



As/ of 11 September 2020

**Advancing Collaboration in Canada U.S. Arctic
Regional Security (ACCUSARS)
Invitational Workshop**

*Focusing on emerging trends in medium and long term
North American Arctic security environment.*

Workshop Literature Review



The Arctic Domain Awareness Center (ADAC) is a U.S. Department of Homeland Security (DHS) Science and Technology (S&T) Center of Excellence in Maritime Research, hosted by the University of Alaska. The North American and Arctic Defence and Security Network is hosted by Trent University at Peterborough Ontario.

The following is the Literature Review for ADAC and NAADSN 2020 Advancing Collaboration in Canada U.S. Arctic



ACCUSARS 2020 LITERATURE REVIEW

Regional Security (ACCUSARS) Invitational Workshop.

A workshop collaboration community has been involved in developing the workshop in support of the North American and Arctic Defence and Security Network (NAADSN) to date and ADAC welcomes additional participation from our partners. The following is a Literature Review associated for this workshop.

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In support of the North American and Arctic Defense and Security Network (NAADSN)

NAADSN
North American and Arctic Defense and Security Network

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(Planning Zoom with Plenary and Breakout Groups)
for
**Advancing Collaboration in Canada-U.S. Arctic
Regional Security (ACCUSARS) Invitational Workshop**

Workshop objective: Focusing on emerging trends in medium- and long-term **North American Arctic security environment**, the mix of academics and practitioners at this workshop will anticipate potential North American Arctic futures to identify potential gaps and shortfalls in current strategies, capabilities, and research.

Questions?
U.S. Citizens Please contact: the Arctic Domain Awareness Center team:
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Rescheduled to virtual due to concerns from the Coronavirus 2019 (COVID19)





Introduction

The following is the Literature Review for ADAC’s 2020 Advancing Collaboration in Canada U.S. Arctic Regional Security (ACCUSARS) Invitational Workshop.

The retreat of perennial sea ice in the Arctic is opening the region to new opportunities in trade and resource development. Arctic nations have already begun to develop their portions of this burgeoning frontier, but they aren’t the only interested parties. State and commercial actors from around the world seek to share in the long-term benefits of an increasingly accessible Arctic. Activities by these non-Arctic players could threaten U.S. and Canadian sovereign interests, particularly for those activities that fall outside of the traditional state-centric definition of security.

Security has historically been characterized in terms of military and political challenges to sovereignty (Gjorv et al., 2020, p. 30). Not all threats, however, come in the form of overt displays of force. Modern scholars contend the definition of security needs to expand to include those threats for which there isn’t a physical enemy to fight. This would include economic, societal, and environmental threats that undermine the forward progress of a nation and impact citizens on an individual level (Figure 1).

