

# IDA Proceedings

8TH BIENNIAL SYMPOSIUM ON THE IMPACTS OF AN ICE-DIMINISHING  
ARCTIC ON NAVAL AND MARITIME OPERATIONS

**July 17 and 18, 2019**

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**A note to the reader:**

We believe it is important to share first-person narratives, perspectives, and insights. This document should be viewed as a roadmap to the rich discussions that occurred during the conference, which are available in full via hyperlinks.

# IDA Proceedings

On July 17 and 18, 2019, the U.S. Arctic Research Commission, U.S. National Ice Center, and Wilson Center’s Polar Institute hosted the 8<sup>th</sup> *Biennial Symposium on the Impacts of an Ice-Diminishing Arctic on Naval and Maritime Operations*—abbreviated to Ice-Diminishing Arctic or “IDA.” The Polar Institute is pleased to summarize the topics of each speaker’s presentation in these proceedings.

## AUTHORS:



**Jack Durkee**

Program Associate,  
Polar Institute  
Manager, Arctic  
Infrastructure  
Inventory



**Michaela Stith**

Program Assistant,  
Polar Institute



**Bethany Johnson**

Team Member,  
Arctic Infrastructure  
Inventory

## PARTNERS:



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## DAY 1

# Pacific, Atlantic, and Global Views of the Arctic

*Interviewed by Dr. Michael Sfraga, Director, Polar Institute, Wilson Center*

**Senator Angus King** of Maine discussed the challenges to an open and available Arctic with regard to maritime priorities, commercial transit and navigation, and—most paramount—national security. The Senator said free navigation is as crucial a priority as the need for infrastructure, and the Arctic is not as integrated into American narratives as in Russian narratives.

**Senator Lisa Murkowski** of Alaska highlighted increasing security challenges in the Arctic. Noting U.S. Secretary of State Pompeo's 2019 Arctic Council Ministerial speech, as well as China's and Russia's increasing Arctic capabilities, she said the U.S. can no longer ignore the region; the U.S. must make concerted efforts to establish its Arctic interests and investments with a standardized approach that utilizes legislation, research, and investments, while remaining mindful of Arctic people.

Senator Angus King



Senator Lisa Murkowski





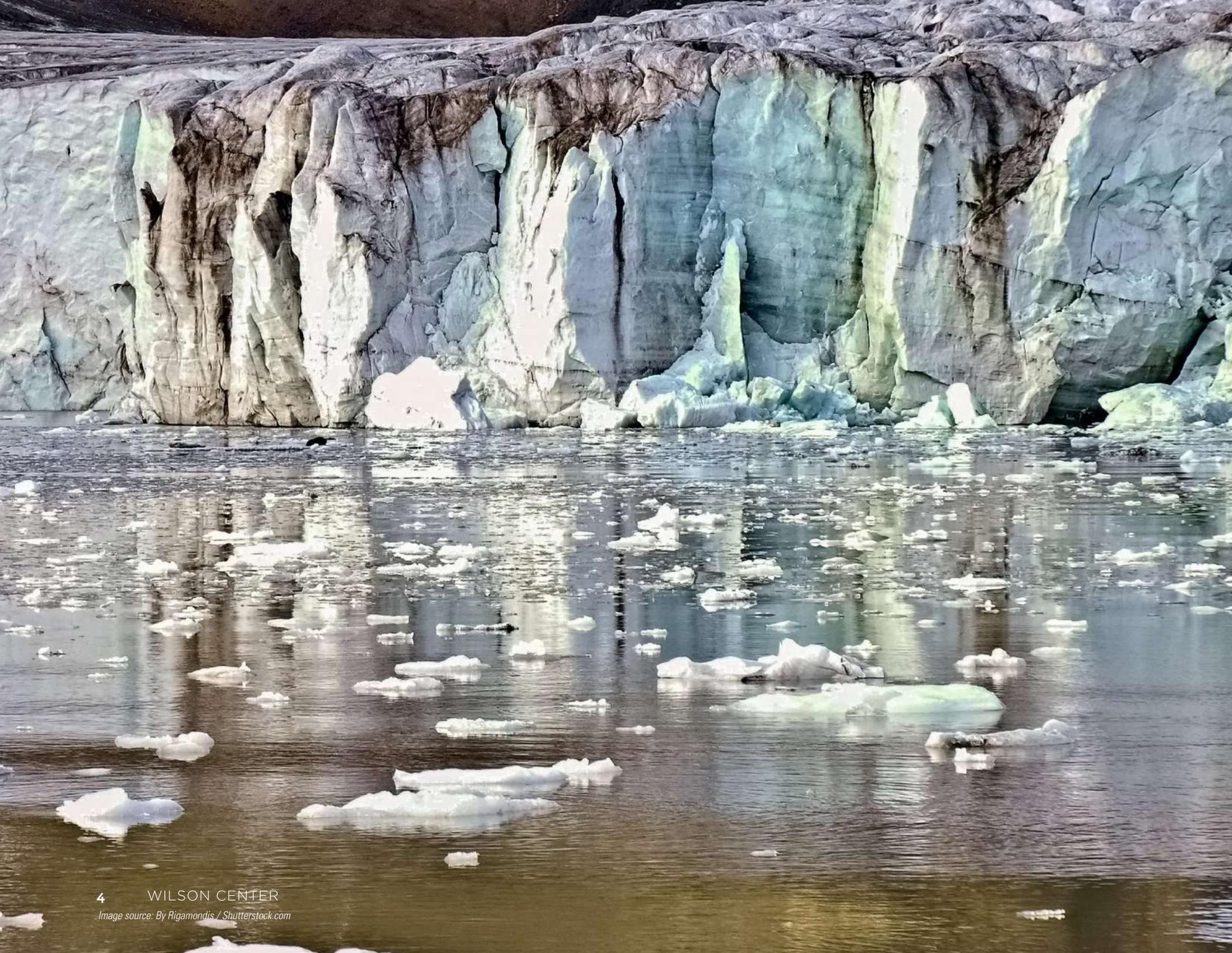
Left: Admiral Charles W. Ray, right: Melody Schreiber

