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1.5°C Paris Agreement target could net six million tons of fish annually

NIPPON FOUNDATION-NEREUS PROGRAM

Meeting the Paris Agreement global warming target of 1.5°C will have large benefits to fisheries, finds a new Nippon Foundation-Nereus Program study published in *Science*. For every degree Celsius decrease in global warming, potential fish catches could increase by more than three million tonnes per year.

"Changes in ocean conditions that affect fishing catch potential, such as temperature and oxygen concentration, are strongly related to atmospheric warming and therefore also carbon emissions," says author Thomas Frölicher, Nippon Foundation-Nereus Program Principal Investigator and Senior Scientist at ETH Zürich. "For every metric ton of CO2 emitted into the atmosphere, the maximum catch potential decreases by a significant amount."

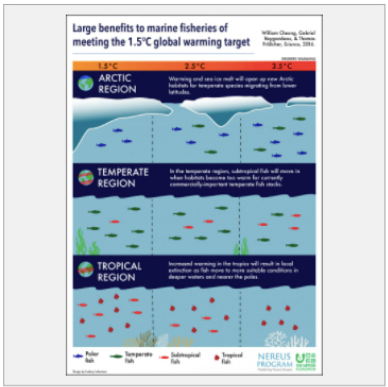

IMAGE: EFFECTS TO MARINE FISHERIES IN THE ARCTIC, TEMPERATE, AND TROPICAL REGIONS UNDER 1.5, 2.5, AND 3.5 DEGREE GLOBAL WARMING. view more ›

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The authors compared the Paris Agreement 1.5°C warming scenario to the currently pledged 3.5°C by using computer models to simulate changes in global fisheries and quantify losses or gains. Due to the migration of fish towards cooler waters, climate change would also cause more species turnover, altering the composition of species within the stocks. This would have impacts on fishers and make fisheries management more difficult.

Certain regions are more sensitive to changes in temperature and will have substantially larger gains from achieving the Paris Agreement. The Indo-Pacific area would see a 40% increase in fisheries catches at 1.5° warming versus 3.5°. While the Arctic region would have a greater influx of fish under a high warming scenario, this would result in further sea ice losses and pressures to expand Arctic fisheries.

"The rapid increase in benefits for vulnerable tropical areas is a strong reason why 1.5° is an important target to meet," says lead author William Cheung, Nippon Foundation-Nereus Program Director of Science and Associate Professor at UBC's Institute for the Oceans and Fisheries. "Countries in these sensitive regions are highly dependent on fisheries for food and livelihood, but all countries will be impacted as the seafood supply chain is now highly globalized. Everyone would benefit from meeting the Paris Agreement. "

The authors hope these results will provide further incentives for countries and the private sector to substantially increase their commitments and actions to reduce greenhouse gas emissions because of the added benefits to fisheries.

"The trend we have projected is already happening. It's a train that has left the station and is going faster and faster," says author Gabriel Reygondeau, Nippon Foundation-Nereus Program Senior Fellow at UBC. "If one of the largest CO2 emitting countries gets out of the Paris Agreement, the efforts of the others will be clearly reduced. It's not a question of how much we can benefit from the Paris Agreement, but how much we don't want to lose."

The study "Large benefits to marine fisheries of meeting the 1.5 °C global warming target" was published in *Science*. Article link: http://science.sciencemag.org/cgi/doi/10.1126/science.aag2331

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KEYWORDS

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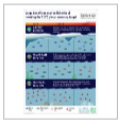
Large Benefits to Marine Fisheries of Meeting the 1.5 °C Global Warming Target
(IMAGE)


CO2 Emissions over a Decade and Their Effects on Fisheries Catch Potential Loss
(IMAGE)

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Interviews available in English, French, Cantonese, Mandarin, and German.

About the Nippon Foundation-Nereus Program

The Nereus Program, a collaboration between the Nippon Foundation and the University of British Columbia Institute for the Oceans and Fisheries, has engaged in innovative, interdisciplinary ocean research since its inception in 2011. The program is currently a global partnership of six leading marine science institutes with the aim of undertaking research that advances our comprehensive understandings of the global ocean systems across the natural and social sciences, from oceanography and marine ecology to fisheries economics and impacts on coastal communities. Visit nereusprogram.org for more information.

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