How can Humans Help Loggerhead Sea Turtles?

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Abstract

The loggerhead sea turtle population is fighting for survival; the Federal Endangered Species Act lists loggerhead sea turtles as a threatened species. Today, humans have the greatest impact on loggerhead sea turtles. Coastal development, shrimping, and commercial fishing negatively impact sea turtles. Coastal development disrupts sea turtles' natural way of nesting and increases photopollution, the presence of artificial light in the environment. Fishing and shrimping causes sea turtles to be caught in nets and trawls resulting in death by drowning. However, not all human effects are negative. Recent laws and ordinances passed by the State of South Carolina have created a positive effect on loggerhead sea turtles. An ordinance banning outdoor lighting in buildings on the beach at night during turtle hatching season has greatly reduced the amount of photopollution, and has greatly increased the number of hatchlings reaching the ocean's water. Laws and ordinances like this one help humans have a positive impact on sea turtle survival. According to the South Carolina Department of Natural Resources, 2008 was predicted to be a banner year for sea turtle nesting due in large part to the conservation efforts of people.

During the middle of night in August, a mother sea turtle emerges from the water and begins to crawl across the beach to find a proper nesting site. Her flippers are normally used for swimming; therefore, it takes two hours for her to reach her nesting site. She selects her nesting site by temperature, moisture, sand grain size, dune patterns, and vegetation amount, and all debris must be cleared before laying eggs. The turtle uses her hind flippers to excavate a pit. She lays 80 to 100 ping-pong size eggs which will remain under a bed of sand to protect them (Gulko 86). The mother crawls back into the surf. If her hatchlings survive, it will be about 30 years before they return to nest. Coastal development, commercial fishing, and shrimping negatively impact loggerhead sea turtles, but the passage of recent laws and ordinances help humans turn their negative impacts on loggerhead sea turtles into positive ones. Human interaction and other stressors prevent loggerhead sea turtles from completing the nesting process and ultimately living. Through small changes, humans can create a better habitat for loggerhead sea turtles.

Coastal development negatively impacts nesting adult loggerhead sea turtles and their hatchlings. The main aspects of coastal development are “beach enrichment, seawall construction or armoring, beach cleaning machines, and use by humans.” All of these activities can interfere with nesting activities (Gulko 86). Because of coastal development, “too many of the natural beaches are gone” (Spotlia 88). As more and more people are building along the coast, this activity is making it difficult to find unused sandy beaches for nesting. The sea turtles are not able to nest with obstacles that humans create on the beach (Gulko 86). “Hatchling mortality owing to artificial lighting [photopollution] is a serious problem whenever people live near nesting beaches...” (Spotlia 91). Photopollution is the presence of detrimental artificial light in the environment. “Artificial lighting on nesting beaches disorients hatchlings and adult females” (Spotlia 91). Sea turtles usually hatch at night and use visual cues to find the sea and

orient toward the brightest light (Spotlia 171). Unfortunately, sea turtles naturally toward street lights, porch lamps, and automobile headlights instead of going toward the ocean. Many new laws and ordinances have been set to reduce photopollution and human activity on the beach at night. The Town of Hilton Head Island, a major nesting site in South Carolina, has policy 8-5-113 that states "no artificial light shall illuminate any area of the beaches of Hilton Head Island" for the benefit of sea turtles (Chapter 5 Sea Turtle). To meet this intent, lights illuminating buildings, structures and grounds shall be shielded or screened to prevent visibility from the beach, or turned off after 10:00 p.m. during May 1 to October 31 (Chapter 5 Sea Turtle). An action as simple as turning off the lights can greatly increase a hatchling's chance for survival of making it to the ocean's water.

Longlines and driftnets, also known as gillnets, are two major aspects of commercial fishing that create hazards for loggerhead sea turtles. A longline is a fishing line that stretches for miles; it holds thousands of baited hooks to catch swordfish, tuna, and sharks (Spotlia 81). "Sea turtles are routinely caught on these hooks, drowning on the lines suspended underwater or facing the prospect of being released alive but with a hook embedded in their jaws, throats, or stomachs" (Spotlia 81). Glow sticks used to lure fish, bait, or jellyfish attract sea turtles (Spotlia 81). A driftnet is a fishing net used to collect bait fish that is left in the water by commercial fishermen. Sea turtles that become entangled in the nets are very likely to drown. Sea turtles are attracted to bait fish in the nets, but as they eat, they become caught in the mesh of the net (Spotlia 77). Setting an example, "Florida banned the use of gill nets in state water in 1996" (Gulko 90). Today, many nations around the world such as the South Pacific, Japan and Brazil are banning drift nets for commercial use (Sea Turtle). There are still reports of illegal gill-netters working in the high seas (Spotlia 78). Hawaii is the only state that allows driftnets in the

United States (Gulko 90). In January 2009, regulators voted to take steps to shut down longline fishing because it kills hundreds of sea turtles yearly (Associated Press). The National Marine Fisheries Service must approve the banning, but "it is likely to do so because of mounting evidence that long-line fishing is killing sea turtles such as the loggerhead sea turtle" (Associated Press). Protecting sea turtles from longlines and driftnets has been a long battle, but it will soon end. All over the world, laws are slowly eliminating driftnets for commercial use, and longlines are almost illegal in the United States. Eliminating these methods of commercial fishing will increase an adult loggerhead sea turtle's chance of survival.

