FILLING AN ARCTIC GAP: LEGAL AND REGULATORY POSSIBILITIES FOR CANADIAN-U.S. COOPERATION IN THE BEAUFORT SEA

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INTRODUCTION

For the past two summers, the CCGS *Louis S. St-Laurent* and the USCGC *Healy* have traveled together through the Arctic Ocean to map its continental shelf. On board these two icebreakers, operated respectively by the Canadian and United States Coast Guards, scientists from both countries work around the clock gathering data for national submissions to the Commission on the Limits of the Continental Shelf as established by the United Nations Convention on the Law of the Sea.[1] The two countries map together notwithstanding the fact that Canada has ratified the Convention and the United States has not,[2] and in spite of a longstanding disagreement over the maritime boundary in the Arctic Ocean's Beaufort Sea.[3] The overlapping claims to ownership involve some 6,250 square nautical miles of pristine and potentially hydrocarbon-rich[4] maritime territory within a triangle-shaped area north of Alaska, the Yukon Territory, and the Northwest Territories (NWT).[5] [Figure 1, p. 120]. This "Beaufort Sea

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1. U.N. Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397, *available at* http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

2. Both states recognize the process laid out in Article 76 of the Convention as the surest route to affirm and strengthen the extended continental shelf entitlements that each will present to the international community. *See* discussion *infra* Part II.

3. No joint mapping of the disputed area has taken place to date. TED L. MCDORMAN, SALT WATER NEIGHBORS: INTERNATIONAL OCEAN LAW RELATIONS BETWEEN THE UNITED STATES AND CANADA 181–90 (2009) (providing a concise and complete review of the dispute and its history).

4. PROTECTION OF THE ARCTIC MARINE ENVIRONMENT WORKING GROUP, ARCTIC COUNCIL, ARCTIC OFFSHORE OIL AND GAS GUIDELINES 7 (2009), *available at* http://arctic-council.org/filearchive/Arctic Offshore Oil and Gas Guidelines 2009.pdf [hereinafter ARCTIC OOG GUIDELINES].

5. Along the Alaska–Canada border, the Yukon Territory abuts the United States. At the

triangle" also lies within the Inuvialuit Settlement Region (ISR) negotiated between Inuvialuit representatives and the Government of Canada in 1984.[6]

This article proposes that the model used for joint seabed mapping—Canadian–U.S. scientific cooperation in accord with international law and institutions including the law of the sea—can also apply to the use of areas such as the Beaufort Sea, in which the two countries have shared interests but disagree as to the relevant maritime boundaries.[7] It suggests that cooperation to gather and expand upon relevant baseline data about the region is the proper foundation for any activity in the disputed triangle. On that basis, multiple, non-exclusive uses are possible and can provide for a range of sustainable and compatible activities if introduced gradually. Uses could be broader than typically associated with hydrocarbon cross-border unitization agreements and joint development zones or, for that matter, marine protected areas. Continuing to expand the storehouse of data about the region[8] can also serve as the foundation for joint ecosystem-based, integrated management of the triangle—a principle that is already central to each country's approach to oceans management.[9]

Canada and the United States have recently begun planning for a

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Arctic Ocean, the western part of the Inuvialuit Settlement Region (ISR) overlies the area known as the Yukon North Slope (YNS), which is "the area of lands in the Yukon Territory found between Alaska and the NWT lying north of the division point of the Porcupine River and Beaufort Sea watersheds . . . [and] includes adjacent waters and islands." LAND MANAGEMENT DIVISION, NORTHERN AFFAIRS PROGRAM, DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS CANADA (DIAND), JURISDICTIONAL RESPONSIBILITIES FOR LAND RESOURCES, LAND USE AND DEVELOPMENT IN THE YUKON TERRITORY AND NORTHWEST TERRITORIES: YUKON INUVIALUIT SETTLEMENT REGION LANDS 3–9 (Nov. 13, 1997). A map of the entire Inuvialuit Settlement Region relative to Canada is available at http://www.screeningcommittee.ca/pdf/maps/relative_to_canada.pdf.

6. The Western Arctic (Inuvialuit) Claims Settlement Act, 1984 S.C., ch. 24 (Can.), *available as amended at* www.investnwt.com/aboriginal/inuvialuit_final_agreement.pdf. This Act authorized the land claims settlement agreed to in the June 5, 1984 Inuvialuit Final Agreement (IFA), between the Committee for Original Peoples' Entitlement (COPE) and Canada. LAND MANAGEMENT DIVISION, NORTHERN AFFAIRS PROGRAM, DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS CANADA (DIAND), JURISDICTIONAL RESPONSIBILITIES FOR LAND RESOURCES, LAND USE AND DEVELOPMENT IN THE YUKON TERRITORY AND NORTHWEST TERRITORIES: NORTHWEST TERRITORIES INUVIALUIT SETTLEMENT REGION LANDS 2–3 (Nov. 13, 1997).

7. Three other maritime boundaries remain unresolved between the two countries, two on the Pacific coast (Juan de Fuca Strait between Washington State and Vancouver Island, and Dixon Entrance, South of the Alaskan panhandle and north of Canada's Queen Charlotte Islands), and one on the Atlantic coast, near Machias Seal Island (not to be confused with ownership of the island itself, which is also in dispute). David H. Gray, *Canada's Unresolved Maritime Boundaries*, IBRU BOUNDARIES AND SECURITIES BULLETIN, at 61, 62, 66 (1997).

8. For Canadian efforts, see, for example, D. COBB ET AL., BEAUFORT SEA LARGE OCEAN MANAGEMENT AREA: ECOSYSTEM OVERVIEW AND ASSESSMENT REPORT (2008), *available at* http://www.beaufortseapartnership.ca/documents/EOAR2008March.pdf. For the U.S., see, for example, THE ALASKAN BEAUFORT SEA: ECOSYSTEMS AND ENVIRONMENTS (Peter W. Barnes et al. eds., 1984).

9. *See, e.g.*, Robert Siron et al., *Ecosystem-Based Management in the Arctic Ocean: A Multi-Level Spatial Approach*, 61 ARCTIC 86 (Supp. 1 2008).

bilateral Large Marine Ecosystem (LME) management pilot project in the Beaufort Sea under the auspices of the PAME/Arctic Council.[10] This paper introduces and complements that process by exploring the regulatory foundations for a model of science-based, phased, multiple, and non-exclusive uses of the Beaufort Sea triangle under joint oversight. Such a model has the potential to strengthen Canadian and U.S. sovereignty over their respective national maritime zones in at least three ways. First, it would allow the two states to better catalog and understand the area's resources and thus share the responsibilities and benefits related to managing them well. Second, it would provide legal certainty as to jurisdiction over the area for parties interested in either protecting or exploiting those resources. Finally, it would allow for a comparison and possible future harmonization of the best regulatory practices in each system, improving the overall quality of the practices in each state. In turn, this comparison could demonstrate how guidelines and recommendations from such institutions as the Arctic Council can be implemented by neighboring states. This strengthened national sovereignty would be in accord with, and in turn contribute to, confirming and fortifying the navigational and other freedoms and duties of all states under the international law of the sea.

This article proposes a bi-national model not only as a means to enhance Canadian and U.S. sovereignty in the Arctic, but also to provide concrete examples of how national legal systems can interrelate to fill gaps in arctic governance and regulation. This article and its title build on the Koivurova and Molenaar 2009 gap analysis[11] of arctic governance (i.e. international institutions) and regulation (i.e., international laws and regulations)[12] by applying it to the domestic and bilateral arrangements of Canada and the United States. These two authors, as well as Lamson and

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10. *See, e.g.*, PROTECTION OF THE MARINE ENVIRONMENT WORKING GROUP, ARCTIC COUNCIL, PAME WORK PLAN 2009–2011, at 3 [hereinafter PAME Work Plan]; PROTECTION OF THE ARCTIC MARINE ENVIRONMENT WORKING GROUP, ARCTIC COUNCIL, PAME PROGRESS REPORT ON THE ECOSYSTEM APPROACH TO ARCTIC MARINE ASSESSMENT AND MANAGEMENT 2006–2008, at 5 [hereinafter PAME Progress Report]. Another project involves the U.S. and Russia in the West Bering Sea. *Id.*

11. TIMO KOIVUROVA & ERIK J. MOLENAAR, INTERNATIONAL GOVERNANCE AND REGULATION OF THE MARINE ARCTIC: OVERVIEW AND GAP ANALYSIS (2009) [hereinafter KOIVUROVA & MOLENAAR], *available at* http://www.wwf.se/source.php/1223579/International%20Governance%20and%20Regulation%20of%20the%20Marine%20Arctic.pdf.

12. *Id.* at 5. The authors define "Governance gaps" as "gaps in the international institutional framework, including the absence of institutions or mechanisms at a global, regional or sub-regional level and inconsistent mandates of existing organizations and mechanisms," and "Regulatory gaps" as "substantive and/or geographical gaps in the international legal framework, i.e. issues which are currently unregulated or insufficiently regulated at a global, regional or subregional level." *Id.*

VanderZwaag,[13] Nowlan,[14] Rayfuse,[15] Rothwell,[16] Stokke,[17] Vidas,[18] and other legal scholars[19] have laid the essential and painstaking groundwork of identifying regional and international institutions and norms relevant to arctic governance and regulation, as well as gaps in their coverage.[20] This article assumes that certain key concepts Koivurova and Molenaar identify—environmental assessment, marine protected areas, and "integrated cross-sectoral ecosystem-based ocean management"[21]—are already woven into the legislative and regulatory fabric of Canada and the United States. However, it explores the extent to which this is true, as well as ways in which these elements can be expanded upon.[22] It also suggests where these national systems might work together to improve legal and policy decisions affecting multiple uses of the disputed Beaufort Sea triangle.

Academics and policymakers alike have reached a general consensus that, gaps notwithstanding, a new comprehensive treaty for management

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13. Cynthia Lamson & David VanderZwaag, *Arctic Waters: Needs and Options for Canadian-American Cooperation*, 18 OCEAN DEV. AND INT'L L. 49 (1987).

14. LINDA NOWLAN, INT'L UNION FOR CONSERVATION OF NATURE, ARCTIC LEGAL REGIME FOR ENVIRONMENTAL PROTECTION (2001), *available at* http://data.iucn.org/dbtw-wpd/edocs/EPLP-044.pdf.

15. Rosemary Rayfuse, *Melting Moments: The Future of Polar Oceans Governance in a Warming World*, 16 REV. OF EUR. COMMUNITY INT'L ENVTL. L. 196 (2007).

16. DONALD R. ROTHWELL, MARITIME BOUNDARIES AND RESOURCE DEVELOPMENT: OPTIONS FOR THE BEAUFORT SEA (1988); DONALD ROTHWELL, THE POLAR REGIONS AND THE DEVELOPMENT OF INTERNATIONAL LAW 155–259 (1996).

17. OLAV SCHRAM STOKKE, THE LAW OF THE SEA CONVENTION AND THE IDEA OF A BINDING REGIME FOR THE ARCTIC MARINE ENVIRONMENT, (The 7th Conference of Parliamentarians of the Arctic Region ed., Aug. 2–4, 2006), *available at* http://www.arcticparl.org/_res/site/File/images/Underlagsrapport%20eng-rysk3.pdf; Olav Schram Stokke et al., *Pollution and Conservation, in* INTERNATIONAL COOPERATION AND ARCTIC GOVERNANCE: REGIME EFFECTIVENESS AND NORTHERN REGION BUILDING 78 (Olav Schram Stokke & Geir Hønneland eds., 2007).

18. PROTECTING THE POLAR MARINE ENVIRONMENT: LAW AND POLICY FOR POLLUTION PREVENTION (Davor Vidas ed., 2000).

19. *E.g.*, Colette de Roo et al., ENVIRONMENTAL GOVERNANCE IN THE MARINE ARCTIC (2008), *available at* http://arctic-transform.org/download/EnvGovBP.pdf; Natalia Loukacheva, *Legal Challenges in the Arctic, in* THE BORDERLESS NORTH: PUBLICATION OF THE FOURTH NORTHERN RESEARCH FORUM 129 (Lassi Heininen & Keri Laine eds., Northern Research Forum, 2008); Jeanne L. Pagnan, *Arctic Marine Protection*, 53 ARCTIC 469 (Dec. 2000). Many of these authors have built on the foundational work of Oran Young and Gail Osherenko in the field of arctic governance studies, see, for example, GAIL OSHERENKO & ORAN R. YOUNG, THE AGE OF THE ARCTIC: HOT CONFLICTS AND COLD REALITIES (1989); ORAN R. YOUNG, CREATING REGIMES: ARCTIC ACCORDS AND INTERNATIONAL GOVERNANCE (1998).

20. *E.g.*, Alexander Gillespie, *Obligations, Gaps, and Priorities Within the International Regime for Protected Areas*, 19 GEO. INT'L ENVTL. L. REV. 1 (2006).

21. KOIVUROVA & MOLENAAR, *supra* note 11, at 9.

22. Thus this article attempts to fill some gaps identified in KOIVUROVA & MOLENAAR, *supra* note 11, but consciously excerpts the issues they raise regarding the Fish Stocks Agreement and the Convention dispute settlement mechanisms, for later inclusion in the larger project mentioned *supra* note *.

and governance of the Arctic,[23] particularly along the lines of the Antarctic Treaty,[24] is neither necessary nor feasible at this time.[25] The 2008 Ilulissat Declaration[26] and other documents[27] identify the "law of the sea" as a sufficient "legal framework" and "solid foundation for responsible management"[28] and cooperation in the Arctic. The bi-national model presumed in the following pages shares, yet critiques, this notion. Further, the model is based on the premise that international law in any geographic or substantive area is only as strong as the national legal systems that implement it.[29] Similarly, it presumes that an ecosystem-based management plan is only as strong as the definitions and goals agreed upon.[30] One of the proposed model's greatest strengths is its potential to provide the appropriately stringent standards, strong enforcement, and effective implementation[31] that two countries with similar legal cultures and a longstanding tradition of neighborly and diplomatic cooperation can more easily achieve than a grouping of all five coastal arctic states.[32]

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23. Calls for such a treaty continue, an important independent voice being ROTHWELL (1996), *supra* note 16, at 457. *See also* Melissa A. Verhaag, Note, *It is Not Too Late: The Need for a Comprehensive International Treaty to Protect the Arctic Environment*, 15 GEO. INT'L ENVTL. L. REV. 555, 557 (2003) (arguing that a "hard law" treaty system is needed to protect the Arctic); Hans H. Hertell, Note, *Arctic Melt: The Tipping Point for an Arctic Treaty*, 21 GEO. INT'L ENVTL. L. REV. 565, 586 (2009) (rejecting the Antarctic treaty model and proposing a regional framework agreement for the Arctic).

24. *See, e.g.*, Memorandum from The White House Office of the Press Sec'y, National and Homeland Security Presidential Directive on Arctic Region Policy, at III.C.3 (Jan. 12, 2009) (on file with the Nat'l Sci. Found.) ("The geopolitical circumstances of the Arctic region differ sufficiently from those of the Antarctic region . . . ."), *available at* http://www.nsf.gov/od/opp/opp_advisory/briefings/may2009/ nspd66_hspd25.pdf [hereinafter U.S. ARCTIC REGION POLICY] (also known as also known as NSPD 66/HSPD 25).

25. Consensus exists, at least at this stage, and with exceptions as noted in *supra* note 23. Oran R. Young, *The Internationalization of the Circumpolar North: Charting a Course for the 21st Century*, THE ARCTIC (2000), http://www.thearctic.is/articles/topics/ internalization/enska/index.htm.

26. The Ilulissat Declaration, May 28, 2008, 48 I.L.M. 362.

27. *See, e.g.*, U.S. ARCTIC REGION POLICY, *supra* note 24.

28. Ilulissat Declaration, *supra* note 26.

29. KOIVUROVA & MOLENAAR, *supra* note 11, at 6 ("[R]elevant states are not willing or able to discharge their obligations to cooperate under the LOS Convention, Fish Stocks Agreement or customary international law and thereby undermine relevant rights and interests of other states and the international community."). This article proposes that in fact Canada and the U.S. are well positioned (as well as willing and able) to cooperate under these rubrics and thereby strengthen rather than undermine the rights and interests of other states.

30. Siron et al., *supra* note 9, at 87–92.

31. This paper adopts Koivurova & Molenaar's basic distinction between governance as institutional and regulation as normative, but diverges from their characterization of "insufficiently stringent standards, limited enforcement powers and inadequate implementation" as "relatively minor shortcomings that undermine the effectiveness of existing rules . . . ." KOIVUROVA & MOLENAAR, *supra* note 11, at 35.

32. The Arctic Council explicitly allows Member States to exceed the standards of its guidelines and recommendations. ARCTIC COUNCIL, ARCTIC OFFSHORE OIL AND GAS GUIDELINES 26 (2009),

A last structural point is important: the interplay between law, policy, science, and technology[33] serves as the backdrop for considering how joint oversight of a disputed maritime territory might be structured. Whether in the Beaufort Sea or elsewhere, better understanding the role of science[34] in informing—but not making—policy, management and regulatory decisions can help ensure that lawyers and policymakers more intelligently address the scientific realities of the resource they are regulating.[35] Decision-makers who understand the relevant scientific underpinnings[36] of the problem that they are trying to solve have a better chance of drafting regulations that are appropriately tailored to the resource in question, responsive to the concerns of the multiple stakeholders interested in those resources, and capable of being implemented and effectively enforced.[37]

This article begins by considering how the 1982 Law of the Sea Convention informs each country's approach to mapping the Arctic Continental Shelf. Part II touches briefly on the Beaufort Sea maritime boundary dispute and past proposals for resolving or working around the disagreement. Existing joint Canadian–U.S. initiatives relevant to the Arctic

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http://arcticcouncil.org/filearchive/Arctic%20Offhsore%20Oil%20and%20Gas%20Guidelines %202009.pdf.

33. *See* Aldo Chircop, *Advances in Ocean Knowledge and Skill: Implications for the MSR Regime*, *in* LAW, SCIENCE & OCEAN MANAGEMENT (Myron H. Nordquist et al. eds., 2007) (noting the importance of distinguishing between science and technology, and the difficulty of distinguishing between pure and applied or practical science).

34. *See* Helen Quinn, *What is Science*, PHYSICS TODAY, July 2009, at 8, 8 ("To oversimplify, scientists think of science both as a process for discovering properties of nature and as the resulting body of knowledge, whereas most people seem to think of science, or perhaps scientists, as an authority that provides some information—just one more story among the many that they use to help make sense of their world.").

35. Jeffrey A. Hutchings, *Ecological and Fisheries Sustainability: Common Goals Uncommonly Achieved*, *in* GAINING GROUND: IN PURSUIT OF ECOLOGICAL SUSTAINABILITY 101, 107–08 (David M. Lavigne ed., 2006) (identifying the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), established under Canada's Species at Risk Act (SARA), § 14, as exemplary in effectively communicating science to decision makers).

> At face value, COSEWIC would appear to represent the type of independent advisory body that many would consider an ideal means of infusing government decisions with sound, independent scientific advice. It is a body that includes individuals from academia, several levels of government, non-governmental organisations, [sic] and the aboriginal community. . . . By virtue of their membership on COSEWIC, government departments are inextricably linked to the species assessment process, rendering them less able to discount COSEWIC's assessments outright.

Id. at 108.

36. P. Whitney Lackenbauer, *An Integrated Approach to Canada's Arctic*, BEHIND THE HEADLINES, Aug. 2008, at 21, 25 (arguing for increasing sovereignty by reliance on "the scientists and the diplomats who play a central role in building Canada's case and asserting our claims" as well as military capacity).

37. Thomas Dietz et al., *The Struggle to Govern the Commons*, SCIENCE, Dec. 12, 2003, at 6, 6.

are surveyed in Part III. Part IV identifies[38] how each state's legal and administrative systems have begun to fill the "gaps" (EIA, MPAs and IOM)[39] domestically that Koivurova and Molenaar found lacking internationally in cross-sectoral, transboundary oceans management in the Arctic. Part V provides a brief overview of how Canada and the United States do and may further incorporate selected multilateral, regional, and bilateral arrangements into their ocean infrastructures. This Part pays special attention to arrangements relating to the Arctic Council, touching also on the international law of the sea, and the International Maritime Organization.[40] Throughout, the article draws eclectically on examples from fisheries, shipping, and offshore hydrocarbon activity; it focuses primarily on government-based initiatives,[41] recognizing that similar surveys of activities by industry, indigenous groups, and NGOs, are necessary to designing any successful bilateral oversight regime for the Beaufort Sea or the disputed triangle. It also compares domestic solutions for best practices that will both serve bi-national interests and operate within the obligations and recommendations of international arrangements.[42]

This article serves as little more than the roadmap for a larger project[43] that tests more rigorously the proposition set forth in the following pages: staged multiple uses, permitted on the basis of cooperative scientific investigation and ecosystem-based management, are the best way for present and future generations to protect *and* use the resources of the now-disputed Beaufort Sea area. That project will build on the questions raised here to suggest a structure for Canadian–U.S. oversight of the Beaufort triangle that draws on mechanisms and principles common to both states' legal and regulatory systems.

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38. This article seeks primarily to erect the scaffolding on which the larger project mentioned *supra* note * will be built. That project will evaluate in much greater detail the laws, norms, and guidelines identified here for their potential to contribute to effective joint oversight of Beaufort Sea resources.

39. In discussing these three gaps—EIA (environmental impact assessment), MPA (marine protected areas), and IOM (integrated cross-sectoral ecosystem-based ocean management)—KOIVUROVA & MOLENAAR, *supra* note 11, identify where institutions or improvements are needed, acknowledging that the concepts are partially implemented across sectors.

40. The larger work to be based on this article will consider other international obligations of both countries. The author builds gratefully on the excellent foundation laid by Lamson & VanderZwaag, *supra* note 13, and DAVID VANDERZWAAG, CANADA AND MARINE ENVIRONMENTAL PROTECTION: CHARTING A LEGAL COURSE TOWARDS SUSTAINABLE DEVELOPMENT 211–396 (1995).

41. These three sectors, highlighted by KOIVUROVA & MOLENAAR, *supra* note 11, do not receive equal treatment in this article, but are referenced where most pertinent to clarifying their potential for gap-filling in the U.S. and Canadian systems.

42. The larger work based on this article, see *supra* note *, will use these examples to better understand how national legal systems are implementing and, in the very act of doing so, changing standards and norms that are present in international and regional arrangements.

43. *Id.*

The Beaufort triangle offers Canada and the United States a prime opportunity to work together to achieve an objective they both need for reasons of national security, economic potential, and environmental protection: a steadily improving understanding of the Arctic Ocean. In both countries, the Coast Guard, industry, and academia are all working to find effective means of cleaning spilled oil off of ice.[44] Oil companies have invested billions of dollars in lease rights in the Beaufort and Chukchi Seas, while litigation by environmental groups and native interests has shut down—at least temporarily—exploration for hydrocarbons there.[45] This paper proposes neither a joint development field day for the offshore hydrocarbon industry nor a trans-boundary peace park moratorium on any human use of the Exclusive Economic Zone (EEZ) or continental shelf. It envisions instead a thriving biosphere where multiple human and natural uses of the seascape, water column, seabed, and subfloor are reconciled on the basis of sustained scientific observation and a model of full-fledged Canadian–United States cooperation in overseeing the resources of the Beaufort Sea.[46]

I. THE LAW OF THE SEA CONVENTION AND MAPPING THE ARCTIC CONTINENTAL SHELF

As two of the five states[47] with coastline above the Arctic Circle, Canada and the United States are mapping the arctic continental shelf and

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44. ARCTIC COUNCIL, ARCTIC MARINE SHIPPING ASSESSMENT 2009 REPORT 169–70 (2009) [hereinafter AMSA 2009 REPORT].

