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An Overview of Arctic Legal Regime Regarding the Protection of the Marine Environment and Some Suggestions

Ekrem Korkut and Lara B. Fowler

Structured Abstract

Article Type: Research Paper

Purpose—This article considers whether international law and the Law of the Sea have sufficient rules to protect the Arctic marine environment, and if so, to what extent.

Design, Methodology, Approach—With regards to the Law of the Sea, major issues in the Arctic that are present or impending, include (1) outer continental shelf claims; (2) passage rights through the Arctic Straits; (3) protection of marine biodiversity; (4) protection of the marine environment; and (5) military activities in the Arctic. In this research, we focus solely on the protection of the Arctic marine environment.

Findings—Although the Arctic states have adopted the 2011 Maritime Search and Rescue Agreement in order to assist each other in the event of a disaster, they have yet to establish infrastructure adequate to accomplish that goal. Moreover, there is no established mandatory or voluntary shipping routing system for the Arctic marine area.

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Practical Implications—The authors believe that until after above problems have been eliminated, the current Law of the Sea rules in the Arctic are not adequate to protect the Arctic marine environment and maritime safety.

Originality, Value—The Polar Code entered into force on 1 January 2017. In the present article, we analyze the legal gaps regarding the protection of Arctic marine environment and maritime safety after the entrance of the Polar Code.

Keywords: Arctic Ocean, Marine Environment, Maritime Safety, Oil Spill, Polar Code, UNCLOS

Introduction

What constitutes the Arctic has been defined in a number of ways. One author described it as “land and sea areas north of 60 degrees for the United States, Canada, Russia, Norway, Sweden, and Finland, and the whole of Greenland and Iceland.”¹ These countries are known as the Arctic States. Another considered it to be “a single, highly integrated system comprised of a deep, ice covered, and nearly isolated ocean surrounded by the land masses of Eurasia and North America, except for breaches at Bering Strait and in the North Atlantic.”² Approximately two-thirds of the Arctic is ocean.³ Although the Arctic States have a particular interest in changes in the Arctic, the rest of the planet has a stake as well. The Arctic ice is melting twice as fast as ice in the rest of the world.⁴ It is estimated that the Arctic holds about 90 billion barrels of oil and 44 billion barrels of natural gas liquids,⁵ which means it holds more hydrocarbon reserves than Saudi Arabia and Russia combined.⁶ Because the effects of global warming in the Arctic will also affect global climate, problems and changes in the Arctic concern the entire global community.⁷ As Arctic ice diminishes, changes in the Arctic are “opening up new opportunities and posing new challenges.”⁸ In this situation, maintaining peace and fostering cooperation will be crucial for the interest of particular States and the common interest as a whole might create conflict.⁹ Four factors make the Arctic Ocean so important and challenging.¹⁰ First, the Arctic Ocean is an open ocean surrounded by land; in contrast to Antarctica, which is a continent surrounded by ocean.¹¹ Second, global warming is opening the Arctic to navigation, thus allowing more shipping vessels to pass through Arctic sea routes.¹² Third, the emergence of new oil and gas reserves are creating new exploration possibilities.¹³ Finally, there is currently little international coordination in the Arctic Region.¹⁴

Because ice-covered areas are treated no differently than regular maritime areas, the 1982 United Nations Convention on the Law of the Sea¹⁵ [hereinafter: LOSC] plays an important role in maintaining peace in the Arctic. All Arctic States except the United States are parties to the LOSC. In the 2008 Ilulissat Declaration, five Arctic Nations—Canada, Russia, the United States, Denmark and Norway—declared they would respect the existing Law of the Sea.¹⁶ Under the LOSC, major issues in the Arctic that are present or impending, include (1) outer continental shelf claims;

(2) passage rights through the Arctic Straits; (3) protection of marine biodiversity; (4) protection of the marine environment; and (5) military activities in the Arctic. In this research, we focus solely on the protection of the Arctic marine environment.

First, we explore the major players and institutions in the Arctic including the Arctic Council, then analyze how the LOSC and the contemporary Law of the Sea relate to the protection of the marine environment in the Arctic.

The Arctic Council

The Arctic Council, which is “the only fully circumpolar and comprehensive governance institution in the Arctic,”¹⁷ was established by the 1996 Ottawa Declaration, as a forum for Arctic Nations. The Arctic Council’s members include the United States, Canada, Denmark, Norway, Finland, Sweden, Iceland and Russia. It intends to “provide a means for promoting cooperation, coordination and interaction ... on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic.”¹⁸ A permanent secretariat was established in Tromsø, Norway, on 21 January 2013. Before 2013, its location changed biennially with the chairmanship of the Council.¹⁹ The Secretariat provides administrative and organizational support, and acts as a liaison between the Arctic members.²⁰

In general, the Council does not make binding decisions. Rather, it is a forum for discussion of Arctic issues, apart from military matters.²¹ Its guidelines, assessments and recommendations can only be enforced by each Arctic State.²² According to Haftendorn, the Arctic Council is not “a decision-making organization, but rather a decision-shaping body based on consensus.”²³ The Council ensures that States parties comply “with soft law norms rather than hard rules...”²⁴ However, in 2011 the Arctic Council adopted its first binding agreement with the “Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic.”²⁵ Later, the 2013 Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic and the 2017 Agreement on Enhancing International Arctic Scientific Cooperation were adopted by the Council.²⁶

In 1991, the Arctic States adopted the Arctic Environmental Protection Strategy [hereinafter: AEPS] and established four environmental working groups: (1) Conservation of Arctic Flora and Fauna (CAFF); (2) Protection of the Arctic Marine Environment (PAME); (3) Emergency Prevention, Preparedness and Response (EPPR); and (4) the Arctic Monitoring and Assessment Programme (AMAP). In 1998 and 2006 two additional working groups were added to the existing working groups: The Sustainable Development Working Group (SDWG) and Arctic Contaminants Action Program (ACAP).²⁷

In addition to its eight member States, the Council includes thirteen non-Arctic States as observers: India, Singapore, South Korea, Japan, China, France, Germany, Italy, Poland, Spain, the Netherlands, United Kingdom, and Switzerland as of Jan-

uary 21, 2018.²⁸ Observer status is open to non-Arctic states and intergovernmental and non-governmental organizations that “the Council determines can contribute to its work.”²⁹ Observers are invited to meetings of the Arctic Council; their primary role is to observe the work of the Council.³⁰ In the meetings they can make statements, submit relevant documents and “provide views on the issues under discussion.”³¹

Because the changing Arctic not only affects ecosystems, but also the lives of indigenous peoples, a number of indigenous people organizations are permanent participants of the Arctic Council³²: the Aleut International Association, the Arctic Athabaskan Council, the Gwich’in Council International, the Inuit Circumpolar Council, the Russian Association of Indigenous Peoples of North (RAIPON) and the Saami Council.³³

