

Resource Exploitation and Navigation in a Changing Arctic

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Introduction

On 28 July 2007, Arthur Chilingarov appeared on television screens around the world holding a photograph of a Russian flag which had been planted in the sea floor under the North Pole to mark Russia's territorial claim to the slope of the continental shelf in the Arctic Ocean. He was in fact continuing a tradition that stretches back more than 400 years. As early as the 17th century, flags and arms were planted to mark possessions in the North Pole region. There are, for example, two 17th century paintings depicting the same whaling station against the same landscape, but showing different flags.¹ In 1906 Robert Peary claimed that he was the first human being to have reached the North Pole. Later he telegraphed that he had the "Stars and Stripes nailed to the North Pole".² Although not new, Russia's act of planting its flag to stake its claim was a wake-up call to the world, drawing attention to the North Pole region and the resources expected to be found there. It also demonstrated that the struggle for the resources in the North Pole region had begun and placed similar flag planting incidents by the two coastal States Denmark (2002) and Canada (2005) on Hans Island in the Nares Strait, as well as a Danish geological North Pole expedition, in a different perspective.

According to the models and the most recent observations, the melting of the sea ice is accelerating. From 1979 to 2007, the sea ice has decreased in surface by 40% and in thickness by 50%.³ It is expected that the Arctic Ocean will be free of ice in September in the period 2030-2050.⁴ This means that the Arctic Ocean will become open for the exploitation of natural resources and for new, shorter shipping routes within a foreseeable period of time. These challenges have attracted the

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¹ Abraham Speeck 'Painting of a Danish Whaling Station' (Skokloster Stockholm 1634) and Cornelis de Man 'Painting of a Dutch Whaling Station in the Northern Ice-Sea' (Rijksmuseum Amsterdam 1639).

² Peary *The North Pole: Its Discovery in 1909 Under the Auspices of the Peary Arctic Club* (Stokes New York 1910).

³ National Snow and Ice Data Center (NSIDC) 'Arctic Sea Ice Shatters All Previous Record Lows' Press Release (1 October 2007) <http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.html> (16 July 2009).

⁴ Arctic Climate Impact Assessment (ACIA) *Impacts of a Warming Arctic* (CUP Cambridge 2004), 192-93; Solomon et al. (eds.) *Climate Change 2007: The Physical Science Basis – Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP Cambridge 2007); NSIDC (ibid.).

attention both of Arctic and of many non-Arctic countries and have placed the region at the center of the world political arena.

This article will answer three questions: firstly, what are the main challenges for resource exploitation and navigation in an Arctic Ocean with decreasing sea-ice cover and in the current financial setting? Secondly, how can existing international institutions and organizations address these challenges and thirdly, is the international community able to contribute to finding political solutions in new situations?

Oil and Gas Exploitation in the Arctic

In recent years, expectations for the Arctic have been high: 13% of the potential world oil reserves and 30% of the potential world gas reserves are to be found there, according to the US Geological Survey, and a shortening of the navigation distance between Europe and Asia of roughly 50% is predicted.⁵ At the same time, however, the current world financial crisis has caused an enormous shortage of money and oil prices have collapsed. Exploratory deep-sea drilling is expensive and large investments are needed. In the Arctic the expected production costs depend on the location and range from \$50-\$200 per barrel of crude oil. With the current financial crisis and the low world market prices for crude oil,⁶ investments in deep-sea drilling are not very likely in the near future, meaning that deep-sea oil and gas prospecting is unlikely to be conducted before market prices rise again and money is once more available for investments.



World market prices for a barrel of crude oil, 1998-2008.

⁵ US Geological Survey 'Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle' Factsheet 2008-3049 <<http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf>> (3 July 2009).

⁶ Ca. \$ 48 per barrel crude oil in March 2009.

It is expected that the coastal States of the Arctic Ocean will continue with oil and gas prospecting on land and within their Exclusive Economic Zone (EEZ) on the continental shelf.⁷ The exploration of the Arctic Ocean will be delayed by the financial crisis. This does not mean that the political claim-staking behavior of countries in the Arctic Ocean will stop but the chances of investment in the actual exploitation of resources in the near future have decreased enormously in the last few months.

