

# Comprehensive study uses technology to assess extent of global fishing

A new study reveals the extent of global fishing, from data coming even from individual vessel movements and hourly activity, and opens an unprecedented gateway for improved ocean management.

The study, published in *Science* magazine, shows that, while the footprint of capture fishing extends across more than half the global ocean, activity is clearly bounded by different management regimes, indicating the role well-enforced policy can play in curbing over-exploitation.

To carry out this initiative, a team of researchers from Global Fishing Watch, the National Geographic Society's Pristine Seas project, University of California Santa Barbara, Dalhousie University, SkyTruth, Google, and Stanford University, used satellite feeds, machine learning techniques and common ship tracking technology.

The team found that industrial fishing covers more than 55 percent of the ocean's surface, over four times the area covered by agriculture.

The new fishing dataset is hundreds of times higher in resolution than previous global surveys and captures the activity of more than 70,000 vessels, including more than 75 percent of industrial fishing vessels larger than 36 meters.

"By publishing the data and analysis, we aim to increase transparency in the commercial fishing industry and improve opportunities for sustainable management," said lead author, David Kroodsma, the Director of Research and Development at Global Fishing Watch.

On His part, co-author Juan Mayorga of the National Geographic Society's Pristine Seas project and the University of California Santa Barbara said: "This dataset provides such high-level resolution on fishing activity that we can even see cultural patterns such as when fishers in different regions take time off."

"Data of this detail gives governments, management bodies and researchers the insights they need to make transparent and well-informed decisions to regulate fishing activities and reach conservation and sustainability goals," he added.

"Only a few years ago, we didn't have the computing power, enough satellites in orbit, or techniques to run machine learning at scale over massive datasets. Today we have all three, leading to dramatic

advances in our ability to monitor and understand human interaction with our natural environment,” said Brian Sullivan, a co-author who works for Google Earth Outreach.

The study also revealed that China has the world’s largest and farthest-ranging fishing operation.

Ships from China accumulated around 17 million hours of fishing in 2016, mostly off the southern coast of their home country, Africa and South America. The next-biggest operation is Taiwan’s, with 2.2 million hours of fishing.

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