The United Nations Convention on the Law of the Sea (LOSC)

The basic framework for the seas is presented in the Law of the Sea Convention (LOSC). It was adopted in the Third United Nations Conference on the Law of the Sea following a decade of negotiations and came into force in 1994. As of 2018, it has 168 parties. Today, the LOSC is widely accepted as the “constitution” of the oceans and that most provisions of the LOSC represent the customary international law. Article 234 of the LOSC gives coastal States the right to adopt and enforce laws and regulations for the prevention of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone (EEZ).³⁴ Also, some writers allege that the Arctic Ocean is an enclosed or semi-enclosed sea.³⁵ If that is the case, the LOSC urges States bordering enclosed or semi-enclosed seas to cooperate directly or through a regional organization regarding, *inter alia*, protection of the marine environment and the coordination of scientific research.³⁶

In order to understand how the LOSC applies to the Arctic, it is critical to consider the LOSC zonal approach. A coastal State measures its maritime zones from baselines. The waters landward of the baselines are internal waters of a State. The LOSC regulates three types of baselines: normal baselines, straight baselines³⁷ and archipelagic baselines (Article 47, LOSC). Internal waters are treated as a land territory of a State. The coastal State has full authority to adopt and enforce its laws, and limit foreign vessels entering into internal waters. A territorial sea, on the other hand, extends up to 12 nautical miles from the baselines. It covers the water column, seabed and subsoil adjacent to the coastal State. Although the coastal State maintains its sovereignty in its territorial waters, other States have the right of innocent passage for their vessels through the territorial sea of the coastal State. Beyond the territorial sea, a contiguous zone allows the coastal State to exercise its control in order to “a) prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory and territorial sea; and b) punish infringement of the above laws and regulations committed within its territory or territorial sea” (Article

33, LOSC). A contiguous zone may not extend beyond 24 nautical miles from the baselines.

An exclusive economic zone provides coastal States with sovereign rights to explore and exploit, conserve and manage living and non-living resources of the water column and of the seabed and subsoil and carry out other economic activities in the zone up to 200 nautical miles from the baselines (Article 56[1][a], LOSC). Freedom of navigation and of over flight, as well as freedom to lay pipelines and cables, is maintained through the EEZ of a coastal State. The high seas are “all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State” (Article 86, LOSC). On the high seas, States enjoy the freedom of the high seas including the freedom to access living resources and freedom of navigation. There are four maritime areas in the Arctic that are part of the high seas: the Barents Sea (loophole), the Norwegian Sea (banana hole), the Bering Sea (donut hole) and the central Arctic Ocean.³⁸

All Arctic States except the United States are parties to the LOSC. Reasons why the United States has not ratified the convention include its dissatisfaction with being subject to the authority of organizations created by the LOSC, i.e., the International Seabed Authority, and its opposition to emergence of “unaccountable international bureaucracies.”³⁹ LOSC opponents are also against the payment provision of the LOSC,⁴⁰ which provides that a coastal State must make payments or contributions to the Authority as a consequence of revenues derived from the exploitation of resources beyond the 200 nm continental shelf limit (Article 82, LOSC). Another argument for LOSC opponents is that ratifying the LOSC would subject the United States to international lawsuits due to obligations that might arise from the LOSC.⁴¹

Protection of the Arctic Marine Environment

The LOSC establishes a general framework, i.e., a constitutional character, to protect and preserve the marine environment from marine pollution.⁴² Additional international agreements also govern marine pollution in the high seas.

Pollution Prevention Under the LOSC

LOSC Article 192 observes, “States have an obligation to protect and preserve the marine environment.” They are required to take all necessary measures to prevent, reduce and control marine pollution from any source (Article 194, LOSC). Every State is required to exercise its jurisdiction and control over vessels flying its flag (Article 94, LOSC and Article 211[2]). Flag States are required to take measures to ensure that their flagged vessels are prohibited from sailing until they can proceed to sea in compliance with international rules and standards regarding prevention of marine pollution from vessels (Article 217[2], LOSC). They must ensure that their flagged vessels carry required certificates and are inspected periodically. Flag States

must initiate immediate investigation and proceedings against vessels that violate international pollution-control standards irrespective of where the violation occurred or where the pollution caused by such violation occurred (Article 217[3] and [4], LOSC). According to Joyner, enforcement of internationally agreed rules by States underpins protection of the marine environment.⁴³ LOSC Article 235 provides that “States are responsible for the fulfillment of their obligations concerning the protection and preservation of the marine environment.”

Pollution Prevention Under Other International Conventions

In addition to the LOSC, there are numerous other international conventions that govern pollution on the high seas. The International Maritime Organization (IMO), a specialized United Nations agency, was established by the IMO Convention to provide global regulations, treaties and guidelines for international shipping in matters concerning maritime safety and prevention of marine pollution from vessels.⁴⁴ Today, the IMO includes 172 State parties and 77 international non-governmental organizations that enjoy consultative status.⁴⁵ The IMO deals with safety and security of navigation and prevention of pollution through its conventions such as Safety of Life at Sea (SOLAS),⁴⁶ Prevention of Marine Pollution (MARPOL),⁴⁷ Oil Pollution Preparedness, Response and Co-operation (OPRC),⁴⁸ Prevention of Marine Pollution by Dumping of Wastes and Other Matter (hereinafter: 1972 London Convention)⁴⁹ and the 1969 High Seas Intervention Convention.⁵⁰ The SOLAS and MARPOL Conventions cover more than 99 percent of the world’s merchant shipping tonnage.⁵¹

The SOLAS Convention establishes “minimum standards for the construction, equipment and operation of ships, compatible with their safety.”⁵² It consists of 13 Articles, with an annex composed of 12 chapters. Chapters of the Annex include the following: I: General Provisions, II-1: Construction, II-2: Fire Protection, III: Life Saving Appliances, IV: Radio Communications, V: Safety of Navigation, VI: Carriage of Cargoes, VII: Carriage of Dangerous Goods, VII: Nuclear Ships, IX: Management of Ships, X: High Speed Craft, XI-1: Special Measures to Enhance Maritime Safety, XI-2: Special Measures to Enhance Maritime Security, XII: Bulk Carriers. While flag States are required to inspect and survey their ships, and they must guarantee the completeness of the inspections and surveys,⁵³ port States must verify that foreign vessels carry a valid certificate.⁵⁴ Such certificate is accepted as valid by the port State unless there are clear grounds for believing that the ship does not comply with standards in the certificate.⁵⁵ In that case, the port State is not to allow the ship to proceed to sea until it can sail without danger to the passengers or the crew.⁵⁶

The MARPOL Convention seeks to prevent the discharge of harmful substances from ships except ships involved in dumping, seabed exploration and exploitation, and from legitimate scientific research into pollution abatement or control.⁵⁷ The MARPOL Convention includes six annexes: The Prevention of Pollution by Oil (Annex I), the Control of Pollution by Noxious Liquid Substances (Annex II), the Prevention of Pollution by Harmful Substances in Packaged Form (Annex III), the

Prevention of Pollution by Sewage from Ships (Annex IV), the Prevention of Pollution by Garbage from Ships (Annex V) and the Prevention of Air Pollution from Ships (Annex VI). Annexes I and II are mandatory. In other words, if a State were to become a party to MARPOL, it must also ratify Annexes I and II. Other annexes remain optional to accede. The MARPOL Convention applies to the discharge of harmful substances from vessels.⁵⁸ Annexes I, II, IV and V provide for the establishment of “special areas,” where more stringent discharge standards apply.⁵⁹ However there is no established special area in the Arctic Ocean.⁶⁰ Because of the high risk of single-hull tankers, Annex I, Regulations 19 and 20 require that new and most existing vessels have a double-hull for their cargo areas.

