POLAR COMPLICATIONS IN THE LAW OF THE SEA: A CASE STUDY OF THE REGIME FOR RESEARCH AND SURVEY ACTIVITIES IN THE ARCTIC OCEAN

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Abstract: In recent years, data collection activities in the Arctic Ocean significantly increased due to, among others, a need for understanding the role of the Arctic Ocean in global climate change, resource development prospects caused by accelerated sea ice melting and the need for information concerning the outer limit of the continental shelf. Now, it is therefore right time to examine the regime governing data collection activities in the Arctic Ocean under the law of the sea, considering complications specific in the Arctic Ocean. Following a cursory look at existing research and survey activities in the Arctic Ocean, this paper analyzes the governance structure for the Arctic Ocean, the regime for research and survey activities and special features of the Arctic Ocean. On that basis, it concludes with some remarks on the future of the regime.

1. Introduction

The melting of sea ice in the Arctic Ocean has significantly raised expectations for the potential for activities in the Arctic Ocean, including commercial shipping routes, unexplored oil and gas fields and new fishing grounds.

A less focused, yet equally likely change will be the increase in the number of research activities in the more accessible Arctic Ocean. In recent years, data collection activities in the Arctic Ocean significantly increased due to, among others, a need for understanding the role of the Arctic Ocean in global climate change, resource development prospects caused by accelerated sea ice melting and the need for information concerning the outer limit of the continental shelf beyond 200 miles from the baselines.[1]

This paper examines the legal regime applicable to research and survey activities in the Arctic Ocean, considering "legal complications" specific in the Arctic

[1] See also L. Mayer, "Sea Floor Mapping and Exploration in a Changing Arctic Sea Ice Environment", in M.H. Nordquist (ed.), *Changes in the Arctic Environment and the Law of the Sea* (2010), at p. 89.

Ocean. The paper first briefly looks at the existing research and survey activities in the Arctic Ocean, followed by a short description of the governance structure related to research and survey activities in the Arctic Ocean. It then analyzes the international legal framework for these activities under the United Nations Convention on the Law of the Sea (LOSC)[2] and identifies some special features of the Arctic Ocean. Finally, it concludes with some remarks on the future of the regime for research and survey activities in the Arctic Ocean.

Despite an increasing number of research and survey activities in the Arctic Ocean, little attention in the international law literature has been devoted to science in the Arctic Ocean except for bioprospecting.[3] This makes a stark contrast with the situation for Antarctica.[4] The present paper intends to shed some light on this neglected yet increasingly important issue by offering an initial assessment of the topic.

2. Existing Research and Survey Activities in the Arctic Ocean

A notable feature in conducting research and survey activities in the Arctic is the presence of sea ice. Activities have been conducted by research stations on sea ice, by vessels navigating through ice-covered areas and by submarines operating under sea ice.[5] Among various existing research and survey activities, two types of activities have increased or are expected to increase in the near future.

First, recently, the coastal states of the Arctic Ocean have been individually or jointly gathering data in the Arctic Ocean with a view to submitting information on the outer limit of the continental shelf beyond 200 nautical miles.[6]

Second, the melting of sea ice is increasing the prospects for resource exploration in the Arctic Ocean in various ways. Regarding fisheries resources, Norway

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[2] United Nations Convention on the Law of the Sea (LOSC), Montego Bay, 10 December 1982.

[3] One notable exception is M. Jacobsson, "International Law and Scientific Research in the Arctic: The Role of Science in Law and the Role of Law in Science", 69 *Zeitschrift fur auslandisches offentliches Recht und Volkerrecht* (2009), at pp. 683-694. For works on bioprospecting in the Arctic Ocean, see, e.g., D. Leary, *Bioprospecting in the Arctic, UNU-IAS Report* (2008).

[4] See, among others, F. Marcelli, "Scientific Research in the Antarctic: General Principles and Concrete Actions", in G. Tamburelli (ed.), *The Antarctic Legal System and Environmental Issues* (2006), at pp. 57-76; K.N. Scott, "Marine Scientific Research and the Southern Ocean: Balancing Rights and Obligations in a Security-related Context", 6 *New Zealand Yearbook of International Law* (2008), at pp. 111-134; K.N. Scott, "Regulating Subglacial Aquatic Research under the Antarctic Treaty System", 23 *New Zealand Universities Law Review* (2008), at pp. 134-154.

