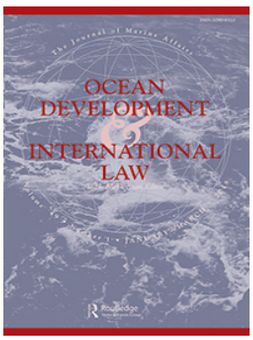

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Governing the Barents Sea Region: Current Status, Emerging Issues, and Future Options

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ABSTRACT

The Barents Sea is an ecopolitical region bounded on the south by the north coasts of Norway and Russia, on the east by the 38th meridian, on the north by the Central Arctic Ocean, and on the west by the boundary of the Svalbard Fishery Protection Zone. The fact that much of this region has been largely ice free in modern times differentiates it from the rest of the maritime Arctic and has drawn the attention of both resource users and policymakers to the region. Norway and Russia, the key players in the Barents Sea Region, have developed a cooperative relationship in managing the shared natural resources of the region. Nevertheless, other states have interests in the region. Issues of governance in the Barents Sea Region involve growing needs for improved mechanisms to address the interplay among various elements of the complex of sectoral regimes applicable to the region and for agility in responding to rapid changes in the biophysical and socioeconomic conditions prevailing in the region.

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Barents Sea; ecopolitical region; Governance options; Norway; Russia

Introduction

This article addresses past, present, and future issues of governance relating to the human uses of the natural resources of the Barents Sea Region (BaSR), along with associated concerns relating to ecosystem protection.[1] Most of this ecopolitical region is under the jurisdiction either of Norway or of Russia and is subject to bilateral agreements between the two countries dealing with the management of commercial fisheries and offshore energy development. Although the location of the maritime boundary between the two countries was disputed for many years, Norway and Russia reached agreement on their maritime boundary in the Norwegian–Russian Treaty in 2010,[2] thereby eliminating what had been known previously as the "gray zone" in the middle of the BaSR. The region also encompasses all or parts of areas of the high seas, often referred to as the "loophole" and the "banana hole," as well as an area around the Svalbard Archipelago managed by Norway as a Fishery Protection Zone[3] but subject to some disagreement regarding access on

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the part of parties to the 1920 Treaty of Spitsbergen.[4] The focus in this contribution is on Norwegian–Russian relations regarding the shared natural resources of the region. But also considered are the interests of third countries as they arise in connection with issues relating to particular resources (e.g., northeast Arctic cod).

Preliminary observations regarding the ecopolitical character of the BaSR provide a point of departure for an assessment of the legal arrangements relevant to the area's governance. Particular attention is given to the terms of the 2010 Norwegian–Russian Treaty. This analysis includes a consideration of the interdependence between two sets of legal regulations: regulations addressed to the governments of Norway and Russia, and corporate regulations addressed to corporations or legal persons holding rights to exploit natural resources according to Norwegian and Russian national law.

Building on this account, the article identifies emerging and potential human activities in this region, assesses the need for governance associated with these activities, and considers the infrastructure requirements that will arise. Fisheries and energy development are the central focus. But the discussion also encompasses potential activities such as commercial shipping and ship-based adventure tourism. The analysis extends as well to issues involving threats to marine ecosystems arising in connection with the ocean uses just mentioned. This sets the stage for an examination of options for achieving sustainable results in the use of the shared natural resources of the BaSR. This assessment covers both the institutional arrangements needed to achieve sustainability and the infrastructure required to implement and administer these arrangements effectively. This is not a work of advocacy. The goal is to develop options of interest both to analysts who have an interest in the governance of shared natural resources and to practitioners concerned with current issues in the BaSR who can use them or ignore them as they see fit.

An overview of the Barents Sea Region

The Barents Sea is one of a number of marginal seas that together encompass a large portion of the Arctic Ocean. According to the International Hydrographic Organization, the Barents Sea covers the marine area situated to the south of straight lines connecting the northernmost points of the coasts of Greenland, Svalbard and Franz Josef Land.[5] To the north of these lines lies the Central Arctic Ocean. Russian geographers consider the Barents Sea to be part of the Arctic Ocean.[6] Both Norway and Russia describe the Barents Sea as a marine system situated between:

- the mainland territories of Norway and Russia;
- the Svalbard Archipelago;
- the islands of Novaya Zemlya; and
- the Franz Josef Land islands.

These waters, at least those adjacent to the mainland, were designated in ancient maps as "Murmanskoie More" (The Murmansk Sea). The name Barents Sea, after the Dutch navigator Willem Barents, originated in the 16th century.[7] For clarity, the focus in this article is on the area enclosed within the solid lines of Figure 1.[8]

Due to the North Atlantic Current most of the BaSR is ice free, allowing for year-round shipping to Norwegian and Russian ports along the southern coast of the Barents Sea, including the Norwegian ports of Kirkenes and Tromsø and the Russian port of Murmansk. This feature has differentiated the Barents Sea Region from other parts of the maritime

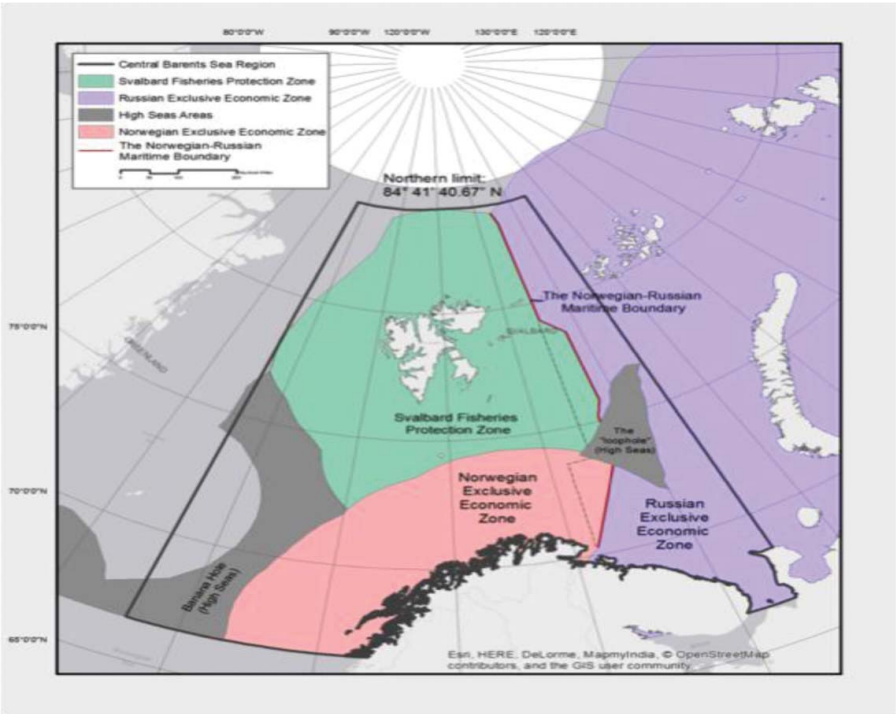

Figure 1. The Barents Sea Region.

Arctic for centuries. Moreover, the Barents Sea being ice free has facilitated economic activities in the BaSR and explains the military and political sensitivity of the BaSR not only for Norway and Russia but also for other states including members of the North Atlantic Treaty Organization. It follows that a study of the governance of human activities in the BaSR may not be directly applicable to the rest of the Arctic at this time. Nevertheless, as the recession of sea ice makes other parts of the maritime Arctic more accessible, experience relating to the treatment of shared marine resources in the Barents Sea Region is likely to become a focus of considerable interest to those concerned with the Arctic.

International law pertaining to the BaSR

The Barents Sea Region is subject to an array of existing governance systems. Some of these systems feature comprehensive arrangements applicable to the BaSR. Others are specific to the needs for governance in this region. Some of the existing arrangements are issue specific; others deal with a broader range of issues arising in the region. Taken together, the existing systems form a complex mosaic designed to meet needs for governance in the BaSR.

Multilateral environmental agreements

A number of multilateral international agreements cover the entire Arctic Ocean and thus are applicable to the Barents Sea Region (see Table 1). These include the 1982 U.N.

Table 1. Key International Treaties/Instruments Applicable to the Barents Sea Region.

