Universität Bremen

Analysis and Interpretation of the Documentary „On Thin Ice“

Episode 2: A Review of the Production „On Thin Ice“ by the National Film Board of Canada and NHK Japan

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eGeneral Studies: Der hohe Norden | The Far North | Le Grande Nord (Kanada/Québec)

Overview of the learning unit

Episode 1:

Documentary Screening „On Thin Ice“

Episode 2:

A Review of the Production „On Thin Ice“ by the National Film Board of Canada and NHK Japan

Episode 3:

Interview with the contributor and Prof. Dr. Schaffeld

Learning target for the episode

Learning target 1:

You develop an awareness of global warming.

Learning target 2:

You understand the connection between global warming and the melting of the world`s natural ice sources.

Learning target 1:

You comprehend the severe reprocussions of global warming in accordence to polar bears and other arctic life forms.

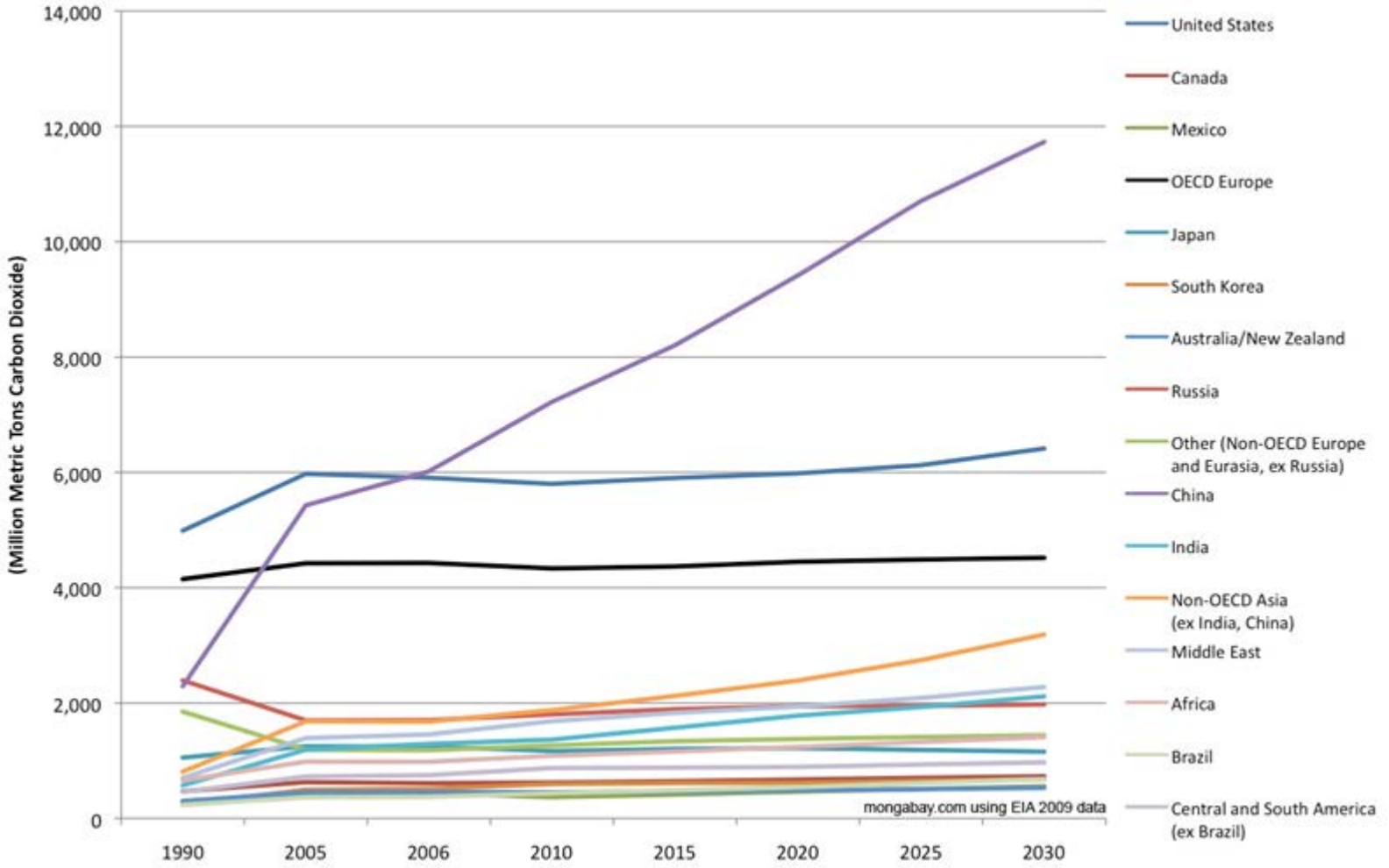
Overview of the episode

- Global Warming
- Depletion of the World´s Ice volume
- The Polar Bear
- Ringed Seals
- Affects of Global warming on Arctic life forms

