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Most Polar Bears Gone By 2050, Studies Say

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Two-thirds of the world's polar bears could disappear by 2050 as global warming continues to melt the Arctic's sea ice, according to a series of U.S. government studies released last Friday.

The new findings paint a sobering picture for polar bears, whose dependence on sea ice makes them particularly vulnerable to warming temperatures.

"Our results have demonstrated that as the sea ice goes, so goes the polar bear," said Steven Amstrup, a U.S. Geological Survey (USGS) wildlife research biologist in Anchorage, Alaska, and leader of the polar bear studies.

USGS conducted the studies to help the U.S. Fish and Wildlife Service determine whether polar bears warrant protection under the U.S. Endangered Species Act. That decision is due in January 2008.

(Read: "Polar Bears Proposed for U.S. Endangered Species List" [December 27, 2006].)

Kassie Siegel is a climate change activist with the Center for Biological Diversity in Joshua Tree, California. The new studies, she said, represent a watershed moment in the climate crisis.

"If we don't change the path that we're on now, then it will be too late," she said. "Polar bears will become extinct."

Polar Bears and Sea Ice

Scientists estimate that 20,000 to 25,000 polar bears live throughout the Northern Hemisphere in areas that are covered by sea ice for extensive periods.

Polar bears eat mostly seals and other fatty marine mammals that they hunt from the ice.

In some places—like the southern end of polar bear range in Canada's Hudson Bay—the sea ice melts in the summer. The bears then come onto land, where they have insufficient food until the sea ice refreezes in the fall.

Those bears, USGS's Amstrup said, may be the first to die off. As the sea ice melts sooner each summer, the bears will be forced to come ashore earlier and face food shortages before they have stored enough fat to last through the season.

"There's a limit to how long they can fast," Amstrup said.

In other regions polar bears live on the sea ice year-round.

These bears prefer to hunt from the ice that hangs over shallow continental shelf waters, which contain more prey than deeper waters offshore.

But as the ice retreats farther from the shoreline, the bears may have less success with their hunts (related: "Arctic Ice at All-Time Low" [August 20, 2007]).

In addition, the rapid movement of sea ice in these regions may leave some bears stranded in food-poor areas, or it might require long and exhausting swims from food-rich areas back to ice, Amstrup noted.

By mid-century polar bears will likely be eliminated from the southern end of their range and in the Polar Basin, where sea ice is moving farther from land.

These two areas are currently home to approximately two-thirds of the world's polar bear population, Amstrup said.

Polar bears are only predicted to hang on in the Canadian Arctic islands and some regions along the northern coast of Greenland where sea ice is expected to persist even in summer (see map).

Survival Hopes

The USGS findings are based on the best available models of future climate, Amstrup said.

Warming temperatures, however, are melting the sea ice quicker than even the best climate models projected, according to the National Snow and Ice Data Center in Boulder, Colorado.

As of September 3, 2007, sea-ice extent had fallen to 1.70 million square miles (4.42 million square kilometers)—beating the previous record low of 2.05 million square miles (5.32 million square kilometers) set on September 21, 2005.

The United Nations Intergovernmental Panel on Climate Change earlier this year determined that the ice-melting trend is "very likely" being caused by human emissions of greenhouse gases, Amstrup noted.

So hopes of long-term polar bear survival hinges on humans taking action now, he said.

Atmospheric scientists believe that gases already in the climate system will continue to warm the Earth and melt sea ice until about 2050, even if cuts to emissions are made today.

But if polar bears do persist through the end of the century in the Canadian Arctic islands, those bears could seed a rebounding population.

"Emissions reductions now could assure polar bears will still be around to repopulate sea ice when it returns to other areas," Amstrup said in a followup email.