Chapter 2

Conservation in the Arctic

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Introduction

The Arctic has many international institutions and organizations. The Arctic Council is a state-run forum promoting inter-governmental cooperation among members. It also includes Arctic Indigenous peoples (represented through their specific organizations) as permanent particpants as well as non-Arctic observer states and others.[1] The Northern Forum is a consortium of sub-national governments sharing ideas and activities related to the Arctic.[2] The Arctic Circle is a non-governmental forum for businesses and others to discuss Arctic affairs and make connections throughout the region and beyond.[3] The International Arctic Science Committee brings research organizations and scientists together.[4] Various treaties and arrangements foster bi- and multi-lateral cooperation on Indigenous rights, commercial shipping, polar bear conservation, fisheries management, marine mammal hunting, oil spill response, search and rescue, trans-border travel, scientific research, and many other aspects related to the interactions of humans with one another and with the environment.[5]

Significantly, international cooperation has long been a hallmark of the Arctic. A British expedition brought Norway's Fridtjof Nansen and Hjalmar Johansen back from Russia's Franz Josef Land after their epic journey across the sea ice towards the North Pole and back.[6] A Russian icebreaker came to Barrow, Alaska, in October 1988 to help clear an escape path for gray whales stranded in a shrinking opening in the ice. The dispute over Hans Island between Canada's Ellesmere Island and Greenland features each country staking its claim by leaving a bottle of liquor for the other to find. Russia and the United States clash over Crimea, Syria, and other matters around the world, but nonetheless in 2018 presented a joint proposal that was adopted by the International Maritime Organization (IMO) to establish shipping lanes in the Bering

Strait.[7] The few remaining boundary disputes are relatively minor, unlikely to cause major conflict and, perhaps as a result, likely to persist at least until they actually matter.[8]

In this chapter, I examine the prospects of Arctic conservation in light of the state of Arctic cooperation and institutions today, the lack of a consistent and compelling vision for the Arctic, the choices that are before us, and possible pathways for the next two decades.

The Arctic Today

With well-established institutions and a long record of international good will, is the Arctic well prepared for environmental and societal change? In some ways, we as a society can be optimistic.[9] The nearest the Arctic comes to a land rush is the quest for rights to extended continental shelves. Russia planted a symbolic flag on the seafloor at the North Pole, but the claims will be staked and evaluated not on the high seas but in the procedures laid out in the United Nations Convention on the Law of the Sea. [10] The IMO has created the Polar Code, which came into force on January 1, 2017, to be ready for expected increases in commercial vessel traffic.[11] Nine countries and the European Union signed the *Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean* in October 2018,[12] and at the time of writing this precautionary approach to fisheries management awaits only one ratification to come into force. The Iñupiat of northern Alaska and the Inuvialuit of northwestern Canada have created trans-boundary cooperative agreements to manage polar bears and others species.[13] A recent major resource development effort, the Yamal Liquid Natural Gas project in northern Russia, is a joint venture of companies from Russia, China, and France, all following norms of international business partnerships.[14]

And yet as a society we can also be pessimistic. Arctic resources, from fish to oil and from shipping routes to tourist attractions, attract global attention. With attention comes interest in and pressure to develop.[15] The Arctic is not immune to industrial accidents, and pollution and disturbance can harm the Arctic environment, as they can anywhere. Strong conservation measures in one place can easily be undermined by unconstrained exploitation elsewhere, since neither fish nor spilled

oil stop at a border or edge of a protected area. The global problem of persistent organic pollution became ever more apparent in the 1980s and 1990s when high levels of heavy metals and persistent organic pollutants were found in Arctic species and in Arctic residents, far from the places where the contaminants were produced and used.[16] Today, the global problem of plastic waste reaches into the Arctic as well,[17] fouling beaches and being ingested by fish, birds, and mammals.

