

The Belfer Center's

Arctic Initiative 2018–2019



HARVARD Kennedy School

BELFER CENTER

for Science and International Affairs

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

Arctic Initiative

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Welcome to the **Arctic Initiative**

The Arctic Initiative strives to increase understanding of the implications of rapid Arctic environmental change inside and outside the region and to apply that understanding to improving national and international programs, laws, and regulations dealing with the interaction of Arctic issues and climate change. Through the Initiative's engagement in these efforts, we are training graduate students at the Harvard Kennedy School and beyond to become a new generation of Arctic leaders.

Since our launch in 2017, The Arctic Initiative has grown rapidly, and is emerging as a key leader on Arctic issues working at the intersection of environmental science and policy. We have grown our team, expanded our course offerings, engaged more students, and developed key research partnerships that have allowed us to make substantial contributions to research and policy needs in the circumpolar Arctic region.

This publication provides a brief overview of some of our Fall 2018 and Spring 2019 semester activities, ranging from research workshops, speaker series, student groups, and the Arctic Innovators program.

We are grateful to everyone participating in this journey and look forward to expanding our work in the years to come to help address the critical issues in the Arctic that affect us all.

John P. Holdren · Henry Lee · Halla Hrund Logadóttir

Harvard Offers its First Course Solely Focused on Arctic Issues

Harvard Kennedy School's first Arctic focused course, *Policy and Social Innovation in the Arctic*, was designed to immerse students in real-world sustainable-development issues through the lens of the rapidly changing Arctic region. This Fall-Two module offered students the opportunity for hands-on engagement in Arctic issues and helped them acquire the tools, communications skills, and experience to succeed as leaders in social innovation.

This course gave students a deeper understanding of the ways in which climate change is changing the Arctic, by spurring expansion of economic activities, including energy and mineral development and new ocean transport routes, while disrupting others, including fishing, forestry, and subsistence hunting. Students learned about challenges to the region's infrastructure, such as melting permafrost and subsidence as well as accelerated glacial melt, sea-level rise, storm surge, coastal erosion, and wildfires. They also had the opportunity to explore

the ways native communities are responding to shifts in the region and learn more about the risks that exist to indigenous peoples' health, livelihoods, and cultures. This course provided an overview of the geopolitical pressures influencing the region, which have made the Arctic a key arena for global competition and cooperation. Through this expansive and rapid survey of Arctic topics, students developed a deeper understanding of the dynamics at play in the region, and the global impacts.

Throughout the course the 24 students, who came from MIT and Tufts as well as from Harvard, worked with expert mentors (meet our mentors on the next page) to develop an innovative solution to one of the emerging Arctic issues that was discussed. Ideas ranged from an online platform to revitalize Arctic languages, to using sewage



↑ Students meet with Iceland's Minister of Tourism, Industry, and Innovation, Þórdís Kolbrún Reykfjörð Gylfadóttir.

as an energy resource for remote Arctic communities. Students then fine-tuned their idea, developed a pitch, and presented their research through an op-ed, many of which were subsequently featured in Arctic Today.

As a culmination of their course work, students then traveled for a field study to the Arctic Circle Assembly in Reykjavik, where they presented, to Arctic leaders the innovative policy proposals they had developed in the module. While in Reykjavik they also had the opportunity to meet with President Iceland, the Ministry of Tourism, Industry and Innovation, and participate in the Arctic Innovation Lab which allowed them to exchange ideas with peers from around the globe.

The course was co-taught by the Initiative's co-founder and director **Halla Brund Logadóttir**, and Dr. **John Holdren**, Co-Director of the Belfer Center's Science, Technology, and Public Policy Program, and Professor of Environmental Science.



↑ Arctic Innovators share their projects with Iceland's President, Guðni Th. Jóhannesson, over a breakfast at his official residence.

Meet the Course Mentors

*Our mentors were paired one-on-one with students in the **Policy and Social Innovation in the Arctic** course. They met throughout the class to help innovators hone their pitch ideas, and share their expertise about the realities of working on challenges facing the Arctic.*



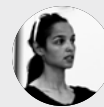
James McCarthy

Harvard University's
Alexander Agassiz Professor
of Biological Oceanography



Andri Snær Magnason

Icelandic Writer



Katti Frederiksen

Director, Greenland's
Language Center



Kara Lavender Law

SEA Research Professor
of Oceanography



Magnús Jóhannesson

Special Adviser on Arctic Affairs
for Icelandic Government



Terzah Tippin Poe

Principal Consultant TRIO Global
Solutions and Co-Instructor,
Harvard Extension School



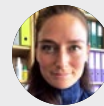
Robert Max Holmes

Deputy Director and
Senior Scientist, Woods
Hole Research Center



Fran Ulmer

Chair of the US Arctic
Research Commission



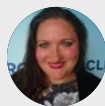
Rebecca Lynge

First Secretary at Greenland
Representation in
Washington, D.C.



Amb. David Balton

Senior Fellow at the Wilson
Center's Polar Institute and
former Ambassador for
Oceans and Fisheries, U.S.
Department of State, retired



Ásthildur Jónsdóttir

Project manager - Arctic Circle



Michael Sfraga

Director, Wilson Center's
Polar Program



William Moomaw

Professor Emeritus of
International Environmental
Policy, Tufts Fletcher School



Robert Blaauw

Former Senior Advisor
Global Arctic Theme for Shell
International Exploration and
Production BV in the Netherlands



Rockford Weitz

Director of the Maritime Studies
Program at the Fletcher School



Greg Poelzer

Professor of Environmental
Studies, University of
Saskatchewan

Mentoring the Next Generation of Arctic Leaders

A Profile on Course Mentor **Rebecca Lynge** and Arctic Innovation student **Ross Eisenberg**

by Erik Wilke

During the *Policy and Social Innovation in the Arctic* course at Harvard Kennedy School students were asked to develop an innovative solution to an emerging Arctic issue. Students honed their ideas through consultation with the course instructors and were paired with some of the expert course mentors who specialize in their issue area to coach them on how to develop their innovation to pitch at the Arctic Innovation Lab.

