

Environmental Governance of the Arctic: Law, Effect, Now Implementation

Joseph F.C. DiMento*
J.D., Ph.D., University of California, Irvine

This Article addresses how the international community governs the Arctic and whether that community, or parts of it, should be governing it differently. Its core is analysis of programs specifically created to protect and manage that regional sea. More broadly, this Article presents the great range of policy and regulatory activity that focuses on the environmental quality of the region. The aim is not only to describe and evaluate existing governance structures but also to indicate how governance can be improved. One approach emphasized, rather than or in addition to working on more international initiatives, is to focus on implementation of the myriad, almost paralyzing, existing international legal obligations. Implementation is addressed in the organizational studies context. Implementation in the legal sense of executing international law into domestic systems is the starting point for our focus on implementation. The research is based on a multidisciplinary literature analysis; field visits; and policymaker, scientific, and legal expert interviews. I argue that more fully applying knowledge from implementation studies can improve Arctic environmental governance, irrespective of decisions made about additional legal obligations.

“[H]e who controls the Arctic controls the world.”¹

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1. Denis Richard Gibbs, *MacKinder Meets Buzan: A Geopolitical Extension to Security Complex Theory with an Emphasis on the Polar Regions* 235 (2011) (unpublished Ph.D. dissertation, University of Waikato) (on file with the Central Library, University of Waikato) (quoting R. Douglas Brubaker & Willy Østreng, *The Northern Sea Route Regime: Exquisite Superpower Subterfuge?*, 30 OCEAN DEV. & INT’L LAW 304 (1999)).

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INTRODUCTION

This Article analyzes how the international community governs the environment of the Arctic and whether that community, or parts of it, should be governing the Arctic differently. At this Article's core is a description of programs specifically created to protect and manage that regional sea. More broadly, it provides an overview of the great range of policy and regulatory activity that focuses on the environmental quality of the Arctic. The aim of this Article is not only to describe and evaluate existing governance structures but also to indicate how governance can be improved.

This is a study of a very special case. The United Nations Environmental Programme describes the region in this way: "Its terrain varies from high mountains to flat plain, wide tundra and great expanses of sea, snow and ice. The plants and animals of the Arctic have adapted to these conditions, but this has rendered them in some cases more sensitive to increased human activities."²

The Arctic is sparsely populated, but much more so than its polar counterpart—Antarctica. It has had a significant indigenous people population for more than 4000 years.³ According to estimates, one-fifth of the world's oil and gas resources are in the Arctic. In 2008, the United States Geological Survey (USGS) estimated that areas north of the Arctic Circle may have thirteen percent of the undiscovered oil, thirty percent of the undiscovered natural gas, and twenty percent of the undiscovered natural gas liquids on Earth.⁴ Most of these resources are offshore.⁵ The Arctic is characterized by the presence of important minerals, significant biodiversity, and animal and marine life, although there is currently no commercial fishing in the high seas of the Arctic.

By the end of the second decade of the twenty-first century, the Arctic may be free of ice during the summer months. Concomitant with this change, climate change will result in releases of methane from the permafrost and acidification of the sea.⁶ Other atmospheric changes have been identified. High levels of extremely reactive molecular chlorine have been discovered in the Arctic atmosphere.⁷ Oil and gas development will bring change and create additional environmental challenges. The United States, the Russian Federation, Norway, and Canada are among the nations working on exploitation activities in various stages. Some of the nineteen

2. *Arctic Region*, UNEP, <http://www.unep.org/regionalseas/programmes/independent/arctic/> [https://perma.cc/UR2W-3QBE] (last visited Mar. 6, 2016).

3. See *Arctic Chronology*, AVATAQ CULTURAL INST., <http://www.avataq.qc.ca/en/Institute/Departments/Archaeology/Discovering-Archaeology/Arctic-Chronology> [https://perma.cc/2GMB-ZTBP] (last visited Mar. 6, 2016).

4. *90 Billion Barrels of Oil and 1,670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic*, USGS (July 23, 2008, 1:00 PM), <http://www.usgs.gov/newsroom/article.asp?ID=1980> [https://perma.cc/7LXV-3WLH].

5. See *id.*

6. See Oran R. Young, *The Future of the Arctic: Cauldron of Conflict or Zone of Peace?*, INT'L AFF., Jan. 2011, at 185, 187.

7. See Jin Liao et al., *High Levels of Molecular Chlorine in the Arctic Atmosphere*, 7 NATURE GEOSCIENCE 91, 91 (2014).

geological basins making up the Arctic have already experienced oil and gas exploration.⁸ With the opening of this area comes increased resource exploitation and a greatly increased volume of shipping through the more easily navigated passages, leading to an increased probability of accidents and spills of diesel and other fuels. Shipping not only comes with the usual maritime dumpings and leaks, but also a potential threat from one of the devices allowing opening of the region itself: the immensely powerful nuclear ice-breaking submarine. The environmental risks associated with new oil and gas extraction also include associated effects on land. Extraction requires the drawing of pipelines across tundra areas, from the Arctic shorelines to more densely populated parts of the world. The areas affected by such pipelines are sometimes seen as “wasteland” from the perspective of global metropolises; however, they can have great importance for the survival of local indigenous civilizations—as reindeer pasture, for example.

All these changes bring to the fore a concern over the international community’s ability to manage the fragile environment of the Arctic. Is the existing framework adequate? Is it potentially adequate?

In what follows, I first describe the clusters of laws, policies, and other initiatives—national, regional, and international—that are in place to govern the Arctic. I then briefly summarize the debate over whether new law, including comprehensive Arctic treaty law, is needed. Recognizing that this debate will go on for some time and its outcome will not affect my main position, I then focus on the need to work with existing law. Converting the law to activity that makes a difference in practice—making the law work—is the objective: the implementation of existing good initiatives. My objective is to make the law work—that is, to convert the law into activity that makes a difference in practice. In other words, I argue for the implementation of good existing initiatives. My emphasis on implementation comes from a recognition that a paralysis exists in nation state compliance with some international laws because of the large number of obligations that nations have assumed. In addition, this emphasis results from an appreciation that the processes of lawmaking do not include assessment of the feasibility of implementing the commitments made. It is often not clear how to put into effect legal obligations assumed under international law. The aggregate of commitments can be overwhelming. Implementation requires prioritizing and working to make a difference on the ground (or, in our case, the sea). Many commitments in the law aimed at improving the quality of the environment in the Arctic are not self-executing, either in the traditional public law meaning of that term, or in the meaning focused on here of changing behaviors that link to environmental quality of the Arctic. This Article aims to assist in putting into practice necessary changes by thinking through specific steps: Who should or must cooperate? By when? With what monitoring and reporting obligations? Over what time frame? Who (which

8. See, e.g., Robert Meneley, *How to Look at Frontier Basins: An Example from the Canadian Arctic* (Feb. 23, 2015), http://www.searchanddiscovery.com/documents/2015/10724meneley/ndx_meneley.pdf [<https://perma.cc/5VD6-E7LBJ>].

agents) will do what, and by when?

I therefore lay out my working definition of implementation, distinguishing that definition from the traditional use in international public law. Anticipating what I develop in this Article, I then lay out lessons that come from several decades of analysis of the effectiveness of international environmental and related initiatives—international environmental law generally, as well as the law governing selected other regional seas. Especially useful are implementation correlates in the Baltic region and in the Mediterranean. I point out how these lessons emphasize the need to make operational the law of the sea, the promising requirements of the Regional Seas Programme, and the large marine ecosystems and other ecological institutional management concepts. I also lay out some very specific recommendations at the end of this Article. The first Part, which can be skimmed by the reader familiar with Arctic environmental law, describes the region and inventories the legal framework of its governance.

I. CONTEXT—THE ARCTIC: A REGION OF THE CENTURY

International attention on the Arctic has increased dramatically in recent years. This region is a focus of hope and concern for the twenty-first century. Unlike its southern polar counterpart, the Arctic is an ocean—the world’s smallest and most shallow.⁹ There is no universally accepted definition of the Arctic Region.¹⁰ “A working definition [of the Arctic region] might include ‘the tree line (the northernmost boundary where trees grow) or the 10 °C isotherm (the southernmost location where the mean temperature of the warmest month of the year is below 10° C).”¹¹ Geographically, other [analysts] conclude that [the Arctic through] the Arctic Circle begins at 66°, 33” latitude.¹² For certain international law purposes, the Arctic is defined by memberships in institutions and governance mechanisms of the entities in the ‘Arctic region.’¹³

A. *Ways of Understanding the Arctic Governance Challenge*

To understand the governance structure that has evolved in the region, one

9. Raz Barnea, *What Risks Remain?: Maritime Activity and the New Calculus of Risk in the North American Arctic* 12 n.32 (July 14, 2014) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2466036.

10. Timo Koivurova & Sébastien Duyck, *A New Ocean to Govern: Drawing on Lessons from Marine Management to Govern the Emerging Arctic Ocean*, in *THE FUTURE OF INTERNATIONAL ENVIRONMENTAL LAW* 179, 180 (David Leary & Balakrishna Pisupati eds., 2010).

11. Joseph F.C. DiMento & Hermanni Backer, *Environmental Governance of the Great Seas—The Arctic: The Region of the Century*, MEPIELAN CTR.: MEPIELAN E-BULLETIN (Feb. 18, 2014) (citing Timo Koivurova & Sébastien Duyck, *A New Ocean to Govern: Drawing on the Lessons Learned in Marine Management to Govern the Emerging Arctic Ocean*, in *THE FUTURE OF INTERNATIONAL ENVIRONMENTAL LAW* 180 (David Leary & Balakrishna Pisupati eds., 2010)), <http://www.mepielan-ebulletin.gr/default.aspx?pid=18&CategoryId=2&ArticleId=173&Article=Environmental-Governance-of-the-Great-Seas-%E2%80%94-The-Arctic-The-Region-of-the-Century> [<https://perma.cc/39FD-QULX>].

12. *Id.*

13. *Id.*

might look to theoretical understandings of the international relations of member entities (i.e., the Arctic States). However, as Geir Hønneland notes, articles on the politics of the Arctic have been “largely descriptive, partly speculative.”¹⁴ Despite a “largely empirical orientation” and the fact that very few articles took theory as their point of departure, three major theory traditions are identifiable: realism, institutionalism, and constructivism.¹⁵ “By and large, the journal literature on the politics of the Arctic has not contributed to development of theory”—Oran Young’s work on the development of institutionalist theory and Iver B. Neumann’s work on regime building being exceptional.¹⁶

Also, a few scholars attempting to understand relevant international dynamics have looked to game theory as a heuristic.¹⁷ From this perspective, the Arctic region holds “possibilities of huge strategic, economic[al], and geopolitical gains (new navigation routes, energy resources, minerals etc.)”¹⁸ A race among Canada, the United States, Russia, Norway, and Denmark may develop as their claims often overlap. Coupled with gaps in international law, in this understanding there is the potential of a zero-sum game: every state plays for itself. At the same time, the possibility of cooperation exists among the rim states. States can create a win-win outcome. A zero-sum outcome may result if the Commission on the Limits of the Continental Shelf gives sovereign rights to only some rim states. Even here the zero-sum could be avoided: some rim states cannot exploit the energy resources.

The game becomes complicated further as new actors seek to play. Here the rim states face a situation of competition with newcomers. Three different outcomes are possible:

[A]ll rim states cooperate to contain the new comers; some rim states allow the new comers to enter the game and cooperate with them defecting in the view of the other rim states; and thirdly, some of these states act independently or they all (newcomers and rim-states) act for themselves. Within the first two scenarios we can have a mix zero sum and win-win game, while under the last the possibility of a conflict is very high, thus a zero-sum outcome is predictable. . . . “[S]tates may be talking cooperation, but they are preparing for Conflict”. . . .¹⁹

14. Geir Hønneland, *Introduction to THE POLITICS OF THE ARCTIC*, at xiii, xv (Geir Hønneland ed., 2013).

15. See Øyvind Østerud & Geir Hønneland, *Geopolitics and International Governance in the Arctic*, 5 *ARCTIC REV. ON L. & POL.* 156, 169 (2014).

16. Joseph F.C. DiMento, *Book Reviews*, 14 *INT’L ENVTL. AGREEMENTS: POL., L. & ECON.* 299, 300 (2014); see also Hønneland, *supra* note 14, at xvi.

17. See, e.g., Ana-Maria Ghimis, *Rim Versus Non-Rim States in the Arctic Region: Prospects for a Zero-Sum Game or a Win-Win One?*, *ROM. J. EUR. AFF.*, Sept. 2013, at 36, 37; see also Scott Cole, Sergei Izmalkov and Eric Sjoberg, *Games in the Arctic: applying game theory insights to Arctic challenges*, *POLAR RESEARCH*, Aug. 8, 2014.

18. *Id.* at 49.

19. *Id.* (citation omitted).

