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# Polar Opposites: Assessing the State of Environmental Law in the World's Polar Regions

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***Polar Opposites: Assessing the State of  
Environmental Law in the World's Polar Regions***

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***Abstract***

*Climate change is fundamentally transforming both the Arctic and Antarctic polar regions. Yet they differ dramatically in their governing legal regimes. For the past sixty years the Antarctic Treaty System (ATS), a traditional “hard law” international law treaty system, effectively demilitarized the Antarctic region and halted competing sovereignty claims. In contrast, the Arctic region lacks a unifying Arctic treaty and is governed by the newer “soft law” global environmental law model embodied in the Arctic Council’s collaborative work. Now climate change is challenging this model. It is transforming geography of both polar regions, breaking away massive ice sheets in Antarctica, melting polar ice caps in the Arctic, opening maritime trade routes and renewing the possibility for natural resource extraction. Will the Arctic experience a peaceful future similar to its sister polar region, or will it emerge as a polar “wild west” with increasing geopolitical tension between the Arctic states? Will a new polar Cold War emerge between Russia and the other four NATO Arctic coastal nations?*

*This article addresses these questions—and others—while making three new contributions to legal scholarship. First, we closely examine the different legal models in both the Arctic and Antarctica, discerning what lessons the Antarctic Treaty System—one of the most successful international agreements in history—can be applied to the Arctic. Second, we analyze the unique significance played by global environmental law in the context of the polar regions, best embodied by the collaborative work of the Arctic Council. Third, in light of the uncertainty posed by climate change and the potential for rising geopolitical tensions, we provide a new framework to analyze the future Arctic governance to include the five key factors that will determine the Arctic’s future.*

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# ***Polar Opposites: Assessing the State of Environmental Law in the World's Polar Regions***

Commander (ret.) Mark P. Nevitt, U.S. Navy  
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## **Introduction**

The planet's polar regions are the most environmentally sensitive areas on earth with the harshest climactic conditions. Yet they differ dramatically in their topography as well as their governing legal regimes. While the Arctic Ocean lies at the heart of the Arctic polar region, the continent of Antarctica—the coldest, driest and windiest landmass on earth—dominates the Antarctic polar region. Free from any military activities and competing sovereignty claims, Antarctica has been a place of peace and stability for more than a half century. This is largely due to the remarkable international environmental law success of the Antarctic Treaty System (ATS), a series of forward-looking international agreements that demilitarized Antarctica and halted competing sovereignty claims.<sup>3</sup> The ATS “hard law” regime prohibits access to Antarctica's vast potential mineral resources, effectively establishing a “land without a sovereign” and worldwide nature reserve. In contrast, the Arctic region lacks a comprehensive and Arctic-specific treaty binding on all Arctic stakeholders and is largely governed by the work of the Arctic Council and a loose hodgepodge of “soft law” agreements.

But climate change is challenging this construct. It is transforming the polar regions in fundamental ways, calling into question the existing Arctic soft law model. Indeed, the Inter-Governmental Panel on Climate Change (IPCC) states that climate change's most immediate and intense effects are already appearing in the polar regions, areas already warming at twice the rate of the rest of the planet.<sup>4</sup> Just last month an ice sheet the size of Delaware broke away from the continent of Antarctica, potentially foreshadowing the beginning of a massive polar ice sheet fragmentation with and unknown impact on global sea level rise. Indeed, the Arctic polar ice caps are melting at the fastest rate in recorded history, re-making trade routes, removing the ice cap “ceiling,” and opening the possibility for massive oil and gas extraction.<sup>5</sup> Highlighting this remarkable change, a cruise ship with 900 passengers recently navigated the Northwest Passage in the

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<sup>3</sup> Melissa Verhaag, Note, *It is Not Too Late: The Need for a Comprehensive International Treaty to Protect the Arctic Environment*, 15 GEO. INT'L ENVTL. L. REV. 555, 571 (2003) (describing the Antarctica Treaty as “arguably the most successful international treaty in existence”).

<sup>4</sup> Timo Koivurova, *Environmental Protection in the Arctic and Antarctic: Can the Polar Regimes Learn from Each Other?*, 33 INT'L J. LEG INF. 204, 218 (2005).

<sup>5</sup> It is estimated that one-fifth of the world's oil and gas supplies lie in the Arctic.

Arctic—the largest such journey of a vessel that size in recorded human history.

Natural resources abound in the Arctic, home to an estimated one-fifth of the world’s oil and gas resources. Most reside offshore and lie untapped.<sup>6</sup> While lower worldwide oil prices have temporarily halted a massive Arctic oil rush, private industry remains interested in the Arctic as a future source of valuable oil, gas, and mineral resources.<sup>7</sup> In light of the diverse impacts of climate change, the work of the consensus-based Arctic Council, an intergovernmental forum for the eight Arctic states, has taken on increased importance. However, the precise legal contours of what nation has the unadulterated rights to access these resources remain unclear.

Long-term uncertainty looms in the Arctic as global warming rapidly shrinks the Arctic ice pack and opens navigational waterways.<sup>8</sup> We ultimately foresee an increased competition for oil and mineral exploitation, competing continental shelf claims, and greater potential for environmental damage in light of increased shipping traffic in the Arctic.<sup>9</sup> Additional questions arise: Will the future Arctic resemble a new global “wild west” as nations compete and confront one another for its untapped resources? Or will the Arctic have a more peaceful and stable future mirroring the stability enjoyed by Antarctica for the past sixty years? Is the “soft law” and consensus-based Arctic governance model sufficient to address this historic geopolitical and environmental shift or, ultimately, will a “hard law” solution such as a comprehensive and binding Arctic Treaty be required to mitigate

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<sup>6</sup> See Joseph F.C. DiMento, *Environmental Governance of the Arctic: Law, Effect, Now Implementation*, 6 U.C. IRV. L. REV. 25 n.4 (2016).

<sup>7</sup> See *Envtl. Def. Fund v. Massey*, 986 F.2d 528 (1993) (stating that Antarctica is a “continent without a sovereign”). Drilling for oil in the Arctic has been mitigated, somewhat, by the lower cost of oil. See also Emily Atkin, *Shell Can Now Drill in the Arctic*, THINK PROGRESS, Jul. 23, 2015, <https://thinkprogress.org/shell-can-now-begin-drilling-in-the-arctic-66a4508d31eb/> (reporting on the Obama Administration’s granting of Shell to begin exploratory drilling in the Chukchi Sea, about 140 miles from Alaska’s northwest shoreline); Steven Lee Myers & Clifford Krauss, *Melting Ice Isn’t Opening Arctic to Oil Bonanza*, N.Y. TIMES, Sep. 7, 2015, <https://www.nytimes.com/2015/09/08/world/europe/melting-ice-isnt-opening-arctic-to-oil-bonanza.html?mcubz=0>. Russia’s continental shelf is abundant in natural gas while North America’s continental shelf is abundant in oil.

<sup>8</sup> By accelerating the melting of the polar ice cap and Antarctic ice shelves, climate change is fundamentally changing the geography of both polar regions. The United Nations Intergovernmental Panel on Climate Change (UNIPCC) states that climate change is dramatically impacting the two polar regions. The Arctic Climate Impact Assessment (ACIA) stated that “the most rapid and severe climate change on earth” is occurring in the Arctic.” ARCTIC CLIMATE IMPACT ASSESSMENT, IMPACTS OF A WARMING ARCTIC (2004), <http://www.acia.uaf.edu/pages/overview.html>.

<sup>9</sup> Some commentators have noted that the lack of a clear and binding governing Arctic legal regime may cause the Arctic to “erupt in a mad dash for its resources.” Scott Borgerson, *Arctic Meltdown: The Economic and Security Implications of Global Warming*, FOREIGN AFFAIRS, Mar./Apr. 2008, <https://www.foreignaffairs.com/articles/arctic-antarctic/2008-03-02/arctic-meltdown>. See also Verhaag, *supra* note 3, at 558.

geopolitical tensions and competing sovereignty interests?<sup>10</sup> This article examines these questions, and others, by deciphering what lessons—if any—Antarctica can teach the Arctic while providing a new framework highlighting the five key factors that will have an increasingly important impact on future of Arctic governance. We assert that while the ATS system cannot be replicated in the Arctic, important lessons can be drawn from the ATS’s success, which should serve as an inspiration and polar muse for future Arctic governance matters.

First and foremost, the Arctic’s changing geography reinforces the need for the United States to ratify the United Nations Convention on the Law of the Sea (UNCLOS). This will ensure a seat at the table for the U.S. in continental shelf deliberations—critical to finalize competing continental shelf claims. Second, we assert that global environmental law will continue to play an outsized role in both polar regions. As calls for negotiating an over-arching Arctic Treaty have been met with skepticism, Arctic stakeholders have taken several proactive and incremental steps via the Arctic Council to improve environmental protection. Indeed, these initiatives are consistent with global environmental law’s emphasis on private and public partnerships that emerge organically from the “bottom-up.” Third, we assert that the Arctic region’s future hinges on five key factors: (1) UNCLOS’s long-term ability to solve competing continental shelf claims; (2) long-term Russian military ambitions in the Arctic; (3) the true pace of climate change in the polar regions; (4) the future cost of extracting oil and minerals from the Arctic; and (5) potentially divergent geopolitical interests between Arctic coastal states, non-coastal states and non-Arctic states. As of this writing, lower global oil prices have temporarily stalled the race to exploit Arctic resources—but this may not be a permanent state of affairs. As such, this is *the* opportune time to strengthen environmental protection and governance in the Arctic.

Part I provides an overview of the Arctic region, addressing its geography and environment as well as providing an overview of its soft law system, exemplified by the increasingly important work of the Arctic Council. Part II provides an overview of Antarctica, including its geography, environment, and a summary of the ATS. After analyzing and comparing the legal regimes governing the two polar regions, Part III looks to the role of global environmental law in the Arctic while offering initial recommendations to improve environmental protection and to defuse future conflicts in the polar regions.<sup>11</sup> We conclude in Part IV by surveying the five critical factors

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<sup>10</sup> See generally Jean Galbraith & David Zaring, *Soft Law as Foreign Relations Law*, 99 CORNELL L. J. 735 (2014).

<sup>11</sup> It is beyond the scope of the paper to provide an in-depth analysis of all the difficulties of environmental cleanup in the Arctic. But the underlying harsh conditions and distance from sophisticated cleanup resources make environmental pollution cleanup and remediation

that will have the greatest impact on future Arctic governance while offering initial recommendations to defuse any potential rising tensions.

## I. THE ARCTIC REGION: GROWING IN IMPORTANCE, BUT LACKING A COMPREHENSIVE & BINDING LEGAL REGIME

### A. *The Arctic Region: In Need of a Well-Established and Understood Definition*

The Arctic region encompasses a diverse maritime-centric area bordering several nations that is home to almost four million people. However, the terms “Arctic” and “Arctic region” lack a universally accepted definition among lawyers and scientists.<sup>12</sup> The Arctic’s most commonly used definition encompasses all the land and sea area north of the Arctic Circle – defined as latitude 66.34° North.<sup>13</sup> Another Arctic definition includes all the land and sea area where the average temperature is below 10 degrees Celsius in the warmest month (July).<sup>14</sup> This definition creates an irregularly shaped circle that excludes Finland and Sweden (see map below). An Arctic Council working group, the Arctic Monitoring and Assessment Programme (AMAP), has adopted yet another definition of the Arctic region to encompass “the terrestrial and marine areas north of the Arctic Circle (66°32’ N), and north of 62°N in Asia and 60°N in North America, modified to include the marine areas of the Aleutian chain, Hudson Bay, and parts of the North Atlantic.”<sup>15</sup>

Within United States law, “Arctic” is defined in statute in the 1984 Arctic Research and Policy Act (ARPA). This definition actually includes a large area *below* the Arctic Circle to include the Aleutian Island chain.<sup>16</sup> It states:

As used in this title, the term “Arctic” means all U.S. and foreign territory north of the Arctic Circle and all U.S. territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwin Rivers; all contiguous areas, including the Arctic Ocean and the Beaufort, Bering and Chuckhi Seas, and the Aleutian island chains.<sup>17</sup>

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particularly difficult. *See generally* Verhaag, *supra* note 3 at 559 (listing six reasons why the Arctic’s environmental concerns are “more acute than in most areas of the globe”).

<sup>12</sup> RONALD O’ROURKE, CONG. RES. SERV., CHANGES IN THE ARCTIC: BACKGROUND AND ISSUES FOR CONGRESS, at 63 (2017) [hereinafter ARCTIC CRS].

<sup>13</sup> *Id.* at 1.

<sup>14</sup> *Id.* at 4.

<sup>15</sup> *Id.* at 5.

<sup>16</sup> *Id.* at 2.

<sup>17</sup> 15 U.S.C. § 4111 (2017). The Arctic Research and Policy Act was passed to provide a comprehensive policy on research needs in the Arctic, and designated the National Science Foundation (NSF) as the lead federal agency for implementing Arctic research policy.

Eight nations—the United States (via Alaska), Denmark (via Greenland), Canada, Russia, Norway, Finland, Sweden, and Iceland have boundaries within the Arctic Circle.<sup>18</sup> These eight nations, often referred to as the “Arctic nations,” are longstanding members of the Arctic Council.<sup>19</sup> Within these eight Arctic nations, five Arctic coastal states (United States, Russia, Canada, Norway, and Denmark) can claim continental shelves in the Arctic. As discussed below, determining the extent of a nation’s continental shelf is critically important for oil, gas, and mineral extraction rights. Unlike Antarctica, which has no permanent population, indigenous people reside in seven of the eight Arctic nations. Indigenous peoples have inhabited the Arctic for thousands of years—and their communities are increasingly vulnerable to climate change’s impacts.

