The Washington Post

In Mediterranean, the Predator Is the Hunted

By Juliet Eilperin
Washington Post Staff Writer
Monday, June 30, 2008; A05

The Mediterranean Sea, says Francesco Ferretti, is "a very dangerous place for a shark."

So dangerous that in the past two centuries, the shark population there has plummeted by more than 97 percent, both in relative numbers and collective weight, according to a study by the graduate student, two colleagues at Dalhousie University in Nova Scotia and an Italian researcher.

They based their conclusion on evidence scoured from an unusually wide variety of records, including documents drawn from universities and archives, from fish markets and recreational fishing clubs, and from local accounts of shark sightings.

The paper, co-authored with the late Dalhousie marine biologist Ransom A. Myers and others, is only the latest evidence that some of the oceans' most feared predators are themselves in dire danger.

Another team of scientists has shown in recent months that the peril is global, concluding that all but two of 21 species of open-ocean sharks and their cousins, the rays, are facing the risk of extinction. Another found that the decline of sharks at the top of the food chain is disrupting marine ecosystems around the globe.

"Sharks are just one part of the ocean's web of life," said Margaret Bowman, who directs the nonprofit Lenfest Ocean Program, which helped fund all three studies. "But these studies show if you pull out that one thread, the whole web suffers."

The shark researchers -- who hail from Australia, Canada, New Zealand, the United States and several European countries -- are engaged in a huge detective project, much of it inspired by Myers, who pioneered the first global shark assessment before his death in late 2006. Culling both unconventional and traditional sources such as fishing data, museum records and scientific studies, they are tracking not only how drastically sharks' numbers have dropped in recent decades but also how their disappearance is transforming the marine world.

Several factors help explain why the shark population has declined in the Mediterranean, Ferretti said in a telephone interview last week from his native Italy. Fishing vessels are targeting them to meet the Asian demand for shark-fin soup, he said, while simultaneously trying to compensate for the fact that they have depleted other fisheries.

"Some fishers have decided to switch to sharks because they cannot make up their product with bony fish," he said, noting that the presence of so many countries bordering the Mediterranean has contributed

to the fishing pressure there.

"At these levels, these sharks can be considered functionally extinct, meaning that they cannot perform their role of top predators in the Mediterranean marine ecosystems anymore," he said. Ferretti and his colleagues published their findings in this month's issue of the journal Conservation Biology.

Two other papers published this spring suggest that once these predators disappear, the species they prey on not only increase in numbers but also behave differently once they are in less danger of being eaten.

In Prince William Sound, Alaska, Pacific sleeper sharks keep harbor seals from eating too many walleye pollock, wrote Dalhousie marine biology professor Boris Worm, the lead author of a recent paper in Trends in Ecology and Evolution, in an e-mail. Depleting the sleeper sharks in turn hurts the pollock population.

"We now understand that both on land and in the sea, large predators play important roles in regulating both the total number and the behavior of their prey," Worm wrote. "Unchecked by their predators, some of these prey species can wreak havoc on ecosystems -- this is one important reason to keep predators around in sufficient numbers."

Another team of researchers, headed by Nicholas K. Dulvy, a biology professor at Simon Fraser University in British Columbia, found that in the open ocean, sharks that used to be an inadvertent bycatch for vessels seeking tuna and swordfish are increasingly being targeted for their meat and fins. The group, which belongs to the World Conservation Union's Shark Specialist Group, surveyed 21 pelagic shark and ray species, and determined that only pelagic stingrays and salmon sharks do not face risk of extinction. Others, such as thresher, ocean whitetip and shortfin mako sharks, are all vulnerable, they wrote.

Sonja Fordham, a co-author of their paper in the journal Aquatic Conservation Marine and Freshwater Ecosystems, said pelagic sharks, which regularly cross vast oceans, face heightened pressures because there are no international catch limits. "Even though these are wide-ranging and fast-moving sharks, they are at risk," Fordham said in a phone interview from Brussels, where she advocates for tighter European shark-fishing regulations as the shark conservation program director for the advocacy group Ocean Conservancy.

Heike K. Lotze, another Dalhousie marine biologist who co-authored the article with Ferretti, wrote in an e-mail that the recent burst of shark research reflects both an increasingly sophisticated use of "unconventional data" and the recognition "that human impacts have strongly altered ocean ecosystems for a long time and thus shifted our perception of what is natural in the oceans."

Bowman said she and other advocates hope fishery managers will "figure out how to control fishing to prevent further declines" of sharks, and policymakers are responding. On June 19, the National Oceanographic and Atmospheric Administration announced it would ban the removal of shark fins at sea in the Atlantic and Gulf of Mexico by late July and cut the permitted catch of sandbar and porbeagle sharks.

A week earlier, the House Natural Resources Committee advanced legislation that would institute the "fins attached" requirement nationwide. International fishery managers will debate this fall the idea of imposing worldwide shark catch limits.

Enric Cortes, a scientist at NOAA's Fisheries Service who conducts shark- population assessments along

the East Coast, emphasized that scientists are still learning about the role sharks play in ecosystems. They may dominate more isolated regions, but they don't necessarily shape every marine environment they inhabit: "The jury is still out on that."

View all comments that have been posted about this article.