NOTES

Arctic Melt: The Tipping Point for an Arctic Treaty

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CONTENTS

I. INTRODUCTION

As the ice cover melts, international law stands ill prepared to protect the Arctic Ocean's fragile marine environment. Assessing the Arctic's legal regime under the pressures of global climate change paints the following worrisome picture. Over vast coastal areas of the interconnected Arctic Ocean, the rule of

* Georgetown University Law Center, J.D. expected 2009; Georgetown University, A.B. 2006. I would like to thank Professor William A. Butler for his enduring guidance and patience throughout the writing of this Note. I am also grateful to the environmental law faculty at Georgetown for their passion and inspiration. I especially want to thank Carolina for her boundless love and support and my family for cheering me on.

law is the rule of eight nations,[1] while unsettled sovereign rights and the ungoverned high seas prevail farther offshore.[2] With no enforceable, binding treaty that speaks to the region's unique ecological conditions and susceptibilities, international environmental law plays a marginal role. If the past is prelude to the future, this patchwork legal regime will not prevent the overexploitation of Arctic natural resources, which have suffered and will continue to suffer widespread and trans-boundary injury.[3]

As Arctic sea-ice continues its precipitous retreat, economic activity advances farther into previously inaccessible northern climes. The notion of ice-free waters in the near future is luring commercial activity to the Arctic and spurring a geopolitical race to claim the Arctic's natural resources. Companies are risking hazardous weather to tap into possibly some of the world's largest remaining oil and gas reserves and to cut the cost of shipping for important trade routes from Asia and the west coast of the United States to Europe. Eager to defend their sovereign rights, Arctic nations are funding research to support claims to the outer continental shelf, building up their navies, and symbolically planting flags on the seabed below the North Pole.[4] An international legal regime that lacks teeth certainly will not stand in the way of state-supported development with trans-boundary effects.

This great melt has triggered a tipping point in the Arctic's ecological integrity from which it may never recover. Dire times call for great action; the time for a binding Arctic Treaty is now. Urgent action on a such a treaty heeds the wisdom of the precautionary principle as it seeks to insure against future risks and is compelled by the realities of a mutating seascape that is redefining the rules of the game and opening up frozen treasures to both wise use and plunder. Following this introduction and admonition, Part II surveys the nature of the threat of global

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1. Though various definitions of the Arctic exist, eight countries are generally considered Arctic nations: Canada, Denmark (on behalf of Greenland), Finland, Iceland, Norway, Sweden, Russia, and the United States. For purposes of this note, the Arctic is considered to be the region between the North Pole (90° N) and the Arctic Circle (66°32′ N). The widely ratified 1982 U.N. Law of the Sea Convention grants some form of national jurisdiction over large areas of waters adjacent to the coast, generally up to the 200 nautical mile (nm) limit of each country's Exclusive Economic Zone (EEZ), or when applicable, the farthest extent of the Continental Shelf. *See generally* United Nations Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter LOSC].

2. Sovereign rights over large portions of the Arctic are currently unsettled because several Arctic nations have filed contesting claims over the limits of their respective continental shelves. *See The Arctic: Drawing Lines in the Melting Ice*, THE ECONOMIST, Aug. 18, 2007, at 48. The "high seas" are the areas beyond the 200 nm EEZ. *See* LOSC, *supra* note 1, art. 89 ("no State may validly purport to subject any part of the high seas to its sovereignty").

3. *See* David VanderZwaag et al., *The Arctic Environmental Protection Strategy, Arctic Council and Multilateral Initiatives: Tinkering while the Marine Environment Totters*, *in* THE LAW OF THE SEA AND POLAR MARITIME DELIMITATION AND JURISDICTION 225, 246-48 (Elferink et al. eds., 2001) (describing the Arctic environment as a "sink" acutely susceptible to international pollution).

4. *See generally* Scott G. Borgerson, *Arctic Meltdown: the Economic and Security Implications of Global Warming*, FOREIGN AFFAIRS, Mar.-Apr. 2008, at 63.

climate change to Arctic natural resources. Part III assesses the complex web of treaties and cooperative agreements relevant to the protection of Arctic natural resources, concluding that the existing legal regime is seriously deficient. Part IV examines proposals for international legal solutions and argues in favor of a binding treaty approach. Part V rejects the Antarctica Treaty System as a model and establishes the central tenet that an Arctic Treaty must be based on respect for a sovereign's rights over natural resources within its national jurisdiction. Finally, Part VI describes the general contours of an Arctic Treaty informed by both the weaknesses and opportunities of the existing international legal regime.

II. THE NATURE OF THE THREAT

In the summer of 2007, the Arctic Ocean's ice cover shrank by more than one million square miles, or by about the size of six Californias, reducing the icecap to half of what it was fifty years ago.[5] The fabled Northwest Passage was free of ice for the first time in recorded history. Over the past twenty-three years, the Arctic has lost forty-one percent of its perennial ice, which historically has been the main obstacle to shipping; in the past years, average winter temperatures in Alaska and western Canada have increased by as much as seven degrees Fahrenheit.[6] Though most models predict an ice-free Arctic by mid-century, recently published research predicts that this could occur anytime in the next five to thirty-two years.[7] An alarming forecast from researchers at the National Snow and Ice Data Center estimated a slightly less than fifty percent chance that the North Pole would be ice-free for the summer of 2008.[8] Scientists wonder whether we are reaching a tipping point beyond which multiple positive feedback effects will bring sea ice to a low from which it cannot recover.[9]

Generalizing that global climate change is causing Arctic sea ice to melt downplays the fact that the poles are "[e]xtraordinarily complicated systems of ice, water and land, and that the mix of human and natural influences [is] not easy to clarify."[10] Nevertheless, despite higher levels of natural variability and sparser

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5. *See* Andrew C. Revkin, *Scientists Report Severe Retreat of Arctic Ice*, N.Y. TIMES, Sept. 21, 2007, at A6.

6. *See* Borgerson, *supra* note 4, at 65.

7. *Id.; see generally* WORLD WILDLIFE FUND INT'L ARCTIC PROGRAMME, ARCTIC CLIMATE IMPACT SCIENCE (2008), *available at* http://assets.panda.org/downloads/final_climateimpact_22apr08.pdf (reviewing the latest research and models on the retreat of Arctic sea ice).

8. *This Summer May See First Ice-Free North Pole*, June 27, 2008, *available at* http://msnbc.msn.com/id/25419299/. The 2008 summer did not exceed the previous year's record low summer ice due to cooler, cloudier weather than predicted, but the National Snow and Ice Data Center (NSIDC) researchers nevertheless find the Arctic "more vulnerable than ever," given how close the 2008 summer came to beating the previous year's record low levels of summer ice. Press Release, Nat'l Snow & Ice Data Ctr., Arctic Sea Ice Down to Second-Lowest Extent; Likely Record-Low Volume (Oct. 2, 2008), *available at* http://nsidc.org/news/press/20081002_seaice_pressrelease.html. For the latest forecasts from the NSIDC, see Nat'l Snow & Ice Data Ctr., Arctic Sea Ice News & Analysis, http://nsidc.org/arcticseaicenews (last visited March 27, 2009).

9. *See* WORLD WILDLIFE FUND INT'L ARCTIC PROGRAMME, *supra* note 7, at 8.

10. Revkin, *supra* note 5.

data at the poles, it is increasingly clear that climate change from the buildup of greenhouse gases is driving Arctic warming. The 2007 Intergovernmental Panel on Climate Change ("IPCC") Assessment Report concluded that it was very likely (90% probability of occurrence) that human activities have contributed to the rise in global temperatures; the 2005 Arctic Climate Impact Assessment ("ACIA") found strong evidence that much of the observed warming in the Arctic was also due to human activities.[11] The direct environmental impact of this warming is well documented and underway. The melting ice cover is adversely affecting flora, fauna, and the indigenous populations who subsist on them.[12] In recognition of this reality, the U.S. Department of the Interior recently decided to protect the Polar Bear as a threatened species. Former Secretary Dirk Kempthorne, a one-time opponent of the Endangered Species Act, explained that the listing was based on the best available science, which showed that the loss of sea ice threatened polar bear habitat and that rapid loss of ice would continue to occur.[13] Human-induced Arctic warming and its adverse effects is not merely a hypothetical occurrence but is a real and sobering call to action.

