



# Opening Arctic V



**Collaboration and Innovation for a Sustainable Future**

**March 12, 2016**



THE FLETCHER SCHOOL

TUFTS UNIVERSITY

# The Fletcher Opening Arctic V Conference

March 12<sup>th</sup>, 2016 – Medford, Massachusetts

*Collaboration and Innovation for a Sustainable Future*

## Agenda

08:00 – 09:00	Breakfast and Registration	Mezzanine
09:00 – 09:20	Opening Remarks	ASEAN Auditorium
09:20 – 09:30	Video Message by Senator Angus King	
09:30 – 10:45	Panel 1 <i>Arctic Diplomacy</i>	
	Opening Remarks by Admiral James Stavridis	
10:45 – 11:00	Coffee Break	Mezzanine
11:00 – 12:25	Panel 2 <i>Advancing Pan-Arctic Infrastructure</i>	ASEAN Auditorium
12:25 – 12:35	Conference Photo	Hall of Flags
12:35 – 13:35	Lunch	Mezzanine
	Special Guest: Odaiko New England	Mezzanine
13:35 – 15:05	Concurrent Roundtables	<i>See pages 3-4</i>
15:05 – 15:20	Coffee Break	Mezzanine
15:20 – 16:45	Panel 3 <i>Entrepreneurship, Innovation, and Business: Navigating a Path to Sustainable Arctic Development</i>	ASEAN Auditorium
16:45 – 17:15	Closing Remarks	
17:15 – 17:25	Remarks by Ambassador Kazuko Shiraishi	
17:25 – 19:00	Reception hosted by the Government of Japan	Hall of Flags and Mezzanine

## Overview of Panels, Roundtables, and Speakers

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### Panels

#### **Panel 1: Arctic Diplomacy**

*ASEAN Auditorium*

Facilitated by Admiral James Stavridis

Ambassador David Balton

Ambassador Hannu Halinen

Ambassador Robert C. Barber

Ms. Susan Harper

Ambassador Mark Brzezinski

Ambassador Kazuko Shiraishi

#### **Panel 2: Advancing Pan-Arctic Infrastructure**

*ASEAN Auditorium*

Moderated by Professor Paul Berkman

Ambassador David Balton

Mr. Nils Arne Johnsen

Professor Walter Berbrick

Professor Rebecca Pincus

Professor Dalee Sambo Dorough

Mr. Tero Vauraste

#### **Panel 3: Entrepreneurship, Innovation, and Business: Navigating a Path to Sustainable Arctic Development**

*ASEAN Auditorium*

Moderated by Professor Rockford Weitz

Mr. Patrick Arnold

Halla Hrund Logadóttir

Ambassador Robert C. Barber

Professor Gunhild Hoogensen Gjørsv

Professor Nikolai A. Dobronravin

Professor William Moomaw

## Concurrent Roundtables

**Considering Indigenous Perspectives in a Changing Arctic**

*Mugar 235*

Professor Susan Kaplan

Ms. Anne Witty

**Entrepreneurship in the Face of a Changing Planet: Why Collaborative Innovation is Key to Sustainable Arctic Development**

*Mugar 231*

Mr. Patrick Arnold

**Inuit Nunangat's Economy: Past, Present, Future**

*Cabot 703*

Professor Thierry Rodon

Iqaluit Mayor Madeleine Redfern

**Japan's Initiative in the Arctic**

*Goddard Hall, Crowe Room*

Professor Atsushi Sunami

**Student Arctic Research Showcase**

*Cabot 702*

Moderated by Professor Alan Henrikson

Ms. Kjersti Irina Rosanoff Aronson

Ms. Katie Burkhart

Ms. Mieke Coppes

Ms. Oda Nyborg

Ms. Vhelma Viviana Leòn R.

Mr. Magnus de Witt

Mr. Andrew Yerkes

## Panel Descriptions

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### **Panel 1 Arctic Diplomacy**

Drawing on their respective experiences representing or working with the Governments of Canada, Finland, Iceland, Japan and the United States, diplomats will reflect on opportunities for collaboration for a sustainable future within the Arctic region and the approaches of the aforementioned countries to Arctic policy.

### **Panel 2 Advancing Pan-Arctic Infrastructure**

The Arctic Ocean region is entering a new phase - from research on sustainable development as a common arctic issue to investment in sustainable infrastructure development on a pan-Arctic scale. Thinking holistically, infrastructure involves the combination of fixed, mobile, and other built assets (including communications, research, observing and information systems) as well as regulatory, policy, and other governance mechanisms (including insurance). Responding to the risks and opportunities, science is a tool of diplomacy to achieve balance for sustainability in the new Arctic Ocean and across the Earth.

### **Panel 3 Entrepreneurship, Innovation, and Business: Navigating a Path to Sustainable Arctic Development**

As climate change makes the Arctic more accessible, economic interest in the region continues to grow. Arctic oil and gas development, shipping and trade, mineral resources, fisheries, tourism, and infrastructure development all offer major economic opportunities for a diverse set of stakeholders. At the same time, operating in the Arctic presents unique challenges – including the harsh climate, fragile ecosystem, lack of critical infrastructure, and absence of clear, consistent governance arrangements. What levels of investment and innovation are needed to achieve sustainability? How can nations and businesses partner to ensure that economic prosperity is balanced with environmental protection and social well-being? This panel will explore the opportunities and challenges associated with pursuing sustainable, safe, and inclusive economic development in the Arctic.

## Roundtable Descriptions

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### **Considering Indigenous Perspectives in a Changing Arctic**

When seeing the opening Arctic as an opportunity across various dimensions, one need also consider indigenous groups and other Northern residents in order to achieve sustainable Arctic development. Susan Kaplan, director of the Peary-MacMillan Arctic Museum in Maine, is an anthropologist working with indigenous populations and will draw on her extensive knowledge of Arctic communities to address concerns faced by indigenous peoples living in a fast-changing environment. After an introductory presentation to stimulate thought-provoking questions, the audience will have the opportunity to engage with Prof. Kaplan and the Peary-MacMillan

Arctic Museum's Assistant Curator, Anne Witty, in a conversation regarding concerns, challenges and opportunities for indigenous peoples.

### **Entrepreneurship in the Face of a Changing Planet: Why Collaborative Innovation is Key to Sustainable Arctic Development**

The changing physical dynamic of the Arctic presents undeniable opportunities for both the inhabitants of the region as well as the rest of the world. Improving transportation logistics and greater accessibility to resources has facilitated a growing economic interest while simultaneously ensuring the future will bring many new faces and activities to the area. In this session, we will explore the significant role that collaboration will play if we are to successfully achieve sustainable economic development. We will focus on how cluster initiatives offer a unique way to bring entrepreneurs together in a manner that promotes responsible business growth sensitive to a region's regulatory and cultural identities. We will investigate the successes of the Iceland Ocean Cluster in particular, discussing how collaborative efforts have fueled greater utilization of existing resource streams, elevated commitment to sustainable methodologies, and encouraged a healthy entrepreneurial environment.

### **Inuit Nunangat's Economy: Past, Present, and Future**

Inuit Nunangat is the region occupied by the Inuit of Canada and covers most of the Canadian Arctic. It is often seen as being less developed economically than the European and US Arctic. Its economic development has, however, been a priority for Canada since the 1950s and many solutions have been tried with very mixed success. Join Professor Rodon, expert on sustainable development in Northern Canada and Her Worship Madeleine Redfern, Mayor of Iqaluit, Nunavut's capital to analyze Canada's Arctic development policies and describe the past, present, and possible future of Inuit Nunangat's economy.

