

**THE FAST-CHANGING ARCTIC:
RETHINKING ARCTIC SECURITY
FOR A WARMER WORLD**
Edited by Barry Scott Zellen

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2. Can We Keep Up with Arctic Change?

Alun Anderson

The Arctic is changing rapidly and unpredictably. At the end of the summer in 2011, the total area of the ice left in the Arctic was 1.78 million square miles, down from the average of 2.72 million square miles seen in the last two decades of the twentieth century. An area of summer ice six times the size of California has vanished, leaving huge expanses of open water all around the Arctic shores.

No scientist expected to see change at such a startling rate. Just over five years ago, computer models predicted that the first ice-free summers in the Arctic would not arrive for almost a hundred years; now 2030 is seen as probable and 2015 as possible for the first year in which the ice will all melt away. As the ice goes, the unique animals of the Arctic, from the charismatic polar bear and the narwhal right down to the tiny, unseen creatures that live in fissures in the sea ice, will vanish too. Other animals from the south which flourish in warmer seas will arrive to replace them.

Humans are already arriving from the south: oil, gas, and mineral prospectors, tourists anxious to see the last polar bears, trawlers looking for new fishing grounds, cargo vessels taking Arctic oil and minerals away to resource-hungry nations, and the first few ships pioneering a fast route between Atlantic and Pacific. The people who have long lived in the Arctic now see their current way of life disappearing, sometimes along with their

homes which are sinking into the thawing permafrost or being washed away by waves from newly open seas.

The five nations that ring the Arctic seas (United States, Canada, Russia, Norway, and Denmark, through Greenland) along with the other three nations which have territory within the Arctic Circle (Sweden, Finland, and Iceland) have all reacted by rewriting their policies for the High North. One broad theme runs through them: how to balance opportunities for the exploitation of resources with care for the environment and the rights of Arctic residents, while ensuring the region is free from conflict and that the Arctic nations, not outsiders, remain the key players in deciding what happens there.

A decade ago, concern over the Arctic might have stopped with these eight members of the Arctic Council, the region's only high-level forum, and the indigenous groups which have been given permanent participant status at the Council. But now environmental groups from far away and ever more distant nations demand a say in the region's future. China is busy building its second icebreaker, runs an Arctic research station and has begun investment in Arctic mines, oil, and gas. The European Union, Korea, and Japan are among many others who are scrabbling to boost their influence in the Arctic and, like China, want to gain permanent observer status at the Council.

The difficult questions of who should have what level of representation at which forums, where priorities lie between resource exploitation, environmental care, and people's rights, and which bodies should have responsibility for what, are far from resolved. Among the bigger issues that remain are how to drill safely for oil and gas, how oil spills can be effectively cleaned up, how ships can travel through the Arctic safely, how indigenous people should participate in development decisions, such as mining projects, which may bring them only a short-lived boom, which parts of the Arctic are vital to wildlife and should be totally protected, and whether some regions where ice will linger longest should be set aside as refuges for the Arctic's unique animals.

If the ice were not disappearing so fast, governments, policymakers, and Arctic residents might be able to keep up. But the pace is such that they must act faster or risk being left behind as the environment changes and new commercial interests rush in. The speed of change is perfectly symbolized by the voyage taken by eight Russians on a 60-foot yacht in 2010. They sailed the *Peter 1* right around the Arctic, first through the Northern Route from Murmansk across the top of Siberia to Alaska and then on, through the Northwest Passage to emerge in eastern Canada just ten weeks later, with ice

hardly ever an obstacle. A century or so ago, when Baron Nordenskiöld and Roald Amundsen sailed separately along these routes for the first time, an equivalent voyage would have taken six years. Perhaps the only phrase that truly captures the current speed of change in the Arctic, whether it's vanishing ice, thawing permafrost, rising temperatures, or the opening of Russian, Norwegian, and Greenlandic waters to oil exploration is "faster than anyone predicted." Action to look after the Arctic must accelerate too.

Russia Takes Off

Open a U.S. newspaper with a headline "Saving the Arctic" and you might think there is still time left. You'll likely be reading about the battles between big oil, indigenous people, and environmentalists in Alaska, which have held up oil exploration in the nearby seas. But Alaska is only a small slice of the Arctic. Elsewhere, there has already been a rapid move to exploit the Arctic seas, with Russia leading the pack, Norway coming up rapidly behind, and Greenland now taking off. Whatever environmentalists say, it is simply far too late now to "save the Arctic" with a pan-Arctic moratorium on its exploitation, as Greenpeace and others have called for. The issue now is to catch up and ensure that Arctic change is managed effectively.