45. *See, e.g.*, Scott Haggett, *BP bids big for Canadian Arctic drilling rights*, REUTERS NEWS SERVICE, June 9, 2008, http://www.reuters.com/article/rbssEnergyNews/idUSN0947438920080609 (noting that BP Plc bids US$ 1.17 billion for three offshore parcels in the Canadian Beaufort Sea); Ed Crooks, *Shell Postpones Arctic Drilling Plan*, May 7, 2009, http://blogs.ft.com/energy-source/2009/05/07/shell-postpones-arctic-drilling-plan/ (noting Shell spent more than $ 2.1 billion (U.S.) on lease sales in the Chukchi in 2008).

46. This approach echoes elements of the tools not pursued further in this paper due to space limitations: "marine spatial planning" and "ocean zoning." It focuses instead on how their precursor—integrated, ecosystem-based marine management—has become established in the two legal systems studied here. *See, e.g.*, Fanny Douvere, *The Importance of Marine Spatial Planning in Advancing Ecosystem-Based Sea Use Management*, 32 MARINE POL'Y 762 (2008) (information on marine spatial planning); Penny A. Doherty & Mark Butler, *Ocean Zoning in the Northwest Atlantic*, 30 MARINE POL'Y 389 (2006) (information on ocean zoning, including a discussion of the Gulf of Maine).

47. The other three are Denmark (with respect to Greenland), Norway, and Russia. Yet another three arctic states—Finland, Iceland, and Sweden—have either no coastline or no extended continental shelf above the Arctic Circle. All eight states comprise the State Members of the Arctic Council, while indigenous peoples of the Arctic, represented through various groups, are its Permanent Members. Arctic Council, http://www.arctic-council.org/article/about (last visited Oct. 5, 2009). The literature on the Arctic Council is substantial. *See, e.g.*, Evan T. Bloom, *Establishment of the Arctic Council*, 93 AM J. INT'L L. 712 (1999) (discussing the formation of the Arctic Council and its subsequent history); Timo Koivurova & David L. VanderZwaag, *The Arctic Council at 10 Years: Retrospects and Prospects*, 40 U.B.C.L. REV. 121 (2007).

seafloor as part of delimiting their respective shelves in accordance with Article 76 of the 1982 Law of the Sea Convention.[48] Canada is a State Party to the Convention and the U.S. has yet to accede to it.[49] Both countries began mapping well before 2008,[50] the year in which the U.S. Geological Survey (USGS) estimated that up to one-third of the world's remaining and technically recoverable hydrocarbon reserves were located north of the Arctic Circle, 84% of that amount being located offshore.[51] A 2009 analysis of the USGS report concluded that the majority of such reserves are located within 200 nautical miles (nm) of the territorial sea baselines of the respective arctic states.[52] Under the Convention, in provisions that are recognized as customary international law, a coastal state is automatically entitled to exercise exclusive sovereign rights to explore and exploit the resources of the continental shelf[53] within that 200 nm line,[54] even if the shelf does not itself physically extend that far.[55] To

48. The Arctic Monitoring and Assessment Programme (AMAP) of the Arctic Council defines the Arctic Circle as roughly north of 66°32' latitude. Arctic Monitoring and Assessment Programme, *Geographical Coverage*, http://www.amap.no/AboutAMAP/GeoCov.htm. The Arctic "has been defined for terrestrial systems as the region north of the tree line, the region north of the onset of continuous permafrost, and the region north of the 10°C isotherm for July." NATIONAL RESEARCH COUNCIL, ARCTIC OCEAN RESEARCH AND SUPPORTING FACILITIES: NATIONAL NEEDS AND GOALS 7 (1995) (citation omitted). For other definitions of the Arctic, see Pagnan, *supra* note 19, at 469 ("Depending on the discipline, boundaries may be set at the Arctic Circle (66°33'N), the 10°C July isotherm, the continuous or discontinuous permafrost line, or the continuous tree line—or according to some other criterion, such as species range.").

49. U.S. President Bill Clinton first transmitted the Convention to the Senate for advice and consent on October 7, 1994, together with the 1994 Agreement relating to the Implementation of Part XI of the U.N. Convention on the Law of the Sea (signed July 29, 1994). MARJORIE ANN BROWNE, CRS ISSUE BRIEF FOR CONGRESS, THE LAW OF THE SEA CONVENTION AND U.S. POLICY (2002), *available at* https://www.policyarchive.org/handle/10207/851; *see also* Margaret F. Hayes, *Current Oceans Policy: United States Perspectives*, *in* INTERNATIONAL ENERGY POLICY, THE ARCTIC AND THE LAW OF THE SEA 23, 30 (Myron H. Nordquist et al. eds., 2005) (describing the 1994 acceptance of the Law of the Sea Convention).

50. *See generally* LARRY MAYER ET AL., THE COMPILATION AND ANALYSIS OF DATA RELEVANT TO A U.S. CLAIM UNDER UNITED NATIONS LAW OF THE SEA ARTICLE 76: A PRELIMINARY REPORT 20–45 (2002) (describing mapping projects in the United States); Canada Department of Foreign Affairs and International Trade, *Key Parameters of Canada's Continental Shelf Program*, http://www.international.gc.ca/continental/program-canada-programme.aspx?lang=eng (last visited Oct. 24, 2009) (referencing, *inter alia*, the 2006 Lomonosov Ridge Test of Appurtenance project (LORITA)).

51. Donald L. Gautier et al., *Assessment of Undiscovered Oil and Gas in the Arctic*, SCIENCE, May 29, 2009, at 1175; *see also* KENNETH J. BIRD ET AL., U.S. GEOLOGICAL SURVEY, CIRCUM-ARCTIC RESOURCE APPRAISAL: ESTIMATES OF UNDISCOVERED OIL AND GAS NORTH OF THE ARCTIC CIRCLE (2008) (estimating 90 billion barrels of oil undiscovered, 1,669 trillion cubic ft. of natural gas, and 44 billion barrels natural gas liquids in the Arctic).

52. Donald L. Gautier et al., *supra* note 51, at 1175–77.

53. U.N. Convention on the Law of the Sea, *supra* note 1, at art. 77(1) ("The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources."). These rights are exclusive in that if the coastal state does not exercise them, no other state may do so without its express consent. *Id.* at art. 77(2).

54. *Id.* at art. 76(1).

confirm the same rights beyond that 200 nm line, a state may choose to establish how far the actual physical shelf extends beyond it.[56] This is where the mapping data comes in.

Member or not,[57] coastal states interested in confirming their rights over continental shelf resources beyond the 200 nm line are following the Convention's provisions for gathering and submitting mapping and related data to the Commission on the Limits of the Continental Shelf (CLCS).[58] States have ten years from the date the Convention entered into force for them to make a formal submission;[59] a partial submission or preliminary indication will also suffice to meet that deadline. Canada has until 2013 to submit.[60] As a non-party the United States will not face a deadline until such time as it accedes to the Convention.[61] Canada and the United States were relative latecomers to the Convention, especially given their critical roles in promoting and negotiating the treaty.[62] Although the Convention

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55. *Id*. Up to the 200 nm line all coastal states are automatically entitled, without any formal statement or undertaking any mapping, to exercise these same sovereign rights, even if the physical continental shelf does not extend to that line. *Id.*

56. *Id.* at art. 76(7).

57. By not acceding to the treaty, the United States is in the company of states such as North Korea, Myanmar, and Saudi Arabia.

58. U.N. Convention on the Law of the Sea, *supra* note 1, at Annex II, art. 2(1) (establishing the Commission comprised of 21 experts in geology, geophysics, or hydrography, elected by the States Parties with an eye to equitable geographic representation). For more on the CLCS, see Betsy Baker, *States Parties and the Commission on the Limits of the Continental Shelf, in* LAW OF THE SEA, ENVIRONMENTAL LAW AND SETTLEMENT OF DISPUTES: LIBER AMICORUM JUDGE THOMAS A. MENSAH 669 (Tafsir Malick Ndiaye & Rüdiger Wolfrum eds., 2007).

59. Of the five arctic coastal states, Russia and Norway have met their deadlines and also received Recommendations from the Commission on the Limits of the Continental Shelf (CLCS). Continental Shelf Submission of the Russian Federation (Dec. 20, 2001), *available at* http://www.un.org/Depts/los/clcs_new/submissions_files/submission_rus.htm; Continental Shelf Submission of Norway in respect of areas in the Arctic Ocean, the Barents Sea and the Norwegian Sea: Executive Summary (Jan. 26, 2007), *available at* http://www.un.org/Depts/los/clcs_new/submissions_files/nor06/nor_exec_sum.pdf. The Commission adopted (interim) Recommendations with respect to the Russian Submission on June 27, 2002. The Secretary-General, *Oceans and the Law of the Sea*, ¶¶ 38–41, *delivered to the Fifty-Seventh Session of the General Assembly*, U.N. Doc. A/57/57/Add.1 (Oct. 8, 2002); Norwegian Submission on March 27, 2009, U.N. Commission on the Limits of the Continental Shelf, *Summary of the Recommendations of the Commission on the Limits of the Continental Shelf in Regard to the Submission Made by Norway in Respect of Areas in the Arctic Ocean, the Barents Sea and the Norwegian Sea on 27 November 2006* (Nov. 27, 2006), *available at* http://www.un.org/Depts/los/clcs_new_submissions_files/nor06/nor_rec_summ.pdf (noting Norway's final submission).

60. The Convention entered into force for Norway on June 24, 1996, The Russian Federation on April 11, 1997, Canada on November 7, 2003 and Denmark on November 16, 2004.

61. It is assumed that states not party to UNCLOS 1982 may not make Submissions to the CLCS.

62. For both countries the delay was due primarily to now-resolved objections on the part of industrialized states to Part XI of the Convention, which deals with exploiting the non-living resources of seabed and sub-floor beyond national jurisdiction. Both countries spearheaded negotiations for a subsequent treaty amending Part XI. U.N. DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, AGREEMENT RELATING TO THE IMPLEMENTATION OF PART XI OF THE U.N. CONVENTION ON THE LAW

was opened for signature in 1982 (Canada signed, the U.S. did not) and entered into force in 1994, Canada did not ratify it until November 6, 2003, following which it entered into force on November 7, 2003.[63] U.S. President Bill Clinton submitted the treaty to the Senate in 1994, since which time the Senate Foreign Relations Committee has recommended it favorably three times to the full Senate where procedural moves have blocked it from coming to a vote.[64]

In mapping its continental shelf in the Arctic Ocean, Canada has been working not only with the United States, but also with Denmark, and discussing the possibility of data exchange with the Russian Federation.[65] Despite non-membership in UNCLOS 1982, the United States commissioned a 2002 desktop study on the potential for extending the shelf off of all its coasts and islands,[66] and has gathered over one million square kilometers of bathymetric data since 2003.[67] The inter-agency Extended Continental Shelf Task Force,[68] chaired by the Office of Ocean and Polar Affairs at the Department of State,[69] oversees the mapping process for the

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OF THE SEA, U.N. Sales No. E. 97.V.10 (1997). When that treaty entered into force in 1994 it paved the way for the Convention itself to become what is now an almost universally subscribed treaty. On July 10, 2009, the Dominican Republic became the 159th member of the Convention, joining the European Community and 158 other states. *Id.*

63. *Canada Ratified United Nations Convention on the Law of the Sea*, CENTRE FOR MARINE BIODIVERSITY, Nov. 6, 2003, http://www.marinebiodiversity.ca/cmb/Members/carterl/canada-ratified-united-nations-convention-on-the-law-of-the-sea.

64. Michael J. Mattler, *The Law of the Sea Convention: A View from the U.S. Senate*, *in* INTERNATIONAL ENERGY POLICY, THE ARCTIC AND THE LAW OF THE SEA 33, 33 (Myron H. Nordquist et al. eds., 2005). The Senate Committee on Foreign Relations has recommended accession to the treaty on three separate occasions but the matter has been blocked each time by a handful of Senators from coming to the Senate floor, despite widespread support by all branches of the U.S. armed services, environmental, and industry groups. *Id.* at 33–34.

65. *See* Elizabeth Riddell-Dixon, *Canada and Arctic Politics: The Continental Shelf Extension*, 39 OCEAN DEV. & INT'L L. 343 (2008) (providing an excellent discussion of the orderly and collaborative mapping efforts by all five of the arctic littoral states, and identifying multiple examples of how two or more countries are cooperating in collecting or exchanging data).

66. The study was prepared by the Center for Coastal and Ocean Mapping/Joint Hydrographic Center at the University of New Hampshire (CCOM/JHC). LARRY MAYER ET AL., *supra* note 50.

67. United States Department of State, U.S. Extended Continental Shelf Project, http://www.state.gov/g/oes/continentalshelf/index.htm (last visited Oct. 20, 2009).

> Since 2002, the JHC has continued to receive grants from NOAA as directed by Congress to collect the bathymetric data specified in the study. The JHC has collected more than one million square kilometers of bathymetric data from eleven cruises: Arctic Ocean (2003, 2004, 2007, 2008), Gulf of Alaska (2005), Gulf of Mexico (2007), Atlantic Ocean (2004, 2005, 2008), Northern Mariana Islands and Guam (2006, 2007), and Bering Sea (2003).

Id.

68. "Extended continental shelf" (or ECS) is a term of convenience that does not appear in the treaty, which refers simply to the continental shelf.

69. Previously known as the Office of Ocean Affairs, OPA recently added "Polar" to its name,

United States. [70] The United States 2009 Arctic Region Policy[71] states that "the most effective way to achieve international recognition and legal certainty for [the U.S.] extended continental shelf is through the procedure available to States Parties to the U.N. Convention on the Law of the Sea."[72] It also provides that the Secretary of States shall "[c]ontinue to seek advice and consent of the United States Senate to accede to the 1982 Law of the Sea Convention."[73]

The bi-national approach to oversight developed in this article is proposed to be applied first to the disputed Beaufort Sea area within the 200 nm line, but could potentially be relevant to any overlapping (or adjacent, if resolved) continental shelf in the Beaufort Sea beyond that line.[74] States that are continental shelf neighbors may combine their submissions to the Commission, but it remains to be seen whether the joint mapping by Canada and the U.S. will lead to an actual joint submission. As Ron Macnab explores elsewhere in this volume,[75] the combined continental shelves of those states beyond the 200 nm line have the potential to place all but a very small portion of the arctic shelf under national jurisdiction of

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to reflect the importance of the polar regions to diplomatic and strategic interests of the United States. OPA is part of the Bureau of Oceans and International Environmental and Scientific Affairs (OES) in the U.S. Department of State.

70. In addition to the State Department, the following federal entities participate in the ECS Task Force: National Oceanic and Atmospheric Administration, U.S. Geological Survey, Executive Office of the President (Office of Science and Technology Policy), Joint Chiefs of Staff, U.S. Navy, U.S. Coast Guard, Department of Energy, Mineral and Mining Service of the Department of the Interior, National Science Foundation, Environmental Protection Agency, U.S. Arctic Research Commission. United States Department of State, About the Extended Continental Shelf Project, http://www.continentalshelf.gov/about.html (last visited Sept. 26, 2009).

71. U.S. ARCTIC REGION POLICY, *supra* note 24. Then President George W. Bush signed the policy in the last days of his administration. The 1994 Directive PDD-26 continues to govern U.S. Antarctic Policy. *See* Evan T. Bloom, *Introductory Note to United States Directive on Arctic Policy and the Illulissat Declaration*, 48 I.L.M. 370, 372–73 (2009) (reproducing parts of the policy); *see also Comprehensive New Statement of U.S. Arctic Policy*, 103 AM. J. INT'L L. 342 (John R. Crook ed., 2009) (providing substantial excerpts of the policy).

72. U.S. ARCTIC REGION POLICY, *supra*, note 24, at III.D.1.

73. *Id.* at III.C.5.d.

74. Alex G. Oude Elferink, *The Outer Continental Shelf in the Arctic: The Application of Article 76 of the LOS Convention in a Regional Contest*, *in* THE LAW OF THE SEA AND POLAR MARITIME DELIMITATION AND JURISDICTION 139, 195–97 (Alex G. Oude Elferink & Donald R. Rothwell eds., 2001).

> The areas of overlapping continental shelf between Canada and the United States illustrate the difficulties that may be involved in applying a provisional equidistance line as the starting point in the delimitation process. . . . [T]here seems to be an overlap of the continental shelf beyond the 200 nautical mile limit of both states. An equidistance line is in part located beyond the 350 nautical mile limit, beyond which the Canadian continental shelf does not seem to extend in view of the location of the 2,500 isobath in this area.

Id. at 196–97.

75. Ronald Macnab, *The Canadian Arctic: Use it or Lose it?*, 34 VT. L. REV. 3 (2009).

one of the five arctic littoral states. Given that Canada, Denmark (with respect to Greenland), Norway, and the Russian Federation are all State Parties to the Convention, and that the United States abides by its provisions as customary international law,[76] opportunities exist, however unlikely, for joint oversight of all or parts of the Arctic continental shelf. Such oversight could be based on sound science, and on the principles of cooperation, preservation of the marine environment, and the sharing of scientific information, as found in the Convention and other instruments of international and domestic law.

II. THE BOUNDARY DISPUTE, PAST PROPOSALS TO RESOLVE IT AND WHAT HAS CHANGED SINCE

"Deliberate legal ambiguity" in boundary disputes can serve the differing parties well.[77] This article proposes that cooperation in the Beaufort Sea triangle is possible without resolving the maritime boundary. Nonetheless, a sketch of the dispute itself[78] and efforts to resolve it is called for.[79]

The overlapping claims in the Beaufort Sea result from the United States adopting the equidistance approach to defining this particular maritime boundary[80] and Canada, by contrast, choosing to extend the 141st meridian into the Arctic Ocean.[81] The 141st meridian was established by

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76. Hayes, *supra* note 49, at 30. "The United States has accepted and acted in accordance with all the provisions of the Convention since 1983—with the exception of Part XI." U.S. concerns with Part XI have since been addressed, allowing the U.S. to submit the treaty for Senate ratification. *Id*.

77. Suzanne Lalonde, *Arctic Waters: Cooperation or Conflict?*, BEHIND THE HEADLINES, Aug. 2008, at 8, 10.

78. Extensive literature reviews the Beaufort Sea maritime boundary disagreement. *See, e.g.*, Alex G. Oude Elferink, *Arctic Maritime Delimitations: the Preponderance of Similarities with Other Regions*, *in* THE LAW OF THE SEA AND POLAR MARITIME DELIMITATION AND JURISDICTION 179, 190–94 (Alex G. Elferink & Donald R. Rothwell eds., 2001); S.J. Ralston & T.L. McDorman, *Maritime Boundary Making in the Arctic Region*, *in* OCEAN BOUNDARY MAKING: REGIONAL ISSUES AND DEVELOPMENTS 16, 48–49 (D.M. Johnston & P.M. Saunders eds., 1988) (referring to the oil and gas implications of the Beaufort continental shelf); Michael Frederick, *La délimitation du plateau continental entre le Canada et les Etats-Unis dans la mer de Beaufort*, 17 CAN. Y.B. INT'L L. 30 (1979); Rodger Gillott, *The Principle of Non-Encroachment: Implications for the Beaufort Sea*, 32 CAN. Y.B. INT'L L. 259, 259 (1994) ("Canada and the United States have four maritime boundaries yet to be determined . . . ."); Karin Lawson, Note, *Delimiting Continental Shelf Boundaries in the Arctic: The United States-Canada Beaufort Sea Boundary*, 22 VA. J. INT'L L. 221 (1981);.

79. MCDORMAN, *supra* note 3, at 181–90. Furthermore, McDorman provides a recent and cogent history of the boundary disagreement and proposed solutions, including the fact that the disputed area took on precise contours only when each state published its 200-mile zones in 1977. *Id.* at 182.

80. The published boundaries of both countries' offshore jurisdictions indicate they are "without prejudice to negotiations or subsequent adjustment." *Id.* at 117 (citing Maritime Boundaries Between the United States and Canada, 41 Fed. Reg. 48619 (Nov. 4, 1976); Exclusive Economic Zone and Maritime Boundaries: Notice of Limits, 60 Fed. Reg. 43825 (Aug. 23, 1995)).

81. *Id.* at 117–18.

treaty in 1825[82] as the land boundary between what are now the State of Alaska and the Yukon Territory. Noting the "wonderful inconsistency of the positions taken with respect to maritime boundary claims" by both countries, McDorman provides examples of other maritime boundary disputes in which each has taken a contrary approach to the one it asserts in the Beaufort Sea.[83] Canada has shown some willingness to concede interests in the Beaufort for gains in other maritime boundary disagreements,[84] yet no real progress has been made on resolving the Beaufort Sea boundary. Why no progress? And why propose a new approach now?[85]

There are several reasons for the slow resolution of the boundary dispute. First, the dispute is not particularly contentious and is considered by diplomats in both states to be well-managed.[86] Second, neither country has shown any strong interest in a model that would require harmonization of their legal and administrative regimes to jointly manage such common uses as hydrocarbon exploration. Third, both states have effectively agreed to a moratorium on hydrocarbon exploration in the triangle, notwithstanding that each has included sites there in prior lease sales (Canada has actually leased sites in the disputed area while the United States has no active leases there).[87]

As to the time being ripe for a new proposal regarding the Beaufort dispute, there are three primary reasons: one scientific, one institutional,

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82. Gray, *supra* note 7, at 64 (citing the Convention between Great Britain and Russia Concerning the Limits of their Respective Possessions on the North-West Coast of America and the Navigation of the Pacific Ocean, Gr. Brit.-Russ., Feb. 16, 1825, 75 Consol. TS 95).

83. MCDORMAN, *supra* note 3, at 117. Respecting their published boundaries "equidistance was the methodology of choice for both States, except where it was not." *Id.* at 117–18.

84. For a list of the three other disputes and literature discussing them see *supra* note 7. For more information on the two Alaska-specific disputes, the Dixon Entrance and the Beaufort Sea, *see* MCDORMAN, *supra* note 3, at 188 n.403 (citing diplomatic indication of Canada's willingness to concede interests in the Beaufort Sea); Tony Fogarassy, *The Alaska Boundary Dispute: History and International Law*, CLARK WILSON, LLP (Clark Wilson LLP, Vancouver, British Columbia Aug. 30, 1991), *available at* http://www.cwilson.com/pubs/energy/alaska.pdf. Byers has suggested that Canada relinquish its rights to the oil-rich Beaufort in exchange for the U.S. giving up its fishing rights in the Dixon Entrance. Michael Byers, *We Can Settle this: Let's Trade Oil for Fish*, THE GLOBE AND MAIL, Mar. 11, 2005, at A17, *available at* http://www.ligiubc.ca/?p2=/modules/liu/publications/view.jsp&id=1856.

85. Whether linkages might exist between continuing cooperative developments in the Northwest Passage and the Beaufort will be explored in the larger project referenced *supra* note *.

86. *See, e.g.*, MCDORMAN, *supra* note 3, at 118; Randy Boswell, *Arctic Mapping Uncovers Fissures in U.S., Canadian Land Claims*, CANWEST NEWS SERVICE, July 31, 2009, *available at* http://www.canada.com/technology/Arctic+mapping+uncovers+fissures+Canadian+land+claims/1837933/story.html (Caterina Ventura, Deputy Director, Oceans Law Section, Canada's Department of Foreign Affairs and International Trade, calls the dispute "well-managed," though the two countries also "agree to disagree.").

87. MCDORMAN, *supra* note 3, at 118–19.

and one comparative. Scientific evidence for the scope of global change and the unprecedented rate of sea ice melt points to the need for action now, by actors most able to respond effectively to these changes. Institutionally, in addition to the long history of Canadian–U.S. cooperation, the Arctic Council and its most important outputs are now robust enough to support bi-national initiatives in the Arctic such as the pilot project on Large Marine Ecosystem management in the Beaufort Sea.[88] In addition, the International Maritime Organization has shown a new vitality and interest in such cooperation.[89] Comparatively, as Part II elaborates, challenges faced by government professionals in Canadian and U.S. oceans management are sufficiently similar that further exchange between them can now yield mutual benefits.