B. *Conditions and Environmental Challenges*

In order to address whether or to what extent the existing legal and governance framework is sufficient, we need to know the conditions that are the object of intervention. Perhaps not surprisingly, although at some level those conditions for some media are known (as is the case for the Great Seas generally), there are many gaps in our knowledge.²⁰ The World Ocean Assessment (WOA) will be “the first global integrated assessment of the state of the marine environment, including socio-economic aspects.”²¹

Nonetheless, the status of the Arctic region can be partially described. The biodiversity of the region varies with area: the High Arctic is sparsely vegetated, the Low Arctic supports more than 600 vascular plant species, the subarctic is a transition zone and has 100% plant coverage, and the boreal forest consists of coniferous trees.²² Moreover, permafrost reaches 600–1000 meters in the coldest areas of the Arctic; wetlands are sparsely distributed and are underlain by permafrost; and ice is widespread.²³ There is low native species diversity in the Arctic and considerable numbers of opportunistic and invasive species. The Arctic supports one of the largest seabird populations in the world, over 150 species of fish (but low numbers of each), and a variety of marine mammals.²⁴

1. *Temperatures*

“Arctic average temperature has risen at almost twice the rate as the rest of the world in the past few decades. Widespread melting of glaciers and sea ice and rising permafrost temperatures present additional evidence of strong arctic warming.”²⁵ Predictions of temperature increases in the region show some variability: all five of the Arctic Climate Impact Assessment (ACIA) global climate models show, with two different emissions scenarios, about a 2 °C temperature rise through about 2040. Post-2040, the models diverge, showing increases from around 4 °C to over 7 °C by 2100.²⁶

20. See JOSEPH F.C. DIMENTO & ALEXIS JACLYN HICKMAN, ENVIRONMENTAL GOVERNANCE OF THE GREAT SEAS: LAW AND EFFECT 1 (2012).

21. Betsy Baker, *A Note on Arctic Information Platforms and International Law*, in INTERNATIONAL LAW AND POLITICS OF THE ARCTIC OCEAN: ESSAYS IN HONOR OF DONAT PHARAND 434, 443 (Suzanne Lalonde & Ted L. McDorman eds., 2015) (citation omitted).

22. See UNITED NATIONS ENVIRONMENT PROGRAMME, ARCTIC REGION 4 (n.d.), http://www.unep.org/regionalseas/programmes/independent/arctic/instruments/r_profile_pame.pdf [<https://perma.cc/Q7BW-UDKX>].

23. See *id.*

24. See *id.*

25. SUSAN JOY HASSOL, ARCTIC MONITORING & ASSESSMENT PROGRAMME, IMPACTS OF A WARMING ARCTIC: ARCTIC CLIMATE IMPACT ASSESSMENT (ACIA) OVERVIEW REPORT 8 (2004), <http://www.amap.no/documents/doc/impacts-of-a-warming-arctic-2004/786>.

26. These climate models are computer simulations represented by mathematical equations. Major components of the climate system included are the atmosphere, oceans, land surface, snow and ice, living things, and the various interacting processes among them. Generally higher confidence exists for larger scale projections and greater uncertainty for smaller scales. *Id.* at 27.

In a region as large and diverse as the Arctic, there are significant subregional variations in climate. Parts of Canada and Greenland surrounding the Labrador Sea have experienced cooling in recent years.²⁷ In the Canadian Arctic, average summer temperatures over the last century “are the highest in the last 44,000 years, and perhaps the highest in 120,000 years.”²⁸

2. *Atmosphere*

High levels of extremely reactive molecular chlorine have been discovered in the Arctic atmosphere: “the first time that molecular chlorine has been measured in the Arctic, and the first time that scientists have recorded such high levels of molecular chlorine in the atmosphere.”²⁹

Most expert observers consider climate change to be the greatest threat to the Arctic and its most serious challenge. The Arctic is “on the front line” of the climate change fight.³⁰ “It has been estimated that . . . the change there will be twice as intense as the change in other regions of the world.”³¹ To be sure, changes in climate will provide opportunities for development in the region—with associated benefits. The Executive Summary for Arctic Climate Change and Its Impacts demonstrates the complexity of the predictions: “The Arctic also provides important natural resources to the rest of the world (such as oil, gas, and fish) that will be affected by climate change. And melting of arctic glaciers is one of the factors contributing to sea-level rise around the globe.”³² The Assessment recognizes that whether a particular impact is perceived as negative or positive “often depends on one’s interests. For example, the reduction in sea ice is very likely to have devastating consequences for polar bears, ice-dependent seals, and local people for whom these animals are a primary food source.”³³ However, reduced sea ice is likely to increase marine access to the region’s resources, expanding opportunities for shipping and possibly for offshore oil extraction (although operations could be hampered initially by increasing movement of ice in some areas). Also, complicating the issue, possible increases in environmental damage that often accompanies shipping and resource extraction could harm the marine habitat and health and traditional lifestyles.

Tree growth in the Arctic could take up carbon dioxide and supply more wood

27. *See id.* at 18.

28. Douglas Main, *Arctic Temperatures Highest in at Least 44,000 Years*, LIVESCIENCE (Oct. 24, 2013, 11:13 AM), <http://www.livescience.com/40676-arctic-temperatures-record-high.html> [<https://perma.cc/22ET-V8G9>].

29. James Fluere, *High Levels of Extremely Reactive Molecular Chlorine Discovered in Arctic Atmosphere*, SCI.RECORDER (Jan. 13, 2014), <http://www.sciencerecorder.com/news/2014/01/13/high-levels-of-molecular-chlorine-discovered-in-arctic-atmosphere/> [<https://perma.cc/RE4L-7SUR>].

30. The Newkirk Center for Science and Society, *The Role of Law and Governance in Preserving the Arctic Environment*, YOUTUBE (Nov. 12, 2010), <https://www.youtube.com/watch?v=oEda3EbIjys&list=PL1E91860CF029CF95&index=9>.

31. Timo Koivurova, *The Dialectic of Understanding Progress in Arctic Governance*, 22 MICH. ST. INT’L L. REV. 1, 5 (2013).

32. Hassol, *supra* note 25, at 8.

33. *Id.*

products that generate employment and other economic benefits. Tree growth is likely to add to regional warming and encroach on the habitat for many birds, reindeer/caribou, and other locally beneficial species. Forest fires and insect outbreaks may reduce expected benefits. The Arctic Climate Impact Assessment notes that “levels of ultraviolet radiation reaching the earth’s surface due to stratospheric ozone depletion” may be influenced by climate change on the upper atmosphere.³⁴ Arctic ultraviolet radiation levels are likely to remain elevated, especially in the spring. These stressors present a range of potential problems for human and ecosystem health.

The probability of accidents and spills of diesel and other fuels increases as the number of ships going through the more easily navigated passages increases by many times (and oil does not degrade in water at 31°F). Threats arise not only from the usual dumpings and leaks from ships but also from one of the devices that is allowing opening of the region itself: the immensely powerful nuclear ice-breaking submarine. Nuclear-powered vessels can have important effects on the area. They can open up the Arctic to new activities and to increased commerce. When safe and controlled, they can be a relatively clean form of energy for some uses in the region. However, when problems do arise they can be serious, and the resulting accidents can be immensely challenging.

C. Governance

“Governance . . . is the totality of activities that seek to provide rational effective management of the seas.”³⁵ The term “lack[s] specificity in the literature and in public policy considerations. Current calls by international institutions for ‘good governance’ are not often well-articulated and commonly lead to formless outcomes. The activities . . . include[d] within governance come from various institutions, broadly defined, including the law.”³⁶ Governance involves the activities of a number of international initiatives and regimes. Regimes are the aggregation of laws and policies, rules, norms, and institutions that work to achieve a common international objective. These partly or fully established systems make up the context from which marine environmental management is derived. Their foundations, whether strong or weak, create the conditions for processes of governance.

D. The Cluster

Attempts at governance are numerous and often complicated. Moreover, they do not always mesh into a coherent, understandable, and workable framework. I use the less optimistic term “clusters” when those characteristics are relevant to governance attempts. “Cluster” denotes that collection of initiatives and regimes

34. *Id.* at 9.

35. DIMENTO & HICKMAN, *supra* note 20, at 7.

36. *Id.*

that target a particular international objective. I describe this as less optimistic for reasons that follow, but in short, the aggregation of initiatives that focus on a phenomenon to be improved may not work together in an effective manner. There are many meanings in the social sciences and policy analysis of this term; for the present purpose, “cluster” describes the aggregation of attempts to improve the Arctic. It is the collection, sometimes coordinated, sometimes less so, of international environmental institutions, regimes, and complexes.³⁷ Kal Raustiala and David G. Victor (not using the term cluster) speak of a regime complex as “a collective of partially overlapping and nonhierarchical regimes” that develop in special, often path-dependent ways;³⁸ they are “laden with legal inconsistencies” because the rules in one regime are rarely negotiated in the same institution or at the same time as rules in related regimes.³⁹ The phenomenon results in part from

37. See, e.g., ORAN R. YOUNG, CREATING REGIMES: ARCTIC ACCORDS AND INTERNATIONAL GOVERNANCE (1998); ORAN R. YOUNG, GOVERNANCE IN WORLD AFFAIRS (1999); Frank Biermann, ‘Earth System Governance’ as a Crosscutting Theme of Global Change Research, 17 GLOBAL ENVTL. CHANGE 326 (2007); Charlotte N.L. Chambers, *Pasua and the Politics of Environmental Management, Tongareva, Cook Islands*, 124 SCOTTISH GEOGRAPHICAL J. 192 (2008); Thomas Gehring & Sebastian Oberthür, *The Causal Mechanisms of Interaction Between International Institutions*, 15 EUR. J. INT’L REL. 125 (2009); Robert O. Keohane & David G. Victor, *The Regime Complex for Climate Change*, 9 PERSP. ON POL. 7 (2011); Sebastian Oberthür, *Clustering of Multilateral Environmental Agreements: Potentials and Limitations*, 2 INT’L ENVTL. AGREEMENTS: POL., L. & ECON. 317 (2002); Sebastian Oberthür & Thomas Gehring, *Institutional Interaction in Global Environmental Governance: The Case of the Cartagena Protocol and the World Trade Organization*, GLOBAL ENVTL. POL., May 2006, at 1; Konrad von Moltke, *Clustering International Environmental Agreements as an Alternative to a World Environment Organization*, in A WORLD ENVIRONMENT ORGANIZATION: SOLUTION OR THREAT FOR EFFECTIVE INTERNATIONAL ENVIRONMENTAL GOVERNANCE? (Frank Biermann & Steffen Bauer eds., 2005).

38. Kal Raustiala & David G. Victor, *The Regime Complex for Plant Genetic Resources*, 58 INT’L ORG. 277, 277 (2004).

39. See *id.*

increasing institutional density.⁴⁰ Overlapping, nonhierarchical, often inconsistent, often unconditional: these are characteristics of a cluster.⁴¹

E. Arctic Region and Cluster

For the present case, the cluster is very large. Here I present its major components. Readers familiar with Arctic law can move on to the implementation analysis below. The United Nations Convention on the Law of the Sea (UNCLOS), the “constitution” for the seas, is of fundamental importance to governance of the Arctic.⁴² UNCLOS directs sovereign activities of Arctic states in the Arctic. The fifth Arctic state, the United States, recognizes the main provisions of UNCLOS as customary international law.⁴³

40. In the present case, the members of the inventory of legal initiatives cluster together relatively high on the axes of environmental protection (x) and the target media as the Arctic (y). Figure 1 shows the general regional seas conceptualization. Absence of coordination exists internally and internationally among those who work to implement cluster initiatives. In some countries, the same ministries or agencies are involved for some initiatives. In others, interagency coordination—such as between foreign affairs or defense and the environment or trade and agriculture—is not strong. Coordination even among allies and affiliate groups (e.g., BRICS, The Group of 77, Europe and North America) is often inconsistent and weak.

