

Energy Exploitation in Canada's Arctic: Solutions to a Wicked Problem

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Introduction



Figure 1. A map of the Arctic with detail highlighting areas of major resource development in purple, in the Mackenzie Valley Area/ Beaufort Sea where the most promising amount of Canadian resources lie in Baffin Bay and the Labrador Sea. Data source: Roto & Sterling (2011). Modified from original image By University of Texas Libraries (Texas University at Austin) [Public domain], via Wikimedia Commons.

With high global rates of consumption, oil production has plateaued (Kerr, 2011). As the globe is combed for the last reservoirs, corporations and nations are all trying to get in on the action to extract the resources we are using at an alarming rate. An estimated 178 trillion cubic feet of recoverable gas and 14,265 million barrels of recoverable oil lie in the Canadian Arctic (Drummond, 2009). Both offshore and onshore drilling projects are of interest, where offshore reserves in the Beaufort Sea have the most exploration activity, and reserves in Baffin Bay have not yet been developed but show promise (as can be seen in Figure 1). Energy exploration and exploitation in the Canadian Arctic is a heated debate. Supporters are fueled

by the economic gain of resource extraction. Detractors center on the damage to the environment, and the risk of spills, as well as issues of indigenous rights. While the resources may lie in Canadian waters, issues surrounding their extraction extend to a global scale, bringing the debate onto a multinational level.

Framing the Problem

There are numerous stakeholders with conflicting values concerning offshore drilling, as outlined in Figure 2. Corporations, Inuit, the government, and a fragile and harsh environment contribute to the complexity. Corporations worldwide are now showing an interest in a land that has been occupied by Inuit since time immemorial.

Aboriginal groups have increased their power as more groups establish title over their traditional territories. Whether or not their rights will extend to resource extraction in the ocean, something Inuit have historically had no authority over, is less concrete (“Beaufort Sea”, 2011). The government has consulted the numerous stakeholders via the National Energy Board (National Energy Board [NEB], 2011) to flesh out the issues at hand; there are many that have yet to be resolved.

The most prominent issue is the threat of a blowout. The Deepwater Horizon disaster in the Gulf of Mexico has set the tone for discussions involving energy in the Arctic (NEB, 2011). A spill would have catastrophic effects on the sensitive Arctic ecosystem. Species unique to the Arctic will be forced to interact with anthropogenic forces that jeopardize what little habitat remains after devastating rises in Arctic temperatures (Kaplan & New, 2006). Biodiversity, already threatened by climate change, faces even greater risk from development where previously the land was sparsely occupied. What’s more, shifting, melting ice can spread oil slicks around the globe (WWF, n.d.). Regardless of the NEB’s decisions, Arctic drilling in Canada is a global issue. Canada is only one of the several Arctic states and a fraction of the Inuit Circumpolar perspective, and cannot control the projects approved by other countries.

The dependency of Inuit communities on hunting is another concern (NEB, 2011). While extraction projects have the potential to become a local income source, they cannot replace the cultural and supplemental value of Arctic resources lost. The issue hinges on the integrity of the drilling technology; proposed projects will remain prohibited by the NEB until drilling equipment poses no risk to the environment (NEB, 2011).