[Note to Editors: We can include a map of the Arctic below]

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<sup>18</sup> ARCTIC CRS, *supra* note 12, at 1-2, 58 (stating that Russia “has at least half of the Arctic in terms of area, coastline, population and probably mineral wealth). Of note, under no accepted definition does the Arctic does *not* include the lower two-thirds of Alaska or the Bering Sea and Bering Strait. *Id.*

<sup>19</sup> ARCTIC CRS, *supra* note 12, at 1.

B. *The Arctic Ocean: Melting Polar Ice Caps are Opening Trade Routes and Renewing Global Interest in Oil, Gas and Mineral Extraction*

The Arctic Ocean, the world's smallest ocean, dominates the Arctic region, forming an increasingly vital maritime connection between the northern Atlantic and northern Pacific Ocean. Its circular basin is slightly smaller than one and a half times the size of the United States.<sup>20</sup> And the Arctic Ocean's deep central basin is "almost completely surrounded by the coastal [s]tates' continental shelves"—similar to five orange wedges merging at the North Pole.<sup>21</sup> No other place on earth witnesses such a geopolitical convergence. The major seaports are Prudhoe Bay in the United States, Churchill in Canada, and Murmansk in Russia.<sup>22</sup> The Chukchi Sea provides access to the northern Pacific Ocean and is of major strategic interest to Russia and the United States. Winters in the Arctic are continuously dark and summers are continuously light.<sup>23</sup>

The Arctic is warming twice as fast as the rest of the planet, altering the Arctic's unique geophysical character at a rapidly accelerating rate.<sup>24</sup> Consider climate change's impact on the Arctic's perennial drifting polar ice pack. The size of the icepack has historically fluctuated, shrinking in the summer while freezing over during the winter months.<sup>25</sup> It averages three

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<sup>20</sup> Christopher C. Joyner, *The Legal Regime of the Arctic Ocean*, 18 J. TRANSNAT'L LAW & POLICY 195, 201 (2009).

<sup>21</sup> See Brent Carpenter, Comment, *Warm is the New Cold: Global Warming, Oil, UNCLOS Article 76, and How an Arctic Treaty Might Stop a New Cold War*, 39 ENVTL. L. 231 (2009) (quoting Arthur Grantz, *Treatment of Ridges and Borderlands Under Article 76 of the United Nations Convention on Law of the Sea: The Example of the Arctic Ocean*, in LEGAL AND SCIENTIFIC ASPECTS OF CONTINENTAL SHELF LIMITS 203 (Myron H. Nordquist et. al eds., 2004).

<sup>22</sup> Unlike Russia, the United States currently does not have a major military facility or airfield bordering the Arctic Ocean, nor are there immediate plans to build one.

<sup>23</sup> CENT. INTELLIGENCE AGENCY, WORLD FACT BOOK, ARCTIC OCEAN, <https://www.cia.gov/library/publications/the-world-factbook/geos/xq.html> (accessed Aug. 23, 2017) [hereinafter CIA WORLD FACT BOOK].

<sup>24</sup> Former U.S. Vice-President Al Gore has stated that the Arctic will be ice-free as early as 2055. Don Walsh, *The Arctic Ocean—Hot Times in a Cold Place*, PROCEEDINGS, July 2017, at 91 (estimating that 25 percent of the world's undiscovered hydrocarbons are in the Arctic Ocean). In addition the eight Arctic Council members account for 60 percent of the world's greenhouse gas (GHG) emissions, and are all developed nations. Consistent with broader principles of international environmental law, the Arctic Council members have common but differentiated (i.e. greater) responsibilities to the world environment. The Rio Declaration on Environment and Development, U.N. Doc A/CONF.151/26 (June 14, 1992).

<sup>25</sup> CIA WORLD FACT BOOK, *supra* note 23. "Canada and the United States dispute how to divide the Beaufort Sea and the status of the Northwest Passage but continue to work cooperatively to survey the Arctic continental shelf; Denmark (Greenland) and Norway have made submissions to the Commission on the Limits of the Continental Shelf (CLCS) and Russia is collecting additional data to augment its 2001 CLCS submission; record summer melting of sea ice in the Arctic has renewed interest in maritime shipping lanes and sea floor exploration; Norway and Russia signed a comprehensive maritime boundary agreement in 2010." *Id.*



meters of thickness and covers the Arctic throughout much of the year.<sup>26</sup> But this, too, is starting to change as the icepack fluctuations have become more dramatic. Climate change is altering the ice pack's size: by some estimates its surface size has decreased by 70% since the 1970's.

The summer ice pack has receded even more in recent years, opening up shipping lines and navigational waterways for the first time in human history. Mariners since the 15th century have been fascinated by the Arctic region's geography with an eye toward discovering shorter trade routes between Europe and Asia. Two seasonal waterways—the Northwest Passage through Canada and the somewhat lesser known Northern Sea route alongside Russia—can be found in the Arctic. The Northwest Passage contains several possible routes, all running through the Canadian Arctic Islands and linking trade from northeast Asia through North America to the northern Atlantic.<sup>27</sup> The Northern Sea Route hugs the Russian coastline. This route is of particular importance for Russia as it provides the shortest maritime link between the eastern and western part of the country, offering a potential shortcut to Europe and the Atlantic.<sup>28</sup>

The 15th century dream is now becoming a 21st century reality. For the first time in history, the Northwest Passage and Northern Sea Route are becoming increasingly viable and witnessing a significant uptick in traffic. Indeed, a 900-passenger cruise ship successfully made the Northwest Passage journey through the Arctic Ocean in the summer of 2016—the first time that a vessel of that size made the journey in recorded history.<sup>29</sup>

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<sup>26</sup> In addition, the United Nations Convention of the Law of the Sea (UNCLOS) has a provision for “ice covered areas.” It states:

Coastal states have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.

UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS), art. 234, 833 UNTS 3; 21 ILM 1261 (1982) [hereinafter UNCLOS].

<sup>27</sup> CRS ARCTIC, *supra* note 12, at 23. In 2013 the first bulk carrier (carrying coal) successfully sailed from western Canada to Finland via the Northwest passage. This was followed up by a 900-passenger ship passage in 2016. As of this writing, an even larger vessel is anticipated to make the journey in summer 2017, accompanied by an icebreaker. *Id.*

<sup>28</sup> CIA WORLD FACTBOOK, *supra* note 23.

<sup>29</sup> Marc Thiessen, *Thanks to Melting Ice, Cruise Ship Travels Northwest Passage*, U.S. NEWS & WORLD REPORT, Sept. 9, 2016, <https://www.usnews.com/news/news/articles/2016-09-09/giant-cruise-ship-makes-historic-voyage-in-melting-arctic>.

*C. The Arctic Council: A Source of Cooperation and Stability for the Region With an Evolving and Important Role in Arctic Governance*

The Arctic Council, the confederation of the eight Arctic nations, plays a critically important role in Arctic governance. The Arctic Council's genesis began modestly, but has demonstrated an ability to evolve and expand its role over time to meet emergent Arctic challenges. Arctic governance can be traced the end of the Cold War when former Soviet Secretary General Mikhail Gorbachev called upon all of the Arctic nations to develop a more formalized international Arctic governance structure. Two years following Gorbachev's call to action, the Exxon Valdez oil spill tragedy devastated the near Arctic region off the Alaska coast. This heightened global awareness of the Arctic region's fragile environment, exposing the world's inability to respond to environmental disasters in the region. Arctic nations followed through on Gorbachev's earlier proposal in adopting the 1991 Rovaniemi Declaration in Rovaniemi, Finland. This established the Arctic Monitoring and Assessment Programme (AMAP) to monitor the levels of, and assess the effects of, pollutants in the Arctic environment.<sup>30</sup> This set the stage for the establishment of the Arctic Environmental Protection Strategy (AEPS)—a concrete effort to proactively identify and solve environmental problems in the Arctic.

While short-lived, the AEPS laid the groundwork for future Arctic collaboration, culminating in the 1996 signing of the Ottawa Declaration. This formally established the Arctic Council as a “high level forum” for “promoting cooperation, coordination, and interaction among the Arctic states.”<sup>31</sup> The AEPS's legacy and environmental focus can be seen in the Arctic Council's construct and focus. Indeed, all eight AEPS signatories signed the Ottawa Declaration and many of the AEPS working groups established by the AEPS are incorporated within the Arctic Council.<sup>32</sup> Within the Arctic Council, five of the Arctic coastal states (Russia, U.S., Canada, Denmark, and Norway) have a continental shelf in the Arctic Ocean which offers the potential to harvest oil, natural gas, and minerals pursuant to maritime boundaries and procedures set forth in the United Nations Convention on the Law of the Sea (UNCLOS). The three non-coastal states (Finland, Iceland, and Sweden) lack an Arctic continental shelf and are effectively precluded from submitting continental shelf claims.<sup>33</sup>

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<sup>30</sup> THE ROVANIEMI DECLARATION ON THE PROTECTION OF THE ARCTIC ENVIRONMENT (1991).

<sup>31</sup> ARCTIC COUNCIL, DECLARATION ON THE ESTABLISHMENT OF THE ARCTIC COUNCIL 1996 [hereinafter OTTAWA DECLARATION].

<sup>32</sup> The working group setup is also somewhat unusual as each working group operates with its own secretariat, focus, and from a different locale.

<sup>33</sup> However, the United States Senate has not ratified UNCLOS and there is not a clear legal basis for the United States to submit a CLCS claim pursuant to UNCLOS. CRS ARCTIC, *supra* note 12. The three non-coastal Arctic states were not invited to participate in

The organizational set-up of the Arctic Council is somewhat unique: it only meets on a biennial basis and there is no permanent staff or dedicated funding source. And the responsibility for hosting these meetings is rotated sequentially among the eight member States.<sup>34</sup> All decisions of the Arctic Council are by consensus of the members, made after full consultation. Unlike the Antarctic Treaty System (ATS), discussed in Part II, the Arctic Council's permanent voting members only include nations resident to the Arctic. Of increasing importance to address geo-political tensions, the Arctic Council also lacks a mandate to tackle *all* Arctic issues. For example, it lacks the mandate to address issues of sovereignty, natural resource exploitation, and military activities.<sup>35</sup> While the Arctic Council has shown an ability to evolve to meet emerging issues, a significant void nevertheless persists in its ability to comprehensively address all Arctic issues as they arise.<sup>36</sup>

But the Arctic Council's somewhat unconventional governance structure does provide certain advantages. First, it provides a home and voice for both non-governmental organizations and indigenous people who have inhabited the Arctic for thousands of years. Indeed, the Ottawa Declaration expressly designates certain indigenous tribes as permanent participants (non-voting) within the Arctic Council.<sup>37</sup> And permanent observer status has recently been granted to non-Arctic nations, to include China. Second, the Arctic Council serves as a collaborative forum to address Arctic issues as they arise. In doing so, it has demonstrated the capacity to evolve and expand over time. Serving akin to an "Arctic United Nations," it can operate in an incremental and cooperative fashion consistent with broader principles of global environmental law discussed in Part III.

As an outgrowth of the AEPS, the Arctic Council focuses primarily on environmental matters. But this, too, has started to expand as two recent Arctic Council-engineered agreements created binding legal obligations for the Arctic signatories.<sup>38</sup> For example, in May 2011 the Arctic Council

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the Ilulissat Declaration meeting, presumably because they lacked the ability to make hydrocarbon claims.

<sup>34</sup> The United States held the two-year leadership role of the Arctic Council in April 2015. The current chairman is Finland.

<sup>35</sup> "The Arctic Council should not deal with matters related to military security." OTTAWA DECLARATION, *supra* note 31, n.1.

<sup>36</sup> *Id.*

<sup>37</sup> The Permanent Participants consist of the Aleut International Association, the Arctic Athabaskan Council, the Gwich'in Council International, the Inuit Circumpolar Council (ICC) the Russian Association of Indigenous Peoples of the North (RAIPON), and the Saami Council. *Arctic Council Permanent Secretariat*, ARCTIC COUNCIL, [www.arctic-council.org](http://www.arctic-council.org) (accessed Aug. 24, 2017). Permanent observer status was recently granted to six countries: China, India, Singapore, South Korea, Japan, and Italy. ARCTIC CRS, *supra* note 12, at 57.

<sup>38</sup> ARCTIC COUNCIL, AGREEMENT ON COOPERATION ON AERONAUTICAL AND MARITIME SEARCH IN THE ARCTIC (2011). The need for a stronger Arctic Council was reaffirmed in 2015 through the signing of the Iqaluit Declaration that "established a Task Force to assess future

adopted the Arctic Search and Rescue Agreement, which set up a framework for the Arctic states to assist lost mariners.<sup>39</sup> The Arctic nations later followed up with an agreement entitled Cooperation on Marine Oil Pollution Preparedness and Response and developed guidance on oil spill response and marine pollution response in the Arctic.<sup>40</sup> In addition, the five Arctic coastal states have also taken steps to regulate trawling in Arctic waters newly free of ice,<sup>41</sup> signing an agreement to regulate fishery trawling in the “doughnut hole” area of the Arctic Ocean that is encircled by exclusive economic zones of the Arctic coastal countries.<sup>42</sup> In doing so, the Arctic nations emphasized the importance of taking a precautionary approach to Arctic waters as they become more accessible.

In 2017, Finland assumed the Council’s chairmanship, succeeding the U.S., who chaired the Arctic Council from 2015-17. When the U.S. chaired the Council, Secretary of State John Kerry re-emphasized the threat of climate change to the Arctic and noted that the Council’s member states and observers’ account for 60 percent of global greenhouse gas emissions. In a joint statement with Canada discussing Arctic Policy, the U.S advanced a “shared Arctic leadership model” which outlines four objectives. The objectives include: conserving Arctic biodiversity through science-based decision making, incorporating indigenous science and traditional knowledge into decision-making, building a sustainable Arctic community (with special attention to low impact shipping corridors, fisheries regulation and a science based approach to oil and gas) as well as supporting strong Arctic

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needs for a regional seas program for increased cooperation in Arctic marine areas” and “work toward a legally-binding agreement on scientific cooperation.” IQUALUIT DECLARATION (2015). And Arctic Council agreements do not run into domestic roadblocks to implementation. The trend in recent years is for the United States to enter into sole executive agreements, which are widely accepted to have the same legal import as treaties. *See, e.g.,* United States v. Pink, 315 U.S. 203, 230 (1942) (noting that “international compacts and agreements . . . have a similar dignity [to Article II treaties]). At least one commentator has recommended that the United States accede to UNCLOS via a congressional-executive agreement, bypassing the 2/3 Senate advice and consent requirement for treaties. Andrew King, *Thawing a Frozen Treaty: Protecting United States Interests in the Arctic with a Congressional Executive Agreement on the Law of the Sea*, 34 HASTINGS CONST. L.Q. 329 (2007).