In contrast, the 1972 London Convention applies to ocean dumping, which is the disposal of land-generated wastes at sea.⁶¹ The London Convention requires States parties to take effective measures to prevent marine pollution caused by dumping or incineration of waste at sea.⁶² The 1996 London Protocol prohibits all dumping except as allowed in Annex I of the protocol.⁶³ These are “dredged material; sewage sludge; fish wastes [...]; vessels and structures or other man-made structures at sea; inert, organic geological material; organic material of natural origin; bulky items primarily comprising iron, steel and concrete for which the concern is physical impact [...]; carbon dioxide streams from carbon dioxide capture processes for sequestration.”⁶⁴ Moreover, a ship may not carry out dumping without the permission of competent authorities of its flag state (Article 210[3], LOSC). Dumping by a foreign ship within the waters of a coastal State is subject to permission of the coastal State (Article 210[5], LOSC).

According to LOSC Article 198 when a State becomes aware of imminent danger of damage by pollution to the marine environment, the State is required to notify other States it thinks will be affected by such damage, as well as the competent international organizations. Similarly, the OPRC Convention provides “a global framework for international co-operation in combating major incidents or threats of marine pollution.”⁶⁵ A State party to the OPRC Convention must require masters or other persons commanding ships flying the State’s flag to immediately report to the nearest coastal State any event on their ship involving a discharge or probable discharge of oil (Article 4[1]). The coastal State must then inform other States whose interests are affected or likely be affected (Article 5[1]). Furthermore, each party is required to establish a national system for responding promptly and effectively to oil-pollution incidents (Article 6[1]). A protocol to the OPRC Convention extended the application of the OPRC to hazardous and noxious substances [hereinafter: OPRC-HNS Protocol].⁶⁶

The LOSC allows coastal States to take measures beyond the territorial sea proportionate to damage “from pollution or threat of pollution following upon a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences.”⁶⁷ Similarly, the 1969 High Seas Intervention Convention regulated the intervention rights of a coastal State regarding pollution casualties on the high seas.⁶⁸ According to Article 1 of the Convention, a State party can take measures on the high seas to prevent and control imminent danger

from the pollution of the sea by oil, “following upon a maritime casualty or acts related to such a casualty, which may be reasonably expected to result in major harmful consequences.” A coastal State is required to consult with other States affected by the maritime casualty, particularly with the flag State or States, before taking any measures regarding the casualty (Article 3[a]). In cases of extreme urgency, the coastal State is allowed to take necessary measures without prior notification or consultation (Article 3[d]). The 1973 Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil extended the application of the convention to substances other than oil (Article 1).⁶⁹ It is said that the LOSC lowered the threshold for intervention in case of pollution from maritime casualties.⁷⁰ The intervention by a coastal State under the LOSC is allowed when there is “actual or threatened damage” that may cause “major harmful consequences,” whilst intervention by the coastal State under the 1969 High Seas Intervention Convention is allowed if there is a “grave and imminent danger” of damage to the coastline.⁷¹

Pollution Prevention Under Regional Conventions Related to the Arctic Ocean

Regulation of pollution in the Arctic is subject to additional regional agreements. One regional treaty, which applies to a part of the Arctic region, is the Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR).⁷² Under the OSPAR Convention, State parties are required to take measures to prevent marine pollution and take measures “to protect the maritime area against the adverse effects of human activities.”⁷³

Arctic waters constitute only 40 percent of the application area of the OSPAR Convention, and the Convention does not cover the entire Arctic.⁷⁴ Nor does the Convention deal with fisheries management.⁷⁵ Moreover, there is a tendency between parties to leave shipping issues to the International Maritime Organization.⁷⁶ The OSPAR Commission can adopt binding decisions in the event of non-compliance by a State party.⁷⁷ All 16 parties of the OSPAR Convention are from Europe⁷⁸; Canada, Russia and the United States are not parties. Criticisms regarding the application of the OSPAR Convention in the Arctic are that these conventions are binding only upon those States that are parties to them,⁷⁹ therefore they do not fulfill regulatory and governance needs in the Arctic.⁸⁰

Due to concerns about potential oil pollution in the Arctic, the Arctic Council adopted the 2013 Agreement on Cooperation on Marine Oil Pollution Preparedness and Response. The goal of this agreement is to “strengthen cooperation, coordination and mutual assistance among the parties on oil pollution, preparedness and response in the Arctic in order to protect the marine environment from pollution by oil.”⁸¹ The Agreement is enforced by the Emergency Prevention, Preparedness and Response (EPPR) Working Group.⁸² Article 4 requires parties to maintain a national system to respond to oil pollution incidents promptly and effectively.

The Polar Code

In 2002, the International Maritime Organization (IMO) adopted “the Guidelines,” which provides construction requirements, equipment standards, and operational and environmental measures for shipping that apply only in the Arctic.⁸³ They were updated in 2009.⁸⁴ Later, the IMO developed the Guidelines into a mandatory Polar Code, which lays out safety measures and pollution prevention measures for ships navigating in polar waters (hereinafter: Polar Code).⁸⁵ Accordingly, it covers shipping matters relevant to navigation in the polar regions and to the protection of the marine environment in the polar regions.⁸⁶ The Polar Code was adopted through amendments to the Annexes of SOLAS and MARPOL that made the Code mandatory.⁸⁷ Part I of the Polar Code, adopted in November 2014, deals with safety measures, and Part II of the Code, adopted in May 2015, regulates pollution prevention. While safety provisions of the Code became Chapter XIV (Safety Measures for Ships Operating in Polar Waters) of SOLAS,⁸⁸ environmental provisions of the Code were included in MARPOL through amendments in Annexes I, II, IV and V of MARPOL.⁸⁹ Each main part of the Code (Part I and Part II) is divided into subparts as A and B, i.e., Parts I-A and I-B, and Part II-A and Part II-B. Only Parts I-A and II-A are mandatory; Parts I-B and II-B are recommendatory. The Code does not address the issue of discharge of gray water (from sinks, laundries, showers, etc.) from cruise ships and it bans the use of heavy fuel oil (HFO) only in Antarctica, not in the Arctic.⁹⁰ When ships burn heavy fuel oil black carbon is released into the air. It then “lands on snow and ice and accelerates its melting.”⁹¹ Because HFO is a highly viscous substance and breaks down slowly, and because of severe weather conditions in the Arctic, an HFO spill in the polar regions would be very difficult to clean up.⁹² Therefore, the European Parliament adopted an Arctic Policy resolution on 16 March 2017 in which it asks its EU member States to take all necessary steps to actively facilitate the ban on the use and carriage of HFO.⁹³