### **Japan's Initiative in the Arctic**

The first freighter to sail from Europe to Japan across the Arctic arrived in 2012. In the same year, a Japanese research organization announced that sea-ice extent of the Arctic Ocean was the smallest in recorded history. Japan is an official observer nation to the Arctic Circle. In this role, Japan has promoted an Arctic agenda focused on science, research, and respect for native peoples of the Arctic. How can Japan and other non-Arctic nations participate in shipping, economic development, and security in the Arctic? Please join Professor Atsushi Sunami, an expert in Japan's Arctic affairs, for a discussion focusing on Japan's initiative in the Arctic.

### **Student Arctic Research Showcase**

In this session, seven graduate students will present unique research on the Arctic. From defense strategies to science diplomacy, short presentations will introduce you to what students from around the globe believe are the hottest issues in Arctic studies. With time for discussion and questions, a dynamic conversation will develop on the intersection of these issues to provide a new perspective on the Arctic. This session brings students together to share knowledge and encourage collaboration, while allowing professionals insight into the work of young scholars.

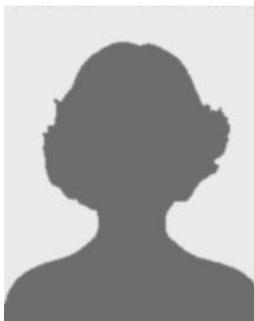
## Speakers

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### Patrick Arnold

*CEO of Soli DG*

Patrick Arnold is the founder and CEO of Soli DG, a management consulting firm specializing in maritime logistics and port operations. Soli DG has managed cargo operations at the International Marine Terminal in Portland since 2009. Over the past six years, Patrick has been responsible for marketing and business development for Maine's ports, and has worked with the Maine Port Authority to secure the New England Marine Highway Expansion designation by the US Secretary of Transportation, to manage over \$34 million in funding from national and state sources, and to launch a new containerized freight service between Atlantic Canada, New England, and Europe. Patrick also facilitated the relocation of shipping giant Eimskip's U.S. headquarters from Virginia to Portland, Maine - a move which has resulted in unprecedented development on Portland's working waterfront and which has connected Maine to the Arctic in new ways. Leveraging this connection, Patrick co-founded the New England Ocean Cluster in 2014 with Thor Sigfusson, whose successful Iceland Ocean Cluster House in Reykjavik serves as a model for the type of collaborative innovation Patrick hopes to see pursued in New England.



### Kjersti Irina Rosanoff Aronsen

*Graduate Student, UiT - The Arctic University of Norway*

Kjersti Irina Rosanoff Aronsen holds a Bachelor's Degree in Political Science from UiT - The Arctic University of Norway. Aronsen is currently working on a Master's Degree in Political Science at UiT - The Arctic University of Norway, researching Russia's relation to the West in Arctic regions, whilst also serving as a student-representative at the board of the University.

### Ambassador David Balton

*Chair, Arctic Council Senior Arctic Officials*

*Deputy Assistant Secretary of Oceans and Fisheries, U.S. Department of State*

David A. Balton is the Deputy Assistant Secretary for Oceans and Fisheries in the Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State. He is also the Chair of the Arctic Council Senior Arctic Officials. In March 2005, the President, with the consent of the Senate, accorded to Mr. Balton the rank of Ambassador during his tenure.

Ambassador Balton previously served for 6 years as Director of the Office of Marine Conservation in the Department of State. In that capacity, he was responsible for coordinating the development



of U.S. foreign policy concerning living marine resources and overseeing U.S. participation in international organizations dealing with the conservation and management of these resources. Ambassador Balton also worked for 12 years in the Office of the Legal Adviser in the Department of State. His international law practice covered such areas as the law of the sea, human rights and international claims. Ambassador Balton negotiated numerous treaties and other international agreements on fisheries, marine mammals and other matters pertaining to the marine environment. Ambassador Balton received his A.B. from Harvard College and his J.D. from Georgetown University Law Center.



### **Ambassador Robert C. Barber**

*U.S. Department of State*

Robert C. Barber was confirmed by the United States Senate on December 12, 2014, and sworn in by Vice President Biden on January 8, 2015, as the U.S. Ambassador to the Republic of Iceland. Prior to this, he was a partner at Looney & Grossman LLP, a law firm in Boston, Massachusetts. Ambassador Barber graduated from Phillips Academy in 1968 and Harvard College in 1972. After a year away from academia, Ambassador Barber entered Boston University School of Law in 1973, graduating in 1977, and in the same year obtaining a Masters in City and Regional Planning from Harvard University Graduate School of Design. Ambassador Barber was until recently Treasurer of the Social Law Library, and served on the Library's Board of Trustees since 1998. He has long been active in his local community, having led a variety of service projects and having coached youth sports as well as having served as a ward committeeman in his hometown of Cambridge, Massachusetts. In addition, Ambassador Barber has participated in state-wide and national political campaigns. He had for many years volunteered for fundraising and other alumni activities at Harvard College, including service on the Board of Trustees of Phillips Brooks House Association, the undergraduate social service and social action organization at Harvard College.

### **Walter A. Berbrick**

*Associate Professor and Director of the Arctic Studies Group, U.S. Naval War College*

Dr. Walter Berbrick is an Associate Professor in the War Gaming Department and Director of the Arctic Studies Group (ASG) at the U.S. Naval War College in Newport, RI. Under his leadership, the ASG conducts research in areas of interest to the Chief of Naval Operations (CNO), Fleet and Combatant Commanders and other stakeholders responsible for naval and maritime strategy, policy and operations. Ongoing research efforts are regularly briefed to senior naval and defense leaders and support implementation of the Navy Arctic Roadmap (2015), U.S. Coast Guard Arctic Strategy (2014), and DOD Arctic Strategy (2014). Professor Berbrick's research – which focuses on Arctic security and maritime strategy – has been widely published



and cited in a variety of scholarly articles, edited volumes, and government reports. He is also working on an edited volume about international strategies of the Arctic Ocean region. Professor Berbrick holds a doctorate in law and policy from Northeastern University, M.A. in international relations from Salve Regina University, M.A. in national security and strategic studies from the Naval War College, and B.A. in criminal justice from Saint Peter's University. An intelligence officer in the U.S. Navy Reserves, Professor Berbrick is a member of the International Institute for Strategic Studies and Foreign Policy Research Institute.



### **Paul Berkman**

*Professor of Practice in Science Diplomacy, The Fletcher School at Tufts University*

Professor Berkman is an internationally-renowned scientist, explorer, educator and author who has made significant contributions to sustainable development during the past three decades. He is especially motivated to establish connections between science, diplomacy and information technology to promote cooperation and prevent discord for good governance of regions beyond sovereign jurisdictions. Paul was a visiting professor at the University of California, after wintering in Antarctica on a SCUBA research expedition the previous year, and he travelled to all seven continents before the age of 30. He was former Head of the Arctic Ocean Geopolitics Programme at the University of Cambridge and a Research Professor at the University of California Santa Barbara. In September 2015, Prof. Berkman joined the Fletcher School of Law and Diplomacy at Tufts University as Professor of Practice in Science Diplomacy. In addition, he is the founder and sole-owner of EvREsearch LTD, Chief Executive of DigIn (Digital Integration Technology Limited) and Chair of the Foundation for the Good Governance of International Spaces. Prof. Berkman also is the coordinator of the international Arctic Options and Pan-Arctic Options projects, which are funded by government agencies from 2013-2020, addressing Holistic Integration for Arctic Coastal-Marine Sustainability. Paul has a master's degree and doctorate in biological oceanography from the University of Rhode Island.

