

# Polar Bears: The Global Warming Icon That Refused to Die



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**March 23, 2017**

# The polar bear as global warming icon

## What Global Warming Looks Like: Observations From The Arctic

By Roderic Mast

At first it was just an ivory speck against an endless snowy backdrop on the eastern coast of Spitsbergen Island that took minutes to find even with binoculars. It grew in size as our boat slowly approached and by the time the longest lenses could capture the image, everyone on board was clinging to the bow rail to catch a glimpse. And we were not disappointed; it was a mother polar bear and her yearling cub.



A polar bear mother and cub in Svalbard. © Roderic Mast



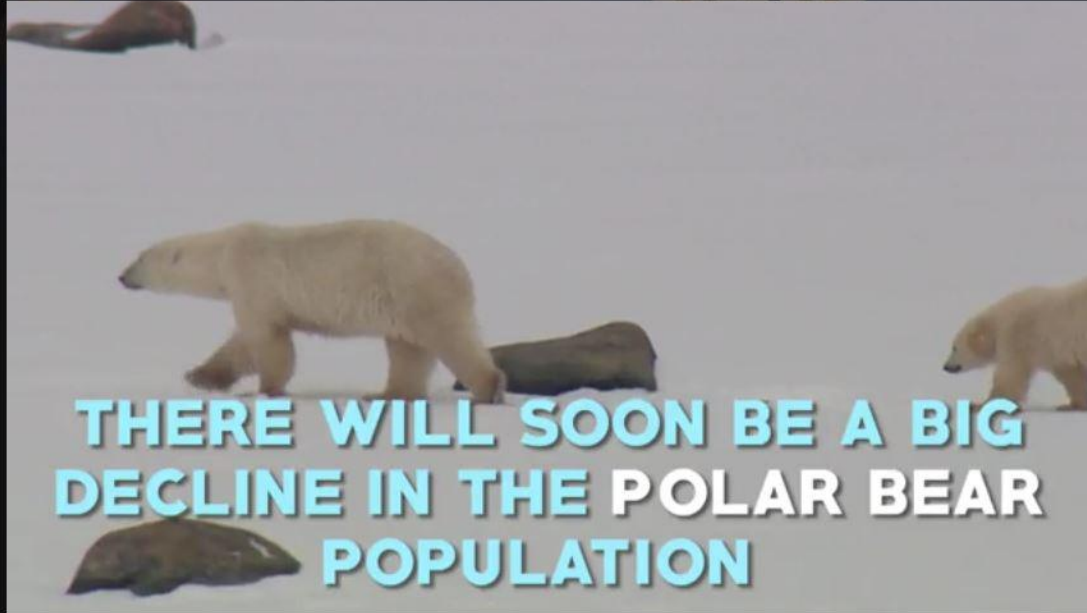
NBC  
**NIGHTLY NEWS**  
WITH LESTER HOLT

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**Polar Bears Threatened With  
Extinction Due to Climate  
Change**

MON, JUL 06

A new government report says the shrinking of polar bears' sea ice habitat due to Arctic warming has put their future at risk.

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**2015**

# IUCN Polar Bear Specialist Group



- ❖ 1968 –
- ❖ 1973 – [International protection]
- ❖ 1982 – Vulnerable
- ❖ 1986 – Vulnerable
- ❖ 1988 – Vulnerable
- ❖ 1990 – Vulnerable
- ❖ 1994 – Vulnerable
- ❖ 1996 – Lower risk [now 'Least Concern']
- ❖ 2005 – PBSG vulnerable recommendation\*\*
- ❖ **2006 – Vulnerable (based on future threats)**





# Experts: Polar bears, hippos on extinction path

Global survey also warns of overfishing, decline in wetlands

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GENEVA — Polar bears and hippos have joined the ranks of species threatened with extinction from climate change, unregulated hunting, habitat destruction and other man-made dangers, leading researchers said Tuesday in a listing of the world's wildlife.

The World Conservation Union, or IUCN, said more than 16,000 species of animals and plants are at risk of disappearing, including one in three amphibians, one in four mammals and one in eight birds.

