

NCSE 2020 ANNUAL CONFERENCE

Science in Environmental Decision-Making

January 6-9, 2020
Washington, D.C.



National Council for
Science and the Environment

www.NCSEGlobal.org

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The National Council for Science and the Environment would like to thank the following partners for their support and collaboration leading up to the NCSE 2020 Annual Conference and in execution of the NCSE mission.



Table of Contents

The Value of NCSE: Welcome and Perspectives From Our Board of Directors	4
Schedule at a Glance	5
Conference Highlights	6-7
About NCSE.	8
Commitment to Sustainability	9
Celebrating 30 Years in Service to Science and the Environment	10-11
NCSE Programs	12-13
NCSE Membership	14-15
Venue Map.	16
Conference Agenda.	17-23
Conference Agenda by Theme.	24
Session Details	25-70
Tuesday, January 7	25-38
Wednesday, January 8	39-57
Thursday, January 9	58-70
Poster Titles and Authors	71-72
Collaborators and Stakeholders	73-76
Conference Collaborators	73
NCSE Board of Directors	74-75
NCSE Staff and Volunteers	76
2019 Photo Contest Winner.	77

The Value of NCSE: Welcome and Perspectives From Our Board of Directors

Welcome to the NCSE 2020 Annual Conference. The National Council for Science and the Environment (NCSE) marks its 30th year as an organization in 2020. To recognize this landmark year, the NCSE Board of Directors reflected on the role and value of the NCSE mission in service to society and the environment.

“Science serves the public good and can lead society toward solutions.”
—Michelle Wyman

“Cultivating a dynamic relationship between science, policy, and society is essential for responding to our most pressing environmental challenges. We need to maximize the chances that science is useful and used.”
—Angela Bednarek, Ph.D.

“The increase in extreme weather and climate events is raising awareness of global environmental changes and their links to human activities. The ecological challenge is intrinsically an ethical domain which requires the support and mobilization of scientists working in several fields.”
—Minh-Hà Pham, Ph.D.

“One of the most important ways science serves society is by informing the development, implementation, and evaluation of policy. NCSE has helped to focus and improve these efforts for 30 years.”
—Valerie Luzadis, Ph.D.

“Science is our compass when creating sound environmental policies. Those policies will point us in the right direction to protect people and the amazing world we live in.”
—Supervisor Shirlee Zane

“The root word of science is to know: NCSE ensures science is at the core of policymaking.”
—Tom Lovejoy, Ph.D.

“For 30 years, NCSE has provided a forum to foster use of the most innovative and reliable science into policymaking for environmental problems. It has also connected the deans and directors of academic programs in the environmental sciences to encourage innovation and improvement of curricula in environmental sciences and policy for the nation’s universities.”
—Margaret Leinen, Ph.D.

“In a world full undergoing rapid change, science provides an anchor, a rudder, and a sail. An anchor to hold us fast to evidence despite the storms, a rudder to set the course, and a sail to carry us forward to a sustainable future for us all. Many thanks to the thousands of scientists who served on the crew of this extraordinary NCSE voyage of the last 30 years. Sail on!”
—Tom Richard, Ph.D.

“Our freedom as Americans in a functioning democracy relies on science-based decisions in boardrooms, legislatures, academic centers, and nonprofit organizations. NCSE plays a vital role in connecting these institutions by advancing the scientific basis for environmental decisions.”
—Rohan Patel

SCHEDULE AT A GLANCE

MONDAY, JANUARY 6, 2020

8:00–9:00 a.m.	Breakfast for NCSE Winter Member Meeting
9:00 a.m.–5:30 p.m.	NCSE 2020 Winter Member Meeting and Academic-Federal Dialogue
5:30–6:30 p.m.	Reception for NCSE Member Institutions

TUESDAY, JANUARY 7, 2020

7:30 a.m.–7:00 p.m.	Registration Open
7:30–8:30 a.m.	Networking Breakfast
8:30–9:00 a.m.	Welcome and Keynote: Science Forward: The Science Push and the Policy Pull
9:00–10:00 a.m.	Plenary: NCSE Retrospective and Look Ahead
10:00–10:30 a.m.	Networking Coffee Break and Poster Viewing
10:30 a.m.–12:00 p.m.	Concurrent Sessions Group A
12:00–1:30 p.m.	2020 NCSE Lifetime Achievement Award on Science, Service, and Leadership Lunch Served
1:45–3:15 p.m.	Concurrent Sessions Group B
3:15–4:15 p.m.	Poster Presentations and Facilitated Networking Break
4:30–5:30 p.m.	Armchair Keynote: Navigating New Norms at the Science-Policy Interface
5:30–7:00 p.m.	NCSE 30th Anniversary Celebration Reception Light hors d'oeuvres

WEDNESDAY, JANUARY 8, 2020

7:30 a.m.–5:30 p.m.	Registration Open
7:30–8:30 a.m.	Networking Breakfast
7:30–8:20 a.m.	Early Bird Sessions
8:30–9:15 a.m.	Keynote: In Pursuit of a Common Goal: Diversity in STEM
9:15–10:00 a.m.	Plenary: Diverse Voices on Climate Resilience
10:00–10:30 a.m.	Networking Coffee Break and Poster Viewing
10:30 a.m.–12:00 p.m.	Concurrent Sessions Group C
12:00–1:30 p.m.	Keynote Introduction: A Snapshot From the State Department on Science Diplomacy Today Plenary: 21st Century Science-Policy Passport: The International Perspective Lunch Served
1:30–2:15 p.m.	Poster Presentations and Networking Coffee Break
2:15–3:45 p.m.	Concurrent Sessions Group D
4:00–5:30 p.m.	John H. Chafee Memorial Lecture on Science, Policy, and the Environment

THURSDAY, JANUARY 9, 2020

7:30 a.m.–4:00 p.m.	Registration Open
7:30–8:30 a.m.	Networking Breakfast
7:30–8:20 a.m.	Breakfast Book Talk
8:30–8:45 a.m.	Keynote Introduction: Fires and Floods: Reflections From the Frontlines of Climate Impacts in Northern California
8:45–10:00 a.m.	Action Plenary: Integrating Academic Science in Long-Term Disaster Recovery and Resilience
10:00–10:30 a.m.	Networking Coffee Break and Poster Viewing
10:30 a.m.–12:00 p.m.	Concurrent Sessions Group E
12:00–1:30 p.m.	Armchair Keynote: Sustainability and a Bold Path to a Clean Energy Economy Lunch Served
1:30–2:00 p.m.	Introduction to Workshops
2:00–3:30 p.m.	Workshops
3:30–4:00 p.m.	Workshop Reflections and Conference Closing

CONFERENCE HIGHLIGHTS

REGISTRATION DESK

The registration desk is located in the West Registration area of the Omni Shoreham Hotel and will also serve as the **Information Desk** to help answer any of your questions during the Annual Conference. Please let us know how we can maximize your attendee experience.

The Registration Desk will be staffed during these hours:

Monday, January 6	8:00 a.m.–6:30 p.m.
Tuesday, January 7	7:30 a.m.–7:00 p.m.
Wednesday, January 8	7:30 a.m.–5:30 p.m.
Thursday, January 9	7:30 a.m.–4:00 p.m.

CONFERENCE WI-FI

Complimentary Wi-Fi is available in all NCSE 2020 meeting spaces.

Network Name: OmniMeeting

Password: NCSE2020

ENGAGE IN KEYNOTE AND PLENARY DISCUSSIONS USING SLIDO

Send your questions to keynote and plenary speakers during the question and answer time. Navigate to **slido.com** on your smartphone, tablet, or computer, enter the event code **NCSE2020**, and submit your question. Conference attendees will be able to view all submitted questions and vote for the questions they would like answered.

SHARE YOUR EXPERIENCE ON SOCIAL MEDIA

Stay connected with NCSE on social media and post about the Annual Conference using **#NCSE2020**.

Follow NCSE on:

LinkedIn: National Council for Science and the Environment (NCSE)

Facebook: @NCSEGlobal

Twitter: @NCSEGlobal

STUDENT JOURNALIST ROOM (Director's Room)

Students from The Pennsylvania State University - Brandywine Campus will be producing podcasts about NCSE 2020. Stop by the Director's Room during Networking Breakfasts and Networking Coffee Breaks to speak with the student journalists and be interviewed about your thoughts on science in environmental decision-making.

OPPORTUNITIES FOR STUDENTS

The NCSE 2020 Annual Conference has valuable opportunities for undergraduate and graduate students to connect.

Wednesday, January 8, 2020, 7:30–8:20 a.m., Diplomat Ballroom: Career Pathways for Scientists Interested in Decision-Making

Wednesday, January 8, 2020, 6:00 p.m.: Student Networking Happy Hour and Dinner
Meet at the Registration Desk to walk to a local restaurant together; each person will pay for their own.

POSTER PRESENTATIONS (Ambassador Ballroom)

Join the poster presenters in the Ambassador Ballroom to learn more about their projects. You can view the posters at any time or engage with the poster presenters during these breaks:

Tuesday, January 7 • 3:15–4:15 p.m.

Wednesday, January 8 • 1:30–2:15 p.m.

UNCOMMON DIALOGUE:

AN INSTITUTE FOR SCIENCE & POLICY POP-UP EVENT (Ambassador Ballroom)

What does good science-driven policy look like? Are the solutions to the world's most pressing challenges global or local in nature? Come tell us what you think. The Institute for Science & Policy at the Denver Museum of Nature & Science will be facilitating one-on-one conversations in the Ambassador Ballroom around these questions and many more. Bring a friend—or better yet, a stranger—and let us know what's on your mind, either on the mic or off the cuff. Participants will be entered to win one of two high-quality museum archive prints courtesy of the Denver Museum of Nature & Science.

FEDERAL AGENCY TABLETOP DISPLAYS (Ambassador Ballroom)

Connect and learn more about the mission and priorities of NCSE's federal agency partners. Stop by tabletop displays by the U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Department of Agriculture, U.S. Forest Service, National Aeronautics and Space Administration, and National Oceanic and Atmospheric Administration in the Ambassador Ballroom

NASA HYPERWALL (Ambassador Ballroom)

Visit the NASA display in the Ambassador Ballroom and engage with NASA Science experts who will present captivating data visualizations on the ultra-high resolution Hyperwall to highlight NASA's latest Earth science discoveries. Learn how NASA Science helps inform environmental policy- and decision-making around the world. See dazzling photos and images of our planet from space at night in NASA's exciting new "Earth at Night" book. Get your questions answered by NASA representatives who can provide the latest information about NASA's Science program.

Join NASA representatives for 15 minute presentations using the Hyperwall during these breaks:

Tuesday, January 7, 10:00-10:30 a.m.

Wednesday, January 8, 10:00-10:30 a.m.

Wednesday, January 8, 1:30-2:15 p.m.

Thursday, January 9, 10:00-10:30 a.m.

NCSE EXPERIENCE WALL (Regency Gallery)

Visit the NCSE Experience Wall in the Regency Gallery to share back your ideas about the future of science-informed decision-making in 2020 and beyond. Join artist Karina Branson from ConverSketch as she visually captures your stories live through interactive, artistic synthesis during Networking Coffee Breaks, or share your ideas on sticky notes and come back later to find out how they have been captured visually.

USGS EARTH AS ART (Regency Gallery)

The USGS Earth as Art display showcases the Earth as our eyes cannot see it—in creative combinations of visible and infrared light. These satellite images of farmland, coastlines, and snowscapes remind us of the powerfully artistic qualities of Earth's land features.

ARIZONA STATE UNIVERSITY DECISION THEATER (Regency Ballroom)

The Arizona State University Decision Theater Network is a proven tool which helps subject-matter experts and policymakers simplify and visualize complex problems which enables leaders to make better decisions. By creating interactive, collaborative models in an immersive, visually stimulating environment, the Decision Theater brings clarity to complex data and analysis. The goal is to display the dynamics of a problem, and the effects of various policy options, in a clear and compelling manner—thus helping experts develop and demonstrate the best approaches to addressing a given problem. Behind the scenes, the Decision Theater uses state-of-the-art expertise in collaborative, computing, and display technologies for data visualization, modeling, and simulation.

ABOUT NCSE

MISSION AND VISION

The National Council for Science and the Environment (NCSE) works with scientists, educators, policymakers, business leaders, and officials at all levels of government to inform environmental policy- and decision-making with the use of science. Founded in 1990, NCSE is a 501(c)(3) nonprofit and nonpartisan organization.

NCSE RELOCATED OFFICES!

NCSE recently moved to a new office building. Our new mailing address is 1776 Eye Street NW, Suite 750, Washington, D.C. 20006.

AMAZONSMILE

Did you know AmazonSmile is a simple and automatic way for you to support a charitable organization every time you shop on Amazon? When you shop on smile.amazon.com, you will find the same shopping experience as Amazon.com, with the added bonus that Amazon will donate a portion of the purchase price to NCSE and at no additional cost to you. Our unique link that will take you directly to shopping on smile.amazon.com is

<https://smile.amazon.com/ch/52-1700932>.

Donations received will directly support NCSE in executing its mission.



National Council for
Science and the Environment

**FIND OUT MORE ABOUT NCSE AT
www.NCSEGlobal.org**

OUR COMMITMENT TO SUSTAINABILITY

NCSE is committed to hosting sustainable meetings and events. We work closely with our venues and partners to include sustainable and green practices in their work. Attendees also play a part in keeping our meeting green.



