The remote latitudes of the Arctic have long been a province of natural beauty, high adventure, and untold riches. For centuries, mariners risked their lives plying the frigid waters and frozen expanses in search of new territory, trade routes, and treasure for king and country. Where a few, like Norwegian polar explorer Roald Amundsen, triumphed over uncommon challenges, many others, like British rear admiral Sir John Franklin, suffered tragedy and defeat. With rare exception, much of the promise of the Arctic remained out of reach, encrusted in the polar ice.
In the twenty-first century, many experts believe that climate change, technological advances, and rising global demand for resources may at last unlock the considerable economic potential of the Circumpolar North. The melting of Arctic sea ice to record lows in recent years has prompted many nations, principally those with Arctic Ocean coastlines—the United States, Canada, Russia, Norway, and Denmark (Greenland)—to reassess their commitments and interests in the icy reaches atop the globe.

Many forecast Arctic summers will be free of ice in a matter of decades, potentially opening the region up to hundreds of billions of dollars in investment, including energy production, shipping, and fishing. The thaw will also pose new security demands as greater human activity induces states to increase their military and constabulary presence. While most experts dismiss the prospects for armed aggression in the Arctic, some defense analysts and academics assert that territorial disputes and a competition for resources have primed the Arctic for a new Cold War.

Meanwhile, environmentalists are concerned that a new era of Arctic exploration and development could spoil one of the planet’s last great frontiers, a pristine habitat home to iconic wildlife and native communities that have subsisted there for thousands of years. Climatologists warn that the extraction of Arctic fossil fuels will contribute to global warming at a time when they believe nations should be paring back greenhouse-gas emissions and pursuing alternative energy sources.

But for many, the debate is less over whether the region should be developed, but rather if it can be done sustainably and peaceably. The Arctic is emerging on the world stage, and it is not yet settled whether businesses, governments, and other operators can fully manage the unique risks it poses.

“I want to stress the importance of the Northern Sea Route as an international transport artery that will rival traditional trade lanes.”

~ VLADIMIR PUTIN, PRESIDENT OF RUSSIA

A Thawing Arctic

The Arctic, the roughly 8 percent of the earth above latitude 66° 33' north, is warming faster than many climate scientists expected—at nearly twice the rate of the rest of the planet. The extent of Arctic sea ice, which melts to its nadir each September, has steadily declined over the past three decades. The years 2007–2013 saw the six lowest levels
since satellite imaging began in 1979. Overall, the ice cap has retreated about 40 percent over this period. The trend is likely unmatched in recent human history, reported a UN panel on climate change (http://www.climatechange2013.org/) in 2013.

![Vanishing Arctic Sea Ice](http://nsidc.org/)  

Although sea ice cover rebounded slightly in 2013, its extent remained well below the thirty-year average. Scientists expect some annual variability as weather patterns change, but predict the contraction will continue in the long term.
Beyond surface area, recent data indicates that Arctic sea ice is also becoming younger and thinner, and hence more inclined to melt every summer. Less white ice and more dark sea means that more solar radiation is absorbed, accelerating the thaw. If global greenhouse-gas emissions continue unabated, said the UN panel, “a nearly ice-free Arctic Ocean in September before mid-century is likely.” Although projections vary, most scientists believe sea ice will disappear for part of the summer by the end of this century at the latest.
Sovereignty and Governance

The Arctic is of primary strategic significance to the five littoral Arctic Ocean states—the United States (Alaska), Canada, Russia, Norway, and Denmark (Greenland). Many observers consider Russia, which is investing tens of billions of dollars in its northern infrastructure, the most dominant player in the Arctic. But the region is also a focal point for the three other Arctic states—Iceland, Sweden, and Finland.