Secondly, the exploitation technology using remotely-operated sub-sea stop cocks⁸ has not yet been fully developed for the deeper parts of the shelf seas. In particular, the technology necessary for the exploitation of complicated humid, high-pressure gas fields such as the largest offshore gas field in the world, the Shtokman field in the Barents Sea, is still insufficient. More time is needed to develop the high technology necessary for the safe sub-sea exploitation of this vast gas field. The Shtokman field is estimated to contain 23 billion cubic meters of gas and 37 million tonnes of gas condensate. Although the Russian gas company Gazprom has signed an agreement with Total, Statoil and Norsk Hydro to develop the field, work is proceeding very slowly, partly because of a slackening of Russian governmental policy and partly because of the Russian lack of technological capacity.⁹

However, the preparations for the exploitation of the resources in the Barents Sea have started and will continue in the near future. Gazprom has much experience on land but will need the assistance of western oil and gas companies and contractors for offshore drilling. The company needs help to build the offshore infrastructure required to transport oil and gas to the existing pipelines leading to the European market in the south. Specifically, what is needed is a pipeline connection to the existing pipeline system and a liquefied natural gas (LNG) loading platform near Murmansk. Dutch firms such as Royal Boskalis Westminster NV have already begun dredging, in cooperation with Russian companies like MRTS,¹⁰ to prepare for the construction of pipelines (Baydaratskaya Bay) and an oil terminal in the Pechora region of Northern Russia, to be called Varandey oil terminal.¹¹

The expectation is that Murmansk will develop into the offshore harbor for prospecting and exploiting the resources in the Russian part of the Barents Sea. At present intergovernmental discussions are taking place between a number of Euro-

⁷ Personal interview, Geert Greving, Gas Terra, Groningen, Netherlands, 17 February 2009, see also <www.gasterra.nl> (21 July 2009).

⁸ The Norwegian Oil and Gas Company Statoil has developed remotely-operated subsea installations and pipeline transport to land where the gas is liquefied and transported further.

⁹ International Institute for Strategic Studies (IISS) *Strategic Survey 2008: The Annual Review of World Affairs* (Routledge Abingdon 2008) 58-71.

¹⁰ MezRegionTruboprovodStroy (MRTS), for further information, see <http://www.mrts.ru/podvod_en.html> (16 July 2009).

¹¹ For more information on the Varandey project, see <http://www.boskalis.com/vervolg_investor.php?pageID=2991> (16 July 2009).

pean countries and Russia to create the local knowledge environment necessary for the offshore industry. The discussions between the Russian authorities and the Norwegian and Dutch governments are currently focusing on setting up an expertise center at the Technical University in Murmansk, which is linked with the Gubkin University in Moscow. The Russian authorities are concentrating on scientific cooperation, transfer of technical knowledge, business support and education. The ties between the twinned cities of Murmansk and Groningen are being used to enhance the transfer of knowledge. Groningen University and technical high schools are also working with their Russian partners to build up technical capacities in Murmansk.¹²

Russia needs safety and health regulations (search and rescue) and trained technical staff and that takes time. Another delaying aspect is the fact that subdivisions of Gazprom are making the rules for drilling (Vniigaz) and for environmental impact assessments (Firega). These aspects have to be solved before the exploitation of the Shtokman gas field can begin. The expectation is that the first flow will come out of this field around 2015.

On land, Russian oil and gas exploitation is currently concentrated in the Nenets Autonomous District of the Archangelsk region, in the Komi Republic along the Pechora River and in the Yamal-Nenets Autonomous District in Western Siberia.¹³ The estimated yearly production in these three regions is 93 million tonnes of crude oil and 742 trillion cubic meters of natural gas. Most of this oil and gas is transported to the European market by pipelines. Because of the drop in oil prices the Russian economy is suffering the effects of the world financial crisis, as is investment activity in energy production.