The Code requires:

Ships intending to operating in the defined waters of the Antarctic and Arctic to apply for a Polar Ship Certificate, which would classify the vessel as Category A ship—ships designed for operation in polar waters at least in medium first-year ice, which may include old ice inclusions; Category B ship—a ship not included in category A, designed for operation in polar waters in at least thin first-year ice, which may include old ice inclusions; or Category C ship—a ship designed to operate in open water or in ice conditions less severe than those included in Categories A and B.⁹⁴

However, the Code does not regulate fishing vessels, pleasure craft or offshore mobile drilling units.⁹⁵ With regard to the interplay between the Polar Code and Article 234 of the LOSC, it is said the Polar Code will not restrict the application of Article 234 since “Article 234 is still an alternative basis for adopting stricter rules for ice-covered areas.”⁹⁶ In several instances, the LOSC refers to generally accepted international rules and standards. Jensen, in his article on the Polar Code, said that mandatory

provisions of the Code are generally accepted international rules and standards and therefore they are covered as a relevant rule of reference in the LOSC.⁹⁷

Protection of the Marine Environment from Seabed Drilling Activities

The Arctic still remains ice-covered even during summer. Therefore, cleaning up an oil spill in offshore drilling areas would be more challenging than in other seas. If a blowout in a drilling session is not stopped, it could release oil for up to eight months, until the site becomes accessible again.⁹⁸

Exploration and exploitation of the seabed and its subsoil could cause marine pollution through “the release of harmful chemicals used in routine processes of drilling, the discharge of ‘produced water’ from oil platform operations, and the emission of airborne pollutants from activities such as ‘flaring’ of excess gas.”⁹⁹ The LOSC requires coastal States to adopt laws and regulations to prevent, reduce, and control marine pollution arising from such seabed activities under their jurisdiction (Article 208 [1]). It also requires them to implement applicable international rules and standards for the prevention of marine pollution arising from seabed activities (Article 214, LOSC). They are required to harmonize their national policies concerning the prevention and reduction of marine pollution from seabed activities at a regional level (Article 208[4], LOSC). It must be kept in mind that there is no international convention for the prevention of pollution from seabed drilling activities except the MARPOL Convention, which extends the definition of ships to “fixed or floating platforms.”¹⁰⁰ Therefore, the discharge and emission standards of MARPOL are applicable to offshore installations as well.¹⁰¹

Regarding seabed activities in the Area, States are required to adopt laws and regulations to prevent, reduce and control marine pollution from activities carried out by their vessels, installations or other structures in the Area (Article 209[2], LOSC). The International Seabed Authority adopts appropriate rules, regulations and procedures for:

- (a) The prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities;
- (b) The protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment (Article 145, LOSC).

The Council of the Seabed Authority is the responsible body for the enforcement of LOSC provisions relating to the seabed on “all questions and matters within the competence of the Authority” and it “invites the attention of the Assembly to cases of non-compliance” (Article 162[2][a], LOSC). Similarly, the Council has the power to “issue emergency orders, which may include orders for the suspension or adjust-

ment of operations, to prevent serious harm to the marine environment arising out of activities in the Area” (Article 162[2][w]). Therefore, protection of the marine environment from seabed activities is supervised by the Council of the Seabed Authority.¹⁰² According to Article 185(1), LOSC, “a State party which has grossly and persistently violated the provisions of this Part may be suspended from the exercise of the rights and privileges of membership by the Assembly upon the recommendation of the Council.”

In 2014, the Protection of the Arctic Marine Environment (PAME), a working group of the Arctic Council, updated its guidelines, which were adopted to promote safety during exploration and exploitation activities within the Arctic seabed.¹⁰³ Similarly, the Arctic Council adopted the 2015 Framework Plan for Cooperation on Prevention of Oil Pollution from Petroleum and Maritime Activities in the Marine Areas of the Arctic, which fosters cooperation between State parties, private sector and indigenous people in the field of prevention of marine oil pollution from petroleum and maritime activities in the Arctic Sea.¹⁰⁴ However, the Guidelines and the Framework Plan are not legally binding, rather they are being followed on a voluntary basis.¹⁰⁵

In addition to States, trade associations such as the American Petroleum Institute, the International Oil and Gas Producers Association, the International Petroleum Industry Environmental Conservation Association (IPIECA), the International Organization for Standardization have adopted standard measures for a safer drilling practice in the maritime areas.¹⁰⁶ Although the standards adopted by these associations are voluntary, they influence the oil and gas exploration industry with regard to Arctic operations.¹⁰⁷ Moreover, several States have incorporated these regulations into their domestic law.¹⁰⁸

Prevention of Marine Pollution from Land-Based Sources

Land-based marine pollution constitutes nearly 80 percent of all marine pollution, while vessel-source marine pollution, dumping, and pollution from seabed activities remain relatively small.¹⁰⁹ LOSC Article 194 requires States to take measures to prevent marine pollution from any source, including land-based resources. According to Article 207(1), States are required to “adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based resources including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.” Air pollution from land-based activities is another source of marine pollution. Article 212(1) sets out a similar obligation for pollution from or through the atmosphere. Emission of CO₂ into the marine environment has a disastrous effect on the health of the oceans.¹¹⁰ Air pollution contaminates the oceans with “dissolved copper, nickel, cadmium, mercury, lead, zinc and synthetic organic compounds.”¹¹¹ The main causes of marine pollution from land-based sources in the Arctic Ocean include river inputs to the Arctic Ocean, atmospheric pathways, and municipal and industrial wastes—especially in the northern territories of Russia.¹¹²

Because Persistent Organic Pollutants (POPs) have a migration pattern from warmer waters to cooler waters, they accumulate in the Arctic.¹¹³ The 2001 Stockholm Convention on POPs was adopted to restrict and ultimately eliminate the use, release, and storage of specified POPs.¹¹⁴ The Convention allows parties to offer new chemicals to be added to specified POPs. Among Arctic States, only the United States has yet to ratify the Stockholm Convention.