## U.S. Coast Guard's Arctic Perspectives

*Interviewed by Melody Schreiber, Washington Correspondent, Arctic Today*

**Admiral Charles W. Ray**, Vice Commandant, U.S. Coast Guard underscored three areas of effort in the Coast Guard's **Arctic Strategic Outlook**: enhancing USCG capability to operate; supporting and leading a strong rules-based order; and promoting resiliency and prosperity in the region. Though previously considered an "Alaska challenge," Admiral Ray said the potential for great power competition has made understanding the Arctic operational environment a national challenge.





# Arctic Environment Scene Setter

*Introduced by Fran Ulmer, Chair, U.S. Arctic Research Commission*

**Dr. Jackie Richter-Menge**, *Commissioner, U.S. Arctic Research Commission*, said the trend of thicker, older ice changing to thinner, younger ice strains operations in the Arctic. Dr. Richter-Menge participated in the IceX 2018 exercise with the U.S. Navy Arctic Submarine Laboratory and encountered dangers that underscored increasingly unpredictable marine operations, with direct impacts on national security.





# NOAA's Arctic Portfolio

## **PART 1**

**Rear Admiral Tim Gallaudet, PhD**, *Assistant Secretary of Commerce for Oceans and Atmosphere, Deputy Administrator, NOAA (U.S. Navy retired)*, leads NOAA's Arctic Portfolio of research efforts and initiatives responding to changes in the Arctic, with particular focus on blue economy, weather and water trends. He noted that NOAA's data and services support public safety and security and can therefore help the nation adapt to climate change.

## **PART 2**

*Moderated by David Kennedy, Senior Advisor for the Arctic Region, NOAA*

**Craig McLean**, *Assistant Administrator for Oceanic and Atmospheric Research, NOAA*, described the considerable challenge of forecasting the future of an ice-free Arctic, which has not been ice-free in the last 30 million years. McLean said NOAA was diligently working to understand human-induced changes in Arctic ecosystems and improve modeling capabilities, particularly for the marine transportation community.

**Rear Admiral Shepard M. Smith**, *Director, Coast Survey, NOAA*, said the reevaluation and update of regional data and nautical charts is one of NOAA's critical long-term priorities. Improving the quality of surveying and charting in the Arctic region is essential to NOAA's mission because other government and private entities rely on NOAA for accurate information.

**Dr. Louis W. Uccellini**, *Assistant Administrator for Weather Services, NOAA; Director, National Weather Service (NWS)*, said agencies can better serve the local communities in the Arctic by prioritizing Indigenous perspectives and educational training. Climate change has a profound effect on Arctic Indigenous livelihoods, so NOAA and NWS now provide forecasts, observation services and other initiatives focused on subsistence-based lifestyles, like locating and hunting local walrus populations.

**Dr. Stephen Volz**, *Assistant Administrator for Satellite and Information Services, NOAA*, said NOAA's robust satellite data can produce real-time information to support scientific and local activities in the Arctic, yet enhanced community connections and relationships are needed to complement Satellite and Information Services in the sparsely populated and sparsely observed region.