The suspended state of the Beaufort boundary disagreement is not due to a lack of proposals to resolve or work around it.[90] Comprehensive diplomatic discussions regarding all outstanding maritime boundaries between the two countries took place over three decades ago, in 1977–1978,[91] and were broached again by the United States in 1986[92] without result.[93] A 1977 Joint Report of Special Negotiators Cadieux and Cutler[94] suggested joint fisheries management and shared-access hydrocarbon zones, but neither idea was pursued further.[95] Then, 22 years ago—when the *Polar*

88. PAME Work Plan, *supra* note 10.

89. For example, the joint Canadian–U.S. application to the IMO Marine Environmental Protection Committee for a sulfur dioxide-reduced shipping lane off of their common Atlantic Coast.

90. Most recently, Scott Borgerson, appearing before the Standing Committee on Fisheries and Oceans of the Canadian Senate, proposed "that Canada lay all Arctic issues on the table to achieve a 'grand compromise' with the United States, including with respect to the disputed boundary in the Beaufort Sea." STANDING SENATE COMM. ON FISHERIES AND OCEANS, THE COAST GUARD IN CANADA'S ARCTIC: INTERIM REPORT 21 (2008) [hereinafter CANADIAN SENATE INTERIM REPORT]. In February 2008, a group of 13 leading experts from Canada and the U.S. held a "Model Negotiation on Northern Waters." Their recommendations did not address the Beaufort Sea specifically, but included establishment of an "Arctic Navigation Commission." The proposed commission would be modeled after the International Joint Commission, an independent bi-national organization, and operate within the framework of an already legislatively approved bi-national research body, the Arctic Institute of North America. *Id.* at 45.

91. MCDORMAN, *supra* note 3, at 118–21.

92. *Id.* at 121.

93. MCDORMAN, *supra* note 3, at 121 (concluding that "no subsequent comprehensive formal talks have taken place"); John D. Negroponte, *Current Developments in the U.S. Oceans Policy*, 86 DEPT. ST. BULL. 84, 86 (1986) ("We have asked the Canadians to begin talks on our outstanding maritime boundary issues . . . . [T]hey have not yet responded to our request for negotiations.").

94. MCDORMAN, *supra* note 3, at 119.

95. McDorman recounts that the failure of efforts in the early 1970s to resolve multiple boundary issues, combined with both countries establishing 200-nautical mile zones in 1977, led to the appointment of Special Negotiators that same year "'to reach a comprehensive settlement of U.S.-Canadian maritime boundaries and related fishery and hydrocarbon issues.'" MCDORMAN, *supra* note 3, at 118–19 (quoting JIMMY CARTER, *United States—Canada Maritime Boundaries and Related Resource*

Sea incident was still fresh,[96] the Bruntland Commission Report, *Our Common Future*,[97] was hot off the presses, and the annual arctic sea ice extent was significantly greater than the record low measured in 2007[98]—Lamson and VanderZwaag published a wide ranging legal-policy study of the Beaufort Sea.[99] Highlighting the area's environmental significance as a key argument for bilateral management of its transboundary resources, they proposed a U.S.–Canadian Beaufort Marine Cooperation Agreement:[100]

> The need for cooperative ocean management arises from at least four factors: (1) physical—transboundary ocean currents in the Beaufort Sea region have the potential of transporting pollutants from one country to the other; (2) biological—numerous living resources make transboundary migrations; (3) human—Inuit communities in Alaska and Canada share a common cultural dependence on renewable marine resources which may be negatively impacted by offshore industrial developments; and (4) technological—costs of developing and operating expensive technologies such as navigational and communication systems may be reduced by spreading the financial burden, while offshore

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Issues: Designation of Lloyd N. Cutler as the President's Special Representative for Negotiations July 1977, *in* PUBLIC PAPERS OF JIMMY CARTER 1977, 1362 (U.S. Government Printing Office, 1978)).

96. In August of that year, the *Polar Sea*, a U.S. Coast Guard icebreaker, transited the Northwest Passage without requesting official permission from Canada, reigniting Canadian public outcry over the perceived violation of Canadian sovereignty (Canada considering the passage as part of its internal waters and the U.S. viewing it as an international strait with greater navigational freedoms for non-Canadian vessels). The Canadian government response included granting "unrequested permission" for the *Polar Sea*'s transit and drawing straight baselines to enclose the Canadian Arctic Archipelago. Lamson & VanderZwaag (1990), *supra* note 13, at 50.

97. Report of the World Commission on Environment and Development: Our Common Future, U.N. Doc. No. A/42/427 (1987). This report is acknowledged as key to launching sustainable development as a viable concept. *See, e.g.*, YOSHIFUMI TANAKA, A DUAL APPROACH TO OCEAN GOVERNANCE: THE CASES OF ZONAL AND INTEGRATED MANAGEMENT IN INTERNATIONAL LAW OF THE SEA 68–69 (2008); Alhaji B.M. Marong, *From Rio to Johannesburg: Reflections on the Role of International Legal Norms in Sustainable Development*, 16 GEO. INT'L ENVTL. L. REV. 21 (2003) (chronicling the history of sustainable development).

98. Hajo Eicken et al., *Sea-Ice System Services: A Framework to Help Identify and Meet Information Needs Relevant for Arctic Observing Networks*, 62 ARCTIC 119, 120 (2009) ("In 2007, the summer sea-ice minimum extent represented a 39% reduction from the 1979–2000 average—the lowest coverage observed.") (citation omitted).

99. Lamson & VanderZwaag (1987), *supra* note 13.

100. *Id.* at 75–83. The authors suggest four possible agreements in total between Canada and the United States: a Beaufort Boundary Agreement, a Northwest Passage Agreement, a Beaufort Marine Cooperation Agreement, and an Equal Access agreement, as well as an Arctic Regional Action Plan and a trilateral Marine Mammal Conservation agreement with Russia. None has materialized in the form they suggested but some of the underlying ideas have appeared in other arrangements that have evolved since then, most notably the Arctic Council (see *infra* Part V.D). *Id.*

> safety may be enhanced through coordinated search and rescue operations, and cooperative pollution cleanup response.[101]

These arguments for cooperative ocean management have been borne out by scientific developments in the intervening two decades. Arctic researchers have exponentially increased our understanding of global change,[102] even while raising more science and policy questions about all four of Lamson and VanderZwaag's points. These four points include: (1) how global change affects the Beaufort Gyre and broader patterns of ocean circulation, (2) what the effects of climate change are on migration patterns of arctic living resources, (3) how climate change impacts Inuit communities and what its implications are for increased navigation in the Arctic, (4) and the attendant rise in demand for search and rescue and cleanup response.[103]

What has changed in legal, political, and scientific arenas since 1987, the year of the last comprehensive academic proposal for cooperation in the Beaufort Sea? The following chronological list of significant developments, while incomplete, suggests the interrelationship[104] between domestic and international environmental trends, as well as how these responded both to specific environmental disasters (e.g., the U.S. Oil Pollution Act following the Exxon Valdez oil spill) and to growing consensus in the scientific community on such matters as ecosystem-based management and global change:

> 1988: Canada–United States Arctic Cooperation Agreement[105]

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101. *Id.* at 51.

102. The scientific literature is vast, and partially archived by the International Polar Year Data and Information Service, http://ipydis.org/. For just one example of a policy analysis connecting the science to law and oceans management, see Magdalena A.K. Muir, *Oceans and Climate Change: Global and Arctic Perspectives*, 7 SUSTAINABLE DEV. L. & POL'Y 50 (2006) (discussing the need for oceans policy to inform climate change and vice versa).

103. *See, e.g.*, AMSA 2009 REPORT, *supra* note 44 (discussing the Beaufort Gyre as a clockwise circulation); BEAUFORT SEA STRATEGIC REGIONAL PLAN OF ACTION STEERING COMMITTEE, BEAUFORT SEA STRATEGIC REGIONAL PLAN OF ACTION 2–4 (Draft Interim Plan 2007), *available at* http://www.ngps.nt.ca/upload/interveners/joint%20secretariat/Bsstrpa_interim_draft_3Jul07.pdf (discussing the process and organization of the Beaufort Sea Strategic Regional Plan); Pagnan, *supra* note 19, at 469; Gina M. Elliott & Bert Spek, *Integrated Management Planning in the Beaufort Sea: Blending Natural and Social Science in a Settled Land Claim Area*, FIFTH INTERNATIONAL CONFERENCE ON SCIENCE AND MANAGEMENT OF PROTECTED AREAS (SAMPAA V), May 11–16, 2004, http//www.sampaa.org/PDF/ch2/2.6.pdf (2004) (discussing impact on Inuit communities).

104. This interrelationship will be elaborated upon in the larger project, *supra* note *.

105. Arctic Cooperation: Agreement Between the United States of America and Canada, U.S.-Can., Jan. 11, 1988, 11565 T.I.A.S. 1. "The Government of the United States pledges that all navigation by U.S. icebreakers within waters claimed by Canada to be internal will be undertaken with the consent of the Government of Canada." *Id.* at 2.

1990: United States Oil Pollution Act[106]
1991: Russian Federation succession to the Soviet Union[107]
1991: Arctic Environment Protection Strategy (AEPS)[108]
1991: Espoo Convention on Environmental Impact Assessment in a Transboundary Context[109]
1992: U.N. Framework Convention on Climate Change[110]
1996: Ottawa Declaration establishing the Arctic Council[111]
1996: Canada Oceans Act[112]
1999: Nunavut Act (1993) entry into force[113]
2000: United States Oceans Act[114]
2003: Canadian ratification of the Law of the Sea Convention[115]
2004: Arctic Climate Impact Assessment (ACIA)[116]
2005–2007: Dramatic loss of arctic sea ice[117]

Arguably the most important governance development for the Arctic in this period was the creation of the Arctic Council, which emerged in just five years from the process that began as the 1991 Arctic Environment Protection Strategy (AEPS).[118] By design, the Arctic Council is not a formal

106. United States Oil Pollution Act, 33 U.S.C. § 2701 (1990).

107. DECLARATION ON THE STATE SOVEREIGNTY OF THE RUSSIAN SOVIET FEDERATED SOCIALIST REPUBLIC (1990), *reprinted in* BASIC DOCUMENTS ON THE SOVIET LEGAL SYSTEM 139 (W.E. Butler ed. & trans., 2d ed. 1991). On the political ramifications for the Arctic, especially in transitioning from a militarized to a de-militarized area in the 1990s, see, for example, Franklyn Griffiths, *Epilogue: Civility in the Arctic*, *in* ARCTIC ALTERNATIVES: CIVILITY OR MILITARISM IN THE CIRCUMPOLAR NORTH 279, 284 (Franklyn Griffiths ed., 1992).

108. Arctic Environmental Protection Strategy, Jan. 14, 1991, 30 I.L.M. 1624.

109. Convention on Environmental Impact Assessment in a Transboundary Context, Feb. 25, 1991, 1989 U.N.T.S. 309, *available at* http://www.unece.org/env/eia/documents/legaltexts/conventiontextenglish.pdf (entered into force Sept. 10, 1997). Canada is a member of the Convention. *Id.* The United States has signed but has yet to ratify the treaty. *Id.* Neither Canada nor the United States has signed the Strategic Environmental Assessment Protocol to the Convention, which applies Convention principles to decisions at the strategic level. KOIVUROVA & MOLENAAR, *supra* note 11, at 27–28.

110. United Nations Conference on Environment and Development: Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849.

111. Joint Communiqué and Declaration on the Establishment of the Arctic Council, Sept. 19, 1996, 35 I.L.M. 1386–87.

112. Oceans Act, 1996 S.C., ch. 31 (Can.).

113. Nunavut Act, 1993 S.C., ch. 28 (Can.) (entered into force Apr. 1, 1999).

114. Oceans Act of 2000, 33 U.S.C. § 857–19 (2000).

115. U.N. Convention on the Law of the Sea, *supra* note 1.

116. ACIA SECRETARIAT, ARCTIC COUNCIL, ARCTIC CLIMATE IMPACTS ASSESSMENT (2005), *available at* http://www.acia.uaf.edu/pages/scientific.html.

117. Eicken et al., *supra* note 98, at 120; Donald K. Perovich & Jacqueline A. Richter-Menge, *Loss of Sea-Ice in the Arctic*, ANN. REV. MAR. SCI., at 417, 421 (2009), *available at* http://imb.crrel.usace.army.mil/pdfs/annurev.marine.010908.pdf.

118. In turn, the roots of this process can be found in the call for an arctic zone of peace by then Secretary-General of the U.S.S.R. Mikhail Gorbachev in his 1987 Murmansk speech. Nowlan, *supra*

international organization and, by the terms of its 1996 constitutive document, possesses no legal personality.[119] It serves as an informal consultative forum for the eight arctic states and such indigenous organizations as are granted Permanent Participant status, and offers observer status to non-arctic states and others. Permanent Participants, which currently include the Arctic Athabaskan Council, Gwich'in Council International (GCI), and the Inuit Circumpolar Council (ICC),[120] engage fully in the debates and working groups, but have no vote in the Council.

Arctic Council pronouncements, reports, guidelines, and recommendations have no legally binding character, and their implementation is voluntary and difficult to measure.[121] Yet in its first 15 years, the Council has produced significant studies that in turn have helped set the research and policy agendas for states in and beyond the Arctic.[122] The 2004 ACIA is the preeminent example of the Arctic Council's ability to marshal scientists and policymakers in response to issues its members perceive as critical. The ACIA was a project of the Arctic Council and the International Arctic Science Committee. In 2006, PAME identified 17 Large Marine Ecosystems (LMEs) in the Arctic, including in the Beaufort Sea and the Chukchi Sea.[123] The adoption of these LMEs—ecosystems that typically span more than one national jurisdiction[124]—as an underlying spatial organizing tool has resulted in the LMEs informing many outputs of the Arctic Council, including its 2009 Arctic Offshore Oil and Gas Guidelines (OOG Guidelines) and the Arctic Marine Shipping Assessment (AMSA).

Canada and the United States have begun planning for a pilot LME management project in the Beaufort Sea as part of the PAME 2009–2011 Work Plan. The Beaufort Sea triangle is an ideal spatial platform for Canada and the United States to collaborate on joint implementation, not

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note 14, at 7; ROTHWELL (1996), *supra* note 16, at 229.

119. Bloom, *supra* note 47, at 714.

120. *Id.* at 712. In 2009, the Permanent Participants of the Arctic Council include: Aleut International Association (AIA), Arctic Athabaskan Council (AAC), Gwich'in Council International (GCI), Inuit Circumpolar Council (ICC), Russian Association of Indigenous Peoples of the North (RAIPON), and the Saami Council. Observer status in the Arctic Council is open to non-arctic states, inter-governmental and inter-parliamentary organizations, and global and regional non-governmental organizations. Arctic Council, http://www.arctic-council.org (last visited Oct. 9, 2009).

121. KOIVUROVA & MOLENAAR, *supra* note 11, at 8, tbl.2.

122. Working Group Publications, http://arctic-council.org/section/the_arctic_council (last visited Oct. 9, 2009).

123. *See, e.g.*, PAME Progress Report, *supra* note 10, at 8 (including a map of and names of the 17 LMEs).

124. Alfred M. Duda & Kenneth Sherman, *A New Imperative for Improving Management of Large Marine Ecosystems*, 45 OCEAN & COASTAL MGMT. 797, 798 (2002).

only of the OOG Guidelines and AMSA, but also other Arctic Council outputs relevant to ecosystem-based management, oil and gas activities, and environmental impact assessment. Programs developed bilaterally can provide a working model for other Arctic Council members as they consider how to best use these outputs.

Any bilateral cooperation in or around the Beaufort triangle will have to define the spatial area in which the agreed measures will apply. In addition, the question should be addressed as to whether existing agreements of a model character should be extended to apply to areas beyond those specified in their terms. Given the dynamic character of the Beaufort Sea and its ecosystem, strictly limiting the application of measures to the area within the triangle would risk negating any positive or model effects there, especially if activities are allowed just beyond its limits that would cancel out or defeat the purposes those measures are designed to achieve.

III. EXISTING JOINT CANADIAN–U.S. INITIATIVES RELEVANT TO THE BEAUFORT SEA

A. Bilateral Sectoral Initiatives: Shipping, Oil and Gas, and Fisheries

As the Arctic Ocean has warmed and become more navigable, the United States and Canada have had to work together more closely to pursue and protect common interests. For example, despite the great public outcry it generated in Canada, the 1985 transit of the Northwest Passage by the USCGC *Polar Star* (with CCG personnel on board) was in some part a joint effort to respond to the potential for greater navigability in a warming Arctic—even without knowledge of the 21st century scale and pace of sea-ice melt in the Arctic Ocean. The transit was prefaced, accompanied, and followed by intense diplomatic cooperation, ultimately leading to the 1988 Canada–U.S. Arctic Cooperation Agreement.[125] "Attaching consent to scientific research was a key breakthrough in the negotiation of the 1988 Agreement[]" and built on the coastal state permission requirement for marine scientific research under Articles 245 and 246(2) of the LOS

125. Canada–U.S. Arctic Cooperation Agreement, 1988 Can. T.S. No. 29 (Canada and the United States agree *inter alia*, the "Government of the United States pledges that all navigation by U.S. icebreakers within waters claimed by Canada to be internal will be undertaken with the consent of the Government of Canada").

Convention.[126] All U.S. Coast Guard vessel transits since then have involved scientific research.[127]

In the shipping sector, bilateral involvement was integral to producing the AMSA.[128] The U.S. and Canadian Coast Guards participate annually in bilateral summits, engage in various bilateral arrangements, as well as the North Pacific and North Atlantic Coast Guard Forums,[129] and are responsible for implementing the 1974 Joint Marine Pollution Contingency Plan (JCP), which they test in joint operations every two years.[130] The JCP was promulgated in 1974 under the Canada–United States Great Lakes Water Quality Agreement of 1972.[131] The JCP, last updated in 2003, provides a coordinated system of planning and preparing for, and responding to, harmful substance incidents in the contiguous waters of Canada and the U.S. In 1983, the parties negotiated geographic annexes for the Atlantic coast, the Pacific coast, the Beaufort Sea area, and the Dixon Entrance area.[132] The annexes provide the basic information necessary to execute an efficient and effective response in the contiguous waters. The two Coast Guards also implement the "Shiprider" agreement, formally known as the "Framework Agreement on Integrated Cross-Border Maritime Law Enforcement Operations between the Government of the United States of America and the Government of Canada."[133]

There is potential for bilateral discussion, if not formal cooperation on fisheries in the Arctic, especially following publication of the United States Arctic Fishery Management Plan (AFMP) in 2009. The North Pacific Fishery Management Council, operating under NOAA, drafted the AFMP, which temporarily bans commercial fishing in the U.S. national waters of the Beaufort and Chukchi Seas.[134] Another gap identified by Koivurova and

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126. MCDORMAN, *supra* note 3, at 249. The Agreement applies only to government icebreakers, not to commercial vessels. *Id.* at 250.

127. *Id.*

128. AMSA Lead Countries were Canada, Finland, and the United States. AMSA 2009 REPORT, *supra* note 44, at 2.

129. The Arctic is not the primary focus of either forum, but issues relevant to emergency preparedness and response are typically on the agenda. The North Pacific Coast Guard Forum (NPCGF) initiated in Japan in 2000 and currently consisting of six member states: Canada, China, Japan, South Korea, Russia, and the United States. *The North Atlantic Coast Guard Forum (NPCGF): Environmental Response Working Group*, CANADIAN COAST GUARD, Aug. 12, 2008, http://www.ccg-gcc.gc.ca/e0003563.

130. MCDORMAN, *supra* note 3, at 210.

131. *Id.*; *see also* Letter of Promulgation, U.S.-Can., May 22, 2003, http://www.nrt.org/production/NRT/NRTWeb.nsf/AllAttachmentsByTitle/A-403CANUSJCPEnglish/$File/Canus%20JCP%20English.pdf?OpenElement (outlining geographical annexes).

132. MCDORMAN, *supra* note 3, at 210.

133. On fishery disagreements, see, for example MCDORMAN, *supra* note 3, *passim*.

134. On the AFMP, see *infra* notes 225–26 and Proposed Rule to Implement the Fishery

Molenaar is the absence of bilateral arrangements for shared fish stocks between U.S. and Canada with respect to the Beaufort Sea.[135] The U.S. AFMP at least offers a starting point for a Canadian response. The ensuing dialogue will continue the long, and not always harmonious, relationship between the two countries around fishery issues.[136]

B. Bilateral State-to-State Initiatives: IOM, MPAs, and EIA

At the federal level, Canada and the United States support versions of "integrated, cross-sectoral ecosystem-based ocean management" (IOM), marine protected areas (MPAs), and environmental impact assessment (EIA), three key concepts identified by Koivurova and Molenaar as potential gaps in international governance of the marine Arctic.[137] Support for IOM is expressed throughout their respective national oceans policy and regulatory regimes.[138] Giving practical effect to IOM at the operational level is much more difficult than simply stating support for the concept; implementation is also where bilateral cooperation has the potential to allow both countries to test and improve upon their respective approaches to IOM. Such improvement is one possible outcome of the Canada–U.S. pilot program for implementing the LME approach in the Beaufort Sea under the auspices of the Arctic Council PAME.[139]

The LME model is designed to manage multiple uses, human and natural, in distinct ecosystem-based regions, which are typically transnational.[140] LMEs neither require nor preclude the existence of marine protected areas.[141] Currently, neither country has anything other than a proposed MPA in the Arctic Ocean.[142] However, two other joint Canadian–U.S. management areas,[143] which are neither arctic nor MPAs *per se*,

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Management Plan for Fish Resources of the Arctic Management Area and Amendment 29 to the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs, 74 Fed. Reg. 27498 (June 10, 2009).

135. KOIVUROVA & MOLENAAR, *supra* note 11, at 41.

136. *See, e.g.*, MCDORMAN, *supra* note 3, at 317.

137. KOIVUROVA & MOLENAAR, *supra* note 11, at 7, 9.

138. *See infra* Part IV; Siron et al., *supra* note 9, at 87 (identifying Canada, Norway, and the United States as the "most advanced in terms of developing and implementing a national approach for ecosystem-based management of ocean uses, spaces, and resources").

139. PAME Work Plan, *supra* note 10.

140. On LMEs generally, see Duda & Sherman, *supra* note 124, at 802.

141. Siron et al., *supra* note 9, at 87 ("Governments use information on the changing states of LMEs to improve marine resource management practices and move toward restoration of degraded habitats, reduction of coastal pollution, and recovery of depleted fish stocks.").

