

# Biodiversity - Status and Trends of Polar Bears

D. Vongraven<sup>1</sup> and E. Richardson<sup>2</sup>

<sup>1</sup>Norwegian Polar Institute, Fram Center, Tromsø, Norway

<sup>2</sup>Science and Technology Branch, Environment Canada, Edmonton, Alberta, Canada

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## Highlights

- The status of polar bear populations has been assessed at both national (5 national assessments) and international level, and 7 of 19 of the World's polar bear sub-populations are found to declining in number, with trends in two linked to reductions in sea ice.

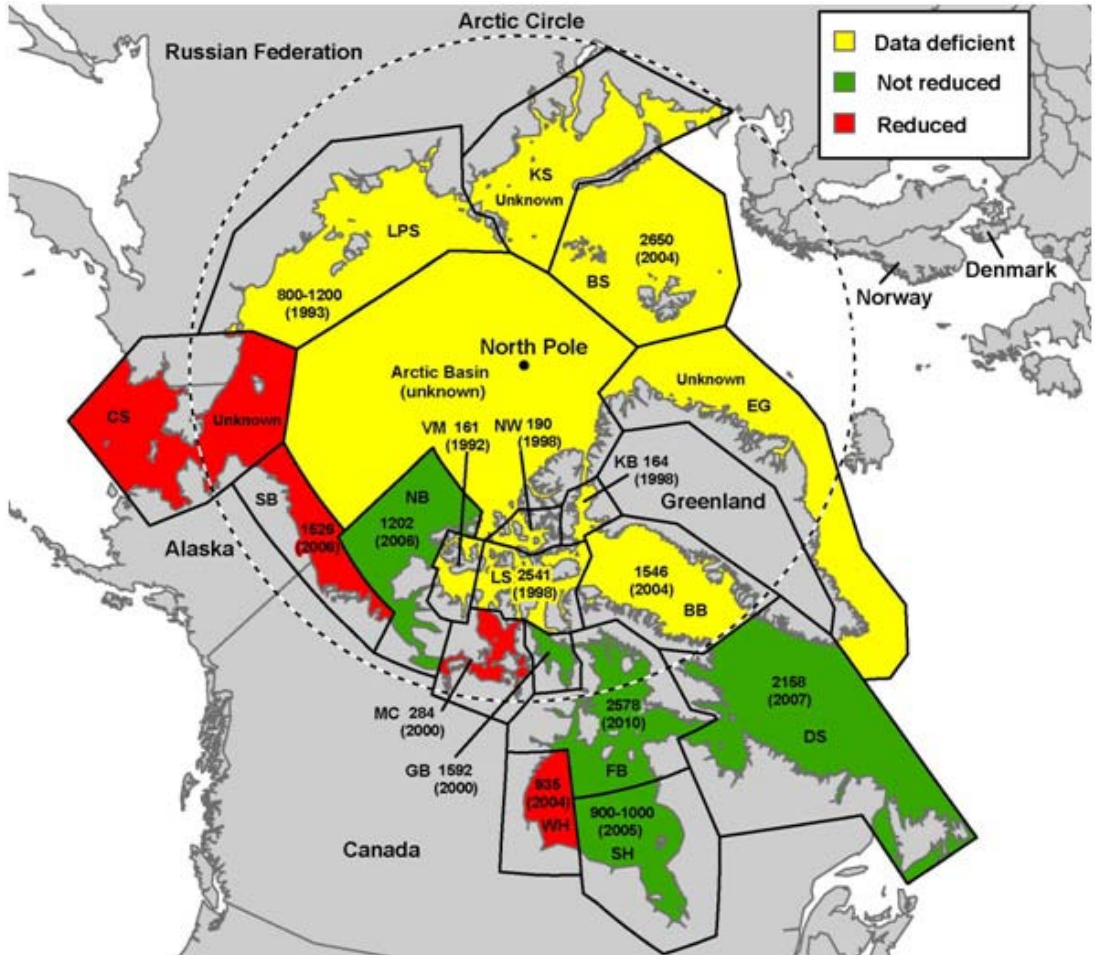
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## Introduction

Polar bears (*Ursus maritimus*) have a circumpolar distribution that is influenced by the distribution and availability of sea ice. Sea ice provides the primary platform on which polar bears travel, hunt, mate and, in some areas, den. Polar bears prey primarily on ice associate seals (ringed seals, bearded seals, harp seals, hooded seals) and to a lesser extent on other marine mammals (e.g., walrus and whales). As a result, climate-mediated changes in the availability of sea ice (see the essay on [Sea Ice](#)) have the potential to significantly influence the availability of prey for bears, potentially affecting individual growth, reproduction and survival.

## Status and trends

The world's polar bear population is estimated to be between 20,000-25,000 bears occurring in 19 relatively discrete sub-populations around the Arctic (Fig. ME4). Of these 19 sub-populations, eight were classified as data deficient due to a lack of recent information by the IUCN/Polar Bear Specialist Group (PBSG) in 2009 (Obbard et al. 2010). Since then the trend assessment of the Davis Strait sub-population has been updated, from declining to stable, and there is a new abundance estimate for the Foxe Basin sub-population from 2010, changing the status assessment of that sub-population from being data deficient to being not reduced (Table ME1). However, of the 12 sub-populations currently considered as having sufficient data to assess a population trend, only three have good trend data (western Hudson Bay, northern Beaufort and southern Beaufort).



**Fig. ME4.** Status assessments and the best or most recent abundance estimates for the world's 19 polar bear sub-populations (updated from Obbard et al. 2010, see Table ME1).

