



HARVARD Kennedy School
BELFER CENTER
for Science and International Affairs

Arctic Initiative

2020–2021 Year in Review

**The Robert and Renée Belfer
Center for Science and
International Affairs**

Arctic Initiative

CO-DIRECTOR

John P. Holdren

CO-DIRECTOR

Henry Lee

STAFF

Amanda Sardonis

Karin Vander Schaaf

Brittany Janis

Daniel Bicknell

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Welcome to the Arctic Initiative

Arctic Initiative team meeting with a delegation from Greenland led by Ane Lone Bagger, Minister of Education, Culture, Church and Foreign Affairs of Greenland

The Arctic Initiative at Harvard Kennedy School's Belfer Center for Science and International Affairs addresses the challenges and opportunities being created by rapid climate change in the far North. By integrating insights from cutting-edge scientific research, Indigenous knowledge, and policy analysis, we strive to improve understanding of the impacts of Arctic climate change regionally and globally, and to work with local, regional, national, and international leaders to develop responsive policies and actions. In the process, we are helping to train a new generation of interdisciplinary Arctic experts and leaders who are motivated and equipped to carry this mission forward.

Our key substantive focuses have been (1) the pace of permafrost thaw and its local and global impacts; (2) Arctic Ocean pollution and sustainable ocean management; (3) issues around Arctic infrastructure, resilience, adaptation, and public health in a changing climate; and (4) Arctic governance, cooperation, and diplomacy.

Since our launch in 2017, the Arctic Initiative has emerged as a global leader on Arctic issues at the intersection of environmental science and policy. We have built: a strong core staff; powerful partnerships with other research centers and decisionmakers inside and outside the Arctic region; a rich collection of publications, presentations, courses, and events; and a burgeoning cohort of future Arctic leaders.

Over the past year, despite the persistent challenges of COVID-19, the Arctic Initiative has continued to increase our connectedness with communities across the Arctic and around the world. In particular, our pan-Arctic engagement was significantly enhanced by the addition of a geographically and ethnically diverse International Advisory Council, comprising five individuals of exceptionally high-level experience in Arctic affairs.

From the Arctic Resilience Forum to the *Northern Lights* podcast series, we expanded our virtual offerings and created new opportunities to continue critical conversations about the future of the Arctic amid the pandemic. As Arctic communities continue to grapple with the twin crises of climate change and COVID-19—and as impacts of rapid Arctic warming spill over into the rest of the world—our determination and capacity to work with existing and new partners on effective remedies are growing apace.

John Holdren • Henry Lee
Co-Director Co-Director

Arctic Resilience Forum

The Arctic Resilience Forum, first hosted by Finland in 2018, was initiated by Senior Arctic Officials with the goal of developing a dedicated event to take stock of progress, identify crucial gaps, and build on the successes of the Arctic Resilience Action Framework (ARAF). In 2020, the Icelandic Chairmanship agreed to host the Arctic Resilience Forum 2020 (ARF2020), with the aim of pushing forward the resilience agenda set out in the ARAF. In partnership with the Arctic Council’s Sustainable Development Working Group (SDWG), the Arctic Initiative served as co-organizers of this event.

The COVID-19 pandemic forced us to adapt ARF2020 into a novel series of virtual events held over the course of ten weeks. Each event addressed a thematic area of concern and included speakers and participants from around the region. Topics included Indigenous youth leadership, food security, gender issues, renewable energy, human health and pandemics, socioecological systems, broadband connectivity, infrastructure, finance, and Indigenous knowledge.

ARF2020 drew nearly 1,500 participants from thirty-nine countries and featured eighty-five speakers from every Arctic state. In recognition of the key role played by Arctic Indigenous peoples in advancing resilience, forty of the eighty-five speakers were Indigenous. With over 839 people tuning into multiple sessions, and over 500 attending more than half of the sessions, the series drew together communities and fostered rich conversations around Arctic resilience.

Feedback from audience members underscored the forum’s success:

- “The diverse range of presentations was fantastic. I enjoyed how the panelists included Indigenous and local folk alongside researchers.”
- “Very glad that these sessions were fully virtual to ensure maximum participation. The time was well chosen to accommodate North America and Europe.”
- “Appreciated having translation available to include native Russian speakers more easily.”

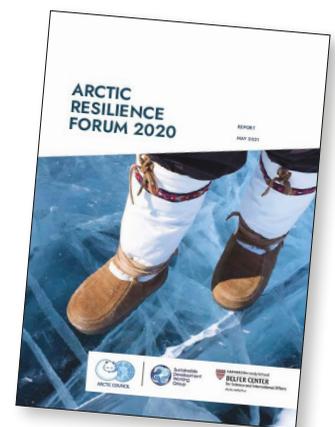


Senior Fellows Joel Clement and Jennifer Spence (top left) served as main organizers of the forum.

- “The meeting was very interesting and motivating. It was great to see people working together on common ground!”

ARF2020 demonstrated, once again, the power of resilience as a theme to inspire broad participation and creative thinking on this indispensable element of climate strategy. The forum strengthened the foundation for continued collaboration on the topic.

Together with the SDWG, the Arctic Initiative co-authored the *Arctic Resilience Forum 2020 Report*, which was published by the Arctic Council Secretariat and delivered to Senior Arctic Officials. The report highlighted key findings from each session and proposed a series of next steps to build on the momentum of ARF2020. The Russian Chairmanship has confirmed they will host this event again in 2022, ensuring resilience will remain a key part of the Arctic Council agenda.



Biden Administration Arctic Policy

Following the 2020 U.S. presidential election, the Arctic Initiative prepared—and provided to the White House—recommendations for the Biden administration’s Arctic agenda. Senior Fellows Fran Ulmer and Joel Clement published op-eds on the same topic, including calls to reinstate the Arctic Executive Steering Committee and the Northern Bering Sea Climate Resilience Area (See [“Three Things a Biden Administration Can Do Right Away to Focus U.S. Arctic Policy”](#) and [“What the Biden Administration Can Do to Help Build a More Just and Resilient Arctic”](#)). In June, Co-Director

“The Arctic deserves attention from the Biden Administration for many reasons. Domestically, it is part of the United States, with citizens, resources, Indigenous cultures and vulnerable ecosystems that are all at risk due to climate change. Internationally, its strategic location and geopolitical significance—and its influence on global climate and sea level—make it a region that requires strategic and impactful engagement.”



—Fran Ulmer

John Holdren published an op-ed in *The Hill*, [“Climate Change Is Rapidly Transforming the Arctic: Why Everybody Should Care,”](#) calling for increased government attention to Arctic climate change and its global impact. Initiative senior staff remain in frequent contact with key Arctic officials in the White House and the State Department.

Arctic Plastics Symposium



The buildup of plastic in the Arctic Ocean is a growing challenge in the region and a bellwether of the threat that plastic poses to all oceans. An estimated eight million metric tons of plastic enters the ocean worldwide every year, and over the last decade, shrinking ice coverage caused by climate change has allowed plastic debris to flow into the Arctic Ocean in unprecedented amounts. This presents risks to delicate Arctic ecosystems and to Arctic nations whose economies are intertwined with Arctic Ocean health. Since 2019, the Arctic Initiative has been working on this problem, hosting convenings, conducting research, publishing reports, and presenting at global conferences about policy strategies to combat this growing challenge.

