Long Distance Learning

Glacier Bay
National Park and Preserve
National Park Service

Watching Whales in Glacier Bay

A Day in the Life of A Glacier Bay Scientist

Activity: Watching Whales in Glacier Bay
School Subjects: Life Science
Grade Level: 4-8 Time requirement: 45 minutes

National Science Standards Addressed

NS. 5-8.1 Science as Inquiry
NS. 5-8.3 Life Sciences
NS. 5-8.7 History and Nature of Science

Lesson Overview

Glacier Bay is home to one of the most magnificent marine mammals - the endangered humpback whale. Come join park rangers and researchers on a virtual, interactive whale research trip in Glacier Bay.

Lesson Objectives

By the end of the lesson, students will be able to:
The participant will:
1. Be able to identify humpback whale behavior using video footage.
2. Be able to identify and compare whale flukes by using photos from whale identification catalogs.
3. Be able to explain why humpback whales migrate from Glacier Bay to Hawaii and Mexico.
4. Understand how researchers study humpback whales in Glacier Bay and why it is important to park management.

Materials

Prior to the program, Glacier Bay National Park will email pre-program information and activity sheet.

Background Information

Seeing a Humpback Whale (*Megaptera novaeangliae*) in Glacier Bay is an experience many visitors never forget. The true giants of Glacier Bay's waters, these endangered animals are 40-50ft (12-16m) long and weigh 40 tons (36,000kg). With a simple breath, the Humpback Whale expels air at over 300mph (480km) creating a cloudy column of vaporized air that can be seen for miles. For their size, Humpback Whales are remarkably acrobatic and stun visitors with their explosive full-body breaching, pectoral fin slapping, tail-lobbing and lunge-feeding maneuvers. Humpback Whales get their name from their typical diving pattern-arching their back before their final or terminal dive.

Humpback Whales travel to Glacier Bay for one reason-food. Having fasted their entire winter in places like Hawaii or Mexico, these massive mammals spend their entire summer gorging themselves on the small schooling fish that often concentrate in Glacier Bay's cold, nutrient rich waters. In a single gulp, a Humpback Whale takes in more water (15,000 gal.) than a typical home uses in 5 months. A whale's tongue alone weighs 1 ton, which the whale uses to press all that water through its built-in, food-filter-its baleen. Feeding like this almost 23 hours a day, a single Humpback can consume almost ½ ton of food each and every day!

Glacier Bay is a Humpback Whale sanctuary. In the park's waters, Humpback Whales benefit from some of the strongest protections found anywhere on our planet. Once in rapid decline, the number of whales spotted in Glacier Bay is growing every year. What's more, scientists have been studying Humpback Whales in Glacier Bay for decades. Thanks to this research, we continue to learn more about the fascinating life of this magnificent, endangered animal.

The humpback whale is an endangered migratory baleen whale that occurs in all ocean basins of the world. More than 28,000 North Pacific humpbacks were killed by commercial whalers in the twentieth century, reducing their population to approximately 1,000 animals by the mid-1960's. By the end of the 1965 hunting season, when the International Whaling Commission instituted a moratorium on commercial hunting of humpbacks, their worldwide population had dwindled from more than 125,000 before exploitation to an estimated 10,000. The humpback whale was classified as an endangered species in 1973 when the U. S. Endangered Species Act was implemented. At present, there is no precise estimate of the worldwide humpback whale population

Humpback whale sightings were first reported in Glacier Bay in 1899; by the 1930s they were commonly seen in the Bay. Whale numbers typically rise in mid-June, peak in July and August, are somewhat lower in April, May and September and are lowest from October through March. The NPS has monitored humpback whale population characteristics from June 1 to August 31 each year since 1985 to document the number of individuals identified, residence times, spatial and temporal distribution, calf production, feeding behavior and human/whale interactions including strandings, entanglements in fishing gear and behavioral disturbance. The whale monitoring program also generates whale distribution data used to determine where and when "whale waters" vessel operating restrictions are need-

ed during the summer visitor season.

Each whale's flukes have a distinct, stable black and white pigment pattern that allows researchers to distinguish individuals. Researchers photographically identified 237 individual humpback whales, including 10 calves, in Glacier Bay and Icy Strait during the summer of 2013. This is the highest number of whales documented since the monitoring program began in 1985. Forty-eight whales (14 in Glacier Bay and 34 in Icy Strait) were sighted on just one day. Research has shown that whales move between Glacier Bay / Icy Strait and other areas in Southeast Alaska, suggesting that the number of whales in all of these areas is interdependent. Mature female humpback whales typically reproduce at 2-year intervals, although there is considerable variability in calving intervals.

Topics Covered in Program

1. Introduce NPS and Humpback Whales (sound clip).
2. Identify whale behaviors using video clips.
3. Studying whales in Glacier Bay
4. Identifying whale flukes using catalog photos.
5. Importance of research to management of Glacier Bay.

Extension Activities

Blubber glove: Fill a sturdy plastic bag with vegetable shortening. Insert another plastic bag, making a kind of glove. Fill a basin with cold water. Have a student put a plain plastic bag over one hand and the shortening glove on the other hand. Place both hands in water. See how long the student can comfortably keep both hands in the water. Have the student describe what it feels like. Let other students try as time allows.

Fluke identifying: Try matching whale flukes. Take a look at the whale match game at www.nps.gov/glba/naturescience/upload/Whale-Tail-Match-Game.pdf or see the full catalogue at www.alasksahumpbacks.org.

Learn More

Visit the humpback whale page of Glacier Bay's website at http://www.nps.gov/glba/naturescience/humpback-whales-in-glacier-bay.htm. Listen to whale songs, play a whale migration game, and more.