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Sea Turtles:
Are They Losing This Race?

It's a big race and unfortunately the creatures with their life at stake can't even be warned they're in the running.

We hear the cry of the whale, and we're reminded of our need to protect the mighty creature from the hunter...man. We see the mustached manatee and we're reminded that their future is in jeopardy because of...man.

There is another gentle creature of the sea who's future could lie in a delicate balance because of man, and that is the sea turtle. Already a threatened and endangered species, its existence is made more perilous because of oil spills, according to a study released by the Florida Institute of Oceanography (FIO) headquartered at the University of South Florida, St. Petersburg.

The turtles suffer severe effects from the oil which can lead to their death. Their skin and immune system response are extremely vulnerable to oil, according to Dr. Sandra Vargo, oceanographic program coordinator at FIO.

"They must come to the surface to breathe,"Vargo said. "If they can't avoid the slick, they'll come right up through it. Their mouths become clogged with the oil which is then absorbed into their digestive systems. The oil also causes lesions on the skin that then become infected.

"The turtle's inability to avoid oil," she continued, "combined with the fact that they are so strongly affected physiologically by the oil is probably the worst combination possible."

The study shows the effects become apparent within hours in the worst cases, in days if the oil contamination is less severe.

The threatened loggerhead turtles and the endangered green sea turtles were the primary subjects for the study. (A threatened species is one that is protected by federal and state governments because the animals are dangerously limited in numbers and a catastrophic event could seriously jeopardize their existence. An endangered species is protected because the number of animals is already at such a low number that virtually any event could cause extinction.)
The turtles also face other threats to their existence through the work of man. Lighting along nesting beaches misdirects hatchlings as they attempt to find their way to the sea. The light draws them away from the water and up to the beachside roads where they are killed by cars and trucks.

Shrimping activities can also be lethal to the turtles, Vargo said. They are often taken as an incidental catch in the shrimper's trawl, and if the trawl is too long then the turtles drown before the shrimper can release them.

It's estimated that, with nature's own management process, less than one percent of the hatchlings reach maturity at age five or six. Vargo said that this makes them very vulnerable to any kind of outside effect on their population.

For this research, the turtles were exposed to half a centimeter of preweathered crude oil (oil that is less toxic than refined). This creates a condition very similar to an actual oil spill for 48 hours or less. A limited time should not cause the turtles permanent harm, the researchers say.

Similar findings were recorded in "stranded" turtles or turtles that had come into contact with oil spills in the oceans and then had floated up on shore seriously ill or dead. Their skins showed the lesions and changes in their blood chemistry could be traced. In many cases these turtles were found covered with tar or with their mouths clogged with the oil.

Researchers also learned that, contrary to popular misconception, the majority of oil spills are not caused by large supertankers that sink in the oceans or by offshore oil rig disasters. One fairly common source is leakage from underwater pipelines, according to Vargo.

Another major source of tar and oil slicks, according to USF marine science researcher Dr. Edward Van Vleet, is the residue from the wash down of oil tanks and the illegal dumping of that waste over the tanker side. The slicks usually drift until broken down by weather or until reaching shore.

The study has also proved that the worst area for an oil spill is along a nesting beach. Turtles tend to gather around those beaches, so the oil threatens both the adults and hatchlings.

"Florida's east coast is in more danger from oil spills than the west coast," Vargo said. "Because of currents along Florida's west coast, if a spill occurs far enough out in the Gulf of Mexico, it will probably go around and hit somewhere between Miami and West Palm Beach.

"To make matters worse," she continued, "the east coast beaches along Brevard County have the second largest concentration of loggerhead turtle nesting sites in the world. The only solution is to keep the oil separate from the turtles."

Possible ways suggested by Vargo (each with a drawback) for doing this include:

- Physically remove the oil with a "boom" if an oil spill occurs in a bay where there are no nesting beaches. (A boom is a flotation type device used to surround the oil slick.)
- Remove the nest from the threatened beach. The eggs can be removed, but then the hatchlings would have to be released from the same beach from which they were taken. The turtles usually only return to the beach from which they were hatched to continue their life cycle.
- Use chemical dispersants to break down the oil. However, scientists don't know what effect the dispersants have on the animals. Vargo said the scientists don't really know if the dispersant might in fact be more toxic than the oil itself. Some environmental groups are working to enlarge the turtle population through "headstarting." They remove the eggs from the natural nests and take them to protective sites. The turtles are then returned to the oceans as new hatchlings. In some cases they may not be released for up to a year so they are much larger and their chances for survival are much better.

The two year research program on turtles was coordinated by the Florida Institute of Oceanography. The research was completed by the University of South Florida, Florida Department of Natural Resources, the University of Miami Rosenstiel, the University of Central Florida and the Wildlife Veterinary Center. Part of the research was conducted at the Marine Science and Conservation Center on Long Key in the Florida Keys. It was commissioned by the U.S. Department of Interior, Minerals Management Service whose duty is to study environmentally sensitive issues that could impact our ecological system.

FIO is designed to coordinate and assist oceanographic research throughout the state university system, the Department of Natural Resources, the University of Miami Rosenstiel, Long Key and Florida Sea Grant College, and provide state of the art research vessels and equipment.

Vargo said that the way in which we treat this serious problem could predict our own future.

"We as humans may be able to tolerate what the turtle cannot, but the environmental degradation that this is indicating may have a long term effect on our own continual existence.

"Man's impact on the environment has been massive," she said. "We have put at risk a number of species that under natural conditions would not be at risk."

Can man save the sea turtle from the imminent danger it faces or will the quiet graceful creature of the sea continue to wash up on shore dying from the oily substance that covers its body causing irreparable internal damage until the turtle is no more? Only time will tell.

Ron Faig