The IUCN added 530 species to its "Red List" of endangered species since the last version released two



Mike Hutchings / Reuters file

For the first time ever, hippos were listed as a threatened species by the World Conservation Union.

# Activist environmental orgs use ESA rules to force the US gov't to “protect” polar bears 2005



Page i – Petition to List the Polar Bear as a Threatened Species; Before the Secretary of the Interior 2-16-2005

**GREENPEACE**

**Conservationists File Lawsuit to Protect  
Polar Bear Under Endangered Species Act**

# The US ESA decision, 2007/2008



**USGS Science Strategy to Support U.S. Fish and Wildlife Service Polar Bear Listing Decision**

## **Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21<sup>st</sup> Century**

By Steven C. Amstrup<sup>1</sup>, Bruce G. Marcot<sup>2</sup>, and David C. Douglas<sup>3</sup>



**USGS Science Strategy to Support U.S. Fish and Wildlife Service Polar Bear Listing Decision**

## **Predicting the Future Distribution of Polar Bear Habitat in the Polar Basin from Resource Selection Functions Applied to 21<sup>st</sup> Century General Circulation Model Projections of Sea Ice**

By George M. Durner<sup>1</sup>, David C. Douglas<sup>2</sup>, Ryan M. Nielson<sup>3</sup>, Steven C. Amstrup<sup>1</sup>, and Trent L. McDonald<sup>3</sup>

FROM THE JANUARY 2009 ISSUE

# #55: Polar Bears (Finally) Make the Endangered Species List

At long last, the government acknowledges the species is threatened.

By Jane Bosveld | Friday, December 12, 2008

*Discover Magazine*  
12 December 2008



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[Polar bear rule falls short of safeguarding threatened species](#)

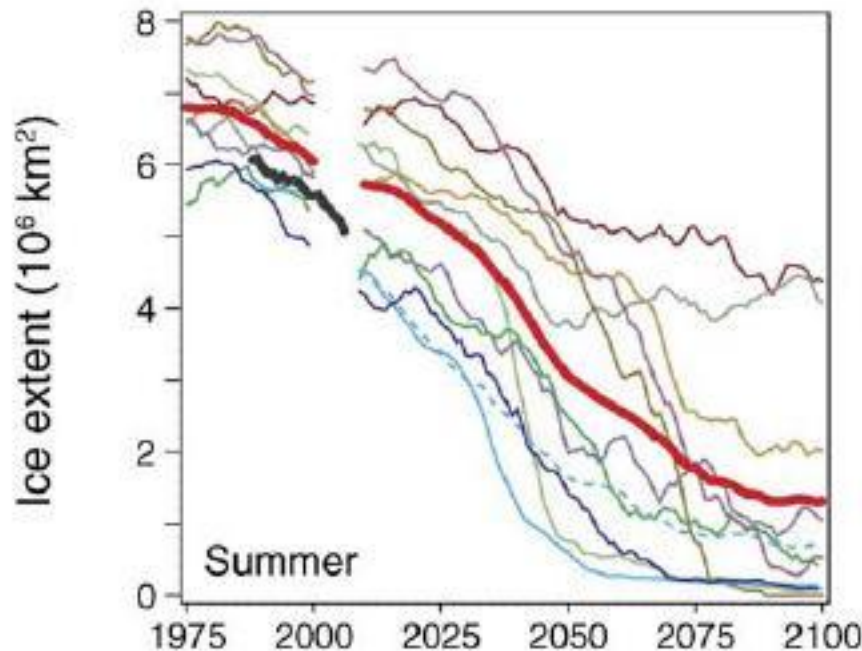
## POLAR BEAR RULE FALLS SHORT OF SAFEGUARDING THREATENED SPECIES

*New rule means adequate protections still not offered to polar bears; Bush administration refuses to tackle global warming implications*