Considerable oil and gas reserves have recently been identified in the Canadian Arctic. They are located both on land and on the continental shelves. In the 1960s, substantial reserves of gas and some small oil fields were discovered in the Sverdrup Basin and in the following decades new discoveries were made in the Mackenzie/Beaufort Basin. The gas deposits found in the Mackenzie are particularly large. These gas deposits can however only be economically exploited if oil prices remain stable over a relatively long period. A total of 1665 million barrels of oil and 1157 billion cubic meters of natural gas have been discovered in the Mackenzie delta and the Arctic Islands. The oil was found in 45 separate fields and gas in 84 fields.¹⁴ Extraction is currently small scale because of the costs for both oil and gas. The exploitation of many of the fields was considered to be uneconomical under 1990s market conditions, but became attractive with the increase in oil and gas prices in the early years of the 21st century. The 2008 financial crisis has however decreased the allure of these fields. It will take some time before attention is focused on these oil and gas deposits once again.

¹² Personal interview, Geert Greving, Gas Terra (note 7).

¹³ Arctic Monitoring and Assessment Programme (AMAP) *AMAP Assessment Report: Arctic Pollution Issues* (AMAP Oslo 1998) 666.

¹⁴ *Ibid.* 664.

The Prudhoe Bay Oil Fields were discovered at the end of the 1960s. These oil fields were assessed as containing 20 billion barrels of oil. In 1977, when the construction of the Trans-Alaska Pipeline System (TAPS) was finished, the Prudhoe Bay oil fields were connected with Port Valdez in South Alaska. In 1989, production in these fields declined and plans were made to exploit the small fields in the neighborhood including the oil fields in the Arctic National Wildlife Refuge (ANWR).¹⁵ The decision to start exploratory drilling in the ANWR prompted much debate within and outside the USA. However, the exploration continued and three offshore drillings were successful, one of them located 12 miles offshore of the ANWR. Consequently, the State authorities of Alaska have recently granted permission to explore within the three mile zone along the ANWR coast.¹⁶

Energy production in the north is unlikely to cause a significant increase in transport in Arctic waters because a great deal of oil and gas is transported by pipeline. However, owing to resistance from locals, the Mackenzie Pipeline has not yet been constructed.¹⁷ This lack of a pipeline might cause an increase in LNG transport from the Canadian Arctic gas fields in the long term.

Arctic Navigation

Arctic shipping will probably start earlier than expected. Within 5-10 years ice-strength ships will be sailing the Northwest Passage and the Northeast Passage in the summer. These passages will shorten the distance between Europe and Asia on the one hand, and between America and Asia on the other, by approximately 50%. However, the profits to be made from the Northeast or Northwest Passage shipping routes will depend very much on the duties imposed by the Russian and Canadian governments.

Within 30-40 years, a third shipping route will become available. Then a North Polar route passing the geographical North Pole may be open for year-round traffic. The big advantage of a transpolar route is that it will be shorter than the other two because it runs across the open Arctic Ocean, where there are no borders and no custom and no duties have to be paid. All three polar navigation routes are not only shorter, but by using these routes ships will also be able to avoid bottlenecks like the Suez Canal and the Panama Canal and risky areas like the Gulf of Aden and the Strait of Malacca (piracy). So far, the Arctic has been a stable region without open conflicts and in this respect is a safe region.

Despite duties, the greater risk posed by icebergs and the related higher insurance premiums, and presumably the slower speed at which they can be crossed,

¹⁵ Ibid. 664-65.

¹⁶ For a debate on exploratory drilling in the ANWR, see Chance 'The Arctic National Wildlife Refuge: A Special Report' <www.arcticcircle.uconn.edu/ANWR/> (17 July 2009) ch 'Controversy and Debate'.

¹⁷ Bone *The Geography of the Canadian North: Issues and Challenges* (OUP Oxford 2003) 148-49.

these Arctic routes are so much shorter that they have to be commercially attractive, especially when oil prices are high (Table 1). Because there is almost no infrastructure at present in the Arctic, large investments by governments and shipping companies will be needed to build harbors and to set up a search and rescue system. When ready, the new shipping routes will probably change the trading patterns of the whole world. The management of these new routes will be an issue for coastal and non-coastal States.¹⁸

More traffic will increase the role of the Arctic region in the world economic system, and this will stimulate aspirations for greater autonomy or independence among indigenous peoples, since additional shipping activity will bring with it greater stability for their economies. This process is already taking place. On 26 November 2008, Greenland voted yes to greater independence from Denmark,¹⁹ and Nunavut has been a territory with a kind of home rule within Canada since 1999.²⁰

Table 1. Differences in Length of Shipping Routes between Rotterdam and Yokohama and New York and Yokohama

