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## Fish seen shifting 125 miles by 2050 due to warming

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By Alister Doyle, Environment Correspondent

OSLO (Reuters) - Global warming will push fish stocks more than 200 km (125 miles) toward the poles by mid-century in a dislocation of ocean life, a study of more than 1,000 marine species projected.

Tropical nations were likely to suffer most as commercial fish stocks swam north or south to escape warming waters, the report said. Alaska, Greenland and Nordic nations would be among those to benefit from more fish.

"We'll see a major redistribution of many species because of climate change," said William Cheung of the University of British Columbia in Canada and the University of East Anglia in England who was lead author of the study.

"On average, fish will change their distribution by more than 40 km (25 miles) per decade in the next 50 years," he told Reuters of the report in the journal *Fish and Fisheries*, to be presented at a meeting in Chicago on Friday.

He said the report, written with scientists in the United States and projecting average shifts of more than 200 km over five decades, was the first to model climate impacts for more than 1,000 species such as herring, tuna, sharks or prawns.

Stocks of many species are already under pressure from over-fishing or pollution.

In the North Sea, a northward shift of cod could cut numbers by 20 percent. At the same time, North Sea stocks of the more southerly European plaice might rise by more than 10 percent.

And some cod populations off the east coast of the United States might decline by half by 2050, the report said.

### TROPICS TOO HOT

"Countries in the tropics will suffer most from reductions in catches," Cheung said. The U.N. Climate Panel says emissions of greenhouse gases, mainly from burning fossil fuels, are stoking climate change such as droughts or rising seas.

Overall, Cheung said total fish catches from the world's oceans would be little changed by mid-century despite the shifts. "It's more about reshuffling the catch," he said.

The study made computer models for the movements of 1,066 species -- 836 types of fish and 230 invertebrates, such as crabs and lobsters.

Some species could die off, such as fish that thrive in cold waters and would have nowhere to go if the oceans warmed.

"Some species will face a high risk of extinction, including Striped Rock Cod in the Antarctic and St Paul Rock Lobster in the Southern Ocean," the University of East Anglia said.

Cheung said shifts were under way. Trawlers off the Western United States, for instance, were having to travel further north to catch the same

fish. That led to problems, for instance, of coping with currents or rocks in unfamiliar waters.

Cheung said he hoped the study would help governments plan ways to manage fisheries. More than 190 governments plan to agree by the end of 2009 a new U.N. pact for fighting climate change to succeed the existing Kyoto Protocol.

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