Despite the abundance of institutions and cooperation, the Arctic remains susceptible to creeping degradation as countless small decisions and actions nibble away at environmental and cultural integrity. Each of these changes may be relatively minor in itself, and many are even welcomed as a form of progress, providing jobs and opportunities where few existed. Indeed, this is nothing new. For centuries, people from lower latitudes have gone north in search of furs, whales, walrus ivory, gold, oil, and more. Local people have often joined in the trade for such products.[18] And as a result, bowhead whale populations were decimated in the late 1800s and early 1900s,[19] pollock all but disappeared from the central Bering Sea in the 1980s,[20] and Russia's Komi Republic suffered a massive oil spill from a broken pipeline in 1994-95. In Krasnoyarsk Krai region, the May 2020 Norilsk diesel oil spill flooded rivers and is an ongoing devastating industrial disaster, even if on a smaller scale than the 1990s disaster in Komi.[21] Schooling provides formal education, but often at the expense of passing on traditional knowledge through long practice and interactions on the land and sea. Employment provides income, but often at a cost of the time needed for hunting, fishing, and gathering. National languages are convenient, but Indigenous languages and cultural heritage are being lost.[22]

We are thus caught in a dilemma. The Arctic of old was beset by poverty, low life expectancy, and other unwelcome features of the pre-modern world. Modernization has hardly been painless, but it has brought many benefits, including longer life expectancy and reduced poverty, though in most countries Arctic averages remain worse than national averages.[23] Development of Arctic resources is one way to pay for these benefits, if Arctic regions are to stand on more than the largesse of national governments centered to the south. But development brings its own problems, which increase as industrial activities spread wider on the lands and the waters, leaving less and less undisturbed space for Arctic species and Arctic peoples. This pattern has been seen

around the world, as ancient homelands become "new frontiers," which then become settled areas with only a few relics of the past tucked into parks, displayed in museums, or left as place names on a map.

Towards a Vision for the Arctic

Can the Arctic avoid this well-worn pathway, finding a way to conserve its distinctive features while also providing opportunities for Arctic peoples? Are our current institutions up to this task? The first is an open question. Recent and current performance suggests the answer to the second question is no.

The first step off of the path to creeping degradation is a recognition that society is indeed on that path. With sparse populations and difficult access, the human presence on the Arctic landscape is often not evident. A closer look tells a different story. Roads, mines, sportfishing camps, and other human constructions can be found all around the Arctic. As mentioned, pollutants and plastics are found wherever we look. Governments and companies prepare plans that cover the map with further development. We conduct environmental impact assessments and conclude that one new activity will produce little additional harm. And we fail to look at the weight of history, the lessons from elsewhere, and the idea that many small cuts can cause major damage.

The second step off the well-worn path is to develop a vision for what the Arctic can be.[24] An insidious aspect of creeping degradation is that we scarcely notice what has happened. For every dramatic case like the collapse of cod around Newfoundland, there are many huge fish runs that have slowly turned to a small remnant capable of supporting only a symbolic fishery.[25] Oilfields once concentrated around Prudhoe Bay in northern Alaska now stretch hundreds of miles along the coast and inland and are expanding offshore.[26] We take for granted that which is abundant and content ourselves with a small fraction of what once was and what could be again. Lowered expectations lead to lower outcomes, which lower our expectations further still. Our vision for the Arctic should be based on high expectations.

Our current institutions fall short on both accounts. First and foremost, we lack a compelling vision for an abundant Arctic. Leaders and officials say the right things about managing *against* cultural and envi-

ronmental loss, but very little about what we are managing *for*. Our expectations center on how to manage increased shipping, expanded fishing, additional oil and gas extraction, more mines, or greater numbers of tourists. We do not discuss whether there should be limits instead of an endless growth of the human footprint, or what a vibrant Arctic society could look like other than a copy of societies farther south. Instead, we carry on as if the Arctic can absorb whatever we decide to do there, as if all our experiences elsewhere in the world are irrelevant in the North. None of our existing institutions do much to push us out of our comfort and complacency that somehow all will be well, that a well-trodden path must be a good path.

Second, we have no effective way of assessing, measuring, and managing the cumulative effects of dozens, hundreds, and thousands of small actions taken all around the Arctic, over both the shorter or longer term. Science is not yet up to this task, and none of our institutions have the scope to manage human activities as a single enterprise. Instead, we congratulate ourselves for Bering Strait shipping lanes, even as there is no discussion of whether and how to limit overall traffic. We commend the sound management of bowhead whale hunting, even as more whales are entangled in fishing gear and struck by ships. We allow fisheries where narwhal winter and ore-carrying ships where narwhal summer, but do nothing to connect the two disturbances or manage for both together. We are well-positioned for many institutions to make a series of individually reasonable decisions that together produce well-controlled decline in our expectations and the Arctic environment.

