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Polar bear hunting policies could lead to population collapse, study suggests

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EDMONTON - New research suggests Canadian polar bear hunting policies could be pushing populations of the iconic Arctic predator toward sudden, steep declines.

Heating up an intense debate over the fate of an animal that has come to symbolize climate change, a paper published Wednesday in the London, England-based Proceedings of the Royal Society suggests that the bears' ability to maintain their numbers depends in part on their male-female split.

"In a high-density population, you will need fewer males to find all those females that are running around," said Peter Molnar of the University of Alberta.

"When you go to a low-density population, the time until the male finds the female increases. To find those few females that are around, you will need many, many more males."

Hunters focus mostly on male bears. Molnar said that about two-thirds of the bears taken by hunters in Canada are males.

"Prolonged sex-selective harvest has significantly reduced the numbers of male bears in all Canadian bear populations," says the paper.

That means the bears could be edging toward what biologists call the Allee effect - a sudden collapse of breeding success after the male-female ratio passes a tipping point.

"If the sex ratio drops further, we may run eventually into trouble," Molnar said. "Any change will be very rapid and sudden."

The paper points to Kazakhstan's saiga antelope, which suffered heavy poaching of males.

"All of a sudden, from one year to another, the female pregnancy rate went from 90 per cent to 20 per cent," said Molnar.

Ideally, there should be two or three male bears for each breeding female. In areas such as Lancaster Sound, off the northern tip of Baffin Island, bear numbers are already about evenly split between males and females.

The Allee effect could take hold in Lancaster Sound if the ratio declines even slightly, to two males for three females.

"That's a threshold," said Molnar.

He points out, however, that fertilization isn't the only determinant of population growth. Successful

pregnancy and cub-rearing are also vital.

The report is likely to heat up the debate over what's happening with polar bear populations, a battlefield on which many different groups have marshalled arguments.

Scientists say two-thirds of the world's polar bears will be gone by 2050 as melting sea ice slowly robs them of their habitat.

Animal rights activists such as the U.S. Humane Society have used those statements to argue for a ban on sport-hunting. The U.S. Fish and Wildlife Service is currently considering declaring the bears an endangered species, even though the lowest estimate of their worldwide population is 20,000.

But Inuit, who can earn up to \$30,000 for guiding a single sport-hunting trip, say bear numbers are healthy and some populations are actually growing - testimony often referenced by climate change skeptics.

The report was done in collaboration with the government of Nunavut. Although polar bear quotas are proposed by community-based hunter's groups, the territory has the ultimate responsibility for deciding how many of the bears can be taken.

Molnar cautioned that the study's conclusions are only one part of the puzzle. He wasn't willing to speculate on how the findings could affect how Canadians - and visiting Americans - hunt polar bears.

"We can't really answer that right now."

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