Rapid Arctic warming has also produced secondary effects arising from the increased accessibility to and exploitation of this ocean's natural resources. As the ACIA predicted, climate change is allowing an expansion of commercial activity in this ecologically sensitive area, primarily in the form of mineral mining, oil and gas exploration and extraction, transportation, and fishing.[14] With regard to oil and gas activities, the U.S. Geological Survey estimated that the Arctic holds up to 22% of the world's undiscovered, technically recoverable oil and natural gas deposits, or about 90 billion barrels of oil, 1670 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids, 84% of which are expected to occur offshore.[15] Based on similar projections, American, Canadian, Russian, and Norwegian companies are pouring investments into oil and gas fields far offshore, speculating that such fields could hold twice the current proven oil reserves of Saudi Arabia.[16] In February 2008, for example, the U.S.

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11. IPCC, *2007: Summary for Policymakers*, *in* CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 1, 3 fn.6, 10 (Solomon et al. eds., 2007), *available at* http://www.ipcc.ch/ipccreports/ar4-wg1.htm; ACIA SECRETARIAT AND COOPERATIVE INSTITUTE FOR ARCTIC RESEARCH, ARCTIC CLIMATE IMPACTS ASSESSMENT 991 (2005), *available at* http://www.acia.uaf.edu/pages/scientific.html [hereinafter ACIA].

12. *See* ACIA, *supra* note 11, at 10-11.

13. Felicity Barringer, *Polar Bear Gains Protection as a Threatened Species*, N.Y. TIMES, May 15, 2008, at A18; News Release, U.S. Dep't of Interior Office of the Secretary, Secretary Kempthorne Announces Decision to Protect Polar Bears Under Endangered Species Act (May 14, 2008), *available at* http://www.doi.gov/news/08_News_Releases/080514a.html.

14. *See* ACIA, *supra* note 11, at 1001, tbl.18.8; *see generally*, Clifford Krauss et al., *As Polar Ice Turns to Water, Dreams of Treasure Abound*, N.Y. TIMES, October 10, 2005, at A1.

15. Press Release, U.S. Geological Survey, 90 Billion Barrels of Oil and 1,670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic (July 23, 2008), *available at* http://www.usgs.gov/newsroom/article.asp?ID=1980&from=rss_home.

16. *See* Krauss et al., *supra* note 14.

Minerals Management Service oversaw the largest auctions ever conducted by the agency, with bids totaling $3.4 billion for the rights to Alaskan oil and gas leases covering nearly 30 million acres of seabed 50 to 200 miles from the coast in the Chukchi Sea, a marginal sea of the Arctic Ocean.[17] With the price of oil hovering over $140 per barrel in June of the following summer, President Bush announced an initiative to boost domestic production by ending a federal ban on oil drilling along many coastal areas that had been under leasing and drilling moratoria for over a decade.[18] These are just some examples from the oil and gas industry of the current and projected increase in exploitative activities with the potential for great environmental harm.

The environmental impacts of oil and gas extraction, as well as of increased commercial fishing and transportation through polar routes, present challenges even to a sophisticated legal system like that of the United States. For example, economic pressures may drive states dependent on oil imported from unstable regions to prioritize domestic energy production over environmental concerns. This is evidenced by the decision to delay listing the Polar Bear as a threatened species until after the Chukchi lease sale occurred and to condition its protection on allowing oil and gas exploration in areas where the bears live.[19] A detailed scientific study of the impacts of commercial activities on the Arctic marine environment is beyond the scope of this note, but a brief summary of likely impacts includes: oil spills; operational discharges and dumping; seismic noise disturbances; air pollution and greenhouse gas emissions; land-based pollution from urbanization; over-fishing; introduction of invasive species; ship strikes of marine mammals; and related harms to the subsistence lifestyle of indigenous populations.[20] The environmental impacts and attendant legal challenges brought by increased natural resource development in the Arctic are not conjectural but rather palpable and pressing.

In the near term, much of the increased activity will take place within the

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17. *See Shell is High Bidder to Drill for Oil and Gas off Alaska*, N.Y. TIMES, Feb. 7, 2008, at C2; *see also* Daniel Glick, *Polar Distress*, AUDUBON MAGAZINE, May-June 2008, *available at* http://www.audubonmagazine.org/features0805/habitat.html.

18. *See* Sheryl Gay Stolberg, *Bush Calls for an End to Ban on Offshore Oil Drilling*, N.Y. TIMES, June 19, 2008, *available at* http://www.nytimes.com/2008/06/19/washington/19drill.html.

19. *See* Barringer, *supra* note 13; *see also* Glick, *supra* note 17; *Scientists Ignored on Pitfalls of Arctic Oil Leasing*, ENV'T NEWS SERV., Feb. 5, 2008, *available at* http://www.ens-newswire.com/ens/feb2008/2008-02-05-092.asp.

20. *See* BROOKS YEAGER & ROBERT HUEBERT, WORLD WILDLIFE FUND INT'L ARCTIC PROGRAMME, A NEW SEA: THE NEED FOR A REGIONAL AGREEMENT ON MANAGEMENT AND CONSERVATION OF THE ARCTIC MARINE ENVIRONMENT 6-17 (2008); U.S. DEPT. OF INTERIOR, MINERALS MGMT. SERV., ALASKA OCS REGION, FINAL ENVIRONMENTAL IMPACT STATEMENT: CHUKCHI SEA PLANNING AREA ES 4-7 (May 2007) (predicting a 33-51% chance of a large oil spill); *see also* SAMANTHA SMITH, WORLD WILDLIFE FUND INT'L ARCTIC PROGRAMME, ENVIRONMENTAL IMPACTS OF OFFSHORE OIL AND GAS DEVELOPMENT IN THE ARCTIC 5 ("There continues to be no significantly effective method for containing and cleaning up an oil spill in ice-infested waters"); JOINT GROUP OF EXPERTS ON THE SCIENTIFIC ASPECTS OF MARINE ENVT'L PROTECTION (GESAMP), ESTIMATES OF OIL ENTERING THE MARINE ENVIRONMENT FROM SEA-BASED ACTIVITIES 1 (2007).

regulatory jurisdictions of the eight individual Arctic nations, yet will have trans-boundary effects in this interconnected marine environment. The ocean's resources are "part of a single ecosystem which transcends national boundaries," and therefore expanded industrial and other human activities in the Arctic will affect the whole ecosystem.[21] Moreover, the Arctic suffers from a "sink" phenomenon.[22] Ocean and air currents transport harmful agents from industrialized nations in the northern hemisphere toward the North Pole. As a result, persistent organic pollutants, land-based pollution, low-level radioactive waste, heavy metals, and other sources of international pollution have already degraded Arctic natural resources for years.[23] Although this pollution problem is not the result of global climate change, it demonstrates the unique susceptibilities of an interconnected environment that is often the proverbial canary in the coal mine for the regional as well as global environment.

III. THE INTERNATIONAL LEGAL REGIME

The international environmental legal regime in the Arctic is a complex web of binding treaties or "hard law" and nonbinding cooperative agreements or "soft law." A detailed assessment of this regime under the pressures of global climate change as described in Part II results in the inescapable conclusion that the regime is weak and, for the most part, unenforceable. These defects are only made worse by the regime's piecemeal approach, which fails to comprehensively cover the Arctic's unique ecological conditions. It is, however, a regime well suited for change and supplementation and for identifying and establishing the subject areas and institutions upon which a binding Arctic Treaty should be based. In the following sections, the strengths and weaknesses of both the binding treaties and cooperative agreements in providing effective environmental protection against the threats of global climate change will be examined in detail.

A. INTERNATIONAL TREATIES

The 1982 U.N. Law of the Sea Convention ("LOSC" or the "Convention") and, to a lesser degree, two ship pollution agreements discussed further below, supply the bulk of binding treaty law applicable to the protection of the Arctic marine environment. Focusing on the LOSC, which provides an overarching framework for marine environmental protection, this section analyzes the treaties' collective failure to enforce basic environmental regulations and to address

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21. YEAGER & HUEBERT, *supra* note 20, at 33; *see also* LINDA NOWLAN, IUCN WORLD CONSERVATION UNION, ARCTIC LEGAL REGIME FOR ENVIRONMENTAL PROTECTION 36 (2001), *available at* http://data.iucn.org/dbtw-wpd/edocs/EPLP-044.pdf (noting that trans-boundary areas that could be impacted by oil and gas development remain controversial).

22. *See generally* VanderZwaag et al., *supra* note 3.