Rotterdam	-	Yokohama via NWP	7833 NM
Rotterdam	-	Yokohama via Cape of Good Hope	15,784 NM
Rotterdam	-	Yokohama via NEP	7308 NM
Rotterdam	-	Yokohama via NP	6520 NM
Rotterdam	-	Yokohama via Suez Canal	11,748 NM
New York	-	Yokohama via NWP	7925 NM
New York	-	Yokohama via Panama Canal	10,535 NM
New York	-	Yokohama via Cape of Good Hope	15,634 NM

Special ice-strength ships are being developed which have special propellers (asi-pots) to break the ice in shallow water. These are already being tried out in the Caspian Sea where they are used to provision oil drilling platforms.²¹ In other sea areas too, ship owners are preparing their fleet to navigate in icy maritime conditions. The Arctic Ocean will thus become an ocean just like the other oceans in the world. The Northwest and the Northeast shipping routes will also become attractive for bulk carriers and LNG tankers in particular, because of the presence of minerals, oil and gas fields along the routes. Everything will however depend on

¹⁸ IISS (note 9) 59.

¹⁹ 75.55% of the Greenlanders said yes to more independence for Greenland, see <http://uk.nanoq.gl/Emner/News/News_from_Parliament/2008/11/Yes_for_Self_Governance.aspx> (21 July 2009).

²⁰ van Dam *A Place Called Nunavut: Multiple Identities for a New Region* (PhD thesis University of Groningen 2008) 1-3.

²¹ Personal interview, Johan Adriaanse, Royal Wagenborg Shipping, Delfzijl, Netherlands, 3 March 2009, see also <www.wagenborg.com> (21 July 2009).

the level of duties imposed. The duties imposed at present by the Russians on the sailing of the Northeast Passage are much higher than the fees ship owners have to pay to use the Suez Canal.

Many local sailing routes will come into existence before the three transpolar routes have been developed, especially in the shelf seas with oil and gas fields—the Beaufort Sea and the Barents Sea. For example, oil transport from Northern Russia to Rotterdam increased by 300% in 2007-2008. It is expected that the number of LNG tankers will increase as soon as the exploitation of the gas fields in the Barents Sea starts²². The distance between these oil and gas producing regions and harbors like New York and Rotterdam will be much shorter than the distance from the traditional oil and gas producing regions in the Middle East (Table 2). This aspect will be an important stimulus for shipping activities in the Arctic and will substantially increase the number of tankers in the North Atlantic and the Barents Sea.

This will not however be the case in the Bering Sea and the Beaufort Sea, since there the Trans-Alaska Pipeline System transports most oil and gas and will most likely continue to do so in the future. As has been said before, the future exploitation of oil and gas in the Sverdrup fields might increase the number of LNG tankers in the waters of Arctic Canada.

Oil and gas are not the only minerals that could be exploited in the Arctic. Iron, lead/zinc and diamond mines are under development in several Arctic regions. Transportation by ship is often the only way to transport the products of the mines to the market. Plans have been drawn up to develop a high-grade iron-ore mine in Mary River in Nunavut, Canada and a zinc/lead mine, the Black Angel Mine, in Greenland. The expectations for both mines are very high, the feasibility studies promising and the environmental impact assessments acceptable.

Table 2. Distances from the Oil and Gas Producing Regions to New York and Rotterdam

New York	-	Barents Sea	4186 NM
New York	-	Kuwait via Suez Canal	8655 NM
New York	-	Kuwait via Cape of Good Hope	12,454 NM
New York	-	Prudhoe Bay via NWP	4266 NM
New York	-	Prince William Sound via NWP	6553 NM
New York	-	Prince William Sound via Pan. Canal	7653 NM
Rotterdam	-	Barents Sea	1651 NM
Rotterdam	-	Kuwait via Suez Canal	7305 NM
Rotterdam	-	Kuwait via Cape of Good Hope	12,774 NM
Rotterdam	-	Prudhoe Bay via NWP	4648 NM
Rotterdam	-	Prince William Sound via Pan. Canal	10,421 NM

²² Arctic Monitoring and Assessment Programme (AMAP) *Arctic Oil and Gas 2007* (AMAP Oslo 2007) 31-33.