<sup>39</sup> ARCTIC COUNCIL, AGREEMENT ON COOPERATION ON AERONAUTICAL AND MARITIME SEARCH IN THE ARCTIC (2011).

<sup>40</sup> ARCTIC COUNCIL, AGREEMENT ON COOPERATION ON MARINE OIL POLLUTION PREPAREDNESS AND RESPONSE IN THE ARCTIC (2013). While not military agreements per se, the two agreements appear to go beyond the strict environmental mandate. The Search and Rescue Agreement may include military assets and the Oil Pollution and Response agreement addresses matters of environmental security.

<sup>41</sup> Andrew E. Kramer, *Russia and U.S. Find Common Cause in Arctic Pact*, N.Y. TIMES, May 19, 2015, <https://www.nytimes.com/2015/05/20/world/russia-and-us-find-common-cause-in-arctic-pact.html?mcubz=3>.

<sup>42</sup> *Id.*

communities.<sup>43</sup> The Obama administration suggested similar goals in a joint statement released with the Nordic States, but focused more on maintaining efforts that are already in place as opposed to redefining the approach.<sup>44</sup> Canada chaired the Council from 2013-15 and successfully shepherded the oil spill and preparedness agreement through the Arctic Council.

#### D. *The United Nations Convention on Law of the Sea (UNCLOS) and Future Arctic Governance*

UNCLOS, the world's "Constitution of the Seas," provides the legal architecture for world maritime governance. Its jurisdictional provisions and procedures are of increasing importance to the Arctic as the "only place on the planet where the borders of five countries come together . . . 'the way sections of an orange meet at the stem.'"<sup>45</sup> The Arctic nations have successfully cooperated in attempting to resolve the overlapping Exclusive Economic Zone (EEZ) and continental shelf claims. The EEZ pertains to economic rights on the surface and *above* the seabed while the continental shelf is below the surface and on the seabed and soil itself (i.e. where the oil and gas reside). The relatively small size of the Arctic Ocean and its unique North Pole convergence creates challenges when determining the scope and breadth of each nation's continental shelf. In fact, approximately half of the Arctic's ocean floor is comprised of continental shelf, the largest percentage of any one of the world's oceans.<sup>46</sup>

##### 1. UNCLOS: A Promising but Ultimately Imperfect Mechanism to Resolve Competing Arctic Sovereignty Issues

UNCLOS establishes a comprehensive maritime jurisdiction regime over the territorial sea, contiguous zone, exclusive economic zone (EEZ), high

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<sup>43</sup> Office of the Press Secretary, *US-Canada Joint Statement of Climate, Energy and Arctic Leadership*, THE WHITE HOUSE (Mar. 10, 2016), <https://www.whitehouse.gov/the-press-office/2016/03/10/us-canada-joint-statement-climate-energy-and-arctic-leadership>.

<sup>44</sup> *See id.*

<sup>45</sup> King, *supra* note 38, at 331. The United States' current position on sovereignty matters in the Arctic is expressed in a U.S. Navy publication, *The Commander's Handbook on the Law of Naval Operations*, reaffirming fundamental freedom of navigation principles within the Arctic without specifically acknowledging competing claims over natural resource exploitation in the Arctic. "The United States considers that the waters, ice pack, and airspace of the Arctic region beyond the lawfully claimed territorial seas of littoral nations have international status and are open to navigation by the ships and aircraft of all nations. Although several nations have, at times, attempted to claim sovereignty over the Arctic on the basis of discovery, historic use, contiguity (proximity), or the so-called "sector" theory, those claims are not recognized in international law. Accordingly, all ships and aircraft enjoy the freedoms of high seas navigation and over flight on, over, and under the waters and ice pack of the Arctic region beyond the lawfully claimed territorial seas of littoral states." U.S. NAVAL WAR COLLEGE, *THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS* 1-14M ¶ 2.6.5.1 (NWP 1-14M, 2007) (hereinafter NWP 1-14M).

<sup>46</sup> CIA WORLD FACTBOOK, *supra* note 23.

seas, continental shelf, and an area set aside for the common heritage of mankind. It fully applies to the Arctic Ocean and its nearby waters. Most importantly for future Arctic governance, it puts in place a process for nations to resolve their respective continental shelf claims.

UNCLOS's first maritime jurisdiction, the territorial sea, extends the sovereignty of the coastal state to 12 nautical miles from the coastal baseline.<sup>47</sup> Within the territorial sea, the coastal state has, in effect, complete sovereignty over the surface and seabed to include all the living and nonliving resources.<sup>48</sup> The contiguous zone is the second maritime zone beyond the territorial sea. Extending 12 nautical miles from the territorial sea, it extends seaward from the coastal baseline up to 24 nautical miles where the coastal nation exercises special authority over fiscal, immigration, customs, and sanitary matters.<sup>49</sup> Within the contiguous zone, ships and aircraft enjoy high seas freedoms, to include aircraft over-flight rights.<sup>50</sup> After the contiguous zone lies the third offshore maritime regime, the exclusive economic zone (EEZ). The EEZ extends 200 nautical miles from a nation's coastal baseline or 188 miles seaward beyond a state's twelve-mile territorial sea.<sup>51</sup> The Arctic nations have largely worked together to resolve their overlapping EEZ claims, of increasing importance to Arctic as nations enjoys sole exploitation rights over all living and nonliving resources within their respective EEZ.<sup>52</sup> The fourth and furthest zone from the coastal state, the high seas, lie outward from the EEZ. The high seas, are set aside to be "used for peaceful purposes."<sup>53</sup> and all nations of the world enjoy complete and total freedom of navigation of the high seas.<sup>54</sup> The high seas may overlap with a nation's continental shelf below the surface, which is geographically limited by UNCLOS to 350 nautical miles.<sup>55</sup>

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<sup>47</sup> UNCLOS, *supra* note 26, at art. 2.

<sup>48</sup> *Id.*, at art. 2.

<sup>49</sup> *Id.*, at 2.

<sup>50</sup> UNCLOS, *supra* note 26, at art. 33. *See also* THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS, NWP 1-14M, *supra* note 45, at ¶ 1.3.3.

<sup>51</sup> *Id.* at art. 57. While not a signatory to UNCLOS, the United States established a 200-nautical mile EEZ by Presidential Proclamation 5030 on 10 March 1983. *But see* ARCTIC CRS, *supra* note 8, at 63. (quoting The Arctic: Special Report, THE ECONOMIST, JUN. 16, 2012) (asserting that 95% of the Arctic sovereignty claims are not in dispute). The United States did sign and ratify the 1958 High Seas Convention and this remains in effect.

<sup>52</sup> *See* UNCLOS, *supra* note 26, at Part V. *Id.* at art. 56. In the EEZ, the coastal state has "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds . . ." *Id.*

<sup>53</sup> UNCLOS, *supra* note 26, at art. 88.

<sup>54</sup> The United States, however, has consistently stated that the area outside the territorial seas is considered high seas for navigational purposes.

<sup>55</sup> *Id.* For example, as a geological matter, it is estimated that the U.S.'s continental shelf (via Alaska) may extend up ward of 600 nautical miles. But as a legal matter, it cannot exceed 350 nautical miles under the limitations set forth in UNCLOS.

Below the surface and on the seabed, the continental shelf overlaps with the four maritime jurisdictions discussed above. The continental shelf consists of “mineral and other non-living resources of the seabed and subsoil,” of central importance to the untapped mineral, oil and gas interests in the Arctic.<sup>56</sup> Under UNCLOS, the continental shelf “may not extend beyond 350 nautical miles from the baseline of the territorial sea or 100 nautical miles from the 2,500-meter isobath, whichever is greater.”<sup>57</sup> The coastal nation exercises sovereign rights over the continental shelf for purposes of exploring and exploiting its natural resources<sup>58</sup> and “has exclusive right to authorize and regulate drilling on the continental shelf for all purposes.”<sup>59</sup>

While there have been calls from environmental groups (Greenpeace and others) to set aside the Arctic region as a worldwide nature reserve, UNCLOS already contemplates such an area within its existing maritime regime structure in the “Area” beyond the national jurisdiction of any nation. A fifth maritime zone, the “Area” lies beyond any nation’s continental shelf. The Area is defined as “the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction . . . [whose resources] are the common heritage of mankind.”<sup>60</sup> Here, mineral rights are part of the “common heritage of mankind.”<sup>61</sup> Yet, determining the “Arctic Area” still requires a legally binding ruling on the size and breadth of each of the five Arctic coastal states’ continental shelves, which has yet to occur.

Determining the length and breadth of a nation’s continental shelf is key to ascertaining the validity of each coastal state’s legal claim to the associated natural resource exploitation rights.<sup>62</sup> UNCLOS provides both general and specific guidance for nations making continental shelf determinations (“delimitation”) among states. The general guidance states:

The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the

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<sup>56</sup> UNCLOS, *supra* note 26, at art. 77 (4).

<sup>57</sup> *Id.* at art. 76. THE COMMANDER’S HANDBOOK ON THE LAW OF NAVAL OPERATIONS, 1-14M, *supra* note 45, at ¶ 1.7.

<sup>58</sup> UNCLOS, *supra* note 26, at art. 77(1). Further, “the rights of the coastal state over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.” *Id.* at art. 77(3).

<sup>59</sup> *Id.* at art. 81.

<sup>60</sup> *Id.* at art. 1, para. 1; *see also id.* at art. 136.

<sup>61</sup> *Id.* at art. 1 § 1. This provision and the deep-sea mining provision were not without controversy. Despite leading the UNCLOS negotiations, the United States objected to the common heritage of mankind language and has yet to ratify UNCLOS.

<sup>62</sup> *Id.* at art. 76.

International Court of Justice, in order to achieve an equitable solution.<sup>63</sup>

UNCLOS details a more specific continental shelf delimitation procedure under Article 76.<sup>64</sup> Article 76 outlines a four-step process for a coastal state to delineate its continental shelf.<sup>65</sup> Of particular importance is the undefined term “natural prolongation” that remains a continual source of contention and uncertainty.<sup>66</sup> The Arctic states are now turning to this UNCLOS procedure to make their case for an expanded continental shelf.

The Commission on the Limits of the Continental Shelf (CLCS) is central to the Article 76 process for adjudicating continental shelf claims.<sup>67</sup>

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<sup>63</sup> *Id.* at art. 83 (1). Article 38 of the International Court of Justice states that the ICJ will decide disputes - such as competing maritime claims – by applying:

- a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
- b. international custom, as evidence of a general practice accepted as law;
- c. the general principles of law recognized by civilized nations;
- d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law. Statute of the International Court of Justice, art. 38(1).

<sup>64</sup> *Id.* at art.76. It states,

1. The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.” *Id.* at art. 76(1) (emphasis provided).

2. The continental shelf of a Coastal states shall not extend beyond the limits provided for in paragraphs 4 to 6

3. The continental margin comprises the submerged prolongation of the land mass of the coasts’ State, and consists of the seabed and subsoil of the shelf, the slope, and the rise. It does not include the deep ocean floor with its oceanic ridges or subsoil thereof

4. (a) For the purposes of the Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:

- (i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope;

or

- (ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.

- (b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base. *Id.* at art. 76(1)-(4) (emphasis provided).

<sup>65</sup> See Carpenter, *supra* note 21, at 224-228. Article 76 applies throughout the world and not just the Arctic.

<sup>66</sup> See *id.* at 215–52 (2009).

<sup>67</sup> The CLCS has received a total of 77 claims since UNCLOS entered into force. The vast majority of those claims have been submitted the past 10 years (all but eight). See *Submissions to the Commission on the Limits of the Continental Shelf*, UNITED NATIONS:



But its long-term viability to formally resolve all claims remains to be seen. Denmark (via Greenland), Norway and Russia have all made one or submissions to the CLCS to adjudicate competing continental shelf claims; Canada has made a partial submission.<sup>68</sup> Both Denmark (via Greenland) and Russia claim that their continental shelf extends to the North Pole.<sup>69</sup> To date, the CLCS has received six submissions (one returned) asserting continental shelf claims in the Arctic but has only acted on one of them.<sup>70</sup> Russia submitted the first Article 76 claim in 2002 but this was rejected for lack of scientific support. It resubmitted this claim on August 3, 2015.<sup>71</sup> In its new submission to the CLCS, the Russian government claimed a continental shelf of more than 460,000 miles of the Arctic. Norway submitted an Article 76 claim in 2006 and Denmark submitted a claim in 2014. Please see table 1 for a summary of claims:

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DIVISION FOR OCEAN AFFAIRS (July 5, 2017), [http://www.un.org/depts/los/clcs\\_new/commission\\_submissions.htm](http://www.un.org/depts/los/clcs_new/commission_submissions.htm).

<sup>68</sup> CIA WORLD FACTBOOK, *supra* note 23.

<sup>69</sup> Independent of the CLCS, Norway and Russia have signed a bilateral maritime boundary agreement. Although the United States and Canada dispute how to divide the Beaufort Sea, (as well as the status of certain Canadian waters—of central importance to the Northwest Passage) the United States is actually assisting Canada’s submission to the CLCS. CRS ARCTIC, *supra* note 12, at 32.

