

CASE STUDY

Polar Bears and Climate Change

The world's 20,000–25,000 polar bears are found in 19 sub-populations scattered across the frozen Arctic Circle. About 60% of them are in Canada, and the rest live in arctic areas of Greenland, Norway, Russia, and the U.S. state of Alaska.

Throughout the winter, polar bears hunt for ringed seals on floating sea ice (Figure 9-14) that expands each winter and contracts as the temperature rises during summer. By eating the seals, the bears build up their body fat. In the summer and fall, they live off this fat until hunting resumes when the ice expands again during winter.

Scientific measurements reveal that the earth's atmosphere has been getting warmer since 1975 and that this warming is occurring twice as fast in the Arctic as in the rest of the world. Thus, arctic ice is melting faster and the average annual area of floating sea ice in the Arctic during the summer is decreasing. The floating winter ice is also breaking up earlier each year, shortening the polar bears' hunting season. In addition, much of the remaining ice is getting too thin to support the weight of an adult polar bear.

These changes mean that polar bears must swim longer distances to find prey and have less time to feed and store fat. As a result, they must fast longer, which weakens them. As females become weaker, their ability to reproduce and keep their young cubs alive declines. In 2008, the U.S. Fish and Wildlife Service placed the Alaskan polar bear on its list of threatened species.

According to the International Union for Conservation of Nature, the world's total polar bear population is likely to decline by 30–35% by 2050. By the end of this century, polar bears might be found only in zoos. However, the evidence for such population projections varies with the different polar bear sub-populations, their locations, and what they eat. Of the 19 sub-populations, in 2011, some were shrinking and some were steady or growing.



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