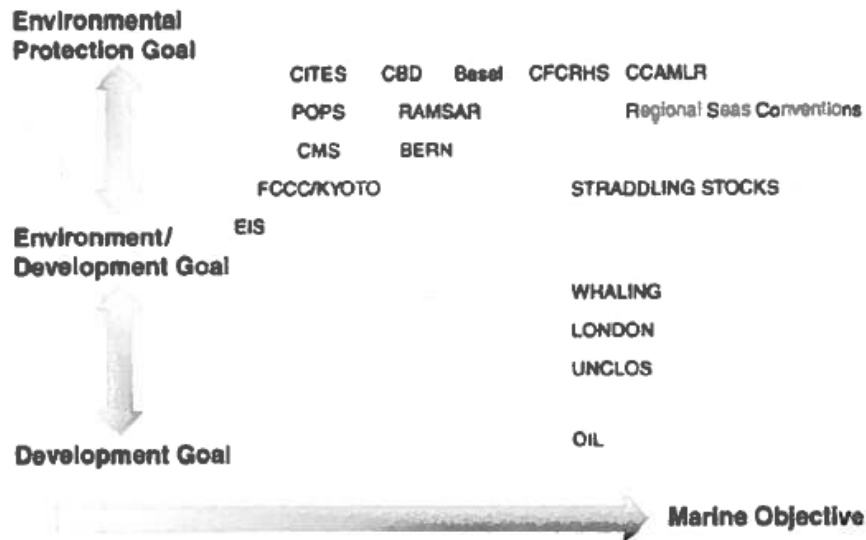


Figure 1 Sample of component clustering

41. See generally Christoph Humrich, *Fragmented International Governance of Arctic Offshore Oil: Governance Challenges and Institutional Improvement*, GLOB. ENVTL. POL., Aug. 2013, at 79, 79–99 (examining “actor constellations” in fragmented structure of Arctic governance architecture and arguing that a joint enabling effort is necessary).

42. See United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].

43. See *United States v. Alaska*, 503 U.S. 569, 588 n.10 (1992) (“The United States has not ratified [the United Nations Convention on the Law of the Sea], but has recognized that its baseline

The main principle employed by UNCLOS is that of zoning. Most of the world's nations (now around 160) agree to create demarcations of the waters, regulating what can be done within each of these limited arenas. Various elements or degrees of sovereignty exist in the zones, from the internal waters to the high seas, as Figure 2 shows.

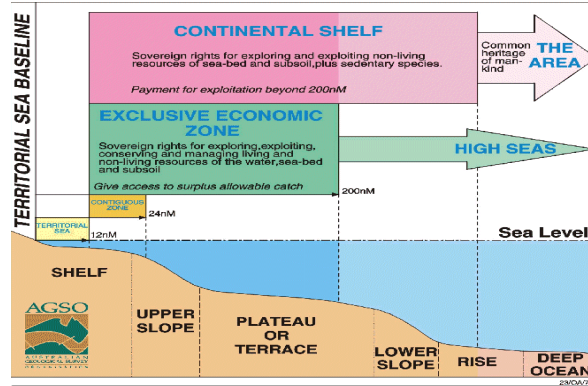


Figure 2: UNCLOS Zones (Source: Australian Geological Survey).

In the internal waters, states have absolute sovereignty,⁴⁴ except for limitations created by other treaties or limitations existing under customary international law.

The next zone is that of the Territorial Seas. These are defined as extending twelve nautical miles, measured from baselines determined in accordance with the Convention.⁴⁵ In this zone, there exists the right of innocent passage and of transit passage. The territorial waters are followed by the Contiguous Zones, extending twelve to twenty-four nautical miles measured from the baseline from which the territorial sea is measured.⁴⁶ In this zone, coastal state regulatory authority extends over customs, fiscal transactions, immigration, the management of wastes, and shipwrecks.

Beyond these areas are the Continental Shelf (CS) and the Exclusive Economic Zone (EEZ). The CS is the area where resources and activities of the seabed and subsoil under the ocean are controlled. The CS extends throughout the natural prolongation of a nation's land territory to the outer edge of the continental margin or 200 miles—or more in some circumstances (technology can allow extensions). Here, the state holds sovereign rights for the purpose of exploring and exploiting its natural resources.⁴⁷ The EEZ governs the resources and activities in

provisions reflect customary international law.” (alteration in original) (quoting Brief for United States at 25 n.6, *Alaska*, 503 U.S. 569); *United States v. Kun Yun Jho*, 534 F.3d 398, 406 (5th Cir. 2008) (declaring that “[t]he United States is not a party to UNCLOS as the Senate has not ratified the treaty,” while acknowledging that UNCLOS can reflect customary international law).

44. See UNCLOS, *supra* note 42, art. 2, para. 1.

45. *Id.* art. 3.

46. *Id.* art. 33, paras. 1–2.

47. See *id.* art. 76, para. 1; *id.* art. 77, paras. 1, 4.

the water column and ocean surface and can extend 200 nautical miles from the shore; it is generally coextensive with the CS.⁴⁸

Beyond these zones are the high seas and within them the “Area” (“the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction”), where the resources are the “common heritage of mankind.”⁴⁹ For these resources, UNCLOS has established the Enterprise and the International Seabed Authority for control and management activities in the Area: “All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act. These resources are not subject to alienation. The minerals recovered from the Area, however, may only be alienated in accordance with this Part and the rules, regulations and procedures of the Authority.”⁵⁰

Of central interest for our purposes, Part XII of UNCLOS addresses environmental protection of the marine environment. Under Article 192, “[s]tates have the obligation to protect and preserve the marine environment.”⁵¹ This general obligation must be fulfilled through the adoption, individually or jointly, of measures addressing pollution from various sources, such as ships, land-based discharges, seabed exploitation, and dumping. UNCLOS also provides that states shall take measures “necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.”⁵² States must also act to prevent, reduce, and control pollution from any source using the “best practicable means at their disposal.”⁵³

UNCLOS includes active obligations on the part of states to protect and preserve the marine environment, as well as to cooperate on a global or regional basis “directly or through competent international organizations” to protect and preserve the marine environment.⁵⁴ In addition, UNCLOS addresses specific pollution sources: “Pollution from Land-Based Sources 1: States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources Coastal states shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with sea bed activities”⁵⁵ Article 209 covers pollution from activities in the Area; Article 210, pollution by dumping; and Article 211, pollution from vessels.⁵⁶

Under UNCLOS, states have an obligation to take measures for their own nationals for the conservation of the living resources of the high seas; to cooperate with other states in the conservation and management of those resources; and to

48. See *id.* art. 55; *id.* art. 56, para. 1; *id.* art. 57; *id.* art. 76, para. 1.

49. *Id.* art. 1, para. 1; *id.* art. 136.

50. *Id.* art. 1, para. 1; *id.* art. 137, para. 2; *id.* art. 170.

51. *Id.* art. 192.

52. *Id.* art. 194, para. 5.

53. *Id.* art. 194, para. 1.

54. See *id.* art. 197.

55. *Id.* art. 207, para 1; *id.* art. 208, para 1.

56. *Id.* art. 209–11.

base those measures on the best scientific evidence available, environmental and economic factors, and international standards.⁵⁷

A major player in developing rules for activities in the marine environment is the International Maritime Organization (IMO), both through the use of treaties and “soft law” codes. Other relevant laws include the 1972 London Convention⁵⁸ regarding the dumping of wastes at sea and MARPOL,⁵⁹ which manages the operational discharge of oil. Article 218(1) of UNCLOS states that “[w]hen a vessel is voluntarily within a port or at an off-shore terminal of a State,” that State can institute proceedings for discharges occurring outside the port state’s territorial sea or EEZ.⁶⁰

Based on UNCLOS, “it is still very much the coastal states that are responsible for managing the ocean . . . the Arctic Ocean is to a large extent subject to the sovereign rights and jurisdiction of its coastal states and art. 234 of the LOS Convention even accords those states expanded powers to coastal shipping in the ice-covered areas. However, the central Arctic Ocean is high seas.”⁶¹

Other relevant parts of the Law of the Sea that make up part of the cluster are articles 64, 65, and 120, which apply to marine mammals in the EEZ. Article 64 requires states whose nationals fish for highly migratory species to cooperate directly or through appropriate international organizations; Article 65 provides that coastal states may regulate the exploitation of marine mammals more strictly than as otherwise provided for in Part B; and Article 120 applies Article 65 to the conservation and management of marine mammals in the high seas.⁶²

F. Territorial Determinants

Behind many worldwide environmental governance challenges are questions of territorial control. Control of land-based pollution and proper maintenance of oil exploration, exploitation, and transportation, for example, are functions of sovereign nations. When there are areas in dispute, effective environmental governance can be stymied.

In the Arctic there have been surprisingly few disputes. An important potential point of tension existed between Norway and Russia in the Novaya Zemlya archipelago (Russian side) and the Svalbard archipelago (Norway), but it was peacefully resolved in 2010.⁶³ There are a few others. One involves the tiny Hans

57. *Id.* art. 117–18; *id.* art. 119, para. 1.

58. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Dec. 29, 1972, 26 U.S.T. 2403, 1046 U.N.T.S. 120 [hereinafter London Convention].

59. International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 62 [hereinafter MARPOL].

60. UNCLOS, *supra* note 42, at art. 218, para. 1.

61. Koivurova & Duyck, *supra* note 10, at 184.

62. UNCLOS, *supra* note 42, at art. 64–65, 120.

63. Andrew E. Kramer, *Russia-Norway Pact on Sea Border*, N.Y. TIMES, Sept. 16, 2010, at A12.

Island, but even this disagreement may be easily resolved.⁶⁴ Another involves the United States and Russia in the Bering Sea. Here, there has been a negotiated maritime boundary of 1,000 nautical miles laying out fishing zones and rights, which are respected, although the Russian Duma has not yet ratified the agreement.⁶⁵ Another dispute is between the United States and Canada in the Beaufort Sea.⁶⁶

Terence Andrew Check, Jr. may be an outlier, but he strongly contends that “there is still no structure to provide orderly development in the unclaimed and disputed Arctic.”⁶⁷ He also argues that “[a]nother unique issue posed by UNCLOS that is exacerbated by the political instability in the Arctic comes from Articles 122 and 123, where, under a specific interpretation of these articles, the Arctic may not be open sea at all, but rather a semi-enclosed sea that conveys additional duties of cooperation on the Arctic Five.”⁶⁸ He concludes that “UNCLOS is silent on the issue of appeals of CLCS [(Commission on the Limits of the Continental Shelf)] decisions, and it is unclear if there is any proper or workable way to appeal and adjudicate such appeals.”⁶⁹ Finally, he points out that “it is not even clear if CLCS rulings are even binding under customary international law, given the body’s lack of history and paucity of rulings.”⁷⁰

Finally, there is the 2013 claim to the North Pole by Canada.⁷¹ This is an area where Russia—and, to a lesser extent, Denmark—have claims.⁷² However, Canada has met its obligation under the ten-year deadline of filing in order to justify Continental Shelf claims beyond the 200-mile “default” limit.⁷³

64. See MICHAEL BYERS WITH JAMES BAKER, *INTERNATIONAL LAW AND THE ARCTIC* 14–15 (2013).

65. See *Status of Wrangel and Other Arctic Islands*, U.S. DEP’T STATE (Sept. 8, 2009), <http://www.state.gov/p/eur/rls/fs/128740.htm> [<https://perma.cc/D685-69AY>].

66. There are some who disagree with this sanguine assessment. See Ghimș, *supra* note 17, at 38–40 (“[E]ven the international law could create a zero sum situation in the Arctic, considering the fact that following the legal status of the Arctic, everyone has the right to exploit the Arctic resources, because it is an international territory . . . ‘[A]t the exploration of the area and the exploitation of its resources shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether landlocked or coastal, and taking into particular consideration the interests and needs of the developing countries.’ These provisions could be applied to the areas beyond the 200 miles or in the case of an International Court’s decision, in which no rim state gains sovereign rights over some Arctic territories.” (quoting G.A. Res. 2749 (XXV), para. 7 (Dec. 12, 1970))).

67. Terence Andrew Check, Jr., *Finding the Right Forum: The Need for Novel Multilateral Diplomatic Solutions to Resolve Competing Territorial Claims Over the Arctic’s Natural Resources* (Oct. 30, 2013) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2347706.

68. *Id.* at n.61.

69. *Id.* at n.67.

70. *Id.* at n.77.

71. *Canada to Include the North Pole in Its Claim for Arctic Territory, Resources*, RT QUESTION MORE (Dec. 10, 2013, 12:27 AM), <http://rt.com/news/canada-arctic-north-pole-claims-965> [<https://perma.cc/3EA6-7RA5>].

72. See Angelle C. Smith, Note, *Frozen Assets: Ownership of Arctic Mineral Rights Must Be Resolved to Prevent the Really Cold War*, 41 GEO. WASH. INT’L L. REV. 651, 654–55 (2010).

73. Elizabeth Riddell-Dixon, *The Seven-Decade Quest to Maximize Canada’s Continental Shelf*, 69 INT’L J. 422, 438 (2014).

II. REGIONAL INITIATIVES AND THE REGIONAL ASPECT OF A GENERAL OBLIGATION

A. *The Regional Seas*

The Arctic program is a partner program, along with the Antarctic, the Baltic, the Caspian, and North-East Atlantic regional seas programs, which are all part of the United Nations Regional Seas Programme. Partner programs are less formally connected with the UN than other regional seas programs.⁷⁴

The Governing Council of UNEP has defined the objective of the Regional Seas Programme as the development and implementation of comprehensive action plans for the protection and development of specific regional seas areas for consideration by Governments concerned and to support their implementation.⁷⁵ Usable strategies include those relevant to the Arctic governance question, such as the following: promotion of international and regional conventions; guidelines and actions for the control of marine pollution and for the protection of aquatic resources; assessment of the state of marine pollution and its sources and trends; assessment of the impact of pollution on human health, the marine ecosystem, and amenities; and coordination of these efforts with regard to the environmental aspects of the protection, development, and management of marine and coastal resources.

