The Disruption of Arctic Exceptionalism
Managing Environmental Change in Light of Russian Aggression

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Key Points

- The Arctic is directly affected by the interaction of two ongoing global crises: climate change and Russia’s war of aggression in Ukraine.

- With temperatures in the Arctic rising four times faster than the global average, the region is facing dramatic environmental changes such as melting ice, permafrost thawing, and more frequent heatwaves and wildfires. Thus, understanding and managing the global and local implications of environmental change in the Arctic requires urgent scientific and diplomatic collaboration.

- Retreating sea ice has led to more economic interest in the Arctic and its increasing geopolitical importance, fueling militarization and tensions among Arctic states and external global powers like China.

- Russia’s February 2022 invasion of Ukraine and its ongoing war has severely disrupted “Arctic Exceptionalism,” which considered the region to be a place for peaceful and scientific cooperation despite other disagreements and political tensions existing globally and among Arctic countries.

- Resuming key elements of critically needed scientific and political cooperation is dependent on the end of Russian aggression against Ukraine.

The Arctic was long considered a region in which global political tensions were successfully mediated by peaceful cooperation and collaboration. In particular, the 1986 Murmansk speech by Soviet leader Mikhail Gorbachev marked a turning point in Soviet foreign policy toward the Arctic. It signaled the will to prioritize peaceful cooperation over military competition and highlighted the need for environmental protection of the Arctic’s unique ecosystem. Following this ideal of “Arctic Exceptionalism,” the Arctic Council was formed as a platform for eight Arctic nations under inclusion of Indigenous Peoples who have lived in the Arctic for millennia.

Arctic cooperation particularly promoted the advancement of scientific research urgently needed for observing and understanding the Arctic environment and its response to climate change. Further, it helped to regulate increasing geopolitical interests driven by more accessible resources and the strategic importance of Arctic zones. Russia’s war on Ukraine, however, has brought this collaboration to a halt, risking the end of Arctic Exceptionalism for a return to geopolitics that is led by national interests and disregards international law. Restrictive measures, such as sanctions regimes and scientific isolation, and a shift of the Arctic Council toward NATO might not prevent Russia from pursuing a new Arctic strategy characterized by exploiting Arctic resources, partners, and transport routes.

Arctic Exceptionalism is suspended as long as Russia’s aggression persists and poses future challenges about how to regulate Arctic environmental protection and observation in times of ongoing climate change. It is too early to say what the effects of a likely expansion of NATO to two other Arctic states – Finland and Sweden – might be. However, from the governance of fisheries, albeit imperfect, we can see that some regimes can be upheld in times of geopolitical crises.

OBSERVED AND PROJECTED CLIMATIC CHANGES IN THE ARCTIC

The Arctic was a climate hotspot where amplified warming at a rate 3 to 4 times faster relative to the rest of the globe meets a particularly sensitive environment (Figure 1). This amplified warming rate is driven, among other mechanisms, by an increased
absorption of solar radiation in Arctic regions resulting from declining sea ice, which has experienced a reduction of up to 45 percent in recent decades. While the retreating sea ice would reflect 50 to 70 percent of incoming sunlight, newly opened dark ocean areas are reflecting approximately 6 percent—the difference contributes to warming. As the warming further reduces sea ice, these processes constitute a feedback loop and are expected to continue even at a low emission scenario. These expectations highlight the need to be prepared for major shifts in Arctic climatology with local and global impacts on nature and societies that can already be observed today.

A series of record-breaking heat waves within the Arctic Circle have led to air pollution, extensive CO2 release through wildfires, and accelerated permafrost thawing. Fragile Arctic ecosystems are struggling to adapt to rising temperatures and shifting climate zones. In addition to causing local impacts, changes in the Arctic will affect future climate risks on a global scale as permafrost thawing can lead to greenhouse gas release that constitutes a positive climate feedback and considerably reduces the available carbon budget. Further, increased Arctic temperatures and sea ice loss have been suggested to affect mid-latitude weather patterns, possibly leading to more persistent and more frequent extreme weather.

