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THE NEED FOR A REGIONAL AGREEMENT ON MANAGEMENT AND
CONSERVATION OF THE ARCTIC MARINE ENVIRONMENT



This report, commissioned by WWF, was written by Dr. Rob Huebert, University of Calgary, and Brooks B. Yeager, former Deputy Assistant Secretary for Environment U.S. State Department. © January 2008

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CONTENTS

Executive Summary	2
About the authors	3
Introduction	4
Section 1: Climate Change and the New Arctic	6
Section 2: Evolution and Limitations of the Current Cooperative Framework in the Arctic	18
Section 3: Creating a Stronger Management Framework for the Arctic	24
Section 4: Potential Benefits of a Regional Treaty for Management of the Arctic	28
Conclusion	33
Appendix A: UNCLOS and the Arctic	34
Appendix B: Other International Agreements Relevant to the Arctic	37

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EXECUTIVE SUMMARY

The Earth's Arctic – the legendary home of the polar bear, the walrus, and the intrepid Inuit hunter – is at the threshold of historically unprecedented ecological change. This change, forced by accelerating global warming, will drastically alter the fundamental conditions of life in the Arctic over the next few decades. The impacts of this change will be felt, not just by wildlife, but by the 4 million people who live on the margins of the Arctic Ocean, and particularly by the traditional communities who derive their subsistence from its marine mammals and fisheries. This change will also present new opportunities for development in this remote and previously inhospitable region. To ensure sustainable development for the region's people, and the protection of the region's natural and living resources, these opportunities must be managed in a coordinated way by the Arctic nations.

The 2004 Arctic Climate Impact Assessment (ACIA) and even more recent climate research clearly show that climate change is altering the fabric of the entire polar region. There is already clear evidence that the melting of the ice cover is having an impact on the flora and fauna of the region. As the ice melts, the ecosystem of the Arctic is being transformed; ice-dependent species indigenous to the region, such as polar bear, walrus, ringed seal, murre and ivory gull appear to face a dire future.

At the same time, opportunities are expanding for economic activities and development of the Arctic region's plentiful natural resources. Three new development opportunities in particular – the prospect of new shipping routes, expanded oil and gas development, and new commercial fishing – could generate system-wide environmental impacts and will therefore likely pose novel management challenges for the arctic nations.

Over the past fifteen years, the arctic nations have established an initial framework for cooperation in addressing issues of mutual concern in the Arctic. The existing cooperative framework, embodied in the Arctic Council, is characterized by a 'soft law' or essentially voluntary approach, reflecting the lack of appetite of at least some of the Arctic governments for more strenuous treaty arrangements. Issues are generally brought forward for consideration first and foremost as technical issues, with the result that a priority has been placed on scientific research and problem identification, with less emphasis on cooperative remedial action. The existing arrangement is also a 'low-cost' approach, with no permanent secretariat and few real resources for cooperative action.

To be effective, a strengthened management framework for the Arctic must be comprehensive and ecosystem-based, must provide for the effective management of human activities in the Arctic so that the region's living resources can be conserved, and must assure that development is sustainable and does not neglect the welfare of traditional communities.

There are a number of steps that can be taken in order to move towards such a framework, including steps to strengthen the existing Arctic Council and give it more decision-making power. However, there are also built-in limitations to a forum-based collaborative approach such as the Council. Other available approaches, for which there are useful models in other regions, include the establishment of a regional fisheries management organization or a regional sea agreement under the United Nations Convention on the Law of the Sea (UNCLOS), each of which would require negotiations among the arctic governments. Ultimately, it appears that a regional treaty arrangement could form the strongest basis for a management framework capable of conserving the Arctic's living resources and making sure that existing and new economic activities in the region are sustainable for the future.

INTRODUCTION

The Earth's Arctic – the legendary home of the polar bear, the walrus, and the intrepid Inuit hunter – is at the threshold of historically unprecedented ecological change. This change, forced by accelerating global warming, will drastically alter the fundamental conditions of life in the Arctic over the next few decades. The impacts of this change will be felt, not just by wildlife, but by the four million people who live on the margins of the Arctic Ocean, and particularly by the traditional communities who derive their subsistence from its marine mammals and fisheries. This change will also present new opportunities for development in this remote and previously inhospitable region. There will be the potential for new commercial shipping, more extensive oil and gas development, and perhaps new fisheries. To ensure sustainable development for the region's people, and the protection of the region's natural and living resources, these opportunities must be managed in a coordinated way by the nations most directly affected – the arctic nations¹.

The 2004 Arctic Climate Impact Assessment (ACIA) and even more recent climate research clearly show that climate change is altering the fabric of the entire polar region.² Temperatures in the region are rising at a rate faster than in any other area on earth. On land, permafrost is melting under previously stable tundra, and bushy vegetation is transforming the tundra surface. In the marine environment, sea temperatures are rising, and the formerly permanent ice pack is thinning and receding, with some scientists predicting that the Arctic Ocean could be virtually ice-free in summer by 2050. There is already clear evidence that the melting of the ice cover is having an impact on the flora and fauna of the region. As the ice melts, the ecosystem of the Arctic is being transformed; ice-dependent species indigenous to the region, such as polar bear, walrus, ringed seal, murre and ivory gull appear to face a dire future³. At the same time, there is some indication that subarctic species such as salmon and puffins may have already begun to move northward into the area.

The recession of the pack ice and the other environmental changes are also expanding opportunities for development of the Arctic region's plentiful natural resources. Three new development opportunities in particular – the prospect of new shipping routes, expanded oil and gas development, and new commercial fishing – appear likely to pose novel management challenges for the arctic nations.

Climate change is not the only factor in the transformation of the Arctic, though it is the most powerful global force affecting the region. The Arctic is also affected by global pollution and in particular through the contamination of the arctic food chain by persistent organic pollutants (POPs) such as PCBs, dioxins, and DDT.

Global demand for oil, gas, and precious minerals has pushed development in the Arctic, despite the region's remoteness and hostile environment. Diamond finds in the Canadian north have transformed the country from a non-producer to the third biggest producer of diamonds in less than ten years. The United States is looking to northwest Alaska and to the Chukchi and Beaufort Seas for new sources of oil and gas to meet its expanding energy needs. Russia and Norway are planning new oil and gas developments in the northern Barents Sea. In short, a new resource rush in the Arctic has already commenced.

¹ Nations that are members of the Arctic Council are: Canada, Denmark, Iceland, Norway, Sweden, Finland, Russia, and the United States. Of these, Canada, Denmark, Norway, Russia, and the United States have coastal zones abutting the Arctic Ocean.

² Arctic Climate Impact Assessment (ACIA), *Impacts of a Warming Arctic* (Cambridge: Cambridge University Press, 2004). See also "Sweeping Change Reshapes Arctic," *Seattle Times*, 1 January 2006.

³ "Warming Arctic is Taking a Toll – Peril to Walrus Young Seen as Result of Melting Ice Shelf," *Washington Post*, 15 April 2006.

Over the past fifteen years, the arctic nations have established an initial framework for cooperation in addressing issues of mutual concern in the Arctic. The cooperative framework, which started with a series of wildlife treaties and the establishment of the Conservation of Arctic Flora and Fauna Committee in 1991, evolved in 1996 into a more comprehensive arrangement, the Arctic Council, at the initiative of Canada.

Over the same general period, northern indigenous peoples have increasingly sought – and in many cases gained – greater political representation in their home countries. Some arctic states have devolved significant political power and administrative jurisdiction to their northern peoples. At the same time, indigenous peoples have achieved more representation on international bodies, including the Arctic Council. Indigenous traditional knowledge has gained increasing acceptance by the science community, and increasing influence in policymaking⁴⁵.

In sum, the Arctic is in great transformation. This transformation will alter the face of the region and especially the arctic marine environment. The most critical factors causing change in the Arctic are global in nature, and the consequences, in terms of ecological changes and new development opportunities, will affect the entire arctic region. No state acting on its own can manage these changes properly. The question is whether the arctic nations are willing and able to strengthen their existing cooperative arrangements to manage this transformation conserve the critical resources of the arctic marine environment, while ensuring that northern peoples can benefit from the new opportunities and at the same time protect their traditional way of life. This is a daunting task that needs to be tackled sooner rather than later. The longer the delay in developing international cooperative measures, the more likely it is that unplanned and unregulated development will damage the very resources most necessary for a sustainable future in the Arctic.

The purpose of this paper is to explore the impending changes in the arctic environment, assess the development pressures that may be building in the region, and discuss the need for new cooperative management measures to assure that arctic wildlife and natural resources can be protected and that future development of the region can be sustainable.

⁴ Wohlforth, The Whale and the Supercomputer, North Point Press, 2004

⁵ Cf. Arctic Climate Impact Assessment, Cambridge 2004.

SECTION 1: Climate Change and the New Arctic

Climate change – perhaps the most significant long-term environmental threat facing the globe – has already become the single most powerful factor reshaping the environment of the Arctic. There is a powerful scientific consensus that it is human activity, through the production of excess carbon dioxide and other greenhouse gases, which is altering the global climate.⁶ One of the most significant findings of modern climate science for the Arctic is that the polar regions are the most vulnerable to change.⁷ Many scientists believe that the polar regions will experience significant loss of ice cover in the coming decades.⁸ While the rate of the melt is disputed, the process has clearly already begun. Both western science and the observations of the northern peoples show that increasing temperatures are already having wide-scale impacts in the region.⁹

Arctic Climate Impact Assessment (ACIA)

In an effort to better understand the range of probable impacts to the arctic environment, the Arctic Council commissioned two of its working groups – the Arctic Monitoring and Assessment Programme (AMAP) and Conservation of Arctic Flora and Fauna (CAFF) – and the International Arctic Science Committee (IASC) to undertake an extensive and exhaustive study of the impact of climate change on the Arctic in 2000. The assessment brought together the world's leading experts and produced a peer-reviewed, scientific document along with a more concise summary document. The resulting *Arctic Climate Impact Assessment* (ACIA), published in 2004, starkly outlines the enormity of the threat that is facing not only the arctic region but the entire world.¹⁰ As temperature increase, the entire arctic ecosystem is being transformed. The key findings for the arctic marine environment are¹¹:

- *The arctic climate is now warming rapidly and greater changes are projected.* Annual average arctic temperatures have increased at almost twice the rate of the rest of the world over the past few decades; increasing precipitation, shorter and warmer winters, and substantial decreases in ice and snow cover will likely persist for centuries; and, unexpected and larger shifts and fluctuations are possible.
- *Arctic warming and its consequences have worldwide implications.* These include: the melting of highly reflective snow and ice cover that will in turn lead to a greater warming of the planet; an increase in glacial melt and river runoff that will result in rising sea levels; and, the possible slowing of the world's ocean current circulation system.

⁶ The leading organization on the overall impact of climate change is the UN's intergovernmental panel on climate change. See: IPCC *Climate Change 2001: Synthesis Report* (Cambridge: Cambridge University Press, 2001).

⁷ IPCC, *Climate Change 2001: Impacts, Adaptation, and Vulnerability* (Cambridge: Cambridge University Press, 2001) 16.1.1.

⁸ The rate of melt is generally thought to be at 3% per decade since the 1970s. However, the most recent satellite study of the ice cover in the Arctic has found a 9% per decade loss. See: J.C. Comiso, "A Rapidly Declining Perennial Sea Ice Cover in the Arctic," *Geophysical Research Letters* vol. 29, no.20 (15 October 2002).

⁹ Richard Moritz, Celia Bitz and Eric Stieg, "Dynamics of Recent Climate Change in the Arctic" *Science* vol. 297 (30 August 2002). See also the related stories in the same edition.

¹⁰ ACIA *Impacts* pp. 34-45.

¹¹ ACIA *Impacts* pp.10-11.

- *Animal species' diversity, ranges, and distribution will change.* Reduction in sea ice will drastically shrink marine habitat for species such as polar bears, ice-habiting seals and some seabirds; species' ranges will shift northward bringing new species to the Arctic and limiting some already present; some marine fisheries will become more productive, while freshwater fisheries are likely to decline.

The Assessment also discusses the implications of arctic environmental change for the human communities in the region:¹²

- *Many coastal communities and facilities face increasing exposure to storms.* Severe coastal erosion will continue to be a problem as rising sea ice and reduction of sea ice allows for higher waves and storm surges to reach the shore; some coastlines will face increased permafrost melt adding to their vulnerability; risk of flooding in coastal wetlands can increase; and some communities are already facing significant threats to the coastline.
- *Reduced sea ice is very likely to increase marine transport and access to resources.* Continued reduction of sea ice is likely to lengthen the navigation season and increase marine access to the Arctic's marine resources; reduced sea ice is likely to increase offshore oil and gas extraction projects; and, sovereignty, security and safety issues, as well as social, cultural and environmental concerns, are likely to arise as marine access increases.
- *Thawing ground will disrupt transportation building and other infrastructure.* Transportation and industry on land, including oil and gas extraction, will increasingly be disrupted by the shortening of periods during which ice roads and tundra are frozen sufficiently to allow travel. The assessment brings together the world's leading experts who have produced a peer-reviewed, scientific document along with a more concise summary document. Buildings, roads, and so on, will become destabilized causing a need for substantial maintenance and rebuilding; and, permafrost degradation will impact natural ecosystems through the collapse of ground surface, draining of lakes, wetland development and toppling of trees.
- *Indigenous communities are facing major economic and cultural impacts.* Many indigenous peoples depend on food sources that are now threatened; changes in species ranges and availability, access to these species and perceived and real changes in travel safety because of changing ice and weather conditions will create serious challenges to human health and food security.

