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Harrison County Mainland Management For Nesting Turtles



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Andrew Medhurst

Audubon Delta,
Coastal Mississippi Program
andrew.medhurst@audubon.org

Introduction

Now in its second century, The National Audubon Society (Audubon) is a 501(c)3 non-profit organization dedicated to protecting birds and the habitats that support them. Audubon's conservation efforts throughout the Americas utilize a combination of science, education, and advocacy to support on-the-ground conservation and guide effective policies and plans. Across coastal Mississippi and beyond, Audubon strives to protect coastal habitat for nesting shore birds and other species of wildlife.



1. Loggerhead Sea Turtle (*Caretta caretta*).
Photo: National Park Service

Sea turtles are among the many species of wildlife that depend on coastal habitats throughout the Gulf of Mexico. Sea turtles are highly migratory, long-lived marine reptiles that spend most of their lives offshore, except during nesting season (May – October) when adult females come ashore at night to lay their eggs. All five species of sea turtles found in the Gulf of Mexico are federally protected under the Endangered Species Act as either threatened or endangered with coastal development and loss of nesting habitat considered as primary concerns to conservation. These charismatic wildlife are a significant tourism draw for coastal communities across the country, and Mississippi's annual \$2.8 billion dollar nature tourism economy¹ is well poised to benefit.

Nesting Sea Turtles In Harrison County

Harrison County's beaches offer ample foraging, breeding, and nesting ground for numerous species of coastal wildlife including nesting sea turtles. Harrison County's offshore barrier islands have historically hosted nesting sea turtles and are managed through the National Park Service and Mississippi Department of Marine Resources. Instances of nesting sea turtles on mainland Mississippi beaches are rare, however in recent years, multiple sea turtle nests have been discovered in Harrison County.

The proposed management actions in this paper focus specifically on sea turtle nesting on Harrison County’s mainland beaches.

Of the five sea turtle species found in the Gulf of Mexico, the threatened Loggerhead sea turtle is the most likely to utilize Harrison County beaches for nesting habitat. Loggerhead sea turtles are found in temperate tropical and sub-tropical waters throughout the world and are known to commonly nest on sandy beaches along Alabama and the Florida panhandle. Nesting season for Loggerheads in the Northern Gulf of Mexico begins in early May and lasts through October. During this time female turtles will crawl ashore under cover of night to dig a nest and lay her eggs in the sand. A female will deposit roughly 100 eggs in her nest before she covers the eggs in sand and returns back to the ocean. Once deposited in the sand, sea turtle eggs take about two months to incubate before the first hatchlings begin to emerge from the nest and attempt to reach the ocean using illumination of the night sky over the ocean to orient themselves to crawl towards the water.



Loggerhead Sea Turtle (*Caretta caretta*).
Photo: 2NOAA Fisheries



3. Kemp's Ridley Sea Turtle Hatchlings (*Lepidochelys kempii*).
Photo: National Park Service

While sea turtles face a multitude of threats throughout their life-cycle, a nesting female and her hatchlings are particularly vulnerable and must overcome a variety of obstacles. Common threats to nesting females and her eggs and hatchlings include:

- Artificial light sources
- Nests can be destroyed by various types of human activity
- Predation from natural predators
- Ingestion of oil or plastic pollution

Approximately 1 in 1000 sea turtle hatchlings will survive these numerous threats and reach adulthood, making the conservation and protection of nesting beaches critical for the long-term survival of sea turtles³. Appropriate management actions are needed to address the serious population declines that threaten the overall survival of these long-lived animals.

BEST MANAGEMENT PRACTICES

The good news is that there are proven Best Management Practices (BMPs) available to help balance the needs of sea turtles, local residents, tourists, and businesses who use Harrison County beaches.

1. Marking nests to identify areas to protect from humans

Utilizing standards set forward by the U.S. Fish and Wildlife Service Nest Protection Protocol in Mississippi, nests will be visually marked to protect buried eggs from recreational and beach maintenance activities. Upon discovery of a sea turtle nest, the entire disturbed nesting area will be delineated with stakes and marked off with survey ribbon to create a perimeter around the nest site. Identification signs and information will be posted to each nest site with information about legal protections of sea turtle nests and contact information for local agencies.