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Trends presently observed will have long-term, potentially irreversible effects. The Greenland ice sheet, for instance, has been repeatedly affected by rapid melting events, which are associated with increased water runoff and ice-shelf collapse. Ice sheets in Greenland have been identified as a climate tipping point that could contribute a total of 7.2 meters to global sea level rise if melted in their entirety and between 0.59 and 1.88 meters by the end of the century under a moderate climate scenario.

Scientific collaboration is therefore urgently needed to monitor and improve our understanding of how and to what degree the Arctic climate is changing. Such data and knowledge are necessary to protect the local environment, improve climate models, and facilitate carbon budget stocktaking.

THE HUMAN DIMENSIONS OF ARCTIC CHANGE

Climate impacts unfold not only in the ecosystem of the Arctic, but also through human-environment interactions in different social systems. Arctic Indigenous Peoples are particularly affected by and vulnerable to these changes because current economic pressures and challenges to human security, such as food security, have been amplified by climate impacts in the Arctic. Furthermore, the impacts are exacerbated by the intersectionality of the multiple factors that produce inequity, including patterns of inequity stemming from colonialism.

Currently, 10 percent of the approximately 4 million inhabitants of the Arctic are Indigenous. Arctic Indigenous Peoples live across areas that are prone to be immediately affected by climate impacts due to direct dependencies of subsistence economies on healthy ecosystems. Coastal erosion linked to later sea-ice formation due to warmer temperatures and thawing permafrost, which leave shores unproTECTED from storm damage, poses grave threats to Arctic livelihoods and infrastructure. The thawing of permafrost and the formation of taliks (areas of unfrozen ground surrounded by permafrost) causes land to subside, negatively impacting roads and buildings. Thinning ice in some areas poses (seasonal) risks to travel on previously stable frozen areas. Due to growing pressures on subsistence economies, harvesting periods and locations have been shifted in attempts to adapt to climatic changes. High place attachment to ancestral homelands has motivated people to stay despite these growing climate risks. Relocation poses the risk of the dissolving of community structures that have formed over long periods of time.

With all the emissions pathways of the Intergovernmental Panel on Climate Change (IPCC) indicating a further global mean temperature increase to at least 1.5 degrees Celsius above preindustrial levels, more severe changes in the Arctic are expected in the coming decades. While mitigation efforts are key for preventing even greater warming, significant adaptation measures will be required to protect traditional livelihoods and support Arctic People’s right to remain on their homeland, including their right of self-determination. However, the geopolitical crisis that has unfolded since the Russian invasion of Ukraine is disrupting collaboration in the Arctic region.

The Russian aggression against Ukraine has unprecedented and serious consequences for Arctic Indigenous Peoples. Inuit, Saami, and Aleuts live across the borders between the Nordic countries and Russia, as well as the border between North America and Russia. For Inuit, it took decades to build the connections and relationships to their fellows in Chukotka, Russia; full participation of the Chukotkan Inuit in the Inuit Circumpolar Council was only made possible after the end of the Cold War.

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Two thirds of the Arctic region are comprised of the water and sea ice of the Arctic Ocean. Despite its fragile ecosystems and the important role that its sea ice plays in the global climate, the Arctic – unlike the Antarctic – is not governed by a special treaty regime. Instead, it is governed by the general law of the sea as set out in the United Nations Convention on the Law of the Sea (UNCLOS). Therefore, most of the Arctic is legally considered to be widely frozen ocean. The legal situation of the Arctic will not change due to climate change as the UNCLOS regime would also govern an ice-free Arctic Ocean.