Global Warming

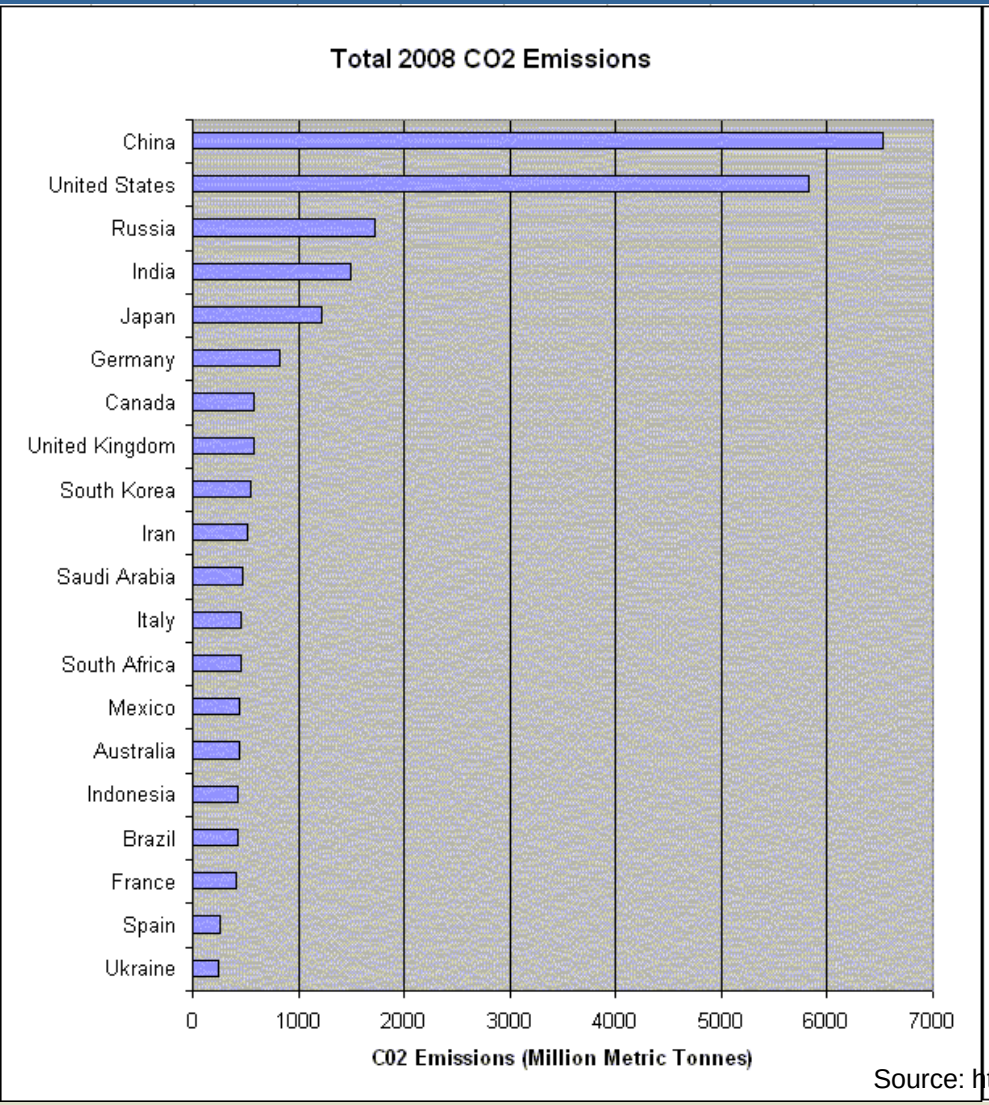
- Global warming is caused by the release of Carbon Dioxide into the atmosphere.
- The natural process of CO2 being released, is through decomposing, dead organisms such as plants and animals.
- Humans contribute to the burning of fossil fuels through the use of coal, petrolium, natural gas and methane gas.
- Through our usage of these gasses, the annual amount of Carbon Dioxide released into the atmosphere is 21.3 billion tonnes. Half of what the earth´s natural process can absorb.

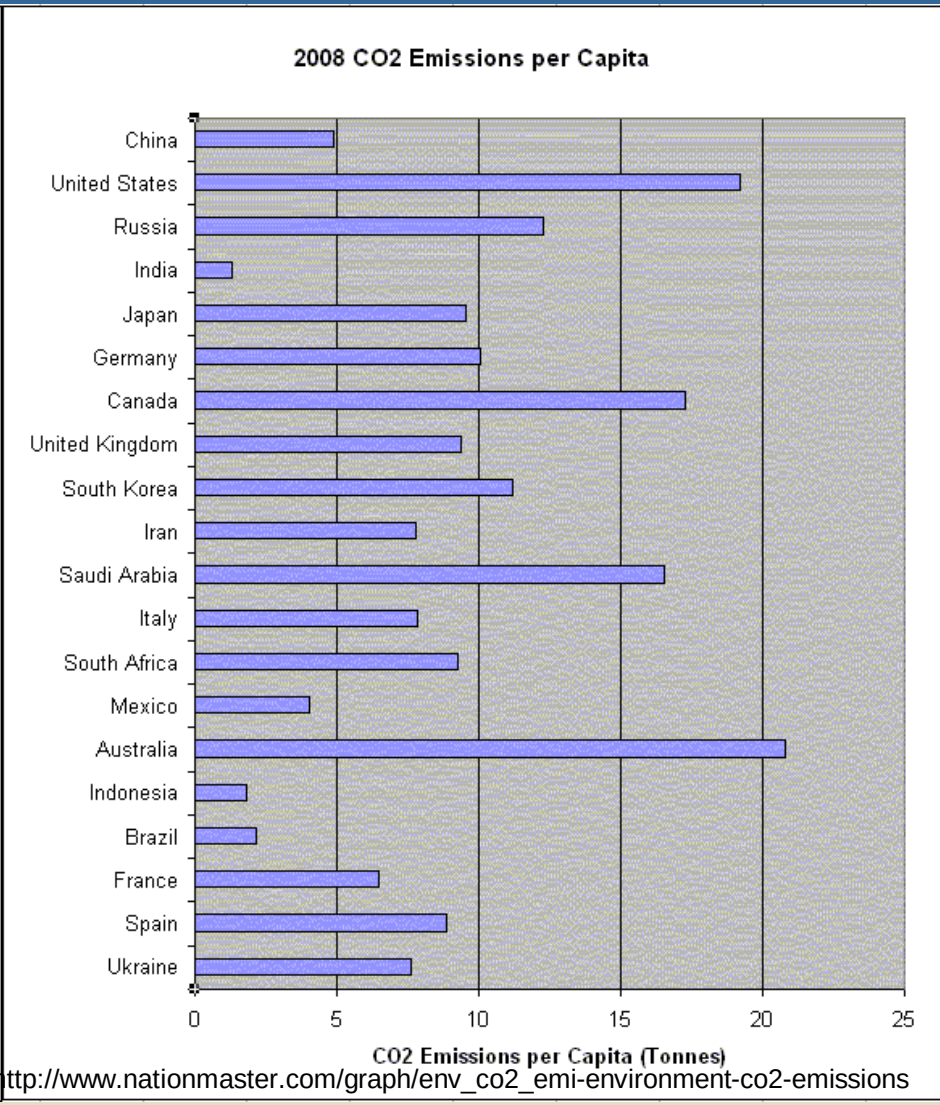
World Carbon Dioxide Emissions by Region, Reference Case, 1990-2030



