

Climate predictions grim, but no surprise

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Climate change will wipe out 20 to 30 per cent of all life forms and flood hundreds of millions of people from their homes, according to early reports from a new study by the UN's Intergovernmental Panel on Climate Change.

The study, to be released Friday, will detail the global effects of climate change. In Canada, temperatures will rise, twice as many forest fires will occur and melting permafrost are predicted. Globally, rising sea levels will drive hundreds of millions of people from their homes.

Grim as the predictions are, they come as no surprise to University of Alberta researchers investigating the effects of climate change. "These kinds of predictions have been around for some time," said renowned water ecologist Dr. David Schindler, who contributed to the report.

"River flows are declining in most part of the world," said Schindler, the U of A's Killam Memorial Chair and Professor of Ecology. "That is partly due to warming and partly due to human uses, like damming and withdrawals."

All of which is translating into water scarcity.

"I have done a bit of work in these water budgets for rivers in the West and that is clearly the case here" said Schindler. "The Saskatchewan Glacier, which feeds our own river running through Edmonton, has lost about 25 per cent of its mass in less than a century . . . and in the U.S., they're predicting that Glacier National Park won't have any glaciers by



the year 2030."

Those findings are confirmed by research conducted by Dr. Martin Sharp, chair of the U of A Department of Earth and Atmospheric Sciences.

Sharp has seen the effects of climate change on glaciers in the Arctic, B.C. and the Yukon. The situation has already passed a critical point in the West, where glaciers are losing more mass during summer melt-offs than they gain during winter snowfalls.

"There is no question there has been trend of glacial wastages over the last 50 -150 years, and that is a product of a warming climate," said Sharp.

The implications are twofold: in one respect, warmer temperatures melt glaciers and the runoff contributes to rising sea levels. The other effect more specific to the Prairies - is in the availability of water.

Equally dramatic effects of climate change have been documented by Dr. Stan Boutin, a professor in the U of A Department of Biological Sciences.

Boutin spearheaded research that uncovered the first evidence of a genetic response to climate change.

In 2003, Boutin and his research team published findings that showed red squirrels in the southwest Yukon had changed their breeding habits in response to warmer weather conditions. The changes in behaviour were more profound than mere modified habits due to temperature.

Boutin's team discovered that the change was genetic and had in fact been driven not by temperature change, but by the effect temperature



change was having on the environment - warmer, drier seasons had resulted in food becoming available earlier in the year. The squirrels adapted to the change in food availability genetically.

The scientists say conservation is the key to mitigating the impact of climate change.

Schindler adds that besides cutting fossil fuel use, we need to conserve water - and protect the natural landscapes, which help preserve water.

"One of the things I have been pressing for, especially in Alberta, is water conservation both in our use and in the landscapes that help conserve our water - wetlands and the riparian zones along rivers," he said.

"In addition to all of the high use we have of water, we are also destroying the watersheds that protect it and protect us from flooding. The irony is that a lot of places that are getting less precipitation are also getting more flooding because we're ripping out wetlands and when there is a heavy rainfall all the water goes straight to the nearest river."

Sharp says that, even in situations in which resources such as water and energy are abundant, it makes sense to use them efficiently. As things stand, we need to become more judicious in our use of these resources in order to mitigate the effects of climate change.

"We are running out of water but it is not just due to climate change, demand is increasing substantially. What we can do is make sure we are as efficient as possible so when we use it we are not wasting it," he said. "And we have to recognize in the long run fossil fuels are not going to be the dominant form of energy, and it doesn't hurt to look at and implement alternatives now. It's just the intelligent thing to do."



Source: University of Alberta

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