

Murder off the High Seas (5/23/05)

Written by David Meek
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The smell of death hung on the air like a molding drapery. Her closed eyes stared at me echoing the question "why"; as droplets of blood dripped down her face to become absorbed by the spreading red carpet of sand. Her death was not natural; she was brutally slaughtered in the night by machete-wielding poachers.

I had almost concluded my morning beach survey when I found her corpse, rolled onto its side, flippers hacked off, neck slit, and her plastron (underside) slit open leaving a meter-long gaping cavity. The poachers were obviously skilled; they had been selective, removing her liver and reproductive organs containing the mature eggs, as well as those in the process of development. Unlike most cases of poaching where the turtle is left alive and the eggs are taken during or after the nesting process this turtle had been slaughtered to obtain the oil which can be extracted from the liver. The use of this oil for medicinal purposes and lighting had appeared to locally be on the decline, although this butchered turtle's remains seemed to indicate otherwise.

The sheer brutality of the crime shook me to the core as I stood on the beach shortly after sunrise. Why would someone brutally murder a defenseless living creature as majestic as a 6 foot long turtle? Could it really be solely to obtain the eggs, which are considered to be an aphrodisiac due to the length of time that sea turtles copulate (upwards of four hours)? Was it a demonstration of dominance, or perhaps a morbid ritual considering one of the flippers had been taken from the grisly scene? The entire situation didn't seem to make sense. After all, surely the poachers know that these turtles nest up to seven times each season, returning every few years, and by killing them they are robbing themselves of the proverbial "goose who laid the golden egg";

Yet tragically, on a regional if not local level, this is a far from isolated

occurrence, and only one of a myriad of natural and anthropogenic threats which plague the sea turtle. Marine turtles are one of the last remaining groups of "living dinosaurs"; they are reptiles that have evolved approximately 200 million years ago and survived quite well on their own until modern times. However, without a concerted and coordinated effort by conservation groups, legislature, the fishing industry, and local communities these ancient reptiles may be well on their way towards extinction.

Humans and other animals have predated sea turtles and their eggs throughout history without precipitating the drastic drop fall in population numbers that currently confronts researchers. Broadly there are two types of threats to marine turtles and their eggs: natural and anthropogenic. An example of a natural threat is the Frigate bird who swoops from the sky to attack baby hatchlings as they leave their nest on the beach and hurry towards the sea. This bird is considered a natural predator because it is not a foreign species introduced by humans. Developing that concept further, not all animals are natural predators. Pigs, goats, rats, and dogs were introduced, both intentionally and accidentally, by whalers and pirates to the Galapagos Islands in the 17th century. Introduced animals such as these pose serious threats to hatchling success, which over time will determine the population size of sexually mature turtles. Unfortunately, these feral animals can be very elusive on large islands necessitating heavily coordinated and astronomically expensive extermination programs such as the Galapagos National Park's Project Isabella. Because these animals were introduced by humans they are considered anthropogenically-related threats.

Human induced pressures, such as introduced species, are the predominant cause of turtle mortality. Sadly, there are a multitude of such threats many equally dangerous and often more prevalent. Anthropogenic threats can be considered either intentional or unintentional. An example of an unintentional or indirect threat would be the problem of artificial lighting due to coastal development. Artificial lighting emanates from various sources including hotels, cars, tennis courts, restaurants, homes, and beachgoers. This photo pollution is a serious problem because it disorients nesting females.

These artificial light sources can also be lethal by confusing hatchlings who naturally orientate themselves using the light of the open ocean. Another indirect threat has arisen with the advent of high-speed pleasure boats. These boats frequent the same shallow waters as the nesting turtles and collisions frequently occur. Turtles are often found with large lacerations that run the length of their carapace. One study showed that 80% of East Pacific green turtle deaths around San Diego, California were the result of boat collisions.

The effects of commercial fishing, while for the most part still considered indirect, are the greatest threat to juvenile and adult sea turtle survival. The fishing practices considered to be most destructive is trawling, long line fishing, drift-netting, hunting for lobster, and the use of gill nets. Most often the turtle becomes entangled in the fishing gear and dies as a result of suffocation. Another problem arises from long line pelagic fishing. This is when buoyed fishing lines, often many miles long, are laid out from which smaller baited lines descend into the water column. Pelagic fishing is an indiscriminate killer; thousands of species, including many species of sea turtles, have wound up in its lines. Some turtles, such as the leatherbacks, are attracted to the chemical light sticks that are attached to the lines possibly confusing them for bioluminescent jellyfish. Others such as the olive ridley, green, and loggerhead will eat the bait and become hooked. These baited turtles are often simply cut free from the lines with the hooks still remaining. These embedded hooks can tear the esophagus, as well as the stomach, and intestines, leading to injury and death. Other threats that plague the marine turtle include pollution from oil spills, toxic waste, excessive nutrient loading, and marine debris.