[5] For some accounts of the existing research and survey activities in the Arctic Ocean, see Mayer, "Sea Floor Mapping and Exploration in a Changing Arctic Sea Ice Environment", at pp. 83-103; G.B. Newton, "From Arctic Ocean Research to UNCLOS, Article 76, and Back", ABLOS Tutorials & Conference, "Marine Scientific Research and the Law of the Sea: The Balance Between Coastal States and International Rights", 10-12 October 2005, International Hydrographic Bureau, Principality of Monaco.

[6] See A.G. Oude Elferink, "The Continental Shelf in the Polar Regions: Cold War or Black-letter Law?", XL *Netherlands Yearbook of International Law* (2009), at pp. 142-160.

and Russia agreed to enhance efforts for fisheries research in the Arctic Ocean.[7] In some areas of the Arctic Ocean, exploratory drilling for oil and gas development has been proposed.[8] Some attempts have been made to commercially use genetic resources taken from the Arctic Ocean for pharmaceutical, cosmetic and other purposes.[9]

3. Governance Structure for the Arctic Ocean

Comparing the Polar Regions, there are differences and similarities in the governance structure. On the one hand, the LOSC governs activities in the oceans and seas of the world. The Polar Regions are no exception.[10] On the other hand, in parallel with the LOSC, Antarctica is also governed by a special regime, i.e., the Antarctic Treaty System. Such a comprehensive regime does not exist for the Arctic Ocean.

The rules of other global treaties such as the Convention on Biological Diversity and regional treaties such as the Polar Bear Agreement apply to the Arctic Ocean as well.[11]

In terms of institutions, the Arctic Ocean does not have an equivalent of the Antarctic Treaty Consultative Meetings. For the Arctic, the Arctic Council was established in 1996 by a non-legally binding document as a "high level forum" without a permanent secretariat.[12] Regarding scientific organizations, there are inter-governmental and non-governmental organizations with relevance to the Arctic such as the International Council for the Exploration of the Sea (ICES), the International Arctic Science Committee (IASC) and the European Polar Board.[13]

4. The Regime for Research and Survey Activities under the LOSC

The international legal framework for marine scientific research (MSR) activities is provided in Part XIII and relevant provisions in preceding Parts of the LOSC. The

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[7] See comments in Section 6.

[8] See, e.g., White House, "Obama Administration Announces Comprehensive Strategy for Energy Security", 31 March 2010, available at <http://www.whitehouse.gov/the-press-office/obama-administration-announces-comprehensive-strategy-energy-security> (last visited 28 August 2010). See also FT.com, "UK group begins oil drilling in Arctic", 7 July 2010, available at <http://www.ft.com/cms/s/0/2755cb2c-892b-11df-8ecd-00144feab49a.html> (last visited 28 August 2010).

[9] See Leary, *Bioprospecting in the Arctic, UNU-IAS Report*.

[10] The applicability of the LOSC to the Arctic Ocean has been confirmed by various declarations and policies. See, e.g., Ilulissat Declaration, Ilulissat, Greenland, 28 May 2008.

[11] Convention on Biological Diversity (CBD), Rio de Janeiro, 5 June 1992; Agreement on the Conservation of Polar Bears, Oslo, 15 November 1973.

[12] Declaration on the Establishment of the Arctic Council, Ottawa, 19 September 1996.

[13] See Jacobsson, "International Law and Scientific Research in the Arctic", at pp. 687-689.

LOSC stipulates the right and obligation of coastal states and other states with respect to MSR in different maritime zones without distinguishing one region from another.[14]

In addition, Article 239 of the LOSC provides for the promotion and facilitation of MSR. In line with this general duty, some international instruments of relevance to the Arctic Ocean refer to the importance of scientific research in this region.[15] Furthermore, an obvious link to research and survey is found in Article 234 of the LOSC as laws and regulations of coastal states must be based "on the best available scientific evidence". In other words, research activities are prerequisite for taking measures under Article 234.[16]

Not all data collection activities are unanimously regarded as MSR. A controversy exists over the rights and obligations regarding data collection activities other than MSR as the LOSC does not define MSR. This is especially the case for hydrographic surveys.[17]

Ships exercising the right of innocent passage in the territorial sea may not engage in hydrographic surveys.[18] The LOSC does not provide for hydrographic surveys in the EEZ or on the high seas. One view would be that freedom of the high seas in Article 87 is applicable to survey activities on the high seas and by virtue of Article 58(2) also applicable to the EEZ.[19] Regarding the EEZ, some commentators

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[14] Especially, see LOSC, Articles 19(2), 21(1), 40, 87, 143, 245-246 and 256-257.