Common elements of the programs are summarized in Table 2, which indicates that the Arctic program is, somewhat in form and somewhat in function, a regional seas program. There are calls for formalizing and strengthening the Arctic regional seas institution.⁷⁶

74. Other programs function through an Action Plan. See *Regional Seas Action Plans*, UNEP, <http://hqweb.unep.org/regionalseas/programmes/actionplans> [https://perma.cc/XJJ9-ZEM7] (last visited Mar. 7, 2016) (explaining the details of Action Plans). In many cases, the Action Plan is underpinned with a strong legal framework in the form of a regional convention and associated protocols on specific problems. There are now thirteen regional seas programs, of which six are UNEP administered. With varying levels of participation, 149 countries (ninety-five percent of the world's states) are a part of programs that include the Black Sea, Wider Caribbean, East Asian Seas (COBSEA), Eastern Africa, South Asian Seas, ROPME Sea Area, Mediterranean, North-East Pacific, North-West Pacific, Red Sea and Gulf of Aden, South-East Pacific, Pacific, and Western Africa. *About*, UNEP, <http://hqweb.unep.org/regionalseas/about/> [https://perma.cc/E7SB-P6XV] (last visited Mar. 7, 2016). The programs cover eighteen regions of the world. *The Regional Seas Programmes*, UNEP, <http://www.unep.org/regionalseas/programmes/> [https://perma.cc/4K6X-9SW9] (last visited Mar. 7, 2016). In Decision 20/20 (1999), the governing council of UNEP endorsed the establishment of a regional seas program for the East Central Pacific Region. See *Establishment of a Regional Seas Programme for the East Central Pacific*, UNEP, <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=117&ArticleID=1849&l=en> [https://perma.cc/RD6M-BBCZ] (last visited Mar. 7, 2016).

75. See UNEP, GUIDELINES AND PRINCIPLES FOR THE PREPARATION AND IMPLEMENTATION OF COMPREHENSIVE ACTION PLANS FOR THE PROTECTION AND DEVELOPMENT OF MARINE AND COASTAL AREAS OF REGIONAL SEAS, at i-ii (1982), <http://www.unep.org/regionalseas/publications/reports/RSRS/pdfs/rsrs015.pdf> [http://web.archive.org/web/20160309220156/http://www.unep.org/regionalseas/publications/reports/RSRS/pdfs/rsrs015.pdf].

76. See ARCTIC COUNCIL, SENIOR ARCTIC OFFICIALS' REPORT TO MINISTERS (2015),

PROGRAMME	<i>Secretariat Yes or no</i>	<i>Conventions Yes or no and #</i>	<i>Regional Coordinating Unit: yes or no & where</i>	<i>Environmental Assessment Component</i>	<i>Environmental Management Component</i>	<i>Environmental Legislation Component</i>
Caribbean	Yes	Yes - 4	Kingston, Jamaica	Yes	No	No
East African Region	Yes	Yes - 3	Seychelles, Somalia	No	Yes	Yes
East Asian Seas	Yes	No	Bangkok, Thailand	Yes	Yes	No
Mediterranean Sea	Yes	Yes - 7	Athens, Greece	Yes	Yes	Yes
Northwest Pacific Region	Yes	No	No	Yes	Yes	No-evaluative
West and Central African Region	Yes	Yes - 2	Abidjan, Cote d'Ivoire	Yes	Yes	No

Regional Seas Coordinating Units of other Institution, not UNEP

Black Sea	Yes	Yes - 4	Istanbul, Turkey	Yes	Yes	Yes
North-East Pacific Region	No	Yes - 1	No	Yes	Yes	Yes
ROPME Sea Area	Yes	Yes - 5	No	Yes	No	Yes
Red Sea and Gulf of Aden	Yes	Yes - 2	Jeddah, Saudi Arabia	Yes	Yes	No
South Asian Seas	Yes	No	Colombo, Sri Lanka	Yes	Yes	Yes
South-East Pacific	Yes	Yes - 7	Quito, Ecuador	Yes	Yes	No
South Pacific Region	Yes	Yes - 3	Apia, Western Samoa	Yes	Yes	Yes

Other Regional Seas Programmes

Arctic Region	Yes	No	Iceland	No	No	No
Antarctic Region	Yes	Yes - 1	Tasmania, Australia	Yes	Yes	Yes
The Baltic Sea	Yes	Yes - 1	Helsinki, Finland	Yes	Yes	Yes
Caspian Sea	No	Yes - 1	Tehran, Iran	Yes	Yes	Yes
North-East Atlantic Region	Yes	Yes - 1	London, England	Yes	Yes	Yes

Some programs have as their core activity the creation of regional action plans for the protection and development of marine and coastal areas.⁷⁷ Marine pollution control was an original focus of the plans. Later, the focus of the action plans shifted to integrated coastal zone planning and management.⁷⁸ “It also early on became

https://oarchive.arctic-council.org/bitstream/handle/11374/494/ACMMCA09_Iqaluit_2015_Iqaluit_SAO_Report_to_Ministers_formatted_v.pdf.pdf [https://perma.cc/TMC2-QJ5K]; Betsy Baker, *ICES, PICES and the Arctic Council Task Force on Arctic Marine Cooperation*, 6 U.C. IRVINE L. REV. 1 (2016).

77. These exist for the Mediterranean (1975), Red Sea and Gulf of Aden (1976), Gulf (1978), Wider Caribbean (1981), East Asian Seas (1981), West and Central African (1981), South Pacific (1982), and Eastern Africa (1985). See *The Regional Seas Programmes*, UNEP, <http://hqweb.unep.org/regionalseas/programmes/> [https://perma.cc/4K6X-9SW9] (last visited Mar. 7, 2016).

78. Stjepan Keckes, *The Regional Seas Programme—Integrating Environment and Development: The Next Phase*, in OCEAN GOVERNANCE: SUSTAINABLE DEVELOPMENT OF THE SEAS 139, 141 (Peter Bautista

apparent that land based pollution needed to be controlled if the regional seas were to be protected.⁷⁹ Several regions adopted legal conventions that commit members to protect and enhance the relevant marine environment—usually up to the EEZ. High seas, enclosed from all sides by the 200-mile zone of the member states, are also included in the convention area in a small number of cases.⁸⁰ These include Cartagena and Noumea. These recognitions have implications for our focus on implementation and are addressed below.

III. THE ARCTIC COUNCIL

Whether considered a part of a regional seas framework or not, a main evolving component of the governance framework for the Arctic is the Arctic Council.

A. Background

In 1987, then Soviet Secretary Mikhail Gorbachev proposed that the Arctic states could initiate cooperation in various fields.⁸¹ In the environmental sector, Finland convened a conference of the eight Arctic states in Rovaniemi in 1991. There they signed the Rovaniemi Declaration, thereby adopting the Arctic Environmental Protection Strategy (AEPS).⁸²

AEPS was a nonbinding environmental protection agreement among the Arctic nations (Canada, Greenland/Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States). Some indigenous peoples of the Arctic also are represented through the Indigenous Peoples Secretariat (IPS). The IPS represents three AEPS Permanent Participants: the SAAMI Council (Nordic and Western Russia), the Inuit Circumpolar Conference (U.S., Canada, Greenland, and Russia), and the Association of Indigenous Minorities of the North, Siberia and the Far East of the Russian Federation.⁸³

Adoption of the AEPS was motivated by: the former Soviet Union's reported dumping of radioactive and other hazardous materials into the Arctic Ocean, which sent a message to the international community of potential environmental and human health threats; the Russian Federation's willingness to address these problems "in their search for bilateral and multilateral assistance to clean up and manage present and future problems"; and scientific studies describing "abnormally high levels of persistent organic pollutants and heavy metals in Arctic indigenous

Payoyo ed., 1994).

79. DIMENTO & HICKMAN, *supra* note 20, at 24.

80. Keckes, *supra* note 78, at 141.

81. Paul Arthur Berkman, *Arctic Ocean State-Changes: Self Interests and Common Interests*, in 1 THE YEARBOOK OF POLAR LAW 511, 517–18 (Gudmundur Alfredsson et al. eds., 2009).

82. See *Ministerial Direction*, EMERGENCY PREVENTION, PREPAREDNESS & RESPONSE, <http://www.arctic-council.org/eppr/reports/ministerial-direction/> [https://perma.cc/R6US-J6GU] (last visited Mar. 7, 2016).

83. Bruce A. Russell, *The Arctic Environmental Protection Strategy and the New Arctic Council*, ARCTIC RES. U.S., Fall–Winter 1996, at 2.

people and their food sources.”⁸⁴ These pollutants were said to probably result from transport mechanisms from northern industrial nations.⁸⁵ Five programs were established under AEPS:

1. The Arctic Monitoring and Assessment Program (AMAP);
2. The Conservation of Arctic Flora and Fauna program (CAFF);
3. Protection of the Arctic Marine Environment Working Group (PAME);
4. Emergency Prevention, Preparedness and Response Working Group (EPPR); and
5. Sustainable Development and Utilization (SDU).⁸⁶

In 1996, the eight Arctic nations signed a declaration that created the Arctic Council.⁸⁷ This Council is a consensus forum that provides a means for cooperation, coordination, and interaction among the eight Arctic states and the Arctic peoples (native and others) with regard to common environmental and sustainable development issues. The Council subsumed the five AEPS programs.

The Declaration on the Establishment of the Arctic Council extended the terms of reference beyond environmental protection. Although the Council’s mandate is quite broad, it does not address issues related to military security.⁸⁸ The Council includes the governments of Canada, Russia, Denmark (including Greenland and the Faroe Islands), Norway, the United States, Sweden, Finland, and Iceland, and also, uniquely, the indigenous peoples of the Arctic: the Athabaskan, Aleut, Gwich’in, Inuit, Sami, and the forty-one indigenous peoples in Russia represented by the Russian Association of Indigenous Peoples of the North (RAIPON).⁸⁹

In addition, some states and entities with Arctic interests are involved with the Council as observers. Full membership, including voting rights, in the Council is restricted to the eight countries with territory in the region. The organizations representing the Arctic indigenous peoples have Permanent Participant status, but this group is now outnumbered by twelve other states that have been admitted with observer status and can attend meetings.⁹⁰

84. *Id.*

85. *Ministerial Direction, supra* note 82.

86. *Id.*

87. Declaration on the Establishment of the Arctic Council, art. 2, Sept. 19, 1996, 35 I.L.M. 1387.

88. *Id.* at art. 1, n.1.

89. *Id.* at art. 2; *Permanent Participants*, ARCTIC COUNCIL (Apr. 27, 2011), <http://www.arctic-council.org/index.php/en/about-us/permanent-participants> [https://perma.cc/NPK6-6UZM]; *see also* The Nuuk Declaration on Environment and Development in the Arctic, Sept. 16, 1993, princ. 7, 1993 WL 645202 [hereinafter Nuuk Declaration] (“We recognize the special role of the indigenous peoples in environmental management and development in the Arctic, and of the significance of their knowledge and traditional practices, and will promote their effective participation in the achievement of sustainable development in the Arctic.”).

90. The observer nations are China, France, Germany, India, Italy, Japan, the Netherlands, Poland, Singapore, South Korea, Spain, and the United Kingdom. *Observers*, ARCTIC COUNCIL (Apr. 27, 2011), <http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers>

The Council does not have an international legal personality because, under international law, that term is used to denote that the entity (separate from its members) is recognized under the law and capable of participating as a member in international decisions. The term also denotes that the entity (state, international company, etc.) has a legal name, rights, protections, privileges, responsibilities, and liabilities under law just as any person does.⁹¹

The Council now has a Secretariat and a rotating Chair. The Chair nation has responsibility for maintaining the Secretariat, which handles the administrative aspects of the Council by calling meetings, managing its website, and circulating documents.

With the major environmental challenges noted above and significant geopolitical changes in the region, the Council has evolved from a fairly obscure international organization to one of increasing importance in Arctic governance. The Council generally creates nonbinding guidelines, but it has taken upon itself a convening role for states to consider entering treaties.