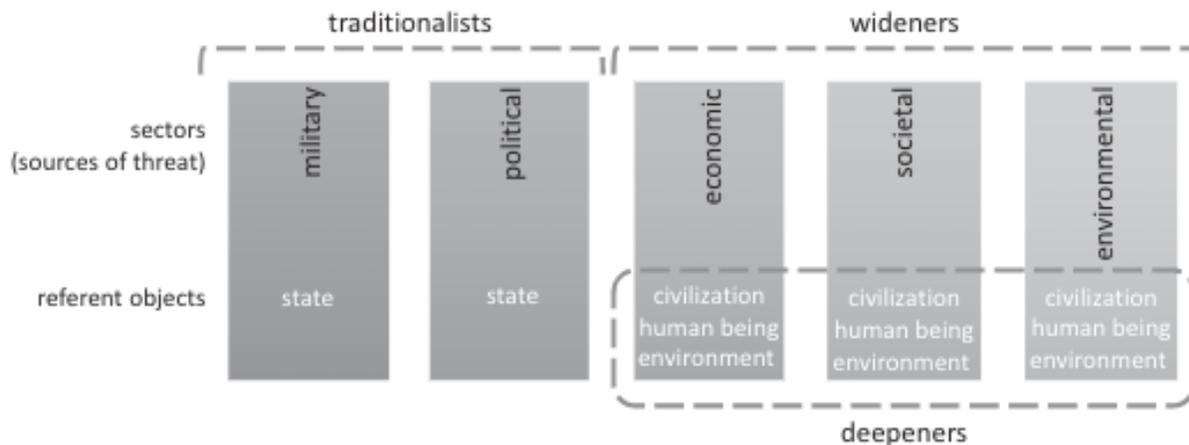


Figure 1 Five sectors (sources of threats) and different understandings of security (Gjorv et al., 2020, Figure 3.1)



Discussion of the Arctic is primarily framed around the development of natural resources, which is relevant to economic security. At the same time, the rapidly changing climate impacts environmental security by affecting regional infrastructure, impacting transportation, and increasing pollution. The changing climate and increased industrial activity also pose threats to Indigenous peoples and their traditional ways of life. The ability for Arctic communities to live and prosper under rapidly changing conditions threatens societal security. Each of these new additions to the definition of security are intricately intertwined with the military and political threats to the region. By broadening the definition of security, the US and Canada can better identify the emerging threats to their Arctic interests.

Environmental Security

The retreat of Arctic sea ice is opening sea routes along the periphery of the Arctic Ocean. With this comes the increase in maritime security concerns. Concerns include national and international coordination of search and rescue operations, investigations around incidents at sea, and the development of codes of conduct for regional sea lanes (The Changing Shape of Arctic Security, 2019). In 2017, the Polar Code was formally adopted by the International Maritime Organization (IMO), to provide a code of safety for shipbuilders and polar operators (Bai, 2015). Near the U.S. and Canada, the Bering Strait poses unique concerns as an increasing number of vessels transit the area. The strait is shallow and narrow, which increases the risk of grounding or collision, either with other vessels or marine life (United States Coast Guard Arctic Strategic Outlook, 2019, p. 12). Just recently, the IMO adopted a joint proposal from the U.S. and Russia to establish two-way shipping lanes for the region to reduce the risk of vessel collision (Humpert, 2018).

Overfishing around the planet, and the shift of fish stocks northward, sparked the adoption of a fishing ban in the Central Arctic Ocean in October of 2018. While the ban is widely supported, including the European Union, Russia, Canada, and the U.S., enforcement of the ban is seen as an ongoing challenge (The United States Ratifies Central Arctic Ocean Fisheries Agreement, 2019). While participant nations acknowledge the necessity of healthy marine populations, the necessary technology to monitor vessel activity, particularly dark vessels, is still in development (Haines, 2019). Illegal fishing poses a risk not only to the environment, but negatively impacts the local and regional economies.

Mining is another activity that poses a dual threat to the economic and environmental security of the host nation. The environmental impact of a mine affects both terrestrial and marine ecosystems. These effects are driven by the heavy metals that mines produce, which when absorbed, negatively affect reproductive success in plants and animals. Further, little research has been done on the effect of climate change on these environmental impacts. Some questions include how melting permafrost affects acid mine drainage, and whether animals with greater amounts of heavy metals in their tissue affect other species as they migrate northward. (Natural Resources Institute Finland, 2019)



The Arctic is now more susceptible to coastal marine trash with the retreat of the ice (Hovey, 2020). Around the coast of Alaska, “communities like Unalakleet, Gambell, Savoonga and Nome have all reported and documented hordes of this debris” (Foreign Marine Debris Found in the Bering Sea, 2020). In Vancouver, B.C., “clearing trash from the beach is a routine activity”(Dharssi, 2018). Despite the incursion of trash, neither nation currently has a comprehensive domestic strategy for marine debris. While most trash is the result of illegal dumping, sometimes its due to natural catastrophes.