**Dr. Cisco Werner**, *Director of Scientific Programs and Chief Science Advisor, NOAA Fisheries*, said Alaska's fisheries are the most sustainable and best-managed in the world, benefitting both the broader U.S. blue economy and subsistence-based local communities. It is NOAA Fisheries' role to manage the production, recovery and conservation of sustainable fisheries, even as new Arctic areas emerge as potential fishing grounds.

From left to right: David Kennedy, Craig McLean, Rear Admiral Shepard M. Smith, Dr. Louis W. Uccellini, Dr. Stephen Volz and Dr. Cisco Werner





From left to right: Greg Razo, Rex A. Rock, Sr., Gail Anagick R. Schubert, Aaron M. Schutt, Wayne Qaniqsiruaq Westlake

## Perspectives from Arctic Alaska Native Regional Corporations CEOs

*Moderated by Greg Razo, Vice President of Government Relations, CIRI*

**Rex A. Rock Sr.**, *President & CEO, Arctic Slope Regional Corporation*, said that – just as communities along the North Slope of Alaska have witnessed, adapted to, and subsequently passed on knowledge about environmental changes to others in the community – Arctic Slope Regional Corporation has adapted to the difficult investment landscape in Alaska, diversified their strategy and maintained presence in the contiguous U.S.

**Gail Anagick R. Schubert**, *President & CEO, Bering Straits Native Corporation*, said despite the many adverse effects

of climate change on the Bering Strait Native Corporation's coastal communities, her primary concern was the lack of U.S. presence in the Arctic. Schubert called for the U.S. to protect its national strategic interests and build infrastructure in the Arctic, especially considering Russian and Chinese actions there.

**Aaron M. Schutt**, *President & CEO, Doyon, Limited*, said the lack of Arctic infrastructure has severely hampered economic development opportunities in Interior Alaska, and Alaskans have had to play a central role in shaping and informing the

U.S. Arctic policies responding to such challenges. As CEO, for example, Schutt was responsible for a region encompassing Alaska's first military bases, roughly 600 miles of Arctic road to Prudhoe Bay, and North Slope oil fields.

**Wayne Qaniqsiruaq Westlake**, *President & CEO, NANA Regional Corporation*, noted that while Alaska has become a

spotlight for global resources and opportunities, the needs of local communities are a priority. NANA Regional Corporation's Red Dog Mine – an "economic engine" providing jobs and global investment in Alaska's Arctic – is closely monitored by the region's Indigenous people and NANA's Subsistence Committee.

## The Russian Maritime Arctic

**Dr. Andrei Zagorski**, *Professor, Moscow State, Institute for International Relations; Head of Department for Disarmament, Arms Control, and Conflict Resolution, Institute of World Economy and World Politics, Russian Academy of Sciences*, challenged the concept of the Northern Sea Route (NSR) as an international shipping passage. He said the NSR only covers part of the Russian Federation coastal area, therefore categorizing the majority of current NSR shipping as domestic – not transit – shipping.

**Dr. Lawson Brigham**, *Global Fellow, Polar Institute, Wilson Center; Researcher, University of Alaska Fairbanks*, focused on the global connections forged by increased interest in Arctic marine economies like fisheries, oil, gas, and rare earth minerals markets. For example, LNG carriers designed in Finland, built in Korea, and owned by Japanese and Chinese consortiums are commonplace at the Russian Yamal facility. Dr. Brigham said challenges to Arctic cooperation may still arise as the NSR's role in global shipping and demand for Arctic commodities increase.

Dr. Lawson Brigham



Dr. Andrei Zagorski





From left to right: Sarah Harrison, Tim Keane, James Bond, Michael Kingston, Anne Barker, Leslie Canavera

## Operational Views on Arctic Shipping

*Moderated by Sarah Harrison, Arctic Marine Transportation Specialist, U.S. Committee on the Marine Transportation System (CMTS)*

**Tim Keane**, *Senior Manager, Arctic Operations and Projects, Fednav Limited*, said understanding the realities of Arctic operations is crucial to comprehensive voyage planning; Fednav Limited is overcautious at times to ensure proper safety protocols are followed.

**James Bond**, *Director, Advisory Services, American Bureau of Shipping (ABS)*, said the ABS promotes safe shipping and environmental protection. The recent implementation of the Polar Code supports these values by requiring documentation on ships operating in polar regions, as well as a certification process that outlines operational limitations based on vessel equipment.

**Michael Kingston**, *Managing Director, Michael Kingston Associates; Special Advisor, Protection of the Arctic Marine Environment (PAME) Working Group, Arctic Council*, said awareness and preparation were critical in Arctic operations. To mitigate accidents and facilitate business in the Arctic, Kingston said the changing Arctic demands a framework of rules and regulations managed by a reliable rules-based order, with implementation at operational and local levels.

