

Gray Whales on the Move

OBJECTIVES

The student will be able to state when, where, and why gray whales migrate, plot data of two migrating whales on a map, and describe the ecosystems to and from which they travel. As an extension, students can compare and contrast gray whale migration to Baja California, Mexico, and humpback whale migration to Hawaii.

National Geography Standard: 1

MATERIALS

- Atlas (that includes detailed information on Alaskan waters and Baja California, Mexico)
- Computer with Internet access if available
- Copies of North American Pacific Coast map (provided)
- Copies of blank North American Pacific Coast map (provided)
- Writing and drawing materials including color markers or pencils
- Copies of data sheet and questions (provided)

BACKGROUND

Gray whales (*Eschrichtius robustus*) probably migrate farther than any other marine mammal. They journey between feeding and breeding grounds and cross national and international boundaries. California gray whales live off the western coast of North America.

Gray whales spend the summers eating marine worms and amphipods (shrimp-like animals). They strain huge amounts of food from the muddy bottoms of the Bering and Chukchi Seas. Most gray whales migrate south in the fall as the ice pack starts to form. They swim along the North American coastline to Baja California, Mexico—a distance of more than 9,656 km (6,000 mi.). In Baja, the whales give birth and mate in the shallow waters of Laguna Ojo de Lebre (Scammon's Lagoon), Laguna San Ignacio, and Magdalena Bay. After two or three months, the gray whales travel north to the Alaskan arctic.

In the 19th and early 20th centuries, whalers hunted gray whales to the brink of extinction. After a ban on hunting in 1946, the population of California gray whales began to recover. Scientists believe that the current population is close to pre-whaling numbers. In 1994, the gray whale was the first marine mammal removed from the U.S. Endangered Species List.

ACTION

1. Look at a world map in an atlas. Discuss the values for latitude (horizontal lines) and longitude (vertical lines). What are the latitudes at the poles and the equator? Between which latitudes is the Pacific Coast of North America found? Is this region north or south of the equator?
2. Distribute the blank map to students and have them label the countries or continents, oceans, seas, coastal states, Hawaii, and Baja California, Mexico.
3. Distribute the data sheet showing the dates, latitudes, and longitudes for two gray whales migrating along the coast. Distribute the labeled map of the North American Pacific Coast to the students. Have students plot the migration data on their maps using a different color for each whale. Place arrows or other symbols along the migration path to indicate when whales travel south, travel north, or are in the area in which they give birth and/or mate. To complete the map, add a map key, a compass rose, and give the map a title.
4. As a class or as individuals, use the maps completed in class, the migration data, an atlas, and the online sources provided to answer the questions at the bottom of the data sheet. (Answers are provided on page 20.) If students cannot answer in class, let them work on the questions as a homework assignment, using the Internet or library to look up more information on gray whales and humpback whales.
5. The next day, discuss the answers. Other topics for discussion: In what ways is the ocean environment different near Alaska than near Mexico? Why do gray whales and humpback whales migrate? How do they find their way over such a long distance? What other animals migrate? Do humans migrate?



J.J. the gray whale was an orphaned calf rescued by SeaWorld San Diego. After months of rehabilitation she was released. J.J. contributed to our understanding of gray whale growth and development.

Saving My Wild

Have students ever seen a whale? Would they like to? Why? How would students feel if these giant creatures became extinct? Students can research current conservation efforts for whales and of the ocean. What do humans do that might threaten whale populations?

Online Sources

Alaska Department of Fish and Game

www.adfg.state.ak.us/pubs/notebook/marine/gray.php

Hawaiian Islands Humpback Whale National Marine Sanctuary

www.hawaiihumpbackwhale.noaa.gov/about/humpback.html

International Whaling Commission

www.iwcoffice.org/

National Marine Mammal Laboratory (includes information on gray whales and humpbacks)

nmml.afsc.noaa.gov/education/cetaceans/baleen1.htm

OBIS SEAMAP (gray whale and humpback whale information)

www.seamap.env.duke.edu/species

SeaWorld/Busch Gardens ANIMALS

www.swbg-animals.org/animal-info/animal-bytes

U.S. National Marine Sanctuaries

www.sanctuaries.nos.noaa.gov/

Whale Sanctuary of El Vizcaino

www.unep-wcmc.org/sites/wh/vizcaino.html

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North American Pacific Coast

On this map write the names of oceans, seas, countries (or continents), and states.
Also indicate Hawaii; Baja California, Mexico; and Mexico.

Gray Whale Migration Data					
Whale 1: Pregnant Female			Whale 2: Mature Male		
Date	Latitude (North)	Longitude (West)	Date	Latitude (North)	Longitude (West)
20-Oct	60°N	170°W	30-Oct	67.5°N	170°W
30-Oct	55°N	165°W	19-Nov	55°N	165°W
19-Nov	57.5°N	150°W	29-Nov	57.5°N	140°W
29-Nov	50°N	130°W	9-Dec	45°N	125°W
19-Dec	35°N	122.5°W	19-Dec	35°N	122.5°W
8-Jan	25°N	112.5°W	18-Jan	25°N	112.5°W
17-Feb	25°N	112.5°W	17-Feb	25°N	112.5°W
10-Mar	25°N	112.5°W	27-Feb	40°N	125°W
26-Mar	40°N	125°W	10-Mar	50°N	130°W
15-Apr	55°N	135°W	26-Mar	57.5°N	150°W
5-May	57.5°N	140°W	15-Apr	55°N	165°W
30-May	55°N	170°W	5-May	67.5°N	170°W



Questions

1. Why do gray whales migrate each year from Alaska to Baja California, Mexico?
2. Whale 1 reached Baja California, Mexico earlier than Whale 2 and stayed there longer. What is a possible reason for this?
3. To which breeding lagoon in Baja California, Mexico have these two whales migrated? To which sea in the Alaskan arctic has each whale traveled in the summer?
4. What behaviors/habits made gray whales an "easy" catch for 19th- and 20th-century whalers?
5. Another whale that migrates in the eastern North Pacific Ocean is the humpback whale. Where do these populations of humpbacks spend the summer months? Where do they spend the winter months?
6. Gray whales and the humpback whales travel through different coastal areas. Are any of these ecosystems protected? How could unprotected areas (those open to shipping and fishing) affect the migration and the lives of the whales?

Plot the migration of gray whales on this map.



World Map