### **Ambassador Mark Brzezinski**

*Executive Director, U.S. Arctic Executive Steering Committee*

Former United States Ambassador to Sweden Mark Brzezinski serves as Executive Director of the U.S. Government's Arctic Executive Steering Committee. As U.S. Ambassador to Sweden between 2011 and 2015, Mark worked closely with the Swedish Government during its Chairmanship of the Arctic Council. Mark made the Arctic a central focus of his tenure in Sweden.

At the U.S. Embassy, he developed new partnerships with government and diplomats, business, media and entertainment, and the environmental and NGO community to consider the link between what is happening in the Arctic and the rest of the world. Mark initiated and helped develop the new U.S. Fulbright Scholarship devoted to the study of the future of the Arctic.





### **Katie Burkhart**

*Graduate Student, Harvard Kennedy School of Government*

Katie Burkhart is a Master in Public Policy candidate at the Harvard Kennedy School of Government where she focuses on maritime security, the Arctic region, and NATO relations. Prior to graduate school, Katie served in the U.S. Navy as a Surface Warfare Officer deploying to the Western Pacific in Middle East and then working in Naval Research. Along with Harvard Kennedy School students Theodora Skeadas and Christopher Wichman, Katie has conducted an Arctic scenario planning project for the German Foreign Ministry. Focused on the year 2030, their final report details policy recommendations to accomplish Germany's stated strategic goals.

### **Mieke Coppes**

*Master of Science in International Relations, London School of Economics and Political Science*

Mieke recently received her MSc in International Relations from the London School of Economics and Political Science (LSE), where she focused on foreign policy analysis and the Arctic, as well as the role that NGOs can have in today's society. This culminated in a Master's Thesis written about the role of the Inuit Circumpolar Council and their influence on foreign policy, specifically in regards to the banning of certain Persistent Organic Pollutants. Prior to that, she received her BA in International Relations from the University of British Columbia (UBC). She currently resides in Ottawa, where she works part-time as a Research Associate at The Arctic Institute and freelances with the Norwegian newspaper, The High North News.



### **Nikolai A. Dobronravin**

*Professor, School of International Relations at St. Petersburg State University*

Professor Nikolai A. Dobronravin is a Professor at the Department of World Politics, School of International Relations, Saint Petersburg State University, Russia. He has worked in the fields of world politics, Central Asian and African studies, with multi-faceted teaching and research experience in Europe, Central Asia, South America, Nigeria and China. His publications include a number of articles and book chapters in "Resource Curse and Post-Soviet Eurasia: Oil, Gas, and Modernization" (Lexington Books, 2010) and "Energy and Security in the Baltic Sea Region. Research Papers in International Relations" (Stockholm University Press, 2011). His interest in the Arctic is mainly connected with the maritime dimension of global energy politics. He has also participated in an ongoing research project dealing with the status of indigenous populations in the region.

## Dalee Sambo Dorough

*Associate Professor of Political Science, University of Alaska Anchorage  
Expert Member, UN Permanent Forum on Indigenous Issues*



Dr. Dalee Sambo Dorough (Inuit-Alaska) holds a Ph.D. from the University of British Columbia, Faculty of Law (2002) and an M.A. in Law & Diplomacy from The Fletcher School at Tufts University (1991). Dr. Dorough is currently an Associate Professor of Political Science at University of Alaska Anchorage; Alaska Member of the Inuit Circumpolar Council Advisory Committee on UN Issues; and Member of the International Law Association Committee on Implementation of the UN Declaration on the Rights of Indigenous Peoples. Serving as an Expert Member of the UN Permanent Forum on Indigenous Issues for two consecutive three-year terms, she held the position of Chairperson from 2014 to 2015. Furthermore, she was member and chairperson of the UN Board of Trustees of the UN Voluntary Fund for Indigenous Peoples. Dr. Dorough has a long history of direct involvement with the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). Dr. Dorough participated in a two-year revision process resulting in the adoption of Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries on June 27, 1989 by the ILO. She specializes in public international law, international human rights law, international relations, and Alaska Native self-determination. Furthermore, she has experience in the administration, management and coordination of statewide, national and international organizations, as well as estimating and oversight of federal, state and private construction contracts.



## Gunhild Hoogensen Gjørsv

*Professor of Political Science, UiT - The Arctic University of Norway  
Research Associate, Norwegian Institute of International Affairs (NUPI)*

Gunhild Hoogensen Gjørsv is Professor of Political Science at UiT – The Arctic University of Norway, as well as Research Associate at the Norwegian Institute of International Affairs (NUPI). She is also a member of the Norwegian Royal Commission on Afghanistan investigating the Norwegian efforts in Afghanistan from 2001 to 2014. Additionally, she was awarded an 18-month fellowship in the inaugural Fulbright Arctic Initiative program in 2015. Hoogensen Gjørsv was the International Principal Investigator for the International Polar Year project “The Impacts of Oil and Gas Activity on Peoples of the Arctic using a Multiple Securities Perspective”, funded by the Norwegian and Canadian Research Councils, and is currently co-leader of the Arctic Extractive Industries PhD program that examines the impacts of extractive resource development on Arctic communities. With participating colleagues, she was most recently awarded a Norwegian Research Council grant examining Arctic Governance through indigenous territorial rights in Russia (NORRUSS). She writes about international relations theory; security theories, including gender/feminist security theories; security in the Arctic; and civil-military interaction. Hoogensen Gjørsv has published numerous articles and authored "International Relations, Security

and Jeremy Bentham" (Routledge, 2005) and "Understanding Civil-Military Interaction: Lessons Learned from the Norwegian Model" (Ashgate, 2014), as well as co-edited and contributed to "Environmental and Human Security in the Arctic" (Routledge, 2013).

## **Ambassador Hannu Halinen**

*Finland*

*Special Advisor to the Director General and Chief Executive Officer of the International Institute for Applied Systems Analysis*

*Co-chair of the Advisory Board of the Arctic Futures Initiative*

Since 2015, Ambassador Hannu Halinen has been appointed as Special Advisor to the Director General and Chief Executive Officer of the International Institute for Applied Systems Analysis and Co-chair of the Advisory Board of the Arctic Futures Initiative. He is a member of the Arctic Yearbook Editorial Board. Ambassador Halinen has a Master of Law degree from the University of Helsinki (1973). He has served in the Foreign Service of Finland 1973 to 2015, and was Ambassador of Finland in Germany, Hungary, Egypt and Sudan. He has served at the United Nations Mission of Finland in New York, and been the Permanent Representative of Finland to the Food and Agriculture Organization of the United Nations and International Organizations in Rome, as well as UN Special Rapporteur on the Occupied Palestinian Territories. Furthermore, he has been Director of the Council of the Baltic Sea States Secretariat in Stockholm. He has been Ambassador-at-large for Human Rights and Humanitarian Affairs, and 2009 to 2014 Arctic Ambassador and Senior Arctic Official at the Arctic Council.