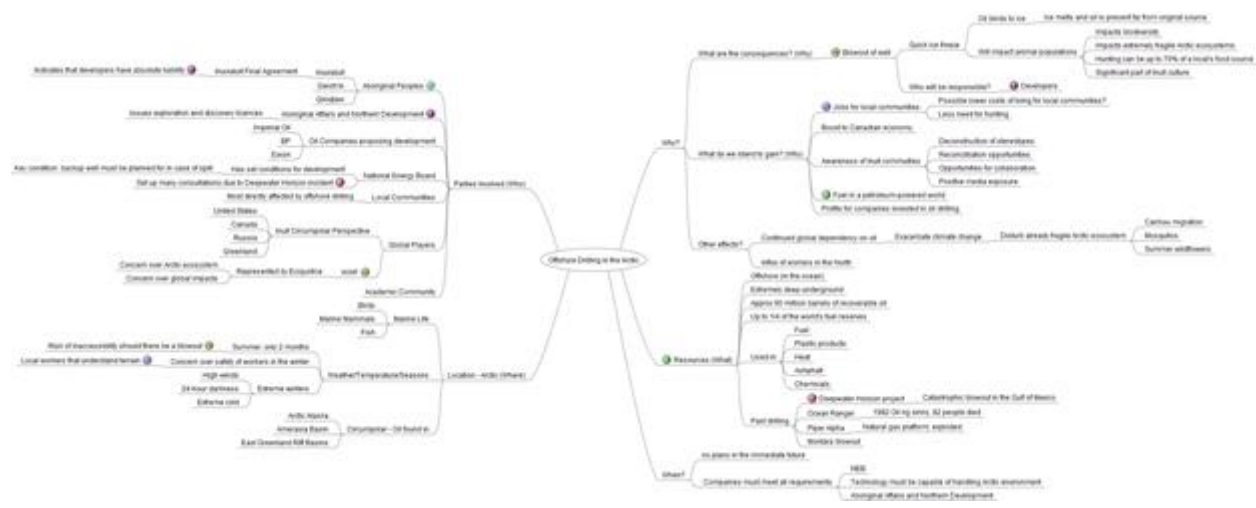


Figure 2. Mind map of offshore drilling in the Arctic. Details the factors involved in potential offshore resource extraction in the Arctic. By Emily Doan.

Governance

Governance Framework

The United Nations Convention on the Law of the Sea (UNCLOS) is the central international legislation for the Arctic region. The law delineates national claims throughout the Arctic region and describes broad environmental protection measures that all nations must abide by (Emmett & Stuhltrager, 2011).

Within Canada, the federal government is the main body regulating oil and natural gas production. The Canada Oil and Gas Operations Act is a comprehensive document outlining the responsibilities of government and developers during exploration or extraction projects (Canada Oil and Gas Operations Act, 1985). The Canada Petroleum Resources Act furthers government control of the oil and gas industry by enabling them to grant exploration or extraction licenses to interested developers (Canada Petroleum Resources Act, 1985). The National Energy Board Act gives legal authority to the National Energy Board (NEB) and outlines its mandate (National Energy Board Act, 1985). The NEB conducts reviews and consultations with stakeholders to weigh their needs against the needs of the Canadian population (NEB, 2011). While the NEB is a federal agency, the federal government operates separately from the NEB and pursues the interests of the political party in power.

There are few territorial agreements in place in the Canadian Arctic. The territories have governments that manage local matters, but operate only as extensions of the federal government (Territorial Lands Act, 1985). This lack of territorial jurisdiction has resulted in poor representation of disenfranchised northern communities. Nunavut however, operates through the Nunavut Land Claims Agreement, which grants Inuit equal representation with the federal government and a range of rights and title across the territory. Despite this step toward devolution, the federal government controls resource extraction on Nunavut Crown land, passing a proportion of royalties gained to the Inuit of Nunavut (Nunavut Land Claims Agreement Act, 1993).

Some Inuit groups have decision-making power on claimed land, and their agreements often include oil resources rights (Fenge, 2007). The federal government has made several land agreements with Inuit groups in the Arctic, such as the Inuvialuit Final Agreement.

Governance Practices

The Canadian government displays a low level of transparency surrounding oil and gas governance. While most legislation relevant to the oil and gas industry is available online, the documents can be difficult to locate, are lengthy, and use complex terminology.

The NEB however, has displayed an adequate level of transparency, especially following the Deepwater Horizon spill of 2010, which resulted in the NEB increasing the inclusivity of stakeholder consultations. These consultations were included in their 2011 review of Arctic offshore drilling, which is published online in a more accessible format than the legislative documents of the federal government (NEB, 2011).

Outside of the lands they hold title to, Inuit groups have no decision-making power, despite the effects resource extraction activities can have on their traditional hunting grounds.

Concerns about the impact of drilling on indigenous lifestyles have motivated northern residents to participate in consultations, especially with the NEB (NEB, 2011), but without empowered participation.

Accountability of the decision-makers and oil companies involved in Arctic oil and gas appears to be adequate. However, because offshore drilling is still in the consultation stage, there are no true examples of federal accountability.

Moving Forward

Environmental

Spills are the most voiced concern in discussions of Arctic oil and gas (NEB, 2011). A spill would be extremely detrimental to the biotic ecosystems of the Arctic, compromising the habitat of many organisms (WWF, n.d.). While spills are a serious threat, other indirect anthropogenic factors also pose threats to the Arctic ecosystem. Noise from drilling activities and tankers can cause physiological stress, and hearing loss for marine mammals (Moore et al., 2012). Pollution, including the release of discharges and air emissions, occurs throughout the process of oil exploration and production, threatening ecosystems and many levels of biota (AMAP, 1997).

