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Arctic Species Severely Affected by Climate Change in the Last Two Centuries

What is this research about?

The global increase in temperature has a strong effect on plants and animals. This effect can be observed in changes to food webs. Certain species in the food web will grow or shrink in numbers as the climate gets warmer. Ponds on Ellesmere Island in the Canadian High Arctic have been seriously affected by climate change over the last 200 years. The ecological effects of warming in these ponds can be seen through shifts in algae (diatom) and insect (chironomid) populations. By studying these ponds, scientists can better understand the ecological impact of continued warming in the Arctic.

What did the researchers do?

The researchers chose three study sites located on Cape Herschel which is on the east-central coast of Ellesmere Island in the far north of the Canadian Arctic (78°N). They took core samples of sediment from these ponds to look at fossils of diatoms and chironomids.

What you need to know:

The last two centuries of climate warming have drastically affected many species in the High Arctic. Species that survived in extreme cold are becoming threatened as the average temperature in the Arctic increases.

What did the researchers find?

The researchers found that serious changes have occurred in High Arctic lakes and ponds over the last two centuries. They discovered that the diatom and chironomid populations began to change drastically starting in the 19th century. These changes were much more extreme than changes in the last several thousand years. Overall, these changes demonstrate that warming has cascading effects that can change multiple layers of the food web of the High Arctic.

How can you use this research?

This research is useful in demonstrating the value of tracking the effects of climate change on food webs. This type of research is a valuable diagnostic tool for researchers and policymakers that are focusing on the long-term impact of climate change on ecosystems.

About the Researchers

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Keywords

Arctic, Chironomidae, Climate change, Food webs, Paleoecology, Paleolimnology.

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