142. Canada has proposed the Tarium Nirzutait Marine Protected Area, discussed in detail in *infra* Part III.

143. David L. Vanderzwaag & Jeffrey A. Hutchings, *Canada's Marine Species at Risk: Science*

provide potential information, if not an exact model, for any cooperation in the Beaufort Sea—under the PAME pilot LME or otherwise.[144] Programs in the shared waters of the Bay of Fundy–Gulf of Maine (Atlantic Ocean) and the Georgia Basin–Puget Sound (Pacific Ocean) "have placed the international boundary, which separates these systems jurisdictionally, into the background in favour of the natural boundaries which define these shared ecosystems."[145] Cooperation agreements in the Great Lakes may also offer relevant lessons,[146] although presumably the United States and Canada would stop short of establishing a full-fledged institution for the Beaufort Sea akin to the International Joint Commission.[147]

Other federal bilateral initiatives relating to the Beaufort Sea have come and some have gone over the past 25 years.[148] Koivurova and Molenaar suggest at least three bilateral agreements containing EIA obligations, one regarding weather modification (1975), another involving the Porcupine Caribou Herd (1987), and a third with respect to air quality (1991).[149] Other non-marine U.S.–Canadian cross-border arrangements, such as that establishing the Waterton–Glacier Peace Park,[150] may also provide instruction for future cooperation in the Beaufort disputed area. The study of how the (purely conservation-oriented) Yellowstone to Yukon Conservation Initiative evolved from the 19th century Waterton–Glacier model into an organizing forum for conservation NGOs and other players may also prove instructive for future bilateral efforts in the Beaufort Sea that attempt to allow input from a range of constituencies interested in resource management.[151]

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and Law at the Helm, but a Sea of Uncertainties, 36 OCEAN DEV. & INT'L L. 219, 247 n.23 (2005) (referencing Hildebrand et al., *Cooperative Ecosystem Management Across the Canada-US Border: Approaches and Experiences of Transboundary Programs in the Gulf of Maine, Great Lakes and Georgia Basin/Puget Sound*, 45 OCEAN & COASTAL MGMT. 44 (2002)).

144. Duda & Sherman, *supra* note 124, at 802 ("The Great Lakes approach led to governance agreements between the US and Canada that follow longer-term pathways for sustainable use of ecological resources and resulted in significant reversal in degradation following adoption of joint assessment and management institutions.").

145. Hildebrand et al., *supra* note 143, at 421. A third program, in the interior Great Lakes, may also offer instruction notwithstanding that it involves inland freshwaters and not shared ocean waters.

146. GREAT LAKES SCI. ADVISORY BD., THE ECOSYSTEM APPROACH: SCOPE AND IMPLICATIONS OF AN ECOSYSTEM APPROACH TO TRANSBOUNDARY PROBLEMS IN THE GREAT LAKES BASIN vii (1978).

147. See, for example, a similar recommendation regarding the Northwest Passage resulting from the February 2008 model negotiation at the IJC. CANADIAN SENATE INTERIM REPORT, *supra* note 90.

148. VanderZwaag (1995), *supra* note 40, at 254 (recalling the annual meetings of Canadian and U.S. officials for Beaufort Sea Information exchange, held from 1976 to 1991 before being suspended for lack of sufficient material to discuss). *See also* Lamson & VanderZwaag (1987), *supra* note 13, at 74–75 (providing an overview of other bilateral initiatives involving the Beaufort Sea region).

149. KOIVUROVA & MOLENAAR, *supra* note 11, at 28 n.170.

150. Randy Tanner et al., *The Waterton-Glacier Peace Park: Conservation Amid Border Security*, *in* PEACE PARKS: CONSERVATION AND CONFLICT RESOLUTION (Saleem Ali ed., 2007).

151. Charles C. Chester, *From Conservation Diplomacy to Transborder Landscapes: The*

C. Bilateral Initiatives: Sub-national

Bilateral agreements in the North American Arctic between sub-national entities or between a federal authority and a sub-national entity also have the potential to bring together those who use and understand the various resources in the Beaufort triangle from different perspectives. Agreements at the Alaska-to-territorial level appear to be less robust than in the 1990s, but working relationships between the Inuvialuit and Inupiat established at roughly the same time appear to have grown stronger.[152] The interplay between federal, territorial or Alaskan authorities and local Native populations constitutes an important difference in how Canada and the U.S. have approached management of northern resources. The drafters of the 1984 Inuvialuit Final Agreement (IFA) in the Canadian Western Arctic more than two decades ago learned from a study of the U.S. approach under the 1971 Alaska Native Claims Settlement Act (ANCSA) and appear to have laid a stronger foundation for meaningful participation of Native communities in the resource decisions affecting them.[153] The IFA may, in turn, have led to more effective local initiatives being nested in multi-level governance structures to manage resources in the Canadian Beaufort than on the U.S. side of the maritime boundary. But these preliminary assessments of the Canadian approach must be tested against a thorough study of how governance has evolved in the North Slope Borough (NSB) of Alaska, established in 1972. As the local authority for the Alaskan portion of the Beaufort Sea coastline, the NSB works with Alaskan and U.S. authorities to address activities affecting its lands and residents, in part by working through its Coastal Zone Management Plan.[154]

Protection of Biodiversity Across North America's Borders, 22 THE GEORGE WRIGHT F. 29 (2005) (discussing this evolution in detail, as well as contemporary operations of the Yellowstone to Yukon Conservation Initiative).

152. C.D. Brower et al., *The Polar Bear Management Agreement for the Southern Beaufort Sea: An Evaluation of the First Ten Years of a Unique Conservation Agreement*, 55 ARCTIC 362, 371 (2002).

153. The seminal works on federal/Northern relations in Alaska and Canada are: THOMAS R. BERGER, VILLAGE JOURNEY: THE REPORT OF THE ALASKA NATIVE REVIEW COMMISSION (1985); THOMAS R. BERGER, NORTHERN FRONTIER, NORTHERN HOMELAND (1977). Justice Thomas Berger, a Canadian Supreme Court Justice, was commissioned to study how ANSCA had affected Native residents of Alaska in order to inform the Canadian process leading to the 1984 IFA. *See also* BARRY SCOTT ZELLEN, BREAKING THE ICE: FROM LAND CLAIMS TO TRIBAL SOVEREIGNTY IN THE ARCTIC (2008) (comparing of the features and legacies of ANCSA and ISA in a broader a comprehensive comparative history of these government-Native relationships).

154. On the NSB plan, see *infra* note 271. Lamson and VanderZwaag suggested 22 years ago that the economies of Alaska's North Slope Borough and the Mackenzie Delta area could learn from each other. Lamson & VanderZwaag (1987), *supra* note 13, at 64–65. The extent to which they have done so remains to be investigated, as do the ways in which any ensuing cooperation could be incorporated into a Beaufort joint management or oversight plan. On the early years of the NSB, see

A successful bilateral agreement at the sub-national level is the 1988 Inuvialuit–Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea.[155] It sets the hunting season and other management parameters for both signatories, including the "annual sustainable harvest," which is determined on the basis of "an annual review of scientific evidence."[156] Any concerns that the agreement could conflict with overlapping federal or international regimes are addressed by specifying that the Inupiat signatories act "solely as representatives of the local traditional user group of the polar bear resource in furthering the consultation, management, and information exchange goals of the International Agreement on the Conservation of Polar Bears."[157]

In contrast to the 1988 Polar Bear Management regime for the Southern Beaufort Sea, a unilateral Inuvialuit Beluga Management Plan (IBMP), applies only in Canadian waters, as between various levels of Canadian, territorial, and Inuvialuit governance,[158] but the IBMP coordinates with the Alaska and Inuvialuit Beluga Whale Committee (AIBWC).[159] The IBMP is but one example of the numerous unilateral Beaufort Sea projects initiated on the Canadian side of the Beaufort Sea (discussed *infra* Part IV) that might fruitfully be expanded upon to include, if they do not already, the disputed Beaufort triangle waters.[160] In examining these possibilities, additional inquiries should include how the Canadian IBMP could be coordinated with the U.S. Agreement between the National Marine Fisheries Service and the Alaska Beluga Whale Committee for Co-management of the Western Alaska Beluga Whale Population.[161] The role of the Alaska Eskimo Whaling Commission in managing whale stocks would offer an additional contrasting study for the waters on the U.S. side of the maritime boundary. By applying successful approaches from

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generally GERALD A. MC BEATH, NORTH SLOPE BOROUGH GOVERNMENT AND POLICYMAKING (1981).

155. Inuvialuit–Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea, http://pbsg.npolar.no/en/agreements/USA-Canada.html (last visited Nov. 9, 2009).

156. *Id.* at Article III(d).

157. *Id*. at Article V(c).

158. World Wildlife Fund, BALANCING CONSERVATION AND DEVELOPMENT IN CANADA'S BEAUFORT SEA 2003, http://assets.panda.org/downloads/migratory_routes_beaufort__poster_side_1.pdf [hereinafter BALANCING CONSERVATION AND DEVELOPMENT].

159. *See* Marie Adams et al., *Alaska and Inuvialuit Beluga Whale Committee (AIBWC): An Initiative in "At Home Management,"* 46 ARCTIC 134 (1993) (discussing generally the AIBWC).

160. *See infra* Part IV. One area for further study is the extent to which Canada and the U.S. consider domestic programs to extend to the disputed area, even if they do not actually maintain activities there.

161. The Co-Management Agreement for Western Alaska Belugas is effective January 2000. Agreement Between the National Marine Fisheries Service and the Alaska Beluga Whale Committee for Co-Management of the Western Alaska Beluga Whale Population, http://www.alaskafisheries.noaa.gov/protectedresources/whales/beluga/abwcagrefinal.pdf.

both sides to the disputed waters, and possibly also to a buffer zone of national jurisdiction around the triangle, Canada, the United States, and the relevant sub-national entities would have the opportunity to test how well-proven models from across the boundary work when applied collectively and in an agreed area.

IV. DOMESTIC LEGAL AND ADMINISTRATIVE FRAMEWORKS RELEVANT TO JOINT OVERSIGHT OF THE BEAUFORT TRIANGLE

Over the last 30 years, Canada and the United States have moved deliberately, if gradually, to institute ecosystem-based oceans management, which has in turn led to the growth of integrated oceans management in both countries.[162] Each state is still responding legislatively and institutionally to adapt its practice to the science that has consistently shown that ecosystem-based, as opposed to sectoral, oceans management is the route to healthier and more productive oceans.[163] Choosing different initial emphases, the United States began with national coastal zone management and Canada began later with an all-encompassing oceans act. By 1972, the United States was able to overcome regional and state objections to pass its Coastal Zone Management Act, whereas Canada is only now emerging from the "patchwork" of provincial and localized management of coastal areas.[164] On the other hand, Canada's Oceans Act of 1996 was the world's first comprehensive oceans legislation, something still lacking in the U.S. given the very limited purpose of the U.S. Oceans Act of 2000, formed to "establish a commission to make recommendations for coordinated and comprehensive national ocean policy . . . ."[165]

A brief comparative chronology of oceans regulatory developments for the two states is in order before discussing how each incorporates integrated, cross-sectoral, ecosystem-based oceans management (IOM), marine protected areas (MPAs), Environmental Impact Assessment (EIA) in marine settings, and how pilot Large Marine Ecosystems (LME)[166] and

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162. For earlier discussions comparing Canadian and U.S. marine policies see, for example, CENTER FOR OCEAN MANAGEMENT STUDIES, UNIVERSITY OF RHODE ISLAND, COMPARATIVE MARINE POLICY: PERSPECTIVES FROM EUROPE, SCANDINAVIA, CANADA AND THE UNITED STATES (1981) (discussing earlier comparisons of Canadian and U.S. marine policies); Lawrence Juda, *Changing National Approaches to Ocean Governance: The United States, Canada, and Australia*, 34 OCEAN DEV. & INT'L L. 161, 181 n.31 (2003) (listing examples of comparative studies involving other countries).

163. Duda & Sherman, *supra* note 124, at 801 (describing the "paradigm shift" of ecosystem-based management from sectoral, short term and smaller spatial scale to cross-sector, long-term and larger spatial scale).

164. Juda (2003), *supra* note 162, at 181 n.31.

165. Oceans Act of 2000, 33 U.S.C. § 857–19 (2000).

166. According to Duda and Sherman:

Large Ocean Management Area (LOMA) programs in the Canadian Beaufort Sea might serve as models for either bi-national cooperation generally or for the Arctic Council pilot LME project in the Beaufort Sea.[167] While not always self-evident from the titles highlighted below, underlying each chronology is the slow transition from management that is divided substantively, geographically by sectors, and administratively by isolated ministries and agencies, to management that is increasingly based on ecosystems and coordination between responsible authorities.

Canada

1970: Arctic Waters Pollution Prevention Act (AWPPA)[168]

1979: Department of Fisheries and Oceans (DFO) obtains ministerial status[169]

1995: Canadian Coast Guard incorporated into DFO[170]

1996: Canada Oceans Act[171] (the year of the Ottawa Declaration establishing the Arctic Council)

1996: DFO designated to develop and implement oceans strategy[172]

2002: Canada's Oceans Strategy: *Our Oceans, Our Future*[173]

2005, 2007: Canada's Oceans Action Plan (includes Beaufort Sea as a priority LOMA)[174]

2009: AWPPA coverage extended from 100 to 200 nm[175]

> LMEs are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves, enclosed and semi-enclosed seas, and the outer margins of the major current systems . . . . They are relatively large regions on the order of 200,000 km2 or greater, characterized by distinct bathymetry, hydrography, productivity, and trophically dependent populations.

Duda & Sherman, *supra* note 123, at 802 (citations omitted).

167. Siron et al., *supra* note 9, at 93.

168. Arctic Waters Pollution Prevention Act, R.S.C., ch. A-12 (1985).

169. Juda (2003), *supra* note 162, at 171 (footnotes omitted). "[T]he *Government Organization Act of 1979* moved fisheries management . . . out of the Department of the Environment and into the Department of Fisheries and Oceans (DFO), which then became a ministerial post in the government." J.R. Wilson, *The Joint Planning Agreement Experience in Canada*, *in* CASE STUDIES IN FISHERIES SELF-GOVERNANCE 125, 125–26 (R. Townsend et al. eds., 2008).

170. Juda (2003), *supra* note 162, at 171 (footnotes omitted).

171. Oceans Act, 1996 S.C., ch. 31 (Can.), *available at* laws.justice.gc.ca/en/O-2.4/index.html.

172. Juda (2003), *supra* note 162, at 171. The Oceans Act of Canada gives the DFO minister lead authority in developing and implementing an integrated oceans strategy. Oceans Act, 1996 S.C., ch. 31, §§ 29, 31 (Can.).

173. FISHERIES AND OCEANS CANADA, CANADA'S OCEAN STRATEGY OUR OCEANS, OUR FUTURE: POLICY AND OPERATIONAL FRAMEWORK FOR INTEGRATED MANAGEMENT OF ESTUARINE, COASTAL AND MARINE ENVIRONMENTS IN CANADA (2002), *available at* http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/ri-rs/cos-soc/pdf/cos-soc_e.pdf.

174. COMMUNICATIONS BRANCH, FISHERIES AND OCEANS CANADA, CANADA'S OCEANS ACTION PLAN: FOR PRESENT AND FUTURE GENERATIONS (2005), *available at* http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/ oap-pao/pdf/oap_e.pdf.

175. Arctic Waters Pollution Prevention Act, R.S.C., ch. A-12 (1985).

United States
1969: Stratton Commission Report,[176] *Our Nation and the Sea*[177]
1970: National Oceanic and Atmospheric Administration (NOAA) established[178]
1972: Coastal Zone Management Act (CZMA)[179]
1972: Marine Mammal Protection Act (MMPA)[180]
1975: NOAA-sponsored OCSEAP (Outer Continental Shelf Environmental Assessment Program) in Beaufort Sea begins[181]
1990: U.S. Oil Pollution Act (OPA)[182]
2000: U.S. Oceans Act, mandates a Commission on Ocean Policy (COP)[183]
2003: Pew Oceans Commission Report *America's Living Oceans*[184]

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176. COMMISSION ON MARINE SCIENCE, ENGINEERING AND RESOURCES, *Our Nation and the Sea* (1969), *available at* www.lib.noaa.gov/noaainfo/heritage/stratton/title.html [hereinafter STRATTON COMMISSION REPORT].

177. Juda (2003), *supra* note 162, at 165 (citation omitted). The Stratton Commission was a strong advocate of heeding ecosystem dynamics and human effects thereon. *Id.* at 166.

178. *Id.* President Nixon established NOAA not as an independent entity but as part of the Department of Commerce. Reorganization Plan No. 4 of 1970, National Oceanic and Atmospheric Administration, 35 Fed. Reg. 15,627 (Oct. 6, 1970).

179. Coastal Zone Management Act, 3 U.S.C. § 1451 (1972).

180. Marine Mammal Protection Act, 16 U.S.C. § 1361 (1972).

181. David Norton & Gunter Weller, *The Beaufort: Background, History, and Perspective*, *in* THE ALASKAN BEAUFORT SEA: ECOSYSTEMS AND ENVIRONMENTS (Peter W. Barnes et al. eds., 1984).

> The period of most direct contact between scientists and public policymakers in the Beaufort Sea, 1977–1981, was also marked by pioneering approaches to arctic field studies and to analyses of the resulting information. . . .Many resulted from treating sea ice as a convenient platform for logistics operations, rather than a barrier preventing access to the ocean . . . .

Id. at 16.

> In 1975 and 1976, it seemed that more money was available to OCSEAP in Alaska than either time or forethought in planning a coherent program. . . .In the Beaufort Sea, however, OCSEAP inherited rather than created a community of capable arctic scientists[] . . . experienced with one or another of the recent antecedents of OCSEAP, in arctic multidisciplinary science. . . . The catalysts that allowed OCSEAP investigations to fashion an integrated research program that went beyond the pedestrian and uninspired stages of surveys seem to have been three activities conceived or encouraged in 1976–77 . . . .

Id. at 15.

182. United States Oil Pollution Act, 33 U.S.C. § 2701 (1990).

183. Oceans Act of 2000, 33 U.S.C. § 857–19 (2000). *See also* Robin Kundis Craig, *Taking the Long View of Ocean Ecosystems: Historical Science, Marine Restoration, and the Oceans Act of 2000*, 29 ECOLOGY L.Q. 649, 657–671 (2002) (providing an excellent analysis and background of problems the Act was to address, including geographic and regulatory "fragmentation" of U.S. oceans management).

184. LEON E. PANETTA, CHAIR, PEW OCEANS COMMISSION, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE (2003), is an influential non-governmental report offering recommendations to the U.S. federal government on shaping oceans management for the future. Dr.

2004: U.S. Ocean Blueprint (July), Oceans Action Plan (September), and Committee on Ocean Policy (December)[185]

Both states have been hindered in their progress toward more integrated oceans management by adopting a "sectoral approach" to ocean management early on,[186] and also by administrative overlap and competition to maintain control of expertise and influence by government officials and lobbyists alike.[187] Each country still spreads oceans authority over a number of agencies/ministries, but attempts to concentrate oceans leadership in one entity. In Canada, the Department of Fisheries and Oceans (DFO), which obtained ministerial status in 1979,[188] coordinates and facilitates, but does not directly supervise, the multiple governmental entities with responsibility for oceans related matters[189] in developing and implementing the national Oceans Strategy.[190] In the United States, the National Oceanic and Atmospheric Administration in the Department of Commerce (NOAA) plays less of a coordinating role with respect to other government branches, but oversees a broad range of divisions under its own roof, from fisheries to weather to protection of marine habitats and other responsibilities. Canada's failure to establish a national approach to coastal zone management has been attributed to "turf disputes,"[191] and the U.S. and Canada are both faced with sometimes competing interests between the national and sub-national levels of government.[192] A study of Canada's

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Jane Lubchenco, confirmed in 2009 as the Under Secretary of Commerce for Oceans and Atmosphere and Chief Administrator of NOAA, was a member of the Commission in her then-capacity as a Professor of marine biology at Oregon State University. *Id.* at 3.

185. Council on Environmental Quality, Committee on Ocean Policy, http://ocean.ceq.gov (last visited Oct. 3, 2009). The Committee was established by Executive Order. Exec. Order No. 13,366, 69 C.F.R. 244 (2005). The Ocean Blueprint, July 2004, is the legally mandated COP Report; the Oceans Action Plan, September 2004, is the legally mandated Presidential response to the COP Report, and the Committee was established in December 2004 as an outgrowth of the Blueprint and the Action Plan.

186. Juda (2003), *supra* note 162, at 170.

187. *Id.* at 166 (observing the resistance on the part of entrenched interests—both agencies and those that lobby them—to institutional restructuring for fear of the unknown and of losing influence).

188. *Id.* at 171; *see also supra* note 174.

189. Multiple entities are responsible for implementing and enforcing the some 50 statutes and 80 provincial laws "affecting coastal and marine planning." Siron et al., *supra* note 9, at 92 (citation omitted). *See, e.g.*, Ted L. MCDORMAN, *Canada's Ocean Limits and Boundaries: An Overview*, *in* OCEANS LAW AND POLICY IN THE POST-UNCED ERA: AUSTRALIAN AND CANADIAN PERSPECTIVES 113 (Lorne K. Kriwoken et al. eds., 1996) (noting that the limits of Canadian federal and provincial jurisdiction in marine areas are not always clear).

190. Oceans Act, 1996 S.C., ch. 31, s. 31 (Can.); *see also* Juda (2003), *supra* note 162, at 171.

191. Juda (2003), *supra* note 162, at 184 n.89 (quoting INTERNATIONAL OCEAN INSTITUTE, FINAL REPORT OF THE CANADIAN OCEAN ASSESSMENT: A REVIEW OF CANADIAN OCEAN POLICY AND PRACTICE (Oct. 1996)).

192. Juda (2003), *supra* note 162. Speaking of the U.S., Canada, and Australia, Juda comments:

> Institutionally, necessary changes requiring alterations to the status quo often

difficulties in implementing coastal management could offer both countries insights as to what problems might arise in moving towards ecosystem-based coastal–ocean management in the Beaufort Sea.[193]

A. Ecosystem-based ocean management in Canada and the United States

The concept of ecosystem-based management (EBM) has been a driving force in the move toward integrated oceans management in Canada and the United States.[194] In Canada, EBM undergirds the Large Ocean Management Area (LOMA) mechanism. In the United States, domestic policy supports integrated ecosystem-based oceans management and international policy supports Large Marine Ecosystems (LMEs).[195] The United Nations Environmental Programme, the World Bank Global Environment Facility, and the United States have promoted LMEs worldwide with such success that in 2006 the Arctic Council PAME adopted them as the appropriate mechanism for promoting environmental protection in the Arctic. The United States, represented by NOAA, and the LME Program took the lead on the PAME Work Plan 2006–2008 on the Integrated EBM Approach.[196] Other arctic littoral states are also integrating EBM into their management of the Arctic,[197] a fact recognized by the Arctic Council in its endorsement of EBM for the 17 Large Marine Ecosystem areas of which the Beaufort Sea is one.[198]

LMEs are generally transnational, encompassing shared ecosystems that span the territory and waters of more than one state, and can be equated

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> conflict with traditional, functionally based distribution of departmental authority and jurisdiction and have implications for relationships between national and subnational governments. Politically, it is understood that change, either in institutional arrangements or in policy, can or will have significant implications for stakeholders, both inside and outside of government.

Id. at 179.

193. *Id.* at 170 ("The troubled Canadian experience in attempting to advance integrated coastal management may be indicative of problems that will continue to make efforts at ecosystem-based coastal-ocean management difficult.").

194. *Id.* (describing the importance of ecosystem-based management); STEPHEN B. OLSEN ET AL., A HANDBOOK ON GOVERNANCE AND SOCIOECONOMICS OF LARGE MARINE ECOSYSTEMS 1 (2006); Duda & Sherman, *supra* note 124. It should also be noted that oceans management is a larger concept than that of marine environmental protection. VanderZwaag (1995), *supra* note 40, at xiii.

195. U.S. OCEAN ACTION PLAN: THE BUSH ADMINISTRATION'S RESPONSE TO THE U.S. COMMISSION ON OCEAN POLICY 36–37 (2004), *available at* http://ocean.ceq.gov/actionplan.pdf [hereinafter OCEAN ACTION PLAN].

196. PAME Progress Report, *supra* note 10, at 2.

197. Erik Olsen et al., *The Norwegian Ecosystem-Based Management Plan for the Barents Sea*, 64 ICES J. MAR. SCI. 599, 599 (2007), *available at* http://icesjms.oxfordjournals.org/cgi/reprint/ 64/4/599.pdf.