In establishing the broad economic rights of coastal states, the law of the sea distinguishes among four different maritime zones: the territorial sea, the contiguous zone, the exclusive economic zone, and the high sea. As detailed below, the exploitation of resources is only legally restricted in the high sea, which has implications for the Arctic:

- As its name already indicates, the **territorial sea** is considered to be part of the territory of a coastal state. Hence, territorial states enjoy sovereign rights and have jurisdiction over this maritime zone that includes up to 12 nautical miles of coastal waters from the baseline of a coastal state. The territorial sea vertically extends to airspace, seabed, and subsoil. Beyond the territorial sea, states may establish a contiguous zone that is comprised of 24 nautical miles from the baseline. The **exclusive economic zone** (EEZ) extends to 200 nautical miles from the baseline of a coastal state. Within these maritime zones, it is the sovereign right of the coastal states to exploit resources from the surface (mainly fish) and subsurface (hydrocarbons, minerals, and other natural resources).

- Only a small part of the Arctic is considered as **high sea**, a maritime zone in which no coastal state enjoys sovereign rights. While fishing is still allowed in the high sea, ten parties have entered into the Central Arctic Fisheries Agreement that establishes a moratorium for the time being. Seabed and subsoil may only be used for scientific research and not for resource exploitation. Although those activities are not currently taking place, they fall within the jurisdiction of the International Seabed Authority when they do.

Therefore, the current situation and new freeze of Arctic cross-border cooperation is impacting Arctic Indigenous Peoples and several Permanent Participants of the Arctic Council directly. The Arctic Council itself (see Box 3: The Arctic Council) was co-established by three of the Arctic Indigenous Peoples’ organizations that later became Permanent Participants while three more obtained this status after the council was established. With its unique structure, the Arctic Council has become an international example for other Indigenous Peoples around the world to follow as best practice in their own engagement with nation states and international institutions.

Although they participate in many of the same international and regional forums as the Arctic states, Arctic Indigenous Peoples are diverse and have built very different governance structures in each of their respective homelands. Furthermore, numerous self-governance arrangements have emerged as the Arctic has been democratized. What many Arctic Indigenous Peoples have in common is they have been colonized by powers to their south, such as the Russian Empire, France, Sweden, Finland, Norway, Denmark, and England. Thus, they share having fought for the implementation of their right to self-determination and participation in decision-making.

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Often, a Westphalian view on sovereignty and governance has been dominant. Peoples such as the Inuit have, from the beginning of the establishment of their international organizations, expressed their views on sovereignty and the militarization of the Arctic; they have strongly and continuously pushed for a peaceful use of the region. At the Inuit Circumpolar Council’s founding meetings in 1977, a resolution concerning peaceful and safe uses of the Arctic circumpolar zone called for both a moratorium on the emplacement of nuclear weapons in the Arctic and for the Arctic not to become the scene of...
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REPORT

Resolution 77-11, the new potential for resource extraction in the Arctic.

From a geoeconomical perspective, the observed movements for the recognition of Indigenous representation, it will be difficult for states to ensure legitimate decision-making if they do not include Arctic Indigenous Peoples in related processes – also in times of great geopolitical crises.

ECONOMIC PRESSURES AND COMMERCIAL ACTIVITIES IN A CHANGING ARCTIC

From a geoeconomical perspective, the observed and projected reduction in sea ice has fueled particular interest in more efficient shipping routes and new potential for resource extraction in the Arctic. Below, we expand upon the implications that three areas have for commercial activities.

Resource Extraction

The Arctic is thought to have vast fossil energy reserves. In 2008, the United States Geological Survey (USGS) estimated that the equivalent of up to 412 billion barrels of oil remained largely undiscovered (Figure 2). It said that these resources are distributed throughout the region, predominantly offshore. While the USGS report has been widely cited, some sources have taken a different view. These sources do not see the same extent of hydrocarbon (fossil fuel) resources, suggesting that there are considerably less of them than previously thought.

