Global Warming: Effects of Global Warming on Polar Region Animals

Shen Day Mei  沈玳玫
Tzeng Shih Han  曾詩涵
Chang Chia Hsin  張家馨

Taichung Home Economics and Commercial High School
Class 301
I. Introduction

What’s the first thing that comes to your mind when hearing the term “Global Warming”? Some people are quite ignorant about it and are not aware of how serious the impacts of Global Warming are, while others, like me, strongly feel that something should and must be done quickly. After watching the documentary film *An Inconvenience Truth* presented by former U.S Vice President Al Gore, I am sure that this issue is definitely worth our concern.

What will be focused on in this study are the effects of the melting in the North and South Pole – where the strongest evidence of Global Warming takes place – on polar animals.

II. Thesis

In recent years, we’ve seen the media and some non-profit organizations promoting that we should economize on energy in order to improve our environment. There have also been movies, like *The Day After Tomorrow*, made to warn us about Global Warming. However, what used to be unrealistic movies may now become nothing but reality.

Global Warming has a great impact on the Earth, and is causing extreme problems. When it comes to the effects of Global Warming, hundreds of influences could be listed down, but the five deadliest one of Global Warming are:

1. Melting of Polar ice caps
2. Economic consequences
3. Increasing droughts and heat waves
4. Warmer waters and more hurricanes
5. Spreading of diseases

NASA’s satellite data shows that the thickest, the oldest and the hardest ice in the world, which is in the Arctic, has started to melt. Consequently, the polar bears might become extinct in 60 years and many more countries will be swallowed by the ocean due to the increasing sea surface resulted from the warming temperature. That is a crisis for human beings and animals alike.
With both the poles gone eventually, we, human beings, would undoubtedly be the next.

1. Global Warming

What exactly is Global Warming? Basically, it is an increase in the Earth's average atmospheric temperature. Human beings have been polluting and exploiting the Earth excessively, especially with the overuse of fossil fuels like coal, oil and gases, resulting in the increase of carbon dioxide, a greenhouse gas that leads to the evaporation of water vapor and the warming of atmosphere. The increasing temperature of the whole world increasing brings about strange weather patterns which causes the ice in the poles to melt, and that in turn, endangers the animals living there.

![Image of melting ice](image)

2. Effects of Global Warming on Animals in the Poles

Comparing to places besides the Arctic and Antarctic, climate change in the Polar Regions has been expected to be more severe. During the past several decades, the Arctic has been warmed at an alarming rate, and it is projected to continue to warm by as much as 18 degrees Fahrenheit (-7.8 °C) by 2100. (2) Evidence also indicates that the Antarctic Peninsula, the northernmost section of Antarctica, is warming. Researchers from the British Antarctic Survey report a warming trend of 2.5 (degrees F) since the 1940s. (3) Due to these climate changes in the Arctic and Antarctic, animals that inhabit these regions are losing their homes.
The following are three examples of what problems the phenomenon of Global Warming is causing, and how it forces these beautiful creations of Mother Nature into extinction.

2.1 Polar Bears

Global warming is getting more and more serious, and it is very sad that polar bears are at the risk of drowning to death. Recently, because of the greenhouse effect, the glaciers in the North Pole are beginning to melt and are starting to endanger the survival of the polar bears by forcing them to lose their habitats. Moreover, the polar bears also have to swim a long distance to look for their food, and some of them are even drowning to death. Due to the melting of the glaciers, it has been discovered that these polar bears are gradually moving northwards. However, at the present time, people don’t have any plans to migrate the polar bears to the environment where they are suit to survive. It is estimated that polar bears will be extinct by the end of the 21st century.(4)

The polar bears also hunt and reproduce on the ice completely. If their habitats are lacking the food they need, it will be harmful to the polar bears, the lack of habitats may causing a decrease in the reproduction of polar bears.
According to Dr. Handson, who is a professor in Harvard University, if a female polar bear has to give birth to a cub, its weight has to be higher than the limit of the lowest weight. However, the weights of these polar bears are now already approaching the restriction, and it has become more and more difficult for them to reproduce. In addition, the death rate of new-born polar cubs is increasing, and even if they are born, the chances of them to survive are very small.

In 2006, experts believed that, 22,000 polar bears all over the world will starve to death because of the floating ice’s dissolution in the North Pole and the lacking of food. Now they predict that global warming will possibly lead to the extinction of the polar bears in only 60 years. Because of the impact of climatic changes, these creatures in the North Pole are encountering a huge threat of the great change in their living environment.
2.2 Arctic Fox

Polar Bears may not be the only arctic animals threatened by Global Warming. Scientists have discovered that Arctic foxes also suffer from the melting of the ice because they rely on the frost seas to survive the bleak winters. Arctic foxes are incredibly hardy animals that can survive frigid arctic temperatures as low as –58°F (-50°C) in the treeless lands where their home are built. (5)

Because of Global Warming, sea ice in the Arctic region, formed from frozen seawater, has shrunk dramatically in recent years, which brings about the increase in the height of the sea surface and forces the Arctic foxes to move to a warmer place far north for the sake of survival. Because of the climate change, there are fewer and fewer predators and food are more uneasy to find than on land, which makes the foxes' lives more and more dangerous. Experts say that the melting of the ice this year has started faster than usual.

