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Study: Overfishing has halved shark and ray populations since 1970

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By Responsible Seafood Advocate

Overfishing, bycatch, habitat loss and climate change have caused a 50 percent decline in shark and ray populations since 1970

Overfishing has caused populations of chondrichthyan fishes – sharks, rays and chimaeras – to decline by more than 50 percent since 1970, according to a new study published in *Science* (<https://pubmed.ncbi.nlm.nih.gov/39636992/>).

Chondrichthyans, a diverse group of over 1,199 fish species, are increasingly threatened by human activities. Overfishing, bycatch, habitat loss, climate change and pollution have left more than one-third of these species facing extinction. To understand the impact, the researchers created an aquatic Red List Index (RLI) to track the status of these species over the past 50 years.

“The Red List Index has been a tool used by governments for monitoring conservation progress on land, yet no equivalent existed for the Ocean,” said Dr. Rima Jabado, Deputy Chair of the IUCN Species Survival Commission (SSC) and Chair of the IUCN SSC Shark Specialist Group. “This new shark and ray RLI will help track progress toward ocean biodiversity and sustainability targets, identify the species and places most at risk and guide future conservation efforts.”



Overfishing has caused populations of chondrichthyan fishes – sharks, rays and chimaeras – to decline by more than 50 percent since 1970, according to a new study. Photo by [Vova Kras](https://www.pexels.com/photo/big-shark-underwater-2747248/) (<https://www.pexels.com/photo/big-shark-underwater-2747248/>).

The study is part of the Global Shark Trends Project (GSTP), a collaboration between the IUCN Shark Specialist Group, Simon Fraser University, James Cook University and the Georgia Aquarium, supported by the Shark Conservation Fund. It builds on the first global reassessment of IUCN Red List Status, published in 2021. Over eight years, 322 experts from 17 workshops worldwide contributed to the analysis.



(<https://link.ichtbl.com/aquapod>).

Results revealed that the risk of extinction for sharks, rays and chimaeras has increased by 19 percent. It also warned that overfishing of the largest species in nearshore and pelagic habitats could eliminate up to 22 percent of ecological functions.

“The shark and ray RLI shows how declines first occurred in rivers, estuaries and nearshore coastal waters before spreading across the oceans and then down into the deep sea,” said Nicholas K. Dulvy, professor at Simon Fraser University. “The sequential depletion of the largest and most functionally important species – such as sawfishes and rhino rays – was followed by the decline of large stingrays, eagle rays, angel sharks, hammerheads and requiem sharks. Eventually, fisheries turned to deepwater sharks and skates for the liver oil and meat trade.”



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These widespread documented declines are expected to have significant consequences on other species and aquatic ecosystems.

“Sharks and rays are important predators, and their decline disrupts food webs throughout the Ocean. Larger wide-ranging species connect ecosystems, for example, reef sharks are vital in transferring nutrients from deeper waters to coral reefs, helping to sustain those ecosystems,” said Dr. Nathan Pacoureau at the European Institute for Marine Studies, Brest University, France. “Rays, meanwhile, are important foraging animals that mix and oxygenate sediments, influencing marine productivity and carbon storage.”

Despite these alarming trends, the team emphasizes the positive development in the appreciation and conservation of sharks and rays.

“This analysis points to solutions,” said Colin Simpfendorfer, professor at James Cook University. “Nations can reduce the extinction risk by lowering fishing pressure to sustainable levels, strengthening fisheries governance and eliminating harmful subsidies. Progress has already created bright spots of

hope for chondrichthyans, including in Australia, Canada, New Zealand, United States and parts of Europe and South Africa.”

[Read the full study here \(https://pubmed.ncbi.nlm.nih.gov/39636992/\)](https://pubmed.ncbi.nlm.nih.gov/39636992/).

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