Number	Title	Norway	Russia
A. Multilateral Treaties			
1	UN Convention on the Law of the Sea, 1982	+	+
2	Convention on the Territorial Sea and the Contiguous Zone, 1958	−	+
3	Convention on the High Seas, 1958	−	+
4	Convention on the Continental Shelf, 1958	+	+
5	International Convention for the Regulation of Whaling, 1946	Conditional adherence since 23 September 1960, no ratification[a]	+
6	Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972	+	+
7	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973	+	+[b]
8	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the 1978 Protocol Relating Thereto (MARPOL 73/78)	+	+
9	International Convention for Safety of Life at Sea (SOLAS), 1974	+	+
10	Convention on the Conservation of Migratory Species of Wild Animals, 1979	+	−
11	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989	+	+
12	UN Convention on Biological Diversity, 1992	+	+
13	1992 UN Framework Convention on Climate Change	+	+
B. Regional Treaties and Other Arrangements			
1	Treaty concerning the Archipelago of Spitsbergen, signed at Paris, 9 February 1920	+	+
2	Agreement on the Conservation of Polar Bears, 1973	+	+
3	Declaration on the Establishment of the Arctic Council, 1996	+	+
4	Ilulissat Declaration, Arctic Ocean Conference, 2008	+	+
5	Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, 2011	+	+
6	Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response in the Arctic, 2013	+	+
7	Agreement between the Government of Iceland, the Government of Norway, and the Government of the Russian Federation concerning Certain Aspects of Co-operation in the Area of Fisheries, 1999	+	+
C. Bilateral Treaties (Norway-USSR; Norway–Russia)			
1	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Kingdom of Norway on Co-operation in the Fishing Industry, 1975 (is in effect on temporary basis)	+	+
2	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Kingdom of Norway concerning Mutual Relations in the Field of Fisheries, 1976	+	+
3	Soviet–Norwegian Communiqué of 16 March 1978	+	+
4	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Kingdom of Norway on joint control of marine fisheries, 1978 (as amended) (superseded by 2010 Treaty)	+	+
5	Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, 2010	+	+
6	Agreement between Norway and the Soviet Union/Russian Federation establishing a Joint Norwegian-Russian Commission on Environmental Protection, 1988/1992	+	+

Note. From P. A. Berkman and A. N. Vylegzhanin eds., *Environmental Security in the Arctic Ocean* (Springer Science +Business Media, Dordrecht, 2013), 459 pp. Khludneva. Legal Protection of the Arctic Environment. /International Cooperation in Environmental Protection, Preservation, and Rational Management of Biological Resources in the Arctic Ocean. Ed.-in-chief I. S. Ivanov. Lead author A. N. Vylegzhanin. Moscow, 2013, pp. 26–29.

[a]treaties.un.org/Pages/showDetails.aspx?objid = 0800000280150135; www.state.gov/documents/organization/191051.pdf.

[b]It is provided at the official site: "continuation" (and not "ratification"); the CITES Convention was ratified by the USSR (and the Russian Federation continues to be a party to the Conventions to which the USSR was a party): cites.org/eng/disc/parties/chronolo.php?order = field_country_official_name&sort = asc.

Convention on the Law of the Sea (UNCLOS)[9] and more specific agreements, such as the five-nation 1973 Agreement on the Conservation of Polar Bears.[10]

Under the provisions of UNCLOS, both Norway and Russia have established 12-mile territorial seas and 24-mile contiguous zones adjacent to their coasts in the Barents Sea.[11] Russia has proclaimed a 200-mile exclusive economic zone (EEZ) in the Barents Sea around all its islands and its mainland coast. Norway has proclaimed an EEZ as well, except around the Svalbard Archipelago, where it has proclaimed a 200-mile Fishery Protection Zone.

Bilateral agreements respecting the BaSR prior to 2010

The most important elements of the legal regime of the Barents Sea are the specific bilateral agreements concluded between Norway and Russia. Predating the 2010 Norway–Russia Treaty, considered in detail in the following, are agreements between the two states dealing with cooperation in the field of conservation and in the management of fishery resources.

The 1975 agreement between Norway and the Union of Soviet Socialist Republics on cooperation in the fishing industry created a Joint Norwegian–Russian Fisheries Commission that remains an important feature of the institutional landscape of the region.[12] The primary function of the commission is to establish conservation and management measures for fishing in the Barents Sea, including the setting of total allowable catches, the determination of national quotas, and the adoption of other conservation and management measures.[13]

The 1976 agreement between Norway and the Union of Soviet Socialist Republics concerning relations in the field of fisheries indicated the mutual intention of the parties, referring to the future extension of their fisheries jurisdiction within the EEZ, to "promote the orderly development of the Law of the Sea."[14] This agreement provides for mutual access of fishing vessels of one party in the future EEZ of the other, taking into account the "unified ecosystem used by fishermen of the two countries."[15] The agreements of 1975 and 1976, in accordance with the 2010 Norwegian–Russian Treaty, are to remain in force until 2026.[16]

In contrast, the Norwegian–Russian Evensen–Ishkov Fisheries Arrangement of 1978,[17] applicable to the southern area of the Barents Sea, terminated upon entry into force of the 2010 Treaty.[18] Even so, the legal and political experiences of Norwegian–Russian fisheries cooperation under the 1978 Evensen–Ishkov Arrangement are worthy of consideration. When the two states established their EEZs in waters adjacent to their mainland coasts in 1978, the overlap in their jurisdictional claims was apparent. Nevertheless, intensive fishing continued to take place in the disputed marine area. The states agreed that, pending resolution of the delimitation issue, a provisional agreement of a practical nature was needed to avoid conflicts over the enforcement of national regulations in the overlapping areas.

In the 1978 arrangement, the Soviet Minister for Fisheries and the Norwegian Minister on the Law of the Sea agreed upon a joint arrangement for the control and enforcement of fishery rules in an area of 67,500 sq km in the central BaSR (the so-called gray zone). To avoid prejudicing the delimitation negotiations, they agreed that this arrangement would not be confined to the disputed area but would include also some of the adjacent undisputed waters. In this gray zone, each state would exercise control and enforcement authority regarding its own fishing vessels and both states could exercise control and enforcement authority over fishing vessels under the flag of any third state. The 1978 arrangement had positive consequences regarding the enforcement of fisheries conservation measures. It also constituted a *modus vivendi* for managing fishery resources in a situation characterized by the absence of

an agreed delimitation line between areas subject to the jurisdiction of the two neighboring coastal states.

The Norwegian–Russian boundary delimitation in the Barents Sea

The 2010 Norwegian–Russian Treaty provides (see Figure 1) a line applying both to the EEZs of the two states and to the relevant continental shelf areas within and beyond 200 nautical miles from the baselines along their coasts in the Barents Sea extending to its northern limit in the Arctic Ocean. The line consists of straight geodetic lines connecting eight specified points. The treaty resolves all outstanding issues of maritime jurisdiction between the two countries.

The 2010 line completes a bilateral process of boundary delimitation between the two countries that has a long history. The 1826 Convention on the Determination of the State Frontier (still in force) between Norway and Russia,[19] together with the 1834 Protocol to this convention,[20] established the land border between the two states. The outer limit of this border is demarcated in the Varanger Fjord. Under the 1957 agreement between Norway and the USSR and the relevant Descriptive Protocol, the states delimited their territorial waters in the Varanger Fjord.[21] In the 2007 Norway–Russia agreement,[22] the provisions of the 1957 agreement were clarified and supplemented. The 2007 agreement provided not only for delimitation of the territorial seas of the two states but also some areas of the EEZs and the continental shelves of the two countries adjacent to their territorial seas. According to Article 1 of the 2010 treaty, the first specified point of the delimitation line (that is, the southernmost point of the 2010 treaty) corresponds to the northernmost point of the 2007 agreement.

Generally, the delimitation line in the 2010 Norwegian–Russian Treaty is located between the Soviet/Russian asserted meridian line (or sector line) drawn from the westernmost point of the country's coast toward the North Pole, and the Norwegian position of an equidistance line drawn between the respective Norwegian and Russian coasts. The disputed area between these two positions amounted to 175,200 sq km. The 2010 Treaty essentially has divided this area into two equal shares of 87,600 sq km.

Joint Norwegian–Russian fisheries management

The preamble of the 2010 treaty refers to the "special economic significance of the living resources of the Barents Sea to Norway and the Russian Federation and to their coastal fishing communities" and to "the need to avoid economic dislocation in coastal regions whose inhabitants have habitually fished in the area," as well as to "the traditional Norwegian and Russian fisheries in the Barents Sea." Article 4 states: "The Parties shall pursue close cooperation in the sphere of fisheries, with a view to maintain their existing respective shares of total allowable catch volumes and to ensure relative stability of their fishing activities for each of the stocks concerned." Further, Article 4 provides that the parties "shall apply the precautionary approach widely to conservation, management and exploitation of shared fish stocks, including straddling fish stocks, in order to protect the living marine resources and preserve the marine environment."

The parties have two options: (i) to create a new mechanism for applying the precautionary approach, or (ii) to use the legal tools (including the Joint Fisheries Commission) already

available under the 1975 and 1976 agreements described in the preceding. Article 3 of Annex I of the 2010 treaty provides that "Total allowable catches, mutual quotas of catches and other regulatory measures for fishing shall continue to be negotiated within the Norwegian–Russian Joint Fisheries Commission." Further, Article 4 of this annex directs that the commission "shall continue to consider improved monitoring and control measures with respect to jointly managed fish stocks."

Another issue concerns the management, in the context of Article 4 of the 2010 treaty, of fisheries in the high seas area of the Barents Sea known as the loophole, which is surrounded by the Norwegian and Russian EEZs and the Fishery Protection Zone around Svalbard. The seabed under the waters of the loophole is, according to the 2010 treaty, delimited between the two states. The waters of the loophole are part of the high seas, with the result that all the freedoms of the high seas articulated in UNCLOS are applicable in this area.

