



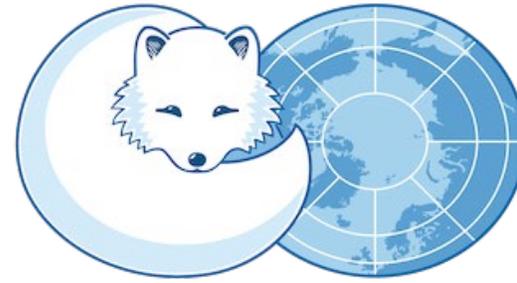
PAME
Protection of the Arctic Marine Environment

THE INCREASE IN ARCTIC SHIPPING

2013-2019

ARCTIC SHIPPING STATUS REPORT (ASSR) #1

March 31, 2020



This report compares shipping in the Arctic in 2013 and 2019.

But, where is the Arctic?

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



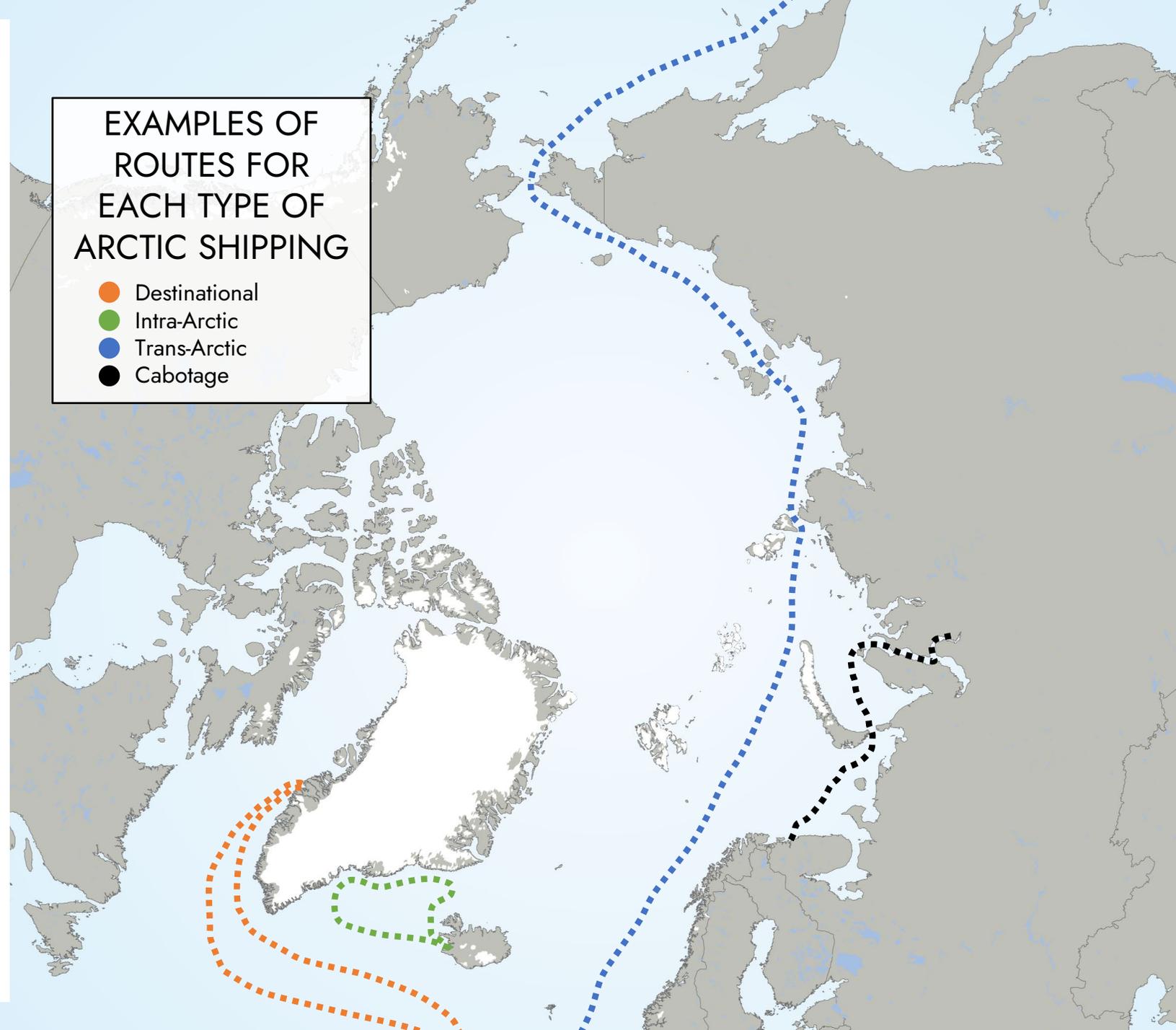
ARCTIC SHIPPING

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.

PAME: AMSA 2009 Report. Page 12.

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



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) System 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.asted.is.



POLAR Code

INTERNATIONAL CODE
FOR SHIPS OPERATING IN POLAR WATERS

2016 EDITION



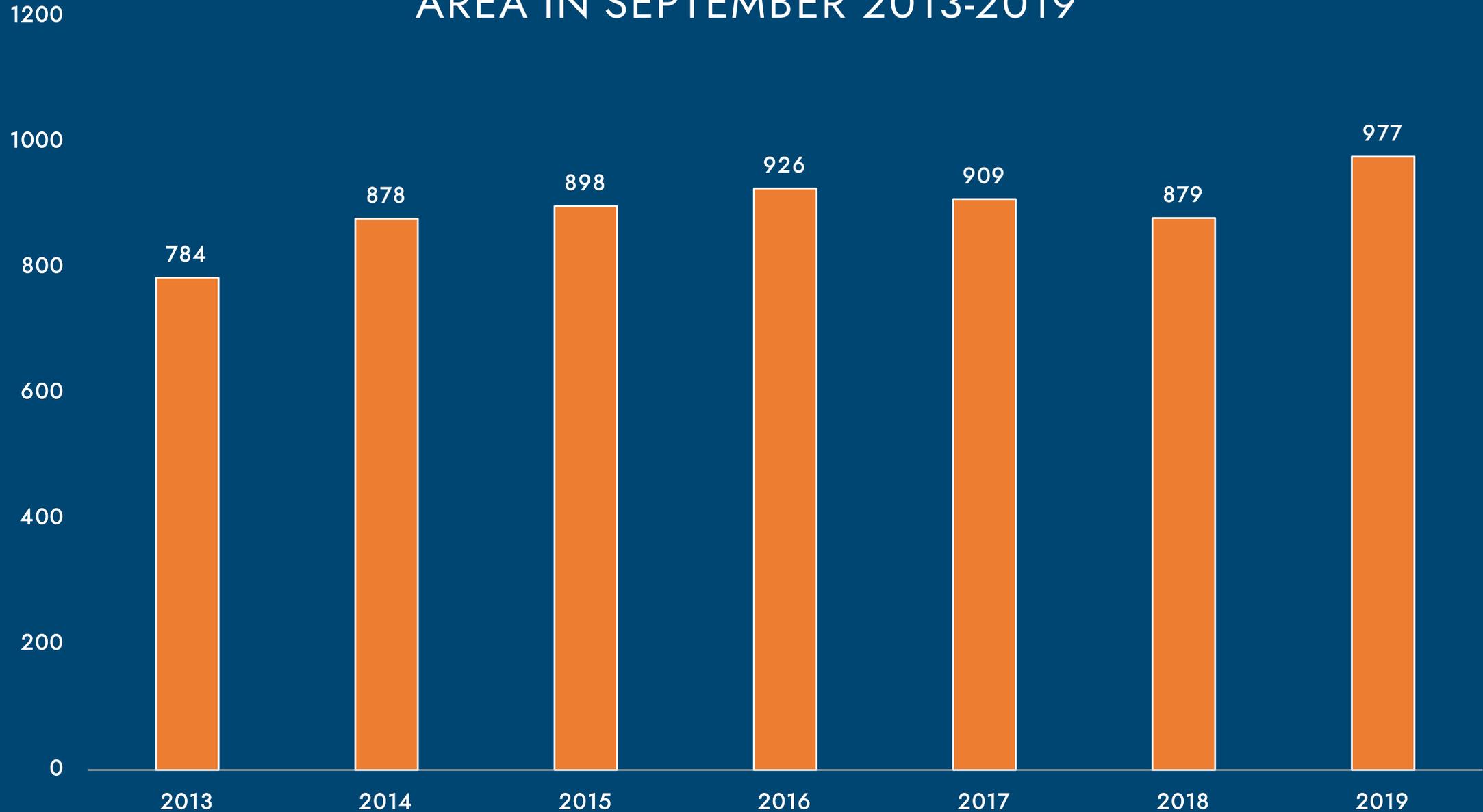
The Polar Code covers the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters of the Arctic.