NCSE INITIATIVES

- Meeting room signs are reused each year to reduce waste.
- Only vegetarian meals are served at NCSE events.
- No disposable plates, cups, or cutlery are used during the conference.
- Public water is made available in all meeting rooms and plastic water bottles are not available.
- The meeting venue is accessible by public transportation.
- The final program is printed at a certified green printer in the D.C. area.

CARBON OFFSET PROGRAM

NCSE recognizes that travel to the Annual Conference is a large contributor to the overall carbon footprint of the event. In an effort to reduce emissions, NCSE has created a donation structure to help offset the carbon footprint from the meeting and our attendees' travel. We ask you to consider donating to this program. All donations will go to Natural Capital Partners. You can donate to the Carbon Offset Program at the Registration Desk.

WHAT CAN YOU DO?

Attendees can play a part in reducing waste and carbon. Below are some ways to reduce your footprint during the Annual Conference.

- Bring a water bottle to fill up at the stations in the conference location instead of purchasing plastic water bottles.
- Use public transportation to and from the conference location.
- Take advantage of linen reuse programs and don't request clean linens each day.
- Donate to the Carbon Offset Program.

OMNI SHOREHAM INITIATIVES

Below are actions taken by the Omni Shoreham to reduce their impact at our event.

- Print on Forest Stewardship Council (FSC) certified or recycled paper whenever possible.
- Be a "styrofoam-free" environment.
- Offer leftover and excess food items to local food banks and shelters.
- Consider local food purveyors when feasible to reduce the carbon footprint of the culinary options offered – a "farm-to-table" approach.
- All trash and recycling are collected together in a single stream recycling program where the materials are separated offsite. In addition, all leftover oil from the kitchen is recycled to fuel oil.

CELEBRATING 30 YEARS

IN SERVICE TO SCIENCE AND THE ENVIRONMENT

Committee for the National Institute for the Environment (CNIE) is formed. CNIE was formed as a nonprofit, nonpartisan organization with a mission for the U.S. Congress to establish the National Institute of the Environment (NIE). The proposed NIE was envisioned as a standalone federal funding agency, roughly based on the structure of the National Institutes of Health (NIH).

1990

EnvironMentors is incorporated as a program area of NCSE. EnvironMentors

is a national college access program with a mission to mentor and motivate high school students from communities underrepresented in the sciences as they plan and conduct environmental research and acquire skills that will allow them to build careers and become more active stewards of their communities and the environment. Since 1992, the program has paired over 2,000 high school students with mentors through its network of chapters throughout the country.

1992

The **bipartisan bill to create the NIE is introduced** in the House, but does not pass.

1993

Committee for the National Institute for the Environment (CNIE) is renamed the National Council for Science and the Environment to better reflect this mission and adopted a new strategic plan to implement those NIE-related activities.

1997

Longstanding NCSE Senior Scientist David Blockstein releases a book titled **“The Climate Solutions Consensus”** as an outcome of NCSE’s 8th National Conference that focused on the theme Climate Change: Science and Solutions.

2010

Former U.S. Environmental Protection Agency Administrator Lisa Jackson is a keynote speaker at the **NCSE 10th National Conference** on Science, Policy, and the Environment.

2010

Sylvia Earle receives the NCSE Lifetime Achievement Award at the NCSE 11th National Conference on Science, Policy, and the Environment.

2011

NCSE redesigns its logo. The current logo seeks to better reflect our work and the critical new initiatives we will be embarking on in the future. The blue orb in the logo symbolizes our common planet, the subject of the NCSE mission. The nodes and connections within represent NCSE’s diverse membership and community, and the collaborative nature of our work and leadership.

2017

NCSE HIGHLIGHTS



NCSE PROGRAMS



SCIENCE POLICY AND DECISION-MAKING

Policy work at NCSE is motivated by the belief that environmental decisions will be more robust if science is effectively connected to the decision-making process and scientists are engaged participants. We are committed to working with all levels of government and are particularly dedicated to a nonpartisan approach to support environmental decision-making.

The science policy and decision-making program works to:

- Facilitate and catalyze science-policy dialogue through webinars, convenings, roundtables, and briefings.
- Connect NCSE Member Institutions with opportunities to engage with, influence, and collaborate with local, state, and federal decision-makers.
- Provide opportunities for NCSE Member Institutions to develop skills for science policy communication and engagement.
- Keep NCSE Member Institutions informed on policy context relevant for environmental science through our electronic publication, *NCSE Pathways*.

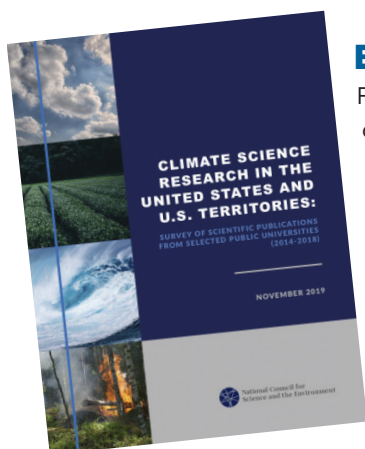
INTERNATIONAL INITIATIVES

The most significant and pressing environmental problems transcend national borders. Threats such as climate change, resource scarcity, and air pollution are global and inherently complex—as such they necessitate global responses that are informed by the best available scientific knowledge. The mission of NCSE is not limited to a national context. NCSE is developing a new portfolio of work with the ambition of advancing the use of science to inform environmental decision-making internationally.

Through its international initiatives, NCSE aims to advance the following objectives:

- Broaden the spectrum of scientific knowledge available and relevant to international policymaking, including making the knowledge and expertise of NCSE Member Institutions accessible to international decision-makers, leaders, and influencers.
- Grow and support an academic culture that promotes and incentivizes proactive engagement with policy- and decision-makers at all levels of government and across sectors.
- Nurture awareness and value by decision-makers for the use of science in environmental governance.

Current international partners include Inserm (Institut National de la Santé et de la Recherche Médicale), the Embassy of France in the United States, and UN Environment. Long Island University supports the LIU-NCSE Global Science Diplomacy Fellowship program.



BUILDING AN NCSE RESEARCH AGENDA

For many years, NCSE has produced a series of reports for NCSE Member Institutions, charting the development of interdisciplinary environment, sustainability, and energy related programming across the higher education landscape. As NCSE formulates the next phase of research, we will:

- Conceptualize our Member Institutions and stakeholders as leading actors within a system that produce and communicate knowledge to inform policy- and decision-making.
- Allow for a critical and strategic look at the environmental field that can inform continuing efforts to invest in educational programming that meets society's changing needs.

- Apply this holistic approach to an analysis of resilience-oriented education and research.

In November 2019, NCSE released a new report showing public universities are contributing significantly to America's understanding of climate change. In *Climate Science Research in the United States and U.S. Territories*, NCSE analyzed the research of 80 public institutions from all 50 states and found that they had produced 10,004 studies on the impacts of climate change on their regions between 2014 and 2018. The report found a widespread focus on the science of climate impacts and the regional breakdowns show that public university scientists are investigating locally relevant topics

RESILIENCE AND UNIVERSITIES: RISE

NCSE is leading an ongoing portfolio of efforts and activities that focus on scientists and decision-makers working together to achieve a more resilient and sustainable future. RISE is a new NCSE program that engages the university scientific community to co-create a knowledge exchange platform focused on the scholarship, tools, and early response strategies that universities can deploy before, during, and after extreme weather disasters.



Universities are trusted community partners and present a vast array of human, intellectual, organizational, and physical resources to inform and fortify community resilience. RISE enables universities to play a stronger role in the long-term relief and reconstruction efforts after extreme weather and climate events. Through regional hubs, RISE will facilitate connections and collaborations between universities and also contribute to stronger community resilience to acute and extended extreme weather events, including hurricanes, wildfires, droughts, and heat waves. RISE will serve in a convergence role to university students, faculty, and administrators and coordinate institutional research and student/faculty mobility efforts to scale community resilience.

ENVIRONMENTORS

Since 1992, NCSE has led EnvironMentors, a national college access program that matches students with environmental and science professionals, faculty, and college students in one-to-one mentoring relationships. The program motivates high school students who are underrepresented in the sciences to conduct environmental research and acquire skills that will allow them to build careers and become more active stewards of their communities and the environment. Participants in EnvironMentors develop critical thinking, experimental, and communication skills as they complete a rigorous research project and submit a research paper and scientific poster.

NCSE is interested in working with organizations that would like to host an EnvironMentors chapter. We will plan with your institution to ensure you are prepared to launch a strong, long-lasting, and sustainable chapter. Please visit www.ncseglobal.org/youth-diversity to learn more about EnvironMentors and how to establish a chapter.



To stay involved and find out more about these programs, please visit our website:

www.NCSEGlobal.org

NCSE MEMBERSHIP

Colleges and universities are preparing future leaders to address the global challenges facing society. In today's world, where environmental challenges have grown more complex, the role of science in environmental decision-making remains as essential as ever. NCSE Member Institutions are four- and two-year colleges and universities that are committed to ensuring that science is represented at the tables where decisions are made and to advancing environmental and sustainability education and training.

NCSE membership benefits are available to all individuals from the Member Institution: deans, directors, administrators, and academic leaders; faculty and researchers; and undergraduate and graduate students.

LEADERSHIP AND COMMUNITY

Join the NCSE Alliance of Sustainability and Environmental Academic Leaders, a group for deans, directors, and academic leaders to connect with peers.

- Lead and participate in Communities of Practice, multi-institutional technical working groups that support and amplify education, research, and analysis from higher education institutions.
- Receive complimentary and discounted registrations to the NCSE Annual Conference, a hallmark event that brings together more than 800 educators, researchers, students, policymakers, government officials, business leaders, and representatives from civil society.
- Engage with other Member Institutions at the NCSE Summer and Winter Member Meetings, when representatives from NCSE Member Institutions gather to discuss shared challenges and form collaborative, strategic, and responsive solutions.
- Connect with NCSE's network of influential scientists, researchers, policy- and decision-makers, and thought leaders across sectors.

RESEARCH AND EDUCATION

- Access to information on federal funding and partnership opportunities for environmental research and education.
- Complimentary access to NCSE Higher Education Research Reports, which provide analysis on national trends in environmental and sustainability education and research to help higher education institutions grow and innovate. NCSE also invites input from Member Institutions to suggest topics for future research reports and the opportunity to lead a research effort.
- Campus-wide subscription to *NCSE Pathways*, an electronic publication that shares tangible tools for science to engage in environmental decision-making, reflects on current trends in the science-policy interface, and includes events and opportunities of specific relevance to NCSE Member Institutions.
- Access to a Members-only email list to foster collaborations among institutions and peers.

SCIENCE POLICY AND DECISION-MAKING

Invitations to the NCSE Academic-Federal Dialogue, which provides opportunities for engagement between academics and policy representatives from environmental programs in federal agencies. In the past, federal agency representation has included Department of Energy, National Science Foundation, NASA, Environmental Protection Agency, Department of Agriculture, Forest Service, National Oceanic and Atmospheric Administration, and National Institute of Environmental Health Sciences.

- Opportunities to participate in workshops and policy dialogues to enhance academic engagement and effectiveness in informing policy and develop skills for science policy communication.
- Engage in facilitated partnerships between universities and local governments through NCSE Applied Solutions, a peer network of almost 200 local governments focused on the use of science in resilience and sustainability.
- Coaching and expert advice from NCSE staff on policy communication and engaging with decision-makers.