198. PAME Progress Report, *supra* note 10, at 1. The Chukchi Sea is another Arctic LME identified by PAME.

with ecosystem-based areas.[199] LME planners understand ecosystems as distinct ecological units that address the interaction and interdependence of human,[200] plant, and animal communities and their physical environment.[201] Because ecosystems "typically [cut] across existing political and jurisdictional boundaries [they are] subject to multiple management systems."[202] PAME, in its *Progress Report on the Ecosystem Approach to Arctic Marine Assessment and Management 2006–2008*, describes both integrated EBM and LMEs:

> An integrated ecosystem approach to management requires that development activities be coordinated in a way that minimizes their impact on the environment and integrates thinking across environmental, socio-economic, political and sectoral realms.[203]

The large regions of ocean space that make up LME geographical management areas are based on "distinctive ecosystems rather then [sic] political boundaries" and on four ecological criteria: (1) bathymetry, (2) hydrography, (3) productivity, and (4) trophic relationships.[204]

One gap Koivurova and Molenaar have identified in arctic governance is the lack of an internationally agreed-upon definition for "integrated, cross-sectoral ecosystem-based ocean management."[205] Canadian and U.S. cooperation in the Beaufort Sea, whether under the auspices of the LME pilot program or other initiatives, has the potential to show that regional agreement on such a definition, or on the compatibility of different definitions, can allow effective implementation of EBM. A study of the

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199. Duda & Sherman, *supra* note 124, at 797–98.

200. "The representative of the Sustainable Development Working Group showed the relevance to the LME perspective of its sources of socio-economic information and data, including ArcticStat, which compiles statistics from all circumpolar countries, and the Survey of Living Conditions in the Arctic (SLICA)." PAME Progress Report, *supra* note 10, at 3.

201. OLSEN ET AL., *supra* note 194, also provides a detailed discussion of integrated oceans management and LMEs. For an in-depth study of changes in ocean management over time see LAWRENCE JUDA, INTERNATIONAL LAW AND OCEAN USE MANAGEMENT: THE EVOLUTION OF OCEAN GOVERNANCE (1996). For a more recent account, see GESAMP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection: Science for Sustainable Oceans, http://www.cep.unep.org/publications-and-resources/databases/document-database/other/case-study-of-cartagena.pdf (last visited Oct. 3, 2009).

202. OLSEN ET AL., *supra* note 194, at 2.

203. PAME Progress Report, *supra* note 10, at 1.

204. *Id.*; *see also* OLSEN ET AL., *supra* note 194, at 3 ("LMEs include geographic areas of oceans that have distinct bathymetry, hydrography, productivity, and trophically dependent populations. The geographic limits of most LMEs are defined by the extent of continental margins and the seaward extent of coastal currents.").

205. KOIVUROVA & MOLENAAR, *supra* note 11, at 32, 33 (detailing the various non-binding ways the Arctic Council promotes "integrated management of resources and ecosystem-based management").

regional Arctic Council LME in the Beaufort Sea and the *subregional* Canadian LOMA in the Canadian portion of the Beaufort Sea "demonstrates that both approaches are based on the same principles and criteria, and aim at the same goal: giving primary consideration to the marine ecosystem when managing activities."[206] The fact that two are applied complementarily at different governance and spatial levels (regional and subregional) in the Beaufort Sea offers a model for drawing the U.S. approach to EBM into the pilot program as another subregional model, complementing the Canadian LOMA concept.

Another gap Koivurova and Molenaar point to is the fact that, beyond the North Atlantic region, "the remainder of the Arctic marine area is not covered by similar coordinating and cooperating bodies, or a single overarching body, to ensure integrated, cross-sectoral ecosystem-based ocean management."[207] The Beaufort Sea offers an opportunity for the two countries to demonstrate a bilateral model of integrated, cross-sectoral ecosystem-based ocean management, especially given the fact that neither Canada nor the United States are members of the OSPAR agreement, which supports much of the governance structure for the Arctic North Atlantic.[208] Understanding the genesis of ocean policy in each country will help identify some of the interstices where the best practices in each system can dovetail.

B. The United States: Legislation relevant to ecosystem-based and integrated management of the Beaufort Sea

The United States has been influential in introducing the LME approach around the world,[209] but in the domestic setting U.S. ocean legislation and policy refer instead to ecosystem-based approaches. This is true in the context of resource management[210] and of the U.S. Integrated Ocean Observing System (IOOS).[211] The potential domestic relevance of

206. Siron et al., *supra* note 9, at 86.

207. KOIVUROVA & MOLENAAR, *supra* note 11, at 9.

208. *Id.*

209. INTERAGENCY COMM. ON OCEAN SCI. AND RES. MGMT. INTEGRATION, FEDERAL OCEAN AND COASTAL ACTIVITIES REPORT TO THE U.S. CONGRESS 24 (2008), *available at* http://ocean.ceq.gov/2007_Oceans_Report_final.pdf [hereinafter FOCA] ("LME projects are funded by the Global Environment Facility (GEF), the World Bank, participating countries, and other donors.").

210. *See* OCEAN ACTION PLAN, *supra* note 195, at 3 ("The administration will continue to work towards an ecosystem-based approach in making decisions related to water, land, and resource management in ways that do not erode local and State authorities and are flexible to address local conditions.").

211. NATIONAL OCEAN LEADERSHIP COUNCIL & INTERAGENCY COMMITTEE ON OCEAN SCIENCE AND RESOURCE MANAGEMENT INTEGRATION, THE FIRST U.S. INTEGRATED OCEAN OBSERVING SYSTEM (IOOS) DEVELOPMENT PLAN (2006), *available at* http://www.ocean.us/documents/

LMEs received modest attention in the 2004 Report of the Commission on Ocean Policy (COP) that was mandated by the U.S. Oceans Act of 2000,[212] which itself makes no reference to either LMEs or EBM.[213]

Marine-relevant U.S. legislation of the 1970s, still in force, reflects the single-sector approach, as opposed to the EBM approach, to environmental regulation in other areas (clean water, marine mammals, endangered species, ocean dumping, fisheries conservation and management) that helped slow progress toward developing integrated oceans management.[214] Juda points out that these laws addressed specific problems but did little to treat "the conflict of uses that increasingly occurred in ocean areas . . . ."[215]

Juda argues that legislative developments in the 1980s and 1990s, such as the amendments to the Outer Continental Shelf Lands Act, or OCSLA, widened the factors to be considered when making sectoral decisions relevant to marine affairs and began to require consultation across federal agencies and between the federal and state governments.[216] OCSLA now incorporates "factors which interactively determine the . . . quality of the

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docs/IOOSDevPlan_low-res.pdf. *See* OCEAN ACTION PLAN, *supra* note 195, at 13 ("The U.S. Integrated Ocean Observing System (IOOS) is a major U.S. contribution to the international Global Ocean Observing System, which is a substantial component of the intergovernmental Global Earth Observation System of Systems (GEOSS).").

212. Juda (2003), *supra* note 162, at 168 (The Oceans Act established the Commission and required it to make recommendations regarding "'coordinated and comprehensive national ocean policy'") (citation omitted).

213. Donna R. Christie, *Implementing an Ecosystem Approach to Ocean Management: An Assessment of Current Regional Governance Models*, 16 DUKE ENVTL. L. & POL'Y F. 117, 131–41. The Oceans Act speaks of protection of the marine environment and sustainable use of marine living resources, along with "resolution of conflicts among users of the marine environment," but makes no explicit reference to ecosystem-based management. Oceans Act of 2000, 33 U.S.C. § 857–19 (2000).

214. Juda (2003), *supra* note 162, at 167 ("[W]ith the important exception of the CZMA, coastal and ocean legislation of the 1970s continued to reflect single-sector concerns, as seen in the Clean Water Act, the Marine Mammal Protection Act, the Endangered Species Act, the Ocean Dumping Act, and the Fisheries Conservation and Management Act.") (citations omitted).

215. *Id.* (citations omitted).

216. *Id.*

> [T]he Clean Water Act, Outer Continental Shelf Lands Act Amendments of 1978, and amendments to the Magnuson-Stevens Fishery Conservation and Management Act concerned with essential fish habitat . . . . A further indicator of change in approach to ocean and coastal areas is evidenced in the 1987 establishment by Congress of the National Estuary Program. By providing recognition of the ecological importance of estuaries, emphasizing the multiple causes of environmental degradation, and utilizing a watershed focus, this program signaled movement toward an ecosystem-based approach to environmental use, protection, and sustainability. Changes made to the Magnuson-Stevens Fishery Conservation and Management Act in 1990 demonstrated similar change in respect to fisheries management.

Id. (citations omitted).

marine ecosystem" into its definition of marine environment.[217] The Alaska National Wildlife Refuge, established in 1960, and expanded by the Alaska National Interests Land Conservation Act of 1980, is not discussed in detail here, though it may prove relevant to marine protection notwithstanding the primary focus on land-based resources.

A partial listing of other U.S. legislative tools relevant to management of the Beaufort Sea begins with environmental assessment, which lies at the heart of the National Environmental Policy Act of 1972.[218] Under NEPA, all federal agencies must consider environmental impact during their decision-making and permitting processes. Environmental Assessments (EA) are the basis for determining if a federal action will have a significant environmental impact. Only if the EA leads to such a determination must the more involved EIS process be carried out. The Endangered Species Act is another non-marine specific piece of legislation relevant to oversight of the Beaufort Sea and EIA requirements, including in its purposes the conservation of "the ecosystems upon which endangered species and threatened species depend . . . ."[219] Other legislation that is non-marine specific but relates to the development of oil and gas in the Beaufort Sea is briefly identified *infra* Part V.

Ecosystem-based integrated ocean management requires sound science about the ecosystems being managed as well as improved communication between agencies with jurisdiction over the ecosystem in question. Both objectives have been included in recent U.S. government initiatives. The Ocean Action Plan of 2004 established the U.S. Committee on Ocean Policy (COP) at the executive cabinet level, under the Council on Environmental Quality (CEQ).[220] The CEQ-COP has the task of

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217. Outer Continental Shelf Lands Act, 43 U.S.C. § 1331(g) (2000).

> The term "marine environment" means the physical, atmospheric, and biological components, conditions, and factors which interactively determine the productivity, state, condition, and quality of the marine ecosystem, including the waters of the high seas, the contiguous zone, transitional and intertidal areas, salt marshes, and wetlands within the coastal zone and on the outer Continental Shelf.

Id.

218. National Environmental Policy Act of 1972, 42 U.S.C. § 4321 (1970).

219. Endangered Species Act, 16 U.S.C. § 1531(b) (1973).

220. Exec. Order No. 13,366, 69 C.F.R. 244 (2004) (establishing the Committee on Ocean Policy). The "Functions of the Committee" include to "(d) provide and obtain information and advice to facilitate . . . (iii) use of science in establishment of policy on ocean-related matters . . . " and to "(e) ensure coordinated government development and implementation of the ocean component of the Global Earth Observation System of Systems." *Id.* § 4. *See also* Memorandum for the Heads of Executive Departments and Agencies: National Policy for the Oceans, Our Coasts, And the Great Lakes, 74 Fed. Reg. 28591 (June 17, 2009) (creating the interagency Ocean Policy Task Force); OCEAN ACTION PLAN *supra* note 195; PEW OCEANS COMMISSION, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE (2003) (noting that the mandate of the COP expired by terms of the U.S. Ocean Act in

coordinating both "activities of the executive departments and agencies regarding ocean-related matters in an integrated and effective manner" and "'consultation regarding ocean-related matters among Federal, State, Tribal and local governments, the private sector, *foreign governments and international organizations*.'"[221] The CEQ Interagency Working Group on Ocean Partnerships operates under the National Science and Technology Council (NSTC) Joint Subcommittee on Ocean Science and Technology (JSOST), whose functions include providing "advice on science and technology for ecosystem-based management and stewardship of resources."[222]

In September 2009, the CEQ proposed a National Ocean Policy that identifies "[adopting] ecosystem-based management as a foundational principle for the comprehensive management of the ocean, our coasts, and the Great Lakes" as the first of nine priority areas.[223] "Changing Conditions in the Arctic" is another priority area for the proposed Policy, which incorporates the "precautionary approach" among its principles and states that it is the (proposed) policy of the United States to "[u]se the best available science and knowledge to inform decisions affecting the ocean, our coasts, and the Great Lakes."[224]

Recent U.S. developments for Arctic Ocean fisheries also embrace EBM. The U.S. North Pacific Region Fishery Management Council[225] adopted the Fishery Management Plan for Fish Resources of the Arctic

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2004); Christie, *supra* note 213, at 129.

221. Christie, *supra* note 213, at 130 (emphasis added) (footnotes omitted). "In that regard, the Committee is to 'provide and obtain information and advice to facilitate . . . voluntary regional approaches with respect to ocean-related matters.'" *Id.* (citations omitted); *see also* FOCA, *supra* note 209 (providing an overview of federal ocean actions), and the proposed National Ocean Policy, *infra* note 234, at 34.

222. Joint Subcommittee on Ocean Science and Technology, Functions, http://ocean.ceq.gov/about/sup_jsost_functions.html (last visited Sept. 2, 2009).

223. WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY, INTERIM REPORT OF THE INTERAGENCY OCEAN POLICY TASK FORCE 7, 34–35 (Sept. 12, 2009), *available at* http://www.whitehouse.gov/assets/documents/09_17_09_Interim_Report_of_Task_Force_FINAL2.pdf [hereinafter INTERIM REPORT]. The proposed policy is subject to public comment and further negotiation. President Obama established the task force in June 2009. Press Release, Office of the Press Secretary, Memorandum for the Heads of Executive Departments and Agencies: Subject: National Policy for the Oceans, Our Coasts and the Great Lakes (June 12, 2009), *available at* http://www.whitehouse.gov/the_press_office/Presidential-Proclamation-National-Oceans-Month-and-Memorandum-regarding-national-policy-for-the-oceans/.

224. INTERIM REPORT, *supra* note 223, at 8, 13.

225. The North Pacific Region is one of the fisheries regions established under NOAA oversight for management of fisheries in the United States. NORTH PACIFIC FISHERY MANAGEMENT COUNCIL, ARCTIC FISHERY MANAGEMENT PLAN (Feb. 2009), *available at* http://www.fakr.noaa.gov/npfmc/current_issues/Arctic/ARCTICflier209.pdf.

Management Area[226] in February 2009. The Council describes its management policy for the U.S. Arctic EEZ as "an ecosystem-based management policy that proactively applies judicious and responsible fisheries management practices, based on sound scientific research and analysis" and as one that "recognizes the need to balance competing uses of marine resources and different social and economic goals for sustainable fishery management" and the "complex interactions among ecosystem components . . . ."[227] The plan effectively bans commercial fishing within the U.S. EEZ in Beaufort and Chukchi Seas, but does provide for eventual development of an arctic commercial fishery as science provides more information. The plan regulates neither subsistence fishing nor state-regulated fishing in coastal waters managed by the State of Alaska.[228]

C. Canada: Legislation relevant to ecosystem-based and integrated management of the Beaufort Sea

Canada's 1996 Oceans Act represented a significant step toward incorporating an ecosystem perspective on ocean management in its legislation and "consolidating federal management of oceans and coasts" in its administrative structure.[229] Yet Canada has moved "slowly and in an *ad hoc* manner"[230] to realize integrated planning efforts, not publishing an Oceans Strategy and related operational framework until 2002.[231] The Oceans Act and Ocean Strategy documents articulated the core of what became the Large Ocean Management system, and principles such as EBM, sustainable development, the precautionary approach and shared

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226. The Arctic Management Area is defined as:

> [A]ll marine waters in the U.S. EEZ of the Chukchi and Beaufort Seas from 3 nautical miles offshore the coast of Alaska or its baseline to 200 nautical miles offshore, north of Bering Strait (from Cape Prince of Wales to Cape Dezhneva) and westward to the 1990 U.S./Russia maritime boundary line and eastward to the U.S./Canada maritime boundary.

Id.

227. *Id.*

228. "The Arctic FMP will not regulate subsistence or recreational fishing or State of Alaska-managed fisheries in the Arctic. . . . However, the Arctic FMP provides a means for future commercial fishery development when sufficient information becomes available." *Id.* The Arctic FMP was created under the authority of the U.S. Magnuson-Stevens Fishery Conservation and Management Act. 16 U.S.C. § 1801 (1996).

229. Juda (2003), *supra* note 162, at 171.

230. VanderZwaag & Hutchings, *supra* note 143, at 238.

231. FISHERIES AND OCEANS CANADA, CANADA'S OCEANS STRATEGY: POLICY AND OPERATIONAL FRAMEWORK FOR INTEGRATED MANAGEMENT OF ESTUARINE, COASTAL AND MARINE ENVIRONMENTS IN CANADA, (2002), *available at* http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/ri-rs/cosframework-cadresoc/pdf/ im-gi_e.pdf (showing that Canada's Oceans Strategy was not published until the year 2002).

responsibility.[232] Canada's Oceans Action Plan for Present and Future Generations (2005)[233] continued these trends[234]:

> [Canada's] *Oceans Act*, the Oceans Strategy and most recently Canada's Oceans Action Plan are all based on [ecosystem-based management], and, more specifically commit Canada to managing activities in and affecting oceans in a way that does not compromise ecosystem health while encouraging multiple uses of ocean spaces. Canada has adopted a combination of objective-based measures and area-based approaches to the planning and management of activities and has made ecosystem-based considerations central to its approach to integrated management.[235]

Ecosystem-based management is also integral to Canada's Oceans Action Plan (OAP) for 2005–2007, which has four pillars: international leadership sovereignty and security, integrated oceans management for sustainable development, oceans science and technology, and understanding health of the oceans.[236]

The Integrated Management Pillar of the OAP identified five Large Ocean Management Areas (LOMAs) in Canada, including one in the Beaufort Sea. All five are potential platforms for testing science-based management tools "specifically developed for advancing and implementing EBM."[237] LOMAs are larger regions that extend to the outer edge of the EEZ and have smaller regional coastal management areas "nested" within them.[238] The process of implementing EBM will necessarily be different for

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232. VanderZwaag & Hutchings, *supra* note 143, at 255 n.202: ("Key principles include: ecosystem-based management, sustainable development, the precautionary approach, conservation, shared responsibility, flexibility and inclusionary.") (citations omitted).

233. FISHERIES AND OCEANS CANADA; COMMUNICATIONS BRANCH, CANADA'S OCEANS ACTIONS PLAN: FOR PRESENT AND FUTURE GENERATIONS (2005), *available at* http://www.dfo-mpo.gc.ca/oceans-habitat/ oceans/oap-pao/pdf/oap_e.pdf.

234. For a concise discussion of Canada's Oceans Act, Strategy and Oceans Action Plan, see Siron et al., *supra* note 9 (discussing Canada's Large Ocean Management Areas).

235. CAMIILLE MAGEAU, DEPT. OF FISHERIES AND OCEANS, A PRACTICAL APPROACH TO ECOSYSTEM-BASED MANAGEMENT 1 (2006), *available at* http://www.un.org/depts/los/consultative_ process/documents/7_mageau.pdf.

236. EBM is a "core" principle for pillars 2 and 3. Siron et al., *supra* note 9, at 92.

237. *Id.*

238. MAGEAU, *supra* note 235, at 2.

> The LOMAs extend from the coast out to the outer boundary of the Exclusive Economic Zone. Within these large regions, [sic] are the smaller, nested coastal management areas. . . . For each of these [five priority LOMA] areas, existing baseline information on the status and trends of physical habitats (soil and subsoil), the water column, oceanographic processes and biological components including their trophic relationship is being assembled. An inventory of human

each sub-regional level as managers and users tailor programs to the specific conditions of the smaller ecosystems. Science-based environmental assessment is central to several steps in LOMA processes, which include ecosystem overview and assessment reports, identifying ecologically and biologically significant areas, and developing ecosystem objectives for informing integrated management.

The 2008 Ecosystem Overview and Assessment Report for the Beaufort Sea LOMA is a reminder of the critical reliance of EBM on sound science. Established in 2004, the Canadian Beaufort Sea LOMA covers 1,107,694 km^2 and is—as can be confirmed only through scientific analysis and local observation—characterized by "the Beaufort Continental Shelf, a relatively short ice-free season, increased sediment and freshwater loading during the spring and summer, and the Cape Bathurst polynya . . . ."[239] As the Report summarizes, Inuvialuit and Gwich'in groups have relied on the region's productivity for generations and still actively hunt and fish there.[240] Integrated management planning under the Beaufort Sea LOMA directly considers six such individual communities.[241]

Other Canadian legislation relevant to the Beaufort Sea, by no means a complete list, includes the Canada Shipping Act,[242] the Canadian Environmental Assessment Act (CEAA),[243] and the Species at Risk Act (SARA).[244] SARA provides just one example of the differences between U.S. and Canadian legislative options in face of an endangered species

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> activities is also being compiled and an assessment of the individual and cumulative impacts of these activities on significant components of the ecosystem is being conducted.

Id.

239. COBB ET AL., *supra* note 8, at 2. For other characteristics of the Beaufort marine ecosystem, see Eddy C. Carmack & Robie W. MacDonald, *Oceanography of the Canadian Shelf of the Beaufort Sea: A Setting for Marine Life*, 55 ARCTIC 29 (Supp. I 2002). For an illustration of the Beaufort Sea LOMA, see Beaufort Sea Large Ocean Management Area, http://www.beaufortseapartnership.ca/bslom.html (last visited Oct. 3, 2009).

240. COBB ET AL., *supra* note 8, at 3.

241. These individual communities are: Aklavik, Inuvik, Ulukhaktok (formerly Holman), Paulatuk, Sachs Harbour, and Tuktoyatuk. *See* Beaufort Sea Partnership Homepage, The Beaufort Sea Large Ocean Management Area, http://beaufortseapartnership.ca (last visited Aug. 27, 2009).

242. MINISTER OF INDIAN AFFAIRS AND NORTHERN DEV. AND FED. INTERLOCUTOR FOR METIS AND NON-STATUS INDIANS, CANADA'S NORTHERN STRATEGY: OUR NORTH, OUR HERITAGE, OUR FUTURE, 12 (2009), *available at* http://www.northernstrategy.gc.ca/cns/cns-eng.asp ("establishing new regulations under the *Canada Shipping Act, 2001* to require all vessels entering Canadian Arctic waters to report to the Canadian Coast Guard's NORDREG reporting system.").

243. Species at Risk Act, R.S.C., ch. 29 (2002).

244. *Id.*; *see also* VanderZwaag & Hutchings, *supra* note 142, at 247 n.20 ("Most provisions were proclaimed in force as of June 5, 2003 while various prohibitions, such as those against taking an individual of a listed wildlife species or damaging/destroying a residence of a listed species, entered into force on June 1, 2004.").

taking.[245] SARA is also considered a model for effectively communicating science to decision makers[246] and clearly distinguishing the role of science[247] and law[248] in driving the implementation of the act, notwithstanding criticisms of the potential for fragmentation of the authorization–permitting system.[249]

Even these incomplete sketches of Canadian and U.S. legislative frameworks relevant to EBM and EIA in the Beaufort Sea suggest areas for comparative study with an eye toward emphasizing shared principles and tools that could lead to harmonized practices. Both EBM and EIA are expressed differently in each system yet sufficiently established to begin to fill, rather than leave, a regional regulatory gap such as concerns Koivurova and Molenaar.[250] How EBM and EIA are actually implemented and enforced in each system would prove a useful comparison in designing an oversight mechanism for the Beaufort Sea triangle.[251] Perhaps the most promising comparison is the mutually recognized need for sound science as the basis for EBM and EIA. Coordinated baseline assessment and ongoing monitoring of Beaufort Sea ecosystems might be more easily expanded upon than more classical regulatory mechanisms through such existing networks as the Global Ocean Observing System[252] and concentrated support for such developing programs as the Arctic Observing Networks.[253]

D. MPAs in Canada and the United States

Koivurova and Molenaar's observation that "there is no specific legally binding obligation, procedure or body to enable the establishment of representative networks of MPAs for most or all of the Arctic marine

245. VanderZwaag & Hutchings, *supra* note 143, at 221.

246. *Id.*; *see also supra* note 35 and accompanying text.