According to LOSC Article 194(3)(a), the measures taken by a State to prevent marine pollution must include minimizing to the fullest possible extent the “release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping.” As Rothwell and Stephens indicated, the LOSC provisions relating to land-based pollution are less demanding than the provisions relating to vessel-source pollution; they do not require the application of international standards, but require only that States take international standards into consideration.¹¹⁵ They have concluded, “This gives coastal States considerable latitude in determining whether to adopt pollution-abatement measures, and whether particular substances should be considered to be polluting within the meaning of Article 1(4) of the LOSC.”¹¹⁶

The United Nations Environmental Program (UNEP) has concluded regional seas programs in different seas in order to “foster implementations of international environmental law that are adapted to the specific ecological characteristics of unique marine environments.”¹¹⁷ The 2009 Regional Program of Action (RPA) for the Protection of the Arctic Marine Environment from Land Based Activities is a soft-law instrument, which is administered by the PAME working group of the Arctic Council.¹¹⁸ This program remains legally non-binding. The PAME addresses the prevention of marine pollution from both seabed and land-based activities. Similarly, the Arctic Contaminants Action Program (ACAP), a working group of the Arctic Council, acts as a mechanism “to encourage national actions to reduce emissions or other releases of pollutants.”¹¹⁹ The Arctic Council has not imposed any legally binding obligations upon its members regarding implementation of the RPA.¹²⁰

Climate Change

The impacts of the climate change in the Arctic include the “reduction of sea ice extent, thickness, and distribution; melting of glaciers; thawing of permafrost soil, and ocean acidification.”¹²¹ Although these impacts are more notable in the polar regions than in the rest of the world, the causes of climate change are still under-regulated in the polar regions.¹²² The main convention touching on the climate change is the 1992 United Nations Framework Convention on Climate Change (UNFCCC).¹²³ Article 4(2)(a) and (b) requires industrialized countries to strive to cut down greenhouse gas emissions to 1990 levels by the year 2000. The Kyoto Protocol to this convention provides emission limits for industrialized countries, as listed in Annex B of the Protocol, for the period of 2008 to 2012.¹²⁴ In the 2012 Conference of the Parties, the Doha Amendment extended this period to 2013 to 2020.¹²⁵ The entry into force of the amendment is contingent upon acceptance by three-

fourths of the parties to the Kyoto Protocol, which has not happened as of 2018. Guruswamy and Leach said: “it is highly unlikely that the Doha Amendment will be accepted by 75% of the parties to the Kyoto Protocol. In the absence of the Doha Amendment coming into force, the Kyoto Protocol will remain a moribund treaty.”¹²⁶

Among Arctic States, the United States has not yet ratified the Kyoto protocol, while Canada withdrew from the Protocol in 2011. Neither the UNFCCC nor the Kyoto Protocol addressed the specific issues linked to climate change in the Arctic.¹²⁷ However, the Arctic Council developed the Arctic Climate Impact Assessment (ACIA) in 2004 to assess the “status of knowledge and develop scenarios of future climate change.”¹²⁸

The 2015 Paris Agreement, on the other hand, aims to strengthen a global response to climate change by limiting global warming to below 2 degrees Celsius.¹²⁹ Unlike the Kyoto Protocol, this agreement requires that developing countries like China and India also act against greenhouse gas emissions. All Arctic countries ratified the agreement except Russia. On August 4, 2017, the United States announced that it would withdraw from the Agreement although it is still a party to the UN Framework Convention on Climate Change. Because the United States is the world’s second larger carbon polluter; its withdrawal from the Paris Agreement will diminish the fight against global warming.

French and Scott suggested that the Arctic States may take some regional actions against climate change, in some areas at least, notwithstanding “a polar regional response to climate change constitutes only a partial solution to what is undeniably a global problem.”¹³⁰ First, States bordering polar regions and States operating there must limit local greenhouse gas emissions.¹³¹ Second, “States must develop appropriate regional responses for the purposes of adapting to climate change and for managing activities in light of climate change and its environmental and (to a lesser extent) political implications.”¹³² Third, polar States must focus on their responsibilities at a global level to prevent greenhouse gas emissions.¹³³

Conclusion

With regard to a stronger protection for the Arctic, Geiselhart suggested establishing a more permanent and substantial institutional foundation, expanding the scope of binding law issued by the Council, attracting higher ranking representatives from Arctic nations, and increasing the number of observer-status entities.¹³⁴ He added, “The Arctic Council should call upon its members to institute an appropriate price on carbon emissions through a tax or market-based system.”¹³⁵

Young opposed a legally binding Arctic Treaty on the grounds that:

Legally binding agreements (i) require protracted negotiations to reach agreement on their substantive provisions coupled with time-consuming procedures to meet the requirements for entry into force, (ii) avoid issues expected to prove contentious in the interests of building consensus, (iii) are difficult to adapt to changing circumstances in a timely manner, and (iv) do not accord roles to non-

state actors that are commensurate with their importance in the relevant system.¹³⁶

He recommended that the International Maritime Organization establish a mandatory Polar Code for Arctic shipping, that the North East Atlantic Fisheries Commission govern industrial fishing throughout Greenland and Norwegian Seas, the Stockholm Convention on POPs (Persistent Organic Pollutants) address issues pertaining to contaminants, and that the forum provided by the Convention on Biological Diversity work on matters pertaining to the protection of species and the rights of indigenous people in the Arctic.¹³⁷ Finally, he said the effectiveness of the Council must be enhanced.¹³⁸ Young's recommendation for a mandatory Polar Code came in 2017.

Joyner supported the application of the contemporary Law of the Sea to the protection of the Arctic. According to him, "the contemporary law of the sea will not fail in the Arctic. If failure does occur, it will lay with those governments who circumvent or undercut the law in order to exploit Arctic seas more extensively."¹³⁹ He also said:

Primary responsibility for the enforcement of international rules and standards in Arctic waters rests with flag state. Article 94 of the 1982 LOS Convention requires each state to effectively exercise its jurisdiction and control over ships flying its flag and to ensure that their flagged vessels take measures to ensure safety at sea.¹⁴⁰

There is no established mandatory or voluntary shipping routing system for the Arctic Marine Area.¹⁴¹ Byers mentioned the necessity of adopting designated shipping lanes to prevent collisions and of setting speed limits for vessels.¹⁴²

The entry of the Polar Code into force will improve the safety of navigation and protection of the marine environment in the Arctic.¹⁴³ The provisions of the Code will be enforced by flag states that are parties to SOLAS and MARPOL since these conventions incorporated the Code through annexes and amendments to the annexes. However, the ban on the use of heavy fuel oil in the Antarctic must be extended to the Arctic. Furthermore, discharge of grey water by cruise ships must be prohibited in the Polar regions.