**Table ME1.** Abundance estimates and assessments of status and trends for the 19 acknowledged sub-populations of polar bears (based on Obbard et al. 2010).

| Subpopulation         | Abundance estimate (year of estimate) | Trend                | Status         |
|-----------------------|---------------------------------------|----------------------|----------------|
| Arctic Basin          | unknown                               | Data deficient       | Data deficient |
| Baffin Bay            | 1546 (2004)                           | Decline <sup>1</sup> | Data deficient |
| Barents Sea           | 2650 (2004)                           | Data deficient       | Data deficient |
| Chukchi Sea           | unknown                               | Decline              | Reduced        |
| Davis Strait          | 2158 (2007)                           | Stable <sup>2</sup>  | Not reduced    |
| East Greenland        | unknown                               | Data deficient       | Data deficient |
| Foxe Basin            | 2578 (2010) <sup>3</sup>              | Data deficient       | Not reduced    |
| Gulf of Boothia       | 1592 (2000)                           | Stable               | Not reduced    |
| Kane Basin            | 164 (1998)                            | Decline              | Data deficient |
| Kara Sea              | unknown                               | Data deficient       | Data deficient |
| Lancaster Sound       | 2541 (1998)                           | Decline              | Data deficient |
| Laptev Sea            | 800-1200 (1993)                       | Data deficient       | Data deficient |
| M'Clintock Channel    | 284 (2000)                            | Increase             | Reduced        |
| Northern Beaufort Sea | 1202 (2006)                           | Stable               | Not reduced    |
| Norwegian Bay         | 190 (1998)                            | Decline              | Data deficient |
| Southern Beaufort Sea | 1526 (2006)                           | Decline              | Reduced        |
| Southern Hudson Bay   | 900-1000 (2005)                       | Stable               | Not reduced    |
| Viscount Melville     | 161 (1992)                            | Data deficient       | Data deficient |
| Western Hudson Bay    | 935 (2004)                            | Decline              | Reduced        |

<sup>1</sup> On-going study to validate status assessment

<sup>2</sup> Elizabeth Peacock (pers.comm.)

<sup>3</sup> Seth Stapleton (pers. comm.)

There are still seven sub-populations showing a declining trend, and it is expected that, if sea ice conditions continue to degrade across the Arctic, several other sub-populations may be threatened as a result of habitat loss and decreased access to prey, i.e., ice-associated seals. There have been criticisms that, except for the long data series on body condition related to sea ice break-up in spring in Western Hudson Bay, there have been little hard data to support any effect of climate warming on polar bears. This is clearly changing, and at this point in time two of these sub-populations are believed to be in decline (western Hudson Bay and southern Beaufort Sea) as a result of climate-mediated changes in the availability of sea ice. Specifically, changes in the seasonal availability of sea ice have been shown to influence polar bear survival in western Hudson Bay (Regehr et al. 2007) and survival and breeding rates in the southern Beaufort Sea (Regehr et al. 2010).

There is still little or no knowledge on status and trends for the East Greenland sub-population or the two sub-populations under exclusive Russian jurisdiction (Laptev Sea and Kara Sea).

## Formal status assessments

The status of polar bears has been assessed at both the international and national level resulting in the following assessments:

- International Union on the Conservation of Nature (IUCN Red List): *Vulnerable*
- (<http://www.iucnredlist.org/apps/redlist/details/22823/0>)
- Norway (Norwegian Red List): *Vulnerable*
- (<http://www.biodiversity.no>)
- Russia (The Red Data Book): *Uncertain, Rare, and Rehabilitated/Rehabilitating* (a specific Russian classification for the Russian sub-populations; Russia acknowledges three sub-populations within its territory while PBSG acknowledges four).
- United States (Endangered Species Act): *Threatened*
- (<http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=A0IJ>)
- Greenland: *Vulnerable*
- ([http://www.artsdatabanken.no/Grønlands\\_Rødliste\\_2007\\_DK\\_liZsU.pdf.file](http://www.artsdatabanken.no/Grønlands_Rødliste_2007_DK_liZsU.pdf.file))
- Canada (COSEWIC): *Species of Special Concern*
- ([http://www.sararegistry.gc.ca/virtual\\_sara/files/cosewic/sr\\_polar\\_bear\\_0808\\_e.pdf](http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_polar_bear_0808_e.pdf))

## Knowledge gaps

Despite substantial research and monitoring of polar bears in some areas of the Arctic there is a general lack of knowledge in regards to how the cumulative effects of climate warming, contaminants, disease, harvest, industrial development and other human activities are likely to interact to influence the status of the world's polar bear sub-populations. In an effort to address both the individual and cumulative effects of these stressors, the Conservation of Arctic Flora and Fauna Working Group of the Arctic Council (CAFF) has facilitated the development of a Circumpolar Polar Bear Monitoring Plan that will provide advice on approaches for the coordinated collection and synthesis of the data required to effectively manage and mitigate existing threats to polar bear conservation.

## References

- Obbard, M.E., Thiemann, G.W., Peacock, E., and DeBruyn, T.D. (eds) (2010). Polar Bears: Proceedings of the 15th Working Meeting of the IUCN/SSC Polar Bear Specialist Group, Copenhagen, Denmark, 29 June-3 July 2009. Gland, Switzerland and Cambridge, UK: IUCN. vii + 235 pp.
- Regehr, E.V., Lunn, N.J., Amstrup, S.C. & Stirling, I. 2007. Effects of earlier sea ice breakup on survival and population size of polar bears in western Hudson Bay. *Journal of Wildlife Management* 71:2673-2683.
- Regehr, E.V., Hunter, C.M., Caswell, H., Amstrup, S.C. and Stirling, I. 2010. Survival and breeding of polar bears in the southern Beaufort Sea in relation to sea ice. *Journal of Animal Ecology* 79: 117-127.