adding two lanes to the bridge.

Both Departments have agreed to implement a seasonal moratorium for all in water work between December 1 and April 30 and work will not impede more than 50 percent of the channel during the months of January through April. No special measures will be employed by SCDOT outside of this moratorium except for normal Best Management Practices.

As a result of implementing these measures, the project may affect, but is not likely to adversely affect, the endangered shortnose sturgeon. Please review the enclosed Biological Assessment at your earliest convenience and provide the Department with your comments on this finding.

Thank you for your assistance in this matter. If you have any questions regarding these measures, you may contact me at (803) 737-1861.

Sincerely,

Edward W. Frierson  
NEPA Coordinator/Biologist

EWf:ewf

Enclosures

cc: Mr. Chad Long, RPG-1 NEPA Coordinator (letter only)

File: Env/EWF





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701-5505  
727.824.5312, FAX 824.5309  
<http://sero.nmfs.noaa.gov>

APR 8 2011

F/SER31:JC

Mr. Edward Frierson  
NEPA Coordinator/Biologist  
South Carolina Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

Dear Mr. Frierson:

This letter responds to your December 8, 2010, letter regarding a proposed project by the South Carolina Department of Transportation (SCDOT) to widen the bridge over the Back River and widen the roadway from Hutchinson Island to SC 170. This project is a joint endeavor between SCDOT and the Georgia Department of Transportation (GDOT). GDOT previously received concurrence from NMFS on January 12, 2009, for the construction activities proposed to occur within Georgia, and now SCDOT seeks concurrence from NMFS for construction proposed for the South Carolina portion of road widening. NMFS requested additional information from SCDOT by phone on February 23, 2011, and a response was given the same day. You determined that the proposed activities may affect but are not likely to adversely affect shortnose sturgeon and requested concurrence from the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA). This consultation is being conducted with the South Carolina Department of Transportation (SCDOT) as the non-federal representative designated by the Federal Highway Administration, South Carolina Division (letter dated March 17, 2004), pursuant to 50 CFR 402.08. NMFS' determinations regarding the effects of the proposed action are based on the description of the action in this informal consultation. You are reminded that any changes to the proposed action may negate the findings of the present consultation and may require reinitiation of consultation with NMFS.

The project is located at 32.104878°N and 81.085967°W (North American Datum of 1983) on the Back River that runs between Georgia and South Carolina. GDOT proposes to construct a new bridge over the Back River and its adjacent wetlands and remove the existing bridge which is both structurally deficient and functionally obsolete. SCDOT's portion of the proposed work involves only the widening of the portion of roadway (US 17) from Hutchinson Island, Georgia (Chatham County), to SC 170 (Jasper County), and includes adding two travel lanes leading to the bridge itself that would tie into the existing four-lane typical section of SR 404 Spur/US 17 centerline. The project area for the SCDOT portion of the project includes approximately 7.5 miles of roadway beginning at the US Hwy 17/SC 170 interface south to the South Carolina state line shared with Georgia. The existing US Hwy 17 consists of two, 12-ft-wide travel lanes with 5-ft-wide earthen shoulders on either side. Wetlands vegetation within portions of the project area include: smooth cordgrass (*Spartina alterniflora*), big cordgrass (*Spartina cynosuroides*), and black needlerush (*Juncus roemerianus*). The impacts from the South Carolina portion of the



proposed actions will result from widening the soft shoulder portion of the causeway to accommodate the overall width necessary to construct an additional two lanes. The widening of US 17 will impact a total of approximately 79 acres of estuarine wetlands, according to a biological survey conducted by Jordon, Jones, and Goulding, Inc. during May and July of 2009. The widening of land to support the additional two lanes on US 17 will average approximately 86 sq ft of fill for each linear foot of distance, but will not be an equal square footage along the entire distance of approximately 7.5 miles. SCDOT Standard Specifications will be followed. Remnant materials will be removed in such a fashion as to minimize siltation. No cofferdams will be constructed and no dredging is anticipated. Total time for in-water construction is expected to be about 24 months.

The SCDOT will use standard Best Management Practices as prescribed in the Georgia Department of Transportation, State of Georgia, Standard Specifications Construction of Transportation Systems 2001 Edition available at <http://tomcat2.dot.state.ga.us/ContractsAdministration/uploads/DOT%202001.pdf>. Generally, these provisions provide conditions intended, at a minimum, to protect shortnose sturgeon and their habitat during construction activities in proximity to the species. A special provision for the protection of threatened and/or endangered species is being implemented by SCDOT for this project: No in-water work in the Back River will occur between December 1 and April 30 of any year. The in-water moratorium prohibits Georgia (GDOT) portions of the work including pile installation and removal, and activities associated with bridge construction or destruction (including lowering equipment and materials into the river, and blasting), but also precludes any in-water work associated with the SCDOT widening of US 17. Additionally, two rows of Type "C" silt fence will be required for all areas in which road widening occurs where there are wetlands and other waterways.

The only federally-listed species under NMFS jurisdiction that occurs in the area of this project is the endangered shortnose sturgeon (*Acipenser brevirostrum*). There is no NMFS-designated critical habitat in the project area. Shortnose sturgeon are known to inhabit the Back River and the adjacent Savannah River. The fish migrate seasonally between freshwater and mesohaline areas within the river based on water temperature and salinity cues. Foraging in mesohaline portions of the estuary, including the project area, typically occurs in the winter.<sup>1</sup> Hence, the road construction occurring May through November, will occur during a period when the fish are likely to be upstream of the project area. The project area is not currently known to support habitat for shortnose sturgeon spawning or foraging.

We have analyzed the proposed action and believe the only potential effects to shortnose sturgeon are to their foraging habitats: temporarily during construction and long-term from in-water structures. NMFS has determined this effect will be insignificant because: (1) Implementation of the in-water moratorium prohibiting construction/demolition coincides with the period when shortnose are most likely to be present in the project area; (2) implementation of best management practices will reduce or eliminate in-water effects to benthic prey. Based on the above, NMFS believes the project is not likely to adversely affect shortnose sturgeon.

This concludes your consultation responsibilities under the ESA for species under NMFS'

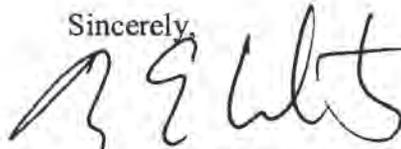
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<sup>1</sup> Hall, J.W., T.I.J. Smith, and S.D. Lamprecht. 1991. Movements and habitats of shortnose sturgeon, *Acipenser brevirostrum*, in the Savannah River. Copeia: 695-702.

purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identification action.

We have enclosed additional information on other statutory requirements that may apply to this action, and on NMFS' Public Consultation Tracking System to allow you to track the status of ESA consultations. If you have any questions, please contact Joseph Cavanaugh by e-mail at [Joseph.cavanaugh@noaa.gov](mailto:Joseph.cavanaugh@noaa.gov). Thank you for your continued cooperation in the conservation of listed species.

Sincerely,

A handwritten signature in black ink, appearing to read "Roy E. Crabtree". The signature is fluid and cursive, with a large initial "R" and "C".

Roy E. Crabtree, Ph.D.  
Regional Administrator

Enclosure

File: 1514-22.L.2

Ref: I/SER/2010/06374

## **PCTS Access and Additional Considerations for ESA Section 7 Consultations (Revised 7-15-2009)**

Public Consultation Tracking System (PCTS) Guidance: PCTS is an online query system at <https://pcts.nmfs.noaa.gov/> that allows federal agencies and U.S. Army Corps of Engineers' (COE) permit applicants and their consultants to ascertain the status of NMFS' Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultations, conducted pursuant to ESA section 7, and Magnuson-Stevens Fishery Conservation and Management Act's (MSA) sections 305(b)2 and 305(b)4, respectively. Federal agencies are required to enter an agency-specific username and password to query the Federal Agency Site. The COE "Permit Site" (no password needed) allows COE permit applicants and consultants to check on the current status of Clean Water Act section 404 permit actions for which NMFS has conducted, or is in the process of conducting, an ESA or EFH consultation with the COE.

