CLIMATE-HIT FISHERIES 'CAN STILL MEET DEMAND IN 2050'

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- A 3.4 per cent rise in future fish production could be enough to meet demand
- But wider implementation of sustainable harvesting will be needed
- Parts of Asia and southwest Africa are set to see the biggest falls in catches

Fish catches will need to increase by only 3.4 per cent to meet global dietary demand in 2050, according to a study predicting how climate change will affect marine ecosystems.

The authors warn that achieving this will require the wider implementation of sustainable harvesting, such as technological developments to reduce dependence on wild stock for farmed fish feed, and more-effective distribution of wild fish products from regions with a surplus to

those with a deficit.

This means that changes in the effectiveness of fisheries' management and trade practices will remain the main influence on whether global fish production rises or falls, concludes the study published in *Nature Climate Change* last month (23 February).

The study developed and linked models of physical, biological and human responses to climate change in the fisheries of 67 countries, chosen because they are responsible for around 60 per cent of global fish catches.

Although some fishery-dependent nations in Africa, along the western coast from Benin north to Mauritania, are set to benefit from climate change, most tropical nations are not, it found.

"We need flexible and adaptive management systems that recognise the changing paradigm: marine ecosystems are not stable, and climate change will make them even more unstable."

- Manuel Barange, Plymouth Marine Laboratory

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Those in South and South-East Asia, off southwest Africa and Peru, and around some small tropical island states are forecast to experience the biggest falls in potential fish production, according to the paper.

"In the tropics, and up to 40 per cent drop in fisheries production is estimated," Manuel Barange, lead author and science director of the UK-based Plymouth Marine Laboratory, tells *SciDev.Net*.

"Many species in these regions are limited by nutrients and physiological limits to growth. A warming ocean means that species will be metabolically under stress, with less energy going to

growth and reproduction. As these regions are, in general, more sensitive and vulnerable to fisheries changes, we expect the consequences of climate change to be more dramatic," he says.

"We need flexible and adaptive management systems that recognise the changing paradigm: marine ecosystems are not stable, and climate change will make them even more unstable," Barange says.

Peru has the world's largest anchovy fishery, so the country was an essential part of the analysis, according to Barange. "We predict a decline in fish production there," he says. He adds that the study uses geographical scales small enough to allow estimates of changes in the intensity of the upwelling of cold, nutrient-rich water that supports anchovy production.

"We need studies at even smaller scales to be absolutely sure of the changes to be expected over the next 50 years," says Barange. "This is because the continental shelf in Peru and Chile is very narrow and, as the [relief] of the shelf is crucial to the process of upwelling, the more resolved the model is in space, the better the reliability of the analysis."

Dimitri Gutiérrez, director of oceanographic and climate change research at Peru's Marine Institute, says models are useful scientific tools, but they involve a great deal of uncertainty.

He says that previous studies on climate change's potential impact on fish catches off the Peruvian coast indicated that there will be a modest reduction, but he says that more analysis is required.

"From our observations in past decades, we've noticed some major changes at the ecological and productivity level in oceanographic behaviour in the coastal zone," Gutiérrez says.

"However, we have not yet noticed disturbing signs in the availability of resources, especially anchovy."

Source : http://www.scidev.net/global/fisheries/news/climate-hit-fisheries-can-still-meet-demand-in-2050.html