Proposed actions:

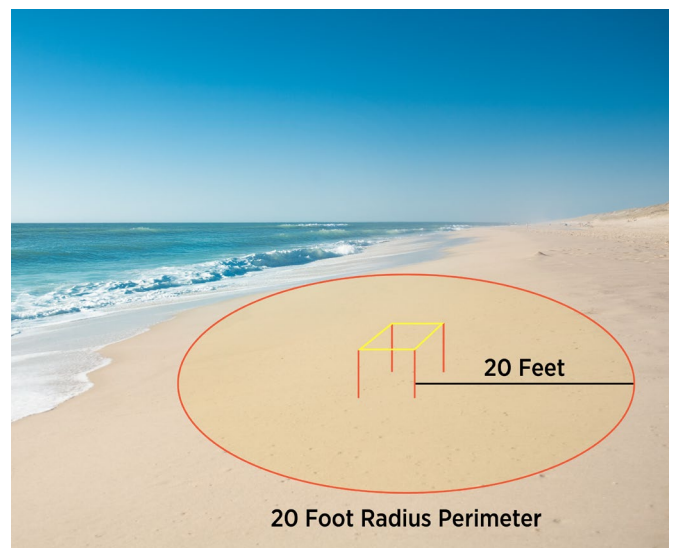
- Mark all reported sea turtle nests on Harrison County's mainland beaches.
- Increase public awareness of the potential for sea turtle nesting activity in Mississippi.
- Post signage with educational information about sea turtle nests and contact information for local agencies.



4. Photo: Andrew Medhurst/Audubon Delta

2. Beach maintenance and recreational activities should be conducted with care around marked sea turtle nests

Sea turtle eggs can be accidentally damaged or destroyed by driving beach maintenance and raking machinery or certain recreational equipment too close to the disturbed nesting area. All permitted beach vehicle operators will be encouraged to maintain a safe distance from sea turtle nests and avoid using vehicles within a 20-foot radius of the perimeter marked by survey ribbons.



5. Photo: NadyaPhoto/iStock

Proposed actions:

- Vehicles are encouraged to maintain a 20-foot perimeter around a marked sea turtle nest.
- Permitted beach vehicles should be registered and vehicles should be clearly identifiable with signage and/or lighting.
- Provide annual training to stakeholders permitted to drive on the beach that provide guidelines for reducing the risk of disturbance or direct trampling when navigating around a nest.
- Provide stakeholders with regular updates with maps of confirmed sea turtle nests.

3. Removal of any temporary structures or barriers prior to expected hatchling emergence

Temporary structures such as beach chairs, umbrellas, or canopies have the potential to trap nesting marine turtles or sea turtle hatchlings and should be removed or stored each night during the potential hatching period. Additionally, sand ridges and ruts left behind by vehicles on the beach can trap sea turtle hatchlings after emerging from a nest and prevent them from reaching the ocean.

Proposed actions:

- Any temporary structures, obstacles, or barriers within a 50-foot radius (or as close as allowed/applicable) of a reported sea turtle nest should be removed from dusk to dawn every day for a 30-day period beginning 45-days after reporting of the nest and lasting until 75-days after initial reporting of the nest OR until successful hatching of the nest OR until nest is deemed no longer viable.
- Beach vendors and other beachfront properties will be informed of marked sea turtle nests and informed of the protections regarding sea turtle nests.
- Ridges and ruts between sea turtle nests and the Mississippi Sound will be smoothed prior to potential nest hatching period to provide a safe path for hatchlings to reach the ocean.



6. Photo: Andrew Medhurst/Audubon Delta

4. Lighting restrictions near marked sea turtle nests

Artificial light sources can have adverse impacts for sea turtle hatchlings as they attempt to navigate towards the ocean⁴. Hatchlings rely on illumination of the night sky to guide their navigation and artificial lights can disorient a hatchling to crawl away from the ocean.

Immediate proposed actions:

- All artificial light sources that are visible from a marked sea turtle nest or that illuminate reflective surfaces that are visible from a marked sea turtle nest, including but not limited to streetlights, parking lot lights, and beach access lighting, shall be:
 - A. Fitted with a shield or positioned so that the light source or any reflective surfaces illuminated by such sources are not visible from the beach and do not directly or indirectly illuminate the beach; or
 - B. Extinguished between sunset and sunrise for a 30-day period beginning 45-days after reporting of the nest and lasting until 75-days after initial reporting of the nest OR until successful hatching of the nest OR until nest is deemed no longer viable.
 - C. Efforts will be made to educate businesses and hotel guests whose lights might create problems for hatchlings to extinguish lights, appropriately shield lights, and/or use dark-out curtains to prevent excess visible interior light.
 - D. All firepits within 200 yards of any marked nest will be made unavailable for a 30-day period beginning 45-days after reporting of the nest and lasting until 75-days after initial reporting of the nest OR until successful hatching of the nest OR until nest is deemed no longer viable.

Proposed long-term actions:

- Review Florida Fish and Wildlife's Model Lighting Ordinance for Marine Turtle Protection to evaluate best lighting management practices for future implementation in Harrison County.



7. Long wavelength bollard light fixture.
Photo: Sea Turtle Conservancy – conserveturtles.org

- Promote county-wide wildlife-friendly lighting by creating educational materials and outreach that encourage voluntarily reducing impacts from artificial light sources.
- Seek additional funding to implement a coastal wildlife friendly lighting retrofit that assists coastal homeowners and businesses in the purchasing, installation, and management of approved wildlife-friendly lighting.
- Adopt a county-wide ‘Wildlife Lighting Ordinance’ that strengthens existing protections by implementing enforcement of problematic artificial lighting that is disruptive to sea turtle nests and/or other species of wildlife including migratory birds.