Shrimping nets affect sea turtles when they come near shore to nest because they are caught in them; sea turtles drown when they cannot escape. Not long ago, an estimated 55,000 sea turtles were killed annually by U.S shrimp trawlers (Gibbons). Shrimpers drag large nets behind boats to catch shrimp, but sea turtles follow the shrimp into the net. Sea turtles are prone to drowning when they are caught in trawl nets and are crushed or are unable to escape to the surface to breathe. Federal laws passed in 1989 require all United States shrimp trawlers to have a turtle excluder device (Gibbons). A Turtle Excluder Device, TED, is a grid of bars in a trawl net either located at the top or bottom of the net (Trawls). When a sea turtle is caught in a shrimp net, is hits the grid of bars of the TED and is ejected through the opening. TEDs have saved many sea turtles' lives. If all countries required all trawls to have a TED, the industry would not be impacted and many more sea turtles' lives would be saved.

In a recent survey conducted in the Metro-Atlanta area, all age groups, from students to adults, showed the same type results. Approximately 68% of participants do not consider themselves knowledgeable about sea turtles (Bradley). However, 77% of participants think the long-term survival of sea turtles is important (Bradley). The responses received to questions such

as “where do sea turtles nest,” and “what is the number one killer of sea turtles,” shows that the majority of people are uninformed (Bradley). People want sea turtles to survive but have very little knowledge about sea turtles. Public education is needed in the fight to save sea turtles.

An interview conducted with Marty Pinkston, a harbor master and sea turtle rescuer, gave new ideas to the study of positive impacts of humans on sea turtles. Mr. Pinkston said that the laws and ordinances are helpful, but something that would help even more is “constant enforcement of current laws” (Pinkston). Although humans try to help, it needs to be a unified effort. Mr. Pinkston said if everyone would follow the laws, then sea turtles would have a greater chance of survival (Pinkston).

Many people would like to argue that loggerhead sea turtles’ main danger is not humans but other animals. Many use the fact that “ghost crabs, raccoons, fish and weather kill 99.99% of young,” to promote that fact that animals are the main danger to sea turtles (Ballantine 134). This data is false because humans have no way of knowing what specifically kills 99.99% of sea turtles. Ballantine did not take into account the nests that were not tracked and documented. Some eggs are born as infertile barrier eggs, and maybe false assumptions of these eggs were used in calculating this data. “Thousands of turtles are killed in only a few weeks when trawling takes place” (Spotlia 77). Many people turn this fact into a logical fallacy called cum hoc ergo propter hoc. This type of fallacy is “thinking that because two things occur simultaneously, one must cause the other” (Surkan). People think because many sea turtles are caught, there must be many sea turtles in the ocean. What they must remember is trawling takes place when turtles are gathering for nesting season (Spotlia). This fallacy could be eliminated with more education about sea turtles. Although many people have different ideas about what harms sea turtles the

most, people must realize the false assumptions made to create the facts that supports these statistics.

Human interaction with loggerhead sea turtles greatly affects the sea turtles' lives. Coastal development, shrimping, and commercial fishing can harm loggerhead sea turtles. Through the passage of laws and ordinances, humans create many positive impacts that protect sea turtles and make it easier for sea turtles to survive. Although other animals are also major stressors to loggerhead sea turtles, human stressors have greater intensity and affect on the sea turtles. Humans, because they have the greatest impact, can learn to control their own actions. Everyone can decrease their negative impact and create an environment that promotes survival of loggerhead sea turtles in South Carolina.

Appendices

Sea Turtle Survey

The Sea Turtle Survey was completed by 54 individuals, of which 4 were discarded. The survey was placed on The Walker School's bulletin board for all students and teachers to take it. The survey was conducted to understand mainly middle school students in Georgia; there are 425 middle schools in the state of Georgia. The survey itself was designed for students at the Walker Middle School, which is a total of about 290 students. Because the survey is of only Walker Middle School Students, there is a chance that some groups of individuals may be underrepresented in this data. The survey questions and answers follow.

