Major Study Reports Only 10% of Large Ocean Fish Remain

Bluefin tuna, nearly extinct. Photograph courtesy
Prof. Ransom Myers, Dalhousie University, Halifax, Nova Scotia, Canada.

May 16, 2003 Halifax, Nova Scotia - For years, marine biologists have warned that many ocean creatures are facing elimination in the largest extinction event since the dinosaurs were hit by a big asteroid. Now comes a major ten-year-long study reported in *Nature* this week that concludes **only 10%** of big ocean fish are left, compared to their populations 50 years ago. In the tropics, the guitar fish and grouper are nearly gone; off the coast of Newfoundland, the cod, haddock and halibut have never replenished; and in the open oceans the magnificent large predators - sharks, bluefin tuna, gilfish, swordfish, marlin - that have dominated for so long are down to their lowest numbers on record.

Bow-mouth guitar fish courtesy AdRiver.

The funding for the study was the Pew Charitable Trust and the lead author is Professor Ransom Myers, a fisheries biologist at Dalhousie University in Halifax, Nova Scotia, Canada. I talked with him this week about the sobering facts of so many sharks, bluefin tuna, sturgeon and other big fish facing extinction.

Ransom Myers, Ph.D., Professor of Biology, Dalhousie University, Halifax, Nova Scotia, Canada: "The fundamental question I wanted to ask was: what did the world's oceans look like before massive commercial exploitation on an industrial level? So we went back and we looked at old data and in a few places in the world, we have data that goes back to the very beginning of industrial fishing in the southern Grand Banks of Newfoundland, in the Gulf of Thailand, and in about half the world's oceans, we have data that allows us to estimate the abundance and weight of fish from the very beginning of commercial exploitation.

WHICH IS AROUND 1950?

It depends on the area, but 1950 for most areas.

AND WHAT DID YOU FIND?

Basically what we found was everywhere in the world where we had data, the abundance and weight of the fish combined was at least ten times greater than what we find now. This is for the larger fish. That is, the top predators of the world's oceans have been reduced by a factor of ten, they are one-tenth of what they were.

All around the world wherever you have data, the great sharks of the world are going the way of the dinosaurs. The white sharks, the hammerheads, these sharks are declining everywhere we have data at enormous rates. Just for these shark species to survive, we need to reduce fishing mortality. We need to reduce the number of hooks in the water by 50 or 60 percent.

100 million sharks were killed in 2002.
Image courtesy Shark Research Institute.

HOW COULD YOU GET THAT DONE?

With national boundaries, it just requires political will. Alaska has done it. New Zealand has largely done it. It's just a matter of will. Internationally, the people of the world have decided that it was intolerable for the great whales to go extinct. It was intolerable for the mass destruction that resulted from drift net fishing in the north Pacific the destruction of sea birds and many mammals and turtles. This was simply reasonable and human because we really like large animals. We enjoy hunting and fishing. We enjoy looking at them and knowing these great animals exist. I believe that's why the people of the world will demand their preservation.

YOU HAVE STATED THAT ALL OF THE BIG FISH, INCLUDING SHARKS, ARE FACING EXTINCTION AND I KNOW THAT IN ONE OF YOUR INTERVIEWS, YOU WERE QUOTED AS WARNING THAT ALL OF THE WORLD'S GREAT FISH COULD GO THE WAY OF THE DINOSAURS, WHICH IS TOTAL EXTINCTION, IF IMMEDIATE ACTION IS NOT TAKEN.

IF WE DID LOSE THE SHARKS AND LARGE PREDATORS IN ALL THE OCEANS OF THE WORLD THAT YOU'VE STUDIED, WHAT WOULD THE CONSEQUENCES BE ON THE REST OF THE FOOD CHAIN?

We don't know. But wherever we studied this in detail, for example, if you overfish coral reefs, what you find is they are overgrown by algae and scum. You can easily turn great beautiful coral reefs into scummy gunk simply by taking out all the predators. Similarly, if you remove predators on land, very unusual, unpredictable things will happen in ecosystems. We need the large predators.