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 POLAR CODE AREA IN SEPTEMBER 2013-2019

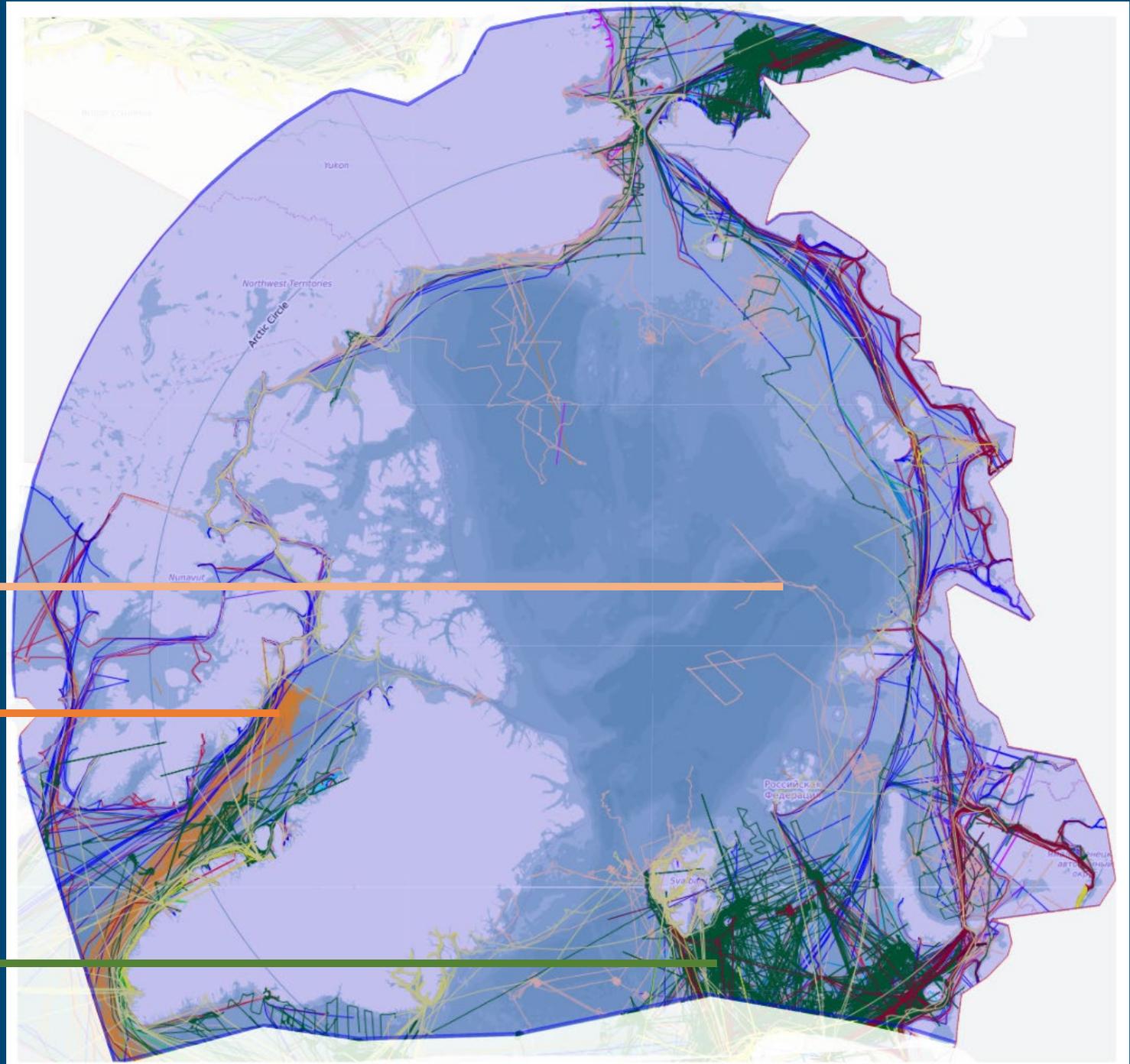


Ship tracks of all ship types in September 2019.

Research vessels

Bulk vessels

Fishing vessels



Shipping in the Arctic has increased in recent years:



More of these
were fishing
vessels than
any other type.