<sup>70</sup> The CLCS has only issued a recommendation on Norway’s claim. *See supra* note 67 (listing the submissions and recommendations submitted to the CLCS as of Jul 5, 2017); *see also* Erika Lennon, *A Tale of Two Poles: A Comparative Look at the Legal Regimes in the Arctic and the Antarctic*, 8 SUSTAINABLE DEV. LAW & POLICY 32 n.2 (2008). If the United States was eligible to make an Article 76 claim, it is anticipated that a natural prolongation claim north of Alaska could be the size of California. Carpenter, *supra* note 21, at 233.

<sup>71</sup> Carpenter, *supra* note 21, at 232. The previous recommendations of the CLCS to Russia have not been made public.

**Table 1: Arctic Continental Shelf Claims<sup>72</sup>**

<i>Nation</i>	<i>Year</i>	<i>Claim &amp; Status</i>
Russia	Dec. 2001	Russia advised by CLCS to “reconsider and resubmit its claim.” <sup>73</sup> Claim resubmitted in 2015 (Decision Pending).
Norway	Nov. 2006	Submission addressed the outer limits of the continental shelf in three areas: (1) Loop Hole in the Barents Sea; (2) the Western Nansen Basin in the Arctic Ocean; and the (3) “Banana Hole” in the Norwegian and Greenland Seas. Recommendations from CLCS finalized March 2009. <sup>74</sup>
Canada	Dec. 2013	Partial Submission to the CLCS regarding the Atlantic Ocean, but noted that a submission over the Arctic Ocean will be forthcoming in 2018. (Not yet submitted)
Denmark	Nov. 2013	Claim to <i>Northeast</i> continental shelf of Greenland. (Decision Pending)
Denmark	Dec. 2014	Claim to <i>Northern</i> continental shelf of Greenland (Decision Pending)
Russia	Aug. 2015	Partial resubmission of the 2001 claim. This claim would expand Russia’s total territory by 463,000 square miles in the “doughnut hole” of international waters encircled by existing economic zone boundaries. (Decision Pending) <sup>75</sup>

Despite the long-term uncertainty concerning UNCLOS’s ability to resolve continental shelf and other areas of concern in the Arctic, the Arctic coastal states recently reinforced UNCLOS’s prominent role in resolving disputes in the Arctic. In 2008 (outside the auspices of the Arctic Council) the five Arctic coastal states (Russia, U.S., Canada, Norway, and Denmark) signed the *Ilulissat Declaration* in the face of rising tensions over hydrocarbon deposit rights. In doing so, all five Arctic coastal states reaffirmed their policy to resolve their disputes in a cooperative manner, renewing their commitment to orderly settling overlapping territorial claims

<sup>72</sup> This pertains to the CLCS process. Outside of the UNCLOS-designed CLCS process, customary international law and governing International Court of Justice (ICJ) jurisprudence would serve as a fallback to guide any Arctic territorial dispute. *See* North Sea Continental Shelf (F.R.G. v. Den.; F.R.G. v. Neth.), 1969 I.C.J. 3 (Feb 20). Prior ICJ opinions on maritime claims indicate that maritime boundary disputes must be made “in accordance with equitable principles and taking account of all the relevant circumstances.” *See* North Sea Continental Shelf, 1969 I.C.J. at 53-54. While this does provide certain amount of flexibility, the enforcement of ICJ opinions remains a continual concern. *See, e.g.,* Medellin v. Texas, 552 U.S. 491, 508 (2008) (stating that an ICJ decision will not have immediate legal effect in the courts of United Nations members).

<sup>73</sup> Andrew Kramer, *Russia Stakes New Claim to Expanse in Arctic*, N.Y. TIMES, Aug. 4, 2014, at A4.

<sup>74</sup> *See* COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF, SUMMARY OF THE RECOMMENDATIONS OF THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF (March 27, 2009), [http://www.un.org/depts/los/clcs\\_new/submissions\\_files/nor06/nor\\_rec\\_summ.pdf](http://www.un.org/depts/los/clcs_new/submissions_files/nor06/nor_rec_summ.pdf).

<sup>75</sup> Kramer, *supra* note 73.

via UNCLOS processes. Further, the *Ilulissat Declaration* reaffirmed UNCLOS's central importance to the Arctic, asserting that the Arctic coastal states do not need a separate Arctic Treaty or similar comprehensive international legal regime outside the work of UNCLOS or the Arctic Council.<sup>76</sup>

## 2. Additional International Environmental Agreements Will Take on Increased Importance in the Arctic

The Arctic's legal landscape has been described as "a complex latticework of international and national laws in which the applicable law is often highly location-dependent."<sup>77</sup> Many international environmental agreements described below apply worldwide but have an outsized impact in the Arctic. Beyond UNCLOS, these agreements include the Polar Bear Treaty, London Dumping Act, International Convention for the Prevention of Pollution from ships (MARPOL 73/78), Safety of Life at Sea (SOLAS), and Convention on the International Regulations for Preventing Collisions at Sea ("COLREGS").

The 1973 Polar Bear Treaty remains the oldest Arctic-specific treaty in existence, placing legally binding requirements on Arctic activities that harm the polar bear. Signed in 1973 by the five Arctic nations with the largest polar bear populations (U.S., Russia, Norway, Denmark and Canada), the Polar Bear Treaty requires each of the five parties to commit to "manage [their] polar bear populations in accordance with sound conservation practices."<sup>78</sup> It expressly prohibits the killing, hunting, and capturing of polar bears except for limited circumstances.

The 1973 International Convention for the Prevention of Pollution from Ships, as modified by its Protocol of 1978 (MARPOL 73/78) has the goal of eliminating the international pollution of the marine environment. It specifically addresses Arctic activities. MARPOL 73/78 contains six annexes and fills in gaps left by the 1972 London Dumping Convention, described below. Similarly, the London Dumping Convention obligates contracting parties to take steps to "prevent the pollution of the sea by the sea by the

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<sup>76</sup> The Ilulissat Declaration (May 28, 2008), [http://www.oceanlaw.org/downloads/arctic/Ilulissat\\_Declaration](http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration) ("[UNCLOS] . . . provides a solid foundation for responsible management by the five coastal States and other users of this Ocean through national implementation and application of relevant provisions. We therefore see no need to develop a new comprehensive international legal regime to govern the Arctic Ocean.")

<sup>77</sup> See Peter H. Oppenheimer & Brian Israel, *Arctic Region*, in INTERNATIONAL ENVIRONMENTAL LAW: THE PRACTITIONER'S GUIDE TO THE LAWS OF THE PLANET 933 (Roger Martella & J. Brett Grosko eds., 2014).

<sup>78</sup> Agreement on the Conservation of Polar Bears (Nov. 15, 1973). The signatories of the Polar Bear Treaty mirror the Arctic coastal states (Russia, U.S., Norway, Denmark, and Canada).

dumping of waste and other matter that is liable to create hazards to human health, to harm living resources . . .” There are designated “special areas” within MARPOL that place higher pollution standards based upon ecological and technical characteristics that are unique to that area. Within MARPOL, three of these special area annexes apply to Antarctica (oil, noxious liquid substances, and garbage) but none currently apply to the Arctic.<sup>79</sup>

The 1974 Safety of Life at Sea Convention (SOLAS) (as modified by its 1978 and 1988 Protocols) ensures that signatory flag states comply with a certain minimum level of safety precautions.<sup>80</sup> On January 1, 2017, SOLAS implemented the Polar Codes in Chapter XIV for ships operating in polar waters.

COLREGS, commonly known as the “International Rules of the Road” complements UNCLOS and operationalize many of its navigational provisions. It provides detailed rules relating to vessel operation, traffic separation, rights of way, rules of the road and actions to avoid collisions. These rules apply to all international waters (beyond the territorial sea). Except in cases where a coastal nation has established different rules over its sovereign waters, COLREGS apply in each nation’s territorial sea and inland waters. COLREGS will take on increased importance in the Arctic with the rise of shipping traffic in the region.<sup>81</sup> COLREGS also lack Arctic-specific provisions. An Arctic or polar Annex could be added into COLREGS to provide additional safety measures in light of the increased maritime traffic in the region.

## **II. ANTARCTICA: AN ENVIRONMENTAL LAW SUCCESS STORY ANCHORED BY THE ANTARCTIC TREATY SYSTEM (ATS)**

### *A. Defining Antarctica*

The Antarctic Treaty System (ATS) encompasses the area below 60° south latitude including both land and sea. The continent itself is largely circular in shape and measures 5.5 million square miles, 10% of Earth’s total land area. Ninety-eight percent of this land area is covered by a vast ice sheet that is up to 4 km thick. The ice sheet contains roughly three quarters of the world’s fresh water. However, Antarctica is also the driest continent on the planet. It receives 1.2 to 2 inches of rain annually.<sup>82</sup> For comparison,

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<sup>79</sup> Int’l Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 34 U.S.T. 3407, 1340 U.N.T.S. 184 (entered into force Oct. 2, 1983).

<sup>80</sup> Protocol of 1988 relating to the Int’l Convention for the Safety of Life at Sea (1974).

<sup>81</sup> The United States has adopted the COLREGS provisions with U.S. Navy Regulations stating that Navy ships “shall diligently observe the 72 COLREGS.” U.S. NAVY REGULATIONS (1990).

<sup>82</sup> CHRISTOPHER C. JOYNER, GOVERNING THE FROZEN COMMONS : THE ANTARCTIC REGIME AND ENVIRONMENTAL PROTECTION (1998).

average rainfall in the Sahara desert ranges from less than 1 inch to almost 10 inches. Climatic conditions are harsh with average winter temperatures ranging from -30° C on the coast to -70° C inland. These temperatures do not include the chilling effect of prevailing high winds. In the summer, temperatures can rise to around 50° degrees F in the warmest part of the continent.

A century ago, expeditions to Antarctica, “the last unexplored place on earth,” made Amundsen, Scott, Mawson, and Shackleton household names. Today Antarctica’s pristine environment attracts tourists to what is the coldest, windiest, and highest continent on earth. The cold and inhospitable climate means that Antarctica is home to relatively few terrestrial plant species. There are about 800 species of land plants present. About 350 of those are lichens. No trees, grasses, or shrubs are present.<sup>83</sup>

No terrestrial vertebrate species are native to Antarctica. Only about thirty species of terrestrial fauna are present. The largest of these, the wingless midge, is only about three millimeters long.<sup>84</sup> There are about 50 species of birds present in Antarctica. Of those, the most abundant by far are penguins. They account for about 65 percent of Antarctic bird stock or 90% of total bird biomass. Other abundant species include albatrosses and petrels.<sup>85</sup>

Marine life in the Southern Ocean around Antarctica is rich and abundant. Strong currents and frontal zones churn up nutrients from bottom water, stimulating photosynthesis. The availability of light is the single most important factor in the extent of primary production. There is hardly any daylight during winter months and light cannot penetrate through ice. The most productive areas of the ocean are along the continental shelf and in the Antarctic Convergence zone.<sup>86</sup>

[Note to Editors: We can include a map of Antarctica, below]

### *B. Antarctica Treaty System (ATS)*

The Antarctic Treaty (AT) was signed on December 1, 1959 and entered into force on June 23, 1961.<sup>87</sup> It has two main objectives: (1) restricting the use of Antarctica to peaceful purposes and (2) promoting scientific research.<sup>88</sup> Some scholars view the AT as a product of Cold War

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<sup>83</sup> *Id.*

<sup>84</sup> *Id.* at 6.

<sup>85</sup> *Id.* at 12.

<sup>86</sup> *Id.* at 9.

<sup>87</sup> *Id.* at 727.

<sup>88</sup> *Id.* at 728.

tensions between the United States and the Soviet Union.<sup>89</sup> Although neither the United States nor Russia officially claimed any part of Antarctica, both were expressing strong interest in doing so. In 1947, the United States actually had a resolution called “Operation Highjump,” the purpose of which was ‘to establish the strongest possible basis for a territorial claim to as much of the continent as possible.’<sup>90</sup>

Global scientific cooperation during the International Geophysical Year (IGY) of 1957-58 sparked interest in negotiating what became the Antarctic Treaty. This year of scientific interchange is widely believed to have smoothed the way for the AT as “the friendship and cooperation that emerged from the IGY fostered a belief among claimant governments that disputes over sovereignty could be set aside in the interest of peace and mutual scientific benefits.”<sup>91</sup>

The twelve countries that participated in the IGY (Argentina, Australia, Belgium, Chile, France, Great Britain, Japan, New Zealand, Norway, South Africa, the Soviet Union, and the United States), signed the AT in 1959. The treaty, which applies to south of 60 degrees south latitude, suspends territorial sovereignty claims made by seven countries (including overlapping claims by Chile, Argentina, and the United Kingdom). Article 4 of the Antarctica Treaty is of central importance. It states:

No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting, or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.<sup>92</sup>

This provision is central to the long-term success of the AT as it effectively halted new sovereignty claims over Antarctica.

Passed during a time of military tension between the United States and the Soviet Union, the AT was the first arms control agreement of the Cold War. The Antarctica Treaty prohibits in Antarctica “any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of

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<sup>89</sup> “The Cold War between the United States and the former Soviet Union was a chief impetus behind the successful efforts to assemble a binding agreement governing Antarctica.” Floren, *supra* note 15, at 469.

<sup>90</sup> *Id.* at 469.

<sup>91</sup> JOYNER, *supra* note 82, at 55.

<sup>92</sup> 1959 ANTARCTIC TREATY, art. 4, 12 U.S.T. 794, T.I.A.S. No. 4780 (1961).

any type of weapons.”<sup>93</sup> Nuclear explosions are specifically prohibited in Antarctica.

The Antarctic Treaty protects freedom of scientific investigation while subjecting scientific personnel to the jurisdiction of their respective governments. Important protections for Antarctic plants and wildlife were added by the Agreed Measures for the Conservation of Antarctic Fauna and Flora, adopted as an annex to the treaty in 1964, and the Convention for the Conservation of Antarctic Seals,<sup>94</sup> which entered into force in 1978.