The ore will be shipped on a year-round basis in ice-strength cargo carriers which have proven cost effective and reliable for well over 20 years at Arctic mines such as Polaris in Resolute and Nanisivik in Arctic Bay. The ore from both new mines will be shipped to Europe, which makes it very competitive because of the shorter distance between the mines and the market. The distance between Rotterdam and Steensby (Mary River)²³ is 3100 nautical miles and the distance between Rotterdam and the alternative production region Brazil is 5000 nautical miles. The same is true for the Greenland Black Angel mine and Rotterdam. This mine is owned by a British firm, which makes it even more logical to transport the products to Europe.²⁴ In Scandinavia, it is expected that the Syd-Varanger iron-ore mine in Kirkenes will be re-opened. The production of this mine will increase the number of bulk carriers in the Norwegian Sea (Table 3).

The Arctic region and its attractions were already known to tourists a century ago, so it cannot be said that the recent changes have introduced the area to the public. However, the economic growth and the changing circumstances in the Arctic have encouraged a greater number of people to travel to the north. Every summer large cruise ships sail to Spitsbergen, Greenland, Canada and Alaska²⁵. The Bering Sea, Beaufort Sea, Davis Strait, Greenland Sea, Norwegian Sea and Barents Sea are the targets of the modern tourist and an increased number of ships have been counted in the last five years. The financial crisis will however have an effect on this development and will doubtless lead to a renewed decrease in traffic.

Governance and Legal Regimes

The interaction of the Arctic with the rest of the global system means that the area is of more than regional importance. Therefore, it can be argued that the future of the Arctic Ocean is not the responsibility of the five coastal States alone but is rather of common concern to all countries in the world.

For many maritime activities no regulatory regimes exist in the Arctic. On 28 May 2008, in Ilulissat in Greenland, the representatives of the five coastal States declared that the existing legal framework provided by the United Nations Convention on the Law of the Sea (UNCLOS)²⁶ was a solid foundation for responsible

²³ For more information on the Mary River Project, see <<http://www.baffinland.com/MaryRiverProject/default.aspx>> (16 July 2009).

²⁴ Angus & Ross plc, for information on the Black Angel project, see <<http://www.angusandross.com/AR-NEW/pages/proj-black-angel.htm>> (16 July 2009).

²⁵ Arctic Council 'Arctic Marine Shipping Assessment 2009 Report' (April 2009) <http://arcticportal.org/uploads/4v/cb/4vcbFSnnKFT8AB5lXZ9_TQ/AMSA2009Report.pdf> (21 July 2009).

²⁶ United Nations Convention on the Law of the Sea (concluded 10 December 1982, entered into force 16 November 1994) 1833 UNTS 396.

management.²⁷ However, according to Koivurova and Molenaar,²⁸ UNCLOS has turned out to provide only a framework and not an operational regulatory regime. There is no requirement for integrated ecosystem-based ocean management and there is no regime for environmental impact assessment. There are no representative networks of marine protected areas in the Arctic Ocean and there is no default regulatory mechanism for maritime activities of all kinds.²⁹

There is no international organization strong enough to regulate the emerging and new maritime activities and the long-term exploitation of natural resources. The Arctic Council is a high-level forum but not a formal international organization. According to the USA and Russia, the Arctic Council has a limited mandate for the protection of the environment and sustainable development.³⁰ It is therefore unlikely that the Arctic Council will be able to deal with events resulting from increased economic activity in the Arctic. What's more, the members of the Arctic Council have their differences when it comes to the roles of coastal States and non-coastal States.³¹ Some non-Arctic countries are observers with the same weak position as NGOs such as the International Federation of Red Cross (IFRC) and World Wildlife Fund (WWF), and are permitted to state their opinions at the end of meetings but do not participate either in the discussions or in the Council's decision-making processes.³² Although the Arctic Council provides a useful platform for interaction with indigenous peoples, it is not likely that the Council will be transformed into a formal international organization.³³ The International Maritime Organization (IMO) also has a limited mandate and it is not likely that this organization will be upgraded to a political organization.

