Biological Assessment

Beach Enhancement Project at Gulf Islands National Seashore

Action Agency- NOAA Restoration Center

January 21, 2014

PROJECT DESCRIPTION

This project involves removing fragments of asphalt and road-base material (limestone aggregate and some chunks of clay) that have been scattered widely over the Fort Pickens, Santa Rosa, and Perdido Key areas of the Florida District of Gulf Islands National Seashore (GUIS). These materials originated from roads damaged during several storms and hurricanes since 1995 and were spread over an area of barrier island habitat hundreds of acres in size and over 14 miles long. These materials are found in both vegetated and un-vegetated areas and in both flat, open beaches and dune areas. Additionally, there is also a small, two-mile-long area on the Gulf side of the Fort Pickens area where sections of the old road and some miscellaneous chunks of concrete may exist in the intertidal and sub-tidal zones where visitors sometimes walk, wade, and swim. This area is a long, skinny polygon: approximately 10 feet by two miles long in the intertidal zone (landside of the Mean Low Water line [MLW]) and 20 feet by two miles long in the sub-tidal zone (Gulf-side of the MLW; see Figure 1 at end). Fragments and materials range in shape and size from large slabs down to brick and pea size. In the inter- and sub-tidal zones, materials removed would be on the larger end of this spectrum. It is the work to be done in the inter- and sub-tidal zones on which this consultation focuses. ESA consultation was initiated on October 17, 2013 with the Panama City, Florida, Field Office of the U.S. Fish and Wildlife Service for the on-land portion of the project.

On-land cleanup activities would occur seven months each year during the late summer, fall, and winter months when disturbance of visitors would be minimal. Cleanup activities would *not* occur between March 15 and August 15 since this is the height of the bird nesting season and most of the sea turtle nesting season. Cleanup activities there are expected to take up to four seasons, and re-planting up to three seasons, making a total project duration of approximately five years. In-water cleanup activities, however, would occur up to only four months each year during the late fall and winter months. In-water cleanup activities would *not* occur between March 15 and November 15. This avoids the sea turtle nesting and hatching season.

A large backhoe with a long arm and bucket (or grapple) on the end would be used for the in-water work. No work would be done from boats or barges. The backhoe would operate near or within the intertidal zone when working in that zone; it would be near the mean low tide line and reach out into the sub-tidal zone perhaps five-to-fifteen feet – but no more than 20 feet– to retrieve materials from that zone. Depth of removal from these zones is not known but would be determined based on technical feasibility, cost effectiveness, and the likelihood of the materials becoming uncovered in the reasonably near future – e.g., in the 0-3 feet deep range. Some sand would also be scooped up with the pieces of asphalt or concrete and would be deposited on the beach just above the surf line where the pieces – and incidental amounts of sand only – would be taken off-site and disposed of. Remaining sand would be returned to the spot in the inter- or sub-tidal zone from which it was removed as best as is reasonably possible. As such, only negligible amounts of sand would be removed from the area. Returning sand will also help restore any benthic topographical alterations that removal might have caused. Finally, the natural high-

energy wave action in these zones should quickly restore benthic topography there back to its natural elevation.

In order to minimize underwater noise, the backhoe would remain out of the water when possible. Additionally, if large pieces of asphalt or concrete need to be broken into smaller sizes, that would be done on land to the extent possible rather than in the water.

SPECIES/CRITICAL HABITATS CONSIDERED

On October 30, 2013, we carefully reviewed your agency's Section 7 Consultation website for a list of species and critical habitat that "may be present" within the project area. There are 14 species that may be present in Escambia County, Florida. Table 1 (below) presents those species, their conservation status, whether their habitat occurs in the project area, the determination we have made for each species, and the response we are requesting from NOAA:

Table 1: Listed marine species in Escambia, County, Florida.

