

WCS Helps Develop New DNA Test For Great White Sharks

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Photos and Animation Courtesy of Michael Scholl



The great white shark, one of the world's most feared predators, is slowly being fished out of existence by humans, who sell its teeth and jaws for trophies and even eat its fins in shark fin soup. Today however, great whites received some good news when scientists from the New York-based Wildlife Conservation Society (WCS) and the Guy Harvey Research Institute (GHRI) of Nova Southeastern University, Florida revealed a new genetic test that may lead to increased protection for these misunderstood fish.

Using DNA technology similar to the type found in crime labs, the scientists say that they now have the capability to accurately distinguish great white sharks from other species, even when only dried fins or meat are available.

The shark fin trade in particular has put sharks under increased fishing pressure, depleting populations of many species. The scientists' study is published in the August issue of the journal *Conservation Genetics*.



[Click the image to view a shark tagging animation \(312 Kb\).](#)

"Ironically, humans are hunting great white sharks out of existence-not the other way around," said Dr. Ellen Pikitch, director of Ocean Strategy for WCS, and one of the study's co-authors. "This new test will give conservationists and fisheries managers the 'teeth' to better regulate and ultimately protect great whites."

"This forensic test was developed to be highly streamlined and simple to use, while still being very accurate in its ability to identify white shark body parts on a global scale," said Dr. Mahmood Shivji, director of GHRI and the genetics research team. "In addition to its application to white sharks, I anticipate this test may prove useful as a model for the design of forensic tests for wildlife in general."

Last year, both basking sharks and whale sharks were placed on Appendix II of the Convention on International Trade in Endangered Species (CITES), a treaty that regulates global trade in threatened and endangered wildlife. During the 2000 CITES meeting, proposals to place great white sharks on the more restrictive Appendix I list-which bans all trade-and Appendix II, which merely regulates trade, were each defeated, in part because of concerns that regulations would be too difficult to monitor. However, with today's announcement of a definitive test for detecting great white sharks, WCS says that a major obstacle to obtain increased protection under CITES has now been removed.

Scientists estimate that great whites have declined by as much as 79 percent in the northwestern Atlantic. Ironically, they are among the world's most legally protected shark species, with the U.S., Australia, South Africa, Malta and Namibia all having enacted bans on killing them. However, the ability to enforce existing national legislation has been hampered by the lack of a definitive means to identify great white sharks from their fins. In addition, it's the great white's long-ranging movements that could take them across national boundaries, which makes international protection so important, according to WCS. Currently, WCS is tagging great white sharks off the coast of South Africa to study their movements in detail.

"White sharks are perfectly fit for very long distance swimming and are known to be capable of traveling far distances," said WCS scientist Dr. Ramón Bonfil, who is leading the South African study. "We are currently tracking white sharks in South Africa via satellite to learn how frequently they leave protected waters, how far they go, and for how long so that we can assess how much danger they face of being accidentally or purposely killed."

Today's announcement was made at the New York Aquarium, which WCS runs along with the Bronx Zoo and three other zoos in New York City. Locally, WCS is monitoring populations of sand tiger sharks and other coastal shark species that have fallen prey to overfishing in recent decades.