When the Antarctic Treaty was negotiated, 60 scientific stations had already been established on the continent and surrounding islands. Waste disposal practices at these bases initially were quite haphazard, including at the large U.S. base on McMurdo Sound. The U.S. actually operated a small nuclear power plant at the station between 1962 and 1972, which had to be decommissioned prematurely due to continuing safety issues. A total of 101 drums of radioactive earth were shipped back to the U.S. A campaign by Greenpeace to expose open dumping of wastes at McMurdo helped spur improved waste disposal practices, particularly after congressmen with oversight authority over the National Science Foundation (NSF) visited the station.

In 1993, the Environmental Defense Fund won a lawsuit against NSF to block construction of a waste incinerator at McMurdo without an environmental impact statement. The D.C. Circuit held that because Antarctica was not the territory of any one sovereign, the principle against extraterritorial application of domestic law (here the National Environmental Policy Act) did not apply. Writing for the court, Judge Mikva focused on the unique legal status of Antarctica. Noting that Antarctica is an “international anomaly” and “the only continent on earth which has never been, and is not now, subject to the sovereign rule of any nation,” Judge Mikva classified Antarctica as a true global common that is analogous to outer space.<sup>95</sup>

### *C. Regulation of Mineral Extraction in Antarctica*

The original ATS did not provide for any system to regulate mineral extraction in Antarctica.<sup>96</sup> In the years after the Treaty came into force, there was a growing awareness among the Consultative Parties that the gap

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<sup>93</sup> *Id.* at art. 1.

<sup>94</sup> Timo Koivurova, *Environmental Protection in the Arctic and Antarctic: Can the Polar Regimes Learn from Each Other?*, 33 INT’L J. LEG INF. 204, 207 (2005).

<sup>95</sup> *Envtl. Def. Fund v. Massey* 986 F.2d 528, 529 (D.C. Cir 1993). In doing so, Judge Mikva specifically mentioned the Antarctica Treaty where “the United States and 39 other nations have agreed not to assert any territorial claims to the continent or to establish rights of sovereignty.” *Id.*

<sup>96</sup> GILLIAN D. TRIGGS, *THE ANTARCTIC TREATY REGIME: LAW, ENVIRONMENT, AND RESOURCES* 162 (1987).

needed to be filled. The possibility of an agreement to regulate mineral resource use was first raised at the Consultative Meeting in 1970.<sup>97</sup> In 1981, the Parties officially agreed to prepare an agreement governing mineral extraction. After six years of Special Consultative meetings, the final text of the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA) was adopted on June 1, 1988.<sup>98</sup>

At the time the Parties started negotiations, there was widespread agreement among government representatives and industry specialists that mineral exploitation was not imminent both because it was technologically infeasible and because commercially exploitable deposits either did not exist or were unknown.<sup>99</sup> Instead, the Parties acknowledged that it would be easier to negotiate a minerals regime before any important deposits were found since discovery of minerals would tend to entrench sovereignty claims.<sup>100</sup> In spite of seemingly insurmountable technological constraints and lack of actual evidence, speculation of an Antarctic mineral rush had been growing in the 1970s. Indeed, “spectacular claims were made for a ‘Middle East’ in the Antarctic, including an assertion by the *Wall Street Journal* that oil reserves reported by the United States Geological Survey almost matched the proven reserves of the entire United States.”<sup>101</sup>

Six years of negotiation resulted in a comprehensive agreement that covered prospecting, exploration, and exploitation of mineral resources. Even though it did not ban mining, CRAMRA’s measures to protect the environment were not insignificant. It stipulated “a series of strict environmental conditions that future operators might find hard to satisfy” and “arguably contained some of the most stringent safeguards in any treaty on the environment.”<sup>102</sup>

But CRAMRA’s fatal flaw lay in the fact that mineral exploitation is intimately connected with territorial sovereignty.<sup>103</sup> In order to maintain their claims, claimant states would have to assert their authority to regulate mining activity. But other nations like the United States and Russia refused to recognize these sovereignty claims and would react poorly to attempts by national governments to regulate.<sup>104</sup> Because the ATS kicked the can of

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<sup>97</sup> A.D. WATTS, *THE CONVENTION ON THE REGULATION OF ANTARCTIC MINERAL RESOURCE ACTIVITIES* 168 (1988).

<sup>98</sup> JOYNER, *supra* note 82, at 73.

<sup>99</sup> See Gillian D. Triggs, *Negotiation of a Minerals Regime*, in *THE ANTARCTIC TREATY REGIME: LAW, ENVIRONMENT, AND RESOURCES* 182 (Gillian D. Triggs ed., 1987); Watts, *supra* note 97; Larminie, *supra* note 16.

<sup>100</sup> WATTS, *supra* note 97, at 166.

<sup>101</sup> TRIGGS, *supra* note 99, at 182.

<sup>102</sup> S. K. N. Blay, *New Trends in the Protection of the Antarctic Environment: The 1991 Madrid Protocol*, 86 *AM. J. INT. LAW* 377, 377 (1992).

<sup>103</sup> WATTS, *supra* note 97, at 166–67.

<sup>104</sup> *Id.* at 166–67.



worms that is sovereignty disputes down the road, disagreements about mining activities would have the potential to undermine the whole treaty.<sup>105</sup>

While no mining activity seemed imminent, CRAMRA clearly envisioned that mining activity could potentially take place in the future. “One of the main reasons for opposition to CRAMRA was a legitimate fear that the regime, as written, would make it too affordable for the industry to resist leaping into immediate activity. The adoption of a regulated regime like CRAMRA would significantly lower uncertainty costs, facilitate investment, and permit untested technologies to risk massive environmental harm.”<sup>106</sup> This stiffened the resistance of the environmental community.

The worst environmental disaster in Antarctic history occurred in January 1989 when the *Bahia Paraiso*, an Argentine naval supply ship, hit a submerged rock off DeLace Island, spilling 600,000 liters of oil and creating an oil slick that covered 30 square kilometers. However, the abandonment of CRAMRA and the adoption of the Madrid Protocol was not due exclusively to environmental concern.

In addition to the awareness that, for the foreseeable future, any mineral extraction activities in the Antarctic would be devoid of commercial significance, the major factors were: (1) fears that CRAMRA would disturb the sensitive balance of sovereignty in the Antarctic; (2) a political-ideological critique of the Consultative Parties, from a group of developing countries in the United Nations; (3) pressures from environmental NGOs; and (4) domestic policy considerations which related to the above factors.<sup>107</sup>

This resistance culminated in Australia announcing its opposition to the Convention. Australia was joined by France a few months later.<sup>108</sup> The withdrawal of Australia and France instantly killed the convention because although it had been adopted in 1988, in order for it to go into force, it had to be ratified by the sixteen consultative parties, which included all of the claimant states (including Australia and France).<sup>109</sup> Australia and France countered with another proposal that eventually became the Madrid Protocol.

#### D. *Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol).*

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<sup>105</sup> TRIGGS, *supra* note 99, at 183.

<sup>106</sup> Floren, *supra* note 15 at 485.

<sup>107</sup> Davor Vidas, *The Polar Marine Environment in Regional Cooperation*, in PROTECTING THE POLAR MARINE ENVIRONMENT: LAW AND POLICY FOR POLLUTION PREVENTION, at 90 (Davor Vidas ed., 2000).

<sup>108</sup> Blay, *supra* note 102 at 378.

<sup>109</sup> Douglas M. Zang, Note, *Frozen in Time: The Antarctic Mineral Resource Convention*, 76 CORNELL L. REV. 722, 732 (1991).

The most important environmental protections for Antarctica are found in the Protocol on Environmental Protection to the Antarctic Treaty, known as the Madrid Protocol.<sup>110</sup> The Protocol, which was adopted in 1991, designates the continent as a “natural reserve devoted to peace and science” and imposes strict measures to protect the Antarctic environment, including a ban on all mining. The Madrid Protocol was negotiated with remarkable speed, emerging out of just three meetings in 1990 and 1991. Adopted on October 4, 1991, the Protocol came into force in 1998. Not only does it ban mining altogether, but it also contains far-reaching measures for environmental protection.<sup>111</sup>

The Madrid Protocol designates Antarctica as a “natural reserve, devoted to peace and science.” It states that all activities should conform to environmental principles, including prior assessment of their environmental impacts. It provides for the establishment of a Committee for Environmental Protection to advise the ATCM and it requires the development of contingency plans to respond to environmental emergencies. Annex III specifies wastes that may be disposed of within Antarctica and wastes that must be removed. It regulates the disposal of human waste and the use of incinerators and requires the development of waste management plans. Annex IV regulates the discharge of substances from ships, adopting practices broadly consistent with those applied in the relevant annexes of MARPOL. Annex V establishes a revised protected area system that integrates the previous categories of protected areas into Antarctic Specially Protected Areas (entry to which requires a permit) and Antarctic Specially Managed Areas.

The key to the success of the Antarctic Treaty has been its ability to defuse claims of national sovereignty over Antarctica. The Madrid Protocol’s ban on mining prevents commercial pressures from threatening the continued vitality of the ATS. But some commentators doubt the effectiveness of the Protocol if and when minerals are found. One notes that “[w]hen minerals are eventually discovered, the Protocol will prove to be fundamentally unrealistic, and its chances of survival will be virtually nil.”<sup>112</sup> With the demise of CRAMRA, there will not be any regulatory regime in place to govern mineral extraction in Antarctica. “The Antarctic environment will be basically unprotected and the Antarctic Treaty System will face the greatest crisis of its lifetime.”<sup>113</sup> Another asks “[w]hat will happen to

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<sup>110</sup> See Barry Hunt Dubner, *On the Basis for Creation of a New Method of Defining International Jurisdiction in the Arctic Ocean*, 13 MO. ENVTL. L. & POL’Y REV. 1, 17-18 (2005).

<sup>111</sup> JOYNER, *supra* note 82, at 78.

<sup>112</sup> GOVERNING THE ANTARCTIC: THE EFFECTIVENESS AND LEGITIMACY OF THE ANTARCTIC TREATY SYSTEM 198 (ed. Olav S. Stokke & Davor Vidas, 1997).

<sup>113</sup> Franciso Orrego Vicuna, *The Protocol on Environmental Protection to the Antarctic Treaty: Questions of Effectiveness*, 7 GEO. INT’L. ENVTL. L. REV. 1, 11 (1994).

environmental concerns when opportunities for potentially large economic gains are made plainly available for governments willing to exploit the Antarctic environment? The answer is self-evident and leaves but scant room for optimism among concerned conservationists.”<sup>114</sup>

In the early twentieth century, extensive whaling by vessels from several countries decimated whale populations in Antarctica. Many have recovered, but spotting blue whales, the heaviest creatures ever to inhabit the earth, is still a rare event. In March 2014 the International Court of Justice (ICJ) ruled that Japanese whaling in Antarctic waters violated the International Whaling Commission’s ban on commercial whaling. Japan was taken to the ICJ by Australia and New Zealand, which argued that Japanese whaling had been so extensive that it could not possibly qualify for the exception for whaling for purposes of scientific research. Japan has pledged to resume whaling with a scaled-back program that will kill only minke whales.

Enforcement of strict measures to protect the Antarctic environment depends crucially on cooperation by many governments and private entities. In December 2014 the New Zealand navy confronted a boat illegally catching sea bass (toothfish) in Antarctic waters. Rough waters prevented New Zealand authorities from boarding the vessel, rumored to be owned by a Spanish crime syndicate. The New Zealand navy informed Interpol in hopes of preventing the boats from offloading their illegal catch. Ultimately Sea Shepherd, an NGO, chased the vessel for 110 days over 10,250 nautical miles before it was scuttled off the west coast of Africa.<sup>115</sup>

In 2009 the International Maritime Organization banned the use of heavy fuel oils by ships in Antarctic waters. This measure has been widely applauded for reducing pollution in Antarctica. It also caused some cruise lines to stop visiting the continent with huge cruise ships, significantly reducing the number of tourists in Antarctic waters.

### **III. THE FUTURE OF ARCTIC GOVERNANCE AND THE RISE OF GLOBAL ENVIRONMENTAL LAW**

#### *A. Comparing and Contrasting the Polar Regions*

The polar regions share both commonalities and contrasts: both are of similar size, share a similar climate and are geographically isolated. And climate change is having an outsized effect on both polar regions, which

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<sup>114</sup> Joyner, *supra* note 21, at 270.

<sup>115</sup> Ian Urbina, *A Renegade Trawler, Hunted for 10,000 Miles by Vigilantes*, N.Y. TIMES, July 28, 2015, <https://www.nytimes.com/2015/07/28/world/a-renegade-trawler-hunted-for-10000-miles-by-vigilantes.html?mcubz=0>.

harbor significant natural resources (oil, gas, and minerals in the Arctic; minerals in Antarctica). But they are geographical opposites, which inform geopolitical norms: the Arctic region encompasses “an ocean surrounded by continents” while the Antarctic region encompasses “a continent surrounded by oceans.” The Arctic has two rapidly growing trade routes that have the potential to transform worldwide maritime shipping traffic. While both regions are geographically isolated, Antarctica is significantly more so, with no permanent population and less than 31,000 visitors a year—one-fifth of whom do not disembark from their ships.<sup>116</sup> The Arctic region is geopolitically much more complex, with land and territories belonging to different nations and indigenous peoples.

Further, both polar regions face enormous environmental challenges due to climate change.<sup>117</sup> In Antarctica, the ATS’s ban on commercial exploitation has preserved a pristine environment unlike anything on earth. In the Arctic region, private industry is increasingly interested in tapping into the Arctic’s untapped natural resources.<sup>118</sup> The melting of the Arctic ice sheets is non-linear and influenced by the “albedo effect”—the more the ice melts, the warmer the water becomes, accelerating and aggravating the melting process.<sup>119</sup>

The ATS now includes 28 nations as consultative parties and 24 nations as non-consultative parties.<sup>120</sup> The Arctic Council includes eight permanent members with full voting rights, as well as non-voting other governmental organizations and indigenous tribes.