Most nations beyond the Arctic will also be touched by developments there because the region’s shipping, fishing, energy and mineral production, scientific research, tourism, and other activities affect their security and economic welfare. For instance, shorter trade routes through the Arctic could be a boon to export-driven nations like China, and vast natural-gas deposits in Siberia may forestall Russian economic diversification. More broadly, physical changes in the Arctic will have globally significant climatic and environmental implications (see CFR’s Crisis Guide: Climate Change (http://www.cfr.org/climate-change/crisis-guide-climate-change/p17088)).
The Arctic is administered according to the domestic laws and regulations of each Arctic state, but also subject to bilateral, regional, and international agreements. The Arctic Council is the principle international forum for regional collaboration. The overarching legal framework that governs activities on, over, and beneath the Arctic—as with all the world's oceans—is the 1982 UN Convention on the Law of the Sea (http://www.cfr.org/international-law/united-nations-convention-law-sea/p16396). UNCLOS has settled a number of important issues related to ocean usage and state sovereignty. Among them, it has:

- Established freedom-of-navigation rights.
- Set territorial sea boundaries 12 miles offshore.
- Set exclusive economic zones (EEZs) up to 200 miles offshore.
- Set rules for extending continental shelf rights up to 350 miles offshore.
- Created other conflict-resolution mechanisms (e.g., the UN Commission on the Limits of the Continental Shelf (http://www.un.org/depts/los/clcs_new/clcs_home.htm)).

By virtue of UNCLOS, each coastal Arctic state is granted control over all living and nonliving natural resources within its exclusive economic zone, such as fish stocks and hydrocarbons. The 1.1 million square miles of open water lying north of the five Arctic EEZs, sometimes referred to as the Arctic Ocean “donut hole,” is considered high seas and outside national jurisdictions.

The United States subscribes to most of UNCLOS, but it remains one of the only nations not to have acceded to the treaty. Some Republican lawmakers view the convention as a potential burden on U.S. sovereignty and have opposed it since the Clinton administration moved it to the Senate for ratification in 1994. Meanwhile, the majority of the military establishment, as well as successive administrations—George W. Bush's and Barack Obama's—have endorsed the regime (http://www.cfr.org/treaties-and-agreements/should-united-states-ratify-un-law-sea/p31828), holding that it fortifies U.S. interests.

In 2008, the five littoral Arctic Ocean nations reaffirmed their commitment to the law of the sea in the Arctic with the Ilulissat Declaration (http://www.cfr.org/arctic/arctic-ocean-conference-ilulissat-declaration/p30238), but a few sovereignty disputes persist. The United States, the European Union, and others maintain that the Northwest Passage is an international strait with free navigation rights, while Canada asserts that it is an inland waterway over which it maintains exclusive jurisdiction. Washington and Ottawa also disagree on their maritime boundary in the resource-rich Beaufort Sea.

The United States also contests the Kremlin's claims that parts of the Northern Sea Route above Siberia are internal Russian waters. Meanwhile, Denmark and Canada both claim Hans Island, an uninhabited spot of land in the center of Nares Strait. Finally, several states have laid competing claims to the seabed—and any resources beneath it—of the Lomonosov Ridge, an undersea mountain range bisecting the Arctic Ocean.
“Sustaining current and projected rates of Arctic oil and gas could transform local economies and global energy dynamics.”

~ LLOYD’S OF LONDON
Economic Prospects

Energy

The Arctic is particularly enticing given the extensive hydrocarbon deposits already discovered, as well as the vast expanses yet to be explored. The first major energy discoveries in the region, namely the Tazovskoye field in Siberia and Prudhoe Bay in Alaska, were made in the 1960s.

The most recent Circum-Arctic Resource Appraisal (http://www.cfr.org/arctic/us-geological-survey-circum-arctic-resource-appraisal/p32052), conducted in 2008 by the U.S. Geological Survey (USGS), estimated that nearly one-quarter of the earth’s undiscovered recoverable petroleum resources lay in the region: 13 percent of its oil, 30 percent of its natural gas, and 20 percent of its liquefied natural gas. More than 80 percent of these resources are thought to be offshore. “The extensive Arctic continental shelves may constitute the geographically largest unexplored prospective area for petroleum remaining on earth,” said the USGS.

Energy analysts say that investment in the Arctic will hinge on profitability, which in turn depends on a number of factors, including global commodity prices, exploration and production technologies, geographic access and infrastructure, legal and political climates, and environmental concerns. “Half the Arctic’s basins are unexplored. But this is now changing, with oil firms increasingly heading north (http://www.economist.com/node/21556800/print), nudged by high oil prices, better technology, a dearth of easier opportunities, and melting ice,” wrote the Economist in 2012.