## **Susan Harper**

*Director General and Senior Arctic Official, Global Affairs Canada*

Susan Harper is Director General and Senior Arctic Official, in the Department of Global Affairs Canada (GAC). As such, she is the Head of Delegation for Canada to the Arctic Council. She was previously Director General for Trade Controls and Technical Barriers (2009-13), responsible for the administration of the Export and Import Permits Act and other trade policy files, as well as the Canadian lead for the exploratory trade discussions with MERCOSUR. In 2009, she returned from eight years abroad, as Minister for Economic Affairs in the Embassy of Canada in Washington, and as Canada's Ambassador to Uruguay. She previously held positions in trade policy and in human resources in Ottawa, as well as in trade and economic positions in Argentina, France and Cameroon. She joined the Department with an MBA from the University of Western Ontario (now the Richard Ivey School of Business), and a B.A. Honors (Mathematics, English) from Queen's University. Susan has two children, who keep her busy, and ensure that her chauffeuring, athletic, and academic skills are kept honed.

## Alan K. Henrikson

*Lee E. Dirks Professor of Diplomatic History and Director of Diplomatic Studies, The Fletcher School at Tufts University*

Alan K. Henrikson, Lee E. Dirks Professor of Diplomatic History, is also Director of Diplomatic Studies. He teaches the history of the foreign relations of the United States, U.S.-European relations, political geography, and the theory and practice of diplomacy. During the year 2010-2011 he was Fulbright Schuman Professor at the College of Europe in Bruges. He previously has taught as Fulbright Professor at the Diplomatic Academy in Vienna, at the China Foreign Affairs University in Beijing, and at the National Institute for Defense Studies in Tokyo. He has been Lloyd I. Miller Visiting Professor of Diplomatic History at the U.S. Department of State, and also a Fellow at the Woodrow Wilson International Center for Scholars. Recent publications of his include: "FDR and the 'World-wide Arena,'" in *FDR's World: War, Peace and Legacies*; "The Washington Diplomatic Corps," in *The Diplomatic Corps as an Institution of International Society*; the monograph "What Can Public Diplomacy Achieve?"; "Diplomacy's Possible Futures," *The Hague Journal of Diplomacy*; and "Niche Diplomacy in the World Public Arena: The Global 'Corners' of Canada and Norway," in *The New Public Diplomacy: Soft Power in International Relations*. A graduate of Harvard University (A.B., A.M., PhD) in History, he is also a graduate of the University of Oxford (B.A., M.A.) where he studied Philosophy, Politics and Economics as a Rhodes Scholar at Balliol College.



## Nils Arne Johnsen

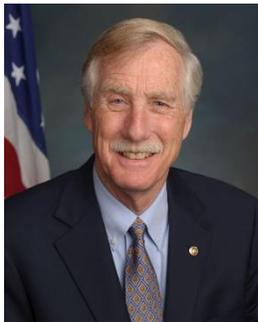
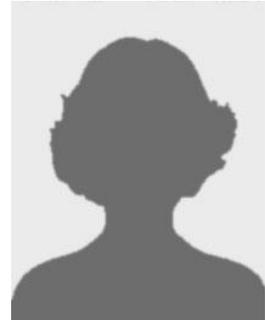
*Arctic Director, Ramboll*

Nils Arne Johnsen is the Ramboll Group's international Arctic Director. Ramboll has 13,000 professionals worldwide including 470 consultants in offices across the Arctic region. Ramboll provides services in transport, buildings, environment & health, water, energy, oil and gas, management consulting and planning & urban design. Johnsen is a native Arctic resident and has an office in Tromsø, Norway. He has 25 years of experience in transport, regional planning and management consulting, both from public and private sector. He is also an active practitioner and offers services in strategy development, authority management and stakeholder engagement for large industrial or transportation projects in the Arctic. Johnsen is an experienced speaker on Arctic issues and has spoken or presented at conferences and seminars in 10 countries over the past three years. With over 30 years' operating experience in the Arctic, Ramboll has had a dedicated Arctic strategy and organization since 2013. The company is contributing in enhancing pan-Arctic relations by participating actively in the international Arctic community and by building bridges between regulators, local societies, NGOs and businesses. As a thought leader on Arctic issues, Ramboll has arranged Arctic Roundtables for clients, partners and other stakeholders in Tromsø, Norway, Oulu, Finland, Nuuk, Greenland and Portland, ME, USA.

## Susan Kaplan

*Professor of Anthropology and Director of the Peary-MacMillan Arctic Museum and Arctic Studies Center, Bowdoin College*

Susan A. Kaplan is a professor of anthropology and director of the Peary-MacMillan Arctic Museum and Arctic Studies Center at Bowdoin College. She is an Arctic anthropologist and archaeologist. She studies prehistoric and historic Inuit responses to environmental change and contact with the West using archaeological, ethno-historical, and paleo-environmental data and teaches courses on these topics. She does research on the history of American Arctic exploration, as well. She is involved in collaborative programs with northern communities and has made the museum's resources available to Inuit groups working on contemporary issues. Finally, she develops Arctic-focused museum exhibitions and outreach programs for the general public.



## Senator Angus King

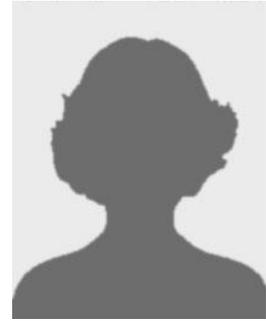
*State of Maine, United States Senate*

On January 3, 2013, Angus S. King, Jr. was sworn in as Maine's first Independent United States Senator. Senator King joins a long line of independent leaders from the State of Maine. He is a steadfast believer in the need for greater bipartisan dialogue and relationship building among legislators. Senator King began his career as a staff attorney for Pine Tree Legal Assistance in Skowhegan. In 1972, he served as chief counsel to U.S. Senate Subcommittee on Alcoholism and Narcotics in the office of former Maine Senator William Hathaway. In 1975, he returned to Maine to practice with Smith, Loyd and King in Brunswick. In 1983, he was appointed Vice President of Swift River/Hafslund Company, an alternative energy development company working on hydro and biomass projects in Maine and New England. Six years later, he founded Northeast Energy Management, Inc., a developer of large-scale energy conservation initiatives at commercial and industrial facilities in Maine. In 1994, Senator King was elected Maine's 72nd Governor. During his two terms in the Blaine House, he focused on economic development and job creation, and also achieved significant reforms in education, mental health services, land conservation, environmental protection, and the delivery of state services. He was re-elected in 1998 by one of the largest margins in Maine's history. Senator King was born in Alexandria, VA in 1944. He graduated from Dartmouth College in 1966 and from University of Virginia Law School in 1969. Senator King is married to Mary Herman and has four sons, Angus III, Duncan, James, and Ben, one daughter, Molly, and six grandchildren. He lives in Brunswick.