In 2011, Japan suffered a 9.0 magnitude earthquake, and the tsunami that followed carried an estimated 5 million tons of debris out to sea (Wallace, 2016). “The Japanese government estimated that 70 percent of that total sank immediately, leaving 1.5 million tons of Japan tsunami marine debris (JTMD) that broke up and dispersed over the North Pacific in the months and years following the tsunami. While shorelines throughout the Pacific are consistently impacted by chronic marine debris, the acute pulse nature of the release of JTMD combined with the potential for additional impacts - such as navigational hazard from large objects and vessels and invasive species impacts from objects colonized by species native to Japan - created specific interest in and concerns with JTMD.” (Detecting Japan Tsunami Marine Debris at Sea: a Synthesis of Efforts and Lessons-learned, 2015, p. iv)

Societal Security

The changing Arctic causes both direct and indirect health threats to resident Indigenous populations. “Direct health threats from climate change include morbidity and mortality resulting from increasing extreme events (storms, floods, increased heat and cold) and an increased incidence of injury and mortality associated with unpredictable ice and storm conditions. Indirect effects include increased mental and social stress related to changes in environment and loss of traditional lifestyle; potential changes in bacterial and viral diseases; and decreased access to quality water sources (Parkinson & Evengård, 2009).”

In larger cities and towns across the U.S. and Canada, food availability, or food “security,” is almost guaranteed; if you have the means to purchase it, food is readily available. That’s not the case in many rural Arctic communities, where subsistence hunting is the primary source of food. Climate change, however, has caused changes in subsistence species distributions and availability. “Changing ice conditions have increased the time and cost of harvesting. Changing environmental conditions have also made it more difficult for Inuit elders to share their predictive knowledge of the weather (Sherval, 2015).” Instability in food access in the Arctic has resulted in one-third to two-thirds of households in Nunavut lacking access to “safe and healthy food (Sherval, 2015).”

“Carolina Behe, indigenous knowledge and science adviser for ICC-Alaska, says that climate change and food security are more than just a matter of calories and nutrition; they’re also a matter of culture. ‘People here are identified by their ability to hunt and provide food for those who need it,’ she says. ‘This identity is threatened when it becomes unsafe to go out



on the ice to hunt, or too expensive to travel the long distances that are now needed to track down animals on land.” (Sherval, 2015)

Climate change doesn't just threaten the individual, but the wider community as well. In Alaska, the community of Newtok is eroding due to melting permafrost which has put Newtok at risk for increasing illness due to failing sanitation infrastructure. The community has already lost its sewage lagoon and landfill to rising water levels and the erosive nature of storm surges. The residents want to move their village to a safer location, but the Army Corps of Engineers estimates the cost of moving will amount to \$80 to \$130 million to relocate critical infrastructure (Waldholz, 2017). Who will pay to move the village is an ongoing debate.

Economic Security

Economic security, and the ability to realize financial gains, is predicated on the ability to obtain enough energy, or electricity, to do work. The International Energy Agency (IEA) defines energy security as the “uninterrupted availability of energy sources at an affordable price” (IEA 2018b) (DeWitt et al., 2020, Chapter 8). The most important part of energy security in rural Arctic areas concerns the uninterrupted availability of energy, or the security of supply. There is a special focus on electricity, which is in use for several matters that are related to safety and public health rather than just for productivity, personal convenience or entertainment (Allen et al., 2016, p. 24).

Energy security can also be addressed according to time frames of reference. Short-term energy security deals with the responsiveness of the grid to rapid changes and the ability to ensure operation in a stable manner. Historically, diesel power was by far the main energy source for electricity generation in unconnected Arctic communities (DeWitt et al., 2020, p. 92). As communities realized they needed greater diversity in power generation, an investigation of more sustainable resources for electricity generation identified dispatchable (renewable) energy sources (Tester et al. 2012, 101–102). Renewable energy resources, like hydropower and geothermal, have very specific requirements on the location or the availability of the resources. When traditional and renewable electricity generation methods are combined into hybrid systems, the diversification of resources increases the electricity generation security such that if one source fails the others still work and an essential energy supply can be secured (DeWitt et al., 2020, p. 93).