The world financial crisis will lead to a decrease in investment in the North Pole region and the time needed to develop sub-sea technology will provide a window in which to consider the establishment of an international governance system to regulate shipping and resource exploitation in the Arctic Ocean. It will provide an

²⁷ Ilulissat Declaration, Arctic Ocean Conference, Greenland, 27-29 May 2008 <<http://arctic-council.org/filearchive/Ilulissat-declaration.pdf>> (16 July 2009) para 4.

²⁸ Koivurova/Molenaar *International Governance and Regulation of the Marine Arctic: Overview and Gap Analysis* (WWF International Arctic Programme Oslo 2009) <http://assets.panda.org/downloads/gap_analysis_marine_resources_130109.pdf> (16 July 2009) 7 (Table 1).

²⁹ Ibid. 40.

³⁰ United States National Security Presidential Directive and Homeland Security Presidential Directive NSPD 66/HSPD 25 'Arctic Region Policy' (9 January 2009) <<http://www.fas.org/irp/offdocs/nspd/nspd-66.htm>> (16 July 2009) ch III.C.2; 'Osnovi gosudarstvennoi politiki Rossiyskoi Federatsii v Arktike na period do 2020 goda i dalneishuju perspektivu' ('The Basics of the State Policy of the Russian Federation in the Arctic for the Period to 2020 and a Further Perspective') Utverzheniye Prezidentom Rossiyskoi Federatsii (adopted by the President of Russia) (18 September 2008) promulgated on 30 March 2009 in the "Rossiyskaya Gazetta".

³¹ Haquebord 'Klimaatverandering en geopolitiek in de Arctis' *Geografie* 11 (2008) 26-28.

³² Arctic Council observer countries: China, France, Germany, Italy, Poland, Spain, the Netherlands and the United Kingdom.

³³ United States National Security Presidential Directive and Homeland Security Presidential Directive NSPD 66/HSPD 25 (note 30) ch III.C.2.

opportunity to consider an Arctic Ocean Treaty System that could create a management regime for the Arctic Ocean ecosystem. As under the Antarctic Treaty System,³⁴ countries could become consultative members of such a treaty system on the basis of their continuous research endeavors in the region. The indigenous peoples should have a permanent position in the treaty based on their territorial rights and on their rights to exploit the resources in the area.

Since the European Union has a strong interest in future transport developments in the Arctic and in developments in gas production, the EU itself could make a major contribution to the establishment of such an Arctic Ocean Treaty System and play a broker's role through its northern member countries (Denmark, Sweden and Finland). However, to play that role in the Arctic political arena the EU should develop an Arctic policy that removes all doubt about its interest in the Arctic³⁵. Such a policy should be based on existing treaties, scientific research and the protection of the vulnerable Arctic environment.³⁶

As a subsequent step, the EU could propose a management regime for the Arctic Ocean based on that Arctic Ocean Treaty System and focused on the careful economic exploitation of natural resources and the protection of the fragile Arctic environment.

Summary and Conclusions

Summing up, we see that resource exploitation in the Arctic needs some time to develop and that coastal countries are currently concentrating their prospecting and exploitation activities on land and within their EEZ. So far, the global financial crisis has not killed interest in resource exploitation in the Arctic and the Arctic Ocean, but it will certainly slow down activities. The political interest in and the discussion about the territorial division of the Arctic Ocean will continue. On land, preparations to build up local knowledge for offshore and other activities will continue.

Arctic navigation is about to start on a larger scale. Governments and ship owners are preparing their ships and crews to sail into the remaining sea ice of the Arctic Ocean. The construction of the necessary harbors and the development of an adequate search and rescue system are being discussed by the coastal States. Shipping has already increased on local routes and in tourist regions.

Much is going on in the Arctic waters and policy responses are needed with respect to both the exploitation of natural resources and the regulation of navigation.

³⁴ Antarctic Treaty (signed 1 December 1959, entered into force 23 June 1961) 402 UNTS 71.

³⁵ Airoldi 'The European Union and the Arctic – Policies and Actions' in Nordic Council of Ministers *Common Concern for the Arctic, Conference Arranged by the Nordic Council of Ministers 9-10 September 2008, Ilulissat, Greenland* (Nordic Council of Ministers Copenhagen 2008) 65-68.

³⁶ Final Declaration, Monaco Conference, Monaco, 9-10 November 2008 <http://eu2008.fr/webdav/site/PFUE/shared/import/1109_UE_Arctique/1109_EU_Arctic_Final_statement_1111_EN.pdf> (16 July 2009).