Listed Species	Status[1]	Habitat or PCE's Present?	Determination[2]	Response Requested
Marine Mammals				
blue whale (*Balaenoptera musculus)*	E	N	NE	Concurrence
finback whale (*Balaenopter physalus)*	E	N	NE	Concurrence
humpback whale (*Megaptera novaeangliae)*	E	N	NE	Concurrence
sei whale (*Balaenoptera borealis*	E	N	NE	Concurrence
sperm whale (*Physeter macrocephalus)*	E	N	NE	Concurrence
Turtles				
green sea turtle (*Chelonia mydas)*	T	Yes	NLAA	Concurrence for aquatic habitats; Consultation with USFWS for terrestrial habitats
hawksbill sea turtle (*Eretmochelys imbricata)*	E	Yes	NLAA	Concurrence for aquatic habitats; Consultation with USFWS for terrestrial habitats
Kemp's ridley sea turtle	E	Yes	NLAA	Concurrence for aquatic

[1] E=Endangered, T=Threatened
[2] NE=No effect, NLAA = Not likely to adversely affect, AA=Adverse affect

(*Lepidochelys kempii)*				habitats; Consultation with USFWS for terrestrial habitats
leatherback sea turtle (*Dermochelys coriacea)*	E	Yes	NLAA	Concurrence for aquatic habitats; Consultation with USFWS for terrestrial habitats
loggerhead sea turtle (*Caretta caretta)*	T	Yes*	NLAA	Concurrence for aquatic habitats; Consultation with USFWS for terrestrial habitats
Fish				
Gulf sturgeon (*Acipesner oxyrinchus desotoi)*	T	Yes**	NLAA	Concurrence
smalltooth sawfish (*Pristis pectinata*	E	No	NE	Concurrence
Invertebrates				
elkhorn coral (*Acropora palmate)*	T	No	NE	Concurrence
staghorn coral (*Acropora cervicornis)*	T	No	NE	Concurrence

[1] E=Endangered, T=Threatened

[2] NE=No effect, NLAA = Not likely to adversely affect, AA=Adverse affect

* Proposed PCE's for loggerhead turtles: 1) Suitable nesting beach habitat that: (a) has relatively unimpeded nearshore access from the ocean to the beach for nesting females and from the beach to the ocean for both post-nesting females and hatchlings and (b) is located above mean high water to avoid being inundated frequently by high tides. 2) Sand that: (a) allows for suitable nest construction, (b) is suitable for facilitating gas diffusion conducive to embryo development, and (c) is able to develop and maintain temperatures and moisture content conducive to embryo development. 3) Suitable nesting beach habitat with sufficient darkness to ensure that nesting turtles are not deterred from emerging onto the beach and hatchlings and post-nesting females orient to the sea.

** PCE's for Gulf sturgeon: 1) Abundant food items, such as detritus, aquatic insects, worms, and/or mollusks, within riverine habitats for larval and juvenile life stages; and abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, mollusks and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages; 2) Riverine spawning sites with substrates suitable for egg deposition and development, such as limestone outcrops and cut limestone banks, bedrock, large gravel or cobble beds, marl, soapstone, or hard clay; 3) Riverine aggregation areas, also referred to as resting, holding, and staging areas, used by adult, subadult, and/or juveniles, generally, but not always, located in holes below normal riverbed depths, believed necessary for minimizing energy expenditures during freshwater residency and possibly for osmoregulatory functions; 4) A flow regime (*i.e.*, the magnitude, frequency, duration, seasonality, and rate-of-change of freshwater discharge over time) necessary for normal behavior, growth, and survival of all life stages in the riverine environment, including migration, breeding site selection, courtship, egg fertilization, resting, and staging, and for maintaining spawning sites in suitable condition for egg attachment, egg sheltering, resting, and larval staging; 5) Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; 6) Sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; and 7) Safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (*e.g.*, an unobstructed river or a dammed river that still allows for passage).

Protected Species Observed in Escambia County but Not Likely to Be Present in the Project Area

It is highly unlikely that many of the listed species reported or documented in Escambia County (see Table 1) utilize the project site because of a lack of suitable habitat and/or prey. Protected species for which there is no suitable habitat in the project area include all of the whales listed above (blue, finback, humpback, sei, and sperm), as well as the smalltooth sawfish and both corals (elkhorn and staghorn). Because these species are unlikely to occur in the project area, they are not discussed further in this BA.

Protected Species and Critical Habitat Likely to Be Present in the Project Area

The following subsections present information concerning species likely to be present in the project area. Establishment of the likely presence in the project area is based on research regarding species' preferred habitat and personal communication with GUIS, Service, and NMFS staff.

Sea Turtles

Five species of federally listed sea turtles are found in the Gulf of Mexico: green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempi*), hawksbill sea turtle (*Eretmochelys imbricata*), leatherback sea turtle (*Dermochelys coriacea*), and loggerhead sea turtle (*Caretta caretta*). All five species have been observed within GUIS nesting, swimming, or feeding. Turtle nesting typically occurs on sandy beaches during the months of May through August, with hatching occurring from late July through October.