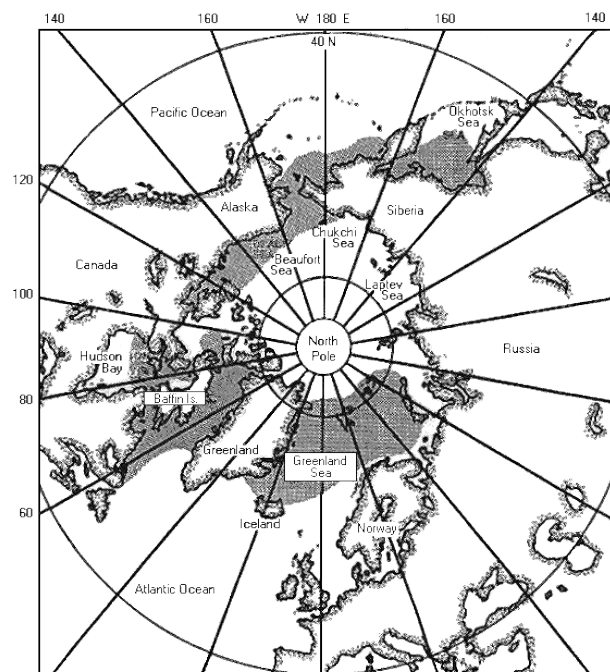
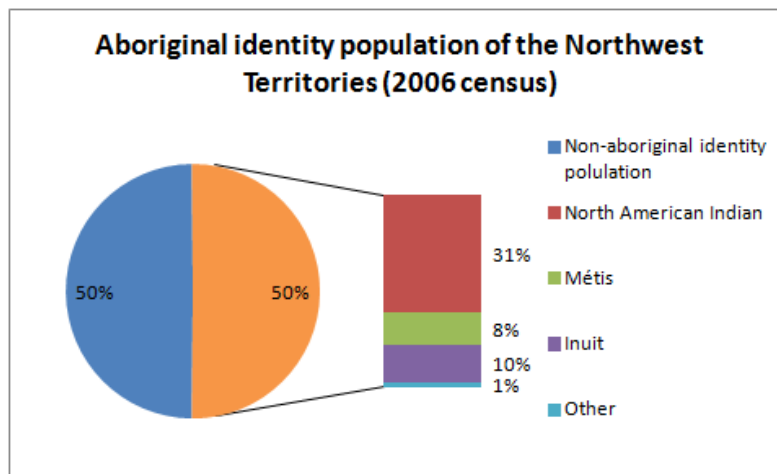
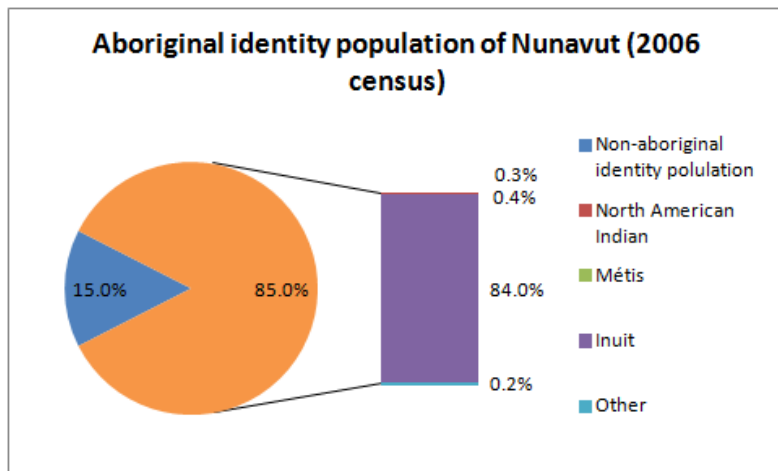


Figure 3. Map of the range of the bowhead whale (*balaena mysticetus*). Image by National Oceanic & Atmospheric Administration [Public domain], via Wikimedia Commons

More research is needed to formulate a solution that addresses environmental concerns related to oil and gas activities in the Arctic, as there is little information verifying the effectiveness of government oil and gas regulation and implementation (O'Rourke et al., 2003). Thus, efficient and large-scale research and monitoring is a first priority in approaching a solution to environmental risk. This could be funded collectively by all Arctic governments and companies interested in Arctic hydrocarbon resources. However, to create the ideal

objectivity and transparency, monitoring and research should be conducted by a third party scientific body. A new research initiative is essential in the short term, but continued research and monitoring is also important in the long term. Global climate change is constantly altering the ecosystem, and therefore needs to be consistently monitored over time (Kaplan et al., 2006). Beyond environmental monitoring, research to improve preventative and responsive spill technologies should be a long-term goal to improve environmental safety of oil and gas operations.