**Anne Barker**, *Arctic Program Leader, Ocean, Coastal, and River Engineering, National Research Council Canada (NRC)*, said all Arctic operators need specialized tools and

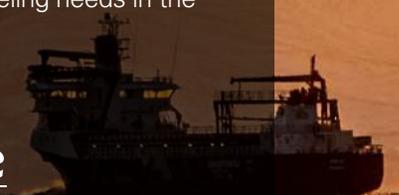
technologies to provide adequate levels of safety. NRC creates Arctic tools and technologies with a focus on risk-based assessments, consideration for local communities' and governments' needs and priorities, the support of science-based policy decisions, and collaboration with Indigenous research partners, said Barker.

**Leslie Canavera**, CEO, *PolArctic LLC*, asserted that part of the challenge to Arctic operations is insufficient navigational charts. Canavera said tools developed through artificial intelligence and machine learning could assist with statistical modeling needs in the Arctic, particularly by quickly providing the “what, when, and where” data in the rapidly changing climate.



## Predicting Maritime Traffic in the U.S. Arctic

**Sarah Harrison**, *Arctic Marine Transportation Specialist, U.S. Committee on the Marine Transportation System (CMTS)*, said the CMTS report, “**A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region**” estimated Bering Strait transit levels would increase 100% by 2025. 29 total factors were found to influence vessel activity, divided in four categories: natural resource development, infrastructure development, expansion of the Arctic fleet, and the number of vessels rerouted through the Arctic.





From left to right: Dr. Rebecca Pincus, Andrey Bondarev, Dr. Heather Exner-Pirot, Dr. Robert Huebert

## Great Power Competition in the Arctic

*Moderated by Dr. Rebecca Pincus, Assistant Professor, Strategic and Operational Research Department, Center for Naval Warfare Studies, US Naval War College*

**Andrey Bondarev**, *Head of Economic Office, Embassy of the Russian Federation to the U.S.*, said Russia considers the Arctic to be a territory of peace, stability, and cooperation that historically played a significant role in Russia's economy. Many of Russia's national interests align with regional focuses like establishing better infrastructure and investments, protecting sovereignty and national security. Because national boundaries are well-established, Bondarev said Russia does not expect conflict in the Arctic.

**Dr. Heather Exner-Pirot**, *Research Associate, CIRRIQ*, said there is potential for conflict to emerge in the Arctic, though

it is unclear how open conflict would actually manifest there. To proactively avoid building tensions, Dr. Exner-Pirot said continued engagement efforts like the Arctic Coast Guard Forum could minimize the "struggle for conflict and power" narrative.

**Dr. Robert Huebert**, *Associate Professor, Department of Political Science, University of Calgary*, said Russian, American and Chinese interests and activities create the foundation of a complicated and dangerous tri-polar security dilemma. These countries' vast global security requirements may drive conflict in the Arctic.

# Department of Energy's Arctic Priorities

*Moderated by Fran Ulmer, Chair, U.S. Arctic Research Commission*

**Deputy Secretary Dan Brouillette**, U.S. Department of Energy (DOE), said the U.S. – an Arctic nation with increasing national energy priorities – recognized Alaska's energy potential and worked to leverage those resources in environmentally responsible ways. The DOE would improve the state's economy, move Alaska and the U.S. toward energy independence, and chart the future of DOE priorities in close coordination with Arctic neighbors and partners.



Left: Deputy Secretary of Energy Dan Brouillette, right: Fran Ulmer, Chair, U.S. Arctic Research Commission.



From left to right: Raymond Arnaudo, Ambassador Kåre R. Aas, Ambassador Marie-Anne Coninx, Deputy Ambassador Kirsten Hillman, Ambassador Harri Mäki-Reinikka, Ambassador (Ret.) Ken Yalowitz

## The State of Arctic Diplomacy

*Moderated by Raymond Arnaudo, former Director, Office of Oceans and Polar Affairs, U.S. Department of State*

**Ambassador Kåre R. Aas**, *Ambassador of Norway to the U.S.*, said Arctic Norway, which holds about 10% of Norway's population, is as economically and politically vibrant as the rest of the country but faces different challenges like climate change and regional stability. Since the Arctic is known for stability and peace, regional cooperation could facilitate a more sustainable Arctic.

**Ambassador Marie-Anne Coninx**, *EU Ambassador at Large for the Arctic*, named three main reasons the Arctic is strategically important to the EU: 1) three EU member states are Arctic nations, so EU policies and standards already apply to the

European Arctic; 2) Arctic activities and climate change impact the whole EU; and 3) current geo-economics and geopolitical implications of the region will have a direct impact on EU policies.