Green Sea Turtle

The green sea turtle breeding populations in Florida and on the Pacific Coast of Mexico are federally listed as endangered. All other populations are federally listed as threatened. The main threat to the green sea turtle is long-term harvest of eggs and adults on beaches, and juveniles and adults on feeding grounds (NMFS, 2009b). In the Gulf of Mexico, green sea turtles are found in offshore and near-shore waters. Green sea turtles are herbivorous, feeding mainly on seagrasses and algae. In the southeastern United States, nesting generally occurs between June and September on sandy beaches, including islands. Females nest at approximately two-week intervals, laying an average of five clutches. Eggs hatch approximately two months later. Hatchlings swim to offshore areas, where they live for several years. As the juvenile mature, they return to near-shore foraging grounds, where they become almost exclusively herbivorous (NMFS, 2009b). Green sea turtles nest on the Gulf side of Santa Rosa Island, within the project area.

Hawksbill Sea Turtle

The hawksbill sea turtle, federally listed as endangered, is circumtropical (worldwide distribution, but likely to occur between the Tropic of Cancer and the Tropic of Capricorn). The main threat to hawksbills is habitat loss of coral reef communities (NMFS, 2009b). In the

continental United States, nesting is limited to the southeast coast of Florida and the Florida Keys (NMFS, 2009b). Although the panhandle of Florida is north of the Tropic of Cancer, Hawksbill sea turtles have been observed in GUIS, but they are very rare and nesting on Santa Rosa Island has never been reported or documented (Hoggard, 2009).

Kemp's Ridley Sea Turtle

Kemp's ridley sea turtle, federally listed as endangered and the most critically endangered of all five of the listed sea turtle species endemic to the area, is distributed throughout the Gulf of Mexico and U.S. Atlantic seaboard. The main threat to Kemp's ridley sea turtle is the incidental capture in fishing gear (NMFS, 2009b). Nesting occurs from May to July, with an incubation period of 50 to 60 days. Adult Kemp's ridley turtles are typically found in near-shore muddy or sand bottom habitats. Their diet consists mainly of swimming crabs, fish, jellyfish, and mollusks. Post-hatchlings travel offshore to avoid predation in shallow waters. Once the Kemp's ridley turtle reaches a carapace length of approximately 8 inches, it returns to near-shore waters to feed and develop (NMFS, 2009b). This turtle has experienced a dramatic decrease in documented nesting sites over the past 60 years; however, today the Kemp's ridley turtle population appears to be in the early stages of recovery (NMFS, 2009b). The Kemp's ridley turtle is known to nest on the Gulf side of Santa Rosa Island (Hoggard, 2009).

Leatherback Sea Turtle

Leatherback sea turtles are federally listed as endangered. Main threats to leatherback sea turtles are long-term harvest and incidental capture in fishing gear (NMFS, 2009b). The leatherback sea turtle mates in the waters adjacent to nesting beaches and along turtle migratory corridors. Females nest on sandy, tropical beaches several times during a nesting season, which occurs from March to July, typically at 8- to 12-day intervals. Incubation time is approximately 60 to 65 days. Leatherback sea turtles are common in offshore waters, but also forage in coastal waters. After nesting, females migrate from tropical waters to more temperate waters. Leatherback sea turtles rarely nest on Santa Rosa Island; however, GUIS documented its first leatherback nest in 2000 (NPS, 2007).

Loggerhead Sea Turtle

The loggerhead sea turtle, federally listed as threatened, is the most abundant sea turtle found in U.S. coastal waters. Recent analysis of nesting data from the Index Nesting Beach Survey program (Witherington *et al.*, 2009) in southeast Florida show that the population is declining. Main threats to loggerheads include incidental capture in fishing gear and direct harvest in many places of the world. In the southeastern United States, mating occurs between late March and early June, and nesting occurs between late April and early September. Turtles hatch from eggs between late June and mid-November (NMFS, 2009b). Loggerheads nest on ocean beaches, generally preferring high-energy, relatively narrow, steeply sloped, coarse-grain beaches. Post-hatchling loggerheads commonly linger for months in waters just off the nesting beach. Eventually juveniles are transported by ocean currents farther offshore. Between the ages of 7 and 12 years, juveniles migrate to near-shore coastal areas and continue maturing to adulthood (NMFS, 2009b). The loggerhead sea turtle is the most common sea turtle to nest on the Gulf side

of Santa Rosa Island (Hoggard, 2009). NOTE: The critical habitat for loggerhead sea turtles within GUIS is entirely terrestrial. Therefore, NPS included loggerhead critical habitat in their Section 7 consultation with the Service and this consultation does not include it.