With biodiversity extinction at a rate not seen since the last mass extinction event, preserving biodiversity should be a primary focus in policy decisions moving forward (Rockstrom et al., 2009). Given the knowledge gaps discussed above, immediate action should be taken to delay drilling operations until research about the environmental effects is solidified. While policy formation at an international level is difficult, efforts at drafting global environmental policies should be made in the future to protect important and keystone species and their habitats. Similarly, the Canadian Species At Risk Act (SARA), should be strengthened for Arctic species like the Bowhead Whale, whose Western population's summering area overlaps with the areas of hydrocarbon resource interest in the Beaufort Sea and whose Eastern population's range extends into the petroleum interest areas of Baffin Bay (as can be seen in comparing Figure 3 and Figure 1) (COSEWIC, 2009). Furthermore, if drilling opportunities should arise, strict regulations on pollution created for all stages of oil and gas extraction should be enforced



Social

A key component of the Arctic drilling issue is to consider the gaps in governance below the federal level. Inuit groups have typically interacted with the federal government in order to establish title claims and rights over resources (Broadhead, 2010). Given that the majority of the population of the Northern Territories identifies as Inuit (as shown in Figure 4), it would be logical to place more decision-making power into their hands.

These statistics indicate that a significant population of the Arctic has a culture that relies on resources put at risk by development projects. In the short term, it should logistically be possible to involve Inuit in continuous discussion and consultation. Investing in proper communication with communities is paramount for proper consultation of Inuit as outlined by the Constitution (Parliament of Canada, 2007). Concerns voiced by Inuit should be addressed with real and practical solutions. Concerns for the environment, for example, should be met with proof of sound technology.

Jurisdiction can realistically be given to Inuit through land claim agreements. The territory

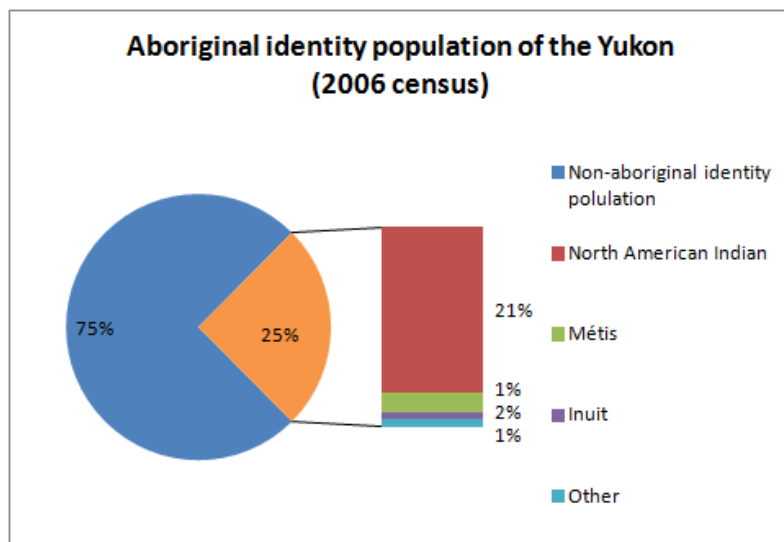


Figure 4. Population demographic of Canadian territories, comparing the percentage of people that identify as Aboriginal to those that do not. Data source: Inuit Statistical Profile (2008) Graphs by Marina Melanidis.

of Nunavut – co-governed by Inuit and the Canadian government – is an example of the potential for collaboration. The movement of authority from the federal to the local level would require incredible organizational integrity, which is achieved in Nunavut through Nunavut Tunngavik Incorporated, the legal representative of the Inuit (Nunavut Land Claims Agreement, 1993).

The UN declaration on the Rights of Indigenous Peoples has stated that Indigenous peoples should be given the right to “free and informed consent” in regards to “any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources” (United Nations, 2008, p.12). Canada was one of only four countries to vote against this non-binding motion (Declaration on the Rights of Indigenous Peoples, n.d.), effectively barring Inuit ability to consent to decisions concerning the environmental health of their communities. Officially endorsing a

declaration that has existed for over 8 years is a gateway into giving Inuit right to consent and protecting the Arctic environment.

Global perspectives

The Arctic Ocean is not physically divided according to international borders and economic zones the way maps may depict it to be. Currents and migratory species interact across Arctic states, meaning changes to Arctic ecosystems can potentially have an international impact. In order to attempt to solve this issue of Canadian Arctic drilling, it is crucial that the global consequences of potential oil spills are addressed.

Several bilateral and multilateral arrangements already exist, however it is necessary that pan-Arctic agreements continue to develop and expand, as a spill could reach the coastlines of multiple nations and require the emergency response networks of multiple countries (Knol & Arbo, 2014). At this scale, the Arctic Council is the main organization concerned with energy exploration in the Arctic. Their Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic addresses the consensus that Arctic states must promote cooperation and provide assistance if a spill were to occur in international waters or reach across national maritime boundaries (Arctic Council, 2013). This Agreement lays the groundwork for the Council to take on a more central role in developing internationally regulated guidelines for the Arctic states. By sharing knowledge and guidelines between Arctic states, international cooperation is strengthened and technological innovations and organizational solutions are able to be discussed and implemented on a larger scale (Knol & Arbo, 2014).

