



## THE REALITIES AND CHALLENGES OF RUSSIA'S NORTHERN SEA ROUTE

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06 March 2016

The development of the Northern Sea Route (NSR)<sup>1</sup> across the top of Eurasia is tied directly to Arctic natural resources and the future economic security of the Russian Federation. This national Arctic waterway has two primary purposes: to maintain marine access in all seasons to the Russian North's remote regions for an effective sovereign presence, security, law enforcement, and supply (to coastal communities and government outposts), and also to facilitate the movement of natural resources out of the Russian Arctic to global markets. It is the latter purpose, as a marine transportation corridor, that garners international attention and is linked firmly to the regional development of Siberian onshore and offshore resources.

However, the NSR is unlikely to be a major global maritime trade route in the coming decades that will attract large numbers of container ships away from the Suez and Panama canals. Certainly plausible are niche markets, more limited but economically viable roles, between the Pacific and Europe where trans-Arctic voyages can be established and maintained on a seasonal (summer) basis. But the majority of the new Arctic marine traffic will plausibly sail on voyages along the NSR with bulk cargo ships, liquefied natural gas (LNG) carriers, and tankers carrying resources out of the region to European and Pacific-rim markets. The length of the NSR navigation season has yet to be established as it will be maintained in the future by a fleet of nuclear and non-nuclear escort icebreakers, several of which are being constructed today in Russia. According to Russian Arctic shipping experts, it is highly plausible the NSR will develop in future decades as a 'seasonal complement' to the Suez Canal route.<sup>2</sup>

## 1 Marine Access in the Russian Arctic

Changes in the Arctic's sea ice extent, thickness, and character during the past four decades have been profound. The findings of the Arctic Council's Arctic Marine Shipping Assessment (AMSA) maintained that such changes in Arctic sea ice, driven by anthropogenic warming, provide greater marine access and potentially longer navigation seasons throughout the Arctic Ocean.<sup>3</sup> However, it is also notable that the Arctic Ocean will be fully or partially ice-covered for nearly nine months each year through the 21st century. The entire NSR will likely be ice-covered with first year (seasonal) sea ice for seven to eight months each year, thus requiring ships to have some measure of polar or ice-class capability to operate safely and effectively. Independently operated icebreaking commercial carriers, modern ships that do not require icebreaker escort, should be capable of operating alone in and out of the Russian Arctic during early summer and through autumn.

Year-round navigation has been maintained since 1979 on the NSR's western sector to the port of Dudinka on the Yenisey River supporting the industrial complex at Norilsk.<sup>4</sup> However, the navigation season on the NSR's eastern region in the Laptev, East Siberian and Chukchi seas remains uncertain. The extension of the navigation season in the eastern NSR will be determined by the available icebreaker capacity for escort operations of ships in convoys and

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<sup>1</sup>The Northern Sea Route is defined in Russian law as the set of marine routes from Kara Gate (south of Novaya Zemlya) in the west to the Bering Strait in the east. Several of the routes follow along the coast, making use of the main straits through the islands of the Russian Arctic, while other potential routes run north of the island groups.

<sup>2</sup>Reuters. "Northern Sea Route Slated for Massive Growth." *The Moscow Times*. Last modified June 4, 2013. Available at: <http://www.themoscowtimes.com/business/article/northern-sea-route-slated-for-massive-growth/481093.html>

<sup>3</sup>*Arctic Marine Shipping Assessment (AMSA) 2009 Report*. Arctic Council, April 2009, 27, accessed at: [http://www.arctic.noaa.gov/detect/documents/AMSA\\_2009\\_Report\\_2nd\\_print.pdf](http://www.arctic.noaa.gov/detect/documents/AMSA_2009_Report_2nd_print.pdf)

<sup>4</sup>Humphreys, David. 2011. "Challenges of transformation: the case of Norilsk Nickel." *Resources Policy* 36, no. 2: 142-148.