A lack of infrastructure in the region, particularly in the North American Arctic, is perhaps the biggest obstacle to energy investment, analysts say. Alaska has only the Trans-Alaska Pipeline and a few southern shipping routes for energy transport. In general, the most attractive energy plays are those that are closest to market, and the shale-oil-and-gas revolution (http://www.cfr.org/energy-and-environment/hydraulic-fracturing-fracking/p31559) has reduced the appeal of remote Arctic fossil fuels over the last few years. For example, Russian state-owned Gazprom abandoned the Shtokman field in the Barents Sea, by far the largest potential offshore Arctic gas project, in August 2012, citing spiraling costs.
A 2012 report by UK-based insurer Lloyd’s of London (http://www.cfr.org/arctic/lloyds-arctic-opening-opportunity-risk-high-north/p30193) says that oil and gas investment in the Arctic will account for a relatively small but strategically significant portion of the energy industry’s global investment over the next two decades. “Sustaining current and projected rates of Arctic oil and gas could transform local economies and global energy dynamics,” Lloyd’s concluded.

Few countries have been as keen to invest in the Arctic as Russia, whose economy and federal budget rely heavily on hydrocarbons. Of the nearly sixty large oil and natural-gas fields discovered in the Arctic, there are forty-three in Russia, eleven in Canada, six in Alaska, and one in Norway, according to a 2009 U.S. Department of Energy report. Development of energy in the Russian Arctic has been dominated by state-backed firms, but industry analysts expect Western petroleum companies to provide needed technology and management expertise, as demonstrated by the partnership of ExxonMobil and Rosneft.

Meanwhile, Royal Dutch Shell, ConocoPhillips, and Statoil have drilling leases in the U.S. waters off the coast of Alaska, which are projected to hold the largest undiscovered oil deposits in the Arctic (roughly thirty billion barrels). Shell may resume exploratory drilling in the Chukchi Sea in the future, though since suffering major operational setbacks in 2012, it has not conducted operations in the U.S. Arctic.

**Shipping**

As Arctic sea ice retreats, shipping lanes are opening that many trading nations hope could compete with or complement conventional routes during summer months. The Northeast Passage—a roughly three-thousand-mile shipping lane across the top of Eurasia connecting the Atlantic to the Pacific—first became ice-free for a short period in the summer of 2007, and gained international attention as a seasonal shipping route between the two oceans. Russia’s Northern Sea Route (NSR), which runs from the Kara Gate to the Bering Strait, was also open for the same period.

For instance, a voyage from Shanghai to Hamburg via the NSR shaves roughly 30 percent of the distance off a similar trip via the Suez Canal and avoids the heavily pirated Strait of Malacca and waters off the Horn of Africa. Operators can either arrive at their destinations earlier or use the extra time for super-slow sailing, reducing fuel costs and emissions. Most NSR journeys are destinationally (carrying natural resources out of the Arctic to global markets).
and point-to-point (cabotage) trips in the Russian Arctic, but trans-Arctic shipping is slowly growing. However, these distance savings on Arctic voyages are only possible if there is minimal or no sea ice.

Only five cargo vessels transited the route in 2009, but this number jumped to seventy-one in 2013. That is tiny traffic compared to the seventeen thousand ships that pass through the Suez Canal annually, but with countries like Russia investing tens of billions of dollars in their northern infrastructure, including the construction of new ports of call and nuclear-powered icebreakers, some planners hope the region will emerge as a “Suez of the north.”

But industry executives and analysts cite a number of challenges for shipping along the NSR. Even during the summer, unpredictable weather and ice floes make navigation difficult. Ships often require an icebreaker escort, which can cost some $400,000, and additional insurance that offsets some of the route’s potential savings. Moreover, Moscow’s control of the NSR and the attendant icebreaking fleet is troubling for some shipping executives, who fear the Kremlin could abruptly hike fees. Finally, while the NSR may provide a viable alternative for shipping bulk cargo such as oil, coal, and ore in the near future, it may be of limited value for container shipping, which operates on a tight delivery schedule. Many analysts say it will take at least another ten years of warming before shipping along the NSR is practical.