Transboundary energy and mineral deposits

Annex II of the 2010 Norwegian–Russian treaty deals with nonrenewable resources. The provisions of this annex apply "if a hydrocarbon deposit extends across the delimitation line."[23] There is no definition of the term "hydrocarbon deposit" in either the 1958 Geneva Convention on the Continental Shelf[24] or UNCLOS. Pursuant to Article 31 of the 1969 Vienna Convention on the Law of Treaties,[25] this means that the term is to be construed in accordance with "the ordinary meaning," which here would mean oil and natural gas deposits. Moreover, this construction is compatible with the object and purpose of the 2010 treaty. As a result, Annex II of the 2010 treaty is not applicable to the exploration and exploitation of deposits of "concrete" or "hard" mineral resources, such as polymetallic nodules, although deposits of such resources may cross the Norwegian–Russian delimitation line. Norway and Russia might choose in the future either to (i) create a legal tool for the coordination of development of transboundary hard mineral resources in the Barents Sea or (ii) opt for joint environmental inspection to monitor hard mineral development on either side of the delimitation line. In any case, a need for some sort of cooperation in this sphere will arise if transboundary mineral deposits are discovered and exploited.

With regard to the exploitation of oil and gas, the provisions of the 2010 treaty require each state to submit substantiating data to the other and respond to questions "on the extent of the hydrocarbon deposit" and the "possibility for exploitation of the deposit as a unit."[26] There is in Article 5(2) an obligation to make the "best efforts to ensure that all relevant information is made available for the purposes of these discussions." These treaty provisions constitute a new development in Russian energy policy.[27] Norway, on the other hand, has considerable experience in similar modes of management, as evidenced by the 1976 Frigg Field Agreement with the United Kingdom regarding cross-boundary hydrocarbon deposits.[28]

The practical arrangements for managing transboundary deposits are set forth in Annex II to the 2010 treaty entitled "Transboundary Hydrocarbon Deposits."[29] The essence of the arrangement is that the states agree that where a cross-boundary deposit exists, it should be treated as a single unit for purposes of exploitation. The two states further agree to determine in concert the estimated total reserves of the transboundary deposit, the procedure for issuance of licenses for their exploitation, and the formula for apportioning the proceeds. This is the public law interaction between states. There also exists in the 2010 treaty a framework for interaction at the corporate level between relevant companies as license holders. They

are instructed to enter into agreements so that transboundary deposits are exploited only in accordance with the 2010 treaty.[30]

The 2010 Norwegian–Russian Treaty, however, unlike the 1976/1998 Frigg Field Agreement, has no provisions relating to pipelines for gas transmission from transboundary deposits. According to the 1998 amendments to the Frigg Field Agreement, subject to agreement between relevant companies in Great Britain and Norway and with the subsequent approval of both governments, a single operator is to be designated as the manager of the transboundary pipeline.[31] Norway and Russia will have to decide whether to follow this model of joint construction and management of pipelines should the need arise.

The legal principle *quieta non movere* ("do not disturb that which is quiet") embedded in the 2010 treaty underpins the obligations "not to alter the right to explore for and produce hydrocarbons awarded by one Party" and not "to assign such rights to other legal persons, without prior consultation with the other Party."[32]

The 2010 treaty provides for a joint commission as a forum for continuing consultations.[33] The dispute settlement procedure established under the treaty is unusual. If the states fail to agree on the terms of a unitization agreement, they are to seek settlement pursuant to an agreed procedure. If this procedure fails to resolve the disagreement, the matter is to be considered by an arbitral tribunal consisting of three members and operating as an ad hoc body.[34] The treaty is less clear regarding the settlement of other disagreements.

The implementation of the 2010 Norwegian–Russian Treaty, especially Annex II relating to transboundary hydrocarbon deposits, will require constructive and responsible cooperation both at the intergovernmental level and by means of interaction between Norwegian and Russian legal entities. This is necessary not only for the exploitation of transboundary oil and gas deposits, but also regarding the interplay between oil and gas development and the maintenance of sustainable fisheries, recreational users, and the protection of biological diversity in the Barents Sea Region. The latter systemic and cumulative concerns, which are not addressed in the existing governance systems for the BaSR, are likely to become increasingly important in the future.

Specific issues relating to the Svalbard Archipelago

The 1920 Spitzbergen (Svalbard) Treaty, negotiated as an element of the overall peace settlement following World War I, resolved a longstanding debate regarding the status of the islands of the Svalbard Archipelago.[35] The core feature of the treaty is the acknowledgment of Norwegian sovereignty over the Svalbard Archipelago coupled with commitments on Norway's part to allow legal persons of all parties to conduct commercial activities on a footing of equality with Norwegian nationals.[36] Although concepts like the EEZ did not exist in 1920, some parties take the view that under Article 2 of the 1920 treaty, Norway is obligated to grant access not only to the land area of the archipelago and its territorial waters but also to the expanded marine areas now under Norwegian jurisdiction and located within the so-called "Spitsbergen box" or, in other words, within the two meridians and two parallels identified by Article 1 of the 1920 treaty (see Figure 1). This includes areas that Norway has designated as a Fishery Protection Zone together with the associated seabed.[37] Norway's position is that the provisions of the 1920 treaty apply only to the areas recognized as being under coastal state jurisdiction at the time (i.e., the territorial waters surrounding Svalbard) but not to areas now recognized as under coastal state jurisdiction (i.e., the EEZ).[38]

The difference in the legal positions of Norway on the one hand and the United Kingdom (among others) is summarized in a *note verbale* of 11 March 2006 from the British government to the government of Norway:

> The United Kingdom considers that the Svalbard archipelago, including Bear Island, generates its own maritime zones, separate from those generated by other Norwegian territory, in accordance with the United Nations Convention on the Law of the Sea. It follows therefore that there is a continental shelf and an exclusive economic zone which pertain to Svalbard.
>
> The United Kingdom considers that maritime zones generated by Svalbard are subject to the provisions of the Treaty of Paris, in particular Article 7, which requires that Svalbard should be open on a footing of equality to all parties to the Treaty and Article 8, which *inter alia* specifies the tax regime which applies to the exploitation of minerals in Svalbard.[39]

The 2010 Norwegian–Russian Treaty has strengthened the legal position of Norway regarding these matters, since Russia agreed to delimit jurisdiction over the shelf between Svalbard and the Russian islands of Novaya Zemlya and Franz Josef Land, treating the shelf adjacent to Svalbard as the continental shelf of Norway.

In 2015, Norway made available licenses for oil and gas development in the Norwegian and Barents Seas. The area includes three blocks located within the Fishery Protection Zone around Svalbard.[40] The reactions of state parties to the 1920 treaty will have a bearing on the extent to which Norway may treat the issue of exploration and exploitation of oil and gas reserves on the shelf adjacent to the Svalbard Archipelago as a purely domestic matter rather than one with international implications.

Human activities generating needs for governance

In some respects, the BaSR is a relatively simple area with regard to the governance of shared resources. Norway and Russia are the principal actors in this ecopolitical region. As described in the preceding, the two states have an extensive record of cooperation regarding the management of shared marine resources going back to the 1970s with the establishment of the Joint Norwegian–Russian Fisheries Commission. The Fisheries Commission has played an important role in promoting bilateral cooperation. More recently, the states have established cooperative arrangements to deal with matters of environmental protection of common concern. Prominent in this regard are the activities of the Joint Norwegian–Russian Commission on Environmental Cooperation, launched initially in 1988 and restructured in 1992 following the collapse of the Soviet Union.[41] The 2010 treaty resolved the outstanding jurisdictional issues regarding the maritime boundary between Norway and Russia, while reinforcing and extending the mechanisms through which the two states deal with issues of common concern regarding natural resources and ecosystem protection in the area.

It would, however, be a mistake to conclude that governing the BaSR will be a matter of clear sailing in the foreseeable future. The region includes both biophysical and geopolitical features that pose significant challenges for those concerned with maintaining and promoting peaceful and sustainable uses of the Barents Sea's ecological complexes. There are, to begin with, international jurisdictional complexities. The most prominent examples are the status of the waters of the loophole, an area that is indisputably high seas and therefore open to access on the part of nationals of outside states and the status of the Svalbard Fishery Protection Zone.[42] This means that the governance arrangements for the Barents Sea Region

must address the potential interests of outsiders who may be entitled to engage in a range of activities under the terms of UNCLOS and the 1920 Spitsbergen Treaty. As explained in the following, this issue has taken on an increased importance as a result of the movement of important fish stocks in the region. More generally, the dynamism of the region in biophysical terms makes it essential to develop and maintain a capacity to adjust the provisions of existing arrangements to be responsive to the changing needs for governance.

Commercial fisheries

The BaSR has long supported world-class fisheries, centered on northeast Arctic cod but also including haddock, saithe/pollock, herring, and capelin. The cod stocks, managed largely through the actions of the Joint Norwegian–Russian Fisheries Commission with scientific advice provided by the International Council for the Exploration of the Sea (ICES), are currently robust.[43] This has not always been the case and may not continue into the future, though harvest control rules adopted during the 2000s provide for a high level of precaution in the management of these stocks. The principal issues relating to fisheries today involve biophysical developments, including shifts in the spatial distribution of cod stocks and the spread of nonnative species, along with the administration of management procedures, including allocation rules pertaining to allowable harvests of fish and regulations covering matters like the landing of fish harvested by Russian vessels in Norwegian ports.