One mentor who helped coach our Innovators was **Rebecca Lynge**, First Secretary at Greenland Representation in Washington, D.C. Ms. Lynge, a native of Greenland, has seen the dramatic impacts of climate change in the Arctic and understands the importance of educating young people that challenges facing the Arctic are a bellwether for changes that affect everyone, “Educating students about the Arctic, giving them the tools to craft solutions for the sustainability of the region is what we need.”



Lynge has served as a mentor to several students in the program, including **Ross Eisenberg**, whose studies at the Kennedy School focused on climate change resilience, housing, and development internationally. Eisenberg’s innovative idea, which he pitched at the Arctic Innovation Lab, focused on creating permafrost thaw insurance to address the risks to infrastructure that occur when permafrost melts. Eisenberg advocated for more research on ways to identify risk and prevent destruction, as well as government-backed permafrost insurance to reduce the economic risks of building on ice; a near-necessity for those in the far north.

Mr. Eisenberg’s permafrost insurance solution was featured in *Arctic Today*, an independent news source focused on the Arctic which helps to spread the voices of people around and the globe, including the op-eds from the Arctic Innovators, by publishing their work concerning the polar north.

Ross Eisenberg said of his experience in the course, “Working with Ms. Lynge as mentor really helped me learn more about what it takes to develop an innovative idea. What I learned in this course about leadership in the Arctic context will be very valuable to me in the future as I develop, test, refine, and pitch new ideas to diverse audiences.”



The changes in the Arctic are magnifications of changes around the globe. The mentorship by officials like First Secretary Lynge of students here at Harvard promises to better prepare young leaders to be aware of the challenges climate change poses and to develop them to take ongoing action. For the future students and leaders involved in the Arctic issues, Lynge says, “Everything helps. The Arctic Initiative having focused attention on the issues in the Arctic and how they affect us globally is really great. It’s important work.”

First Secretary Lynge urges those interested in finding out more to check out Climate Greenland at climategreenland.gl. Climate Greenland is a source of information and news run by the Ministry of Nature, Environment and Research in Greenland.

Read more about the Arctic Innovation course at hks.harvard.edu/courses/policy-and-social-innovations-changing-arctic.



An Arctic Dialogue with Secretary-General Ban Ki-moon

Former UN Secretary-General, Ban Ki-moon (HKA MPA '85), spoke with the HKS Arctic Innovator cohort, convened by Arctic Initiative's Co-director Halla Logadóttir, at the Harvard Kennedy School Campus. Highlighting the critical importance of addressing climate change as an existential global threat, the Former Secretary General commended students for their work to bring attention to the dramatic shifts in the Arctic that are having global impacts. He also focused on challenges in the negotiation processes leading to the COP 21 process and how they were overcome.

Questions focused on the UN strategies to increase investments to build climate resilience. They also talked about the challenges and opportunities for global collaboration to tackle carbon emissions.

Mr. Ban concluded his remarks noting "Issues of the Arctic are not for any single country or a group of countries to solve alone. The global challenge requires global solution."



Innovation Lab in Iceland



↑ **Terzah Tippin Poe** speaks to the Policy and Social Innovation in the Arctic class about challenges facing Arctic indigenous communities.



↑ The Arctic Innovation Lab at the Arctic Circle Assembly.

In 2014, the Arctic Innovation Lab's Founder, **Halla Hrunn Logadóttir** saw the need to attract new and diverse voices into the Arctic dialogue to address the changes in the region. She started the Lab's journey by bringing together politicians, leaders, and students in the field.

Today the Innovation Lab has become one of the highlights of Arctic Circle Assembly in Reykjavik. This year the Innovation Lab brought together students from a wide range of countries including Canada, the United Kingdom, Germany, France, Russia, and Vietnam, to discuss multifaceted theories of change for addressing the complex, challenges facing the Arctic.

As part of their field-study in Iceland, students from Harvard pitched their ideas for solutions to address Arctic issues. Students then facilitated round-table discussions to further develop the ideas and identify potential partners and paths forward for some of the most promising proposals.

Some of the innovators who pitched at this session continue to develop their ideas and are working to develop their research to make their innovations a reality.



↑ Arctic Innovators pose for a photo following the successful Arctic Innovation Lab.



↑ **Mehek Sethi**, the emcee for the Arctic Innovation Lab, presents the three pitch competition winners.

Arctic Issues are in Focus at HKS

“Controversies in Climate, Energy, and the Media” course uses Arctic Issues as their capstone

In a role-play exercise that was the capstone for a Harvard Kennedy School (HKS) spring course, “Controversies in Climate, Energy, and the Media: Improving Public Communication,” students played the roles of world leaders and activists speaking on a fictitious cable television program titled, “The Big Melt: The Future of the Arctic.”

Carrying a “School Strike for Climate” sign (in Swedish), Harvard Kennedy School (HKS) student **Katie Segal**—playing the role of 16-year-old Swedish climate activist Greta Thunberg—gave a passionate plea for international action to help save the Arctic: “I’m just one voice but I represent the voice of the youth who cannot speak.” The fictitious program was modeled after a CNN Anderson Cooper 360° primetime show.

“The Arctic exercise improved my understanding of the many stakeholders who influence the future of the Arctic and especially helped me learn how to communicate my message in a short amount of time,” said Segal, an MPP student and research assistant for the Arctic Initiative. In the tightly scripted 75-minute cable television simulation, 20 students played



↑ Kennedy School student **Laura Merryfield**, playing the role of CNN anchor Anderson Cooper, speaks “to camera” during a simulated broadcast on the future of the Arctic.

international leaders in government, business, environment, climate science, Indigenous rights, and journalism.

“What happens in the Arctic doesn’t stay in the Arctic.”

HKS student **Laura Merryfield**, as CNN host Anderson Cooper, opened the show with a warning: “Temperatures are rising twice as fast in the Arctic, and glacial melting is already causing drastic changes to the region.” The broadcast featured a series of imitation press conferences from Reykjavík, Iceland in which students gave two-minute opening remarks before

taking tough questions from reporters, played by their classmates.