## **Vhelma Viviana León R.**

*Graduate Student, Iceland School of Energy at Reykjavík University*

Viviana León is a Colombian MSc in Sustainable Energy candidate from the Iceland School of Energy, Reykjavík University. Over the past years, Ms. León has been working as a Sustainability Consultant, helping multinational companies, class organizations, NGOs and government institutions in Brazil to develop their Sustainable Strategic Planning. Additionally, Ms. León holds a large experience working with public and private organizations, ranging from the multinational Procter & Gamble to working as Consultant Attaché for the Colombian Embassy in Nairobi. She has also volunteered with AIESEC in educational and women empowering projects in Addis Ababa and Nairobi. She holds a B.Sc. in Finances and International Relations from Externado University in Bogotá, with major studies in Economics and Business from Sao Paulo University-USP in Brazil.



During the Arctic Conference Ms. León will introduce you to the CarbFix CCS project. Currently she is doing her MSc internship at Reykjavík Energy (Orkuveita Reykjavíkur), the Icelandic public utility company providing geothermal electricity and heating. The aim of this topic is to generate a discussion on the future of CCS projects in the Arctic for climate change and future energy developments.

## **Halla Hrund Logadóttir**

*Director of the Iceland School of Energy (ISE) at Reykjavík University*



Halla Hrund Logadóttir is the Director of Iceland School of Energy (ISE) at Reykjavík University in Iceland. Halla also serves as an advisor to the Minister of Industry and Commerce on Iceland's Energy Fund. Halla is a co-author of the Harvard case: Iceland's Energy Policy, Finding the Right Path Forward, a co-founder of the Future Arctic Energy Network, and a collaborator on energy issues at the Arctic Circle Assembly. Earlier, Halla worked on entrepreneurship projects in Togo in West Africa, and for the "Aid for Trade" initiative at the OECD in Paris. She also spent several years working for the Ministry for Foreign Affairs, at Iceland's Embassy in Brussels, where she focused on European Union affairs and bilateral relations. Halla graduated with a MALD degree from the Fletcher School of Law and Diplomacy in 2012.

## William Moomaw

*Professor Emeritus of International Environmental Policy, The Fletcher School at Tufts University*

William Moomaw is Professor of International Environmental Policy at the Fletcher School of Law and Diplomacy, Tufts University. He is a physical chemist with a PhD from MIT. His major publications are on climate change, energy policy, nitrogen pollution, forestry financing and management and on theoretical topics such as the Environmental Kuznets Curve. He was a coordinating lead author of the 2001 Intergovernmental Panel on Climate Change chapter on greenhouse gas emissions reduction, and for the special report on renewable energy due in 2010. He was a lead author of three other IPCC reports (1995, 2005 and 2007). The work of the IPCC was recognized with the 2007 Nobel Peace Prize. He also was an author for the Millennium Ecosystem Assessment on nitrogen and serves on the Integrated Nitrogen Committee of the EPA Science Advisory board. He was the first director of the Climate, Energy and Pollution program at the World Resources Institute, and directed the Center for Environmental Studies at Williams College where he held an endowed chair in chemistry. Moomaw currently serves on the Board of Directors of The Climate Group, Clean Air-Cool Planet (which he co-founded), Earthwatch Institute, Center for Ecological Technologies and the Consensus Building Institute. He has facilitated sessions with negotiators of international treaties.



## Oda Nyborg

*Graduate Student, UiT - The Arctic University of Norway*

Oda Nyborg holds a Bachelor's Degree in Political Science from The Arctic University of Norway in Tromsø, as well as a Bachelor's Degree in Russian Area Studies from the University of Oslo. Nyborg is currently working on a Master's Degree in Political Science at The Arctic University of Norway, researching the development of "Arctic Defence Strategies" in Sweden, Norway, and Denmark that have taken place over the past five years.

## Rebecca Pincus

*Distinguished Visiting Professor of Maritime Policy and Chair of Arctic Studies, U.S. Coast Guard Academy*

Rebecca Pincus currently holds the rotating Class of '65 Chair of Arctic Studies at the U.S. Coast Guard Academy, where she leads research at the Coast Guard's Center for Arctic Study and Policy (CASP) and teaches in the Government department. Her research addresses the implementation of U.S. strategy in the Arctic region, with particular emphasis on SAR coordination and icebreaking capacity. She recently served as a Fulbright scholar in Iceland, where she researched the U.S.-Iceland relationship, and is working on a project on that experience.





### **Madeleine Redfern**

*Mayor of Iqaluit, Nunavut*

Her Worship Madeleine Redfern is the mayor of Iqaluit, the capital of Nunavut and a true northern gateway for the Arctic. She originates from Iqaluit and is a graduate of the Akitsiraq Law School. She also holds an LLB from the University of Victoria. Madeleine was the first Inuk to work as a clerk at the Supreme Court of Canada. Madeleine's advocacy, professional and governance work show her dedication to and passion for the development and delivery of programs that assist Aboriginal, Inuit, northerners and Canadians and reflect their values, needs, and priorities.

### **Thierry Rodon**

*Research Chair in Northern Sustainable Development and Associate Professor at the Political Science Department at Université Laval*

Thierry Rodon has held a research chair in northern sustainable development since August 2011. He is an associate professor at the Political Science Department at Université Laval and an adjunct professor at the School of Public Policy and Administration at Carleton University. He is also director of the Centre interuniversitaire d'études et de recherches autochtones de l'Université Laval (CIERA) and of the journal Études Inuit Studies. He specializes in northern policies and community development and has extensive experience working with Aboriginal communities and northern institutions. His work deals with a wide range of topics: education, renewable resource management, adaptation to climate change, policy development and evaluation, as well as community participation in environmental impact assessments. He was an editor for the series Life Stories of Nunavut Leaders and has published on Nunavut, Nunatsiavut, Nunavik, and Eeyou Istchee. He also participated in the development and delivery of a B.A. program in Public Service for the Government of Nunavut as well as in the development of the Nunavik Regional Government.



### **Ambassador Kazuko Shiraishi**

*Ambassador Extraordinary and Plenipotentiary of Japan in charge of Women, Human Rights and Humanitarian Affairs, and in charge of Arctic Affairs*

Ambassador Shiraishi has assumed the present position in June, 2015, following her previous assignment as Ambassador Extraordinary and Plenipotentiary of Japan to Lithuania. She graduated from Sophia University, Tokyo, and entered the Ministry of Foreign Affairs in 1974. She has worked as Director of International Economic Agreement Division, Senior Foreign Policy Coordinator, and

Director of WTO Dispute Settlement Division at the Ministry in Japan. She has also served overseas as Deputy Chief of Mission of the Japanese Embassy in Poland.

### **Admiral James Stavridis USN (Ret.)**

*Dean of The Fletcher School at Tufts University*

James Stavridis, Dean, is the 12th leader of The Fletcher School since its founding in 1933. A former Admiral in the U.S. Navy, he led the NATO Alliance in global operations from 2009 to 2013 as Supreme Allied Commander. He also served as Commander of U.S. Southern Command, with responsibility for all military operations in Latin America from 2006 to 2009. A Fletcher PhD, he won the Gullion prize as outstanding student and has published six books and over 150 articles. His focus is on innovation, strategic communication and planning, and creating security through international, interagency, and public/private partnerships in this turbulent 21st century.



