Name;_____Period:_____Date:_____
Ms. Randall Marine Biology
Lab Activity: Stranded!!!

Background:

A seacoast is the dynamic border between two worlds—the terrestrial and the marine. In the realm of life science, we can observe marine animals that inhabit the shoreline and tide pools. In the realm of Earth science, we can observe how the ocean's currents, waves, and winds sculpt the shoreline, alternately carrying off and depositing sand. From the air, you can actually see the waves create a perfectly scalloped beach on Nantucket Island. Not only do these forces shape the land, they affect the living populations. Sometimes animals that inhabit deeper water are thrown off course. They come close to the shoreline and may actually be found on the beach. They may be injured, sick, or disoriented and soon become cold, hungry, or dehydrated. Such is the case for various species of dolphin, porpoise, seal, whale, and turtle that become stranded along the Atlantic coastline. But there is help for some animals.

In many locations, when beached animals are sighted, professionals and volunteers are on the scene. Sick, cold, or injured animals are immediately placed in a rehabilitation program with the intent of getting them well enough to be returned to their natural habitat. Often the animals are tagged with a transmitter for future tracking. Some of the large marine animals that are regularly tracked along the Atlantic coast are cetaceans, pinnipeds, and sea turtles. Cetaceans are marine mammals such as whales, dolphins, and porpoises; pinniped refers to seals and walruses. If an individual from one of these populations is seen on shore, the observer can call in the sighting to an agency that helps such creatures; if possible, a rescue team is dispatched. Every acknowledged animal sighting is assigned a number and becomes part of the database for that species. If the animal requires treatment of an injury or disease, it may be given a temporary tank to live in until it can recuperate and be returned to the wild. Sea turtles make up another group of marine animals that become stranded along the Atlantic coast.

Turtle species are of particular interest because they are either endangered or threatened worldwide. (Endangered species are in danger of becoming extinct; threatened species could easily become endangered if present trends continue.) Sea turtles are reptiles that have existed virtually unchanged for eons; human activity has decimated their populations. In the days of the great sailing ships, these large reptiles often found their way into the cook's stewpot. Their heavy shell or carapace was a treasured source of decorative shell. Even in recent decades, their eggs have been plundered for food. During their long lives (fifty years or more), these reptiles may travel great distances; tagging individuals is important for studying their behavior and monitoring their dwindling populations. Stranded sea turtles are sometimes reported up and down the Atlantic coast as well as on the Gulf Coast.

The causes are many, including water pollution, disease, and attack by a predator, or entanglement in fishing gear. To prevent turtles from getting caught and drowning in fishing nets, some Gulf shrimp trawlers use nets equipped with a turtle exclusion device that has been effective in protecting turtles. On the northeast Atlantic coast, animals are sometimes found close to the beaches, especially in the winter months. They may be driven toward the shore by the cold Labrador Current in Cape Cod Bay, or the northwest winds along Long Island's north shore may pin the turtles against the shore or trap them in bays. These animals become "cold stunned"—chilled to the point where they are unresponsive and unable to eat to get their metabolic rate going. Cold stunned turtles must be gradually warmed, given warm fluids intravenously, and then force-fed to give

them the nutrition they need. When their body temperatures have increased, they are placed in tanks and fed and cared for until they are sufficiently recovered to be released. The data in the activity reflect actual turtle strandings during the winter months of 1995 reported by the Okeanos Foundation on Long Island and the New England Aquarium in Boston, agencies that are authorized to rescue and rehabilitate marine animals.

Objective:

- Plot stranding sites onto a map using latitude
- Plot stranding sites onto a map using latitude and longitude as well as compass directions with respect to coastal features.
- Identify several species of marine animals that might become stranded; distinguish their characteristics and habitats.
- Identify several coastal features and important currents.
- Form hypotheses and make analyses based on the data.

Materials:

Student pages A

Procedure:

Imagine that you are a volunteer at a rescue and release program for stranded marine animals. You get a call that an ocean-dwelling animal has been sighted along a beach. What should you do? Call in the professionals. Experienced scientists who understand the physiology and behavior of marine animals should be the only ones to move or care for a stranded or sick animal. As a volunteer, you would need to know how to give someone the location of the sighting.

1. Use the Stranding Data table to plot the location of sea turtles that actually were sighted and, when possible, rescued.
    a. You will need to approximate the latitude and longitude in some cases. Assume that each turtle was found close to the nearest shoreline.
    b. Draw a small turtle icon to represent each in the correct location and write its number on its shell.

2. Place additional data about the turtles in this table:

Number	*Species*	*Body of water in which found*	*Diet*	*Probable cause of stranding*
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				