In 2011, the Arctic Search and Rescue Agreement became the first binding treaty concluded under the Council's auspices.⁹² In 2013, the "Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic" was signed.⁹³ It aims to establish a framework to substantially improve the procedures for tackling oil spills in the Circumpolar region. Other agreements under negotiation include those on pollution prevention, science, and fisheries.⁹⁴

B. Other Entities in the Arctic Cluster

In addition to the Arctic Council, elements of Arctic environmental governance are addressed in other international fora, including the Spitsbergen Treaty, the North Atlantic Coastguard Forum, and the Conference of the Parliamentarians of the Arctic Region. Moreover, the International Maritime Organization (IMO) is developing a draft international code of safety for ships operating in polar waters (the Polar Code).⁹⁵

[<https://perma.cc/Y4JE-26Z3>]. The European Union has also lobbied for observer status, so far unsuccessfully. Lily Haines, *EU Bid to Become Arctic Council Observer Deferred Again*, BARENTS OBSERVER (May 4, 2015), <http://barentsobserver.com/en/arctic/2015/05/eu-bid-become-arctic-council-observer-deferred-again-04-05> [<https://perma.cc/ED38-HR5N>].

91. See Bryant Smith, *Legal Personality*, 37 YALE L.J. 283, 293–94 (1928); Nneoma Chigozie Udeariry, *To What Extent do International Organizations Possess International Legal Personality?*11 (Sept. 15, 2011) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2052555.

92. Steven Lee Myers, *Cooperation is Pledged by Nations of the Arctic*, N.Y. TIMES, May 13, 2011, at A12.

93. Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (May 15, 2013), <http://www.state.gov/r/pa/prs/ps/2013/05/209406.htm> [<https://perma.cc/3JCK-22DL>] (last visited Mar. 7, 2016).

94. See Steven Lee Myers, *Arctic Council Meets in Shadow of Tension on Russia*, N.Y. TIMES, Apr. 25, 2015, at A7; Steven Lee Myers, *Sea Warming Leads to Ban on Fishing in the Arctic*, N.Y. TIMES, July 17, 2015, at A6.

95. See Int'l Maritime Org. [IMO], *International Code for Ships Operating in Polar Waters (Polar Code)*, Res. MSC.385(94) (Nov. 21, 2014), <http://www.imo.org/en/MediaCentre/HotTopics/polar/>

In March 2014, the Arctic Council announced actions to create an Arctic Economic Council (AEC) “to foster sustainable development, including economic growth, environmental protection and social development in the Arctic Region.”⁹⁶

C. Treaties

Arctic nations are members of international legal initiatives, some of which go back several decades. The region is home to a number of multilevel governance systems that together comprise what some scholars call the expanding “Arctic regime complex.”⁹⁷ Those that affect most or all of the Arctic states are listed in Table 3.

Table 3. Arctic International Law Cluster Components

- United Nations Law of the Sea (UNCLOS)
- Agreement for the Implementation of the Provisions of the Convention on the Law of the Sea of December 1982 Relating to the Conservation and Management of Straddling Stocks and Highly Migratory Fish Stocks
- Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)
- Convention on Fishing and Conservation of Living Resources of the High Seas
- The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (RAMSAR Convention)
- Convention on International Trade in Endangered Species (CITES)
- International Convention for the Regulation of Whaling
- International Convention on Persistent Organic Pollutants (POPS)
- Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities
- The Agreement on the Conservation of Polar Bears
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (The London Convention)
- The UN Framework Convention on Climate Change (UNFCCC)
- The Kyoto Protocol
- The International Convention for the Prevention of Pollution from Ships (MARPOL)

Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED%20BY%20MSC%20AND%20MEPC.pdf [https://perma.cc/9VAL-QJHB]; Costas Paris, *U.N. Agency Adopts Polar Code to Prevent Sea Pollution*, WALL ST. J. (May 15, 2015), <http://www.wsj.com/articles/u-n-agency-adopts-polar-code-to-prevent-sea-pollution-1431711578> [https://web.archive.org/web/20150602002941/http://www.wsj.com/articles/u-n-agency-adopts-polar-code-to-prevent-sea-pollution-1431711578].

96. *Agreement on the Arctic Economic Council*, ARCTIC COUNCIL (Mar. 27, 2014), <http://www.arctic-council.org/index.php/en/resources/news-and-press/news-archive/858-agreement-on-the-arctic-economic-council> [https://perma.cc/RGM5-5BCX].

97. Oran R. Young, *Arctic Tipping Points: Governance in Turbulent Times*, 41 *AMBIO* 75, 81 (2012); see also ORAN R. YOUNG, *CREATING REGIMES: ARCTIC ACCORDS AND INTERNATIONAL GOVERNANCE* (1998).

- The 1990 International Convention on Oil Pollution Preparedness, Response and Co-operation
- The CMS or Bonn Convention (The Convention on the Conservation on Migratory Species of Wild Animals)
- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
- The Convention on Biological Diversity (CBD)
- Global Programme of Action for the Protection of the Marine Environment from
- Land-based Activities

Also within the cluster are bilateral agreements (e.g., the 1983 Canada-Denmark Agreement) and multilateral agreements (e.g., the 1920 Spitsbergen Treaty signed by Norway, the United States, Denmark, France, Italy, Japan, the Netherlands, Great Britain and Ireland and the British overseas dominions, and Sweden).

D. Soft Law

Soft law (i.e., generally nonbinding principles that derive from statements in international meetings, conferences, and other fora aimed at structuring later actions of the members of the international community) is also relevant to the Arctic, at least to some of the Arctic states; it includes the Precautionary Principle and the No Harm Principle.⁹⁸ Also relevant are the guidelines of international organizations such as the IMO (e.g. Guidelines on Arctic Shipping).⁹⁹

Relevant to next steps and the need for additional international law, in 2008 the five Arctic coastal states (Canada, Denmark, Norway, the Russian Federation, and the United States) adopted the Ilulissat Declaration, which concluded that there is “no need to develop a new comprehensive international legal regime to govern the Arctic ocean.”¹⁰⁰ Many observers consider this a strong statement of coastal

98. Lisa B. Uffman-Kirsch, *The Prevention Principle: A New Theory for Invocation of State Responsibility for Marine Environmental Harm* (Aug. 22, 2014) (unpublished L.L.M. thesis, Utrecht University) (on file with author).

99. Int'l Maritime Org. [IMO], *International Code for Ships Operating in Polar Waters* (Nov. 21, 2014), <http://www.imo.org/en/MediaCentre/HotTopics/polar/Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED%20BY%20MSC%20AND%20MEPC.pdf> [https://perma.cc/CB3D-ESTG]. Some see the need for this principle to be hardened in particular sectors. *See* Nuuk Declaration, *supra* note 89.

100. The relevant text is: “By virtue of their sovereignty, sovereign rights and jurisdiction in large areas of the Arctic Ocean the five coastal states are in a unique position to address these possibilities and challenges. In this regard, we recall that an extensive international legal framework applies to the Arctic Ocean Notably, the law of the sea provides for important rights and obligations concerning the delineation of the outer limits of the continental shelf, the protection of the marine environment, including ice-covered areas, freedom of navigation, marine scientific research, and other uses of the sea. We remain committed to this legal framework and to the orderly settlement of any possible overlapping claims.” The Ilulissat Declaration, May 28, 2008, 48 I.L.M. 362. The Arctic coastal states recognizing the increased use of Arctic water for tourism, shipping, research, and resource development saw the need to strengthen search and rescue capabilities and capacity around the Arctic

state sovereignty over Arctic matters, as it potentially challenges the eight-member Arctic Council.¹⁰¹

E. Other Cluster Components

1. Judicial Decisions

The international dispute resolution fora that have jurisdiction in Arctic nation legal controversies are the International Tribunal for the Law of the Sea, the International Court of Justice, the European Court of Human Rights, the European Court of Justice, the Court of Justice of the European Free Trade Association States, and domestic courts. Each of these judicial bodies makes decisions that aggregate, although not literally with precedential value, to the governance framework of the Arctic. The international community generally gives respect to their decision and their logic and reasoning may be applicable to a governance issue in the Arctic.

Professor Scovazzi has summarized the leading cases on boundary limitations in the Arctic, including the 1933 dispute between Denmark and Norway over the legal status of Eastern Greenland; the 1977 200-mile fishery protection zone adopted by Norway presented to the Commission on the Limits of the Continental Shelf; and the 1995 International Court of Justice judgment delimiting the Continental Shelf and the superjacent waters between Greenland and Jan Mayen.¹⁰² There has been a small number of important decisions or opinions of direct relevance to the environment. For example, in 2013 the International Tribunal for the Law of the Sea ordered Moscow to release the Arctic Sunrise and Greenpeace protesters who had attempted to scale a drilling platform as part of a protest against Arctic oil production.¹⁰³ Later, the International Court of Arbitration ordered Russia to pay compensation for seizing the ship and imprisoning members of its crew.¹⁰⁴ Indigenous Arctic people brought a petition to the Inter-American Commission on Human Rights, alleging that climate change resulting from global warming linked to emissions of greenhouse gases in the United States violated their rights to maintain a traditional way of life. The petition was dismissed.¹⁰⁵ Other

Ocean, “including through bilateral and multilateral arrangements between or among relevant states.”
Id.

101. See Klaus Dodds, *The Ilulissat Declaration (2008): The Arctic States, “Law of the Sea,” and Arctic Ocean*, SAIS REV. INT’L AFF., Summer–Fall 2013, at 45, 52–53.

102. Scovazzi manuscript on file with the author.

103. The “Arctic Sunrise” Case (Neth. v. Russ.), Case No. 22, Order of Nov. 22, 2013, https://www.itlos.org/fileadmin/itlos/documents/cases/case_no.22/Order/C22_Ord_22_11_2013_orig_Eng.pdf [<https://perma.cc/75PY-YSLK>].

104. *Russia Loses Case Over Greenpeace Ship*, DEUTSCHE WELLE (Aug. 24, 2015), <http://www.dw.com/en/russia-loses-case-over-greenpeace-ship/a-18669670> [<https://perma.cc/3L56-D8PJ>].

105. Anna Ansari, *Inuit Circumpolar Conference Petition to the Inter-American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States*, CLIMATE CHANGE & HUMAN RIGHTS: CASE LAW, <http://guides.brooklaw.edu/>

opinions have addressed northern fur seals, whaling, and oil pollution.¹⁰⁶

2. National Law

When describing the elements of the cluster that fit within elements of national law, we mean first the exercise of sovereignty in the region, the substantive law that guides in that sovereign area, as well as (and further complicating the analysis) the extraterritorial reach of national law.

Sovereignty in the Territorial Seas and Contiguous Zone established under the Law of the Sea regime is exercised through individual nation-state law in a range of areas. Substantive law that implicates relationships within the Arctic states and relationships between them and other states includes, most importantly for our environmental analysis, those requiring an Environmental Impact Assessment (EIA). In addition to involvement through the Espoo Convention on Environmental Impact Assessment to which all members of the Arctic Council are parties and its Protocol on Strategic Environmental Assessment (whose parties include Denmark, Finland, Norway, and Sweden), national laws requiring an EIA are in force in all of the Arctic Council nations.¹⁰⁷

The extraterritorial reach of domestic law addressing environmental conditions can have great significance in the Arctic. There are several relevant sources, international and domestic. Among the former, Principle 21 of the Stockholm Declaration imposes upon states the duty to ensure that activity within their jurisdiction does not cause damage to the environment of another state or the global commons.¹⁰⁸

Domestically, states may assert extraterritorial jurisdiction based on theories of territory, effects, and nationality, as well as to protect a national security interest.¹⁰⁹ Domestic law sometimes benefits from internal demands to be responsive to national or other needs; in such cases it may generate requirements not easily agreed to at the international level, for example with regard to processes used to harvest marine resources.

c.php?g=330929&p=2223232 (last updated Dec. 8, 2015).

106. See BYERS, *supra* note 64, ch. 6, at 171–215.

107. Convention on Environmental Impact Assessment in a Transboundary Context, Feb. 25, 1991, 1989 U.N.T.S. 310.

108. U.N. Conference on the Human Environment, *Report of the United Nations: Conference on the Human Environment*, at princ. 21, U.N. Doc. A/CONF.48/14/Rev.1 (June 16, 1972).