Mid-term energy security is applicable to unconnected communities that are dependent on fuel deliveries for diesel generators. In many cases, the delivery takes place just once a year and must cover the demand for the whole of next year. This dependence on fuel delivery makes communities particularly susceptible to supply chain interruptions and delays. As Arctic nations begin to expand infrastructure development in the Arctic, one major concern will be how to power future businesses, government offices, and military installations, and provide security of energy supply. Long-term energy security involves aspects such as investment in securing the supply and consequences of the resource-use over time. To



ensure energy security in the future, the two points of the IEA definition, “affordability” and “reliability,” will have to match for economic growth in the Arctic to occur (DeWitt et al., 2020, p. 98).

“Once thought to be of little worth economically, recent geological surveys suggest that the Arctic could hold nearly one-fifth of the world's remaining untapped hydrocarbon resources. This discovery has renewed attention for the region from both major energy companies and bordering nation states (Sherval, 2015).” Oil, oil sands, and gas development in the Arctic has garnered particular attention in past decade. Russia has embraced the development of energy resources in their section of the Arctic, most noticeably their Yamal LNG plant and new emerging spinoff LNG plants (The Changing Shape of Arctic Security, 2019).

For the U.S. and Canada, development has historically been driven by market prices rather than political incentive. However, the potential tax income from development is particularly appealing as both the U.S. and Canada seek sustainable ways to increase their presence in the region. Politically, development in the region supports an idea of “democratic” or “ethical” oil, as compared to resources imported from the Middle East (Jeffries, 2012, p. 80). As each nation weighs the impact of development against available global supply, it is reasonable to assume that the U.S. and Canada will continue to experience support for energy development in their Arctic territories as a means to fund their presence in the region and protect energy security interests.

Beyond energy resource development, the Arctic presents unique shipping routes that many nations see as an advantage. Given current ice conditions, available sea routes pass close to shore, through Russian, U.S., and Canadian sovereign waters. The region suffers from a lack of accurate, modern nautical charts, with estimates of only ten percent of the region having any chart at all (Rutherford, 2019). Monitoring this region requires a high level of domain awareness, and political support to develop regional strategies for transiting vessels. Passing through Canadian waters requires close contact with the Canadian Armed Forces, while “Russia requires foreign vessels to obtain permission, embark Russian ice pilots, and serve under escort of Russian icebreakers before entering the Northern Sea Route (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 3).”

Fishing has an equal role in economic security as it does in environmental security. The industry is big business, employing thousands and producing millions of dollars in revenue. In Alaska, the fishing industry provides upwards of forty-thousand jobs and \$2 billion in labor income (The Economic Value of Alaska’s Seafood Industry, 2017). In Canada, the fishing industry supports over seventy thousand jobs and generates over \$1 billion in GDP (Facts on Canadian Fisheries, 2017). The lucrative nature of the aquaculture industry in the Arctic has not gone unnoticed, and illegal, unreported, and unregulated (IUU) fishing is a significant threat to the region. IUU fishing produces both direct economic losses, and indirect losses, including depression “on prices due to large inflow of illegal products (Burnett et al., 2008, p. vi).



Military and Political Security

Current geopolitical issues in the Arctic include unresolved sovereignty questions around the delimitation of EEZs, and the limits of continental shelves. Ownership of these areas is under increasing scrutiny as nations bid to develop regions they claim within their borders. In 2010, Norway and Russia resolved their forty-year dispute over an area of the Barents Sea, that involved both fish and oil resource development. Another ongoing dispute includes Hans Island (aka Tartupaluk) between Canada and Denmark (The Changing Shape of Arctic Security, 2019). Whether the North Pole is in Russian, Canadian, or Danish waters, is a further dispute in the Arctic. The North Pole sits on the Lomonosov Ridge. In 2007, Russia planted their flag at the North Pole, claiming the underwater territory, and sparking renewed counter-claims by Canada and Denmark over the region (Harding, 2010).