Russia has been first to take advantage of the opening seas, escorting ever-larger vessels through the Northern Route across the top of Siberia with its powerful nuclear ice breakers. In 2010, for the first time, a 100,000-ton tanker, the *Baltica*, sailed from Murmansk to China. The transit took ten days. The same year, a special ice-breaking ore carrier went from the mines at Norilsk in Siberia to China and back without an accompanying ice-breaker.

The 11,320-mile round trip to Shanghai took only forty-one days, a huge saving over the usual 24,100-mile, 84-day journey through the Suez Canal. As Mikhail Belkin, Assistant Director of Rosatomflot, the Russian organization running its nine atomic icebreakers and one atomic container ship, put it in January 2011, "we proved that the Northern Sea route is navigable for huge commercial vessels.... the route is now economic and politically open for any vessel [of the right ice class] from any country."¹ Belkin considers that it is only a matter of time before the route can be kept open six to seven months a year with the right ships and icebreaker support. The 2011 season strengthened that view: it was the longest on record by a month with the first oil tanker



FIG. 1. POLAR VIEW. LOOK DOWN ON THE ARCTIC AND THE IMMENSE SPAN OF COASTLINE BELONGING TO RUSSIA STANDS OUT, WITH CANADA, NORWAY, GREENLAND, AND THE UNITED STATES HAVING MUCH SMALLER OCEAN FRONTAGES. OVERLAPPING CLAIMS FAR OUT IN THE ARCTIC SEAS WILL NEED NEGOTIATION TO SETTLE. (GRAPHIC: NIGEL HAWTIN.)

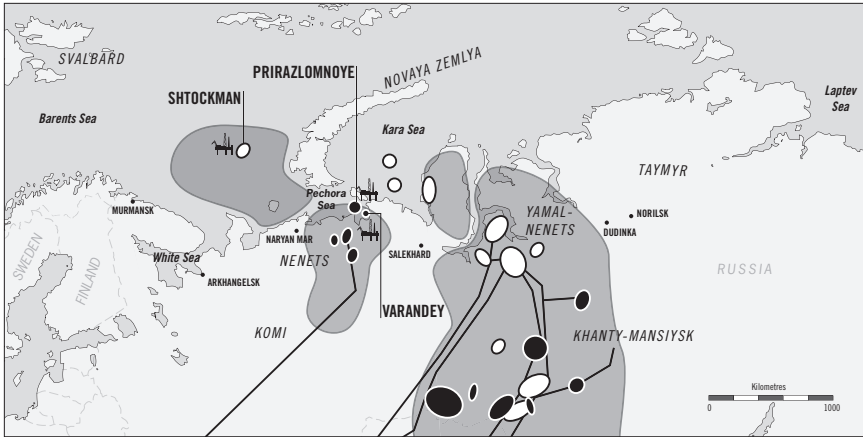


FIG. 2. ARCTIC OIL. THE RUSSIAN OIL AND GAS INDUSTRY HAS LONG BEEN ACTIVE IN THE ARCTIC AND IS NOW PUSHING INTO THE SEAS AT PRIRAZLOMNOYE AND SHTOKMAN AND INTO THE FAR NORTH ALONG THE YAMAL PENINSULA. HYDROCARBON BASINS ARE SHOWN IN GRAY, WITH EXPLOITABLE OIL RESERVES IN BLACK AND GAS RESERVES IN WHITE. BLACK LINES SHOW THE PIPELINES CONNECTING THE ARCTIC FIELDS TO THE SOUTH. (GRAPHIC: NIGEL HAWTIN.)

passing through at the end of June and the last in mid-November. Traffic is expected to boom, with Russia's Ministry of Transport predicting a thirty fold increase this decade, although most ships will be carrying raw materials out of Russia's North rather than taking a short-cut between Atlantic and Pacific. New and bigger nuclear icebreakers to escort traffic will be built, with the first planned for 2017, along with a chain of search and rescue centers.

Russian oil and gas companies are also moving north, both on land and into the sea. Foreign partners are currently welcome for their offshore drilling expertise and are cautiously forming partnerships with Russian ones, for while they are needed now, control of natural resources will always be Russia's top political priority.

In March 2011, the world's northernmost railway line running 350 miles across the permafrost and up into the middle of the Yamal peninsula was completed, opening up access to the huge Bovanenkovo field, which contains enough gas to supply the whole of Europe for a decade. The peninsula is best

known for its nomadic reindeer herders, but they now must adapt to industrial development. A pipeline will take the gas west, back to Europe, beginning delivery in 2012, and a liquefied natural gas (LNG) terminal, to be built with help from France's Total, will provide access to the Northern Route for exports east.