109. See Danielle Ireland-Piper, *Extraterritorial Criminal Jurisdiction: Does the Long Arm of the Law Undermine the Rule of Law?*, 13 MELB. J. INT'L L. 122, 130–31, 136–38 (2012). The territorial rationale is straightforward in addressing a sovereign's power to regulate environment-related behavior within the state's territory. *Id.* at 130. The effects touchstone looks to whether activity outside of the state has or is intended to have a substantial effect within the territory of the state. *Id.* The principle of nationality holds that a state can extend the effect of its laws based on the nationality of the person or entity such as a vessel, whose behavior is targeted. *Id.* Focusing on the national security of a nation, the protective principle recognizes prescription of behavior outside of a state, when conduct is directed against the state's national security. *Id.*

3. *Other Regime Components*

There are little bits of Areas Beyond National Jurisdiction, sometimes called the donut hole and the peanut hole, in the Arctic.¹¹⁰ Options as to next steps for addressing these “bits” include activity through the existing Law of the Sea regime. Here the focus is on implementation of activities in the Areas, for example through the increasingly relevant Enterprise, the international organization established under UNCLOS to manage the mineral resources of the area under the principle of the common heritage of mankind. Existing LOS action in the Areas may need to be supplemented through multilateral treaties, perhaps with particular foci including environmental protection.¹¹¹

4. *An Accounting*

The existing Arctic governance system—which we have described comprehensively, but no doubt not exhaustively—is large and complex. Yet many scholars and policymakers are not sanguine about its adequacy and they call into question the effectiveness of the embryonic regime.¹¹² There is, however, a considerable and deep split in thinking about the need for new law.¹¹³ That split reflects the existing political interests and powers of the Arctic states, of the states of the Arctic Council, and of Permanent Participants and observers and would-be observers. But it also results from very different views of what we should expect as effective environmental governance.¹¹⁴ Also of concern in some regional seas governance regimes is the question of whether there is too much law resulting in “treaty paralysis” that overwhelms smaller and less rich nations without capacities to implement—or perhaps even to participate meaningfully—in negotiations; however, this does not seem to be a concern for most Arctic stakeholders.

There is a huge literature debating what to include in an assessment of effectiveness of international environmental initiatives, including what should be looked at and what methods should be employed.¹¹⁵ An important question relates to what social scientists call the counterfactual: What would the conditions of the Arctic be in the absence of the cluster? Further, is the outcome of interest physical conditions only? Considered the most important indicator by some observers, this outcome addresses the extent to which actual conditions, or physical parameters, in the seas have changed over time—in our case, since the beginning of the cluster of initiatives that have as their goal the maintenance or improvement of the

110. Jon K. Goltz, *The Sea of Okhotsk Peanut Hole: How the United Nations Draft Agreement on Straddling Stocks Might Preserve the Pollack Fishery*, 4 PAC. RIM L. & POL'Y J. 443, 444–45 (1995); David L. VanderZwaag, *The Arctic Council at 15 Years: Edging Forward in a Sea of Governance Challenges*, 54 GER. Y.B. INT'L LAW 281, 308 (2011).

111. See Rosemary Rayfuse, *Protecting Marine Biodiversity in Polar Areas Beyond National Jurisdiction*, 17 RECIEL 3, 6–13 (2008).

112. DiMento & Backer, *supra* note 11.

113. *Id.*

114. *Id.*

115. See DIMENTO & HICKMAN, *supra* note 20, at 27–29.

environmental quality of the Arctic. Or is the state of investigation insufficiently developed to look only to physical changes in the giant ocean? Alternate outcomes might include, for example, cooperation, which is hopefully a precursor to activities that improve the environmental conditions of the Arctic.

IV. A FOCUS ON IMPLEMENTATION

*“Wise people . . . need to craft rules.”*¹¹⁶

In light of the various timetables for predictions of increased challenges to Arctic conditions, a process is needed for identifying the most serious problems.¹¹⁷ Once these problems have been identified and prioritized, the focus moves towards implementing methods of solving these problems. In this Article, the focus of implementation is on the understanding that derives from studies of organizational behavior. Implementation (in the legal sense of executing international law into domestic law) may or may not be an activity undertaken first by a nation state; this step will depend on factors such as whether a nation is a monist or dualist member of the international community,¹¹⁸ whether nation-state actions can proceed independent of treaty ratification, etc. Implementation in the sense used in this Article is the process of putting into effect policies and legal requirements. Here the focus is on making a difference on the ground, actually effecting behavioral changes.

As Joan Petersilia has noted, “the ideas embodied in innovative social programs are not self-executing.”¹¹⁹ Instead, what is needed is an “*implementation perspective* on innovation—an approach that views postadoption events as crucial and focuses on the actions of those who convert it into practice as the key to success or failure.”¹²⁰

Few would argue against the need for work to make effective attempts at implementing existing obligations independent of whether new law is indicated. Implementation analysis is the stepchild in international studies. Thinking through specific steps to carry out legal obligations (“put into practice an activity or program of known dimensions”¹²¹) may not be as interesting as creating new obligations. But to assist in having the law make a difference, more attention needs to be paid to questions such as the following: Which entities (agencies, departments, etc.) within

116. Michael Byers, comment during the Arctic Governance symposium at UC Irvine School of Law.

117. See, e.g., ENERGY SECURITY AND GEOPOLITICS IN THE ARCTIC: CHALLENGES AND OPPORTUNITIES IN THE 21ST CENTURY (Hooman Peimani ed., 2013); Charles K. Ebinger & Evie Zambetakis, *The Geopolitics of Arctic Melt*, 85 INT’L AFF. 1215, 1215–16 (2009).

118. For a discussion of the terms “monist” and “dualist,” see Soc’y Am. Law Teachers, A Short Primer on U.S. Federalism and the International Convention on the Elimination of All Forms of Racial Discrimination (ICERD) 2 (n.d.), http://www.ushrnetwork.org/sites/ushrnetwork.org/files/primer_us_federalismintl_law.pdf [<https://perma.cc/7MGG-SFDX>].

119. Joan Petersilia, *Conditions That Permit Intensive Supervision Programs to Survive*, 36 CRIME & DELINQ. 126, 129 (1990).

120. *Id.* (emphasis in original).

121. DEAN L. FIXSEN ET AL., IMPLEMENTATION RESEARCH: A SYNTHESIS OF THE LITERATURE 5 (2005).

nations are targeted for cooperation? Who is responsible for the first step and various subsequent steps in management? Which agency, department, or bureau should guide those who are responsible, and according to what timetable? How will actions of targeted nations and subnational actors be monitored? What reporting mechanisms are required? Finally, what will happen with reports generated by monitoring activities? As one successful CEO has described his management directive: Tell me “who will do what by when?”¹²²

Lessons that can guide successful implementation of relevant Arctic-environmental law can be found in several places: the study of activities in other regional seas; case-study work on individual obligations within international commitments such as coastal zone management; analysis of international environmental agreement-processing of obligations in general; and the general knowledge base on implementation. That knowledge base has grown significantly in the last decades; however, legal scholars are generally either unaware of it or do not see it as their professional obligation to pursue its application.¹²³

The focus in this Article is on social process: utilizing developed strategies and techniques to bring together people who can help define the next steps required to make Arctic environmental law effective. It is also important to bring together people—often a different set of people—who work for change “on the ground” in organizational activities and outputs.

In addressing implementation, Arctic stakeholders may benefit from lessons learned elsewhere. First, in the ongoing developments associated with Arctic cooperation, some lessons may come from the successes and failures of efforts in other regional seas.

For example, the value of looking to other regions may be illustrated by the work undertaken for the Arctic marine oil pollution preparedness and response regime. During the ongoing negotiations, Baltic cooperation on oil pollution preparedness and response under the Helsinki Commission (HELCOM) was offered as a good parallel example from a near-Arctic sea with severe ice winters, even if smaller in size.¹²⁴ With the signing of the Helsinki Convention in 1974, the coastal countries of the Baltic managed to foster mutual trust in the middle of the Cold War period and create an operational regional response system to pollution incidents.¹²⁵ For more than thirty years, information on ship accidents and response

122. Adam Bryant, *Mark Toro of North American Properties: Who will Do What by When?*, N.Y. TIMES (Aug. 22, 2015), <http://www.nytimes.com/2015/08/23/business/mark-toro-of-north-american-properties-who-will-do-what-by-when.html>.

123. The literature on implementation is immense. See, e.g., JEFFREY L. PRESSMAN & AARON WILDAVSKY, IMPLEMENTATION: HOW GREAT EXPECTATIONS IN WASHINGTON ARE DASHED IN OAKLAND 163–64 (3d ed. 1984). Since then, the field has grown in many policy areas. See generally Peter L. Hupe, *The Thesis of Incongruent Implementation: Revisiting Pressman and Wildavsky*, 26 PUB. POL'Y & ADMIN. 63 (2011); Keith Smolkowski, *Implementation Research*, OR. RES. INST., <http://homes.ori.org/~keiths/bibliography/implementation.html> [<https://perma.cc/SR24-V6TZ>] (last visited Mar. 7, 2016).

124. DiMento & Backer, *supra* note 11.

125. *Id.*

capacity itself has been shared with a minimum of delay. Joint procedures are tested annually in regional HELCOM Balex Delta pollution response exercises at sea.¹²⁶ Importantly, the cooperation has also fostered a framework of financial rights and obligations clarifying the terms of provision of international assistance.¹²⁷ These activities (obligatory and timely sharing of information, scheduled testing requirements, and specific financial commitments) are the hallmarks of successful implementation across sectors and challenges.

To be sure, the Baltic region is one of considerable resources of all kinds, from financial to technical. But many of these same countries are also Arctic players.

In addition to the lessons offered by the study of the regional seas, we can learn from the considerable scholarship and policy analysis on international environmental governance in general. This work underscores the essential role in implementation of cooperation among nations that share both economic and environmental protection interests.¹²⁸ Several decades of analysis suggest that among the ideas meriting additional consideration are the exchange of information about best practices across the areas of management responsibility (including, but not limited to, activities like marine spatial planning and coastal zone management, and public participation and consultation)¹²⁹ and review of “on the ground” attempts at Large Marine Ecosystems and other ecological institutional management concepts.¹³⁰ In addition, experiences in other areas of international environmental law and management recognize the value of policy issue linkages such as seeing climate change as an opportunity to bring greater visibility to the Arctic Ocean and region and attract resources associated with concerns over mitigation and adaptation.¹³¹

Although the Arctic already has strong institutions and traditions for scientific assessments—especially the Arctic Monitoring and Assessment Programme (AMAP),¹³² an Arctic Council working group established in 1991—it is important to further strengthen the science-policy connection. As elsewhere, this can be accomplished by the publication of new information in formats that managers and policymakers can easily access and understand as well as by the enhanced sharing of data through the use of open source tools and standardized processes. So too efforts to promote information exchange and communication at a national level

126. *Id.*

127. *Id.*

128. *Id.*

129. *Id.* The call for public participation is universal, but it can also be hollow. Within the framework suggested herein, roles and activities are identified for those parties who have an interest in Arctic environmental protection. In addition to the departments, agencies, NGOs, and others usually at the table of program development, effective implementation needs to include indigenous peoples, whether Permanent Participants or not, whose activities on the land and in the waters of the Arctic ultimately affect environmental protection.

130. *Id.*

131. *Id.*

132. *Welcome to AMAP*, AMAP, <http://www.amap.no/about> [<https://perma.cc/9R9G-HYV6>] (last visited Mar. 7, 2016).

(e.g. between national focal points) can provide a basis for improving cooperation among the member states. Existing national entities in many of the Arctic states are, it seems, generally quite prepared to transfer relevant information.

It is crucial to structure cooperation in ways that make existing law and initiatives operational and amenable to implementation. One area where this is of particular importance in the Arctic is in the identification of an effective means of integrating two kinds of knowledge: that which is traditionally called scientific and that which is traditional (i.e., from indigenous peoples and from others within the regional experience).¹³³ Specific approaches include the use of intercultural knowledge-bridgers (previously referred to as boundary spanners) and assisted dialogue.¹³⁴

A. Case Study: Ecosystems-Based Management

Implementation analysis is inherently case specific. Identifying relevant and implicated actors, management units, social and environmental processes, and timetables involved in effective implementation of a policy or legal obligation is not a generic task with a set checklist of activities. Implementation is not guided in the abstract. Implementation approaches will likely differ across sectors: shipping, oil, black carbon pollution, fishing and marine mammal management, and acidification. Nonetheless, looking to and across cases can inform what needs to be done in any specific sector.

Several cases in the Arctic create implementation challenges. Among these are black carbon reduction, oil spill preparation and response, and ecosystems-based management. These differ in their scale, scope, and timing of environmental effects—and some are more easily addressed than others.¹³⁵

I have chosen as an example ecosystems-based management. Here, managers are encouraged to build on ecosystems and other physical and spatial conceptualizations of the marine and marine-terrestrial environment. It is one of several socioecological, ecological-institutional, or ecosystems-based management concepts that have been suggested in national governments, the Arctic Council, and other international organizations to assist with effective governance of the seas.

On several occasions the United Nations has called for consideration of these

133. For concrete examples of indigenous knowledge relevant to the Arctic, see Shelley Wright, *Inuit Perspectives on Governance in the Canadian Arctic*, in POLAR OCEANS GOVERNANCE IN AN ERA OF ENVIRONMENTAL CHANGE 189 (Tim Stephens & David L. VanderZwaag eds., 2014).

134. DONALD N. MICHAEL, ON LEARNING TO PLAN—AND PLANNING TO LEARN (1973); Erin L. Bohensky & Yiheyis Maru, *Indigenous Knowledge, Science, and Resilience: What Have We Learned from a Decade of International Literature on “Integration”?*, ECOLOGY & SOC’Y, Dec. 2011, at 6; Fulvio Mazzocchi, *Western Science and Traditional Knowledge*, 7 EMBO REP. 463 (2006).

