

## Arctic Report Card 2023

### Why in news?

Recently the National Oceanic and Atmospheric Administration (NOAA) released the annual Arctic report card 2023.

### What is Arctic report card?

- **Launch year**-2006
- **Released by**- National Oceanic and Atmospheric Administration.
- **Published**- Annually since 2006
- **About**- It is a comprehensive assessment of the current state and trends of the Arctic environment relative to the historical records.
- **Data source**- It is a peer reviewed analysis done by 82 scientists from 13 countries.
- **Significance**-It is intended for a wide audience, including scientists, teachers, students, decision-makers and the general public interested in the Arctic environment and science.

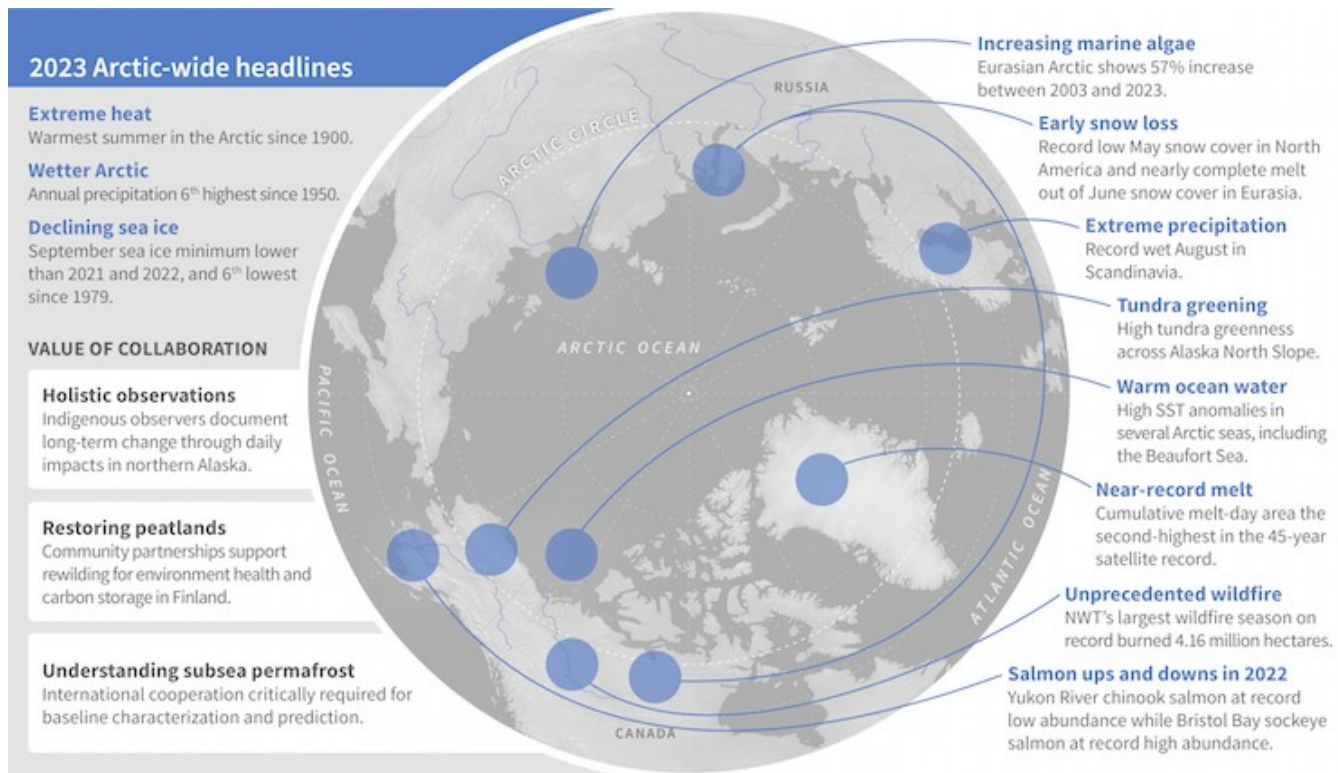
### What are the key highlights of the report?