**Deputy Ambassador Kirsten Hillman**, *Deputy Ambassador of Canada to the U.S.*, said Arctic Indigenous communities are the most attuned to the region's opportunities and challenges and, therefore, are at the core of Canada's approach and vision to Arctic cooperation, diplomacy, and domestic policy. The Deputy Ambassador said cooperation with both Arctic and non-Arctic nations is critical to the overall understanding of the Arctic.

**Ambassador Harri Mäki-Reinikka**, *Security General of Finland's Arctic Advisory Board*, said Finland explored common solutions across two cross-cutting themes during its 2016-2018 Arctic Council Chairmanship: 1) the 2030 Sustainable Development Agenda and 2) environmental protection through education and connectivity. The Ambassador said Finland's challenges as Chair will continue into future chairmanships, requiring further confidence-building and transparency among all Arctic countries.

**Ambassador (Ret.) Ken Yalowitz**, *Global Fellow, Polar Institute, Wilson Center*, said that while "dark clouds loom" over the Arctic today, the success of diplomacy in the region needs to be acknowledged. Areas of improvement in bilateral and military dialogues are apparent, but there are currently no significant boundary disputes in the Arctic; potential exists for future diplomatic efforts.



## Iceland's Chairmanship of the Arctic Council

**Hreinn Pálsson**, *Deputy Chief of Mission, Embassy of Iceland to the U.S.*, elaborated on the four priorities steering Iceland's agenda for the 2019-2020 Chairmanship: the Arctic marine environment, climate and green energy solutions, people and communities, and a stronger Arctic Council. Iceland's goal was not to "reinvent the wheel," he said, but to build upon the quality work already in progress toward viable and sustainable Arctic development.

## DAY 2



### Arctic Security

**Senator Dan Sullivan** of Alaska discussed three growing trends regarding U.S. national security in the Arctic: 1) stronger bipartisan focus; 2) diverse and growing interest by federal agencies, and; 3) DoD acknowledgement of the Arctic's strategic importance. The Senator said visits by senior military leadership facilitated interactions with local communities, showcased Alaska's strategic value, and educated military members about the Arctic environment, transportation, resources, and the people who live there.



### Central Arctic Ocean Fisheries Agreement

**Peter Harrison**, *Professor Emeritus, Public Policy, Queen's University Canada*, said diminishing sea ice levels potentially create unregulated fisheries access in the Central Arctic Ocean (CAO) that could lead to catastrophic fisheries stock decline. As the result of multi-pronged cooperation with non-government actors, nine Arctic and non-Arctic countries and the EU signed the 2018 Arctic Fisheries Agreement after only 2 years of negotiations.

# High Arctic Research Infrastructure

*Moderated by Lori Parrott, Manager, Atmospheric Sciences, Sandia National Laboratories*

**Dr. Mark D. Ivey**, *Atmospheric Sciences, Sandia National Laboratories*, said Sandia National Laboratories has worked to improve Arctic climate and atmospheric models for 20 years. The organization proposed a new permanent, premier research facility in the Arctic – the U.S. High Arctic Research Center (USHARC) – to support comprehensive, cooperative and essential Arctic research across disciplines.

**Dr. Nettie La Belle-Hamer**, *Director, Alaska Satellite Facility; Deputy Director, Geophysical Institute, University of Alaska Fairbanks*, elaborated on the importance of USHARC as a permanent center designed to meet the growing demand for scientific research in the Arctic. The facility could accommodate researchers and support staff, store necessary equipment, enable interdisciplinary research, enhance access to the Arctic environment, facilitate student training, collaborate with the military, and support operational training.

From left to right: Lori Parrott, Dr. Nettie La-Belle Hamer, Mark D. Ivey





From left to right: Zachary D. Hamilla and Liz Ruskin

## The Arctic in U.S. National Identity

*Moderated by Liz Ruskin, Washington Correspondent, Alaska Public Media*

**Zachary D. Hamilla**, *Executive Director, The Arctic Studio*, said The Arctic Studio's research on American perceptions of the Arctic region shows Americans generally have low sentiment and attachment to the Arctic—they mostly associate it with the cold, snow, and ice. The survey and data, Hamilla stated, are designed to be used by policymakers to determine what and how to prioritize Arctic issues.



## Tracking Changing Arctic Seas for the Benefit of Planning and Operations

**Hajo Eicken**, *Director, International Arctic Research Center, University of Alaska Fairbanks*, framed the importance of the Arctic in global politics and security, asserting that Arctic observations influence our interactions with the global ocean. Eicken asserted that structured coordination among the patchwork of Arctic climate observers and knowledge holders would address the challenges of sustained operations with societal benefits.

