

B.C.'s iconic fish species being displaced by warming oceans: UBC study

Global warming is changing the composition of B.C. fisheries

BY RANDY SHORE, VANCOUVER SUN MAY 15, 2013



The warming effect is believed to be affecting salmon abundance as fish are physically stressed by heat and forced into deeper or more northerly waters, affecting their ability to reproduce and ward off disease, according to the UBC study.

Photograph by: Kristi M. Miller, Postmedia News

As the ocean grows warmer due to climate change, iconic B.C. fish species such as salmon and eulachan are being forced from their normal habitat as they seek cooler waters or are displaced by warm-water species, according to a study by researchers at the University of B.C.

Global fisheries are increasingly dominated by tropical and sub-tropical fish as warm-water species expand their range toward the Earth's poles in response to rising temperatures, said William Cheung, co-author of the study published in *Nature* this week.

"In B.C., we are seeing more warm-water species in the catch," said Cheung.

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Marine species are gradually moving to cooler waters, and, as a result

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The impact of the warm-water species in the waters of temperate regions is not known, he said. But the warming effect is believed to be affecting salmon abundance as fish are physically stressed by heat and forced into deeper or more northerly waters, affecting their ability to reproduce and ward off disease.

“Global warming is one of the factors linked to the collapse of the Fraser River sockeye,” he said.

“For salmon and many other species there is a narrow temperature range that they can live in due to limitations in body function,” said Leung. “Warm water causes them to suffer poor growth and reproduction and they may die from the heat stress.”

Previous studies suggest shellfish species such as mussels and urchins that inhabit the rocky shores of B.C. waters are already being adversely affected by temperature and acidification due to global warming, raising fears the entire food chain could be disrupted.

While some fin fish and invertebrate species can move to deeper cooler water, others are bound to their coastal habitat — to specific feeding and inshore spawning grounds — and may perish if they are forced out by rising temperatures.

Eulichan thrive in brackish estuaries where salt and fresh water mix, but the distribution of the fish is shifting north as waters warm, he said.

“The effect of climate change on fish is not just coming, we can see that it has been happening for 40 years,” said Cheung, an assistant professor at UBC’s Fisheries Centre.

Cheung and co-author Daniel Pauly analyzed catch data on 990 marine fish and invertebrates in 52 marine ecosystems from 1970 to 2006.

Over time, the catch composition in temperate regions is increasingly dominated by warm-water fish as cool water species are displaced or move deeper into the ocean or toward higher latitudes seeking temperatures suited to their physiology.

The study suggests that as waters warm in tropical regions and enclosed water systems, fewer of the local species will be equipped to survive the higher temperatures, leading to reduced catches, with serious implications for food security in equatorial countries, Cheung said.

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