For more information, please contact:

Kate Ceste, Communications, Events, and Membership Manager at kceste@ncseglobal.org

2019-2020 MEMBER INSTITUTIONS

As of 12/16/2019

College and University Network

Adelphi University ♦
Alabama A&M University ♦♦
Antioch University New England ♦♦
Arizona State University ♦♦
Babson College ♦
Bard College ♦♦
Boston College ♦♦
Boston University ♦♦
California State University, Chico ♦
Chatham University ♦♦
Clarkson University ♦♦
Colgate University ♦♦
Columbia University ♦♦
Dartmouth College ♦♦
Dickinson College ♦♦
Doane University ♦
Duke University ♦♦
Duquesne University ♦♦
Fairfield University ♦
Florida International University ♦
Franklin & Marshall College ♦♦
George Mason University ♦♦
Goshen College ♦
Heritage University ♦♦
Indiana University ♦♦
Kenyon College ♦
Lehigh University ♦♦
Long Island University ♦
Louisiana State University ♦♦
Loyola University New Orleans ♦
Macalester College ♦♦
Manhattan College ♦
Michigan State University ♦♦
Middlebury College ♦♦
Moravian College ♦♦
New College of Florida ♦♦
New York Institute of Technology ♦♦
North Carolina A&T State University ♦♦
North Carolina State University ♦♦
Northeastern University ♦♦
Northern Arizona University ♦♦
Oberlin College ♦
Old Dominion University ♦
Pomona College ♦♦
Purdue University ♦♦
Rutgers, The State University of New Jersey ♦♦
Sewanee: The University of the South ♦♦
Siena College ♦♦
Smith College ♦♦
Southern New Hampshire University ♦♦
St. Mary's College of Maryland ♦
State University of New York College of Environmental Science and Forestry ♦♦
Texas A&M University ♦♦
Texas State University ♦
The College of Wooster ♦
The Evergreen State College ♦♦
The George Washington University ♦♦
The Ohio State University ♦♦
The Pennsylvania State University ♦♦
The University of Alabama ♦♦
The University of Arizona ♦♦
The University of New Hampshire ♦
The University of North Carolina at Chapel Hill ♦
The University of North Carolina at Greensboro ♦
The University of Rhode Island ♦♦
The University of Texas at El Paso ♦
The University of Texas Rio Grande Valley ♦
The University of Toledo ♦♦
The University of Vermont ♦♦
Tufts University ♦♦
Unity College ♦♦
University at Albany, State University of New York ♦
University of Alaska Fairbanks ♦
University of Arkansas ♦♦
University of California, Davis ♦♦
University of California, Merced ♦
University of California, San Diego ♦♦
University of Central Florida ♦
University of Dayton ♦
University of Findlay ♦
University of Hawai'i: Mānoa, Hilo, West O'ahu ♦
University of Illinois: Urbana-Champaign, Chicago, Springfield ♦
University of Maryland Center for Environmental Science ♦♦
University of Michigan ♦
University of Oregon ♦
University of Pennsylvania ♦
University of Puerto Rico ♦
University of Rochester ♦♦
University of South Carolina ♦♦
University of the District of Columbia ♦♦
University of Wisconsin-Madison ♦♦
Western Washington University ♦♦
Williams College ♦
Worcester Polytechnic Institute ♦♦
Yale University ♦♦

Community College Network

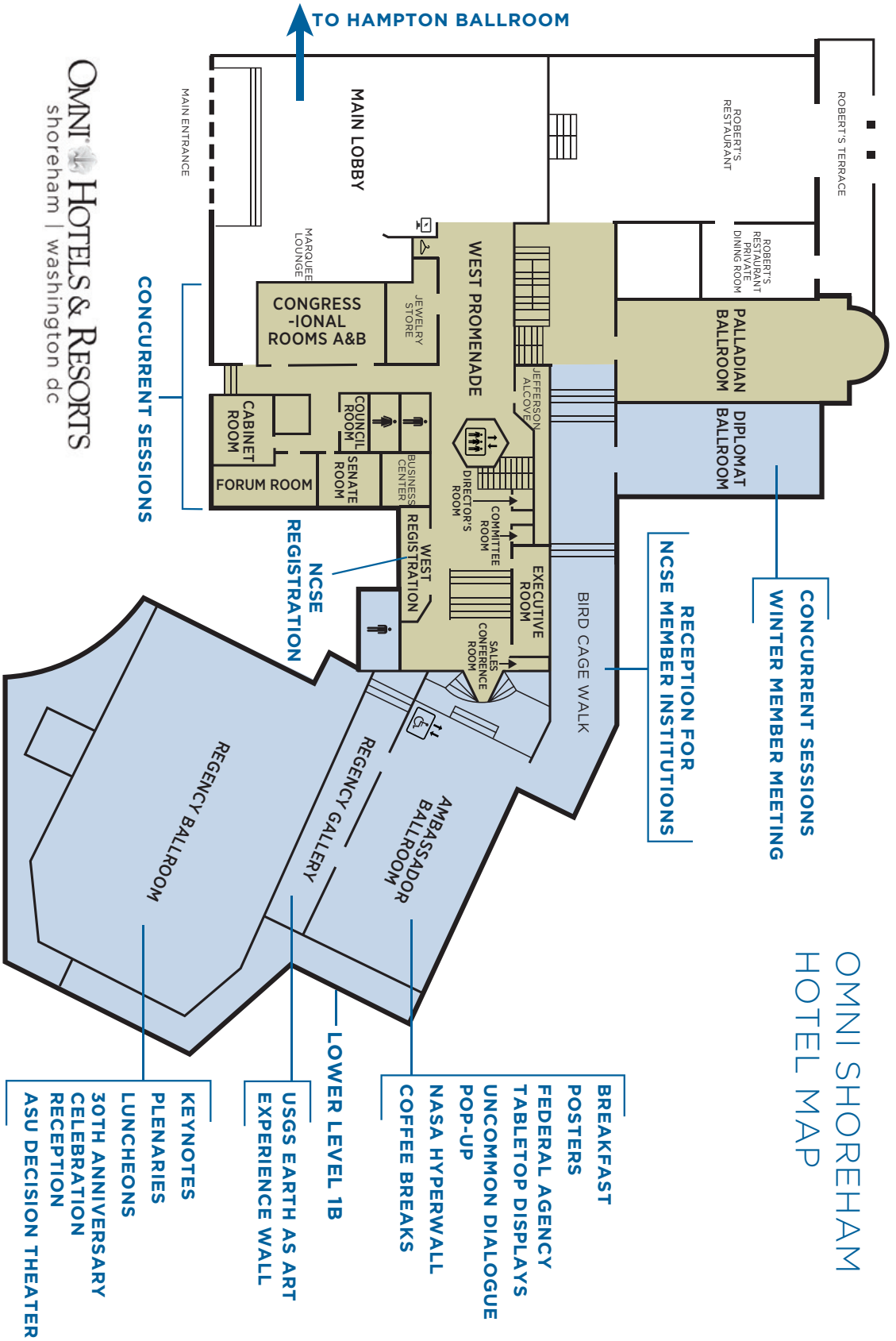
Bristol Community College ♦
Brookhaven College (Dallas County Community College District [DCCCD]) ♦
Cedar Valley College (DCCCD) ♦
Eastfield College (DCCCD) ♦
El Centro College (DCCCD) ♦
GateWay Community College ♦
Hawai'i Community College ♦
Honolulu Community College ♦
Johnson County Community College ♦
Kapi'olani Community College ♦
Kaua'i Community College ♦
Leeward Community College ♦
Mott Community College ♦
Mountain View College (DCCCD) ♦
North Lake College (DCCCD) ♦
Northern Virginia Community College ♦
Richland College (DCCCD) ♦
Saddleback College ♦
Seminole State College of Florida ♦
UH Maui College ♦
Windward Community College ♦

International Network

Instituto Tecnológico de Santa Domingo (INTEC)
Universidad de Desarrollo

♦ = 5+ Year Member ♦♦ = 10+ Year Member

ANNUAL CONFERENCE MAP





MONDAY, JANUARY 6, 2020

- 8:00–9:00 a.m.** **Breakfast for NCSE Winter Member Meeting**
Diplomat Ballroom
- 9:00 a.m.–5:30 p.m.** **NCSE 2020 Winter Member Meeting and Academic-Federal Dialogue**
Diplomat Ballroom
- 5:30–6:30 p.m.** **Reception for NCSE Member Institutions**
Bird Cage Walk
(outside Diplomat Ballroom)

TUESDAY, JANUARY 7, 2020

- 7:30–8:30 a.m.** **Networking Breakfast**
Ambassador Ballroom
- 8:30–9:00 a.m.** **Welcome and Opening Remarks**
Regency Ballroom
Tony Michaels, Ph.D., Immediate Past Chair, NCSE Board of Directors
- Keynote: Science Forward: The Science Push and the Policy Pull**
Michelle Wyman, Executive Director,
National Council for Science and the Environment
- 9:00–10:00 a.m.** **Plenary: NCSE Retrospective and Look Ahead**
Regency Ballroom
Karim Ahmed, Ph.D., Stephen Hubbell, Ph.D., Margaret Leinen, Ph.D. (invited), and **Rita Colwell, Ph.D.**,
NCSE Board Directors
Moderated by **Michelle Wyman**, Executive Director,
National Council for Science and the Environment
- 10:00–10:30 a.m.** **Networking Coffee Break and Poster Viewing**
Ambassador Ballroom
- 10:30 a.m.–12:00 p.m.** **Concurrent Sessions Group A**
Diplomat Ballroom
Executive Room
- Cabinet Room* A3: Investing in Resilient Communities: We Know Why, But How?
- Forum Room* A4: Mind the Gap: Academic Research Spanning the Environmental Science-Policy Divide
- Senate Room* A5: Assessment to Action: The Role of Scientific Assessments in Policy Frameworks
- Congressional A* A6: Converging Transdisciplinary Science Response to Environmental Health Challenges
- Congressional B* A7: Flash Talk Session: Emerging Science for Decision-Making
• Sustainable Urban Infrastructure for Food, Energy, and Water Resources

CONFERENCE AGENDA

- Microplastics as a New, Ubiquitous Pollutant: Management and Consumer Issues
- Look at All the New Data! Now What?
- Measurements and Models for Atmospheric Carbon and Their Application to Policy
- Putting the Science on Extreme Heat and Air Pollution to Action
- Additionality & Carbon Neutrality: Insufficient for Real Climate Impact
- Resilient Infrastructure: Scientific Building Blocks for Resilience ROI

12:00-1:30 p.m.

Regency Ballroom

Lunch Served

2020 NCSE Lifetime Achievement Award on Science, Service, and Leadership

Michael Crow, Ph.D., President, Arizona State University

Introduction by **James Buizer**, Interim Director of the Arizona Institutes for Resilient Environment and Societies, University of Arizona; NCSE Board Director

Armchair discussion led by **Frank Sesno**, Director of the School of Media and Public Affairs, The George Washington University; NCSE Board Director

1:45-3:15 p.m.

Diplomat Ballroom

Executive Room

Cabinet Room

Forum Room

Senate Room

Congressional A

Congressional B

Concurrent Sessions Group B

B1: Congress's Use of Science in Environmental Policymaking

B2: The Structure of Science-Policy Revolution: Lessons From the Arctic

B3: Climate Risk Assessments as a Basis for Crosssectoral Resilience Investments

B4: Participatory Modeling to Inform Environmental Planning and Policy

B5: Value of Information Analysis in Support of Environmental Decision-Making

B6: Costs, Benefits, and Deaths: Changes to Science-Based Standard-Setting at EPA

B7: Flash Talk Session: Exploring the Science-Policy Interface

- Adaptive Governance and Transitions Toward Ecosystem-Based Adaptation
- Appraisal of Environmental Science Advice
- Communication Channels to Provide Evidence to Environmental Decision-Making
- Expertise in Global Environmental Governance: Science Advice for Implementation
- Enhancing Environmental Decision-Making Through Crowdsourcing, Citizen Science
- Negotiating Evidence: Challenges in Consensus-Oriented Environmental Governance
- Systems Analysis Application for Environmental Risk Assessment and Decision-Making in Defense Systems
- Development Multidisciplinary Environmental Research Ecosystems - Plural Scales



3:15–4:15 p.m.
Ambassador Ballroom

Poster Presentations and Facilitated Networking Break

4:30–5:30 p.m.
Regency Ballroom

Armchair Keynote: Navigating New Norms at the Science-Policy Interface

Marcia McNutt, Ph.D., President, National Academy of Sciences

Tom Lovejoy, Ph.D., Professor, George Mason University; Senior Fellow, United Nations Foundation; NCSE Board Director

Moderated by **Valerie Luzadis, Ph.D.**, Professor, The State University of New York, ESF; Chair, NCSE Board of Directors

5:30–7:00 p.m.
Regency Ballroom

**NCSE 30th Anniversary Celebration Reception
A Visual Journey: The Environment Through the Storytelling Lens**

Kaitlin Yarnall, Senior Vice President and Chief Storytelling Officer, National Geographic Society

Reflections from by **Alexandria Villaseñor**, Earth Uprising

Introduction by **Frank Sesno**, Director of the School of Media and Public Affairs, The George Washington University; NCSE Board Director

WEDNESDAY, JANUARY 8, 2020

7:30–8:30 a.m.
Ambassador Ballroom

Networking Breakfast

7:30–8:20 a.m.
Diplomat Ballroom
Forum Room

Early Bird Sessions

Career Pathways for Scientists Interested in Decision-Making

Climate Change and NEPA: Incorporating Climate Change Into Agency Decisions

Cabinet Room
Congressional A
Congressional B

The 2020 Community College Handbook: Decision-Making

Energy Education Community of Practice (CoP)

Executive Room

Sustainability Education Consensus Statement and Core Competencies

Community of Practice (CoP)

Getting to Know the RISE Network

8:30–9:15 a.m.
Regency Ballroom

Keynote: In Pursuit of a Common Goal: Diversity in STEM

Freeman Hrabowski, Ph.D., President, University of Maryland, Baltimore County

Introduction by **Rita Colwell, Ph.D.**, Distinguished University Professor, University of Maryland and Johns Hopkins University; President, CosmosID, Inc.; NCSE Board Director

9:15–10:00 a.m.
Regency Ballroom

Plenary: Diverse Voices on Climate Resilience

Xiye Bastida, Fridays For Future NYC

Chad Frischmann, Vice President & Research Director, Project Drawdown

CONFERENCE AGENDA

Marty Matlock, Ph.D., Executive Director, University of Arkansas Resiliency Center, Professor of Ecological Engineering, University of Arkansas
Joelle Novey, Director, Interfaith Power & Light (DC.MD.NoVA)
Moderated by **Laura Weiland**, Director, Omega Center for Sustainable Living

10:00–10:30 a.m.

Ambassador Ballroom

Networking Coffee Break and Poster Viewing

10:30 a.m.–12:00 p.m.