In March 2021, our Arctic Ocean team co-hosted the Global Symposium on Plastics in the Arctic, the first-ever global conference on plastic pollution in the Arctic Ocean, chaired by

the Government of Iceland and the Nordic Council of Ministers. The symposium brought together scientists, practitioners, decisionmakers, and other stakeholders for an exchange of information about science-based best practices to improve the management of plastics in the Arctic marine environment.

Halla Hrund Logadóttir, Co-Founder of the Arctic Initiative, remarked on the progress made on this issue since our first convening in 2019: “The Arctic Initiative, together with our collaborators at the Wilson Center and the Icelandic Chairmanship, opened a policy dialogue on this issue in 2019. It’s extremely gratifying to see this global symposium come together as Arctic nations seek to find solutions to the critical issue of plastics in the ocean.”

The symposium featured the release of “[Policy and Action on Plastic In the Arctic Ocean](#),” a joint report published by the Arctic Initiative and the Wilson Center’s Polar Institute. The report has been a valuable resource to the Arctic Council’s Protection of the Arctic Marine Environment Working Group in its development of an Arctic Regional Action Plan to address plastic pollution. Magnús Jóhannesson,



the Arctic Council Special Coordinator on Plastics Pollution and Marine Litter, said of the report, “Most of the strategy action recommendations from the Belfer Center report are on the table in the discussion for the development of the regional action plan.”

To view a recording of the keynote, which highlights the report’s key findings, visit: <https://youtu.be/3HqHxqzVfvA>.

Integrating Permafrost Science into Policy



Building collapse due to permafrost thaw in Selwak, Alaska.

FRAN ULMER

Arctic temperatures are increasing three times faster than the global average. The impacts of this rapid warming are manifold and far-reaching, ranging from threats to wildlife, Indigenous cultures, and infrastructure, to alteration of Northern Hemisphere weather patterns and acceleration of global sea-level rise. In addition, carbon emissions from permafrost thaw and Arctic wildfires, which are not fully accounted for in global emissions budgets, could greatly reduce the amount of greenhouse gases that humans can emit while remaining below 2°C.

There is an urgent need to incorporate the latest science on permafrost thaw and Arctic wildfires into international consideration of how aggressively societal emissions must be reduced to address the global climate crisis. At the same time, Arctic leaders and communities must ramp up efforts to ameliorate the local impacts of these phenomena on infrastructure, livelihoods, and traditional ways of life.

The Arctic Initiative has been working closely with our collaborators at the Woodwell Climate Research Center to elevate the topic of permafrost thaw and increase awareness and action among policymakers. The Woodwell Climate Research Center is producing cutting-edge science on this topic, while the Arctic Initiative is working with decisionmakers to integrate the emerging science into more robust policy and programs for mitigation, adaptation, and resilience. In May 2021, John Holdren and Woodwell Climate Research Center scientists Susan Natali, Brendan Rogers, Rachael Treharne, Philip Duffy, Rafe Pomerance, and Erin MacDonald published “[Permafrost Carbon Feedbacks Threaten Global Climate Goals](#)” in the *Proceedings of the National Academy of Science of the United States of America*.

Icelandic Minister’s “Together Towards a Sustainable Arctic” Event



Minister Gudlaugur Thór Thórdarson

A sustainable Arctic is critical for global stability: physical changes in the Arctic have internationally significant climatic, environmental, and geopolitical implications. Successful collaboration through the Arctic Council has helped keep the Arctic peaceful since its establishment twenty-five years ago.

In honor of Earth Day, the Arctic Initiative and the Wilson Center’s Polar Institute hosted Iceland’s Minister of Foreign Affairs, Gudlaugur Thór Thórdarson, for a dialogue about Iceland’s Chairmanship of the Arctic Council and the role the Arctic Council can continue to play in maintaining stability as the region rapidly transforms due to climate change.

The Arctic Council is the leading intergovernmental forum promoting cooperation, coordination, and interaction among the Arctic states, Indigenous peoples, and other Arctic inhabitants on shared issues, particularly those relating to sustainable development and environmental protection. When tensions arise between Arctic states, the Council offers a venue for diplomacy through science—a counter to the great power competition narrative that is often used to characterize the region. Iceland has chaired the Arctic Council since 2019, guided by the theme of “Together towards a sustainable Arctic.”

Minister Thórdarson was optimistic that this spirit of collaboration and commitment to sustainability would continue under Russia’s Chairmanship of the Arctic Council in 2021. He offered his prediction for the importance of the Arctic Council over the next few years: “Due to the work of the Arctic Council, we will see more international agreements, managed tensions, and continued collaborations. None of the Arctic countries will solve this alone.”

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Arctic Wetlands Ecosystems:

Resilience through Restoration and Stewardship

The Arctic Initiative has been awarded funding from National Science Foundation as part of a collaborative Belmont Forum grant to explore strategies to protect wetland processes and support restoration actions at local, subnational, national, regional, and global levels. The project will tackle the challenge of building resilience in a rapidly changing Arctic by focusing on human activities that impact Arctic wetlands ecosystems, supporting and strengthening communities’ capacity to engage in wetlands restoration and stewardship.

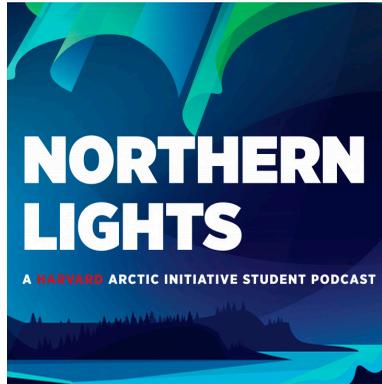
Working alongside other cross-disciplinary teams across the United States, Iceland, Norway, Sweden, and Russia, the Arctic Initiative is focused on identifying private and public financing models to address top-priority wetland stewardship issues in rural areas. Our team will concentrate on the Bering Strait region of Alaska, partnering with community organizations to develop strategies for addressing deficiencies in water and sanitation management that threaten the health of local people and the critically important wetlands there.



Sedge bogs in the Yukon Delta National Wildlife Refuge, Alaska. (Alaska Region U.S. Fish & Wildlife Service/Flickr)

Northern Lights Podcast

The summer of 2020 brought disappointing news: due to the ongoing pandemic, students across the world would not be returning in-person in the fall. Determined that students should not miss out and inspired by the availability of new technology and remote ways of working, the Arctic Initiative created the *Northern Lights* podcast project to provide students with an exciting opportunity which they would not have had if they had been on campus. The project was led by Postdoctoral Research Fellow Dr. Sarah Mackie.



from nine countries. Approximately half of the students were living in the Arctic or sub-Arctic at the time of the course. There was a broad spectrum of ages as well as academic and professional backgrounds, with participants ranging from undergraduates to PhD students and recent graduates.