Unfortunately the previous indirect threats are likely the hardest to combat because they are so widespread globally. Marine pollution is omnipresent, and to effectively stem it is a Herculean task. Although clearly lethal, the direct threats to turtles are not considered to be as detrimental to global population levels. Each of the seven species of marine turtles has been exploited by mankind for various purposes throughout history. Until recently, sea turtles

were a reliable source of fresh meat for transoceanic travelers. They were used as housing material by tribes in Mexico. The shell plates, also known as scutes, have been used as both jewelry and money in various cultures (until recently Gucci still made tortoise-shell eyeglasses). As aforementioned, their eggs are still consumed due to their being purportedly aphrodisiacs. And finally, they are slaughtered for the oil that can be extracted from their livers.

Yet it is not only these directly exploitative processes that are further endangering the marine turtles. Sadly and ironically, pressures from "ecotourism" are threatening the turtles as well. Snorkelers and SCUBA divers often approach too close to the turtles, and even attempt to ride them while they are feeding and sleeping. This can seriously disturb the animal and dissuade it from returning to a potentially important nesting or foraging site. Other problems related to "ecotourism" stem from the side of the tour operators which (ab) use the same snorkeling/diving locations by bringing in upwards of 15 boats every day of the year. Other ill-conceived ecotours allow the tourists to hold hatchlings who have been picked up on their way to sea. Excessive handling of hatchlings is detrimental as it causes stress and an excess expenditure of energy that is vital to survival in the first few months.

Unlike the omnipresent indirect threats, some of the following pressures are slowly starting to be mitigated in some areas due to intense efforts on behalf of conservationists and legislatures. As is true with many cases of conservation, education is often the most important first step whether it is of traditional communities, the general public, industry, or legislature. Much of this education has been disseminated as a result of community conservation projects. In the northwestern Costa Rican town of Ostional a natural phenomenon occurs monthly in which up to 30,000 turtles attempt to nest within a few days. Because the later arriving turtles will inevitably dig up and destroy the eggs already laid by the turtles of the previous nights a management plan was developed. Villagers could collect eggs within the first 48 hours, and then decide to use or sell them through their own collective.

This type of management has been beneficial on various levels. As a result of the publicity generated by this novel management scheme a turtle ecotourism program has developed where tourists pay local guides to watch the turtles nest. This when combined with the sale of eggs has proved to be an economical boon for the town, leading to the creation of a new school and hospital. Also the cooperative has set up a nightly patrol which has stopped the wanton poaching of eggs, and insures that they are only collected during the first two days of the arribada. In addition, the fact that the cooperative is empowered as the managing body hopefully ensures the project will continue. The sum of all of this has been that the local and greater public of Costa Rica is now more aware of the sea turtle and the importance of its nesting beaches. That does not mean that education is effortless and economic incentives are panaceas. On the Caribbean island of Grenada it is legal to hunt all marine turtles except the leatherback. While turtle-watching "ecotours" are starting to arise and could develop into a new market, impetus from local communities is needed to make these programs successful and sustainable.

One of the reasons these programs need to benefit the community is that the exploitation of sea turtles will not stop until it is publicly perceived to be more beneficial to conserve them than to kill them. This is not an easy process and requires a lot of time and effort. Many if not the majority of poachers are older people who grew up poaching and the practice has been a tradition in their families for generations. Breaking such historical traditions is important if the next generation is to grow up educated about the ecological value of sea turtles.

Education has also taken the form of research which has led to technological development and new legislation. These combined have greatly reduced turtle mortality rates. For example, the National Academy of Sciences estimated that as many as 50,000 loggerheads and 5,000 critically endangered Kemp's ridleys were drowning yearly in shrimp trawls in U.S. waters. This led to the development of the TED (Turtle Excluder Device). This device is installed into trawl nets and guides large animals out of the net

that would otherwise be caught. The design is not perceived as detrimental by the fishing industry as it prevents shrimp from escaping. In 1994, federal law mandated that these units be used on all shrimp boats in U.S waters regardless of their country of origin. The TED has been very successful decreasing the number of turtles caught by as much as 97%. The problem has been enforcing that they are used on boats.

Research has also led to various conventions that are intended to help conserve the turtles and their habitat. Some of these include the Convention on International trade in Endangered Species CITES, the Convention on the Conservation of Migratory Species, the International ban on Pelagic Drift-Net fishing, and the Inter-American Convention for the Protection and Conservation of Sea Turtles. In theory these treaties and conventions should benefit the sea turtle, but the extent to which that is the case is up for debate. Clearly some legislation is better than none. Types of legislation that have certainly been beneficial are laws that create marine sanctuaries. For example, in 1990 the U.S Congress established the Archie Carr National Wildlife Refuge of the coast of Florida. This refuge is approximately twenty miles long and is one of the most important nesting sites of loggerhead turtles. Such protection of key nesting and foraging sites is necessary to maintain healthy populations.

What lays on the horizon for the various species of marine turtles? Will they become extinct as a result of the myriad threats facing them, or will the ardent effort of an international movement be able to stymie their decline. Unfortunately, only the future will elucidate the answer to this question. However, the present is always the key, and every turtle that can be saved from a drift net or machete by one of a variety of forces is another success story. And for that turtle I found slaughtered on the beach hopefully her death will not be in vain, at least I will never forget it.

David Meek works with a group that monitors and puts metal ID tags on turtles in Grenada. In his words, "he's an over-educated environmental

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educator who believes that environmental education is most successful when it is separated from the classroom and located where it is meant to be, ie. in the environment."