

Species on the Edge



Focus: Endangered sea turtles (This lesson can also be used with whale species.)

Grade Level: 3-8

Connection to other Subjects: English/Language Arts

Correlation to National Standards:

National Science Education Standards (NSES):

Content Standard C: Life Science

K-4: Characteristics of organisms; Organisms and environments

5-8: Populations and Ecosystems

Content Standard F: Science in Personal and Social Perspectives

K-4: Changes in Environments

5-8: Populations, resources and environments

American Association for the Advancement of Science (AAAS):

3-5: The Living Environment – Section D(1,4); Habits of Mind Section E(1)

6-8: The Living Environment Section D(1,2); Human Society Section G(5)

Focus Question: What are the threats to sea turtles?

Learning objectives: To be able to describe the factors negatively affecting population of sea turtles.

To identify and discuss action that can be undertaken to reduce or eliminate threats to sea turtles.

Materials:

- The Kid's Times pages for the loggerhead, Kemp's ridley, leatherback, green, olive ridley, and hawksbill turtles.
- Pictures of turtles (available at www.nmfs.noaa.gov, www.seaturtle.org, or www.cccturtle.org), including pictures of entangled turtles, turtle eggs, and nesting beaches with buildings and beach furniture.
- Background information for teachers from the sites above

Teaching Time: 2 classes of 45 minutes

Key Words:

Threatened

Endangered

Species

Coastal development

Beach habitat

Marine Pollution

Conservation

Bycatch

Entangle (in fishing gear)



Background:

About Sea Turtles: Sea turtles, air-breathing reptiles with streamlined bodies and large flippers, are well adapted to life in the sea environment. They inhabit tropical and subtropical ocean waters throughout the world. Of the seven species of sea turtles, six are found in U.S. waters: loggerhead, leatherback, green, hawksbill, Kemp's ridley, and olive ridley. Although sea turtles live most of their lives in the ocean, adult females must return to the beaches on which they were born to lay their eggs. They migrate long distances between foraging grounds and nesting beaches. Ensuring their return and keeping the beaches free of hazards are very important steps to the recovery of sea turtle species.

Female sea turtles can lay well over 100 eggs in one clutch (nest), but only a few survive for a variety of reasons. The embryos in some of the eggs in the clutch never develop and therefore, never hatch. Scientists do not know the cause of this. Those that hatch climb over each other to reach the surface, and in the process some turtles suffocate under their siblings. When the surviving hatchlings reach the surface of the beach, they are faced with a number of impediments to reach the ocean, including natural predators and human-caused factors.

Major Threats to Sea Turtles: Major threats include, but are not limited to: destruction and alteration of nesting and foraging habitats; incidental capture in commercial and recreational fisheries; entanglement in marine debris; and vessel strikes. The game board spaces list the common threats encountered by hatchlings on their way to the sea.

To reduce the incidental capture of sea turtles in commercial fisheries, NMFS has enacted regulations to restrict certain U.S. commercial fishing gears (gillnets, longlines, pound nets, and trawls) that have a known, significant bycatch of sea turtles. Management measures include time/area closures, required fishing gear modifications, and safe sea turtle handling practices. Examples of required fishing gear modifications include: the use of Turtle Excluder Devices (TEDs) in shrimp and summer flounder trawl fisheries; the use of specific hook and bait types in longline fisheries; mesh size requirements in gillnet fisheries; and pound net leader mesh size requirements. To effectively address all threats to sea turtles, NMFS and the USFWS have developed recovery plans to direct research and management effort for each sea turtle species.

Sea Turtle Conservation and Management: All six species of sea turtles occurring in the U.S. are protected under the Endangered Species Act of 1973. The National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) share jurisdiction for sea turtles, with NMFS have the lead responsibility for recovery of sea turtles in the sea environment and USFWS on nesting beaches.



Introduction:

Show pictures of sea turtles and their habitats. Ask students what they notice about the pictures. Record the answers in front of the class.

Lesson:

1. Based on the pictures, ask students why sea turtles could go extinct and then list their ideas for the class. They will later compare their predictions with what they find in their readings.
2. Break the students up into groups by species, have them read the section “Why are they in trouble?” from *The Kids’ Times* for their sea turtle, and have them chart the threats. Discuss the threats with the students.
3. Using the Threats to Sea Turtles chart, students list all the threats to each species. Next, they code the threats (e.g. all the species who have dredging as a threat get a star next to dredging). Color-coding can also be used.
4. As a class, list the threats identified in the reading from most to least problematic based on student coding. Discuss the first few on the list to make sure the kids understand what they are.

Closure:

- Compare the initial predictions to the coded class list.
- What surprised students the most about the threats to sea turtles?
- Which predictions were inaccurate, and how can the class change them to become accurate statements about sea turtles?
- What other information do the students need to verify the remaining coded predictions? Assign students to research the predictions.
- Identify what students can do to help sea turtles.
- Write and sign a class pledge to protect sea turtles.

Evaluation:

- The students can create a poster to educate other students about the shared threats sea turtles face.
- World Pull Out: Each child pulls three words from a word bank and uses them in a journal entry to describe what he or she learned.

Resources:

- The Kid’s Times by NOAA Fisheries Office of Protected Resources
- The Office of Protected Resources website: www.nmfs.noaa.gov/pr/,
- www.seaturtle.org
- www.cccturtle.org



NOAA's National Marine Fisheries Service
Office of Protected Resources
www.nmfs.noaa.gov/pr/
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Threats to Sea Turtles



Species of Turtle	Threats to Survival