# Perspectives from Arctic Alaska Natives

Moderated by **Liz Cravalho**, Kotzebue, Alaska

**Liz Cravalho**, Vice President of Lands, NANA Corporation; Inuit Circumpolar Council Member of the Arctic Economic Council Board, from Kotzebue, Alaska, emphasized the quality of and need for Indigenous knowledge in Arctic work. Cravalho introduced the panel as such: “the Arctic may be a frontier today for policymakers and researchers; however, the Arctic is and has been our homeland for thousands of years.”

**Melissa Heflin**, Executive Director, Bering Sea Elders Group, from Nome, Alaska, said the tribal elders she serves continually refer to the northern Bering Sea as their “grocery store.” The challenges Arctic Indigenous communities face are increasingly seen as opportunities by non-Arctic actors, and it is Indigenous peoples’ right to be consulted and involved in all discussions and decisions regarding their homes and livelihoods.

**Hugh Patkotak Sr.**, CEO, Olgoonik Corporation, from Wainwright, Alaska, noted the increasing difficulty of simultaneously living and working in both the Western world and Indigenous ways of life. Patkotak Sr. said his primary responsibility was to bring the concerns of the Arctic to the Western world; non-Arctic actors have dictated the lives of Indigenous communities, and he wants that to change.

**Delbert Pungowiyi**, President of the Native Village of Savoonga, from Savoonga, Alaska, compared his early years – 9-month winters without electricity or motorized vehicles – to today: three months of winter and a rising ocean. Pungowiyi, whose grandfather passed down Indigenous knowledge in the oral tradition, described himself and all humans as caretakers and stewards of the Earth who must take action to protect it.

From left to right: Liz Cravalho, Melissa Heflin, Hugh Patkotak Sr., Delbert Pungowiyi



# Operational Ice Centers

**Commander Kristen Serumgard**, *Commander, International Ice Patrol*, described the mission of the International Ice Patrol: to monitor icebergs and provide warnings to the maritime community. The International Ice Patrol reports on icebergs that drift lower than 48 degrees north latitude in particular, as these icebergs can disrupt vessels and commerce for up to 72 hours.

**Scott Weese**, *Operations Director, Canadian Ice Service*, outlined the Canadian Ice Service's (CIS) mission: to provide timely and accurate information about sea ice in Canada's navigable waterways, and warn Canadians of hazardous ice

conditions. CIS equips Canadians with the knowledge to support sound environmental policies, said Weese.

**Kevin Berberich**, *Office of Satellite and Product Operations, NOAA & U.S. National Ice Center (NIC)*, said NOAA and NIC provide quality and global high-latitude domain awareness with both hands-on and remote data sensing that has been used in projects like U.S. Coast Guard deployments, the Department of Defense's Naval Arctic Strategy, and the NOAA Action Plan. Rising demands for year-round NIC missions strain the center's current resource levels, said Berberich, and highlight the need to enhance their support functions.

From left to right: Commander Kristen Serumgard, Scott Weese, Kevin Berberich





From left to right: Mike Sfraga, Alf Håkon Hoel, Ole Rasmus Øvretveit, Liv Monica Stubholt

## Arctic Ocean and the Blue Economy

*Moderated by Dr. Michael Sfraga, Director, Polar Institute, Wilson Center*

**Alf Håkon Hoel**, *Professor of Ocean Law and Policy of Fisheries Science, University of Toronto*, stated that Arctic fisheries add millions of tons to the global food supply and mismanagement would have global impacts. Countries must collaborate toward sustainable management, said Hoel, and the growing interest in Arctic science could assist in these endeavors.

**Ole Rasmus Øvretveit**, *Director, Arctic Frontiers*, described Arctic Frontiers' vision for sustainable and knowledge-based development in the Arctic. Science-based developments could

contribute to stronger and more resilient Arctic communities, stated Øvretveit, and the lack of Arctic infrastructure and communication capabilities should be prioritized.

**Liv Monica Stubholt**, *Partner, Advokatfirmaet Selmer DA*, said business is an engine for growth that concerns both science and security in the Arctic. While more Arctic business ventures could be fruitful and sustainable, said Stubholt, there is a rules-based system in the region that must be demystified for the business community.



From left to right: Mead Treadwell, Michael Kingston, Tero Vauraste, Paul Massaro

## Can the United States Facilitate an International Arctic Seaway?

**Mead Treadwell**, former Lieutenant Governor, State of Alaska; former Chair, U.S. Arctic Research Commission, discussed the concept of a U.S. Arctic Seaway Development Corporation which, through the implementation of the SEAL Act, would unite Arctic nations in a cooperative, collective, and voluntary shipping union. This effort would provide support and resources needed to bolster infrastructure and security measures in the Arctic, stated Treadwell.