23. *Id.* at 225-26.

ecological issues vital to the Arctic at present or in the future. As will be explained, the problems arise from the nature and structure of the agreements: multilateral treaties that are global in scope and that were negotiated prior to modern-day climate change science. The political realities and historical time-frame of the treaty negotiations translated into hortatory language, softened obligations, and incomplete or outdated provisions. Nevertheless, the treaties advanced the development of international environmental law norms benefiting future regulatory efforts in the Arctic and, most importantly, highlighted essential provisions for the protection of the Arctic marine environment.

1. The Law of the Sea

As the Arctic environment is practically entirely contained within ocean space, the LOSC arguably provides an overarching framework for its protection.[24] Drafted as a "constitution of the oceans," the LOSC was conceived as a framework convention regulating all legal regimes and human activities on the oceans.[25] In one unified instrument, the parties to the Convention negotiated such diverse and often conflicting interests as the freedoms of navigation and fishing, national security, and environmental protection. Despite this daunting task, 46 of the 320 articles of the LOSC are devoted to the protection of the marine environment, and the Convention is recognized as making a significant contribution to customary international environmental law.[26]

The Convention's environmental provisions most relevant to the protection of the Arctic marine environment are contained in Part XII, titled *Protection and Preservation of the Marine Environment*. Part XII sets forth the primary general duties of states "to protect and preserve the marine environment" and to take "all measures necessary" to prevent and control pollution from any source and across state boundaries.[27] It grants legislative and enforcement jurisdiction to port, coastal, and flag states and applies dispute settlement provisions to specific violations of the rules.[28] Part XII also establishes concrete principles dealing with

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24. *See generally* LOSC, *supra* note 1. All Arctic nations except for the United States have ratified the LOSC, but the United States Senate will likely ratify the treaty in the near future. In 2007, the Senate Committee on Foreign Relations voted, with President Bush's support, to recommend that the Senate give its advice and consent to U.S. accession to the LOSC. S. REP. NO. 110-9 (2007). The treaty has not yet reached a floor vote, but Secretary of State Clinton has indicated that its ratification will be a priority of the Obama Administration. Ben Block, *U.S. Leaders Support Law of the Sea Treaty*, WORLD WATCH INST., Jan. 22, 2009, http://www.worldwatch.org/node/5993 (last visited Mar. 27, 2009).

25. *See* Catherine Redgwell, *From Permission to Prohibition: The 1982 Convention on the Law of the Sea and Protection of the Marine Environment*, *in* LAW OF THE SEA: PROGRESS AND PROSPECTS 180, 185-86 (David Freestone et al. eds., 2006); *see also* Budislav Vukas, *United Nations Convention on the Law of the Sea and the Polar Marine Environment*, *in* PROTECTING THE POLAR MARINE ENVIRONMENT 34, 34 (Davor Vidas ed., 2000).

26. *See* Redgwell, *supra* note 25, at 185-86; *see also* P.W. BIRNIE & A.E. BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT 347, 348 (2d ed. 2002).

27. LOSC, *supra* note 1, arts. 192-94.

28. *See* Redgwell, *supra* note 25, at 181.; *see generally* LOSC, *supra* note 1, pt. XII. Port, coastal, and flag

pollution from ships, dumping, and seabed operations.[29] These principles incorporate by reference minimum standards of pollution control codified in international treaties and other International Maritime Organization ("IMO") codes.[30]

Many of Part XII's provisions are, however, "unhelpful generalities" that lack legal teeth and remain largely unenforceable.[31] Even admitting that the incorporation of IMO standards has been a successful concrete measure greatly improving the marine environment, the LOSC still suffers from the fatal defect that it restricts enforcement jurisdiction beyond the twelve nautical mile (nm) territorial sea mainly to flag states.[32] This is the offshore area of most concern for global climate change threats to Arctic natural resources. Despite having extended coastal state jurisdiction over polluting activities where previously there was none, the Convention appears to have had a limited impact on state practice.[33] It is doubtful whether coastal and port state jurisdiction has had much impact on the control and reduction of pollution from ships beyond the territorial sea.[34] The effectiveness of relying on flag-state control is at best questionable, as evidenced by the problem of "flags-of-convenience" whereby ships can lawfully register in states with lax oversight and poor environmental compliance records.

The LOSC's other enforcement problems involve its dispute settlement and environmental impact assessment procedures. Part XV establishes a complex system of voluntary and compulsory conciliation, arbitration, and tribunals. Although commentators have advocated greater use of these procedures for environmental disputes,[35] they almost exclusively have been employed for cases involving the prompt release or disputed nationality of ships.[36] The procedures' infrequent use in environmental disputes is rooted in the problem of consent. Even in compulsory dispute resolution, Part XV strongly emphasizes conciliation rather than adjudication for resource-related disputes implicating sensitive sovereignty concerns.[37] Although it may be premature to predict the future of

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states are terms of art under the LOSC that refer to different types of legislative and enforcement jurisdictions. Subject to more specific provisions, port states may generally enact and enforce legislation over their ports, coastal states over their coasts (up to the limit of the EEZ), and flag states over registered ships flying their flag.

29. *See* BIRNIE & BOYLE, *supra* note 26, at 353.

30. *Id.*

31. *See id.*

32. Coastal states may investigate and detain ships only upon evidence of substantial discharge and when pollution causes major damage or threat of major damage. LOSC, *supra* note 1, arts. 218, 220.

33. *See* R.R. CHURCHILL & A.V. LOWE, THE LAW OF THE SEA 351 (3d ed. 1999); *see also* BIRNIE & BOYLE, *supra* note 26, at 390.

34. *See* R.R. CHURCHILL & A.V. LOWE, *supra* note 33, at 351; *see also* BIRNIE & BOYLE, *supra* note 26, at 390.

35. *See* Thomas A. Mensah, *Protection and Preservation of the Marine Environment and the Dispute Settlement Regime in the United Nations Convention on the Law of the Sea*, *in* INTERNATIONAL MARINE ENVIRONMENTAL LAW 9, 17-18 (Andree Kirchner ed., 2002).

36. Rosemary Rayfuse, *The Future of Compulsory Dispute Settlement under the Law of the Sea Convention*, 36 VICT. U. WELLINGTON L. REV. 683, 709 (2005).

37. *Cf.* S. REP. NO. 110-9, at 6 (2007) (Senate Foreign Relations Committee Report describing the narrow scope of applicability for the mandatory dispute settlement of environmental disputes). *See generally* NICO

environmental dispute settlement under the LOSC with little state practice to study, the current provisions are unlikely to provide judicial settlements or contribute to the development of international environmental law.[38]

The Convention's environmental impact assessment provisions are poorly designed to guide states in activities involving both domestic and trans-boundary effects.[39] Article 206 requires the assessment and reporting of activities causing "substantial pollution of or significant and harmful changes to the marine environment," but this broad wording fails to provide concrete guidance on when or how to conduct an assessment.[40] The article does not establish procedures for initial screening, documentation or public participation or for interstate notification, information exchange, and consultation.[41] The disagreement between Ireland and the United Kingdom in the "MOX Plant Dispute" over the level of pollution a nuclear reprocessing plant can emit before triggering a duty to report an assessment under the LOSC illustrates these shortcomings.[42] If a similar dispute occurs in the Arctic, a judicial solution based on such a malleable standard may be impossible, leading to unavoidable and undisclosed trans-boundary pollution.[43] The LOSC contains no concrete standards or specific mandatory language upon which a tribunal or arbitration panel may rely to find a violation that requires a remedy.

Beyond these enforcement problems, the LOSC is simply not tailored to the Arctic's ecological conditions. Of the 320 articles of the Convention, only one specifically relates to ice-covered waters. Article 234 enables each coastal state to enforce vessel-source pollution laws beyond IMO and international minimum standards in its Exclusive Economic Zone ("EEZ"), so long as the laws are non-discriminatory and have due regard for navigation.[44] Article 234 is regarded

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SCHRIJVER, SOVEREIGNTY OVER NATURAL RESOURCES: BALANCING RIGHTS AND DUTIES (1997).

38. Rayfuse, *supra* note 36, at 710.

39. Maki Tanaka, *Lessons from the Protracted MOX Plant Dispute: a Proposed Protocol on Marine Environmental Impact Assessment to the United Nations Convention on the Law of the Sea*, 25 MICH. J. INT'L L. 337, 393 (2004).