The distribution of the region's cod stocks has shifted for the most part in an easterly and northerly direction in recent years. As Figure 2 shows, cod are found increasingly in the northern and eastern parts of the BaSR as far north as the Svalbard Archipelago and Franz Josef Land and as far east as Novaya Zemlya. The significance of this shift in terms of governance is that it strengthens the arguments of fishers from

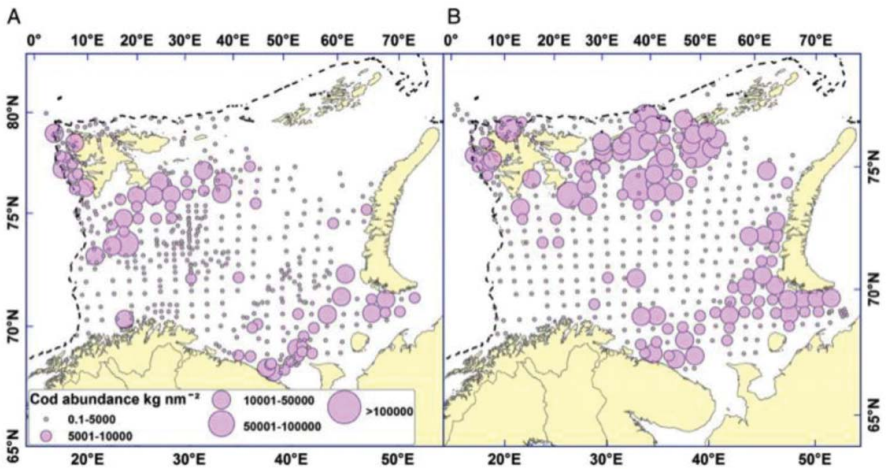

Fig. 3. In recent times, cod have expanded to the northernmost edge of the BS. Distribution of cod catches (kilograms per square nautical mile) from bottom trawls during the (*A*) 2007 and (*B*) 2012 autumn ecosystem surveys. Dashed line indicates 500-m bathymetry contour.

Figure 2. Northeast Arctic cod stocks. Source: Olav Sigurd Kjesbu et al., "Synergies between climate and management for Atlantic cod fisheries at high latitudes," *Proceedings of the National Academy of Sciences USA*, 111 (18 February 2014): 3478–3483.

third countries (e.g., Iceland, the Faroe Islands) who want to participate in harvesting cod in the Barents Sea Region. So far, the Joint Norwegian–Russian Fisheries Commission has dealt with this by allocating a portion of the overall quota for these fish in the BaSR to so-called international fishers, usually in exchange for quotas in their home waters.[44] This may be acceptable as long as the cod stocks are large, though even now the commission adopts quotas in excess of the scientific recommendations provided by ICES.[45] The real problems will arise if and when the allowable harvest levels decline. Continued shifts in the spatial distribution of the cod stocks will intensify the tensions. The issue is whether the existing bilateral management system will prove capable of operating in a manner that is acceptable to all parties concerned. More specifically, will the international fishers accept the authority of the Joint Norwegian–Russian Fisheries Commission to make decisions regarding quotas for fish throughout the BaSR on a continuing basis? Much is likely to depend both on the robustness and the spatial distribution of Barents Sea fish stocks and especially northeast Arctic cod.[46] If this system proves inadequate, the development of an alternative, or at least modified, arrangement will become a subject of complex international negotiations.

Another fisheries issue concerns the presence of nonnative species in the BaSR. The red king crab, which was introduced by Russian scientists into waters off the Kola Peninsula in the 1960s, has spread westward.[47] Some regard the crabs as a valuable resource to be managed sustainably, while others treat them as a disruptive force in the BaSR ecopolitical region. The challenge is to allow for a controlled harvest in designated areas, while at the same time preventing the continued spread of the species into areas where the crab might compete with other harvestable resources. Figure 3 shows the overall distribution of red king crab in the Barents Sea, as well as the area (dark shaded) where a controlled harvest is taking place. For now, this is mainly an issue of concern to fishery managers in Norway. But, as is the case with all nonnative species that thrive in a new environment, there is considerable uncertainty regarding the future of this species, along with its impact on the Barents Sea ecoregion.

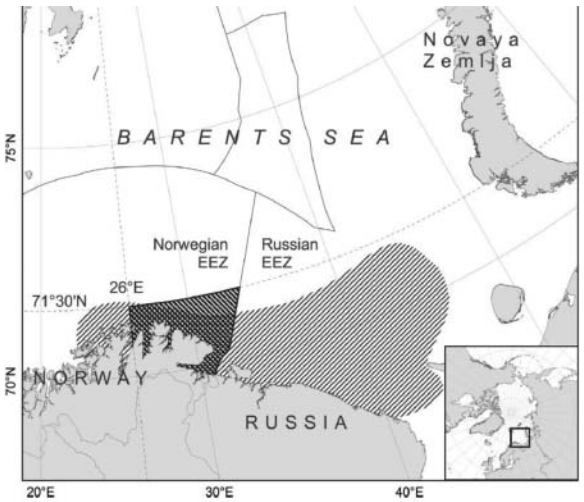

Figure 3. Red king crab stocks. Source: Sundet and Hoel, *op. cit.*

Another nonnative species issue involves the snow crab, which arrived in the BaSR on its own, possibly by way of the Northern Sea Route. First observed in the 1990s, this species has thrived in the eastern part of the BaSR and has begun to spread westward.[48] There is controversy regarding whether the snow crabs should "be considered a resource to be managed for maximum yield, or … an unwanted non-native species that should be kept at the lowest possible level."[49] A fishery has begun and there are indications that the snow crab has the potential to support large harvests if an appropriate management strategy is developed.

The BaSR also provides a base for large-scale aquaculture. The most important species are Atlantic salmon and rainbow trout farmed in open cages. The principal issue is the prospect of negative impacts on the environment from the release of nutrients and chemicals, as well as from the escape of farmed fish that interbreed with wild fish.[50] From the perspective of governance, the challenge is to devise a regulatory system that allows aquaculture to develop profitably, while at the same time avoiding disruptive impacts on the larger ecosystem and costly impacts on the capture fisheries of the region.

In the course of the transition from the Soviet Union to the Russian Federation and especially during the 1990s, issues arose regarding both the ability of Russian authorities to ensure compliance with the relevant regulatory measures relating to the harvesting of fish in the region and the desire of Russian fishers to land their harvests in Norwegian ports.[51] For the most part, these issues have been resolved in a manner satisfactory to the responsible authorities in both Norway and Russia.[52]

Energy resources

The energy potential of the BaSR is thought to be large.[53] But the actual production so far has been limited to two small fields in the Norwegian sector of the region, and world market conditions do not favor significant growth in the near future. The Snøhvit gas field began production in 2007 and is operated by Statoil, the principal Norwegian energy company.[54] The Goliat field, an oil field operated jointly by Eni and Statoil, came on stream in 2016 (see Figure 4). In the case of Snøhvit, gas is transported by pipeline to a liquefaction plant in Norway and shipped from there to markets by liquefied natural gas (LNG) tanker. In the case of Goliat, the oil is loaded onto tankers from a floating production platform.

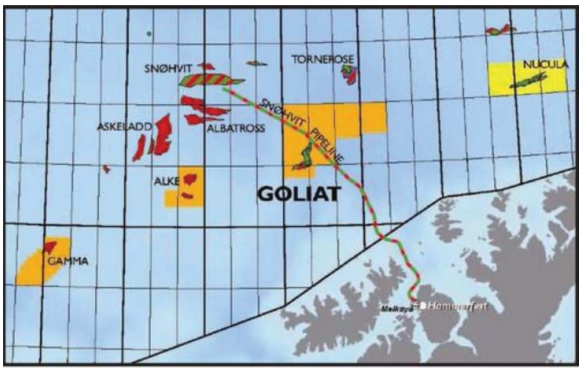

Figure 4. Snøhvit and Goliat fields. Source: www.google.com/search?q = snohvit-goliat+fields+maps&client = gmail&ris = aso&authuser = 0&tbm = isch&tbo = u&source = univ&sa = X&ved = 0asUKEwj7qumAh6nQAhUoilQKHU_yA.

Farther east lie gas fields that appear to have the potential to become supergiants. The Shtokman field, located in the Russian sector of the BaSR, has been the focus of sustained interest for some years. Although plans for the development of this field took shape a number of years ago, these plans are now on hold.[55] As for all Arctic resources, the cost of exploitation is high. Moreover, possible exploitation of the Shtokman field has given rise to intense opposition on the part of environmental groups (e.g., Greenpeace) concerned about the dangers of accidents, including spills from production platforms and tankers, and about the general threats to the environment associated with such operations. Another area of interest is the gas field known as the Fedinsky High in Russia and as the Hjalmar Johansen Ridge in Norway.[56] This field may be the largest of all the hydrocarbon deposits located in the BaSR, and it straddles the maritime boundary between the two countries (see Figure 5). Should global economic conditions shift in such a way as to make the production of gas from this field economically attractive, it would be necessary to work out a cooperative arrangement covering the operation of the field under the terms of Annex II of the 2010 Norwegian–Russian Treaty discussed in the preceding.[57]

In the event that gas production proceeds on a large scale in the BaSR, the issue of transportation will come to the fore. The most likely scenario, reflected already in the development of the Snøhvit field, will be transfer of gas by pipeline to shore-based liquefaction facilities and shipment from there by LNG tanker to southern markets. Almost certainly, large-scale gas production will require international agreement on pipeline locations and operating procedures. Thus far, the parties have not made an effort to devise a cooperative regime dealing with pipelines in the BaSR.