For COE-permitted projects, click on "Enter Corps Permit Site." From the "Choose Agency Subdivision (Required)" list, pick the appropriate COE district. At "Enter Agency Permit Number" type in the COE district identifier, hyphen, year, hyphen, number. The COE is in the processing of converting its permit application database to PCTS-compatible "ORM." An example permit number is: SAJ-2005-000001234-IPS-1. For the Jacksonville District, which has already converted to ORM, permit application numbers should be entered as SAJ (hyphen), followed by 4-digit year (hyphen), followed by permit application numeric identifier with no preceding zeros. For example: SAJ-2005-123; SAJ-2005-1234; SAJ-2005-12345.

For inquiries regarding applications processed by COE districts that have not yet made the conversion to ORM (e.g., Mobile District), enter the 9-digit numeric identifier, or convert the existing COE-assigned application number to 9 numeric digits by deleting all letters, hyphens, and commas; converting the year to 4-digit format (e.g., -04 to 2004); and adding additional zeros in front of the numeric identifier to make a total of 9 numeric digits. For example: AL05-982-F converts to 200500982; MS05-04401-A converts to 200504401. PCTS questions should be directed to Eric Hawk at [Eric.Hawk@noaa.gov](mailto:Eric.Hawk@noaa.gov). Requests for username and password should be directed to [PCTS.Usersupport@noaa.gov](mailto:PCTS.Usersupport@noaa.gov).

EFH Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the MSA requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The ESA section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA section 101 (a)(5) is necessary. Please contact NMFS' Permits, Conservation, and Education Division at (301) 713-2322 for more information regarding MMPA permitting procedures.



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

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



December 6, 2010

Mr. Edward Frierson  
Environmental Project Manager  
S.C. Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

Re: Biological Assessment, Proposed US 17 Widening  
Chatham County, GA and Jasper County, SC  
FWS Log No. 42410-2011-I-0073

Dear Mr. Frierson:

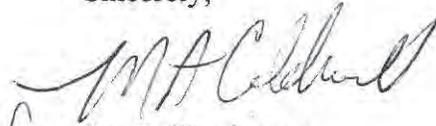
The U.S. Fish and Wildlife Service (Service) has received your October 19, 2010, Biological Assessment (BA) regarding the proposed widening of US 17. The project corridor is approximately 395 acres in size and consists of a 400' wide corridor centered on the existing US 17 roadway for a distance of 7.5 miles, extending to the south from SC 170 in Jasper County, SC, to Hutchinson Island in Chatham County, GA. The project corridor is primarily comprised of palustrine emergent, scrub-shrub, and forested wetlands, open water canals, and emergent estuarine wetlands, as well as planted pine stands, periodically maintained roadsides, mixed hardwood-pine forests, agricultural land, and commercial, institutional, and residential development. The southern-most portion of the project corridor is situated in Chatham County, GA, and includes the Back River and adjacent emergent estuarine wetlands.

The BA concludes that the proposed project may affect, but is not likely to adversely affect the red-cockaded woodpecker, wood stork, bald eagle, eastern indigo snake, and pondberry. The Service concurs with SCDOT's determination of not likely to adversely affect for the aforementioned species. Suitable habitat for the West Indian manatee is present in the project corridor and observations of the manatee have been documented near the southern-most portion of the project corridor. Due to the historical presence of the manatee in the area and the presence of suitable habitat, the SCDOT has determined the project may affect, but is not likely to adversely affect this species. Provided the SCDOT implements the Service's Manatee Construction Guidelines during bridge construction activities to reduce potential impacts, the Service concurs that the project is not likely to adversely affect the West Indian manatee.

Please note that obligations under section 7 of the Act 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.

If you have questions regarding the Service's position on this matter or need further assistance please contact Mr. Mark Leao at (843) 727-4707 ext. 228.

Sincerely,

  
for Jay B. Herrington  
Field Supervisor

JBH/MCL

RECEIVED SEP - 4 2007



## United States Department of the Interior

### Fish and Wildlife Service

105 West Park Drive, Suite D  
Athens, Georgia 30606

West Georgia Sub Office  
P.O. Box 52560  
Ft. Benning, Georgia 31995-2560

Coastal Sub Office  
4270 Norwich Street  
Brunswick, Georgia 31520

AUG 21 2007

Mr. Rodney N. Barry, P.E.  
Division Administrator  
Federal Highway Administration  
61 Forsyth Street, S.W., Suite 17T100  
Atlanta, Georgia 30303  
ATTN: Jennifer Giersch

Re: FWS #07-FA-1278

Dear Mr. Barry:

Thank you for your correspondence received June 4, 2007, initiating informal section 7 consultation for Georgia Department of Transportation (GDOT) project NH-009-2(93) (PI #522920) in Chatham County, Georgia and Jasper County, South Carolina. The Brunswick Ecological Services (ES) Coastal Sub Office is working in cooperation with the Charleston ES Office. Our office will retain the lead on this consultation and will serve as the contact point for future correspondence.

The proposed project would replace a structurally deficient bridge on SR404/US17 over the Back River and reconstruct the bridge approaches. The existing bridge connects Hutchinson Island with South Carolina. Two deceleration lanes would be added to the existing roadway. One deceleration lane will allow traffic to exit onto Hutchinson Island. The second deceleration lane would allow access to an unnamed access road north of the bridge in South Carolina. The current right-of-way varies in width from 200 to 300 feet and the proposed right-of-way would be 200 feet, so no additional right-of-way is necessary. The total length of the proposed project is approximately 4520 feet (0.86 mile). The proposed project is located in the Lower Savannah River basin, Hydrologic Unit Code (HUC) 03060109.

These comments are provided in accordance with provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA) and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*) (FWCA) to further the conservation of fish and wildlife resources and their habitat, including federally listed threatened and endangered species.

The Charleston ES office recommends the old bridge structure be reused to supplement artificial reefs and improve the fish habitat along South Carolina's coast. Recycling the structure for use as artificial reef material not only saves landfill space but may also reduce the overall cost of the project. We recommend that GDOT and the bridge contractor contact Mr. Robert Martore, Office of Fisheries Management, South Carolina Department of Natural Resources, at (843) 953-9303 for further information on South Carolina's artificial reef program.

We recommend that GDOT seek onsite mitigation opportunities. If no onsite mitigation opportunities exist we request that all salt marsh impacts be mitigated by restoration of salt marsh. There is a shortage of salt marsh mitigation credits available and we do not believe that freshwater mitigation credits are an equal substitution for salt marsh impacts.

We also recommend you consider impacts to state listed species as well as those protected by the ESA. Enclosed you will find the most recent list of state species for Jasper County, South Carolina. You may find the most recent documentation of state listed species in Georgia by visiting the Georgia Department of Natural Resources Nongame Conservation Service website at [www.georgiawildlife.com/content/specieslocationbycounty.asp?1stCounty=Chatham](http://www.georgiawildlife.com/content/specieslocationbycounty.asp?1stCounty=Chatham).

The field survey of the project corridor identified the presence or potential presence of two species listed under the ESA. Potentially suitable wood stork (*Mycteria americana*) and West Indian manatee (*Trichechus manatus*) habitat was identified in and around the proposed project work area. The proposed project lies within the forage range of several wood stork rookeries. The two closest rookeries are approximately 21 miles to the south in Bryan and Liberty Counties.

Special Provision 107.23G, "Protection of Federally Threatened and/or Endangered Species", has been included in the project proposal for the protection of wood storks and West Indian manatees. This special provision requires construction activity to stop upon sighting of a wood stork and to only resume construction when all wood storks are out of the project area for a minimum of 30 minutes. Requirements contained in the special provision for the protection of manatees include the following: manatee caution signs to be installed in the project area, all vessels are to operate at idle speed, trained spotters will be present during certain phases of construction, personnel will be required to look out for manatees at all times, propeller guards will be installed on vessels, and that all construction/demolition activities will cease upon sighting of a manatee within 100 yards of the project area and will not resume until the manatee is out of the area for a minimum of 30 minutes.