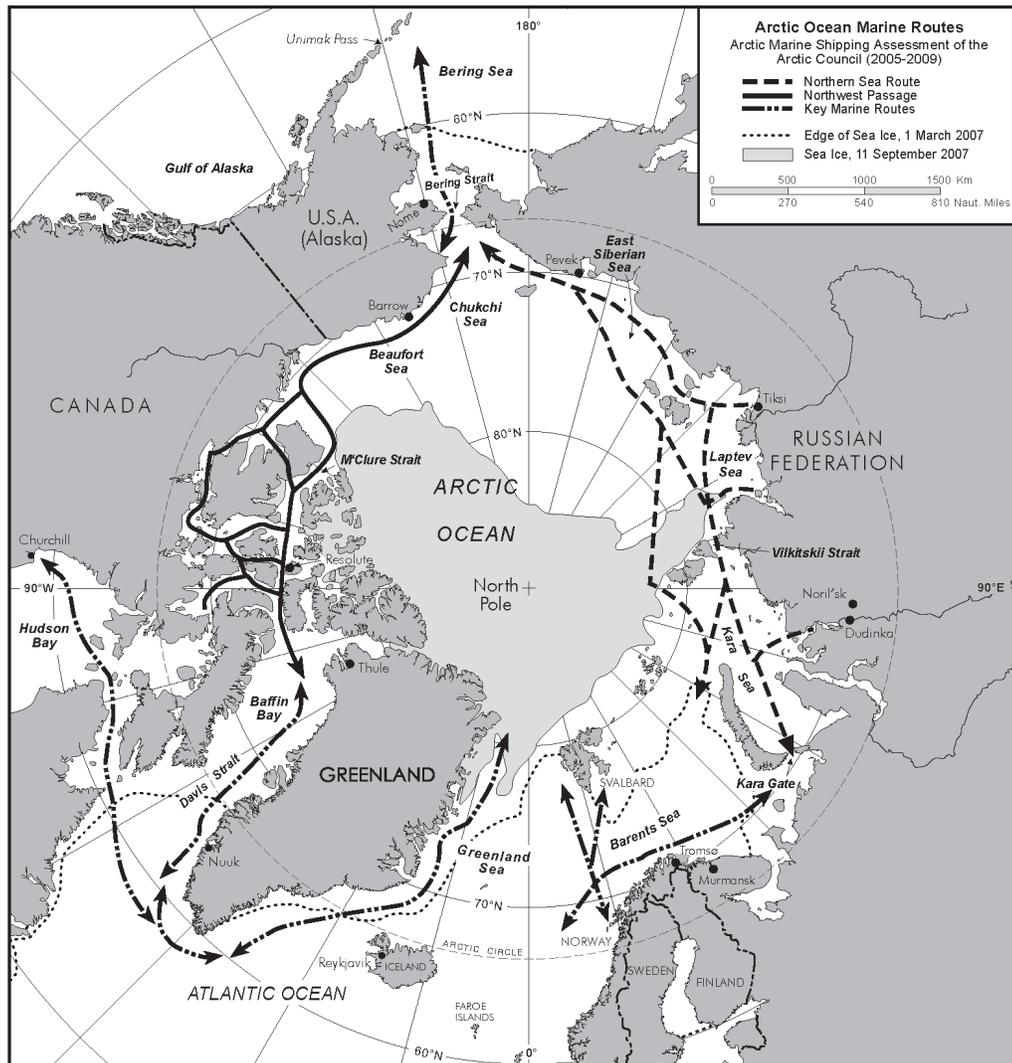


Figure 1: Map of major marine routes in the Arctic Ocean. Russia's Northern Sea Route encompasses all of the plausible routes between Kara Gate in the west and Bering Strait in the east. These routes traverse the Kara, Laptev, East Siberian, and Chukchi seas.

the polar class or ice-capable levels of the commercial ships being escorted.<sup>5</sup> The navigation season extension can also be improved by the continued retreat of Arctic sea ice in all seasons.

## 2 NSR Marine Traffic in the Soviet Era and Today

During the last half of the 20th century, the NSR played a significant role in the economic and social development of the Soviet North. Large industrial complexes at Norilsk and on the Kola Peninsula required an effective Arctic marine transportation system using a large fleet of fleet of icebreakers (some nuclear-powered) and ice-capable cargo ships. The maximum annual volume of cargo transported along the NSR in the Soviet era was 6.6 million tons in 1987. This cargo total was carried aboard 331 ships that made 1306 voyages during the NSR navigation season.<sup>6</sup> From 1971 through 1993, the annual NSR traffic moved between 3 and 6 million tons of cargo.<sup>7</sup> However, the vast majority of the cargo and ship voyages happened within the Russian maritime Arctic and were not linked to global trade routes and markets. The NSR was primarily a support system for the Soviet defense and manufacturing industries. The political and economic turmoil during the transition of the USSR to the Russian Federation in the early 1990s caused a major reduction in the use of the NSR, as the industrial development of the Russian Arctic was significantly reduced.

Recently the number of full ship transits along the NSR has been slowly increasing. Some of the transits are internal voyages within the Russian Arctic and others are international sailings linking Atlantic and Pacific oceans on true trans-Arctic voyages. The following transits are noted for 2011 to 2014 from data of the NSR Information Office in Murmansk:<sup>8</sup>

- 2011: 41 transits (25 internal/16 international)
- 2012: 46 transits (19 internal/27 international)
- 2013: 71 transits (43 internal/28 international)
- 2014: 53 transits (22 internal/31 international)

The continued development of natural resources and marine infrastructure and the further retreat of Arctic sea ice should stimulate increased use of the NSR by ships. Uncertainty remains about the future projections for ships on international voyages in both directions across the full length of the NSR.