[15] See, e.g., Agreement on the Conservation of Polar Bears, Article VII; Declaration on the Establishment of the Arctic Council, preambular para. 5. Compare the latter provision with Antarctic Treaty, Washington, 1 December 1959, entered into force 23 June 1961, preambular paras 2-3. See also Agreement between the Government of Canada and the Government of the United States of America on Arctic Cooperation, Ottawa, 11 January 1988, para. 3; Agreement between the Government of the Kingdom of Denmark and the Government of Canada for Cooperation Relating to the Marine Environment, Copenhagen, 26 August 1983, entered into force 26 August 1983 by signature in accordance with article XIV, Article VI.

[16] Apart from the particular context of the Arctic, the same is true for, say, fishing and environmental protection. See, e.g., LOSC, Articles 61(2), 119(1)(a) and 206.

[17] Hydrography and the process of hydrographic surveys are explained in Advisory Board on Law of the Sea (ABLOS), *A Manual on Technical Aspects of the United Nations Convention on the Law of the Sea - 1982, Special Publication No. 51*, 4th edition (2006), at Chapter 1, pp. 7-8. It goes beyond the scope of this paper to consider what (and when) other activities constitute MSR except for hydrographic surveys (e.g., fisheries research involving the taking of specimen of fish, activities for the establishment of the outer limit of the continental shelf beyond 200 nautical miles and bioprospecting). On this, see, e.g., Newton, "From Arctic Ocean Research to UNCLOS, Article 76, and Back", pp. 6-7; T. Scovazzi, "Mining, Protection of the Environment, Scientific Research and Bioprospecting: Some Considerations on the Role of the International Sea-Bed Authority", 19 *International Journal of Marine and Coastal Law* (2004), at pp. 383-409; A.H.A. Soons, *Marine Scientific Research and the Law of the Sea* (1982), at pp. 85 and 270-271.

[18] LOSC, Article 19(2). Regarding straits used for international navigation and archipelagic waters, see LOSC, Articles 40 and 54.

[19] See J.A. Roach and R.W. Smith, *United States Responses to Excessive Maritime Claims*, 2nd edition (1996), at pp. 426-427; Soons, *Marine Scientific Research and the Law of the Sea*, at pp. 7 and 157. See also U.N. Office for Ocean Affairs and the Law of the Sea, *Marine Scientific Research: A Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (1991),

argue that hydrographic surveys in the EEZ of another state should only be conducted with the consent of the coastal state.[20]

Apart from the provisions concerning MSR and hydrographic surveys, states are required to protect and preserve the marine environment. The LOSC stipulates various obligations in Part XII. These obligations are applicable to research and survey activities unless they only target other particular activities. No explicit reference is made to the Arctic Ocean in Part XII; however, it is commonly understood that the drafters of the LOSC had the Arctic Ocean in mind when they negotiated Article 234, the so-called Canadian clause.[21]

5. Special features of the Arctic Ocean

a. Sea Ice

As noted earlier, research activities in the Arctic have taken advantage of drifting sea ice. One may wonder what legal status sea ice may have under international law (e.g., an island, a ship or a natural resource). In the context of this research, a further question may be: what is the legal status of research stations built on an ice island? This question has attracted some attention in legal analyses.[22] It is submitted that research stations built on floating ice islands could be assimilated to one of the following three categories: (1) research vessels, (2) installations and structures and (3) profiling floats. Granting a different legal status would lead to different legal consequences and the difference is especially significant between the first two categories and the third one.[23] Drawing an analogy between drifting ice islands and vessels, Joyner argues that "[i]ce

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at p. 1.

[20] EEZ Group 21, *Guidelines for Navigation and Overflight in the Exclusive Economic Zone* (2005), at Article IX(a). See also S. Bateman, "Hydrographic Surveying in the Exclusive Economic Zones: Is it Marine Scientific Research?", in M.H. Nordquist, T.T.B. Koh and J.N. Moore (eds.), *Freedom of Seas, Passage Rights and the 1982 Law of the Sea Convention* (2009), at p. 127; G. Xue, "Marine Scientific Research and Hydrographic Survey in the EEZs: Closing up the Legal Loopholes?", in M.H. Nordquist, T.T.B. Koh and J.N. Moore (eds.), *Freedom of Seas, Passage Rights and the 1982 Law of the Sea Convention* (2009), at p. 222. Among the legislation of the Arctic coastal states, see Act on the exclusive economic zone of the Russian Federation, 2 December 1998, Article 4(1) (providing that the definition of MSR includes that "aimed at obtaining knowledge of all aspects of the natural processes occurring on the seabed and in the subsoil, the marine depths and the atmosphere" (emphasis added)).

