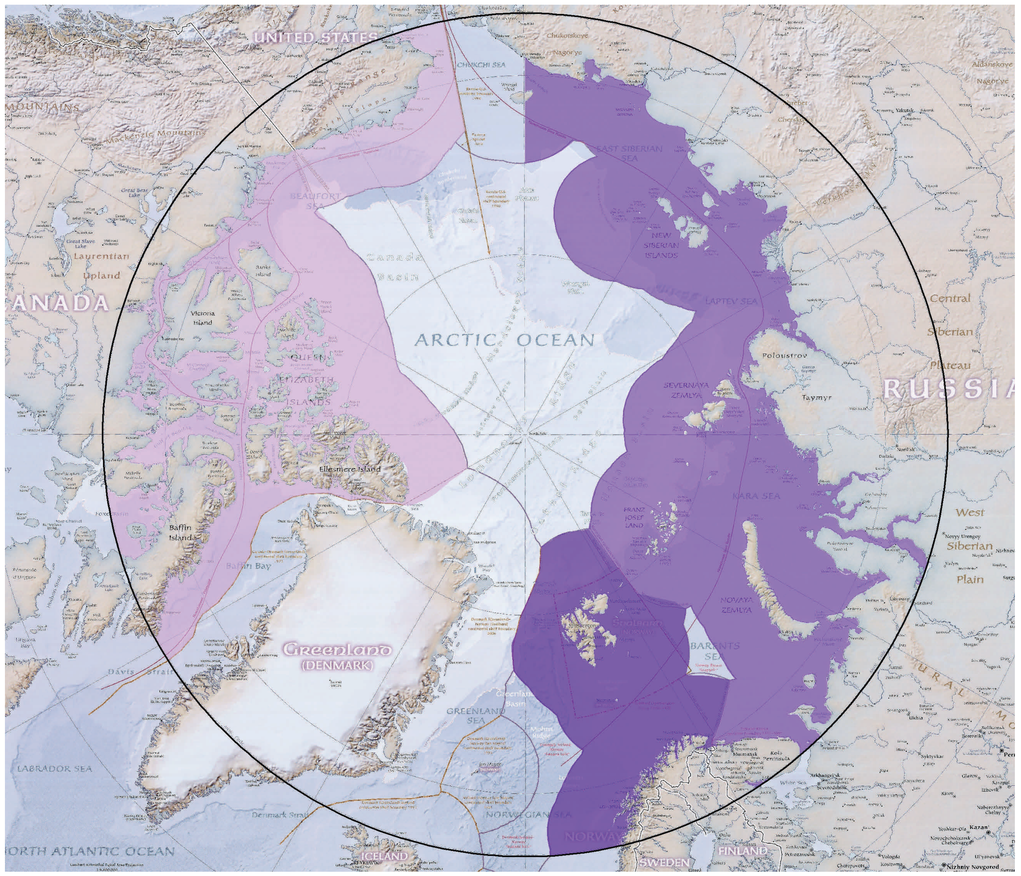
HARD POWER DENSITY NORTH OF THE ARCTIC CIRCLE

Tufts UNIVERSITY

Cartographer: Aziza F. Mohammed, May 9 2012

Data Sources: USGS 2008 Circumpolar Resource Appraisal, Tufts University GIS Lab (assorted), VLIZ (2011).Maritime Boundaries Geodatabase.