### **Atsushi Sunami**

*Executive Advisor to the President; Deputy Director of Science, Technology and Innovation Policy Program; Professor, National Graduate Institute for Policy Studies, Japan*

Atsushi Sunami is currently Professor and Special Assistant for the President, President's Office at National Graduate Institute for Policy Studies, Japan. He is also Affiliated Fellow of National Institute of Science and Technology Policy (Ministry of Education, Culture, Sports, Science and Technology) as well as at Research Center for Advanced Economic Engineering, University of Tokyo. From 2004, he is a consultant for Japan Science and Technology Agency and an Advisory Member for the Honda Foundation and Okayama Institute for Quantum Physics among others. Professor Sunami holds BSFS from Georgetown University. He obtained MIA and PhD in Political Science from Columbia University. From 2001 to 2003, he was a Fellow at Research Institute of Economy, Trade and Industry established by the Ministry of Economy, Trade and Industry, Japan. He also worked as a researcher in the Department of Policy Research at Nomura Research Institute, Ltd. from 1989 to 1991. He was a visiting researcher at Science Policy Research Unit, University of Sussex, and Tsinghua University, China.

## Tero Vauraste

*President and CEO of Arctia Shipping Ltd.*

Tero Vauraste is the President and CEO of Arctia Shipping Ltd., a Finnish Polar Maritime Services company, providing icebreaking, ice management, oil spill response and other polar maritime services. He is also the vice chair of the Arctic Economic Council, and member of the boards of the Finnish Arctic Society and Finnish Maritime Society.



## Rockford Weitz

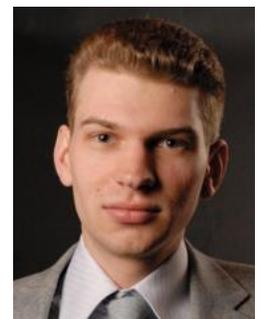
*Entrepreneur in Residence and Professor of Maritime Studies, The Fletcher School at Tufts University*

Rockford Weitz, Ph.D. is Entrepreneur Coach and Professor of Practice at the Fletcher School. He also serves as President of the Institute for Global Maritime Studies Inc., a non-profit that seeks practical solutions to global maritime challenges, and President and CEO at Rhumb Line International LLC, a consultancy that provides strategic advice on maritime and Arctic topics. From 2008 to 2013, he served as founding CEO at CargoMetrics. He has taught courses in Jurisprudence, Maritime Security and Contemporary Maritime Affairs at the Fletcher School, and published op-eds in The New York Times, The Christian Science Monitor and The Straits Times (Singapore), among others. Rockford earned a J.D. from Harvard Law School, a MALD and Ph.D. from the Fletcher School, and a B.A. in International Relations from the College of William and Mary. He is a fellow in the U.S.-Japan Leadership Program, a member of the Fletcher School's Development Committee, and a term member of the Council on Foreign Relations.

## Magnus de Witt

*Master of Sustainable Energy Engineering, Iceland School of Energy*

Magnus has recently graduated with a Master's degree from the Iceland School of Energy at Reykjavík University. Magnus also graduated from Fontys University, Venlo Netherlands, with a degree in mechanical engineering which focused on process and project optimization with an emphasis on sustainability. After his Master's degree, he took the opportunity of participating in a short program at Irkutsk National Research Technical University which focused on Siberian issues. During this time, he researched the richness of resources in Siberia and the resulting threats and opportunities.





### **Anne Witty**

*Assistant Curator of the Peary-MacMillan Arctic Museum & Arctic Studies Center*

Anne Witty is assistant curator of the Peary-MacMillan Arctic Museum & Arctic Studies Center, Bowdoin College, where her work supports the Museum's exhibits, research, collections care, and outreach. She holds an MA from the University of Delaware - Winterthur Program in Early American Culture; a BA in American History and maritime studies from Middlebury College; and an MFA in creative writing. She specializes in maritime history and material culture.

### **Andrew Yerkes**

*Graduate Student, The Fletcher School at Tufts University*

Andrew Yerkes is a second year Masters in Law and Diplomacy candidate at the Fletcher School, where he has studied international negotiations and development economics, with a regional focus on the Arctic. Prior to Fletcher, Andrew was a Peace Corps volunteer in Indonesia, teaching English at a rural high school in the mountains of East Java. Before Peace Corps, Andrew worked in the field of archaeology, excavating and investigating the history of the upper Midwest, based in his hometown of Milwaukee, Wisconsin. He holds a B.A. in both anthropology and the Spanish language from the University of Minnesota-Twin Cities.



Andrew's interest in the Arctic grew while living in Copenhagen as an undergraduate and completing his final project on Denmark's policies towards Greenland during the 1960s. At Fletcher, he has developed his Arctic interests by writing his thesis on the overlap between UNCLOS and the Svalbard Treaty within the context of Svalbard's maritime zones. Andrew is hoping to continue investigating the Arctic after Fletcher, specifically within the realm of negotiation/mediation support on an international level. Lastly, Andrew has had the pleasure of working with other Fletcher colleagues for two years in a row on the Arctic conference planning team.

## Conference Team

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*Fundraising Team*  
*(Lead)*



Spandana Battula,  
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Rockford Weitz

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## Supplementary Material

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*As printed in Huffpost Green, 26 January 2016*

### **Coordinating U.S. Actions to Address Arctic Challenges: The Arctic Executive Steering Committee's First Year**

Dr. John P. Holdren

*Assistant to the President for Science and Technology, Director of the White House Office of Science and Technology Policy, and Chair of the Arctic Executive Steering Committee*

Mark Brzezinski

*Executive Director, Arctic Executive Steering Committee and former U.S. Ambassador to Sweden (2011-2015)*

About half of the State of Alaska -- an area larger than Texas -- lies in the Arctic. This makes the United States an "Arctic Nation", one of only eight with territory in the region. The others are Russia, Canada, Denmark (Greenland), Iceland, Norway, Sweden and Finland.

The Arctic Ocean and closely connected shelf seas cover about 8 million square miles, and the adjacent Arctic lands total about five million square miles. Across this vast land area live only 4 million people, half of them in the Russian Arctic. The Alaskan Arctic is home to only about 140,000 people, at a population density of half a person per square mile (compared to 106 people per square mile in the Lower 48).

Notwithstanding the tiny population of Arctic lands, however, the region is of great economic, environmental, and strategic importance:

- Arctic lands and shallow seas overlie large resources of oil, gas, and other mineral resources;
- They support important commercial, recreational and subsistence fisheries;
- They are home and feeding grounds to vast populations of wildlife, including many species found nowhere else;
- The land is home to indigenous peoples whose culture and way of life deserve respect and protection;
- The decline in sea-ice cover in the Arctic summer is opening up new navigation routes, new access to subsea resources, and corresponding new demands for marine infrastructure and governance;
- Other aspects of climate change in the Arctic are posing major additional challenges both inside the region and beyond it;

- Questions of sovereignty over the Arctic Ocean seabed beyond the usual 200-mile Exclusive Economic Zone are giving rise to conflicting claims and corresponding concerns; and
- Seven of the eight Arctic nations maintain military bases in the region (Iceland is the exception), with the recent expansion of Russia's network of bases having drawn particular worried attention.

The strategic importance of the Arctic region has been clear since World War II, and Alaskan residents and their representatives in Congress have always paid attention to the issues and tensions around fisheries, wildlife, conservation lands, and resource development, as have the Department of Interior (including the Fish and Wildlife Service, the National Park Service, and the U.S. Geological Survey), the Department of Agriculture's U.S. Forest Service, and the Commerce Department's National Marine Fisheries Service. But recognition from the U.S. Federal government of the need for a coherent, cross-government approach to Arctic issues and policy emerged only in fits and starts, beginning in the 1980s with the Arctic Research and Policy Act of 1984 (amended 1990).