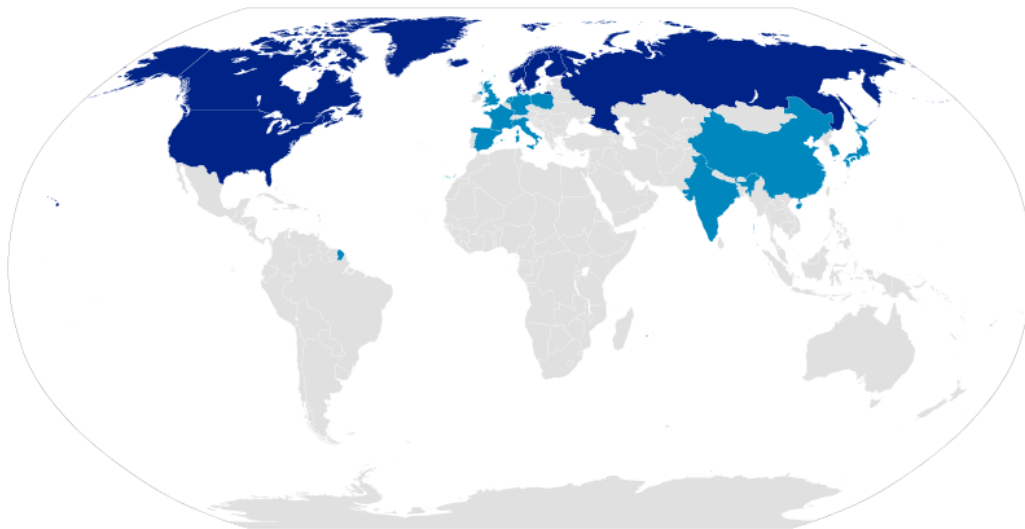


Figure 5. A map of Arctic Council members. Member countries are in dark blue, and observer countries are in light blue. Image by ColdWarCharlie (Own work), via Wikimedia Commons. Used under Creative Commons Public Domain Dedication 1.0 Universal

The 1994 bilateral oil spill response Agreement developed between Norway and Russia is a great example of the potential for international collaboration (Knol & Arbo, 2014). The Agreement concerns the border area of the Barents Sea between the two nations, and includes a joint contingency plan, training exercises, and planning procedure.

The Council also has the capability to foster cooperation and agreements with non-Arctic states, due to a growing interest in Arctic resources emerging in several other countries who have requested membership as observers, as seen in Figure 5 and Table 1 (Huebert, 2014).

Table 1. List of the current member and observer states. Source: The Arctic Council Table by Marina Melanidis

Member states:	Observer states:
Canada	France
The Kingdom of Denmark	Germany
Finland	The Netherlands
Iceland	Poland
Norway	Spain
The Russian Federation	The United Kingdom
Sweden	People's Republic of China
The United States	Italian Republic
	Republic of Korea
	Republic of Singapore
	Republic of India

Indigenous groups also have a voice on the Council, and six separate councils and organizations are included as permanent participants. This represents one of the first times indigenous organizations have been given such a standing in an international agreement, and while there is still room for a stronger level of Indigenous involvement, this representation strengthens the Council's potential to develop effective regulations.

Economic and political

The global scale of offshore Arctic drilling makes the economic and political problems surrounding the issue difficult to solve.

The central economic problem is the current low price of oil on the international market. Because the cost of extraction operations in the Arctic is significantly greater than that of onshore drilling in more moderate climates, the global oil market must become much stronger before such an expensive endeavour will be justifiable. As global markets fluctuate according to myriad factors outside of the scope of our resource management approach, we offer no solution to the issue of low global oil prices, but instead argue that Arctic strategies should prepare for multiple future scenarios: those where oil prices increase, stay the same, or decrease further (Mayer, 2013).

The political problem most relevant to Arctic drilling in Canada is that of territorial disputes among the five coastal Arctic nations. Under the Law of the Sea Convention of 1982, exclusive economic zones can be extended if a coastal Arctic state can demonstrate that its continental margin extends further than the 200 nautical mile line (Janicki, 2012). Russia and Canada each claim that geological correlations between the shallow area of Lomonosov Ridge and their continents show that the ridge should be included in their respective exclusive economic zones (Mayer, 2013). More geological research is needed to solve this dispute.

Arctic drilling is not imminent in Canada's future due to the economic and political reasons outlined above, in addition to other uncertainties. These include the rate of melting of the

Arctic ice sheet, advancements in drilling technology, and the possibility of renewable energy resources minimizing the global dependency on fossil fuels (Janicki, 2012).