Northern Lights launched on March 17, 2021, with an episode about a ground-breaking new collaboration between wildlife biologists and Indigenous subsistence hunters

to gather data about the size of Alaskan walruses. Since then, the podcast has featured an eclectic range of stories, covering subjects such as Sami art, the use of prawn byproduct in medicine, Greenlandic foreign and security policy, healing from domestic violence among Alaskan Indigenous women, and the impacts of COVID-19 on Arctic tourism. Throughout, the series has centered the voices of Indigenous people and has sought to bring listeners stories which showcase the Arctic's vibrancy.

You can access the podcast on all major podcasting platforms or online at <https://northern-lights.simplecast.com/episodes>.

Originally Published in the [Belfer Center Spring 2021 Newsletter](#)

The Arctic Initiative invited students from Harvard Kennedy School and across the world to apply to take part in the podcast project. The students were given training in storytelling, interviewing, audio editing, and behaving in a culturally sensitive manner. They also had the opportunity to work in smaller groups to support each other and, more importantly given the difficult situations in which many of them found themselves, to meet new people and make friends.

The cohort was truly international with students located as far east as China and as far west as Alaska. Together they represented eleven nationalities and twenty different universities

Arctic Data Stories Workshop

Dr. Sarah Dewey, Arctic Initiative Fellow

“You throw a map on the table, and people start to point at it. They start to tell their stories,” Greg Fiske said to the eighteen students gathered over Zoom. Fiske, a Senior Geospatial Analyst at the Woodwell Climate Research Center, was discussing the power of maps. “They distill a story out of a highly complex system, identify patterns in otherwise hidden data, and they invoke conversation.”

The listening students hailed from many backgrounds, among them law, journalism, design, urban planning, data science, and environmental management. Representing the Kennedy School, Harvard Law School, the Graduate School of Design, Harvard Divinity School, Tufts Fletcher School, Smith College, and others, they had given four Fridays in February to hearing from experts on data visualization, policy, cartography,

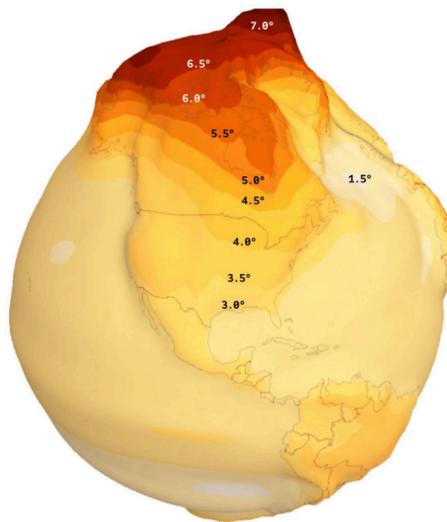
and Arctic science. These sessions comprised the inaugural Arctic Data Stories Workshop, an interdisciplinary intensive meant to expose students to issues at the intersection of Arctic science, policy, and communication.

Arctic Data Stories was born out of a collaboration between the Belfer Center's Arctic Initiative and the Woodwell Climate Research Center. Focusing on permafrost, this collaboration brings Woodwell's cutting-edge science into conversation with the policy know-how and network of the Kennedy School. During an early summer 2020 meeting, both teams were deep in debate about how to connect Woodwell's maps of

permafrost thaw with end users: How best should the scientists target their visualizations to policymakers, or to the public? And how to get users to seek out these products in the first place?

That's when the lightbulb came on. Didn't we have an audience of future policy professionals ready to learn at the Kennedy School? We formed a Woodwell-Arctic Initiative education sub-group and in our first meeting I pitched a data visualization hackathon to Dr. Jenny Watts, Assistant Scientist at Woodwell. Watts, our group co-leader, brilliantly fit all the pieces together: Woodwell had its own partnership with Esri to support its geospatial data analysis, so why not have the students produce Esri StoryMaps? These dynamic multimedia contextualization tools for maps would be the perfect way to integrate science and policy in a clear and interesting narrative. Given the constraints of virtual learning, we settled on a weekly, month-long workshop instead of a weekend hackathon.

Esri jumped in immediately and with enthusiasm. Early in the pandemic, the company had stepped up its Learn ArcGIS program by providing free access to students and enhancing its library of online lessons. Dr. Dawn Wright, Esri Chief Scientist, volunteered to speak at our workshop, along with Allen Carroll, founder of the StoryMaps team. We also drew on the expertise of Fran Ulmer, Senior Fellow at the Arctic Initiative, and Hong Qu, a lecturer in data visualization at the Kennedy School. Rounding out our speaker list were



Polar Heat Cap

Showing warming as elevation demonstrates the disproportionate effect of climate change on the Arctic. Values represent projected 2040-2060 temperatures (RCP 8.5) minus 1880-1920. Data from KNMI Climate Explorer. Map by Greg Fiske/Woodwell Climate Research Center

Woodwell Research Assistant Stefano Potter and Greg Fiske.

While each Data Stories session offered structured lectures and discussion, the final StoryMap projects were an exercise in self-guided learning. Students formed groups early in the workshop based on their interests and ideas for projects, with the sole requirement that topics revolve around the Arctic. The groups then built their StoryMaps for their designated audience and to answer their chosen

questions at the science-policy-communications nexus. Woodwell Cartographer Carl Churchill pitched in to help each group craft a map to support their analysis, to spare students spending all of their limited time on technical programming details. The students' stellar outputs tackled everything from black carbon to urbanization to international security.

Besides its tangible products, this workshop offered a lesson in what is possible in a virtual learning space. The Belfer Center has made a concerted effort to provide supplementary programming to students who are missing out on an in-person Kennedy School experience, and the Arctic Data Stories workshop joined a host of other offerings, among them the *Northern Lights* Podcast Series.

Moreover, Arctic Data Stories is a statement of the strength of the work being done at the science-policy-communications interface by Harvard, Woodwell, and Esri. Giving students the vocabulary, relationships, and tools to bridge disciplines sets up a new generation of leaders with the implicit expectation that this kind of collaboration should take place. It builds a culture beyond basic institutional partnerships, while allowing each affiliate to fulfill its individual mandate—be it education, communication, or scientific research. Like a map on a table, it invokes conversation.

Originally Published in the [Belfer Center Spring 2021 Newsletter](#)



Brittany Janis, Arctic Initiative Research Manager; Professor Svein Disch Mathiesen, UArctic EALÁT Institute at International Centre for Reindeer Husbandry; Aditi Kumar, Belfer Center Executive Director; Anders Oskal, International Centre for Reindeer Husbandry; and Joel Clement, Arctic Initiative Senior Fellow.

The James J. McCarthy Arctic Indigenous Youth Leadership Seminar

The Indigenous peoples who call the Arctic home have taken on a leadership role in addressing the transformations that are happening around them due to climate change. Indigenous peoples' knowledge of their homelands, which has been accumulated over centuries, is critical to advancing resilience. An early recognizer of the value of this knowledge, Harvard Professor James J. McCarthy brought a group of reindeer herders to Harvard in 2002, to better understand how their unique insights could inform and be elevated in the global climate dialogue. Recognizing the need to incorporate multiple ways of knowing into scientific literature, Professor McCarthy invited the Sámi reindeer herders to contribute their expertise to the first Arctic Climate Impact Assessment, the first comprehensive multi-disciplinary assessment of the impacts of climate change in the Arctic which was published in 2004.