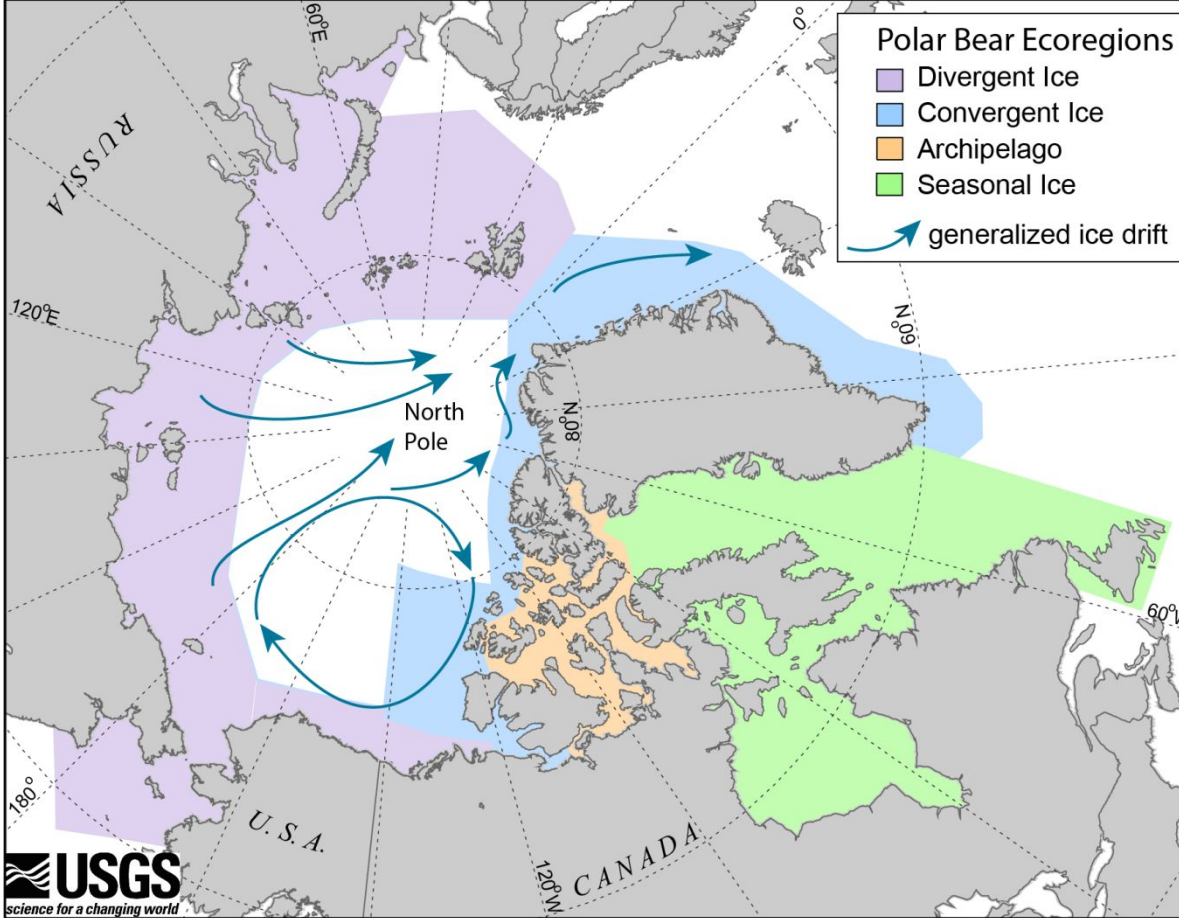


# USGS Polar bear survival prediction

Rapid sea ice decline = polar bear population decline



Durner et al. 2009,  
Ecological Monographs 79(1)



**Predicted decline:  
24,500  
to about  
8,100**

nature

Vol 453/22 May 2008

NEWS **NATURE**, 22 May 2008

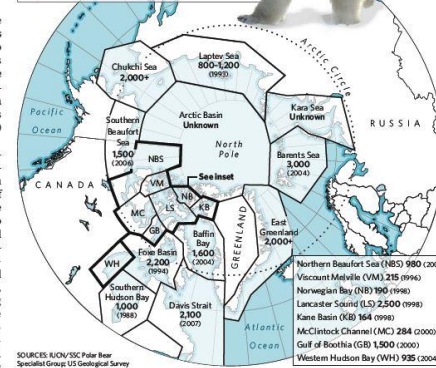
## Polar bear numbers set to fall

In a long-anticipated decision hailed as a victory by environmental groups, the United States last week declared the polar bear (*Ursus maritimus*) a 'threatened' species. But this heightened protection status may have little bearing on the animals' ultimate fate.