247. VanderZwaag & Hutchings, *supra* note 143, at 221.

248. *Id. at* 223–24. "The SARA tiller has nine main legal grips for promoting protective measures. Two of the most powerful legal handles are general prohibitions." *Id.* at 223. Other legal grips include "specific prohibition against destruction of critical habitats [section 58]," and environmental assessment review, a system of authorization agreements or permits, and emergency orders (section 79). *Id.*

249. *Id.* at 235.

250. *See* discussion *supra* note 22.

251. Such a comparison would also need to include the administrative regulations and implementation practices that accompany the legislative acts in each state, an element that has generally been excluded from this article due to space limitations.

252. *See, e.g.*, *supra* note 211.

253. On the status and needs of Arctic Observing Networks, see generally Eicken et al., *supra* note 98, at 120, noting that "[w]hile regional ocean observing systems, terrestrial ecological monitoring sites, and coordinated socio-economic data collection have addressed some of these aspects, comprehensive efforts at the pan-Arctic scale are only now starting to be discussed" (citations omitted) and referring to the National Academy of Sciences Committee on Designing an Arctic Ocean Observing Network.

area[,]"[254] at the international level is less true in the domestic legal systems of Canada and the United States. Neither country has any mandate to create MPA networks specifically in the Arctic, but both systems make individual ecosystem-based MPAs[255] a possibility.[256] Canada has taken the lead with respect to the Beaufort Sea,[257] with its proposed Tarium Niryutait MPA in three areas[258] of the Mackenzie Delta Region. The DFO is the lead agency in promoting the Tarium Niryutait MPA, which is in keeping with commitments under Canada's Oceans Act, Ocean Strategy, and Oceans Action Plan.[259] In the United States, the Arctic National Wildlife Refuge is included on the "List of National System Marine Protected Areas" but is classified as applying a "Non-MPA Programmatic Management Plan."[260] A 2000 Presidential Executive Order[261] strengthened and expanded the U.S. system of MPAs established under the authority of numerous pieces of federal legislation, including the CZMA and the OCSLA.[262]

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254. KOIVUROVA & MOLENAAR, *supra* note 11, at 9.

255. MPAs in the United States include "one of the largest fully protected marine reserves in the world," the Dry Tortugas Research Natural Area in Florida. FOCA, *supra* note 209, at 11.

256. *See, e.g.*, Timo Koivurova, *Governance of Marine Protected Areas in the Arctic*, 5 UTRECHT L. REV. 44 (2009), *available at* http://www.utrechtlawreview.org (providing an updated assessment of tools for MPAs in the Arctic); Pagnan, *supra* note 19, at 471 (discussing the Arctic Council's CPAN or Circumpolar Protected Area Network and some of its shortfalls).

257. The Government of Canada committed in the October 2004 Speech from the Throne, which is not legally binding, to "move forward on its Oceans Action Plan by . . . establishing a network of marine protected areas, implementing integrated management plans, and enhancing the enforcement of rules governing oceans and fisheries . . . ." Prime Minister Paul Martin, Speech From the Throne to Open the First Session of the Thirty-Eighth Parliament of Canada (Oct. 5, 2004) (transcript available at http://www.sportmatters.ca/Images/2%20Support%20Documents/2006/SFT%20Oct%205,%202004.pdf.

258. For an illustration of the Niaqunnaq, Okeevik, and Kittigaryuit areas, see the map available at http://www.beaufortseapartnership.ca/tnmp_area.html.

259. In 2004, the Government of Canada committed to the Canadian Oceans Action Plan for two years (2005–2007), which was directed to develop a strategy for establishing a network of MPAs. Siron et al., *supra* note 9, at 92.

260. *List of National System Marine Protected Areas—National Wildlife Refuge System Federal Sites*, Marine Protected Areas of the United States, Apr. 22, 2009, http://mpa.gov/pdf/helpful-resources/national_system_ mpas_list_4_22_09.pdf.

261. Exec. Order No. 13,158, 65 Fed. Reg. No. 34909 (May 26, 2000).

262. The full list of legislation cited as authority for the Order include: the National Marine Sanctuaries Act, the National Wildlife Refuge System Administration Act of 1966, the National Park Service Organic Act, the National Historic Preservation Act, the Wilderness Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Coastal Zone Management Act, the Endangered Species Act of 1973, the Marine Mammal Protection Act, the Clean Water Act of 1977, the National Environmental Policy Act, and the Outer Continental Shelf Lands Act. *Id.*

E. Canadian Beaufort Sea Initiatives

The Canadian Beaufort Sea LOMA and the Tarium Niryutait MPA, both introduced above, are but two of several active management initiatives in the Canadian waters and coastal areas of the Beaufort Sea. The following list is representative, but not comprehensive:

> Beaufort Sea LOMA Ecosystem Overview and Analysis Report[263]
> Tarium Niryutait Marine Protected Area[264]
> Beaufort Sea Inuvialuit Beluga Management Plan[265]
> Beaufort Sea Integrated Management Planning Initiative (BSIMPI)[266]
> Inuvialuit Community Conservation Plans[267]

The preceding initiatives include only governmental activities, but academic projects such as the Beaufort Sea Project for Climate Change (Canada)[268] and projects under the auspices of ArcticNet[269] also reflect Canada's arguably greater interest and experience in questions of Arctic governance as compared to the United States.

Upon such cursory initial inquiry, another striking impression is the apparently greater formal involvement of Inuvialuit groups in multi-level management of marine resources in the Canadian Beaufort Sea when compared to their Inupiat counterpart's involvement in managing U.S. waters of the Beaufort.[270] These impressions need to be tested with more

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263. *See* COBB ET AL., *supra* note 8.

264. *See* Siron et al., *supra* note 9, at 92.

265. *See* MILTON M. R. FREEMAN ET AL., INUIT, WHALING, AND SUSTAINABILITY 129–30 (1998) (describing The Beaufort Sea Beluga Management Plan). The Inuvialuit Beluga Management Plan "identifies seven key coastal areas off limits to industrial development." BALANCING CONSERVATION AND DEVELOPMENT, *supra* note 158.

266. Elliott & Spek, *supra* note 103, at 1; *see also* BSIMPI Secretariat, *What is BSIMPI?* FISHERIES AND OCEANS CANADA, http://www.dfo-mpo.gc.ca/Library/319128.pdf (containing a fact sheet on BSIMPI).

267. *See, e.g.*, GLORIA J. FEDIRCHUK ET AL., TRADITIONAL KNOWLEDGE GUIDE FOR THE INUVIALUIT SETTLEMENT REGION, NORTHWEST TERRITORIES: VOLUME 1: LITERATURE REVIEW AND EVALUATION (2008), *available at* http://www.esrfunds.org/documents/TKGuideVolIpublished version.pdf (listing of some community plans).

268. Beaufort Sea Project for Climate Change (Canada) is run under the auspices of the Arctic Institute of North America, housed at the University of Calgary and the University of Alaska, Fairbanks. Arctic Institute of North America, http://www.arctic.ucalgary.ca/index.php?page=beaufort (last visited Oct. 7, 2009).

269. ArcticNet includes a "Network of Centres of Excellence of Canada that brings together scientists and managers in the natural, human health and social sciences with their partners from Inuit organizations, northern communities, federal and provincial agencies and the private sector to study the impacts of climate change in the coastal Canadian Arctic." ArcticNet, http://www.arcticnet.ulaval.ca/ (last visited Oct. 17, 2009).

270. Peter J. Usher, *Inuvialuit Use of the Beaufort Sea and its Resources, 1960–2000*, 55 ARCTIC 18, 18–19 (Supp. 1 2002). The Inuvialuit Regional Corporation states that "IFA provided

systematic inventorying and research. A geographic inquiry would investigate how much of the difference is attributable to the fact that the Inuvialuit Settlement Region (ISR) overlaps with the Canadian Beaufort Sea, including the disputed triangle, and that the North Slope Borough's control over activities affecting the Alaskan Beaufort Sea is much more proscribed.[271] The ISR was established as part of the Inuvialuit Final Agreement approved by the Canadian Parliament in 1984 as the Western Arctic Claims Settlement Act.[272] Thus, for over 25 years all of the government entities in the region—Inuvialuit, local, provincial, and federal—have had the opportunity to work together to develop co-management and governance structures tailored to the local ecosystems, structures, and socioeconomic needs.[273] Another area for investigation is whether the interrelationship between the North Slope Borough, the Alaska Eskimo Whaling Commission, and federal and state governance is less layered and more autonomous than the multi-level governance in Canada, possibly leading to less integrated solutions to problems in the region.

V. CONNECTING DOMESTIC AND INTERNATIONAL FRAMEWORKS: OFFSHORE HYDROCARBON ACTIVITIES IN AN ECOSYSTEM SETTING

Any bilateral cooperation in the Beaufort Sea triangle will require Canada and the United States to engage not only with each other, but also, as appropriate, to integrate outputs of international institutions into their national oceans frameworks as introduced in Part IV. The preceding survey of how each state provides for integrated, cross-sectoral ecosystem-based ocean management and, to a lesser extent, MPAs and EIA, is the basis for the following discussion of offshore hydrocarbon activities, one of the sectors[274] that Koivurova and Molenaar suggest is affected by the lack of

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financial compensation and ownership of 91,000 square kilometers (35,000 square miles) of land including 13,000 square kilometres (5,000 square miles) with subsurface rights to oil, gas and minerals." Inuvialuit Regional Corp., Brief History, http://www.irc.inuvialuit.com/about/history.html (last visited Sept. 26, 2009).

271. The NSB has the potential to influence activities beyond its jurisdiction if those activities are not consistent with its Coastal Zone Management Plan. *See* Jeffrey H. Woods, *Protecting Native Coastal Ecosystems, CZMA and Alaska's Coastal Plain*, 19 NAT. RESOURCES & ENV'T 57 (2004) (suggesting ways in which the North Slope Borough might become involved via the consistency requirement of the CZMA).

272. Western Arctic (Inuvialuit) Claims Settlement Act, 1984 S.C., ch. 24 (Can.).

273. Zellen, *supra* note 153, at 193 (offering detailed case studies of ISR co-management in action).

274. KOIVUROVA & MOLENAAR, *supra* note 11, at 7–9. Shipping and Fisheries are the other two sectors Koivurova and Molenaar identify as having gaps in trans-sectoral regulation and governance. They are not discussed here, beyond reference to the Arctic Marine Shipping Assessment. *Id.*

such tools internationally.[275] This section focuses on how the two national legal systems might begin to fill gaps in their institutions and regulations that deal with offshore hydrocarbon activity by accommodating selected outputs of the Arctic Council (non-binding) and the International Maritime Organization (binding and non-binding). It also touches briefly on selected principles in the international law of the sea, including the Law of the Sea Convention, as additional support for any joint oversight.[276]

An initial wave of hydrocarbon exploration in the Beaufort Sea occurred in the 1960s with the discovery of oil at Prudhoe Bay[277] and the Mackenzie Delta,[278] peaking in the 1980s.[279] In recent years, a warming Arctic and an expanding global demand for oil has led to renewed lease activity in the region. Leases have been granted within and on both sides of the disputed triangle,[280] but actual exploration and exploitation has only taken place in waters that are clearly under Canadian or U.S. national jurisdiction. Both countries respect an effective moratorium suspending further leasing or exploration within the triangle, even though no written agreement exists to that effect.[281] Revived interest in hydrocarbons in Canadian[282] and U.S. waters[283] of the Beaufort Sea has been accompanied

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275. *Id.* In the Arctic, "[t]he three most important cross-sectoral issues seem to be (transboundary) environmental impact assessment (EIA) and strategic environmental assessment (SEA), representative networks of marine protected areas (MPAs) and integrated, cross-sectoral ecosystem-based ocean management [EBM]." *Id.* at 7.

276. The Arctic Council and IMO are chosen as representative institutions relevant to Canadian and U.S. activities in the Arctic. Other international institutions and agreements such as NAFTA (Ch. 6) and the Convention for Biological Diversity, are also relevant and will be discussed in the larger project discussed at *supra* note *. For example, NAFTA's provisions on the Canadian–U.S. energy market are not Arctic-specific but have the potential to render the location of the Beaufort Sea maritime boundary less significant for any cooperative hydrocarbon activities in the disputed area. *See, e.g.*, Michael Holden, *Canadian Oil Exports to the United States Under NAFTA*, PARLIMENTARY INFORMATION AND RESEARCH SERVICE, LIBRARY OF PARLIMENT (Nov. 16, 2006), *available at* http://www.parl.gc.ca/information/library/PRBpubs/prb0633-e.pdf.

277. Exploration in U.S. Arctic waters occurred as early as the 1920s, but Prudhoe Bay exploration took off in 1967. Dennis Thurston, Arctic Council Oil and Gas Assessment: Findings and Recommendations, Presentation at Lessons from Continuity and Change in the Fourth International Polar Year Symposium (March 4–7, 2009), *available at* http://institute.inra.org/ipy/ipy presentations/DennisThurstonLessonsIPYFinal.pdf.

278. *See* Elliott & Spek, *supra* note 103, at 4 (noting that a lack of pipeline and unsettled Inuvialuit land claims led to a Canadian moratorium that was eventually lifted as both situations reached resolution).

279. Thurston, *supra* note 277.

280. *See e.g.*, MCDORMAN, *supra* note 3, at 189–90. Only Canada has actually granted leases within the disputed area, but no activity has occurred under those leases. *Id.*

281. Gray, *supra* note 7, at 63.

282. *See* CANADA SENATE INTERIM REPORT, *supra* note 90, at 12, explaining that

> [o]n Canada's side of the border, Imperial Oil Ltd. and Exxon Mobil Canada had acquired an exploration licence from the federal government in 2007. Under the terms of the licence (covering an area of 205,000 hectares of Arctic sea floor about 100 kilometres north of the Mackenzie Delta in the Northwest Territories),

by increased opposition to such activity by non-governmental and other organizations, but also by proposals to find ways for hydrocarbon development and other uses to coexist in the region.[284] Indigenous groups fall on both sides of the development divide, as increased hydrocarbon activity may bring employment and economic opportunities, yet also has the potential to threaten traditional and subsistence ways of life. The Arctic Council Offshore Oil and Gas Guidelines acknowledge the diverse interests in the issue of offshore hydrocarbon activity: "Arctic governments should consider the use of integrated management schemes[]" in considering and planning for coordination and conflict of oil and gas activities with other human uses.[285]

Integrated management lies at the heart of this section's proposal to build in two ways on the basic idea of joint development zones (JDZ): (1) by adapting JDZ agreements for multiple uses beyond hydrocarbon development to include management of other resources; and (2) by introducing different stages of development gradually, justifying any new development phase with the scientific data gathered as part of an integrated ecosystem-based management plan. The Beaufort Sea is a good forum for testing this expanded notion of JDZs because both Canadian and U.S. national ocean's infrastructures support the use of integrated ecosystem-based oceans management, as does the Beaufort Sea LME endorsed by the Arctic Council ministers, and the related Arctic Council Beaufort LME Pilot Project now being planned jointly by Canada and the United States.[286]

If and when joint development of Beaufort Sea triangle hydrocarbon resources occurs, it is more likely to be under a negotiated JDZ agreement than a unitization agreement.[287] Under JDZs states typically agree to share the resources found in the disputed area in agreed proportions,[288] whereas

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> the two companies agreed to spend $585 million on exploration within the next five years.

Id.

283. The MMS estimates that the 2007–2012 Outer Continental Shelf Oil and Gas Leasing Program "could produce 10 billion barrels of oil and 45 trillion cubic feet of natural gas over 40 years, generating almost $170 billion, in today's dollars . . . ." FOCA, *supra* note 209, at 10.

284. *E.g.*, World Wildlife Fund, http://www.worldwildlife.org/home.html (last visited Nov. 9, 2009); Arctic Council, http://www.arctic-council.org (last visited Nov. 9, 2009); North by 2020: A Forum for Local and Global Perspectives on the North, http://www.alaska.edu/ipy/north2020/main.xml (last visited Nov. 9, 2009).

285. ARCTIC OOG GUIDELINES, *supra* note 4, at 11.

286. PAME Progress Report, *supra* note 10, at 3 ("The United States and Canada, and the United States and Russia, have already initiated discussions with support from the UNDP-GEF funding process.").

287. MCDORMAN, *supra* note 3, at 188–89 (discussing variations on JDZ models).

288. States enter into a joint petroleum development agreement (JPDA) to develop together a specific, identified transboundary hydrocarbon deposit that flows freely across national boundaries. They agree in advance to the proportions in which they will share any resources found and agree to pool

with cross-border unitization agreements, states develop a specific transboundary field together.[289] The idea of a JDZ for hydrocarbons in the Beaufort Sea is not new[290] and was last discussed in any detail in the late 1970s by Special Negotiators Cadieux and Cutler.[291] A JDZ agreement could be structured with or without resolving the maritime boundary, but neither solution has been pursued with any vigor for over a quarter century.[292] Whether the issue will be resolved prior to, as part of, or following the continental shelf submission process remains to be seen.[293]

JDZ agreements can, first and foremost, deal with a maritime boundary dispute by either resolving or working around it on a temporary or permanent basis.[294] Further, in the 1969 *North Sea Continental Shelf Cases*, the ICJ recognized the existence of "express or tacit consent" between states as one basis for taking into account petroleum resources when interpreting an "equitable and just solution" to delimiting adjacent continental shelf claims.[295] Article 83 of the Law of the Sea Convention provides that the delimitation of the continental shelf as between states "with opposite or adjacent coasts shall be effected by agreement on the basis of international law . . . in order to achieve an equitable solution."[296] Since 1969, the law of maritime delimitation has gained "impressive"

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their sovereign rights over the area. Ana E. Bastida et al., *Cross-Border Unitization and Joint Development Agreements: An International Law Perspective*, 29 HOUS. J. INT'L L. 355, 358–59, 370 (2007). On JPDAs generally, see Ian Townsend-Gault & William Stormont, *Offshore Petroleum Joint Development Arrangements: Functional Instruments? Compromise? Obligation?*, *in* THE PEACEFUL MANAGEMENT OF TRANS-BOUNDARY RESOURCES 51, 51, 70–71 (Gerald H. Blake et al. eds., 1995).

289. In cross border unitization, states enter into a treaty regarding general resources in a shared area, and negotiate individual unit operating agreements with license holders. Bastida et al., *supra* note 288, at 370. Treaties relative to North Sea petroleum resources use this method predominantly. *Id*. at 391. The authors also note that "states where boundaries are delimited [as part of a boundary settlement] tend more toward the unitization of specific fields." *Id.* at 371 (citation omitted).

290. *See, e.g.*, Gray, *supra* note 7, at 63 (stating that both countries have "issued permits for petroleum exploration in the disputed area, but because of the dispute, they have established a moratorium on exploration"); MCDORMAN, *supra* note 3, at 188–90.

291. MCDORMAN, *supra* note 3, at 188–190 (providing a cogent yet detailed summary of the diplomatic options discussed—and eventually declined—for joint development of hydrocarbons in the Beaufort Sea).

292. *Id.*

293. The definition of the outer continental shelf under Article 76 is "without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts." U.N. Convention on the Law of the Sea, *supra* note 1, at art. 76(10). Delimitation of the Beaufort Sea continental shelf *as between* Canada and the U.S. will necessarily depend on how Canada and the U.S. deal with their maritime boundary dispute.

294. Bastida et al., *supra* note 288, at 371.

295. North Sea Continental Shelf Cases, 1969 I.C.J. 3, at 136 (Feb. 20); Bastida et al., *supra* note 288, at 368.

296. U.N. Convention on the Law of the Sea, *supra* note 1, at art. 83. Article 74 contains identical language for delimiting the EEZ as between states opposite or adjacent coasts. *Id.* at art. 74(1).

consistency in applying an "equidistance/relevant circumstances" approach to EEZ and continental shelf delimitations of single maritime boundaries.[297] Nonetheless, each case is unique[298] and it remains to be seen whether the existence of an agreement would at all affect a tribunal's willingness to take resources—hydrocarbon or otherwise—into account if and when it comes to proceedings to delimit the Arctic Ocean continental shelf as between Canada and the U.S. and, possibly, other arctic littoral states.

Bastida et al. refer to the "increasingly common inclusion of clauses in maritime boundary delimitation treaties that oblige two states to cooperate in the exploitation, and apportionment of benefits from any common deposits."[299] Yet, considering that shared liquid mineral deposits as well as marine mammals and polar bears move across boundaries, it is plausible to think about adapting a JDZ to accommodate joint oversight of both types of natural resources rather than only oil and gas.[300] This is especially true if one substitutes the notion of "exploiting" a resource with the concept of "managing" it until such time as exploitation is in keeping with the overall health of the ecosystem.

Existing JDZ agreements are very case specific and the product of extremely complex negotiations, yet nonetheless offer several components that might be adapted to plan for management of more than hydrocarbons in any given area. As Bastida et al. point out, JDZ agreements vary widely in structure but share some basic components, including the parties' commitment to sharing resources, a management structure that protects the rights and obligations of both states, and a means of determining applicable law for each sector.[301] For example, after failing to settle their EEZ boundary, Guinea-Bissau and Senegal negotiated a 1993 framework agreement and a 1995 protocol to develop both petroleum and fisheries in the disputed area.[302] An international agency manages their shared zone, a

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297. MCDORMAN *supra* note 3, at 156–63 (offers a clear, cogent summary of the voluminous case law leading to this assessment).

298. *Id.*

299. Bastida et al., *supra* note 288, at 374 (citation omitted). The practice is "extensive and virtually uniform and may be a step in the emergence of a customary rule of international law that would require States to cooperate in the exploration and exploitation of common deposits of liquid minerals." *Id.* at 374–75 (internal quotations omitted) (citing Rainer Lagoni, *Oil and Gas Deposits Across National Frontiers*, 73 AM. J. INT'L L. 215 (1979).

300. *See id.* at 372–73 ("The idea that specific rules apply to this situation is most often based on the *fluid, migratory nature of oil and gas*, which in some cases justifies specific rules and obligations *restricting territorial sovereignty* . . . .") (emphases added).

301. *Id.* at 414–17. Other common characteristics are specified bases for licensing to operators, and financial and dispute resolution provisions. Specification of applicable law "should include the petroleum licensing regime, laws governing civil and criminal jurisdiction over individuals in the zone, and rules and regulations governing health, safety and environmental issues." *Id.* at 417.

302. *Id.* at 407–09. "The Management and Cooperation Agreement of 1993 was an outline

model that is found in many JDZ Agreements.[303] The Argentina–UK Joint Declaration 1995 defines a "special area" in which the two states agree to cooperate to explore and exploit resources.[304] A joint commission recommends environmental protection standards and coordinates activities in that area.[305]

In the Beaufort Sea triangle, the joint management structures typically found in JDZ agreements could be expanded to include input from existing management institutions such as the Inuvialuit–Inupiat Whaling Commission,[306] and the Beaufort Sea Integrated Management Planning Initiative (BSIMPI),[307] and to accommodate obligations under existing international agreements such as the Polar Bear Treaty.[308] As McDorman points out, a complicating potential exists for multiple governance layers beyond the Canadian and U.S. federal authorities to be drawn into a negotiated JDZ, including the Inuvialuit Fisheries Joint Management Committee[309] and, depending on the location of the resources, the State of Alaska and the Yukon Territory.[310] This could mean that some hybrid of

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agreement . . . " which was "supplemented by the 1995 Protocol of Agreement relating to the Organization and Operation of the Agency for Management and Cooperation . . . ." *Id.* at 407. The Protocol established an International Agency, which had responsibility for managing the zone. *Id*. at 407–08 (citation omitted). By agreement, mining and petroleum activities were governed by Senegal's relevant laws and fisheries by Guinea-Bissau's applicable legislation. *Id.* at 409.