40. Article 206 does not explicitly use the term "environmental impact assessment" but provides that "[w]hen States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments." *See* LOSC, *supra* note 1, art. 206.

41. Tanaka, *supra* note 39, at 393.

42. *See* Order of Dec. 3, The MOX Plant Case (Ireland v. United Kingdom), 41 I.L.M. 405 (Int'l Trib. L. of the Sea 2002), *available at* http://www.itlos.org/case_documents/2001/document_en_197.pdf. Ireland's claims of LOSC violations by the United Kingdom, including violations of the duty to report an assessment, have not been adjudicated due to jurisdictional quandaries over the appropriate forum for this dispute. The countries' Annex VII arbitration under the LOSC has been suspended in deference to the European Court of Justice's assumption of exclusive jurisdiction. *See* Press Release, Permanent Court of Arbitration, MOX Plant Arbitral Tribunal Issues Order No. 6 Terminating Proceedings (June 6, 2008), *available at* http://www.pca-cpa.org/showfile.asp?fil_id=1113.

43. *See* Tanaka, *supra* note 39.

44. "Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the

as a norm-creating grant of coastal state pollution control, and both Canada and Russia have implemented national legislation accordingly.[45] Despite this expansion of regulatory control, however, coastal state jurisdiction under Article 234 is limited to the 200 nm reach of the EEZ. As a result, "[l]arge areas of the Arctic marine environment beyond the reach of coastal state jurisdiction [are] ignored."[46] As the ice-cover melts, economic activity extending farther from the shore may be immune from coastal state laws that are themselves limited to addressing domestic, not international, impacts. Furthermore, the rapid pace of the melt casts doubt on how far into the future coastal states shall be able to claim "severe climatic conditions" and the "presence of ice covering such areas for most of the year," as required by the language of Article 234.[47]

As demonstrated in this discussion, the LOSC is a framework convention for the oceans whose weak enforceability and incomplete coverage of Arctic issues prevent it from sufficiently safeguarding the Arctic marine environment from global climate change threats. On the other hand, the LOSC is not intended to be a self-contained regime and so "does not list detailed prohibitive or protective regulations for the marine environment" but rather "presents a general package of principles for possible regulations and treaties on marine environmental protection."[48] The LOSC is intended to provide a framework for a series of treaties, both global and regional, on each of Part XII's covered topics: ships, seabed operations, dumping, land-based pollution, and atmospheric pollution.[49] The Convention enjoys a "symbiotic" relationship with other international laws, including those concluded subsequent to it.[50] In this sense, the LOSC's greatest defects may also be its greatest strengths, for the Convention demonstrates the potential subjects and essential provisions of an Arctic Treaty that may work in conjunction with it.

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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." LOSC, *supra* note 1, art. 234.

45. *See* Rob Huebert, *Article 234 and Marine Pollution Jurisdiction in the Arctic*, *in* THE LAW OF THE SEA AND POLAR MARITIME DELIMITATION AND JURISDICTION 249, 256-57 (Elferink et al. eds., 2001); *see also* YEAGER & HUEBERT, *supra* note 20, at 34.

46. Donald R. Rothwell, *International Law and the Protection of the Arctic Environment*, 44 INT'L & COMP. L. Q. 280, 299 (1995).

47. LOSC, *supra* note 1, art. 234.

48. Thomas Höfer & Lutz Mez, *Effectiveness of International Environmental Protection Treaties on the Sea Transport of Mineral Oil and Proposals for Policy Revision*, *in* INTERNATIONAL MARINE ENVIRONMENTAL LAW 101, 103 (Andree Kirchner ed., 2002).

49. *See* BIRNIE & BOYLE, *supra* note 26, at 352.

50. Redgwell, *supra* note 25, at 190.

2. Other Binding Treaties

Two binding international treaties relevant to the protection of the Arctic marine environment that deserve mention are the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter ("London Convention") and the 1973/78 International Convention for the Prevention of Pollution from Ships ("MARPOL").[51] These conventions, ratified by the vast majority of shipping nations, generally prohibit the dumping of noxious substances into the ocean and require safe ship-design standards such as double-hulls on oil tankers. They are widely regarded as having substantially reduced marine pollution from vessel sources. Yet, like the LOSC, these conventions have also faced compliance, monitoring, and enforcement problems, particularly lax policing by flag states.[52]

MARPOL, for example, suffers from incomplete state reporting of violations and weak oversight by its supervisory body, the IMO. The IMO does not have an effective process for dealing with non-compliance issues such as a state's failure to provide port discharge facilities.[53] MARPOL, however, does offer states significant opportunities to protect the Arctic by designating "Special Areas." A "Special Area" is defined as "a sea area where for recognized technical reasons in relation to its oceanographic and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances or garbage is required."[54] Stringent vessel discharge standards and shipping practices govern under IMO oversight in a "Special Area" as well as in designated "Particularly Sensitive Sea Areas." While the polar seas of the Antarctic have been declared a "Special Area," Arctic nations have not taken similar advantage of this useful designation. MARPOL and the London Convention exhibit the same kinds of enforceability problems that render the LOSC inadequate to safeguard the Arctic from global climate change threats; yet, they also offer opportunities for specialized regulations tailored to Arctic needs.

B. COOPERATIVE AGREEMENTS

Non-binding, cooperative "soft law" agreements emerged in the 1990s and

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51. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Dec. 29, 1972, 6 U.S.T. 2403, 1046 U.N.T.S. 120, *as amended by* 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Nov. 7, 1996, 36 I.L.M. 1; International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 184, *as modified by* Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, Feb. 17, 1978, 1340 U.N.T.S. 61 [hereinafter MARPOL].

52. BIRNIE & BOYLE, *supra* note 26, at 367.

53. *Id.*

54. *See* MARPOL, *supra* note 51, annex 1; *see also* IMO, Special Areas Under MARPOL, http://www.imo.org/Environment/mainframe.asp?topic_id=760 (last visited March 27, 2009).

have since become the guiding strategy for state action in the Arctic. The principal weakness of a "soft law" regime in responding to global climate change threats is precisely its non-binding nature. On one hand, a voluntary and research-oriented strategy may coalesce state action around environmental problems, but, on the other, such a strategy fails to create any concrete legal rights or obligations. Like the "hard law" regime examined in the previous section, these cooperative agreements are undermined by serious enforceability problems, which are made worse by their non-binding nature. Yet, similar to the LOSC and related treaties, they have much guidance to offer an Arctic Treaty, particularly in terms of their institutions, governing bodies, textual provisions, and expertise in Arctic affairs.

1. The Arctic Environmental Protection Strategy

At the behest of the Finnish Government, which was determined to pursue a new initiative rather than rely on existing agreements like the LOSC, the eight Arctic nations concluded the Arctic Environmental Protection Strategy ("AEPS") in 1991.[55] The AEPS' main objectives were to provide a forum for cooperation, identify environmental problems, and recommend state action, all on a voluntary basis.[56] The AEPS identified six priority pollutants,[57] introduced action plans to reduce concentrations of these pollutants, and exhorted states to conduct regular meetings. During these regular meetings, working groups were established to divide the tasks of research and recommendation on a problem-specific basis.[58]

The AEPS is a significant first step in the development of regional cooperation. One novel and important aspect of the AEPS is its involvement of indigenous groups as "observers." The AEPS, however, lacks permanent sources of funding, a clear regulatory mandate or agenda, and plans with concrete targets or timetables.[59] In contrast to a binding treaty system, the AEPS imposes no legal rights or obligations. Recognizing the limited effectiveness of the AEPS and its lack of political clout, the Arctic nations decided to establish the Arctic Council, a higher-level intergovernmental forum.

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55. Arctic Environmental Protection Strategy, June 14, 1991, 30 I.L.M. 1624 [hereinafter AEPS].

56. *See* VanderZwaag et al., *supra* note 3, at 234-35.

57. Persistent Organic Contaminants, oil pollution, heavy metals, noise, radioactivity, and acidification. *See* AEPS, *supra* note 55, at 12.

58. The four working groups include the Arctic Monitoring and Assessment Program (AMAP), Protection of the Marine Environment (PAME), Emergency Prevention, Preparedness and Response (EPPR), and Conservation of Arctic Flora and Fauna (CAFF). A fifth Taskforce on Sustainable Development was added later. *See* Arctic Council, *Nuuk Declaration* (Sept. 16, 1993), *available at* http://arctic-council.org/filearchive/The%20Nuuk%20Declaration.pdf.

