Ocean acidification turns climate change winners into losers: research

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Adding ocean acidification and deoxygenation into the mix of climate change predictions may turn “winner” regions of fisheries and biodiversity into “losers,” according to research released today by University of British Columbia researchers.

Previous projections have suggested the effects of warmer water temperature would result in fish moving pole-ward and deeper towards cooler waters – and an increase of fish catch potential of as much as 30 per cent in the North Atlantic by 2050.

Accounting for effects of de-oxygenation and ocean acidification, however, some regions may see a 20-35 per cent reduction in maximum catch potential by 2050 (relative to 2005) – depending on the individual species’ sensitivity to ocean acidification.

For example, in the Norwegian Sea, ocean warming by itself may result in a 15 per cent increase in fisheries catch potential. However, accounting for acidification and de-oxygenation, the increase turns to a decrease of 15 per cent, and the region from a “winner” to a “loser.”

“Loser” regions in the tropics could become poorer and will require better strategies to mitigate potential food security issues.

“This study provides a clearer picture of the complex interactions between the different climate change impacts on our oceans,” says William Cheung, an assistant professor in UBC’s Fisheries Centre, who

presented his research today at the Annual Meeting of the American Association for the Advancement of Science (AAAS) in Vancouver, Canada.

Climate change and the associated physical and chemical changes in the ocean decrease oxygen in the water in some region. Meanwhile, approximately one-third of the carbon dioxide that humans produce by burning fossil fuels is being absorbed by the ocean, gradually causing the oceans to become more acidic and affecting biological processes of various marine organisms.

Cheung says that rebuilding global fisheries may increase the capacity of marine species to handle the impacts of climate change and ocean acidification.

“This will require efforts on various fronts, including curbing overfishing and reducing carbon dioxide levels,” says Cheung.

Provided by University of British Columbia

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