

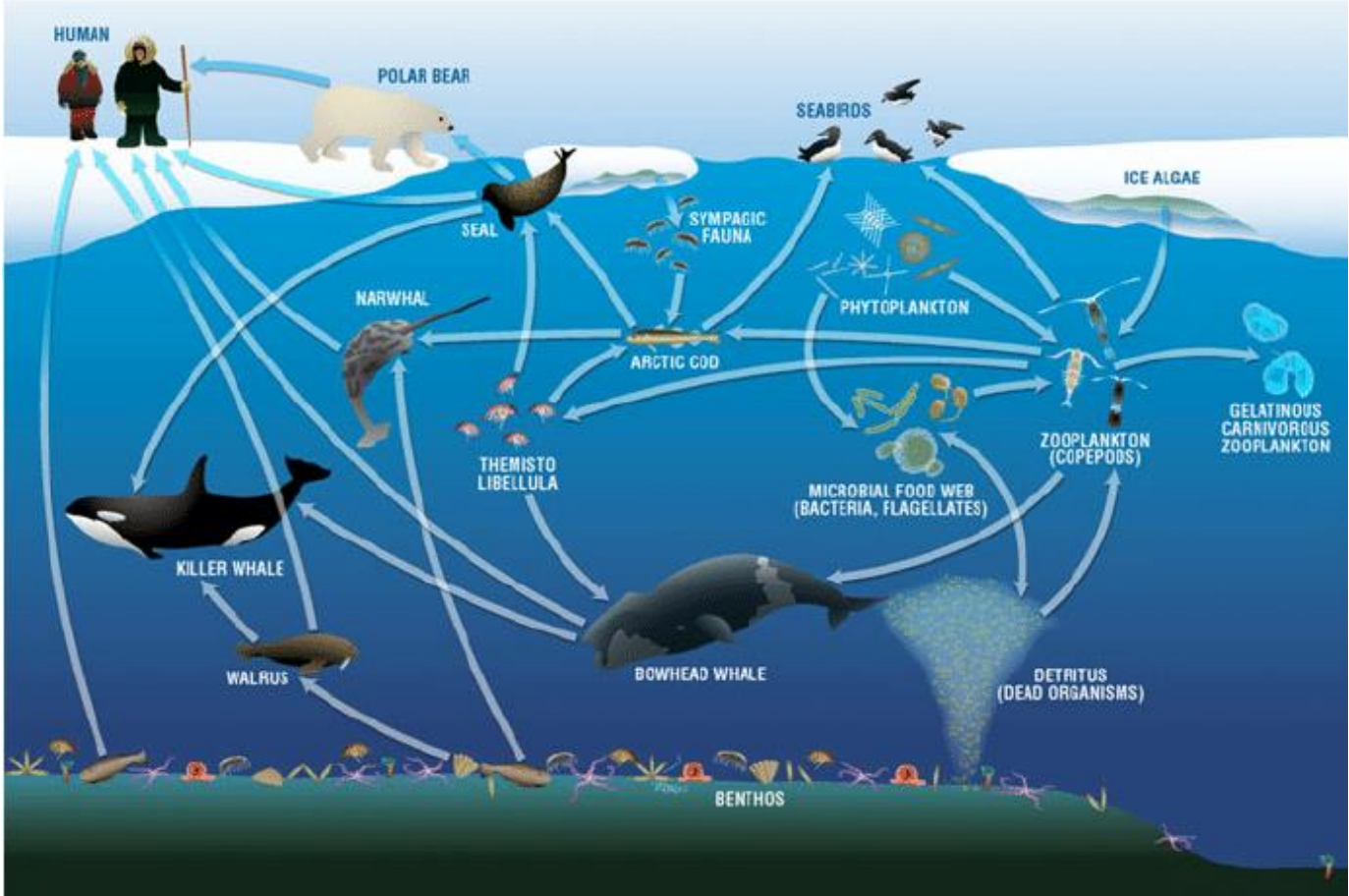
ARCTIC AND THE MARINE ENVIRONMENT

*Workshop on Governance of the Arctic in
Times of Geopolitical Uncertainty*

Nilufer Oral

Centre for International La-NUS

26 September 2023





Arctic Council and PAME

- [PAME](#) is one of six [Arctic Council](#) working groups, focuses on the marine agenda of the Arctic Council
- [PAME](#) consists of representatives from the eight Arctic Council States: Canada, Kingdom of Denmark, Finland, Iceland, Norway, Russian Federation, Sweden and United States (responsible for its work in their respective countries) and representatives of [Permanent Participants](#) organizations on behalf of Arctic indigenous peoples.
- Other Arctic subsidiary bodies, accredited observers and other Arctic stakeholders contribute to the ongoing work of PAME, as relevant. The working group generally meets twice a year to assess progress and advance its work in addition to other meetings, workshops and intersessional work.

