

Researchers say high seas fisheries play limited role in feeding the world

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According to a recent study undertaken by a team of fisheries and social scientists from Dalhousie University, New York University, and National Geographic, fishing fleets operating outside of national waters

contribute less than 3% to the world's seafood supply. This finding goes against the common assertion that high seas fisheries are important for food security.

The study paired a global database of marine catches developed by researchers at the University of British Columbia with a seafood trade database maintained by the United Nations Food and Agriculture Organization for the analysis and considered the amount of fish and marine invertebrates produced by marine capture fisheries, as well as freshwater fisheries, and aquaculture.

In addition to the low volume, researchers also found that most of the high seas catch is destined for upscale markets in the EU, the US, and Asia. "I think many people have the misconception that because the area is so large, the high seas must be contributing a massive supply of [food](#) to the world, but that's just not the case", said lead author Laurene Schiller, Interdisciplinary Studies Ph.D. student at Dalhousie University. "Only a handful of countries are fishing in the high seas and the fish they catch are not feeding those most in need".

In particular, the study found that China and Taiwan together account for one-third of the total high seas catch and that less than 40 species are targeted by the fisheries in this part of the ocean. Only one species, Antarctic toothfish, is caught exclusively in the high seas. This species is commonly marketed as Chilean sea bass and can easily sell for over \$50 per kilogram. Seven species of tuna constitute 60% of the high seas catch and these fish—as well as other species such as swordfish, squid, and krill—are caught in both national waters and the high seas.

The researchers do acknowledge that some less expensive products derived from high seas species—such as canned skipjack tuna—may play a role in addressing localized food insecurity in countries that are considered food secure at the national level, such as the US. However,

the cost of most high seas species such as toothfish and bluefin tuna (which regularly sells for more than \$30 per kilogram) suggests they are unattainable for low-income citizens struggling to meet their caloric and nutritional needs.

The study also notes that smaller fish such as jack mackerel and blue whiting caught by high seas fisheries are likely destined for the fishmeal industry, where they become feed for more valuable [species](#) such as farmed salmon, which is primarily consumed in the US. Krill is also caught to supply the feed industry as well as the increasingly valuable Omega supplement market.

"Food security is an issue of access, not just volume" said co-author Megan Bailey, assistant professor in the Marine Affairs Program at Dalhousie. "We produce more than enough food to feed everyone on the planet, yet for a variety of social, cultural, and economic reasons, 800 million people remain severely food insecure today. These are not people who can access fish from the high seas."

This research is part of a special edition in the academic journal *Science Advances*, focused on high seas ecosystems and fisheries. "Much of the fishing in the high seas would not be economically rational without massive government subsidies either, so regardless of how you look at it, it doesn't make much sense" said Enric Sala, co-author and National Geographic explorer-in-residence. Additional work by Dr. Sala published last month showed that more than half of the fishing occurring on the high seas would be unprofitable without financial aid from national governments.

These findings will also likely be valuable for the ongoing United Nations negotiations discussing an international treaty to protect biodiversity in the high seas. In light of concerns over the overexploitation of marine life and the need to protect genetic

biodiversity in the future, the UN General Assembly has convened to explicitly discuss how the high seas should be accessed and protected in the future. A full closure to fishing is one idea that has been presented, although the authors note that any time countries look to protect marine space they must consider a multitude of ecological and social impacts.

"International governance decisions are never straightforward and should not be viewed as such," said Schiller. "Still, we hope the results of our work will enable policy makers to focus on the real issues that present challenges to high seas management, as our study concludes that concerns over food security are unfounded."

This research, titled "High seas fisheries play a negligible role in addressing global [food security](#)" was published today in the journal *Science Advances*.

More information: L. Schiller et al., "High seas fisheries play a negligible role in addressing global food security," *Science Advances* (2018). advances.sciencemag.org/content/4/8/eaat8351

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