The listing, announced by secretary of the interior Dirk Kempthorne on 14 May, connects the continuing retreat in Arctic sea ice due to global warming with large potential reductions in the polar-bear population. Last autumn, the US Geological Survey concluded that the animals are likely to lose 42% of their summer sea ice habitat by mid-century, cutting the world's polar-bear population — estimated at 25,000 — by two-thirds.

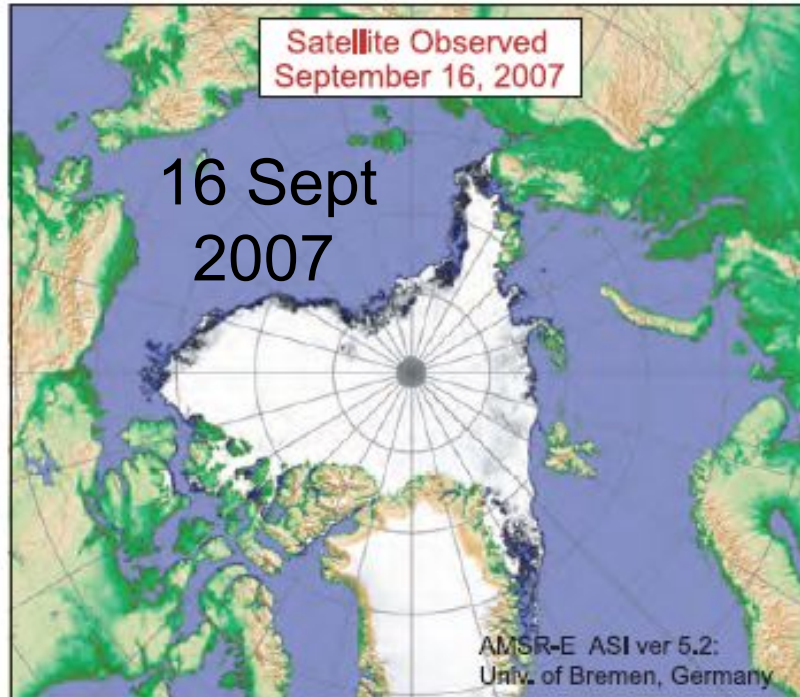
Despite this dramatic projection, researchers note that polar bears range across a variety of nations, each with its own conservation approaches, and a variety of habitats, each of which will be affected differently by climate change. Their fates may vary from place to place, too. "I don't believe the polar bear will go extinct, but in some areas they will be heavily reduced and may disappear," says veterinary biologist Christian Sonne of the National Environmental Research Institute in Roskilde, Denmark. Factors other than global warming compound stress on the bears, including the accumulation in fat of polychlorinated biphenyls and other pollutants that lower reproductive capacity and weaken the immune system. Projecting the fate of a creature that ranges

**POLAR BEARS THE WORLD ROUND**  
Populations of *Ursus maritimus* are hard to pin down, but an International Union for Conservation of Nature group has compiled data on their latest numbers. The yearly data were recorded are given in parentheses.

