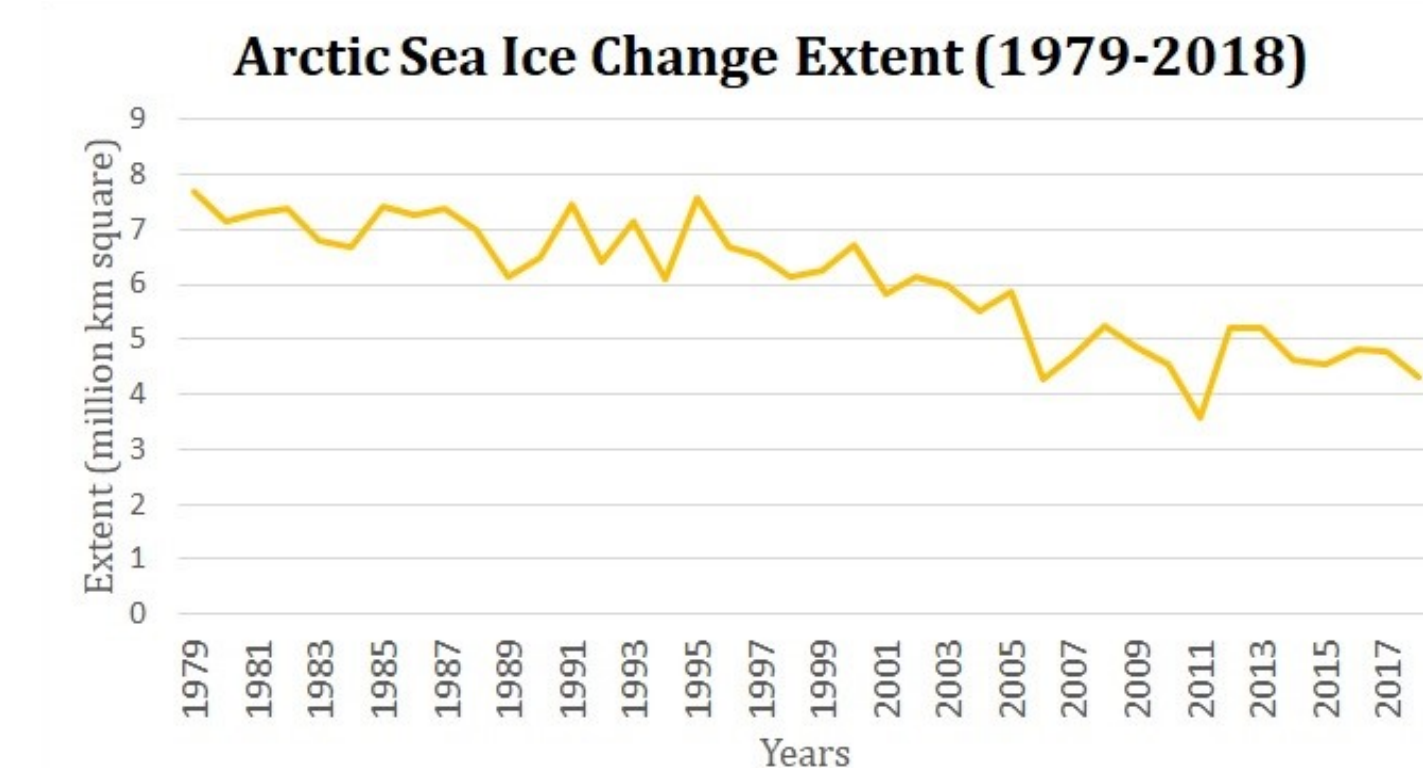


Frozen Turbulence

Areas at Risk of Potential Conflict in the Arctic

Introduction

Rising global temperatures are causing frozen Arctic ocean to melt, at the rate of 12.53% per decade (according to National Sea and Ice Data Center statistics) opening up new sea routes and opportunities to extract hydrocarbons and minerals. Arctic has abundant reserves of crude oil and natural gas. With melting Sea Ice, Arctic has become a region of growing strategic and economic importance. The implications of these changes can lead to increased conflict in the region as countries look to extend their claim on natural resources and sea routes. The Arctic is the only place on Earth where a number of different countries encircle an enclosed ocean. There are six countries with coastal territory within the Arctic Circle: The United States (via Alaska), Canada, Russia, Denmark (via Greenland), Norway, and Iceland. According to the 1982 UN Convention on the Law of the Sea (UNCLOS) each Arctic state have Exclusive Economic Zone (EEZ) extending 200 nautical miles from their coastlines, in which they can explore and exploit resources in the region.