In theory, these problems are exactly what integrated ecosystem management is meant to address.[27] The idea that there may be cumulative effects is hardly news. Yet we struggle with how to "integrate" and how to "manage." At its heart, the question is one of tradeoffs. We cannot have everything that we may want, so we need to make choices. Are fish the priority, or is it oil? How far should seal hunting be disrupted to accommodate shipping? How do we quantify, measure, and compare the risks? There are no obvious answers. A common response is to continue to insist that we can in fact have it all, that offshore oil and gas need not pose a threat to fisheries or to marine mammals, that seals and seal hunters can get used to the sight and sound and smell of large ships. This is nonsense. Yet without a vision for an abundant Arc-

tic, we fight over dozens of lesser visions pitting today's profits against tomorrow's well-being.

Even if we should agree on that vision for abundance, we lack an understanding of ecosystems and of human societies, not to mention the underlying data, to make precise predictions about what and how much activity the Arctic can tolerate before it begins to degrade. As we can see elsewhere in the world, instead of leaving some slack in the system to accommodate uncertainty and variability, we push up to and beyond any limits we identify. If we cannot show there will be an impact, we go ahead. This is backwards. Some decisions recently have taken the other approach, i.e. that until we can be reasonably sure we are not causing harm, we should hold off. The Central Arctic Ocean Fisheries Agreement is one such example. It is notable, however, that there were no fisheries in the region when the agreement was signed, nor any in nearby waters. The principle is a welcome one in an international agreement, but in practice nothing was actually given up. It is harder to imagine an agreement to call a halt to activities already underway, all in the name of caution.

The Choices Before Us

Thus far, I have described the baseline state of institutions and conservation in the Arctic. We do reasonably well in some sectors and some areas, we are fortunate that the direct human presence remains relatively modest, and we are highly susceptible to harm from a thousand small cuts. Now add the realities of climate change and the prospects for international conflict.

Arctic climate change[28] has brought unprecedented global attention to the region, as an exemplar of the risks faced by societies and ecosystems around the world, and as a region ripe for economic development. When the Arctic was a quiet backwater, sending a Soviet icebreaker to rescue whales off the coast of Alaska was an easy form of cooperation. When Arctic fisheries, oil and gas, shipping, and geopolitical strategy have come to prominence, small gestures carry far greater weight. When tensions are high, larger activities and events take on even greater significance.

If the Arctic sees a war over Arctic matters or as a proxy for other conflicts such as Crimea or the South China Sea, all bets are off.[29] We should of course work to prevent war from happening in the Arctic as elsewhere, but if we get to that point, conservation has long since gone out the window. Battles will not await the completion of an environmental impact assessment, and national security concerns will override anything else. The Arctic has been militarized before. The last shots of the U.S. Civil War took place off Alaska, as the Confederate warship *Shenandoah* attacked whaleships from northern U.S. ports, unaware that the South had already surrendered back in Virginia.[30] During the Cold War, Russia and the U.S. built military bases, radar stations, and more in the Arctic, and sent submarines far under the Arctic ice. Tensions in Arctic waters were high. One legacy of this activity is the number of abandoned and badly polluted installations, not to mention scuttled ships and radioactive waste.[31] It is not clear what institutions would be able to constrain this kind of result once a battle starts. Let us put large-scale armed conflict aside.

Nations may also compete economically. Sanctions can reduce activity, and competition can increase it. Indeed, one vision for the Arctic is a region of massive resource exploitation, exporting raw materials to the world.[32] One can see the appeal both for the country selling its minerals or oil or fish, and for the country having access to big new sources for its industries and consumers. Pressure may therefore come from distant markets as well as local boosters. There is no particular reason that one Arctic country should follow others in a race to develop, but the coasts of Alaska and Norway both already see increased ship traffic as a result of development along Russia's Northern Sea Route. Finland and Norway still live with the legacy of pollution from mines, nuclear waste, and other contamination across their borders with Russia,[33] a major reason why Finland – with its 1991 Arctic Environmental Protection Strategy (AEPS) inititiave – started the international forum that became the Arctic Council. The ability of existing institutions to reduce trans-boundary effects is doubtful for most sectors, especially if the activities in question are seen as essential for national security or related ambitions.

