



# Decreasing Ice and Its Impact: Arctic

## Why in News

According to a recent study, if [carbon emissions](#) continue at current levels, **summer ice in the arctic will disappear by 2100** and, along with it, creatures such as **seals and polar bears**.

- The Arctic sea ice reached its minimum extent, coming in at 4.72 million square miles. It is the **12<sup>th</sup> lowest on record** and the record minimum melting of the ice occurred in 2012.



## Key Points

- **About the Study:**
  - **Coverage:**
    - The study **covers a 1 million-sq km region** north of [Greenland](#) and the **coasts of the Canadian Archipelago**, where sea ice has traditionally been thickest round the year, and thus likely to be most resilient.
  - **Two Scenarios:**

- **Optimistic\Low Emissions** (if carbon emissions are brought in check): Under this scenario, some **summer ice could persist indefinitely.**
- **Pessimistic\High Emissions** (if emissions continue as they are): Under this scenario, **summer ice would disappear by the end of the century.**
  - **Ice from even the central Arctic will decrease** by mid-century, and will no longer endure through the year.
  - Locally formed summer ice will persist in what is known as the **Last Ice Area**, but will now be only a metre thick.

#### ▪ **Implications:**

##### ◦ **Low-emissions Scenario:**

- At least some seals, bears and other creatures may survive.
  - These species currently exist under similar summer conditions along **western Alaska and parts of Hudson Bay.**

##### ◦ **Higher-Emissions Scenario:**

- By 2100, even the **locally formed ice will disappear in summer.**
- With no summer ice anywhere, there will be **no ice-dependent ecosystems.**

## **Arctic**

- The **Arctic is a polar region** located at the northernmost part of Earth. Land within the Arctic region has **seasonally varying snow and ice cover.**
- It **consists of** the Arctic Ocean, adjacent seas, and parts of Alaska (United States), Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, and Sweden.
  - **Since 2013, India has had observer status in the [Arctic Council](#),** which is the predominant inter-governmental forum for cooperation on the environmental and development aspects of the Arctic.

## **Sea Ice**

#### ▪ **About:**

- **Sea ice is frozen seawater** that floats on the ocean surface. It covers about **7% of the Earth's surface** and about **12% of the world's oceans.**
- This floating ice has a **profound influence on the polar environment**, influencing ocean circulation, weather, and regional climate.

## **Interesting Fact**



▪ **About:**

- **Penguins live in Antarctica** (to the south), and polar **bears live in the Arctic** (to the north).
- While they inhabit similar polar habitats with lots of snow and ice, **they have never lived together.**

▪ **Reasons for No Polar Bear in Antarctica:**

- The main reasons there are **no polar bears in Antarctica are evolution, location and climate.**
  - Bears evolved on the planet after **Antarctica broke away** ([Plate Tectonics](#)) from the other continents, and after that they had no easy way of getting there.

▪ **Reasons for No Penguins in Arctic:**

- In the North Pole, **predators such as polar bears and arctic foxes would limit their survival.**
- There is **no water in the north pole for them to hunt** because the **ice is so thick.**
  - Even if there was a hole in the ice, how would the penguin get back up if they can't find the hole they went down in.
- Penguins are predominately shore birds and thus **do not venture far into the ocean.**
- In addition, **migrating through warmer waters to reach the northern hemisphere is almost impossible** for penguins and could prove fatal.

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