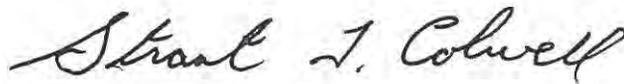
The field survey also indicated the potential presence of the bald eagle (*Haliaeetus leucocephalus*). USFWS removed the bald eagle as threatened under the ESA on August 8, 2007, and published the May 2007, National Bald Eagle Management Guidelines (Eagle Guidelines) to assist the public in understanding protections afforded to and prohibitions related to the bald eagle under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) (Eagle Act), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Lacey Act (16 U.S.C. 3371-3378). The Eagle Act prohibits anyone, without a permit issued by the Secretary of the Interior,

from "taking" bald eagles, including their parts, nests, or eggs. The Eagle Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The nearest two known active bald eagle nests occur approximately 8 miles to the southeast and 9 miles southwest. Based on the Eagle Guidelines the proposed project should not impact the bald eagle.

Based on the information provided, we concur with your determination of "not likely to adversely affect" the wood stork and the West Indian manatee. The requirements of section 7 of the ESA have been satisfied and no further consultation is required. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect 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 determined that may be affected by the identified action.

We appreciate the opportunity to comment during the planning stages of your project. If you have any additional questions, please write or call Ben Dickerson of my staff at (912) 265-9336.

Sincerely,



Sandra S. Tucker *for*  
Field Supervisor

Attachment

cc:

GDOT, Atlanta, Georgia (Harvey Keepler) w/attachment

USACE, Savannah, Georgia (Mike Ruth)

USFWS, Charleston, South Carolina (Mark Caldwell)

USFWS, Brunswick, Georgia (Ben Dickerson)



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407

December 1, 2009

Mr. Edward Frierson  
Environmental Project Manager  
S.C. Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

Re: Biological Assessment, US-17 Widening, Chatham County, GA and Jasper County, SC,  
FWS Log No. 42410-2010-I-0075

Dear Mr. Frierson:

The U.S. Fish and Wildlife Service (Service) has received the Biological Assessment (BA) regarding the proposed improvement US Hwy 17 in Jasper County and the Back River bridge in Chatham County, GA. The described project entails widening Hwy 17 from two lanes to four lanes separated by a median. The project is 7.5 miles in length beginning at the US Hwy 17/SC 170 interface south to the South Carolina state line shared with Georgia. The project corridor is 400 feet in width covering approximately 395 acres of fresh and salt water wetlands.

This BA includes a review of each of the threatened and endangered (T&E) species that are known to occur, or may occur, within the project area. This review was performed in order to facilitate consultation with the Service as required by the Endangered Species Act of 1973 (Act), as amended. The BA concluded that no potential habitat was found in the project corridor for several species; piping plover, [frosted] flatwoods salamander, American chaffseed, Canby's dropwort and seaturtles. Therefore, SCDOT concluded the project would have no effect on these species. At this time, no further consultation is required. Potential habitat does exist for the West Indian manatee, red-cockaded woodpecker, shortnose sturgeon, wood stork, eastern indigo snake and the pondberry.

The Service recommends SCDOT contact the National Oceanographic and Atmospheric Administration regarding consultation requirements and determinations regarding the shortnose sturgeon. As the proposed bridge is located primarily in Georgia waters and pursuant to the Service's August 21, 2007, correspondence (copy enclosed) the Service's Ecological Services Coastal Sub Office located in Brunswick, GA serves as the lead office for species consultations.

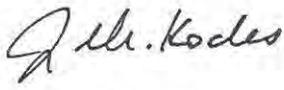
**TAKE PRIDE<sup>®</sup>  
IN AMERICA** 

We recommend SCDOT contact the Brunswick Sub Office to address potential impacts and section 7 requirements regarding the West Indian manatee. SCDOT determined that although potential habitat was found in the project area for the remaining species, no individuals were observed during survey efforts.

Upon review of the information provided, the Service concurs with the SCDOT determination that the US Hwy 17 widening project may affect, but is not likely to adversely affect the pondberry, red-cockaded woodpecker, American chaffseed or the woodstork. Please note that obligations under section 7 of the Act 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.

If you have any questions regarding the Service's determination, please do not hesitate to contact Mark Caldwell at (843) 727-4707 ext. 215.

Sincerely,

  
for Timothy N. Hall  
Field Supervisor

TNH/MAC/km

Enclosure

cc: Mr. Ben Dickerson, USFWS, Brunswick, GA



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701  
(727) 824-5312, FAX 824-5309  
<http://sero.nmfs.noaa.gov>

JAN 12 2009

F/SER31:SKB

Mr. Harold E. Linnenkohl  
Department of Transportation  
State of Georgia  
#2 Capitol Square, SW  
Atlanta, Georgia. 30334-1002

Dear Mr. Linnenkohl:

This is in response to your letter, received by the National Marine Fisheries Service (NMFS) on October 16, 2007, regarding construction of a new crossing over the Back River in Chatham County, Georgia. Additional information was requested via e-mail on March 11, 2008, and received August 13, 2008. You determined that the proposed action may affect, but is not likely to adversely affect, shortnose sturgeon and requested our concurrence pursuant to section 7 of the Endangered Species Act of 1973 (ESA). This consultation is being conducted with the Georgia Department of Transportation (GDOT) as the non-federal representative designated by the Federal Highway Administration, Georgia Division (letter dated March 17, 2004), pursuant to 50 CFR 402.08. NMFS' determinations regarding the effects of the proposed action are based on the description of the action in this informal consultation. You are reminded that any changes to the proposed action may negate the finding of the present consultation and may require reinitiation of consultation with NMFS.

GDOT proposes to construct a new bridge over the Back River (32.1119°N; 81.1150°W) and its adjacent wetlands and remove the existing bridge. Up to 48 bents with pre-stressed concrete piles will be installed via jetting or pile driving: 7 bents will be constructed with nine 24" square piles; 4 bents with eight 24" square piles, and 35 bents with six 24" square piles. Each bent will be capped and concrete poured within the cap to provide structural continuity and a stable base for the beams. Beams will be moved and set via a barge-mounted crane.

A temporary work bridge may be constructed. While there are numerous alternatives for work-bridge construction and removal, normal activities include: driving of piles, installation of wooden deck materials, and mechanical removal of support piles by either cutting them off at the substrate or pulling up via cranes. Further, materials or debris are not permitted to enter the water at any time, or remain on the benthos following construction. The applicant specifies that the GDOT Standard Specifications will be followed: remnant materials will be removed in such a fashion as to minimize siltation. No cofferdams will be constructed; no dredging is anticipated. Width of the river at the project location is approximately 3255 feet. Total time for in-water construction is expected to be about 24 months.



Demolition of the existing structure may require the use of explosives. Sections that can be removed will be lifted off and offloaded with trucks and barge-mounted cranes. Materials will not be permitted to enter the water at any time, or remain on the benthos following demolition. The applicant specifies that the GDOT will use standard Best Management Practices as prescribed in the Georgia Department of Transportation, State of Georgia, Standard Specifications Construction of Transportation Systems 2001 Edition available at <http://tomcat2.dot.state.ga.us/thesource/pdf/spec/ss540.html> with additions to section 107 included in the application as Appendix C. Generally, these provisions provide conditions intended as a minimum to protect shortnose sturgeon and their habitat during construction activities in proximity to the species.

A special provision for the protection of threatened and/or endangered species is being implemented by GDOT for this project: No in-water work in the Back River will occur between December 1 and April 30 of any year. The in-water moratorium prohibits pile installation and removal, and activities associated with bridge construction or destruction (including lowering equipment and materials into the river, and blasting). Further, two rows of Type "C" silt fence will be required for all areas in which there are wetlands and other waterways.