59. *See* YEAGER & HUEBERT, *supra* note 20, at 19; VanderZwaag et al., *supra* note 3, at 240; NOWLAN, *supra* note 21, at 8-9.

2. The Arctic Council

The Arctic Council was created for Arctic nations to discuss and act on a broader range of issues than were previously addressed in the AEPS.[60] Based on and subsuming the AEPS, the Council oversees new and existing working groups and covers newer topics like sustainable development under an expanded mandate. The Council calls for the greater involvement of indigenous peoples as "Permanent Participants" and encourages public dissemination of information and education on Arctic issues.[61] Though representing a more effective, holistic approach to Arctic environmental protection, the Council, like the AEPS, "[h]as no enforcement authority, has been under-funded, and contains very few, if any, substantive commitments on the part of signatories to take concrete action."[62] Rather, it relies primarily on the goodwill of national governments that are often over-taxed with existing responsibilities.[63] Law and policy controls remain within the individual member states.

The Arctic Council has a number of structural defects, including the lack of a permanent secretariat or sources of funding and a dependence on resources volunteered by member states.[64] The Council also has no centralized offices or personnel, and its working groups are spread out among the states on a volunteer basis. This impermanence hinders the formation of long-term policies as states chairing the Council pursue distinct short-term priorities during their two-year tenures.[65] The structure of the Council is also becoming more complex with the adoption of new programs and projects that lack clear relationships to existing programs.[66]

Other important critiques include a general lack of enthusiasm for the Arctic Council's work, evidenced by a record of incomplete attendance on behalf of minister-level representatives from the Arctic nations as well as the Council's incomplete coverage of Arctic issues.[67] The recent, high-level Arctic Ocean

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60. *See* Arctic Council, *Declaration on the Establishment of the Arctic Council*, 35 I.L.M. 1382 (Sept. 19, 1996), *available at* http://arctic-council.org/filearchive/Declaration%20on%20the%20Establishment%20of%20the%20Arctic%20Council-1.pdf.

61. *See id.*

62. NOWLAN, *supra* note 21, at 15.

63. *See* Timo Koivurova & David L. VanderZwaag, *The Arctic Council at 10 Years: Retrospect and Prospects*, 40 U.B.C. L. REV. 121, 191 (2007).

64. *See* YEAGER & HUEBERT, *supra* note 20, at 20, 23; *see also* Koivurova & VanderZwaag, *supra* note 63, at 136-37.

65. Timo Koivurova, *Environmental Protection in the Arctic and Antarctic: Can the Polar Regimes Learn From Each Other?*, 33 INT'L J. LEGAL INFO. 204, 216 (2005).

66. *Id.*

67. *Id.* Participation by minister-level representatives appears to have somewhat increased in the recent Arctic Council ministerial meetings in 2004 and 2006. *See* Arctic Council, *Salekhard Declaration* (Oct. 26, 2006), *available at* http://arctic-council.org/filearchive/SALEKHARD_AC_DECLARATION_2006.pdf; *see also* Arctic Council, *Reykjavik Declaration* (Nov. 24, 2004), *available at* http://arctic-council.org/filearchive/Reykjavik_Declaration.pdf.

Conference brought together foreign ministers and the U.S. Deputy Secretary of State in a forum completely separate from the Arctic Council.[68] Denmark and Greenland hosted the conference and only five of the eight Arctic nations were invited.[69] Moreover, the Council fails to address important Arctic issues, such as fisheries management, to which no working group is devoted. Though such working groups may emerge in the future, this "sectoral" or "problem-based" approach ignores the value of managing the environment and natural resources from an ecosystem perspective.[70]

In many respects, the Arctic Council has been tremendously successful. Notably, the Council has successfully identified Arctic environmental problems, raised public awareness, mobilized political action on the global stage, and promoted the Arctic as a distinct political region. The Council has also embraced indigenous-group input, participated in the negotiation of international agreements, and produced important research, guidelines, and recommendations like the ACIA. The amount and intensity of the Council's work grows day by day.[71]

The Arctic Council has failed, however, in what matters most: carrying out, or at the very least coordinating, international action to redress Arctic environmental problems.[72] For example, the Council has produced invaluable guidelines on how to respond to oil spills in northern waters: the *Arctic Offshore Oil and Gas Guidelines* ("Oil and Gas Guidelines"). Yet, the Emergency Prevention, Preparedness and Response ("EPPR") working group is not empowered to take action or to coordinate an international response in case such a spill occurs.[73] When Russia experienced oil pipeline leaks in the 1990s, the EPPR's help was not requested.[74] The Council adopted important *Guidelines for Environmental Impact Assessment in the Arctic* ("EIA Guidelines") but subsequently failed to implement them; the guidelines ultimately had a negligible influence on EIA procedures in the Arctic.[75] These and other shortcomings derive from the Council's "soft law" legal status. It was given no decision-making power when it was formed and has not gained any since. The Council continues to operate on the basis of absolute state consensus, a debilitating requirement.[76]

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68. Arctic Ocean Conference, *The Ilulissat Declaration* 1-2 (May 27-29, 2008), *available at* http://arctic-council.org/filearchive/Ilulissat-declaration.pdf [hereinafter Ilulissat Declaration].

69. *Denmark Defends List of Arctic Nations*, CBC NEWS (Can.), May 20, 2008, *available at* http://www.cbc.ca/canada/north/story/2008/05/20/arctic-meeting.html.

70. YEAGER & HUEBERT, *supra* note 20, at 23. Ecosystem perspectives have been increasingly a part of the Arctic Council working groups. *See* Koivurova & VanderZwaag, *supra* note 63, at 144.

71. *See* NOWLAN, *supra* note 21, at 16; YEAGER & HUEBERT, *supra* note 20, at 19-21; Koivurova & VanderZwaag, *supra* note 63, at 156-59.

72. *Cf.* YEAGER & HUEBERT, *supra* note 20, at 30.

73. *Id.* at 20.

74. *Id.*

75. *See* Koivurova & VanderZwaag, *supra* note 63, at 157-58.

76. *Id.* at 130; *see also* Interview with Franklyn Griffiths (Oct. 24, 2007), *available at* http://www.international.gc.ca/cip-pic/video/arctic-arctique/griffiths.aspx?lang=eng.

3. The Polar Guidelines

Another important "soft law" instrument is the IMO's *Guidelines for Ships Operating in Arctic Ice-Covered Waters* ("Polar Guidelines"). Officials from the Arctic nations recognized that climate change and access to natural resources could spur increased shipping in the region and expose ships and their hazardous cargoes to the perils of ice. They agreed on the need to adopt a common set of rules and regulations for Arctic shipping and attempted to negotiate a binding code for Arctic shipping.[77] A draft *International Code for Safety of Ships in Polar Waters* ("Polar Code") was submitted to the IMO's Marine Safety Committee ("MSC"),[78] but problems with the Polar Code's area of application, inconsistency with LOSC freedoms, and objections to its mandatory character led the MSC to continue developing the code as "recommendatory" guidelines.[79]

In 2002, the IMO approved the Polar Guidelines and member states were invited to bring them to the attention of ship-owners and other concerned parties. Although this instrument offers important guidance and has the potential to reduce shipping-related environmental harms like oil spills, it remains voluntary and limited in its influence on shipping practices.[80] The International Association of Classification Societies followed the Polar Guidelines in creating its own rules for ships navigating through ice to be able to qualify for maritime insurance. While this is an important step forward, "it is not a substitute for the adoption and enforcement of the [Polar Code's] standards by the arctic governments."[81]

Although the AEPS, the Arctic Council, and the Polar Guidelines do not constrain national governments, they represent a significant step forward in developing regional cooperation on Arctic issues. As with the LOSC, one of the great benefits of this nonbinding cooperative regime is that it lays the foundation for future work and provides much of the substance for a binding treaty. Indeed, "[i]t would be relatively easy to formalize an Arctic Council agreement, enshrine the mandates of the five [working groups], add innovative features designed to address the particular needs of the Arctic, and give the whole arrangement a sustainable development focus."[82] With the LOSC, the Arctic Council, the Polar Guidelines, and other agreements already in force, "[i]t would seem that many of the building blocks for an effective regional approach are in place."[83]

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77. *See* YEAGER & HUEBERT, *supra* note 20, at 22.

78. *See* Oystein Jensen, *Arctic Shipping Guidelines: Towards a Legal Regime for Navigation Safety and Environmental Protection?*, 44 POLAR RECORD 107, 108 (2008).