There is a tricky problem as well. The red fox, arctic fox's cousin, is moving to the place where the arctic fox lives. That’s bad news for the old-hardy arctic foxes, because they can’t compete with their larger and more aggressive cousin. The region which they live is occupied by those red foxes, and their active room is shrinking. Therefore, many arctic foxes can’t survive.
The population of the arctic foxes is on the decline in particular in the southern part of the tundra and in the Scandinavian high mountains. They are in danger of disappearing from Norway. Researchers already know a lot about the Arctic foxes. The researchers are also involved in a conservation project to protect the Arctic foxes in Finnmark. At the turn of the last century, there were thousands of Arctic foxes in Norwegian mountain and northern coastal areas. The population has now been decimated to just 100. (6)

Publishing the study in the journal of Polar biology, the researchers said, "If future populations of Arctic foxes lose access to sea ice, the negative effects will likely be decreased the survival and reproduction of winter." (7) We should take the responsibility for causing the Global Warming. Face this problem and come up with proper measures to solve it, or the polar animals may be extinct in hundreds year later.
2.3 Penguins

When most of us think of Antarctica, the image of waddling, tuxedoed penguins comes to our mind. However, with the continuous increasing of the temperature, the future of these iconic little creatures looks bleak. The following are some facts according to the new study, *Antarctic Penguins and Climate Change*, by the World Wildlife Federation:

- The Southern Ocean has experienced warming all the way down to a depth of 3,000 meters.
- The Antarctic Peninsula is warming five times faster than the global average.
- Sea ice now covers 40 percent less area than it did 26 years ago off the West Antarctic Peninsula. (8)

The World Wildlife Fund (WWF) forecasts that the temperature change threatens 50 percent of Emperor penguin colonies and 75 percent of Adelie penguin colonies that exist at the latitudes north of 70 degree south. (9)

Rising temperatures around the world are causing the amount of sea ice to decrease. The decrease in the sea ice contributes to a reduction of algae, a
fact which in turn leads to the declining of krill, the food on which penguins mostly rely on. With less food, these birds are dying of hunger. In addition to the shortage of food, they are also suffering from the loss of nesting grounds. The Southern Ocean area is an important breeding area for the penguins. However, in recent years, sea ice not only covers 40 percent less area than 26 years ago, but is also forming later and receding earlier. As a result, raising their chicks on increasingly thinner ice has also become a problem now. Not only do the penguins have to risk their eggs being dropped into the freezing ocean at anytime, but the climate change is also having their nesting times confused. (10) Another problem that many people are probably quite unaware of is unusual epic rains in Antarctica. Adélie and Gentoo penguin chicks, which are not yet equipped with water-repellent feathers, are soaked in the daytime when the temperature is above freezing. However, when night time comes, and the temperature goes below freezing and these vulnerable chicks become frozen. It is difficult enough for penguins, especially emperor penguins, to successfully lay an egg and raise a healthy chick, but now, they have to face the cruelty of witnessing the death of their chicks due to the coldness. The scene that many penguin chicks die at once is sorrowful, not just one life at a time but thousands and thousands. These problems of food shortage, losing nesting spots and facing climate change are just a few to mention. Though just a handful of problems, they are serious factors that have extreme impacts on penguins.
III. Conclusion

Global Warming is becoming more and more serious. We have to take action immediately in order to improve our environment. If we do not take measures to help save these icons of the poles, they will soon be extinct. Human beings should not be selfish and indifferent about this matter, because it does affect us; it is just a matter of time. We are part of the chain. Tomorrow, the animals. The day after, humans.

It's never too late, and solutions are available. Problems caused by Global Warming can be solved if we all shake hands and make a joint effort towards helping the environment. There are numerous things that can be done. For example, when we go to restaurants or some vendors to eat something, we can bring our own utensils for the sake of reducing the use of disposable tableware. One of the best ways to help improve the environment is by recycling. It requires nearly no efforts and helps a big deal; besides, it is necessary for people to use reusable shopping bags, which can decrease the quantity of many plastics bags and pollution. In addition, we can replace driving cars and motorcycles with taking the public transportation. Planting native trees in urban and deforested areas to improve the air is also an alternative choice. If we practice these methods thoroughly, we can help the polar animals survive, make our environment more beautiful.

IV. Reference


Global Warming

2008/10/10)

3. Union of Concerned Scientists, Early Warning Signs of Global Warming

4. National Geographic, Arctic Fox Profile, Facts, Information,
   http://animals.nationalgeographic.com/animals/mammals/arctic-fox.html (retrieved 2008/10/10)

5. Polar Bear

6. Science Daily, How Will Climate Change Affect Arctic Predators,
   http://www.sciencedaily.com/releases/2007/05/070527193944.html (retrieved 2008/10/10)

7. The Guardian, Environment, Global Warming: Melting Ice Threatens Arctic Foxes,
   http://www.guardian.co.uk/environment/2008/jul/15/climatechange.wildlife (retrieved 2008/10/10)

8. CTV, Global Warming Putting Heat to Penguin Population,
   http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071212/penguin_population_071212?s_name=&no_ads= (retrieved 2008/10/10)

9. CTV, Warmer Weather Will Devastate Penguins: WWF,

10. Telegraph, Penguins now threatened by Global Warming,

11. National Geographic, Penguin Decline in Antarctica Linked With Climate Change,