Diplomat Ballroom

Executive Room

Cabinet Room

Forum Room

Senate Room

Congressional A

Congressional B

Concurrent Sessions Group C

C1: The Positive Impacts of Scientific Research on the Montreal Protocol

C2: The Science of Actionable Knowledge for Environmental Decision-Making

C3: 10 Years Since Deepwater Horizon – Lessons Learned from the Gulf of Mexico Research Initiative

C4: Coastal Adaptation in Hampton Roads: Practice, Engagement, & Education

C5: Translational Science for Environmental Law and Governance

C6: Urban Heat Islands: A Systems Approach to Boundary Spanning

C7: Flash Talk Session: Power of Education and Information

- It Starts With Students: Setting a Foundation With Information Literacy & Audio
- Using Administrative Data to Boost Public Participation
- The 2020 Community College Handbook: Decision-Making
- Asthma: Perspectives From School to Health Department
- Regional Centers of Expertise on Education for Sustainable Development
- Pennsylvania-Themed Podcasts on Reversing Global Warming
- Monitoring Crop Water Use From Space
- Shifting Towards Competency-Based Sustainability-Related Courses and Curricula: Proposed Project to Support NCSE Member Institutions

12:00–1:30 p.m.

Regency Ballroom

Keynote Introduction: A Snapshot From the State Department on Science Diplomacy Today

Marcia Bernicat, Principal Deputy Assistant Secretary, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State

Lunch Served

Plenary:

21st Century Science-Policy Passport: The International Perspective

Hannele Pokka, Permanent Secretary, Ministry of the Environment, Finland

Brennan Van Dyke, Chief, Capacity Development and Innovation Branch, Science Division, UN Environment Programme

Alfonso Silva, Ambassador of Chile to the United States

Moderated by **Randy Burd, Ph.D.**, Senior Vice President for Academic Affairs, Long Island University; NCSE Board Director

CONFERENCE AGENDA



1:30–2:15 p.m.

Ambassador Ballroom

2:15–3:45 p.m.

Diplomat Ballroom

Executive Room

Cabinet Room

Forum Room

Senate Room

Congressional A

Congressional B

4:00–5:30 p.m.

Regency Ballroom

Poster Presentations and Networking Coffee Break

Concurrent Sessions Group D

D1: Science and Informing Decisions:
30 Years of USGCRP

D2: Science Advising for a New Global Marine
Biodiversity Treaty

D3: New Science for Oil Spill Assessment

D4: Bridging Science and Policy for Improved Wildfire Resilience and
Healthy Forests

D5: Best Practices and Priorities for Science-Informed Decision-Making

D6: Reassessing Scientific and Social Determinants in Lowering Lead Risks

D7: Flash Talk Session: Place-Based Case Studies: Land, Water, and Energy

- Local Data, Knowledge, and Engagement to Improve Disaster Preparedness
- Power of Place: Land Conservation and Clean Energy Pathways for California
- Contingent Valuation of Loma Miranda: Analysis of Social Preferences
- Integrating Needs of Under-Resourced Communities in Climate Change Policy
- Competition for Scarce Water Resources: Climate Change Science Informing Policy
- Trust and Cooperative Decision-Making Over Transboundary Water: A Pilot Project
- Revisiting Knowledge Systems for Sustainable Development

John H. Chafee Memorial Lecture on Science, Policy, and the Environment: Science Serving Society: Federal Perspectives on Environmental Decision-Making

Alex Beehler, Assistant Secretary of the United States Army Installations, Energy and Environment, U.S. Army

Tim Gallaudet, Ph.D., USN Ret., Assistant Secretary of Commerce for Oceans and Atmosphere, Deputy NOAA Administrator

Gerald Geernaert, Ph.D., Director, Climate and Environmental Sciences Division, U.S. Department of Energy

James Green, Ph.D., Chief Scientist, National Aeronautics and Space Administration

Steven Kappes, Ph.D., Agricultural Research Service Associate Administrator for National Programs, U.S. Department of Agriculture

Cynthia Lodge, Deputy Director, U.S. Geological Survey

Jennifer Orme-Zavaleta, Ph.D., Office of Research and Development Principal Deputy Assistant Administrator, U.S. Environmental Protection Agency

Moderated by **Lynn Scarlett**, Chief External Affairs Officer, The Nature Conservancy

CONFERENCE AGENDA

THURSDAY, JANUARY 9, 2020

7:30-8:30 a.m.

Ambassador Ballroom

Networking Breakfast

7:30-8:20 a.m.

Executive Room

Breakfast Book Talk: Creative (Climate) Communications

Max Boykoff, University of Colorado Boulder

8:30-8:45 a.m.

Regency Ballroom

Keynote Introduction: Fires and Floods: Reflections from the Frontlines of Climate Impacts in Northern California

Hon. Shirlee Zane, Supervisor, County of Sonoma, California, Sonoma Water; NCSE Board Director

8:45-10:00 a.m.

Regency Ballroom

Action Plenary: Integrating Academic Science in Long-Term Disaster Recovery and Resilience

Michael Mahoney, Senior Geophysicist, Federal Emergency Management Agency

Adam Parris, Deputy Director of Climate Science and Risk Communication, Office of the Mayor, New York City

Alice Pennaz, Program Analyst, Natural Hazards Mission Area, U.S. Geological Survey

Darlene Tocktoo Turner, Migrant Educational Aide, The Shishmaref School

Hon. Shirlee Zane, Supervisor, County of Sonoma, California, Sonoma Water; NCSE Board Director

Facilitated by **Nicole Meyer-Morse**, Quality Assurance, Lane Manager, FEMA CRC-West and **Jeffery Lusk**, Deputy Director, U.S. Small Business Administration

10:00-10:30 a.m.

Ambassador Ballroom

Networking Coffee Break and Poster Viewing

10:30 a.m.-12:00 p.m.

Executive Room

Concurrent Sessions Group E

E1: State Policy and Independent State Academies of Science: Examples From WA and CA

E2: Improving Environmental Decision-Making Through Boundary Spanning Partnerships

E3: Refined Coal and the Environmental Implications of a Billion Dollar Tax Credit

E4: Resilient Communities in the Face of Rising Rivers

E5: Doing and Learning in a Noisy, Complex World: The Adaptive Management Card Game

E6: Educating Future Decision-Makers: Sustainability as a Pathway K-12 to University

E7: Using Science to Help Local Governments Prepare for Climate Change

Cabinet Room

Senate Room

Council Room

Hampton Ballroom

Forum Room

Diplomat Ballroom

CONFERENCE AGENDA



12:00–1:30 p.m.

Regency Ballroom

Lunch Served

Armchair Keynote: Sustainability and a Bold Path to a Clean Energy Economy

Holmes Hummell, Ph.D., Founder,
Clean Energy Works

Rohan Patel, Director, Policy and Business
Development, Tesla; NCSE Board Director

Moderated by **Paul Shrivastava, Ph.D.**, Chief
Sustainability Officer, The Pennsylvania State University

1:30–2:00 p.m.

Regency Ballroom

Introduction to Workshops

Erica Goldman, Ph.D., Science Policy Director, National Council for
Science and the Environment

Diana Brazzell, Co-Founder & Executive Editor, Footnote

David Helvarg, Senior Fellow, Executive Director, Blue Frontier Campaign

Ben Miyamoto, Director of Membership & Research,
Scholars Strategy Network

Mark Bayer, President, Bayer Strategic Consulting

Kristen Hocutt, GIS Solution Engineer, Esri

Rachel McMonagle, Program Manager, Climate Change, American
Public Health Association

2:00–3:30 p.m.

Diplomat Ballroom

Executive Room

Cabinet Room

Forum Room

*Congressional A/B
Hampton Ballroom*

Workshops

F1: Communicating for Impact: How to Share Science With Decision-
Makers

F2: Media Training for Science Communicators

F3: Scholars Strategy Network's Training Researchers to Inform Policy
Workshop

F4: The Sounds of Science: Getting Your Research and
Policy Goals Heard in Congress

F5: Using Story Maps for Effective Communication

F6: Making Climate Change Personal for Effective Communication

3:30–4:00 p.m.

Regency Ballroom

Workshop Reflections and Conference Closing

CONFERENCE AGENDA BY THEME

Structure your NCSE 2020 conference experience around one of these themes:

Historical Examples of Science in Decision-Making Across Scales

- A1:** The U.S. Clean Air Act and the Science-Policy Interface
- B1:** Congress's Use of Science in Environmental Policymaking
- C1:** The Positive Impacts of Scientific Research on the Montreal Protocol
- D1:** Advancing Science and Informing Decisions: 30 Years of USGCRP
- E1:** State Policy and Independent State Academies of Science: Examples From WA and CA

Boundary Spanning at the Science-Policy Interface

- A2:** Crossing the Abyss: The Value of Working at the Science-Policy Interface
- B2:** The Structure of Science-Policy Revolution: Lessons From the Arctic
- C2:** The Science of Actionable Knowledge for Environmental Decision-Making
- D2:** Science Advising for a New Global Marine Biodiversity Treaty
- E2:** Improving Environmental Decision-Making through Boundary-Spanning Partnerships

Risk, Resilience, and Decision-Making in the Face of Climate Change

- A3:** Public-Private Collaborations to Address Risks Associated with Climate Change
- B3:** Climate Risk Assessments as a Basis for Crosssectoral Resilience Investments
- C3:** 10 Years Since Deepwater Horizon - Lessons Learned From the Gulf of Mexico Research Initiative
- D3:** New Science For Oil Spill Assessment
- E3:** Refined Coal and the Environmental Implications of a Billion Dollar Tax Credit

Elemental Examples: Water, Fire, and Other Disasters

- A4:** Mind the Gap: Academic Research Spanning the Environmental Science-Policy Divide
- B4:** Participatory Modeling to Inform Environmental Planning and Policy
- C4:** Coastal Adaptation in Hampton Roads: Practice, Engagement, & Education
- D4:** Bridging Science and Policy for Improved Wildfire Resilience and Healthy Forests
- E4:** Resilient Communities in the Face of Rising Rivers

Pathways for Science-Informed Decision-Making

- A5:** Assessment to Action: The Role of Scientific Assessments In Policy Frameworks
- B5:** Value of Information Analysis in Support of Environmental Decision-Making
- C5:** Translational Science, Ecosystem Services, and Environmental Law and Governance
- D5:** Best Practices and Priorities for Science-Informed Decision-Making
- E5:** Doing and Learning in a Noisy, Complex World: The Adaptive Management Card Game

Interactions Between Environment and Human Health

- A6:** Converging Transdisciplinary Science Response to Environmental Health Challenges
- B6:** Costs, Benefits, and Deaths: Changes to Science-Based Standard-Setting at EPA
- C6:** Urban Heat Islands: A Systems Approach to Boundary Spanning
- D6:** Reassessing Scientific and Social Determinants in Lowering Lead Risks
- E6:** Educating Future Decision-Makers: Sustainability as a Pathway K-12 to University

TUESDAY, JANUARY 7**WELCOME AND KEYNOTE:
SCIENCE FORWARD: THE SCIENCE PUSH AND THE POLICY PULL****Regency Ballroom - 8:30–9:00 a.m.**

Science is an essential channel of knowledge in the history of the world. It has a specific role, and serves a variety of functions for the benefit of society: creating new knowledge, improving education, increasing quality of life, and informing decision-making. Policymakers understand this, as do scientists. The dynamic tension created by the pull of policy and the push of science presents opportunities for more informed and durable policies including stronger relationships between the scientific and decision-making communities more important today than ever.

**Anthony Michaels, Ph.D., Immediate Past Chair, NCSE Board of Directors**

Anthony Michaels, Ph.D., is a nationally recognized leader in sustainability, innovation, and environmental science across multiple business sectors and academic fields. He is the co-founder and managing director of Proteus Environmental Technologies. Prior leadership roles include CEO of Midwestern BioAg, a leader in soil health and sustainable agriculture, Chief Scientist at Pegasus Capital Advisors, president of ReCommunity Energy, and CEO of PhycoSystems. Michaels' academic roles include serving as the Founding Director of the University of Southern California Wrigley Institute, Professor at the University of Southern California and Board roles at the National Council for Science and the Environment and Global Institute on Sustainability at Arizona State University.

**Michelle Wyman, Executive Director, National Council for Science and the Environment**

Michelle Wyman has worked on energy and environmental policy with states and local governments for over 15 years, developing strategic and tactical solutions to their energy planning, climate mitigation, and adaptation challenges. Before joining NCSE, she served as the Director of Intergovernmental Affairs at the U.S. Department of Energy. She founded Applied Solutions-Local Governments Building a Clean Economy and led ICLEI USA, both of which are nonprofits engaging directly with cities, counties, and states on clean energy, environmental, and sustainability issues. She has served in a wide variety of leadership capacities including with the World Bank and the United Nations. She was Natural Resources Director of the city of Fort Collins, Colorado, and established a public sector practice focused on the environment and sustainable development working with states, local governments, and related national nonprofits based in Washington, D.C.

PLENARY: NCSE RETROSPECTIVE AND LOOK AHEAD

Regency Ballroom - 9:00-10:00 a.m.

Join the NCSE Executive Director and Founders of NCSE to learn about the circumstances that spawned the idea for NCSE and the impetus for increasing the access, use, and value for science by decision-makers at all levels of government. The discussion will reflect on 30 years of impact and look to the future—not only what’s possible but what’s essential to ensure planetary well-being.

