



Image from USFWS

Loggerhead Nest Management Program

5Es Lesson by Rachel Teller

National Science Standards

Content Standards: Level 5-8

Life Science

- > Reproduction and heredity
- > Regulation and behavior
- > Populations and ecosystems
- > Diversity and adaptations of organisms

Science in Personal and Social Perspectives

- > Populations, resources, and environments
- > Natural hazards
- > Risks and benefits

Background

The sea turtles' unique life history compounds the negative effects caused by the multitude of **anthropogenic**, or human-induced, threats these animals face. Because they circumnavigate the globe migrating between foraging and mating grounds, they do not fall within any one country's jurisdiction. Many states have developed their own programs aimed at population recovery and stabilization. In South Carolina, there are currently nineteen different loggerhead nest protection projects. All are under the direction of the SC Department of Natural Resources' Marine Turtle Conservation Program.

On several nesting beaches in South Carolina, the Island Turtle Team makes important decisions that affect nests, hatchlings, and, ultimately, adult loggerheads. They patrol the beaches for tracks and nests and once a nest is located, they mark it so it can be monitored. If the nest has no or very little chance of surviving to hatch because of water inundation, erosion, or foot traffic, it can be relocated as a last resort. Moving sea turtle eggs creates many chances for harmful impacts. Remind the students that the argument that 'mother knows best,' in terms of choosing an appropriate environment for her eggs, is certainly worth consideration.

Normally, the only situations that justify nest relocation are when it is laid at or below the high tide line, in an area with heavy erosion, or at the base of a dune walkway. Predation, regular foot traffic, and beach alteration, such as raking and renourishment, are not valid reasons to relocate nests. Placing a cage or screen over the nest can deter predators and marking the nest is usually sufficient to discourage human disturbances. Eggs should be moved no later than twelve hours after they are laid to prevent **movement-induced mortality**, which can occur if the eggs are rotated or moved abruptly. That being said, nests in danger of being completely washed away during extreme weather conditions can be moved any time during incubation, provided great care is taken.

If relocation is necessary, there are several criteria that should be considered when choosing the new nest site in order to have the least impact on the developing turtles. The alternative nest site should be: close to the original, with the same dimensions and degree of vegetative cover; above the high tide line, on the seaward side of the dunes; and in an area with little erosion and foot traffic.

Activity

ENGAGE Allow the students to familiarize themselves with the sea turtle Management PhotoDocumentary and fill out the accompanying worksheet as they do so. There is one question per slide.

EXPLORE Provide half the students with Sullivan’s Island nest locations and map, and the other half with Isle of Palms nest locations and map (all provided). The Island Turtle Team is responsible for the turtles nesting on both of these beaches. Ask the students to plot the location of nests laid on the island they patrol.

EXPLICATE Ask the students to play the role of an Island Turtle Team volunteer. Tell them it is their job to determine what to do with each nest laid on their beach. Remind them that the Endangered Species Act protects sea turtles and that the South Carolina Department of Natural Resources checks in with the management project leaders throughout the season to be sure they are following proper procedures, so decisions must be justifiable (i.e. if they choose to cage the nest, they must tell why; if they decide the nest must be relocated, they must tell why and choose

an appropriate alternative site– decisions must be rational and justifiable). If the student decides to relocate the nest, he or she must also record the number of eggs that are in the nest. There is no ‘right answer,’ but reasonable responses should fall between 100 and 120.

ELABORATE Ask students to form pairs and discuss their rationale for management decisions. Remind them of the criteria for moving a nest– being close to a high tide line (even though above it) is different from being *on* or below it.

EVALUATE Provide the pairs with the weather advisory and ask them to review their nest data and determine what actions (if any) should be taken, given the information, and why. In summary, students should create a flow chart to describe the steps used in making nest relocation decisions and the outcomes.