Particularly Sensitive Sea Areas [PSSA] may be designated in the Arctic. A PSSA is defined as "an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic or scientific reasons and because it may be vulnerable to damage by international shipping activities."¹⁴⁴ According to Article 211(6), when international rules and standards are inadequate to protect the marine environment from vessel source pollution in an EEZ of a State, the State may ask the IMO to designate the maritime area as a special area.¹⁴⁵ A PSSA allows application of more stringent IMO-approved regulatory rules such as routing measures and ship-reporting systems.¹⁴⁶

Although the Arctic states have adopted the 2011 Maritime Search and Rescue Agreement in order to assist each other in the event of a disaster, they still have not established adequate infrastructure for that purpose. For example, the United States

owns just two icebreakers in the Arctic Ocean.¹⁴⁷ Similarly, the U.S. withdrawal from the 2015 Paris agreement will weaken the fight against global warming which accelerates the melting of Arctic ice. The author believes that until after these problems have been eliminated, the current Law of the Sea rules in the Arctic are not adequate to protect the Arctic marine environment and maritime safety.

Notes

1. Michael T. Geiselhart, "The Course Forward for Arctic Governance," *Wash. U. Global Stud. L. Rev* 13 (2014), p. 157. The U.S. Congress has defined the Arctic as "all United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Sea; and the Aleutian chain." 15 U.S.C. § 4111 (2013).

2. Henry Huntington et al., "An Introduction to the Arctic Climate Impact Assessment," in *Arctic Climate Impact Assessment* (2004), p. 10.

3. *Ibid.*

4. *Ibid.*, p. 158. See J. Richter-Menge, J. E. Overland, and J. T. Mathis, eds., "Arctic Report Card 2016," <http://www.arctic.noaa.gov/Report-Card>, accessed November 1, 2018.

5. U.S. Geological Survey, "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle," *USGS Fact Sheet 2008-3049* (2008).

6. Andrew Osborn, "Putin's Russia in Biggest Arctic Military Push Since Soviet Fall," *Arctic Now*, published January 30, 2017, <http://www.arcticnow.com/arctic-news/2017/01/30/putins-russia-in-biggest-arctic-military-push-since-soviet-fall/>, accessed November 1, 2018.

7. Geiselhart, 2014, p. 156.

8. Claudia Cinelli, "The Law of the Sea and the Arctic Ocean," *Arctic Review on Law and Politics* 2(1) (2011), p. 5.

9. Cinelli, *Ibid.*

10. Sukjoon Yoon, "A Cooperative Maritime Capacity-Sharing Strategy for the Arctic Region: The South Korean Perspective," in *Asia and the Arctic*, eds. V. Sakhuja and K. Narula (Singapore: Springer, 2016), p. 50.

11. "The Antarctic Treaty," Secretariat of the Antarctic Treaty, accessed 25 February 2017, <http://www.ats.aq/e/ats.htm>. Article IV (2), the Antarctic Treaty reads: No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

12. Yoon, 2016, p. 50.

13. *Ibid.*, p. 51.

14. *Ibid.*

15. United Nations Convention on the Law of the Sea, 10 December 1982, 1833 *UNTS* 397.

16. Arctic Ocean Conference, "The Ilulissat Declaration," (Greenland, 27–29 May 2008), <http://www.arcticgovernance.org/the-illulissat-declaration.4872424.html>, accessed November 1, 2018.

17. Hari M. Osofsky, Jessica Shadian and Sara L. Fechtelkotter, "Arctic Energy Cooperation," *University of California, Davis Law Review* 49 (2016), p. 1450.

18. "Declaration on the Establishment of the Arctic Council," adopted 19 September 1996, 35 *ILM* 1387.

19. Arctic Council, "The Arctic Council Secretariat," <http://www.arctic-council.org/index.php/en/about-us/arctic-council/the-arctic-council-secretariat>, last updated November 4, 2016, accessed November 1, 2018.

20. *Ibid.*

21. *Ibid.* "The Arctic Council should not deal with matters related to military security."

22. Arctic Council, "The Arctic Council: A Backgrounder," <http://www.arctic-council.org/index.php/en/about-us>, last updated September 13, 2018, accessed November 1, 2018.

23. Helga Haftendorn, "The Case for Arctic Governance—The Arctic Puzzle," *Institute of International Affairs* (2013), p. 19.
24. Osofsky, 2016, p. 1438.
25. Entered into force January 2013, <http://www.ifrc.org/docs/idrl/N813EN.pdf>.
26. Arctic Council, "Agreements," <http://www.arctic-council.org/index.php/en/our-work/agreements>, last updated May 25, 2017, accessed November 1, 2018.
27. Arctic Council, "Working Groups," <http://www.arctic-council.org/index.php/en/about-us/working-groups>, last updated September 10, 2015, accessed November 1, 2018.
28. Arctic Council, "Observers," <http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers>, last updated January 17, 2018, accessed November 1, 2018.
29. *Ibid.* Nine intergovernmental and inter-parliamentary organizations have observer status: International Federation of Red Cross & Red Crescent Societies, International Union for the Conservation of Nature, Nordic Council of Ministers, Nordic Environment Finance Corporation, North Atlantic Marine Mammal Commission, Standing Committee of the Parliamentarians of the Arctic Region, United Nations Economic Commission for Europe, United Nations Development Program and United Nations Environment Program. *Ibid.* Also eleven non-governmental organizations act as observers in the Council: the Advisory Committee on Protection of the Seas, the Arctic Institute of North America, the Association of World Reindeer Herders, the Circumpolar Conservation Union, the International Arctic Science Committee, the International Arctic Social Sciences Association, the International Union for Circumpolar Health, the International Work Group for Indigenous Affairs, the Northern Forum, University of the Arctic, and the World Wide Fund for Nature-Global Arctic Program. *Ibid.*
30. *Ibid.*
31. *Ibid.*
32. Oran Young, "Arctic Governance—Future Pathways to the Future," *Arctic Review on Law and Politics* 1 (2) (2010), p. 170.
33. Arctic Council, "Permanent Participants," <https://www.arctic-council.org/index.php/en/about-us/permanent-participants>, last updated March 22, 2017, accessed November 1, 2018.
34. Article 234, LOSC declares that:
Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.
35. Alexander Proelss and Till Müller, "The Legal Regime of the Arctic Ocean," *Heidelberg Journal of International Law* 68 (2008), pp. 684–685.
36. Article 123, LOSC provides that:
States bordering an enclosed or semi-enclosed sea should cooperate with each other in the exercise of their rights and in the performance of their duties under this Convention. To this end they shall endeavour, directly or through an appropriate regional organization:
(a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea;
(b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment;
(c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area;
(d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article.
37. Article 7, LOSC is explained in the following parts.
38. Timo Koivurova and Erik J. Molenaar, "International Governance and Regulation of the Marine Arctic, Overview and Gap Analysis," *WWF International Arctic Programme* (2009), p. 14.
39. Marta Kolcz-Ryan, "An Arctic Race: How the United States' Failure to Ratify the Law of the Sea Convention Could Adversely Affect Its Interest in the Arctic," *University of Dayton Law*

Review 35 (1) (2009), p. 164. The 1994 Agreement Relating to the Implementation of Part IX of the LOSC modified the provisions of the LOSC regarding the deep seabed (Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea, UNGA Resolution 48/263 of 28 July 1994). The 1994 Agreement was adopted to encourage developed States like the United States to ratify the LOSC because they were against the original provisions of the LOSC regarding the deep seabed.