In 2019

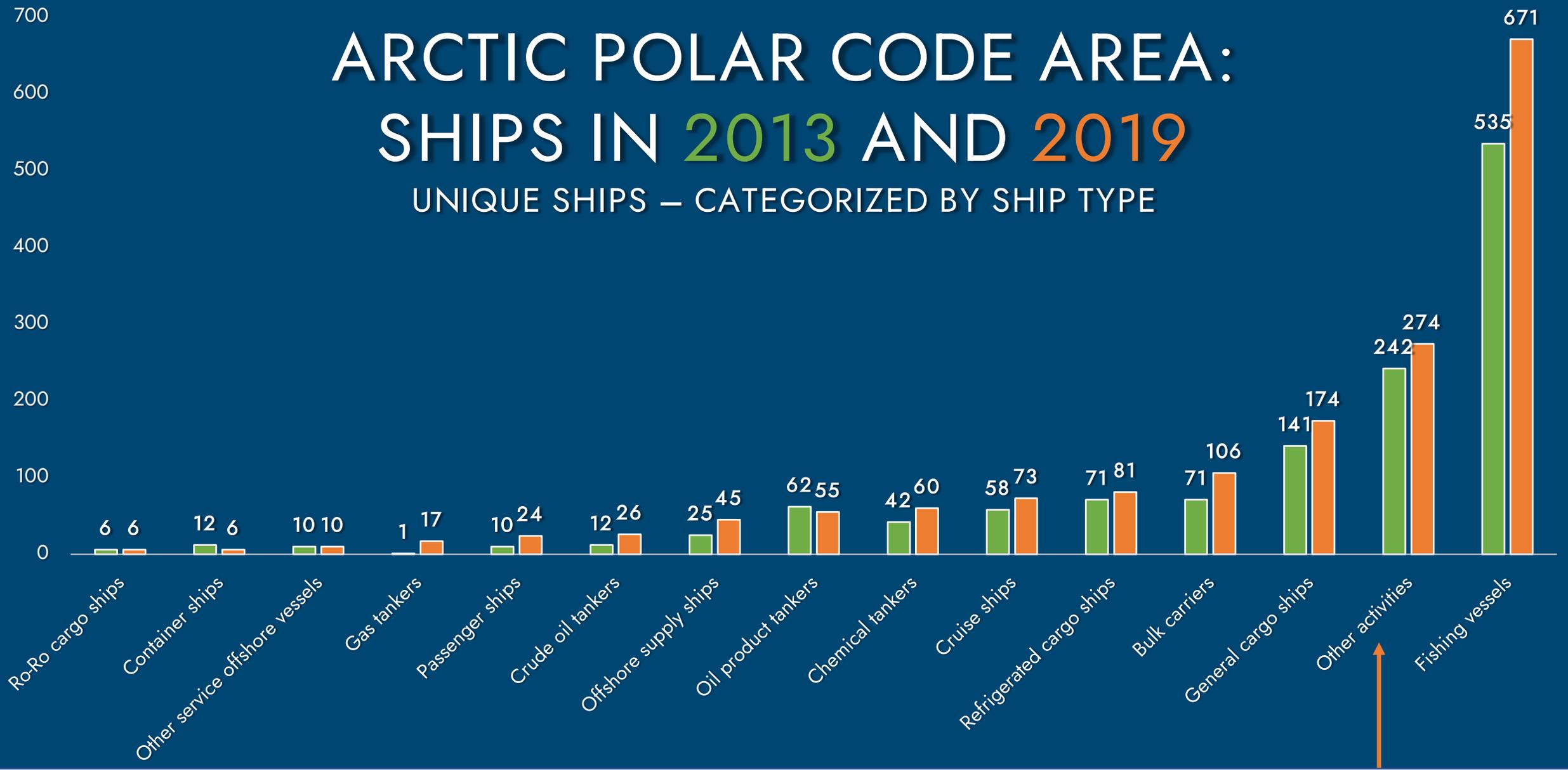
41%

of all ships
that entered the
Arctic Polar Code area
were fishing vessels.