“I chose the Arctic as our student role-play topic to dramatize challenges in communicating the urgency of the climate change crisis to the global public,” said HKS Adjunct Lecturer and Environment and Natural Resources Program (ENRP) Senior Fellow **Cristine Russell**. A science journalist, Russell has joined ENRP staff and HKS students at the Arctic Circle Assembly meetings in Reykjavík since 2015. “The Arctic climate story needs to be better told by all parties, from politicians to the press,” she said.

During the exercise, a live in-class blog of the broadcast scrolled on a classroom screen, written by auditor **Jason Dearen**, an MIT Knight Science Journalism Fellow and former AP correspondent. Several students voiced a familiar refrain: “What happens in the Arctic doesn’t stay in the Arctic.”



↑ ENRP Senior Fellow **Cristine Russell**.

Fran Ulmer

Fran Ulmer is a Non-Resident Senior Fellow at the Arctic Initiative. She is chair of the U.S. Arctic Research Commission, where she has served since being appointed by President Obama in March 2011. From 2007 to 2011, Ms. Ulmer was chancellor of Alaska's largest public university, the University of Alaska Anchorage (UAA). Previously, Ms. Ulmer served as an elected official for 18 years as the mayor of Juneau, a state representative, and as Lieutenant Governor of Alaska.



What originally took you to the Arctic in the 1970s?

When I first graduated law school I took a job in DC at the Federal Trade Commission. I got a few letters from my law school friends who had taken jobs in Juneau, talking about the amazing things they were working on, and of course the amazing hiking and fishing. It seemed like they were having more fun than I was, so I decided to go for it and move to Alaska. I was the first female attorney the Alaska legislature hired. I had studied political science and economics in college, to give you a sense of my interests. The state was new, so it was an exciting time to get to work on interesting policy issues. I had grown up loving the outdoors as a child in Wisconsin, so the easy access to nature made Alaska the perfect place for me.

“It seemed like [my friends in Juneau] were having more fun than I was, so I decided to go for it and move to Alaska.”

You’ve had an impressive and extensive political career in Alaska.

You were mayor of Juneau, a state-representative, and the first women elected to state-wide office in Alaska when you served as Lt. Governor.

What inspired you to originally run for office?

I had become familiar with the issues Alaskans cared about when working for Former Governor Jay Hammond, serving as his director of policy development and planning on issues like housing and economic development. When I took some time-off to care for my kids, I wanted to stay involved in the community, so I volunteered with the Juneau planning and zoning commission. In that role I helped re-write Juneau’s comprehensive plan. A process that involved dozens of community meetings with stakeholders, where I learned what issues mattered to Juneau constituents. When the next mayoral election came around, I didn’t think any of the candidates who were running were talking about the issues people cared about, so I decided to run for office. It wasn’t planned, it just happened, it was the right time.

I know you've spent some time at HKS meeting with students who are interested in public service, what advice do you give to Kennedy School students who are thinking about running for office?

There are two recommendations I have. First, get a lot of life experience that will be relevant to the office you are running for, so you are grounded in the issues. If you build up from the bottom, as opposed to trying to go straight for a top position, you'll actually know enough to be successful. If you do that, it makes the second bit of advice easy to follow, which is build your network of family and friends who will support you when you run for office. While it may not feel this way, young people have time to work to build a strong foundation first, which in the long-run will be invaluable to their career in public service.

"I often find myself deep in the intersection between science, policy and natural law."

You've made a transition from politics to a focus on the environment, how and why did you make that transition?

The environment has actually been a thread throughout my entire career. When I worked for Governor Hammond I was responsible for the Alaska Coastal Management program. I worked on fisheries management when I was Lt. Governor. Going way back to one of my first jobs before moving to Alaska, I worked for Wisconsin attorney general's office on pollution control policy. So, it has always been part of my career. I often find myself deep in the intersection between science, policy and natural law.

As chair of the U.S. Arctic Research Commission what do you see as the near-term opportunities for progress on some of the challenges facing the Arctic?

The rate of change in the Arctic is hard to get your head around. It's hard to keep track of all the shifts occurring from ice retreat, to a warming climate, to thawing permafrost, not to mention the rapidly changing geopolitical and economic dynamics. However, despite the rapidly changing conditions, I continue to be impressed with the extraordinary degree of collaboration that continues to happen in the region, particularly on science and research. No one country, university or research institute can get their hands around the size of the problem and changes that need to be tracked. This means there is necessary and impressive international collaboration. There is a growing interest in the Arctic and Arctic issues globally, so I am hopeful that will lead to greater investment in these kinds of successful research efforts.

Tell us why you've joined the HKS Arctic Initiative as a Senior Fellow?

I am interested in understanding the changes that are happening in the Arctic, how politics and the private sector are shifting in the region, and how we can create policy that will empower the people of the Arctic to make decisions about their future. As the Arctic becomes a place that attracts more global attention, there is a risk that people from outside of the region will have an outsized voice because of their ability to invest. Their interests may not align with what's best for the region, so I want to make sure local interests are heard, and positive collaborations continue.

What will you be focusing your research on in the coming year?

I just recently released a joint paper with our partners at the Wilson Center, co-written with former Ambassador David Balton, where we look at what policy mechanisms in the Arctic we may be able to leverage to continue to encourage positive collaboration in the region. Next year, we are planning to have some follow up conversations to further that discussion.

Next year I am also excited for our new project which is focused on developing policy recommendations to help combat the plastic pollution in the Arctic Ocean.

Anything in particular you are excited about that is happening in the Arctic at the moment?

One of the great examples of breakthrough science that is happening in the region is the MOSAIC (Multidisciplinary drifting Observatory for the Study of Arctic Climate) project. It will be the first year-round expedition into the central Arctic exploring the Arctic climate system. An icebreaker will spend a year drifting through the Arctic Ocean trapped in ice. A total of 600 people from 17 countries, who will be supplied by other icebreakers and aircraft, will participate in the expedition. No one country could have afforded this effort alone. Until now this research hasn't been done, and needed to be done, and it is only possible because of the continued remarkable international scientific cooperation that continues in this region.