In honor of this history, the Arctic Initiative joined forces with the Association of World Reindeer Herders (WRH), the International Centre for Reindeer Husbandry, the Arctic Council Indigenous Peoples Secretariat, and the UArctic EALÁT Institute to create a workshop for emerging Indigenous youth leaders from the circumpolar Arctic, aimed at helping them build the confidence and competence to take up leadership roles in their home communities and beyond.

Over the course of five days, over thirty Indigenous youth learned and worked together to devise solutions to challenges facing their communities. Through trainings co-taught by Indigenous knowledge-holders and science and policy experts,

as well as through talking circles with one another, the student participants deepened their understanding of the risks and opportunities facing their communities as climate change transforms the Arctic.

At the workshop's conclusion, three student groups presented their ideas to a global audience during a virtual event co-sponsored by the Belfer Center and WRH. Ideas ranged from creating a mobile mental health bus to provide counseling services in remote villages, to founding an international Indigenous youth think tank focused on empowering Indigenous communities in land use planning, to soliciting Harvard Kennedy School funding for a cohort of Indigenous youth leadership fellows through the Arctic Initiative.

When I'm asked what gives me hope, it's the youth.

As these inspiring ideas suggest, the young people of the Arctic can be important drivers of the region's future. Joel Clement, Arctic Initiative Senior Fellow, commented, "We have to stop being surprised when new and youth voices bring smart ideas to the fore. They're truly on the ball. When I'm asked what gives me hope, it's the youth. It's time for us to provide them with hope, to light them up in every way we can, so that they can eclipse us with their success."

Arctic Innovation Lab and Arctic Course

During the 2021 fall semester, eighteen students enrolled in Halla Hrund Logadóttir’s course IGA-671M, “Policy and Social Innovations in the Changing Arctic.” This year, select students received funding to continue researching their Arctic innovations. One student, Allison Agsten, shared her reflection on the experience.

“Last summer, I attended a lecture by Halla Logadóttir and within just moments, I was hooked. Professor Logadóttir began her talk by asking what each of us envisioned when we thought of the Arctic. The Zoom chat filled with the usual answers. Polar bears. Icebergs. Snow. Professor Logadóttir quickly taught us that the Arctic is much more than a vacant, white expanse. Why then, did most of us (myself included) know so little about the region? As a former journalist and art curator, I couldn’t help but wonder if standard storytelling about the region was contributing to a narrow point of view.

“After completing Professor Logadóttir’s fall module and participating in the Arctic Innovators Forum, I was awarded funding and the opportunity to write a paper for the Belfer Center on the absence of Indigenous people in climate change news coverage about the Arctic. After the paper was published, I had the honor of working alongside Dr. Douglas Causey to think further about Indigenous representation, this time in the context of scientific knowledge co-production. As a recent graduate, I am now investigating career opportunities relating to the Arctic, equity, and storytelling.”

The Arctic Circle postponed the annual Arctic Circle Assembly amid the global pandemic, so

the 2020 Arctic Innovation Lab moved online. Seventeen students from seven universities shared their innovative ideas for a better Arctic. Pitches were judged by an expert panel from the Arctic and beyond, including representatives from Harvard’s iLab, the Association of World Reindeer Herders, Greenland’s Language Secretariat, *Arctic Today*, and the Icelandic Chairmanship of the Arctic Council.

The event opened with remarks by Ambassador Kenneth A. Howery, U.S. Ambassador to Sweden and co-founder of PayPal and Founders Fund, who talked about the importance of innovation in the Arctic. Ambassador Howery remarked, “As prospective policy makers, I challenge you to look for new and better ways to solve old problems.” He stressed that the Arctic should remain a “peaceful area of low tension with close collaboration between Arctic nations.”

Student ideas ranged from sustainable seaweed farming, to increasing media representation of Indigenous communities, to naval enforcement of the Central Arctic Ocean fisheries agreement, to language preservation.



Arctic Initiative Study Group: Ocean Conservation and Policy Innovation



SARAH DEWEY

As climate change rapidly transforms the Arctic, the ocean at its center becomes a focal point: melting sea ice enables increased marine traffic; ice-dependent species are migrating or dying; fisheries shift and with them so do economies of subsistence. These changes can mean risk or opportunity for different stakeholders.

This study group, co-organized by Dr. Sarah Dewey, Dr. Sarah Mackie, and Brittany Janis, used Arctic Ocean change as a case study to outline the environmental policy process. The five-seminar series covered the topics of:

- Intro to the changing Arctic Ocean: Mapping stakeholders in a changing landscape.
- Science creation and communication: Understanding how scientists measure change and how their analyses can inform policy.
- Regional policy development: Understanding the process of co-developing policy through the lens of plastics pollution in the Arctic.
- Diplomacy: Understanding the precautionary principle, and what it took to achieve groundbreaking conservation policy in the Central Arctic Ocean.
- Policy implementation: Examining the successes and challenges in implementing Arctic marine mammal protections.

Introducing Our **Board of Advisors**

This year, the Arctic Initiative established an International Board of Advisors to increase the breadth of Arctic experience and intellectual capital that informs our work. A very successful first meeting was held on Zoom in June. Our distinguished founding board members are:



Ane Lone Bagger is the former Minister of Education, Culture, Church, and Foreign Affairs of Greenland. Prior to that, she was involved in local politics, serving as the first Vice Mayor in Avannaata Municipality for the Siumut political party. Earlier in her career, she worked for 15 years at Air Greenland in various roles, including serving as the first female Greenlandic flight mechanic. Minister Bagger has also worked in the insurance sector.

on the boards for the Gwich'in Council International and the University of the Arctic (UArctic).



Gunn-Britt Retter was born and raised in the coastal Saami community Unjárga-Nesseby in northeastern Norway. Retter has been working on Arctic issues since 2001, first at the Arctic Council Indigenous Peoples' Secretariat (IPS), and since 2005 in her present role as Head of Arctic and Environmental Unit of the Saami

Council. Retter served as a Member of the Saami Parliament of Norway for two terms (2005–2013).



HE Ms Tarja Halonen served as President of the Republic of Finland from 2000–2012. She was elected to the Parliament in 1979 and served five terms before assuming the office of the President in 2000—Finland's first female head of state. During her presidency, she was Co-Chair of the World Commission on the Social

Dimension of Globalization, Chair of the Council of Women World Leaders, and Co-Chair of the UN Secretary-General's High-level Panel on Global Sustainability. She is Chair of the Board of the University of Helsinki and continues to work closely with the UN.



Alice Rogoff is publisher and owner of *ArcticToday*. Rogoff is also the founder of Arctic Imperative, a lecture series dedicated to raising awareness of circumpolar north issues. She is the former publisher and owner of *Alaska Dispatch*, and co-founder of several other organizations including the Alaska Native Arts Foundation. Earlier

in her career, she served at *The Washington Post* as assistant to publisher Donald Graham, and she was the creator of the *Post's* National Weekly edition.