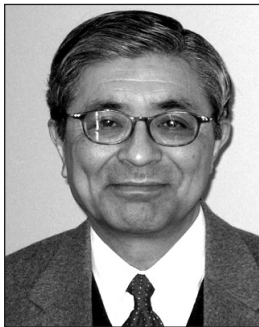
MODERATOR



Michelle Wyman, Executive Director, National Council for Science and the Environment

Michelle Wyman has worked on energy and environmental policy with states and local governments for over 15 years, developing strategic and tactical solutions to their energy planning, climate mitigation, and adaptation challenges. Before joining NCSE, she served as the Director of Intergovernmental Affairs at the U.S. Department of Energy. She founded Applied Solutions-Local Governments Building a Clean Economy and led ICLEI USA, both of which are nonprofits engaging directly with cities, counties, and states on clean energy, environmental, and sustainability issues. She has served in a wide variety of leadership capacities including with the World Bank and the United Nations. She was Natural Resources Director of the city of Fort Collins, Colorado, and established a public sector practice focused on the environment and sustainable development working with states, local governments, and related national nonprofits based in Washington, D.C.

SPEAKERS



A. Karim Ahmed, Ph.D., Adjunct Professor, University of Connecticut Health Center; NCSE Board Director

A. Karim Ahmed, Ph.D., is the Secretary-Treasurer of the NCSE Board of Directors and an Adjunct Professor at the University of Connecticut Health Center. Previously, Ahmed was Senior Fellow and Deputy Director of the Program on Health, Environment, and Development at the World Resources Institute (WRI). On behalf of WRI, Ahmed helped launch the 1998-1999 World Resources Report (WRR) and gave a major public address on the impact of climate change on human health at the first Indian National Conference on Environment and Health. In 1974-1988, Ahmed served as Research Director and Senior Scientist at the Natural Resources Defense Council (NRDC) where he directed an international program assessing the impact of toxic substances and hazardous materials on the global environment. Ahmed has served on

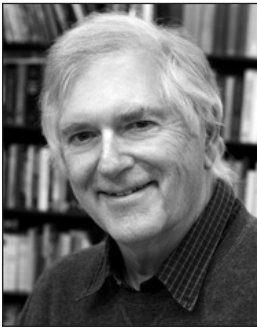
a number of high level advisory committees and technical panels of national and international government agencies and scientific institutions.



Rita Colwell, Ph.D., Distinguished University Professor, University of Maryland and Johns Hopkins University; President, CosmosID, Inc.; NCSE Board Director

Rita Colwell, Ph.D., is a Distinguished University Professor at the University of Maryland at College Park and President of CosmosID, Inc. Her interests are focused on global infectious diseases, water, and health. She has authored or co-authored 20 books and more than 800 scientific publications. Colwell served as the 11th Director of the National Science Foundation and Co-Chair of the Committee on National Science and Technology Council. Colwell is a member of the National Academy of Sciences, Royal Swedish Academy of Sciences, Royal Society of Canada, Royal Irish Academy, American Academy of Arts and Sciences, and American Philosophical Society. Colwell has been awarded 63 honorary degrees from institutions of

higher education and is the recipient of the Order of the Rising Sun, Gold and Silver Star - Japan, 2006 National Medal of Science, 2010 Stockholm Water Prize, and the 2018 Lee Kuan Yew Water Prize of Singapore.



**Stephen Hubbell, Ph.D., Distinguished Professor, University of California, Los Angeles;
NCSE Board Director**

Stephen P. Hubbell, Ph.D., is a Distinguished Professor of Ecology and Evolutionary Biology at the University of California, Los Angeles. Before joining UCLA, Hubbell was Professor of Botany at the University of Georgia and a Butler Fellow and Professor of Ecology and Evolutionary Biology at Princeton University. Prior to joining the Princeton faculty, he served as a faculty member at the University of Michigan and University of Iowa and as a staff scientist at the Smithsonian Tropical Research Institute. He is a member of Phi Beta Kappa, Sigma Xi, and is a Fellow of the American Association for the Advancement of Science. Hubbell's principal research concerns the ecology and management of tropical rainforests. His work focuses on long-term dynamics of tropical rainforests in the new and old world tropics, as well as the implications of global change for the conservation and management of forests.



**Margaret Leinen, Ph.D., Director, Scripps Institution of Oceanography;
NCSE Board Director (invited)**

Margaret Leinen, Ph.D., a distinguished national leader and oceanographer, was appointed the eleventh director of Scripps Institution of Oceanography at UC San Diego in July 2013. She also serves as UC San Diego's vice chancellor for marine sciences and dean of the School of Marine Sciences. Leinen is a researcher in paleo-oceanography and paleo-climatology. Her work focuses on ocean sediments and their relationship to global biogeochemical cycles and the history of Earth's ocean and climate. Prior to joining Scripps, she served as Vice Provost for Marine and Environmental Initiatives and Executive Director of Harbor Branch Oceanographic Institute, a unit of Florida Atlantic University. Prior to that she served for seven years at the National Science Foundation (NSF) as Assistant Director for Geosciences and Coordinator of Environmental Research and Education. She is past-president of the American Geophysical Union, past chair of the Atmospheric and Hydrospheric Science Section of the American Academy for the Advancement of Science, and past president of The Oceanography Society. She received her doctorate in oceanography from the University of Rhode Island (1980), her master's degree in geological oceanography from Oregon State University (1975), and her bachelor's degree in geology from the University of Illinois (1969).

CONCURRENT SESSIONS GROUP A

10:30 a.m.-12:00 p.m.

A1: THE U.S. CLEAN AIR ACT AND THE SCIENCE-POLICY INTERFACE

Location: Diplomat Ballroom

In 2020, the U.S. will celebrate the 50th anniversary of the Clean Air Act. This landmark legislation offers a prominent and consequential example of how science and policy have shaped air quality management in the U.S. From acid rain and nitrogen deposition to mercury pollution and carbon standards, connections between scientific research and policymaking have propelled air quality progress in the U.S. over the past four decades, while progress on federal regulations to address climate change has lagged and the fate of mercury policy is uncertain given recent proposals to weaken the Mercury and Air Toxics Standards.

While the details vary from pollutant to pollutant, the science-policy interface in the context of the Clean Air Act can be characterized by six phases: (1) problem identification; (2) skepticism; (3) gradual acceptance of science; (4) debate over solutions; (5) incremental policy-, technology-, and market-driven pollution reduction; (5) monitoring of progress; and (6) periodic evaluation of the need for reforming standards.

SESSION DETAILS: TUESDAY, JANUARY 7

In this session, four high-profile science-policy case studies will be presented by scientists who have worked on the front lines of Clean Air Act policy for up to three decades. This session will include case studies on acid rain and nitrogen, mercury pollution, climate and carbon standards, and public health and global air quality. Each presenter will share an account of the scientific breakthroughs that have been vital to policy progress; describe the progress that has been made in addressing these problems as well as new challenges that have emerged in recent years; and outline the implications for achieving policy goals under the Clean Air Act. To round out the session, a fifth panelist will provide the perspective of a senior Capitol Hill staffer and share insights on how science has been helpful to members of Congress in advancing policy under the Clean Air Act.

PRESENTERS:

Kathy Fallon Lambert, Senior Advisor, Center for Climate, Health, and Global Environment, Harvard T.H. Chan School of Public Health

Charles Driscoll, University Professor, Syracuse University

Elsie Sunderland, Professor, Harvard University

Amelia Keyes, Research Associate, Resources for the Future

Susan Anenberg, Associate Professor, George Washington University

Ellen Kurlansky, Former Policy Analyst, U.S. EPA Office of Air and Radiation

A2: CROSSING THE ABYSS: THE VALUE OF WORKING AT THE SCIENCE-POLICY INTERFACE

Location: Executive Room

It is essential that scientific knowledge is effectively communicated to policymakers at all governmental levels to ensure that new policies are based on fact and effectively address environmental issues. This ongoing need provides many opportunities for scientists to undertake important and challenging work at the science-policy interface. However, in academe, faculty may not know how to get involved in policy work or worry that such activities will not be valued by departments or campus tenure and promotion committees. Scientists sometimes fear that, by stepping into this realm, colleagues may question the objectivity of their research. This session will feature accounts from faculty from different types of institutions describing how and why they got involved in policy work, the type of work they do, and their perspectives on the value and impact of such work as it relates to the importance of science-based policy development and to their institutional missions. Examples to be shared include work with various sectors under the United Nations and the World Bank, state and local government policy initiatives, and international research supporting regional policies in other countries. Several panelists will discuss their international policy/engagement work. They will also provide insights on how those experiences can be connected back to work in their local communities, how they relate to teaching, scholarship, and service responsibilities of faculty members, and how our institutions can contribute and value our involvement. After short descriptions in each of these areas, an open discussion will focus on how all NCSE Member Institutions can more effectively be involved at the science-policy interface.

PRESENTERS:

Diane Husic, Dean, School of Natural and Health Sciences and Professor of Biology, Moravian College

Deborah Gallagher, Associate Dean for Professional Studies and Chair, Business and Environment Program, Nicholas School, Duke University

James Gruber, Director, Doctoral Program in Environmental Studies, Environmental Studies Department, Antioch University New England

David Fuente, Assistant Professor, School of Earth, Ocean & Environment, University of South Carolina

Robert Franco, Director, Office for Institutional Effectiveness, Kapi'olani Community College

Jennie Stephens, Director, School of Public Policy & Urban Affairs, Northeastern University

Dork Sahagian, Professor, Earth & Environmental Sciences and Environmental Initiative, Lehigh University

A3: INVESTING IN RESILIENT COMMUNITIES: WE KNOW WHY, BUT HOW?

Location: Cabinet Room

Governments, nonprofits, businesses and individuals are making investments in coastal community resilience. These investments are made under the auspices of comprehensive planning, hazard mitigation, climate adaptation, infrastructure resilience, personal safety, and continuity of operations, to name a few. Through an interactive panel discussion, we hope to explore who invests in community resilience, what information and tools are needed to do so responsibly, and how the public and private sectors can partner to ensure these investments are sustainable in a changing future. Our moderators and panelists will highlight lessons learned about conditions that encourage private investment and enable successful public-private collaborations in this space. We will also explore innovative practices and new opportunities for public and private entities to work together effectively to increase adaptive capacity and resilience in communities.

PRESENTERS:

Kim Penn, Climate Coordinator, Office of Coastal Management, National Oceanic and Atmospheric Administration

Claudia Nierenberg, Division Chief, Climate and Societal Interactions, National Oceanic and Atmospheric Administration

Keelin Kuipers, Deputy Director of the Office for Coastal Management, National Oceanic and Atmospheric Administration

Jainey Bavishi, Director, New York City Mayor's Office of Resiliency

Serena Sowers, Vice President, Global Partnerships, Swiss Re

Khalid Husain, Vice President, Environmental Social & Governance Group, Moody's Investors Service

Katharine Burgess, Vice President, Urban Land Institute

Keith Bisson, President, Coastal Enterprises, Inc

A4: MIND THE GAP: ACADEMIC RESEARCH SPANNING THE ENVIRONMENTAL SCIENCE-POLICY DIVIDE

Location: Forum Room

The continued security and economic vitality of the United States relies on a sustainable and resilient supply chain of water, energy, and food. Concerns are immediately triggered when natural and human-induced disturbances cut off access to any of these vital components of the supply chain. Changing climatic conditions with resulting higher temperatures, shifting growing seasons, and more frequent and extreme flooding and drought events pose ever greater challenges to sustainable water, agriculture, aquaculture, transportation, and energy resiliency. Society is increasingly aware of these climate impacts and rightfully expect officials and decision-makers at all levels of government to lead the way in adapting to a different environmental future. Knowledge gains from science, in turn, lead the way in contributing information to support governmental management decisions and the policymaking process. Yet, of the 21 environmental issues of the 21st century identified in the United Nations Foresight Report, reconnecting the broken bridges between science and the policy process ranked fourth (UNEP, 2012). Ranked third are new sets of challenges for ensuring food safety and food security including climate change.

Universities, despite the outward appearances or perceptions of being monolithic organizations out of touch with real-world problems, are able to mobilize unique capabilities to address societal needs. The session will highlight how positive bridge-building leadership, mindful of the gaps in academic research organizational structures, effectively encourages innovation, cultivates partnerships, and reframes thinking to create opportunities to support evidence-informed policy. Academic bridges strengthen the adapt and act practices needed for rapid decision-making and serve as connectors to support policy actors contending with uncertainties during times of environmental crisis. Such bridge spanning is particularly successful when academic researchers are mindful of the gap.

SESSION DETAILS • TUESDAY, JANUARY 7

PRESENTERS:

Patricia Sobecky, Associate Provost for Academic Affairs, University of Alabama; Executive Director, Alabama Water Institute

LaDon Swann, National Sea Grant Aquaculture Liaison, Director, Mississippi-Alabama Sea Grant Consortium

Kenneth Olson, Professor Emeritus, University of Illinois

Lisa Davis, Associate Professor, University of Alabama

Silvana Croope, Resilience Research Engineer, University of Alabama

Lois Morton, Professor of Sociology, Iowa State University

A5: ASSESSMENT TO ACTION: THE ROLE OF SCIENTIFIC ASSESSMENTS IN POLICY FRAMEWORKS

Location: Senate Room

Scientific assessments aim to embed science as foundational information to policymakers at varying governance scales. This session will explore how different climate assessments have been used by policymakers to understand the risks faced from climate impacts, as well as potential paths forward for both climate mitigation and adaptation. We will explore the critical overlap between policy needs, government-funded science, and the role of assessments—both historically and in the future—in informing decision-making. Speakers will discuss how science is used and risk translated, what tools work for decision-makers, and how assessments should more fully engage to support good governance. Importantly, speakers will touch on a range of governance viewpoints and different assessment approaches, including state (California and/or Montana), local (New York City), and nongovernmental/cross-sectoral (Science for Climate Action Network).

