



80 years of building new worlds  
through knowledge



UNIVERSITÉ  
DE MONTPELLIER

**PRESS RELEASE - PARIS - NOVEMBER 26, 2019**

**EMBARGOED until November 27, 2019 at 20h00 Paris time**

## **Compliance with Paris Agreement would limit loss of productivity for fishing and agriculture**

**What is the global impact of climate change on fishing and agriculture? An international team of scientists<sup>1</sup> led by the CNRS, involving the University of Montpellier<sup>2</sup> in France, has studied this question by applying climate models to worldwide data on employment, the economy, and food security. Their findings, published in *Science Advances* on 27 November, show that 90% of the global population may face decreases in productivity for both agriculture and fishing if greenhouse emissions are not reduced. On the other hand, most countries are in a position to limit these losses if emissions are drastically cut, as stipulated by the Paris Agreement.**

By combining climate models with global employment, economic, and food security data, a group of scientists has analysed the potential effects of climate change on two key food sectors: agriculture and fishing.

Adopting the scenario of no reduction in greenhouse gas emissions, they have shown that roughly 90% of the worldwide human population—for the most part living in those countries most vulnerable to climate change and less able to adapt to it—would likely face productivity losses for agriculture and fishing, while less than 3% of the population would see simultaneous gains in productivity in their regions of the world by 2100. This scenario offers extremely little room for adaptation. It would be impossible to offset the impact on fishing by developing agriculture, or vice versa: both sectors would be hit hard.

Yet if the Paris Agreement is honoured, which would entail a drastic reduction in greenhouse gas emissions, the scientists conclude that the majority of countries—not just the most vulnerable, but also the majority of those responsible for the greatest emissions—would come out ahead. Though productivity would still be lost in many cases (affecting 60% of the population), the magnitude of this blow would be considerably lower. The most vulnerable nations would see only a fifth to a fourth of the losses they would otherwise suffer, giving them ample slack to implement adaptive strategies—e.g. diversification within an affected sector (by developing varieties that would be viable in the climate of tomorrow) or investment in sectors relatively unscathed by changing climate conditions, or even benefiting from them.

These findings thus suggest that making societies less vulnerable to the future effects of climate change requires quick action to attenuate it, along with strategic adaptation in regions where negative impacts appear inevitable.



## Notes

1. In addition to the French teams, researchers from the University of Hawaii (USA), the University of British Columbia (Canada), Lancaster University (United Kingdom), and James Cook University (Australia) are involved in this study.
2. The participating French research laboratories are the Centre for Island Research and Environmental Observatory (CNRS / EPHE-PSL / UPVD) and the Marine Biodiversity, Exploitation and Conservation unit (CNRS / IRD / IFREMER / University of Montpellier).



© Pok Rie / Pexels.com

## Bibliography

**Escaping the perfect storm of simultaneous climate change impacts on agriculture and marine fisheries.** Lauric Thiault, Camilo Mora, Joshua E. Cinner, William W. L. Cheung, Nicholas A. J. Graham, Fraser A. Januchowski-Hartley, David Mouillot, U. Rashid Sumaila, Joachim Claudet. *Science Advances*, november 27, 2019.

DOI : [10.1126/sciadv.aaw9976](https://doi.org/10.1126/sciadv.aaw9976)

## Contacts

**CNRS Researcher** | Joachim Claudet | [joachim.claudet@cnrs.fr](mailto:joachim.claudet@cnrs.fr)

**Lauric Thiault** | [lauric.thiault@gmail.com](mailto:lauric.thiault@gmail.com)

**CNRS Press** | Priscilla Dacher | T +33 1 44 96 46 06 | [priscilla.dacher@cnrs.fr](mailto:priscilla.dacher@cnrs.fr)