Evon Peter is Neets'aai Gwich'in and Koyukon from Vashrajj K'qoq (Arctic Village), Alaska. An advocate for Indigenous knowledges, languages, and rights, he is a senior research scientist at the Center for Alaska Native Health Research at the University of Alaska Fairbanks (UAF) and the former Vice Chancellor for

Rural, Community, and Native Education there. He serves

Arctic Initiative **Research Assistants Spotlight**



HARRIS WEBER

Harvard Kennedy School, MPP Class of 2022

Share a few sentences about the work you did for the Arctic Initiative this year:

This year, I supported the James J. McCarthy Leadership Seminar Series for Future Arctic

Indigenous Leaders by helping local Arctic leaders develop their innovation ideas. In addition, I am a Course Assistant for IGA-671M, “Policy and Social Innovations for the Changing Arctic,” and look forward to working with students on their pitches for the Arctic Innovation Lab this January.

Why are you interested in the Arctic?

With eight countries claiming territory in the region, the Arctic represents a place where geopolitical cooperation is paramount to tackle issues such as climate change. I was

initially drawn to the Arctic Initiative because I wanted to explore these relationships in greater detail.

What have you learned while working with Arctic Initiative?

Prior to Harvard Kennedy School, I had studied natural resources and their effect on geopolitical tensions in the Arctic. Through the IGA-671M course and subsequent work with the Arctic Initiative, I have learned more about the Indigenous communities in the region as well as gained a more granular understanding of the effects of climate change.

How does this work fit into your career goals?

After Harvard Kennedy School, I hope to use the analytical and quantitative skills I have developed in finance to serve the public good. Learning from mentors in the Arctic expert network, developing innovative ideas, and refining my presentation skills will prepare me well for any career.



ANNICK STETA

Harvard Kennedy School, MC/MPA Class of 2021

Share a few sentences about the work you did for the Arctic Initiative this year:

I was a summer research assistant with the Arctic Initiative from May to August

2021. During this time, my main task consisted in advancing research on a project aiming to use innovative financing strategies to fund community-driven infrastructure projects that promote the restoration and stewardship of Arctic wetlands. We focused on water and sewage infrastructure projects in the Bering Strait region of Alaska, which encompasses large areas of wetland habitats that support the lives and livelihood of Alaskan Native people. I also worked on *Northern Lights*, a podcast series led by Arctic Initiative Postdoctoral Research Fellow Dr. Sarah Mackie. This podcast comprises episodes produced by students from all over the world who tell stories from around the Arctic.

Why are you interested in the Arctic?

Until the beginning of my studies at the Kennedy School, I had very limited knowledge of issues pertaining to the Arctic. My interest in wildlife conservation was the main driver of my

enrolling in Professor Logadóttir’s module on “Policy and Social Innovations for the Changing Arctic.” Through this module, I discovered that the Arctic was facing challenges pertaining to a large variety of fields. As I consider myself as a generalist with previous exposure to several academic fields, I was immediately interested in increasing my knowledge of this region.

What have you learned while working with Arctic Initiative?

During my time with the Arctic Initiative, I met several Indigenous leaders and worked closely with one of them. I learned a lot about the difficulties of funding and carrying out an infrastructure project in a region where living conditions are particularly demanding. I was amazed by the commitment of Indigenous people to their culture and their community. Interacting with them was a privilege.

How does this work fit into your career goals?

I took advantage of my time at the Kennedy School to prepare for the next step of my career: transitioning to a position at the intersection of economics, in which my background lies, and environmental policy. My work with the Arctic Initiative constituted a form of capstone project on which I will build over the coming years.



SHASHANK SINGH

Harvard Kennedy School, MPA Class of 2022

Share a few sentences about the work you did for the Arctic Initiative this year:

As a research assistant with the Arctic Initiative, I worked with the team that helped organize the second biannual Arctic Resilience Forum. I had the opportunity to facilitate many conversations between experts, knowledge-holders, and other Arctic stakeholders about the resilience of Arctic communities and ecosystems. I then worked with the Arctic Council's Sustainable Development Working Group to integrate the many insights from these conversations into the council's work.

Why are you interested in the Arctic?

The Arctic is likely to see some of the highest impacts from a warming climate and depleting biodiversity, and thus the

Arctic's resilience in responding to these challenges will define, guide, and inspire our efforts across the world.

What have you learned while working with Arctic Initiative?

The biggest lesson from my work with the Arctic Initiative has been that there is an immense amount of knowledge that exists within local communities that, if integrated with the current "mainstream" approaches, will greatly benefit the climate movement.

How does this work fit into your career goals?

My work with the Arctic Initiative has been a great complement to my professional journey centered on making our financial system more sustainable. The many conversations in the forum have helped me understand the diverse components of resilience and the possible role our financial system can play in creating and sustaining resilience.



SUNAINA PAMUDURTHY

Harvard Kennedy School, MPP Class of 2022

Share a few sentences about the work you did for the Arctic Initiative this year:

A major part of my work involved ideating on innovative ways to engage Indigenous youth on topics of climate resilience and adaptation.

With the help of our Indigenous partners in the Arctic, we co-designed gamified simulations for youth to equip them with the right skills for leading through a crisis, such as the COVID-19 pandemic. In addition, I had a chance to conduct research on the COVID response in the Alaskan region and also prepare interactive educational materials on the Swedish mining town of Kiruna.

Why are you interested in the Arctic?

We've always known that the magnitude of impact of this region on global ecosystems and communities is hugely significant. Unfortunately, the Arctic has had quite a bit of a head start on global warming compared to other geographies, but what's fascinating is that the solutions applicable to these communities will be relevant globally as the planet continues to heat up, so we all need to pay very close attention to the climate discussions in the circumpolar north.

What have you learned while working with Arctic Initiative?

I had the wonderful opportunity of working alongside some of the most innovative minds from the Indigenous Arctic. My stint with the Arctic Initiative made me aware that it's not enough to be designing for the communities, but with them in every step of the climate challenge. Co-developing knowledge can be challenging but always leads to a far better solution that has longer term benefits.

How does this work fit into your career goals?

I have a keen interest in the intersection of technology and climate resilience. I strongly believe Indigenous knowledge systems give strong grounding for modern science to rely on, and a lot of our climate goals can be achieved through respectful collaboration. The Arctic Initiative exposed me to some of the most inspiring scientists, researchers, and Indigenous community leaders. Working with this team helped me gain a pragmatic view on resilience, and has trained me well on how to prioritize while working with communities on ground.



ULLA HEMMINKI-REIJONEN

Harvard Graduate School of Education,
MEd Class of 2021

Share a few sentences about the work you did for the Arctic Initiative this year:

This spring, I concentrated on the changing world of climate change education and opportunities for adopting innovative pedagogical approaches such as immersive technologies, participatory methods, and art-based learning. Besides co-writing a publication, I designed a learning environment for the course taught at the Arctic Initiative, and got to explore these recommended methods in action, too.

Why are you interested in the Arctic?

Being from a small Arctic country, Finland, where education is taken seriously, it was natural for me to investigate how we could respond to the climate challenge efficiently with innovative education and modern educational technologies. By offering learners engaging possibilities to explore this complex topic, we can hopefully help them mitigate and adapt to the climate change better in the future.

What have you learned while working with the Arctic Initiative?