The questioning of the 2008 figures has already had an impact. Greenland, for example, banned further offshore activity in 2021. However, other actors, such as Russia, remain interested in dominating Arctic oil and gas. Russia’s strategic vision for 2035 sees the region as integral to its state power. In 2020, Arctic zones accounted for 10 percent of its national GDP, 80 percent of gas production, and 17 percent of oil output. To reinforce its presence, Russia developed numerous multibillion-dollar oil and gas production and shipping projects along its Arctic coast. This capacity was codeveloped by pairing local expertise with international finance and technology for projects originally intended to serve European markets.

27 The USGS report speculated that up to 84 percent of these resources are expected to be offshore.
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BOX 2: RISKS OF HYDROCARBON EXPLOITATION IN THE ARCTIC

The prospect of reduced oil and gas exploration in the Arctic could help local environmental regeneration and the global emissions balance. The Arctic’s pristine ecosystem is one of the world’s most fragile biomes. Short reproductive cycles make it hard for populations to rebound, and the cold temperatures can even preserve the harm caused.31 Oil, for example, breaks down at significantly slower rates in cold temperatures than in moderate ones.

The remote location and extreme conditions also make spill management challenging – especially for offshore activity. Any large-scale containment effort would struggle to respond quickly and face the impossibly complex task of removing oil mixed with thick ice while battling subzero temperatures, high wind speeds, large waves, and limited daylight. A report from the Nuka Research and Planning Group found that these conditions severely limited the effectiveness of conventional spill responses.32 The report showed that four of the five tactics assessed were unfavorable between 80 and 99 percent of the time in the winter (November to June), while the fifth response was only favorable 15 percent of the time in the same period.

The flaring of associated gas from production is also an issue. Aside from the increase in emissions, flaring also produces a significant volume of black carbon. Up to 42 percent of black carbon in the Arctic has been linked to this practice.33 On its own, black carbon is a major air pollutant that causes various health issues. However, it is even more problematic in the Arctic because, when the particulates settle on snow or ice, they make these surfaces melt faster.34

The future emissions resulting from burning Arctic oil and gas that are still contained in the soil would be exceptionally incompatible with the climate goals of the Paris Agreement. Reclaim Finance calculated that, if proven Arctic oil and gas reserves were exploited and burned for energy purposes, they would account for 22 percent of the global carbon budget by 2050 (Figure 3).35 A study from the UCL Institute for Sustainable Resources that assessed future oil production based on carbon intensity metrics projected that, in a well below 2°C scenario, most Arctic oil remained undeveloped – also given the availability of other, more accessible oil sources.36 In an article published by Nature, Christophe McGlade and Paul Ekins concluded that Arctic oil was essentially unburnable even in 2°C scenarios.37

Following Russia’s invasion of Ukraine, however, commercial cooperation with the West has collapsed. International companies have either withdrawn or had their shares in major assets expropriated.38 While some companies are working to retain their stake, big players like Exxon and Shell have completely pulled out due to social backlash or the obligations to comply with sanctions. The newest sanctions constrain Russia’s ability to explore for, produce, transport, and sell Arctic oil or gas. Financial restrictions have already resulted in numerous projects being eliminated. However, blocked access to technology essential for gas liquefaction could remain the most significant immediate curb to resource development.39

Gas projects in the Russian Arctic are remote and not connected to pipelines. If they are, those pipes generally lead to Europe. Hence, liquefaction is all but essential to bring gas from new projects to markets or to reroute existing gas away from European demand centers. The issue of physically moving gas is currently a major obstacle facing Russia. Once tapped, gas formations generally need to keep producing. Any deliberate interruption to this flow has the potential to severely damage long-term outputs. In an attempt to deal with this, Russia has reportedly flared significant volumes of this gas, for example near the Finnish border (see Box 2: Risks of Hydrocarbon Exploitation in the Arctic, for further information on the environmental risks of flaring).40 However, market analysis shows that flaring at other key facilities has experienced significant reductions since the 2022 invasion.41 While oil does not face this issue, price caps and import bans from major oil consumers limit potential buyers, which forces discounted sales and makes it harder for Russia to sell the same volumes.