The diverse permanent population that calls the Arctic home is of critical importance for future environmental governance in the Arctic.<sup>121</sup> The Arctic polar region is home to nearly four million people in seven countries, each subject to the jurisdiction of their respective host nation.<sup>122</sup> These populations are increasingly vulnerable to climate change’s effects and will

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<sup>116</sup> *Id.*

<sup>117</sup> See Jugal K. Patel & Justine Gillis, *An Iceberg the Size of Delaware Just Broke Away from Antarctica*, N.Y. TIMES, July 12, 2017, <https://www.nytimes.com/interactive/2017/06/09/climate/antarctica-rift-update.html>.

<sup>118</sup> See, e.g., Mark Jarashow, Michael B. Runnels, & Tait Svenson, Note, *UNCLOS and the Arctic: The Path of Least Resistance*, 30 FORD. INT’L. L. J. 1587 n.1 (2006).

<sup>119</sup> See, e.g., David Wallace Wells, *The Uninhabitable Earth*, N.Y. MAGAZINE, July 9, 2017, <http://nymag.com/daily/intelligencer/2017/07/climate-change-earth-too-hot-for-humans.html> (describing the albedo effect).

<sup>120</sup> *Parties*, ANTARCTIC TREATY SYSTEM, [http://www.ats.aq/devAS/ats\\_parties.aspx?lang=e](http://www.ats.aq/devAS/ats_parties.aspx?lang=e) (accessed Aug. 24, 2017).

<sup>121</sup> Erika Lennon, *A Tale of Two Poles: A Comparative Look at the Legal Regimes in the Arctic and the Antarctic*, 8 SUSTAINABLE DEV. LAW & POLICY 32 n.2 (2008).

<sup>122</sup> John B. Bellinger, *Treaty on Ice*, N.Y. TIMES, Jun. 23, 2008, <http://www.nytimes.com/2008/06/23/opinion/23bellinger.html?mcubz=0>.

bear the brunt of climate change's costs.<sup>123</sup> Since the Antarctic Treaty's entry into force, there has been an increase in global awareness of environmental justice issues and the critically important role that non-state actors and indigenous peoples play in international environmental agreements.

Table 2 presents a snapshot of the two polar regions:

**Table 2**

	<b>Arctic</b>	<b>Antarctica</b>
<i>Climate</i>	Polar	Polar
<i>Size</i>	5.5 million square miles <sup>124</sup>	5.4 million square miles <sup>125</sup>
<i>Geography</i>	Maritime-Based with some land mass	Land-based with some maritime aspects
<i>Interested States</i>	8 <sup>126</sup>	53 <sup>127</sup>
<i>Natural Resources</i>	Significant Oil and Gas Resources	Significant Mineral Resources
<i>Military activities prohibited?</i>	No	Yes
<i>Permanent Population?</i>	Yes	No <sup>128</sup>

In large part because of the geographic differences, the two polar regions have emerged as polar opposites in their respective legal regimes. In

<sup>123</sup> One study commissioned by the U.S. Army Corps of Engineers estimated that 178 communities in Alaska are at risk due to soil erosion exacerbated by climate change. U.S. ARMY CORPS OF ENGINEERS, ALASKA BASELINE EROSION ASSESSMENT (BEA (March 2009).

<sup>124</sup> This is based upon the definition of "Arctic" found in the MIT Woods Hole definition.

<sup>125</sup> This includes only the land continent of Antarctica and not the entire Antarctic polar region.

<sup>126</sup> While more than eight nations are interested parties to the Arctic, this number reflects the eight Arctic that are members of the Arctic Council. There are also twelve non-Arctic states that are increasingly playing a role in the Arctic Council, to include China. See, e.g., Hans H. Hertell, *Arctic Melt: The Tipping Point for an Arctic Treaty*, 21 GEO. INT'L ENVTL. L. REV. 565 (2008).

<sup>127</sup> Reflects number of Parties to the Antarctic Treaty. See *The Antarctic Treaty*, SECRETARIAT OF THE ANTARCTIC TREATY, <http://www.ats.aq/e/ats.htm> (accessed Aug. 24, 2017).

<sup>128</sup> There are no permanent inhabitants in Antarctica, although there are numerous long-term residents at several scientific research centers. In addition, Antarctica receives less than 31,000 visitors per year, one-fifth of whom do not leave their ships. *Antarctic Tourism Figures for 2015-2016*, INTERNATIONAL ASSOCIATION OF ANTARCTICA TOUR OPERATORS, <http://iaato.org/tourism-statistics> (accessed Aug. 24, 2017).

light of the ATS's success and increasing interest in the Arctic: questions naturally arise. Should the Arctic region move to an Antarctica model and be preserved as a maritime wilderness, similar to the Antarctic Treaty?<sup>129</sup> This common heritage of mankind formulation does not appeal to Arctic coastal states eager to exploit its significant untapped resources, but this approach is favored by non-Arctic states such as China.<sup>130</sup> Further, the "Arctic as wilderness area" model is also impractical due to the heightened interest in the Arctic's resources and the existing maritime jurisdictional regimes set forth in UNCLOS. Indeed, under UNCLOS, the surface area beyond the nation's EEZ is already set aside for peaceful purposes.<sup>131</sup> And the area on the subsurface beyond the continental shelf is outside the national jurisdiction of any one nation and part of the "common heritage of mankind."<sup>132</sup> Once the continental shelf claims are finally adjudicated by the CLCS, a "doughnut-hole" will emerge as a default wildlife Arctic Area.

Nevertheless, when looking for a model for Arctic governance, the ATS's success should not be dismissed out of hand. A remarkable and enduring example of nations coming together to preserve and protect a common treasure, the ATS should serve as an enlightened model for future Arctic management. But its long-term success is also not ensured. The Madrid Protocol's prohibition of mining in Antarctica is not necessarily permanent. Climate change, too, is beginning to dramatically impact access to Antarctica and undermine the stability of its ice shelf.<sup>133</sup> As nations rush to expand their presence on the continent, many believe this uniquely successful legal regime will not persist indefinitely as new economic opportunities emerge.<sup>134</sup> Efforts to amend the Antarctic Treaty to create an opening for resource extraction in the Antarctic should be resisted. In 2048,

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<sup>129</sup> ANTARCTIC TREATY, *supra* note 127, at art. 4.

<sup>130</sup> See *Will Asian Countries Consolidate or Disrupt Arctic Stability?*, THE ECONOMIST, Feb. 2, 2013, <https://www.economist.com/news/international/21571127-will-asian-countries-consolidate-or-disrupt-arctic-stability-roar-ice-cracking>.

<sup>131</sup> UNCLOS, *supra* note 26, at art. 88.

<sup>132</sup> UNCLOS, *supra* note 26, art 1, § 1.

<sup>133</sup> See Jugal K. Patel & Justine Gillis, *supra* note 129.

<sup>134</sup> Simon Romero, *Countries Rush for Upper Hand in Antarctica*, N.Y. TIMES, Dec. 29, 2015, <http://www.nytimes.com/interactive/2015/12/29/world/countries-rush-for-upper-hand-antarctica.html>. At least 30 nations now operate 67 permanent research bases in Antarctica, though many of these are only occupied during the summer months. *Antarctic Bases – Currently Operated*, COOL ANTARCTICA, [http://www.coolantarctica.com/Community/antarctic\\_bases.htm](http://www.coolantarctica.com/Community/antarctic_bases.htm) (accessed Aug. 24, 2017). Russia has even built a Russian Orthodox church on a hill overlooking its Bellingshausen Station. China is building its fifth base on the continent. Prior to adoption of the Madrid Protocol, poor environmental management practices were widespread. Beginning in 1962 the U.S. operated a small nuclear power plant at McMurdo Station that was decommissioned in 1972. Waste disposal practices were haphazard at many stations. Strict environmental regulations now prevail, enforced by treaty provisions allowing observers to carry out inspections in all areas of Antarctica, including all stations, installations and equipment, and ships and aircraft at discharge or embarkation points.

fifty years after the Madrid Protocol entered into force, any consultative party may call for a review. If no action is taken, the ban will continue. However, if a country desires to leave the Protocol, section 5(b) contains a “walk-out clause.” Theoretically, a country could propose a revision to allow mining on the continent. If this revision is not adopted in three years, that country has the power to unilaterally leave the Protocol and presumably commence mining activities. Efforts should be made to preserve the current global consensus in favor of preservation of Antarctica’s natural resources.

### *B. The Rise of Global Environmental Law and Its Significance in the Polar Regions*

The ATS was adopted at a time when legally binding international treaties were more in vogue and there was less understanding and weight placed on non-state actors and indigenous peoples. Indeed, since the passage of the Antarctic Treaty in 1959 there has been an evolutionary shift in international environmental awareness and global environmental law governance, away from “hard law” international treaties toward “bottom up” and “soft law” cooperative approaches involving private and public partnerships.<sup>135</sup> Even countries with very different legal and political traditions are borrowing law and regulatory innovations from one another, blurring traditional distinctions between international and domestic law, and between private and public law. This phenomenon has been described by scholars as “global environmental law.”<sup>136</sup> Multilateral treaties, while an important and enduring component of international environmental law, no longer provides the sole option to solve complex environmental issues.

#### 1. Global Environmental Law and Arctic Indigenous Peoples

Arctic environmental governance has evolved in a manner that reflects this new global environmental reality. In fact, the Arctic Council grew out of an earlier environmental partnership and has demonstrated an ability to develop legally binding agreements that address emerging Arctic issues.<sup>137</sup> And its soft law focus should complement and not subtract from the legal framework and processes set forth in UNCLOS. This is visible via the collaborative nature of the Arctic Council’s work and private sector initiatives designed to control the environmental impact of tourism. We believe that the Arctic Council’s work will continue to evolve and serve as a testing ground for global environmental law’s ability to solve thorny international environmental issues across a diverse set of stakeholders. Indeed, the Arctic

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<sup>135</sup> Robert V. Percival, *Global Law and the Environment*, 86 WASH. L. REV. 579 (2011).

<sup>136</sup> Tseming Yang & Robert V. Percival, *The Emergence of Global Environmental Law*, 36 ECOLOGY L. Q. 101 (2009).

<sup>137</sup> AGREEMENT ON COOPERATION ON MARINE POLLUTION PREPAREDNESS AND RESPONSE IN THE ARCTIC (May 15, 2013); AGREEMENT ON COOPERATION ON AERONAUTICAL AND MARITIME SEARCH AND RESCUE IN THE ARCTIC, 50 I.L.M. 1119 (May 12, 2011).

Council has already demonstrated an ability to collaborate and address myriad emerging problems. This holds great promise for the future of Arctic governance.<sup>138</sup>

Global environmental law provides several advantages, which fit within the existing Arctic governance model. For example, it more easily accommodates state and non-state actors and has lower barriers to stakeholder entry. This is of particular relevance for the Arctic, which includes numerous indigenous peoples. The Arctic Council affords certain Arctic indigenous tribes observer status, as well as non-Arctic states, intergovernmental and inter-parliamentary organization, and non-governmental organizations.<sup>139</sup> “Hard law” treaties have comparably higher legal barriers to entry whose signatories are often limited to state actors.<sup>140</sup>

The Arctic Council model is well situated to address the concerns of the myriad indigenous populations who reside in the Arctic. Their voice is of central importance for long-term Arctic cooperation and governance. But their legal status varies widely from nation to nation, adding an additional yet another layer of complexity.<sup>141</sup> And they often adhere to their own custom, traditions and tribal laws. For example, indigenous peoples have inhabited Alaska in the Arctic region for thousands of years. Under U.S. domestic law, native tribes residing in the U.S. possess certain sovereign powers with Native American jurisdictions “separate but dependent” on the United States.<sup>142</sup> While the 1971 Alaska Native Claims Act effectively eliminated tribal title and land and water claims, governmental policy stresses the need to consult tribal governments, to the greatest extent practicable and legally permitted, prior to taking actions that affect federally recognized tribal governments.<sup>143</sup>

In light of the diverse group of stakeholders across nations, indigenous people, non-governmental organizations and public and private institutions,

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<sup>138</sup> See generally Edward T. Canuel, *The Four Arctic Pillars: A Legal Framework*, 46 GEO. J. INT’L L. 735 (2015) (describing the gradual emerging of both a hard and soft law regime in the Arctic).

<sup>139</sup> OTTAWA DECLARATION, *supra* note 32, at ¶ 2-3.

<sup>140</sup> The Vienna Convention on Treaties does not specifically prohibit non-state actors and indigenous people from entering into international agreements, but this practice has not been widespread.

<sup>141</sup> This necessarily implicates each host nations’ domestic law provisions governing tribal nations and their associated rights.

<sup>142</sup> *Cherokee Nation v. Georgia*, 30 U.S. 1, 2 (1831) (holding that “tribes which reside within the acknowledged boundaries . . . can perhaps be denominated domestic dependent nations”). See also Canuel, *supra* note 138, at 746 n.60. Taylor Reinhard, *Advancing Tribal Law through “Treatment as a State” Under the Obama Administration: American Indians may also Find Help from their Legal Relative Louisiana—No Blood Quantum Necessary*, 23 TUL. ENVTL. L. J. 537, 538 (2010).