Source: http://rainforests.mongabay.com/energy/co2.html

Graph of CO2 Emissions by Country





Source: http://www.nationmaster.com/graph/env_co2_emi-environment-co2-emissions

Depletion of the World`s Ice Volume

- The first natural reaction to Global warming is the melting of the world´s ice.
- In 2007 the ice in Svalgard Norway, Greenland and the Arctic Ice caps reached a record low.

Polar Ice Cap 1980

Polar Ice Pack

- From 1980-2007, the **Polar Ice Pack covering the Arctic Ocean** shrunk almost 60%.
- The rate of sea ice decline has been more than 10% per decade.
- In 1980, the Arctic ice cap was 3 million square meters.
- In 2007, it was 1.6 million square meters.
- This constitutes a loss of 47.1%.

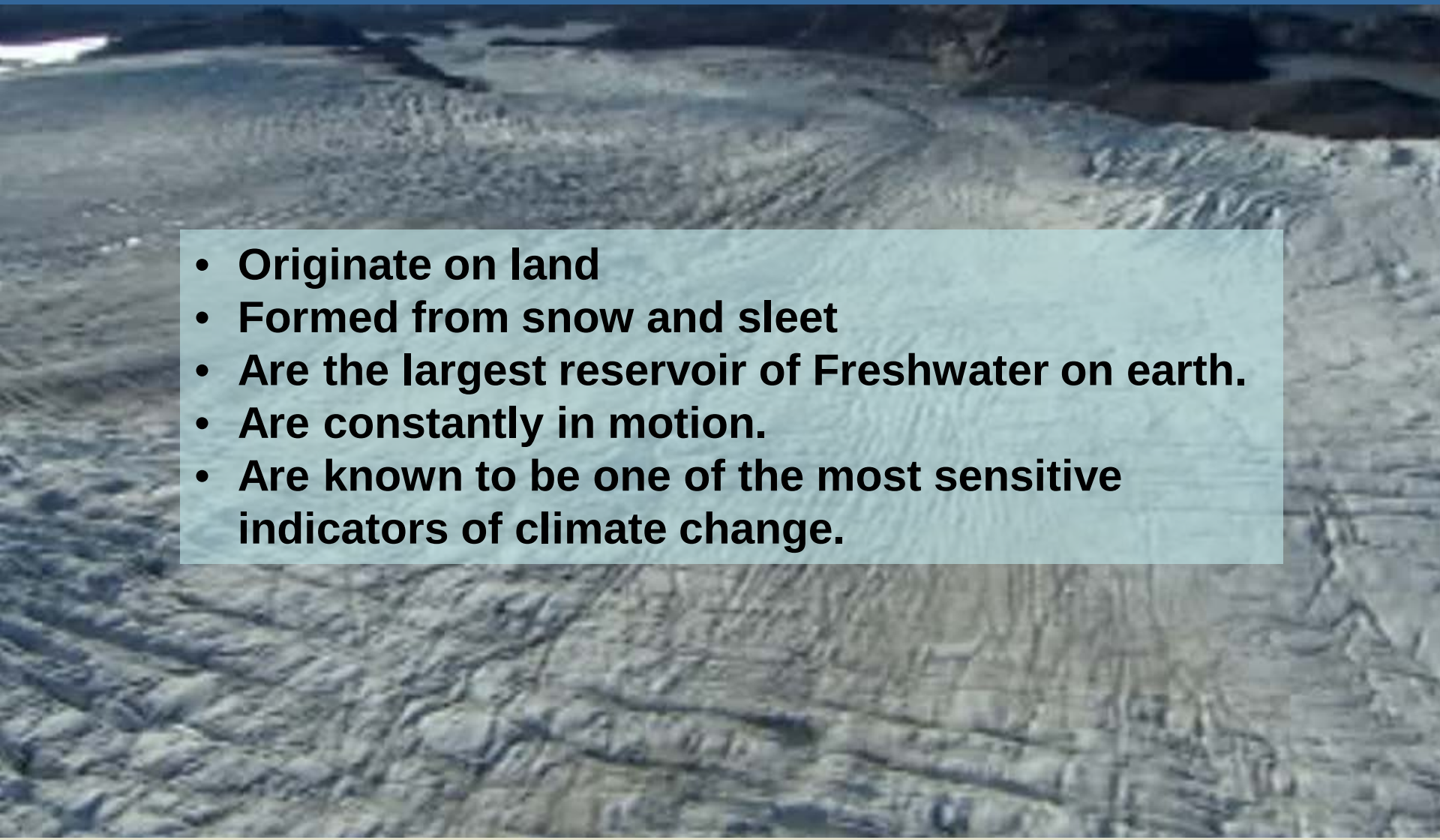
Polar Ice Cap 2007

Greenland

- **Greenland, whose surface is covered** 80 % with ice, constitutes 10% of the world´s total ice volume.
- Predominant in Greenland are **Glaciers**.