79. *See id.* at 108-09.

80. *See id.* at 110-11.

81. *See* YEAGER & HUEBERT, *supra* note 20, at 23.

82. NOWLAN, *supra* note 21, at 59; *see also* Koivurova & VanderZwaag, *supra* note 63, at 182-83.

83. *See* YEAGER & HUEBERT, *supra* note 20, at 28; *see also* Jensen, *supra* note 78, at 112 (describing the ease with which the Polar Guidelines could be added to a binding treaty).

IV. SOLUTIONS

Thinkers in academia and government have offered varying solutions for the protection of the Arctic marine environment. At one end of the spectrum are those who argue for strengthening and implementing the existing international legal regime; at the other are those who advocate for a new and binding Arctic Treaty.[84] This section will explore both sides of the debate and ultimately argue for a new binding treaty.

A. OPPONENTS OF AN ARCTIC TREATY

Recognizing the difficulty of negotiating international agreements, many commentators have adopted a pragmatic stance and concluded that it would be unrealistic or ineffective to pursue a comprehensive, legally binding instrument. Instead, they advocate a greater emphasis on existing laws and institutions. Hans Corell, the former undersecretary-general for legal affairs of the United Nations, argues that an Arctic Treaty is unnecessary and that we should focus on the LOSC as the proper framework for action.[85] He submits that "[t]here is already a binding legal regime that applies in the Arctic" and argues that we should concentrate our resources on working with what we have, examine if that legal regime is sufficient, and if not, work towards strengthening it.[86] Corell encourages assessing and working with existing norms, both binding rules and soft law, rather than creating new ones.

Corell's views echo the 1996 report by the Arctic Council's Protection of the Arctic Marine Environment ("PAME") working group, which assessed the effectiveness of international environmental laws in the Arctic.[87] The report concluded that existing instruments provided an "adequate basis" for the protection of the Arctic marine environment and perceived no urgent need to develop new legal instruments.[88] PAME nevertheless recommended that Arctic nations

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84. For arguments in favor of working within the existing regime, see generally WORKING GROUP ON THE PROTECTION OF THE MARINE ENVIRONMENT, REPORT TO THE THIRD MINISTERIAL CONFERENCE ON THE PROTECTION OF THE ARCTIC ENVIRONMENT 83 (1996), *available at* http://arcticportal.org/pame/pame-document-library/pame-1996-report.pdf [hereinafter 1996 PAME REPORT]; Hans Corell, *Reflections on the Possibilities and Limitations of a Binding Legal Regime for the Arctic*, 37 ENVTL. POL. & LAW 321 (2007); Ilulissat Declaration, *supra* note 68. For arguments in favor of a new and binding treaty approach, see generally YEAGER & HUEBERT, *supra* note 20; Samantha Smith, *Time for an Arctic Convention?*, WORLD WILDLIFE FUND INT'L ARCTIC PROGRAMME ARCTIC BULLETIN, Mar. 2004, at 3; Rothwell, *supra* note 46; Melissa A. Verhaag, *It Is Not Too Late: The Need for a Comprehensive International Treaty to Protect the Arctic Environment*, 15 GEO. INT'L ENVT'L. L. REV. 555, 578 (2003); NOWLAN, *supra* note 21; Borgerson, *supra* note 4.

85. *See* Corell, *supra* note 84, at 321.

86. *Id.* at 322 ("It would be counterproductive to engage the world community in negotiating a single comprehensive binding legal regime for the Arctic."); *see also* Hans Corell, Op-Ed., *There are Clear Rules Governing the Arctic, and Nothing to Suggest Otherwise*, GLOBE & MAIL (Toronto), April 28, 2008.

87. 1996 PAME REPORT, *supra* note 84, at 67.

88. *Id.* at 83.

needed to ratify, implement, and act in accordance with the existing legal framework.[89] Despite a clearer understanding of the threats of global climate change more than a decade later, the 2008 Arctic Conference's *Ilulissat Declaration* confirms this position. The Declaration states that existing laws provide a "solid foundation" for responsible management and there is "no need to develop a new comprehensive international legal regime to govern the Arctic Ocean."[90] The Arctic Conference participants noted their stewardship role over the Arctic's unique ecosystem but did not commit to any new strategy beyond acting in accordance with international law and working toward greater cooperation based on mutual trust and transparency.[91]

These arguments against a binding Arctic Treaty are supported by practical geopolitical considerations. Reaching consensus on the need for a new agreement is difficult, negotiations are long and costly, and political, constitutional, and legislative obstacles serve as barriers to ratification.[92] Additionally, treaty negotiations risk crystallizing "lowest common denominator standards."[93] Treaties thus might end up producing weaker commitments than a "soft law" regime where states may take on more substantive and innovative commitments. [94] A new treaty may add another layer of complexity to an already fragmented legal regime, and it is uncertain whether Arctic nations will ultimately alter their practices in conformity with new obligations.[95] The ongoing failure of Arctic nations to implement existing agreements militates against the creation of new obligations that may never be met. As Corell aptly observed, "to create a separate, specific and non-sectoral legal regime for the Arctic would require a tremendous effort."[96] In light of the important sovereign interests at stake and the reluctance of states to voluntarily take on the higher economic costs associated with stricter environmental controls, the obstacles to negotiation of an Arctic Treaty are admittedly substantial.

B. PROPONENTS OF AN ARCTIC TREATY

The camp favoring an Arctic Treaty both emphasizes the limitations of nonbinding instruments and highlights the opportunity for a comprehensive Arctic Treaty to build upon, tie together, and make enforceable the "building blocks" of the existing legal regime.[97] These writers remark that recent flurries of

89. *Id.*
90. Ilulissat Declaration, *supra* note 68, at 1-2.
91. *Id.* at 2.
92. *See generally* Koivurova & VanderZwaag, *supra* note 63, at 179.
93. *Id.*
94. NOWLAN, *supra* note 21, at 59-60.
95. *See* Koivurova & VanderZwaag, *supra* note 63, at 179.
96. Corell, *supra* note 84, at 322.
97. *See* YEAGER & HUEBERT, *supra* note 20, at 28.

economic activity in the Arctic warrant a binding and precautionary approach. Brooks Yeager and Dr. Robert Huebert argue that a comprehensive ecosystem-based treaty is called for by "the intertwined nature of challenges such as managing increasing shipping and oil and gas development on the one hand, and conserving fisheries, marine mammals, sea birds and habitat, on the other."[98] Scott Borgerson states that "[t]he ideal way to manage the Arctic would be to develop an overarching treaty that guarantees an orderly and collective approach to extracting the region's wealth."[99]

Even before widespread recognition of the effects of climate change and related threats on the Arctic, commentators have long described the overall benefits of an Arctic Treaty. They would agree with this note's assessment that the laws currently in place fail to safeguard the environment and that no amount of implementation can replace an enforceable Arctic-tailored treaty.[100] Linda Nowlan, in a study for the World Conservation Union, examines the arguments for and against a new legally binding treaty. She describes those reasons in favor of a treaty as "convincing," in light of the value of the Arctic, the serious nature of the environmental threats, and the lack of a comprehensive framework in which to address these threats.[101] She notes the ability of a treaty to increase state obligations through enforceable targets, timetables, and scheduled dues, to give environmental standards legal teeth, and to raise the political profile of Arctic issues.[102] She discusses the benefits of a treaty that establishes firm institutional and financial foundations that will survive cycles of political change and shifting personnel. In her opinion, a treaty can consolidate issue-specific arrangements and fill in the gaps by adding missing elements.[103] Nowlan's arguments ring as true today as they did in 2001 when she published her study and when climate change science was still relatively undeveloped.

Geopolitical and practical considerations are important and must be central to any well-reasoned analysis of realistically possible solutions. However, the compelling circumstances afflicting the Arctic environment today weigh in favor of binding action. Effective environmental standards must be in place to govern the extensive future use and development of Arctic natural resources. As global climate change allows further expansion northward, development pressures will increasingly stress the ocean and coastal zones' sustainable capacities. Mineral, saltwater, and freshwater fish and other living and nonliving resources will suffer systemic and transboundary ecological injury. Arctic resources must be devel-

98. *Id.*

99. Borgerson, *supra* note 4, at 75; *see also* Scott Borgerson, *An Ice-Cold War*, NY. TIMES, Aug. 8, 2007 (arguing that global climate change has created a need for a comprehensive Arctic Treaty that protects both the environment and national interests).