<sup>143</sup> Consultation and Coordination with Tribal Governments, 65 Fed. Reg. 67249-52 (Nov. 9, 2000).



global environmental law will only take on increased importance in the Arctic. Additionally, the “soft law” provisions that are the hallmark of global environmental law have the inherent flexibility to evolve organically and harden into legal obligations. Consider the successful signing of both the 2011 Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic and 2013 Agreement on Marine Pollution and Response. Both grew out of the work of the Arctic Council, placed legal obligations on Arctic states, and appear to address additional issues beyond the mere environmental mandate.<sup>144</sup>

## 2. Global Environmental Law and International Maritime Organization (IMO) Adoption of Polar Codes

Outside the work of the Arctic Council, the IMO has taken steps to address shipboard safety and design in the polar regions. The IMO Assembly recently adopted a Resolution to develop guidelines for ships operating in polar waters that would go beyond the guidelines set forth in the International Convention for the Safety of Life at Sea (SOLAS) and MARPOL Conventions (Polar Code).<sup>145</sup> In November 2015, the IMO adopted the “International Code for Ships Operating in Polar Waters,” and related amendments to SOLAS. These new regulations apply to both the Arctic and Antarctica, with the goal of providing additional protection for seafarers and passengers operating in the harsh polar environments.

These Polar Codes will be implemented via both SOLAS and MARPOL and cover ship design, operational and training concerns, as well as the protection of the polar environment.<sup>146</sup> The regulations will strengthen restrictions on waste disposal by ships operating in these waters beginning in January 2017. The new rules will ban all discharges of oil residues from ship engines and chemicals used to clean ships and their tanks. They require food waste to be ground up and disposed at least 14 miles from land or the nearest ice formation. The new rules complement the rules on ship design and equipment for vessels operating in polar waters adopted by the IMO in November 2014. Environmental groups welcomed the new rules, while arguing that a ban on ships using bunker fuel, which already applies in Antarctic waters, should be extended to Arctic waters. Some countries, led by

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<sup>144</sup> AGREEMENT ON COOPERATION ON AERONAUTICAL AND MARITIME SEARCH AND RESCUE IN THE ARCTIC, 50 I.L.M. 1119 (May 12, 2011).

<sup>145</sup> Resolution A.1024 (26), INTERNATIONAL MARITIME ORGANIZATION (Jan. 1, 2017), <http://www.imo.org/en/MediaCentre/HotTopics/polar/Pages/default.aspx>.

<sup>146</sup> *International Code for Ships Operating in Polar Waters (Polar Code)*, INTERNATIONAL MARITIME ORGANIZATION (adopted on Nov. 21, 2014), <http://www.imo.org/en/MediaCentre/HotTopics/polar/Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED%20BY%20MSC%20AND%20MEPC.pdf>.

Russia, blocked the proposal to ban bunker fuels in Arctic waters when it was made several years before.<sup>147</sup>

Recent private sector efforts have also sought to bolster environmental safeguards in the polar regions. Beginning in 1991, tour operators formed the International Association of Antarctic Tour Operators (IAATO), a private, self-regulating organization that now has more than 100 members. IAATO has developed a strict code of conduct designed to keep Antarctica pristine, to protect Antarctic wildlife, and to require tourists to respect protected areas. This code strictly regulates what tourists can do in Antarctica to minimize their environmental impact. A similar organization, the Association of Arctic Expedition Cruise Operators (AECO) was formed in 2003. It has formulated extensive guidelines to regulate tourist activity in the Arctic. These include operational guidelines that are mandatory for tour operators and guidelines governing tourist encounters with Arctic wildlife, biosecurity guidelines, and rules for visiting specific Arctic sites. These private initiatives illustrate new ways in which global environmental law is developing.

#### **IV. THE FIVE KEY FACTORS AFFECTING THE FUTURE OF ARCTIC GOVERNANCE**

There is widespread consensus that the ATS has played the central role in ensuring peace and stability in Antarctica. If this global success story could be replicated in the Arctic, present and future generations would benefit. But Antarctica is just different enough from the Arctic to make this unworkable: it is a continent, not an ocean; it lacks native indigenous populations; it is significantly more isolated; and possesses fewer natural resources and is of less military value. It is also a product of a time in history predating the rise of global environmental law.

Will the work of the Arctic Council and the legal processes set forth in UNCLOS be enough to stabilize the Arctic in the face of massive geographic and environmental change? Perhaps. But this will depend on a multiplicity of factors. We believe that the long-term environmental and geo-political stability in the Arctic will depend on five key factors in particular: (1) the ability of UNCLOS and the CLCS to finally adjudicate competing continental shelf claims; (2) long-term Russian military ambition in the Arctic and Russia's corresponding relationship with the four Arctic coastal state NATO members; (3) the true pace of climate change in the Arctic; (4) the impact of changing prices of oil and gas on the economics of Arctic resource extraction; and (5) the potential for division among the myriad Arctic stakeholders. These factors are discussed in greater detail below.

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<sup>147</sup> Costas Paris, *United Nations Installs New Rules for Polar Ship Routes*, WALL ST. J., May 16, 2015, at B3.

### A. First Factor: UNCLOS and the CLCS's Long-Term Viability to Decide Competing Continental Shelf Claims

The first key factor, the ability of UNCLOS and the CLCS to finalize competing continental shelf claims will come to the fore as the CLCS begins to issue opinions in response to the uptick in Arctic continental shelf submissions. UNCLOS already provides the hard law legal architecture for the Arctic with a ready-made process to solve competing continental shelf claims. As of this writing, 168 nations have ratified UNCLOS to include all of the Arctic states and members of the Arctic Council, with the exception of the U.S.<sup>148</sup> But uncertainty remains regarding the CLCS's ability to serve as the "one-stop" adjudicatory body in the Arctic. Indeed, the long-term viability for the CLCS to adjudicate all claims in a peaceful, effective, and internationally accepted manner remains to be seen in light of the two related sub-factors outlined below.

#### 1. The United States Has Not Ratified UNCLOS, Nor is There a Timeline to Do So

One of the five Arctic coastal states, the United States, has yet to ratify UNCLOS. Hence, it remains unclear whether the U.S. could even make a claim via the CLCS process (it has yet to do so).<sup>149</sup> As the Arctic polar ice caps melt and nations assert their autonomy over the seabed, the CLCS process should, in theory, incentivize nations to ratify UNCLOS. In light of its growing importance in the Arctic, the United States' focus should continue to be on ratifying UNCLOS, ensuring a seat at the table for future Arctic governance issues. The U.S. should then follow up with its own CLCS submission outlining the scope and breadth of Alaska's continental shelf, completing the critical fifth wedge of the "Arctic orange." But this is unlikely to occur, undermining the UNCLOS and CLCS architecture.

In the most recent Arctic strategy, President Obama reiterated the desire for the United States to accede to UNCLOS in order to "maximize legal certainty and best secure international recognition of our sovereign rights . . ."<sup>150</sup> But there is no timeline or foreseeable plan to ratify it as the current administration has not made similar statements on Arctic policy. And there is no apparent desire among the Arctic coastal states to sign a more

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<sup>148</sup> *Chronological lists of Ratifications*, UNITED NATIONS, DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA (Aug. 1, 2017), [http://www.un.org/depts/los/reference\\_files/chronological\\_lists\\_of\\_ratifications.htm](http://www.un.org/depts/los/reference_files/chronological_lists_of_ratifications.htm). There has been some discussion of bypassing Senate ratification and having UNCLOS apply to the United States via a congressional-executive agreement. While the United States has yet to ratify UNCLOS, it does accept the "balance of interests relating to traditional usage of the ocean" to include navigation and over-flight. PRESIDENT REAGAN OCEANS POLICY STATEMENT in 1983. See UNCLOS, *supra* note 26, at arts. 55-75

<sup>149</sup> See ARCTIC CRS, *supra* note 12.

<sup>150</sup> WHITE HOUSE, NATIONAL STRATEGY FOR THE ARCTIC REGION (2014).

comprehensive Arctic Treaty.<sup>151</sup> In the absence of Senate ratification, and in light of the environmental and national security impacts of a changing Arctic environment, some have argued that the United States should accede to UNCLOS via a congressional-executive agreement or executive agreement that implements key UNCLOS provisions that resolve sovereignty claims.<sup>152</sup> This would not necessarily require Senate ratification as the President could potentially assert that this falls within his Article II foreign relations and Commander in Chief's powers. While it is beyond the scope of this article to comprehensively address the different types of international agreements under constitutional law, problems would still remain in the unlikely event if the President sought to bypass the Senate: the agreement would necessarily be limited in scope and would face the threat of being undone by future presidents.<sup>153</sup>

Support for ratification has the wide support of the military, which already complies with the major UNCLOS navigational provisions and treats them as customary international law.<sup>154</sup> Despite wide support for its ratification by all former Presidents, business leaders, and environmentalists, a clear path for its ratification does not exist. Decades after UNCLOS was launched, the Arctic nations who already have acceded to UNCLOS cannot and should not hold their breath.

## 2. The CLCS's Ability to Issue Binding Recommendations Accepted by Arctic Stakeholders Remains Uncertain

Second, the long-term legal effect of CLCS recommendations remains unknown. The 21 member CLCS—comprised only of UNCLOS signatories—“*makes recommendations to coastal states . . . the limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.*” (emphasis provided)<sup>155</sup> A CLCS determination would

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<sup>151</sup> ILULISSAT DECLARATION, *supra* note 77.

<sup>152</sup> King, *supra* note 38.

<sup>153</sup> For example, the United States led the effort to sign the Paris Treaty on climate change. It was signed by President Obama in 2015. This agreement was meticulously crafted to bypass the Senate and not implicate congressional authority. President Trump recently unsigned the Paris Agreement, an executive order.

<sup>154</sup> See CHIEF OF NAVAL OPERATIONS: THE UNITED STATES NAVY ARCTIC ROADMAP FOR 2014 TO 2030, at 24 (Jan. 2014) (“continu[ing] to advocate for U.S. accession to the United Nations Convention on the Law of the Sea (UNCLOS) as part of the U.S. Navy’s Arctic Roadmap Implementation Plan”).

<sup>155</sup> UNCLOS, *supra* note 26, art 76 § 8 provides:

Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall *make recommendations* to coastal States on matters related to the establishment of the outer limits of the continental shelf. The limits of the shelf shall be established by a

likely only be binding on the state submitting the claim.<sup>156</sup> In practice, it is only after the coastal state *accepts* the CLCS recommendation that it is final and binding.<sup>157</sup> What if other states object? What is the process if a submitting state disagrees with the CLCS's recommendation? If the coastal state objects to another coastal state's delineation, it remains unclear what the process is to resolve such differences.<sup>158</sup> And the CLCS appeals process remains unclear. In sum, it is only when all five members of the "Arctic orange" submit claims, that the CLCS would have a full picture of the competing claims and could then issue recommendations that take into account all of the competing claims in the Arctic. Time will tell if the CLCS will be able to meet this underlying uncertainty.

B. *Second Factor: Russia Ambitions and Russia-NATO Relations in the Arctic*

The second factor, Russia's military ambitions in the Arctic and corresponding Russian-NATO relations have re-emerged in recent years and will continue to take on increased importance. Geopolitically, Russia has the most to gain in the opening of the Arctic and its seaways. Russia possesses the largest Arctic continental shelf of any nation (with enormous natural gas stores) and the Northeast Passage travels through Russian maritime waters, hugging its coast. And the only border between Russia and the United States is in the Arctic region. While the Arctic was a Cold War hotspot in the 1970s and 1980s, the United States and Soviet Union have found areas of agreement in the Arctic through the signing of the 1990 Maritime Boundary Dispute Agreement.

Determining the precise contours of Russia's continental shelf claim remains *the* central unresolved issue for Arctic oil and gas extraction. In 2007, with great media attention, a Russian submarine planted a flag on the seabed beneath the North Pole. Widely reported in the media but dismissed by legal scholars and many world leaders, this seemingly isolated event may have ominously foreshadowed Russian military involvement elsewhere. Russia's Lomonosov Ridge, an area whose maximum width is 1,000 miles in an area of nearly 1.5 million miles, is of critical importance to future Arctic governance. The Lomonosov Ridge could feasibly provide Russia with half of the Arctic for natural resource exploitation.<sup>159</sup> Russia recently submitted a

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coastal State on the basis of these recommendations shall be *final and binding*.  
(emphasis added)

<sup>156</sup> Carpenter, *supra* note 21, at 237. The CLCS process has not yet achieved the status of customary international law.

<sup>157</sup> *Id.*

<sup>158</sup> UNCLOS only states that parties use peaceful means to resolve international maritime disputes. UNCLOS, *supra* note 26, at art. 279.

<sup>159</sup> *Cf.* CRS ARCTIC, *supra* note 12, at 21. See also Don Walsh, *The Arctic Ocean—Hot Times in a Cold Place*, 143 PROCEEDINGS MAGAZINE 91 (Jul. 2017).

follow-up submission to the CLCS in 2015, asserting that two ridges in the Arctic Ocean were a natural prolongation of Russian land territory.<sup>160</sup>

Future Russian-NATO relations highlight the Arctic Council's Achilles heel: its express prohibition on addressing matters of military security.<sup>161</sup> Of the five Arctic coastal states, four are members of NATO. A period of relative calm followed in the aftermath of the Cold War with few military maneuvers by NATO or Russia in the Arctic. Under Article 5 of the NATO Defense Treaty, NATO members are obligated to come to the defense of other members in the event of an armed attack.

Russia military has recently turned its attention to the Arctic in earnest, investing in military infrastructure to include the establishment of a new naval base in the Arctic.<sup>162</sup> Outside the Arctic, Russia has shown a willingness to challenge sovereign borders in Crimea and the Ukraine. While it is impossible to predict whether Russian aggression in Crimea or the Ukraine will be mirrored in the Arctic, Russia does not have a rosy view of NATO's Arctic role, recently designating NATO as "the primary national security threat in the Arctic."<sup>163</sup>

While the United States possesses the largest military with the strongest capability in the world, its capabilities and capacity to operate lag in the Arctic. Russia has invested in significant military infrastructure in the Arctic in recent years while the United States' has lagged far behind. The U.S. has shown an increased interest in the Arctic through the release of several policy documents. But funding and Arctic operational capabilities have not kept pace.<sup>164</sup> While the new Secretary of Defense, James Mattis,

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<sup>160</sup> See generally Carpenter, *supra* note 21, at 215–52 (2009).