From Massachusetts to Beijing, the Arctic Initiative team lecture on emerging Arctic issues

The Arctic Initiative team is passionate about spreading the word, educating students, and building dialog around Arctic issues. This year our team has traveled the US and the globe sharing the work of the Arctic Initiative, empowering students to become informed leaders, and fostering important conversations about the opportunities and challenges facing the Arctic region.

In February, Arctic Initiative co-founder and director, **Halla Brund Logadóttir** represented the Arctic Initiative as a moderator at a session on human security in the Arctic at The Fletcher School of Law and Diplomacy. Experts discussed the complex set of human security vulnerabilities that Arctic inhabitants face because of a changing climate and growing industrialization. The session explored questions such as; How can developments and challenges facing the Arctic population be assessed from a human security perspective? How is economic security measured against community security and the preservation of traditional values and livelihoods? What role does power play with respect to the understanding of security in the local Arctic context? How can industry and policy makers incorporate a bottom up human security lens into their Arctic activities?

In March, Arctic Initiative co-Founder, Professor **John P. Holdren** traveled to Center for Global Sustainability at the University of Maryland in College Park, Maryland, to speak about the work of the Arctic Initiative, and share current knowledge of climate change trends, and how those would impact the Arctic, and in-turn the globe. He also led a session at Woods Hole Oceanographic Institution on how climate changing in the Arctic is affecting the weather patterns in New England.

In April, Logadóttir shared her expertise through a workshop at Williams College, focused on sharing emerging policy issues in the Arctic, and the global geopolitical implications of



developments in the region. Speaking with students, Logadóttir gave an inspiring vision for what cooperation and innovation in the Arctic may look like in the future, as a warming climate rapidly changes the dynamics in the region.

Also in April, Senior Research Fellow **Joel Clement** presented at the Arctic Encounter Symposium, the largest annual Arctic policy event in the United States, on his work related to Arctic resilience. Fostering a dialog about what kind of future the region needs to prepare for as the climate changes.

In May, in partnership with The Icelandic American Chamber of Commerce, the Embassy of Iceland in Washington D.C., the Arctic Economic Council, and the Wilson Center's Polar Institute, the Arctic Initiative presented a conference in DC on the topic of economic trends in the Arctic region to kick-off Iceland's Arctic Council's chairmanship. Sessions covered topics such as; economic drivers in the Arctic, investing in the Arctic, and establishing an investment protocol. The event brought together a mix of people from policy, science, and industry for a discussion about the rapidly changing region, and the risks and opportunities that come with these shifts from a business perspective.

In June, Professor Holdren, hosted by Dean of Schwartzman Scholars **Xue Lan** at Tsinghua University in Beijing, spoke about *Rapid Climate Change in the Arctic: Why Everybody Should Care*. In this lecture, Dr. Holdren first summarized the latest science relating to climate change in the Arctic and its impacts in the region and worldwide. Then, he discussed the efforts that are underway to improve our detailed understanding of what is happening and to address the array of challenges that result. He concluded by discussing what further actions from the global community are required.



Arctic Security in Iceland

The Arctic Initiative and the Elbe Group at Harvard Kennedy School's Belfer Center co-hosted a special meeting on Arctic security issues in Iceland, in partnership with Reykjavik Peace Center and the University of Iceland.

The meeting was held in the famous Höfði residence where Reagan and Gorbachev met in 1986, was focused on creating an open and continuous dialog between the US, Iceland and Russia on security challenges in the Arctic region.

Participants from Iceland included the Mayor of Reykjavík, parliamentarians, the Icelandic Coast Guard and scholars from the field. The meeting also included discussions with Iceland's Minister for Foreign Affairs, Mr. Guðlaugur Þór Þórðarsson, in relation to Iceland's forthcoming chairmanship of the Arctic Council. The sessions sought to answer important questions such as; What are the key security threats in the Arctic region? What are the impacts of challenging US-Russia relations for Arctic collaboration and stability? What are Iceland's risks and roles in supporting a peaceful Arctic future?

As Iceland prioritizes continuity and a smooth transition to Russia in its chairmanship of the Arctic Council, the Arctic Initiative is partnering to build connections that can contribute to that goal and the maintenance of peaceful cooperation in the Arctic.



Building Cooperation Across the Arctic

On March 18, the Arctic Initiative participated in a joint conference and workshops co-hosted by MGIMO University in Russia and the Fletcher School of Law and Diplomacy in the US.

Co-Founder and Co-Director of the Arctic Initiative at Harvard Kennedy School Halla Hrunn Logadóttir and Professor and Senior Research Fellow at The Fletcher School Barbara Kates-Garnick convened and presented on the energy-climate perspective.

The head of the International Institute of Energy Policy and Diplomacy at MGIMO University Valery Salygin noted that today the Arctic can be called a model of international cooperation, drawing attention to the crucial importance of international research on the problems of effective development of the Arctic.

Special attention was paid to the discussion of issues of ecology, climate change, ecosystem change, as well as international legal problems of the development of Arctic resources.

In addition to the conference the Arctic Initiative met with Russia's Senior Arctic Official and diplomats from the Nordic countries, hosted by Iceland's Ambassador Berglind Ásgeirsdóttir, to develop collaboration for upcoming research and convenings.



Arctic Initiative at the Arctic Circle Assembly

The Arctic Initiative was well represented at the Arctic Circle Assembly this year. With five different sessions complementing our annual involvement with the Arctic Innovation Lab, the Arctic Initiative was able to share our expertise on a variety of important issues.

Professor John B. Holdren presented a session on Putting the Changing Arctic in Context and Predicting Future Trends. Halla Hrunn Logadóttir moderated a session on investing in the Arctic. Joel Clement presented his work on the Arctic Resilience Action Framework. Christine Russel and Arctic Initiative advisor, Alice Rogoff, presented a session on how to get media coverage of the Arctic "right" by focusing on the humans in the region, not just the polar bears.

