

Lesson Five

How might the G8 Sea Island Summit encourage the protection of Georgia's endangered sea turtle population?

Objective

Students will describe reasons for, and the nature of the threats facing the sea turtle population along the Georgia coast and investigate what can be done to protect them.

Resources

- **Sea Turtles Found in US Waters** *data retrieval chart*
- **Sea Turtle Facts** *website*
www.fpl.com/environment/endangered/contents/sea_turtles_overview.shtml#TopOfPage
- **International Year of the Ocean** *website*
www.yoto98.noaa.gov/books/turtles/turtle2.htm
- **Cumberland Island Museum** *website* www.cimuseum.org
- **Cumberland Island Museum is a Nest of Turtle Research**, August Chronicle, April 11, 1999
http://augustachronicle.com/stories/041199/met_MNS-8162.001.shtml
- Turtle Strandings Along the Coast of Cumberland Island 1990-2003 *handout*
- **Karen Beasley Sea Turtle Rescue and Rehabilitation Center**
www.seaturtlehospital.org

Introduction

Sea turtles are large, air-breathing reptiles which spend most of their life in the ocean. Over the past century, their numbers have dropped as they have been slaughtered for their meat, eggs, shells, and leather. All six of the species of sea turtles found in US waters are currently protected under the Endangered Species Act. However, their numbers continue to drop, and some like the loggerhead, actually face extinction. Georgia and other states along the southeastern coast of the United States is one of the few places left in the world where these turtles continue to nest.

Many environmental problems exist because there are no clear rights of ownership. In the past, there was a market for turtle meat and shells, so people killed them. No one "owned" the turtles or other endangered species, so no one had an owner's incentive to look after them. When there are no rights of ownership, "common pool" problems arise. Air and water pollution are additional examples of "common pool" problems. In the case of the turtles, the Endangered Species Act has not been an adequate measure of protection as evidenced by their numbers. If the presence of fishing boats in the turtle's habitat is a major threat, there would have to be a strong incentive system to discourage people from fishing in that area. The reality, however, appears to lie in the fact that, because turtle migration patterns are extensive, their protection must come from both governmental and non-governmental initiatives, including the international community. Additional strategies to create "ownership," such as "adopt a turtle," and measures to

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create awareness of the full nature of the problem, such as improved education, could be discussed and pursued by policy makers, conservation groups, and interested individuals.

Task

In this lesson, students will locate information on sea turtles living along the Georgia coast and identify threats to their survival. They will discuss strategies to raise awareness that the protection of the turtles must be a collaborative effort across state and national boundaries, and between government and private initiatives.

Process

Begin this lesson by explaining to students that the Georgia coast is unique in that there are a few pristine islands remaining where sea turtles are able to nest without facing the hazards posed by heavy tourism and industrial traffic and lighting. One such island is Cumberland, the largest and most southerly of the Georgia barrier islands and one that has been designated a national seashore and therefore protected from further development. Cumberland Island is a favorite nesting ground for sea turtles, including the Loggerhead and the Kemp's Ridley. Nesting activity there is monitored by both the National Park Service and a unique, privately funded institution known as the Cumberland Island Museum. Statistics have been kept for many years on numbers of nests, as well as the number of turtle strandings. This activity introduces students to the work being done on Cumberland Island and offers an opportunity to compare Cumberland's findings to those of others monitoring sea turtle activity on other islands along the southeast coast.

Next, distribute the Sea Turtles Found in US Waters data retrieval chart for students to complete using the Internet sites *International Year of the Ocean*, *Anna Maria Island Florida*, and *Sea Turtle Facts*. When they finish the chart, have students read the newspaper article *Cumber Island Museum is a Nest of Turtle Research*, August Chronicle, April 11, 1999, and visit the Cumberland Island Museum website. Also provide students a copy of the chart detailing the number of Turtle Strandings Along the Coast of Cumberland Island, Georgia, 1990-2003. An additional website to visit is the Karen Beasley Sea Turtle Rescue and Rehabilitation Center, where students can click on "current patients" and find out what injuries sent them to the rescue center.

After reviewing the information in these documents and the web site, have students evaluate the effectiveness of the current efforts to protect sea turtles along the Georgia coast. When they finish, ask students to share their findings and answer the following questions.

- What are the most common threats to the sea turtle?
- Why is there a role for government in the protection of endangered species?
- Why has the number of sea turtles not increased even though they are protected under the Endangered Species Act?
- What can ordinary citizens do to encourage protection of the sea turtle?

The students should apply what they've learned through a public information campaign which could include:

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- Letters to state and national officials outlining the plight of the turtle
- Editorials to local newspapers which outline private initiatives to protect the sea turtle
- Other strategies students identify, such as contacting international groups.

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Sea Turtles Found in US Waters

	Green Turtle	Hawksbill Turtle	Kemp's Ridly	Leatherback Turtle	Loggerhead Turtle	Olive Ridly Turtle
Scientific Name						
Physical Description						
Current Population						
Lifespan						
Diet						
Nesting Habits						
Environmental Threats						
Conservation Efforts						

What are Turtle Excluder Devices and how effective have they proven to be?

Cumberland Island museum is nest of turtle research

Web posted April 11, 1999

By Gordon Jackson
Morris News Service

CUMBERLAND ISLAND, Ga. -- Hidden at the north end of Cumberland Island, amid scrub oak trees draped with Spanish moss and gnarled pine trees bowed to the west by prevailing winds, lies a small group of seemingly insignificant wooden buildings.