ARCTIC POLAR CODE AREA: SHIPS IN 2013 AND 2019

UNIQUE SHIPS – CATEGORIZED BY SHIP TYPE

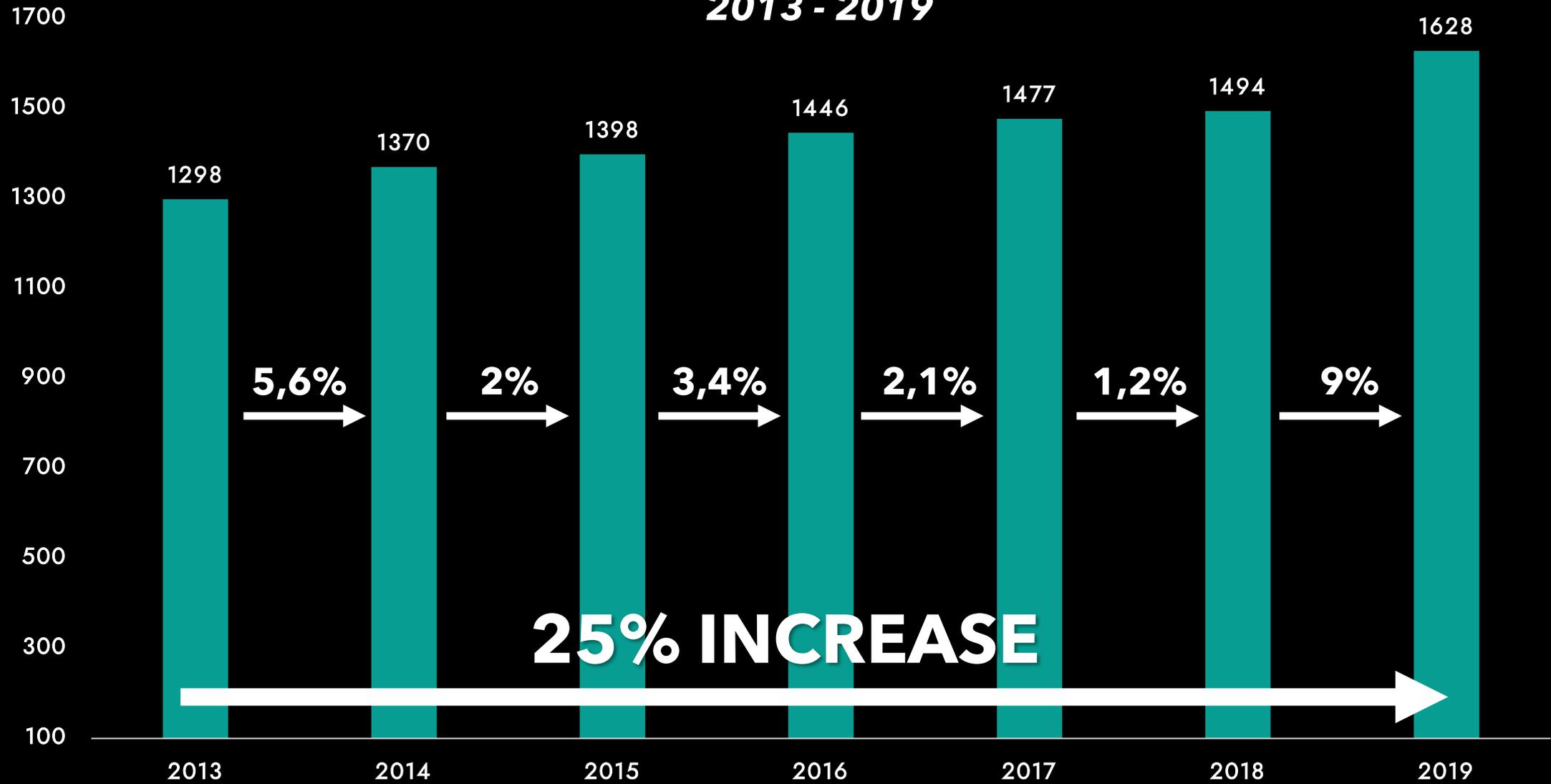


SHIP TYPES THAT FALL WITHIN "OTHER ACTIVITIES" INCLUDE ICEBREAKERS AND RESEARCH VESSELS

UNIQUE SHIPS

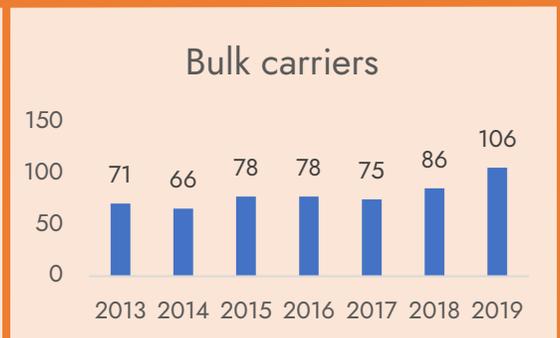
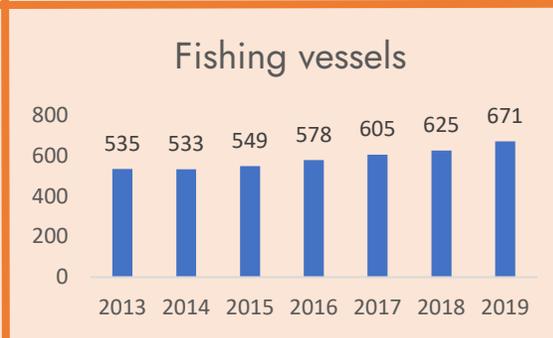
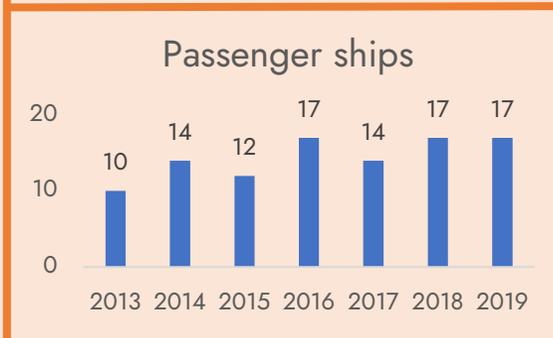
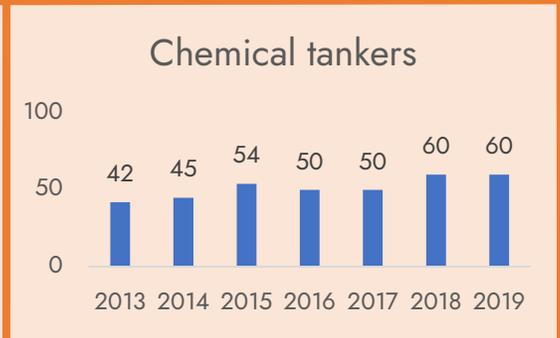
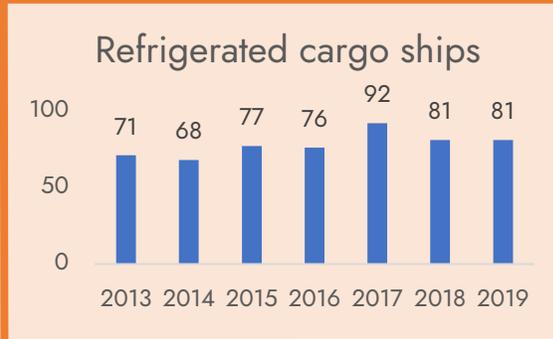
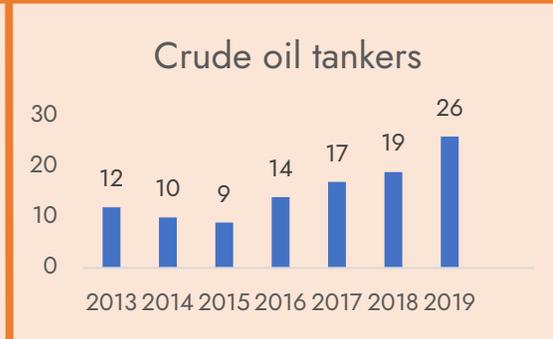
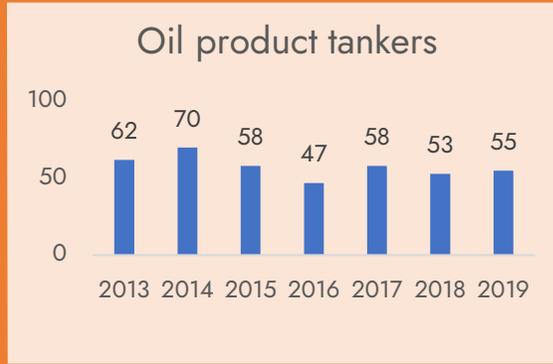
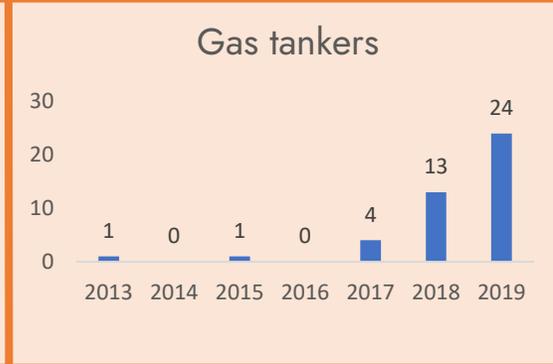
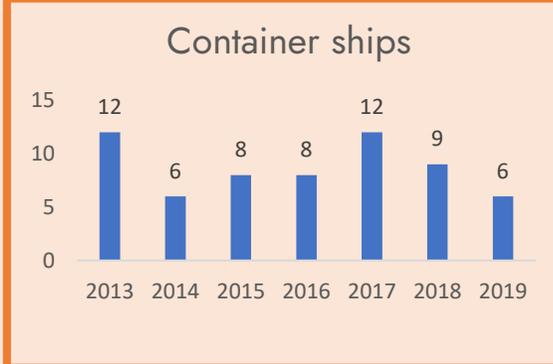
ARCTIC POLAR CODE AREA