In August 2011, Russia's first true offshore Arctic oil production facility was towed out to its home, forty miles offshore in the Pechora Sea. The giant steel platform, over 330 feet wide and weighing 100,000 tons, was weighted with another 400,000 tons of ballast to hold it firm on the sea bed, sixty-five feet below. Its first winter showed that the structure's enormous strength and weight were sufficient to defeat the crushing Arctic ice. A set of curving drill pipes will tap the reservoir beneath the sea bottom.

Much further out, almost four hundred miles from shore, work is continuing at Shtokman, the second-largest gas field in the world. This is the most ambitious engineering project in the entire Arctic. Here the water is much deeper (1,000 feet), so a production platform must float rather than sit on the sea bottom and deal with heavy fast-moving ice and occasional huge icebergs. A planned pipeline carrying the gas to shore will be longer than any built in this environment. Gazprom, Norway's Statoil and France's Total are working together on the project but when it will come into production – with 2018 an early forecast – depends on world gas prices and Russia's tax policies. The sudden rise of fracking techniques to exploit shale gas has upended predictions on future gas prices and raised doubts that Shtokman can be profitably exploited now, just as it has thrown doubts on plans to build pipelines to exploit stranded gas reserves on Alaska's North Slope and in Canada's Mackenzie River delta.

In another ambitious move into Russia's Arctic seas, Exxon is teaming up with Rosneft to explore a rich oil field to the east of Novaya Zemlya in the Kara Sea. Here the water is around three hundred feet deep, likely too deep to produce oil using a bottom-grounded structure like that at Prirazlomnoye. With ice cover for two-thirds of the year, the challenges are formidable. New technologies will have to be developed for floating production vessels that can cope with the ice, or for sea-bottom facilities that can work continuously beneath the ice. No one has ever produced oil in these conditions, yet alone tackled an oil spill. If the challenges of the Kara Sea can be safely overcome, the rest of the Arctic may look much easier to the oil industry,

Norway is now also rushing north, partly because of the surprise settlement in 2010 of its long-running sea border dispute with Russia and partly because its oil fields in the North Sea are running dry. In 2012, Norway and Russia followed up with an agreement to assess jointly the technology they would need for these previously disputed waters with production licenses expected as early as 2013–14. Encouraging news has already arrived from Norway's Arctic waters further to the west. In 2011, Statoil discovered a huge oil field at Skrugard, 125 miles out from land, and in early 2012, a second field close by.

Greenland too has embraced oil exploration in its coastal waters, despite heavy ice in winter and constant protests from Greenpeace boats. But Greenland has not been so lucky: exploration company Cairn Energy has spent over a billion dollars without yet hitting substantial oil reserves. Arctic oil exploration is a high-risk business.

Back in North America, the exploitation of the Arctic seas is proceeding much more cautiously. Shell began drilling exploration wells in Alaskan waters only in 2012 after over five years of delay, at immense expense, due to legal challenges. ConocoPhillips has announced plans to follow in 2014. The priorities are very different. Russia must move fast as its wealth and power come from energy. In 2007, the energy sector accounted for one-third of Russia's GDP, 60 per cent of its exports, and half of all government revenue. With existing oil and gas developments passing their peak, Russia must develop more; lawsuits do not stand in its way, and warnings of risks from environmental groups and the worries of reindeer herders are not slowing it up. Norway too needs oil; it is the world's eighth-largest oil exporter and the second largest gas exporter and relies totally on energy to support its exceptional standard of living. For Greenland, dreams of independence from Denmark for its 56,000 residents depend on exploiting petrochemicals in its sea and minerals on land.

Canada is the only Arctic nation where offshore oil exploration is on hold, although leases have been sold. Progress has been made on regulation. In late 2011, Canada's National Energy Board, reacting to the Gulf of Mexico disaster, stuck with rules that a company drilling in the Arctic would have to be capable of drilling a second relief well in the same season – which may be very short if winter ice is closing in – should there be a blowout.

Like Russia, North America has seen a boom in shipping too, but not because the Northwest Passage is opening for trade. Rather tourists and cruise

ships are flooding to the Arctic, sometimes sailing into dangerous, uncharted waters. “Four years ago, we used to have 25 large tourist ships [around Greenland],” says Aqqaluk Lynge, chairman of the Inuit Circumpolar Council (ICC), “but last year [2010] we had more than 200.”²² It is just luck that so far there have been only groundings and no major disasters.