I learned the power of global collaboration. As part of our pilot project, I collaborated with skilled artists around the world who were excited to create original art for our learning environment on climate change. I saw that there are so many experts from different fields who would like to contribute somehow—we just need to find them and offer channels for using their skills. Together we can make more engaging experiences and raise awareness of the issue, including among the participants of the design process, too. While investigating this topic, it also felt nice that I could use some sources that were originally written in a small Arctic language, Finnish—sources which might not reach global readers otherwise.

How does this work fit into your career goals?

This project has been a perfect experience for me when thinking about my work after graduation. I am currently in charge of the activities of the edtech community at the Helsinki Education Hub. Building a sustainable future is one of the key goals of all the levels of administration at the City of Helsinki. Innovative climate change education with modern technologies will no doubt be on the Education Hub's agenda, too.



MIE DAHL

Harvard Kennedy School, MPA Class of 2022

Share a few sentences about the work you did for the Arctic Initiative this year:

I worked as a research assistant, focusing on Indigenous communities and resilience building. More specifically, I developed a seminar series about Indigenous youth leadership, supported work on financing infrastructure resilience projects in the Bering Strait region, and assisted our work on the Arctic Resilience Forum.

Why are you interested in the Arctic?

I am fascinated and motivated by the diverse set of challenges and opportunities in the region, which call for interdisciplinary approaches. I am particularly inspired by the role of Indigenous communities in building a more resilient Arctic.

What have you learned while working with the Arctic Initiative?

While the Arctic is absolutely unique, I have realized that there are very strong parallels between the Arctic and other regions—for example, the role of Indigenous communities in governance, science, and environmental protection efforts.

How does this work fit into your career goals?

I aspire to work on creating more inclusive governance processes and raising the voice of under/misrepresented groups. Working with Indigenous communities in the Arctic has taught me a lot about the importance of that work, as well as potential ways forward.



SARA AMISH

Harvard Kennedy School, MPP Class of 2022

Share a few sentences about the work you did for the Arctic Initiative this year:

I worked with a team focusing on the progress Iceland has made on international climate agreements since 2011.

Why are you interested in the Arctic?

It is a place of such dynamic change and close-knit relationships. To be able to make it, one has to be able to work together and make things work. These incredibly strong community bonds are going to be tested as the Arctic warms three times as fast as any other place on the globe. It's also a place where there are still intact ecosystems, and faces unique challenges in continuing to live within those functioning systems.

What have you learned while working with the Arctic Initiative?

So many Arctic systems are completely informed by history and yet are strangely devoid of a past. History has informed many of the current agreements in place, how structures like the Arctic Council have evolved, and how different communities work together. At the same time, because there has been so little interest in the Arctic compared to other parts of the globe, there is also an opportunity to build new systems and start fresh.

How does this work fit into your career goals?

Collaborative governance of natural resources has always been hard, although it's been shown that it is possible and the tragedy of the commons is not inevitable. However, as climate change impacts increase, there will be more and more pressure on resources and we will require better systems to collaboratively govern. That is where I see myself, and the Arctic, in many ways, is the first test case of how we cope with climate change impacts and work together, rather than in opposition.



ALLISON AGSTEN

Harvard Kennedy School, MC/MPA Class of 2021

Share a few sentences about the work you did for the Arctic Initiative this year:

Halla Hrund Logadóttir's class on Arctic policy and social innovation opened many doors for me, amongst them, the opportunity to work as a summer RA for Dr. Douglas Causey, an Alaska-based biologist and Arctic Initiative Associate. I helped Dr. Causey draft a plan for a research project on successful knowledge co-production practices as envisioned by three Indigenous communities in Alaska.

Why are you interested in the Arctic? I am curious and concerned about the disconnect Americans and others have with this region of the world. The Arctic—a site of rapid climate change, national security interest, and crucially, home to millions—seems to exist mostly as an abstraction in the public imagination. I believe that we can transform apathy to interest

(and even engagement) by deploying more nuanced, evocative storytelling practices.

What have you learned while working with the Arctic Initiative?

I have learned that Indigenous knowledge-holders should receive infinitely more respect, acknowledgement, and compensation than they have typically been granted by researchers, writers, and others studying the region.

How does this work fit into your career goals? Since spending the past year embedded within the Arctic Initiative in different capacities, my career goals have shifted. In early 2020, if you would've told me—a museum curator and lifelong Californian—that I'd be looking for jobs related to the Arctic after graduating from the mid-career MPA degree program, I wouldn't have believed you.

Meet Doug Causey: New Faculty Associate



Professor Douglas Causey first arrived at Harvard University in 2000 as Senior Biologist and Curator of Birds at the Museum of Comparative Zoology (MCZ), and as a Senior Fellow at the Belfer Center. Now, as an Associate of the Arctic Initiative, Dr. Causey focuses his research on the detailed examination of the nature of national and interna-

tional security issues associated with the rapid environmental change in the Arctic. Two monographs on the dynamics of present and future consequences of climate change on Arctic and Polar international, social, and environmental security will be published in 2022.

Dr. Causey has served as a Professor of Biological Sciences at the University of Alaska Anchorage (UAA) since 2005. An ecologist and evolutionary biologist by training, he has authored over two hundred publications on topics as diverse as the ecology of Arctic marine birds, high Arctic coastal systems, and zoonotic diseases hosted by northern birds and bats.

He has published extensively on policy issues related to the Arctic environment, Arctic environmental security, and bioterrorism and public health. His current environmental research examines the environmental correlates of climate change in the Arctic on birds and mammals, its consequential impact on local and Indigenous people, and its association with the increase of infectious disease in northern communities. He and his students are actively conducting research in the Aleutian Islands, the northern Bering Sea, and Northwestern Greenland. He is Co-Lead of the National Science Foundation's Greenland Ice Sheet-Oceans Interactions Network's Ecosystem and Community Working Group, which is working to develop more focused and inclusive research on problems relevant to climate change occurring at Greenland's marine margins.

We took a moment to sit down with Dr. Causey to talk with him about his career and what brought him back to Harvard to join the Arctic Initiative.

How did you originally become interested in the Arctic?

My interest in the Arctic started during my Army service in Alaska. I always wanted to be a biologist, and my research interests led me to focus on the ecology and behavior of seabirds as indicators of rapid environmental change in the Arctic. I have been quite fortunate in being able to work closely with Arctic local and Indigenous people, and to better understand their knowledge of complex environmental interactions.

What is the Department of Homeland Security Arctic Domain Awareness Center of Excellence and how does it relate to Arctic environmental security?

In 2014, I initiated the DHS' Arctic Domain Awareness Center of Excellence, a research center focused on providing the U.S. Coast Guard with new techniques and approaches to better accomplish their mission of Search and Rescue, Law Enforcement, and Hazard Awareness in the Arctic. The Arctic Domain Awareness Center (ADAC) serves as a research network hub located at UAA and advances Arctic operational science research.

Arctic environmental security relates to the intersections of ecological response, human resilience, defense, and sovereignty. The dynamics consist of climate change, political realities, land tenure and Indigenous rights, international policy, and regime change. Familiar research areas include climate migration, economic response, biodiversity dynamics, and resource wars. We are in the midst of rapid change in the Arctic and the effects are reverberating throughout all of the polar regions. ADAC and the Coast Guards of all the Arctic nations are rapidly adjusting and responding to new issues, new needs, new complexities of interactions.

