

# Arctic Report Card 2019

Arctic ecosystems and communities are increasingly at risk due to continued warming and declining sea ice

The Iñupiat community of Wales, Alaska—home to the Kijikmiut People

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Sea Surface Temperature

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## 2019 Headlines

### Arctic ecosystems and communities are increasingly at risk due to continued warming and declining sea ice

The Arctic marine ecosystem and the communities that depend upon it continue to experience unprecedented changes as a result of warming air temperatures, declining sea ice, and warming waters. Arctic Report Card 2019 draws particular attention to the Bering Sea region, where declining winter sea ice exemplifies the potential for sudden and extreme change. Indigenous Elders from the Bering Sea region offer their experiences of living at the forefront of climate change.

## Highlights

- The average annual land **surface air temperature** north of 60° N for October 2018-August 2019 was the second warmest since 1900. The warming air temperatures are driving changes in the Arctic environment that affect ecosystems and communities on a regional and global scale.
- The **Greenland Ice Sheet** is losing nearly 267 billion metric tons of ice per year and currently contributing to global average sea-level rise at a rate of about 0.7 mm yr<sup>-1</sup>.
- **North American Arctic snow cover** in May 2019 was the fifth lowest in 53 years of record. June snow cover was the third lowest.
- **Tundra greening** continues to increase in the Arctic, particularly on the North Slope of Alaska, mainland Canada, and the Russian Far East.
- **Thawing permafrost** throughout the Arctic could be releasing an estimated 300-600 million tons of net carbon per year to the atmosphere.
- Arctic **sea ice extent** at the end of summer 2019 was tied with 2007 and 2016 as the second lowest since satellite observations began in 1979. The **thickness of the sea ice** has also decreased, resulting in an ice cover that is more vulnerable to warming air and ocean temperatures.
- August mean **sea surface temperatures** in 2019 were 1-7°C warmer than the 1982-2010 August mean in the Beaufort and Chukchi Seas, the Laptev Sea, and Baffin Bay.
- Satellite estimates showed **ocean primary productivity** in the Arctic was higher than the long-term average for seven of nine regions, with the Barents Sea and North Atlantic the only regions showing lower than average values.
- Wildlife populations are showing signs of stress. For example, the breeding population of the **ivory gull** in the Canadian Arctic has declined by 70% since the 1980s.
- The **winter sea ice** extent in 2019 narrowly missed surpassing the record low set in 2018, leading to record-breaking warm ocean temperatures in 2019 on the southern shelf. Bottom temperatures on the northern Bering shelf exceeded 4°C for the first time in November 2018.
- **Bering and Barents Seas fisheries** have experienced a northerly shift in the distribution of subarctic and Arctic fish species, linked to the loss of sea ice and changes in bottom water temperature.
- **Indigenous Elders from Bering Sea communities** note that “[i]n a warming Arctic, access to our subsistence foods is shrinking and becoming more hazardous to hunt and fish. At the same time, thawing permafrost and more frequent and higher storm surges increasingly threaten our homes, schools, airports, and utilities.”

## Video



<https://www.arctic.noaa.gov/Report-Card>