Partnering with the World Economic Forum (WEF), Halla Hrunn Logadóttir, also presented The Arctic Transformation Map which she has co-curated, in a session entitled Putting the Changing Arctic in Context and Predicting Future Trends". This interactive mapping tool allows users to visualize and understand topics of Arctic importance and the connections and inter-dependencies between them and the rest of the globe. The panel featured insights from H.E. Ólafur Ragnar Grímsson, Chairman Arctic Circle, Tero Vauraste, CEO of Arctia Group and

Continued on page 12 »

(Continued from page 11)

Chair of the Arctic Economic Council, John Holdren, Co-Director of the Arctic Initiative, Alice Rogoff, Founder of Arctic Today, Yang Huigen, Director-General of the Polar Research Institute of China, Silje Karine Muuotka, Member of Norway's Sami parliament, Scott Miner, Chief Investment Officer, Guggenheim Partners, Kenneth Høegh, Deputy Minister for Foreign Affairs, Greenland, John Letzing, of the World Economic Forum and Sergey Vladimirovich Krivovichev, Chairman, Kola Science Centre.

With a team of Arctic Innovator students in tow, absorbing all of the fascinating content the Assembly has to offer, this year's trip to the Assembly was a resounding success.



Climate Justice

The Honorable Mary Robinson, former UN High Commissioner for Human Rights and former President of Ireland, discussed issues of justice arising from climate change with Professor John Holdren, in the Harvard Kennedy School Forum this Spring.

During the conversation Robinson spoke about the dangers facing the most vulnerable globally because of a changing climate. She shared antidotes about her time working in Africa, and the ways climate change was undermining basic human rights, like the right to food, water and shelter. Speaking about the human dimensions of climate change, she shared the unique burden women bear, and noted the ways that traditionally they have been missing from the climate change conversation. She also shared how she has been working to bring women into the discussion through her work at the Mary Robinson Foundation for Climate Justice.

The conversation concluded with a hopeful note about global ways to begin to tackle this challenge in a way that protects future generations.



What can geo-engineering do for the Arctic?

Arctic Innovators gathered for an exciting end of the semester session with David Keith, Professor of Applied Physics in the School of Engineering and Applied Sciences and Professor of Public Policy in the Harvard Kennedy School, who is a leading researcher on solar geo-engineering. The event was livestreamed so past graduates of the Arctic Innovators program could join virtually to reconnect to the fascinating lecture.

Professor Keith shared with students his work on the science and public policy of solar geo-engineering. He discussed the latest research on solar geoengineering technologies, provided an analysis of environmental risks, and gave a broad description of the kinds of assessments and governance that would be necessary if geo-engineering were to be deployed.



Can Women Tip the Balance for Climate Action? An Arctic Case Study

The Arctic is changing. It is warming twice as fast as the rest of the globe, leading to environmental, social, and economic shifts throughout the region. The Arctic is growing in global prominence, due in large part to the melting of sea ice which has attracted global players to new economic opportunities in the region. Managing these new global demands with environmental needs, and the needs of the four million human residents of the land north of the Arctic circle, many of them Indigenous peoples, poses an adaptive leadership challenge.

Understanding how to navigate and lead in a time of so much change requires a deep understanding of local needs, knowledge of environmental risks, and a keen sense of global trends. Convened by Halla Hrund Logadóttir, Fran Ulmer, Chair of the Arctic Research Commission, and Elizabeth Arnold, a journalist who has covered the Arctic throughout her career, discussed with students how they have navigated these newly ice-free waters.

They talked about their personal journeys as leaders, and the ways in which they have survived and thrived as they have forged new paths for progress on Arctic issues. Discussion covered topics such as the ways in which climate change uniquely negatively impacts women, the impressive legacy of resiliency the Arctic, and how women can step into a leadership in the climate movement.



Precaution in Action: The New Arctic Fisheries Agreement

In November, the Arctic Initiative hosted a talk with Amb. David A. Balton, Former Deputy Assistant Secretary for Oceans and Fisheries about protecting Arctic fisheries.

The Central Arctic Ocean has essentially been ice-covered year-round since the dawn of human history—until now. As a result of climate change, a growing portion of the Arctic Ocean is ice-free for an increasing part of the year, making it possible to contemplate the advent of high seas fisheries in the region. But on October 3, 2018, nine nations and the European Union signed an unusual international agreement that will effectively postpone the start of such fisheries and will instead launch a joint program of scientific research for the Arctic.

Ambassador Balton, who chaired the negotiations that produced this agreement, shared his insights about this unique victory in international collaboration on fisheries. Balton described the geopolitical forces that made the agreement possible, outlined the agreement's basic elements, and considered the place of the agreement in the growing architecture for governing the Arctic Ocean.

Attending faculty, fellow and students had the opportunity for dialog with former Amb. Balton, and asked him how he feels shifting fish-stocks due to climate change will complicate the process of creating a management system to govern this region of ocean when the moratorium on fishing ends. Students also talked about what lessons one could gain from this monumental policy achievement, that may provide guidance for future efforts.

Expanding a Publishing Collaboration with *Arctic Today*

For the second year in a row the Arctic Initiative has worked in partnership with *Arctic Today* to help expand the dialog around Arctic issues. *Arctic Today* editor **Krestia DeGeorge** helped coach the Harvard Arctic Innovator students on writing op-eds. Innovators then had their op-eds published on Arctic Today, sharing on a broad platform their new solutions to tackle challenges in the region.

As part of this ongoing collaboration, **Alice Rogoff**, a longtime informal advisor to the Arctic Initiative, who is an Alaska resident, the Publisher and Editorial Director of *Arctic Today* and the former Publisher and owner of *Alaska Dispatch News*, joined as a formal advisor to our project.

Ms. Rogoff, together with former Iceland President Ólafur Ragnar Grímsson, is co-founder of the Arctic Circle organization, the largest international gathering on Arctic issues. Rogoff also worked in media as CFO of *U.S. News and World Report* for over a decade and earlier at *The Washington Post*.



As an advisor, Ms. Rogoff will continue to provide a critical eye as to where the Arctic Initiative is best positioned to have an impact in the Arctic region. She will continue to help us develop collaboration between the Arctic Initiative and *Arctic Today*. She will also further advise us in ways to expand our message and broaden the dialog around Arctic issues to create an empowering new narrative around opportunities for progress in the region.