40. The U.S. National Security and Strategic Imperatives for Ratification: Hearing on the Law of the Sea Convention Before the S. Comm. on Foreign Relations, 112th Cong. (2012) (statement of S. James M. Inhofe, Mem., S. Comm. on Foreign Relations) cited in James W. Houck, "The Opportunity Costs of Ignoring the Law of the Sea," *Arctic Hoover Institution, Stanford University* (2013).

41. See Steven Groves, "Accession to U.N. Convention on the Law of the Sea Would Expose the U.S. to Baseless Climate Change Lawsuits," *Heritage Foundation Backgrounder*, No. 2660 (March 12, 2012). The writer indicated that without ratifying the LOSC, there is no forum to initiate an international climate change lawsuit against the U.S.

42. Christopher C. Joyner, "The Legal Regime for the Arctic Ocean," *Journal of Transnational Law and Policy* (2009), p. 220.

43. *Ibid.*, p. 223.

44. Convention on the International Maritime Organization, adopted 6 March 1948, 289 *UNTS* 3.

45. International Maritime Organization, "Status of Treaties," accessed September 21, 2018, <http://www.imo.org/en/About/Conventions/StatusOfConventions/Documents/StatusOfTreaties.pdf>.

46. International Convention for the Safety of Life at Sea, adopted 1 November 1974, 1184 *UNTS* 237.

47. International Convention for the Prevention of Pollution from Ships, 2 November 1973 and 1978 Protocol of Amendment, 17 February 1978, 1226 *UNTS* 237, as amended.

48. Adopted 30 November 1990, entered into force 13 May 1995, 30 *ILM* 735.

49. Adopted 29 December 1972, entered into force 30 August 1975, 1046 *UNTS* 138.

50. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, Adopted 29 November 1969, entered into force 30 March 1983, 970 *UNTS* 212.

51. "Status of Treaties," International Maritime Organization (September 21, 2018), <http://www.imo.org/en/About/Conventions/StatusOfConventions/Documents/StatusOfTreaties.pdf>, accessed on November 2, 2018.

52. International Maritime Organization, "International Convention for the Safety of Life at Sea (SOLAS), 1974," accessed on September 21, 2017, [http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-\(solas\)-1974.aspx](http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-(solas)-1974.aspx), accessed on November 2, 2018.

53. SOLAS, Annex, ch 1, Reg. 6.

54. SOLAS, Annex, ch 1, Reg. 19 reads:

Every ship holding a certificate issued under Regulation 12 or Regulation 13 of this chapter is subject in the ports of the other Contracting Governments to control by officers duly authorized by such Governments in so far as this control is directed towards verifying that there is on board a valid certificate. Such certificate shall be accepted unless there are clear grounds for believing that the condition of the ship or of its equipment does not correspond substantially with the particulars of that certificate. In that case, the officer carrying out the control shall take such steps as will ensure that the ship shall not sail until it can proceed to sea without danger to the passengers or the crew. In the event of this control giving rise to intervention of any kind, the officer carrying out the control shall inform the Consul of the country in which the ship is registered in writing forthwith of all the circumstances in which intervention was deemed to be necessary, and the facts shall be reported to the Organization.

55. *Ibid.*

56. *Ibid.*

57. Article 1 and 2(2)(b), MARPOL Convention.

58. Joyner, 2009, p. 226.

59. Koivurova and Molenaar, 2009, p. 23.
60. *Ibid.*, p. 23. “The reduction potential for regular operational discharges with SA [Special Areas] designation seems low; especially if one considers the overlap with equal upcoming requirements in the Polar Code and today’s industry standards for ships to be operated in the Arctic. In addition, the SA requirements do not provide additional protection against acute pollution (spills) from accidents, which is identified as the major threat to the vulnerability of the area.” Det Norske Veritas, “Specially Designated Marine Areas in the Arctic High Seas,” REPORT NO./DNV REG NO.: 2013-1442 / 17JTMID-26 REV 2 (2014), p. 53.
61. *Ibid.* Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, adopted 29 December 1972, 1046 *UNTS* 120.
62. Article 2, the London Convention and the 1996 London Protocol.
63. Protocol to the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, adopted 7 November 1996, 2006 *ATS* 11.
64. *Ibid.*, Annex.
65. International Convention on Oil Pollution Preparedness, Response and Co-operation, *International Maritime Organization*, [http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-on-oil-pollution-preparedness,-response-and-co-operation-\(oprc\).aspx](http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-on-oil-pollution-preparedness,-response-and-co-operation-(oprc).aspx), accessed September 21, 2018.
66. “The 2000 Protocol on Preparedness, Response and Co-Operation to Pollution Incidents by Hazardous and Noxious Substances,” adopted 15 March 2000, entered into force 14 June 2007.
67. Article 221, LOSC.
68. International Maritime Organization, “International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969,” <http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-relating-to-intervention-on-the-high-seas-in-cases-of-oil-pollution-casualties.aspx>, accessed on September 21, 2018.
69. Adopted 2 November 1973, entered into force 30 March 1983, 1313 *UNTS* 4.
70. Tanaka, 2015, p. 300.
71. *Ibid.*
72. Convention for the Protection of the Marine Environment of the North East Atlantic, adopted 22 September 1992, 2354 *UNTS* 67.
73. Article 2(1)(a), OSPAR Convention.
74. Flavius Mihaies, “Arctic Governance-Synthesis and Assessment of Arctic Governance Mechanism and Recent Policy Actions,” *The Aspen Institute*, p. 6.
75. *Ibid.*
76. “OSPAR Commission, OSPAR Convention,” <http://www.ospar.org/convention>, accessed January 19, 2017.
77. Article 23(b), OSPAR Convention.
78. Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland along with Luxembourg and Switzerland. *Ibid.*
79. Geiselhart, 2014, p. 171.
80. *Ibid.*
81. Article 1, the 2013 Agreement.
82. Arctic Council, “Emergency Prevention, Preparedness and Response (EPPR) Working Group,” last updated October 13, 2017, <http://www.arctic-council.org/index.php/en/about-us/working-groups/eppr>, accessed November 1, 2018.
83. IMO, “Guidelines for Ships Operating in Arctic Ice-Covered Waters,” IMO Doc. MSC/Circ.1056-MEPC/Circ.399, 23 December 2002; Natalia Loukacheva, “Introduction to Polar Law,” in *Polar Text Book*, ed. Natalia Loukacheva (Copenhagen: Nordic Council of Ministers, 2010), p. 40.
84. IMO, “Guidelines for Ships Operating in Polar Waters,” Resolution A. 1024(26), adopted on 2 December 2009.
85. International Code for Ships Operating Polar Waters, entered into force on 1 January 2017, IMO Doc. MSC. 385 (94).
86. IMO, “Shipping in Polar Waters—Adoption of an International Code of Safety for Ships Operating in Polar Waters (Polar Code),” *International Maritime Organization*, accessed

January 24, 2017, <http://www.imo.org/en/mediacentre/hottopics/polar/pages/default.aspx>. “The Polar Code covers the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters surrounding the two poles.” *Ibid.*

87. For the development of the Polar Code, see Øystein Jensen, “The International Code for Ships Operating in Polar Waters: Finalization, Adoption and the Law of the Sea Implications,” *Arctic Review on Law and Politics*, VII, 1 (2016), pp. 60–82.