Conclusion

Canada's primary aim regarding Arctic resources should be ecosystem preservation. Arctic ecosystems are volatile and threatened by climate change, and a stronger emphasis on technology and research would enable a better understanding of northern environments, and ensure better management for a changing climate. Additionally, the welfare of Inuit should be considered; allowing the Inuit to have a greater jurisdiction over their traditional lands is crucial to improving local livelihoods. Risks of ecosystem destruction combined with the disenfranchised Inuit community makes the environmental and social dimensions more pressing issues than economic gain.

Furthermore, complexities regarding international impacts could be lessened with the development of strong international agreements and guidelines through knowledge and resource-sharing between Arctic states, possibly facilitated through the Arctic Council. In the long-term, a move towards renewable energy might be a potential solution. Unexpected future outcomes of global climate change call for constant discussion accompanying actions taken to evaluate their effectiveness and relevance.

While the complexities may make the future seem bleak, there are opportunities to move towards a brighter future for the Arctic, both for its environment and its people.

References

Peer Reviewed Articles

Broadhead, L. (2010). Canadian sovereignty versus northern security: The case for updating our mental map of the Arctic. *International Journal: Canada's Journal of Global Policy Analysis*, 65(4), 913-930. Retrieved from <http://ijx.sagepub.com/>

This is a peer-reviewed article published in the *International Journal*, a Canadian academic journal. The article discusses the mindset of the Western population towards the Arctic. It also covers in great detail the growing demands of the Canadian Inuit population to be recognized as individuals with prior claim to the land. Broadhead argues that the Arctic must be reconsidered as a land undergoing extreme ecological and social change. The argument is that government policy must change to reflect the severity of climate change and the harsh effects it will have on communities in the north.

This article provides a perspective on how both stakeholders as well as the general population view the Arctic. It is key because it is one of the few articles that fully summarizes the growing paradigm shift concerning Arctic sovereignty. There will be many communities affected by offshore drilling in Arctic waters, and Broadhead gives insight into their struggle to have their voices heard.

This is a synthesis article, combining the viewpoints of many other research papers. It very effectively fleshes out current and projected viewpoints of Arctic inhabitants. Its main weakness is that there are few references in the article to opposing arguments; though the author's focus on her perspective might be considered a strength as well.

Emmett, C. & Stuhltrager, J. (2011). After the ice melts: the need for a new Arctic agreement. *Natural Resources and Environment*, 26, 33-36. Retrieved from <http://www.jstor.org.ezproxy.library.ubc.ca/stable/23054874>

Fenge, T. (2007). Inuit and the Nunavut Land Claims Agreement: Supporting Canada's Arctic Sovereignty. *OPTIONS POLITIQUES*. Retrieved from <http://irpp.org/wp-content/uploads/sites/2/assets/po/the-mood-of-canada/fenge.pdf>

Huebert, R. (2014). Canada, the Arctic Council, Greenpeace, and Arctic oil drilling: Complicating an already complicated picture. Retrieved from Canadian Global Affairs Institute website:http://www.cgai.ca/canada_the_arctic_council_greenpeace

This is a web report that describes how the Canadian government faces the difficult task of having to “balance the conflicting requirements of strengthening the Arctic Council, protecting [Canada’s] right to exploit its Arctic resources, protecting the fragile Arctic environment, and responding to the actions of environmental groups opposed to northern development” (Huebert, 2014, *The Development of Oil Resources Within The Arctic*, para. 10). The article is useful for my research because it contributes to a breadth of perspectives – it emphasizes the defence aspect of Arctic resources exploitation. This is a credible article because the writer is a well-known and prolific writer on the Arctic region and because it is published through an independent research institute, meaning there shouldn't be any conflict of interest biasing the article. The article is also supported by an extensive bibliography.

Janicki, W. (2012) Why do they need the Arctic? The first partition of the sea. *Arctic*, 65, 87-97. doi: <http://dx.doi.org/10.14430/arctic4168>

This is a peer-reviewed article in which the author argues that “political motives for the five states attempting to gain sway in the Arctic appear to be much more plausible than any economic considerations” (Janicki, 2012, p. 95). This is a noteworthy piece because it seems to depart from the usual dialogue about the Arctic, and instead critically analyzes and questions what the Arctic players claim their motives are, and hypothesizes about what their motives actually are. It is an informative piece that is helpful for my research because it contains many maps and figures and is very thorough. It is a credible source because the author is an accomplished professor and published this paper in association with an educational institution. The only questionable aspect was the use of the phrase “proves beyond any reasonable doubt” (Janicki, 2012, p. 95), which I think uses unprofessional, non-objective wording.