1) How old are you?
    a. <18
    b. 19-30
    c. 31-59
    d. 60+
2) Do you consider yourself knowledgeable about sea turtles?
    a. Not Knowledgeable
    b. Somewhat knowledgeable
    c. Very knowledgeable
3) Is the long term survival of sea turtles important to you?
    a. Not important
    b. Somewhat important
    c. Very important
4) In a classroom or educational setting, have you learned about sea turtles?
    a. Yes
    b. No
5) Is so where?
6) What is the status of the current sea turtle population?
    a. Quickly Declining
    b. Declining
    c. Slowly declining
    d. Staying the same
    e. Slowly rising
    f. Rising
    g. Quickly Rising

   h. Do not know
7) What is the number one killer of sea turtles?
   a. Commercial Fishing
   b. Shrimping
   c. Coastal Development
   d. Other animals
   e. Disturbed nesting sites
   f. Do not know
   g. Other:
8) What is the current status of sea turtles?
   a. Extinct
   b. Endangered
   c. Threatened
   d. Thriving
   e. Do not know
   f. Where do sea turtles nest?
   g. Do not know
   h. Open ended:
9) Do you know of any recent laws or ordinances passed to protect sea turtles?
   a. Yes
   b. No
10) If so, which ones?
11) Do you do anything to help sea turtles, and if so what?
12) What signs of sea turtles have you seen in their natural environment?
   a. Nests
   b. Tracks
   c. A sea turtle in the water
   d. A sea turtle on the beach
   e. Hatchlings (baby sea turtles) on the beach
   f. Never seen any signs, but have been to their natural habitat
   g. Never been to their natural habitat
13) For quality control please click 2.
14) Is there anything in particular you would like to know about sea turtles?
15) Any additional comments or questions?

Interview

This interview was a telephone interview conducted February 19, 2009. Mr. Marty Pinkston agreed to an interview to discuss his job with sea turtles, personal experiences, and his ideas for the future conservation of sea turtles. The questions and answers follow.

Q: What do you do to help the sea turtles? What is your job?

A: I am currently the Harbormaster and VP of Administration and Operations of the South Beach Marina on Hilton Head Island.

Q: How long have you been working with the sea turtles?

A: I started running boats on Hilton Head in 1975 and have had contact with them since then.

Q: What is the most common injury you see in Loggerhead sea turtles?

A: One, being caught in shrimp trawler nets. Two, propeller damage.

Q: What are some personal experiences you remember with the turtles?

A: I was involved with the rescue of a rare (for these parts) Kemps Ridley turtle several years ago. It had an infection which caused the turtle to become very buoyant toward the rear of its shell making it nearly impossible to breath and feed. With the help of Kim Washok (Jones) we transported him to the turtle hospital in Atlantic Beach, NC where he made a full recovery and was returned to the wild. While at the hospital he was named “Hilton” and his record should still be available at the online file.

Q: In recent years, many new ordinances and laws have been passed protecting sea turtles. Are they working and helping?

A: I think on of the most helpful devices is the “Turtle Extruder” currently installed on all shrimp boat nets. Also the light ordinances for the beachfront homes is a great help for the nesting turtles during the summer months.

Q: Since the ordinances, has it been long enough to tell a difference in the nesting habits and the number of turtles your treat?

A: I have not heard of any major declines in the number of nest on Hilton Head is several years.

Q: Are there any other ordinances you would like to see passed?

A: Just the constant enforcement of current laws.

Q: What do you think is the biggest threat to sea turtles right now?

A: The rapid development of beachfront property, which can disrupt the nesting habits.

Q: What can be done to reduce that threat?

A: Nothing can be done about the building threat. That is going to sadly continue. Lighting restrictions and strictly enforced tampering laws (for active nests) will help slow the damage.

Works Cited [MLA]

Associated Press. “New fishing rule is aimed at saving sea turtles.” *Orlando Sentinel* 31 Jan. 2009 <http://www.biologicaldiversity.org/news/center/articles/2009/orlando-sentinel-01-31-2009.html>.

Ballantine, Todd. *Tideland Treasure*. Columbia, South Carolina: University of South Carolina Press, 1991.

Bradley, Marguerite. Survey. 1 Mar. 2003.

Chapter 5 Sea Turtle Protection. 8 May. 2006. Coastal Discovery Museum. 26. Feb. 2009 <http://www.coastaldiscovery.org/documents/>.

Endangered Species Act. 5 Feb. 2009. Fish and Wildlife Service. 20 Feb. 2009 <http://www.fws.gov/Endangered/whatwedo.html>.

Gibbons, Whit. *Do Turtle Excluder Devices Protect Sea Turtles?.* 2008. University of Georgia. 26 Feb. 2009 < http://www.uga.edu/srelherp/ecoview/Eco18.htm>.

Gulko, David, and Karen Eckert. *Sea Turtles: An Ecological Guide.* Honolulu: Mutual Publishing, Inc., 2004.

Pinkston, Marty. Telephone Interview. Feb 19. 2009.

Sea Turtle. 2008. Seaturtle.org. 26 Feb. 2009 <http://www.seaturtle.org>.

Spotlia, James. *Sea Turtles: A Complete Guide to their Biology, Behavior, and Conservation*. Baltimore: John Hopkins University Press, 2004.

Surkan, Brian. “Logical Fallacies.” The Walker School. 700 Cobb Parkway N., Marietta GA 30062. Jan. 20 2009.

Trawls. 2008. Oceana. 27 Feb. 2009 <http://saveseaturtles.org/sea-turtles/threats/fishing-gear/trawls>.