Climate change poses a major threat to the Arctic as we know it. These changes are alarming in their own right and will also exacerbate the effects of other human activities. Less ice may well lead to more

shipping and more resource development, increasing the burden on the institutions managing those sectors. Climate change will also make all the more difficult the challenge of addressing cumulative effects. Climate change could also provide a convenient scapegoat on which to blame industry and management failures. In short, existing institutions have the theoretical capability to handle much of what we expect from climate change, but their actual political capacity is another matter. They have been designed and run largely to address minor and non-controversial matters. For example, the Arctic Council's charter expressly excludes fisheries and military affairs. And their shortcomings with regard to cumulative effects will only become more apparent as climate change contributes more and more to the alteration of Arctic ecosystems.[34]

Before we look forward, a quick review of recent decades will help identify trends. In 2000, Arctic climate change was gaining attention, shipping was modest, fisheries were limited to historical areas such as the Barents and Bering seas, oil and gas development was going up and down in different areas, as was mining. China's growing interest in the Arctic was not yet apparent to most observers. The Arctic Council held its second meeting in what was then Barrow, now Utqiaġvik, Alaska. Neither the Arctic Climate Impact Assessment (published in 2005) nor the Arctic Marine Shipping Assessment (2009) had been started, though Arctic contaminants had drawn attention to a global problem that would lead to the signing of the Stockholm Convention on Persistent Organic Pollutants the following year. Some of today's Arctic institutions were new or not yet started, though cooperation was the dominant mode of international interaction within the region.

By 2020, Arctic climate change has been widely recognized globally. Indeed, it is generally spoken about as an emergency— even though there still appears to be more grandiose talk than actual grand-scale action. Shipping has increased and the IMO's Polar Code entered into force in 2017. Fisheries have expanded to some degree, but precautionary measures have also been taken in the high seas of the Arctic Ocean and some nearby national waters. Cruise ships have sailed the Northwest Passage. Development in the Russian Arctic is increasing steadily –with Kremlin support and Chinese and other foreign investment. The situation is more mixed in other countries, as companies' exploration costs for resources extraction are high and their activities

are much less likely to be state-sponsored. The Arctic Council has attracted more observer countries and has completed many assessments and projects. The Arctic Circle has created a meeting point for businesses and others. China has declared itself a "near Arctic state," issued its Arctic Strategy in 2018, signed the Central Arctic Ocean Fisheries Agreement, and invested in many Arctic projects. In some ways, institutions are stronger through longevity and through attracting more participants, increasing their legitimacy and their reach beyond Arctic states. For conservation, the Arctic record remains mixed, but there are good signs in some respects.

Future Horizons

Looking forward with some speculation, we can see divergent paths. One path might be imagined in the following way: by 2040, sea ice may have disappeared one summer. Perhaps shipping has increased in volume and in length of season, possibly including year-round voyages by ice-strengthened vessels. The Central Arctic Ocean Fisheries Agreement will have run its initial 16-year term—perhaps to be renewed, perhaps to be replaced by a regional fisheries management organization as exploitation begins. There are likely more mines and perhaps more oil and gas fields, depending on the state of renewable energy worldwide.[35] Perhaps India has joined China as a rising force in Arctic affairs as in global affairs. With luck, today's institutions concerned with the Arctic may have been strained but have not broken, thanks in part to the efforts of countless people to create ties across borders, develop a vision for the Arctic, and promote continued cooperation and mutual understanding. Conservation continues to be a challenge, but ecosystems and species have a chance at adapting to the ever-transforming climate. Indigenous peoples continue to sustain their own identities and ways of life and to pass on cultural traditions and values from one generation to the next.[36] We look to 2060 with cautious optimism.