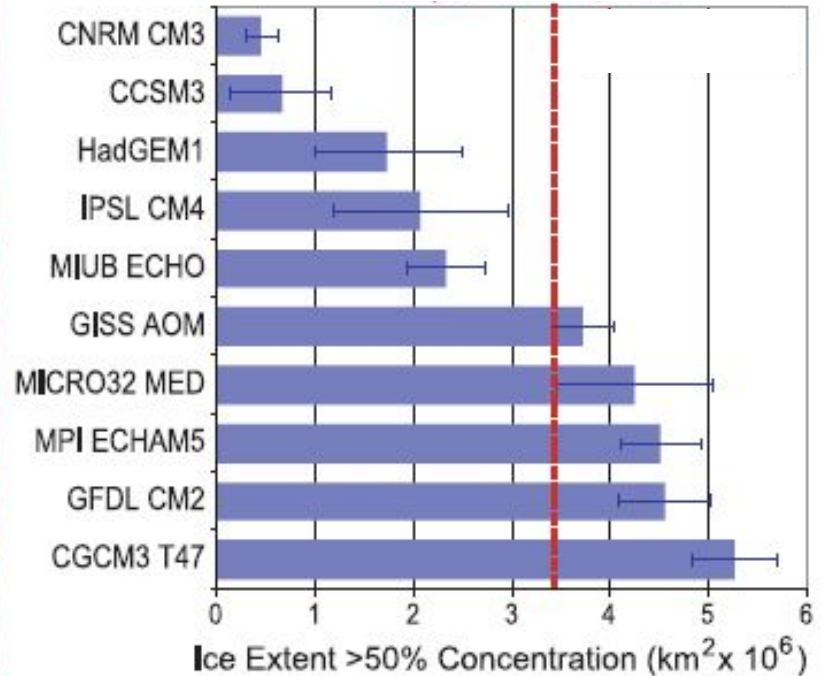


SOURCES: IUCN/SSC Polar Bear Specialist Group; US Geological Survey

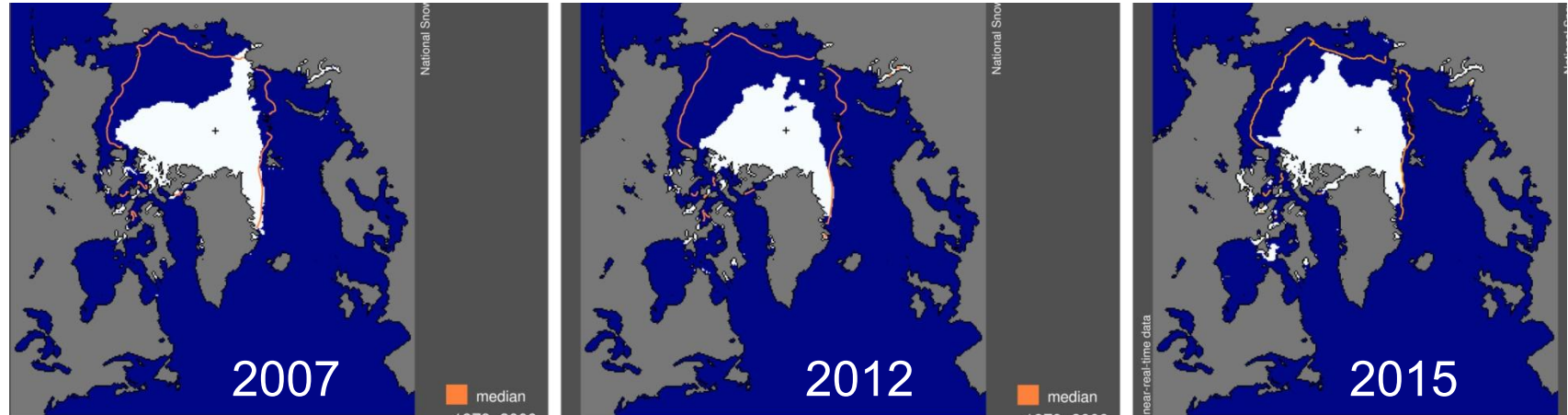
# September minimum 2007 was lower than any of the five “best” predictions for 2050