Glaciers

Glaciers



- Originate on land
- Formed from snow and sleet
- Are the largest reservoir of Freshwater on earth.
- Are constantly in motion.
- Are known to be one of the most sensitive indicators of climate change.

Jakobshavn Glacier in Greenland

- World´s fastest moving Glacier at 35 meters a day.
- Nearly doubled in speed from 2005-2007.
- In the past 10 years, has moved inland by almost 10 km.
- In one year, Greenland lost 150 gigatonnes (150 trillion kg) of ice.
- Double the entire volume of all the Glaciers in the Alps.
- 100 Million tonnes break off the Glacier everyday.

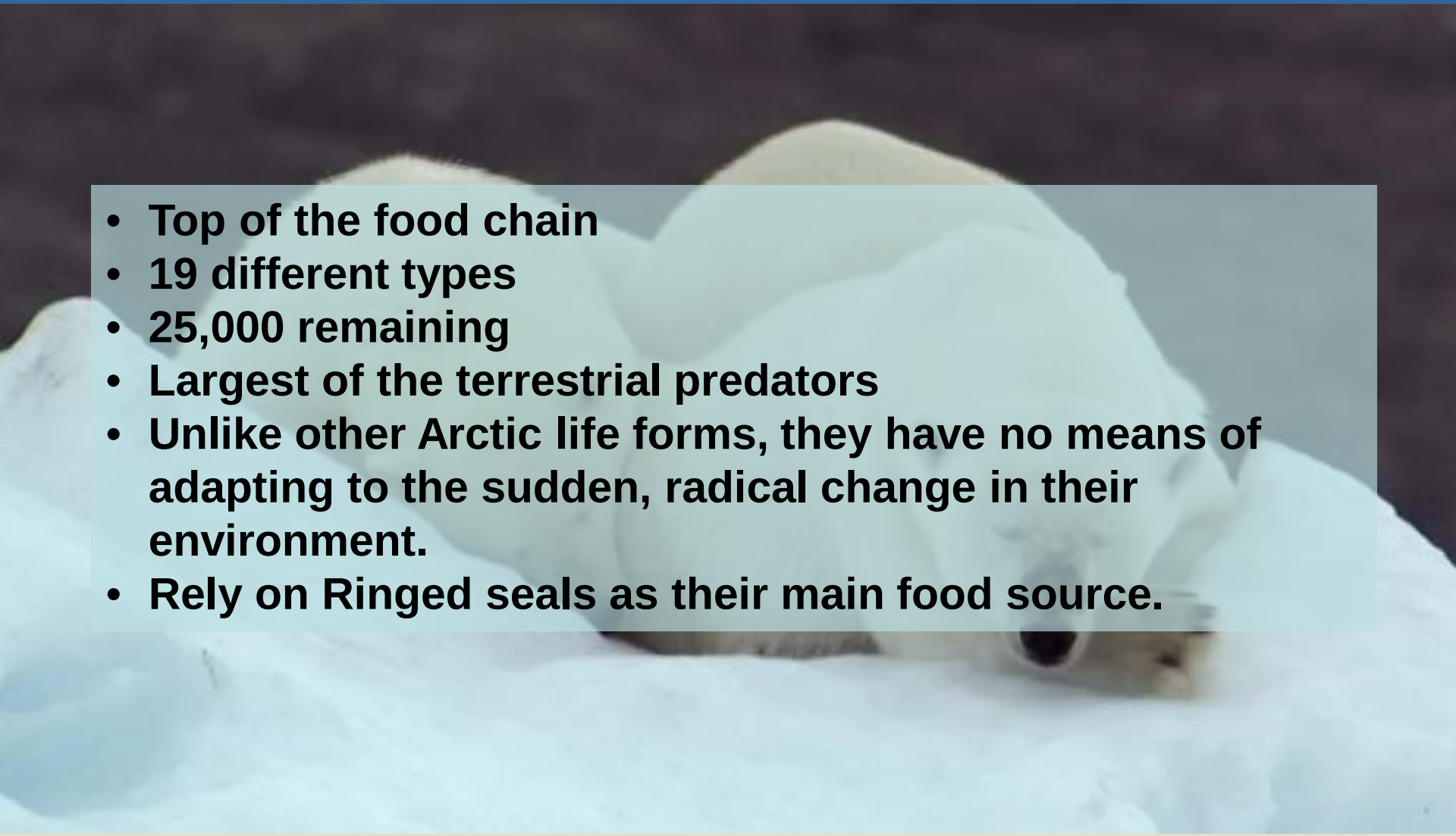
Jakobshavn Glacier 2001-2006

Arctic animal most endangered

- These changes directly affect the life forms that inhabit the Arctic.
- The mammal that is in the most danger is the **Polar Bear**.