In addition, concerns over the accelerating climate crisis have caused many governments to de-emphasize hydrocarbon extraction, including in the Arctic, in favor of renewable energy. Estimates reveal that resources in the Arctic would use up 22 percent of the remaining budget to stay within the 1.5 degree warming limit (Figure 3). The EU, for example, is – according to its latest Arctic Policy of 2021 – committed to keeping Arctic oil and natural gas in the ground. That, as well as the continued high expense of extraction in the region, has limited energy development in many parts of the Arctic.

Sanctions are not globally enforced, and Russia has found more business with other actors. For example, in May 2022, Chinese imports of Russian oil were 55 percent higher than the year before – meaning that Russia was providing more oil to China than China received from Saudi Arabia.42 Activity like this is a driver of Russia’s continued advance of its energy developments in the Arctic. In the summer of 2022, Russia announced a large oil discovery43 and that it would begin constructing a terminal at the Bukhta Sever port that is intended to become Russia’s largest oil terminal by 2030.44 Nevertheless, analysts believe that this will not be enough to prevent Russia’s Arctic energy assets from entering a long-term decline.45

**Transport and Shipping Routes**

Taking account of the changing ice conditions caused by climate change, Russia has been developing its capacity to regulate and support the Northern Sea Route along its Arctic coast for decades. This route connects the Atlantic and Pacific Oceans through the Russian Arctic. It is ice-free during the summer, and any ship using the Northern Sea Route can save up to 40 percent of the time and fuel needed to pass to Europe from Asia through the Su-

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45 Bloomberg News, “Russia Is Keeping Unsold Gas Underground” (see Note 41).
The Russian government requires vessels taking this route to be accompanied by a Russian icebreaker and to pay a fee for its service (aspects of Russia’s Northern Sea Route regulations have been contested by the United States and others as inconsistent with the law of the sea). In 2021, this valuable economic corridor had considerable traffic, including 60 international transits flowing between East Asia and Europe. While this figure is marginal compared to the Suez or Panama Canals, it is notably higher than the three commercial uses recorded in 2008. Yet, 2022 data from the Russian Northern Sea Route Administration shows that, for the first time in a decade, there has not been a single international transit as companies have avoided business with Russia. Even state-owned enterprises from China, which accounted for nearly half of the international traffic in 2021, did not utilize this route in 2022. Considering this, Russia has made a strategic pivot away from the Atlantic in favor of the Pacific. Its new maritime doctrine considers Arctic resource extraction and safe transit through the eastern end of this sea lane as a vital interest. The new Northern Sea Route Development Plan supports this by channeling 1.8 trillion gigatons of carbon dioxide (GtCO2)


Figure 3 – Unburnable Arctic Carbon Value in Gigatons of CO2 (GtCO2)

3,700 Total Carbon Dioxide Potential of Known Global Hydrocarbon Reserves
400 Remaining Carbon Budget for 1.5°C at the Start of 2021
88.6 Carbon Dioxide Potential from Proven Arctic Oil and Gas Reserves

Retreating sea ice makes new, more efficient transit routes feasible. The Northern Sea Route can reduce travel time, fuel consumption, and CO2 emissions of vessels by up to 50 percent compared to the Suez Canal. | Source: AWI, Factsheet: Shipping in the Arctic.
rubles into making this route an “energy superhighway.” Investments focus on new liquefied natural gas terminals and highlight funding for new ports, mining terminals, and more icebreaking vessels. Further, the Russian Duma has passed a law aimed at limiting the ability of military vessels to move through the Northern Sea Route without clearance.

Despite the intention, infrastructure investment faces severe risks – notably, the thawing of permafrost. An emerging body of literature is beginning to show that rapid thawing can cause extraordinarily complex challenges. Earlier studies projected that permafrost thaw would be one of the most significant risks to public infrastructure throughout Alaska, causing

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blocks can emerge along the seafloor. Monterey Bay Aquarium Research Institute (2022) found that ice-filled hills or sinkholes the size of large city blocks can emerge along the seafloor. Developments like this are hard to address, especially retroactively. Infrastructure in the region generally requires strong consideration of long-term permafrost dynamics. However, if science continues to show that permafrost is thawing faster than previously expected, the integrity of old assumptions underpinning built infrastructure becomes an increasingly larger risk to continued commercial activity.