PRESENTERS:

Julie Morris, Associate Director of Implementation and Strategic Planning, National Coordination Office, U.S. Global Change Research Program

Britta Bierwagen, Group Chief, U.S. Environmental Protection Agency

Jason Jabbour, Regional Coordinator, UN Environment Programme

Richard Moss, Visiting Fellow, Andlinger Center for Energy and the Environment, Princeton University

Adam Parris, Deputy Director of Climate Science and Risk Communication, Office of the Mayor, New York City

A6: CONVERGING TRANSDISCIPLINARY SCIENCE RESPONSE TO ENVIRONMENTAL HEALTH CHALLENGES

Location: Congressional A

Advancing environmental health in our society entails extensive interdisciplinary interactions, expertise, and collaborations between the traditional health, engineering, social, and earth science communities. Efforts to advance our understanding of adverse effects and illness associated with environmental factors requires not only a refined understanding of the biological mechanisms and pathways (e.g., inflammation, epigenetic changes, oxidative stress, mutagenesis, etc.) related to function and disease, but also the incredibly broad and complex environmental exposures, geochemical/hydrological/ecological processes, compromised building and infrastructure, and social systems that influence these interactions and outcomes. Further complicating efforts to understand such interactions is the need to take into account individual susceptibility to disease across the human lifespan. While it is clear that environmental exposures can be readily linked to disease in individuals and to disproportionate health disparities in populations, the underlying risk factors for such findings are often elusive. Environmental researchers have a long tradition of crossing their scientific divides to work together on a wide range of problems and issues, including our changing climate

and disasters. Emergency situations, such as oil spills, hurricanes, wildfires, and earthquakes demand the collective expertise of the “environmental health sciences enterprise” to protect the public’s health, facilitate recovery, and improve future preparedness. Furthermore, such high visibility efforts stand as a clear example of what a converging research community can accomplish when transformative interdisciplinary approaches and a diverse well-trained cadre of scientists work together.

PRESENTERS:

Aubrey Miller, Senior Medical Advisor, National Institute of Environmental Health Sciences

Geoffrey Plumlee, Associate Director for Environmental Health, U.S. Geological Survey

Judith Mitrani-Reiser, Director of Disaster and Failure Studies, National Institutes of Standards and Technology

Juli Trtanj, One Health and Integrated Climate & Weather Extremes Research Lead, National Oceanic and Atmospheric Administration

A7: FLASH TALK SESSION - EMERGING SCIENCE FOR DECISION-MAKING

Location: Congressional B

Flash talk sessions take place during the 90-minute concurrent session blocks and feature seven to nine presenters who each have five minutes to present and two minutes of Q&A on a novel and inspiring topic relevant to those attending the NCSE Annual Conference. Presentations focus on a similar theme.

Moderator: Tom Richard, Director, Institutes of Energy and the Environment and Professor of Agricultural and Biological Engineering, Penn State University; NCSE Board Director

Sustainable Urban Infrastructure for Food, Energy, and Water Resources

Ziqian (Cecilia) Dong, Associate Professor, New York Institute of Technology

Microplastics as a New, Ubiquitous Pollutant: Management and Consumer Issues

Susan Farady, Assistant Professor, University of New England

Look at All the New Data! Now What?

Mason Fried, Climate Scientist, ICF

Measurements and Models for Atmospheric Carbon and Their Application to Policy

Jack Kaye, Associate Director for Research of the Earth Science Division, National Aeronautics and Space Administration

Putting the Science on Extreme Heat and Air Pollution to Action

Astrid Caldas, Senior Climate Scientist, Union of Concerned Scientists

Additionality & Carbon Neutrality: Insufficient for Real Climate Impact

Ben McCall, Executive Director, Hanley Sustainability Institute, University of Dayton

Resilient Infrastructure: Scientific Building Blocks for Resilience ROI

Lindsay Ross, Senior Analyst, Four Twenty Seven

2020 NCSE LIFETIME ACHIEVEMENT AWARD ON SCIENCE, SERVICE, AND LEADERSHIP

Regency Ballroom - 12:00-1:30 p.m.

The NCSE Lifetime Achievement Award is given to an individual or group of individuals in recognition of their exceptionally meritorious contribution to science and the environment. The award honors those who have made a significant impact to our community through research, education, diplomacy, and/or innovative technologies. Join us for lunch as we honor our 2020 Award Recipient.

2020 Lifetime Achievement Award Recipient

Introduction by James Buizer, Interim Director of the Arizona Institutes for Resilient Environment and Societies, University of Arizona; NCSE Board Director



Michael M. Crow, Ph.D., President, Arizona State University

Michael M. Crow, Ph.D., is an educator, knowledge enterprise architect, science and technology policy scholar, and higher education leader. He became the sixteenth president of Arizona State University (ASU) in July 2002 and has spearheaded ASU's rapid and groundbreaking transformative evolution into one of the world's best public metropolitan research universities.

Lauded as the “#1 most innovative” school in the nation by U.S. News & World Report, ASU is a student-centric, technology-enabled university focused on complex global challenges related to sustainability, economic competitiveness, social embeddedness, entrepreneurship, and global engagement. Under Crow's leadership, ASU has established 24 new transdisciplinary schools, including the School of Earth and Space Exploration, the School for the Future of Innovation in Society, and the School of Human Evolution and Social Change, and launched trailblazing multidisciplinary initiatives including the Biodesign Institute, the Julie Ann Wrigley Global Institute of Sustainability, and important initiatives in the humanities and social sciences.



Armchair discussion led by Frank Sesno, Director of the School of Media and Public Affairs, The George Washington University; NCSE Board Director

Frank Sesno currently serves as Director of The George Washington University's School of Media and Public Affairs, where he leads nearly two dozen world-class faculty who research and teach journalism, political communication, and the impact of digital media in international affairs. Sesno is an internationally recognized journalist with more than 30 years of experience reporting from around the world. From 1996 through 2001, he served as the Washington Bureau Chief and Senior Vice President. In this capacity, he oversaw the bureau's editorial direction and supervised the network's largest news-gathering operation. For seven years, he hosted Late Edition with Frank Sesno, CNN's flagship weekend interview Program. He has interviewed five U.S. Presidents as well as leaders including Hillary Clinton, Israeli Prime Minister Benjamin Netanyahu, Microsoft founder Bill Gates and broadcast legend Walter Cronkite.

CONCURRENT SESSIONS GROUP B**1:45-3:15 p.m.****B1: CONGRESS'S USE OF SCIENCE IN ENVIRONMENTAL POLICYMAKING****Location: Diplomat Ballroom**

The quantity and complexity of scientific and technological (S&T) information have been on the rise for decades. Whether Congress has the institutional capacity to access and use this information for decision-making is a question of increasing bipartisan interest and academic research. This session will feature a series of brief talks by two congressional staff and two academic scholars, and will be moderated by experts in government affairs and policy engagement from the American Association for the Advancement of Science. The panel will address the role of science advice in policy decisions about energy and the environment; the internal and external advisory systems that help Congress get the information it needs; and what aspects of the institution serve as an asset or impediment to evidence-informed decision-making.

PRESENTERS:

Karen Akerlof, Assistant Professor, Department of Environmental Science and Policy, George Mason University

Lucy Murfitt, Deputy Chief Counsel, U.S. Senate Committee on Energy and Natural Resources

Dahlia Sokolov, Staff Director for the Subcommittee on Research & Technology, House Committee on Science, Space, and Technology

Alexander Furnas, Rackham Predoctoral Fellow, University of Michigan

Emily Cloyd, Director, Center for Public Engagement with Science and Technology, American Association for the Advancement of Science

Erin Heath, Associate Director, Office of Government Relations, American Association for the Advancement of Science

B2: THE STRUCTURE OF SCIENCE-POLICY REVOLUTION: LESSONS FROM THE ARCTIC**Location: Executive Room**

The increasingly rapid and pronounced environmental changes in the Arctic challenge traditional modes of informing policy with scientific knowledge. Using the case of environmental change in the Arctic—a region warming 2-3 times faster than the planet as a whole—this panel will explore promising approaches to more quickly and effectively informing policy making with scientific understanding. The panel, comprising an Arctic resident and educator, an engineer, and research scientists, will explore what it means to do environmental research in a rapidly changing Arctic. Is the tradition pace of scientific discovery adequate for responding to accelerating changes? Do imminent threats to human well-being affect when and where new science is communicated? Do researchers have responsibilities beyond publishing their results? How should we scale studies to meet the needs of local communities impacted by changes taking place at a global scale? The panelists will focus on rapid changes threatening the community of Shishmaref, Alaska, and similar challenges where science and policy struggle to respond adequately to rapid changes with huge consequences for people. Is a revolution needed at the interface of science and policy?

PRESENTERS

Joel Niemeyer, Former Federal Co-Chair, Denali Commission (retired)

Brendan Kelly, Executive Director, Study of Environmental Arctic Change, University of Alaska Fairbanks

Elizabeth Marino, Associate Professor of Anthropology and Sustainability, Oregon State University-Cascades

Twila A. Moon, Research Scientist, National Snow and Ice Data Center, CIRES, University of Colorado Boulder

Darlene Tocktoo Turner, Migrant Educational Aide, The Shishmaref School

B3: CLIMATE RISK ASSESSMENTS AS A BASIS FOR CROSS-SECTORAL RESILIENCE INVESTMENTS

Location: Cabinet Room

Acute and chronic physical climate risks affect communities and businesses alike, placing added stress on aging infrastructure, diminishing real estate value and the operability of facilities, and undermining the well-being of community members and employees. Although community and business climate risk and resilience are inextricably linked, public and private sector vulnerability assessments and resilience and adaptation planning tend to occur in isolation. As a result, businesses have a limited perspective on how climate hazards are likely to impact the regional infrastructure that underpins their operations and the local adaptive capacity that mediates these impacts. Communities lack insight into how key economic anchors are evaluating and building resilience to climate risks that affect their facilities and employees, with direct implications for a local jurisdiction's economy as well as broader regional implications.

Climate risk assessments can provide a basis for understanding shared physical climate risks and identifying opportunities to adapt and build resilience to changing climate conditions. This session explores what types of data and information real asset investors and a corporation are utilizing to assess climate risks and how this data and information is informing decision-making, including the identification of strategic cross-sectoral partnerships to build climate resilience.

PRESENTERS:

Yoon Kim, Director of Advisory Services, Four Twenty Seven

Ashley Allen, Climate and Land Senior Manager, Mars

Margaret Harbaugh, Executive Director, Commercial Real Estate and Investing Research & Strategy

Brittany Ryan, Sustainability Analyst, Nuveen

B4: PARTICIPATORY MODELING TO INFORM ENVIRONMENTAL PLANNING AND POLICY

Location: Forum Room

Participatory Modeling (PM) is a growing field of research and practice in environmental policy and conservation, due partly to technological advances that have increased access to information infrastructure and to the growing understanding of the importance of diverse stakeholder engagement in decision-making processes (Sterling et al. 2019). PM processes draw from the implicit and explicit knowledge of stakeholders (from technical experts to community residents) to create together formal representations of their shared reality (Jordan et al. 2018). The PM community is strongly interdisciplinary and has supported the development, testing, and evaluation of a rich range of collaborative modeling approaches. In this session, we will introduce PM to the NCSE audience, and discuss how it can advance the community's mission to inform policy with environmental and social science. We will provide specific examples of tools and supportive approaches used in a range of socio-ecological contexts, in the U.S. and abroad. Our lessons learned from both successes and failures will provide a realistic view of what PM entails and of its transformative potential in building social capital and collective knowledge. PM supports a multi-directional dialogue between science and policy, between research and action, and across a range of disciplines and social sectors, through which communities (defined at any scale) can jointly shape their future as they address the complex social and environmental problems that they face.

PRESENTERS:

Moira Zellner, Associate Professor, University of Illinois at Chicago

Laura Schmitt-Olabisi, Associate Professor, Michigan State University

Rebecca Jordan, Professor and Department Chair, Michigan State University

Renee Wallace, Executive Director, Doers Consulting Alliance

Steven Gray, Associate Professor, Michigan State University

Eleanor Sterling, Jaffe Chief Conservation Scientist, American Museum of Natural History

B5: VALUE OF INFORMATION ANALYSIS IN SUPPORT OF ENVIRONMENTAL DECISION-MAKING

Location: Senate Room

Value-of-information (VOI) analysis is a formal decision-analytic tool with significant use in medical applications and industry, but its application to environmental decision-making has been limited. VOI tools evaluate the potential for better risk management decisions if further information is collected to reduce uncertainty in predictions of the outcomes of risk management actions. Even though the use of VOI for the regulatory decision-making and research planning of federal agencies has been advocated for many years, implementation has been limited. Specifically, the proposed research must be evaluated for the extent to which the resulting information would enhance confidence in the choice of a particular risk management option or cause another option to be favored.

This session will convene an expert panel to discuss the challenges and opportunities in the use of VOI approaches in regulatory decisions about research to inform interventions for environmental and health risks. This session will review VOI, look at advice on its use from the National Academies, Federal Advisory Committees, and others, describe case studies of its use in agencies, and discuss the workshop findings on ways to advance the use of VOI in environmental decision-making. It will also provide a summary of the discussions at the GWU workshop on VOI use in Federal Agencies conducted in July 2019.