The first indication that there may be something out of the ordinary on the property, less than half the size of a football field, is the dolphin skeletons hanging on the porches of two small wooden frame cabins with tin roofs.

The most significant structure, however, a culmination of more than 25 years of research, can only be identified by a small wooden sign tacked near the door, which identifies it as the Cumberland Island Museum.

It's not to be mistaken for a museum currently under construction in St. Marys by the National Park Service, emphasizes Carol Ruckdeschel and her research partner, C. Robert Shoop, a retired professor from the University of Rhode Island who specializes in amphibians and reptiles. The St. Marys museum will feature artifacts from Cumberland Island and will be open to the public. But the Cumberland Island Museum is a place few people outside academic circles know about and even fewer people have visited, Ms. Ruckdeschel said.

"It's not a destination point," Ms. Ruckdeschel said of the museum. "It's not just for the average person to see."

But among those who study sea turtles, Ms. Ruckdeschel and Mr. Shoop have reached "legend status" on the Atlantic coast for their lifelong commitment to turtles, said Mark Dodd, turtle coordinator for the Georgia Department of Natural Resources.

"Carol has seen more turtle guts than anyone on the planet," Mr. Dodd said. "The data they collect for us is invaluable."

Mr. Dodd said he first learned about Ms. Ruckdeschel and Mr. Shoop while working for the South Carolina Department of Natural Resources more than a decade ago through the couple's many published papers in academic journals and through other turtle researchers.

Ms. Ruckdeschel attended Georgia State University and Mr. Shoop earned his doctorate degree in zoology and botany at Tulane University.

The name identifying the building as a museum may be a misnomer to the average person -- it's probably more of storage house for museum-worthy items such as ones the couple has donated to the Smithsonian Institute and universities in California, Georgia and Rhode Island.

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Inside the temperature- and humidity-controlled building, built by the couple, lie stacks of sea turtle shells, identified by the date and location where the turtle's body washed ashore. But most of the items aren't displayed like they're in a conventional museum.

The important items -- skeletons, internal organs, skulls, stuffed rodents and snakes stored in jars filled with liquid preservatives -- are tucked away inside large metal cabinets or stored in banana boxes stacked to the ceiling.

"I don't know anyone who has a collection like that," said James Parham, a graduate student specializing in studying sea turtles at the University of California at Berkeley.

Mr. Parham said he has worked two summers at the museum conducting research and has taken specimens back to California to study. Some of the specimens will be on display at the university after the research is finished, Mr. Parham said.

He said most of the sea turtle exhibit at the Smithsonian Institute was donated by Ms. Ruckdeschel and Mr. Shoop.

Denis Davis, superintendent at Cumberland Island, said Mr. Shoop and Ms. Ruckdeschel provide a valuable service to the National Park Service by sharing their research of the island and its wildlife.

"They offer a unique perspective and offer a unique expertise," Mr. Davis said. "I hope we can offer a positive working relationship with them."

Mr. Shoop describes the museum as the "ideal research facility" because there are no distractions working in such an isolated environment.

They are funded by foundations and private individuals but often spend their own money to support their research, Mr. Shoop said.

The couple said they add to their collection "opportunistically" by gathering anything of interest that washes ashore.

Ms. Ruckdeschel said she has examined more than 1,500 dead turtles since she moved to the island in 1973.

Last year, the couple said, was the worst since 1987 for turtle strandings in the state. On Cumberland, they examined 100 dead sea turtles. The majority -- 79 -- were loggerheads, followed by 17 Kemp's ridleys and three greens. They also said they recovered the first hawksbill turtle ever in the state of Georgia.

Cumberland Island has one of the highest turtle stranding rates in the world despite the mandatory use of turtle excluder devices on the nets of shrimping boats in state waters.

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Mr. Shoop theorizes that excluder devices work well by giving the animals a way to escape shrimp trawler nets. But the same turtle may be caught several times in the same day by different trawlers, stressing the animal to death.

Turtles recovered by the couple are examined for cause of death, diet, gender and any other information that could be useful to protecting the species, Mr. Shoop said.

The shells and skeletons are set outside, where they are cleaned with the help of beetles and vultures that pick the flesh off the bones, Mr. Shoop said.

The couple is also trying to determine why turtles seem to be changing their feeding habits -- they are finding an unusually high percentage of clam shells in the turtle's digestive tracts, Mr. Shoop said.

Their findings will help turtle experts across the world ensure the survival of the endangered animals, Mr. Parham said.

“The Cumberland Island Museum is really a special place,” he said. “They salvage or at least look at every turtle that washes ashore. It's top notch.”

Turtle Strandings Along the Coast of Cumberland Island, Georgia

<i>Year</i>	<i>Number of Turtles Found</i>
1990 <i>(TEDs mandatory)</i>	69
1991	55
1992	71
1993	42
1994	89
1995	67
1996	87
1997	83
1998	100
1999	78
2000	61
2001	77
2002	103
2003	106
<i>Source: Carol Ruckdeschel, Cumberland Island Museum, January 3, 2004</i>	<i>Possible causes of death related to suffocation during forced submergence in trawl nets, shock and physical trauma, some boat propeller strikes</i>