At the moment, there is no international organization that can address the developments expected in the Arctic region. The Arctic Council is an organization with a limited mandate, with non-Arctic countries having observer status only and not participating in discussions. The International Maritime Organization is a non-political organization with a limited mandate. As an important player in the international community, the EU should promote the establishment of an Arctic Ocean Treaty System and propose a management plan for the Arctic Ocean that will guarantee the survival of flora and fauna in the Arctic.

Table 3. Overview of the Major Mines in the Arctic

Mine	State	Location	Product	Type of mine	Situation	Ownership
USA						
Fort Knox Mine	Alaska	Fairbanks	Gold	Open pit	Active	Kinross Gold Cooperation
Red Dog Mine	Alaska	Kotzebue	Zinc/Lead	Open pit	Active	Teck Cominco
CANADA						
Ekati Mine	NW Territories	Lac de Gras	Diamond	Open Pit	Active	BHP Billiton Diamond Inc
Diavik Mine	NW Territories	Lac de Gras	Diamond	Open pit	Active & under development	Harry Winston Diamond Corp. & Diavik Diamond Mines Inc.
Snap Lake Mine	NW Territories	Snap Lake	Diamond	Underground	Active	De Beers Canada
Jericho Mine	Nunavut		Diamond	Open pit	Active	Tahera Diamond Coop.
Lupine Mine	Nunavut		Gold	Open pit	Closed 2004	Echo Bay Mines Ltd
Ulu Mine	Nunavut		Gold	Underground	Closed 1996	Echo Bay Mines Ltd
George Lake Mine	Saskatchewan	La Ronge	Gold	Open pit	Active	War Eagle Mining Comp. Inc. near Bathurst Inlet
Robert and Ida Bay	Nunavut	Cambridge Bay	Silver	Underground	1967-1972; closed 1972	Hope Bay Mining Company

Polaris Mine	NW Territories	Resolute	Zinc/Lead	Open pit	Closed 2002	Teck Cominco
Rankin Inlet Mine	Nunavut	Rankin Inlet	Nickel/Copper	Open pit	1957-1962; closed	
Mediadine Mine	Nunavut	Rankin Inlet	Gold	Open pit	Active / Exploration	Comaplex Mineral Corp / Cumberland Resources Ltd.
Cullaton Lake Mine	Nunavut		Gold	Underground	1976-1985; closed	Homestake Canada Inc
Nanisivik Mine	Nunavut	Arctic Bay	Zinc/Lead	Open pit	1976-2000; closed	Nanisivik Mines Ltd
Mary River Mine	Nunavut	Mary River	Iron	Open pit	Under development	Baffinland Iron Mines Corporation. Steensby Inlet
GREENLAND						
Black Angel Mine	Western Greenland	Maarmorilik	Zinc/Lead	Open pit	Closed 1990; under development	Black Angel Mining A/S
Ivittuut Mine	Grønnedal	Ivittuut	Cryoliet	Open pit	In production 1865-1987; closed	
FINLAND						
Agnico-Eagle Mine	Lapland	Kittila	Gold	Open pit	Under Development Production started 2008	Anico-Eagle Mine Limit

SWEDEN						
Kiruna Iron Ore Mine		Kiruna	Iron	Open pit and Underground	In production from 1890 Underground in 1960	Operated by LKAB Sweden
Malmberget Iron Ore Mine	Lappland	Malmberget	Iron	Open pit	In production since 1892	Operated by LKAB Sweden
NORWAY						
Syd-Varanger Iron Mine	Finnmarken	Kirkenes	Iron	Open pit	Closed 1997 Under development since 2009	Australian Northern Iron Ltd.
RUSSIA						
Norilsk Nickel Mine	Siberia	Norilsk-Dudinka	Nickel, Palladium, Platinum, Copper	Open pit	Since 1920	MMC Norilsk Nickel Group
Kupol Mine	Chukotka Region	Bilibino	Gold/Silver	Open Pit		Kinross / Chukotka Government
Nikel (Petsjenga) Mine	Murmansk Oblast	Kola, Nikel	Nickel		Since 1945	After WWr II production by MMC Norilsk Nickel Comp