303. Bastida et al. identify three models for management: a single state managing on behalf of other states, a joint venture model, and the joint authority model, the last of which seems the most suited for application in the disputed Beaufort triangle. *Id.* at 415–16.

304. Joint Declaration on Cooperation over Offshore Activities in the South West Atlantic, Arg.-U.K., Sept. 27, 1995, 35 I.L.M. 301.

305. Bastida et al., *supra* note 288, at 416 (discussing the Joint Authority model). Other examples adopting versions of joint authorities include: Thailand–Malaysia 1979/1990 Joint authority (juridical character clarified in 1990 agreement, given such authority as the legislatures of the two states passed); Guinea-Bissau–Senegal (international agency responsible for the zone dividing fishery, petroleum, and mineral resources divided per agreement). *Id.* at 402–04, 407–08; Treaty between Australia and the Republic of Indonesia on the Zone of Cooperation in an Area between the Indonesian Province of East Timor and Northern Australia, Austl.-Indon., Dec. 11, 1989, 1991 Austl. T.S. No. 9; Timor Sea Treaty, Austrl.-E.Timor, May 20, 2002, 2003 Austl. T.S. No. 13.

306. *See* Lois A. Harwood and Thomas G. Smith, *Whales of the Inuvialuit Settlement Region in Canada's Western Arctic: An Overview and Outlook*, 55 ARCTIC 77, 87 (Supp. 1 2002) ("The Inuvialuit-Inupiat Beluga Agreement (2000) called for the establishment of the Inuvialuit-Inupiat Beluga Commission.").

307. *See id.* at 82 ("This designation would support the Beaufort Sea Beluga Management Plan, and part of the DFO's larger Beaufort Sea Integrated Management Initiative (BSIMPI) for the western Canadian Arctic."); *supra* text accompanying note 266.

308. Agreement on the Conservation of Polar Bears, January 1974, 13 I.L.M. 13–18.

309. *See* D. COBB ET AL., *supra* note 8, at 6 ("Subsistence fishing and hunting are activities supported by the IFA and other land claim agreements. These activities are monitored and supervised by the Fisheries Joint Management Committee (FJMC) and federal and territorial government departments to ensure sustainability of resources.").

310. MCDORMAN, *supra* note 3, at 189–90.

Canadian and U.S. standards could apply or, as unlikely as it may seem, that the agreement might even set a higher standard for the area than would be required in one legal system.[311]

A. The Arctic Council and Offshore Hydrocarbon Development

Other changes have paralleled the expansion of joint development and unitization agreements from their beginnings in the 1960s and 1970s.[312] When Lamson and VanderZwaag proposed a Beaufort Sea Cooperation Agreement in 1987,[313] ecosystem-based management was not well integrated into the national oceans framework of Canada or the United States. The Arctic Council had not been formed and its Arctic Offshore Oil and Gas Guidelines ("Arctic OOG Guidelines" or "Guidelines") did not yet exist. The following paragraphs identify relevant legislation in both countries in order to highlight provisions in those Guidelines that Canada and the United States could choose to incorporate into the design of an ecosystem-based joint development agreement. This partial inventory should also be relevant to plans for joint or coordinated management of the Beaufort Sea beyond the disputed area, as is contemplated in the Arctic Council Beaufort Large Marine Ecosystem (LME) Pilot Project. [314]

The Arctic Council OOG Guidelines explain that at least five administrative bodies are involved in the oil and gas development process in Canada:[315] Indian and Northern Affairs Canada, Fisheries and Oceans Canada,[316] Natural Resources Canada, Environment Canada, the Geological Survey of Canada, the Yukon Energy Mines and Resources, and the Inuvialuit Joint Secretariat.[317] As for regulatory tools, Canadian legislation has traditionally sought to "concentrate control over offshore hydrocarbon exploration and exploitation activities within specific oil and gas legislation and regulations."[318] In the past, the Canada Oil and Gas Operations Act was

311. "It may be necessary to incorporate the terms of the treaty into national law to avoid conflict between existing national laws applicable to the zone or its resources." Bastida et al., *supra* note 288, at 372 (citation omitted).

312. The first unitization agreement specifying actions to be taken upon discovery of a cross-border petroleum field was derived from the Agreement Relating to the Delimitation of the Continental Shelf Between the Two Countries, U.K.-Nor., May 10, 1965, 551 U.N.T.S. 213, art. 4; *see also* Bastida et al., *supra* note 288, at 391–98 (discussing a number of unitization treaties).

313. Lamson & VanderZwaag (1987), *supra* note 13, at 77.

314. PAME Progress Report, *supra* note 10, at 3.

315. ARCTIC OOG GUIDELINES, *supra* note 4, at 55.

316. Fisheries and Oceans Canada, http://www.dfo-mpo.gc.ca/index-eng.htm (last visited Aug. 29, 2009).

317. Joint Secretariat, http://www.jointsecretariat.ca/ (last visited Aug. 29, 2009).

318. VanderZwaag (1995), *supra* note 40, at 362.

criticized for the discretion it allowed in setting standards. While guidelines have served to address these gaps, they do not have the binding authority of enactments or regulations.[319] The general exclusion of exploratory drilling and production of hydrocarbons from three separate laws—the Canada Shipping Act's pollution prevention provisions, the Canadian Environmental Protection Act (CEPA), and the Fisheries Act—has also been viewed as problematic.[320] The Canada Petroleum Resources Act[321] is also relevant to any proposal that would draw on the Arctic OOG Guidelines in the Beaufort Sea.[322] At the policy level, in conjunction with its Northern Strategy announced in 2009,[323] the Government of Canada announced a significant new geo-mapping effort—Geo-Mapping for Energy and Minerals—that will combine the latest technology and geoscientific analysis methods, to "highlight areas of mineral and petroleum potential, lead to more effective private sector exploration investment and create employment opportunities in the North."[324]

The United States utilizes some half dozen administrative institutions in the regulation of oil and gas leasing, exploration, and exploitation. The Minerals Management Service has the primary responsibility for the permitting process.[325] The Environmental Protection Agency,[326] NOAA,[327] the U.S. Army Corps of Engineers,[328] the U.S. Coast Guard,[329] the U.S. Department of Transportation,[330] as well as several departments within the

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319. *Id.* at 363–66.

320. *Id.*

321. Canada Petroleum Resources Act, R.S.C., ch. 36 (2nd Supp.) (1985).

322. There are specific regulatory regimes off of Nova Scotia and Newfoundland, but none yet established for the Arctic. VanderZwaag (1995), *supra* note 40, at 367.

323. MINISTER OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT AND FEDERAL INTERLOCUTOR FOR METIS AND NON-STATUS INDIANS, CANADA'S NORTHERN STRATEGY: OUR NORTH, OUR HERITAGE, OUR FUTURE (2009), *available at* http://www.northernstrategy.ca/cns/cns.pdf [hereinafter MINISTER OF INDIAN AFFAIRS]. The Strategy was accompanied by the launch of a trilingual website (French-English-Inuit). Canada's Northern Strategy, http://www.northernstrategy.ca (last visited Oct. 4, 2009).

324. MINISTER OF INDIAN AFFAIRS, *supra* note 323, at 16.

325. ARCTIC OOG GUIDELINES, *supra* note 4, at 55 (MMS is responsible for "[o]ffshore oil, gas and energy leasing; environmental studies and protection; enforcement, inspections and permits, energy resource economic analysis; and revenue management.").

326. *Id.* (the EPA is responsible for "[r]egulation and enforcement of waste, oil and hazardous discharges and air emissions and monitoring.").

327. *Id.* (NOAA is responsible for "[m]arine mammal and fisheries management, protection, permits, and research.); NOAA's Marine Spill Response and Restoration website, *available at* http://response.restoration.noaa.gov/index.html.

328. *Id.* (The U.S. Army Corps of Engineers is responsible for "[o]ffshore dredging and dumping permits" and "wetlands protection").

329. *Id.* (U.S. Coast Guard responsible for "[o]ffshore oil and hazardous spill response and coordination" and "search and rescue, security and law enforcement.").

330. *Id.* (The U.S. Department of Transportation "[r]egulates aspects of offshore pipelines and production platforms.").

State of Alaska,[331] are involved in other activities related to oil and gas development affecting waters within Alaska's three-mile jurisdiction. The North Slope Borough has limited ability to influence offshore activity, relying largely on its taxation power and the federal[332] and state[333] statutes regarding coastal zone management.

Five main pieces of U.S. federal legislation are relevant to offshore development in the Beaufort Sea: the Outer Continental Shelf Lands Act (OCSLA),[334] the Marine Mammals Protection Act (MMPA), the Endangered Species Act (ESA), the National Environmental Protection Act (NEPA), and the Administrative Procedure Act (APA).[335] Executive orders, litigation, and other legislative actions may also directly affect oil and gas activities in the U.S.[336] The federal Coastal Zone Management Act (CZMA) is relevant to the extent that federal actions affect Alaska's three-mile coastal zone or occur within it, providing the North Slope Borough and other local communities a potential avenue to challenge offshore lease activity.[337] The 2009 U.S. Arctic Region Policy refers explicitly to the Beaufort Sea boundary dispute, recognizing "that the boundary area may contain oil, natural gas, and other resources[]"[338] and specifically refers to U.S. support of the Arctic Council and International Maritime Organization in its discussions of Arctic Governance.[339]

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331. *Id.* (The State of Alaska is "[r]esponsible for marine areas to 5 kilometers from shore[,]" dividing responsibility between multiple departments.).

332. Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451–64 (2006); Woods, *supra* note 271.

333. Alaska passed its own Coastal Management Act in 1977. ALASKA STAT. § 46.40.010 (2008).

334. OCSLA defines OCS as "all submerged lands lying seaward and outside of the area of lands beneath navigable waters . . . ." Outer Continental Shelf Lands Act (OCSLA) 43 U.S.C. § 1331(2)(a) (2000).

335. Fatima Ahmad et al., *Oil and Gas Development in the Arctic Ocean: An Overview of the Legal and Regulatory Framework and Issues Facing Arctic Resources*, SEA TECH., Apr. 2009, at 51, 52–53.

336. In June 2008, President George W. Bush lifted a presidential moratorium put in place by his father. Steven L. Myers & Carl Hulse, *Bush Acts on Drilling, Challenging Democrats*, N.Y. TIMES, July 15, 2008, at A13. This step was independent of a congressional moratorium on drilling in the Alaska National Wildlife Refuge, which had been in place since 1982, but expired after 26 years on October 1, 2008 when Congressional Democrats could not reach agreement. *Congress Allows Offshore Oil Drilling Ban to Expire*, ENVIRONMENTAL NEWS SERVICE, Sept. 30, 2008, http://www.ens-newswire.com/ ens/sep2008/2008-09-30-091.asp.

337. Woods, *supra* note 271, at 61 (citing North Slope Borough v. Andrus, 642 F.2d 589 (1980) as an unsuccessful challenge to a lease sale). The Coastal Zone Management Act "includes a consistency requirement, meaning that all federal agency activities affecting the coastal zone or within a state's coastal zone must be consistent with the state's coastal plan." *Id.* at 59 (citation omitted).

338. U.S. ARCTIC REGION POLICY, *supra* note 24, at Part III.D.2.

339. *Id.* at Part III.C.1.

B. The Arctic Council Beaufort LME Pilot Project

The Beaufort LME Pilot Project now being developed by Canada and the United States is a direct product of the Arctic Marine Strategic Plan (AMSP) adopted by the Arctic Council Ministers in 2004. The Ministers "requested PAME . . . in close collaboration with AMAP and CAFF, to develop the LME approach for pilot assessment and management projects for the Arctic."[340] These pilot projects were to "operationalize the [five] module LME assessment and management approach,"[341] which consists of "science-based indicators focused on: (1) productivity, (2) fish and fisheries, marine birds and marine mammals (3) pollution and ecosystem health. The other two are (4) socio-economic conditions, and (5) governance."[342] Central to the LME Pilot Project is the recognition of the need to manage multiple human and other uses of the LME, and that both environmental and socioeconomic indicators are necessary for effective decision-making regarding Arctic marine ecosystems.[343] How the Beaufort LME Pilot Project will incorporate the earlier Arctic Council Project, Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr),[344] remains to be seen.[345] As should any proposal for joint oversight of portions of the Beaufort Sea, the following sections are offered with an eye for complementing and furthering planning for the Pilot Project.

C. Relevant Arctic Council Outputs

At least three Arctic Council documents are relevant to structuring a multiple use joint development area in the Beaufort triangle: the Arctic Offshore Oil and Gas Guidelines, the Arctic Marine Shipping Assessment, and the Arctic Council EIA Guidelines.[346] These are selected from

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340. PAME Progress Report, *supra* note 10, at 1 (emphasis omitted).

341. PAME Work Plan, *supra* note 10, at 3; PAME Progress Report, *supra* note 10, at 5 (describing the "assessment and management projects based on the 5-module LME strategy.").

342. PAME Progress Report, *supra* note 10, at 1.

343. ARCTIC COUNCIL, ARCTIC MARINE STRATEGIC PLAN 11 (2004) (The AMSP further requested PAME to "[i]dentify elements that can serve as key environmental and socio-economic indicators of the state of Arctic marine ecosystems and thus guide effective decision-making.").

344. PROTECTION OF THE ARCTIC MARINE ENVIRONMENT, PAME SUMMARY REPORT, 2006–2009 ACTIVITIES: 6TH ARCTIC COUNCIL MINISTERIAL MEETING 29TH OF APRIL 2009, TROMSO, NORWAY 6 (2009), *available at* http://web.arcticportal.org/uploads/Ir/Kn/IrKnBwQe3DQ6dTjqq5QG5w/PAME-Summary-of-Activities-Report-2009.pdf .

345. *See, e.g.*, KOIVUROVA & MOLENAAR, *supra* note 11, at 33 (constituting one of the rare references to BePOMAr in published literature).

346. ARCTIC ENVIRONMENTAL PROTECTION STRATEGY, GUIDELINES FOR ENVIRONMENTAL IMPACT ASSESSMENT (EIA) IN THE ARCTIC (1997), *available at* http://ceq.hss.doe.gov/nepa/eiaguide.pdf [hereinafter EIA GUIDELINES].

numerous other relevant Arctic Council Programs and working groups[347] and their outputs,[348] because of their more immediate connection to the regulatory gaps (EIA/EBM) and industry sectors (offshore hydrocarbon activity and shipping) that are the focus of this article.

The Arctic Council Ministers' 2009 endorsement of the Arctic Offshore Oil and Gas Guidelines, quoted in the Preamble to the Guidelines:

> [The] Guidelines recognize[] a uniform understanding of the minimum actions needed to protect the Arctic marine environment from unwanted environmental effects caused by offshore oil and gas activities. The Ministers, however, acknowledge that further steps can be taken nationally as a part of the environmental and natural resource management policies of the Arctic States.[349]

Like all Arctic Council outputs, the Arctic OOG Guidelines are not binding and, like many Arctic Council guidelines, their implementation is voluntary and difficult to measure.[350] Incorporating elements of the Arctic OOG or EIA Guidelines[351] into any Beaufort Sea cooperative model can help improve what continues to be an inadequate and non-systematic evaluation of whether these guidelines are being followed[352] because it can provide input as to how at least two states are using them.

The Arctic OOG Guidelines were updated in 2002 and revised as endorsed in 2009.[353] The updating process itself reflects a model similar to the Guidelines' recommendations for governance: involving at various levels "representatives of Arctic, regional and other governments, non-governmental organizations, industry, indigenous people, and the scientific

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347. ARCTIC OOG GUIDELINES, *supra* note 4, at 56 (listing the Emergency Preparedness, Prevention and Response (EPPR) Working Group website (www.eppr.arctic-council.org), the Sustainable Development Working Group website (http://portal.sdwg.org), and the Conservation of Arctic Flora and Fauna Working Group website (http://arcticportal.org/en/caff)).

348. *Id.* at 3–4, 56. Additional guidance and information resources that have relevance to the Arctic Offshore Oil and Gas Guidelines have been provided by the Arctic Council since 2002, including the Human Health in the Arctic Report (2003), the Arctic Marine Strategic Plan (2004), the Transfer of Refined Oil and Oil Products in the Arctic (TROOP) Guidelines (2004), the Arctic Guide for Emergency Prevention, Preparedness and Response (2008), the Arctic Climate Impact Assessment (2004), the Assessment Oil and Gas Activities in the Arctic—Effects and Potential Effects (OGA, 2009), The Arctic Shoreline Clean-up Assessment Technique (SCAT) Manual, 2004, and the Arctic Guide for Emergency Prevention, Preparedness, and Response, December 2008. *Id.* at 56.

349. *Id.* at 1.

350. KOIVUROVA & MOLENAAR, *supra* note 11, at 8 tbl.2.

351. EIA GUIDELINES, *supra* note 346.

352. KOIVUROVA & MOLENAAR, *supra* note 11, at 35 ("While a number of useful non-legally binding guidelines are produced within the framework of the Arctic Council, the impacts of these are difficult to determine given that the Council does not systematically evaluate whether these are being followed.").

353. ARCTIC OOG GUIDELINES, *supra* note 4, at 1.

community to provide agreed guidelines for offshore oil and gas activities in the Arctic."[354] The Arctic OOG Guidelines cover all aspects of oil and gas development in the offshore Arctic except transportation.[355] The Guidelines' principles and tools include EIA,[356] the "Principle of the Precautionary Approach,"[357] the Polluter Pays Principle,[358] the principle of "continuous improvement,"[359] and what is labeled the principle of sustainable development, under which "Arctic governments should be mindful of their commitment to sustainable development," and, *inter alia*, "the duty to cooperate on a regional basis for protection and preservation of the marine environment, taking into account characteristic regional features and global climate change effects."[360] The Guidelines call for cooperation between arctic states in facilitating bilateral and multilateral initiatives to address their own and regional needs, "in concert with the public and with oil and gas industry operators,"[361] and for *regional* baseline environmental assessments. These need to be "intercompatible" and compared from year to year so as best to inform any EIA processes involved in offshore oil and gas activities.[362]

The Arctic OOG Guidelines refer to the bilateral Arctic Council Beaufort LME Pilot Project, noting that "[e]fforts are underway to design a pilot, multistakeholder regional environmental assessment process for the Beaufort Basin[]"[363] and that "[p]rior to issuing an authorization under COGOA, the project must undergo an environmental assessment conducted in accordance with the provisions of the applicable environmental

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354. *Id.* at 3.

355. *Id.* at 4 ("Recommendations on the transportation of oil and gas are found in the OGA, 2008.").

356. *Id.* at 13.

357. *Id.* at 6 (defined further as that which was "reflected in Principle 15 of the Rio Declaration shall be widely applied by States to oil and gas activities according to their capabilities.").

358. *Id.* "The polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment." *Id*.

359. *Id*. The Guidelines further suggest that

> [a]ll parties should continually strive to improve health, environment and safety by identifying the processes, activities and products that need improvement, and implement necessary improvement measures. The process of identifying what can be improved may be based on mappings and results of analyses, investigation of situations of hazard and accident, or near hazards and accidents, handling of non-conformities, experience from internal follow-up or auditing, or experience gained by others.

Id.

360. *Id.* at 7.

361. *Id.* at 10.

362. *Id.* at 14. "An EIA should be based on the best available information . . . ." *Id.* at 17.

363. *Id.* at 84.

assessment regime(s)."[364] These efforts could include both national regimes as well as any efforts provided for under local or regional governance structures. How these processes would interrelate with the Arctic Council EIA Guidelines is unclear, especially because there is no systematic assessment of whether Canada and the United States are actually implementing them.[365]

The EIA Guidelines recommend taking into account such factors as low population density and high dispersion of communities in the Arctic which, combined, render public participation in EIA processes difficult.[366] The EIA Guidelines conclude that "the sensitivity of the arctic environment demands special attention, possibly in the form of special arctic thresholds,"[367] but do not provide detailed support for this statement, although the guidelines do include a bibliography that might be used for guidance. Relevant to oil and gas development, the EIA Guidelines "emphasize[] that even though activities may be far away from the border, transboundary impacts may occur anyway, especially with respect to large-scale activities such as oil and gas activities." [368] At least in the Canadian Beaufort Sea, many of these elements seem to be accounted for in the Beaufort Sea Integrated Management Planning Initiative (BSIMPI) process.[369] Evaluating this and other similar initiatives on how they incorporate requirements from the various regulatory authorities, and where these can dovetail with or draw on Arctic Council guidelines, will help structure a stronger bilateral oversight mechanism for the area.

Characterizations and definitions are important in any regulatory document because they set the parameters for its actual application. The Arctic Offshore Oil and Gas Guidelines draw environmental impact into their two-fold characterization of risk: "[T]he risk that an event might happen, such as an oil spill, and the risk that something will be impacted,

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364. *Id*.

365. *See*; Timo Koivurova, *Implementing Guidelines for Environmental Impact Assessment in the Arctic*, *in* THEORY AND PRACTICE OF TRANSBOUNDARY ENVIRONMENTAL IMPACT ASSESSMENT 151, 165 (Kess Bastmeijer & Timo Koivurova eds., 2008) (stating that "the [guidelines have] not proven to be a success in practice."); KOIVUROVA & MOLENAAR, *supra* note 11, at 29 n.177 (stating "that the Arctic states share many challenges in applying EIA . . . .").

366. *See* KOIVUROVA & MOLENAAR, *supra* note 11, at 29 n.177 (stating that the participation of the public in EIA is constrained by the region's small population, which includes many indigenous peoples, by long distances and the limited number of cities and towns).

367. EIA GUIDELINES, *supra* note 346, at 23.

368. TIMO KOIVUROVA & KAMRUL HOSSAIN, ARCTIC TRANSFORM OFFSHORE HYDROCARBON: CURRENT POLICY CONTEXT IN THE MARINE ARCTIC 32 n.141 (2008), *available at* http://arctic-transform.org/download/OffHydBP.pdf.

369. *See* Elliott & Spek, *supra* note 103, at Part I.

such as ecologically sensitive areas."[370] Regional spatial planning—a component of EIA under the Arctic OOG Guidelines definition[371]—is seen as necessary for protecting those areas of the arctic marine environment "with both sea ice and important biodiversity significance,"[372] although the Guidelines do not venture to define such significance. This reluctance to provide definitions is a result of the fact that the Arctic OOG Guidelines are a negotiated document (even though not binding) and of the overall Arctic Council understanding that only individual arctic states can fill the Council frameworks with their own national content. This makes all the more significant those matters that are defined in Arctic Council documents, because they indicate the agreed common denominator on which individual countries may improve.

The fact that the EIA guidelines define "Cumulative Environmental Effects" reflects circumpolar consensus on the seriousness of bioaccumulation of pollutants for the Arctic without specifying how individual countries should define the term.[373] For their part, the Arctic OOG Guidelines defines "[m]arine environment" as "sea, coast, shore, seabed, water column and environmental resources."[374] Presumably the definition excludes the subsoil of the seabed so that any resources found under the seabed, or impacted by developing the oil and gas fields located there, are excluded from the Guideline's protections. Comparing this definition to those found in national legislation, and even in other Arctic Council documents, might allow for a new definition of "marine environment" in the Beaufort area. This new definition could adapt over time to reflect changes in scientific understanding of what the environment comprises and how development of subsoil resources benefits or harms the overall environment. More generally, a comparison of definitions for key terms in relevant legislation and regulations, as between Canada and the United States, might prove to be a fruitful way to improve and harmonize best practices for a pilot area.