Cooperation not Conflict?

Amid this rapid change, there has been a remarkable outbreak of political cooperation, rather than conflict, among the Arctic nations. It didn’t always look that way. Back in August 2007, when a Russian miniature submarine planted a titanium flag on the seabed beneath the North Pole, many western politicians panicked, thinking that Russia planned to seize territory the old-fashioned way and a new era of territorial conflict was looming. That has proved false.

At in a meeting in Ilulissat in Greenland hastily arranged by Denmark soon after the Russian flag reached the seabed, the “Arctic Five” killed any idea of an aggressive race to seize the North Pole and recognized that, “an extensive international legal framework applies to the Arctic Ocean.” That legal framework is the Law of the Sea (UNCLOS), which rules that an “extended continental shelf” can only be claimed through geological data that proves the sea bottom is a true, shallow extension of the land. After Ilulissat, all the frontline states have been gathering data to extend their claims and have been doing so cooperatively, often sharing research cruises.

Even better news came three years after the flag planting, when Russia unexpectedly resolved its contentious forty-year-old Arctic border dispute with Norway. The new border line was ratified unanimously by the Norwegian parliament in February 2011, removing at one stroke the Arctic’s most dangerous dispute for a NATO–Russia confrontation.

Other cooperative efforts are following. The eight Arctic nations that are full members of the Arctic Council, signed an agreement to coordinate their search-and-rescue operations across the Arctic in Nuuk, Greenland, in May 2011.

Such a flurry of cooperation is welcome. But the Law of the Sea can’t settle all potential territorial disputes among the Arctic Five. From the geological evidence that is now pouring in, it seems likely that Russia, Canada,

and Denmark-Greenland, will all have legitimate but overlapping claims to enormous areas of their nearby shallow shelf seas as well as along the shallow ridges that cross the Arctic. The question of who owns the Arctic will become one of how to settle boundaries when legitimate overlapping claims meet far out to sea. The Law of the Sea leaves it to the nations concerned to negotiate their boundary lines.

That is a job for the future and does not suggest a return to the bad old days of the Cold War when there were NATO bases in northern Norway, Greenland, and Iceland facing Soviet bases in the Kola Peninsula, with both sides ready for an invasion by the other. As Rear Admiral Trond Grytting, chief of the regional military crisis headquarters in Bodo on the north coast of Norway, put it in 2009: “the Cold War danger of inter-state or industrial war is today considered close to irrelevant in the north simply because it is impossible to see what can be gained. Military confrontation and tactical engagements in order to achieve political objectives can on the other hand not be ruled out.”³

Certainly there may be “tactical engagements” intended to gain concessions in other disputes, including those far from the Arctic.⁴ Europe is very dependent on Arctic gas already. Overall, the EU takes around one third of its gas supplies from Russia, one third from Norway and one third from elsewhere. As Russia and Norway explore the High North, Europe will become ever more dependent on the Arctic and on pipelines, including the new Nord Stream pipeline running through the Baltic all the way back to Yamal, for its energy. The fate of the EU and the Arctic are entwined. New trade routes opening through and around Russian waters will create new dependencies, involving China and the Far East too, with China and perhaps Japan set to take LNG from the Russian Arctic. Warming seas will also mean that valuable fish stocks will move in out of different fishing zones; some nations may gain but other lose badly and agreements may be disputed.

In response to the changing situation, Nordic countries, some of them NATO members (Iceland, Denmark, and Norway) and some not (Sweden and Finland), may move towards closer regional military cooperation. In 2009, an influential report from former Norwegian foreign minister Thorvald Stoltenberg pointed out the “increasing geopolitical and strategic importance following the Nordic waters’ role as production and transit area for oil and gas to the European markets and the development of the Arctic” and called for joint air, maritime, and satellite surveillance and sharing of military

resources.⁵ “None of the Nordic countries will over the next 15–20 years be able to uphold the quality of their armed forces without engaging in a closer Nordic cooperation,” Stoltenberg wrote. In January 2011, the British Prime Minister hosted the first Nordic–Baltic summit of prime ministers from Denmark, Finland, Iceland, Norway, Sweden, Estonia, Latvia, and Lithuania. That followed a meeting of defense ministers which the British defense minister explained had as one goal “that we create a NATO entity that Finland and Sweden feel a little more comfortable with, that we give further security to article 5 [mutual defense] in the Baltic states by being a nuclear power as part of that grouping, and that as a NATO grouping we are better able to deal with regional disputes with Russia.”⁶ The Russian media reacted unfavorably to what they saw as an attempt to create a new “mini-NATO” of the North. The following year, in March 2012, Britain signed a new agreement with Norway, its key supplier of gas, to enhance defense cooperation.