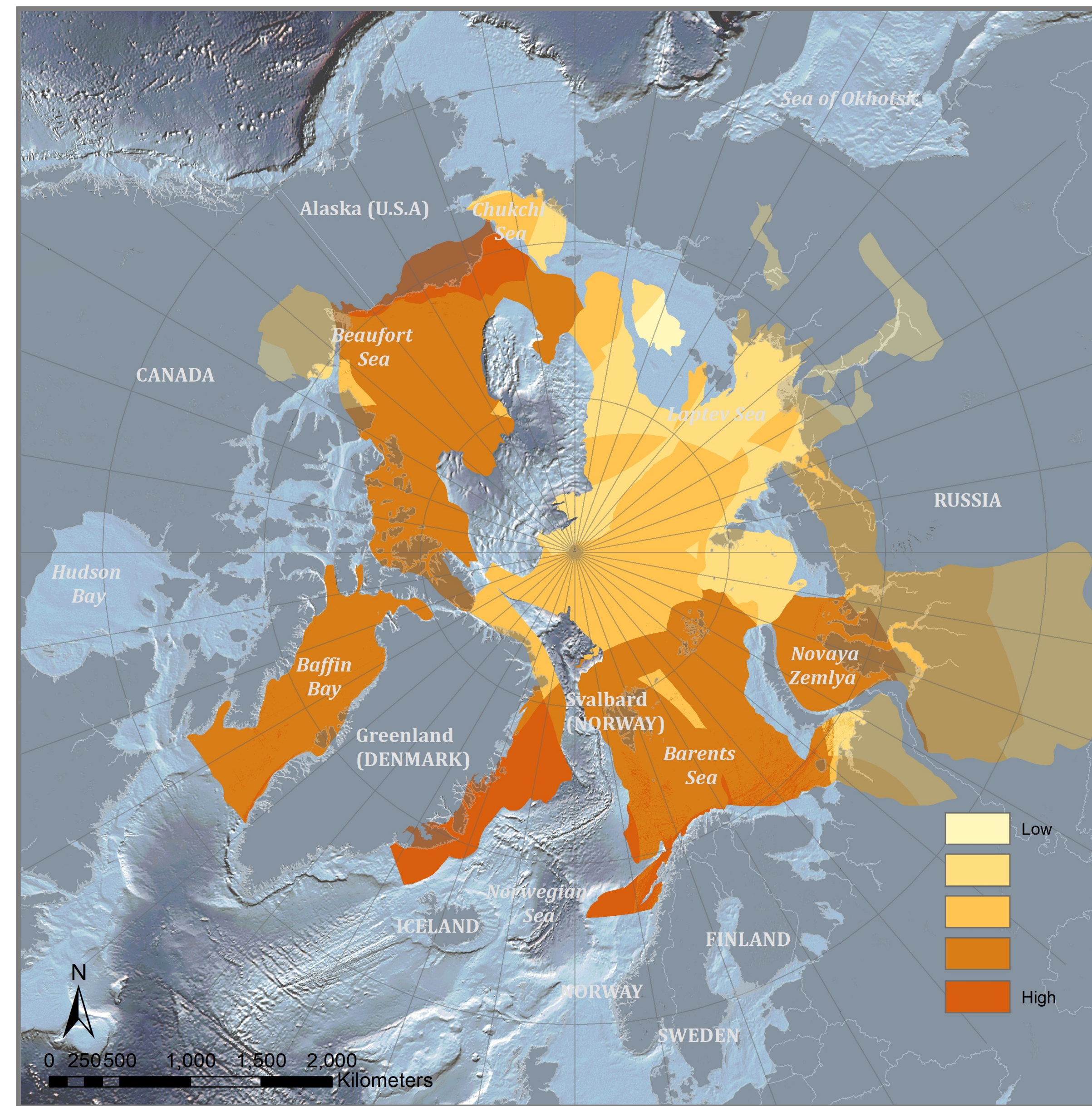
region of growing strategic and economic importance. The implications of these changes can lead to increased conflict in the region as countries look to extend their claim on natural resources and sea routes. The Arctic is the only place on Earth where a number of different countries encircle an enclosed ocean. There are six countries with coastal territory within the Arctic Circle: The United States (via Alaska), Canada, Russia, Denmark (via Greenland), Norway, and Iceland. According to the 1982 UN Convention on the Law of the Sea (UNCLOS) each Arctic state have Exclusive Economic Zone (EEZ) extending 200 nautical miles from their coastlines, in which they can explore and exploit resources in the region.