↑ *Arctic Today* Publisher and Editorial Director **Alice Rogoff**

Partnering with the Icelandic Chairmanship of the Arctic Council



The Arctic Initiative is focused on lending our policy expertise to important issues facing the Arctic region. The Arctic Council, the intergovernmental forum which promotes cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic Indigenous communities and other Arctic inhabitants, is instrumental in driving forward collaboration on sustainable development and environmental protection in the Arctic.

In January of 2019, The Arctic Initiative and Iceland's Ministry for Foreign Affairs signed an agreement to promote collaboration between the two groups as Iceland begins its chairmanship of the Arctic Council. The agreement will enhance practical research related to policymaking in the Arctic Council. It also will allow for greater collaboration on education and dialogue about Arctic issues.

Together we will help advance Icelandic Arctic Council Chairmanship priorities including protecting the Arctic marine environment, climate and green energy solutions, supporting the people and communities of the Arctic, and a building a stronger Arctic Council.

Our first project together will focus on developing policy recommendations to tackle the growing challenge of plastic pollution in the Arctic Ocean (see below for more details on that exciting collaboration).

Wilson Center's Polar Institute Partnership



This Fall, Arctic Initiative formed a formal partnership with Woodrow Wilson Center's Polar Program which is headed by **Mike Sfraga**, former Vice Chancellor for Research at the University of Alaska, Fairbanks, and is the current home of Ambassador **David Balton**, former the State Department's top Arctic diplomat.

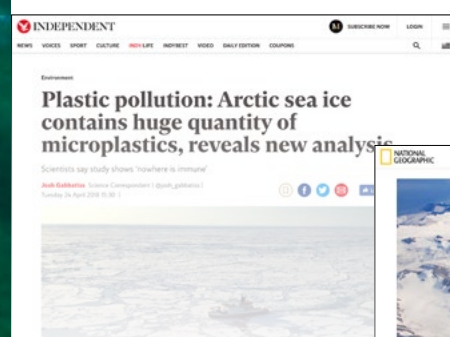
The two groups share common goals of advancing effective policy in the Arctic region, and fostering conversations about Arctic issues with a broad audience. To begin our work together we have decided to collaborate on three major projects; addressing marine plastic pollution in the Arctic ocean, advancing the strategic planning process of the Arctic Council, and strengthening the governance of policy and science in the Arctic. All three of those efforts have gained great momentum this Spring, and have positioned us well for some exciting publications and convenings together in the year ahead.

Collaborating to Combat Plastic Pollution

The Icelandic Ministry of Foreign Affairs and the Woodrow Wilson Center's Polar Institute, are partnering with the Arctic Initiative to improve understanding and integration of policy responses for plastic pollution, fisheries management, and marine conservation in the Arctic Ocean.

Iceland has chosen to highlight the issue of plastic debris in the Arctic Ocean as one of the focus areas during its Chairmanship of the Arctic Council from 2019-2021. This coming Fall, in support of that initiative, Harvard Kennedy School and the Woodrow Wilson Center will in collaboration with the Government of Iceland co-host a workshop, Policy and Action on Plastic in the Arctic Ocean, gathering global thought leaders, diverse stakeholders, and subject matter experts. The goal is to identify key questions that need to be addressed in order to effectively implement solutions to the serious plastic pollution problem that is already affecting the Arctic region.

This workshop will help to launch the Icelandic initiative to address Arctic marine plastic pollution, featuring leading scientific researchers whose findings will guide our efforts. In this way, the workshop will serve as a precursor to – and provide input to – the Symposium on Plastics in the Arctic and Sub-Arctic Region, which will take place in April 2020, organized by the Government of Iceland and the Nordic Council of Ministers in cooperation with a number of international organizations addressing plastics in the marine environment, including the Arctic Initiative who serves on the symposium's scientific steering committee.



ENVIRONMENT | PLANET OR PLASTIC?

Tiny pieces of plastic found in Arctic snow

The discovery suggests that microplastics are being carried around the planet in atmospheric winds, and that we're breathing them in.

BY EMERYL KATE

PUBLISHED: 10:00 AM, 26 APRIL

Microplastics: those persistent bits of smaller than, have invaded everything



Policy for a Resilient Arctic

Arctic Initiative explores how the changing climate impacts Arctic infrastructure and the people who rely on it.

One of the primary frames for the work of the Arctic Initiative is the concept of *resilience*—a term for the ability of social-ecological systems to adapt, bounce back, and even thrive through shocks or stresses. The Initiative is working to develop research, resources, and a consortium of partners with the goal of helping northern communities, ecosystems, and economies persist and thrive through the changes taking place in the Arctic.

Climate Change will have dramatic effects on public infrastructure in the Arctic. As coastal sea ice melts earlier and earlier, coastal villages are subject to higher risks of flooding and erosion. Permafrost melt is endangering roads, bridges, water systems, pipelines and people. This summer Arctic Initiative Senior Fellow **Joel Clement**, attended the first Arctic Indigenous Climate Summit, in Ft. Yukon, AK, to hear from indigenous representatives about the challenges they were facing and changes they were seeing in their communities. Speakers described an Arctic that is transforming.

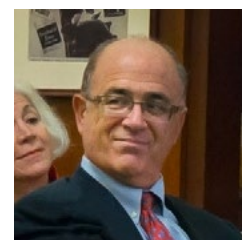


Melting ice is spurring new economic interest in the region as opportunities for mining and tourism—which were previously inaccessible—now become more viable. These new facilities will require investment in ports, and new transportation and energy systems, which could indelibly alter parts of this remote region. The question remains, who will benefit from this potential economic growth?

The Arctic Initiative has started a preliminary assessment of the impact of climate on public infrastructure in Alaska with the intention of moving on to Finland and Russia at a later date. This work conducted by a team consisting of Clement, **Essi Haffer**, and Arctic Initiative Co-Director **Henry Lee** with the advice and assistance of Fran Ulmer, has collected data on the state of infrastructure in many Alaskan villages and plans to have a preliminary report by the end of the calendar year.