## Predicted 2045-2054



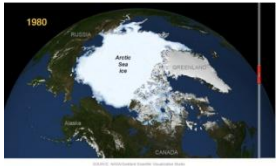
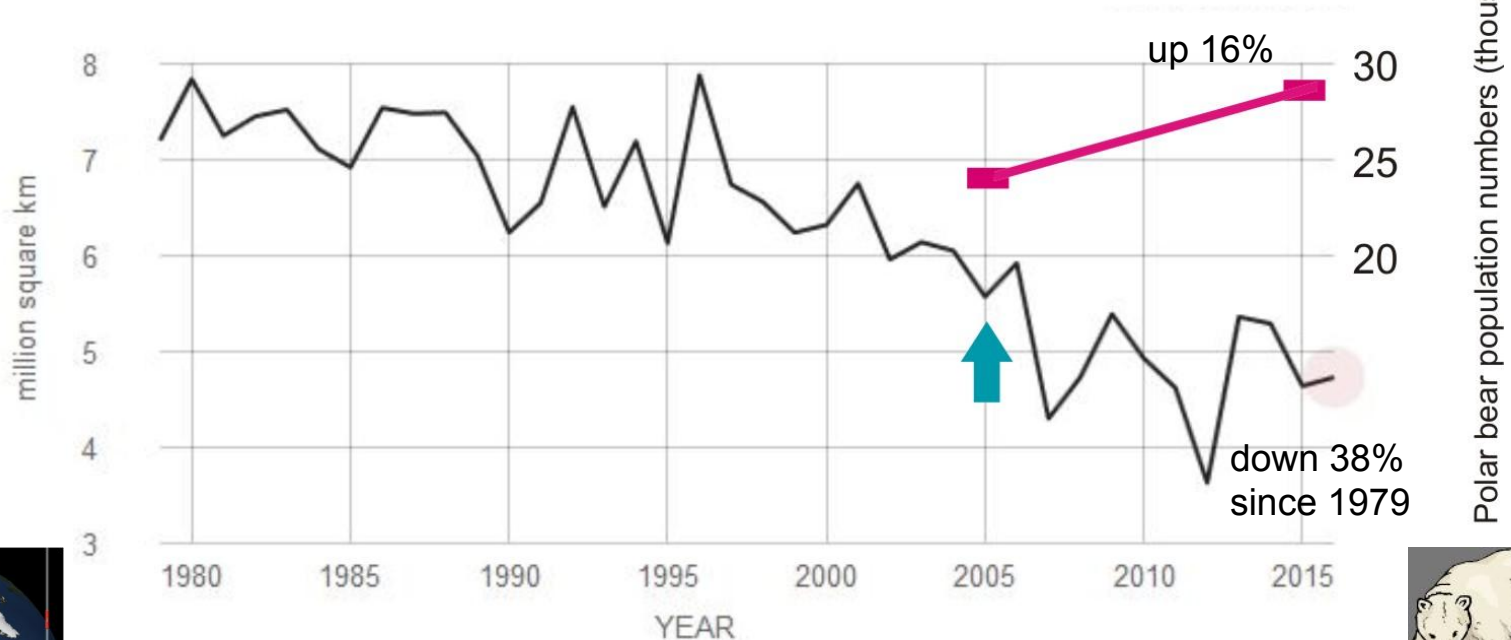
# Sea ice observations 2007–2015: the reality



Dreaded mid-century sea ice levels had arrived!

