

Polar bear births could plummet with climate change

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University of Alberta researchers Peter Molnar, Andrew Derocher and Mark Lewis studied the reproductive ecology of polar bears in Hudson Bay and have linked declining litter sizes with loss of sea ice.

The researchers say projected reductions in the number of newborn cubs is a significant threat to the western Hudson Bay polar-bear population, and if [climate change](#) continues unabated the viability of the species across much of the Arctic will be in question.

Using data collected since the 1990s researchers looked at the changing length of time Hudson Bay is frozen over (the polar bear's [hunting season](#)) and the amount of energy pregnant females can store up before

hibernation and birthing.

An early spring-ice breakup reduces the hunting season making it difficult for pregnant females to even support themselves, let alone give birth to and raise cubs. Pregnant polar bears take to a maternity den for up to eight months and during this time no food is available.

In the early 1990s, researchers estimate, 28 per cent of energy-deprived pregnant polar bears in the Hudson Bay region failed to have even a single cub. Researchers say energy deprived pregnant females will either not enter a maternity den or they will naturally abort the birth.

Using mathematical modeling to estimate the energetic impacts of a shortened hunting season, the research team calculated the following scenarios:

If spring break up in Hudson Bay comes one month earlier than in the 1990s, 40 to 73 per cent of pregnant female polar bears will not reproduce.

If the ice breaks up two months earlier than in the 1990s, 55 to a full 100 per cent of all pregnant female polar bears in western Hudson Bay will not have a cub.

The [polar-bear](#) population of western Hudson Bay is currently estimated to be around 900 which is down from 1,200 bears in the past decade.

The number of polar bears across the Arctic is estimated to be between 20,000 and 25,000.

The research team says because the polar bears of Hudson Bay are the most southerly population they are the first to be affected by the global-warming trend. However, they say that if temperatures across the Arctic

continue to rise, much of the global population of polar bears will be at risk.

More information: The research will be published in *Nature Communications*, Feb. 8.

Provided by University of Alberta

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