The report clearly indicates that the Arctic is facing a period of momentous change. Warming water temperatures, with a resulting reduction of the ice cover, will be the most significant change for the marine environment. The physical environment will be changed to such an extent that many indigenous sea and land species will be threatened. Perhaps equally important, the reduced ice cover will lead to increasing human activity in arctic waters. At the same time, the traditional way of life for the northern indigenous population is being fundamentally altered. For some arctic communities, the reduction of the ice cover will mean the end of traditional hunting and fishing and the subsistence way of life.

¹² Ibid.

The impact of reduced ice cover

A decreased ice cover in the Arctic appears likely to significantly alter the ecology of the marine environment, threatening the existence of some species and radically altering the living conditions for others. It also appears likely to open the door to new commercial uses of the Arctic Ocean, including shipping, increased oil and gas development, and industrial fishing, which could exacerbate the direct ecological damage caused by climate change itself.

Canadian researchers are already concerned that decreasing ice is threatening some polar bear populations. Ian Stirling has argued that the decreasing ice cover in Hudson Bay has resulted in a shorter season for seals to have their pups. Female seals give birth on the ice. If the ice breaks up too soon in the spring, many pups are not yet mature enough to swim and fend for themselves. Thus, an early ice break-up means a higher fatality rate for the pups. This means less food for the polar bears that prey on the seal pups. Stirling concludes that as the Hudson Bay polar bear population loses a key source of food, its population will also be reduced due to starvation.¹³

Polar bears are not the only ice-dependent species likely to be troubled by the recession of the pack ice. Recent information indicates that walrus, who live on the ice with their young while fishing for shellfish on the ocean floor, may have difficulty feeding as the only available ice platform moves to deeper and deeper water. Ringed and bearded seals appear to be endangered as well.

As the wildlife and plant communities of the Arctic are increasingly disrupted, the ability of indigenous northern peoples to practise their traditional way of life is under threat. Changing ice conditions make hunting on ice increasingly dangerous.¹⁴ Likewise, the disappearance of some indigenous species such as seal and walrus, and the introduction of new species, will require an adjustment in hunting and fishing techniques. In some cases, adaptation may not be possible, and the traditional way of life of hunting and fishing on the ice may disappear.

Decreased ice cover and human activity

Perhaps most importantly, the projection of decreased ice cover has opened the possibility of new or vastly expanded industrial activities in three sectors – fishing, shipping, and oil and gas – that will increasingly place additional pressures on the arctic marine environment. The likely expansion of the workforce in the region, and the movement of greater numbers of newcomers into the north to engage in these new opportunities will impose added pressures on local communities. Increased economic activity will generate increased waste. It will require extraordinary effort and careful planning and management to ensure that the new and expanded economic activities are sustainable and are pursued in a manner that minimizes the damage to the environment.

Fishing

Possibly the greatest short- to medium-term threat to marine biodiversity is that from overfishing and harmful fishing practices (e.g., bottom trawling). As a result of climate change it appears possible that the intensity and range of commercial fishing activity will increase within areas of the Arctic Ocean previously protected from fishing by ice cover. This is likely for three reasons: several commercially fished stocks have been shown to be following colder water moving further north and into deeper water; technology is improving allowing trawling to many kilometres depth; and, an increase in the area of ice-free water allows greater access for fishing.

¹³ CBC News "Indepth Polar Bears - the Shrinking Polar Bears," CBC News Online, 6 July 2004, [<http://www.cbc.ca/news/background/polarbears/>].

¹⁴ Sheila Watt-Cloutier, "General Assembly and 25th Anniversary of the Inuit Circumpolar Conference," *Silarjualiriniq: Inuit in Global Issues* nos. 12&13 (April-September 2002), pp 2-4.

The Arctic Climate Impact Assessment Report found that climate change is now changing the location and migrations of fish stocks. Cod stocks in the maritime areas off the east coast of Canada and Iceland have dropped sharply. Factors such as overfishing and other forms of mismanagement are blamed for the collapse of the Canadian stock. However, evidence is mounting that changing ocean temperatures are also affecting the location of fish stocks. Decreasing cod and herring stocks in the waters surrounding Greenland and Iceland may be partly due to changing water temperatures and salinity.¹⁵

Studies show that many of the stocks are moving northward as water temperatures increase. Salmon have started spawning in rivers in northern Alaska, and other marine species appear to be moving north through the Bering Straits.¹⁶ Haddock and cod stock in the north Atlantic have moved approximately 60 to 70 kilometres north.¹⁷ Many of the species that are searching for cooler waters are also moving to deeper waters as they move northward. As temperatures rise, the entire ecosystem is under stress. First, as indigenous species such as cod move northward to cooler temperatures, other species from warmer waters also move northward. Second, different fish species are moving at different rates. Larger, slower growing species are moving northward at a slower rate than are smaller, faster maturing species. This means that existing ecosystems are becoming disrupted as predator species are being separated from prey species. The potential impact on the entire ecosystem is uncertain, but the potential for widespread disruption is real.

The fishing industry is facing new challenges as fishers attempt to deal with the loss of indigenous stock from traditional fishing grounds. In some cases fleets have attempted to follow existing stocks, in others to find new stocks. For example, Iceland fishers, facing the loss of the herring and cod stock from their waters,¹⁸ began to exploit new cod stocks far from their home fishing grounds, within the so-called Barents Sea Loophole. The Loophole is an area of the high seas that extends beyond the Norwegian and Russian EEZ, but is entirely enclosed by the two states' EEZ. Due to changing salinity and water temperatures, new cod stocks have moved into these waters. The Icelandic fishing fleets have reported extremely good catches and by 1995, over 80 Icelandic trawlers entered the Loophole fisheries. This created significant international challenges as Russia and Norway attempted to limit the Icelandic fleet.

In the 1990s, Greenland fishers had also entered the Loophole, but through negotiations with the EU, Norway was able to limit fish quotas taken by Greenland or any other EU fishing states. Ultimately, Russia, Norway and Iceland came to an accommodation under the auspices of the 1995 UN Fish Stocks Convention.

This case clearly illustrates that the northern fisheries are becoming more complex as fish stocks move from their traditional regions. The Barents Sea Loophole clearly indicates that fishers are very quick to take advantage of these movements. However, the international ability to respond is more limited. Each coastal, northern state retains the right to manage the fish stocks within its own EEZ. The problem is that many of the key species are moving into regions that straddle the EEZ of other states or the high seas.

¹⁵ Lawrence Hamilton, Ben Brown and Erasmus Rassmussen, "West Greenland's Cod to Shrimp transition: Local Transition of Climate Change," *Arctic* (September 2003).

¹⁶ "As Polar Ice Turns to Water, Dreams of Treasure Abound," *New York Times* (10 October 2005).

¹⁷ Ian Sharpe, "North Sea Fish on the Move to Cooler Water," *Guardian* (13 May 2005).

¹⁸ Olav Schram Stoke, "Managing Fisheries in the Barents Sea Loophole: Interplay with the UN Fish Stocks Agreement," *Ocean Development and International Law*, vol. 32 (2001).

Environmental issues associated with new industrial fishing

Commercial fishing, particularly bottom trawling, can have three main types of negative impact on the environment: through the capture and destruction of non-target species, fish sizes or life stages – bycatch; through alteration and damage to food webs and thus ecosystems, already stressed by climate change; and, through damage to habitats such as the destruction caused by bottom trawl gear.

Although there are large gaps in the scientific picture, it appears that the arctic marine food web may be unusually vulnerable to fishing pressure. Arctic cod and capelin appear to form a vital link in the web, feeding on zooplankton that gather under the ice and in turn becoming vital food for toothed whales, seals, and sea birds. Some marine scientists are concerned that overfishing such keystone species could cause unintended damage to other trophic levels in the system.

Shipping

The possibility of increased shipping in the northern waters is perhaps the most important development for the maritime regions of the Arctic. Historically, the ice cover has prevented most shipping in northern waters.¹⁹ Nuclear powered submarines have operated in arctic waters since the early 1960s. However, surface vessels can make similar voyages only if they are specially constructed (e.g., ice-breakers) or if they sail for short periods in the late summer when the ice recedes. However, for the most part, the Arctic has been off limits to most other types of shipping.

With the receding ice, at least five types of shipping will benefit from using arctic waters:

- 1) international bulk transshipping through the Northwest Passage and Northern Sea routes;
- 2) shipping associated with resource development;
- 3) cruise vessels;
- 4) naval vessels; and,
- 5) fishing vessels.

1) *International shipping*: By utilizing the so-called Northern Sea Route along the Russian northern coast (also known as the Northeast Passage) or the Northwest Passage through the Canadian Arctic archipelago, large bulk carriers would substantially reduce the distance between Asia, Europe and North America. Sailing through the Northwest Passage, rather than through the Panama Canal, can cut more than 4,000 nautical miles between German and Japanese ports.²⁰

2) *Shipping associated with northern resource development*: The expansion of oil and gas activities in near-arctic areas such as the northern Barents Sea promises to increase the number of vessels associated with resource development as well. It appears likely that the extension of oil and gas activities planned by Canada, the United States, Norway and Russia will require additional maritime support, ranging from materials and equipment transport vessels to offshore rigs to barges and tankers to move the resources to southern markets.

3) *Fishing vessels*: As discussed earlier, the warming conditions in the Arctic are transforming the fishing industry. As ice conditions open up new waters for fishing, the fishing industry has already begun moving into these new regions. Some fishers are already beginning to move up the western Greenland coast to pursue both turbot and shrimp.

4) *Cruise vessels*: Cruise vessels have also increased their visits to the arctic region, and it seems likely that the novel experience of cruising in the Arctic will only continue to increase in popularity. There are two types of cruise destinations in northern North America – the Alaska panhandle route and northern Canada. Next to the Caribbean, cruises along the

¹⁹ Ernst Frankel, "Arctic Marine Transport and Ancillary Technologies," in Cynthia Lamson and David VanderZwaag *Transit Management in the Northwest Passage: Problems and Prospects* (Cambridge: University of Cambridge Press, 1986) pp 100-114.

²⁰ Richard Kerr, "A Warmer Arctic Means Change for All," *Science*, vol. 297 (30 August 2002) pp 1490-1492.

Alaska Panhandle and along southern Alaska have emerged as one of the largest cruise markets almost on par with the trade in the Mediterranean.²¹ These cruises are mainly conducted by regular cruise ships with a few being given minimal ice protection. Such vessels can be quite large, exceeding 40,000 metric tonnes and may carry over 1,000 passengers (though the average is smaller). They arrive in the summer months and stop at various points of call along the southern coast of Alaska and northern British Columbia. Seattle or Vancouver are the points of departure for these vessels.

The cruise vessels entering Canadian northern waters need to be more rugged. As ice conditions can be substantial, many of the vessels are retrofitted icebreakers or ice-strengthened cruise vessels. They have already begun visiting polar waters. Some of the larger Russian icebreakers that have been transformed for this task have carried tourists as far as the North Pole.²² These ships are more ice capable but smaller in size and passenger capability than those on the southern Alaska routes. The market for this kind of voyage is increasing, and this segment of the industry can be expected to grow. Currently the market is limited by the small number of vessels that can travel in these waters. However, as ice conditions continue to melt, the larger, less ice capable cruise ships that operate in Alaskan waters may begin to make inroads into this market.²³

5) *Surface naval vessels*: The nuclear-powered submarines of the American, Soviet/Russian, British and French navies have been in arctic waters since the 1960s and 1970s. They are the only type of vessel that can enter these waters year-round.²⁴ With the end of the Cold War, the number of submarines that now operate in these waters has significantly decreased. The Russian Navy has decommissioned all of their older submarines and does not extensively operate its remaining vessels due to Russia's economic problems. The U.S. has also reduced submarine operations in the Arctic. The British still occasionally send one of their submarines to the North Pole, but the frequency of their visits to arctic waters is unknown. Even less is known about French operations.

However, as the main powers have scaled back their submarine operations, the interest in operating surface naval vessels in arctic waters has increased. Both Canada²⁵ and the U.S. publicly stated their intention to improve their ability to operate surface vessels in the Arctic as the ice recedes. The U.S. Navy has begun examining the challenges of operating its

²¹ There are about 250 vessels in 2004 carrying 13 million passengers. 50% of this trade is in the Caribbean/Bahamas; 15% is in the Mediterranean and the Alaska trade come third at 6.7%. Oivind Mathisen, "Spring 2004: Market and Brand Growth," *Cruise Industry News* (14 October 2004) [<http://www.cruiseindustrynews.com>].

²² Lawson Brigham, "The Northern Sea Route, 1997," vol. 34, no. 190 (1998) pp 219-220.

²³ For example, in 2004 seven vessels carrying tourists entered the Canadian north: the MV *Hanseatic* - Bahamas flagged; MV *Orion* - Malta flagged (German owned); MV *Orlova* - Russia; *Akademik Ioffe* - Russia; *Kapitan Khlebnikov* - Russia; *Le Levant* - France; MS *Clipper Adventurer* - Bahamas flagged (U.S. owned). Six vessels are expected in 2005: MV *Orion* - Malta flagged (German owned); *Akademik Ioffe* - Russia; *Kapitan Khlebnikov* - Russia; MS *Clipper Adventurer* - Bahamas flagged (American owned); MV *Explorer* - Liberia flagged (British owned); and MV *Ushuaia* - Panama flagged (Canadian owned). The *Orion* carries 106 passengers and is 4050 metric tonnes, the *Akademik Ioffe* carries 110 passengers and is 6,231 metric tonnes; the *Kapitan Khlebnikov* carries 112 passengers and is 12,288 metric tonnes; the *Clipper Adventurer* carries 122 passengers and is 4,364 metric tonnes; the *Explorer* carries 108 passengers and is 2,398 metric tonnes; and, the *Ushuaia* carries 66 passengers and is 2,802 metric tonnes. Information provided by Canadian Forces Northern Area, Yellowknife, May 2005.