<sup>161</sup> OTTAWA DECLARATION, *supra* note 31, at n.1.

<sup>162</sup> ARCTIC CRS, *supra* note 12, at 1. Robbie Gramer, *Here's What Russia's Military Build-Up in the Arctic Looks Like*, FOREIGN POLICY, Jan. 25, 2017, <http://foreignpolicy.com/2017/01/25/heres-what-russias-military-build-up-in-the-arctic-looks-like-trump-oil-military-high-north-infographic-map/> (noting that in recent years Russia "unveiled a new Arctic command, four new Arctic brigade combat teams, 16 deepwater ports, and 40 icebreakers with an additional 11 in development").

<sup>163</sup> Stacy Closson, *Russian Foreign Policy in the Arctic: Balancing Cooperation and Competition*, THE WILSON CENTER KENNAN CABLE 2 (Jun. 2017).

<sup>164</sup> They include the January 2009 Arctic Policy Directive and the May 2013 National Strategy for the Arctic Region. While the U.S. has issued a series of policy documents highlighting the importance of the Arctic region, funding lags in the Arctic. Policy documents include the 2013 National Strategy for the Arctic Region and the January 2014 Implementation Plan for National Strategy for the Arctic Region. The Department of Defense recently issued an Arctic Strategy. *National Strategy for the Arctic Region*, DEPT OF DEFENSE (MAY 2013). "We seek an Arctic region that is stable and free of conflict." See also Exec. Order 13,580 (Interagency Working Groups on Coordination of Domestic Energy Development and Permitting in Alaska), <https://obamawhitehouse.archives.gov/the-press-office/2011/07/12/executive-order-13580-interagency-working-group-coordination-domestic-en> (accessed Aug. 25, 2017) ; Exec Order. 13547 (Stewardship of the Ocean, our Coasts, and the Great Lakes), <https://obamawhitehouse.archives.gov/the-press-office/executive-order->

recently reiterated the Arctic's importance to the Department of Defense in congressional testimony,<sup>165</sup> the U.S. lacks sufficient icebreaking capacity, critical to operating effectively and continually in the Arctic. Russia possesses relatively strong military capabilities in the Arctic, with 40 icebreakers (many nuclear powered) and military air and sea bases on the Arctic. The other four Arctic coastal states are original members of the NATO military alliance and could feasibly counteract any future Russian military aggression in the Arctic.<sup>166</sup> In sum, rising military tensions would expose the Arctic Council's express prohibition addressing matters of military security.

Operating military vessels in the Arctic is uniquely dangerous with its harsh conditions and an environment that is particularly susceptible to environmental degradation in the event of an oil spill or similar disaster. The U.S. Coast Guard is currently reviewing shipping routes through the Bering Strait with an eye to formalize a vessel traffic separation scheme between the U.S. and Russia.<sup>167</sup> In the absence of a binding Arctic agreement, the Arctic Eight and other nations that routinely operate in the Arctic could adopt a similar "Arctic Incidents at Sea Agreement (INCSEA)" agreement that complements the 1972 COLREGS and or original INCSEA. This Arctic INCSEA agreement could complement the Polar Codes and could be modeled after the U.S./Soviet INCSEA agreement that was signed in 1972 with specific provisions.<sup>168</sup> It "serves to enhance mutual knowledge and understanding of military activities; to reduce the possibility of conflict by accident, miscalculation, or the failure of communication; and to increase stability in times of both calm and crisis."<sup>169</sup> The original INCSEA

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[stewardship-ocean-our-coasts-and-great-lakes](#) (accessed Aug 25, 2017); Exec. Order 12,501 (Arctic Research) <https://www.archives.gov/federal-register/codification/executive-order/12501.html> (accessed Aug 25, 2017). In January 2015 President Obama signed an executive order entitled, "Enhancing Coordination of National Efforts in the Arctic" that established an Arctic Executive Steering Committee to better coordinate U.S. efforts in the Arctic. Exec. Order 13,689, 80 Fed. Reg. 4191 (Jan. 26, 2015).

<sup>165</sup> See Gramer, *supra* note 162 (In a written questionnaire to Congress, Mattis stated, "The Arctic is key strategic terrain. Russia is taking aggressive steps to increase its presence there. I will prioritize the development of an integrated strategy for the Arctic.").

<sup>166</sup> The United States, Canada, Denmark, and Norway are all NATO members. Of note, Sweden recently brought back the military draft and both Sweden and Finland are debating whether to join NATO. See Paul Watson, *A Melting Arctic Could Spark a New Cold War*, TIME, May 12, 2017, <http://time.com/4773238/russia-cold-war-united-states-artic-donald-trump-barack-obama-vladimir-putin/>.

<sup>167</sup> CRS ARCTIC, *supra* note 12, at 27 (quoting 75 FR 68568, Nov. 8, 2010). See also Steven Lee Myers & Clifford Krauss, *Melting Ice Isn't Opening Arctic to Oil Bonanza*, N.Y. TIMES, Sept. 7, 2015, <https://www.nytimes.com/2015/09/08/world/europe/melting-ice-isnt-opening-arctic-to-oil-bonanza.html?mcubz=0>.

<sup>168</sup> *Agreement Between the Government of The United States of America and the Government of The Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas*, DEP'T OF STATE (May 25, 1972), <http://www.state.gov/t/isn/4791.htm>.

<sup>169</sup> *Id.*

agreement has proven to be successful in reducing risks of collision at sea between U.S. and Russian naval vessels.<sup>170</sup>

An Arctic INCSEA would open up a valuable military to military dialogue and could alleviate tensions in the region that de-escalates rising tensions as military vessels increasingly operate in the Arctic. The U.S. Coast Guard has sought agreement with Russia to establish a traffic separation scheme for the Bering Strait.<sup>171</sup> It would fall outside the Arctic Council, but it could be signed by the eight Arctic nations that commonly operate in the region.

*C. Third Factor: The Pace of Climate Change and “Stationarity” in the Arctic*

The third factor, the pace of climate change and its ultimate impact in the Arctic region and the world, will have an immediate effect on the economics, health and infrastructure of the Arctic indigenous peoples.<sup>172</sup> Some studies have suggested that the flooding and erosion caused by climate change will force Arctic villages to retreat and relocate elsewhere. Scientists already assess that the earth is warming at twice the overall rate in the polar regions—will this pace of change accelerate as ice caps melt?

Consider, but one example: climate change’s impact on Greenland and the unintended consequences emerging as Greenland’s ice sheet melts. Greenland remains one of the most sparsely populated land masses on the earth, but as its ice sheet melts valuable minerals can be harvested for the first time in human history. Outside investors (many from China) are flooding into Greenland, creating a division between Greenlanders who see this as economic opportunity and its sovereign power, Denmark, who are concerned about the environmental impact of the harvesting. Indeed, if this independence movement keeps its momentum, Greenland may emerge as the first nation born from climate change.

In other contexts, scientists have expressed continual concern about the scientific community’s ability to plan for climate change’s impact. For example, scientists have historically planned and modeled water resource management patterns based upon the concept of “stationarity.” Stationarity is the idea that natural systems fluctuate within an unchanging envelope of variability.<sup>173</sup> In part due to the melting of ice sheets and the rapid increase in water run-off from ice-free land, scientists have declared “stationarity dead.” Indeed, it no longer serves as a suitable default assumption for water

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<sup>170</sup> NWP 1-14M, *supra* note 45, at ¶ 2-15. This also includes aircraft.

<sup>171</sup> ARCTIC CRS, *supra* note 12, at 27.

<sup>172</sup> ARCTIC CRS, *supra* note 12, at 43.

<sup>173</sup> *Stationarity is Dead: Whither Water Management*, SCIENCE, Feb. 1, 2008, at 573-574.



resource management and planning.<sup>174</sup>

The dramatic changes in Arctic ice sheet melting—as well as the rapid deterioration of the Antarctic ice sheet—suggest that we are entering uncharted territory for planning for the polar regions' future. Similar to water resource management projections, will stationarity be declared dead in the Arctic? Scientists already estimate that the polar regions are twice as vulnerable to climate change as other places in the world and the rapidly melting ice caps continue to surprise scientists. Stationarity, in turn, appears to be on life support in the polar regions. The race for the Arctic's resources and new trade routes will depend, in large part, on the pace of anthropogenic change in the Arctic, an increasingly unknown, wild, and critical variable.

*D. Fourth Factor: Energy Prices, Regulatory Permitting and Extraction Costs*

The fourth key factor: the cost of natural resource extraction in the Arctic and oil and natural gas prices will drive the Arctic economy and most of the Arctic's activity. For now, the primary protection for Arctic waters may be the precipitous drop in the price of oil that has made it less economically viable to drill there. In September 2015, Royal Dutch Shell became the latest company to suspend Arctic oil exploration after spending more than \$7 billion over the course of nearly a decade. Six other major oil companies previously had stopped Arctic exploration, some announcing that it was too risky to drill in such a harsh environment. Although Exxon Mobil found oil in Russia's Kara Sea, economic sanctions imposed after Russian incursions in Ukraine forced a halt to its operations there.

But the current Trump administration has re-opened the door for massive Arctic drilling, exclaiming that up to 300,000 jobs would result from the Arctic drilling economy in a recent executive order that overturned a President Obama order banning offshore Arctic drilling.<sup>175</sup> Oil prices are a global commodity with rapidly fluctuating prices—when oil prices inevitably rise, focus will once again turn to the Arctic and its vast untapped resources. Now is an opportune time to consider how to improve environmental governance in the Arctic. At this time, oil prices remain low. But for how long?

*E. Fifth Factor: Divergent Interests Between Arctic Coastal States, Arctic non-Coastal States, and non-Arctic States*

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<sup>174</sup> *Id.*

<sup>175</sup> Presidential Executive Order Implementing an America First Offshore Energy Strategy (Apr. 28 2017), <https://www.whitehouse.gov/the-press-office/2017/04/28/presidential-executive-order-implementing-america-first-offshore-energy>.

Lastly, the rush for resources in the Arctic is beginning to highlight the competing divisions between the three key Arctic actors: (1) Arctic Council coastal states; (2) Arctic Council non-coastal states; and (3) non-Arctic states. This could potentially undermine the region's stability.

Only “the coastal State exercises control over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.”<sup>176</sup> The three non-coastal states (Iceland, Sweden, Finland) that are members of the Arctic Council can not make CLCS submissions. When the five Arctic coastal states signed the *Ilulissat Declaration* in 2008 outside the auspices of the Arctic Council, they expressly rejected proposals to negotiate a separate Arctic Treaty because UNCLOS was adequate to resolve sovereignty conflicts in the Arctic. And non-Arctic states such as China, Singapore, and Italy are knocking on the Arctic door, seeking a seat at the Arctic Council table as the impacts of climate change impact the rest of the world.<sup>177</sup> The expanding interest from increasingly diverse stakeholders could strain and stress the existing governance model—will the Arctic Council be up for the challenge?

## V. CONCLUSION

For more than half a century the Antarctic Treaty System has protected the polar environment on the southernmost end of the planet as a scientific reserve. It is unrealistic to believe that this approach could be replicated in the Arctic, over most of which several countries already exercise sovereignty.

Because the Arctic is mostly ocean, the United Nations Convention on the Law of the Sea (UNCLOS) provides a strong international law building block for environmental governance. In light of the Arctic's increasing importance to trade and the economy, the U.S. Senate should move swiftly ratify UNCLOS. While the long-term success of the CLCS to adjudicate competing claims remains uncertain, it remains the most promising venue to do so. And it provides the best hope for peaceful resolution of sovereign claims to Arctic waters. The Obama administration's Strategy National Strategy for the Arctic Region recognizes that “[o]nly by joining [UNCLOS] can we maximize legal certainty and best secure international recognition of our sovereign rights with respect to the U.S. extended continental shelf in the

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<sup>176</sup> UNCLOS, *supra* note 26, art. 76 (1).

<sup>177</sup> For example, Singapore resides at the equator and is also at sea-level. Increasingly concerned about sea level rise. China, too, has been active in seeking Arctic Council membership and has mining interests in Greenland. *Will Asian Countries Consolidate or Disrupt Arctic Stability?*, THE ECONOMIST, Feb. 2, 2013, <https://www.economist.com/news/international/21571127-will-asian-countries-consolidate-or-disrupt-arctic-stability-roar-ice-cracking>.

Arctic and elsewhere.”<sup>178</sup> Nevertheless, despite calls from environmentalists, military, and scientists to ratify UNCLOS, there is no timeline to do so.

The Arctic Council’s ability to evolve has been encouraging—whether it is up to the task of being the clearinghouse for all Arctic issues remains to be seen. The Council should be used to help ensure that any future resource extraction and transportation activities in the Arctic do not cause unreasonable damage to the environment. The Arctic nations seem content with the Arctic Council process that has worked well due to continued cooperation by Arctic nations. As a geopolitical matter, it is unclear what the future holds for the Arctic. And previous dire predictions about “armed brinkmanship” in the Arctic have not come to fruition.<sup>179</sup> Nevertheless, the Arctic will remain a fragile and harsh environment with an increase in maritime traffic and interest from natural resource extractors. The Arctic states—through the Arctic Council—should continue to build upon its work and find areas of mutual collaboration that is in line with broader environmental principles to include environmental justice and the precautionary principle. Negotiation of an Arctic Treaty patterned on the ATS may not be realistic, but continued intergovernmental cooperation certainly is essential.

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<sup>178</sup> *Nat’l Strategy for the Arctic Region*, THE WHITE HOUSE (May 2013), [https://www.whitehouse.gov/sites/default/files/docs/nat\\_arctic\\_strategy.pdf](https://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf).

<sup>179</sup> Scott Borgerson, *Arctic Meltdown: The Economic and Security Implications of Global Warming*, FOREIGN AFFAIRS, Mar./Apr. 2008, <https://www.foreignaffairs.com/articles/arctic-antarctic/2008-03-02/arctic-meltdown>.