THIS REPORT EXPLORES CURRENT SHIPPING IN THE ARCTIC

But, where is the Arctic?

Neither PAME nor the Arctic Council have established a single use definition of the Arctic

This report will use the area defined by the Polar Code.
This report uses the geographic definition of the Arctic contained in the International Code for Ships Operating in Polar Waters (Polar Code) - The Polar Code area.

The Polar Code defines Arctic waters as the area in the figure.

Most larger ships that operate in this area must comply with the Polar Code.
Arctic Ship Traffic Data

All data in this report is from PAME’s Arctic Ship Traffic Data (ASTD) System.

PAME’s Arctic Ship Traffic Data (ASTD) project has been developed in response to a growing need to collect and distribute accurate, reliable, and up-to-date information on shipping activities in the Arctic. The ASTD System was launched in February 2019. www.astd.is.
ARCTIC SHIPPING

PAME’s 2009 Arctic Marine Shipping Assessment (AMSA) Report identified four types of Arctic Shipping:

- Destinational transport, where a ship sails to the Arctic, performs some activity in the Arctic, and sails south.
- Intra-Arctic transport, a voyage or marine activity that stays within the general Arctic region and links two or more Arctic States.
- Trans-Arctic transport or navigation, voyages which are taken across the Arctic Ocean from Pacific to Atlantic Oceans or vice versa.
- Cabotage, to conduct trade or engage in marine transport in coastal waters between ports within an Arctic State.

Arctic shipping refers to all shipping activities within the area in question, unless otherwise stated.

EXAMPLES OF ROUTES FOR EACH TYPE OF ARCTIC SHIPPING

- Destinational
- Intra-Arctic
- Trans-Arctic
- Cabotage
The Polar Code covers the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters of the Arctic.
There are many ways to measure the volume of shipping in a given geographic area.

One way is to count the number of unique ships in a specific area.

This method counts each ship only once even if it enters the geographic area multiple times.
Number of unique ships entering the IMO Arctic Polar Code area in September in each year from 2013-2019. Statistics from ASTD.
Ship tracks of all ships of all ship types in September 2019.
Shipping in the Arctic has increased in recent years.

A majority of these vessels are fishing vessels.

In 2019 of all ships that entered the Polar Code area, 41% were fishing vessels.
ARCTIC POLAR CODE AREA 2019

UNIQUE SHIPS – CATEGORIZED BY SHIP TYPE

- Container ships: 6
- Ro-Ro cargo ships: 6
- Other service offshore vessels: 10
- Passenger ships: 17
- Gas tankers: 24
- Crude oil tankers: 26
- Offshore supply ships: 45
- Oil product tankers: 55
- Chemical tankers: 60
- Cruise ships: 73
- Refrigerated cargo ships: 81
- Bulk carriers: 106
- General cargo ships: 174
- Other activities: 274
- Fishing vessels: 671
FISHING VESSELS ARE DOMINANT

SHIP TYPES THAT FALL WITHIN “OTHER ACTIVITIES” INCLUDE ICEBREAKERS AND RESEARCH VESSELS
ANOTHER WAY TO MEASURE THE INCREASE IN ARCTIC SHIPPING IS "DISTANCE SAILED"

Distance sailed is the aggregated nautical miles vessels traveled in a certain period of time in a certain area.

75%

The total distance sailed by all vessels increased by 75% in the Arctic Polar Code area from 2013 to 2019.
DISTANCE SAILED
ARCTIC POLAR CODE AREA
INCREASE FROM 2013 - 2019

INCREASE FROM 2013 - 2019

2013: 6.1 million
2014: 7.2 million (18% increase)
2015: 7.8 million (9% increase)
2016: 9 million (14% increase)
2017: 9.4 million (5% increase)
2018: 9.6 million (1% increase)
2019: 10.7 million (12% increase)

75% INCREASE
The total 2013 distance sailed by all vessels was approximately 6.51 million nautical miles.

In 2019, the total aggregated distance sailed had risen to over 10.7 million nautical miles.

As with unique ships - fishing vessels are dominant.
The increase in shipping coincides with diminishing sea ice in the Arctic.

**DEMINISHING SEA ICE**

Median ice edge 1981-2010

The images show the month of September each year. Images from the National and Snow Ice Data Center.

1999: 6.1 million sq km
2009: 5.3 million sq km
2019: 4.3 million sq km
This graph from the U.S. National Snow And Ice Data Center (NSIDC) shows the Arctic sea ice extent in September.

The graph shows that over the last 10 years, average Arctic sea ice extent is decreasing.
NATURAL RESOURCE EXTRACTION IS ONE ACTIVITY CONTRIBUTING TO AN INCREASE IN ARCTIC SHIPPING

The following example shows an area within the Arctic Polar Code Area - experiencing increased activity from iron ore extraction.
Bulk carriers transport cargoes in large quantities, like food grains, ores, coal, and cement.
BULK CARRIER TRAFFIC IN 2013 IN THE POLAR CODE AREA WAS VERY LOW. BY 2019, IT HAD INCREASED SUBSTANTIALLY.

In 2014, one of the most northern mines in the world opened. It is among the richest iron ore deposits ever discovered. The Mary River Project involves the seasonal shipping of 3,5 million tonnes of iron ore during open water season.
The distance sailed by bulk carriers in the Arctic Polar Code area has risen 160% between 2013 and 2019.
ALL OTHER VESSEL TYPES SHOW A SIMILAR UPWARD TREND

PAME WILL CONTINUE TO MONITOR TRENDS WITH ASTD

THE DATA CAN SUPPORT THE DEVELOPMENT OF RECOMMENDATIONS TO ENHANCE ARCTIC MARINE SAFETY AND SUPPORT PROTECTION OF PEOPLE AND THE ENVIRONMENT
ABOUT THIS REPORT

This is the first report generated by PAME’s Arctic Ship Status Report (ASSR) Project. The goal of the ASSR Project is to use PAME’s Arctic Ship Traffic Data (ASTD) System to highlight topical issues related to shipping in the Arctic. Launched in 2019, the ASTD System is PAME’s database for Arctic shipping activities.

More on www.astd.is.

All use of this report is allowed. Please cite PAME – Arctic Shipping Status Report #1 and provide a link to this report.

The project gratefully acknowledges funding from the Nordic Council of Ministers.

Sources:
- ASTD – Arctic Ship Traffic Data
- IMO: Shipping in polar waters
- National Snow and Ice Data Center (NSIDC) – Sea Ice
- Baffinland: Mary River Mine