²⁴ With the exception of few, very powerful icebreakers - but these do not have the speed that the submarines can maintain.

²⁵ Canada, *Canada's International Policy Statement: A Role of Pride and Influence in the World- Defence* (2005) pp 17-20.

surface fleet in arctic waters,²⁶ and other arctic nations are expected to follow suit. In the 1990s, the Danish Navy built four *Thetis* class frigates with ice strengthened capabilities, which enables these ships to sail in limited ice conditions. The Canadian Government is currently planning to build three new replenishment vessels that will also have a similar capability. The Russian plans are unknown since their ongoing economic situation currently prevents them from considering re-entering the Arctic. Given their geopolitical position, if and when they do begin their recovery, they will also begin redeploying into arctic waters at least around the Kola Peninsula. Thus, steps are now being taken that will result in a small, but increasing, surface naval presence in arctic waters.

Special issues raised by new trans-polar shipping routes

The ACIA predicts that both the Northwest Passage and Northern Sea Route will become ice free in the summer months by the end of this century. The diminishing ice cover means that the very short shipping season will expand in the Northwest Passage and the Northern Sea Route in the Arctic. Since these routes provide a shorter sailing distance between Asia and Europe, many have suggested that transpolar shipping will increase as the ice recedes. Transporting goods between Europe/east coast of North America and Asia via the Northwest Passage (as opposed to the Panama Canal or Cape Horn) will eliminate between 4,000 and 8,000 nautical miles.²⁷ Such a savings in both distance and time could translate into very substantial cost reductions for international shipping companies for at least part of the year. Additionally, both the Northern Sea Route and the Northwest Passage can accommodate ships, such as super-tankers and the current generation of large container vessels, that are too large to fit the locks of the Panama Canal.²⁸

It appears that shipping companies are already beginning to prepare. Since the end of the 1990s, construction of ice-capable vessels has markedly increased. Russia has ordered ten ice-strengthened tankers built for northern service.²⁹ As discussed earlier, American companies are also constructing new classes of ice-strengthened tankers to carry oil from the Port of Valdez. These ships represent an increase in arctic-capable vessels. The five *Polar Endeavour* and four *Alaskan Frontier* class vessels are ice-strengthened super-tankers built for transporting oil from Valdez, Alaska to the American west coast.³⁰

The practical availability of the new trans-polar shipping routes is limited both by ice conditions and by the administrative and financial requirements for such shipping under Russian and Canadian law. Initial studies have attempted to determine when it will become economically viable for international shipping to begin.³¹ The assessment at present is that the existing Russian administrative system is confusing, arbitrary and expensive. However, international shippers will find the Northern Sea route more attractive if the Russians improve their administration of the route and reduce existing charges.

²⁶ Office of Naval Research, Naval Ice Center, Oceanographer of the Navy, and the Arctic Research Commission, *Naval Operations in an Ice-Free Arctic Symposium* (17-18 April 2001).

²⁷ Allison Doyle, "Shrinking Arctic Ice to Open Shipping Short-Cuts," *Reuters News Service*. 28 January 2003, [<http://Planetark.org/dailynewsstory.cfm/newsid/19593/story.htm>].

²⁸ *Riverdeep*, "Water Woes at the Panama Canal" (8 December 2000) [http://www.riverdeep.net/current/2001/12/120800_panama.jhtml].

²⁹ "Four Questions for Sergey Frank, Minister of Transportation of the Russian Federation," *New East: International Magazine* (4 May 2000). [http://segodnya.spb.rus.net/3-4-00/eng/06_e.htm].

³⁰ Brian Gavin, "Polar Tankers: Built to last in Unforgiving Waters," *American Ship Review 2002-2003*, issue #68 (2002-2003), pp 20-24.

³¹ Ship and Ocean Foundation, *The Northern Sea Route - The Shortest Sea Route Linking East Asia and Europe* (Ship and Ocean Foundation, 2001).

The decreasing ice cover will also help lower costs. Icebreaker escorts will not be required as the ice decreases in the summer months. Information about ice conditions obtained through satellite imagery will enable shippers to make decisions about whether to proceed through northern waters or through traditional routes. However, administrative clearances will need to be expeditiously granted in order to maximize the use of the ice-free period.

Northern Sea Route

During the Cold War, the Soviet Union made extensive use of its Northern Sea Route.³² As with all activities of the USSR, the shipping and escort provided was done on a state-controlled basis. This meant there was no requirement to ensure that such activity was economically based. At the same time, the Soviet regime was not particularly concerned about the impact that their activities had on the northern environment.³³ Following the collapse of the USSR, the Russian Federation began examining how the route could be economically viable. To this end, the Russian Government entered into a series of agreements to study the requirements of the Route.

The first study was titled *International Northern Sea Route Programme* (INSROP) and was conducted between 1993 and 1999.³⁴ It was conducted through a partnership between the Fridtjof Nansen Institute of Norway, the Ship and Ocean Foundation of Japan, and the Central Marine Research and Design Institute of Russia.³⁵ The research had four categories: 1) natural conditions and ice navigation; 2) environmental factors; 3) trade and commercial shipping aspects; and 4) political, legal and strategic factors. These led to 167 working papers that examined a wide range of issues. The general finding was that “in spite of climatic, technological and political restraints, an increase in commercial shipping is feasible in economic, technological and environmental terms.”³⁶

The European Commission and the Russian Federation undertook a second study in 1997 called *Arctic Demonstration and Exploratory Voyage*. This study’s objective was to undertake a test voyage of European and Russian vessels to determine if year round navigation of the Northern Sea Route was possible.³⁷ Four vessels (a tanker and three icebreakers) were used. As with the INSROP study, the finding was that “year-round navigation in the western part of the Northern Sea Route was economically feasible even in the harshest winter conditions for the last 33 years.”³⁸

The Russian Government and the European Union launched a follow-up study, entitled *Arctic Operational Platform* (ARCOP), at the end of 2002. It was officially launched on 31 January 2003 and will run for three years.³⁹ It will examine the transportation of oil in the Russian Arctic and will include a maritime dimension. This study is predicated on the

³² Tymchenko, “Northern Sea Route,” 274pp.

³³ M. Feshbach and A. Friendly, *Ecocide in the USSR* (New York: Basic Books, 1992).

³⁴ Lawson Brigham, “The Northern Sea Route, 1999-2000,” *Polar Record*, vol. 37 no.203 (2001) pp 332-334.

³⁵ Tymchenko, “Northern Sea Route,” 275pp.

³⁶ *Ibid.*

³⁷ European Commission Transport RTD Programme, *Waterborne Research: ARCDEV* (12 December 1999). [<http://www.cordis.lu/transport/src/srcdev.html>].

³⁸ European Commission Transport RTD Programme of the 4th Framework Programme, *Public Summary of the ARCDEV Project*, 3pp.

³⁹ Finland, Ministry of Trade and Industry, *Press Release - ARCOT Project Launched: Finland participating in development of Russia’s Oil Transport* (31 January 2003).

expectation that the Russian Government will be developing a new export and loading for crude oil in the Murmansk area. When this new port facility is completed, it will then be joined by pipeline to Russian oil developments in the northern region. If this project is completed, it will substantially increase the maritime oil shipment in the western Russian Arctic waters and off Norway. The intent of the ARCOP project is to determine how this increase in traffic can be undertaken in a safe and environmentally-protective fashion.

The International Arctic Science Committee (IASC) announced that in 2003 it would be commencing a study examining a new project on arctic marine transport titled *Marine Transport and Changing Access in the Arctic Ocean*. Its purpose is to examine arctic ice change and to assess the impact of these changes on maritime transport routes in the Arctic Ocean and Baltic Sea.⁴⁰ This will include both the Northern Sea Route and the Northwest Passage.⁴¹

Russia is not only engaged in extensive research with its European neighbours, but is also increasing the size of its commercial ice-strengthened fleet. LUKOIL, a Russian company that owns Murmansk Shipping Company, placed an order to build ten new ice-strengthened oil tankers at the end of the 1990s.⁴² The first five were built in Germany and the last five are being built in Russia.⁴³

The Russian Government appears determined to maintain control over vessels entering the Northern Sea Route. Russia is equally determined to ensure that its national environmental standards governing the ships entering the Northern Sea Route are followed. This clearly indicates a desire to protect the marine environment. However, what remains to be seen is the manner by which the Russian Government will actually enforce these regulations once international shipping begins to increase.

Northwest Passage

Maritime transport through the Northwest Passage would be subject to *Arctic Waters Pollution Prevention Act*, passed in 1971 following the voyage of the super-tanker *Manhattan* through the Northwest Passage. The Act stipulates that any vessels entering the Northwest Passage must follow stringent environmental regulations. The legislation is comprehensive. However, it is weakened by the fact that international ships are not required to report to Canadian authorities when they enter the Northwest Passage. Instead they are requested to inform the government that they are in Canadian waters.

The fact that the AWPPA is not mandatory appears to be a result of Canada's ongoing dispute with the United States over the international status of the Northwest Passage. The U.S. contends that both the Northern Sea Route and the Northwest Passage are international straits. Both Canada and Russia contend that these waterways are internal waters. The resolution of this issue will determine the degree of control that national authorities can exercise in governing international shipping that enters these waters. If the waters are internal, then both Russia and Canada have the right to withhold permission to vessels that do not comply with their domestic legislation (governing ship construction standards, environmental protection, ship safety and crew training). On the other hand, if

⁴⁰ PAME, *Program for the Protection of the Arctic Marine Environment- Working Group Meeting Report*, no.1-2003 (25-27 February 2003) Stockholm, Sweden, 9pp.

⁴¹ IASC, *IASC Project Catalogue 2003 - Marine Transportation and Changing Access in the Arctic Ocean* (12 March 2003). [<http://www.iasc.no/ProjectCatalogue/MarTrans.htm>].

⁴² Murmansk Shipping Company, *Company History* (2000) [http://msco.ru/web_main/en/company.htm].

⁴³ Murmansk Shipping Company, *Fleet - Cargo Fleet - Tankers* (2000) [http://www.msco.ru/web_main/en/fleet_trans2_2.htm].

the waterways are international straights, then neither Canada nor Russia can prevent passage if the vessels follow international requirements.

Environmental issues associated with trans-polar shipping

Jurisdictional issues aside, as shipping traffic increases, the possibility of environmental damage to the fragile arctic marine environment will also increase. The possibility of oil spills is perhaps the most spectacular, but by no means the only concern here. As the lasting impacts of the *Exxon Valdez* grounding demonstrate, large oil spills can have a devastating and lasting impact on the local marine environment. Spills may be even more difficult to clean up in icy waters. Other concerns include the introduction of invasive marine species through ballast water discharges, and the need for rigorous control of ships' garbage and waste products. Even carefully controlled shipping can cause unintended damage to wildlife if shipping routes run through areas of critical environmental concern such as whale foraging zones or migration corridors. Ship strikes are already one of the most significant threats to the survival of the Northern Right Whale, for example. Increased shipping in the Arctic must be conducted in an environmentally sound fashion. But this can only be done in a consistent manner with international agreement from all parties involved in shipping in northern waters.

Oil and Gas

Extensive oil and gas exploration is already underway in Russian, Canadian, Norwegian and U.S. northern land and offshore regions. In all four countries, increasing energy prices can be expected to continue to be an important driver in northern energy exploration and development. However, political considerations are also driving energy development in both Russia and the United States. The Russian Government has been involved in a process of regaining control over the oil and gas industry.⁴⁴ Oil and gas export offers the Russian Government the best immediate hope for addressing its current economic challenges.⁴⁵ Plans are now going forward for the development of the Shtokman field in the northern Barents Sea, one of the largest known natural gas reserves in the world.

However, Russia faces a number of constraints in expanding oil and gas activities in the far north. The existing system of pipelines in the northern regions is old and needs to be improved. The prospect of developing a pipeline from Western Siberia to Murmansk has the greatest relevance to the Arctic region.⁴⁶ This is the only means that the Russians would have to directly move their oil to a port that could handle tankers of more than 100,000 metric tonnes. The Russians have not yet committed to the project, but if they do, it will increase tanker traffic into the Barents Sea.

The United States is also exploring expansion of its northern oil and gas industry. Despite Congressional and popular resistance, the Bush Administration has consistently pushed for Congressional approval of exploration of oil and gas in the Alaska Arctic National Wildlife Refuge (ANWR), and has also accelerated development on the northern slope of Alaska east of Prudhoe Bay, in the so-called National Petroleum Reserve.⁴⁷ The administration and the oil and gas industry have also showed renewed interest in development offshore in the Chukchi and Beaufort Seas.

This new production is expected to be transported through the existing Trans-Alaska

⁴⁴ Thomas Land, "Putin Pursues Russia's Oil Oligarchs," *Contemporary Review*, vol. 285, no. 1663 (August 2004).

⁴⁵ Robert Ebel, "Untapped Potential: The Future of Russia's Oil Industry," *Harvard International Review* (Spring 2003): pp 26-27.