WGS 1984 North Pole Lambert Azimuthal Equal Area Atlantic



BACKGROUND

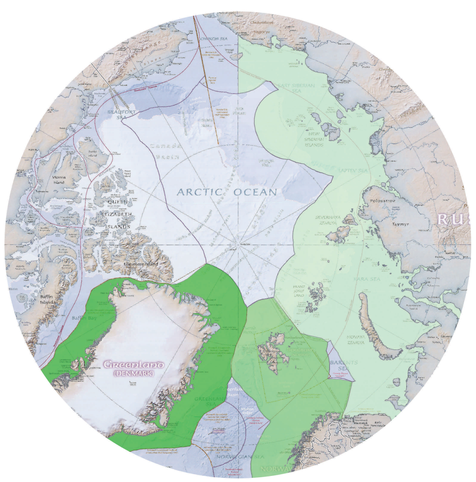
Over the past decade, interest in the Arctic has been heating up. As climate change advances, new challenges and opportunities arise at this polar frontier. As the sea ice melts away, so too do barriers to shipping, transportation, and natural resources. This has raised questions of sovereignty that had hitherto been on ice. These new "assets" are illustrative of one of the oldest measures of influence in international affairs; hard power. The geostrategic and economic implications of these assets make them seminal indicators of potential developments in international affairs. Under international law, no one state may lay claim to the North Pole or the Arctic Ocean region surrounding it. As a result, the five circumpolar states (Canada, Denmark, Norway, Russia, and the United States) are limited to control over an "Exclusive Economic Zone" [EEZ] that extends 200 nautical miles beyond their coastlines. The assets within a state's EEZ are indicative of its hard power. That said, this hard power density is in flux. Under the United Nations Convention on the Law of the Seas, a signatory state has 10 years to make claims to the area corresponding to its continental shelf. If granted, a state has control to assets above or below the seabed of its extended continental shelf. As states scramble to map the uncharted areas of the North, their changing hard power density is transforming the landscape of international affairs.

METHODOLOGY

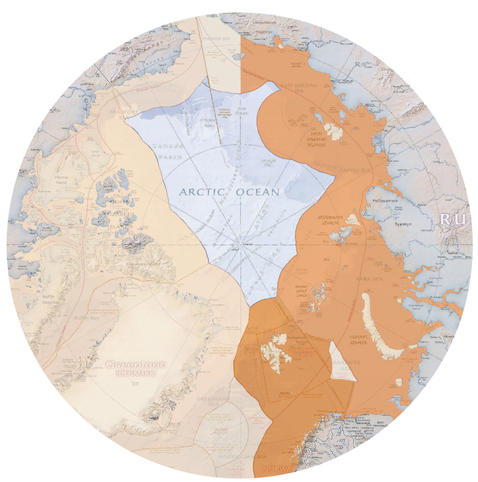
Each of the maps below displays the density of a possible hard power asset within a country's given EEZ. The first displays the projected concentration of undiscovered oil resources; the second displays the actual concentration of shipping within each of these EEZs; the third displays a density value calculated from the length of the projected Northwest Passage within each EEZ. These three assets were then weighted (oil 45%, shipping 45%, length of Northwest Passage 10%) and added together using the raster calculator to create a weighted grid that visualized the hard power density index. Areas of darker colour are indicative of higher density of an individual hard power asset and/or the hard power density index.

CONCLUSIONS

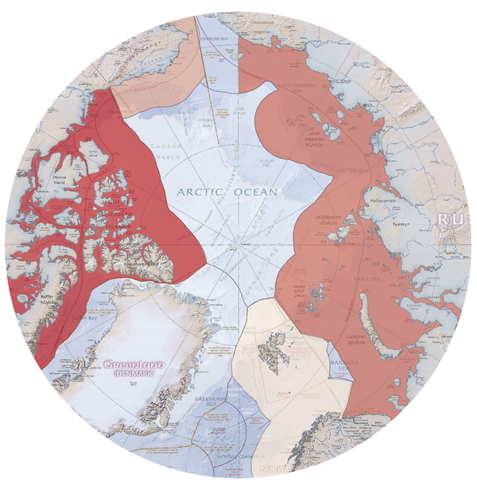
By calculating the hard power density index using projected undiscovered oil resources, shipping data, and the projected Northwest Passage, within an exclusive economic zone of 200nm off the coast, it is Norway with the highest hard power density. However, the index can be constructed using many more possible hard power assets (for example: rare earth minerals and natural gas). Accuracy can be increased with the number of assets included in its calculation. Significant predictive analysis can be drawn from the hard power index. Its visualization is a useful tool for any party interested in international affairs.



Density of predicted undiscovered oil resources



Density of actual shipping activity



Density value from length of projected Northwest Passage within each EEZ