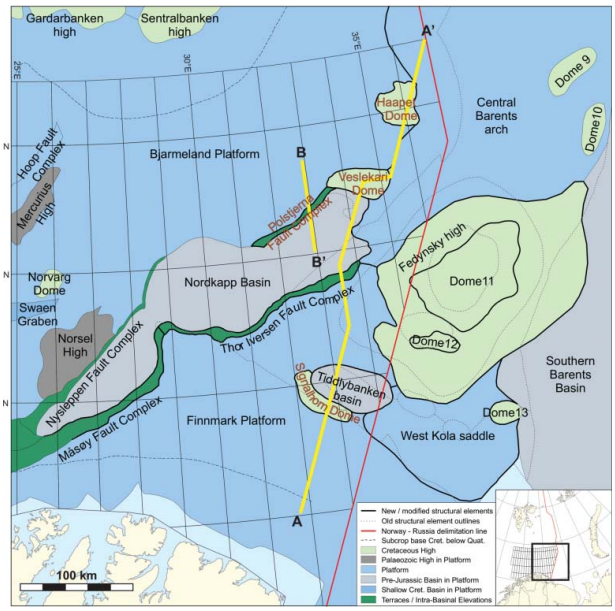

Figure 5. Hydrocarbon Resources in the Central Barents Sea. Source: R. Mattingsdal, T. Høy, E. Simmonstad, and H. Brekke, "An updated map of structural elements in the southern Barents Sea," Norwegian Petroleum Directorate, 2015. Poster-Nye_strukelementer_BHSØ.pdf.

Commercial shipping

Because the waters of the BaSR are largely ice free, most of the region is open to year-round shipping. The Kola Peninsula provides a base of operations for Russia's Northern Naval Fleet, including Russia's nuclear-powered submarines.[58] Murmansk is the center of activities for Russia's icebreaker fleet, including the nuclear-powered icebreakers operated by Rosatomflot.[59] For purposes of administration, the Northern Sea Route (NSR) stops at the border between the Kara Sea and the Barents Sea; thus, the Barents Sea Region is not subject to the regulatory system governing the NSR. Nevertheless, ships transiting the NSR from east to west or vice versa will pass through the waters of the BaSR. As a result, the future of commercial shipping in the NSR is a matter of importance with respect to the governance of the BaSR. This means that there is a need to (re)develop generally accepted "rules of the road" to minimize the probability of accidents or unintended incidents in this area and to ensure that any incidents that do occur are resolved peacefully.

The expansive visions of a few years back that there would be a dramatic rise in the number of container ships using the NSR to move goods between European ports and ports in China, Japan, and Korea have not materialized.[60] Although this is attributable in part to the impacts of the recession of 2008–2009, an additional important factor is that the NSR is not suitable for use by very large container ships (i.e., those capable of carrying 12,000–20,000 TEUs [20-foot equivalent units]) that have deep drafts and require adherence to precise schedules. What is more likely is an increase in the number of tankers carrying oil or liquid natural gas and bulk carriers transporting minerals, such as nickel produced by Norilsk Nickel and shipped from the port of Dudinka on the Yenisei River.[61] A particularly important initiative in this context is the development of the new port of Sabetta on the Russian Yamal Peninsula, which is expected to serve as a base for shipments of gas via LNG tankers to Asian consumers during the summer months and to Western consumers during the winter months when ice conditions make shipment to the east difficult.[62] The continued decrease of sea ice may make it feasible to extend the NSR further from the Russian coastline, a development that could increase the attractiveness of the route to container ships transporting goods between Asia and Europe.[63] Developments outside the BaSR will play a critical role in determining the future of commercial shipping in the region.

Overall, the governance challenge will be to avoid and manage conflicts between commercial shipping and fishing, oil and gas development, and ecosystem protection. The use of sophisticated technologies, such as the deployment of automatic identification systems (AISs), mandated under the provisions of international agreements like the 1974 International Convention for the Safety of Life at Sea (SOLAS),[64] in administering vessel-traffic schemes should make it feasible to meet this challenge in a manner that is both equitable and efficient. Norway is a leader in the application of these technologies to issues of resource management, and some steps have already been taken to establish sea lanes in the Norwegian sector of the BaSR.[65]

Adventure tourism/recreation

Tourism is already more extensive in northern Fennoscandia than anywhere else in the Arctic.[66] The rapid rise of winter tourism featuring whale watching and the viewing of the northern lights around Tromsø, Norway provides a striking example. Two

additional developments may lead to significant increases in tourism in the BaSR during the coming years.

First is the Norwegian policy regarding the future of Svalbard.[67] The winding down of coal mining in the archipelago has left Norway with a challenge of maintaining at least one viable community as a means of demonstrating effective Norwegian sovereignty. Activities involving scientific research and higher education are expected to constitute one part of the response to this challenge. Scientific activities centered on Ny Ålesund are expanding, and plans are underway to increase the offerings of the University Centre in Svalbard (UNIS), a facility for higher education located in Longyearbyen and associated with the five major Norwegian universities. Another option is to encourage both ship-based and land-based tourism. There are natural limits to the growth of the tourist industry in this area.[68] But the archipelago has an appeal to those interested in nature tourism/adventure recreation, and Norway is likely to encourage a controlled growth of this industry as being a politically desirable and relatively benign human activity.

The other development is the use of Russian icebreakers as platforms for adventure tourism, including trips to the North Pole. These voyages typically depart from and return to Murmansk, following a route lying, for the most part, within the BaSR (see Figure 6). The cost of the trips provides a natural limit to their growth. Moreover, this endeavor is dependent on the icebreakers not being needed to escort commercial ships in the NSR. Russia is determined to expand its fleet of nuclear-powered icebreakers, justified for the most part by the premise that there will be rapid increases in commercial traffic using the NSR.[69] However, as already noted, the growth of this traffic has been and may continue to be limited, thus allowing the icebreakers to be used as platforms for adventure tourism.

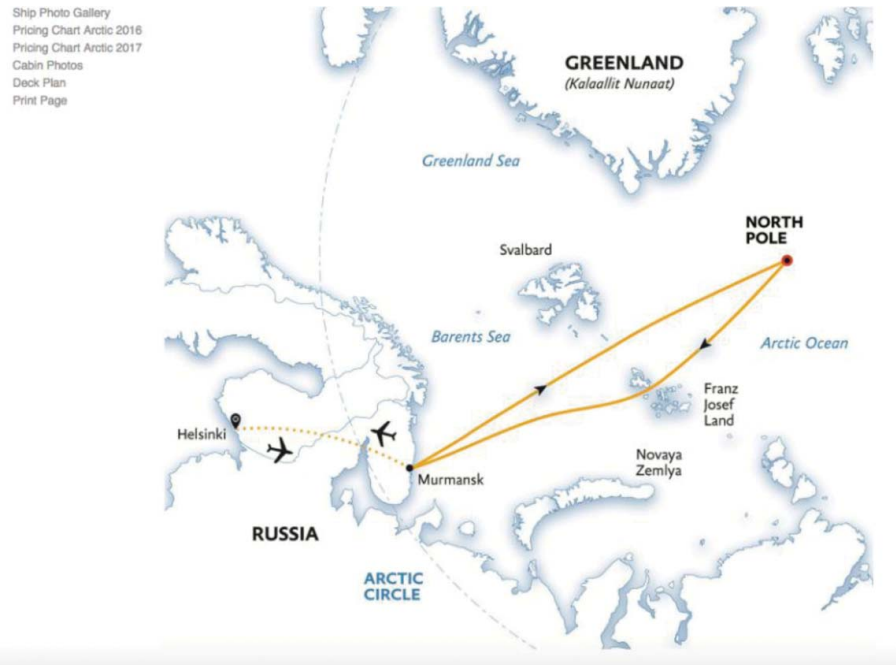

Figure 6. North Pole tourism. Source: www.google.com/search?q = North+Pole+tourism+maps&client = gmail&ris = aso&authuser = 0&tbm = isch&imgil = 4nd3ltdXqWHqYM%253A%253BphjEO9mBc0XR7M%253Bhttp.

Ecosystems protection

The expansion of human activities in the Barents Sea Region heightens the concern for the protection of the region's ecosystems. With respect to issue-specific impacts of human activities, the region is in relatively good shape. As noted in the preceding, ICES is an active player in the establishment of allowable catch levels for Barents Sea fish stocks. Hydrocarbon development is advancing slowly, and the fact that the region is largely ice free alleviates some of the concerns about the dangers of oil spills in ice-infested waters that inform debates about oil and gas development in other parts of the Arctic. The growth of shipping in the region is a major issue. The Norwegian government has been a leader in developing systems for monitoring the activities of ships and has established sea lanes in such a way as to minimize the interference of vessels with other activities.