# Catastrophe fails to materialize

## Summer sea ice vs. polar bear numbers since 2005



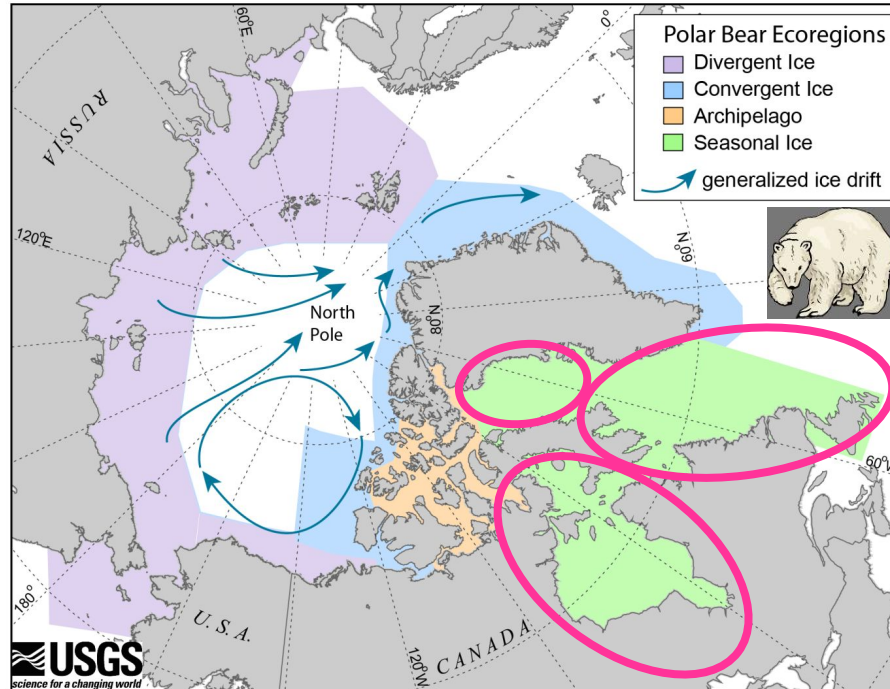
September ice extent NSIDC/NASA



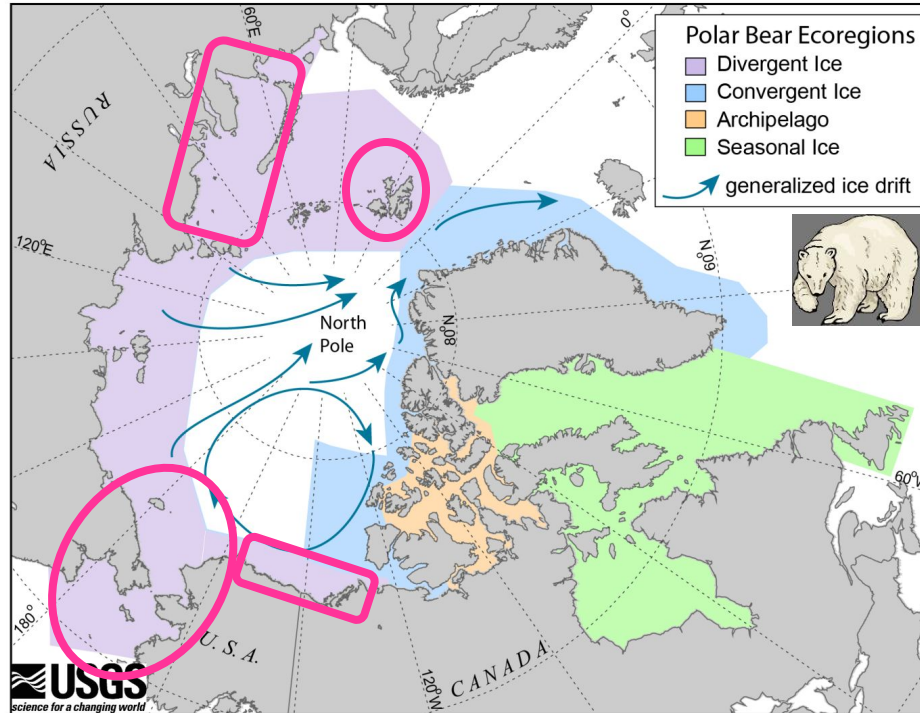


# Fate of some 'high-risk' subpopulations predicted to be gone at sea ice levels routinely $< 5 \text{ mkm}^2$

Seasonal  
Ecoregions  
(green):



# Divergent Ecoregions (purple):





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Bats Like Their Plant  
Nectar Sweet — Though  
Maybe the Plants Know...

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Light Pillars, a Million-  
Mirror Optical Illusion on  
Winter Nights

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A Metal Ball the Size of  
Massachusetts That NASA  
Wants to Explore

MATT

On L  
CharGlobal  
est Threat  
sport Says

## Human-Driven Global Warming Is Biggest Threat to Polar Bears, Report Says

By ERICA GOODE JAN. 9, 2017

Jan. 9 2017



Triplets are rare outside Western Hudson Bay yet here's a set of fat triplets photographed in the Southern Beaufort the summer of 2016!