Polar Bears

Polar Bears



- **Top of the food chain**
- **19 different types**
- **25,000 remaining**
- **Largest of the terrestrial predators**
- **Unlike other Arctic life forms, they have no means of adapting to the sudden, radical change in their environment.**
- **Rely on Ringed seals as their main food source.**

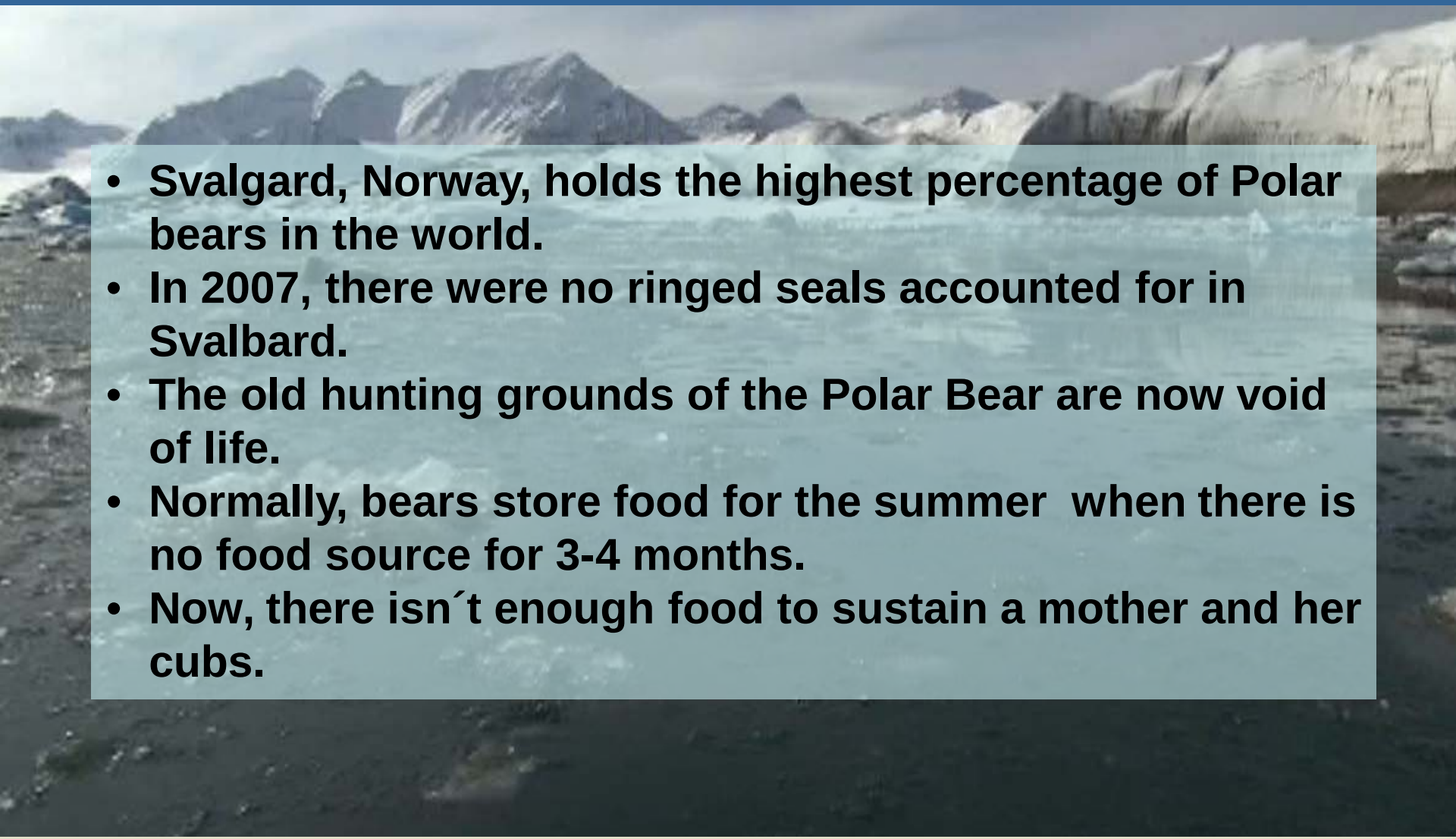
Ringed Seal

Ringed Seal

- **Sleep on the thick sea ice.**
- **Build dens of snow to birth their young.**
- **Migrate on a seasonal basis in response to ice availability.**
- **Polar bears spend almost their entire lives on the ice, hunting for seals.**
- **As the sea ice melts, it´s not thick enough for the seals to make their dens.**

