SEA ICE

The Climate Change Breakdown

What is sea ice, **how** is it responding to climate change, and **who** is being affected?

WHAT

Sea ice forms entirely in the **ocean.** [5]

Temperature
Ocean water freezes at -1.8°C [4]

Salinity
Each layer has a different salt concentration [4]

Currents
Water and air movement influence shape and structure [3]

FY: First-year ice is formed from younger ice and only lasts a year. It is 0.3 to 2 m thick. [1]

MY: Multi-year ice is formed from older ice and lasts for more than two [11] years. It is 3 to 4 m thick.

Fall
Freezing Season [4]

Summer
Melting Season [3]

Influence on the Environment

- Maintaining climate and weather patterns [2]
- Ocean circulation [3]
- Supports arctic ecosystems and habitats [3]

HOW

THE FEEDBACK LOOP [3]

- Reduced Albedo
- Increases in Ocean Temp
- Longer Melting Season
- Reduced Sea Ice Extent

Temperature
1-3°C increase in air [4] temperature

Thickness
Significant reduction in sea ice [4] thickness

Trends

Heading towards an **ice free** Arctic Ocean [9]

- Unpredictable sea ice formation cycles [2]
- Multi-year ice is declining [3]
- A reduced freezing season [3]

WHO

Changes in the conditions and availability of sea ice has the greatest impact on Indigenous communities living in the Canadian Arctic.

THE POLAR BEARS
Losing the ability to hunt on the ice has increased their presence on the main land. [10]

Sea ice is an extension of ...

- **Health**
  - **34%** increase in reported sea ice related **injuries** [6]
  - The loss of **freedom** has affected the **mental health** of Inuit communities [5]
  - Increased **food insecurity** [7]
- **Tradition**
  - Difficulty teaching traditional Inuit **hunting practices** [8]
  - Losing the ability to **predict** the timing of fall ice [2]
  - Difficulty accessing other **communities**, like those in Rigolet [8]
- **Land**
  - Melting
  - Increased moisture
  - Stronger storms
  - Increased **coastal erosion** [1]

REFERENCES:

Rene V. Caruso