2013 - 2019



25% INCREASE

NUMBER OF UNIQUE SHIPS IN THE POLAR CODE AREA 2013-2019 BY SHIP TYPE



**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.**

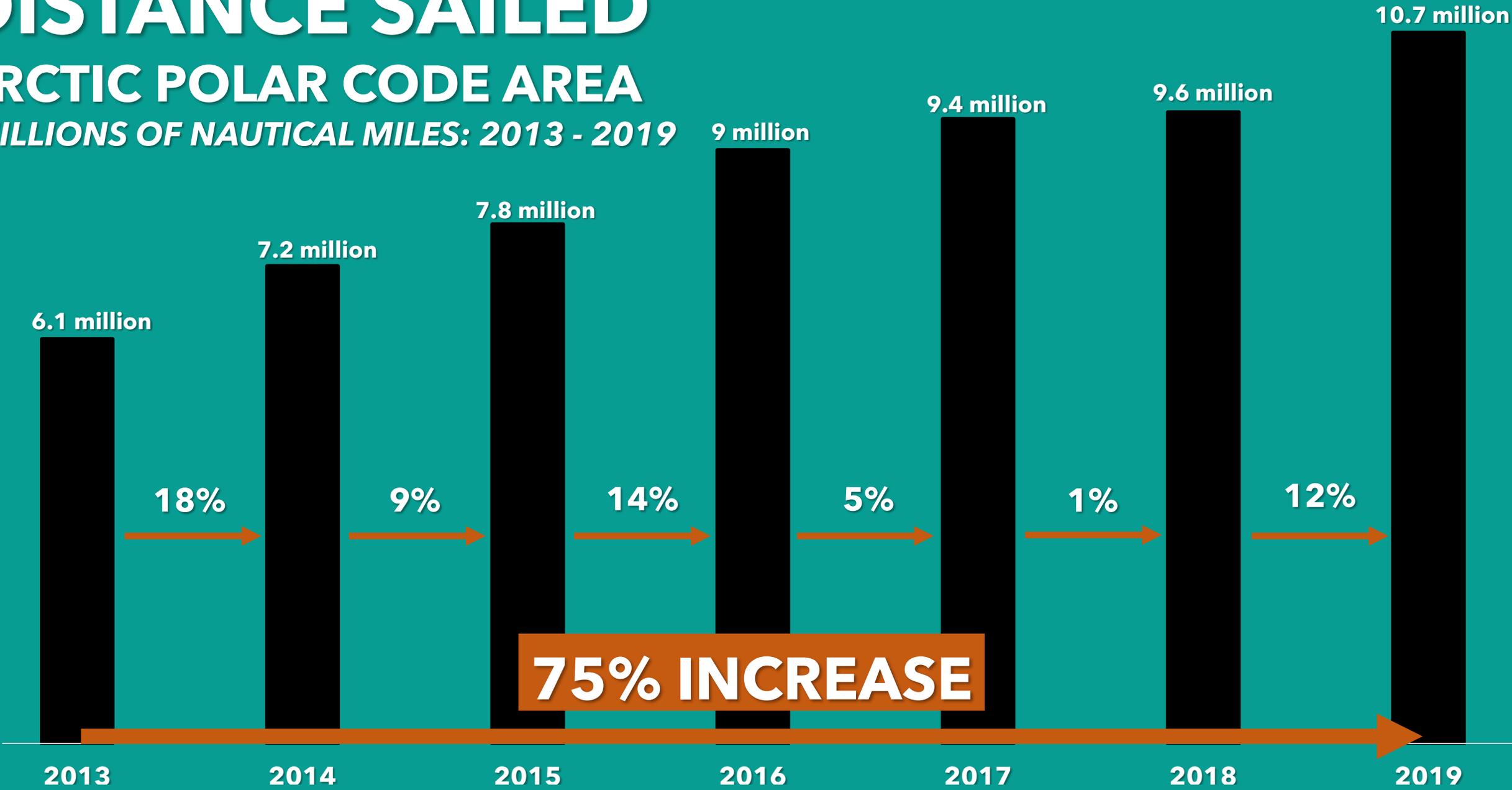
75%

***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

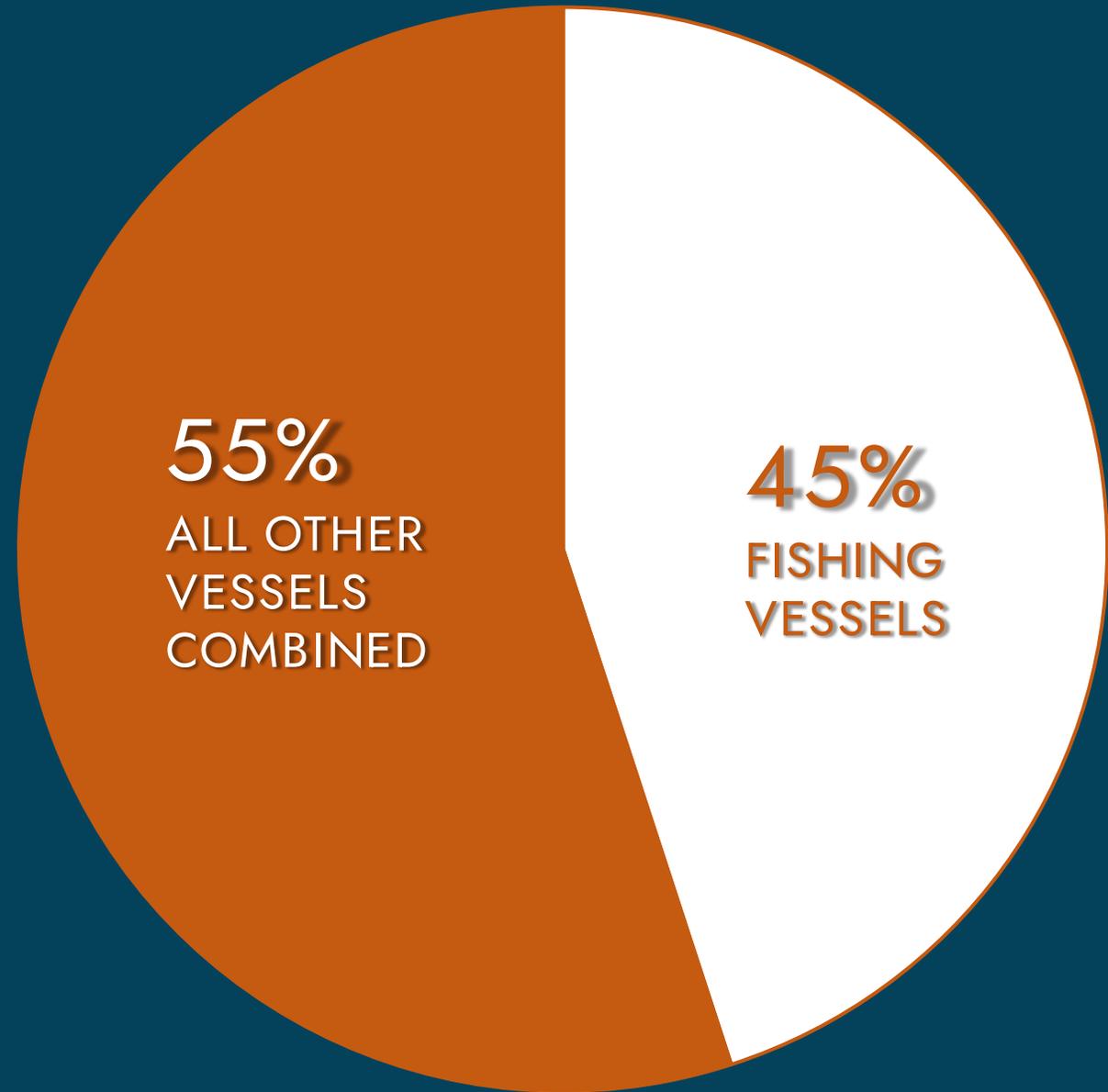
MILLIONS OF NAUTICAL MILES: 2013 - 2019



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.