The only federally-listed species under NMFS jurisdiction that occurs in the area of this project is the endangered shortnose sturgeon (*Acipenser brevirostrum*). There is no NMFS-designated critical habitat in the project area. Shortnose sturgeon are known to inhabit the Back River and the adjacent Savannah River. The fish migrate seasonally between freshwater and mesohaline areas within the river based on water temperature and salinity cues. Spring (upstream) spawning migrations are likely triggered by water temperatures above 8°C;<sup>1</sup> from the late winter/early spring (southern rivers) to mid-to-late spring (northern rivers), specifically occurring in the Savannah River during February and March.<sup>2</sup> Subsequent downstream migration post-spawning is rapid and direct. Hence, the bridge construction/demolition, occurring May through November, will occur during a period when the fish are known to be downstream. The project area is not currently known to support habitat for shortnose sturgeon spawning or foraging.

We have analyzed the proposed action and believe the only potential effects to shortnose sturgeon is to migration: temporarily during construction and long-term from in-water structures. NMFS has determined this effect will be insignificant because: (1) Implementation of the in-water moratorium prohibiting construction/destruction coincides with the period when shortnose are most likely to be present in the project area; (2) it is highly unlikely that shortnose sturgeon will be present within the project site when in-water construction activities are occurring, given water temperatures and the proposed seasonal moratorium on in-water work; and (3) the completed bridge will not impede shortnose sturgeon passage. Based on the above, NMFS believes the project is not likely to adversely affect shortnose sturgeon.

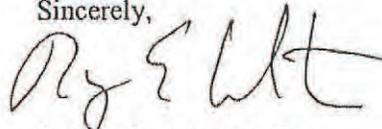
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<sup>1</sup> Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J. Buckley. 1984. Synopsis of biological data on shortnose sturgeon, *Acipenser brevirostrum*. LeSuer 1818. NOAA Technical Report NMFS 14.

<sup>2</sup> Hall, J.W., T.L.J. Smith, and S.D. Lampract. 1991. Movements and habitats of shortnose sturgeon, *Acipenser brevirostrum*, in the Savannah River. *Copeia*: 695-702.

This concludes your consultation responsibilities under the ESA for species under NMFS' purview. A new consultation must be initiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. We enclose information on other statutory requirements that may apply to this action and NMFS' Public Consultation Tracking System that allows you to track the status of ESA consultations. We look forward to continued cooperation with GDOT in conserving our endangered and threatened resources. If you have any questions, please contact Dr. Stephania Bolden at (727) 824-5312 or by e-mail at [stephania.bolden@noaa.gov](mailto:stephania.bolden@noaa.gov).

Sincerely,



Roy E. Crabtree, Ph.D.  
Regional Administrator

Enclosure

cc: Kay Davy (F/SER47)

File: 1514-22.L.4.GA

Ref: I/SER/2008/07560

O:\SECTION7\INFORMAL\Transportation\GADOT\07560 Back River.doc

**PCTS Access and Additional Considerations for ESA Section 7 Consultations**  
**(Revised 5-13-2008)**

Public Consultation Tracking System (PCTS) Guidance: PCTS is an online query system at <https://pcts.nmfs.noaa.gov/> that allows federal agencies and U.S. Army Corps of Engineers' (COE) permit applicants and their consultants to ascertain the status of NMFS' Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultations, conducted pursuant to ESA section 7, and Magnuson-Stevens Fishery Conservation and Management Act's (MSA) sections 305(b)2 and 305(b)4, respectively. Federal agencies are required to enter an agency-specific username and password to query the Federal Agency Site. The COE "Permit Site" (no password needed) allows COE permit applicants and consultants to check on the current status of Clean Water Act section 404 permit actions for which NMFS has conducted, or is in the process of conducting, an ESA or EFH consultation with the COE.

For COE-permitted projects, click on "Enter Corps Permit Site." From the "Choose Agency Subdivision (Required)" list, pick the appropriate COE district. At "Enter Agency Permit Number" type in the COE district identifier, hyphen, year, hyphen, number. The COE is in the processing of converting its permit application database to PCTS-compatible "ORM." An example permit number is: SAJ-2005-000001234-IPS-1. For the Jacksonville District, which has already converted to ORM, permit application numbers should be entered as SAJ (hyphen), followed by 4-digit year (hyphen), followed by permit application numeric identifier with no preceding zeros. For example: SAJ-2005-123; SAJ-2005-1234; SAJ-2005-12345.

For inquiries regarding applications processed by COE districts that have not yet made the conversion to ORM (e.g., Mobile District), enter the 9-digit numeric identifier, or convert the existing COE-assigned application number to 9 numeric digits by deleting all letters, hyphens, and commas; converting the year to 4-digit format (e.g., -04 to 2004); and adding additional zeros in front of the numeric identifier to make a total of 9 numeric digits. For example: AL05-982-F converts to 200500982; MS05-04401-A converts to 200504401. PCTS questions should be directed to Eric Hawk at [Eric.Hawk@noaa.gov](mailto:Eric.Hawk@noaa.gov). Requests for username and password should be directed to [PCTS.Usersupport@noaa.gov](mailto:PCTS.Usersupport@noaa.gov).

EFH Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the MSA requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The ESA section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA section 101 (a)(5) is necessary. Contact Ken Hollingshead of our NMFS Headquarters' Protected Resources staff at (301) 713-2323 for more information on MMPA permitting procedures.



## United States Department of the Interior

### Fish and Wildlife Service

105 West Park Drive, Suite D  
Athens, Georgia 30606

West Georgia Sub Office  
P.O. Box 52560  
Ft. Benning, Georgia 31995-2560

Coastal Sub Office  
4270 Norwich Street  
Brunswick, Georgia 31520

AUG 21 2007

Mr. Rodney N. Barry, P.E.  
Division Administrator  
Federal Highway Administration  
61 Forsyth Street, S.W., Suite 17T100  
Atlanta, Georgia 30303  
ATTN: Jennifer Giersch

**FILE**

Re: FWS #07-FA-1278

Dear Mr. Barry:

Thank you for your correspondence received June 4, 2007, initiating informal section 7 consultation for Georgia Department of Transportation (GDOT) project NH-009-2(93) (PI #522920) in Chatham County, Georgia and Jasper County, South Carolina. The Brunswick Ecological Services (ES) Coastal Sub Office is working in cooperation with the Charleston ES Office. Our office will retain the lead on this consultation and will serve as the contact point for future correspondence.

The proposed project would replace a structurally deficient bridge on SR404/US17 over the Back River and reconstruct the bridge approaches. The existing bridge connects Hutchinson Island with South Carolina. Two deceleration lanes would be added to the existing roadway. One deceleration lane will allow traffic to exit onto Hutchinson Island. The second deceleration lane would allow access to an unnamed access road north of the bridge in South Carolina. The current right-of-way varies in width from 200 to 300 feet and the proposed right-of-way would be 200 feet, so no additional right-of-way is necessary. The total length of the proposed project is approximately 4520 feet (0.86 mile). The proposed project is located in the Lower Savannah River basin, Hydrologic Unit Code (HUC) 03060109.

These comments are provided in accordance with provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA) and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*) (FWCA) to further the conservation of fish and wildlife resources and their habitat, including federally listed threatened and endangered species.

The Charleston ES office recommends the old bridge structure be reused to supplement artificial reefs and improve the fish habitat along South Carolina's coast. Recycling the structure for use as artificial reef material not only saves landfill space but may also reduce the overall cost of the project. We recommend that GDOT and the bridge contractor contact Mr. Robert Martore, Office of Fisheries Management, South Carolina Department of Natural Resources, at (843) 953-9303 for further information on South Carolina's artificial reef program.

We recommend that GDOT seek onsite mitigation opportunities. If no onsite mitigation opportunities exist we request that all salt marsh impacts be mitigated by restoration of salt marsh. There is a shortage of salt marsh mitigation credits available and we do not believe that freshwater mitigation credits are an equal substitution for salt marsh impacts.

We also recommend you consider impacts to state listed species as well as those protected by the ESA. Enclosed you will find the most recent list of state species for Jasper County, South Carolina. You may find the most recent documentation of state listed species in Georgia by visiting the Georgia Department of Natural Resources Nongame Conservation Service website at [www.georgiawildlife.com/content/specieslocationbycounty.asp?1stCounty=Chatham](http://www.georgiawildlife.com/content/specieslocationbycounty.asp?1stCounty=Chatham).