Russia

After western sanctions over the annexation of Crimea in 2014, Russia renewed their interest in the Arctic (The Changing Shape of Arctic Security, 2019). The nation has invested heavily in regional infrastructure and natural resource development, “including railway construction, new seaports and development of hydrocarbon and coal fields (Staalesen, 2018)”

along the Yamal Peninsula. Their most recent Arctic five-year plan (2018) claims a projected investment of upwards of \$82 billion (5.5 trillion rubles), with up to half of this investment coming from private sources.

Investment along the northern coast of Russia is driven by President Putin and his decrees from May 2018 to boost shipping to 80 million metric tons by 2024 within the Northern Sea Route (Barents Observer, 2020). This route connects Asia and Europe, cutting days off a journey that typically passes through the Suez Canal, and creating revenue for the Russia through regulations on ships transiting the region. By 2035, Russia plans to have constructed forty new ice capable vessels, including many new nuclear-powered icebreakers, to support increased shipping activity (Nuclear-powered Icebreaker Ural Launched in St Petersburg, 2019) (United States Coast Guard Arctic Strategic Outlook, 2019).

“Russia’s commercial investments in the Arctic region have been matched by continued defense investments and activities that strengthen both its territorial defense and its ability to control the NSR (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 4)” This includes increased monitoring activities along their Arctic borders. Aircraft and naval patrols closely approach these delimitations, which has drawn concern from neighboring nation’s residents and commercial operators (Ellehuus & Simakovsky, 2019) (Russian Navy Conducts Major Maneuvers near Alaska, 2020). “There is also a concerted



effort to establish a network of air defense and coastal missile systems, early warning radars, rescue centers, and a variety of sensors (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 4).”

In an unusual twist, a “weaponized” beluga whale was found off the coast of Norway, with a GoPro camera attached to the animal (Norway Finds 'Russian Spy Whale' Off Coast, 2019). Russia denied the beluga is part of their programming, but it is well known that their military uses trained dolphins for combat roles (Brulliard, 2016), not unlike the U.S. Navy’s Marine Mammal Program (U.S. Navy Marine Mammal Program, n.d.).

Concerns around an expanded Russian presence in the arctic center on ensuring compliance with international laws. “Russia has generally followed international law and procedure in establishing the limits of its extended continental shelf. Russia could choose to unilaterally establish those limits if the procedures prove unfavorable and could utilize its military capabilities in an effort to deny access to disputed Arctic waters or resources.” (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 7)

China

China is seeking to ensure they are a key player in the Arctic, despite not being an Arctic nation (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 4). As part of their “One Belt, One Road” initiative, China recognizes that arctic resources and transit routes are linked to their national security. In an effort to participate in regional governance, China joined India, Japan, the Republic of Korea, and Singapore in observer status on the Arctic council (Lanteigne, 2017). Currently, their interests are primarily focused on using scientific research and economic investment as a vehicle to ensure the Arctic is “international space as opposed to strictly a regional one, and to allow non-Arctic states, such as China itself, to become accepted as Arctic actors (Lanteigne, 2017, Abstract section).” To that end, China is currently maintaining research stations in Iceland (China Iceland Arctic Research Observatory, 2020) and Norway (Political Breakthrough Opens China’s Way to Arctic Norway, 2016), and is heavily invested in Russia’s Yamal LNG projects (Humpert, 2019).

While China currently has a relatively small physical presence in the Arctic, they plan to increase this over the next two decades (China’s Arctic Policy, 2018). As part of their Arctic policy, China is constructing nuclear powered icebreakers (Zhen, 2019), touted to be similar in size and capabilities as the Russian version. They have conceived of building a “Polar Silk Road” by developing a presence in the current Northwest and Northeast passages, before leapfrogging to the central route, which they call the “Central Passage.” Their plan appears to be contingent upon an ice free central Arctic ocean, which they hope to use as a shipping advantage before other nations have the capacity to do so (Zhen, 2019).