There is also modest anticipation for an uptick in shipping along the Northwest Passage, the legendary sea route atop North America that runs some nine hundred miles from Alaska through the Canadian Arctic Archipelago. The pathway can cut several days off a traditional voyage through the Panama Canal if there is minimal or no sea ice present. The Danish-operated Nordic Orion became the first bulk carrier to traverse the Northwest Passage in September 2013, reportedly saving about $80,000 in fuel. But experts believe the commercial potential of the seasonal shortcut is much less than that of the NSR.

Lastly, the 2,100-mile mid-ocean corridor stretching across the North Pole, known as the Transpolar Sea Route, could provide the most direct shipping lanes for some maritime traffic and supplement other Arctic routes. However, sea ice remains a considerable challenge for most of the season, and analysts believe its commercial viability is likely decades away.

By the Numbers
“The positive story is that it’s not the Wild West.”
Diplomacy and Security

Less than a decade ago, many geopolitical analysts warned that the Arctic had all of the makings for great-power rivalry reminiscent of the Cold War. However, the movement has gone quite the other way. Despite a few remaining territorial disputes, the overwhelming majority of Arctic resources fall within accepted national boundaries and all Arctic governments have committed to settling disagreements peaceably. Notably, Russia and Norway resolved a decades-old maritime border dispute in 2010, equally dividing some 67,600 square miles of water in the Barents Sea, and partnering in the region on energy development. The historic deal is often cited as a model for future Arctic diplomacy.

The Arctic Council (http://www.arctic-council.org/index.php/en/), the leading international forum for cooperation in the region, was established by the eight Arctic states in 1996 with participation from indigenous peoples like the Inuit and Saami, and all member states except the United States and Norway have appointed ambassador-level diplomats to represent their interests in the region. With a secretariat in Tromsø, Norway, the council is a forum that sponsors major assessments and studies, and develops policies and guidelines that focus on environmental protection and sustainable development. Chairmanship of the council rotates every two years.

But Arctic cooperation takes place in a variety of other forums. Nordic nations—Denmark, Sweden, Norway, Finland, and Iceland—also partner on sustainability and issues related to Arctic indigenous peoples via the Nordic Council (http://www.norden.org/en/about-nordic-co-operation/areas-of-co-operation/the-arctic). Nineteen countries are party to the International Arctic Science Committee (http://www.iasc.info/), a nongovernmental organization dedicated to research. The nonprofit Arctic Circle (http://www.arcticcircle.org/about), formed in 2013 by Icelandic president Ólafur Ragnar Grímsson, aims to provide a setting for political and business groups, as well as other organizations from around the world, to discuss Arctic issues.

Still, steady diplomacy has not precluded nations from maneuvering to protect their interests in the region. Each of the eight Arctic nations has updated their strategy for the region in the last several years, including the United States (http://www.cfr.org/arctic/national-strategy-arctic-region/p30686) (see interactive diagram below). Russia, the only non-NATO littoral Arctic state, has made a military buildup in the Arctic a strategic priority, restoring Soviet-era airfields and ports and marshaling naval assets. In late 2013, President Vladimir Putin instructed his military leadership to pay particular attention to the Arctic, saying Russia needed “every lever for the protection of its security and national interests there.” He also ordered the creation of a new strategic military command in the Russian Arctic by the end of 2014.
Economic powers further afield are also angling for a larger role in the Arctic. India, Italy, Japan, Singapore, South Korea, and China became Arctic Council observer states in 2013. Analysts say Beijing is particularly attracted to the region given its mounting energy demands and reliance on maritime trade. Chinese officials now characterize their country as a “near-Arctic state,” and Beijing has recently increased its investment in polar research, spending some $60 million annually, and ordered a second, $300 million ice-breaking research ship. China strengthened its toehold in the Arctic by signing a free trade agreement with Iceland, its first with a European country, and building an embassy that is Reykjavik’s largest.

Arctic Council Member States

“We must stop this trickle of Arctic oil before it becomes a flood.”

~ FAIZA OULAHSEN, GREENPEACE ACTIVIST

Policy Options

The fate of the Arctic will hinge in large measure on the decisions that statesmen and industrialists make in the coming years. Those converging on the region must balance the pursuit of wealth and power with the protection of a fragile ecosystem. While the present trend of multilateralism bodes well for the region, experts say that much policy work remains if there is to be a stable and sustainable future in the Arctic.