I think a good analogy for this is the great Pleistocene extinction. When humans first arrived in North America, there were woolly rhinoceroses and mammoths and mastodons and giant ground sloth. Humans were very good at killing animals and wiped out seventy large species in just a few centuries, a very rapid and massive extinction. Then, the technology was sharpened stones attached to spears and group hunting.

In the last fifty years, we have covered the world in much more advanced, much more sophisticated technology and in general, we haven't been keeping very good track of what's going on.

WHY WOULD THE SHARK, WHICH HAS LASTED FOR SO MANY EONS, BE THE ANIMAL NOW THAT SEEMS THE ONE MOST IN CRISIS AND FACED WITH EXTINCTION?

They are like humans in many ways. They often give birth, live, to relatively few offspring. They take a very long time to reach maturity. So you have a species that may not mature until age 10 or older, produce a few offspring, and if they are caught very efficiently by the fishing gear, they can quickly be driven towards extinction simply because the rate at which you are catching them is faster than the rate that they can reproduce.

DOES ANYONE HAVE AN IDEA ABOUT WHAT WOULD BE THE CONSEQUENCES IN THE OCEANS OF THE WORLD IF ALL OF THE SHARKS WERE GONE?

We only have guesses. We know that in areas where we have over-fished, for example, like cod in Newfoundland and associated species, that those species have not recovered after we have fished them. This was totally unpredicted and it's not understood by ecologists. We just simply don't understand these systems well enough and it's so difficult to measure species other than fishes - things like jellyfish and squid are very difficult for us to estimate and they are key players in the marine ecosystem. So we can't predict.

Newfoundland cod have never recovered from overfishing.
Photograph courtesy Ransom Myers.

ISN'T IT TRUE THAT THE BIG BELUGA STURGEON IS JUST ABOUT GONE AND THAT WILL BE THE END OF THE DELECTABLE CAVIAR?

There will probably be replacements by cheaper caviar, but the fundamental difficulty is if you have anything very valuable as a large sturgeon with tens of thousands of dollars worth of roe, caviar, it's very difficult to control (fishermen going after them).

Beluga sturgeon could be completely gone in the oceans in another ten years.

Beluga sturgeon eggs, known as caviar, sells for more than $40/ounce.
Sturgeon photographs © 2003 by *Orion Online*.

Similarly the $40,000 giant bluefin tuna are so valuable, it's economically worthwhile to fish them even though there are very few of them left. Similarly, for the abalone off the coast of South Africa, they are so valuable in certain markets that it's very difficult to police and control the harvesting of these animals.

THERE ARE ORGANIZATIONS LIKE THE NATURE CONSERVANCY GROUP THAT BUYS UP LAND IN PLACES LIKE BRAZIL AND OTHER COUNTRIES TO TRY TO PREVENT THE CUTTING AND BURNING DOWN OF RAINFORESTS. IS THERE ANY WAY OF PAYING NATIONS THROUGH THE U. N. OR SOME OTHER GROUP TO NOT FISH AND OVERFISH THE SHARKS AND SOME OF THE VERY VALUABLE FISH LIKE THE BLUEFIN TUNA?

Once it's understood that the largest species face extinction completely unnecessarily simply because of over-harvesting and greed, the people of the world, the children of the world, will demand that the great sharks not go the way of the dinosaurs.

HAVE YOU TALKED WITH PEOPLE IN THE CANADIAN OR U. S. GOVERNMENTS ABOUT WHAT ACTIONS COULD BE TAKEN NOW TO HALT THE MASSIVE DECLINES IN THE BIG FISH POPULATIONS?

I think that both governments are becoming aware of this, but it is very difficult to act politically. If you own a fishing boat, there is so much demand to harvest fish so that you can pay off your mortgage on your boat and on your house and you are in competition with the next fisherman, or fishermen from the next country. What our calculations show is that you have to reduce the mortality on the sharks by 50 or 60 percent. That means reducing, for example, the number of hooks in the water where sharks live by 50 or 60%. This doesn't mean you have to quit fishing. This doesn't mean you can't have a productive fishery. It simply means you have to fish responsibly."

Website:

http://www.mscs.dal.ca/~myers/welcome.html

http://www.sharks.org/main_menu.html

http://fish.dal.ca/~myers/

Credits