A Babble of Voices

The creation of new groupings and alliances highlights the bigger problem facing Arctic governance. A growing number of Arctic and non-arctic nations, as well as sub-national and cross-national groups, alongside numerous NGOs, now want to have a louder voice in Arctic affairs, and they do not want to leave decisions to the club of the “Arctic Five.”

Finland, Sweden, and Iceland are Arctic nations that lack that prime location facing the Arctic seas, although they have territory within the Arctic. Although members of the Arctic Council, they were alarmed to be left out of the key meeting in Ilulissat organized by the coastal nations. Iceland is surrounded by sea but is just a little too far south to be a true Arctic seas nation. That is not how the Icelanders see it though. “We consider ourselves to be an Arctic coastal state,” said Össur Skarphéðinsson, Iceland’s Minister of Foreign Affairs, in January 2011, “we want to be included not excluded in deliberations on the Arctic region.”⁷

Other nations and transnational groupings, including Japan, Korea, China, and the European Union, also want a seat at the Arctic table, now that its potential as a short-cut across the top of the globe and its enormous resources are apparent. China’s rapid increase in the interest in the Arctic is particularly striking.

The largest embassy in Iceland belongs to China. Should a trade route open between the Pacific and the Atlantic, Iceland is well placed to provide a hub port at its Atlantic end. Several high-level delegations from China, and one from Singapore, an established Asian hub port, have visited Iceland, although nothing concrete has been agreed. "I'm feeling like a girl at her first dance, being flattered by all the attention," Foreign Minister Skarphéðinsson joked.⁸ Soon that attention may grow serious. Ships with Chinese crew and with cargoes bound for China have been among the first through the northern passage. The oil, gas, and mineral wealth of Russia and Scandinavia's Arctic region are of tremendous interest to China and the northern route may place them within easy reach. In November 2010, the China National Petroleum Corporation moved quickly to sign an agreement with the Sovcomflot Group to develop "the transportation potential of the Northern Sea Route, both for delivering transit shipments of hydrocarbons and for the transportation of oil and gas from Russia's developing Arctic offshore fields."⁹

Chinese mining companies have also shown strong interest in Greenland, which is rich in minerals and has large deposits of rare-earths, essential in many high-tech devices, and over which China has recently had a near monopoly. Greenland has a strong desire for autonomy, but it lacks the skills needed to build a mining industry; its future choice of partner may potentially bring in management, capital, and guest workers from far away and change the Arctic's political balance.

Then there are cross-national groups demanding greater control over the Arctic. Most powerful of them are the Inuit, with 100,000 of them living in Greenland and Canada and smaller numbers in Alaska, and just 1,600 remaining in eastern Russia. There are the Saami people, living across Norway, Sweden, Finland, and the Kola Peninsula of Russia who are moving towards greater unity; and many different indigenous groups spread across the top of Siberia.

The Inuit are of special importance as they have gone furthest towards gaining autonomy. Greenland, with 87 per cent of its 56,000 population Inuit, voted in 2008 to move towards economic independence from Denmark, which currently provides an annual subsidy equivalent to \$10,000 per head, and on to political independence.

In the enormous Canadian Arctic territory of Nunavut, created in 1999, 85 per cent of the 30,000 population are Inuit and many powers have been devolved to its territorial government. It is no secret that Nunavut residents

