How sustainable is tuna? New global catch database exposes dangerous fishing trends

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Tuna at the Tsukiji fish market in Japan. Credit: Humanoid one, Wikimedia Commons.

Appearing in everything from sushi rolls to sandwiches, tuna are among the world's favourite fish. But are our current tuna fishing habits sustainable?

Probably not, according to a new global database of tuna catches created by researchers at the University of British Columbia and University of Western Australia.

In a study published in *Fisheries Research*, scientists from the *Sea Around Us* initiative found that global tuna catches have increased over 1,000 per cent in the past six decades, fueled by a massive expansion of industrial fisheries.

The findings indicate that these fisheries—which have been catching nearly six million tonnes of tuna annually in recent years—are operating substantially over capacity. That's because fisheries have fully exploited or over-exploited populations of tuna and other large fish species and spread out to point where no new fishing grounds remain to be explored.

"The continuation of tuna fisheries' catch, employment numbers and revenue figures at levels similar to the present day depends on the long-term sustainable management of the fisheries and fleets exploiting these stocks and ecosystems, and the cooperation of more than 100 countries engaged in tuna fisheries," said lead author Angie Coulter, a researcher with the *Sea Around Us* initiative at UBC's Institute for the Oceans and Fisheries.

But proper management requires accurate data, which is why Coulter and her colleagues produced the first comprehensive global data set that estimates the amount of tuna taken out of the ocean and where the fish are being caught, since 1950. The data also includes by-catch of species the fishers do not intend to catch—such as endangered sharks and other large fish—and other fish discarded overboard at sea.

The researchers created the database by assembling and standardizing all of the different public data sets created by tuna regional fisheries management organizations (RFMOs). These data sets only focus on

specific areas such as the Indian Ocean or the Pacific Ocean, do not use the same reporting criteria and therefore do not provide an accurate picture of the true extent of fisheries for tuna and similar fish.

"By combining the data sets of the five existing RFMOs since 1950, we were able to create a complete picture of the evolution and current state of this fishery that mobilizes billions of dollars worldwide, feeds millions and affects areas that are shared by all countries," said Coulter.

They found that skipjack and yellowfin are the most commonly caught species of tuna, with combined catches of four million tonnes per year in recent years. Meanwhile, catches of the sushi-favourite bluefin tuna have declined heavily since the mid-20th century, with the species now considered critically endangered.

Besides the alarmingly high amount of global catches, the researchers found that the Pacific Ocean provides 67 per cent of the world's total tuna catches, which are mostly taken by Japanese and U.S. fleets. The Indian Ocean follows, with 12 per cent of catches by mostly Taiwanese, Spanish, Indonesian and French fleets, while the Atlantic generates an additional 12 per cent and is exploited by Spanish, French and more recently, Japanese and Korean vessels operating under Ghana's flag.

Blue sharks comprise almost 23 per cent of the "other" fish caught during tuna fishing activities, and are also a species at risk.

"Unlike tuna, sharks take many years to mature and do not produce many offspring," said Coulter. "This makes their populations particularly vulnerable to these fishing pressures. And the worst part is that many of these sharks are not brought to land so their meat can be used as food. They have their fins removed and sold in shark fin markets, or are simply thrown overboard as discards."

The study estimates that 5.7 million tonnes of different shark species were discarded between 1950 and 2016 in the Pacific Ocean alone.

"It's so important to know what's being fished where, and in what amount in order to assess the health of fish stocks and to ensure we have fish for the future," said Coulter. "Hopefully, the results of our study will encourage stakeholders and policymakers to increase monitoring, share information and agree upon coordinated efforts like cutbacks, to foster the sustainability of tuna stocks."

More information: Angie Coulter et al, Using harmonized historical catch data to infer the expansion of global tuna fisheries, *Fisheries Research* (2019). DOI: 10.1016/j.fishres.2019.105379

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