⁴⁶ *Ibid.*

⁴⁷ Justin Blum, "51-49 Senate Vote Backs Arctic Oil Drilling," *Washington Post* (17 March 2005), A01pp.

Pipeline System (TAPS). Construction on this pipeline began in 1975 and was completed in 1977. Crossing from Prudhoe Bay in the north to the Port of Valdez in the south, the 1,287-kilometer pipeline has loaded more than 17,000 oil tankers.⁴⁸

In 1989 the *Exxon Valdez* ran aground immediately after leaving the port of Valdez, leading to the largest oil spill in northern North America. As a result of the spill, the United States Government passed the *Oil Pollution Act* of 1990 (OPA 90). It required all oil tankers in the TAPS system to be double-hulled. While some critics have suggested that some companies are trying to avoid the Act's requirements,⁴⁹ newer, double-hulled vessels are now replacing the existing single-hulled vessels.⁵⁰ Five new *Polar Endeavour* class super-tankers, at 124,999 deadweight metric tonnage, four Alaska Frontier class (same size) and two smaller tankers (*Seabulk Arctic* and *Seabulk Pride* 46,094 metric tonnes), are now entering service.

There is renewed interest in Canada in developing gas and oil exploration in the region around the MacKenzie River delta.⁵¹ This area had undergone extensive exploration in the 1970s but the collapse of oil and gas prices at the end of the 1970s and early 1980s, combined with the decision not to build a pipeline along the MacKenzie River Valley, postponed most of these projects. As energy prices rose in the 1990s, and there emerged a renewed interest in building a gas pipeline along the MacKenzie corridor, the expectation grew that substantial oil and gas resources would be developed around the MacKenzie River Delta in the Beaufort Sea. Beyond the traditional oil and gas reserves in and around the Beaufort Sea, Melville Island in the Canadian Arctic Archipelago has resources of oil sands.⁵²

Environmental issues associated with expanded oil and gas activities

In summary, substantial oil and gas projects in the north are being considered or have begun. Since all are either on or near northern waters, the potential for environmental problems is substantial. Despite advances in drilling technology, damage will occur to the land and offshore areas as companies continue to explore and produce these resources. Land and coastal disturbance as a result of the emplacement of industrial infrastructure, air pollution from production facilities, and the danger of spills from pipelines, including pipelines on the seabed, are all concomitants of oil and gas production in the far north. Air pollution and impacts to wide-ranging wildlife such as polar bears should be of concern to all the arctic countries. It is important to note, however, that (with the possible exception of shipping oil from Murmansk) most of this expected new energy development will take place within the national jurisdiction of one of the arctic countries and, therefore, immediate regulatory jurisdiction will continue to reside at the national level.

Summary

As the ice recedes in the face of a warming Arctic, maritime activity in the north will increase. The introduction of industrial fishing and commercial shipping, and the expansion of oil and gas activities, will increase the strains on the environment and wildlife already stressed by the direct ecological changes associated with rising temperatures. There is a clear need for a cooperative framework in which new and existing activities can be managed so that development occurs in a fair and economically viable manner while both protecting the environment and providing benefits to northern peoples.

⁴⁸ Alyeska Pipeline, "About Us," (Anchorage: Alyeska Pipeline Service Co., 2003) [<http://alyeska-aboutus.htm>].

¹⁷ Trustees for Alaska, "Will Plans for Double-Hulled Tankers run Aground?" (Spring 2000) [<http://www.trustees.org/pwsarticles.htm>].

⁵⁰ Pacific States/British Columbia Oil Spill Task Force Presentation Project, *TAPS Trade Tankers Present and Future* (March 14, 2005).

⁵¹ Canadian Business Association "Oil," (2002) [<http://www.canada-business.ro/info-point/overview/oil.html>].

⁵² Energy Information Agency, "Canada - Country Analysis Brief," (February 2005) [<http://www.eia.doe.gov/emeu/cabs/canada.html>].

The development of such a framework is bound to be complicated by the mix of national and international jurisdictions that exist in the region. The Barents Sea Loophole is one example of the complexity of the problem facing those who attempt to manage a drastically changing fishery that straddles both international and national waters. A number of important boundary and jurisdictional issues will have to be resolved or managed in the development so that they do not hinder efforts to develop an adequate management framework. In order to assess the need for a strengthened management framework, this analysis will now review the existing cooperative effort in the region in terms of what has been done to develop an international arctic environmental maritime regime.

SECTION 2: Evolution and limitations of the current cooperative framework in the Arctic

Although a number of global treaties have application in the Arctic, only one international treaty – on the conservation of polar bears – deals specifically with the region.⁵³ The existing framework of cooperation on arctic issues has evolved through a set of cooperative “soft law” agreements. International cooperative agreements include the Arctic Environmental Protection Strategy (AEPS), Arctic Council, and the Polar Code/Guidelines for Ships Operating in Arctic Ice-Covered Waters; the most relevant international treaty for the protection of the Arctic marine environment is the United Nations Convention on the Law of the Sea (UNCLOS).

Development of cooperative initiatives in the Arctic

Since the end of the Cold War, attempts have been made to develop international instruments to improve international cooperation in the Arctic. The initiatives most important to this discussion are the Arctic Environmental Protection Strategy (AEPS), the Arctic Council, and the Polar Code.

New opportunities for international cooperation in the Arctic region arose even before the Cold War ended. In a speech in Murmansk in 1987, Mikhail Gorbachev made the first overture for improved cooperation.⁵⁴ He called on northern nations to forsake the military rivalries that had hindered circumpolar cooperation. Specifically, he called for the development of a “zone of peace” in the Arctic Ocean.

Gorbachev’s reforms were the catalysts that led to the first real improved international cooperation in the Arctic. Most of the new efforts addressed environmental issues, spurred by scientific evidence of the impact of global pollution in the region. Although the Arctic region had little local industrial activity at the time outside the Kola Peninsula, researchers found substantial amounts of pollutants in the arctic food chain, including persistent organic pollutants (fertilizers and pesticides), mercury and radionuclide pollution.⁵⁵ Subsequent research found that these pollutants originated in southern latitudes and were carried to the Arctic through water and air currents. Thus, an area of the globe that produces no pollution was a major receptacle of international sources of pollution.⁵⁶

Arctic Environmental Protection Strategy

Although concern over the impact of persistent organic pollutants ultimately led to the development of the 2001 Stockholm Convention, the first step taken to address these problems was made on an *ad hoc* basis. The Finnish Government, with the close cooperation of Canadian officials, determined to create a new initiative to deal with aspects of trans-boundary pollution rather than to use existing institutions or agreement such as the Law of the Sea Convention or other similar formal agreements.⁵⁷ By proceeding as rapidly as possible they hoped to lock the new Russian Government into cooperative action. This

⁵³ This is the Agreement on the Conservation of Polar Bears, 15 November 1973, U.S.T. 3918, 13 *I.L.M. International Legal Materials*. 13pp.

⁵⁴ David Scrivener, *Gorbachev’s Murmansk Speech: The Soviet Initiative and Western Responses* (Oslo: Norwegian Atlantic Committee, 1989).

⁵⁵ Len Barrie, D. Gregor, B. Hargrave, R. Lake, R. Shearer, B. Tracy, and T Bidleman, “Arctic Contaminants: Sources, Occurrences and Pathways,” *Science of the Total Environment*, vol. 122 (1992).

⁵⁶ Perhaps the most detailed assessment of these processes is found in AMAP, *AMAP Assessment Report: Arctic Pollution Issues* (Oslo: Arctic Monitoring and Assessment Programme, 1998), pp 1-844.

⁵⁷ Esko Rajakoski, “Multilateral Cooperation to Protect the Arctic Environment: The Finnish Initiative,” in *The Arctic: Choices for Peace and Security* (Vancouver: Gordon Soules Book Publisher, 1989).

course of action also recognized the U.S. reluctance accept the creation of new, formal, international institutions.⁵⁸

The result of the Finnish-Canadian effort was the creation of the Arctic Environmental Protection Strategy (AEPS) as an agreement and based on a Canadian model called the Arctic Environmental Strategy (AES). The AEPS was intended to achieve two main objectives. First, it was to provide a forum for discussion and cooperation for the arctic states. Second, it was to provide a means for identifying the different environmental problems these countries were facing in their northern territory. While many hoped that the AEPS could achieve a third objective of remedying the identified problems, it was recognized that such a goal might be too ambitious for its initial phase of existence.

The eight arctic countries established the AEPS in 1991, after two years of discussions. In an important innovation at the time, several northern indigenous organizations were invited to join the AEPS as “permanent participants.”⁵⁹ They included the Inuit Circumpolar Conference, the Saami Council and the Russian Association of Indigenous Peoples of the North. The significance of officially including these indigenous associations should not be underestimated. This was the first time that representatives of indigenous arctic communities were given such standing in an international body and it represented a very important first step in recognizing their role in circumpolar affairs.

The AEPS divided its activities between working groups and task forces. The four working groups were the Arctic Monitoring and Assessment Program (AMAP); Protection of the Arctic Marine Environment (PAME); Emergency Prevention, Preparedness and Response (EPPR); and Conservation of Arctic Flora and Fauna (CAFF).⁶⁰ At the second annual meeting of AEPS in Nuuk, Greenland, a fifth body was added: the Task Force on Sustainable Development.⁶¹ Each workgroup was tasked with identifying the key problems in its area of concern, and with developing a means to respond to the problem. However, the working groups had no power to allocate the use of resources outside of those that the competent agencies of individual member states were willing to volunteer.

The AEPS was an important first step in coordinating international cooperation regarding the arctic environment. It showed that it was possible to have the eight arctic nations cooperate, and it also demonstrated that it was possible to begin a joint assessment of the environmental problems – including those affecting the marine environment. However, because the AEPS was not provided with its own sources of funding and was not a formal treaty, its ability to provide remedies for the environmental problems it uncovered was limited. It was these limitations that led to the creation of the next major environmental arctic initiative – the Arctic Council.

⁵⁸ Rob Huebert, “New Directions in Circumpolar Cooperation: Canada, the Arctic Environmental Protection Strategy, and the Arctic Council,” *Canadian Foreign Policy*, vol. 5, no.2. (Winter 1998), 51pp.

⁵⁹ David Scrivener *Environmental Cooperation in the Arctic: From Strategy to Council*, Security Policy Library No. 1 (Oslo: Norwegian Atlantic Committee, 1996).

⁶⁰ *Arctic Environmental Protection Strategy* (Rovaniemi, Finland, 14 June 1991) in *International Legal Material*, vol. 30 (1991), pp 1624-1669.

⁶¹ The Arctic Environment: Second Ministerial Conference, *The Nuuk Declaration on Environment in the Arctic* (Nuuk, Greenland, 16 September 1993), pp 3-4.

Arctic Council

Recognizing the lack of political clout that limited the effectiveness of the AEPS, Canada first proposed the establishment of a higher-level, policy-level forum to discuss and act on a broader range of Arctic issues. Ultimately, the Canadian efforts led to the development of the Arctic Council in September 1996.

Unfortunately, the new council suffered from many of the same problems that plagued the AEPS. While the Council was conceived to provide a venue for all arctic issues, it remained focussed on environmental problem identification. Its structure was based on the AEPS. All of the working groups were retained, and the Task Force on Sustainable Development was transformed into a working group. A new initiative was the Action Plan to Eliminate Pollution. It was designed primarily to coordinate research by the member states and to develop an action plan to eliminate pollution. However, in keeping with the major limitations of the other working groups, limited resources hindered the development of an effective, international strategy. The Council also did not have its own source of funding. As with the AEPS, it depended on resources volunteered by its member states.⁶²

The Council did launch a major new research initiative in 2000, directing AMAP and CAFF, in partnership with the International Arctic Science Committee, to begin a study to assess the impact of climate change in the Arctic. The Arctic Climate Impact Assessment (ACIA) was released in 2004 and represents the most comprehensive study of its kind. Significant resources were allocated to the writing and gathering of the report.

The Council's PAME working and EPPRP working groups share a broad mandate to deal specifically with maritime issues in the Arctic. The PAME's focus is primarily the protection of the marine environment, delivered through nine projects, which include: updating an overview of international agreements and arrangements pertaining to the arctic marine environment; promoting the 1997 guidelines for offshore oil development; implementing an action plan for the protection of the arctic marine environment from land-based activities; supporting the national plan of action for the protection of the arctic marine environment from anthropogenic pollution in the Russian Federation-Russian Pan-Arctic; developing arctic waters oil transfer guidelines; developing follow-up activities to address ship generated waste; and, providing a report on the state of current and potential shipping activities in the Arctic.⁶³ PAME is also currently developing a maritime strategy that will focus on marine environmental issues.

The EPPR has the mandate to examine means of cooperation in case of environmental emergencies in the Arctic. To this end, it has developed guidelines for responding to environmental emergencies, such as oil spills, in northern waters. These guidelines provide each member state with information on how to respond to a spill, but it is left to each of the individual states to actually respond. The EPPR does not have the mandate to respond to such crises or to provide an international mechanism to respond to a spill. Thus, when Russia experienced a series of oil pipeline leaks in the 1990s, the EPPR was not asked to assist.

⁶² David VanderZwaag, Rob Huebert and Stacey Ferrara, "The Arctic Environmental Protection Strategy, Arctic Council and Multilateral Initiatives: Tinkering while the Marine Environment Totters," in Alex Oude Elferink and Donald Rothwell, (eds.) *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (The Hague: Martinus Nijhoff Publishers, 2001), pp 246-248.