Kaplan, J., & New, M. (2006). Arctic climate change with a 2 °C global warming: Timing, climate patterns and vegetation change. *Climatic Change*, 79(3), 213-241. doi:10.1007/s10584-006-9113-7

Keer, R.A. (2011). Peak oil production may already be here. *Science*, 25 331 (6024): 1510-1511. doi:[10.1126/science.331.6024.1510](http://dx.doi.org/10.1126/science.331.6024.1510)

Knol, M., & Arbo, P. (2014). Oil spill response in the Arctic: Norwegian experiences and future perspectives. *Marine Policy*, 50, 171–177. <http://doi.org/10.1016/j.marpol.2014.06.003>

This peer-reviewed article by Knol and Arbo analyzes oil response systems in Norway, and looks at the Norwegian case from a pan-Arctic perspective. The authors emphasize the

need for international agreements on Arctic oil spills, and uses the Norwegian system as an example of current technologies and innovations that are in place.

What makes Knol and Arbo's article particularly significant to both my research and the general literature on Arctic oil exploration is their arguments on the importance of multi-level cooperation, from local to international, and with public and private institutions and organizations being involved. The Arctic Council is highlighted as being especially important when it comes to fostering international standards and regulations. This is especially relevant to my goal of making global connections to drilling in the Canadian Arctic.

This is a recently published, peer-reviewed article (published in 2014), that was first developed for the 2013 Arctic Energy Summit, lending to its reliability. Knol and Arbo provide a comprehensive overview of the current international regulations that exist for Arctic drilling, and it illustrates the significant challenges that still exist with developing effective Arctic oil spill response systems.

Moore, S. E., Reeves, R. R., Southall, B. L., Ragen, T. J., Suydam, R. S., Clark, C. W. (2012). A New Framework for Assessing the Effects of Anthropogenic Sound on Marine Mammals in a Rapidly Changing Arctic. *BioScience*, 62(3), 289-295.
doi:10.1525/bio.2012.62.3.10

This is a peer-reviewed article outlining the effects of human produced noise pollution on marine mammals in the arctic waters. It outlines the effects of anthropogenic sound and ways to measure and monitor it, and then focuses on regulation and conservation efforts and strategies. This article provides relevant information about effects of sound pollution as an environmental issue with oil drilling. The source is credible, and reasonable and has supports for claims through citations. One problem with this article is that it might be a bit tainted by the amount of collaboration with government organizations mentioned in the acknowledgements.

O'Rourke, D., & Connolly, S. (2003) Just Oil? The Distribution of Environmental and Social Impacts of Oil Production and Consumption. *Annual Review of Environmental Resources*, 28, 587-617. doi: 10.1146/annurev.energy.28.050302.105617

This is a peer-reviewed article outlining the various costs (environmental, social, political, health) of oil production and consumption. It covers a broad scale and provides information for many issues. Much of the information is irrelevant, because only some addresses environmental issues, but it does address environmental impacts at each stage, from exploration to consumption. It is relevant because it directly lays out various environmental impacts from oil extraction. The source is credible, accurate, and provides lots of cited support, but doesn't provide much data as support for the environmental impact claims.

Rockstrom, J. e. a. (2009). A safe operating space for humanity. *Nature*, 461, 472.

Grey Literature

Arctic Council. (2013). Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic. Retrieved from <http://www.arctic-council.org/index.php/en/document-archive/category/425-main-documents-from-kiruna-ministerial-meeting?download=1792:agreement-on-cooperation-on-marine-oil-pollution-preparedness-and-response-in-the-arctic-signed-version-with-appendix>

This document is an international agreement set forth by the Arctic Council, which represents the northern lands and residents of the countries of Canada, Denmark, Finland, Norway, Russia, Sweden, and the United States of America. It takes the unique aspects of the Arctic environment, the positions of its indigenous peoples and residents, and the role of energy exploration into account, and attempts to strengthen cooperation among the Arctic nations in regards to oil pollution preparedness and response.

The significance of this agreement stems from the fact that it was developed by an international council for the purposes of multi-nation cooperation. It outlines the responsibilities of each nation towards oil pollution regulations and spill response, and emphasises the importance of communicating with and assisting other Arctic nations.

As my research is specifically on international impacts of offshore drilling in the Canadian Arctic, this agreement is highly relevant as it provides an example of international cooperation regarding Arctic oil pollution. Its reliability as a product of a high-level intergovernmental forum and its insight in the workings of multi-nation agreements make this document a highly useful source of grey literature.