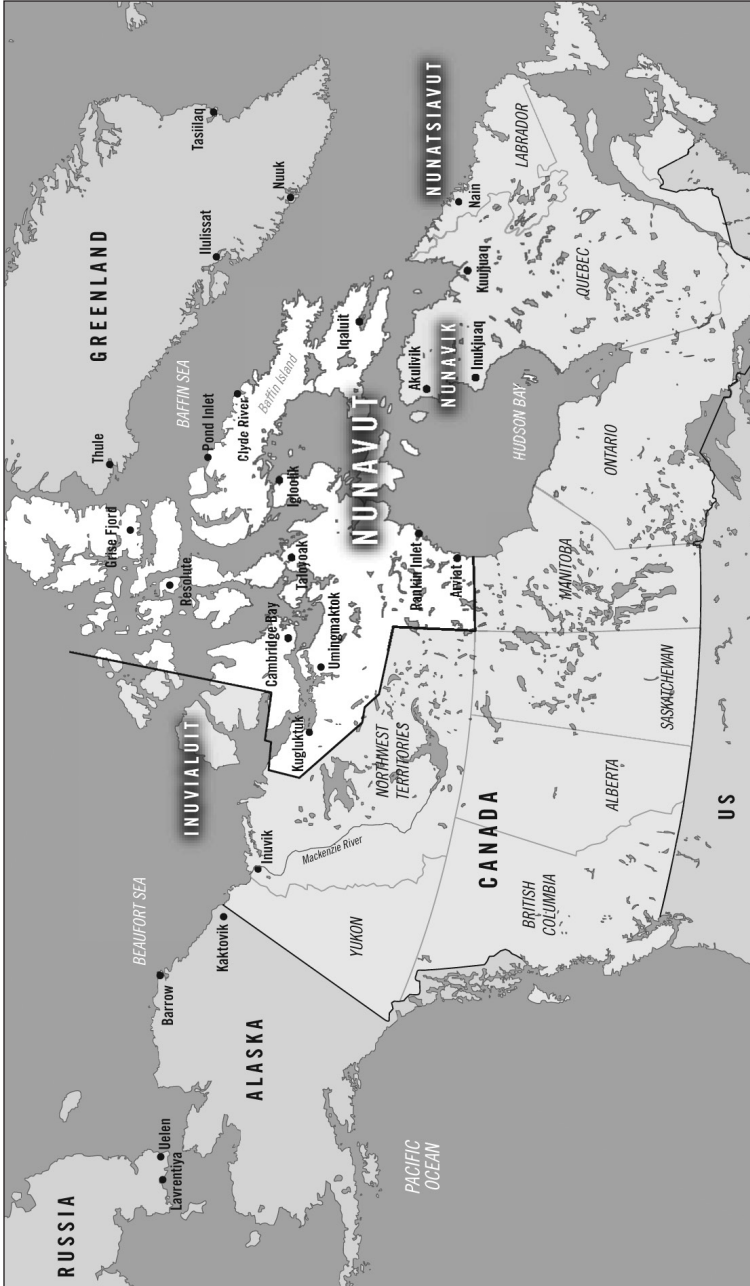


FIG. 3. INUIT HOMELAND. GREENLAND AND THE CANADIAN TERRITORY OF NUNAVUT HAVE A COMBINED POPULATION OF ALMOST 90,000 PEOPLE. OVER 85 PER CENT OF THEM ARE INUIT, AND THEY ARE DEMANDING GREATER AUTONOMY AND A LOUDER VOICE IN ARCTIC AFFAIRS. (GRAPHIC: NIGEL HAWTIN.)

would like to see far greater devolution, with powers over their own affairs more akin to that of a Canadian province, rather than a territory. Canada has ten provinces and three territories, and a devolution agreement-in-principle between the Northwest Territories and the federal government, signed in 2011, has raised hopes that Nunavut too will gain control over the royalties that would flow from oil and mines.

Inuit across the Arctic are increasingly speaking with one voice through the ICC, especially as they have felt left out of discussions among the Arctic Five. In February 2011, Inuit leaders met in Ottawa to seek a common front on the kinds of Arctic mining and offshore drilling they should support. They did not agree on everything, in part because of Greenland's special enthusiasm to develop its resources. But leaders have always agreed that Inuit must be the first to benefit from minerals or oil found on their territories. "We cannot let industry from the outside simply walk in and take what we believe is not theirs," says ICC chairman Lyngge. "When Arctic resources are taken from our homeland, who will ultimately benefit? Is it those who have lived in the Arctic for thousands of years? Or is it those from the outside? Is the language of investing just a camouflage for taking?"¹⁰

The position of indigenous people has been strengthened by the UN Declaration on the Rights of Indigenous People, adopted in 2007. Among other things, it specifies the right to redress for any resources taken from their lands without their "free, prior and informed consent." Although it is a non-binding declaration, it has won support from the Obama administration and reluctant support from Canada.

With so many voices demanding to decide the future of the Arctic, the key issue is how they should all be represented and what legal regimes should apply. The Arctic Council is the region's most important high-level forum, with decisions reached by consensus among the eight Arctic states along with "permanent participation" from the ICC and five other indigenous groups. A range of non-governmental organizations have permanent observer status, as do representatives from France, Germany, Poland, Spain, the Netherlands, and the United Kingdom.