The main purpose of this analysis is to **identify the areas at risk of potential conflict in the Arctic Circle.**

Methodology

The proximity to Crude Oil and Natural Gas Reserves, Shipping Routes and shared EEZs were identified as driving factors for potential conflict in the Arctic, as sea ice reduces and mobility increases in the region. A Risk Analysis was performed by converting each factor layer into a Raster and ranking the values from 1 to 5.

♦ Using data of potential crude oil and natural gas reserves in 2008 for the Arctic based on the level of concentration of the natural resource, zones with risk of high and low levels of conflict were identified



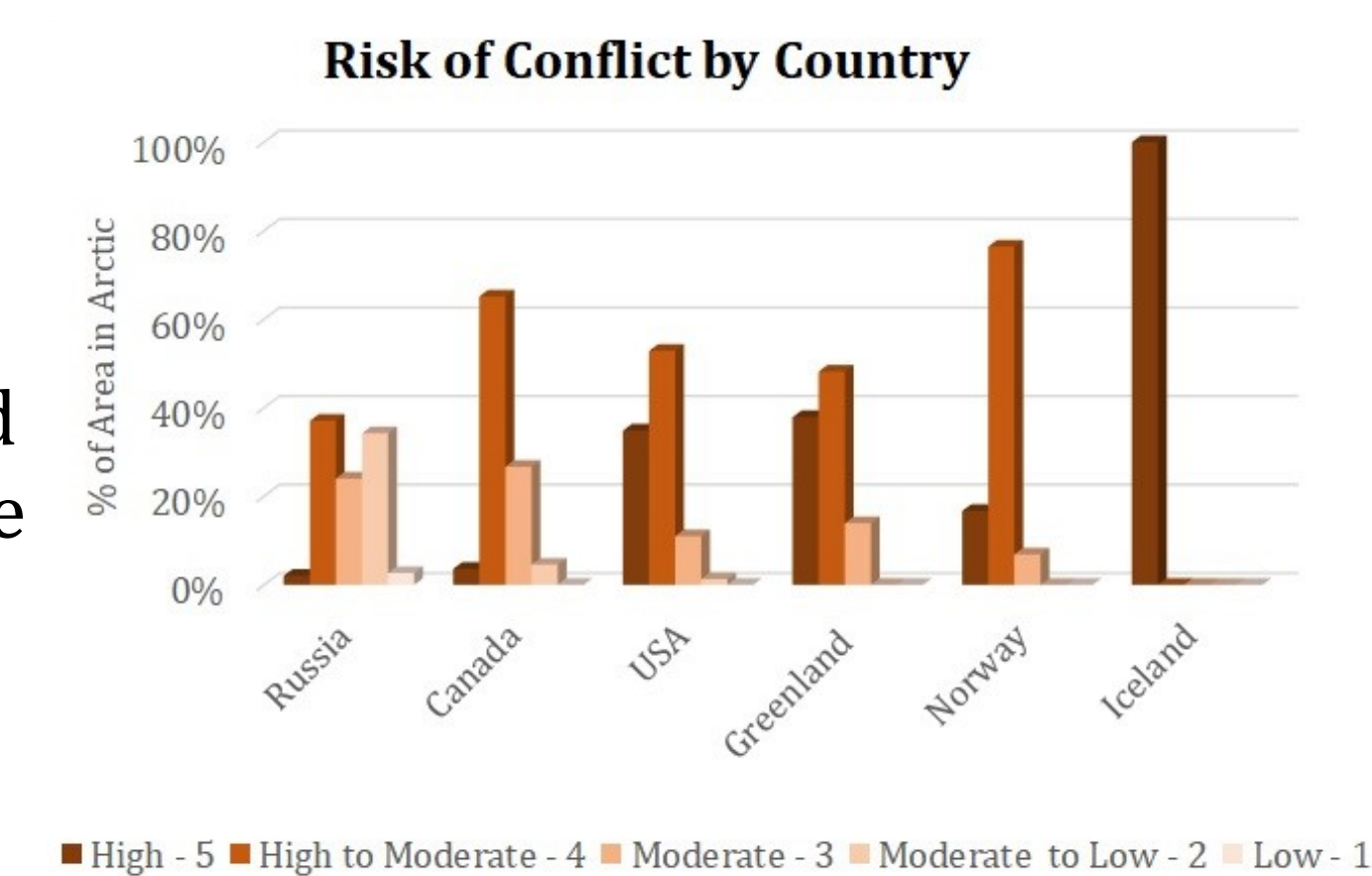
- ♦ A composite of shipping traffic density data along with data on large ports in the Arctic was used to develop the proximity to Shipping Route factor layer. As per the risk analysis areas close to the shipping route zones are considered at higher risk of conflict than areas farther away from viable shipping routes.
- ♦ The proximity to EEZ was assessed by identifying the joint and overlapping Exclusive Economic Zones in the Arctic and shared EEZ boundaries between the Arctic nations. The distance from the joint EEZ's and shared boundaries was used to develop the degree of risk for conflict. Regions close to the EEZ's were considered at high risk