Gulf Sturgeon and Gulf Sturgeon Critical Habitat

The Gulf sturgeon, *Acipenser oxyrinchus desotoi*, is federally listed as a threatened species. The Gulf sturgeon historically was threatened because of overfishing and then by habitat loss due to construction of water control structures, dredging, groundwater extraction, and flow alterations. The Gulf sturgeon is an anadromous fish that migrates from salt water into coastal rivers during the warmer months to spawn. The sturgeon often stays in the Gulf of Mexico and its estuaries and bays in cooler months. Adults range in size from 4 to 8 feet in length and can live for up to 60 years. The Gulf sturgeon is a bottom feeder that only forages in brackish or marine habitats, eating primarily macroinvertebrates. Prey species are often associated with sandy substrates. In 2003, USFWS and NMFS designated critical habitat for the Gulf sturgeon for 14 geographic areas along the Gulf of Mexico and in rivers and tributaries feeding the Gulf of Mexico (NMFS, 2009a). The ESA requires the federal government to designate critical habitat for any species under the ESA. Critical habitat is defined as specific areas within a geographic area occupied by the species at the time it becomes a listed species. The waters of the project site, and surrounding waters, are located within Gulf sturgeon critical habitat in a designated geographic area. The Gulf sturgeon utilizes Pensacola Bay as a migratory corridor from breeding grounds to winter foraging grounds. The Gulf sturgeon has been observed in the waters of GUIS (Hoggard, 2009).

The action addressed within this BA falls within critical habitat for Gulf sturgeon. USFWS and NMFS designated critical habitat for the Gulf sturgeon for 14 geographic areas among the rivers and tributaries of the Gulf of Mexico. Near-shore waters within 1 nautical mile of the mainland from Pensacola Pass to Apalachicola Bay, the Perdido Key area, and the area north of Santa Rosa Island were designated as critical habitat because they are believed to be important migratory pathways for feeding and genetic exchange between Pensacola Bay and the Gulf of Mexico (NMFS, 2009a).

EFFECT ANALYSIS

The proposed project will remove asphalt and concrete remnants of roadbed destroyed and inundated by numerous storm events since 1995. Alterations to the inter- and sub-tidal zones will primarily involve some short-term increased turbidity and changes in the topography during project implementation. There will be a temporary increase in turbidity, but this should not affect listed species because it would be highly localized and short-lived (minutes to hours) and will occur in an area that is already very turbid due to wave action. Alterations in topography would be temporary (hours to days) and should not affect Gulf sturgeon or sea turtles due to the small footprint and their ability to avoid disturbed areas. During project implementation, as sand and asphalt or concrete materials are removed from the this area and deposited on the beach above the surf-line, after the materials are taken away, the sand will be returned to the locations it came from as best as possible and all ruts, holes, and mounds will be filled and smoothed out. Additionally, the constant wave and tidal action here will rapidly rework the sandy substrate

back to normal conditions/elevations. Thus, topographical alterations will be minimized. Furthermore, removal of asphalt and concrete from these zones will actually have a small long-term benefit on habitat and any listed species by removing impediments to the normal use of the sandy benthos in this area. Overall, the project will affect very localized portions of habitat over very short time frames while leaving abundant nearby habitat undisturbed and available for utilization.

If the backhoe bucket (or grapple) is used to break up asphalt or concrete pieces in the water by striking it, momentary sounds could exceed both the 160 dB re 1 uPa RMS level for impulsive noise and the 180 dB re 1 uPa zero to peak level. Also, if the backhoe is parked with its tracks (or wheels) in the water, the 120 dB re 1uPA RMS level could be exceeded from engine noise. Mitigation measures will include breaking up large pieces on land (rather than in-water) whenever possible, and keeping the backhoe vehicle itself out of the water as much as possible. Additionally, the shallowness of the water in this area should have a dampening effect on any project-generated underwater noise.