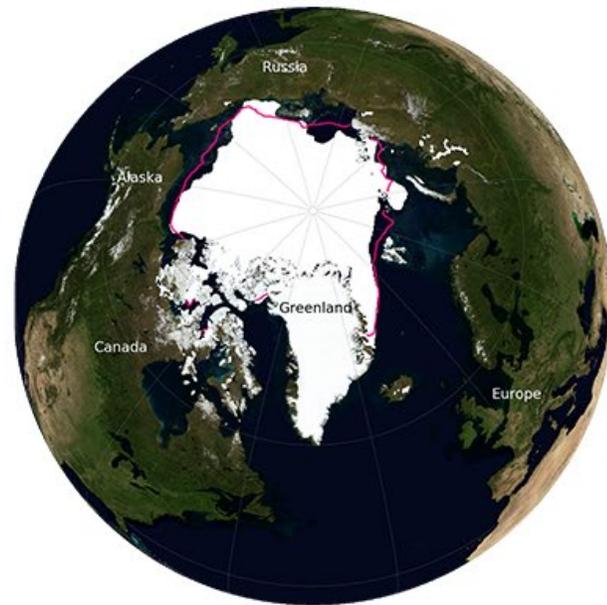
As with unique ships, fishing vessels are dominant.



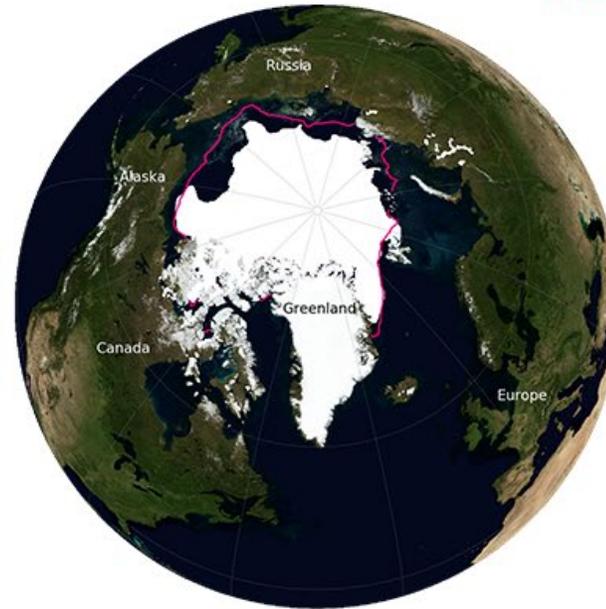
SAILED DISTANCE - ARCTIC
POLAR CODE AREA 2019

THE INCREASE IN SHIPPING COINCIDES WITH DIMINISHING SEA ICE IN THE ARCTIC

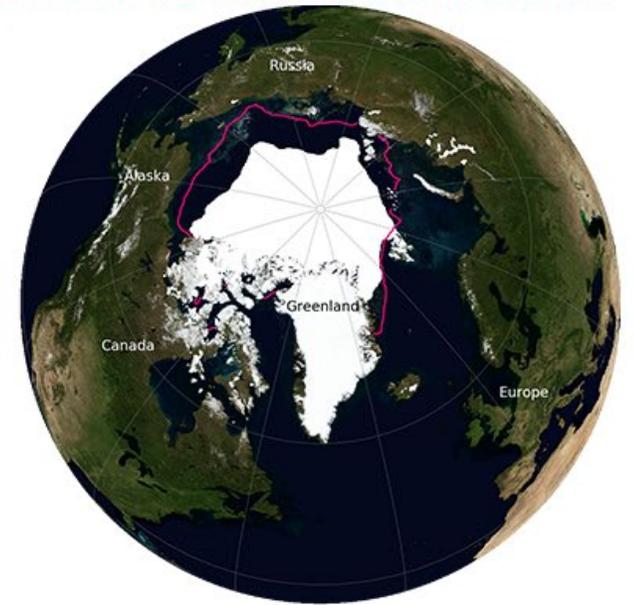
DIMINISHING **SEA ICE** MEDIAN ICE EDGE 1981-2010



1999
6.1 million sq. km



2009
5.3 million sq. km



2019
4.3 million sq. km

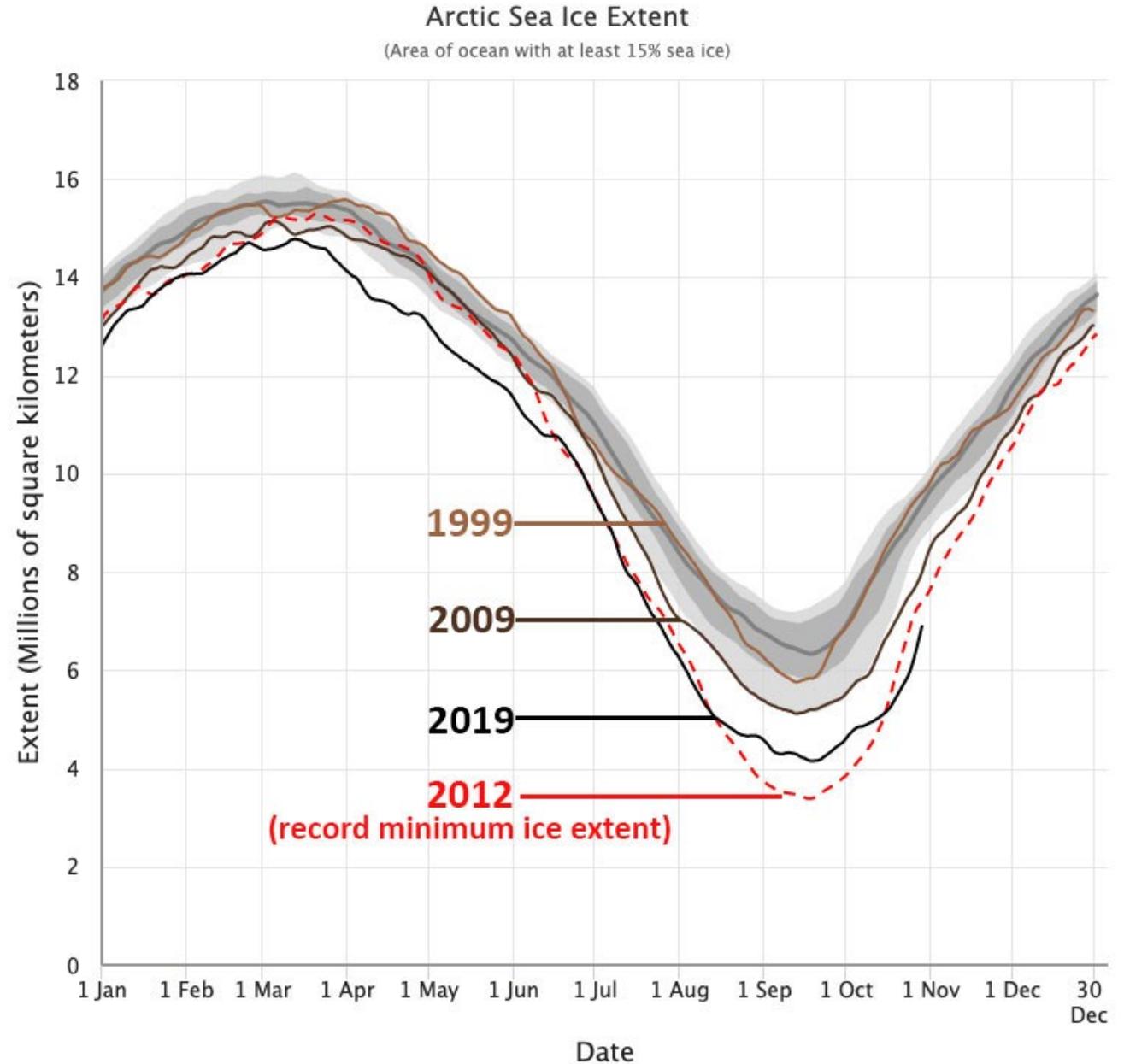
The images show the month of September each year. Images from the National Snow and Ice Data Center.