ARCTIC COUNCIL AND PAME

- Five broad themes
 - Arctic shipping
 - Marine Protected Areas
 - Resource Exploration and Development
 - Ecosystem Approach to Management and
 - Arctic Marine pollution
- The work plan is developed according to the Arctic Council's Arctic Marine Strategic Plan 2015-2025 (AMSP)

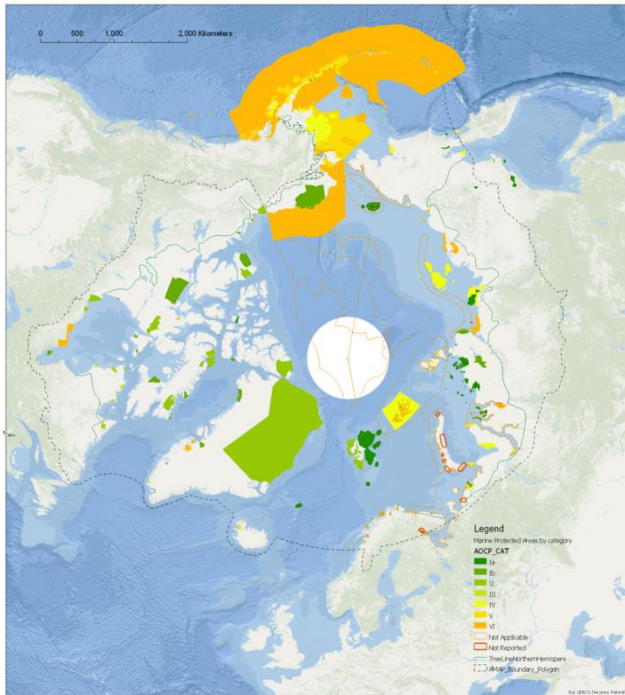
MARINE STRATEGIC PLAN 2015-2025 (AMSP)

- The goals of the 2015-2025 Arctic Marine Strategic Plan are to:
- Goal 1: Improve knowledge of the Arctic marine environment, and continue to monitor and assess current and future impacts on Arctic marine ecosystems.
- Goal 2: Conserve and protect ecosystem function and marine biodiversity to enhance resilience and the provision of ecosystem services.
- Goal 3: Promote safe and sustainable use of the marine environment, taking into account cumulative environmental impacts.
- Goal 4: Enhance the economic, social and cultural well-being of Arctic inhabitants, including Arctic indigenous peoples and strengthen their capacity to adapt to changes in the Arctic marine environment.
- **Climate change including ocean acidification is included**

SHIPPING IN THE ARCTIC

- According to PAME: Between 2013 and 2019, the number of ships entering the Arctic—as defined by the International Maritime Organization’s International Code for Ships Operating in Polar Waters, or the Polar Code—**increased by 25 percent**, from 1,298 ships to 1,628 ships. The **total distance** sailed by ships in the Arctic during this period increased by **75 percent**, from 6.5 million nautical miles to 10.7 million nautical miles.
- The mandatory IMO **Polar Code**, for ships operating in Arctic and Antarctic waters, entered into force on 1 January 2017

MARINE PROTECTED AREAS IN THE ARCTIC (PAME)



- Arctic covers a number of seas under national jurisdictions as well as areas beyond national jurisdictions (high seas).
- High sea MPAs, known as Vulnerable Marine Ecosystems (VMEs), have been established by Regional Fisheries Management Organisations (RFMOs)
- Framework for a Pan-Arctic Network of Marine Protected Areas (2015) (PAME)

MARINE PLASTIC (PAME)