⁶³ Arctic Council, *Activities*, [<http://www.arctic-council.org/activities.html#70>].

Recently, the United States has led efforts to use the Arctic Council to examine transportation in the Arctic. The Circumpolar Infrastructure Task Force (CITF) was created in September 2000 as a program of the Arctic Council and the Northern Forum.⁶⁴ Part of the project includes an examination of maritime linkages in the north. It is focussing on helping the Russian Government in the development of the Northern Sea Route.⁶⁵

Overall, the AEPS and the Arctic Council both represent important first steps in the development of international cooperation in the Arctic. They play an important role in that they bring together a set of international actors that have not had the opportunity or inclination to meet. Some observers believe that the Council has been reasonably effective in mobilizing interest, expertise, and action to address pollution issues, but less effective in species and habitat protection.⁶⁶ However, as important as these initial steps have been, several factors have limited the potential to take substantive action. First, any steps to be taken can be funded only through voluntary contributions by the member states. Second, the main course of action has been identifying environmental threats and establishing guidelines for a course of remedial action, while leaving implementation to national authorities. For example, the EPPR has done excellent work in creating response guidelines in case of an oil spill in arctic waters. However, the development of a cooperative, reactive capability to oil spills is a long way off. Each arctic state would still be responsible for responding according to its own means. Even PAME – the one working group that has been specifically mandated to deal with maritime environmental issues – has not developed a mandate that goes beyond determining the maritime environmental issues facing the Arctic region.

Polar Code/Guidelines for Ships Operating in Arctic Ice-Covered Waters

The Arctic received limited attention during the negotiations of the third Conference on the Law of the Sea, a reflection of the dominance of more global issues, and the concern of the U.S. and the Soviet Union that negotiations not interfere with their military activities in the region. Thus, little of direct relevance to the Arctic region made its way into the final convention. Only one article, Article 234, provides guidance for the future development of large scale, international maritime traffic in the Arctic region.⁶⁷ Commonly referred to as the “Canadian clause,” this article gives coastal states the right to enforce laws and regulations for the prevention of marine pollution from vessels ‘in ice-covered areas’ within their EEZs.

Article 234 provided coastal arctic states with the international framework to develop stricter environmental standards for international shipping in “ice-covered waters.” However, little or no new legislation has been developed since UNCLOS was adopted, and no significant efforts have been taken to develop greater international cooperation regarding maritime activities in the Arctic.

⁶⁴ The Northern Forum was another institution that was created to facilitate and promote economic and business relationships among northern regions. Its members are not the arctic states, but the various political subunits such as territories, provinces, etc.

⁶⁵ Circumpolar Infrastructure Task Force (CITF), “Presentation to the Northern Forum General Assembly, St. Petersburg, Russia, April 2003.

⁶⁶ Nowlan, *Arctic Legal Regime for Environmental Protection*, IUCN, 2001.

⁶⁷ Rob Huebert, “Article 234 and Marine Pollution Jurisdiction in the Arctic” in Alex Oude Elferink and Donald Rothwell, (eds.) *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (The Hague: Martinus Nijhoff Publishers, 2001), pp 249-268.

The sole exception to this complacent trend is the Polar Code, an initiative launched by Canadian officials in the early 1990s.⁶⁸ By the end of the 1980s, it was becoming clear to many states with interests in arctic shipping that either climate change and/or oil and gas development would soon increase shipping in the Arctic. Over the years, countries such as Canada and the USSR/Russia had developed different but similar rules. It was determined that a common set of rules and regulations for Arctic shipping were necessary before this increase made any such harmonization impossible. A series of meetings was held in the early 1990s under the auspices of the International Maritime Organization. The meetings included officials from all northern states with an interest in arctic shipping as well those associated with various insurance companies.

These meetings were originally intended to discuss harmonizing the different approaches towards polar ship construction, safety standards and operating procedures. A common set of rules would ensure that any increase in arctic shipping would take place efficiently, on the basis of the best environmental standards that could be developed.

The initial Polar Code discussions attempted to cover vessels that operated in both polar regions. The discussants also initially endeavoured to make the code mandatory for all vessels operating in the Arctic. However, the United States opposed these efforts and the negotiations focussed on developing voluntary guidelines for arctic shipping.⁶⁹

Article 234 of the Convention acted as the cornerstone throughout much of the negotiations. The preamble of the draft document in 2000 stated:

1.2 The need to develop safety and pollution control guidelines specific to polar operations has been recognized by several of the Administrations principally affected, by a number of classification societies, by international organizations concerned with the polar environment, and by the United Nations itself. *Clause 234 of the Law of the Sea Convention (UNCLOS 82) gives Coastal States with ice-covered sea areas the right to “adopt and enforce non-discriminatory laws and regulations” for pollution control within their 200 mile Exclusive Economic Zones (EEZs).* [italics added]⁷⁰

However, when agreement was finally reached in 2003, all mention of the Convention and Article 234 had been removed. In its place was the recognition that “[s]hips operating in the Arctic environment are exposed to a number of unique risks.”⁷¹ In effect, the Code had become a guide.

U.S. objections to installing the code as a separate inter-governmental agreement led to its placement under the auspices of the International Maritime Organization (IMO). Specifically, the International Association of Classification Societies (IACS) took over the work of the Code. Classification societies such as Lloyd’s Register provide guidance to the ship-building industry. In return for following the guide, the classification societies approve ships that meet their standards. This allows shipping companies to qualify for ship insurance.

⁶⁸ Lawson Brigham, “Commentary: An International Polar Navigation Code for the Twenty-First Century,” (1997) 33 187 *Polar Record*, 283pp.

⁶⁹ Lawson Brigham, “The emerging International Polar Navigation Code: bi-polar relevance?” in D. Vidas (ed.) *Protecting the Polar Marine Environment: Law and Policy for Pollution Prevention* (Cambridge University Press, Cambridge, 2000) 316-318.

⁷⁰ *Guidelines for Ships Operating in Arctic Waters*, 3 at [\[http://www.tc.gc.ca/polarcode/imo_version_of_code.html\]](http://www.tc.gc.ca/polarcode/imo_version_of_code.html), 3pp.

⁷¹ International Maritime Organization, *Guidelines for Ships Operating in Arctic Ice-Covered Waters* MSC/Circ. 1056, MEPC/Circ. 399, (23 December 2002), 2pp.

The classification societies that oversee icebreakers and ice-strengthened vessels will now use the criteria prepared for the Polar Code. In June 2004, the IACS under IMO auspices adopted what is now called the IACS Polar Rules.⁷² While the adoption of the code as a guide to the maritime industry is an important step forward, it is not a substitute for the adoption and enforcement of the code's standards by the arctic governments.

Summary

Several observations can be made regarding the existing agreements that relate to the arctic marine environment. Clearly, the development of the existing cooperative framework among the eight arctic nations has been characterized by a 'soft law' or essentially voluntary approach, reflecting the lack of appetite of at least some of the arctic governments for more strenuous treaty arrangements. In keeping with this more voluntary approach, the problems that have been brought forward for consideration have been grappled with first and foremost as technical issues, with the result that a priority has been placed on scientific research and problem identification, with less emphasis on cooperative remedial action. Even the Arctic Council workgroup dealing with potential emergencies, EPPRP, has no mandate to generate or coordinate direct response or remediation.

Effective management or remedial action also requires resources, and thus far, the eight arctic states have also been unwilling to commit such resources under the Arctic cooperative agreements. The Arctic Council has no permanent secretariat, nor any system of obligatory contributions which would allow it to construct a budget and plan the allocation of resources to needed activities. Council working groups, which develop much of the substance of the overall work plan, rely primarily on the voluntary contributions of competent national technical agencies.

Indeed, the very structure of the Council's working arrangement, divided as it is among working groups dealing with pollution, conservation, protection of the marine environment, emergency response, and sustainable development, places limits on the ability of the Council to grapple with the complex and interrelated problems posed by the new development opportunities in the region.

For instance, there is no location, in the existing framework of the Council, for discussion of fishery issues. Nor is there currently a regional fisheries management plan (RFMP) for the Arctic. Several RFMPs and national fishery management organizations, including the North East Atlantic Fisheries Commission (NEAFC), the North Atlantic Fisheries Organization (NAFO), and the North Pacific Fisheries Management Commission regulate important fisheries such as those of the Barents and Bering Seas on the margin of the Arctic, but there exists no such cooperative management structure for the Arctic itself.

Perhaps more importantly, the emphasis on sectoral approaches and problem-based research means that there is little opportunity in the current framework to consider the Arctic from an ecosystem-management perspective. Such an approach might be particularly important in the management of the Arctic's fisheries and marine mammals, which exist in a powerfully interactive dynamic that cannot easily be managed within national boundaries.

The situation in the Arctic is thus in notable contrast to that in the Antarctic, where the evolution of the Antarctic Treaty system has established a mandatory and highly protective framework for the management and conservation of Antarctica's wildlife and natural resources, and even in comparison with other regional agreements, such as OSPAR, which have shown the possibility of the collective implementation of more advanced concepts of environmental protection.

⁷² Robert Bridges - Research and Development Lloyd's Register, "IACS Polar Rules: Harmonization of Ice Class," (7 September 2004).

SECTION 3: Creating a stronger management framework for the Arctic

The key issue is whether and how the existing international cooperation framework in the Arctic can be made stronger and more comprehensive to deal effectively with the multiple challenges facing the region.

To be considered effective, a strengthened management framework would need to meet three major criteria:

1) *It must be comprehensive.* The framework should facilitate an ecosystem approach to management of the Arctic, rather than a merely sectoral or problem-based response. An ecosystem approach would, for instance, include the identification and effective conservation of key natural habitats as part of a mutually-acceptable arrangement for managing new shipping routes.

2) *It must effectively conserve the region's unique living resources.* The framework must provide for the effective management of human activities in the Arctic so that the region's critical living resource base can be conserved for future generations. This must include effective management arrangements for any commercial fisheries, expanded shipping, and extractive activities that are likely to have systemic impacts. This must also include more ambitious efforts to protect natural areas and habitat so that marine mammals, birds, and fish populations can have the best chance to survive and adapt to the changing climate conditions in the region.

3) *It must assure sustainable development.* The expansion of commercial activity must be accomplished in a manner that is sustainable over time, and does not neglect the welfare of those who live in the north, particularly northern indigenous communities. Communities that exist along both the Northern Sea Route and the Northwest Passage need to share in the economic advantages that increased economic activity, such as shipping, will bring. These same communities must also be protected from the dangers that will accompany these new expansions.

There are several distinct approaches (not necessarily mutually exclusive) through which the arctic nations could seek to establish a more comprehensive management approach in the region:

A Stronger Arctic Council

It is possible to imagine an arrangement, founded on the existing declaration establishing the Arctic Council, which would be better able than the current arrangement to make progress towards these goals, but it is difficult to see how even a strengthened Arctic Council could fulfill all the basic criteria.

The 1996 Declaration establishing the Council sets out the basic parameters of its activities:

1. The Arctic Council is established as a high level forum to:
 - a. provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the arctic indigenous communities and other arctic inhabitants on common arctic issues*, in particular issues of sustainable development and environmental protection in the Arctic.

- b. oversee and coordinate the programs established under the AEPS on the Arctic Monitoring and Assessment Program (AMAP); conservation of Arctic Flora and Fauna (CAFF); Protection of the Arctic Marine Environment (PAME); and Emergency Preparedness and Response (EPPR).
- c. adopt terms of reference for and oversee and coordinate a sustainable development program.
- d. disseminate information, encourage education and promote interest in Arctic-related issues.

The fundamental characterization of the Council is as a 'forum', which can therefore consider, identify, discuss, and promote (i.e., make recommendations to deal with problems, and urge their implementation) cooperative activities on issues of common concern. This assumes that primary management responsibility, and the capacity to implement any recommendations generated by the Council, remains in the hands of the national governments involved.

Even with this basic constraint, with proper support, the Council could undertake more meaningful activities on some of the emerging issues. For instance, it could build on the assessment of shipping issues already being undertaken by the PAME working group, and could recommend and identify the elements of a comprehensive approach to the environmental, safety, and other issues posed by new arctic shipping. Such an approach could supplement the existing Polar Code by encouraging the arctic nations to work together through the CAFF to compile existing scientific knowledge regarding critical natural habitats in the Arctic Ocean, and to work together to adjust proposed shipping routes to avoid damaging them. The Council could request the designation of such identified habitat areas as particularly sensitive sea areas (PSSAs) by the International Maritime Organization (IMO).

The Council could also set up a new working group on fishery issues, with a mandate to assess the state of knowledge with regard to arctic fisheries and their interactions with marine mammals and other arctic wildlife, to identify the scientific and institutional steps needed to establish an ecosystem-management approach to future fisheries in the Arctic, and to define and promote a precautionary, science-first approach that could be followed by all arctic nations pending the establishment of a fisheries management regime.

With appropriate support from the arctic nations, PAME and EPPR could move beyond acting simply as information gatherers. Under the development of this plan, EPPR could be tasked with developing a coordinated emergency response capability.

The capacity of the Council to engage the issues could also be strengthened if the Arctic governments agreed to a contribution schedule sufficient to allow the Council to employ a professional secretariat.

It must be recognized, however, that, within the basic structure established in 1996, such efforts, though helpful, would continue to depend for their effectiveness on implementation by national governments. In that respect, as well as in key substantive areas, the Council would continue to lack the means to deliver a management regime that meets the fundamental criteria for success.