and the further the distance from the EEZ the lesser the conflict in the region.

Finally, Raster Calculator was used to develop a final “Risk of Conflict” composite, incorporating information from all five maps representative of the three factors.

Conclusion

Impact of climate change on the geography of Arctic, will have cascading influence on geopolitical, economic and strategic priorities of countries in the region. It is essential for countries to prepare for potential conflicts which may arise with rapid reduction in sea ice. The geospatial risk analysis of the region, showed that areas off the coast of Alaska, Norway and Eastern coast of Greenland have the highest risk of conflict due to the high concentration of oil and natural gas, proximity to shared EEZs and proximity to viable shipping routes. Regions around the Baffin Bay, Barents Sea, Beaufort Sea and Novaya Zemlay also have moderately high risk of conflict. While assessing risk of conflict based on countries, it is observed that Iceland has the largest area under highest risk of conflict in the region. Norway and Greenland also show large areas under either high or high to moderate risk. USA, Russia and Canada show substantial levels of moderate to high risk of conflict in large parts of their territory.



Cartographer: Damini Singh

Developed for: GIS for International Relations (DHP P207)

Date Produced: 9th December 2019

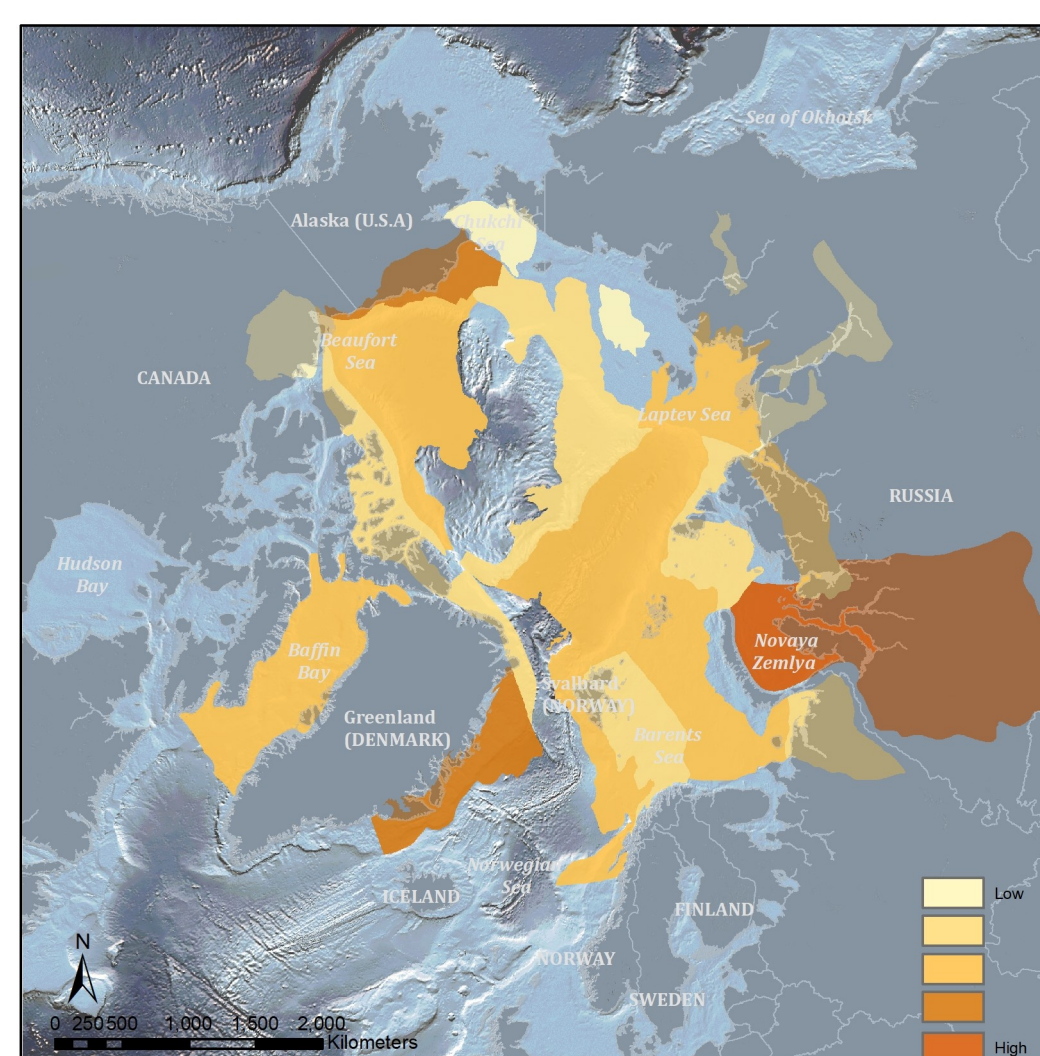
Projection: WGS_1984_Arctic_Polar_Stereographic