100. *See generally* Rothwell, *supra* note 46.

101. NOWLAN, *supra* note 21, at 58.

102. *Id.*

103. *Id.* at 58-59.

oped or harvested in a sustainable manner. A binding treaty is the only solution permanent and powerful enough to impose strict environmental controls that will withstand short-term political and economic swings. As Timo Koivurova and David VanderZwaag observed, "[c]limate change combined with increasing accessibility of natural resources in the Arctic hold the potential to become tipping points that could result in the adoption of a legally binding approach."[104] With the unsettling probability of an ice-free Arctic in the near future, and for the reasons discussed by the commentators above favoring a binding treaty approach, the time is ripe for an Arctic Treaty.

V. THE ANTARCTIC TREATY SYSTEM MODEL WILL NOT WORK

Arctic Treaty proponents are divided about what model the binding treaty should follow. Some look naturally to the southern pole, which shares a similar polar marine environment and is governed by the Antarctic Treaty and related agreements (collectively the "Antarctic Treaty System" or "ATS").[105] The ATS is widely acclaimed as a model international environmental treaty system that creates a highly effective and enforceable legal regime. Based on the success of the ATS, at least one writer has argued that a global Arctic Treaty should be modeled entirely after the ATS.[106] However, most writers recognize stark geopolitical differences between the poles and suggest only a limited application of the Antarctic legal regime to the Arctic by learning or adopting elements from the ATS experience.[107]

A. THE POLES ARE GEOPOLITICAL OPPOSITES

While the ATS has set a strong precedent for protecting the polar marine environment, it cannot feasibly serve as a model for an Arctic Treaty because strikingly different sovereignty situations govern the poles. The Antarctic region is largely a continental landmass with disputed and generally unrecognized sovereign claims. This region has no history of population settlement or military engagement, and human activity in the area is centered primarily on scientific research. Given the Antarctic's peculiar geopolitical status, the drafters of the Antarctic Treaty froze all territorial claims, prohibited military activities, and embraced peace and the freedom of scientific research as governing principles.[108]

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104. Koivurova & VanderZwaag, *supra* note 63, at 180.

105. Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71; Protocol on Environmental Protection to the Antarctic Treaty, Oct. 4, 1991, 30 I.L.M. 1455 [hereinafter Madrid Protocol]; Convention on the Conservation of Antarctic Marine Living Resources, May 20, 1980, 33 U.S.T. 3476, 1329 U.N.T.S. 48; Convention for the Conservation of Antarctic Seals, June 1, 1972, 29 U.S.T. 441, 1080 U.N.T.S. 175.

106. *See* Verhaag, *supra* note 84, at 578.

107. *See* YEAGER & HUEBERT, *supra* note 20, at 30; *see also* Borgerson, *supra* note 4; Rothwell, *supra* note 46, at 305; Koivurova, *supra* note 65, at 218.

108. Antarctic Treaty, *supra* note 105, arts. I, II & IV.

Based upon the premise that the Antarctic was to be henceforth a region of peace and international cooperation, the Protocol on Environmental Protection ("Madrid Protocol") was adopted as a supplemental agreement dedicating the Antarctic to conservation as a global nature reserve.[109] The Madrid Protocol mandates that "activities in the Antarctic Treaty area shall be planned and conducted so as to limit adverse impacts on the environment and related ecosystems."[110] Activities must be conducted according to strict environmental impact assessment procedures and the prioritization of scientific research. The protocol prohibits any activity, other than scientific research, relating to mineral resources.[111] It makes integral the adoption of annexes, including one on EIA procedures and another on the prevention of marine pollution, that supply the substantive binding law for which the ATS is touted as a veritable success.[112]

The Arctic, on the other hand, is an ocean basin consisting of vast areas of well-established sovereign rights. Beyond these areas, disputed claims are handled by settled international rules under the LOSC and its oversight body, the Commission on the Limits of the Continental Shelf.[113] This starkly different sovereignty situation, in addition to a history of intense military engagement and the presence of indigenous peoples, distinguish the poles in many ways as geopolitical opposites. These differences also prevent the easy borrowing from one polar regime to the other.[114] From the beginning, "[f]ledgling regional cooperative processes in the Arctic have not only been hampered by such political and military-strategic heritage, but have had to face the realities of the ongoing economic exploitation of the region's rich natural resources, as well as respond to the needs and demands of the Arctic population."[115]

Writers like Nowlan propose that a binding Arctic Treaty borrow ideas from the Madrid Protocol's Annexes but deny that the treaty could replicate the Protocol itself. This is because "the intent is not to make the Arctic a nature reserve but to allow for sustainable use and development."[116] An Arctic Treaty could not sensibly neglect the welfare of those who inhabit the North, neither the

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109. Madrid Protocol, *supra* note 105, art. 2 ("The parties commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science").

110. *Id.* art. 3.

111. *Id.* art. 7.

112. *Id.* art. 9 (The following annexes have been concluded: Annex I, Environmental Impact Assessment; Annex II, Conservation of Antarctic Fauna and Flora; Annex III, Waste Disposal and Waste Management; Annex IV, Prevention of Marine Pollution; Annex V, Area Protection and Management; and Annex VI, Liability Arising from Environmental Emergencies (adopted but not yet effective)).

113. LOSC, *supra* note 1, art 76. The sole exception is the continental shelf area of the United States, which is not covered by the LOSC because the U.S. has not ratified the LOSC. *See supra* text accompanying note 24.

114. *See* Koivurova, *supra* note 65, at 218.

115. Davor Vidas, *The Polar Marine Environment in Regional Cooperation*, *in* PROTECTING THE POLAR MARINE ENVIRONMENT: LAW AND POLICY FOR POLLUTION PREVENTION 78, 101 (Davor Vidas ed., 2000).

116. NOWLAN, *supra* note 21, at 58.

indigenous people who live off the land nor the citizens of the developed Arctic nations who exploit its natural resources. Furthermore, given the value of Arctic natural resources and the firm reach of sovereign rights over Arctic nations' EEZs, an Arctic Treaty could not feasibly track many of the binding provisions of the ATS. It could not, for example, indefinitely prohibit all economic activity relating to mineral resources. Arctic nations have legitimate claims over the natural resources within their jurisdiction; moreover, these nations are heavily dependent on petroleum and continue to seek greater domestic production from offshore areas. Many ecologically sensitive parts of the Arctic Ocean could certainly be designated as nature reserves. However, a circular line like the one defining the Antarctic Treaty Area, above which the environment is devoted to conservation, could not be drawn in the Arctic. Important military, commercial, and subsistence activities within recognized national jurisdictions prevent the whole Arctic region from becoming a protected commons.

The firm rule of sovereignty that distinguishes the Arctic from the Antarctic may dismay those who think sovereignty will rarely give way to binding international environmental laws like the ATS. However, the regulatory features of the Arctic simply resemble most other regions of the world where states must act within the bounds of domestic, regional, and global laws. Though this patchwork of laws presents a geopolitical challenge, it may allow for potentially stronger environmental protection measures than those afforded by purely international legal instruments. The converse of viewing sovereignty as a limitation is the practical reality that much international law ultimately depends upon state implementation. In some sense, Arctic nations have already managed to "make a practical impact in polar marine environmental protection in ways which international and regional legal regimes alone would have been unable to achieve,"[117] and they should continue to do so. The important lesson to take away is that even if a highly protective regime like the ATS does not lend itself to imitation in the Arctic, sovereignty is not to be used by Arctic nations as a trump card, and domestic reforms should proceed vigorously. A respect for the sovereign management of natural resources does not license destruction but rather compels duties of sustainable development under international law norms while providing opportunities for stronger domestic legal measures.[118]

B. SOVEREIGNTY AS A GROUND RULE

Any attempt at treaty-design for the Arctic must be squarely grounded in respect for Arctic nations' sovereign rights over their natural resources and

117. Donald Rothwell & Christopher Joyner, *Domestic Perspectives and Regulations in Protecting the Polar Marine Environment: Australia, Canada and the United States*, *in* PROTECTING THE POLAR MARINE ENVIRONMENT: LAW AND POLICY FOR POLLUTION PREVENTION 149, 171 (Davor Vidas ed., 2000).