Svalgard, Norway

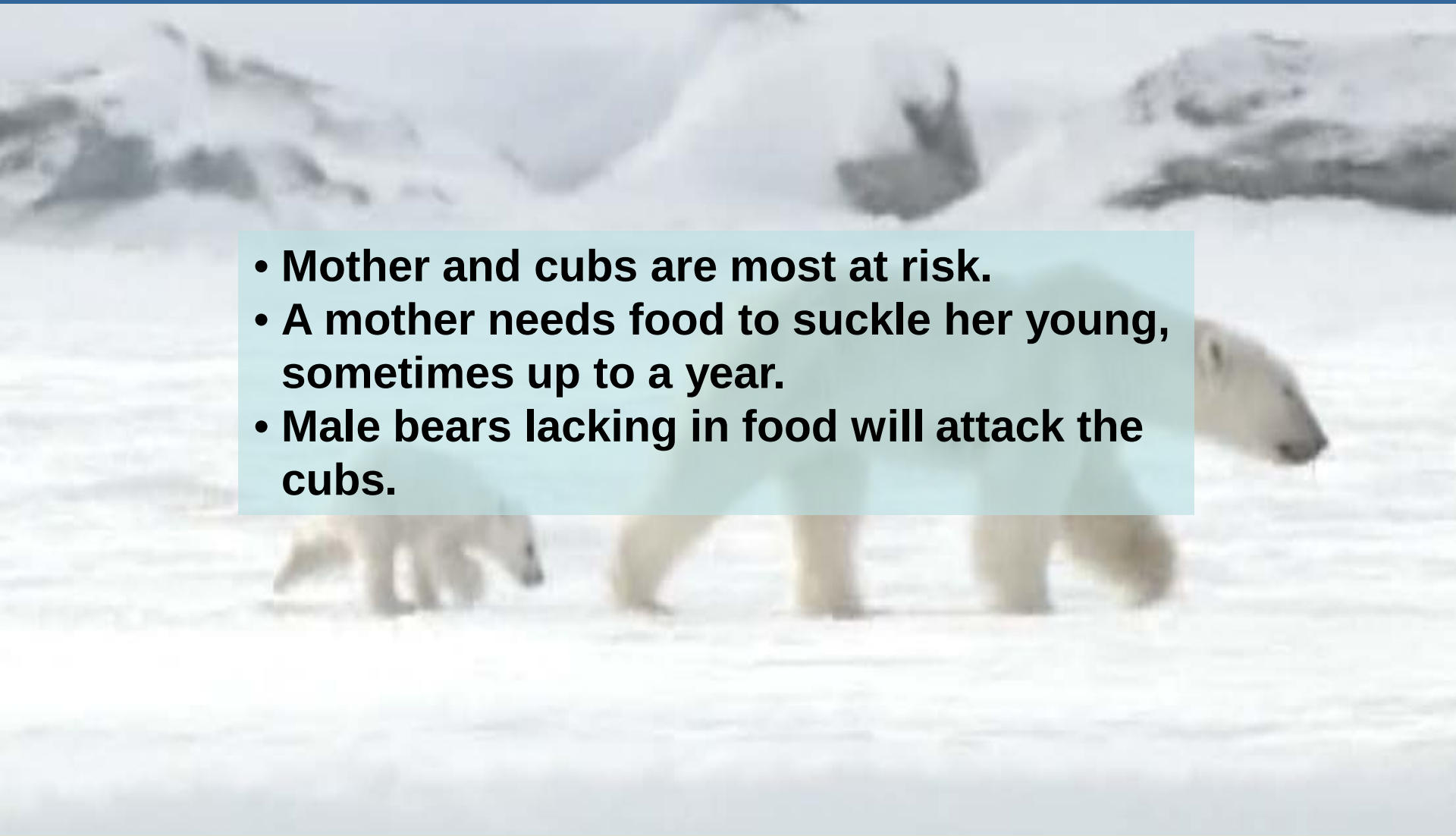
Svalgard, Norway



- **Svalgard, Norway, holds the highest percentage of Polar bears in the world.**
- **In 2007, there were no ringed seals accounted for in Svalbard.**
- **The old hunting grounds of the Polar Bear are now void of life.**
- **Normally, bears store food for the summer when there is no food source for 3-4 months.**
- **Now, there isn´t enough food to sustain a mother and her cubs.**

Mother bears and cubs

Mother bears and cubs



- **Mother and cubs are most at risk.**
- **A mother needs food to suckle her young, sometimes up to a year.**
- **Male bears lacking in food will attack the cubs.**