The governance challenges center on the introduction of systemic perspectives (e.g., ecosystem-based management) and the development of procedures (e.g., marine spatial planning) designed to minimize issues arising from the interplay of the numerous human activities that are typically managed on a sector-specific basis. Norway has been a leader in developing general methods for what is described as integrated ocean management.[70] Moreover, Norway produced a comprehensive environmental management plan for the BaSR in 2006, updated in 2011.[71] The Joint Norwegian–Russian Commission on Environmental Protection has since 2005 had a working group on marine environmental cooperation, which has taken an active interest in applying the methodology of integrated ocean management to the whole Barents Sea Region.[72] The challenge will be to employ these tools on a comprehensive basis across the region, coordinating Norwegian and Russian regulatory measures in the process.

Governance and infrastructure options

The existing governance arrangements in the BaSR have performed well in maintaining peace and contributing to the achievement of sustainability.[73] All the interested parties accept the prevailing law of the sea (including UNCLOS) as the constitutive foundation on which to build regimes dealing with the more specific needs for governance arising in the region. The 2010 Norwegian–Russian Treaty not only settled the principal jurisdictional dispute between the two countries, it also contains annexes extending and formalizing long-standing arrangements dealing with fisheries and energy development. So far, the arrangements established and continued by the treaty have been effective, though it is fair to observe that they have not been subject to severe tests. For the most part, the region's fish stocks are robust and well managed through the Joint Norwegian–Russian Fisheries Commission. The Joint Norwegian–Russian Commission on Environmental Protection is engaged actively in a broad effort to capitalize on Norway's role as a leader in the development of advanced tools in the area of integrated ocean management. A working group operating under the auspices of this commission released a plan in November 2016 for Norwegian–Russian cooperation to protect polar bears and other key species in the BaSR.[74] Overall, as Table 2 indicates, there is a sizable collection of organizational arrangements operating at the regional level that play roles in addressing the functional issues arising in connection with the administration of governance systems applicable to the BaSR.

Table 2. Regional Organizations Active in the Administration of Governance Systems for the Barents Sea Region.

International Council for the Exploration of the Sea
Joint Norwegian–Russian Fisheries Commission, Committees, Working Groups
Joint Norwegian–Russian Commission on Environmental Protection, BarentsPortal
OSPAR Commission, Working Groups, Secretariat
North East Atlantic Fisheries Commission, Committees, Secretariat
International Barents Secretariat, Committees
Arctic Council Working Groups, Task Forces, Expert Groups, Secretariat

The fact that these arrangements have worked well, however, does not mean that there are no important challenges regarding governance in this dynamic region. For purposes of this discussion, future governance needs for the BaSR can be placed into four broad categories:

(i) practices needed to avoid problems arising from unresolved and contentious jurisdictional issues;
(ii) procedures needed to strengthen ecosystem protection at the regional level;
(iii) measures designed to handle the interplay among sectorally-defined regimes; and
(iv) new arrangements to allow for agile responses to major (often nonlinear and sudden) changes in biophysical and socioeconomic conditions.

Appropriate types of infrastructure will be required to ensure that governance systems created to address these needs are implemented with monitoring taking place on an ongoing basis and with adjustments being made in a timely manner to respond to changing circumstances.[75]

Governance options

The most prominent unresolved jurisdictional issue of note in the Barents Sea Region concerns the status of the waters surrounding the Svalbard Archipelago.[76] Like many disagreements regarding matters of jurisdiction, this one has no quick or straightforward solution. For now, the way forward may well be to make use of informal mechanisms that allow for cooperation without prejudice to the legal positions of the parties, following precedents like the treatment of the gray zone in the Barents Sea prior to the negotiation of the 2010 Norwegian–Russian Treaty.[77] As long as interest in the area's resources (e.g., fish stocks or hydrocarbons) remains limited, this approach should prove effective.

Under the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), most of the BaSR lies within Region 1, labeled Arctic Waters (see Figure 7).[78] Many observers regard this regional regime as an effective arrangement created initially to address problems of ship-based and land-based pollution but now dealing increasingly with matters of biodiversity.[79] Region 1, however, has received much less attention than other regions such as the North Sea. This is unlikely to change since the Russian Federation is not a party to the OSPAR Convention.

At the national level, Norway has proceeded vigorously to develop a system of coastal and ocean management applicable to areas under its jurisdiction,[80] including, as noted in the preceding, Norway's proactive effort to apply the tools of integrated ocean management. The development of bilateral cooperation between Norway and Russia on marine issues within the framework of the Joint Norwegian–Russian Commission on Environmental Protection suggests that there is room for an intermediate arrangement that transcends national boundaries. One existing mechanism that may be a source of helpful insights is the Barents Euro-Arctic Region (BEAR) with its various subsidiary bodies and its secretariat located in

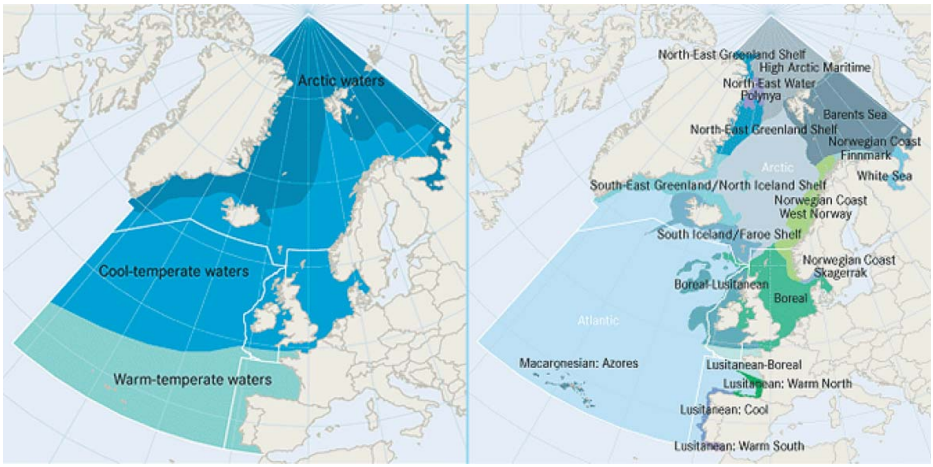

Figure 7. OSPAR regions. Source: qsr2010.ospar.org/en/ch02_03.html.

Kirkenes, Norway.[81] The BEAR's Regional Council, composed of subnational units of government including the northern counties of Norway and the northwestern oblasts of the Russian Federation, as well as the northern counties of Finland and Sweden and representatives of indigenous peoples' organizations, is designed to engage regional authorities to stimulate and implement cooperatives measures on matters of particular concern to local or regional constituencies.[82] Although the spatial domain of the BEAR does not coincide with that of the BaSR, the experience of the BEAR in stimulating functional cooperation on matters that cut across jurisdictional boundaries may suggest constructive approaches to the governance for the BaSR ecopolitical region.

One interesting strategy for achieving coordination regarding matters of regional concern in the BaSR may feature establishing a coordinated network of marine protected areas (MPAs) in the region. Figure 8 provides a map, prepared by World Wildlife Fund, showing the location of areas that the environmental community regards as particularly important from the perspective of the conservation of biological diversity. Of note is that the waters around the Svalbard Archipelago and Franz Josef Land are accorded high priority.

These are areas in which both Norway and Russia have taken significant steps, going back in some cases to the 1970s, to protect coastal and marine ecosystems.[83] It will be essential to proceed with care, assessing the relationship between high-priority areas from the perspective of ecosystem protection and areas of particular interest to fishing, energy, and shipping interests. Experience elsewhere makes it clear that it is difficult to identify areas for various forms of protection that are acceptable to all concerned parties. Nevertheless, there is growing momentum in other parts of the world to establish larger and larger MPAs.[84] It may well be that Norway and Russia can build on their success in governing shared marine resources to design a coordinated network of MPAs in the BaSR.

In the BaSR, there exist distinct arrangements dealing with fishing, energy development, shipping, and ecosystem protection. As human activities in this marine ecopolitical region increase, problems of institutional interplay can be expected to arise.[85] In the Barents Sea, the main areas of overlap or interplay involve fishing, gas fields, shipping lanes, and marine protected areas. Undoubtedly, some of the resultant issues can be handled on an ad hoc basis. For example, shipping lanes can be adjusted on a seasonal basis to avoid major fishing

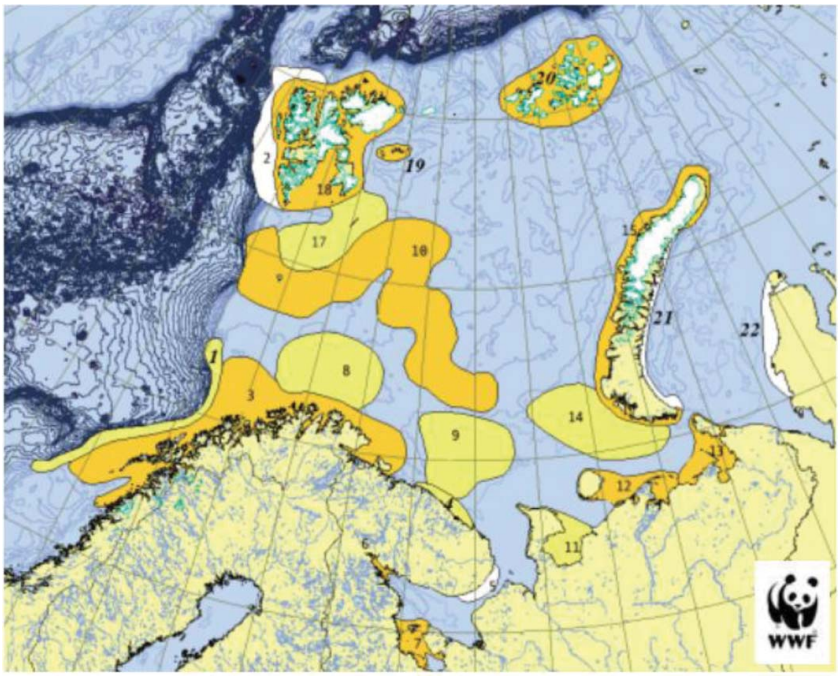

Figure 8. Areas recommended as suitable for MPAs. Source: awsassets.panda.org/downloads/barentsseaecoregionreport.pdf.