In 1996, the United States linked up with the seven other Arctic nations to form the Arctic Council, which is focused on promoting collaboration on and coordination around Arctic fisheries, environmental monitoring and protection, scientific research, maritime search and rescue, and indigenous-peoples' issues. The U.S. Secretary of State and the foreign ministers of the other participating nations lead the Arctic Council, together with the heads of six organizations representing Arctic indigenous peoples.

The first-ever national Arctic Region Policy was rolled out at the end of the Bush Administration, in early January 2009. The Department of the Interior led preparation of an interagency report on Arctic Management that was released in March 2013, and the National Security Council coordinated development of a National Strategy for the Arctic Region that came out in May of the same year. The National Strategy defined lines of effort under three overarching focuses: advancing security interests of the United States; pursuing responsible stewardship; and strengthening international cooperation.

Then, a year ago, President Obama increased the Nation's engagement on Arctic issues yet again by issuing an Executive Order entitled "Enhancing Coordination of National Efforts in the Arctic". The January 2015 Executive Order created a new Arctic Executive Steering Committee (AESC) responsible for fostering communication, coordination, and collaboration among the 25 Federal departments, agencies, and offices with responsibilities in the Arctic region. One of us (Holdren) serves as Chairman of the AESC and the other (Brzezinski) serves as its full-time Executive Director. The Vice Chair is Deputy Homeland Security Advisor Amy Pope.

The President tasked the AESC with helping to shape and reconcile Arctic priorities among the participating Federal entities, promoting coordinated implementation and evaluation of

government initiatives in the Arctic region, improving the coherence of the Federal government's engagement with the State of Alaska and Alaska-Native communities, and supporting Secretary of State John Kerry and his team as the United States assumes the rotating Chairmanship of the eight-nation Arctic Council for 2015-17. As we look back on the first year of the AESC's work, we can report significant progress on all of these fronts.

At its first meeting, last February, the AESC set up seven working groups: (1) cross-agency coordination of implementation of the National Arctic Strategy; (2) use of high-resolution satellite imagery for regional planning and emergency preparedness and response; (3) oil-spill preparedness; (4) interactions between the Federal government and native communities; (5) coastal erosion and flooding in high-risk Alaskan settlements; (6) reliable and affordable energy for remote Arctic communities; and (7) planning for a ministerial-level international summit on climate-change challenges in the Arctic.

The first six of these working groups met frequently over the course of 2015, and all have developed and have begun to implement significant new initiatives while simultaneously providing improved coordination and oversight of the implementation of pre-existing efforts. In the remainder of this essay, though, we want to focus on the culmination of the work of the seventh group--the 22-nation GLACIER Conference, which was held in Anchorage on August 30-31, 2015, and President Obama's accompanying multi-stop visit to Alaska, which included the first-ever trip to the Arctic by a sitting American President. (GLACIER stands for Global Leadership on the Arctic: Cooperation, Innovation, Engagement, and Resilience.)

The GLACIER Conference, the President's trip, and additional associated events featuring Cabinet members and other senior Administration officials built upon and helped advance the work of all of the AESC working groups, not just those focused explicitly on climate change. That is evident, for example, in the announcements the President made in Anchorage, Seward, Dillingham, and Kotzebue, which covered a multitude of new initiatives focusing on a wide range of issues. You can read about the announcements [here](#), [here](#), and [here](#).

But it's the inescapable conclusion of anyone who spends time in the far North that the challenge of coping with climate change looms over and interacts with just about every other issue and interest in the region. Over the past 60 years, Alaska has warmed about twice as fast as the rest of the United States. Last year was Alaska's warmest year on record, just as it was for the rest of the world...until 2015 surpassed it. In some parts of Alaska and other Arctic regions, the rise in average temperature has been three to four times the global average.

As President Obama noted in Anchorage, this reality puts the Arctic at the leading edge of global climate change -- a preview of where the rest of the world is heading. One of the most conspicuous impacts within the region is shrinking sea-ice coverage, which results in increased maritime activity (with economic benefits but also new demands on infrastructure and oversight),

increased coastal erosion from storms, and feeding/breeding challenges for seals, walruses, whales, and polar bears (impacting subsistence hunting).

Another impact within the region related to climate change is the melting of mountain and coastal glaciers. Alaska's glaciers alone have recently been estimated to be losing 75 billion tons of water annually. This increases river discharge and turbidity, which in turn affects erosion and, potentially, fisheries in the ocean as well as in the rivers. Other impacts include thawing of the permafrost that underlies 80 percent of the land area of Alaska, leading to subsidence that threatens buildings, roads, and energy infrastructure; and bigger and hotter wildfires, which destroy valuable timber and wildlife habitat, create massive smoke pollution, and accelerate permafrost thaw.

But the impacts of climate change in the Arctic are not confined to the Arctic. The increased discharge to the ocean of meltwater and icebergs from glaciers and the Greenland ice sheet is contributing to the acceleration of sea-level rise worldwide. Increased release of carbon dioxide and methane from Arctic wildfires, microbial action on organic carbon previously frozen in permafrost, and thawing methane hydrates in soils and sediments speeds up global warming. And it's increasingly clear that atmospheric circulation patterns in the mid-latitudes -- including storm tracks and extremes of hot and cold -- are being affected by the more rapid warming of the Arctic compared to the rest of the world.

The activities undertaken by the Arctic Executive Steering Committee in its first year -- and by the State Department in its work so far supporting the 2015-17 U.S. Chairmanship of the eight-nation Arctic Council -- are only the first step in meeting President Obama's commitment to coordination, cooperation, and global leadership in meeting Arctic challenges. There is much more to do. As the Chair and Executive Director of the AESC, we look forward to the continuation of these efforts, in collaboration with our partners across the Federal government, the people and officials of the State of Alaska, and Arctic stakeholders around the world.

*As printed in Proceedings Magazine – December 2015 Vol.*

## **A Mechanism for Arctic-Crisis Response**

*By Paul Arthur Berkman and Admiral James G. Stavridis, U.S. Navy (Retired)*

**With the opportunities presented as the sea ice recedes also come risks. The United States should lead an international effort to increase Arctic infrastructure.**

The High North is opening to the world. In April the United States began its two-year chairmanship of the Arctic Council, the high-level international forum for the region. President Barack Obama traveled to Alaska in August as the first U.S. President to visit the Arctic while in office. And the U.S. Coast Guard icebreaker USCGC Healy (WAGB-20) arrived at the North Pole on 8 September. All of these recent developments highlight the responsibilities of the United States as an Arctic nation.

The question is, can the United States provide international leadership in the Arctic, especially with regard to sustainable infrastructure development in the Arctic Ocean? And given our responsibilities, are we prepared to respond to disasters and fully participate in the High North—with search-and-rescue capability, environmental-disaster mitigation, science diplomacy, and other activities?

Unlike centuries past, when sea ice covered the North Polar Region perennially, today there is navigable open water from the Bering Strait to the Barents Sea during the summer. This increasing access to rich resources is awakening a number of human activities and associated societal responses, not just from the Arctic states but from the entire world. This leads directly to the hot-button topic of energy exploration, development, and production in the Arctic Ocean.

