

Chapter 1

Introduction

I Climate Change and the Arctic

The Arctic as a polar region is particularly intensely affected by climate change: During the last decades, surface air temperatures in this area have risen twice as fast as the mean global rate, with dramatic consequences for the Arctic environment.¹ A recent scientific assessment held in its key finding *inter alia* that “[a]nimal species diversity, ranges, and distribution will change” and that “[r]educed sea ice is very likely to increase marine transport and access to resources”.²

The melting sea ice in the Arctic Ocean is probably the most prominent—albeit by no means the only—consequence of global climate change for the region. Current scientific estimations predict an ice-free central Arctic Ocean by 2030.³ The decrease and thinning of the ice cover enables a multitude of ocean uses to be initiated and extended. In addition to maritime navigation for the purpose of transport of people and cargo, including for tourism and military purposes, these uses comprise exploration and exploitation of living and non-living resources (e.g. fish or oil and gas), construction of artificial installations, laying of pipelines and cables, overflight and marine scientific research (including bio-prospecting).⁴

Unlike the Arctic’s southern counterpart, the Antarctic, there is currently no single comprehensive legal regime for governance of the Arctic. Instead, the region

¹ Timo Koivurova, Erik J. Molenaar and David L. VanderZwaag, “Canada, the EU, and Arctic Ocean Governance: A Tangled and Shifting Seascape and Future Directions,” *Journal of Transnational Law & Policy* 18 (2008–2009) 247–288, at 248.

² Susan J. Hassol, *Impacts of a warming Arctic: Arctic Climate Impact Assessment* (Cambridge, New York: Cambridge University Press, 2004), p.10-11, available at: <http://amap.no/workdocs/index.cfm?dirsub=%2FACIA%2Foverview/http://amap.no/acia/http://www.acia.uaf.edu/>, last visited 17 December 2011.

³ Estimation by Mark Serreze, NSIDC, see John Vidal, Arctic may be ice-free within 30 years, *The Guardian*, 11 July 2011, available at: <http://www.guardian.co.uk/environment/2011/jul/11/arctic-ice-free>, last visited 26 March 2012.

⁴ Koivurova, Molenaar and VanderZwaag, *supra* note 1, at 249.

is regulated by a patchwork of applicable international treaties, above all the United Nations Convention on the Law of the Sea (UNCLOS),⁵ various regional and sub-regional agreements, national laws and soft law agreements.

II Aims of this Treatise

This treatise aims to provide an evaluation of the governance regime that regulates the use of the Arctic marine environment and its readiness to protect the fragile ecosystems in light of the consequences of climate change. It will present the institutional and legal frameworks, including soft-law arrangements, at the global and the regional level and the existing deficits regarding marine environmental protection.

As under a burning glass, the many challenges international environmental law is facing are becoming virulent in the Arctic at the same time⁶: Legal and institutional fragmentation with respect to the international regime for conservation and management of the marine environment, especially in areas beyond national jurisdiction (ABNJ), the need for marine spatial planning (MSP) and for the creation of marine protected areas (MPAs) and many more issues are coming to the fore as various marine activities commence or intensify.

From an international law perspective, the Arctic serves as an excellent example to illustrate the issues international environmental law has to address. The region might be regarded as a test case that shows how well the legal regime is equipped to address these challenges. In the Arctic marine environment, however, conservation and management efforts also have to take into account the pre-pollution resulting from the region's character as global 'pollution sink' and the considerable impacts of climate change.

In the past few years, particularly since the record-breaking retreat of summer sea ice in 2007, the previously widely neglected Arctic has become the centre of attention among policy-makers, legal scholars, the media and the general public. Disputes about delimitation and the extension of the outer continental shelves along with the former character of the Arctic as a cold-war arena raised a lot of attention.

Caused in part by the threat of extinction of the polar bear as the "iconic species of climate change",⁷ the focus shifted to environmental concerns. NGOs, legal scholars and policy-makers initiated discussions on the environmental protection of

⁵ United Nations Convention on the Law of the Sea, signed 10 December, entered into force 16 November 1994, 1833 UNTS 3.

⁶ Jane Lubchenco observed correctly that "[t]h[e] Arctic Ocean is, in fact, a microcosm of all ocean ecosystems: rich in its beauty, bounty, and history but fragile in its susceptibility to unsustainable practices on land and in the oceans. Climate change is but one of many threats.", *id.*, Lessons from the Ice Bear, in: Karen McLeod and Heather Leslie, *Ecosystem-based Management for the Oceans*, Island Press, Washington 2009, pp. xi-xiv, at xii.

⁷ *Ibid.*, at xiv.

the Arctic Region, especially with a view to the risks resulting from resource exploitation. Discussions also imply the need for a legally binding environmental Arctic Treaty. This treatise discusses and evaluates the various proposals that have been put forward to enhance environmental governance of the marine Arctic.

III Synopsis

The second chapter of this research deals with the consequences of climate change for the marine Arctic. Additionally, other relevant environmental concerns in the region, such as pollution, will be described to clarify the issues that have to be addressed by the Arctic environmental regime.

The third chapter begins with an analysis of the weaknesses of the existing regional ‘soft law’ regime with the Arctic Council at its core, and is followed by an assessment of gaps in the international legal regime governing the Arctic marine environment in the third part of the treatise. The observation of legal and institutional fragmentation and the sectoral approach to regulation as the main threats to a comprehensive and integrated ecosystem-based approach to environmental governance leads to the finding that these risks become particularly virulent in the areas beyond national jurisdiction (ABNJ). The gaps and weaknesses of the international legal regime for ABNJ are illustrated by the example of high seas fisheries, considering that fish are amongst the most vulnerable of all groups of living things,⁸ with almost one-third of all known fish species threatened with extinction.⁹ In the fourth chapter, possible solutions to enhance environmental governance of the marine Arctic are scrutinised. Finally, a possible way forward is outlined, including the question of participation in the future regime.

⁸ See The Ocean Conservancy, *HEALTH OF THE OCEANS*, 2002 Report, at 17-18, available at <http://www.oceanconservancy.org/site/DocServer/healthOceans.pdf?docID=221>, last visited 5 September 2011.

⁹ IUCN Red List of Threatened Species 2009 Update, see *Extinction crisis continues apace*, news release, 03 November 2009, available at: <http://www.iucn.org/?4143/Extinction-crisis-continues-apace>, last visited 26 March 2012.

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