

Climate change shrinking polar bears: research

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Scientists in Denmark are warning that polar bears are getting smaller.

The researchers say the reduction is linked to climate change but that the change in the animals' skulls also suggests there are genetic problems which could affect the bears' ability to survive.

Polar bears are the most modern bear, having evolved from the grizzly just 200,000 years ago. But over the past century, things have taken a turn for the worse.

A study from Denmark compared the sizes of the mammals' skulls over the last 120 years.

The scientists took older skulls from the Zoological Museum of Copenhagen and compared them with those used in more recent scientific research.

Professor of Biological Science at Aarhus University in Denmark, Cino Pertoldi, is the study's lead author.

"We investigated the skulls, the change in the skulls, and we can determine the change in the body size," he said.

"So we have seen a reduction in the skull sizes which we presume is due to the fact that there's a worsening of the environment."

It wasn't so much the increasing temperatures that caused problems for the bears, but the reduction in sea ice.

"Bigger mammals like polar bears can of course compensate for change in the temperature, but climate change means you have a reduced the area where the polar bear can hunt, and sometimes they have to swim from one part to the other in order to find some prey to eat," Professor Pertoldi said.

The theory is that the polar bears are spending so much energy moving around that they have less left over for growing.

Professor Pertoldi says the reduction they found in the skull size was profound.

"We observed a reduction between 2 and 9 per cent of the skull size, which is quite big considering the generation time," he said.

"The generation time of a polar bear is quite long so we're speaking about a strong reduction in size in few generations."

An increase in chemical pollution, the scientists say, is also causing a reduction in the polar bears' fertility rates.

"We suspect that the contaminants in the polar bear have affected the reproductive capacity of many of these individuals," Professor Pertoldi said.

The researchers say reduced fertility is leading to more inbreeding and this in turn has changed the shape of the bears' skulls.

Professor Pertoldi says the polar bears are particularly affected by polluting chemicals because they're at the top of the food chain.

"They're one of the most contaminated individuals in the world because they are accumulating all the contaminants from all animals below the food chain, so from fish, seals - and all these contaminants are of course accumulating in the fat and the polar bear quite fat," he said.

And for those who've never seen a polar bear, despite their reduction in size, Professor Pertoldi says they're still a big animal.

"They're really big. Like the size of a horse skull but much wider and with big, very big teeth but this bear is still surviving," he said.

The study was published in the Journal of Zoology.