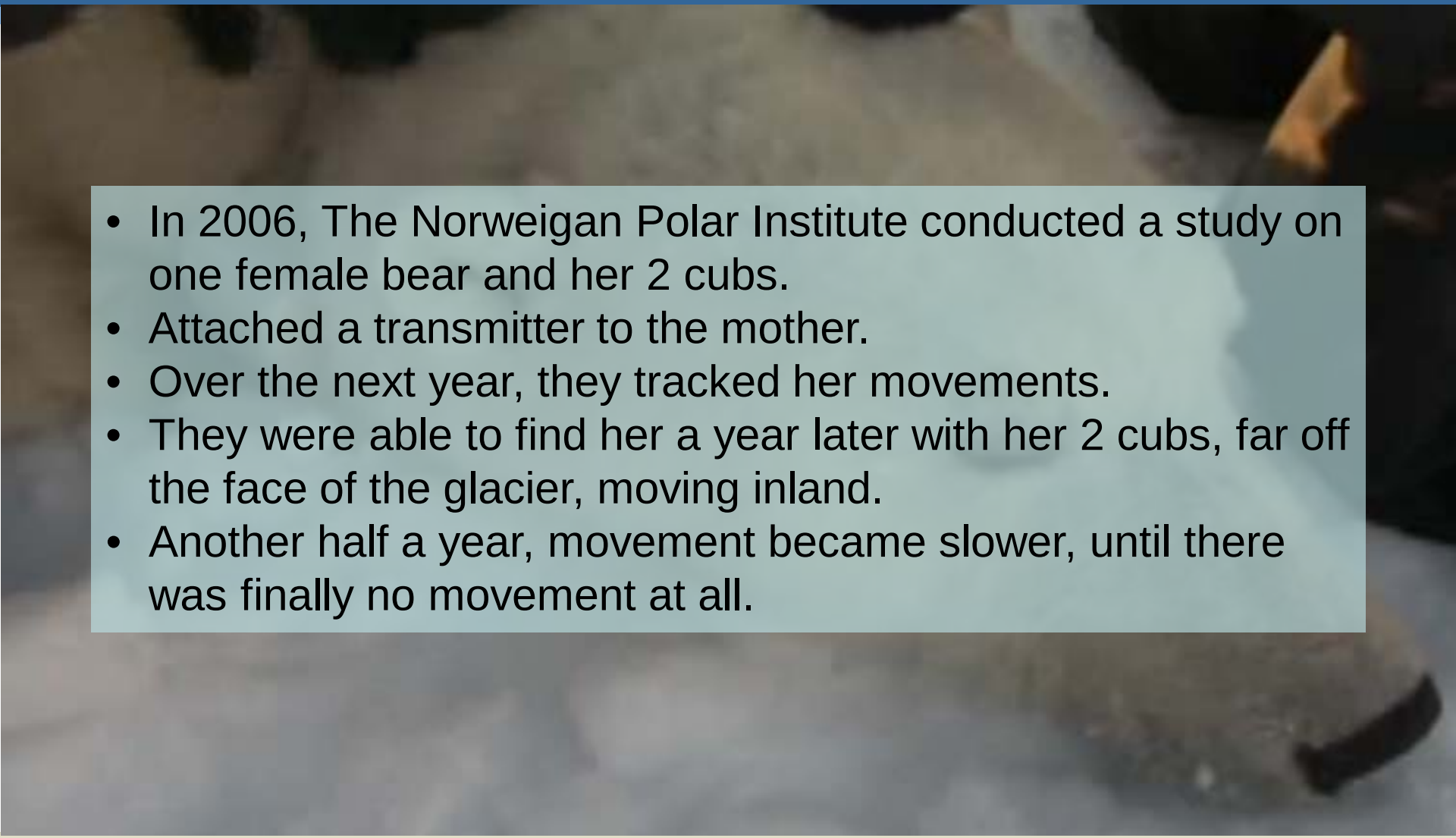
Solitary animals

Solitary animals

Polar bears are usually solitary, but in recent years, the once rare meeting of bears is now far more frequent, as the lack of snow and ice has caged them in.

Transmitter on Bear Mother

Transmitter on Bear Mother



- In 2006, The Norweigan Polar Institute conducted a study on one female bear and her 2 cubs.
- Attached a transmitter to the mother.
- Over the next year, they tracked her movements.
- They were able to find her a year later with her 2 cubs, far off the face of the glacier, moving inland.
- Another half a year, movement became slower, until there was finally no movement at all.