ARCTIC SEA ICE EXTENT

(Area of ocean with at least 15% sea ice)

This graph from the US 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.



US National Snow and Ice Data Center (NSIDC)

Natural resource extraction is one activity contributing to an **increase in Arctic shipping.**

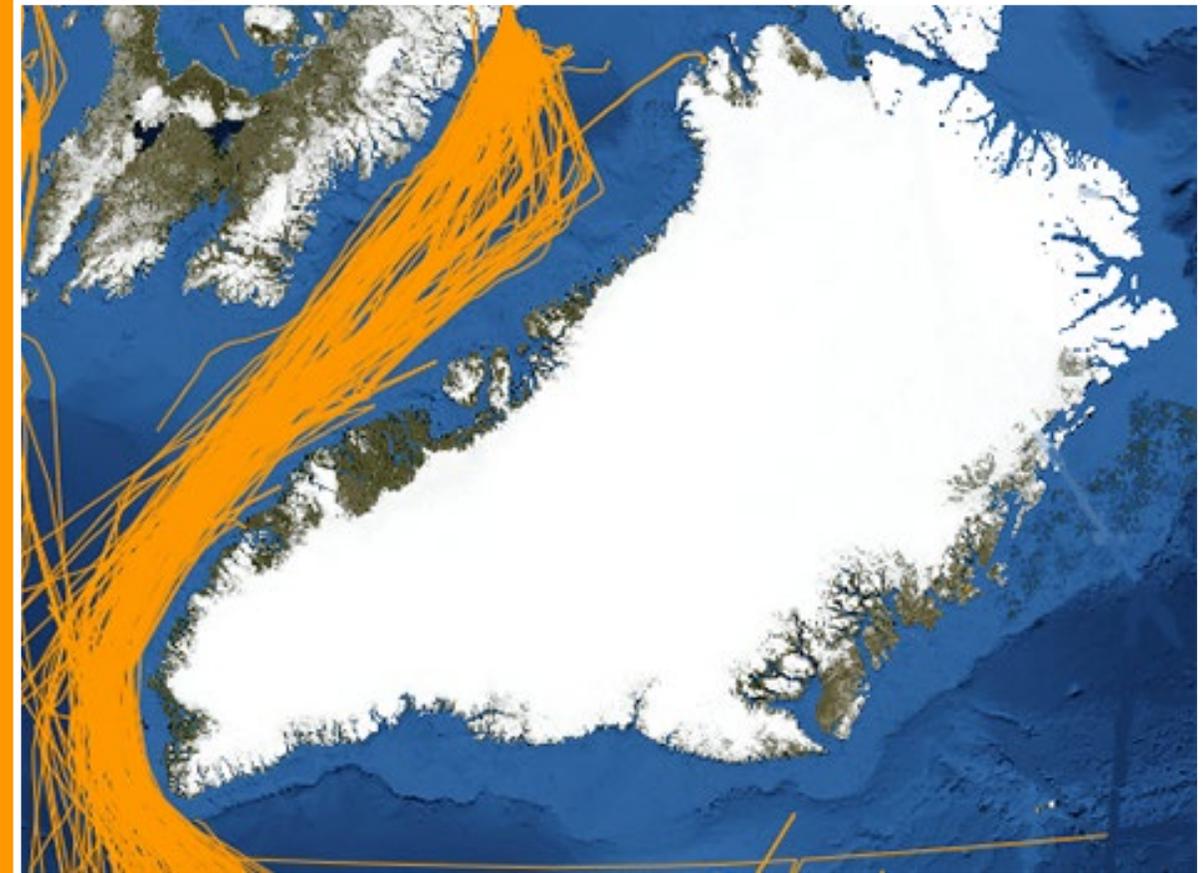
*The following example shows an area within the **Arctic Polar Code Area** experiencing increased activity from iron ore extraction.*

BULK CARRIER TRAFFIC

to and from the
Mary River Mine

*Bulk carriers transport cargoes
in large quantities, like food grains,
ores, coal, and cement.*

