

TRACKING SEA TURTLES

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Grade: 4-5

Time: 1-2 days

Overview

This lesson is designed to acquaint students with the Kemp's Ridley (the most endangered) sea turtle and its nesting and feeding areas.

Background Information

All eight species of sea turtles are threatened or endangered, primarily because of the destruction of their breeding grounds, poaching of their eggs for food, and marine pollution. Sea turtles spend almost all their lives at sea, but like all reptiles, the females must lay their eggs on land. When they come on shore, sea turtles have to contend with predators, poachers, and loss of their breeding beaches to seaside hotels and resorts. In some places, coastal pollution has destroyed their food supply of shallow water grasses and seaweeds.

In the ocean, adult sea turtles have only two enemies, sharks and people. Many are accidentally tangled in fisherman's drift nets and long lines. These air breathers drown when they cannot reach the surface. Some sea turtles swallow floating pieces of plastic, mistaking them for jellyfish. The plastic blocks other food from getting into their stomachs, and the turtles starve. Some sea turtles have been found with tumors growing on their bodies, possible a result of marine pollution.

Many islands and coastal areas now protect breeding sea turtles, but to sustain their populations we need to be able to protect them throughout their range. Yet little is known about their habits and migration routes. Radio tags on some sea turtles allow them to be tracked by satellites.

The Kemp's ridley (*Lepidochelys kempii*), the smallest of sea turtles, is also the most endangered. The Kemp's ridley was named in 1880 for Richard Kemp, a fisherman who shipped specimens to Harvard University from Key West. It is concentrated in the Gulf of Mexico (yet rarely is found in nearly Caribbean water). It sometimes swims and drifts northward along the Atlantic coast and even crosses the Atlantic to Europe and Great Britain. Some even reach New England on the seasonal migration up the coast.

The nesting and breeding areas of the Kemp's ridley remained a mystery for many years until a film taken of the Mexican coast in the 1940's accidentally revealed the nesting site of thousands of ridley sea turtles. They lay their eggs on a beach at Plalyo Rancho Nuevo, in Tamaulipas, Mexico. From this beach on the eastern coast of Mexico, baby ridleys enter the water and may be carried by currents around Florida and up the western Atlantic coast and across to Europe.

In 1990, biologist Richard Byles placed radio transmitters on six auala female Kemp's ridleys and tracked them by NOAA satellite until the transmitters fell off or quit working. The satellite used GPS – Global Positioning System – to locate their position every time it passed overhead.

The radio tag could only transmit a signal to the satellite when its antenna was out of the water, that is, when the turtle surfaced to breathe. In this way, researchers got information not only about a turtle's migration path, but also about how long she stayed under water (96% of the time!). Byles learned from this project that adult female ridleys migrate along the coast of the Gulf of Mexico in shallow water less than 150 feet deep, where they may encounter fishing nets and pollution from oil drilling operations.

Materials

- map of Gulf of Mexico
- colored pencils
- rulers
- atlases
- Transparency of Gulf of Mexico map
- resource sheet
- Transparency of fact sheet about Kemp's ridley

Objectives

- Students will use maps to become familiar with the Gulf of Mexico.
- Students will use maps to track migration routes.

Procedures

1. Students will use an atlas or map and colored pencils to label the Gulf of Mexico region:
 - Label the state of Texas and color it yellow
 - Label the state of Louisiana and color it green
 - Label the state of Mississippi and color it red
 - Label the state of Alabama and color it purple

- Label the state of Florida and color it orange
 - Label the country of Mexico and color it pink
 - Label the country of Cuba and color it brown
 - Label the Gulf of Mexico and color it blue
 - Label the Atlantic Ocean
 - Label the Pacific Ocean
 - Add a compass rose to the map
2. After students have labeled their maps, have them work in pairs to answer the following questions:
- Which Gulf state is the largest?
 - Which Gulf state is bordered by both the Gulf of Mexico and the Atlantic Ocean
 - Which Gulf state is bordered by Louisiana to the west and Alabama to the east?
 - Which state has the smallest amounts of land or coastline along the Gulf of Mexico?
 - Which Gulf state has the largest amount of coastline along the Gulf of Mexico?
 - Where do you live? Draw a little house where you live.
 - List the countries that border the Gulf of Mexico.
 - What is the capital city of Mexico?
 - What language do the people living in Mexico and Cuba speak?
3. Students will make a scale for their maps. Have students measure the distance between New Orleans (at the mouth of the Mississippi Delta) to the northern point of the Yucatan Peninsula and then compare that distance to the scale on an atlas showing the same area.
4. Students will locate Playo Rancho Nuevo, 100 miles south of the Mexico/Texas border, which is the nesting site of Kemp's ridley turtles.
5. Students will use research data to plot the migration route of six rare Kemp ridleys. Biologist Richard Byles tracked the 6 turtles (which he named 7660, 7661, 7662, 7663, 7664, and 7665) from June 15, 1990 to August 31, 1990. The data on the migration routes for these 6 turtles is at the following address: <http://octopus.gma.org/space1/turtles.html>.
6. Use a ruler and the scale to compute distances traveled. Determine which turtle traveled the farthest distance, and which traveled the least.
7. Where did they seem to prefer to "hang out?" What other information can be deduced from the map?

Evaluation

Evaluation will be based on student maps and discussion and participation.

National Geography Standards

#1, #8

Extensions

Class can use the Internet to register and participate in the FREE Satellite-Tracking Education Program through the Caribbean Conservation Corporation. One of the features of the program will allow the class to watch daily movements of endangered sea turtles. This program can be accessed at: <http://www.cccturtle.org/ccctmp.htm>

Sea Turtle Fact Sheet

Kemp's Ridley Turtle

- Rarest and most endangered of the sea turtles
- Nesting restricted to a 20-mile stretch of beach in western Gulf of Mexico
- Only 300 to 350 females nest each year
- Females synchronize egg laying in mass nestings
- Nesting occurs during daylight
- Feeds on blue crabs, clams, mussels, fish and jellyfish
- A small sea turtle; adults weight 85 to 100 pounds and measure 24 to 30 inches in length
- Hatchlings: 1 ½ inches long
- Species threatened by drowning in shrimp trawls, habitat alterations and pollution

Information from this lesson obtained from Gulf of Maine Aquarium web page:

<http://octopus.gma.org/space1/turtles.html>