Establishing a Regional Fishery Management Organization (RFMO)

Although significant initial progress on fishery issues could be made by discussing and coordinating national approaches through the Arctic Council, the development of regime to manage fisheries in the Arctic would more naturally take the shape of a regional fishery management organization (RFMO). An RFMO could be established under the terms of the 2001 U.N. Fish Stocks Agreement. Article 9.2 of the agreement provides guidance for the creation of new regional organizations to manage fisheries. The agreement also provides for the means by which arctic stocks can be monitored (Article 14) and most importantly provides a means of enforcement (Article 19).

The 1980 Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) would also provide a useful model for some elements of an Arctic RFMO. CCAMLR was created to remediate the chronic overexploitation of marine living resources, including krill, the base of the Antarctic food chain, in the southern oceans.⁷³ Its mandate extends to all marine living resources in the region, except whales and seals, which are managed under separate agreements. It has an ecosystem focus and a precautionary approach, which have been utilized in setting regulations for harvest of fishery and other resources. Thus, krill harvest is regulated with a view towards the impacts on higher level predators in the system. This approach could have real relevance in the Arctic, where krill and forage fish play similarly important roles in the marine food web.

There are no legal impediments to the eight states forming a regional fishery agreement. The question is whether the political will to do so is there. The difficulty faced by Iceland, Norway and Russia in reaching agreement regarding the fisheries in the Barents Sea Lophole demonstrates how challenging such an effort can be.

At the same time, the prospect that receding pack ice could open new areas of the Arctic to industrial fishing, including by long-distance fishing fleets, without any regionally-agreed management oversight argues that it is in the long-term interests of the arctic states and their people to develop a management scheme. Under the relevant articles of UNCLOS, fish stocks within a national EEZ are managed by the nation in question, fish stocks which cross national boundaries are managed by joint agreement, and so-called 'straddling stocks' which move between one or more national EEZs and the high seas should be managed by a competent RFMO under standards that are shared among the high seas and national EEZ portions of the fishery.^a In a separate part, UNCLOS encourages 'states bordering on an enclosed or semi-enclosed sea' to 'cooperate with each other in the exercise of their sovereign rights and in the performance of their duties under this Convention.' In particular, UNCLOS encourages such cooperation to:

Coordinate the management, conservation, exploration and exploitation of the living resources of the sea... (and) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment.^b

The implication of this legal guidance is that coastal nations wishing to cooperate in the management of a high seas fishery which is contiguous to their EEZs need, as a first effort, to establish regulations within their own EEZs that are consistent and coordinated. If the desired high-seas regime is to be highly precautionary, the nations should ensure that their own national fishery regulations within the contiguous EEZ are similarly precautionary and based on rigorous science.

However, if such a threshold is met, UNCLOS would seem to qualify the 'freedom to fish' of other nations, including long-distance fishing fleets, to 'the rights and duties *as well as the interests* of coastal states (provided for in specific cited articles).'

⁷³ Cf. Nowlan, *Arctic Legal Regime for Environmental Protection*, pp. 44 ff.

Clearly there is an advantage to the arctic coastal states in working towards a coordinated approach to managing fishery stocks. One other positive consideration is that all eight arctic nations have ratified the U.N. Fish Stocks Agreement, including the United States.⁷⁴ This means that all eight states have already accepted the principles established by the Convention that includes the enforcement of regional fisheries agreements in the high seas.

Exploring a regional seas agreement

Although an RFMO would be a critical tool in providing for the management of any future arctic fishery, and, in the CCAMLR model, could be useful in regulating the take of other marine life as well, it would not normally be expected to address the impacts of other human activities in the region. The capacity of the arctic nations to manage the Arctic Ocean environment through an ecosystem approach could be considerably strengthened by the development of a regional seas agreement. Such an agreement could be formed in a way to link to the existing UNEP regional seas program, or established independently, similar to the OSPAR Convention for the North East Atlantic.

A number of useful models for such an arrangement exist, including OSPAR, the Cartagena Convention Special Areas and Wildlife Protocol (SPAW Protocol) in the Caribbean, and the Helsinki Commission (HELCOM) in the Baltic region. The areas of focus of these arrangements vary from special areas and wildlife and land-based sources of marine pollution in SPAW to the reduction of eutrophication and the control of hazardous substances in HELCOM, to the prevention of pollution from ocean dumping and oil and gas activities in OSPAR. In most cases, the regional seas programs do not directly manage fish stocks, though in the case of HELCOM, the commission developed a cooperative working relationship with the International Baltic Sea Fishery Commission (IBSFC), enabling collaboration of the two institutions to restore salmon and herring populations, among others.

Although OSPAR, SPAW, and HELCOM are all based on regional treaties, they also differ in important administrative areas. SPAW is administered largely through the participating governments, assisted by a small and arguably underfunded UNEP regional seas office. Its efforts have been characterized for the most part by voluntary programs, demonstrations, and science activities. OSPAR, in contrast, has a permanent secretariat, and has evolved a number of aggressive sectoral strategies with mandatory approaches, including for limiting pollution from offshore oil and gas activities.

⁷⁴ The ratification dates are: Sweden (19 December 2003); Finland (19 December 2003); Denmark (19 December 2003); Canada (3 August 1999); Russia (4 August 1997); Iceland (14 February 1997); Norway (30 December 1996); and, the United States (21 August 1996). UN, Ocean and Law of the Sea, Division for Ocean Affairs and the Law of the Sea, "Chronological lists of ratification of, accessions and successions to the Convention and the related Agreements as at 01 February 2005." [http://www.un.org/Depts/los/reference_files.html].

SECTION 4: Potential benefits of a regional treaty for management of the Arctic

The previous sections have set out the challenges posed by climate change and new economic activities in the Arctic region, the weaknesses of current management arrangements, and a number of approaches to strengthened management based both on the evolving structure of cooperation in the region and on other regional models. Approaches such as strengthened shipping standards based on the Polar Code, or the negotiation of a new regional fishery management arrangement, could be pursued independently. However, the intertwined nature of challenges such as managing increased shipping and oil and gas development on the one hand, and conserving fisheries, marine mammals, sea birds and habitat, on the other, argues strongly for a comprehensive ecosystem-based approach.

The principal benefit of a regional treaty for management of the Arctic would be to provide the necessary framework for a more consistent and holistic management of the Arctic Ocean and of the expanding maritime activities that appear likely to shape the future of the region and its four million inhabitants. A comprehensive treaty would raise the profile of the Arctic among the arctic governments, focussing the attention not just of environmental agencies but of fishery and resource ministries as well. Perhaps more importantly, a comprehensive arrangement could incorporate the goal of sustainable development and the conservation of traditional subsistence lifestyles, as well as more serious obligations on the part of arctic governments to protect the environment through, among other means, “more enforceable targets, timetables, and scheduled dues.”⁷⁵

It would seem that many of the building blocks for an effective regional approach are in place. UNCLOS provides the international framework for extended protection of the Arctic maritime environment; the Arctic Council provides a political framework for bringing together senior arctic leaders and the northern aboriginal peoples; the Polar Code/Guidelines provide a first step at working out the technical requirements of the regulations that need to govern shipping; and, OSPAR and other regional arrangements provide models for creating an innovative system of pollution control for a specific region.

As the discussion in Section 3 makes clear, the arctic nations could negotiate a regional fishery management organization (RFMO) under the U.N. Fish Stocks Agreement (which all have ratified). They could also develop a regional seas agreement, either as a free-standing collaborative effort or in cooperation with UNEP. Perhaps the strongest legal foundation for a more comprehensive regional agreement, however, would be found in the UNCLOS framework, and it is well-worth considering a treaty established on this basis.

Article 234 of UNCLOS allows states to enact special legislation to protect ice-covered waters within their EEZ. The Convention also allows for states bordering an enclosed or semi-enclosed sea to cooperate. Article 122 defines an enclosed or semi-enclosed sea as:

a gulf, basin or sea surrounded by two or more States and connected to another sea or the oceans by a narrow outlet or consisting entirely or primarily of the territorial sea and exclusive economic zones of two or more coastal states.⁷⁶

⁷⁵ Nowlan, *op. cit.*, p. 58

⁷⁶ UNCLOS article 122, 39.

Article 123, then, calls on the states bordering an enclosed or semi-enclosed sea to cooperate through “an appropriate regional organization,”⁷⁷ to do the following:

- a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea;
- b) to coordinate the implementation of their rights and duties in respect to the protection and preservation of the marine environment;
- c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area;
- d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article.⁷⁸

This article, in combination with Article 234, would appear to be an ideal starting point for Arctic states to develop a comprehensive marine environment treaty. While there have been suggestions that the Arctic Ocean is technically not an enclosed or semi-enclosed sea, there is little doubt that the ocean meets the requirements.⁷⁹ A more significant problem for this approach is the United States’ failure thus far to ratify or accede to the Convention. The remaining seven arctic states - Canada, Russia, Iceland, Sweden, Norway, Denmark and Finland - have ratified. Thus, for this approach to work, the United States would need to become a party to the Convention.

If and when the United States accedes to the Convention, the first step would be an international meeting occurring under the auspices of the Arctic Council, to examine the possibility of invoking Articles 122 and 123.⁸⁰ Furthermore, the Commission on the Limits of the Continental Shelf could also be invited to attend. Since four of the Arctic states - Canada, the United States, Russia and Denmark - will have continental shelf claims under Article 76, this issue could also be placed on the agenda. The six indigenous, permanent participants would have the right to participate to protect their interests as the meeting would be an Arctic Council meeting. At the same time, this meeting would also have to include the IMO as well as Arctic shipping interests (including the classification societies and insurance companies).

The existing elements of international arctic marine cooperation can be brought together to create a more comprehensive and rigorous agreement. However, three factors are necessary for the development of a new model: 1) the development of political will; 2) the development of a process; and, 3) the substance of a new arctic treaty.

Without strong support by the eight arctic states and their citizens, any efforts to develop a new arctic treaty arrangement is probably doomed to fail. An arctic treaty is ultimately possible only if all key participants are convinced of the substantial benefits of a stronger, more truly cooperative management regime.

⁷⁷ UNCLOS article 123, 39.

⁷⁸ UNCLOS article 123 (a)(b)(c)(d), 39pp.

⁷⁹ J.E. Harder, “In Quest of an Arctic Legal Regime: Marine Regionalism - A Concept of International Law Evaluated,” *Marine Policy* vol. 11 (1987) pp 285-298.

⁸⁰ Within the United States, pressures are growing to accede to UNCLOS. Both the Department of Defense and the State Department are strongly in favor of such action. Confidential sources have suggested that as the other arctic states move toward claiming parts of the continental shelf in the Arctic region, the United States will accede to UNCLOS so it can also make its claim.

The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), and the Antarctic Environmental Protocol both provide useful models for elements of such an arrangement. Using existing international agreements and treaties offers the greatest chance of success. At the most basic level, a synthesis based on the United Nations Convention of the Law of the Sea and building on the present Arctic Council arrangements would provide the most effective means of developing a treaty/agreement for the protection and proper use of the arctic marine areas.

Some of the elements of such an arrangement would be:

Governance:

Membership: Following the AEPS and the Arctic Council a new regional organization would need to include: i) the eight Arctic states; ii) the northern indigenous peoples (permanent participants); and iii) observers. The principles pioneered by the AEPS and consolidated by the Arctic Council should be continued. This is the most inclusive process and would avoid the problems without starting anew. Because managing the future expansion of economic activities in the region will be an important concern, a way will need to be found to include appropriate industry representatives.

Structure: Having a permanent secretariat is the key lesson to be drawn from the Arctic Council's limitations and the successes of OSPAR. Relying on the informal generosity of the member states does not allow for the planning that is required. Furthermore, this body must be properly funded.

Dispute Settlement: The new agreement must have a practical but effective means of resolving disputes. All of the states must be willing to implement this technique. This means that issues such as territorial disputes may be specifically excluded from this agreement. However, it would be beneficial for the permanent participants, observers and industry members to use the dispute settlement mechanism. This could be accomplished by granting some limited standing before the dispute mechanism instrument could be created.

Decision-Making: Both the Arctic Council and OSPAR show that states actors will require the agreement to have some form of consensual decision-making. Although OSPAR has the ability to make decisions that may be opposed by some members, it generally has acted only when it can achieve consensus. The AEPS, Arctic Council and OSPAR also demonstrate that senior political leaders must be involved in the process. Conducting ministerial level meetings means that progress must be maintained. It allows the issue to attract political and media attention.

Science: The AEPS, Arctic Council, OSPAR, SOLAS and MARPOL have demonstrated the need for scientific and technical expertise to continually monitor, examine and assess trends and issues of concern. A new Arctic regional agreement would best be served by funding a series of independent scientific/technical bodies that would provide ongoing advice. Such bodies would be drawn from the best experts from both the western and traditional indigenous scientific backgrounds.

Principles:

Inclusion: The regional agreement must be committed to the inclusion of all stakeholders, but special attention must be given to the needs and requirements of the northern indigenous peoples.

Precaution: As with the case of OSPAR and the Convention for Straddling and Highly Migratory Stock, this new treaty must be based on a precautionary approach. Cooperative arrangements for environmental assessment of major development proposals should be included. An obligation not to cause environmental harm to the commons or to the territory of other Arctic nations would be highly desirable.

Polluter Pays: As demonstrated by OSPAR, regional agreements can incorporate and enforce the polluter pays principle. A new regional Arctic agreement should follow this precedent.

Best Environmental Practices/Best Available Techniques: OSPAR also demonstrates that it is possible to include requirements for BEP and BAT in a regional agreement.

