Polar bear

Innholdsfortegnelse

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Polar bears *(Ursus maritimus)* are found throughout the Arctic, including the Svalbard archipelago and the surrounding sea ice. The species is the world's largest terrestrial carnivore. Polar bears hunt mainly from the sea ice, and have difficulty finding enough food when there is no ice cover. Climate change and pollution are the most serious threats to polar bears.

Polar bear on thin ice. Photo: M. Lundberg, Norwegian Polar Institute

Photo: M. Lundberg, Norwegian Polar Institute

Polar bear on land in summer. The polar bear is the world's largest land-living carnivore. Photo: Stein Ø. Nilsen, Norwegian Polar Institute

STATE

Almost 3000 polar bears in Svalbard and the Barents Sea

There are about 20 000–25 000 polar bears in the world, unevenly distributed across the Arctic. Satellite tracking shows that there is a joint Norwegian-Russian subpopulation around Svalbard and the Barents Sea. In 2004, it was estimated that there were almost 3000 polar bears in this region.

In August 2015, a survey of the Norwegian subpopulation estimated almost 1000 polar bears. Of these a little less than 300 were located in Svalbard – most of them close to the ice edge. The estimate is higher than in 2004, but the uncertainty of the data is high. The survey indicates that polar bears have managed relatively well through a period of decreasing access to sea ice for much of the year.

In addition, polar bear dens have been studied on the island of Hopen (southeast of Spitsbergen) and certain other areas of Svalbard. The number of dens on Hopen appears to fluctuate depending on the timing of ice formation in autumn. There are fewer dens in years when the ice cover forms late in the season than in years when it forms early. Because of this link with climate change and its impacts, there is now a permanent monitoring programme for polar bear dens in Svalbard.

There are eight species of bears across the world, but only the polar bear is entirely carnivorous, feeding mainly on seals. Hunting behaviour and the area used as a home range vary widely. Some polar bears roam across an area as large as mainland Norway. On the other hand, tagging of female polar bears from Storfjorden between the islands of Spitsbergen and Edgeøya has shown that they remain in this area and do not roam across the Barents Sea.

- You can use the "State of the Polar Bear" interactive map to explore current population, habitat and threats throughout the Arctic. Source: IUCN/SSC

IMPACT

Sea ice loss causing great concern

Environmental conditions in the Arctic are highly variable, which results in a wide range of variation in many of the biological systems in the region as well. This makes it difficult to distinguish between natural variation and variation caused by human activity.

Polar bears dependent on melting sea ice

Many climate models predict a dramatic loss of sea ice during the present century. In the last few years, observations have shown a clear reduction in ice cover in almost all parts of the Arctic. Climate models indicate that it will only be a few decades before the entire Arctic Basin is ice-free in summer.

In 2007, researchers from the US Geological Survey modelled sea ice and the likely response of the polar bear population to a dramatic reduction in ice cover. Their studies showed that we could lose two-thirds of the world population of polar bears by 2050. Time will show whether this happens, but there is general agreement that ice cover will continue to decline.

Polar bears are highly dependent on ice cover, since they hunt mainly from the ice. Their most important prey species, the ringed seal and bearded seal, are perhaps even more strongly associated with the sea ice. The polar bear is at the top of the Arctic food chain, and will therefore be rapidly affected by changes in the populations of prey species.

High levels of pollutants in polar bears

It has been documented that polar bears have high loads of persistent organic pollutants (POPs), and that these pollutants affect bear health. Concentrations of new types of pollutants, such as brominated flame retardants and fluorinated compounds, are rising in polar bears, whereas there is a general decline in levels of “old” POPs such as PCBs and DDT in the Arctic.

The levels of pollutants measured in polar bears on Svalbard are so high that they have been linked to several health defects, such as reduced immune response and disturbed hormone balance. However, we are not yet able to say how seriously pollutants will affect the polar bear's ability to reproduce and what impact this will have on the population itself.

PRESSURE

Milder climate and pollutants the main threats

Climate change is perhaps the greatest threat to the survival of the polar bear. Global warming is resulting in loss of ice cover, and ice is forming later in autumn and melting earlier in spring. This shortens the bears' hunting season and results in a loss of habitat for both bears and their prey species. In addition, migration patterns and access to denning areas are affected. Snow quality also changes, making it more difficult for polar bears to find snow of suitable for constructing dens.

Pollutants

The main prey of polar bears is seals, and they eat large quantities of seal blubber. This is why polar bears are so vulnerable to fat-soluble pollutants, which accumulate in fatty tissue. PCB levels in polar bears are higher than those found in other Arctic species, and levels in polar bears from Svalbard are as high as those measured in bears from Canada and East Grenland, but lower than in Alaska.

On the other hand, the levels of brominated flame retardants are higher in polar bears from Svalbard, East Greenland and Hudson Bay, than in polar bears in other areas. Levels of mercury are generally lower in polar bears from Svalbard than in polar bears in other areas.

Climate change is expected to influence the transport, spread and uptake of POPs and mercury in polar bears. The polar bear is most vulnerable to the effects of pollutants during long ice-free periods when they live off their own fat reserves. This leads to the mobilization of fat-soluble pollutants, that are transported from fat to vital organs such as liver, blood and brain.

Hunting

The polar bear is protected throughout the Arctic, but Inuit communities in North America and Greenland are allowed to take a limited harvest. Hunting is strictly regulated, and quotas should only be set if enough is known about the subpopulation to document that the harvest is sustainable. Despite this, quotas are still being set for some areas where too little is known, for example Eastern Greenland and for some subpopulations i Canada. Polar bears are also occasionally killed illegally in northwestern Russia.

No hunting is permitted in Svalbard, which means that Svalbard’s polar bears are the last remaining large polar bear population anywhere in the world that is not harvested.

RESPONSE

International interest in polar bears

All the polar bear range states – Greenland (formerly Denmark), Canada, the US, Russia (formerly the Soviet Union) and Norway – are parties to the 1973 Agreement on the Conservation of Polar Bears. The agreement bans the hunting of polar bears, with the exception of a limited quota for indigenous peoples, and forbids sales of skins and other polar bear products. It also requires the parties to conduct research and monitoring as a basis for managing polar bear populations.

In 2006, the International Union for Conservation of Nature (IUCN) changed the status of the polar bear on the IUCN Red List to "vulnerable" on the basis of evidence suggesting that a population reduction of more than 30% is likely within three generations (45 years). Since then, several countries have adjusted their polar bear management regimes. The species was already strictly protected in Norway.

In response to the strong international interest in polar bears, the parties to the Polar Bear Agreement have agreed to hold more regular meetings. There had been no meeting since 1981, but at an informal meeting in 2007 they agreed to organise a Meeting of the Parties every other year. The first of these was held in Tromsø in Northern Norway in 2009, and there have been meetings in Canada in 2011, Russia in 2013 and Greenland in 2015. The last meeting was held in Alaska in 2018.

Monitoring polar bears in the Barents Sea

The Norwegian-Russian polar bear subpopulation in the Barents Sea is continuously monitored, and there are ongoing research programmes. Calculations of the size of the population are based on counts from aircrafts.

The polar bears are also monitored by mark-recapture studies. One method used to find out more about how widely polar bears range and how they use their habitat is to fit them with satellite radio collars. Blood, fatty tissue, hair samples are taken at the same time, and a small tooth for age determination.

The samples are used for different studies including; genetics, health and studies on their diet. In addition, we also obtain information about developments in, for example, the number of cubs born and cub survival.

In addition, ice conditions around Svalbard are monitored to provide information on how much the polar bear habitat and hunting conditions are altering as the climate changes.