The field survey of the project corridor identified the presence or potential presence of two species listed under the ESA. Potentially suitable wood stork (*Mycteria americana*) and West Indian manatee (*Trichechus manatus*) habitat was identified in and around the proposed project work area. The proposed project lies within the forage range of several wood stork rookeries. The two closest rookeries are approximately 21 miles to the south in Bryan and Liberty Counties.

Special Provision 107.23G, "Protection of Federally Threatened and/or Endangered Species", has been included in the project proposal for the protection of wood storks and West Indian manatees. This special provision requires construction activity to stop upon sighting of a wood stork and to only resume construction when all wood storks are out of the project area for a minimum of 30 minutes. Requirements contained in the special provision for the protection of manatees include the following: manatee caution signs to be installed in the project area, all vessels are to operate at idle speed, trained spotters will be present during certain phases of construction, personnel will be required to look out for manatees at all times, propeller guards will be installed on vessels, and that all construction/demolition activities will cease upon sighting of a manatee within 100 yards of the project area and will not resume until the manatee is out of the area for a minimum of 30 minutes.

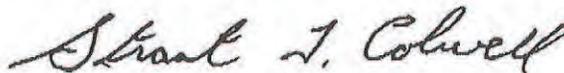
The field survey also indicated the potential presence of the bald eagle (*Haliaeetus leucocephalus*). USFWS removed the bald eagle as threatened under the ESA on August 8, 2007, and published the May 2007, National Bald Eagle Management Guidelines (Eagle Guidelines) to assist the public in understanding protections afforded to and prohibitions related to the bald eagle under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) (Eagle Act), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Lacey Act (16 U.S.C. 3371-3378). The Eagle Act prohibits anyone, without a permit issued by the Secretary of the Interior,

from "taking" bald eagles, including their parts, nests, or eggs. The Eagle Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The nearest two known active bald eagle nests occur approximately 8 miles to the southeast and 9 miles southwest. Based on the Eagle Guidelines the proposed project should not impact the bald eagle.

Based on the information provided, we concur with your determination of "not likely to adversely affect" the wood stork and the West Indian manatee. The requirements of section 7 of the ESA have been satisfied and no further consultation is required. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect 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 determined that may be affected by the identified action.

We appreciate the opportunity to comment during the planning stages of your project. If you have any additional questions, please write or call Ben Dickerson of my staff at (912) 265-9336.

Sincerely,



Sandra S. Tucker *for*  
Field Supervisor

Attachment

cc:

GDOT, Atlanta, Georgia (Harvey Keepler) w/attachment  
USACE, Savannah, Georgia (Mike Ruth)  
USFWS, Charleston, South Carolina (Mark Caldwell)  
USFWS, Brunswick, Georgia (Ben Dickerson)



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701-5511  
(727) 824-5317; FAX (727) 824-5300  
<http://sero.nmfs.noaa.gov/>

January 25, 2008

F/SER47:KD/pw

Mr. Glenn Bowman  
State Environment/Location Engineer  
Department of Transportation  
State of Georgia  
#2 Capitol Square, S.W.  
Atlanta, Georgia 30334-1002

Attention: Lisa Westberry

Dear Mr. Bowman:

NOAA's National Marine Fisheries Service (NMFS) reviewed the additional information dated December 28, 2007, concerning replacement of the SR 404 Spur/ US 17 bridge over the Back River in Chatham County, Georgia, project number NH-009-2(93). The Georgia Department of Transportation (GDOT) proposes to replace the existing 3200-foot bridge connecting Georgia and South Carolina because the bridge has an inadequate load rating. The supplemental information provided largely incorporates or otherwise addresses the recommendations NMFS made on July 2, 2007, to support the habitat goals of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Act as they apply to this project.

In summary, to conduct a thorough review of the project NMFS requested additional information to address three issues: (1) provide a detailed description of the procedures for construction and demolition of the bridges, (2) provide a plan that describes how best management practices, such as rapid reestablishment of vegetation in the tidal marsh areas, will be used to limit impacts to water quality, EFH, and fishery species, (3) provide a detailed mitigation plan that describes the habitats within the mitigation banks and justifies the number of credits that will be purchased/debited, any use of out-of-kind mitigation, and the need for off-site mitigation.

In response to our requests, a more detailed description of the procedures to be used to construct the bridge was provided, however, the exact method of removing the existing bridge will be determined by the contractor. According to the information provided, it is generally thought that the existing bridge will be removed in sections that can be lifted and off-loaded with the majority of the material removed by cranes operating from barges. Any dropped material will be removed. To address our concerns associated with construction activities in and adjacent to tidal marsh areas, the project will use standard best management practices (BMPs) as described in the *GDOT, State of Georgia Standard Specifications Construction of Transportation Systems 2001 Edition*. BMP activities will include installation of two rows of Type "C" silt fence, which is required in areas with wetlands and waterways. The contractor may

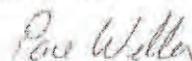


propose other methods of erosion and silt control, but these must be approved by GDOT and cannot be less stringent than GDOT's specifications. GDOT also committed to reestablishing vegetation in the temporary construction areas. To further minimize impacts to EFH, other measures include designating the areas beyond the impacted area as "Environmentally Sensitive Areas" where all construction activities are prohibited. This would include: staging, disposal of material and other types of activities. In addition, as a part of the consultation required by the Endangered Species Act, GDOT agreed to limit in-water construction so that it will not occur from December 1 through April 30. Additional updated information states that the actual amount of wetland impact would total 0.845 acres and not 1.28 acres. To address compensatory mitigation for wetland impacts in Georgia, GDOT may use the proposed Wormsloe Plantation Saltmarsh Mitigation Bank in Chatham County. Compensatory mitigation for impacts in South Carolina have not yet been determined, but a proposal made by a South Carolina resource agency recommended that the old bridge structure be used to supplement offshore artificial reefs and improve fish habitat off the South Carolina coast. NMFS supports this proposal and recommends that GDOT include it as part of the mitigation plan.

After evaluation of the additional information provided, we are able to complete the EFH consultation. With incorporation of the measures summarized above, we conclude the project is unlikely to adversely affect EFH or federally managed fishery species, and we do not anticipate offering EFH conservation recommendations during the permitting process required by the Clean Water Act.

We appreciate the opportunity to provide these comments. Please direct related questions or comments to the attention of Ms. Kay Davy at our Charleston Office. She may be reached by telephone at (843) 953-7202 or by e-mail at [Kay.Davy@noaa.gov](mailto:Kay.Davy@noaa.gov).

Sincerely,



/ for

Miles M. Croom  
Assistant Regional Administrator  
Habitat Conservation Division

cc: (via electronic mail)

FHWA, Jennifer Giersch  
COE, Mike Ruth  
GADNR, Atlanta  
EPA, Atlanta  
FWS, Brunswick  
F/SER3  
F/SER4, Dale  
F/SER47, Davy

### **9.3) Appendix C – Photographic Log**

# PHOTOGRAPHIC LOG



Photograph 1. Estuarine emergent wetlands interspersed with non-vegetated flats next to the previous US 17 bridge.



Photograph 2. Estuarine emergent wetlands adjacent to the existing US 17 roadway.



Photograph 3. Tidal creek/open water canal that connects under US 17 approximately 0.5 mile south of Telfair Plantation Drive.



Photograph 4. Previous bridge over the Back River and location of the proposed bridge.

## PHOTOGRAPHIC LOG



Photograph 5. Wooded swamp community.



Photograph 6. Freshwater emergent wetland community.