Governance and Diplomacy

The UN Convention on the Law of the Sea is considered the bedrock of Arctic governance, and most international-law experts believe Washington must finally accede to the agreement to codify its maritime rights and sovereignty. But even with UNCLOS and the Arctic Council, no
institution has the authority to regulate and police the entire region. Further integration of national regulatory regimes in the Arctic, whether through bilateral or multilateral accords, could help bridge this gap. Some experts encourage states to coordinate more closely on military matters and recommend that the Arctic Council reconsider its ban on discussing such issues. In June 2013, defense leaders from its eight member states agreed to strengthen security cooperation in the Arctic, including marine surveillance and joint military exercises.

**Responsible Energy Development**

In 2013, the eight Arctic Council members signed a marine oil-pollution preparedness and response agreement (http://www.state.gov/r/pa/prs/ps/2013/05/209406.htm) aimed at improving interstate coordination, but drilling regulations are still left to individual states. A report by Pew (http://www.pewenvironment.org/news-room/reports/arctic-standards-recommendations-on-oil-spill-prevention-response-and-safety-85899506213) recommends a number of new policies to account for the Arctic’s special logistical challenges, including imposing new limits on seasonal drilling, standardizing spill-response equipment, and installing redundant systems. Other experts call for an Arctic-wide oil-spill treaty that would force energy firms to bear the full cost of spills. Environmentalist groups like Greenpeace (http://www.greenpeace.org/usa/en/campaigns/global-warming-and-energy/Save-the-Arctic/) believe the risks associated with Arctic drilling are simply too high and propose an outright ban.

**Shipping Guidelines**

There are no Arctic-specific safety and environmental standards for shipping, but coastal states may regulate marine pollution from vessels sailing within their respective EEZs. In 2009, the Arctic Council encouraged member states to support efforts by the UN’s International Maritime Organization (http://www.imo.org/MediaCentre/HotTopics/polar/Pages/default.aspx) (IMO) to harmonize and adopt mandatory rules for Arctic ship design and construction, crew training, and marine safety equipment. A draft text of a “mandatory polar code” was agreed to in early 2014 and could enter into force by 2016. But some critics believe the IMO should go further, implementing greater restrictions on the use of heavy fuel oil and emissions of black carbon (http://www.epa.gov/oia/io/arcticblackcarbon.html), which may contribute significantly to global warming.
Fishing Controls

Traditionally, overfishing in the Arctic has not been a major concern given its ice cover and lack of commercially attractive species. However, warming conditions and migrating populations are prompting calls for new regulations, particularly on the high seas. Arctic coastal states manage fisheries within their EEZs, but international waters are exposed to overexploitation by non-Arctic states. Conservationists cite the overfishing of pollock in the Bering Sea “donut hole” in the 1980s as a cautionary tale. In 2013, a majority of Arctic states pushed for an accord that would ban industrial fishing on the open water until further study was done on fish stocks, but an agreement has yet to be reached. Experts say several existing treaties provide useful precedents, including the 1995 UN Agreement on Straddling and Highly Migratory Fish Stocks (http://www.fao.org/fishery/topic/13701/en).

Infrastructure

A general lack of infrastructure on both sea and land is perhaps the largest barrier to development in the Arctic, although some states, like Russia, are investing more money in the challenge than others. Maritime experts say that more public and private funding is needed for significant improvements to ship navigation and charting, radio and satellite communication, icebreaker capacity, and port facilities. For instance, many believe Alaska needs a deep-water port to accommodate rising traffic along the Bering Sea.

Parallel investments are also needed on land in new roads, railways, airfields, and pipelines. But funds will also be required to stabilize existing infrastructure in areas where permafrost is melting. Perennially frozen ground could shrink markedly in several countries by midcentury, saddling governments, businesses, and residents with substantial costs. According to some estimates, sinking soil could cost Canada’s North hundreds of millions of dollars in renovation expenses. Policy experts encourage communities facing these challenges to share construction technologies and other best practices.

“The Arctic is a bellwether. The risk there should warn our whole world.”
~ BAN KI-MOON, SECRETARY-GENERAL OF THE UNITED NATIONS

Resources

Experts

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