PRESENTERS:

George Gray, Professor, Milken Institute School of Public Health, George Washington University

Tyler Mayer, Scientist, Decision Management Systems, Charles River Analytics Inc.

Igor Linkov, Risk and Decision Science Team Lead, US Army Engineer Research and Development Center

Jeffrey Keisler, Professor of Management Information Systems, University of Massachusetts, Boston

Adam Finkel, Clinical Professor of Environmental Health Sciences, University of Michigan School of Public Health

B6: COSTS, BENEFITS, AND DEATHS: CHANGES TO SCIENCE-BASED STANDARD-SETTING AT EPA

Location: Congressional A

The Environmental Protection Agency's (EPA) mission of protecting human health and the environment is best served by using legitimate science to inform its policy decisions. A series of recent federal policy actions have challenged long-standing guidance and scientific approaches to calculating costs and benefits of regulations and treatment of scientific evidence in agency decision-making. The implications of these actions on the EPA's approach to protecting public health and the environment are profound and have the potential to reverberate long into the future.

In this session, we will review these regulatory changes, examine their implications for future rulemakings, and propose a path forward for ensuring a robust role for science-based decision-making at EPA. In particular, panelists will discuss the significance of the changes to cost-benefit analysis and implications for our nation's ability to protect public health and the environment. Recent proposals to restrict the use of science in the rulemaking process, curtail the social cost of carbon, and discount the scientific evidence connecting air pollution and premature death will also be covered. The conversation will then explore current actions working against these changes, as well as additional actions that can be implemented to ensure a robust role for science and evidence in future EPA decision-making processes.

PRESENTERS:

Julie McNamara, Senior Energy Analyst, Union of Concerned Scientists

SESSION DETAILS • TUESDAY, JANUARY 7

Gretchen Goldman, Research Director, Center for Science and Democracy, Union of Concerned Scientists

Dallas Burtraw, Darius Gaskins Senior Fellow, Resources for the Future

Richard Revesz, Director, Institute for Policy Integrity, New York University School of Law

Maureen Cropper, Distinguished University Professor of Economics, University of Maryland; Senior Fellow, Resources for the Future

B7: FLASH TALK SESSION - EXPLORING THE SCIENCE-POLICY INTERFACE

Location: Congressional B

Flash talk sessions take place during the 90-minute concurrent session blocks and feature seven to nine presenters who each have five minutes to present and two minutes of Q&A on a novel and inspiring topic relevant to those attending the NCSE Annual Conference. Presentations focus on a similar theme.

Moderator: Diane Husic, Dean, School of Natural and Health Sciences, Moravian College

Adaptive Governance and Transitions Toward Ecosystem-Based Adaptation

Kofi Akamani, Assistant Professor, Southern Illinois University

Appraisal of Environmental Science Advice

Jennifer Biddle, Assistant Professor, University of North Carolina Wilmington

Communication Channels to Provide Evidence to Environmental Decision-Making

Alex Godoy, Director, CiSGER, Facultad de Ingeniería, Universidad del Desarrollo

Expertise in Global Environmental Governance: Science Advice for Implementation

Pia Kohler, Assistant Professor of Environmental Studies, Williams College

Enhancing Environmental Decision-Making Through Crowdsourcing, Citizen Science

Sophia Liu, Innovation Specialist, U.S. Geological Survey

Negotiating Evidence: Challenges in Consensus-Oriented Environmental Governance

Hali Moreland, Graduate Student, Dalhousie University, Halifax, Canada

Systems Analysis Application for Environmental Risk Assessment and Decision-Making in Defense Systems

Ila Chauhan, Defense Research and Development Organization, Government of India

Development Multidisciplinary Environmental Research Ecosystems - Plural Scales

Laura Zanotti, Associate Professor, Associate Director of Purdue's Center for the Environment, Purdue University

Tim Filley, Professor, Director of Purdue's Center for the Environment, Purdue University

KEYNOTE: NAVIGATING NEW NORMS AT THE SCIENCE-POLICY INTERFACE**Regency Ballroom - 4:30–5:30 p.m.**

Two eminent leaders at the science-policy interface will set the stage in this dynamic and interactive armchair keynote session. The keynote speakers will share their perspectives on the evolution of the science-policy interface, focusing on the role that bedrock institutions play in providing crucial scientific advice to decision-makers at all levels of government. In particular, they will explore future visions for how the nexus between science, policy, and society can become closer and more effectively intertwined.

MODERATOR

**Valerie Luzadis, Ph.D., Professor, The State University of New York, ESF; Chair, NCSE Board of Directors**

Valerie Luzadis, Ph.D., is Professor of Social-Ecological Systems and Ecological Economics at the State University of New York College of Environmental Science and Forestry (ESF), a public, doctoral granting institution. Luzadis has also served as Interim Provost and as the first Executive Vice President of ESF. Luzadis' scholarly work includes the study and practice of collaborative interdisciplinary science and efforts to bring science into policy. She is a Past President of the United States Society for Ecological Economics, Luzadis also served in National and State level leadership positions in the Society of American Foresters (SAF), including: Chair of the House of Society Delegates at the National level. Luzadis was also the recipient of the National Young Forester Leadership Award from the Society of American

Foresters. Luzadis has also consulted with groups such as The Nature Conservancy and The Wildlife Conservation Society to advise and facilitate community-based conservation efforts.

SPEAKERS

**Marcia McNutt, Ph.D., President, National Academy of Sciences**

Marcia McNutt, Ph.D., is a geophysicist and the 22nd president of the National Academy of Sciences. From 2013 to 2016, she was Editor-in-Chief of Science journals. McNutt was Director of the U.S. Geological Survey (USGS) from 2009 to 2013, during which time USGS responded to a number of major disasters, including the Deepwater Horizon oil spill. For her work to help contain that spill, McNutt was awarded the U.S. Coast Guard's Meritorious Service Medal. She is a fellow of the American Geophysical Union (AGU), Geological Society of America, the American Association for the Advancement of Science, and the International Association of Geodesy. In 1998, McNutt was awarded the AGU's Macelwane Medal for research accomplishments by a young scientist, and she received the Maurice Ewing Medal in 2007 for her contributions to deep-sea exploration.

**Thomas Lovejoy, Ph.D., Professor, George Mason University; Senior Fellow, United Nations Foundation; NCSE Board Director**

Thomas Lovejoy, Ph.D., was elected University Professor in the Department of Environmental Science and Policy at George Mason University in 2010. He also holds the Biodiversity Chair at the Heinz Center for Science, Economics, and the Environment based in Washington, D.C. He served as President of the Heinz Center from 2002–2008. Before assuming this position, Lovejoy was the World Bank's Chief Biodiversity Advisor and Lead Specialist for Environment for Latin America and the Caribbean as well as Senior Advisor to the President of the United Nations Foundation. Spanning the political spectrum, Lovejoy has served on science and environmental councils under the Reagan, Bush, and Clinton administrations. With two co-edited books, he is credited with founding the field of climate change biology.

NCSE 30TH ANNIVERSARY CELEBRATION RECEPTION:

A VISUAL JOURNEY: THE ENVIRONMENT THROUGH THE STORYTELLING LENS

Regency Ballroom - 5:30-7:00 p.m.

Join NCSE to celebrate 30 years of advancing the use of science in decision-making during the 30th Anniversary Celebration Reception. Kaitlin Yarnall, senior vice president and chief storytelling officer at National Geographic, will kickoff the reception and lead conference attendees on a journey using stories and images to bring science to life. Connect with colleagues and leaders in the fields of science, policy, education, and sustainability to celebrate NCSE's 20th Annual Conference and 30th year as an organization.

Introduction by Frank Sesno, Director of the School of Media and Public Affairs, The George Washington University; NCSE Board Director



Kaitlin Yarnall, Senior Vice President and Chief Storytelling Officer, National Geographic Society

As senior vice president and chief storytelling officer at the National Geographic Society, Kaitlin Yarnall is responsible for expanding the organization's impact through all forms of storytelling, including photography, journalism, film, and public experiences. Yarnall oversees a creative team that produces impact-driven media and identifies key partnership, grant making, and fellowship opportunities with creative talent to further amplify the Society's mission. She began her career at the National Geographic Society in 2005 as a cartographer. Yarnall has been a keynote speaker at conferences around the globe and has addressed the UN General Assembly, Scandinavian royals, and rock concert stadiums. She specializes in storytelling, data visualization, information graphics, cartography, and visual narratives, and has written

extensively on these subjects.



Reflections from **Alexandria Villaseñor, Earth Uprising**

Alexandria Villaseñor is a 14-year old climate activist living in New York City. Frustrated by the lack of progress at COP 24, and inspired by 16-year old Swedish climate activist Greta Thunberg, Villaseñor began her own solo weekly school strike for climate in front of the United Nations Headquarters on December 14, 2018, and has been on strike ever since. Soon after she began, Villaseñor became a national and international Fridays for Future organizer for the first ever global youth climate strike which occurred on March 15, 2019. This historic strike has been followed by four additional global climate strikes this year, with the most recent global climate strike on September 20, 2019, mobilizing 7 million people in over 180 countries. For her work, Villaseñor was awarded the 2019 Tribeca Film Festival's "Disruptor," "The Common Good Foundation Changemaker Scholarship, the Earth Day Network 2019 Youth Climate Leadership

Award, the 2019 Rachel Carson Award for Environmental Service and Politico identified her as one of the top 100 people influential in climate policy. Villaseñor has also recently launched her own nonprofit, Earth Uprising, where she is working to bring accurate climate change education into schools and helping youth mobilize for direct action.

WEDNESDAY, JANUARY 8

EARLY BIRD SESSIONS

7:30-8:20 a.m.

CAREER PATHWAYS FOR SCIENTISTS INTERESTED IN DECISION-MAKING

Location: Diplomat Ballroom

Many of the most pressing policy issues faced by society are informed by science and technology. In a cultural climate where scientific thinking and popular ideology are increasingly portrayed as antagonistic, actions to improve connections between scientists and decision-makers are integral to the continued progress of unbiased fact-based science policy. Scientists can play a key role in the governmental decision-making process through a variety of pathways, from contributing expert advice to serving as an elected official.

This session will provide insight into state and federal decision-making processes and the many ways that scientists at all career stages can engage with the process. Participants will hear from a panel of scientists representing different disciplines and career pathways about their experiences at the intersection of policy and science. The panelists will provide examples of policy engagement, including working as state legislative staff, serving as Science Advisors of high ranking executive staff, or by being elected to office. Attendees will gain an enhanced appreciation of the policy world and the diverse ways to interact in it as well as have time to ask plenty of questions.

PRESENTERS:

Sarah Brady, Deputy Director, California Council on Science and Technology

Angee Doerr, Assistant Professor, Oregon State University

Le Ondra Clark Harvey, Director of Policy and Legislative Affairs, California Council of Community Behavioral Health Agencies

Mark Elsesser, Associate Director of Government Affairs, American Physical Society

Heather Mannix, Assistant Director for Policy Engagement, COMPASS

Pervaze Sheikh, Specialist in Natural Resources Policy, Congressional Research Service

Aaron Goldner, Senior Advisor on Energy and Transportation Policy, Senator Whitehouse (D-RI)

CLIMATE CHANGE AND NEPA: INCORPORATING CLIMATE CHANGE INTO AGENCY DECISIONS

Location: Forum Room

This session will begin with a brief overview of the National Environmental Policy Act (NEPA), explaining its value as a decision-making tool, and the latest Council on Environmental Quality guidance for addressing greenhouse gas emissions through NEPA (June 2019). We will then discuss opportunities to address climate change in the NEPA process. Discussion questions may include:

- What data sources could be used in a NEPA analysis?
- When should the NEPA process address climate change? Scale, project type, opportunities for resilience, anticipated risk to climate change impacts, other triggers?
- How should a NEPA analysis incorporate climate change? Cumulative impacts, mitigation measures, the impacts analysis for each resource area, other?

SESSION DETAILS • WEDNESDAY, JANUARY 8

- Can NEPA analyses expand consideration of climate change beyond greenhouse gas emissions to include, for example, flood risk and other disaster risks anticipated to increase as a result of climate change?

Following discussion, participants will work together to incorporate climate change into a NEPA analysis using a fact-based scenario. The outcome of the session will be recommendations for incorporating climate change science into NEPA analyses and concepts for tools needed by NEPA practitioners (guidance, data source list, other).

PRESENTER:

Holly Reuter, Project Manager, The Clark Group LLC

THE 2020 COMMUNITY COLLEGE HANDBOOK: DECISION-MAKING

Location: Cabinet Room

Join the 2020 Editorial Board for the NCSE Community College Handbook for Sustainability Education and Operations in workshopping and providing input on emergent chapters to be added to the online handbook. Participants will read drafts and/or respond to author presentations on the following new topics, which were discussed at the NCSE 2019 Summer Member Meeting. The following will become completed chapters for the 2020 Handbook:

- Urban Food Systems at Community Colleges
- Equity, Diversity, and Inclusion: Sustainability and Underrepresented Populations
- Workforce and Business Education for Sustainability at CCs
- Sustainability Beyond STEM: Interdisciplinarity at CCs
- Making Sustainability Sustainable: Institutionalizing at CCs

Updates to current chapters will also be shared, including a new introduction on “Responding to the Climate Crisis” at Community Colleges. Participant input from both two- and four-year colleges, community partners, and agencies are welcomed at this workshop, where we develop practical content to support, scale, and accelerate work that strengthens science and environmental decision-making in the Community College Network. Participants are encouraged to read the current handbook chapters and to fill out the “submit your case study” if they have a project or process to contribute.

