

With food security and equity growing concerns in global fisheries—and one-third of commercial fish stocks being exploited at unsustainable levels, according to the United Nations—researchers have been tapping new data to get a better grasp of exactly who fishes where and how much they catch.

A <u>paper</u> published recently in the journal *Science Advances* found that rich nations are catching the lion's share of the ocean's fish, <u>even in the waters of lower-income countries</u>. The estimates feed into a bigger debate over how the wealth of the seas could be distributed fairly and sustainably.

In their research, the authors analyzed global fishing activity data to conclude that 97 percent of industrial fishing they were able to track in international waters—the high seas— is conducted by vessels flying the flag of high- and upper-middle-income nations. The vast majority was from five nations: China, Taiwan, Japan, South Korea, and Spain. And even within the territorial waters of developing countries, 78 percent of industrial fishing was done by wealthier nations, the scientists found. Overall, industrial fishing vessels, defined by the study as those at least 80 feet long, accounted for about three-fourths of global catch of wild fish from the sea, the authors estimated.

"We suspected before we started that we would see something like this, but quantifying it with numbers moves the conversation forward and allows people to start asking questions about where their countries' fish is going," said <u>Douglas McCauley</u>, a marine ecologist at the University of California–Santa Barbara and a director of the <u>Benioff Ocean Initiative</u>. McCauley led the study with Caroline Jablonicky, a scientist at the Initiative and the university's <u>Marine Science Institute</u>.

But <u>Manuel Barange</u>, director of the fisheries and aquaculture policy and resources division of the United Nations Food and Agriculture Organization, is skeptical of the study's conclusions that wealthy nations are taking so great an overall portion of catch. He said in an email that smaller-scale fishing efforts take a significant, if harder to estimate, quantity of fish. He said that for the authors of the new study to "give the impression of absolute pillage from the rich to the poor" is "grossly incomplete" and cited data showing significant consumption of seafood in all nations, including those of lower average income.

McCauley and Jablonicky drew their results from the data inventory of <u>Global Fishing Watch</u>, a public platform that uses satellite technology combined with vessel monitoring systems to closely track fishing activity from space, night and day.

The data that the authors analyzed came from the automatic identification systems, or AIS, that vessels of a certain size are required to install that transmit their location and other information. In their paper, the scientists made it clear that AIS has "important limitations" —chiefly that it does not account for every boat on the ocean, and even ships with AIS on board may turn their electronics off, especially if they are engaged in illicit activity. To address that, the authors compared their data to vessel registries, to non-public vessel monitoring system data made accessible by a few countries and to estimates of unreported fishing from the <u>Sea Around Usproject</u>. Some of these comparisons suggested higher rates of fishing effort from low-income nations, though the authors stated that the general conclusions stand.

Barange, however, is generally skeptical of AIS data. He said recent research, not yet published, from his organization found that "the use of AIS for detection of fishing operations is extremely weak in many parts of the world and subject to some significant errors." Notably, he said, AIS fails to account for a great deal of vessels while misidentifying significant numbers of transport and leisure boats as ones that are fishing.

Meanwhile, other recent work has underscored concerns about how industrial-scale fishing, fueled by government subsidies, is taking too many fish from the ocean.

A <u>study</u> published last year in *Marine Policy* found that 90 percent of subsidies that exacerbate overfishing are handed out exclusively to large-scale industrial fishing interests.

For many years, there has been talk of banning fishing subsidies that encourage overfishing and illegal fishing, and at last December's World Trade Organization negotiations in Argentina, many nations were prepared to impose such a ban. The effort failed, however, and the matter was kicked down the road, to be taken up again at the 2019 WTO meetings.

<u>Rashid Sumaila</u>, a fisheries and economics professor at the University of British Columbia and a co-author on the *Marine Policy* paper, says these government handouts should be discontinued.

"I'm hopeful they will be banned," Sumaila said. "The new work corroborates our research by showing how subsidies might be creating inequity in the distribution of seafood."

Barange, at the U.N., also said that that the FAO will advise the WTO on the need to eliminate subsidies that make possible the continued fishing of declining stocks. "Fishing relies on a global common," he said. "Our view is that we need to ensure subsidies do not contribute to overcapacity and overfishing."

On the high seas, far from coasts and where there are few small fishing boats, subsidies are also fueling a few nations' fleets. A <u>study released in June</u> estimated that, without subsidies, about half of high seas fishing could be unprofitable at current fishing rates, especially for nations like China, Taiwan, and Russia. Enric Sala, a National Geographic explorer-in-residence who led the June study, said McCauley's new research "confirms that government subsidies support vast inequities in the distribution of benefits from global fishing."

"A few countries with long-distance fleets not only monopolize the high seas but also extract many resources from least developed nations," he said. "It's a new type of state-sponsored colonialism."

In addition to the WTO talks, fishing subsidies could come up in September, as the U.N. kicks off negotiations to draft a new treaty aimed at protecting biodiversity on the high seas. "We're hoping they'll use this analysis to see who is fishing and how the catch is being distributed," McCauley said.

Still, who eventually eats the fish caught by the world's fishing fleets remains unclear. "That could be the next generation of this research," he said.

Sumaila said it seems probable that wealthy nations are catching, selling, and eating the bulk of the world's wild seafood, with relatively little of the food value returning to nations that may need it the most. In Nigeria, he said, foreign fleets tend to catch and import to their own countries high-value species like tuna while selling lower-value species back in local ports.

Jablonicky, McCauley, and their co-authors worry that industrial fishing activity, dominant as it is, could squeeze smaller "artisanal" boats out of their own territorial waters, or exclusive economic zones (EEZs). Those small vessels tend to fish more sustainably and use less fuel.

"The patterns that we highlight of extensive industrial fishing from vessels flagged to foreign wealthy nations in the EEZs of less wealthy nations are likely to directly affect the future of many artisanal fisheries," they wrote.

This article originally appeared on Oceans Deeply, and you can find the original <u>here</u>. For important news about our world's oceans, you can sign up to the Oceans Deeply <u>email list</u>.

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