grounds or the migratory routes of marine mammals. Regulations on offshore oil and gas development (e.g., the requirement to drill relief wells) can be effective in minimizing the destructive impacts of oil spills or gas leaks. Sophisticated tools may make it possible to design marine protected areas in ways that minimize interference with conventional economic activities like fishing and shipping.[86]

As human activities increase in scope and intensity it becomes increasingly important to take steps to avoid conflicts between or among individual regime elements and to take advantage of potential synergies among them.[87] There is no simple criterion for determining when this threshold is reached. But the growth of a range of human activities in the BaSR indicates that it is likely that such a threshold will be reached in the foreseeable future.

This makes it relevant to ask whether there is a case for establishing a Barents Sea Authority with a mandate to oversee interactions among the sectoral regimes and to consider ways to minimize conflict and maximize synergy.[88] Clearly, Norway and Russia would be the lead actors in a Barents Sea Authority. Nevertheless, it would make sense to develop procedures to allow for participation on the part of other countries or autonomous regions (e.g., Iceland, the Faroe Islands), intergovernmental organizations (e.g., ICES), and indigenous peoples' organizations (e.g., the Saami Council). The creation of a body with a mandate to engage in integrated management is likely to be a slow process involving negotiations over a period of time. This suggests that it would make sense to start the process of working out the terms of a future Barents Sea Authority sooner rather than later to alleviate the problem of having to make decisions under severe time pressure at a later stage.[89]

One way to initiate this process would be to focus on the articulation of a set of common principles to govern human activities in the BaSR, rather than on the development of formal or legally binding prohibitions or requirements.[90] In some instances, this would be a matter of adapting principles set forth in multilateral agreements, like UNCLOS, to the specific circumstances of the BaSR. Among the most relevant of these principles are the precautionary principle, the polluter pays principle, and the principle of environmental equity. The concept of stewardship may offer an attractive point of departure for thinking about governing the BaSR in a coherent manner.[91] Principles and approaches of this sort can provide codes of conduct or guides to normatively prescribed or ethical behavior, rather than rules that actors are obligated to comply with under all conditions. They are intended to provide a basis for building a set of social practices to structure the behavior of public and private actors. Principles are not substitutes for more formal rules featuring requirements and prohibitions. But there is much to be said for encouraging the growth of principled governance as a point of departure for addressing more specific needs for governance in an effective manner in an area like the BaSR.

An additional reason for regional governance centers on its importance for devising arrangements that can facilitate efforts to respond to often unforeseen, and sometimes abrupt, changes in a marine region. Although their main impact lies to the west of the BaSR, recent shifts in the mackerel stocks in the North Atlantic provide a striking illustration of this sort of dynamism in marine ecopolitical regions.[92] Stocks of Atlantic mackerel (*Scomber scombrus*) have expanded rapidly in a westerly direction, starting in the Norwegian Sea and extending into waters under the jurisdiction of the Faroe Islands, Iceland, and Greenland.[93] By some measures, mackerel now constitute the largest single-species biomass in the North Atlantic. This expansion has occurred rapidly, and it is not known whether the stocks will crash or recede equally rapidly in the coming years, making it challenging to provide for effective governance. ICES has called for reductions in allowable catches of this species.[94] But achieving the consensus needed to act on such recommendations is difficult. The BaSR may experience similar situations, driven by a range of factors including shifting weather patterns, ocean acidification, the growth of aquaculture, fluctuations in world market prices for oil and gas, and the growth of commercial shipping, among others. The bilateral arrangements covering fisheries and energy development established in the 1970s and extended under the 2010 Norwegian–Russian Treaty will be part of the answer to this challenge. But they are not likely to be sufficient. Pressure from the fishing industry and local communities may lead the Joint Norwegian–Russian Fisheries Commission to set allowable harvest levels in excess of the recommendations of ICES, especially if the cod stocks enter a period of decline relative to their current robust condition.[95] If and when fish stocks move into the international waters of the loophole, fishers from other countries may become increasingly resistant to the decisions of the Joint Norwegian–Russian Fisheries Commission regarding quotas. In any event, fisheries interests may resist the establishment of new or expanded MPAs, a response recommended by many as a means of cushioning the impacts of large-scale but unpredictable shifts in the composition of marine systems.[96] As a result, dealing effectively with the dynamics of the BaSR may require the development of institutional arrangements that are better positioned to address systemic shifts than those in place today. Here, too, the development of a Barents Sea Authority may prove beneficial in efforts to manage the BaSR as a complex and dynamic system.

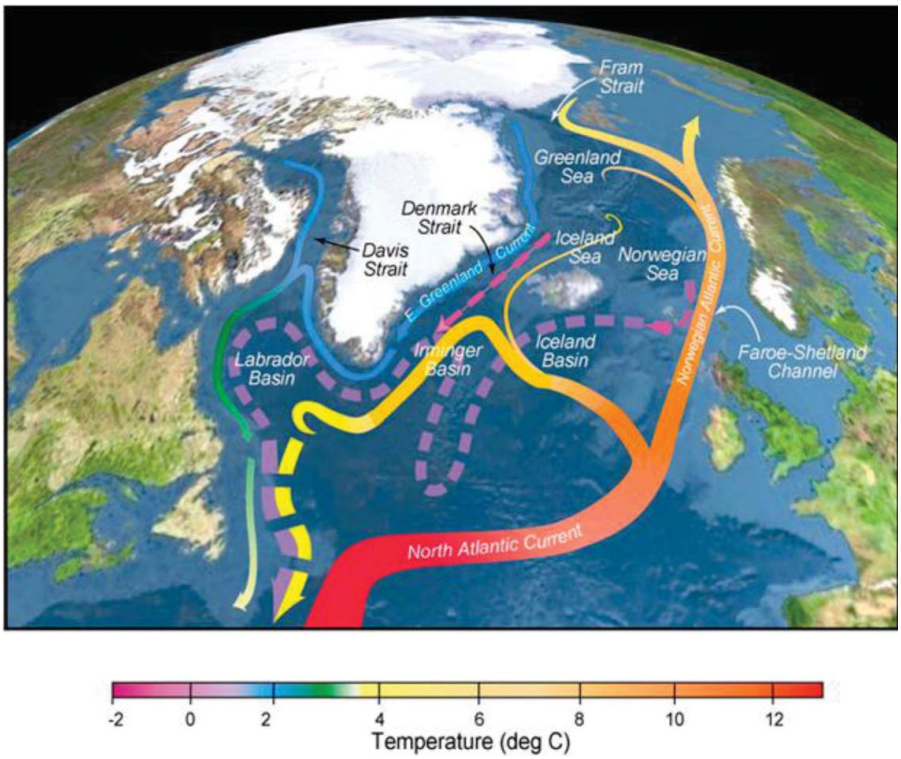

Figure 9. North Atlantic Ocean conveyor belt circulation. Source: www.google.com/search?q = North-+Atlantic+Current&client = gmail&ris = aso&authuser = 0&tbm = isch&imgil = 7xc7y5bVjarOoM%253A%253Bfk4TiU8nBWAmgM%253Bhttps%252.

Organizational capacity and built infrastructure

For the most part, governance systems are not self-executing. They require administrative capacity capable of handling implementation on a day-to-day basis, as well as the creation of monitoring systems and compliance mechanisms. Relative to other geographic sectors of the Arctic, the BaSR has some distinct advantages with regard to such matters. Because much of the region, including those areas of greatest interest from the perspectives of fishing and energy development, are ice free year-round due to the influence of the North Atlantic Current (see Figure 9), there is little need to contend with problems—shipping in ice-covered or ice-infested waters, search and rescue under unusually difficult conditions, or pollution in ice-infested waters—that loom large in adopting and implementing governance systems in other parts of the Arctic. The Arctic coasts of Norway and northwestern Russia are endowed with ports and other relevant infrastructure. As Table 2 indicates, a number of existing intergovernmental organizations and related bodies include the BaSR within their scope of authority and contribute to the administration of governance systems currently operative in the region. This sets the BaSR apart from other parts of the Arctic with regard to the availability of infrastructure capable of taking on a variety of functional tasks.