What are some lessons that you have learned working with Indigenous peoples and local communities?

I am one of the founding directors of the Native American Science Curriculum Program funded by the National Science Foundation. This program was developed to provide an

easily accessible resource for students and faculty associated or interested in Indigenous perspectives and knowledge relating to environmental science. It serves as a pathway for educators to develop their own programs and to meet the needs of local students.

I also helped conceive, develop, and facilitate the establishment of a research and education center of the Aleut Community of Saint Paul Island, Alaska, that engages local students and community members in place-based authentic research and education. I currently assist with curriculum development and research outreach to visiting scholars and the general public. The Bering Sea Research Campus aims to engage local youth in STEM disciplines and foster the co-production of knowledge for natural resource management with Saint Paul Island's Aleut Community.

What led you to become a faculty associate of the Arctic Initiative?

I wanted to participate more directly in building an understanding of the multidimensional transformation of the new Arctic. The Arctic Initiative is uniquely positioned by virtue of its association with the Belfer Center, the Harvard Kennedy School, and Harvard University. It has quickly become one of the key centers for new ideas and approaches for understanding the significant impacts on environmental, strategic, and security sectors throughout the Arctic. As a recent Associate, I already have been able to interact directly with HKS graduate students, faculty, and staff, as well as national and global leaders, in addressing the consequences of these changes. I feel very fortunate in being able to work with the entire Arctic Initiative team.



Senior Fellow Halla Hrund Logadóttir Named Director-General of Iceland's National Energy Authority

In June 2021, Arctic Initiative Co-Founder Halla Hrund Logadóttir was named the Director-General of Orkustofnun, the National Energy Authority of Iceland. Logadóttir, who was selected after a competitive application process, will serve in this role for the next five years.

Logadóttir said of her new role, "I enter this new chapter humbly, excitedly, and optimistically, and am extremely grateful for the trust bestowed on me. I look forward to doing my very best in collaboration with as many as possible."

Orkustofnun is a government agency under the Ministry of Industries and Innovation. Its main responsibilities are to advise the Government of Iceland on energy issues, license and monitor the development and exploitation of energy and mineral resources, regulate the operation of the electrical transmission and distribution system, and promote energy research.

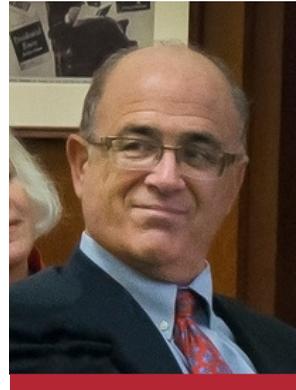
We are delighted that Professor Logadóttir will remain as a non-resident Senior Fellow at the Arctic Initiative and will continue to teach "Policy and Social Innovations for the Changing Arctic" as a January-term course at the Kennedy School.

Co-Directors



John P. Holdren is a Research Professor at Harvard Kennedy School and Co-Director of the Belfer Center's Science, Technology, and Public Policy Program. He retired at the end of June 2021 from his roles as the Teresa and John Heinz Professor of Environmental Policy at HKS, Professor of Environmental Science and Policy in the Department of Earth and Planetary Sciences, and Affiliated Professor in the John A. Paulson School of Engineering and Applied Science. He is also President Emeritus and Senior Advisor to the President at the Woodwell Climate Research Center. Holdren is a member of the U.S. National Academy of Sciences, the U.S. National Academy of Engineering, the American Academy of Arts and Sciences, and the American Philosophical Society. From 2009–2017, he was President Obama's Science Advisor and the Senate-confirmed Director of the White House Office of Science and Technology Policy.

From 2009–2017, he was President Obama's Science Advisor and the Senate-confirmed Director of the White House Office of Science and Technology Policy.



Henry Lee is the Jassim M. Jaidah Family Director of the Belfer Center's Environment and Natural Resources Program, a Senior Lecturer in Public Policy at Harvard Kennedy School, and Faculty Co-Director of HKS' Executive Education Programs on infrastructure. He also serves on the Advisory Board of Harvard Kennedy School's

Kuwait Program, and on the Presidential Committee on Sustainability, advising Harvard University's president on the energy transition. Before joining HKS, Lee spent nine years in Massachusetts state government as Director of the State's Energy Office and Special Assistant to the Governor for environmental policy. He has served on numerous state, federal, and private boards, and advisory committees on both energy and environmental issues. His recent research interests focus on China's energy policy, energy technology innovation, and public infrastructure projects in developing countries.

Fellows, Affiliates, and Staff



Douglas Causey is a Faculty Associate at the Arctic Initiative. He is Professor of Biological Sciences at the University of Alaska Anchorage (UAA) and Principal Investigator of the Department of Homeland Security Arctic Domain Awareness Center of Excellence. He came to UAA in 2005 from Harvard, where he was a Senior Fellow at the Belfer

Center and Senior Biologist at the Museum of Comparative Zoology. An ecologist and evolutionary biologist by training, he has authored over 200 publications on the environmental correlates of Arctic climate change, and he and his students are actively conducting research in the Aleutian Islands, the northern Bering Sea, and Northwestern Greenland.



Joel Clement is a Senior Fellow at the Arctic Initiative. Clement is a science and policy consultant with a background in resilience and climate adaptation, landscape-scale conservation and management, and Arctic social-ecological systems. As Director of the Department of Interior's Policy Office, he led a team of policy analysts and econ-

omists, provided advice and analysis to White House leadership and two Secretaries of Interior, developed innovative policies to address landscape conservation needs, and was the Interior Department's appointed principal to the U.S. Global Change Research Program. He also co-chaired the Arctic Council's groundbreaking 2016 Arctic Resilience Report.



Halla Hrund Logadóttir is a Co-Founder and Senior Fellow of the Arctic Initiative. Until recently, she served as the initiative's Co-Director before accepting the role of Director-General of Iceland's National Energy Authority. She teaches an interdisciplinary course on "Policy and Social Innovation for the Changing

Arctic" at Harvard Kennedy School. Logadóttir co-curates the World Economic Forum's Arctic Transformation Map, where she focuses on environmental issues. In her native Iceland, she serves on the advisory board to Iceland's Minister of Industry and Commerce on Iceland's Energy Fund and chairs the Arctic Innovation Lab, which she established to encourage business and social innovation across the Arctic region. She is the former Director of the Iceland School of Energy at Reykjavík University, where she lectures on Arctic policies.



Cristine Russell is an Adjunct Lecturer in Public Policy and Senior Fellow at the Belfer Center's Environment and Natural Resources Program. She is an award-winning freelance journalist who has covered science, environment, public health, and STEM issues for more than three decades. Russell, a former national science reporter for

The Washington Post, has also written for news media outlets such as *Scientific American*, *Columbia Journalism Review*, and *The Atlantic*. Russell is an advisory board member and former fellow at HKS' Shorenstein Center on Media, Politics & Public Policy.