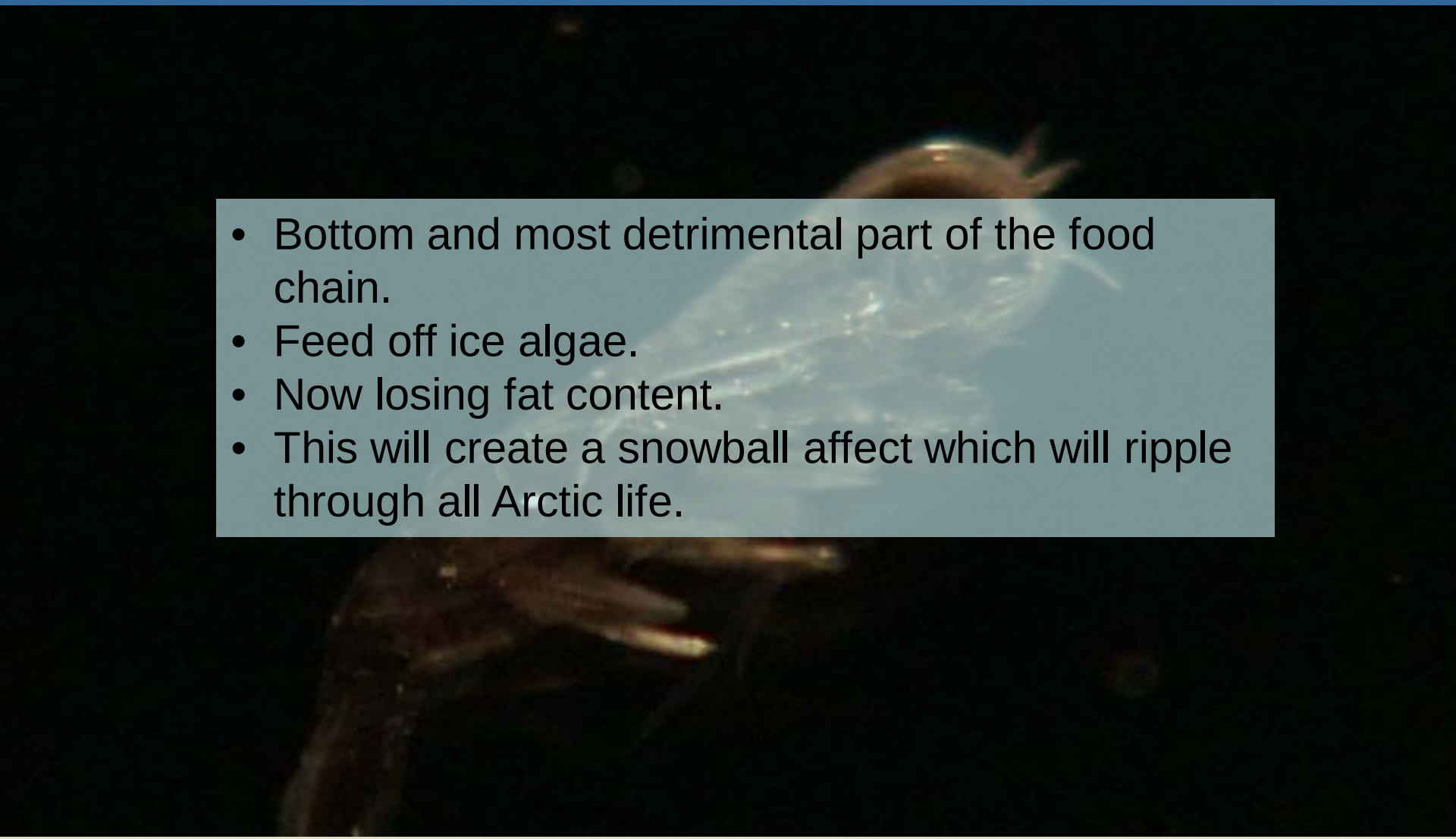
Baby bear dead from starvation

Baby bear dead from starvation

- A baby polar bear about a year old.
- Dead from starvation.

Zooplankton

Zooplankton



- Bottom and most detrimental part of the food chain.
- Feed off ice algae.
- Now losing fat content.
- This will create a snowball affect which will ripple through all Arctic life.

Arctic 1980

Arctic 1980


In the past, there were no threats to
the Polar Bear other than humans.

Arctic 2007

Arctic 2007

What will the future hold?

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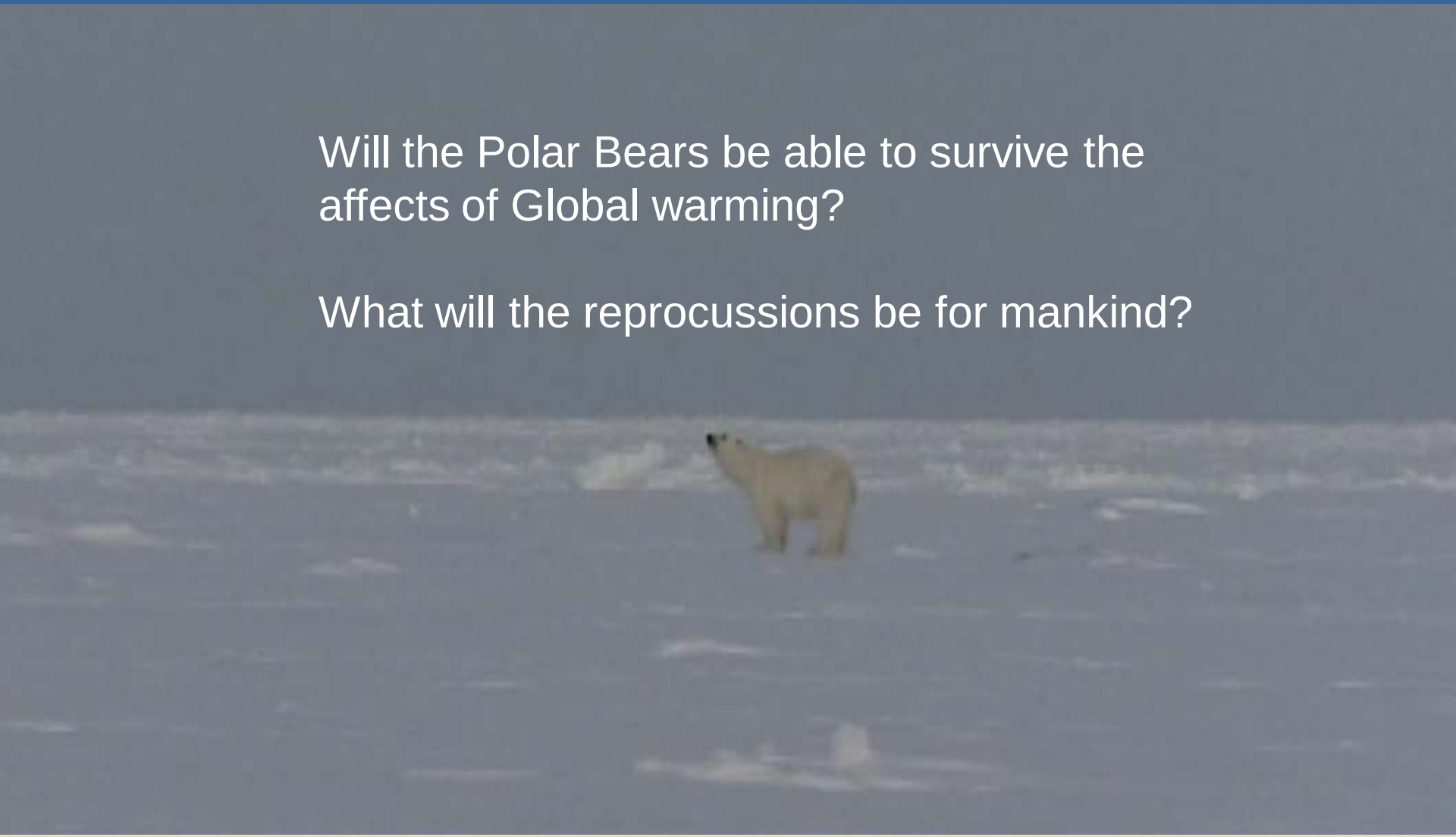

Will the Polar Bears be able to survive the affects of Global warming?

What will the reprocussions be for mankind?

Exercises for Self Study

1. Find environmental organizations that are attempting to stop the process of Global Warming and the decrease in numbers of threatened species.

2. Try to find and track your own carbon footprint by having a look at the following internet link: http://www.carbonfootprint.com/index.html

3. How could you help the fight against Global Warming? Attempt to find some portable solutions.

References

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