Still, it would be a mistake to conclude that upgrading infrastructure is not an important consideration in governing the BaSR effectively. Some requirements are

largely matters of extending or adapting existing capabilities to the evolving character of the Barents Sea regime complex. This applies to the role of ICES in providing science-based advice regarding the condition of fish stocks in the BaSR, the capacity of automatic identification systems (AISs) to monitor ship traffic in the region, and the activities of Norwegian Coast Guard and Russian Federal Border Service units in addressing the challenges of law enforcement regarding fisheries and other matters of joint concern. Other requirements are likely to call for the development of new organizational capacity and infrastructure. The most obvious example centers on the introduction of arrangements designed to resolve tensions and take advantage of synergies in the evolving Barents Sea governance complex.

One worthwhile avenue to explore for early action in this connection is the strengthening of capacity in the areas of monitoring, reporting, and verification. Rapid advances in technology are opening new opportunities to combine satellite observations with a variety of surface observations to provide early warning of emerging problems, support emergency services, and conduct real-time monitoring to verify compliance with regulations and facilitate the apprehension of those who violate applicable regulations.[97]

As noted in the preceding, there may be a role for the mechanisms operating within the framework of the Barents Euro-Arctic Region (BEAR) or for assessing the experience of the BEAR in promoting transnational cooperation on a regional basis as a source of lessons of interest to those with a mandate to implement the various elements of the evolving governance system applicable to human activities occurring in the BaSR and the probable growth of these activities during the foreseeable future. The critical challenge is to mesh regional arrangements that provide prominent roles for local actors possessing in-depth knowledge of the region with broader international arrangements that apply equally to the BaSR and a range of other regions.

Conclusion

In one sense, the Barents Sea Region is a comparatively simple case in which two adjacent states—Norway and Russia—have a substantial history of cooperation, have resolved their long-standing disagreement regarding the delimitation of their maritime boundary in the area, and have put in place cooperative arrangements to address governance relating to fisheries and energy development. These are noteworthy achievements. Going forward, however, new needs for governance needing to be addressed will emerge. Fundamentally, these needs are based on the growth of human activities in distinct but interacting sectors (fisheries, tourism, etc.). Moreover, biophysical changes have given rise to conditions that will require a consideration of the interests of additional players. Norway and Russia will be challenged to acknowledge the interests of others and will need to take the lead in proposing institutional adjustments that allow others to have a voice in decision making for the BaSR, while at the same time protecting their primary and legitimate role as coastal states in the region. Rationalizing the Barents Sea regime complex is a matter of devising procedures to manage institutional interplay, a classic challenge for governance in complex settings, and to adapt to rapidly changing conditions.[98] It will also require the development of suitably adjusted or new forms of infrastructure to administer the resultant arrangements on a day-to-day basis. In one sense, the governance challenges of the BaSR constitute a case of what may be characterized as "good trouble." There is no need to start from scratch in

addressing needs for governance in this ecopolitical region or to treat the current situation as approaching a condition of crisis. The arrangements already in place provide an excellent point of departure for addressing new needs for governance. Yet it is important not to adopt a complacent attitude. There is much to be done in enhancing the governance system of the BaSR to meet needs coming into focus today or already visible on the horizon for the future.

Notes

1. This article parallels the recent analysis of issues of governance in the Bering Strait Region: Paul Arthur Berkman, Alexander N. Vylegzhanin, and Oran R. Young, "Governing the Bering Strait Region: Current Status, Emerging Issues and Future Options, *Ocean Development and International Law*, 47 (2016): 186–217.
2. Treaty between Norway and the Russian Federation concerning the Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, 15 September 2010, 2791 *U.N. T.S.* 3.
3. Norway, Fishery Protection Zone around Svalbard, Royal Decree, 1977, done pursuant to Act of 17 December 1976 relating to the Economic Zone of Norway; see www.fisheries.no/resource_management/Area_management/economic_zone/#.wwoklFFICOS.
4. Treaty Concerning Spitzbergen, 9 February 1920, 2 *L.N.T.S.* 7. Norway uses the term "Svalbard" rather than "Spitsbergen" to refer to the whole archipelago, reserving the term "Spitsbergen" to refer to the archipelago's largest island. To avoid confusion, we follow Norway's terminology except in referring to the English authentic text of the 1920 Paris Treaty. According to Article 10 of the Treaty, "the French and English texts are both authentic."
5. International Hydrographic Organization (IHO), *Limits of Oceans and the Seas* (Special Publication No. 23), 3rd ed. IMP Monégasque Monte-Carlo (1953), 11–12.
6. Severniy Ledovity okean (the Arctic Ocean)/Rossiyskiy Entsiklopedichesky slovar (Russian Short Encyclopedia), Kniga 2 (Vol. 2), Moskwa (Moscow), 2000, (in Russian), 1404.
7. Gramoty Velikogo Novgoroda i Pskova (Documents of the Great Novgorod and Pskov), Moskwa-Leningrad (Moscow-Leningrad), AN SSSR (Academy of Sciences of the USSR), 1949 (in Russian), 69 et seq.
8. There is no objectively correct way to delimit a marine region. The chosen delimitation of the BaSR facilitates the analysis of governance issues arising in this ecopolitical region.
9. U.N. Convention on the Law of the Sea, 1833 *U.N.T.S.* 397.
10. Agreement on the Conservation of Polar Bears, 15 November 1973, 13 *I.L.M.* 13.
11. These measures are nautical miles: 1 nautical mile = 1852 meters.
12. Agreement on the Cooperation in the Fishing Industry (Norway/Russia), 11 April 1975, 983 *U.N. T.S.* 8.
13. See: A. N. Vylegjanin and V. K. Zilanov, *Spitsbergen*: *Legal Regime of Adjacent Marine Areas*, ed. and trans. W. Butler, (Eleven International Publishing: The Netherlands, 2007), 75–80.
14. Agreement between Norway and Russia concerning Mutual Relations in the Field of Fisheries, 15 October 1976, 1157 *U.N.T.S.* 146, preamble para. 9.
15. *Ibid.*, preamble para. 4.
16. Norway–Russia Boundary Agreement, supra note 2, Annex I, Art. 1.
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18. See Norway, Press Release, 30 June 2010, "On the Extension of the Russian–Norwegian Interim Agreement on Fisheries in the Contiguous Areas of the Barents Sea," on the Ministry of Foreign Affairs website.
19. Boundary Convention between Russia and Sweden–Norway, May 1826, text in French, in C. Parry, ed., *Consolidated Treaty Series*, Vol. 76, 259–279.

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21. Agreement between Norway and the Soviet Union concerning the Sea Frontier in the Varanger Fjord, 27 February 1957, 312 *U.N.T.S.* 289.
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23. Norway–Russia Boundary Agreement, supra note 2, Article 5 and see Annex II.
24. Convention on the Continental Shelf, 499 *U.N.T.S.* 311.
25. Vienna Convention on the Law of Treaties, 1155 *U.N.T.S.* 332.
26. Norway–Russia Boundary Agreement, supra note 2, Article 5(2).
27. The experience of intergovernmental management by Russia and Kazakhstan and Azerbaijan over the transboundary geological subsoil structures of the Caspian Sea is nevertheless different as there is no continental shelf in the Caspian Sea from the viewpoint of applicable international law since the general sources of international law of the sea are not applicable to the Caspian Sea areas, including its subsoil and natural resources.
28. Agreement Relating to the Exploitation of the Frigg Field Reservoir and the Transmission of Gas therefrom to the United Kingdom (Norway/United Kingdom), 10 May 1973, 1098 *U.N.T.S.* 3.
29. This is a defined term in the Norway–Russian Agreement, supra note 2, Annex II, Article 1(1). In Art. 5(2) of the Treaty, the same document states that an "agreement on the exploitation of the hydrocarbon deposit as a unit, including its apportionment between the Parties, shall be reached at the request of one of the Parties."
30. *Ibid.*, Annex II, Article 1(6)(a).
31. Amendment to 1976 Agreement Relating to the Exploitation of the Frigg Field Reservoir and the Transmission of Gas therefrom to the United Kingdom (Norway/United Kingdom), 25 August 1998, *U.K.T.S.* No. 21 (2002).
32. Norway–Russia Boundary Agreement, supra note 2, Annex II, Article 1(12).
33. *Ibid.*, Annex II, Article 1(13).
34. *Ibid.*, Annex II, Article 3.
35. For an account of the history of the regime for the Svalbard Archipelago, including the failed efforts to reach agreement prior to World War I, see Ellen C. Singh and Artemy A. Saguirian, "The Svalbard Archipelago: The Role of Surrogate Negotiators," in Oran R. Young and Gail Osherenko, eds., *Polar Politics: Creating International Environmental Regimes*, (Ithaca: Cornell University Press, 1993), 56–95. See also A. Vylegzhanin and V. Zilanov. *Legal Regime of Maritime Spaces Adjacent to Spitsbergen*, (Utrecht: Eleven International Publishing, 2006).
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> For these reasons, the Spitsbergen Treaty as a whole should now be interpreted in the light of the current situation. In particular, Articles 2, 3, 7, and 8 should be interpreted as applying mutatis mutandis to the extended territorial waters, the continental shelf, and the fisheries zone around the archipelago. For instance, Norway's conservation measures for the fisheries protection zone can be seen in the light of the second paragraph of Article 2. To adopt a different interpretation would mean that Norway had greater rights beyond the territorial sea than within it–and even on the land. That would be a strange result. In the law of the sea, rights diminish, not increase, as one moves outward from the coast. (footnotes deleted)

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