About	Description
<b>Warmest summer</b>	<ul style="list-style-type: none"> <li>• The Arctic experienced its warmest summer and <i>sixth warmest</i> year on record in 2023.</li> <li>• It has widespread impacts on ecosystems and communities.</li> </ul>
<b>Feedback loops</b>	<ul style="list-style-type: none"> <li>• The rising air temperature, sea ice decline and warming water temperature feed off one another in a warming climate.</li> <li>• The summer warming reduces sea ice, which causes more warming.</li> </ul>
<b>Arctic sea ice extent</b>	<ul style="list-style-type: none"> <li>• It was the <i>sixth lowest</i> in the satellite record, which began in 1979.</li> <li>• The 17 lowest Arctic sea ice extents on record occurred during the last 17 years.</li> </ul>
<b>Greenland ice sheet</b>	<ul style="list-style-type: none"> <li>• It continued to <i>lose mass</i> despite above-average winter snow accumulation.</li> <li>• The ice sheet lost an estimated 223 gigatons of ice in 2023, equivalent to about 0.62 millimeters of global sea level rise.</li> </ul>
<b>Arctic tundra</b>	<ul style="list-style-type: none"> <li>• It showed the <i>third-highest peak greenness</i> since 2000, indicating increased plant growth and productivity.</li> <li>• However, the greening was not uniform across the region, and some areas showed browning or reduced vegetation.</li> </ul>
<b>Arctic ocean</b>	<ul style="list-style-type: none"> <li>• The primary productivity, or the amount of organic matter produced by phytoplankton, was above average in many regions.</li> <li>• This reflects the <i>earlier onset of the phytoplankton bloom</i> due to earlier sea ice melt.</li> </ul>

<b>Arctic precipitation</b>	<ul style="list-style-type: none"> <li>• It was the <i>sixth highest on record</i>, continuing the trend toward a wetter Arctic.</li> <li>• Increased precipitation can affect soil moisture, river runoff, permafrost thaw, and ecosystem dynamics</li> </ul>
<b>Arctic wildfires</b>	<ul style="list-style-type: none"> <li>• During 2023 it was the most extreme on record, burning an estimated 34.6 million hectares of land, or about 4.5% of the Arctic land area.</li> <li>• The fires emitted large amounts of carbon dioxide, black carbon, and other pollutants, affecting air quality and climate<sup>1</sup></li> </ul>
<b>Arctic climate change</b>	<ul style="list-style-type: none"> <li>• It is disrupting the lives and livelihoods of people living in the region, especially <i>Indigenous communities</i>.</li> <li>• Some are adapting to new opportunities and challenges while other are working to restore damaged habitats and preserve their cultures.</li> </ul>

### What are the most severe consequences of the soaring temperatures in Arctic?

- **Subsea permafrost thawing**- Frozen soil under the sea bed is melting faster due to warmer oceans.
- This releases greenhouse gases that worsen climate change and ocean acidification.
- **Food insecurity**- Warming of freshwater and marine habitats makes the chinook and chum salmon smaller and less abundant than usual in Western Alaska due to warming freshwater and marine habitats.
- **Impact on livelihood**- The reduced salmon availability causes problems for fishing activities, livelihoods, and traditions of the Indigenous people who rely on salmon.
- **Raging wildfires**- The Arctic and Northern regions of Canada faced record-breaking wildfires that burned over 10 million acres of land in 2023.
- **Climate change**- The wildfires were fuelled by high temperatures, dry vegetation and soil, and low rainfall, all linked to climate change.
- **Mendenhall glacier melting**- The glacier in *Alaska* has thinned significantly due to rising temperatures in the past 20 years.
- **Severe flooding**- The meltwater formed a lake that broke its ice dam and flooded Juneau, causing damage and disaster.



## What lies ahead?

- **Sustainable solution-** In Finland peatland restoration is done as a *nature-based climate solution* led by traditional knowledge, it will help to capture and store carbon away from the atmosphere.
- **Habitat preservation-** In Finland, an effort to restore damaged reindeer habitat is done in collaboration with Sámi reindeer herders (Indigenous population). It is helping to preserve their way of life.
- **Rewilding-** It requires partnership, recognition of Indigenous and community rights, and the use of Indigenous knowledge alongside science to succeed and avoid replication of past inequities.
- **Data collection-** The Alaska Arctic Observatory and Knowledge Hub (AAOKH) works with a network of coastal Indigenous observers to document long-term and holistic observations of environmental change and impacts in northern Alaska.

To know about Arctic research click [here](#)

## References

1. [Down To Earth-Arctic Report Card 2023](#)
2. [Indian Express- Effect of hottest summer in Arctic](#)