Kaktovik, Alaska

Polar bears in Kaktovik, Alaska. Federal wildlife officials have warned that without decisive action on global warming, the bears will almost certainly disappear from much of the Arctic.

Josh Haner/The New York Times



**Chukchi Sea female with  
one year old triplets 2010**  
Rode & Regehr USFW report

# Why were the models so wrong?





# Time for an unbiased review or audit of the ESA decision

## Current conditions

Prophesies of 'future risk'



USFWS, S. Miller





No one in the world except the US Fish & Wildlife Service thinks ringed seals & bearded seals (primary prey of polar bears) are threatened with extinction by future global warming



*The Guardian*, Oct 2016

Alaska

## Alaska seal can be protected based on future climate threat, court says

Ruling over species' 'threatened' status could set key precedent as animals face changing environments in projections to end of century

Oliver Milman

@olliemilman

Tuesday 25 October 2016  
19:10 BST



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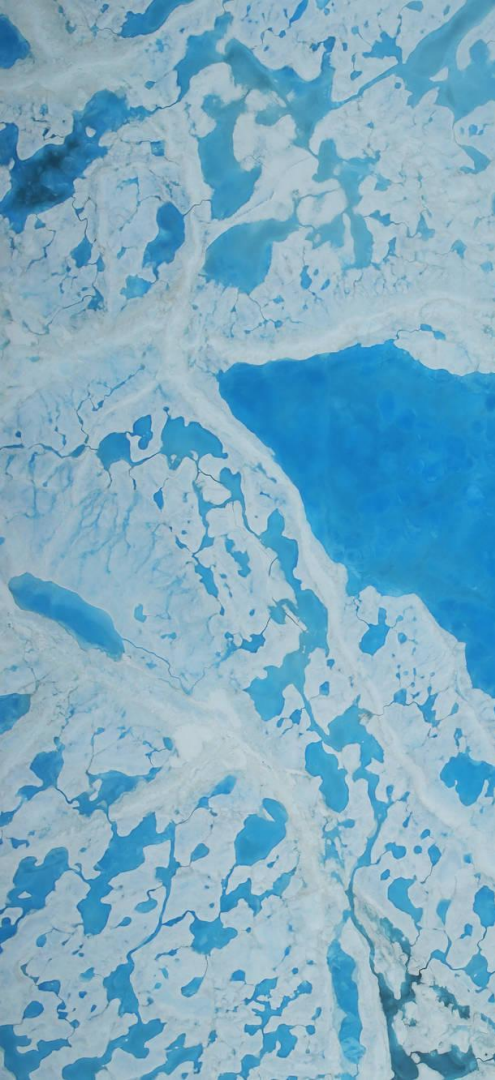


A bearded seal rests on ice off the coast of Alaska. Photograph: Handout/Reuters

# Points to remember



- ❖ Abrupt summer sea ice decline ≠ polar bear decline
- ❖ Summer sea ice is not crucial for polar bears
- ❖ Alaska's Beaufort Sea numbers did not drop due to summer sea ice loss: USGS & USFWS biologists know it
- ❖ Polar bear numbers highest they've been in 50 years
- ❖ Marine Mammal Protection Act adequately protects polar bears, Arctic seals, and walrus – the ESA is not an appropriate tool for addressing AGW issues



Testing the hypothesis that routine sea ice coverage of 3-5 mkm<sup>2</sup> results in a greater than 30% decline in population size of polar bears (*Ursus maritimus*).

*PeerJ Preprints* 3 March 2017.  
Doi: [10.7287/peerj.preprints.2737v3](https://doi.org/10.7287/peerj.preprints.2737v3)  
Open access.

## *Polar Bears*



*Outstanding  
Survivors  
of  
Climate Change*

SUSAN J. CROCKFORD

## **Polar Bear Facts & Myths**



**A Science Summary for All Ages**

Susan J. Crockford

# In fond memory of Dr. Bob Carter