Ecosystem based management: management of natural resources, particularly fisheries needs to be conducted on an ecosystem-basis, and to incorporate the inputs from, and consequences of, a range of stakeholders, activities, and threats. Traditional single species management has proven to be ineffective.

Subsistence Preference: The needs of traditional communities, particularly with regard to hunting and fishing, should be protected as a priority.

Access to Information: A commitment to the open and fair sharing of information is needed in the new arctic agreement.

Issues:

Shipping: A major focus of this new regional agreement must be to create a consistent set of arrangements for shipping in the Arctic. Such arrangements should include routing agreements that avoid areas of high environmental sensitivity, waste management and hygiene requirements that reduce pollution and avert the spread of invasive species, and a stronger set of regulations for the construction and operation of ships operating in arctic waters. Agreements on these issues arrived at by the arctic governments could be referred to the IMO with the intent that they be made binding on all shippers operating in the region.

Fishing: The agreement should include an ecosystem-based, precautionary regime for managing fisheries in the Arctic. Such an arrangement would take a 'science first' approach, and commit necessary resources to fully understanding the population dynamics and ecological role of key arctic fish stocks before significant new industrial fishing is allowed. The management requirements and scientific strategy necessary could be embodied in a RFMO building on the U.N. Fish Stocks Convention's provisions for protecting straddling and highly migratory fish species and the adoption of ecosystem based management.

Oil and gas: Although each nation will continue to regulate the development of oil and gas in its Arctic region, the new arctic framework should seek to harmonize national approaches, to identify pollution prevention goals, and to drive national regulatory efforts towards best practices. OSPAR has shown that it is possible to successfully create regulations overseeing the development of the industry. Equally important would be the development of an international means to respond to oil spills. This would be an obvious expansion of the work that has already been accomplished by the EPPR of the Arctic Council.

Wildlife and subsistence protection: The new arctic framework should build on the work already undertaken by the CAFF to identify gaps in the protection of arctic habitats. A jointly agreed network of protected areas, with consistent rules for conservation and access, should be established. Special attention should be given to the need to conserve traditional uses of wildlife species, and to protect the habitats in which such use occurs.

Land-based sources of marine pollution: The framework should include a cooperative and adequately funded effort to survey, identify, and remediate land-based sources of marine pollution.

Surveillance, monitoring and enforcement:

Environmental monitoring: AEPS and the Arctic Council have proven the critical need for a comprehensive and ongoing system of environmental monitoring. The system established under AMAP must be consolidated and expanded.

Surveillance: At the same time, international monitoring of the growing activity in the Arctic is required. Canada, the United States and Russia have all recognized the challenge of knowing what is happening in their arctic regions. Illustrating this, Canada plans to launch its RadarSat II satellite in 2006, which will give it the means to observe ships operating in Canadian northern waters. A systematic sharing of this capability through a regional agreement would facilitate the efforts of all northern states to be aware of activity in their northern waters. Sharing this capability would also provide means of confidence building among the arctic nations.

Enforcement: The combined capability of the arctic nations to enforce cooperative regulations in the Arctic is limited and will need to be strengthened and efficiently deployed.

CONCLUSION

Although the arctic governments have made important strides towards greater cooperation in managing their activities in the Arctic region through such means as the AEPS and the Arctic Council, these institutions are not sufficiently robust to deal effectively with the impacts of climate change or with the likely near-term expansion of industrial activity in the region. Without a stronger framework for cooperative management, the plentiful living resources of the Arctic are likely to suffer, essential habitat will be degraded, and the traditional subsistence way of life of many arctic communities will be endangered.

There are a number of reasons why the arctic governments have relied to date on a framework of voluntary cooperation based for the most part in technical working groups and scientific dialogues. The current arrangements to some extent reflect the need to gain a greater collective understanding of emerging issues. At the same time, reluctance to move to a stronger regime is grounded in security concerns, issues of national sovereignty, and a resistance to embracing new international obligations, as well as potential competition for resources and unresolved boundary disputes.

At the same time, there exist many useful models which could be the basis for stronger cooperative management arrangements. These include newer regional fishery management organizations such as CCAMLR, regional seas agreements such as SPAW, OSPAR, and HELCOM, and the treaty system governing Antarctica.

Although the greatest part of the arctic marine environment is likely to continue to be contained in the EEZs of the arctic coastal states, the ocean's most important living resources – fish, marine mammals, and sea birds – are part of a single ecosystem which transcends national boundaries. Expanded industrial and other human activities in the Arctic will affect the whole ecosystem. Planning and management of these activities to assure that they are sustainable and that living resources are conserved can best be done through a comprehensive, ecosystem-based approach.

A comprehensive approach to management of the Arctic will ultimately require a regional treaty of one form or another. There may be many reasons to question whether a treaty arrangement is likely in the near-term. At the same time, it may be useful to consider a step-wise approach towards the ultimate goal, first by fully engaging issues such as future shipping potentials or fisheries management arrangements in the Arctic Council to begin the discussion of how to craft more rigorous arrangements. Arrangements external to the Council, such as a binding polar code or the establishment of a regional fishery management organization, should also be considered. At later stages, the establishment of a regional seas agreement or the evolution of the Council into a regional environmental management convention would appear to be the most logical way of addressing the many changes affecting the region.

APPENDIX A: UNCLOS and the Arctic

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During the Law of the Sea negotiations, the Canadian Government attempted to take advantage of the changing international view of creating new maritime zones of control by proposing a clause that would protect special ocean zones in “exceptionally vulnerable areas.” This would give the coastal state the right to develop non-discriminatory regulations that exceeded international standards. However, many shipping nations were resistant to such a broad clause. Between the introduction of this clause by the Canadians at the first meeting in Caracas in 1974 and the third meeting in New York in 1976, the clause was narrowed to refer only to ice-covered waters.⁸¹ Agreement was reached at the end of the 1976 meeting to include Article 43 into the Revised Single Negotiating Text. This was revised to Article 234 for the final formal agreement that became the Law of the Sea Convention. The final clause stated:

Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the maritime environment based on the best available scientific evidence.⁸²

In effect, Canada was successful in internationalizing its efforts to control the environmental protection of its Arctic waters.

During the negotiations, the Canadian delegation endeavoured to ensure that the United States and the Soviet Union would not perceive this clause as hindering the navigation of their naval units. Article 236 grants government vessels immunity from the environmental elements of the Convention. This protected the navies of both the USSR and the US from the condition of Article 234.

Following the adoption of Article 234, both the USSR and Canada have used the clause to bolster their claims over their respective Arctic waters. The Canadian Government cited Article 234 to establish Canadian claims to the Northwest Passage in 1985 when an American icebreaker, the *Polar Sea*, sailed through the Passage causing another dispute between Canada and the United States. The American Government’s response was that the *Polar Sea* is a government vessel and, consequently, Article 234 had no impact.⁸³ They subsequently resolved this dispute through a series of political accommodations between Canada and the United States.

The Soviet Union has also implemented Article 234 to support its claim of control over the Northern Sea Route. In 1984, two years after the Convention was finalized and thirteen

⁸¹ Don McRae, “The Negotiations of Article 234,” in Franklyn Griffiths (ed.) *Politics of the Northwest Passage* (Kingston and Montreal: McGill-Queen’s University Press, 1987) 98-114.

⁸² Clyde Sanger, *Ordering the Oceans: The Making of the Law of the Sea* (University of Toronto Press: 1987) 114.

⁸³ Rob Huebert, “Polar Vision or Tunnel Vision: The Making of Canadian Arctic Waters Policy,” *Marine Policy* vol. 19 no., 4 (1995) 357.

years before Russia ratified the Convention (March 12, 1997), it passed two edicts that had a direct bearing on the Soviet implementation of Article 234.⁸⁴ The first edict established a Soviet EEZ and the second created northern protected zones. The second edict is entitled "On the Strengthening of the Protection of Nature in the Extreme North and Marine Areas Adjacent to the Northern Coast of the USSR." This edict established the means for creating these zones and set the conditions for navigation in these waters. Specifically, the "Regulation for Navigation of the Seaways of the Northern Sea Route" clearly bases its right to regulate international shipping in its northern waters on Article 234. Both the edict and the regulations do not cite the article per se but use the terminology of the article by stating that it reserves the right to regulate for the

...purposes of ensuring safe navigation and preventing, reducing and keeping under control marine environmental pollution from vessels since the specifically severe climatic conditions that exist in the Arctic Regions and the presence of ice during the most part of the year being about obstacles, or increased danger to navigation while pollution of sea ice on the Northern Coast of the USSR might cause great harm to the ecological balance or upset it irreparably, as well as inflict damage on the interests and well being of the North peoples.⁸⁵

The Soviet Union and, subsequently, the Russian Federation has clearly incorporated Article 234 as the international means to take specific actions to protect its northern waters.

The Russian and Canadian Government's actions show that Article 234 provides a framework for developing an international regime governing international shipping in the Arctic. It recognizes the need to develop special environmental standards, ship construction standards and ship safety requirements. However, little effort has been taken to develop an international approach to such a regime except in the case of the Polar Code. This will be discussed in the next section.

Following the coming into force of the Convention, the institutions surrounding the Convention have given little attention to issues related to the Arctic. However, two other exceptions that are relevant to the Arctic marine environment are the Commission on the Limits of the Continental Shelf (CLCS) and marine protected zones.

Article 76.8 and Annex II of the Convention established the CLCS as a means for states to determine their continental shelf. Once a state has ratified the Convention it has ten years to determine the outer limits of its shelf. It then is required to deposit these limits to the CLCS for verification. Russia is the only Arctic state with a continental shelf that has submitted its claim to the CLCS.⁸⁶ Canada has ratified, but has not yet undertaken the hydrographic studies to determine its claim. The United States has not ratified the Convention and is not

⁸⁴ Leonid Tymchenko, "The Northern Sea Route: Russian Management and Jurisdiction over Navigation in Arctic Seas," in Alex Oude Elferink and Donald Rothwell, (eds.) *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (The Hague: Martinus Nijhoff Publishers, 2001) 283.

⁸⁵ "Regulations for Navigation on the Seaways of the Northern Sea Route" reproduced in *International Challenges* vol.12 no.1 (1992) 121-126.

⁸⁶ UN, Oceans and the Law of the Sea, Division for Ocean Affairs and the Law of the Sea, *Commission on the Limits of the Continental Shelf (CLCS) Outer Limits of the Continental Shelf beyond 200 nautical miles from the baselines: Submissions to the Commission: Submission by the Russian Federation* (June 16, 2003) [http://www.un.org/Depts/los/clcs_new/commission_submissions.html] (July 14, 2003).

eligible to make its submission.⁸⁷ The United States and Norway have already issued diplomatic notes disputing elements of the Russian claim.⁸⁸ The primary significance of Article 76 claims will be regarding future oil and gas development. Beyond the 200 nautical mile limit of the EEZ to the 350 nautical mile limit of the Continental Shelf, the main issue is control of the seabed and subsoil resources. However, since the continental shelf of all Arctic states extends into the most northern regions of the globe, the development of any resources in the region are far off in the future, even with the impact of climate change.

Following the coming into force of the Convention, the UN General Assembly agreed to begin an "Open-ended Informal Consultative Process on Oceans and the Law of the Sea."⁸⁹ The GA then decided that these consultations will focus on: 1) protecting vulnerable marine ecosystems; and 2) the safety of navigation.⁹⁰ This process has recently included discussions on the sensitivity of Arctic ecosystems. A report by Olav Orheim points out that Russian northern shipping is expected to rise substantially by 2015 due to increased oil and gas development in northern Russia.⁹¹ He warns of a substantially increased risk of pollution as a result.

Although the process is important, it has not moved beyond identifying the problem. Furthermore, the risk to the Arctic is perceived simply as an additional problem for marine sensitive areas. Overall, the framework provided by the Convention has not advanced. However, efforts outside the Convention have attempted to provide a multilateral framework for responding to the challenges faced by the Arctic.

⁸⁷ Alex Oude Elferink, "The Outer Continental Shelf in the Arctic: The Application of Article 76 of the LOS Convention in a Regional Context," " in Alex Oude Elferink and Donald Rothwell, (eds.) *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (The Hague: Martinus Nijhoff Publishers, 2001) 152-155.

⁸⁸ UN, Oceans and the Law of the Sea, Division for Ocean Affairs and the Law of the Sea, *Commission on the Limits of the Continental Shelf (CLCS) Outer Limits of the Continental Shelf beyond 200 nautical miles from the baselines: Submissions to the Commission: Submission by the Russian Federation* (June 16, 2003) [http://www.un.org/Depts/los/clcs_new/commission_submissions.html] (July 14, 2003).

⁸⁹ United Nations, General Assembly, *Resolution 54/33* November 24, 1999.

⁹⁰ United Nations, General Assembly, *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea*, A/58/53 June 6, 2003, p.3.

⁹¹ Olav Orheim, "Protecting the Environment of the Arctic Ecosystem," Panel on Protecting Vulnerable Marine Ecosystems - United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea. Fourth Meeting June 2-6, 2003.

APPENDIX B: Other international agreements relevant to the Arctic

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1) The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR):

The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), which was completed in 1992 and entered into force on March 25, 1998, applies to the Arctic waters of the northeast Atlantic but is not an Arctic specific treaty.⁹² Nevertheless, this treaty provides some innovative approaches to the management and protection of the marine environment. It replaced two older treaties - Oslo (1972) Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, and Paris (1974) Convention for the Prevention of Marine Pollution from Land-Based Sources. However, it did more than simply update these two instruments. OSPAR has successfully incorporated several innovative, international techniques that have attempted to utilize new thinking in the international management of marine areas. It aims to protect the marine environment through the control and monitoring of a wide range of human activities, specifically the prevention and elimination of pollution from land-based sources, offshore oil and gas installations, and from the dumping of wastes at sea. It does not, however, deal with vessel-based pollution or fishery issues.