118. *See generally* SCHRIJVER, *supra* note 37.

environmental policies. Article 193 of the LOSC affirms this requirement in principle: "States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment." [119] An Arctic Treaty must accept that while the Arctic marine environment is a sensitive and interconnected ecosystem in grave need of protection, no progress shall be made in creating a binding legal solution unless sovereign interests are respected.

A binding approach that is regarded as costly and invasive of sovereign rights will not garner the requisite political consensus for state action. A balance must be struck between respecting nations' rights on the one hand and imposing environmental standards and their attendant costs on the other. Convincing states to voluntarily assume greater regulatory burdens by signing on to a binding treaty may appear to be a difficult task, but if states seriously consider the consequences of inaction and the imminence of a tipping point in the history of the Arctic, this will be the preferred and logical outcome.

VI. CONTOURS OF AN ARCTIC TREATY

The current international legal regime will not adequately protect Arctic natural resources from the threats of global climate change. As the Arctic ice-cover continues to recede and greenhouse gases accumulate in the atmosphere, natural resource development will continue on its northern march. Existing treaties and cooperative arrangements will not deter states like Russia or the United States, which are committed to economic growth and satisfying energy-hungry citizenry, from extending the human footprint farther into a delicate ecosystem. How can an Arctic Treaty stem the tide and what are the principles that should guide an effective yet politically feasible treaty-drafting process? The following discussion highlights the essential contours of the treaty in light of the existing Arctic legal regime's strengths and weaknesses. It proposes a general framework treaty based on a regional model with issue-specific annexes or protocols; it thus proceeds from the general framework level to the particular annexes or protocols.

A. A REGIONAL FRAMEWORK TREATY

In an ideal world, the Arctic nations would sit around the negotiating table and discuss the intended structure and scope of an Arctic Treaty. A regional rather than a global approach should be the aim of the eight-party talks. An exclusive gathering of the Arctic nations with common purposes will yield better results in terms of the adoption of legal instruments tailored to the Arctic's unique ecological conditions than would negotiations involving nations outside of the

119. LOSC, *supra* note 1, art. 193.

Arctic area.[120] Indigenous group participation will also be made possible in a regional setting, as exemplified by the Arctic Council. The U.N. Environment Program ("UNEP") regional seas agreements program is a successful and available model of a regional approach to marine environmental protection.[121]

The manifold pressures on Arctic natural resources caused or exacerbated by global climate change warrant a comprehensive framework agreement with issue-specific annexes or protocols. Managing increased shipping and oil and gas development on the one hand and conserving fisheries and other fauna on the other requires a comprehensive, ecosystem-based approach.[122] A framework agreement will allow the negotiating parties to agree to the most important items on the agenda while leaving technical details for subsequent implementation in annexes or protocols that could be made mandatory.[123]

In drafting the framework provisions, diplomatic leaders should reflect on the opportunities and lessons afforded by existing treaties and cooperative agreements. The framework provisions should be concrete, beginning with definitions of important terms, the identification of the geographical scope of the "Arctic Treaty Area," and the explicit reference to existing legal instruments like the LOSC that shall form an intrinsic part of the treaty. The LOSC provides general guidance for imposing obligations on states such as the duty to "protect and preserve the marine environment."[124] Part XII of the LOSC can guide the draft's topical subject matter by reference to its provisions on duties regarding pollution from vessels, seabed operations, and land-based and atmospheric sources. A section of the framework draft should be devoted to making sure the Convention's norms and minimum standards are vigorously applied to state behavior by explicitly adopting IMO-administered conventions. Due consideration should also be given to innovative modes of regulating the seas beyond flag-state control, which has traditionally resisted regulation.

The LOSC's environmental duties in the high seas should govern the Arctic area beyond national jurisdiction. The common heritage principle and the rules and standards regulating mining activities on the deep seabed, overseen by the International Seabed Authority, should be made explicitly applicable to the high seas of the Arctic.[125] Potential conflict and the lawless exploitation of natural

120. *See generally* Rothwell, *supra* note 46, at 304-07.

121. *See, e.g.*, Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, Feb. 16, 1976, 1102 U.N.T.S. 27, *available at* http://195.97.36.231/dbases/webdocs/BCP/bc95_Eng_p.pdf.

122. *See* YEAGER & HUEBERT, *supra* note 20, at 28.

123. *See, e.g.*, Madrid Protocol, *supra* note 105, art. 9 ("the Annexes to this Protocol shall form an integral part thereof"); *see also* The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, art. 19, Mar. 24, 1983, 1506 U.N.T.S. 157 (with mandatory annexes and broadly-scoped protocols).

124. LOSC, *supra* note 1, art. 192.

125. *See generally id.* pt. XI.

resources in these areas counsel in favor of mandating that these norms dictate nations' behavior on the high seas.

Building on the work of the AEPS and the Arctic Council, the framework provisions should formalize the Arctic Council as the permanent treaty secretariat. With its experience as an intergovernmental forum for political discussion, state monitoring, and technical expertise, the Council is perfectly suited for managing Arctic Treaty obligations. The Council, however, must be a non-threatening regional body to reassure states hesitant to enter into multinational institutions for fear of impinging upon their sovereignty.[126] Majority voting procedures should generally govern the adoption of measures in the secretariat's meetings. However, consensus voting for sensitive sovereign issues, such as extractive rights to natural resources and military uses of the ocean, may be the only realistically negotiable outcome. Indigenous groups should have a permanent voice in the secretariat's voting and in drafting provisions regarding their economic and cultural rights.

B. ISSUE-SPECIFIC ANNEXES OR PROTOCOLS

Specific annexes or protocols should establish common environmental standards for the different fields of commercial activity affecting Arctic natural resources. At present, standards should at least be adopted for shipping, fishing, oil and gas, and emergency response and preparedness. The Arctic Council working groups that have been dedicated to studying the impacts of these activities could be charged with drafting those technical documents. The working groups have produced invaluable guidelines, such as the Oil and Gas Guidelines and the EIA Guidelines that could be codified into binding requirements. All available recommendatory documents, such as the Polar Guidelines for shipping, provide a great opportunity for relatively straightforward codification. Beyond these basic activities, the types of issues addressed in specific annexes or protocols are only limited by the drafters' imagination. One salient proposal is for a protocol regulating mineral activities, particularly oil and gas, to account for greenhouse gas contribution later in the supply chain. It would be a great irony for Arctic nations to freely allow oil production in and pollute offshore areas made accessible through the climatic effects of that same resource's byproducts.

Two important issues need to be addressed either as annexes appended to the framework or separate negotiable protocols: dispute settlement and environmental impact assessment procedures. The available dispute settlement options under the LOSC, especially the International Tribunal for the Law of the Sea ("ITLOS"), render the creation of new judicial fora unnecessary. ITLOS has the capacity and expertise to entertain highly technical disputes related to marine environmental

126. This is the purported reason why the United States has persistently failed to ratify the LOSC. *See The Arctic: Drawing Lines in the Melting Ice*, *supra* note 2.

protection.[127] Limiting the escape valves of state consent by simplifying the complex procedures under the LOSC and providing for the majority of disputes to be heard in a forum such as ITLOS will improve weaknesses in the LOSC's current system. Such reform must take place within negotiable bounds and against the backdrop of state sovereignty. Finally, an EIA annex or protocol should be molded to the unique Arctic ecological conditions pursuant to the Arctic Council's EIA Guidelines.[128]

VII. CONCLUSION

These contours of an Arctic Treaty offer an incomplete sketch of a treaty-drafting process informed by the existing legal regime's strengths and deficiencies. While generally weak and unenforceable, the existing regime offers an incredible opportunity for the seamless application of important instruments and institutions like the LOSC and the Arctic Council to the formation of a comprehensive Arctic Treaty. The rapid melting of the ice-cover, a tipping point in the history of the Arctic marine environment, necessitates urgent action and a binding rather than voluntary approach. Under an Arctic Treaty, environmental protection will no longer ebb and flow with national priorities. No longer will disparate problems be assessed and redressed independent of larger, ecosystem-wide effects. A lasting treaty will raise the profile of the Arctic environment to its deserved protected status in the eyes of the world. An Arctic Treaty will help to ensure that the ecological integrity and the natural bounties of this wintry ocean survive the great melt.

127. *See* Mensah, *supra* note 35, at 9-10.

128. The Madrid Protocol's simple EIA Annex is another possible model that sets forth the kinds of activities and impacts for which an "Initial Environmental Evaluation" or a "Comprehensive Environmental Evaluation" is required. *See* Madrid Protocol, *supra* note 105, annex I.