5. Dogs must be kept off the beach and on a leash at all times

By Harrison County regulation, dogs are not allowed anywhere on Harrison County beaches and are to be kept on a leash on the seawall, walkways, and parking bays. Dogs can dig up sea turtle nests and destroy incubating sea turtle eggs.

Proposed actions:

- Increase public awareness and enforcement of beach ordinances related to dogs.
- Place additional signs at piers and nesting colony areas.

Existing Laws And Ordinances

ENDANGERED SPECIES ACT (ESA)

All five species of sea turtles found in U.S. waters throughout the Gulf of Mexico are protected under the Endangered Species Act. It is illegal to harm, harass or kill any sea turtles, hatchlings, or their eggs. It is also illegal to import, sell, or sea turtles or their products. U.S. Fish and Wildlife Service oversees federal protections for sea turtles under the ESA.

MISSISSIPPI STATE WILDLIFE ACTION PLAN (SWAP) — 2015-2025

All five species of sea turtles found in U.S. waters throughout the Gulf of Mexico have been designated as state endangered through the Mississippi State Law, the Nongame and Endangered Species Conservation Act of 1974.

Breeding (Nesting) Loggerhead Sea Turtles are listed as an S1 species under the Mississippi Natural Heritage Program indicating status as critically imperiled in Mississippi because of extreme rarity or because of some factor making it vulnerable to extirpation.

Loggerhead Sea Turtles are listed as a Tier 2 species under the Prioritization of Mississippi’s Species of Greatest Conservation Need indicating species that are in need of timely conservation action/or research because of rarity, restricted distribution, unknown or decreasing population trend, specialized habitat needs or habitat vulnerability or significant threats.

SAND BEACH ORDINANCE OF HARRISON COUNTY, MISSISSIPPI (2005)

- **Section V: Items Prohibited on the Beach, A. (3):** “Motor vehicles of all types, except those used to maintain the beach, and approved marked beach vendor vehicles used to move equipment to and from the beach are permitted under Section IV.”
- **Section V: Items Prohibited on the Beach, A. (4):** “Horses, livestock, dogs, and animals of all kinds.”
- **Section IIIV: Wildlife Sanctuaries, B.(1):** “Any person found molesting or destroying wildlife, harassing the wildlife, or engaging in other actions adversely affecting the propagation of the wildlife shall be guilty of a misdemeanor and shall be subject to punishment established by law and the rules and regulations of the State Fish and Game Conservation”

References

- ¹ U.S. Department of Commerce, Bureau of Economic Analysis. 2019. Outdoor Recreation Satellite Account. <https://outdoorindustry.org/state/mississippi>
- ² Mississippi Museum of Natural Science. 2014. Endangered Species of Mississippi. Mississippi Department of Wildlife, Fisheries, and Parks, Mississippi Museum of Natural Science, Jackson, Mississippi.
- ³ UNMFS and USFWS. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtles (*Caretta caretta*), 2nd revision. National Marine Fisheries Service, Silver Spring, MD, and U.S. Fish and Wildlife Service, Atlanta, GA
- ⁴ Mississippi Museum of Natural Science. 2015. Mississippi State Wildlife Action Plan. Mississippi Department of Wildlife, Fisheries, and Parks, Mississippi Museum of Natural Science, Jackson, Mississippi.

Photo Credits

Cover: Loggerhead Sea Turtle hatchlings.
Photo: Blair Witherington

- ¹ National Park Service—[nps.gov](https://www.nps.gov/pais/learn/nature/loggerhead.htm)
<https://www.nps.gov/pais/learn/nature/loggerhead.htm>
- ² NOAA Fisheries—[fisheries.noaa.gov](https://www.fisheries.noaa.gov/species/loggerhead-turtle)
<https://www.fisheries.noaa.gov/species/loggerhead-turtle>
- ³ National Park Service—[nps.gov](https://www.nps.gov/pais/learn/nature/stsr-index.htm)
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- ^{4, 5, 6} National Audubon Society—Andrew Medhurst
- ⁷ Sea Turtle Conservancy—[conserveturtles.org](https://www.conserveturtles.org/beachfront-lighting-turtle-friendly-fixtures-lights)
<https://www.conserveturtles.org/beachfront-lighting-turtle-friendly-fixtures-lights>

Contact Information

Andrew Medhurst, Coastal Biologist
Audubon Delta — Mississippi
Pascagoula River Audubon Center
5107 Arthur Street, Moss Point, MS 39563
(239) 281-9863

Email: andrew.medhurst@audubon.org

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