**Best Management Practices (BMPs) for Use of Vehicles on Sea Turtle Nesting Beaches in South Carolina**

The use of ATVs or similar vehicles in sea turtle management activities such as searching for nests and transporting equipment for nest protection is recognized as an essential requirement for efficient daily coverage of certain sea turtle nesting beaches. However, on these same beaches are nesting seabirds and shorebirds. Their eggs laid in the sand and mobile young can be endangered by the use of these types of vehicles.

The nesting species most commonly encountered are: the colonial nesting least terns and black skimmers, and the solitary nesting shorebirds, American oystercatchers and Wilson's plovers. These species are adapted to reproduce on the beach, and thus have evolved behaviors which enable their young to survive heat and predators. Chicks are mobile and cryptic and use the entire beach from the dunes to the water's edge. Even if a driver has good eyesight and focused driving skills, eggs and young chicks are mostly invisible from the view atop an ATV and other vehicles.

**Nesting seabird and shorebird behaviors:**

*Incubation of eggs is necessary to keep eggs at a constant temperature for a specified period to ensure development of the embryo.*

- Eggs are laid above the high tide line. Nests can be very near the high tide line or far from the water's edge behind the dunes.
- Eggs are cryptic to match the surrounding sand and shells.
- Adults leave the nest when disturbed which exposes the eggs to heat, cold, and predation, all of which can be lethal. Overheating of eggs is more harmful to embryos than cooling, and mortality of exposed eggs can occur in minutes on a hot day. Disturbance distances vary, and adults may readily leave when perceived danger is hundreds of feet away.

*Adults brood young to warm or shade them as ambient temperatures dictate until young are able to self regulate body temperature.*

- Adults brood newly hatched young for 7-12 days after hatching. Prolonged exposure to heat, cold, rain, and wind is lethal to young.
- Young chicks hatch with their eyes open and are able to walk within hours of hatching; they are covered in cryptic down.

*Behaviors of young in response to disturbance include:*

- Chicks run and hide motionless in vegetation, wrack, debris, and depressions in the sand (i.e. foot prints, tire tracks) or quickly scrape into the sand.
- Sometimes chicks may run and hide 0.5 miles or more from the nest.
- American oystercatcher chicks will readily dive into the water to escape danger and can be lost to strong currents.
- Chicks listen for and respond to alarm calls from adults.

Photo by Abby Sterling

**Conservation status:**

| SPECIES | SWAP (2015) | S.C. LISTED | COMMENTS |
|---|---|---|---|
| Least Tern | Highest Priority | Threatened | Listed as threatened and endangered in most states due to habitat loss |
| Black Skimmer | Highest Priority | Proposed as threatened | Endangered in N.J.; threatened in N.Y.; special concern in Fla. And N.C. |
| American Oystercatcher | Highest Priority | Proposed as threatened | Focal species in U.S. Fish and Wildlife Migratory Bird Program |
| Wilson's Plover | Highest Priority | Threatened | Endangered in Va. and Md.; rare in Ga.; state protected Ala.; focal species in U.S. Fish and Wildlife Migratory Bird Program |

**BMPs for ATV and similar vehicle use to minimize impacts to seabirds/shorebirds:**

- As tidal height permits, drive as low as possible on the beach to allow for sighting turtle crawls above the high tide line. Avoid driving above or on the daily wrack line, especially during the first half of the summer when eggs and very young chicks are in this habitat.
- Vehicle speed should not exceed 10 mph or appropriate speed that allows for observation and avoidance of adults and young.
- Below the wrack line do not drive over objects such as wrack piles, sticks, limbs, grasses, large shells, boards, bottles, cans, and any other object where a chick could be hiding.
- Assign one person to drive the vehicle and focus on avoiding objects and looking ahead for bird nests or any young chicks. Another person looks for turtle crawls/nests, and signals to the driver when to stop. If surveying a beach alone, the driver must take extra effort to avoid objects, look for chicks, and identify sea turtle crawls.
- If possible avoid driving around the ends of islands where bird nesting is typically concentrated, and turtle nesting is typically low. Stop prior to the end and send an experienced individual on foot with binoculars to identify turtle activity: nest or "false crawl." If a nest, determine the least disturbing management. Avoid entering seabird colonies after 9:00 AM.
- Be aware of shorebird nests. If a shorebird nest is found, mark it with a bright colored flag 10 yards before and after the nest site.
- Be aware of incubation periods and hatch dates of shorebird nests to avoid adults and roaming chicks. These species will lay additional clutches of eggs if a previous nest is lost. Thus eggs and young may be present in July.
- Each beach is unique; therefore each island/beach should have its own site-specific plan.

**Nesting dates:**

| SPECIES | NESTING PERIOD | # EGGS | INCUBATION | FLEDGE* |
|---|---|---|---|---|
| American Oystercatcher | April thru July | 2 - 4 | 25 – 30 days | 30 – 35 days |
| Wilson's Plover | April thru July | 2 - 4 | 25 – 28 days | 21 – 25 days |
| Least Tern | May thru June | 1 - 3 | 19 – 25 days | 20 – 22 days |
| Black Skimmer | May thru July | 2 - 4 | 23 – 25 days | 30 – 35 days |

(* Fledge is when flight is sustained.)

Compiled by: SCDNR Coastal Birds Project; SCDNR Marine Turtle Conservation Program; Cape Romain National Wildlife Refuge; USFWS Ecological Services; March 2016