**Tero Vauraste**, President, Mariadi Ltd.; former Chair, Arctic Economic Council, outlined a framework to support “Uber for Icebreakers” and its operational efficacy. Vauraste claimed there are about 170 icebreakers in the world today, with about 30 to 40 percent in service at any given moment. Vauraste stated that an economic model for icebreakers, similar to the joint utilization process of AirBnB or Uber, holds both economic and safety potential.

**Michael Kingston**, Managing Director, Michael Kingston Associates; Special Advisor, Protection of the Arctic Marine Environment (PAME) Working Group, Arctic Council, proposed strong international collaboration and leadership as viable means to support joint operations and investment in the Arctic. The current lack of infrastructure and shipping support deters insurers, said Kingston, so the SEAL Act could be a declaration of U.S. intent to create a system of Arctic safety and reliability.

**Paul Massaro**, *Policy Advisor, U.S. Helsinki Commission*, described the Helsinki Commission’s focus on economic and environmental issues; its interests and role in the Arctic span from anti-money laundering and illicit trade to regular Arctic shipping practices. Ensuring Organization for Security and Co-operation in Europe principles are respected is the fundamental role of the Commission in the Arctic.



From left to right: Dr. Atsushi Sunami, Rear Admiral Kazumine Akimoto, and Eiji Sakai

## Japan's Arctic Interests

**Dr. Atsushi Sunami**, *President, Ocean Policy Research Institute (OPRI)*, **Eiji Sakai**, *Vice President, OPRI*, and **Rear Admiral Kazumine Akimoto**, *Senior Research Fellow, OPRI*, discussed OPRI's new initiative on marine ocean plastics, the focus of Japan's Arctic Policy review and the Arctic Circle Forum hosted by Japan in 2020. The country looks toward a future of strengthened collaborations with the United States, stated Dr. Sunami, and continued comprehensive research and development in the region.



## China's Arctic Interests

**Dr. Nong Hong**, *Executive Director, Institute for China America Studies*, said China desires a peaceful, stable, and sustainable use of the Arctic, despite skepticism of the nation's presence in the region. China's 2018 **Arctic White Paper** focused on understanding, protecting, developing, and participating in Arctic governance, said Dr. Hong, and reiterated China's respect for the international community and the rights of coastal states.



From left to right: Dr. John Farrell, Major General Randy "Church" Kee, Dr. S. Bradley Moran, Dr. Frank R. Rack

## Arctic Science

*Moderated by Dr. John Farrell, Executive Director, U.S. Arctic Research Commission*

**Major General Randy "Church" Kee**, Executive Director, Arctic Domain Awareness Center (ADAC), retired U.S. Air Force, described ADAC's Arctic science and technology research, workshops, and educational programs focused on maritime operator challenges – especially on U.S. Coast Guard operations and missions. By providing operator-driven research, Major General Kee said ADAC can increase domain awareness of the Arctic region.

**Dr. S. Bradley Moran**, Dean, College of Fisheries and Ocean Sciences, University of Alaska, Fairbanks (UAF), said UAF has used the RV *Sikuliaq* – the only ice-capable global class vessel in an academic fleet – to support Alaskan, national, and international research operations since March 2016. Dr. Moran said the *Sikuliaq* team works with local and Indigenous communities to avoid conflicts with their livelihoods and meet the needs of all interested parties.

**Dr. Frank R. Rack**, *Arctic Research Support and Logistics Manager, National Science Foundation*, discussed U.S. participation in the international Multidisciplinary Drifting Observatory for the Study of Arctic Climate (MOSAiC) Expedition. MOSAiC would be the largest Arctic research

expedition ever conducted, include 600 participants from 19 nations, and advance global understanding of the Arctic environment through atmosphere, ocean, ice, snow, ecosystem, and biogeochemical data collected and studied throughout the annual cycle.



**Dr. Colleen Strawhacker**, *Program Director, Arctic Social Sciences, National Science Foundation*, introduced one of the National Science Foundation's "Ten Big Ideas": *Navigating the New Arctic*. Through Arctic observation, advanced research and modeling, STEM education, and increased partnerships, said Strawhacker, the five-year program would inform the nation's economic, security, and resilience practices and yield an understanding of the intersections between the social, natural, and built environments.

