

DNA Helps Nab Illegal Shark Fin Traders

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The Associated Press

4:12 AM PDT, August 16, 2006



DANIA BEACH, Fla. -- Federal enforcement agents spotted the suspicious bag while touring the building of a New York seafood dealer on a routine visit. Amid a half-ton of shark fins destined for Asia was a large nylon bag labeled "blanco," Spanish for white.

Could the fins be from great white sharks? If so, the trader was in violation of strict laws protecting the species. Another nearby bag was labeled "baxin," possibly short for the protected basking shark, and agents wondered how many of the fins might be illegal to possess.

A few years ago, positively identifying the shark species the fins came from would have been a time-consuming process. Now, that's changing.

During the last six years, Florida researchers have developed DNA tests that can quickly identify material from 30 different shark species, including the great white and basking shark, in a matter of hours. Already, the genetic tests have aided in at least a dozen different cases for the National Oceanic and Atmospheric Administration and its fisheries enforcement division.

Leading the development of the tests is conservation geneticist Mahmood Shivji of Nova Southeastern University. After agents took fins from the New York fish dealer in 2003, Shivji's lab was able to positively identify a total of about 230 pounds of fins that came from seven different prohibited species including dusky sharks, basking sharks and the great white.

NOAA announced Aug. 1 that the seafood dealer had agreed to a settlement of \$750,000 in the case. The settlement was possible partly on strength of the DNA evidence, according to NOAA attorney Charles Juliand.

"When you confirm it with DNA it's pretty much a slam dunk," Juliand said.

The governments of South Africa and the Pacific island nation of Palau have come to the Florida scientists asking for help with their shark cases. Even enforcement officers in Australia, known for its protection of great whites, are now using tests developed in Florida, researchers said.

"If someone tells you, 'That's a prohibited dusky shark and we've got DNA' it's pretty hard for a fisherman to say it's not," said Paul Raymond, a supervisory special agent for NOAA in the Southeast, who has worked with scientists developing the tests.

Key to the success of the shark DNA tests is the speed agents can get results from Shivji's lab at Nova's Guy Harvey Research Institute in Dania Beach. Before the genetic tests, NOAA officials had to send shark samples to a NOAA forensic lab in Charleston, S.C., where scientists ran a lipid or fat test on the sample of meat to identify it. Getting results from the busy lab could take a month or more, according to Raymond. Investigators rarely used the option, Raymond said.

With the new test, investigators can take a sliver of dried fin, put it in a vial of ethanol and mail it to Shivji. Results can be ready in about four hours, and two people can process between 80 and 100 samples in an eight-hour day.

At the lab, located inside John U. Lloyd State Park, freezers are stocked with vials of carefully labeled shark specimens. A machine that analyzes DNA is the same kind that would be found in a crime lab.

"It's exactly the same equipment they use in human forensics. DNA is DNA is DNA, whether it's a whale or a coconut tree or a human," Shivji said.

Shivji said was pleased the tests are already being used in real-world applications and that while it has been used to implicate people in crimes it has also been used to exonerate at least one person who did not have a prohibited shark species.

"It's like human DNA forensics; you can you use it both ways _ to get to the truth, I suppose," Shivji said.