135. In fact, the Council on Councils characterizes the black carbon reduction challenge as “relatively easy.” David Runnalls, *Next Steps in Arctic Governance*, COUNCIL COUNCILS (May 14, 2014), http://www.cfr.org/councilofcouncils/global_memos/p32983 [https://perma.cc/JDY4-P7TR] (“Black carbon is relatively easy to manage (e.g., through improved cooking stoves in India and China and better diesel engines and fuel). Controlling these could buy the world some time to address climate change more broadly.”).

strategies, recognizing the following:

While there is no single internationally agreed-upon ecosystem approach or definition of an “ecosystem approach”, the concept is generally understood to encompass the management of human activities, based on the best understanding of the ecological interactions and processes, so as to ensure that ecosystems structure and functions are sustained for the benefit of present and future generations.¹³⁶

In 2005, the General Assembly requested that the meeting of the United Nations’ open-ended Informal Consultative Process on Oceans and the Law of the Sea focus on the ecosystem approaches and oceans.¹³⁷ Participants suggested constitutive elements of an ecosystem approach.¹³⁸ Later, the General Assembly invited States to consider these elements and recalled “that States should be guided in the application of ecosystem approaches by a number of existing instruments.”¹³⁹ The General Assembly noted in particular the Convention and its implementing Agreements and encouraged states to cooperate and coordinate their efforts and to “take . . . all measures, in conformity with international law, . . . to address impacts on marine ecosystems in areas within and beyond national jurisdiction, taking into account the integrity of the ecosystems concerned.”¹⁴⁰

These approaches have been attempted in limited circumstances in some regions.¹⁴¹ Integrating knowledge of physical conditions into jurisdictional considerations and institutional strategies remains a promising approach.

However, implementation of these new tools is challenging here, as elsewhere. Responsible or potentially responsible institutions have not developed under a single lawmaking or policy framework. Contributions to physical assessments are not coordinated in a central way, and scientific understandings of the approaches to use do not neatly converge. To give one example: Erik J. Molenaar and Alex G. Oude Elferink note with regard to OSPAR’s designation of Marine Protected Areas (MPAs) that “the process after the identification of a potential MPA has to be

¹³⁶ *Ecosystem Approaches*, Oceans & L. Sea: Div. Ocean Affairs & L. Sea, http://www.un.org/depts/los/ecosystem_approaches/ecosystem_approaches.htm [https://perma.cc/W4X7-6VBD] (last updated July 21, 2010).

¹³⁷ See G.A. Res. 60/30, ¶ 85 (Nov. 29, 2005).

¹³⁸ Rep. on the Work of the U.N. Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting, transmitted by Letter Dated 14 July 2006 from the Co-Chairpersons of the Consultative Process Addressed to the President of the General Assembly, at 2–5, U.N. Doc. A/61/156 (July 17, 2006).

¹³⁹ G.A. Res. 61/222, ¶ 119 (Dec. 20, 2006).

¹⁴⁰ *Id.* (alteration in original). The General Assembly, in G.A. Res. 62/177, at 5–6 (Dec. 18, 2007), encouraged States by 2010 to apply “an ecosystem approach” to sustainable fisheries and either directly or through regional fisheries management organizations and arrangements (RFMO/As), “adopting and implementing conservation and management measures addressing, inter alia, by-catch, pollution, overfishing, and protecting habitats of specific concern, taking into account existing guidelines of FAO.” The importance of elements of the ecosystems approach was reiterated in G.A. Res. 62/215, at 18 (Dec. 22, 2007).

¹⁴¹ *Ecosystem-Based Management*, SEAWEB, <http://www.seaweb.org/resources/ebm/implementingebm.php> [https://perma.cc/G7LG-RGYG] (last visited Mar. 7, 2016).

carried out in consultation with the competent international organizations. That procedure, which might involve half a dozen or more organizations, might make the whole process rather cumbersome . . .”¹⁴² They describe some of the required “contacts with other organizations.” The international alphabet cluster includes the North-East Atlantic Fisheries Commission (NEAFC), International Maritime Organization (IMO), Food and Agricultural Organization of the United Nations (FAO), the North Atlantic Treaty Organization (NATO), the North Atlantic Marine Mammals Commission (NAMMCO), the North Atlantic Salmon Conservation Organization (NASCO), the Authority, and the United Nations Division on Ocean Affairs and the Law of the Sea (DOALOS).¹⁴³

The science encompassed in evolving ecosystems-based institutional approaches is still developing and the complexities of linking physical characteristics (themselves often changing) with evolving management understandings are being worked through. As with many attempts to have social organizations and their members agree upon the value and importance of adopting new or untested approaches, resistance can be considerable. These changes also have political significance. The responses of governments and regional organizations to initiatives that can threaten autonomy, funding, articulated priorities, or control will not always be made based on acceptance of the conceptual value of the initiative.

The Arctic Council itself has called for the use of what it refers to as EBM (Ecosystems-Based Management).¹⁴⁴ It has made several recommendations with regard to institutional development. As to the specific nature of the EBM system, it articulated nine constituent principles:

1. EBM supports ecosystem resilience in order to maintain ecological functions and services.
2. EBM recognizes that humans and their activities are an integral part of the ecological system as a whole, and that sustainable use

142. Erik J. Molenaar & Alex G. Oude Elferink, *Marine Protected Areas in Areas Beyond National Jurisdiction: The Pioneering Efforts Under the OSPAR Convention*, UTRECHT L. REV., June 2009, at 5, 15–16.

143. *Id.* at 16. On the question of the effectiveness of MPAs, University of Tasmania researchers studied dozens of marine-protected areas in several countries; they found that almost sixty percent of the areas were no better off than areas where fishing was allowed. Five essential characteristics were associated with the most successful areas:

1. Those designated ‘no take’ (allowing no fishing whatsoever),
2. Those where rules were well enforced,
3. Those more than ten years old,
4. Those bigger than 100 square kilometers, and
5. Those isolated by deep water or sand.

Areas with four or five of those attributes “had a far richer variety of species, five times the biomass of large fish and fourteen times the biomass of sharks, which are indicators of ecological health. Most underachieving marine sanctuaries had only one or two of these magic factors, and thus ‘were not ecologically distinguishable from fished sites.’” Editorial, *To Save Fish and Birds*, N.Y. TIMES, Feb. 16, 2014, at SR10. This type of knowledge, disseminated across regions, can assist in implementing what otherwise may be a rather vague mandate.

144. See ARCTIC COUNCIL, *ECOSYSTEM-BASED MANAGEMENT IN THE ARCTIC* (2013), https://oaarchive.arctic-council.org/bitstream/handle/11374/122/MM08_EBM_report%20%281%29.pdf.

and values are central to establishing management objectives.

3. EBM is place-based, with geographic areas defined by ecological criteria, and may require efforts at a range of spatial and temporal scales (short-, medium- and long-term).
4. EBM balances and integrates the conservation and sustainable use ecosystems and their components.
5. EBM aims to understand and address the cumulative impacts of multiple human activities (rather than individual sectors, species or ecosystem components).
6. EBM seeks to incorporate and reflect, to the extent it is relevant, expert knowledge including scientific, traditional and local knowledge.
7. EBM is inclusive and encourages participation at all stages by various levels of government, indigenous peoples, stakeholders (including the private sector) and other Arctic residents.
8. Transboundary perspectives and partnerships can contribute significantly to the success of EBM efforts.
9. Recognizing that ecosystems and human activities are dynamic, that the Arctic is undergoing rapid changes, and that our understanding of these systems is constantly evolving, successful EBM efforts are flexible and adaptive.¹⁴⁵

Articulation of ecological criteria, determinations of scales, operational definitions of what is sustainable, modeling of cumulative impacts, integration of types of knowledge, monitoring: these numerous constituents of EBM do not have commonly accepted, consensus meanings. These remain themselves words, not implementation. They each require assignment of resources including human resources to individual elements with, ideally, specified markers of implementation, including deadlines.

EBM and related principles can be implemented through nation-state actions. The U.S. government has articulated fairly detailed operational activities for a related goal: the development of integrated ecosystem research in areas of the Arctic.¹⁴⁶ Such programs approximate a level of implementation guidance necessary to convert Arctic policy to Arctic environmental protection. The U.S. plan calls for the creation of a team to “develop hypotheses about responses to long-term trends, build scenarios for future subsistence and commercial use of living marine resources, and undertake process studies to inform models to project future ecosystem status” through the development of a foundation for new scientific research activities. This can be achieved through syntheses and assessments of

145. *Id.* at 13.

146. *See* THE WHITE HOUSE, IMPLEMENTATION PLAN FOR THE NATIONAL STRATEGY FOR THE ARCTIC REGION 17 (2014), https://www.whitehouse.gov/sites/default/files/docs/implementation_plan_for_the_national_strategy_for_the_arctic_region_-_fiFalsepdf [<https://perma.cc/G5EP-BK3E>].

existing data and information and “delineat[ing] and initiat[ing] 3 to 5 year research and exploration activities, including mechanisms to integrate interagency and international results”¹⁴⁷ The plan also identifies lead agencies for actions and for the completion of reporting deadlines.¹⁴⁸

B. *International Obligation Processing in General*

Implementation analysis in general is specific to a topic or treaty obligation. However, some implementation steps may be relevant across a number of law and policy areas. Implementation foci need to be prioritized. In the international arena, it is often not clear by whom the foci should be prioritized; therefore, a common element of implementation plans is the designation of the lead entity. Once chosen, that entity, perhaps in some cases a Secretariat such as the Arctic Council, needs to work to reach a consensus on the agenda for actions.¹⁴⁹ This itself is a challenging task. The entity might need to survey how individual actors (member states, their agencies, scientific communities, those with jurisdiction, and other defined stakeholders) understand a requirement that must be implemented.¹⁵⁰ The entity then would assemble these understandings and, through a process such as a Delphi approach, create a working understanding of what is required.¹⁵¹ Lawrence

147. *Id.*

148. *See id.* Another example of this level of detail is the following: “Convene a science integration conference to demonstrate new and updated cyber-infrastructure tools to enhance data integration and application, and to identify opportunities for sharing of technology and tools among interagency partners by the end of 2016.” *Id.* at 17. The program’s responsible actors are the National Science Foundation (as the lead agency) as well as the National Oceanic and Atmospheric Administration (under the aegis of the Department of Commerce), the Department of the Interior, and the National Aeronautics and Space Administration (as supporting agencies).

149. Betsy Baker and Brooks Yeager have recommended an Arctic Ocean Coordinating Agreement (AOCA) that may have a somewhat similar function. Betsy Baker & Brooks Yeager, *Coordinated Ocean Stewardship in the Arctic: Needs, Challenges and Possible Models for an Arctic Ocean Coordinating Agreement*, 4 *TRANSNAT’L ENVTL. L.* 359, 360 (2015). For them, the primary purpose is “to improve and regularize coordination of national conservation and management policies in the Arctic.” *Id.* (describing the entity as bringing together experts from national governments and international institutions that analyze targeted questions relevant to the Arctic Ocean).

150. Because the quality of implementation is related to the allocation of specific responsibilities among cooperating entities, the Chair of the Arctic Council initially needs to establish very specific priorities. It is true that, ideally, the effective governance of the Arctic requires addressing a range of challenges. It is also true that the Chair needs to be specific about the most important goals, such as addressing black carbon or establishing additional marine reserves. Moreover, the Chair can exert pressure on members to undertake very specific tasks, the implementation of which will be closely followed.

151. The Delphi technique developed at RAND gathers data from respondents within their domain of expertise. It is designed “as a group communication process which aims to achieve a convergence of opinion on a specific real-world issue. The Delphi process has been used in various fields of study such as . . . resource utilization to develop a full range of alternatives, explore or expose underlying assumptions, as well as correlate judgments on a topic spanning a wide range of disciplines.” Chia-Chien Hsu & Brian A. Sandford, *The Delphi Technique: Making Sense of Consensus*, 12 *PRAC. ASSESSMENT, RES. & EVALUATION*, Aug. 2007, at 1, 1. See generally Noam Levin et al., *Incorporating Socioeconomic and Political Drivers of International Collaboration into Marine Conservation Planning*, 63 *BIOSCIENCE* 547 (2013) (a conservation prioritization).