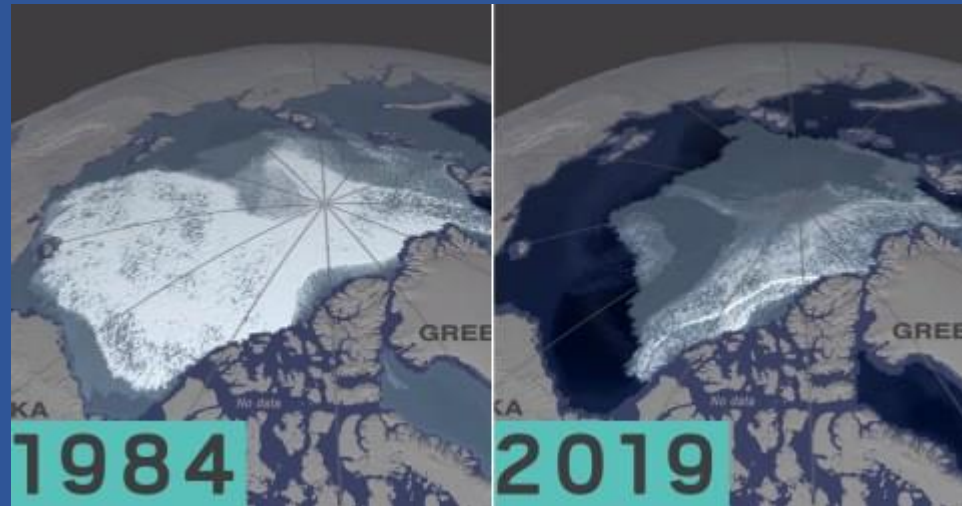
- 2019-2021 under Chair of [Iceland](#) Arctic plastic pollution and marine litter was a priority in the work of the Arctic Council
- Developing a Regional Action Plan for Plastics in the Arctic and Plastics monitoring tool box
- (Arctic Council PAME website)



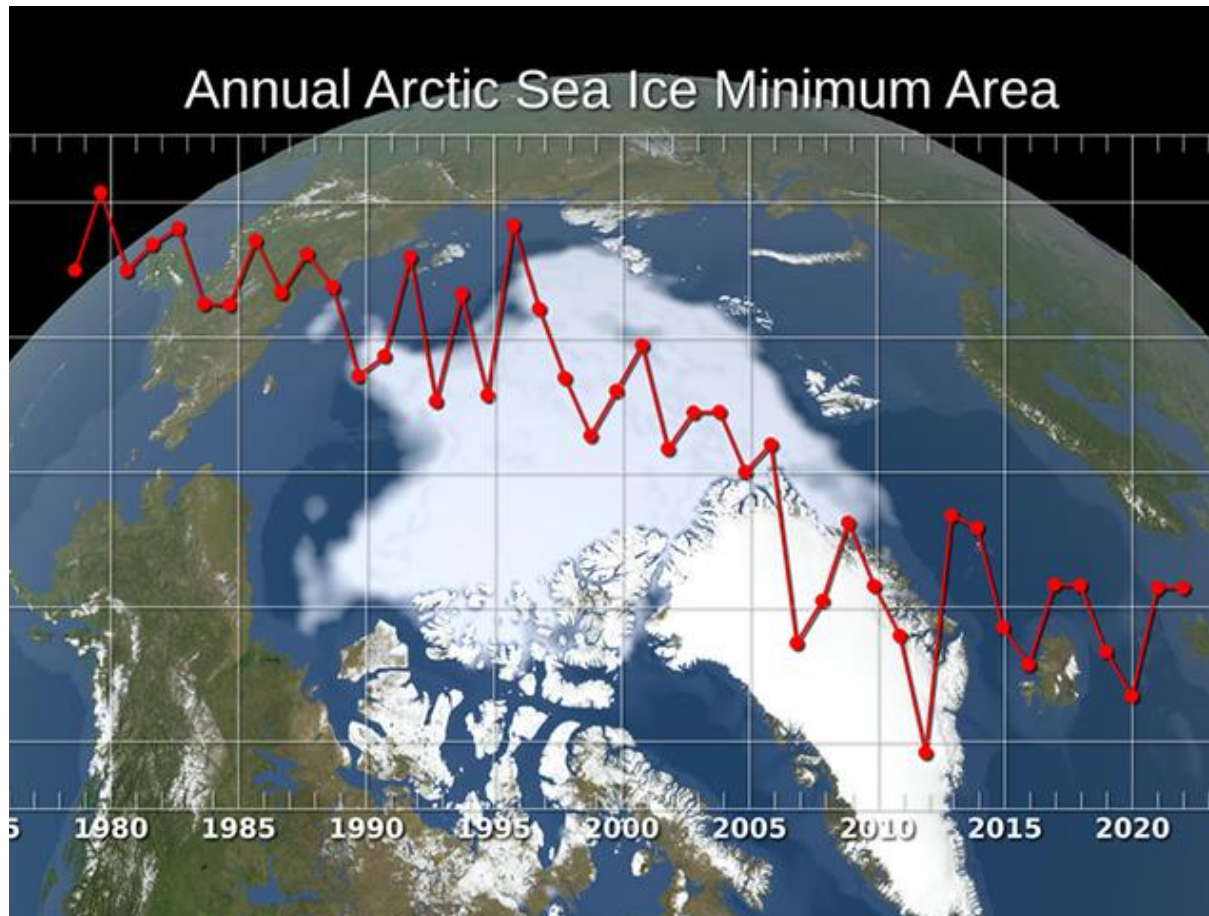
ARCTIC COASTAL MINING (PAME)