The council has no authority to make laws or set regulations, but it has been able to steer the priorities of the Arctic nations and issue authoritative reports (on Arctic climate change, for example), which have driven action by other bodies. Although the council lacks power, it has enormous influence. A strengthened Arctic Council is generally seen as the best hope of bringing all

those with an interest in the Arctic together. A key issue is that the EU, China, Korea, Italy, and Japan have so far been denied permanent observer status at the Council, with the EU having significant disagreements with some members of the Council.

The EU contains Arctic states in Finland and Sweden (Denmark is an EU member but semi-autonomous Greenland quit in 1985 over fishery policy) and Iceland is seeking to join, but the union has met vigorous criticism from Inuit within Canada and Greenland. They are angry at bans on importing seal products into the EU, imposed by the European parliament to please animal rights activists. Many Inuit communities that exported sealskin in the past have been seriously hurt.

There are also differences between the EU and Norway over the status of the potentially oil-rich seas around the islands of Svalbard. Norway, which has sovereignty over Svalbard, sees them as part of its own continental shelf while the EU regards them as included within the unusual arrangements that give right to exploit Svalbard's wealth to all signatories of the 1920 Svalbard treaty (see "The Strange Case of Svalbard" in *After the Ice: Life, Death and Geopolitics in the New Arctic*, for a fuller explanation). A decision on permanent observer status for the EU, China, and others was expected at the Council's meeting in 2011 but has been delayed until 2013.

Beyond that, there is a consensus that the Council will have to meet more often, must have more resources to back it up with a permanent secretariat to be established in Tromsø, Norway, by 2013, and be more inclusive, but without imposing on the special rights and requirements of Arctic residents.¹¹

New Rules from Old

Clearly much remains to be done. If there are no agreed rules to stop them, ships that aren't really suitable for the Arctic could travel there and risk oil spills. Among those ships there may be over-enthusiastic tourist liners, drug smugglers, and even terrorists seeking unpoliced routes. And there will certainly be pirate fishing boats, which will chase new stocks as they move into the newly warming Arctic. Ships are very mobile, and fish, whales, birds, and drifting oil spills don't recognize national boundaries, so it is not effective for each part of the Arctic to make up its own regulations. Nor can bodies that are responsible for just one sector (shipping or fishing, for example) build the

best set of rules to protect the Arctic environment if each tackles its problems independently. Stresses from different causes (pollution plus overfishing, for example) add up, so the only effective way to look after the Arctic is by “ecosystem-based management,” which looks at all the impacts from different causes as a whole. To move such an approach forward, far more data are needed about the “baseline” conditions in the Arctic: a recent fisheries study, for example, showed that the amount of fish being taken from the Arctic has been vastly underestimated¹² with the total catch 75 times higher than reported.

There is much in existing international rules and the Law of the Sea that can help. The Law of the Sea’s Article 234 on “Ice-Covered Areas” allows states to apply rules on pollution that are stricter than international standards within their exclusive economic zones if they are ice-covered. Article 211(6) on “Pollution from Vessels” provides opportunities to protect defined areas that have special “oceanographical and ecological” conditions, after consultations through “the competent international organization.” The International Maritime Organization (IMO) is one such organization. Annexes to its International Convention for the Prevention of Marine Pollution from Ships (MARPOL) allow “special areas” to be protected, which can include entire seas. The Mediterranean and Baltic seas have special protection against oil spills, for example.

Critical habitats can be identified as “Particularly Sensitive Sea Areas.” Once an area is approved, as the seas around the Galapagos Islands and the Great Barrier Reef have been, maritime activities can be controlled and ships re-routed. Again, the lack of past long-term Arctic monitoring meaning there are not yet enough data to be clear how many regions deserve special protection. In 2011, the International Union for Conservation of Nature and the Natural Resources Defense Council made a first attempt, listing thirteen especially vulnerable areas. Action is needed immediately and so too is far more research.

The IMO also has a voluntary Polar Code (the IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters), which it is now working to strengthen and make mandatory under its International Convention for the Safety of Life at Sea (SOLAS). It might seem strange, given the potential environmental damage from a ship wreck, that the Arctic lacks rules for ships that go there. Any rust bucket can set sail without an ice-strengthened hull, or a crew trained in ice navigation, into regions where there are no up-to-date

charts and rescue many days away. Despite the obvious urgency, progress in re-writing the code is slow. Many nations are involved, and some have strong interests in the Arctic while others are more interested in shipbuilding and running shipping lines. Release of the draft code has already been delayed from its initial 2012 target and will not be ready before 2014 at the earliest, with further delays likely.

