

## Emissions from fishing vessels have quadrupled since 1950, UBC study shows



Research puts CO2 released in 2016 at 207M tonnes, 30% higher than previous estimates



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Artisanal and subsistence fishing operations, like these boats in Panama City, accounted for about a quarter of carbon dioxide emissions in 2016. (Valentina Ruiz Leotaud)

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Even as the volume of seafood caught worldwide declines, greenhouse gas emissions from fisheries continue to rise, hitting levels much higher than previously thought, according to new research from the University of B.C.

The study estimates marine fishing vessels released 207 million tonnes of carbon dioxide in 2016, about 30 per cent higher than previously estimated. That's despite the fact that overall catch has been dropping since the 1990s.

"I would say that it is concerning," said Krista Greer, the study's lead author and a researcher with the Sea Around Us initiative at UBC.

"We're actually increasing our emissions even though we have technology that's more efficient and our catches are declining."

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The paper, published in the journal [Marine Policy](#) this week, suggests that overall emissions from the world's marine fisheries more than quadrupled between 1950 to 2016. The scientists looked at each boat in fleets around the world and used their engine capacity to calculate how much carbon dioxide they release by burning fossil fuels.

It builds on [another UBC study](#) published last year that estimated emissions from the industry in 2011, resulting in a significantly lower number of 112 million tonnes of carbon dioxide.

According to Greer, the difference in the two estimates can likely be attributed to more precise numbers from African and Asian fishing fleets in the latest study.

## Increased fuel use in small-scale fisheries

About three-quarters of the 207 million tonnes released in 2016 came from industrial operations, according to the new paper. The remainder came from small-scale, artisanal and subsistence fishing.

And therein lies one of the most surprising findings in the research, Greer said.

Over the 66 years included in the study, the carbon dioxide emissions burned by industrial fishing boats per unit of fish caught dropped by about 10 per cent. For small-scale operations, that emissions intensity actually increased by a factor of 2.3.

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"The industrial sector seems to be stabilizing more so than the small-scale sector," Greer said. "It means that possibly, where we have good infrastructure and where we have policies in place, they tend to target those industrial sectors."

She described the contrast as a socioeconomic problem for small-scale fishers in parts of the world that are especially vulnerable to the effects of climate change and declining fish stocks.

"We really do need to draw attention to the fuel use in these small-scale fisheries, because they are using a lot of fuel that is very costly to them, and we're not really paying attention to them from a management perspective," Greer said.



The emissions intensity from small-scale fisheries has more than doubled in the last six decades. (Deurbon Chow/Reuters)

She added that the overall increase in emissions from the fishing industry may have something to do with the fact that vessels have to travel farther and farther offshore as stocks are depleted closer to land.

Past research has also suggested that increasing appetites for seafood like lobster and shrimp, which require more fuel to harvest, is also driving the rise in emissions.

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"My parents ask me, 'What kind of things can I do then at home? How can I help this problem?'" Greer said.

"What I say is, when you're selecting which seafood to eat, try and think about where it's coming from, what kind of species is it."

That can mean choosing more small pelagic fish like herring, sardines and anchovies if possible — harvesting these fish requires relatively little fuel use.

## ABOUT THE AUTHOR

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**Bethany Lindsay**

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Bethany Lindsay has more than a decade of experience in B.C. journalism, with a focus on the courts, health and social justice issues. She has also reported on human rights and crimes against humanity in Cambodia. Questions or news tips? Get in touch at [bethany.lindsay@cbc.ca](mailto:bethany.lindsay@cbc.ca) or on Twitter through [@bethanylindsay](https://twitter.com/bethanylindsay).

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