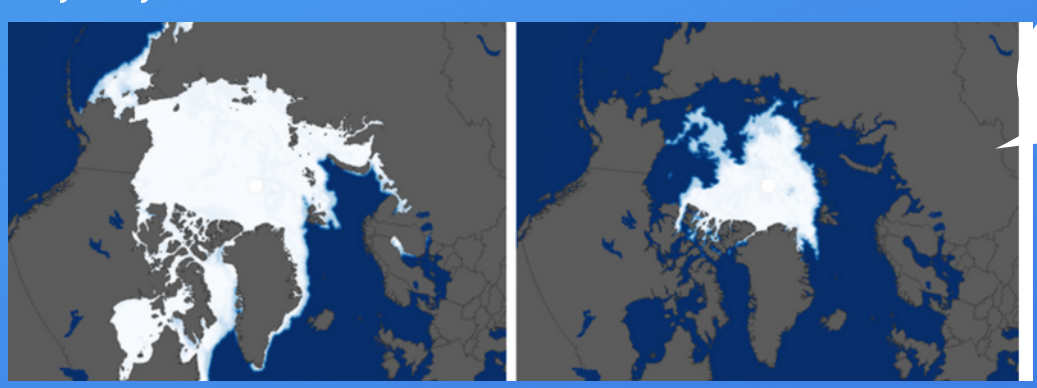
HOW CLIMATE CHANGE AFFECTS SEA ICE AND NORTHERN COMMUNTIES

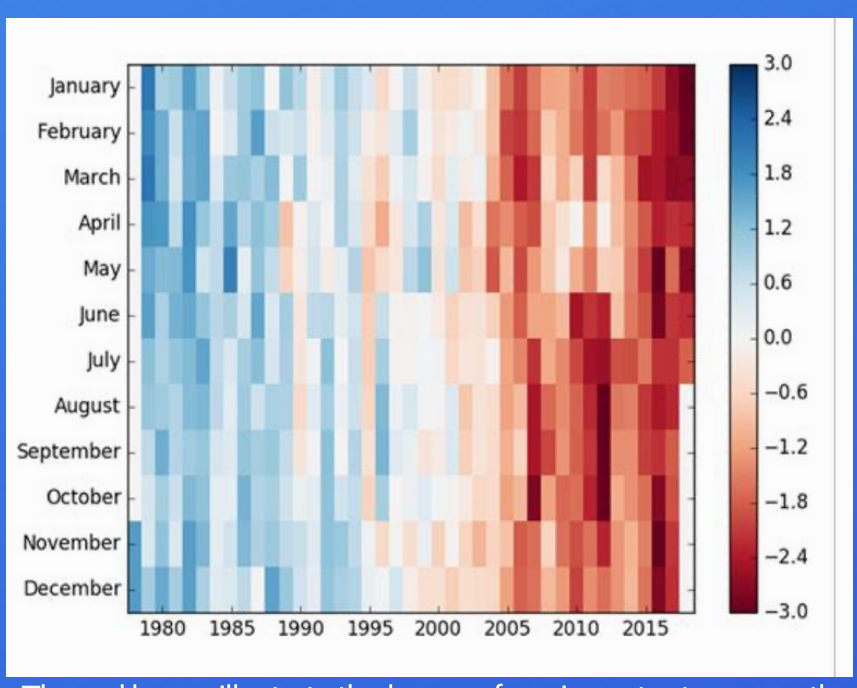
Physical Nature of Sea Ice

- When the uppermost layer of salty ocean waters freezes at -1.8 degrees Celsius it becomes sea ice[1]
- Perennial or "multiyear" ice is thick & lasts multiple years[2]
- Seasonal or "yearly" ice is thin & thaws in the summer months[3]



- Sea ice acts as a reflective blanket by insulating the ocean water below and reflecting incoming solar radiation from above[4]

Effects of Climate Change



The red boxes illustrate the losses of sea ice extent per month in a given year![8]

Shifting of Perennial Ice to Yearly Ice

There has been a 50% decrease in multiyear ice. MYI now covers less than one-third of the Arctic Ocean[5]

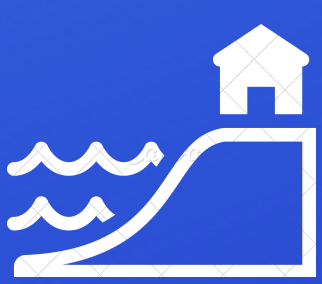
Loss of Arctic Marine Mammals

Sea ice is a unique habitat for arctic marine mammals; without it, species like the polar bear, are at an increased risk of endangerment due to habitat loss[7]

Decrease in Extent and Thickness

Sea ice extent has decreased year-round while sea ice thickness has declined by 28 cm (40%) since 1979 [6]

Implications for Northern Communities



Coastal Erosion

Decreased protection from sea ice increases the effect of wind and waves along coasts where many communities reside[9]

Traditional Culture

Melting ice reduces transportation routes and cultural significance as sea ice travel. Inuits in Nain, Nunatsiavut, reported ice travel is "good for your spirit" and makes your "soul feel better" [10]

Subsistence Lifestyle

Rosemarie Kuptana, a resident of Sachs Harbour on Banks Island stated that her subsistence lifestyle of hunting, trapping, and fishing are being lost[11]

What can YOU do?

- Reduce your carbon footprint to prevent further CO2 warming!
  - Ride your bike to campus,
  - Participate in meatless Monday's at UofT's cafeterias and eateries
  - Attend UTEA's virtual tri-campus conference in March 2021 to learn more about being an environemntal advocate

References: https://utoronto-my.sharepoint.com/:w:/g/personal/abbigayle_weber_mail_utoronto_ca/Ef5sp4ny-pxFqIRlxPCx_W0BaJB5TRmDWSn2Yu2kcOAU7A?e=2jrQWn