There are obvious gaps in Arctic governance. The Arctic Council has no mandate to deal with security or military issues. The Council has a weak interface with industry – including all those big international companies that are rushing to exploit the Arctic. Although international rules have been set up to deal with ships and fish, which move among different nations' waters, regulation of the oil and mining industry, and the way in which environmental risk are assessed, are dependent on each state's separate legislation, even though oil spills travel. That is why the ICC is now calling for an international fund to deal with compensation for Arctic oil spills. A hopeful sign is that Norway, which has some of the best ecosystem management and oil-drilling safety rules, may set high standards as it works with Russia in the Barents Sea.

Oil companies themselves have been running cooperative research project on oil spills and certainly don't want accidents; in 2012, they announced that they would expand past efforts in a new nine-company Joint Industry Program.¹³ But history teaches that industry and regulators rarely have all the answers when they enter new territory and that disasters are the key drivers of change. The first international conventions on safety of life at sea were agreed upon after the *Titanic* sank; MARPOL was precipitated by the huge oil spill from the AMOCO Cadiz, and the *Exxon Valdez* disaster drove the switch to double-hulled tankers. The Deepwater Horizon Commission report summed up the problem when they wrote that the U.S. regulatory system is "fundamentally reactive and incapable of driving continuous improvement in policies."

Rapid change is taking us to an uncertain future. Arctic nations and all these other groups may cooperate, or quarrel, over long lists of things that each group feels are urgent. Perhaps a bigger set of rules and structures may be successfully put in place within the overall constitution provided by the Law of the Sea and looked after by the Arctic Council. Or maybe the five nations that front the Arctic will try to slam the door on everyone else, or each will go its own way. We may see cooperation, conflict, or a patchwork of partial solutions. The worst prospect is that the Arctic may simply outrun

any attempt to govern it. The nightmare scenario would be a combination of environmental crisis and species extinctions, unregulated development and profiteering, disenfranchised indigenous peoples, and unresolved border disputes.

The Arctic ice could be approaching a tipping point at which it disappears ever faster, putting more stress on indigenous communities and opening up more parts of the Arctic, without time to make the best decisions. In the United States, it takes an estimated ten to fifteen years to win the budget for a new icebreaker and then design and build it. In a Korean yard, a new commercial icebreaking oil tanker can be ready in three months. If the ice vanishes in five or ten years, not thirty, the government of the Arctic and the protection of its environment and people could easily slip out of control while there is still just a babble of competing voices. And if that happens, as it may well do, the Arctic could take a wider revenge on the rest of the world. Already the Arctic's warmer seas are changing wind patterns and beginning to affect weather further south: as the ice vanishes, cold winds blast into Europe, bringing severe winters. Further ahead, when the huge dome of sparkling white ice which has covered the top of the globe for thousands of years disappears, we can expect huge releases of methane from thawing permafrost which may change the climate of the entire world.

Notes

- 1 Arctic Frontiers Conference, Tromsø, January 2011.
- 2 Ibid.
- 3 Arctic Frontiers Conference, Tromsø, January 2009.
- 4 Deutsche Welle, "Norway defends energy exploration in Arctic," *DW-World.de*, January 25, 2011; <http://www.dw.de/norway-defends-energy-exploration-in-arctic/a-14785116>.
- 5 Thorvald Stoltenberg, "Nordic Cooperation on Foreign and Security Policy: Proposals presented to the extraordinary meeting of Nordic foreign ministers in Oslo on February 9, 2009,;" http://www.mfa.is/media/Frettatilkynning/Nordic_report.pdf.
- 6 House of Commons Daily Hansard, November 8, 2010; <http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm101108/debtext/101108-0001.htm>.
- 7 Arctic Frontiers Conference, Tromsø, January 2011.
- 8 Ibid.
- 9 Sovcomflot Press Centre, "Sovcomflot Group and China National Petroleum Corporation Become Strategic Partners," November 22, 2010; <http://www.sovcomflot.ru/npage.aspx?did=75963>.
- 10 Arctic Frontiers Conference, Tromsø, January 2011.
- 11 The Arctic Governance Project; <http://www.arcticgovernance.org/>.
- 12 D. Zeller, S. Booth, E. Pakhomov, W. Swartz, and D. Pauly, "Arctic fisheries catches in Russia, USA and Canada: Baselines for neglected ecosystem," *Polar Biology* 34 (2011): 955.
- 13 Arctic Frontiers Conference, Tromsø, January 2012.