**Fisheries**

Fisheries constitute an area where commercial and governmental collaboration in the Arctic has been possible. That collaboration includes the multilateral Agreement to Prevent Unregulated High Seas Fisheries in the Arctic Ocean of 2018. This agreement, which entered into force in 2021, was signed, inter alia, by Canada, China, the Kingdom of Denmark, Japan, the EU, Norway, Russia, and the United States. In November 2022, the parties to the agreement held their first Conference of the Parties, a meeting that brought Russian officials together with ones from countries opposed to Russian actions in Ukraine.

Russia’s February 2022 invasion of Ukraine has limited some bilateral aspects of cooperation on fishing. Canada, the EU, Norway, Russia, and the United States quickly barred Russian fishing vessels from entering their ports. The Faroe Islands and Norway are two notable exceptions; despite barring Russian vessels port entry, they have retained entry rights for fishing vessels to keep bilateral management of fish stocks open. The Faroe Islands are also in the process of renegotiating a bilateral fishing agreement and aim to keep this process outside of geopolitical issues. There are, however, limits to this, as perceivable escalations warrant elevated precautions. For example, after the Nord Stream pipelines were destroyed by explosion, Western nations generally feared a threat to the physical security of European energy infrastructure. In response, Norway closed all but three of its ports to Russian fishing vessels and implemented rigorous security searches for any docking vessel. All the while, they began coordinating with the British, French, and German armed forces to protect their offshore energy infrastructure in the North Sea.

Reluctance to fully disrupt cooperation on fish stocks can be justified as Arctic fisheries require active management and are vulnerable to progressing anthropogenic disturbance. Many species have been overexploited for decades, and research from the Institute of Marine Research has shown that environmental changes are causing reproduction rates to decline in multiple species. Moreover, fish do not adhere to man-made delineations, such as borders or EEZs, and many migratory paths go across multiple national jurisdictions (see Figure 5 on exclusive economic zones). Noncooperation in managing stocks could cause problems, especially if fishing quotas are not respected. One country’s vessels could exceed their allowable catch or begin fishing illegally in neighboring jurisdictions. Collaboration here still seems possible, as both Norway and Russia announced a direly needed 20-percent reduction in total allowable catches of cod in the Barents Sea for 2023.

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The combination of rising geoeconomic interest with the fast pace of environmental change due to amplified warming and its direct effects on the local population calls for effective scientific and diplomatic collaboration in the Arctic that involves both Arctic and non-Arctic states.

The Arctic has long been considered a model region for peaceful and constructive cooperation with scientific collaboration playing a central role. The success story of the Arctic Council (see Box 3) is, to a large extent, built on scientific cooperation – recognizing that policy-making must be based on scientific knowledge. Such long-lasting, productive collaboration, which took place through the Arctic Council and other entities and despite serious geopolitical tensions, helped to coin the term "Arctic Exceptionalism."

The scientific assessments conducted by the Working Groups of the Arctic Council are very successful instruments for formulating policy recommendations for its member states. These assessments provide the basis for a multitude of measures to protect the Arctic environment, support the well-being of Arctic inhabitants, and facilitate the sustainable development of the region.64 Although military security is outside the mandate of the Arctic Council, it serves as an important network for bilateral and multilateral discussions on key regional topics. Recognizing the need to strengthen scientific cooperation in the Arctic, the Arctic Council initiated and facilitated a legally binding Agreement on Enhancing International Arctic Scientific Cooperation among the Arctic States in 2017.65

Another process to strengthen international scientific cooperation was initiated by the United States in 2016, when it invited the science ministers from all countries engaged in Arctic research as well as representatives from Arctic Indigenous Peoples’ organizations to the initial White House Arctic Science Ministerial Meeting (ASM).66 Following this first ASM, the European Union, Germany, and Finland organized the second meeting in Berlin in 2018.67 Iceland and Japan hosted the third meeting in Tokyo in 2021.68 The plans for a fourth ASM to be jointly organized by France and the Russian Federation are currently on hold as a consequence of Russia’s war.