Oceanic travel across the top of the Earth cuts a third off the distance between Europe and Asia, compared to transits through the Panama or Suez canals. What are the implications for new trade routes or trading patterns, which historically have changed the balance of power among nations? How will we use the Northern Sea Route, Northwest Passage, or Transpolar Route into the future?

Vast fishery enterprises are seeking to feed a hungry world, preparing to jump into areas of the Arctic high seas where marine living resources are unregulated beyond sovereign jurisdictions. Can nations collectively demonstrate shared stewardship and commercial restraint to ensure the lasting vitality of Arctic marine ecosystems?

Wrapped into charged dialogues about climate change, atmospheric temperatures over the Arctic are rising twice as fast as the rest of the Earth. Can we turn down the vitriol to appreciate that every planet in our solar system has its own changing climate, all influenced primarily by the Sun? The climate dynamics on Earth are no different, except that our planet is influenced by both

natural variability as well as human impacts. A reality check is in order here. On a global scale, we are just in our infancy in addressing climate and other planetary-scale impacts that require coordination among all nations.

So, where does this leave us in the Arctic? Can we conceive and build sustainable infrastructure in the Arctic Ocean that will resonate with utility and hope, not just for the region but globally?

In this quest, it is important to recognize that economic prosperity, environmental protection, social equity, and societal welfare all are necessary. We have responsibilities to act in the interests of present as well as future generations. Moreover, in the Arctic Ocean, as elsewhere on Earth, we have a shared struggle to balance national and common interests.

The challenge for the United States and the other Arctic states, with the central involvement of the indigenous peoples and effective engagement of non-Arctic states, is responding in a balanced manner to the opportunities as well as the risks from the opening of the Arctic Ocean.

We need to search for projects that can add value, inspire international cooperation, and improve the ability of humankind to operate responsibly in the High North. One such venture would be a multipurpose platform from which to conduct emergency responses, from search-and-rescue to pollutant cleanup or even critical vessel services. No such platform exists today, nor is one contemplated. Such an enterprise also could be used as a base for scientific research as well as observance and communication systems.

An appropriate-sized platform needs to be considered, but it could be roughly the dimensions of the larger oil-drilling rigs. It would need to be sustainable throughout the year, no matter the weather and environmental conditions, and possibly could be mobile. Like polar stations elsewhere, it would require year-round operations that could involve international, interagency,



The authors propose an emergency-response platform in the Chukchi Sea at the confluence of the Bering Strait, the Northern Sea Route, the Northwest Passage, and any transpolar route across the North Pole. They envision it to be “multipurpose... from search-and-rescue to pollutant cleanup or even critical vessel services.”

and private-sector crews. Such a platform would need to be easily accessible by air and sea. In order to minimize any complications with international law, it could be placed inside internationally recognized territorial waters, or at a minimum, in a nation's exclusive economic zone.

Where precisely should the platform be located? First, in terms of a best spot for emergency response, the Chukchi Sea is at the confluence of the Northern Sea Route, Northwest Passage, any transpolar route, and the Bering Strait region. Providing leadership, the United States would be in the position to assist with safety of life at sea as well as environmental-pollution responses throughout the region, including calls from Canada or Russia. Such international-response capacity recognizes that the marine system operates independently of any geopolitical boundaries.

The offshore area of the Chukchi Sea has water depths less than 1,300 feet, which is shallow enough to engineer and construct a multipurpose facility, yet deep enough to serve as a deepwater port more than 1,000 miles north of Dutch Harbor in the Aleutian Islands. Considerations of any such port along the Alaskan coastline have been problematic in terms of location and funding, especially recognizing that any federal contribution will be absent as long as Alaska continues to be the only oceanfront state in the United States without a coastal zone-management plan in effect.

It is clear from recent protests against Shell Oil Company, for example, that there is strong opposition and justifiable environmental concern about any hydrocarbon-extraction activities in the Arctic Ocean. At the same time, energy companies are planning three to five decades into the future to supply the fuel that we have come to demand on a daily basis, allowing us to warm our homes, run our computers, and travel across cities. How do we balance economic prosperity and environmental protection in the Arctic Ocean?

Building the platform in the Chukchi Sea would become a vital contribution for the 2011 Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic and the 2013 Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response, both of which are lacking in infrastructure to become operational. Such a facility would enable the United States to demonstrate active and influential leadership in the Arctic, bringing a fresh focus on Arctic infrastructure. Moreover, in view of the previously mentioned international agreements, involving all eight Arctic states, such a facility would contribute to stability and peace in the region.

Importantly, construction of built infrastructure in the Arctic Ocean will be expensive, tapping precious national and state resources in directions that could compromise other priorities. At this stage, before offshore energy operations emerge, nations such as the United States could establish that the cost of business in the Arctic Ocean involves infrastructure support beyond

traditional contingency planning. With additional government contribution, such precedent of public-private partnership could help to resolve many of the challenges of oil-spill response in the Arctic that were noted by the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. More broadly, creating integrated response capacity for oil spills, safety of life at sea and other emergencies would be an efficient application of financial, political, and social capital.

The Bering Strait region south of the Chukchi Sea is home to indigenous communities in both Alaska and Chukotka. As the choke point into and out of the Arctic Ocean, at only around 50 miles across at its narrowest, the Bering Strait is a gateway region that requires emergency-response infrastructure with increasing urgency as commercial activities accelerate. As the closest connection between the United States and Russia, the region also offers a template for cooperative and consistent coordination among neighbors, which will further promote stability throughout the High North.

How can we go about doing this? Certainly, Congress could initiate an international, interagency, and public-private partnership to create emergency-response capacity in the Chukchi Sea. The United States would take the lead, but much like the International Space Station, this could be an enterprise that includes other international partners. Several U.S. agencies would want to participate, especially those involved with the Interagency Arctic Research Policy Committee and the Arctic Executive Steering Committee. Both the United States and specifically Alaska could partner with exploration-oriented companies in offshore leasehold areas to create the emergency-response platform.

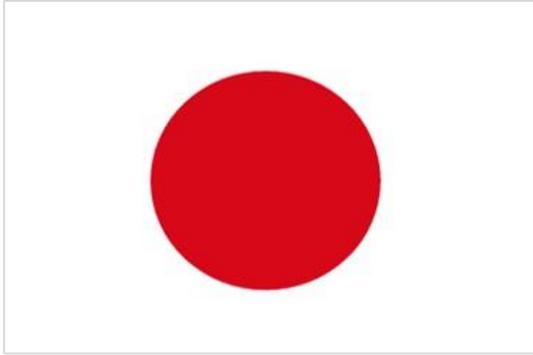
Admittedly, the major oil companies are not flush with cash, in light of lower oil prices, and Shell is slowing its exploration in the Chukchi Sea after disappointing tests. However, over the long term, such a platform in the Chukchi Sea, constructed as an international, interagency, and public-private partnership, could be a win-win for all. We should explore these possibilities over the coming months during the U.S. chairmanship of the Arctic Council.

## Notes

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Tufts Institute of the **ENVIRONMENT**

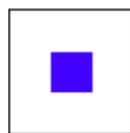
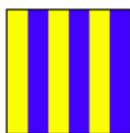
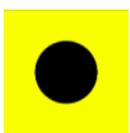


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