88. Res. MSC. 386 (94), no. 3 cited in Jensen, *ibid.*, p. 65.

89. Res. MEPC.265(68), para. 3 cited in *ibid.*

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92. “Risk of Heavy Fuel Oil Use in the Arctic,” HFO Free Arctic, accessed September 21, 2018, <http://www.hfofreearctic.org/en/front-page/>, accessed November 1, 2018.

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94. IMO, “Shipping in Polar Waters—Adoption of an International Code of Safety for Ships Operating in Polar Waters (Polar Code),” *International Maritime Organization* (2017).

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96. Jensen, 2016, p. 78.

97. *Ibid.*, p. 71.

98. G. Alexander Robertson, “Avoiding the Next Deepwater Horizon: The Need for Greater Statutory Restrictions on Offshore Drilling Off the Arctic Coast of Alaska,” *Journal of Energy and Environmental Law*, 107 (2013), pp. 107–122, p. 114, fn. 179. Although the Arctic ice is diminishing, it is still difficult and expensive to access Arctic oil and gas deposits. Osofsky, 2016, pp. 1442, 1443.

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104. Arctic Council, “Framework Plan for Cooperation on Prevention of Oil Pollution from Petroleum and Maritime Activities in the Marine Areas of the Arctic” last updated April 24, 2015, https://oaarchive.arctic-council.org/bitstream/handle/11374/609/ACMMCA09_Iqaluit_2015_SAO_Report_Annex_3_TFOPP_Framework_Plan.pdf?sequence=1&isAllowed=y, accessed November 1, 2018.

105. Koivurova and Molenaar, 2009, p. 8.

106. Osofsky, 2016, p. 1460.

107. *Ibid.*, 1465.

108. *Ibid.*

109. Rothwell and Stephens, 2010, pp. 338–339.

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112. Environment Canada, Fisheries and Oceans Canada and Indian and Northern Affairs Canada, “Land-Based Pollution in the Arctic Ocean: Canadian Actions in a Regional and Global Context,” *Arctic*, LXI, Supplement 1: Arctic Change and Coastal Communities (2008), pp. 111–121.

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114. Adopted 22 May 2001, entered into force 17 May 2004, 2256 *UNTS* 119; *Ibid.* p. 75.
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121. Arne Riedel, "The Arctic Marine Environment," *Arctic Marine Governance*, ed. E. Tedsen et al. (Springer, 2014), p. 27, https://doi.org/10.1007/978-3-642-38595-7_2.
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130. French and Scott, 2009, p. 652.
131. *Ibid.*
132. *Ibid.*, p. 653.
133. *Ibid.*
134. Geiselhart, 2014, pp. 175, 176. Similarly, the Standing Committee of Parliamentarians of the Arctic Region said that the Arctic Council must become a fully-fledged international organization, "with an autonomous treaty mandate sanctioned by its members..." SCPAR, p. 7.
135. Geiselhart, *Ibid.*, p. 176.
136. Young, 2010, p. 181. See also Oran R. Young, "The Arctic in Play: Governance in a Time of Rapid Change," *The International Journal of Marine and Coastal Law*, 24 (2009), p. 441.
137. Young, 2010, p. 184.
138. *Ibid.*
139. Joyner, 2009, p. 245; See Hoel, 2009.
140. Joyner *Ibid.*, p. 237.
141. Koivurova and Molenaar, 2009, p. 8.
142. Byers, 2016.
143. Lawson Brigham, "The Polar Code Heralds a New Era of Safer Navigation in Arctic Waters," *Arctic Now*, published January 8, 2017, <http://www.arcticnow.com/voices/opinion/2017/01/08/the-polar-code-heralds-a-new-era-of-safer-navigation-in-arctic-waters/>, accessed November 1, 2018.

144. IMO Assembly Resolution A. 927 (22), Annex 2, [1.2], cited in Rothwell and Stephen (2010).

145. LOSC Article 211(6) reads:

(a) Where the international rules and standards referred to in paragraph 1 are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where the adoption of special mandatory measures for the prevention of pollution from vessels is required for recognized technical reasons in relation to its oceanographical and ecological conditions, as well as its utilization or the protection of its resources and the particular character of its traffic, the coastal States, after appropriate consultations through the competent international organization with any other States concerned, may, for that area, direct a communication to that organization, submitting scientific and technical evidence in support and information on necessary reception facilities. Within 12 months after receiving such a communication, the organization shall determine whether the conditions in that area correspond to the requirements set out above. If the organization so determines, the coastal States may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards or navigational practices as are made applicable, through the organization, for special areas. These laws and regulations shall not become applicable to foreign vessels until 15 months after the submission of the communication to the organization.

(b) The coastal States shall publish the limits of any such particular, clearly defined area.

(c) If the coastal States intend to adopt additional laws and regulations for the same area for the prevention, reduction and control of pollution from vessels, they shall, when submitting the aforesaid communication, at the same time notify the organization thereof. Such additional laws and regulations may relate to discharges or navigational practices but shall not require foreign vessels to observe design, construction, manning or equipment standards other than generally accepted international rules and standards; they shall become applicable to foreign vessels 15 months after the submission of the communication to the organization, provided that the organization agrees within 12 months after the submission of the communication.

146. “Conclusively, the best way forward when implementing environmental requirements of holistic approaches, is that the Arctic states cooperate with each other and make proposals for either a large PSSAs in the Arctic Ocean, or smaller PSSAs to protect critical areas, to ensure the protection of their fragile sea areas. As for the high seas, it will be interesting to see what the states may accomplish under the Arctic Council.” Ingvild Ulrikke Jakobsen, “The Adequacy of the Law of the Sea and International Environmental Law to the Marine Arctic: Integrated Ocean Management and Shipping,” *Michigan State International Law Review* 22 (1) (2013), p. 320.

147. Henry Fountain, “With More Ships in the Arctic, Fears of Disaster Rise,” *New York Times*, July 23, 2017, <https://nyti.ms/2tCanSj>, accessed November 1, 2018.

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