Without that luck, without that commitment to sharing an abundant Arctic, without the hard work of people in and alongside Arctic institutions, the second potential path to 2040 will be a very different story. Climate change will have affected nearly all aspects of life in the Arctic, exacerbated by poor management decisions driven by short-term, localized thinking. Shipping will be regulated to some degree by the

IMO and its Polar Code, but enforcement is lax and accidents all too common. Arctic resources are available to the highest bidder, with little concern for environmental and cultural effects. Fish stocks have been plundered and yield a fraction of the catch they once supported. What's more, fish and other marine life might be contaminated by microplastics with serious implications for human health.[37] Today's institutions have buckled and many no longer exist. Countries espouse cooperation even as they ignore the needs of their neighbors. Ecosystems are now shaped by human influence and conservation is a matter of preserving remnants of what once was. We look to 2060 and wonder what will be left.

The difference between these scenarios for 2040 is the reason that institutions matter, that the work of those involved in Arctic institutions matters, and that those of us who wish for something close to the first path laid out above must continue to fight for an Arctic characterized by abundance, cooperation, and an ever greater awareness of our responsibility to make decisions that are sound for the long-term, in a changing environment, across the full range of human activities. Today's choices will determine what the Arctic is like in two decades' time and beyond.[38] The path our society is on may avoid major disasters,[39] but by the same token, it involves an endless series of compromises made near and far, which together continue to degrade the Arctic. Finding a new path will not be easy in the face of inertia and active opposition from businesses and governments alike – all of which are more or less keen to exploit natural resources, to keep the economy buzzing, and to ensure their countries are at the forefront of industrial and technological progress. Yet, if in the process the environment is irrevocably damaged and degraded, living with the results of poor choices is likely to be even harder and costlier in human and economic terms.

Notes

1. https://arctic-council.org/en/about/.

2. https://www.northernforum.org/en/the-northern-forum/about-us.

3. http://www.arcticcircle.org/about/about/.

4. https://iasc.info/iasc/about-iasc.

5. Cf. Oran R. Young, "The Internationalization of the Circumpolar North: Charting a Course for the 21st Century," http://www.thearctic.is/articles/topics/internationaization/enska/kafli_0200.htm.

6. Fridtjof Nansen, *Farthest North* (New York: Harper, 1907).

7. Maritime Executive, "IMO authorizes new Bering Sea routing," May 26, 2018, https://www.maritime-executive.com/article/imo-authorizes-new-bering-sea-routing.

8. See the chapter by Suzanne Lalonde in this volume about the Canada-U.S. dispute over the status of the Northwest Passage.

9. See the chapter by Lassi Heininen in this volume about Arctic cooperation and the "Arctic paradox" of warming leading to more petroleum development leading to more warming.

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13. Nicole L. Kanayurak, *A Case Study of Polar Bear Co-Management in Alaska*, unpublished Master's Thesis (Seattle, WA: University of Washington, 2016).

14. Yamal Liquid Natural Gas, "About the Project," 2015. http://yamallng.ru/en/project/about/.

15. See the chapter by Holm Olsen in this volume about the rights of Arctic peoples to determine their own futures.

16. Arctic Monitoring and Assessment Programme, *The Arctic Assessment Report* (Oslo: AMAP, 1997). See also "Persistent Organic Pollutants: A Global Issue, A Global Response," https://www.epa.gov/international-cooperation/persistent-organic-pollutants-global-issue-global-response. Cf. J. Ma, H. Hung, C. Tian et al., "Revolatilization of Persistent Organic Pollutants in the Arctic induced by Climate Change," *Nature Climate Change* 1 (2011), pp. 255–260, https://doi.org/10.1038/nclimate116.

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18. John R. Bockstoce, *Fur and Frontiers in the Far North* (New Haven, CT: Yale University Press, 2010).

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22. Conservation of Arctic Flora and Fauna, *The Arctic Biodiversity Assessment* (Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2013).

23. Arctic Monitoring and Assessment Programme, op. cit.; *Arctic Human Development Report* (Akureyri, Iceland: Stefansson Arctic Institute, 2004).

24. For the development of Arctic narratives and competition among them, see see the chapter by Oran Young in this volume.