## 3 New and Central Port on the Yamal Peninsula

The ongoing construction of a major port in Sabetta, on the western shore of the Ob Bay in the Yamal Peninsula, illustrates the link of the NSR to Russian Arctic natural resource development. The new LNG port is a public-private partnership between Novatek (Russia's largest independent gas producer), other private investors, and the national government,

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<sup>5</sup>Stephenson, S.R. L.W. Brigham, and L.C. Smith. 2014. "Marine accessibility along Russia's Northern Sea Route." *Polar Geography* 37, no. 2: 111-133.

<sup>6</sup>Brigham, L. W., and B. Ellis (eds). 2004. "Arctic Marine Transport Workshop Report." *Scott Polar Research Institute*, Cambridge, UK (September): Appendix D.

<sup>7</sup>Northern Sea Route Information Office. "Northern Sea Route." Murmansk, Russia. Accessed at: [www.arctic-lio.com/NSR](http://www.arctic-lio.com/NSR)

<sup>8</sup>Northern Sea Route Information Office. "Northern Sea Route." Murmansk, Russia. Accessed at: [www.arctic-lio.com/NSR](http://www.arctic-lio.com/NSR).

which is responsible for dredging a navigable channel to the port in the shallow waters of the Ob estuary.<sup>9</sup> The major LNG plant near Sabetta will be supplied with gas from fields on the Yamal Peninsula and will be built to handle more than 30 million tons of cargo annually. Sabetta's strategic location will facilitate the shipping of LNG eastward along the NSR in an extended summer navigation season to Asian Pacific ports. Sabetta will also operate year-round with LNG carriers sailing westward out of the port to European destinations and potentially to ports in North and South America. The shipping of LNG out of this coastal location will provide a number of clues as to the future of marine traffic in the summer and other seasons along the eastern sector of the NSR to markets in China, Korea, and Japan. The operation of large LNG carriers will also create a number of environmental security challenges, not only along the NSR but also for the Bering Strait region.

## 4 Challenges and the Future of the NSR

Russia is embarking on a long-term strategy to link its Arctic region to global markets, and the NSR is an essential major waterway to make this vision a reality. Internationalization of the NSR for trans-Arctic navigation perhaps remains a long-term national goal, but the near-term focus is on improving the marine infrastructure to facilitate the movement of natural resources (oil, gas, and minerals) out of the Russian Arctic. Importantly, the levels of future NSR ship traffic are tied directly to global commodities prices and markets, a sobering constraint given current depressed prices. The development of the NSR faces a number of additional key challenges:

- Determining the actual fees for sailing the NSR continues to be a complex process. Icebreaker and pilotage fees are still evolving with individual commercial companies continuing to negotiate their NSR fees with the icebreaker service providers. For international shippers, this lack of a transparent NSR fee system is a key issue.
- The Russian polar icebreaker fleet is an integral component of the NSR, playing a key role in the escort of ship convoys in the region. Replacement of the current aging fleet of Soviet-era ships is a critical issue and a number of new icebreakers are being constructed for the Russian state company, Rosmorport. A new nuclear icebreaker, *Arktika*, will be the largest and most powerful icebreaker ever built when operational in 2019<sup>10</sup>
- The International Maritime Organization (IMO) Polar Code is scheduled to be enforced as of 1 January 2017. The Code is a set of new, mandatory international rules and regulations for large ships (commercial carriers and passenger vessels of 500 tons and greater) operating in Arctic and Antarctic waters. The Code's implementation will likely involve a complex process to mesh the new rules with the NSR rules and the national rules of Arctic states. How Russia will handle ships sailing under the Polar Code and how fast the international community can adjust to the new requirements, especially for the training and experience of ice navigators, may influence the future NSR traffic levels.
- The pace of Russia's Arctic maritime and security infrastructure development is crucial to enhancing NSR marine safety, security, and environmental protection. Under con-

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<sup>9</sup>"Meeting on the Yamal LNG project and Sabetta port construction." *President V. Putin, Official Site of the President of Russia*. September 26, 2013. Accessed at: <http://eng.kremlin.ru/news/6036>

<sup>10</sup>*The Independent Barents Observer*. 2015. "These are Russia's New Icebreakers." December 1, 2015. Accessed at: <http://thebarentsobserver.com/2015/12/these-are-russias-new-icebreakers>

struction are military outposts on several Siberian islands and coastal response centers along the NSR. Increased hydrography and charting, port development, and a range of support infrastructure (such as communications, aids to navigation, and monitoring), are critical investments to make the NSR a secure and safe transportation route in this remote region.

- How the marine insurance companies will deal with risk management for ship voyages along the NSR remains a crucial question. The NSR is generally outside standard insurance coverage (resulting in higher costs) and the number of insurers for Arctic voyages is limited. However, the new Polar Code will provide a framework of international rules, regulations, and standards that present a level playing field for global shippers who may operate ships along the NSR.

The NSR presents a number of risks, challenges, and opportunities for the Russian Federation and the international maritime community. One of the initial challenges will be to establish a reliable length of the navigation season so that shippers will understand and be able to create an economically viable operating season. The development of marine infrastructure for security and safety reasons also remains critical to full utilization of the NSR in future decades.

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