That the Arctic Council has long been an effective platform for negotiations is arguably due to three factors: its limited and clearly defined agenda (sustainable development and environmental protection but explicitly not military security issues); its focus on technical, expert-focused work rather than

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**INTERNATIONAL GOVERNANCE OF ARCTIC REGIONS**

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on negotiating binding regulations; and its consensus-based decision-making rule. Indeed, in challenging circumstances in which bilateral efforts to engage Russia on environmental issues proved difficult, approaching them through the multilateral mechanism of the Arctic Council was often effective. For diplomats working within it, collaborating with their Russian counterparts was more cordial and less problematic than in many other fora.

Due to the February 2022 invasion of Ukraine by Russia, however, the seven member states other than Russia – Canada, Finland, Iceland, the Kingdom of Denmark, Norway, Sweden, and the United States – announced that they were suspending their participation in the Arctic Council's work, including that of its subsidiary bodies until further notice.69 Those states subsequently agreed among themselves to recommence cooperation on activities not involving Russia. Unlike other international institutions like the United Nations Framework Convention on Climate Change (UNFCCC) that are founded on the basis of legally binding international agreements, the Arctic Council is solely based on the Ottawa Declaration – a non-legally binding instrument rather than a binding treaty. Consequently, cooperation in the Arctic Council is mainly based on political will instead of strict legal obligations. This is why, when those members ceased their cooperation with Russia in the Arctic Council as a consequence of the invasion of Ukraine, their participation with Russia in UNFCCC formats such as the COP still proceeded. It remains unclear whether and how the Arctic Council can continue to function without Russia, which would mean ignoring the council’s current rules of procedure. It is, for example, uncertain how the chairmanship can pass from Russia to Norway as was planned for early 2023.

**DISRUPTED SCIENCE DIPLOMACY**

The international scientific organizations of the North have also condemned the unprovoked Russian invasion of Ukraine. For example, the International Arctic Science Committee (IASC), which is the leading international science organization for the Arctic, stated that it cannot proceed as normal and is currently evaluating the situation and the implications for its future work.70 The University of the Arctic (UArctic), a network of universities, colleges, research institutes, and other organizations concerned with education and research in and about the North, decided that collaboration between UArctic and Russian institutions is paused.71 The European Commission suspended the cooperation with Russian entities in research, science, and innovation,72 and many countries have taken similar measures regarding the bilateral cooperation with Russian institutions. The German Federal Ministry of Education and Research, for example, announced that all current and planned activities with Russia are frozen and subject to critical review.73

**LEGAL PERSPECTIVES ON ENVIRONMENTAL PROTECTION IN THE ARCTIC**

Despite being broadly entitled to resource exploitation as mentioned above, states are still obliged to protect and preserve the marine environment. Thus, according to UNCLOS, states shall take necessary measures to prevent, reduce, and control pollution of the marine environment.74 Additionally, the Arctic coastal states are entitled to set up stricter regulations to further protect the marine environment against pollution resulting from shipping. This so-called Arctic Exception in Article 234 of UNCLOS applies equally to all ice-covered waters and permits coastal states to adopt and enforce non-discriminatory laws for vessels passing through ice-covered waters.

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areas within their EEZ.\textsuperscript{75} Russia and Canada have referred to Article 234 to justify aspects of their respective regulation of the Northern Sea Route and the Northwest Passage.