Arctic Council. (2013). *Observer states*. Retrieved from <http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers>

Beaufort Sea commercial fishing banned. (2011, April 15). Retrieved from <http://www.cbc.ca/news/>

Canada Oil and Gas Operations Act, R. S. C., c.O-7 (1985). Retrieved from <http://laws-lois.justice.gc.ca/eng/acts/O-7/index.html>

Canada Petroleum Resources Act, R.S.C., c. 36 (2nd Supp.) (1985). Retrieved from <http://laws-lois.justice.gc.ca/eng/acts/C-8.5/index.html>

COSEWIC. (2009). COSEWIC assessment and update status report on the bowhead Whale *balaena mysticetus*, Bering–Chukchi–Beaufort population and eastern Canada–West greenland population, in Canada. Ottawa: Committee on the Status of Endangered Wildlife in Canada.

Declaration on the Rights of Indigenous Peoples. (n.d.). Retrieved from <http://undesadspd.org/indigenouspeoples/declarationontherightsofindigenouspeoples.aspx>

Drummond, K. J. (2009). Northern Canada: Distribution of ultimate oil and gas resources (Tech. Rep).

IBRU (International Boundaries Research Unit). 2011. Maritime jurisdiction and boundaries in the Arctic region. Durham University, United Kingdom. www.dur.ac.uk/ibru/resources/arctic.

Mayer, A. (2013). Race to claim High Arctic's oil resources may be a fool's mission. Retrieved from CBC News Canada website: <http://www.cbc.ca/news/canada/race-to-claim-high-arctic-s-oil-resources-may-be-a-fool-s-mission-1.2461910>

This is an online news article that argues that because of current economic and technologic limitations, the Arctic Ocean is too challenging and harsh an environment for drilling to be considered feasible at this point in time. The author suggests therefore that the national and international frenzy over Arctic oil is unnecessary given that large-scale oil and gas

extraction in the region is not actually imminent (Mayer, 2013). It is notable because it challenges the hype that surrounds Arctic issues in much of the media. It is a useful devil's advocate piece for a comprehensive discussion of drilling in the Arctic. It is credible because it is associated with a respected news organization. It is not very reasonable because it is opinionated and lacks empirical evidence (the article is structured primarily around quotes, and does not draw on much tangible support.) However, the quotes are from well-known and trusted figures in the Arctic drilling debate.

National Energy Board. (2011, December 1). Review of offshore drilling in the Canadian Arctic. Retrieved from <https://www.neb-one.gc.ca/nrth/rctcffshdrllngrvw/2011fnlrprt/index-eng.html>

The National Energy Board (NEB) organized a review of offshore drilling policies following the Deepwater Horizon incident in the Gulf of Mexico. The review included many stakeholders including leaders of the Inuit Circumpolar Council, community representatives and even local high school students. Representatives for oil and gas companies involved were also present. The result was the written review that concludes that there are several safety issues that must be resolved before offshore drilling can commence. The review was published under the NEB by the Government of Canada.

This review directly addresses the issues present in offshore drilling, and is very useful as research because it effectively summarizes many perspectives on the issue. Direct consultation with the stakeholders aids in accurately representing their interests. From this document we can also reference past oil extraction disasters; the NEB seeks to learn from them. It is extremely detailed, being a pivotal document in the offshore oil debate. Representatives of local communities had direct input in the creation of the document and we can hear their thoughts on this new addition to their environment.

National Energy Board Act, R.S.C., c. N-7 (1985). Retrieved from <http://laws-lois.justice.gc.ca/eng/acts/N-7/index.html>

Northern oil and gas annual report 2014 (2015). Aboriginal Affairs and Northern Development Canada.

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Territorial Lands Act, R.S.C., c. T-7 (1985). Retrieved from <http://laws-lois.justice.gc.ca/eng/acts/T-7/index.html>

United Nations. (2008). United Nations Declaration on the Rights of Indigenous Peoples. Retrieved from http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

WWF-Canada. Oil & Gas Development. Retrieved from http://www.wwf.ca/conservation/arctic/oil_exploration/

Data Sources

Inuit Tapiriit Kanatami. (2008). Inuit Statistical Profile. Retrieved from <https://www.itk.ca/publication/inuit-statistical-profile>

This reference is a document surveying the demographics of Inuit in Canada. The goal of the document is to provide a view of the population at the time. The document makes note of the fact that Inuit are a young population, with about half of them speaking the Inuit language at home. The document also included statistics that are often discussed in journals concerning Inuit, including number of crowded homes, suicide rates and overall health.

The information for this document was drawn from several reliable sources such as the Canadian government's 2006 census and several academic studies. The findings give concrete numbers to the abstract ideas presented in journal articles, and are useful in articulating arguments about offshore drilling. Drilling will impact communities in many tangible ways and they are represented statistically in this publication.

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