25. Callum Roberts, *The Unnatural History of the Sea* (Washington, DC: Island Press, 2008).

26. Conservation of Arctic Flora and Fauna, *Arctic Flora and Fauna: Status and Conservation* (Helsinki: Edita, 2001). Cf. Ellen M. Gilmer, "Judges Weigh Trump's Bid to Reopen Parts of Arctic to Drilling," *Bloomberg Law*, June 6, 2020, https://news.bloomberglaw.com/environment-and-energy/judges-weigh-trumps-bid-to-reopen-parts-of-arctic-to-drilling.

27. See, for example, Nadia French, Can the Econsystem Approach (EA) Work in Arctic Science and Governance?", Nov. 30, 2017, http://polarconnection.org/ecosystem-approach/. Cf. Robert Siron et al, "Ecosystem-Based Management in the Arctic Ocean: A Multi-Level Spatial Approach," *ARCTIC* 61, 1 (2008), pp. 86-102.

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29. For why war in the Arctic is unlikely, see the chapter by Ernie Regehr in this volume.

30. See John R. Bockstoce, *Whales, Ice, and Men: The History of Whaling in the Western Arctic* (Seattle/London: University of Washington Press, 1986).

31. See Heiner Kubny, "Arctic – nuclear waste should be recovered," *Polar Journal*, June 15, 2020, https://polarjournal.ch/en/2020/06/15/arctic-nuclear-waste-should-be-recovered/; Nuclear Wastes in the Arctic: An Analysis of Arctic and Other Regional Impacts from Soviet Nuclear Contamination, OTA-ENV-623 (Washington, DC: U.S. Government Printing Office, September 1995), http://large.stanford.edu/courses/2017/ph241/stevens2/docs/ota-env-632.pdf; Per Strand et al., "Radioactive Contamination in the Arctic—Sources, Dose Assessment and Potential Risks," *Journal of Environmental Radioactivity* 60, 1–2 (2002), pp. 5-21, https://doi.org/10.1016/S0265-931X(01)00093-5.

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33. See Arctic Monitoring and Assessment Programme (AMAP), *Arctic Pollution Issues: A State of the Arctic Environment Report* (Oslo: AMAP, 1997).

34. Cf. Henry P. Huntington et al., "Evidence suggests potential transformation of the Pacific Arctic Ecosystem is underway," *Nature Climate Change* 10 (2002), pp. 342-8, https://doi.org/10.1038/s41558-020-0695-2. Also Rasmus K. Larsen et al., "Do Voluntary Corporate Actions Improve Cumulative Effects Assessment? Mining Companies' Performance on Sami lLands," *The Extractive Industries and Society* 5, 3 (2018), pp. 375-383, https://doi.org/10.1016/j.exis.2018.04.003.

35. For the prospects of Arctic resource development and reasons why a major rush may not be inevitable, see the chapter by Arild Moe in this volume.

36. Cf. Henry P.Huntington et al., "Climate Change in Context: Putting People First in the Arctic," *Regional Environmental Change* 19 (2019), pp. 1217–23, https://doi.org/10.1007/s10113-019-01478-8; Adam Stepien et al., "Arctic Indigenous Peoples and the Challenge of Climate Change," in Sandra Clavalieri et al. eds, *Arctic marine governance: Opportunities for transatlantic cooperation* (Heidelberg: Springer, 2014), pp. 71-99. Listen also to the following Brookings event: "Arctic Indigenous Peoples, Displacement, and Climate Change: Tracing the Connections," January 30, 2013, https://www.brookings.edu/events/arctic-indigenous-peoples-displacement-and-climate-change-tracing-the-connections/.

37. See for example, Luís Gabriel A.Barboza, "Microplastics in Wild Fish from North East Atlantic Ocean and Its Potential for Causing Neurotoxic Effects, Lipid Oxidative Damage, and Human Health Risks Associated with Ingestion Exposure," *Science of The Total Environment* 717, May 15, 2020, https://doi.org/10.1016/j.scitotenv.2019.134625; Madeleine Smith et al, "Microplastics in Seafood and the Implications for Human Health," *Current Environmental Health Reports* 5, 3 (2018), pp. 375-86, doi: 10.1007/s40572-018-0206-z.

38. On tipping points in Arctic regimes, see the chapter by Victoria Herrmann in this volume.

39. On avoiding conflict in the Arctic, see the chapter by Alexander N. Vylegzhanin in this volume.