[21] S. Rosenne and A. Yankov (eds.), *United Nations Convention on the Law of the Sea 1982: A Commentary (Virginia Commentary)*, vol. IV (1991), at pp. 392-398.

[22] See, e.g., G.W. Smith, "Sovereignty in the North: The Canadian Aspect of an International Problem", in R.S.J. MacDonald (ed.), *The Arctic Frontier* (1966), at pp. 248-250; C.C. Joyner, "The Status of Ice in International Law", in A.G. Oude Elferink and D.R. Rothwell (eds.), *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (2001), at pp. 43-45.

[23] On the regime for profiling floats, see IOC Guidelines for the Implementation of Resolution XX-6 of the IOC Assembly Regarding the Deployment of Profiling Floats in the High Seas in the Framework of the Argo Programme, 41st session of Executive Council of the Intergovernmental Oceanographic Commission, 30 June 2008.

islands, as research ships, would be subject to the relevant provisions for [MSR] in the law of the sea".[24] It is submitted that even if they are assimilated to vessels, the lack of navigational control of ice islands makes it difficult to apply the MSR and passage regimes. Profiling floats and ice islands have a lack of navigational control as a common feature, but the legal status would ultimately depend on the type of data collected during research activities.

b. Article 234

Article 234 of the LOSC provides for the right of coastal states to adopt and enforce non-discriminatory laws and regulations for the protection of the marine environment within the limits of the EEZ in ice-covered areas based on the best available scientific evidence. This article lacks any reference to generally accepted international rules and standards. In fact, some coastal states have enacted stricter regulations for ships operating in the Arctic Ocean.[25] Unless research vessels are excluded from the scope of such laws and regulations, they would be applicable to these vessels.

As coastal states already have a wide discretion in withholding consent to the proposed project,[26] one may wonder whether this article is relevant in the context of this paper. However, if one assumes that hydrographic surveys are governed by a regime different from that for MSR in the EEZ, a question may arise whether coastal states may regulate hydrographic surveys in the EEZ on the basis of this article.

Under the LOSC, the term "pollution of the marine environment" is defined widely, including "the introduction by man […] of […] energy into the marine environment, […] which results or is likely to result in such deleterious effects as harm to living resources and marine life, […], hindrance to marine activities, including fishing and other legitimate uses of the sea […]".[27] If seismic surveys impact marine mammals, it is arguable that such activities fall within the definition of the pollution of the marine environment;[28] then, coastal states may arguably regulate such activities under Article 234.[29]

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[24] Joyner, "The Status of Ice in International Law", at p. 44.

[25] E.g., see A. Chircop, "The Growth of International Shipping in the Arctic: Is a Regulatory Review Timely?", 24 *International Journal of Marine and Coastal Law* (2009), at pp. 369-370.

[26] LOSC, Article 246(5).

[27] Ibid., Article 1(1)(4).

[28] See, e.g., H.M. Dotinga and A.G. Oude Elferink, "Acoustic Pollution in the Oceans: The Search for Legal Standards", 31 *Ocean Development & International Law* (2000), at p. 158.

[29] The impacts of seismic testing on marine mammals were discussed in a recent case in the Nunavut Court of Justice in Canada. *Qikiqtani Inuit Association v. Canada (Minister of Natural Resources)*, Nunavut Court of Justice, Judgment of 8 August 2010, 2010 NUCJ 12. An Interlocutory Order was issued restraining Natural Resources Canada from proceeding to conduct seismic testing pursuant to the Eastern Canadian Arctic Seismic Experiment.

c. Semi-enclosed sea

A view exists that the Arctic Ocean is a semi-enclosed sea and the provisions of Part IX of the LOSC apply to it.[30] To the contrary, some authors argue that the Arctic Ocean may not be qualified as a semi-enclosed sea since neither of the conditions for semi-enclosed seas under Article 122 may be met for the Arctic Ocean.[31]