This work is part of the Initiatives' focus on resilience efforts described by the Arctic Council's Arctic Resilience Action Framework—the world's first regional resilience framework: Science and information, adaptive capacity, policy and governance, and infrastructure investments.

In the coming year, the Initiative will focus on governance and policy related to indigenous resilience issues, such as food security, indigenous knowledge, and leadership. In examining both the human and economic implications of the rapid changes in the region, the Arctic Initiative strives to develop policies that will allow the people of the North to both survive and thrive.



Above:
Arctic Initiative Co-Director
Henry Lee.

Left:
Traditional Chief **Steve Dennis** speaking about the climate crisis at the Arctic Indigenous Climate Summit 2019 in Ft. Yukon, Alaska.

(Photo courtesy Joel Clement)

Creating a more Resilient Arctic

The Arctic Initiative joins the first Arctic Resilience Forum

The Arctic Council's first Arctic Resilience Forum took place September 2018 in Rovaniemi, Finland to showcase resilience actions in the region and examine opportunities for cooperation. The Forum gathered over 100 Arctic experts, policymakers, and key stakeholders. The purpose of the event was to strengthen cooperation on work related to resilience in the face of climate change and to present and discuss resilience best-practices from Arctic Council Working Groups' and other stakeholder's projects.

Resilience is a cross-cutting topic that has become increasingly important to the Arctic Council in the face of rapid changes. The Arctic Resilience Action Framework (ARAF) was approved by the eight foreign ministers at the 10th Ministerial meeting in Fairbanks, Alaska in May of 2017. It provides the Arctic Council with a common set of Guiding Principles, Priorities for Action, and a platform to share, examine, and fund new priorities as they evolve.

Joel Clement, Arctic Initiative Senior Fellow, participated in the conference and spoke as an expert on panels related to expanding the use of innovative financial mechanisms for improving resilience and building collaborative bridges to enable resilience action.

Joel led the development of the Arctic Resilience Action Framework during his time as a federal executive.

In the coming year, the Arctic Initiative looks forward to collaborating with the Arctic Council working groups to advance implementation of the ARAF.

By examining resilience actions and policies in the region, the Arctic Initiative will provide assessments to Arctic Council partners and other collaborators and recommend opportunities for next steps.



Photos:
Joel Clement being recognized as an Environmental Champion for his work as a federal executive, including his involvement in the development of the Arctic Resilience Action Framework.



The Case for an Arctic Circle Strategic Plan

Arctic Initiative and Polar Institute partner on a joint report advocate for a strategic plan for the Arctic Council

The Woodrow Wilson Center's Polar Institute and the Arctic Initiative at Harvard Kennedy School's Belfer Center for Science and International Affairs released in June a joint document entitled, *A Strategic Plan for the Arctic Council: Recommendations for Moving Forward*.

"This report provides a unique window into the ever-evolving role of the Arctic Council during a time when the Council is at inflexion point," said Mike Sfraga, Director of the Polar Institute at the Wilson Center. "Balton and Ulmer layout practical and actionable recommendations that I am confident will positively inform the Council's work going forward and by doing so, also provide to the reader a more clear picture of our new, global Arctic."

The publication provides background on the Arctic Council's accomplishments and its challenges as it matures. Changing conditions require ever-evolving strategies to be effective. The paper explores several ideas to address those challenges and recommends specific steps that the Council should take in the near term. It is the intent of the authors to further inform the Arctic Council's effort and structure at a time of dynamic change.



Read the full report at
belfercenter.org/ArcticStrategicPlan

Arctic Initiative Team Receives Global Accolades

Three members of the Arctic Initiative Team received accolades this year for their work in the Arctic.

Arctic Initiative Co-Founder **Halla Hrunð Logadóttir** was selected as a Young Global Leader by The World Economic Forum.

Arctic Initiative Senior-Fellow **Joel Clement** was Environmental Champion award at the State Environmental Leaders conference.

Finally, The Government of Japan awarded its prestigious Order of the Rising Sun, Gold and Silver Star to **John P. Holdren**, Co-Director of the Belfer Center's Science, Technology, and Public Policy Program and former Assistant to the President for Science and Technology during the Obama administration, and Co-Founder of the Arctic Initiative.

The Embassy of Japan released the following summary of John Holdren's contributions:

"As President Obama's Science Advisor and director of the White House Office of Science and Technology Policy, Dr. Holdren facilitated cooperation between Japan and the United States of America. He co-chaired the 11th to the 13th Joint High Level Committee Meeting on Science and Technology Cooperation between the Government of Japan and the Government of the United States of America.

He has also enhanced cooperation between Japan and the U.S. in science and technology by actively exchanging views and opinions with Japanese experts.

Dr. Holdren worked closely with Japanese experts under the direction of President Obama to gather information on the status of the Fukushima Daiichi Nuclear Power Plant shortly after since the Fukushima Daiichi Nuclear Power Plant Accident occurred in March, 2011 and strengthened the relationship between Japan and the United States of America through his consistent expression of support for Japan."

The Order of the Rising Sun, established by Emperor Meiji in 1875, was the first national decoration awarded by the Japanese Government.



Above:
The Order of the Rising Sun, Gold and Silver Star, awarded to Dr. John P. Holdren.

The Orders of the Rising Sun, established in 1875, was Japan's first national award. It features rays of sunlight radiating from the rising sun. The attachments are shaped into paulownia flowers and leaves.

CO-DIRECTORS



John P. Holdren

John P. Holdren is the Teresa and John Heinz Professor of Environmental Policy at the Harvard Kennedy School; Co-director of the Science, Technology, and Public Policy Program at the Belfer Center; Professor of Environmental Science and Policy in Harvard's Department of Earth and Planetary Sciences and Affiliated Professor in the Harvard's Paulson School of Engineering and Applied Science; and Senior Advisor to the Director at the independent, nonprofit Woods Hole 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 January 2009 to January 2017, he was President Obama's Science Advisor and the Senate-confirmed Director of the White House Office of Science and Technology Policy (OSTP).