International concern for China’s encroachment in the Arctic stems from their apparent disregard for international law in the East and South China Seas (United States Coast Guard



Arctic Strategic Outlook, 2019). “China has claimed approximately eighty percent of the SCS [South China Sea] via the policy that the waterway represents Chinese ‘historical waters’, (a nebulous term, at best, from an international law standpoint), as well as sovereignty over the islands in reefs in the region, with the Paracel and Spratly Islands being the most prominent (The United States’ Hardening Stance on Arctic Security, 2019).” “China is attempting to gain a role in the Arctic in ways that may undermine international rules and norms, and there is a risk that its predatory economic behavior globally may be repeated in the Arctic.” (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 6)

Canadian and U.S. Interests

Canada and the U.S. share mutual threats to their infrastructure in the Arctic. Thawing permafrost, compounded by storm surge and coastal erosion, adversely affects infrastructure, including government and military installations, and complicates the development of new and resilient military infrastructure (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 3). In the U.S., “the Department of Defense will ... continue to take steps to build the resilience of infrastructure in the face of environmental hazards, including through research on permafrost effects to infrastructure (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 12).” As both nations work to advance their Arctic interests, new materials and methods for construction will need to be developed to ensure critical infrastructure can resist the effects of climate change.

The need for improved construction techniques and materials is a pressing concern. Russia and China are investing in container ships that can sail seasonally through the Northeast passage, carrying goods between Eastern Chinese and Western European ports. In response, Quebec City and Cape Breton in Nova Scotia are already planning new container ports to take advantage of future Arctic shipping (Valentine, 2019). Canada already has a deep-water port in Hudson Bay that would be advantageous for future Arctic ship traffic. The Port of Churchill which was closed in 2016 but recently resumed operations (Robinson, 2019), offers railway connections between the bay and large U.S. hubs in Chicago and Detroit (Kaiser & Coppes, 2018). While current and planned ports are below the sixtieth latitude, they still feel the effects of climate change and the impact of large storms.

Along the coast of Alaska, the U.S. is debating whether to build an Arctic port in Nome. The U.S. doesn’t have a deep-water port in the Beaufort, Chukchi, or Bering Seas, which puts it at a strategic disadvantage (Brigham, 2019). The U.S. Sixth Fleet Commander Vice Adm. Lisa Franchetti supports the stance that, from a logistics standpoint, the U.S. needs a way to support ships in the Arctic (Larter, 2019). Most notably, the Bering Strait is a strategic choke point should the increasing tensions between the U.S. and Russia incite a regional conflict (United States Coast Guard Arctic Strategic Outlook, 2019, p. 12)

On the other side of the Arctic, Norway has been expanding a port in Tromso for increased visits by U.S. and NATO nuclear submarines. “Cold War-style provocations are becoming increasingly common, but the changing face of the port in Tromso will likely have long-lasting



strategic effects for NATO and how it operates in the increasingly important Arctic (McLeary, 2020).” Elsewhere, the U.S. is methodically increasing their presence outside their sovereign waters. The U.S. Navy’s 2nd fleet, which was deactivated in 2011, was reactivated in 2018 for operations in North Atlantic and Arctic (U.S. Navy's 2nd Fleet Reaches Initial Operational Capability, 2019). At Keflavik Air Base, in Iceland, the U.S. has a rotating detachment of P-8A Poseidon maritime patrol aircraft and the U.S. Navy and Air Force are spending \$35 million on upgrades to the aging facility (Eckstein, 2018). This response is a direct result of the increasing international concern over Russian military activities in the Greenland-Iceland-United Kingdom Gap in the North Atlantic, and the need to ensure access to this vulnerable region. “Developments in the Arctic have the potential to directly or indirectly constrain DoD’s ability to flow forces globally, and more broadly to affect U.S. strategic objectives related to competition with China and Russia in the Indo-Pacific and Europe. The Arctic remains vulnerable to “strategic spillover” from tensions, competition, or conflict arising in these other regions (Report to Congress: Department of Defense Arctic Strategy, 2019, p. 6).”



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