**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

<http://sero.nmfs.noaa.gov>

January 13, 2017

F/SER47:KH/pw

(Sent via Electronic Mail)

Mr. Chad Long  
Archaeologist/NEPA Coordinator  
S.C. Dept. Of Transportation, P.O. Box 191  
Columbia, South Carolina 29201

J. Shane Belcher  
Environmental Coordinator  
Federal Highway Administration  
1835 Assembly Street, Suite 1270  
Columbia, South Carolina 29201

Attention: Nicole Riddle

Dear Mr. Long and Mr. Belcher:

NOAA's National Marine Fisheries Service (NMFS) reviewed the letter dated, December 19, 2016, from the South Carolina Department of Transportation (SCDOT) and Federal Highway Administration (FHWA) responding to essential fish habitat (EFH) conservation recommendations the NMFS provided for the proposed U.S. Highway (US) 17 widening and bridge over the Back River<sup>1</sup>. By letter dated December 1, 2016, the NMFS provided four conservation recommendations to protect EFH:

1. The project design should further avoid and minimize impacts to EFH by reducing the amount of fill and shading in wetlands areas.
2. The existing, undersized culvert on the north end of the project should be replaced with a bridge.
3. In-water turbidity and sedimentation control methods and noise attenuation methods should be used to avoid and minimize impacts to EFH, federally managed fisheries and their prey, and anadromous fishes and their habitat from in-water work activities.
4. The SCDOT should adjust mitigation calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee responsible mitigation.

The SCDOT has agreed to implement recommendation 3 and 4, and has agreed to replace the existing, undersized culvert on the north end of the project (recommendation 2). Specifically, the selected contractor will be required to minimize potential stormwater impacts through implementation of construction stormwater best management practices (BMPs), reflecting policies contained in the National Pollutant Discharge Elimination System (NPDES), 23 CFR 650 B and SCDOT's Supplemental Specifications on Seed and Erosion Control Measures (latest edition). The design and implementation of these BMPs will be evaluated by the South Carolina

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<sup>1</sup> SCDOT Project ID: P025999: Located in Jasper County, SC and Chatham County, GA



Department of Health and Environmental Control to meet the NPDES permit requirements, and these requirements will include the use of turbidity curtains where practicable. Additionally, between October 1 and April 15, SCDOT will require the contractor to implement a noise reduction technique for all pile-driving activities, which will be submitted to the SCDOT Environmental Services Office for review prior to implementation. Furthermore, the SCDOT will account for additional shading impacts that the bridge may cause from being in close proximity to the existing bridge during final design. The SCDOT will use these updated calculations when determining the wetland credits needed for mitigation.

The SCDOT also agrees to replace the existing, undersized culvert on the north end of the project. Due to the cost of constructing a bridge at this location, SCDOT plans to replace the existing culvert with two twin-box culverts. The exact size and dimensions will be determined in final design. While the proposed culverts are less damaging to the environment than those currently in place, the NMFS continues to prefer a bridge at this location to reduce impacts to EFH, federally managed species, and their prey. Bridges typically require less fill and channel alteration, lead to less bank and bed instability, and maintain greater ecological connectivity and organism passage than culverts. The NMFS recommends SCDOT select a culvert design that promotes ecological connectivity, aquatic organism passage, and normative physical processes. Various publications from the FHWA and NMFS detail these principles and design elements<sup>2</sup>. The NMFS also encourages the SCDOT to coordinate with the USACE Savannah District regarding culvert design and installation/construction.

Regarding recommendation 1, SCDOT's response focuses on constructability issues and design standards. The SCDOT selected the proposed alignment due to the need to maintain traffic throughout the project, avoid additional wetlands impacts of approximately eight acres, safely stage construction, and accommodate drainage during construction. Additionally, the shift in alignment had to be a certain distance away from the existing roadway in order to perform necessary geotechnical ground modifications in order to construct the new two-lane section, without influencing the existing roadway. Furthermore, the 36-foot median is the narrowest median possible to maintain a safe rural connector and the outside shoulder widths will accommodate bike lanes. The NMFS understands safety, functionality, and maintenance of traffic issues, and understands preliminary design impacts outlined in the draft Environmental Assessment represent a "worst case scenario." However, further avoidance and minimization measures appear practicable. The NMFS recommends SCDOT further avoid and minimize impacts to EFH by reducing fill and/or shading during refinement of the final design. Suggestions for how this might occur include decreasing inside roadway shoulder widths (where bike lanes are not planned), steepening side slopes of the roadway and bridge approaches, reducing approach fills for the bridge over the Back River, using mechanically stabilized earth (MSE) walls, utilizing deep-depth guardrails, or a combination of these.

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<sup>2</sup> Culvert design for aquatic organism passage. FHWA. 2010.

[https://www.fhwa.dot.gov/engineering/hydraulics/library\\_arc.cfm?pub\\_number=204&id=145](https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=204&id=145)

Hydraulic design of highway culverts, Third Edition. FHWA. 2012.

[https://www.fhwa.dot.gov/engineering/hydraulics/library\\_arc.cfm?pub\\_number=7&id=13](https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=7&id=13)

Anadromous salmonid passage facility design. NMFS, 2011; Guidelines for salmonid passage at stream crossings. NMFS, 2001.

<http://www.westcoast.fisheries.noaa.gov/publications/>

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  
FHWA, Jeffrey.Belcher@dot.gov  
SCDNR, DavisS@dnr.sc.gov  
EPA, Laycock.Kelly@epa.gov  
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South Carolina  
Department of Transportation

December 19, 2016

Virginia Fay  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service, Habitat Conservation Division  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701-5505

Re: US 17 Widening and Bridge Replacement over Back River in Jasper County, SC and Chatham County, GA: PIN 39168RD01; Response to NOAA-NMFS letter regarding conservation recommendations for EFH

Attention: Keith Hanson

Dear Virginia Fay:

The South Carolina Department of Transportation (SCDOT) in coordination with the Federal Highway Administration (FHWA) is issuing this joint response to your December 1, 2016 letter which included EFH Conservation Recommendations for the proposed US 17 Widening and Bridge Replacement over Back River in Jasper County, SC and Chatham County, GA.

In response to your recommendation: *“The NMFS recommends reducing the amount of permanent fill associated with the proposed project by using a combination of east and west widening (asymmetrical widening) that would concentrate impacts in existing upland areas and avoid impacts to wetlands. Additionally, the NMFS recommends further reducing the amount of permanent impacts by reducing the bridge width, decreasing inside and/or outside roadway shoulder widths, decreasing the median width, and by steepening side slopes of the roadway and bridge approaches, or a combination of these.”*

The original design for the widening project had the widening centered in the R/W corridor but problems were encountered with staging construction and accommodating drainage during construction. The road design group and traffic engineering worked together to improve constructability and determined a 16' shift would provide the ability to maintain traffic while still staging construction and reducing the impacts to adjacent wetlands. A 16' shift right was considered but the impacts to the wetlands were approximately 8 acres higher than doing a 16' shift to the left. Also as part of the project is the geotechnical ground modifications and the shift in alignment had to be far enough away from the existing roadway to construction the new 2 lane section ground improvements without influencing the existing roadway. The widening to each side creates a constructability issue and with the presence of wetlands on each side of the roadway is minimized to the greatest extent possible with the current alignment. Additionally, the 36' median is the narrowest median possible to maintain a safe rural connector condition. The safety concerns with reducing the median further are far too great for it to be a plausible alternative. The outside shoulder widths cannot be reduced due to the presence of the stripped bike lanes.



In response to your recommendation: *“The NMFS also recommends replacing the undersized culvert on the north end of the project with a bridge to avoid further adverse impacts to habitats and species and to restore ecological connectivity and habitat function to the surrounding area; bridging this tidal creek would also reduce the amount of permanent fill.”*

SCDOT has plans to replace the existing culvert with two ‘twin’ box culverts. The exact size and dimensions will be determined in final design. Constructing a bridge at this location is too costly.

