Cover Study of Ecology Letters Provides New Evidence that Oceanic Sharks have been Decimated by Industrial Fisheries

Scientists Warn that Oceanic Whitetip Sharks are Ecologically Extinct in the Gulf of Mexico

The cover story of the February issue of Ecology Letters estimates that less than 1% of oceanic whitetip sharks – thought to have been the most common warm-water oceanic shark in the world just fifty years ago – remain in the Gulf of Mexico today. “We believe oceanic whitetip sharks are ecologically extinct in this region,” says lead author Julia Baum, a doctoral candidate at Dalhousie University in Canada. Remarkably, this large conspicuous predator appears to have slipped towards extinction unnoticed.

“Researchers in the 1960s suggested that oceanic whitetip sharks were the most common large species on Earth. What we have shown is akin to the herds of buffalo disappearing from the Great Plains and no one noticing,” says co-author Ransom Myers a world-leading fisheries biologist based at Dalhousie University in Canada. Last year, Myers published a global study demonstrating 90% declines in the world’s big fish - the present study shows that oceanic sharks have declined even more.

Baum and Myers’ publication with colleagues at Dalhousie one year ago in the prestigious journal Science indicated that sharks in the Northwest Atlantic were in trouble, with declines in recent years ranging from 40% in mako sharks up to almost 90% in hammerhead sharks. “Despite the magnitude of the declines, we suspected that they might be underestimates, because our data extended only back to the mid-1980s, which means we couldn’t take into account changes that occurred during the first several decades of industrial exploitation,” says Baum.

A reliance on recent data is a serious barrier to understanding the full impact of industrial fisheries on sharks. Oceanic sharks, including oceanic whitetip and silky sharks, have been caught in large numbers incidentally in commercial fisheries directing for other large pelagic fishes, like tunas and swordfishes. Pelagic longlines are the most widespread fishing gear and the world’s largest source of shark bycatch globally. Because they are caught as bycatch, however, shark catches have been poorly recorded in fisheries data until recently. “Catch records for these species for most of the 1960s, 70s, and 80s simply do not exist,” says Myers.

Instead Baum and Myers examined data from scientific surveys carried out in the Gulf of Mexico – prior to the onset of commercial longline fisheries – and data collected by
scientific observers onboard commercial longline vessels in the late-1990s in the same area.
“We developed a scientific snapshot of what these shark populations looked like in the mid-
1950s, and then compared it to our snapshot of their populations in recent years. The results
were stunning,” says Baum.

Declines add up to a reduction of oceanic whitetips by 150-fold in numbers (300-fold in
biomass), and over a 10-fold decline in silky shark numbers. Despite these dramatic losses,
Baum and Myers say that oceanic whitetip and silky sharks continued to decline at about
10% per year throughout the 1990s with no sign of leveling out.

“It will be impossible to set restoration goals for these shark species without a clear
understanding of how much we have lost. Our study provides this missing baseline,” says
Baum. Without this benchmark, the problem of shifting baseline increases. When
researchers first surveyed the Gulf of Mexico, Atlantic and Pacific Oceans, oceanic whitetip
sharks were by far the most commonly seen and most commonly caught shark. “Researchers
in the 1950s and 60s considered these sharks to be a huge nuisance because of their sheer
numbers, and the amount of damage they caused to the tunas being caught,” says Myers. In
contrast, recent papers on these regions barely mention oceanic whitetip sharks, and Baum
and Myers’ studies are the only to assess their status. “Clearly, the perception of what is
natural in the open ocean has changed dramatically in a very short period of time” Baum
says.

Myers and colleagues are now extending this study worldwide as part of the Pew Global
Shark Assessment and the Census of Marine Life to find out how general these declines are
across all the world’s oceans. As fishing pressure is intense everywhere, the situation in the
Gulf of Mexico may prove to be part of a general phenomena. “But in many areas, the
required data simply do not exist,” warns Baum. “As with many marine species, we may not
detect the risk of extinction for many shark species until it is too late.”

“Sharks are in trouble worldwide” Myers concludes, “and we need to protect them now, to
ensure their survival. For this we need to drastically reduce shark bycatch, minimize
commercial shark fisheries and protect key habitats from overfishing”.

For further information go to http://fish.dal.ca or http://globalshark.ca.

Contact info for authors:
Ransom A. Myers
Killam Chair in Ocean Studies
Dept. of Biology
Dalhousie University
Halifax, Nova Scotia, B3H 3J5
Phone: 902-494-1755
Home: 902-492-1403
Ransom.Myers@Dal.Ca

Julia Baum
Dept. of Biology
Dalhousie University
Halifax, Nova Scotia, B3H 3J5
Phone: 902-494-3910
baum@mathstat.dal.ca

For the week of February 1st – 6th:
Phone: ++ 52-669-913-3333, Room 4098

This research is a contribution of the Pew Global Shark Assessment. Additional funding provided by the Census of Marine
Life and the Natural Sciences and Engineering Research Council of Canada.