Primary Constituent Elements

Both Gulf sturgeon and loggerhead sea turtles have critical habitat (or proposed critical habitat) in the project area. However, as noted above, the proposed critical habitat for loggerhead sea turtles within the project area is terrestrial only, and was addressed in consultation with the Service. The following subsection lists the Primary Constituent Elements (PCE's) for Gulf sturgeon critical habitat within the project area and addresses the potential effect of the project on them. The Gulf sturgeon's PCE's include riverine and estuarine elements which are omitted here (PCE's 2-4) because this project occurs entirely in a marine environment.

Gulf Sturgeon PCE's

1. Abundant food items, such as detritus, aquatic insects, worms, and/or mollusks, within riverine habitats for larval and juvenile life stages; and abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, mollusks and/or crustaceans, within estuarine and marine habitats and substrates for sub-adult and adult life stages;
    - Impacts to this PCE from this project are considered to be minor due mostly to how tiny this fraction of sturgeon habitat is compared to all sturgeon marine/estuarine habitat. Additionally, any impacts to prey items in the benthos of the sub-tidal zone will be temporary (days to weeks). Finally, this project will actually have small long-term benefits to this PCE by slightly increasing the surface area of benthos this is naturally sandy and that can be used by Gulf sturgeon.
5. Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages;
    - Impacts to this PCE from this project are considered to be negligible since the only change in water quality should be turbidity, and any increases in turbidity would be temporary (minutes to hours) and would occur in an area where natural wave action

causes high background levels of turbidity naturally. Additionally, any areas impacted would be a tiny fraction of all sturgeon habitat in this area.

6. Sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; and
    - There will be no impacts to this PCE from this project. There will, however, be a long-term beneficial effect of this project on this PCE by removing these unnaturally hard, dense and tar-based materials from the sediment.
7. Safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (*e.g.*, an unobstructed river or a dammed river that still allows for passage).
    - There will be no impacts to this PCE from this project since this project will not obstruct passage; any fish in the area can easily swim around the relatively tiny area where in-water work is occurring.

CONSERVATION AND MITIGATION MEASURES

The waters of GUIS contain unique and important fish and wildlife habitat and protected species. Although no direct take is anticipated, the following measures will be implemented to reduce or eliminate potential wildlife impacts or other environmental matters of concern associated with the proposed action.

Sea Turtles (all species)

Turtles swimming through the shallow surf and crawling up onto the sandy shore will have the following measures applied:

- Work in the inter- and sub-tidal zones will only occur between Nov. 15 and Mar. 15, after the nesting and hatching seasons.
- Holes created in the sandy bottom by removing the materials will be filled back in with the sand from that hole as best as reasonably possible.
- Equipment wheels/tracks will stay out of the water where possible to reduce engine noise there.
- Large pieces of concrete and asphalt will be broken up on the beach rather than in the water, where possible, to further reduce underwater noise.
- Work will occur during daylight hours only.
- Visual observation of turtles on-land or approaching land will result in marking the area and a workaround as appropriate; all nests will be clearly marked.
- Deep ruts created by machinery wheels or tracks, and holes and mounds created by deep asphalt removal, will be filled in and smoothed out promptly.

Gulf Sturgeon

- Keep construction noise low to the greatest extent possible by keeping running equipment out of the water and by breaking up large pieces of asphalt or concrete on land, rather than in water, whenever possible.

- Instruct all personnel associated with the project in the potential presence of protected Gulf sturgeon and inform them of the civil and criminal penalties for harming, harassing, or killing species that are protected.
- Care shall be taken in lowering equipment or material below the water surface and into the sand. These precautions will be taken to ensure no harm occurs to any sturgeon which may have entered the project area undetected.
- Maintain spill response kits during project implementation.
- In the unlikely event that a protected Gulf sturgeon approaches the near-shore area of the proposed project, work would immediately cease until the sturgeon moves away from the area on its own volition.

General Sea Turtle and Smalltooth Sawfish Construction Guidelines (where applicable)

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

CONCLUSIONS

For these reasons, we conclude that this beach enhancement is not likely to adversely affect green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles, or Gulf sturgeon or its critical habitat. In fact, this project will result in a small net improvement to sediments in the project area, including to Gulf sturgeon critical habitat.

We request your concurrence with our determination.

REFERENCES

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Figure 1: Location of in-water work at Fort Pickens