- **Long history of Arctic coastal mining.**
- **Historically, most of these mines discharged their waste rock and tailings into the ocean. The practice of depositing waste rock and tailings from mines into the ocean as well as discharging mining wastewater has the potential to affect the marine environment**
- **Only at project stage to develop a waste management plan**
- (Arctic Council PAME website)

CLIMATE CHANGE AND THE ARCTIC



Annual Arctic Sea Ice Minimum Area



IPCC Special Report on the Ocean and Cryosphere in a Changing Climate 2019

- Arctic surface air temperature has likely increased by **more than double the global average** over the last two decades, with feedbacks from loss of sea ice and snow cover contributing to the amplified warming. (PAME report 3x faster; and the Arctic Monitoring and Assessment Programme (AMAP))
- Arctic sea ice extent continues to decline in all months of the year (very high confidence); the strongest reductions in September (very likely $-12.8 \pm 2.3\%$ per decade; 1979–2018) are **unprecedented in at least 1000 years** (medium confidence).
- Shipping activity during the Arctic summer **increased over the past two decades** in regions for which there is information, concurrent with reductions in sea ice extent (high confidence).
- Future climate-induced changes in the polar oceans, sea ice, snow and permafrost will **drive habitat and biome shifts**, with associated changes in the ranges and abundance of ecologically important species (medium confidence).

IPCC Special Report on the Ocean and Cryosphere in a Changing Climate 2019

- The projected effects of climate-induced stressors on polar marine ecosystems present risks for commercial and subsistence fisheries with implications for regional economies, cultures and the global supply of fish, shellfish, and Antarctic krill (high confidence).
- Future impacts for linked human systems depend on the level of mitigation and especially the responsiveness of precautionary management approaches (medium confidence).

Impacts of Climate Change

- Arctic glaciers and ice caps represent some 25 per cent of the world's land ice area and meltwater from them accounts for 35 per cent of the current global **sea-level rise** (WWF)
- Up to five metres of coastline are disappearing every year in some areas of Alaska (WWF)
- Indigenous people and food security
 - Changes in sea ice, precipitation, snow cover, temperatures and tundra productivity are affecting the availability of traditional foods, such as whales, walrus, seabirds, seals, caribou and even berries. In some areas, tundra greening is changing the ranges of the wildlife species that are important to hunters. In many Arctic regions, alternatives to traditional, locally sourced foods are unaffordable. (WWF)

ARCTIC CLIMATE CHANGE UPDATE 2021: KEY TRENDS AND IMPACTS (AMAP)

- 1. The physical drivers of Arctic change continue to change rapidly Key indicators such as temperature, precipitation, snow cover, sea-ice thickness and extent, and permafrost thaw show rapid and widespread changes under way in the Arctic.
- An important update is that the increase in Arctic annual mean surface temperature (land and ocean) between 1971 and 2019 was **three times higher than the increase in the global average** during the same period. This is higher than reported in previous AMAP assessments.

ARCTIC CLIMATE CHANGE UPDATE 2021: KEY TRENDS AND IMPACTS (AMAP)

- 2 Extreme events in the Arctic are changing in frequency and intensity
The Arctic is experiencing an increase in extreme events.
- New findings include recent increases in the frequency and/or intensity of rapid sea-ice loss events, melt events on the Greenland Ice Sheet, and wildfires.
- There has been an increase in extreme high temperatures and a decline in extreme cold events. Cold spells lasting more than 15 days have almost completely disappeared from the Arctic since 2000.

ARCTIC CLIMATE CHANGE UPDATE 2021: KEY TRENDS AND IMPACTS (AMAP)

- 4 Arctic ecosystems are experiencing rapid, transformational changes. The rapidly changing cryosphere is affecting ecosystems throughout the Arctic, changing the productivity, seasonality, distribution, and interactions of species in terrestrial, coastal, and marine ecosystems. Changes in sea-ice type, extent, and seasonality, and snow cover on land and sea ice; and the rapid loss of perennial ice and the Greenland Ice Sheet are causing fundamental changes in ecosystems that affect the cycling of carbon and greenhouse gases. Unique ecosystems, such as those associated with multi-year sea ice or millennia-old ice shelves, are at risk and some are vanishing.