In response to your recommendation: *“The SCDOT should include In-water turbidity and sedimentation control methods and noise attenuation methods should be used to avoid and minimize impacts to EFH, federally managed fisheries and their prey, and anadromous fishes and their habitat from in-water work activities.”*

Stormwater control measures, both during construction and post-construction, are required for SCDOT projects with land disturbance. The selected contractor would be required to minimize potential stormwater impacts through implementation of construction best management practices (BMP’s), reflecting policies contained in the NPDES, 23 CFR 650 B and SCDOT’s Supplemental Specifications on Seed and Erosion Control Measures (latest edition). The design and implementation of these BMP’s will be evaluated by SCDHEC to meet the NPDES permit requirements, and these requirements will include the use of turbidity curtain where practicable. Additionally, between October 1-April 15, SCDOT will require the contractor to implement a noise reduction technique for all pile-driving activities. The proposed minimization techniques will be submitted to the SCDOT Environmental Services Office for review prior to implementation.

In response to your recommendation: *The SCDOT should adjust mitigation calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee responsible mitigation.*

SCDOT will account for additional shading impacts that the bridge may cause from being in close proximity to the existing bridge during final design. SCDOT will use these updated calculations when determining the wetland credits needed for mitigation.

We appreciate your agency’s cooperation throughout the development of this project. Please let me know if you have any comments or concerns related to this response. I can be reached at (803) 737-0841.

Sincerely,



Nicole Riddle  
EFH Coordinator



**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

<http://sero.nmfs.noaa.gov>

December 1, 2016

F/SER47:KH/pw

(Sent via Electronic Mail)

Mr. Chad Long  
Archaeologist/NEPA Coordinator  
S.C. Dept. of Transportation, P.O. Box 191  
Columbia, South Carolina 29201

J. Shane Belcher  
Environmental Coordinator  
Federal Highway Administration  
1835 Assembly Street, Suite 1270  
Columbia, South Carolina 29201

Attention: Nicole Riddle

Dear Mr. Long and Mr. Belcher:

NOAA's National Marine Fisheries Service (NMFS) reviewed the Essential Fish Habitat (EFH) Assessment<sup>1</sup>, dated September 2016, and draft Environmental Assessment, dated November 2016, prepared by the South Carolina Department of Transportation (SCDOT) for the proposed U.S. Highway (US) 17 widening and bridge over the Back River in Jasper County, SC, and Chatham County, GA (SCDOT Project ID: P025999). In an email dated September 22, 2016, the SCDOT stated it was submitting the EFH Assessment on behalf of the Federal Highway Administration. The SCDOT's initial determination is the project would adversely affect EFH or federally managed fishery species. 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.

*Description of the Proposed Project*

The SCDOT proposes to improve US 17 from Hutchinson Island in Savannah, GA, to South Carolina Highway 315 (South Okatie Highway) southwest of Bluffton, SC, by widening US 17 from two to four travel lanes, adding a 36-foot grassed median, and constructing a new bridge over the Back River. The total approximate project length is 4.2 miles, with approximately 3,000 feet in GA and 3.6 miles in SC. In 2015, the Georgia Department of Transportation (GDOT) replaced the existing structurally deficient bridge over the Back River with a new 3,289-foot long bridge north (west) of the existing bridge featuring two 12-foot travel lanes and 8-foot shoulders; the existing bridge was later demolished. The SCDOT proposes to construct a new two-lane bridge parallel to the GDOT Bridge in order to tie into the four-lane section of the Talmadge Memorial Bridge over the Savannah River. The proposed SCDOT Bridge would be approximately 58.5 feet wide, featuring two 12-foot travel lanes, two 10-foot shoulders, a 10-foot multi-use path, and three 1.5-foot parapets (barriers). The current preferred alternative for the project would widen US 17 to the west (north) and the proposed bridge would be constructed 35 feet or 60 feet east of the centerline of the new GDOT Bridge, partially in the same footprint as the previous bridge. The

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<sup>1</sup> The EFH Assessment was completed using conceptual designs and typical construction methods.



proposed bridge would be approximately the same length as the current GDOT Bridge. Upon completion, the GDOT Bridge would accommodate southbound traffic, and the SCDOT Bridge northbound traffic.

Proposed project activities would consist of placing clean fill material to widen the roadway and establish bridge approaches. Silt fences would be installed along the toe-of-fill prior to fill placement, which would require mechanical clearing. Work would be completed from uplands outward towards wetland areas as much as possible, but timber mats may also be used when upland access is not feasible. Geotechnical reinforcement may be required along the proposed roadway shoulder, which would require access from wetland areas and additional timber mats. Widening activities would necessitate extending an existing culvert located in a tidal creek on the north end of the project. Bridge construction would likely be completed using pile driving, which would occur from upland areas, to the extent practicable. In deep water areas, pile driving would take place from barges, while two temporary work trestles (approximately 300 feet and 800 feet in length) would likely be used over tidal marsh and portions of unconsolidated bottom habitat. Approximately 335 24-inch steel piles would be used for the temporary work trestle and approximately 540 24-inch pre-stressed concrete piles will be used for the permanent bridge. Temporary piles would be installed and removed using a vibratory hammer over 670 hours; permanent piles would be installed using a diesel impact hammer over 1080 hours<sup>2</sup>.

#### *Essential Fish Habitat and Anadromous Fish in the Project Area*

The site of the proposed project includes tidal freshwater (palustrine) emergent wetlands and forested areas, and tidal salt marsh habitat, specifically estuarine emergent wetlands, intertidal non-vegetated flats, tidal creeks, and unconsolidated bottom. The South Atlantic Fishery Management Council (SAFMC) identifies these tidal palustrine habitats, estuarine emergent wetlands, and intertidal non-vegetated flats as EFH for penaeid shrimp, including white shrimp (*Litopenaeus setiferus*) and brown shrimp (*Farfantepenaeus aztecus*). These habitats are EFH because larvae and juveniles concentrate and feed extensively and shelter within these habitats. As a consequence, growth rates are high and predation rates are low, which makes these habitats effective nursery areas. The SAFMC also identifies estuarine emergent vegetated wetlands, tidal creeks and unconsolidated bottom as EFH for estuarine-dependent species of the snapper-grouper complex. 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>3</sup>.

The waters of the Back River, tidal creeks connected to it, 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 other 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 several life stages of red drum. Furthermore, the Back River includes foraging and migration habitat for several anadromous fish species, including shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and American shad (*Alosa sapidissima*), within, upstream, and downstream of the proposed bridge crossing.

#### *Impacts to Essential Fish Habitat and Anadromous Fish*

The proposed project would result in 20.17 acres of permanent impacts and 7.942 acres of temporary impacts to EFH. Specifically, the proposed project would permanently fill 13.076 acres of estuarine emergent wetlands or intertidal flats, or a combination of these habitats, 0.063 acres of tidal creek, 0.026 acres of unconsolidated bottom, 0.037 acres of palustrine emergent wetlands and 6.423 acres of palustrine

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<sup>2</sup> The SCDOT has assumed a “worst-case bridge construction scenario” for environmental impact analysis.

<sup>3</sup> Available at <http://safmc.net/EcosystemLibrary/FEPVolumeIV>

forested areas. The proposed project would also result in the permanent shading of 0.545 acres of estuarine emergent wetlands. Additionally, the proposed project would temporarily fill 0.024 acres of estuarine emergent wetlands, intertidal flats, or unconsolidated bottom, or a combination of these habitats, and temporarily clear 5.347 acres of estuarine emergent wetlands, 0.014 acres of palustrine emergent wetlands and 2.557 acres of palustrine forested areas.

Permanently filled habitats would not provide nursery and foraging habitat for fishery species and their prey. Additionally, as light energy drives the photosynthetic process, which in turn controls plant growth and survival, permanently shaded areas would have lower primary productivity and reduced vegetation compared to non-shaded areas. This reduction in vegetation can lead to sediment erosion and decreased diversity and densities of benthic prey species<sup>4</sup>. Areas shaded by temporary elevated work structures for multiple growing seasons may also experience these adverse impacts, though recovery would likely occur following removal of structures. Furthermore, the presence of in-water structures, such as temporary and permanent piles, can alter hydrodynamic processes and sediment transport and deposition, degrading surrounding habitats. These processes and others have been altered and surrounding habitats degraded as a result of the existing culvert on the north end of the project, which is undersized. Undersized culverts can adversely impact habitats and species by decreasing ecological connectivity and tidal exchange, creating movement barriers for aquatic organisms and causing channel instability and increased erosion up and downstream of the culvert. Lastly, permanent impacts, including those from shading, will likely be greater for two bridges as opposed to a single, larger bridge due to the excess impacts created by two separate structures. Impact calculations should be adjusted to reflect these excess impacts.