Henry Lee

Henry Lee is the Jassim M. Jaidah Family Director of the Environment and Natural Resources Program at the Belfer Center, Faculty Co-Chair of the Sustainability Science Program, and a Senior Lecturer in Public Policy. He also serves on the Advisory Board of the Harvard Kennedy School's Kuwait Program. Before joining the school, Mr. 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.



Halla Hrund Logadóttir

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

FELLOWS AND STAFF



Cristine Russell

Cristine Russell is an Adjunct Lecturer in Public Policy and Senior Fellow at the 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.



Joel Clement

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 economists, 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.



Fran Ulmer

Fran Ulmer is a Non-Resident Senior Fellow at the Arctic Initiative. She is chair of the U.S. Arctic Research Commission, where she has served since being appointed by President Obama in March 2011. In June 2010, President Obama appointed her to the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. From 2007 to 2011, Ms. 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 a member of the Global Board of the Nature Conservancy and on the Board of the National Parks Conservation Association. Ms. Ulmer served as an elected official for 18 years as the mayor of Juneau, a state representative, and as Lieutenant Governor of Alaska.

FELLOWS AND STAFF



Amanda Sardonis

Amanda Sardonis is the Associate Director of the 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. Amanda 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 a Master of Liberal Arts (ALM) in Sustainability and Environmental Management from Harvard University and a BA in English from Mount Holyoke College.



Karin Vander Schaaf

Karin Vander Schaaf is the administrative coordinator of the Science, Technology, and Public Policy Program (STPP) and provides faculty assistance to Professors Venkatesh Narayanamurti, John Holdren, Jim Waldo, Afreen Siddiqi, Bruce Schneier and Arctic Initiative Co-Director Halla Logadottir. Her administrative responsibilities include financial management and budget oversight, logistics planning for conferences, seminars, and workshops, and working with the STPP and Environment and Natural Resources Program fellows on HKS administrative matters. Karin is passionate about the environment and is a member of the HKS Green Team. She also serves on the HKS Joint Council.

HKS STUDENT LEADERS



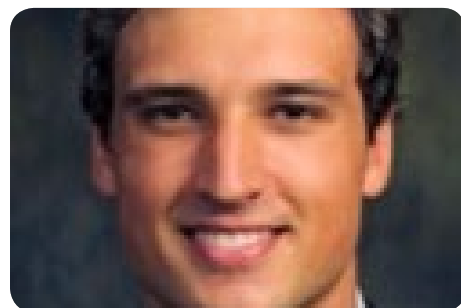
Mehek Sethi

Mehek Sethi is research assistant and student organizer at the Arctic Initiative. She is a Master's in Public Policy student concentrating in International Affairs and International Trade. Mehek is a U.S. State Department Fellow; she previously served in the Economic Bureau in Washington D.C. and at the U.S. Embassy in Buenos Aires. She was part of the Arctic Innovators Cohort of 2017 who participated in the Arctic Circle Conference in Reykjavik.



Martina Müller

Martina Müller is a Brazilian-German environmental policymaker. For the past two and a half years, she worked as International and Technical Advisor to the Secretary for Environment of the State of São Paulo, Brazil. Previously, Ms. Müller was a consultant at the United Nations Secretariat in New York, supporting civil society in high-level negotiations on sustainable development. Ms. Müller holds a Law Degree from University of São Paulo; having founded the school's environmental law clinic. Currently, she is a Master in Public Policy student and a Louis Bacon Environmental Leadership Fellow.



Lucien Charland

Lucien Charland is a Master's in Public Policy candidate at the Harvard Kennedy School of Government. At HKS, Charland serves as a student government representative and as a research assistant at Harvard Belfer Center's Arctic Initiative. This summer Charland worked as a consultant for the U.S. National Park Service Business Management Group. Before coming to the Kennedy School, Charland launched a sustainable agriculture company on the Caribbean island of St. Kitts. His goal there was to reimagine farming in small island developing states in order to address food security, unemployment, and climate change risk. Previously, Charland interned in the political and executive offices of the US Embassy in Madrid and helped draft the 2014 Trafficking in Persons report. Charland is originally from the Chicago area and has dual Bachelor's degrees in Economics and International Relations from the University of Central Florida.

HKS STUDENT LEADERS



Brittany Janis

Brittany Janis is a research assistant for the Arctic Initiative. She is pursuing her MPA at the Harvard Kennedy School of Government and is focused on environmental policy. Before coming to HKS, she spent her career working in strategic fund development and nonprofit management for a range of nonprofit organizations from New York to San Francisco. Most recently she served as a Major Gift Officer at Environmental Defense Fund (EDF). She's a former President of the Association of Fundraising Professionals Golden Gate Chapter. She is a Certified Fundraising Executive (CFRE) and holds a MA in Philanthropy and Development from St. Mary's University of Minnesota. She received her BA in History, Political Science and Theatre from Case Western Reserve University.



Patrick Lynch

Patrick Lynch is an attorney, nonprofit manager and social impact producer with an MPA from Harvard Kennedy School. Prior to Harvard he spent the last decade working with nonprofits and coalitions to effect social change in the U.S. and Latin America. In 2019 he co-produced his first documentary, Rio Sagrado, following an expedition organized with colleagues in Chile and backed by National Geographic. At Harvard, Patrick was a Louis Bacon Environmental Leadership Fellow and Arctic Innovator. At the Belfer Center he works with faculty and staff to develop online content and raise the visibility of the Arctic Initiative.



Colleen Narlock

Colleen Narlock will be entering her final year of a Master in Public Policy at the Harvard Kennedy School of Government and is very interested in how environmental policies impact human health. This summer she is working for the Alameda County, CA, Office of Sustainability, where she is helping to develop policies for resilience to wildfire smoke and other climate change induced public health concerns. Prior to graduate school, Colleen worked for the non-profit Hacienda of Hope in Ecuador, creating individualized academic plans for students with a history of abuse or neglect. She grew up in Sydney, Australia and Marin County, CA, and earned her Bachelor of Science in human biology and society with a concentration in medicine and public health at UCLA.



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