Data Sources: USGS 2008 Circum Arctic Resource Appraisal, NSIDC, Tufts University GIS Lab, Flanders Marine Institute, NGA, Knowledge Network of Bio complexity (Shipping)

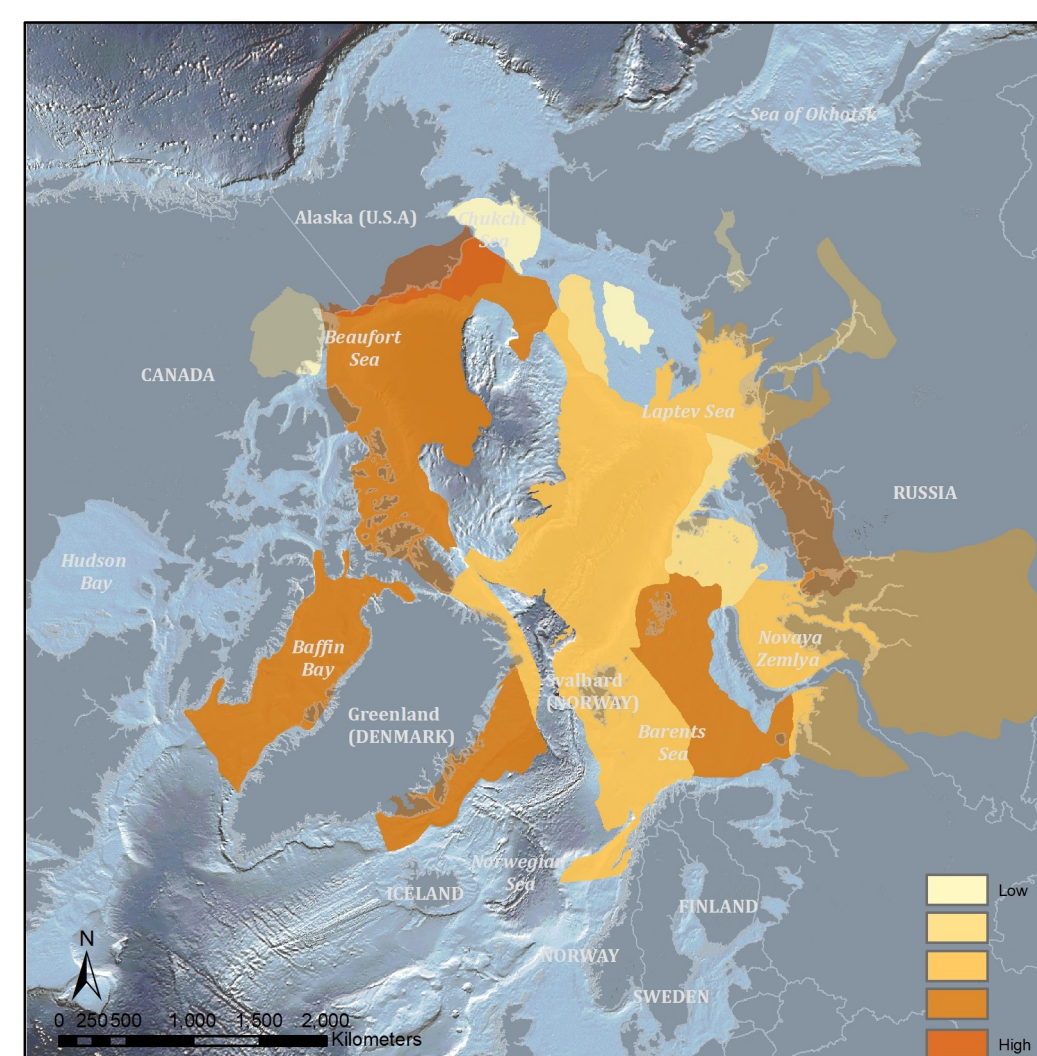
Image Source: Manik Grover, National Geographic