Jennifer Spence is the Executive Secretary of the Arctic Council's Sustainable Development Working Group, an Adjunct Professor with Carleton University's Northern Studies Graduate Program, and an instructor with Nunavut Sivuniksavut, a post-secondary program designed to empower Inuit youth. Spence has also

worked on Arctic sustainable development and governance as a Fellow with the Centre for International Governance Innovation (CIGI). Previously, she worked for eighteen years with the Government of Canada in senior positions related to resource management, conflict and change management, strategic planning, and leadership development. Jennifer holds a PhD in public policy from Carleton University, an MA from Royal Roads University in conflict management and analysis, and a BA in political science from the University of British Columbia.



Fran Ulmer is a Senior Fellow at the Arctic Initiative. She is the former chair of the U.S. Arctic Research Commission, to which she was appointed by President Obama in 2011. In June 2010, President Obama appointed her to the National Commission on the bp Deepwater Horizon Oil Spill and Offshore Drilling. From 2007–2011, Ulmer

was chancellor of Alaska's largest public university, the University of Alaska Anchorage (UAA). Before that, she was a Distinguished Visiting Professor of Public Policy and Director of the Institute of Social and Economic Research at UAA. She is the Chair of the Global Board of the Nature Conservancy and on the Board of the National Parks Conservation Association. Ulmer served as an elected official for 18 years as the Mayor of Juneau, a state representative, and as Lieutenant Governor of Alaska.

MEET OUR TEAM



N. Stuart Harris is a Faculty Affiliate at the Arctic Initiative. He is the founder and Chief of the MGH Division of Wilderness Medicine and the Director of the MGH Wilderness Medicine Fellowship. He works as a full-time attending physician in the MGH Emergency Department and an Associate Professor of Emergency Medicine at Harvard Medical School.

Working with colleagues in Kotzebue, Alaska, he helped found Siamit to learn from and contribute expertise to community care in remote Native Alaskan communities. Harris' research focuses on advancing medical expertise into remote and underserved areas and the impact of climate change as a healthcare emergency.



Luke Apisa, M.D., is the current Fellow of the Division of Wilderness Medicine at Massachusetts General Hospital. Dr. Apisa works closely with the Alaska Native Tribal Health Consortium to provide medical care to the Inupiaq people of northern Alaska, where he is leading quality initiatives to improve outcomes in critically ill patients at Maniilaq Medical Center.

His current research initiatives include modeling of COVID transmission in rural Alaskan communities and human health effects of permafrost thaw.



Sarah Dewey is a former Postdoctoral Research Fellow at the Arctic Initiative. In June 2021, she joined the International Division of the Science Office at the U.S. Department of Energy as an AAAS Science and Technology Policy Fellow. She holds a PhD and MS in oceanography from the University of Washington and a BS in geology

and geophysics from Yale University, and her field experience centers on the use of aerial platforms to observe the western

Arctic Ocean. Dewey's current research quantifies time and space scales of ice-ocean interaction and links them to the scope of environmental policy, strategic response, and mitigation of marine pollution. Besides her passion for fieldwork, a background in journalism and environmental education has fed Dewey's interest in science education, outreach, and the connection between geophysical research and policy.



Nadezhda Filimonova is Predoctoral Research Fellow at the Belfer Center's Arctic Initiative. She is also a PhD Candidate at the University of Massachusetts Boston and an affiliated scholar at the Institute for Advanced Sustainability Studies. Filimonova holds two Master's degrees: one in political science and international studies from

Uppsala University and the other in international relations from St. Petersburg State University. She has been the recipient of numerous fellowships and awards and an author of several peer-reviewed publications. She has taught courses on international relations, Arctic studies, and daily life in Soviet Russia. Her research explores urban climate change governance in the Arctic.



Sarah Mackie is a Postdoctoral Research Fellow at the Arctic Initiative. She holds a law degree from the University of Cambridge and an LLM in environmental law from Newcastle University. A qualified lawyer in England and Wales, she has worked as a Judicial Assistant for the Lord Chief Justice of England and Wales. Mackie

recently completed a PhD on comparative environmental law in the Arctic, with a particular focus on endangered species protection across Arctic jurisdictions. This research was conducted at several institutions including Newcastle University, Harvard Law School, Ilisimatusarfik (Greenland), the Arctic Centre (University of Lapland, Finland) and the KG Jebsen Centre for the Law of the Sea (University of Tromsø, Norway).



Brittany Janis is the Research Manager for the Arctic Initiative. She helps lead the Arctic Initiative’s research on advancing resilience in Arctic communities and developing policy solutions to combat plastic pollution in the Arctic Ocean. She graduated in May 2019 from the Harvard Kennedy School Mid-Career MPA Program. She is a co-founder of

Harvard Alumni for Climate and the Environment (HACE) Shared Interest Group. While a student at HKS, Janis worked as a Research Assistant for the Arctic Initiative, was a student member of the HKS Sustainability Leadership Council and served as Program Director for the student-led Social Enterprise Conference. Before coming to Harvard, she spent her career working in strategic fund development and nonprofit management for a range of nonprofit organizations, most recently the Environmental Defense Fund (EDF). She holds an MPA from the Harvard Kennedy School of Government, an MA in philanthropy and development from St. Mary’s University, and a BA in political science, theatre, and history from Case Western Reserve University.



Amanda Sardonis is the Associate Director of the Belfer Center’s Environment and Natural Resources Program (ENRP). She oversees the day-to-day activities of the program and keeps ENRP focused on its research mandate: analyzing and developing policies that are sustainable in a world constrained by climate, security, energy, and economic

development concerns. Sardonis also manages ENRP’s student support programs and the Roy Family Award for Environmental Partnership. Her research focuses on the potential of environmental public-private partnerships to meaningfully address complex environmental challenges such as climate change. She has an ALM in sustainability and environmental management from Harvard University and a BA in English from Mount Holyoke College.



Karin Vander Schaaf is the Administrative Coordinator of the Belfer Center’s Science, Technology, and Public Policy Program and provides faculty assistance to Professors Venkatesh Narayanamurti, John Holdren, Jim Waldo, Afreen Siddiqi, Bruce Schneier and Halla Hrunnd Logadóttir. Her administrative responsibilities include

financial management and budget oversight, event logistics planning, and working with fellows on HKS administrative matters. Vander Schaaf is passionate about the environment and is a member of the HKS Green Team. She also serves on the HKS Joint Council.



Daniel Bicknell is the Interim Research Manager of the Arctic Initiative. While at HKS, he served as a Research Assistant to the Arctic Initiative, a Course Assistant to IGA 671M, “Policy and Social Innovations for the Changing Arctic,” and a Belfer IGA Student Fellow. His HKS policy analysis exercise focused on improving access to

multi-hazard early warning systems for UN Climate Change and the International Centre for Integrated Mountain Development. Bicknell previously worked at Partners in Health, Peace Corps Response-Peru, the US Department of Energy, and Marstel-Day LLC. He holds an MPP in international and global affairs from Harvard Kennedy School and an AB in environmental science and public policy from Harvard College.



Arctic Initiative

Belfer Center for Science and International Affairs
Harvard Kennedy School
79 John F. Kennedy Street
Cambridge, MA 02138

www.belfercenter.org/Arctic

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