# Arctic Security: the U.S. Military Perspective

*Moderated by Major General Randy “Church” Kee (USAF, ret.); Executive Director, Arctic Domain Awareness Center*

**LeeAnn M. Borman**, *Senior Executive Service, Deputy Director, Strategy Concepts and Assessments, Deputy Chief of Staff for Strategic Plans and Requirements for the U.S. Air Force*, described how the four key elements of Air Force operations in the Arctic – projection, vigilance, preparation, and partnerships – shape the branch’s perspective on Russia’s activities, China’s role, and scientific research and collaboration in the Arctic. The U.S. Air Force’s Arctic presence was essential in WWII and Cold War operations, stated Borman, and the region’s vast distances and limited infrastructure continue to make airpower a vital asset.

**Rear Admiral Thomas Marotta**, *Reserve Deputy in the Office of the Chief of Naval Operations, Plans and Strategy*, said the

Navy’s strategic objectives in the Arctic include ensuring U.S. Arctic sovereignty, providing naval forces for crisis response, preserving freedom of navigation, and promoting partnerships within the U.S. government and international allies. Rear Admiral Marotta said the Navy recognizes the Arctic as an area of low conflict with latent potential for conflict.

**Vice Admiral Daniel B. Abel**, *Deputy Commandant for Operations, U.S. Coast Guard*, highlighted the changing habits of human activity in the Arctic and the reality of search and rescue missions. The new USCG Arctic Strategy calls for an enhancement of capabilities to combat complications from operating in the unique environment.

From left to right: Vice Admiral Daniel B. Abel, LeeAnn M. Borman, and Rear Admiral Thomas Marotta



## Alaska Operations

*Moderated by Major General Randy “Church” Kee, (USAF, ret.); Executive Director, Arctic Domain Awareness Center*

**Rear Admiral Matthew T. Bell Jr.**, *Seventeenth District Commander (D17), U.S. Coast Guard*, applauded the USCG’s wide array of missions in the Arctic environment. USCG must deal with the tyranny of distance and sparse resources in new and now unpredictable extremes, Bell noted, and these challenges could lead to acceptance of higher risk due to reduced whole-of-government response capability.

**Brigadier General Joseph J. Streff**, *Assistant Adjutant General, Alaska National Guard*, said the busiest Air Unit in the entire United States is the Alaska Air National Guard. Streff illustrated the depth and breadth of the Alaskan land and air domain, where the National Guard regularly operates and has operated since WWII under the mission of the Alaska Department of Military and Veteran Affairs.

## Perspectives from the Symposium Founder

**George Newton**, *Former Chair, U.S. Arctic Research Commission (USARC)*, shared the origins of this symposium—which began with USARC’s correct assessment that the Arctic would see significant interest, activities, and increased importance globally. Newton said basic research about the Arctic region, safe operations and environmental changes there needed to be communicated to policymakers and the public.



From left to right: Lillian Hussong, Dr. Andreas Raspotnik, Alina Bykova, Jack Durkee, Rebecca Lynge, Val Muzik

## The Generational Contract: Emerging Leaders at the Arctic Institute

**Lillian Hussong**, *Researcher & Social Media Manager, Arctic Institute*, moderated the panel of young graduate students, university lecturers, journalists, civil servants and think tank analysts. She posed the over-arching question, *How do inclusivity, equity and multi-disciplinary collaboration offer a foundation for emerging leaders to tackle the impacts of an ice-diminishing Arctic?*

**Jack Durkee**, then *Program Assistant at the Wilson Center's Polar Institute*, noted that this generation will experience the full consequences of environmental change. To be a young leader onstage was a privilege, said Durkee, and more youth could be featured alongside conventional panelists to promote confidence and inclusion in future Arctic policy and research.

**Alina Bykova**, *Researcher and Translator at the Arctic Institute*, said the Arctic has a diverse human element that must be emphasized into the future. While youth build upon the important work of previous generations, conversations on inclusivity are important and more common among younger people, said Bykova.

**Rebecca Lynge**, *then First Secretary, Government of Greenland*, said younger generations may evolve narratives developed in previous generations, as well as bring more youth voices into discussions. Young people are already breaking down barriers to move Arctic research forward and promote change, and Lynge commended their bravery.

**Dr. Andreas Raspotnik**, *Arctic Institute Senior Fellow and High North Center Senior Researcher*, noted dialogue as an essential means to include young leaders in meaningful ways. Raspotnik said experts and the public alike need to feel comfortable with honest knowledge exchange and discussions about the Arctic and issues like climate change.

**Val Muzik**, *an Arctic Institute Research Associate*, said new ideas are needed in a New Arctic – this will require more voices from different disciplines, backgrounds and regions. Youth are concerned about climate change and apprehensive about the future, said Muzik, yet inspiration from elders and collaboration across the Arctic provides hope.



One Woodrow Wilson Plaza  
1300 Pennsylvania Avenue, N.W.  
Washington, DC 20004-3027

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