OSPAR is a regional agreement that has sixteen contracting parties:⁹³ Belgium, Denmark, the European Commission, Finland, France, Germany, Iceland, Ireland, Luxemburg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.⁹⁴ Unlike the AEPS or the Arctic Council, the contracting parties fund a permanent secretariat.⁹⁵ To ensure that progress is made, the contracting members have agreed to create a commission tasked with meeting the Convention's requirements. Several special committees and working groups are also tasked with special duties as needed. Like the AEPS and Arctic Council, OSPAR allows observers to participate (Article 11). They may be other states or any "international governmental or any non-governmental organization the activities of which are related to the Convention." (Article 11.1.b). To date this has included environmental groups such as Green Peace, WWF and the European Oilfield Speciality Chemicals Association (EOSCA).

A ministerial level meeting is held approximately every five years to set policy. Thus far, two have been held: Sintra 1998 (Portugal) and Bremen 2003 (Germany). The meeting at Sintra established strategies to achieve continuous reductions in the release of hazardous chemicals; the progressive reduction of the release of radioactive substances (with the complete ban placed by 2020); a ban placed on the disposal at sea of disused offshore installations; and the creation of a new Annex to the Convention that specifically focuses on

⁹² OSPAR Commission, *1992 OSPAR Convention - Convention for the Protection of the Marine Environment of the North-East Atlantic* (June 29, 2004) [http://www.ospar.org/eng/html/convention/ospar_convention.html].

⁹³ Because the EC is included the members of the Convention are referred to as contracting parties rather than the more traditional term of member *states*.

⁹⁴ Switzerland is included because it is the source of the Rhine and hence must be included to ensure this waterway is protected. Given Switzerland's policy of neutrality, its willingness to join the treaty illustrates the importance given to environmental protection.

⁹⁵ OSPAR Commission, "Rules of Procedure of the OSPAR Commission," [http://www.ospar.org/eng/html/convention/rule_of_procedure.html]

the overall protection of ecosystems and biodiversity.⁹⁶

One of the most innovative elements of OSPAR is that the agreement is based on the precautionary principle (Article 2.2.a) and the polluter pay principle (Article 2.2b). Furthermore, OSPAR also calls for the contracting parties to fulfil the requirement of the Convention by using: “the best available techniques and best environmental practise” and “where appropriate, clean technology.” (Article 2.2.b.i and ii). A third important innovation of the Convention is that it also provides that:

The Contracting Parties shall ensure that their competent authorities are required to make available the information described in paragraph 2 of this Article to any natural or legal person, in response to any reasonable request, without that person’s having to prove an interest, without unreasonable charges, as soon as possible and at the latest within two months.(Article 9.1)

The information referred to is: “any available information in written, visual, aural or data-base form on the state of the maritime area, on activities or measures adversely affecting or likely to affect it and on activities or measures introduced in accordance with the Convention.” (Article 9.2).

Overall, the drafters of OSPAR have clearly attempted to create an innovative and forward-looking treaty. Many observers have suggested that this Convention offers a blueprint for the development of international environmental agreements.⁹⁷ There are some encouraging signs that the Convention is having success. The contracting parties have agreed to ban the disposal at sea of offshore installations. This means that future oil rigs and assorted facility must now be built in a way that allows for it to be discarded onshore. This is a clear application of the polluter pay principle at work. The owners of the rigs can no longer simply sink their platform.⁹⁸ Success has also been achieved in banning radioactive substances and waste. Both France and the UK agreed at Sintra to cease dumping their radioactive wastes at sea by 2020. However, both states have resisted efforts by the other contracting parties to stop the reprocessing of spent fuel. This issue is currently unresolved.⁹⁹

However, others have pointed out that as forward thinking as the Convention may be, its implementation has illustrated certain shortcomings. First, it does not deal with fishing issues or ship-source pollution.¹⁰⁰ The omission of the fishing issue hinders OSPAR’s efforts to deal with threats to biodiversity and the marine ecosystem. Understanding how OSPAR will protect the ecosystem without dealing with fishery issues is difficult.

OSPAR has also had limited success in dealing with the prevention of pollution from the offshore oil industry. Suggestions have been made that the oil industry has been reluctant to fully disclose the industry information required under Article 9.¹⁰¹ Despite a promising start at the first ministerial meeting at Sintra, the Commission has been unable to adopt a strategy on offshore activities. Some analysts have also argued that the Commission prefers to work

⁹⁶ OSPAR Commission, “Meetings and Documents,” [http://www.ospar.org/eng/html/meetings_and_documents.html].

⁹⁷ Louise de La Layette, “The OSPAR Convention Comes into Force: Continuity and Progress,” *The International Journal of Marine and Coastal Law* vol.14, no.2 (1999).

⁹⁸ The political pressure to act was accelerated by the highly controversial case of the *Brent Spar* whose owners wanted to sink the platform when they wished to decommission it.

⁹⁹ Chantal Jarlier-Clement, “The OSPAR Convention and its Implementation: Radioactive Substances,” *Nuclear Law Bulletin* 67 (June 2001):26.

¹⁰⁰ La Layette, p.252.

¹⁰¹ La Layette, p.275.

through recommendations rather than through decisions.¹⁰² The net result is that OSPAR has not been as effective as it could have been for eliminating chemicals such as mercury and cadmium.

The Convention has received mixed evaluations regarding the effectiveness of its access to information (Article 9). In its first test, Ireland requested information from the U.K., which intended to allow a mixed oxide (MOX) plant to be built in Sellafield, England. The plant would process spent nuclear fuel. While England did release some information, it withheld other information on the grounds that Article 9 did not apply in this case and on the grounds of commercial confidentiality. Both the U.K. and Ireland agreed to resolve the issue through an arbitration tribunal on the basis of the Convention's dispute settlement clause (Article 32.1). This tribunal ultimately found that the U.K. did not have to disclose this information. Some analysts have portrayed this decision as OSPAR's failure to facilitate greater international access to information.¹⁰³ However, others have suggested that while the decision did not go as far as most NGOs would have preferred, the use of the Convention's dispute mechanism element was an important achievement.¹⁰⁴ A precedent was set when the tribunal carefully considered this issue. This may begin to sensitize both governments and companies within the OSPAR region to the effectiveness of following the requirements of the Convention.

Overall, the OSPAR Convention provides important lessons in the development of a maritime environmental regime. First, it shows that it is possible to incorporate new ideas about environmental protection into an international agreement. The inclusion of the precautionary principle and polluter pay principle are important steps forward. The fact that they are now being adhered to is very encouraging. Likewise, the inclusion of both good environmental practices and greater access to information is also an important step forward.

The implementation of the Convention is ongoing. It is not too surprising to find a mixed record about its direct successes, but this may simply be an element of time. It may be that many new ideas incorporated into the Convention still need to be considered by the contracting parties.

Even more promising is the willingness of Convention members to submit to Article 32's dispute mechanism. If the U.K. v. Ireland case is not an isolated event, but the beginning of a trend, then a very important precedent has been set. The internationalization of dispute resolution for environmental issues is of critical importance.

On the negative side, some contracting parties may be trying to pull back on their commitment. The tendency among some state parties may be to avoid hard decisions by pushing for recommendation rather than actual decision. However, this may simply be part of the learning process. The omission of fishing and shipping issues from the Convention's mandate may be of even greater significance. That omission does reduce OSPAR's overall impact on the complete marine ecosystem.

OSPAR is superior to both AEPS and the Arctic Council in that it has an independently funded secretariat. This means that its work is not dependent on the annual generosity of its member states. On the other hand, unlike the AEPS and the Arctic Council, it does not have

¹⁰² David VanderZwagg, Rob Huebert and Stacey Ferrara, "The Arctic Environmental Protection Strategy, Arctic Council and Multilateral Environmental Initiatives: Tinkering while the Arctic Marine Environmental Totters," *Denver Journal of International Law and Policy* vol.2002 no.2 (2002):164.

¹⁰³ Philippe Sand, *Principles of International Environmental Law 2nd edition* (2003):858-859.

¹⁰⁴ Ted McDorman, "Access to Information under Article 9 of the OSPAR Convention (Ireland v. United Kingdom)," *The American Journal of International Law* vol. 98, no.2 (April 2004): 338-339.

a special category for the participation of indigenous peoples. This would need to be addressed if it is to be used as a model for a future Arctic environmental agreement.

The fact that sixteen countries could come together to create an internationally binding agreement is hopeful. OSPAR is hard law and requires states to act. However, the interests of these particular sixteen states are obviously closer than is the case of the eight Arctic nations. Furthermore, none of the members of OSPAR are as sensitive to multilateral agreements as is the United States. This is not to suggest that gaining American acceptance for an Arctic-style OSPAR is impossible, only that it will be difficult.

2) Agreement for the Implementation of the Provisions of the United Nations on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks

The Agreement for the Implementation of the Provisions of the United Nations on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Agreement) was completed in 1995 and came into force December 2001.¹⁰⁵ The impetus for this agreement was several international disputes arising over the migration of productive fish stock from coastal states' EEZs to the high seas. One of these disputes occurred between Canada and Spain over cod stock off the Grand Banks. This dispute escalated to the point where the two NATO allies deployed naval units.¹⁰⁶

Following the dispute, Canada initiated a series of international meetings to address this issue. This led to the drafting of an international agreement regarding the conservation and management of these fish resources. The main thrust of the agreement was the creation of a regime that allowed for the monitoring and enforcing of fish stock that had migrated to the high seas. One of the more controversial elements of the agreement is that it attempts to limit the access of non-member states to these stocks (Article 17.2). Furthermore, the Agreement's state members have the right to enforce the provisions against vessels flying their flag on the high seas (Article 19.1). However, it is not at all clear that these efforts have been successful. Ultimately, better surveillance of these fisheries is required as is the ability to inspect and act against states who do not belong to the agreement and continue to pursue straddling and highly migratory species when they enter the high seas. Nevertheless, most observers perceive the Convention as an important improvement in the protection of straddling stock and highly migratory species.¹⁰⁷

3) The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL)

MARPOL is the primary international agreement created to reduce ship source pollution. The Convention establishes the regulatory regime for ships operating on the high seas. Attached to the Convention are six appendices (1-VI) that deal with: oil; noxious liquid substances in bulk; harmful substances carried by sea in packaged forms; sewage; garbage; and halon, freon, sulphur, nitrogen oxides and volatile compounds. In addition to these regulations for preventing operational pollution, the Convention has also adopted regulations to reduce pollution from accidents.

¹⁰⁵ United Nations, Oceans and Law of the Sea: Division for Oceans Affairs and the Law of the Sea, "Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements as at 01 February 2005," [http://www.org/Depts/los/reference_files.html].

¹⁰⁶ Phil Saunders, "And Now that the War is Over...Looking back at the Canada-European Union Fisheries Confrontation of 1995," *Canadian Law Newsletter* vol. 31 (1996).

¹⁰⁷ Anthony Bergin, Marcus Haward, Dawn Russell and Robert Weir, "Marine Living Resource," in *Oceans Law and Policy in the Post-UNCED Era: Australian and Canadian Perspectives* edited by Lorne Kriwoken, Marcus Haward, David VanderZwagg and Bruce Davis (London: Kluwer Law, 1996): 197.

The regulatory regime of MARPOL is continually evolving. The changes are partly the result of ongoing analysis and discussion amongst shipping experts at the IMO. Nevertheless, the Convention is also altered in terms of specific events. The series of tanker accidents that occurred throughout the 1970s and 1980s, ultimately culminating in the *Exxon Valdez* grounding in 1989, has led to the MARPOL mandate that all oil tankers must be double-hulled by 2015.

While there is no question about MARPOL's technical expertise in the development of pollution standards, the complaint is that it moves too slowly. For example, by the mid-1980s most experts accepted that all tankers should be double-hulled. Yet this became a regulation only in 1992 and it does not even come into force until 2015.

Enforcement is also a problem. While the record is improving, some flag states have been lax in enforcing MARPOL's regulations. Furthermore, MARPOL is ineffective in dealing with marginal ships. The *Prestige*, which sank off the shores of Spain, should never have been allowed to sail. The ship was old and badly managed. Yet it was allowed into several European ports until it became clear that it was going to sink. The international community's inability to prevent such disasters explains the enforcement challenges that face MARPOL.

4) International Convention for the Safety of Life at Sea (1914) (SOLAS)

SOLAS resulted from the loss of life from the sinking of the *Titanic*. This convention establishes minimum standards for the construction, equipment and operation of ships to ensure the safety of persons at sea (crew and passengers). As with MARPOL, SOLAS is updated as shipbuilding and navigation technologies have improved. For example, a 1974 protocol dealt with improvements for tanker safety that were spurred by a series of groundings. SOLAS is generally regarded as a successful convention.

^a Cf. *Bernaert's Guide to the Law of the Sea*, Fairplay Publications, 1988; Wang, James, *Handbook on Ocean Politics and Law*, Greenwood Press, 1992, pp.122 ff., 144 ff.; De Fontaubert and Luchtman, *Achieving Sustainable Fisheries*, IUCN, 2003.

^b LOS, Part IX, Enclosed or Semi-enclosed Seas, Article 123.

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