If the Arctic Ocean is recognized as a semi-enclosed sea, Article 123 requires cooperation of bordering states with each other, among others, in scientific research.[32] However, it should be noted that the obligation imposed by Article 123 remains ambiguous and qualified by various phrases in that article. More importantly, it should be noted that cooperation has taken place among eight Arctic states and permanent participants at the Arctic Council and an attempt to limit the scope of participants in discussions on Arctic Ocean governance to five coastal states has been heavily criticized.[33]

d. The Archipelago of Spitsbergen

The parties to the Treaty of Spitsbergen recognize the full and absolute sovereignty of Norway over the Spitsbergen Archipelago[34] but the Treaty places restrictions on the exercise of sovereignty by Norway in several respects, including non-discrimination for nationals of the parties in carrying on activities, among others, in the waters of the Spitsbergen Archipelago under Article 3(1).[35] In relation to research activities, Article 5(2) provides that conventions shall be concluded laying down the conditions under which scientific investigations may be conducted in the said territories.[36]

One issue would be to what extent Norway's right to regulate MSR in the territorial sea is affected by these provisions. One view is that Norway may unilaterally

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[30] See, e.g., H. Corell, "Reflections on the Possibilities and Limitations of a Binding Legal Regime", 37 *Environmental Policy and Law* (2007), at p. 322.

[31] T.H. Heidar, "The Legal Regime of the Arctic Ocean", 69 *Zeitschrift fur auslandisches offentliches Recht und Volkerrecht* (2009), at p. 636; A. Proelss and T. Muller, "The Legal Regime of the Arctic Ocean", 68 *Zeitschrift fur auslandisches offentliches Recht und Volkerrecht* (2008), at p. 684. See also T. Koivurova and E.J. Molenaar, International Governance and Regulation of the Marine Arctic, A report prepared for the WWF International Arctic Programme (2010), at p. 67.

[32] LOSC, Article 123(c).

[33] See, e.g., AFP, "Inuit welcome Clinton's comments on Arctic", 31 March 2010, available at <http://www.google.com/hostednews/afp/article/ALeqM5h03Zrlr0IVGRg0f7C7_ySFAgCU1A> (last visited 29 October 2010). See also LOSC, Article 123(d).

[34] Treaty concerning Spitsbergen, Paris, 9 February 1920, Article 1.

[35] See also ibid., Article 3(2). The Treaty applies to islands within a square box designated in Article 1 of the Treaty as well as the territorial waters of these islands.

[36] An international meteorological station contemplated in Article 5(1) or conventions provided for in Article 5(2) were never realized. Jacobsson, "International Law and Scientific Research in the Arctic", at p. 685.

impose any regulations on scientific research unless and until a convention stipulating conditions for research is concluded.[37] Another view is that Norway is prohibited by the Treaty of Spitsbergen to unilaterally impose conditions for scientific research.[38] Practice appears to be in between these two views.[39]

Another issue would be that, if Norway is entitled to maritime areas outside the territorial sea, whether and to what extent jurisdiction and sovereign rights of Norway may be restrained by the Spitsbergen Treaty in these maritime areas.[40]

e. Indigenous peoples

An obvious special characteristic of the Arctic Ocean is the presence of indigenous peoples. The Arctic Council is exemplary of this feature: it allows involvement of indigenous peoples in its work as "permanent participant". In fact, with regard to research in the Arctic, the need for cooperation with and involvement of indigenous peoples is recognized in international and national instruments.[41]

6. Concluding Remarks

From the foregoing analysis, it appears that data collection activities in the Arctic Ocean are governed by the general framework provided under the LOSC as in other regions. At the same time, the paper illustrated some of the existing special features that may be relevant to the Arctic context.

Reference may be made to three recent developments as potentially influencing the development of the regime for research and survey activities in the Arctic Ocean.

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[37] See R. Churchill and G. Ulfstein, "The Disputed Maritime Zones around Svalbard", in M.H. Nordquist (ed.), *Changes in the Arctic Environment and the Law of the Sea* (2010), at p. 556 (commenting that "Since there is no provision in the Treaty dealing explicitly with discrimination in relation to scientific research, Norwegian sovereignty should accordingly prevail, at the expense of non-discrimination").