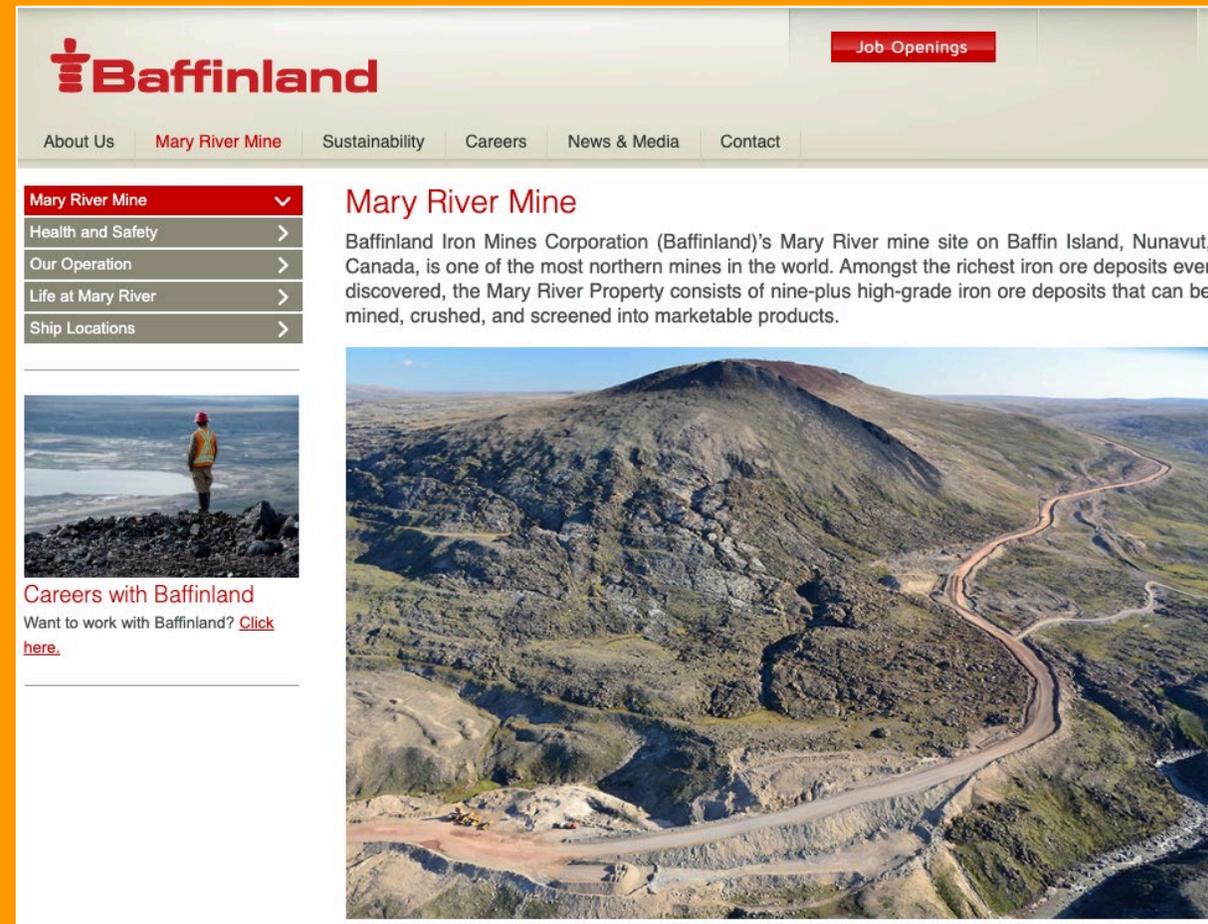
2013 2019



Greenland

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.

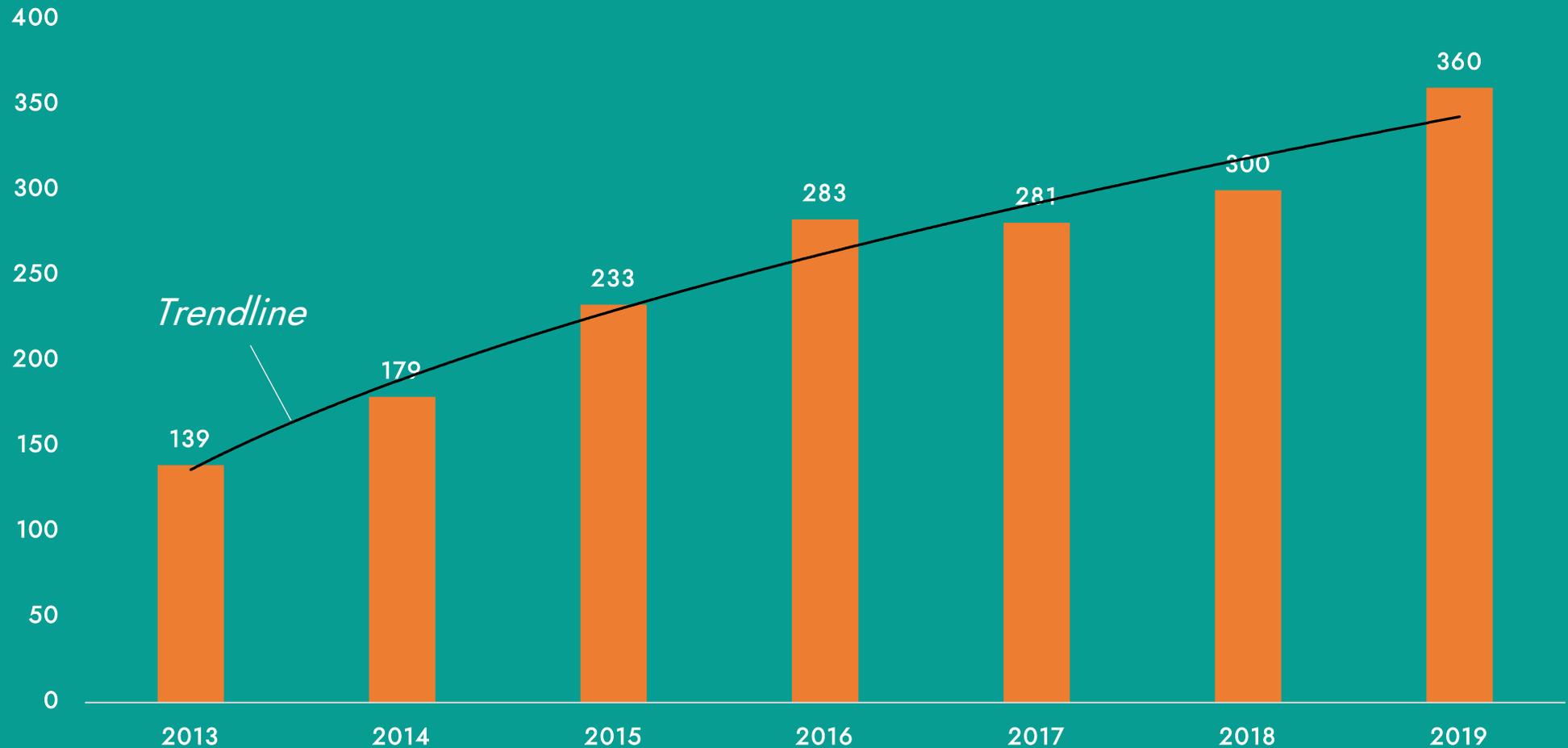


The screenshot shows the Baffinland website interface. At the top left is the Baffinland logo. To the right is a red button labeled "Job Openings". Below the logo is a navigation menu with links for "About Us", "Mary River Mine", "Sustainability", "Careers", "News & Media", and "Contact". The "Mary River Mine" link is highlighted in red. A dropdown menu is open under "Mary River Mine", listing "Health and Safety", "Our Operation", "Life at Mary River", and "Ship Locations", each with a right-pointing arrow. To the right of the dropdown is a section titled "Mary River Mine" with a paragraph of text: "Baffinland Iron Mines Corporation (Baffinland)'s Mary River mine site on Baffin Island, Nunavut, Canada, is one of the most northern mines in the world. Amongst the richest iron ore deposits ever discovered, the Mary River Property consists of nine-plus high-grade iron ore deposits that can be mined, crushed, and screened into marketable products." Below this text is a large aerial photograph of the mine site, showing a winding road and a large body of water. To the left of the main image is a smaller photo of a person in a hard hat and safety vest standing on a rocky outcrop. Below the smaller photo is a section titled "Careers with Baffinland" with the text "Want to work with Baffinland? [Click here.](#)"

BULK CARRIERS IN THE POLAR CODE AREA

The distance sailed by bulk carriers in the Arctic Polar Code Area has risen 160% between 2013 and 2019

The distance is aggregated for all bulk carriers and calculated in thousands of nautical miles.



ALL OTHER VESSEL TYPES SHOW A SIMILAR UPWARD TREND

PAME WILL CONTINUE TO
MONITOR SHIP TRAFFIC
TRENDS.

ASTD 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 as [PAME – Arctic Shipping Status Report #1](#) and provide a hyperlink to this report.

Due to data updates and slight differences in analytical methodologies, the overall number of ships may differ slightly from ASSR to ASSR.

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



Substantive revisions made in March 2022.

Sources:

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