



## Study: Technological creep doubles commercial fishing capacity every 35 years, pressuring stocks

By Nicki Holmyard  
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A recent study undertaken by researchers from the University of British Columbia's (UBC) Sea Around Us initiative showed that new technology has allowed commercial fishing fleets to double their fishing capacity every 35 years, which in turn increases the pressure on dwindling fish stocks.

The researchers examined more than 50 studies related to an increase in catching power, and concluded that the introduction of, for example, GPS, fish finders, echo-sounders, and acoustic cameras has led to an average 2 percent yearly increase in vessels' capacity to capture fish.

"This means that if a fleet has 10 boats today, one generation later, the same 10 boats will have the fishing power of 20 vessels, and the next generation will have the power of 40 boats, and so on," said Sea Around Us Project Manager Deng Palomares, lead author of the study, which was published in Ecology and Society.

"Technological creep" is the term given to this method of advancing fishing capacity and, according to Sea Around Us Principal Investigator Daniel Pauly, it is often ignored by fisheries managers and by scientists in charge of proposing policies, Palomares said.

Palomares' and Pauly's solution to this issue is an equation which enables both parties to effectively estimate technological creep and in turn, to determine a fleet's effective effort.

"This is important because if you don't understand that the increase in power is happening, then you don't understand that you can deplete a stock," Pauly said. "We already know that marine fisheries catches have been declining by 1.2 million [metric tons] per year since 1996, so by prompting boats to fish deeper and farther into the high seas, these new technologies are only helping the industry to compensate for the diminishing abundance of fish populations."

A separate University of British Columbia study found that governments have increased their financial support for unsound fishing practices, despite public pledges to stop this practice.

The results were published as negotiations resumed at the World Trade Organization in Geneva, Switzerland, to secure an international agreement that bans government subsidies for fishing effort in excess of sustainable practices the end of 2019. However, many authorities question the political will to push the negotiations to the finish line.

Results from the study showed that of 152 countries surveyed, ocean-faring nations spent USD 22 billion (EUR 19.8 billion) on capacity-enhancing subsidies in 2018, a rise of 6 percent since 2009. Total global fisheries subsidies amounted to USD 35.4 billion (EUR 32 billion). Such expenditures promote overfishing and illegal fishing in fisheries that would otherwise not be profitable, according to Palomares and Pauly. Fuel subsidies alone accounted for 22 percent of all fishing subsidies in 2018, and their danger is in allowing industrial trawlers to travel further in a bid to seek out new fishing grounds.

More than 55 percent of the ocean surface is now targeted by industrial fishing fleets, and China, which has the world's largest distant-water fleet, number in excess of 3,000 vessels, increased harmful subsidies by more than 105 percent in the past decade, putting it at the top of the table. China, together with the European Union, the United States, the Republic of Korea, and Japan, contributed 58 percent of the total estimated subsidy.

According to Ussif Rashid Sumaila, the director of the Fisheries Economics Research Unit at UBC's Institute for the Oceans and Fisheries, once you give people something like a fuel subsidy, it's very difficult to take it away.

"The politics of this is very hard, but it's important for scientists to continue to show how this is not working for society," he said.

Isabel Jarret, manager of The Pew Charitable Trusts campaign to reduce harmful fisheries subsidies, which is working with the WTO, found it hard to take much that is positive from the study.

"It can be a rallying cry for governments, as the WTO is in a position to end harmful subsidies and have a huge impact on the ocean. If the top five countries take on big commitments, then we'll really see a huge significant shift in moving away from harmful subsidies, and ultimately, I hope, rebounding fish stocks and a healthier future for the ocean," she said.

In a statement, WTO Director-General Roberto Azevêdo agreed that there is no question that many fish stocks are being depleted and that unfettered state funding for fishing can harm our oceans.

“With the end of 2019 deadline fast approaching, the negotiations are intensifying. WTO members need to set aside their differences and find compromises to bring about a deal. Failing to successfully conclude these negotiations will not just be bad for marine fish stocks: it will damage the credibility of the WTO and discredit the feasibility of multilateral rule-making. The time to act is now,” he said.

*Photo courtesy of University of British Columbia’s (UBC) Sea Around Us*



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