In addition to the regulation by UNCLOS, Arctic states agreed upon non-binding measures that cover oil and gas exploitation in the Arctic. These Arctic Offshore Oil and Gas Guidelines (AOOGG) were considered a great success as they provide a minimum set of measures to protect the Arctic marine environment from harmful effects potentially caused by oil and gas production.\textsuperscript{76}

What most effectively protects the marine environment in the Arctic to date, however, is the fact that areas where resources are suspected to exist are hardly accessible due to sea ice or other harsh conditions, or they are located far from shore at great depths.\textsuperscript{77} This situation, at least with respect to sea ice as an obstacle, is likely to evolve given the immense speed of temperature rise in the Arctic. Considering the current energy crisis and high energy prices, it is possible that there will be further attempts to promote hydrocarbon exploitation in the Arctic in the future, despite warnings from scientists related to climate concerns.

\textbf{CONCLUSION: A BALANCING ACT}

Arctic Exceptionalism may be stymied in geopolitics, but the Arctic’s current challenges mean that the region itself remains exceptional – through the pressures it is under from Russian aggression in Europe; the threats to institutions that include the Indigenous Peoples of the Arctic such as the Arctic Council; and growing climate, environmental, and biodiversity crises with far-reaching implications. In the face of all these challenges, the Arctic currently presents an important example for considering how to apply a value-based foreign policy to autocratic actors whose cooperation is needed for the protection of global public goods.

In the short- to mid-term, scientific cooperation with Russia on an institutional level – needed to acquire climate knowledge – remains politically impossible,\textsuperscript{78} and its resumption depends on the end of Russian aggression against Ukraine. While some limited personal exchanges among previously closely linked groups of scientists working inside Russia and other Arctic countries have quietly continued, these interactions and data transfers are constrained by factors that include the Russian government punishing any perceived dissent. Scientific and environmental protection initiatives should therefore be intensified outside of Russian jurisdiction. In the long run, this could include investing more in remote sensing initiatives to work toward scientific data collection independent from geopolitical tensions. Moreover, Arctic Indigenous Peoples should be increasingly involved in these processes for the coproduction of knowledge on ecosystems, climate change, biodiversity, and environmental development.

Russia makes up half the Arctic. Despite the current obstacles to cooperation within the Arctic Council, that also means that effective, long-term pan-Arctic cooperation on environmental, scientific, and geopolitical issues can only be realized with Russia. It is difficult to foresee how Russia’s current chairmanship of the Arctic Council will end and how a new Norwegian chairmanship might begin.\textsuperscript{79} Once, as anticipated, Finland and Sweden join NATO, all members of the Arctic Council other than Russia will be part of this alliance, which is likely to create concerns for Russia. Finding a way to preserve the Arctic Council so that it can resume its positive impact on regional governance and promote the interests of Arctic Indigenous Peoples will be important in the long term but difficult to achieve as long as Russia’s war in Ukraine continues.

In particular, to mitigate global climate change, international efforts need to be increased to stop the exploration and extraction of fossil resources in spite their increasing accessibility linked to retreating sea ice.


\textsuperscript{78} Michael Paul, “Arctic Repercussions of Russia’s Invasion” (see Note 69).

The prospects for Arctic governance beyond the Arctic Council are a bit more positive. Work within treaty-based international organizations, such as the UNFCCC, International Maritime Organization, and International Civil Aviation Organization, still goes forward. Further, most aspects of scientific cooperation that did not involve Russia to begin with have been largely unaffected. These activities, along with the networks and collaborations of the Arctic Indigenous communities (other than in Russia) as well as cooperation with non-Arctic observer states, will likely be strengthened.

Russia’s aggression against Ukraine has changed the geopolitics of the Arctic, resulting in consequential adverse side effects for Arctic Indigenous Peoples and global knowledge on climate change. The dynamics of this change have global climate impacts, and the long-term disruption of joint research with Russia will considerably weaken scientific advancements and environmental management in the region. Navigating this complex situation will require significant political attention and continuous assessment by Arctic States, non-Arctic States, and NATO members.