The Arctic OOG Guidelines themselves engage in some country-by-country comparison of normative content, if not definitions, especially in the section on

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370. ARCTIC OOG GUIDELINES, *supra* note 4, at 16.

371. *Id.* at 17.

372. *Id.*

373. EIA GUIDELINES, *supra* note 346, at 47.

> Cumulative environmental effects (CEEs) are additive (aggregate), synergistic, or antagonistic (neutralizing) environmental changes of multiple impacts from past, present, and future development activities that degrade valuable ecosystem components. The pathways of CEEs can be difficult to determine because direct and indirect impacts can crowd or lag in time and space or become apparent only after specific triggers or thresholds are exceeded.

Id.

374. ARCTIC OOG GUIDELINES, *supra* note 4, at 21.

Environmental Impact Assessment. The Arctic OOG Guidelines observe that many of the EIA approaches found in arctic states' domestic legislation

> address common elements. They assess potential environmental impacts on the ecosystem and potential social and economic effects. They include a long-term focus that addresses both effects and planning. They include a discussion of the potential cumulative effects of oil and gas activities with the effects of other activities. They address competing interests.[375]

An Appendix outlines the different approaches to EIA in several of the arctic states, including Canada and the United States.[376]

Other sections of the Arctic OOG Guidelines suggest areas in which a study of the compatibility of each country's standards could also prove fruitful: these areas include environmental monitoring,[377] compliance monitoring,[378] safety and environmental management,[379] coordinated inspections for illegal cross-border environmental practices,[380] and site clearance and decommissioning.[381]

D. Offshore Hydrocarbon Activity: The Arctic Council, Shipping, and the IMO

The Arctic Council's 2009 Arctic Marine Shipping Assessment (AMSA) reports that approximately 6,000 vessels were in the Arctic marine area during 2004, nearly half of which operated for fishery purposes in the North Pacific Great Circle Route (which crosses the Aleutian Islands and the Southern Bering Sea).[382] Almost all of the 2004 vessel traffic occurred on the periphery of the Arctic Ocean and the most significant types of vessel activity that year were for "community re-supply, bulk cargo, tourism, and fishing vessel activity . . . ."[383] Eight vessels were recorded as having reached the North Pole in 2004, almost all for research purposes.[384]

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375. *Id.* at 13.

376. *Id.* at 82–86.

377. *Id.* at 23 ("Requirements for monitoring should be defined in each country's legal and regulatory framework."). But how to choose between measuring pollutant levels (the traditional method) or their potential effects on living resources? Agreed requirements could be applied on a test basis in the Beaufort triangle.

378. *Id.* at 28.

379. *Id.* at 25.

380. *Id.* at 29.

381. *Id.* at 49.

382. AMSA 2009 REPORT, *supra* note 44, at 73.

383. *Id.*

384. *Id.* at 81, 84. The number of research vessels in the AMSA database for 2004 was 83, but

AMSA's experience in culling ship activity data from numerous sources led it to conclude that "a consistent and accurate circumpolar database of Arctic ship activity" and accidents and incidents needs to be developed,[385] something that Canada and the United States could pursue together on a pilot basis in the Beaufort Sea.

Notwithstanding efforts by Coast Guards,[386] industry,[387] federal,[388] and local governments,[389] insufficient contingency planning and preparedness for oil spills[390] and other emergencies constitutes a gap Arctic-wide.[391] AMSA recommendations regarding emergency preparedness and response draw on the work of the EPPR working group of the Arctic Council[392] and encourage research and cooperation on such matters as "convergence of critical navigational information," simulated or field testing of oil spills and recovery techniques, and the behavior of oil in ice-infested areas (including models to forecast the drift of spilled oil).[393] Existing joint EPPR practices and cooperation between Canada and the United States, though in some regards still nascent, could be refined in the Beaufort Sea, with an eye to identifying the best means of improved terrestrial, satellite, and marine infrastructure support.

The Arctic OOG Guidelines sections on ship-based transportation of supplies and transportation infrastructure,[394] and on emergencies,[395] as well

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the number is considered to be greater, given the practice of certain arctic states not including government vessels. *Id.* at 81.

385. *Id.* at 90.

386. *See* discussion *supra* pp. 63–64 and accompanying notes.

387. *See, e.g.*, DF DICKENS ASSOCIATES LTD., ADVANCING OIL SPILL RESPONSE IN ICE COVERED WATERS iii (2004), *available at* http://www.arctic.gov/publications/oil_in_ice.pdf ("The objective of this project is to identify programs and research and development projects that improve the ability of responders to deal with accidental oil spills . . . .").

388. *See, e.g.*, Press Release, Sen. Mark Begich, Begich Introduces Seven-Bill Arctic Package in Senate (Aug. 3, 2009) (introducing the Arctic Oil Spill Research and Recovery Act).

389. *See, e.g.*, AMSA 2009 REPORT, *supra* note 44, at 176–77 (discussing the AMSA workshop); CENTER FOR COASTAL AND OCEAN MAPPING RESEARCH CENTER, UNIVERSITY OF NEW HAMPSHIRE, OPENING THE ARCTIC SEAS: ENVISIONING DISASTER AND FRAMING SOLUTIONS (2008), *available at* http://www.crrc.unh.edu/workshops/arctic_spill_summit/index.htm (hosted in cooperation with the U.S. Coast Guard and the U.S. Arctic Research Commission).

390. *See, e.g.*, George B. Newton, *Coming to the Arctic: Oil, Ships and UNCLOS Plus Risk and Research*, *in* INTERNATIONAL ENERGY POLICY, THE ARCTIC AND THE LAW OF THE SEA 321, 327 (M. Nordquist et al. eds., 2005).

391. KOIVUROVA & MOLENAAR, *supra* note 11, at 42.

392. ARCTIC COUNCIL, EMERGENCY PREVENTION PREPAREDNESS AND RESPONSE WORKING GROUP, COMPLETED PROJECTS, http://eppr.arctic-council.org/content/completed_projects.htm.

393. AMSA 2009 REPORT, *supra* note 44, at 184.

394. ARCTIC OOG GUIDELINES, *supra* note 4, at 39–40 ("Ship-based transportation of supplies to offshore oil and gas installation are to be carried out under . . . the Safety of Life at Sea Convention[,] The International Convention on Oil Pollution Preparedness, Response and Co-operation, and the International Convention on the Prevention of Pollution from Ships. . . .").

as disposal of installations at sea,[396] rely heavily on outputs of the International Maritime Organization. All eight arctic states are signatories to MARPOL 73/78 (Annex I and II), and to other IMO conventions that "fundamentally support the domestic legal frameworks for limiting vessel casualty situations."[397] But the Council has also produced its own guidelines for Emergency Preparedness and Response.[398] In keeping with these outputs, Canada and the United States could coordinate with each other and with industry on such matters as uniform requirements for ice management plans at development sites in the Beaufort Sea.

Although this paper focuses on public governance structures in Canada and the United States in the context of Arctic infrastructure, private industry norms developing for the Arctic should also be mentioned. The offshore energy and petroleum industry has announced a joint industry project for safe design for fixed and floating structures in response to the "open-ended" nature of the ISO 19906 standard for offshore structures in the Arctic region.[399] This leaves classification societies to fill in the gaps. Industry is concerned that there are "new structural concepts being proposed that the industry has no past experience on going into the Arctic . . . ."[400] In 2007 the International Association of Classification Societies issued new unified Requirements concerning the Polar Class for ships entering the polar region.[401] National organizations also set applicable standards, the Canadian Standards Association and in the U.S., the American Petroleum Institute, both having standards for fixed shallow-water structures in the Arctic region.[402]

The U.S. Arctic Region Policy endorses working through the International Maritime Organization to develop measures such as "traffic

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395. *Id.* at 43.

> Emergencies: Arctic States that are party to the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC 1990) and/or the International Convention for the Prevention of Pollution from Ships (MARPOL 1973/1978, Annex I – regulations for the prevention of pollution by oil), are required to ensure that operators have oil pollution emergency plans and that these plans are carried on board installations.

Id.

396. *Id.* at 49.

397. AMSA 2009 REPORT, *supra* note 44, at 168.

398. *See* ARCTIC OOG GUIDELINES, *supra* note 4, at 44 ("EPPR Field Guide for Oil Spill Response in Arctic Waters . . . .").

399. Jennifer Pallanich, *Generating Guidelines for a Cold Calling*, OFFSHORE ENGINEER, July 2002, at 42, 42.

400. *Id.* at 43.

401. INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES, REQUIREMENTS CONCERNING POLAR CLASS (2007). *See also infra* note 408 and accompanying text.

402. IACS Unified Requirements for Building Polar Class Vessels, http://www.tc.gc.ca/marinesafety/debs/arctic/construction-standards/iacs.htm (last visited Oct. 17, 2009).

separation and vessel traffic management schemes in Arctic chokepoints; updating and strengthening of the Guidelines for Ships Operating in Arctic Ice-Covered Waters; underwater noise standards for commercial shipping; a review of shipping insurance issues; oil and other hazardous material pollution response agreements; and environmental standards."[403] AMSA discusses vessel routing[404] as one tool for balancing multiple uses in the Arctic Ocean. Beaufort Sea Beluga Whales migrate across areas in the Bering, Chukchi, and Beaufort Seas "where shipping may be a major presence," including the Bering Strait and the Mackenzie Delta.[405] The Mackenzie Delta "already sees extensive tug and barge traffic[,]" for resupply and other purposes.[406] AMSA suggests further work to "examine exactly where and when shipping will overlap with hunting and with key stages of the beluga migration. This information can be used to develop specific management and migration plans, perhaps including limitations on shipping to protect belugas and those who hunt them."[407] Because AMSA necessarily speaks in broad terms, a comparison of its suggestions to steps taken under the various Canadian Beaufort Sea initiatives identified *supra* Part IV, and plans of the Coast Guard and other authorities responsible for the Canadian and U.S. portions of the Beaufort Sea, should inform any vessel routing proposals for the IMO or appropriate domestic agencies.

Other IMO guidelines and procedures are specifically or potentially relevant to the Arctic, but need not be included directly in any structure planned for a Beaufort triangle or Beaufort Sea oversight plan. The 2002 IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters, currently under review by the IMO, and the IACS Unified Requirements concerning Polar Class vessels, appear to enjoy widespread compliance and enforcement by "states, ship-owners and operators, crew and IACS members."[408] The designation of Particularly Sensitive Sea Areas[409] under the procedure established by the Marine Environmental Protection Committee (MEPC) of the IMO may prove appropriate for some areas of the Beaufort Sea, but should not be undertaken in any way that would preempt the planning that is

403. U.S. ARCTIC REGION POLICY, *supra* note 24, at Part III.F.3.

404. VANDERZWAAG (1995), *supra* note 40, at 344 (deeming vessel routing controversial because both shipping and marine mammals often prefer the same routes for transit ease and feeding, respectively).

405. AMSA 2009 REPORT, *supra* note 44, at 129.

406. *Id.*

407. *Id.*

408. Koivurova & Hossain, *supra* note 368, at 6. *But cf.* Pallanich, *supra* note 399 (citing the opinion that the IACS Requirements, "due to their recent adoption and lack of time to implement, are not yet considered all-encompassing").

409. JULIAN ROBERTS, MARINE ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION: THE APPLICATION AND FUTURE DEVELOPMENT OF THE IMO'S PARTICULARLY SENSITIVE SEA AREA CONCEPT (2007).

now beginning for the joint Canadian–U.S. Beaufort LME Pilot Project under Arctic Council auspices. The possibility of an Emission Control Area (ECA) in the Arctic may follow on the current proposal to designate specific portions of U.S. and Canadian coastal waters as an ECA for nitrogen oxides (NOx), sulphur oxides (SOx), and particulate matter.[410]

E. U.N. Convention on the Law of the Sea

Multiple provisions of the U.N. Convention on the Law of the Sea provide additional support for any joint cooperation to protect the marine environment and prevent pollution that Canada and the United States might undertake in the Beaufort Sea.[411] A partial listing of relevant articles includes: Article 194(5), on protecting fragile ecosystems/endangered species habitats; Article 197, on cooperation for protection and preservation of the marine environment on a global or regional basis; Article 234, on ice-covered areas; Article 199, on contingency plans against pollution; Article 200, on studies, research programmes, and exchange of information and data; Article 204, on monitoring of the risks or effects of pollution; and Article 206, on assessment of potential effects of activities on the marine environment.[412]

The applicability of Article 206 to marine environmental impact assessment provides just one example of how the United States and Canada might build on, and even improve, LOS provisions in the more focused context of a bilateral agreement. Koivurova and Molenaar have observed that under the Law of the Sea Convention, "assessment of transboundary impacts on the marine environment located in another state's jurisdiction cannot be very systematic. There are no provisions on how potentially affected states can contribute to an assessment."[413] To the extent the United States and Canada can develop feasible models for how to address such questions, their models might be adaptable to other neighboring states or even to areas beyond national jurisdiction.

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410. International Maritime Organization, Marine Environment Protection Committee (MEPC), 59th Sess. (July 13–17, 2009), http://www.imo.org (follow "Marine Environment" hyperlink; then follow "MEPC" hyperlink). The MEPC approved the joint proposal in July 2009. ECAs may be established under the revised MARPOL Annex VI Prevention of Air Pollution from Ships, adopted October 2008, entry into force expected July 1, 2010. "The draft amendments to the revised MARPOL Annex VI concerning the proposed ECA will be submitted to MEPC 60 (March 2010) for adoption (i.e. after the deemed acceptance date of the revised MARPOL Annex VI on 1 January 2010)." *Id.*; *see also IMO Environmental Committee Issues Measures*, MARITIME REPORTER AND ENGINEERING NEWS, July 20, 2009, *available at* http://marinelink.com/en-US/News/Article/331288.aspx.

411. Canada is a party to the LOS Convention and the United States considers most of its provisions to be customary law. *See supra* text accompanying notes 72–77.

412. U.N. Convention on the Law of the Sea, *supra* note 1, at arts. 194, 197, 199, 200, 204, 206, 234.

413. KOIVUROVA & MOLENAAR, *supra* note 11, at 29.

Part XIII of the LOS Convention, on Marine Scientific Research, contains several relevant provisions on the promotion of international cooperation in (Article 242), and creation of, favorable conditions for (Article 243) scientific research. Independently of any binding or non-binding support for the principle, at the practical level such cooperation can provide essential baseline information and save research costs in the harsh Arctic research climate.[414] Because the Beaufort Sea triangle is within the 200 nm EEZ limit applicable to both countries, it could become a pilot area for harmonizing Canadian and U.S. regimes on Marine Scientific Research (MSR). It could also offer a model to other Arctic states for greater freedoms of MSR in each others' waters.[415]

CONCLUSION

In a May 2008 speech, the Norwegian Minister of Foreign Affairs, Jonas Gahr Støre, posed three key questions states should ask when confronted with a particular issue in the Arctic Ocean:

> (1) Are existing rules also applicable there?
> (2) Are these widely known, binding on relevant actors and actually being applied?
> (3) Are real needs still not met through effective regulation?[416]

The Beaufort Sea triangle is an ideal platform for Canada and the United States to think constructively, on a pilot basis and within defined physical parameters, about how to answer these questions for their own legal systems. Undertaken imaginatively and with a clear-eyed understanding of the hard work and ability to disagree that true cooperation requires, collaboration on joint or parallel implementation of international and regional norms can provide a working model for other Arctic states.

This article offers little more than a preliminary inventory of Canadian and U.S. institutions and norms that are potentially relevant to a joint undertaking in the Beaufort Sea triangle, as well as of selected Arctic Council documents and IMO initiatives with which they will need to interact. The inventory is neither complete nor conclusive, and constitutes a

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414. Lamson & VanderZwaag (1987), *supra* note 13, at 67.

415. *See* FOCA, *supra* note 209, at A-63 ("With respect to the polar regions, the [U.S. State] Department is involved in efforts related to . . . marine science research in the Arctic Ocean, through the Arctic Council and otherwise.").

416. Jonas Gahr Store, *Arctic Governance in a Global World: Is it Time for an Arctic Charter?*, May 7, 2008, http://www.regjeringen.no/se/dep/ud/Departmeantta-birra/Olgoriikaministtar-Jonas-Gahr-Store/taler_artikler/2008/arctic_charter.html?id= 511991.

starting point, not an end.[417] As with many endeavors in the early stages of a comparative law project, the descriptive component of this article outweighs the analytic work.[418] Nonetheless, the descriptive results suggest directions for further inquiry, ranging from the historic to the contemporary. One example of an historic inquiry is how Canadian and U.S. approaches to land claims settlements in the 1970s and 1980s may have resulted in different levels of integrating indigenous involvement in managing marine resources, and in an apparently greater number of management initiatives in the Canadian waters of the Beaufort Sea. A contemporary inquiry at the planning level could involve analyzing the components of Canadian and U.S. approaches to integrated oceans management (for example, defining ecosystem objectives and parameters) that can be applied jointly or in parallel. Such an inquiry would also complement and contribute to the recent planning begun for the joint Canadian–U.S. Beaufort LME Pilot Project under the auspices of the PAME working group of the Arctic Council.[419]

Given the effective moratorium on hydrocarbon exploration and exploitation in the disputed Beaufort Sea triangle today, those interested in postponing or preventing hydrocarbon activities there may well ask why any change in the region should be proposed. At least two answers exist. First, activities around the disputed area will eventually have an effect within the area, given the transboundary movement not only of oil and gas resources, but also of ocean currents and living resources. Second, the rise of ecosystem-based management suggests a new reason for two countries to finalize a joint development agreement response to an unresolved maritime boundary. Traditionally, the primary reasons for such agreements have been a desire to *exploit* the resource and the recognition that disagreements in the boundary delimitation process could lead to delay and deterioration of bilateral relations.[420] If the diplomatic goal is to proceed without resolving the maritime boundary, or at least to suspend the question indefinitely, redesigning the purpose of the joint area for multiple, non-exclusive, phased uses could lead to re-characterizing the reason for entering into a joint development and management zone agreement as a desire to *accomplish* integrated ecosystem objectives in the joint area.

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417. The inventory will continue to grow and change and the author welcomes readers' suggestions, corrections, and other input.

418. *See, e.g.*, Mathias Reimann, *The Progress And Failure Of Comparative Law In The Second Half Of The Twentieth Century*, 50 AM. J. COMP. L. 671, 673–684 (2002) (discussing the comparative trends in analyzing law projects).

419. PAME Progress Report, *supra* note 10, at 3.

420. Bastida et al., *supra* note 294, at 370.

Integrated ecosystem-based management relies on defining the ecosystem parameters and objectives,[421] building an inventory of its natural and human resources[422] through baseline and other data,[423] and assessing their condition on an ongoing basis. Thorough joint hydrographic and bathymetric mapping of the Beaufort Sea triangle would provide one such baseline. The AMSA recommends investing in hydrographic, meteorological, and oceanographic data.[424] Considering the disputed triangle in broader context,

> [t]he most significant geological feature within the LOMA is the Beaufort Continental Shelf. There are two large submarine canyons called the Mackenzie and Kugmallit troughs [to the east of the disputed triangle] and several special bottom features, including gas vents, mud volcanoes and underwater pingos on the Shelf. *Understanding the bathymetry of the sea floor and these identified features may give scientists the ability to predict potential areas of biological and ecological significance*.[425]

Even if the Beaufort Sea triangle proves to be of less biological and ecological significance than other parts of the Beaufort Sea, having the baseline mapping data from the triangle will serve joint operations and oversight in the area well.

Complete harmonization of national approaches is neither possible nor desirable. Compatibility is.[426] Experimenting with how to apply integrated, ecosystem-based management in the Beaufort Sea triangle can serve to facilitate coordination of best practices and information exchange at multiple governance levels. "Collective knowledge . . . will become more integrated into long-term ocean planning and more relevant to management and decision making if it is shared among all bodies (Arctic countries, governments, northern communities) and people (scientists, managers, stakeholders)."[427] If the governments of Canada and the United States, as well as indigenous and other sub-national governments with an interest in the region, can apply their collective knowledge and experience to

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421. *See, e.g.*, Siron et al., *supra* note 9, at 100 (discussing that "common goals, objectives, and guiding principals" will aid in effective ecosystem-based management).

422. *See, e.g.*, MAGEAU, *supra* note 235, at 5 (speaking of EBM in international waters).

423. *See, e.g.*, Siron et al., *supra* note 9, at 95 (speaking of Western Science and Traditional Ecological Knowledge (TEK)).

424. AMSA 2009 REPORT, *supra* note 44, at 7.

425. COBB ET AL., *supra* note 8, at 3 (emphasis added).

426. *See* Siron et al., *supra* note 9, at 100 ("Optimally, national approaches will be compatible and coherent with each other, although not necessarily similar. . . . Diversity will not be a problem as long as there are common goals, objectives, and guiding principles.").

427. *Id.*

balancing multiple uses in this disputed area of the Beaufort Sea, they can close more gaps in Arctic governance.

Beaufort Sea

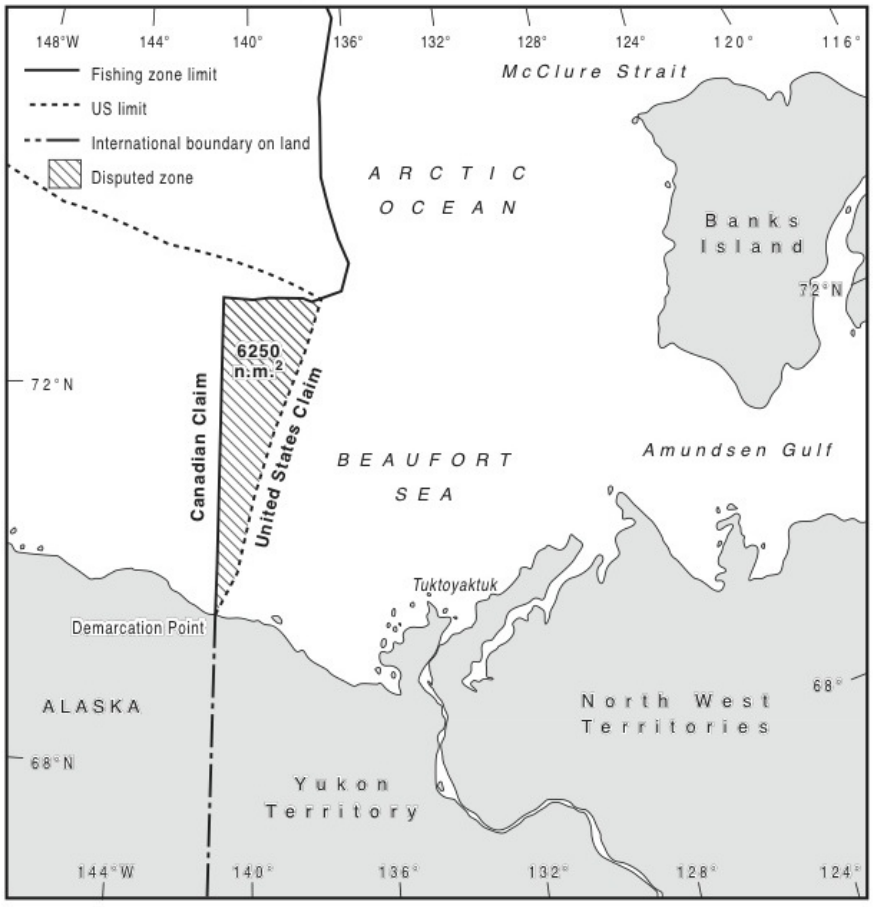

Figure 1[428]

428. David H. Gray, *Canada's Unresolved Maritime Boundaries*, IBRU BOUNDARY AND SECURITIES BULLETIN, at 63 (1997) (Figure reprinted with permission of IBRU Boundary & Security Bulletin).