Sediment input into aquatic habitats, mainly rivers and streams, is a major threat to anadromous fishes and their habitat and can reduce the quality of EFH and adversely affect federally managed species and their prey. This input can directly impact individuals and spawning aggregations as well as permanently eliminate migration and spawning habitat. Additionally, impacts from noise, vibrations, and other elements associated with construction activities can adversely affect anadromous fish spawning, foraging, migratory patterns and behavior, and can reduce the value of EFH.

#### *Avoidance and Minimization*

The SCDOT has taken steps to avoid or minimize impacts to EFH from the proposed project, including selecting Alternative 1, which constituted the least impacts to EFH of the four build alternatives. Top-down construction strategies would be used. Appropriate erosion and sedimentation control Best Management Practices (BMPs) would be installed, inspected, and maintained throughout all stages of construction in accordance with local and state stormwater guidelines and bridge construction would occur from temporary work trestles and upland areas, to the maximum extent practicable. Furthermore, the new SCDOT Bridge over the Back River will utilize, to the greatest extent possible, the same approaches and embankments of the previous and newly constructed GDOT Bridges.

While the NMFS appreciates SCDOT's avoidance and minimization efforts, further avoidance and minimization measures appear practicable. The NMFS recommends reducing the amount of permanent fill associated with the proposed project by using a combination of east and west widening (asymmetrical widening) that would concentrate impacts in existing upland areas and avoid impacts to wetlands. Additionally, the NMFS recommends further reducing the amount of permanent impacts by reducing the bridge width, decreasing inside and/or outside roadway shoulder widths, decreasing the median width,

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<sup>4</sup>Whitcraft, C.R. and L.A. Levin. 2007. Regulation of benthic algal and animal communities by salt marsh plants: Impact of shading. *Ecology* 88:904-917.

Alexander, C. 2012. *Field Assessment and Simulation of Shading from Alternative Dock Materials*. Final report to the NOAA Office of Ocean and Coastal Resource Management under grant award #NA08NOS4190461. 114 pages.

Alexander, C. and M. Robinson. 2006. *Quantifying the Ecological Significance of Marsh Shading: The Impact of Private Recreational Docks in Coastal Georgia*. Final report to the Coastal Resources Division, GADNR. 47 pages.

and by steepening side slopes of the roadway and bridge approaches, or a combination of these. The NMFS also recommends replacing the undersized culvert on the north end of the project with a bridge to avoid further adverse impacts to habitats and species and to restore ecological connectivity and habitat function to the surrounding area; bridging this tidal creek would also reduce the amount of permanent fill.

The NMFS also recommends SCDOT avoid construction practices that adversely impact habitats and species. The NMFS has documented the impacts to salt marsh vegetation from barge grounding and timber mats lasting longer than three years at numerous project sites in coastal SC. If barge grounding and timber mats are used in salt marsh, temporary and permanent impact forecasts should be adjusted. Floating work barges and low ground bearing pressure track equipment can be used in combination with temporary work trestles in salt marsh habitat in lieu of barge grounding and timber mats. The NMFS also recommends the SCDOT utilize methods to avoid and minimize turbidity, sedimentation, and acoustic impacts to EFH, federally managed species and their prey, and anadromous fishes and their habitat. To the maximum extent practicable, vibratory hammers and cast-in-place (drilled-shaft) piles should be used to install piles. If impact hammers are necessary, vibratory hammers should be used to first drive the pile as deep as possible. Additionally, sound attenuation methods should be used to reduce in-water noise levels generated by pile installation activities, including air bubble curtains, isolation casings, coffer dams, proprietary methods, or a combination of these. Some sound attenuation methods can also control turbidity and sedimentation, but silt curtains are also recommended for this purpose. Additionally, installing piles during periods of low tide, when sediments are exposed, will further minimize turbidity, sedimentation and acoustic impacts. Lastly, the SCDOT should conduct work affecting salt marsh habitats during periods of low biological use (October 15 to January 31), to the extent practicable, and restrict in-water work in the Back River to daylight hours from April 16 to August 31 of each year (i.e., no in-water work conducted between September 1 and April 15). Conducting work during these periods would minimize impacts to EFH, federally managed species and their prey, and anadromous fish species.

#### *Compensatory Mitigation*

For unavoidable impacts to EFH from the proposed project, SCDOT stated an EFH Mitigation Plan would be developed in coordination with the NMFS during the U.S. Army Corps of Engineers (USACE) Section 404 permitting process. The SCDOT stated potential mitigation options include purchasing credits from Clydesdale Mitigation Bank (CMB; SC) and Salt Creek Mitigation Bank (SCMB; GA) for estuarine impacts (approximately 348.36 credits) and Sweetleaf Swamp Mitigation Bank (SSMB; SC) for palustrine impacts (approximately 108.38 credits). The impact site (HUC 03060109) and CMB and SSMB sites are located in the same watersheds, while the SCMB site is located one watershed away (HUC 03060204); the sites share similar hydrological and biological characteristics. The NMFS has expressed numerous concerns with the service area, amount of functional lift, habitat value, and resource types provided by CMB from the conversion of fully functional freshwater wetlands to salt marsh habitat. However, due to the extremely close proximity of the project site and the bank, as well as the types of impacts, the NMFS does not object to using CMB in this specific instance. Furthermore, the NMFS does not object to SCDOT using SSMB to offset impacts to tidal freshwater wetlands. However, because SSMB does not provide tidal freshwater credits, SCDOT should recognize this is out-of-kind and adjust the mitigation calculations accordingly. Lastly, the NMFS recommends SCDOT adjust credit calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee-responsible mitigation as one component of a larger EFH Mitigation Plan. The NMFS will assist SCDOT by providing preliminary reviews of the mitigation plan during its development.

#### **EFH Conservation Recommendations**

Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH Conservation Recommendations for any federal action or permit which may result in adverse impacts to EFH. Therefore, NMFS recommends the following to ensure the conservation of EFH and associated fishery resources:

- The project design should further avoid and minimize impacts to EFH by reducing the amount of fill and shading in wetlands areas. Suggestions for how this might occur are provided above.
- The existing, undersized culvert on the north end of the project should be replaced with a bridge.
- In-water turbidity and sedimentation control methods and noise attenuation methods should be used to avoid and minimize impacts to EFH, federally managed fisheries and their prey, and anadromous fishes and their habitat from in-water work activities.
- The SCDOT should adjust mitigation calculations to reflect excess impacts from two bridge structures and pursue on-site, permittee responsible mitigation.

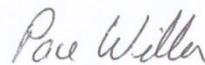
Section 305(b)(4)(B) of the Magnuson-Stevens Act and implementing regulation at 50 CFR Section 600.920(k) require the FHWA and SCDOT to provide a written response to this letter within 30 days of its receipt. If it is not possible to provide a substantive response within 30 days, an interim response should be provided to the NMFS. A detailed response then must be provided ten days prior to final approval of the action. The detailed response must include a description of measures proposed by the FHWA and SCDOT to avoid, mitigate, or offset the adverse impacts of the activity. If the response is inconsistent with an EFH conservation recommendation, a substantive discussion justifying the reasons for not following the recommendation must be provided.

In accordance with section 7 of the Endangered Species Act of 1973, as amended, it is the responsibility of the Federal Highway Administration to review and identify any proposed activity that may affect endangered or threatened species and their designated critical habitat. Determinations involving species under the NMFS jurisdiction should be reported to the NMFS Protected Resources Division at the letterhead address.

The NMFS also encourages the SCDOT to coordinate with the Savannah District, USACE regarding potential impacts from the proposed project. As a result of the Savannah Harbor Expansion Project, the Savannah District has numerous mitigation commitments in the area of the proposed project.

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  
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