Susskind's work on stakeholder assessment of fishing priorities in the Arctic through the Harvard Program on Negotiation in 2014 (the Harvard study) offers a promising model.¹⁵² That understanding is then brought back to the policy or lawmaking body that has a required schedule for adopting the understanding or a modified version thereof. The organizing entity (for example, the Arctic Council Secretariat) then would create a schedule, identify lead agencies (sometimes referred to as management units)¹⁵³ for meeting requirements according to the schedule, require a response within a certain time, and monitor and report to the policy body, or its executive or subsidiary committee responsible for implementation, on progress toward goals.¹⁵⁴ These are processes used in some efficiently managed complex organizations that could be applied to complex multinational law activities.¹⁵⁵

D. Scott Slocombe has identified several needs for application and exploration in specific cases: data collection including monitoring on past and present system functioning; exploration of methods to organize, display, and illustrate the relationships of data collected; and synthesis of the data.¹⁵⁶

1. *Several Other Steps and Activities Are Common to Successful Implementation:*

a. *Monitoring*

Monitoring is a *sine qua non* across most implementing activities. The Harvard study included in its "Gaps in Scientific Knowledge" criterion the need to "develop capacity to monitor ocean conditions [in the Arctic]" and the need to "standardize and improve monitoring domestically and internationally" as well as "coordinate monitoring efforts."¹⁵⁷ Specifically addressing ecosystem-based management, Martin Z. P. Olszynski "situates monitoring in its proper context as a prerequisite to the successful implementation of ecosystem management ('EM'), an emerging if still not fully understood environmental policy model, the effective implementation

152. LAWRENCE SUSSKIND ET AL., PROGRAM ON NEGOTIATION AT HARVARD LAW SCHOOL, STAKEHOLDER ASSESSMENT FOR DEVSING SEMINAR ON ARCTIC FISHERIES (2014), https://scienceimpact.mit.edu/sites/default/files/documents/AFDS_StakeholderAssessment.pdf [<https://perma.cc/LRD9-73WY>]; see also Courtney Fidler & Bram F. Noble, Stakeholder Perceptions of Current Planning, Assessment and Science Initiatives in Canada's Beaufort Sea, 66 ARCTIC 179 (2013) (identifying the need for a more coordinated approach to planning and decision making for marine resources).

153. D. Scott Slocombe, Implementing Ecosystem-Based Management, 43 BIOSCIENCE 612, 618 (1993).

154. Because the Arctic Council is not a management agency, some have called for this type of lead activity to be housed in a separate entity. See Betsy Baker & Brooks Yeager, Coordinated Ocean Stewardship in the Arctic: Needs, Challenges and Possible Models for an Arctic Ocean Coordinating Agreement, 3 TRANSNAT'L ENVTL. L. 359, 360 (2015) ("The AOCS would convene different groupings of representatives from national governments and international institutions to bring their expertise to bear on targeted questions relevant to the Arctic Ocean.")

155. See THOMAS J. PETERS & ROBERT H. WATERMAN, IN SEARCH OF EXCELLENCE: LESSONS FROM AMERICA'S BEST RUN COMPANIES (2006).

156. Slocombe, *supra* note 153, at 620.

157. SUSSKIND, *supra* note 152, at 11, 16.

of which presents its own set of challenges.”¹⁵⁸ Monitoring can be done using both science-based sites and through local people.¹⁵⁹

b. Improve and Expand Communication Policy

Communication with other institutions, public and private, can be mandated according to specific schedules. “Steps could include better coordination between member states in individual forums that are part of the global law of the sea regime such as the IMO, and by entering into targeted MOUs with certain of its current observers.”¹⁶⁰

c. Strengthen Subregional Mechanisms

As Suzanne Lalonde notes, “[o]ne such important institution is the forum for intergovernmental and interregional cooperation in the Barents Region, the Barents Euro-Arctic Region (BEAR), which covers the northern parts of Finland, Norway and Sweden as well as the North-West regions of Russia.”¹⁶¹

d. Coordinate Legal Regimes

Connection to the OSPAR network in the North-East Atlantic would likely be helpful, for example, for its ecologically representative regional system of MPAs. This regime goes beyond the pollution-prevention goal of both the Oslo and Paris conventions.¹⁶² Lalonde explains that “the Bremen Ministerial Statement . . . committed the Commission members to the establishment . . . of a joint network of well-managed and ecologically coherent marine protected areas.”¹⁶³

e. Identify What Is Lacking in Existing Regimes

Among the “main gaps in the existing regime of international fisheries fora and instruments related to the Arctic Ocean” is a lack of data without which

158. Martin Z.P. Olszynski, *Environmental Monitoring and Ecosystem Management in the Oil Sands: Spaceship Earth or Escort Tugboat?*, 10 MCGILL INT’L J. SUSTAINABLE DEV. L. & POL’Y 1, 1 (2014).

159. Finn Danielsen et al., *Linking Public Participation in Scientific Research to the Indicators and Needs of International Environmental Agreements*, CONSERVATION LETTERS, Jan.–Feb. 2014, at 12, 12.

160. Betsy Baker, *The Developing Regional Regime for the Marine Arctic*, in *THE LAW OF THE SEA AND THE POLAR REGIONS: INTERACTIONS BETWEEN GLOBAL AND REGIONAL REGIMES* 35, 58 (Erik J. Molenaar et al. eds., 2013) (referring to the marine aspects).

161. Suzanne Lalonde, *Marine Protected Areas in the Arctic*, in *THE LAW OF THE SEA AND THE POLAR REGIONS*, *supra* note 160, at 85, 104.

162. *See id.* at 105. In her conclusion, Lalonde cites the work of Chircop et al.: “An essential aspect of MPA making . . . is the governance framework Where MPA cooperation has an international dimension . . . the governance framework needs to include a . . . coordinated legal arrangement.” *Id.* at 109 (quoting Chircop et al.) (citation omitted).

163. *Id.* at 106. Many MPAs were established, although Sweden’s contribution was modest. *Id.* at 106–07. Norway nominated “three extensive sites around the Svalbard archipelago.” *Id.* at 107. OSPAR’s greatest success story concerns the establishment of MPAs in Areas Beyond National Jurisdiction [ABNJ]: “Approximately 40% of the OSPAR Maritime Area is beyond the jurisdiction of coastal states and there are three high seas areas within the CAFF Arctic Conservation Boundary.” *Id.*

“[s]cience-based and ecosystem-based fisheries management” cannot be ensured.¹⁶⁴ Outside third parties or management consultants, among others, could undertake systematic evaluation of weak or nonexistent elements of regimes. This information then would be reported back, for example to the Arctic Council, on a regular (defined) schedule.

f. Implement Through Ongoing Successful Programs and Regime Types

Existing funds and agencies on national or regional levels have some programs relevant to Arctic concerns. Utilizing them for goals of international environmental law poses no insurmountable regional obstacles. After all, despite the existence and demands of international treaties and institutions, the nation state remains sovereign over many activities that will be implicated by adopting international goals.¹⁶⁵ It makes little sense, for example, for Alaskan indigenous peoples to wait for international climate change funds to be established to mitigate Arctic environmental damage before seeking compensation from the national government in which they reside. In fact, it may turn out to be the case that transferring domestic planning and programming techniques to the international sphere becomes a major element of implementation of some international obligations.

There is a special subquestion on the larger inquiry about the need for additional law. Additional law replicating successful private agreements may provide a means for implementation not always available in international public law. Check argues, for example, for bilateral investment treaties among the Arctic states:

If the coastal states were to enter into a bilateral investment treaty specifically for the benefit of the oil and gas industry, the diplomatic negotiations over such a treaty may accomplish what an [Antarctic Treaty System]-style structure, the CLCS, or any one of the formalists’ legal ‘solutions’ never could: provide the Arctic with a stable legal regime. Because bilateral investment treaties often include dispute resolution, security, investment protections, and a host of other facilitating mechanisms, many of the Arctic’s chilling effects on energy development may be avoided.¹⁶⁶

In these “private international law” fora, incentives to implement agreements and obligations already exist in the relevant market.¹⁶⁷ The Arctic Council has commenced action that can facilitate implementation in direct links to private sector activities.¹⁶⁸ Industry can assist in many ways, for example through the harmonization of terms and supplementary third-party verification of required

164. Erik J. Molenaar, *Arctic Fisheries Management*, in *THE LAW OF THE SEA AND THE POLAR REGIONS*, *supra* note 160, at 243, 260.

165. *See, e.g.*, Peter Gullestad et al., *Changing Attitudes 1970–2012: Evolution of the Norwegian Management Framework to Prevent Overfishing and to Secure Long-Term Sustainability*, 71 *ICES J. MARINE SCI.* 173 (2014).

166. Check, *supra* note 67.

167. *See id.*

168. Koivurova, *supra* note 31, at 16–17.

reports in the monitoring process.¹⁶⁹ Promoting corporate social responsibility standards of companies operating in the Arctic is a general means of linking private goals to public goods.¹⁷⁰

Successful examples in other regions include the use of specific ad hoc mechanisms. In their case study of the Crown of the Continent, Jack Tuholske and Mark Foster demonstrated “how subnational actors negotiated a nonbinding agreement with reciprocal responsibilities that would protect the North Fork and lead to more sustainable, transboundary governance of the entire Crown.”¹⁷¹ The factors that led to a successful resolution of this dispute were implemented on both sides of the border and included recognition of the role of international law and norms, the involvement of subnational political actors, and “the development of a nonbinding Memorandum of Agreement.”¹⁷² Tuholske and Foster concluded that the Memorandum “represents a huge step in transboundary environmental cooperation . . . crafted locally to solve a single dispute, has led to significant on-the-ground protection on both sides of the international border that extend far beyond just resolving the dispute over coal mining in a single river drainage.”¹⁷³ Memoranda of understanding or agreement are vehicles that can force parties to address environmental problems at an operational level.

Other such detailed customized agreements have been employed in the Arctic itself. Subsistence participants and industry participants have entered into agreements, for example with regard to whaling.¹⁷⁴

169. Gregory L. Rose, Gaps in the Implementation of Environmental Law at the National, Regional and Global Level, UNEP REPORT (First Preparatory Meeting of the World Congress on Justice, Governance and Law for Environmental Sustainability), Oct. 12–13, 2011, at 15.

170. See, e.g., Tafsir Johansson & Patrick Donner, The Shipping Industry, Ocean Governance and Environmental Law in the Paradigm Shift: In Search of a Pragmatic Balance for the Arctic 75–91 (2015).

171. Jack Tuholske & Mark Foster, *Solving Transboundary Pollution Disputes Locally: Success in the Crown of the Continent*, 92 Or. L. Rev. 649, 653 (2014).

172. *Id.*

173. *Id.* at 721.

174. See, e.g., National Oceanic and Atmospheric Administration [NOAA] Fisheries, 2012 Open Water Season Programmatic Conflict Avoidance Agreement (2012), http://www.nmfs.noaa.gov/pr/pdfs/permits/bp_openwater_caa2012.pdf [<https://perma.cc/ZRB8-WJWM>] (agreement between oil companies and whaling associations); *The AEW/C*, North Slope Borough, <http://www.north-slope.org/departments/wildlife-management/other-topics/iwc-and-aewc/aewc> [<https://perma.cc/B4U6-G5AF>] (last visited Mar. 9, 2016) (“Conflict Avoidance Agreement. . . This agreement implements mitigation measures that allow industry to conduct their work while maintaining the availability of marine mammals for subsistence hunters. One important aspect of the CAA are time and area closures.”); see also, e.g., North Slope Borough, North Shore Borough Arctic Offshore Oil and Gas Development Policy Positions (n.d.), <http://www.north-slope.org/assets/images/uploads/8%20points%20NSB%20OCS%20policies%20FNL.pdf> [<https://perma.cc/8L53-7Y4R>]; Jessica S. Lefevre, *A Pioneering Effort in the Design of Process and Law Supporting Integrated Arctic Ocean Management*, 43 *Envtl. L. Rep.* 10893 (2013). Lefevre ties the activity directly to ecosystem-based management, noting that the “very general, even theoretical” approach benefits from the “real-world application” of many of the approaches and related innovations. Lefevre, *supra*, at 10902.

CONCLUSION

The environmental law that makes up the governance framework for the Arctic region is plentiful. It is also at times and in places overlapping, occasionally contradictory, or at least conflicting, and almost always challenging for implementation across nations. Perhaps some additional treaties—regional, global, and bilateral—are needed to improve the environmental quality of this region of the century. I argue here that, whatever is decided on the desirability of new law, new initiatives should be consistent with—and not counter to—obligations that the Arctic nations, and the international community, already face. Considerable resources of all kinds are already necessary to make operational existing requirements; before adding more obligations, policymakers should take heed of the possible resource limitations—economic, technical, and human—that may be obstacles to effective law. Implementation work, seldom exciting but often gratifying, should be a major focus of international efforts. Some of it is ongoing and with some success. There exists a trove of knowledge and experience that can expedite meeting on-the-ground and in-the-sea requirements for a cleaner Arctic. The work needed is time consuming, labor intensive, and highly technical; it involves, on the one hand, use of state-of-the-art information technologies and, on the other, recognition of social processes that enhances the probability of actual communication, consensus formation, and commitment to action. Implementation is a *sine qua non* for effective protection of the Arctic.