Risk of Conflict Analysis

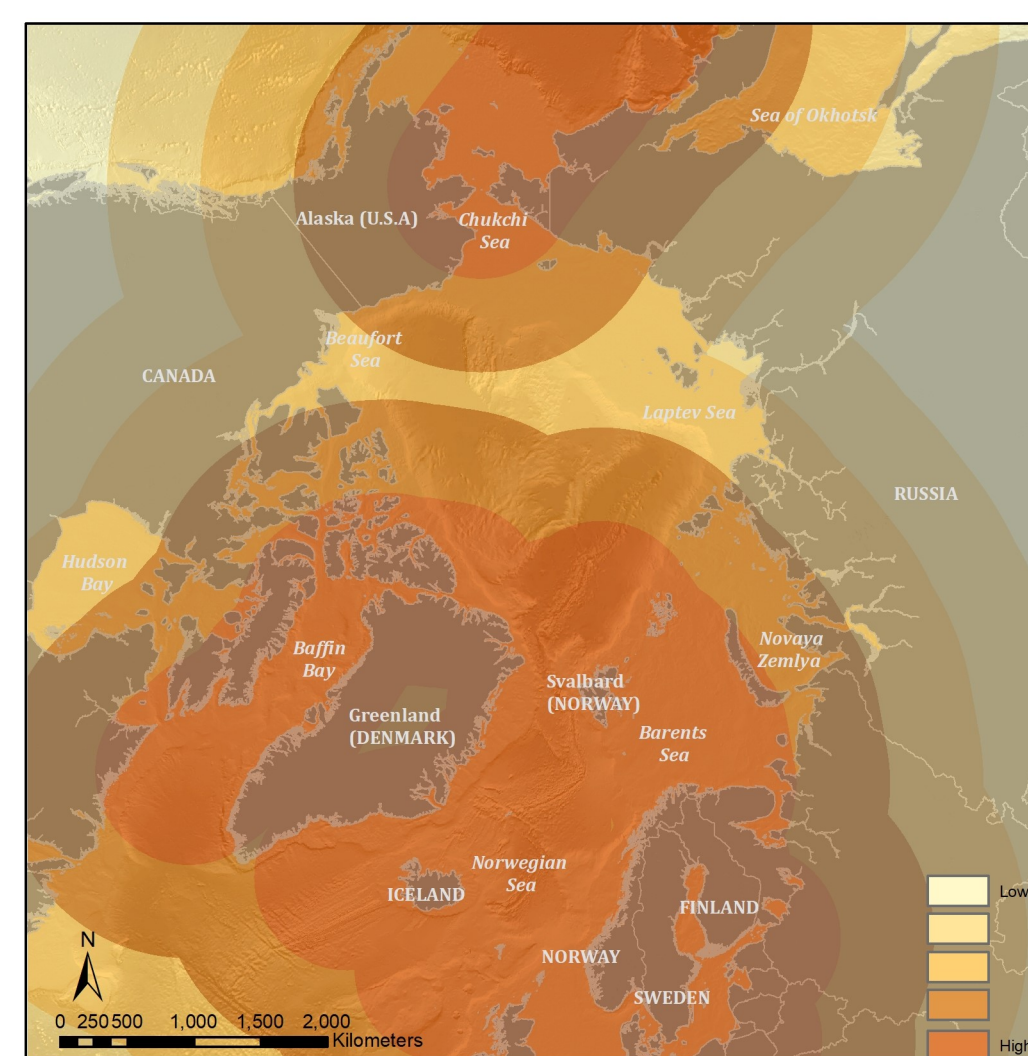
Concentration of Natural Gas



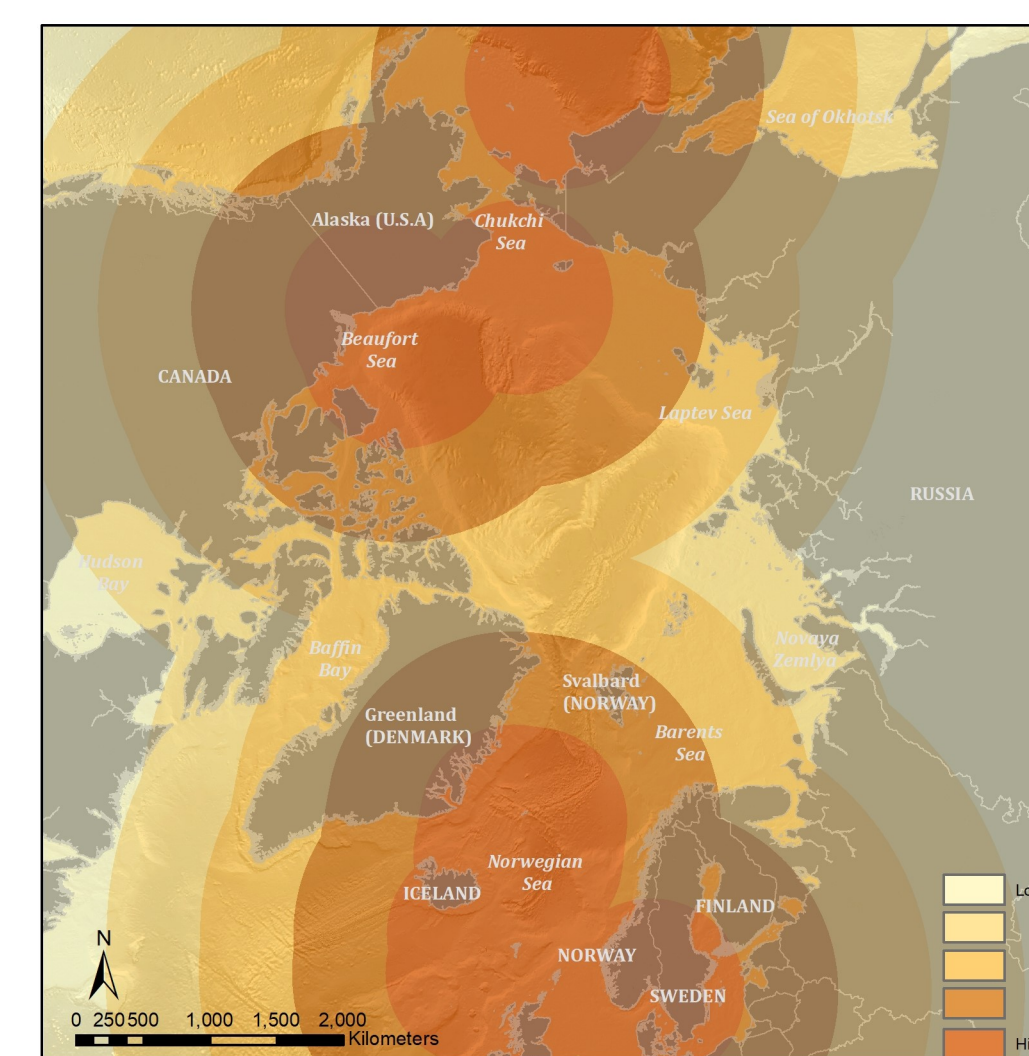
Concentration of Oil



Proximity to EEZ boundaries



Proximity to Joint EEZ



Proximity to Shipping Route