[38] Vylegzhanin and Zilanov argue that "the States-parties [to the Spitsbergen Treaty] have prevented any legal possibility for Norway to regulate scientific research by a national law" and "Norway does not have the right to prohibit or impede scientific research in Spitsbergen". A.N. Vylegzhanin and V.K. Zilanov (W.E. Butler (trans.)), *Spitsbergen: Legal Regime of Adjacent Marine Areas* (2007), at pp. 43 and 82.

[39] Churchill and Ulfstein, "The Disputed Maritime Zones around Svalbard", at p. 556 ("Norway has, […], practised non-discrimination in relation to foreign scientific research").

[40] For discussions on Norway's entitlement to maritime zones around Svalbard, see G. Ulfstein, *The Svalbard Treaty: From Terra Nullius to Norwegian Sovereignty* (1995), at pp. 406-465; T. Pedersen and T. Henriksen, "Svalbard's Maritime Zones: The End of Legal Uncertainty?", 24 *International Journal of Marine and Coastal Law* (2009), at pp. 141-161. See also Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, Murmansk, 15 September 2010.

[41] See Declaration on the Establishment of the Arctic Council, preambular para. 5. See also Principles for the Conduct of Research in the Arctic, prepared by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee, Washington D.C., approved on 28 June 1990, available at <http://www.nsf.gov/od/opp/arctic/conduct.jsp> (last visited 27 August 2010).

First, Greenland and Norway have enacted new legislation concerning bioprospecting.[42] The implementation of these acts may influence the debate about the management of genetic resources in general and in the Arctic Ocean in particular. Second, the OSPAR Commission adopted the Code of Conduct for Responsible Marine Research in the Deep Seas and High Seas of the OSPAR Maritime Area.[43] It does not distinguish the Arctic Ocean and other areas of the OSPAR Maritime Area. However, as stated in paragraph 5, the Code of Conduct does not exclude the possibility that specific provisions are made for certain areas like the Arctic Ocean in the future. Third, at the Joint Norwegian-Russian Federation Fisheries Commission in 2009, it was reportedly agreed to ask ICES to prepare assessments on possible consequences of climate change for stocks managed by the Commission, including the distribution into the Central Arctic Ocean.[44] Currently, ICES is concerned with the "Atlantic Ocean and its adjacent seas and primarily concerned with the North Atlantic".[45] If the migration of fish populations from the Atlantic Ocean to an area beyond the Atlantic sector of the Arctic Ocean occurs, the geographic coverage of ICES needs to be reconsidered.[46]

A new comprehensive treaty for the Arctic, like the Antarctic Treaty, is not forthcoming.[47] However, it is worth considering a possibility for an Arctic-wide environmental protection or biodiversity conservation instrument, whether legally-binding or not, modelled on the Antarctic environmental protection protocol.[48] Ensuring common environmental protection standards and uniform procedures for research and survey activities, as well as coordination of such activities, for all areas under national jurisdiction in the Arctic Ocean and possibly beyond would alleviate pressure already imposed on this fragile yet valuable environment.[49]

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[42] Greenland Home Rule Government, Act No. 20, 20 November 2006, on Commercial and research-related use of biological resources; Norway, Act of 6 June 2008 No. 37 relating to the management of wild living marine resources (the Marine Resources Act). On the Greenlandic legislation, see D. Leary, "Greenland's new legislation on commercial and research-related use of biological resources: implications for the International Polar Year and later", 44 *Polar Record* (2008), at pp. 97-106.

[43] OSPAR 08/24/1, Annex 6 (reference number: 2008-1).

[44] Proceedings of the International Arctic Fisheries Symposium: Managing Resources for a Changing Arctic, 19-21 October 2009, Hotel Captain Cook, Anchorage, Alaska, February 2010, at p. 28.

[45] Convention for the International Council for the Exploration of the Sea, Copenhagen, 12 September 1964, Article 2.

[46] See also Proceedings of the International Arctic Fisheries Symposium, at p. 23.

[47] See, e.g., Corell, "Reflections on the Possibilities and Limitations of a Binding Legal Regime", at pp. 321-322; O.S. Stokke, "A Legal Regime for the Arctic?: Interplay with the Law of the Sea Convention", 31 *Marine Policy* (2007), at pp. 402-408.

[48] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October 1991.

[49] Similarly, a comprehensive study by Koivurova and Molenaar identifies a "regulatory" gap for MSR in the Arctic Ocean. Koivurova and Molenaar, International Governance and Regulation of the Marine Arctic, at p. 49.

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