Chapters in the Handbook are written by NCSE Member Institutions within the Community College Network as an opportunity to publish scholarship and operational best practices addressing the unique assets and challenges at community colleges.

PRESENTERS:

Robert Franco, Director, Office for Institutional Effectiveness, Kapi'olani Community College

Chris Beehner, Professor, Seminole State College of Florida

Kara Casy, Senior Manager of Grant Project, El Centro College

Karen Spiller, Professor, University of New Hampshire

Brandon Morton, Sustainability Project Coordinator, North Lake College

Maria Boccalandro, Director of Sustainability, Cedar Valley College

ENERGY EDUCATION COMMUNITY OF PRACTICE (COP)

Location: Congressional A

Communities of Practice (CoPs) are technical working groups open to individuals from NCSE Member Institutions that support and amplify education, research, and analysis from higher education institutions to advance the use of science in environmental policy- and decision-making across all levels of government. In addition, these groups advance capacity building and increase deeper engagement between NCSE Member Institutions and improve the focus, scale, and impact of NCSE initiatives. The Energy Education CoP works to advance university-based energy education research and promote the role of energy research and education in society and develop approaches and best practices to prepare the future workforce.

PRESENTERS:

Tom Richard, Dean, Institutes of Energy and the Environment, Penn State University; NCSE Board Director
Jennie Stephens, Associate Director, Global Resilience Institute, Northeastern University

SUSTAINABILITY EDUCATION CONSENSUS STATEMENT AND CORE COMPETENCIES COMMUNITY OF PRACTICE (COP)

Location: Congressional B

Communities of Practice (CoPs) are technical working groups open to individuals from NCSE Member Institutions that support and amplify education, research, and analysis from higher education institutions to advance the use of science in environmental policy- and decision-making across all levels of government. In addition, these groups advance capacity building and increase deeper engagement between NCSE Member Institutions and improve the focus, scale, and impact of NCSE initiatives. The Sustainability Education Consensus Statement and Core Competencies CoP is working to identify the core sustainability competencies and student learning outcomes to better define the nature of sustainability and environmental education and to provide a means of integrating a broad range of perspectives to develop a holistic approach to sustainability problem-solving reaching across disciplines and professions.

PRESENTERS:

Peter Walker, Dean and Professor, Falk School of Sustainability, Chatham University; NCSE Board Director
Rod Parnell, Professor, Northern Arizona University; Senior Fellow, National Council for Science and the Environment
Katja Brundiers, Assistant Research Professor, School of Sustainability, Arizona State University

GETTING TO KNOW THE RISE NETWORK

Location: Executive Room

RISE is a new NCSE program that engages the university scientific community to co-create a knowledge exchange platform focused on the scholarship, tools, and early response strategies that universities can deploy before, during, and after extreme weather disasters to play a stronger role in the long-term relief and reconstruction efforts. This session will present the outcomes of the RISE 2019 conference and the different ways institutions can become a part of this exciting new initiative.

PRESENTERS:

Marla Perez-Lugo, Senior Fellow, RISE, National Council for Science and the Environment
Cecilio Ortiz García, Senior Fellow, RISE, National Council for Science and the Environment

KEYNOTE: IN PURSUIT OF A COMMON GOAL: DIVERSITY IN STEM

Regency Ballroom - 8:30-9:15 a.m.

Science, technology, engineering, math (STEM), and related fields are necessary for growing a strong, diverse, and inclusive workforce. Learn about the journey and its influence on the design of new pathways for STEM education and how university communities can support academic success by cultivating and empowering institutional culture that embraces a diversity of voices and perspectives, creates space for inclusive dialogue, and engages all in an equitable way.

Introduction by Rita Colwell, Ph.D., Distinguished University Professor, University of Maryland and Johns Hopkins University; President, CosmosID, Inc.; NCSE Board Director



Freeman Hrabowski, Ph.D., President, University of Maryland, Baltimore County

Freeman A. Hrabowski, Ph.D., President of the University of Maryland, Baltimore County (UMBC), is a consultant on science and math education to national agencies, universities, and school systems. He was named by President Obama to chair the President's Advisory Commission on Educational Excellence for African Americans. He also chaired the National Academies' committee that produced the report, *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads* (2011).

Hrabowski was named one of the 100 Most Influential People in the World by TIME (2012) and one of America's Best Leaders by U.S. News & World Report (2008). More recently, he received the American Council on Education's Lifetime Achievement Award (2018) and was named a recipient of the University of California, Berkeley's Clark Kerr Award (2019).

PLENARY: DIVERSE VOICES ON CLIMATE RESILIENCE

Regency Ballroom - 9:15-10:00 a.m.

Confronting climate change and its future impacts will require innovation, creativity, and passion. Only by bringing together a diversity of voices and perspectives, creating space for inclusive dialogue, and engaging in an equitable way, can we navigate toward a shared vision of a climate resilient future. This panel brings together diverse perspectives on climate resilience and promises lively and thought-provoking discussion that lays a foundation for new paths forward.

MODERATOR



Laura Weiland, Director, Omega Center for Sustainable Living

Laura Weiland is director of the Omega Center for Sustainable Living (OCSL), and creator of Omega's 4-week Ecological Literacy Immersion Program. Weiland and the OCSL team organized the first Drawdown Learn Conference in partnership with the Project Drawdown organization to explore how we can more deeply activate a solutions-oriented approach to climate education and engagement through schools and community participation. Through the development of Omega's climate education initiative, Weiland enjoys strong involvement in regional, national, and global networks and relationship building to bring about the change needed to ensure the health of our ecosystems and the possibility for all communities to thrive. She is part of the coordination team for the Education, Communication, and Outreach Stakeholders (ECOS) community of the United Nations Framework Convention on Climate Change (UNFCCC).

Weiland holds a master's degree in sustainable development with a focus in community development.

SPEAKERS

**Xiye Bastida, Fridays For Future NYC**

Xiye Bastida is a teenage climate activist based in New York City and one of the lead organizers of the Fridays For Future youth climate strike movement. For the first climate strike in March 2019, she mobilized 600 students from her school and has taken a citywide leadership role in organizing climate strikes and speaking out about climate justice issues in rallies and town halls. Bastida was born and raised in Mexico as part of the Otomi-Toltec indigenous peoples. She sits on the Administration Committee of the People's Climate Movement, where she brings the voice of youth to existing grassroots and climate organizations. Bastida launched a youth activism training program to expand the climate justice movement and is a member of Sunrise Movement and Extinction Rebellion. In 2018, she was invited to the 9th United Nations World Urban Forum to speak about indigenous cosmology. She received the "Spirit of the UN" award in 2018.

**Chad Frischmann, Vice President & Research Director, Project Drawdown**

Chad Frischmann is the Vice President and Research Director of Project Drawdown, a nonprofit organization that assesses, maps, models, and communicates the world's most substantive solutions to global warming. With a multidisciplinary background in public policy, human rights, sustainable development, and environmental conservation, Frischmann provides a systems-based approach to research and strategic leadership. Previously, Frischmann was the Senior Program Officer at The Europaeum, an association of leading European universities; taught at the University of Oxford and the University of California at Berkeley; and worked as a consultant and researcher for numerous organizations, from small grassroots nonprofits to UN agencies such as UNESCO and the International Fund for Agricultural Development. Frischmann holds a master's degree in Public Policy from the University of California at Berkeley, a master's degree in Art History from the University of Oxford, and a bachelor's degree in International Affairs and History from George Washington University.

in Art History from the University of Oxford, and a bachelor's degree in International Affairs and History from George Washington University.

**Marty Matlock Ph.D., Executive Director, University of Arkansas Resiliency Center; Professor of Ecological Engineering, University of Arkansas**

Marty Matlock, Ph.D., is Executive Director of the University of Arkansas Resiliency Center and Professor of Ecological Engineering in the Biological and Agricultural Engineering Department. Matlock's research focuses on technologies and processes to increase the resilience of ecosystem services, with a focus on food, water, and community systems. He has coordinated agricultural sustainability initiatives with soybeans, corn, cotton, pulses, dairy, beef, pork, and poultry systems. Matlock works with ecologists, engineers, architects, social and political scientists, agricultural scientists, economists, and business leaders to create new understanding and framing of vexing human challenges. His interdisciplinary work has been recognized by the leading organizations in agriculture, engineering, architecture, landscape

architecture, and sustainable design with over 30 national and international awards. Matlock is the Chairman of the Cherokee Nation Environmental Protection Commission and serves as sustainability science advisor for 12 food and agricultural product companies.



Joelle Novey, Director, Interfaith Power & Light (DC.MD.NoVA)

Joelle Novey is the Director of Interfaith Power & Light-DMV, a nonprofit organization that works with hundreds of congregations of all faiths across D.C., Maryland, and Northern Virginia to save energy, go green, and respond to climate change. Novey is the co-author of *Green and Just Celebrations*, a purchasing guide that Jews United for Justice (JUFJ) distributes to local congregations for assisting families in making greener purchasing decisions around weddings and bar/bat mitzvah celebrations. Most recently, Novey worked at Green America, where she screened applicants to the Green Business Network and wrote dozens of articles about greener living for the organization's newsletter and magazine. Novey brings a variety of interfaith experience to the religious diversity of IPL's network. For more than a year, she counseled hospital patients of all backgrounds and led interfaith worship services through a chaplain training program at Washington Hospital Center. Novey is a magna cum laude graduate of Harvard University where she received a BA in Social Studies, and completed the coursework for a minor in the Study of Religion.

CONCURRENT SESSIONS GROUP C

10:30 a.m.-12:00 p.m.

C1: THE POSITIVE IMPACTS OF SCIENTIFIC RESEARCH ON THE MONTREAL PROTOCOL

Location: Diplomat Ballroom

Since the scientific discovery of the Ozone hole 35 years ago, the Montreal Protocol was signed and amended nine times, all based on careful and systematic input from scientific research. This model of tight interaction between internationally agreed upon policy and results from the research community has been offered as the ideal for which other environmental policies could be based.

The Vienna Convention for the Protection of the Ozone Layer laid out an internationally coordinated plan for the coordination of research related to the monitoring and understanding of changes in Ozone, Ozone Depleting Substances (ODSs), and UV radiation. The Clean Air Act in the United States and the Montreal Protocol directed both NOAA and NASA to maintain research programs with the same goals, and the Environmental Protection Agency with the role of enforcement for agreements regarding production of ODSs.

The observations and research related to ozone continue and are assessed every four years through the internationally organized Science and Assessment reports that are provided by the scientific community to the Parties of the Montreal Protocol. This same scientific input is provided to the Vienna Convention mandated Ozone Research Managers meeting that sets recommendations for research to be pursued by the various agencies within the party nations.

Recent findings from these assessments include the onset of gradual recovery of the Ozone Hole as observed in the southern hemisphere spring, obvious signs of recovery in ozone in the upper stratosphere, and evidence of an increased emissions of CFC-11 coming from eastern Asia, which is unexpected given the expected compliance with production allowed under the Montreal Protocol. These findings would not be possible without the continued research programs within the various national research agencies and the coordination provided under the auspices of the Vienna Convention and the Montreal Protocol.

PRESENTER:

Kenneth Jucks, Program Scientist, Upper Atmosphere Research Program, National Aeronautics and Space Administration

C2: THE SCIENCE OF ACTIONABLE KNOWLEDGE FOR ENVIRONMENTAL DECISION-MAKING

Location: Executive Room

As societies around the world grapple with the numerous, varied, and novel challenges arising from global change, researchers and decision-makers are increasingly promoting societally-engaged sustainability research that generates 'actionable science' to inform environmental decisions. Yet, there remain fundamental questions about how science can better serve societal decisions, such as: What is actionable science, how is it produced, what can we expect it to achieve, and how do we evaluate it? In this session, we present results from recent studies that have applied scientific approaches to understand what makes science actionable for environmental decision-making.

Understanding and catalyzing the generation and use of actionable science draws from disciplines such as science and technology studies, political science, environmental social science, decision science, the humanities, and those working at the interface of science and practice at different scales. Additionally, it also relies upon the perspectives of practitioners who, through their work with researchers, better understand the types of engagement approaches that deliver practical benefits to decision-contexts. This session will showcase diverse perspectives on the art and science of engaged research through presentations on the conditions that enable effective research-practice partnerships, the role of funders and boundary spanners in supporting actionable science, and evaluation of the impacts of actionable knowledge. The presentations will be followed by a moderated panel discussion that will include both researchers and practitioners, to exchange experiences, results, and critical appraisals. Overall, the discussion will aim to identify additional needs to accelerate and sustain the generation and use of actionable science for societal decision-making.

PRESENTERS:

Kripa Akila Jagannathan, Student, University of California, Berkeley

James Arnott, Associate Director, Aspen Global Change Institute

Christine Kirchhoff, Assistant Professor, University of Connecticut

Alison Meadow, Associate Research Scientist, University of Arizona

Angela Bednarek, Project Director, The Pew Charitable Trusts; NCSE Board Director

C3: 10 YEARS SINCE DEEPWATER HORIZON - LESSONS LEARNED FROM THE GULF OF MEXICO RESEARCH INITIATIVE

Location: Cabinet Room

The Gulf of Mexico Research Initiative (GoMRI) is a 10-year, \$500 million, privately funded research effort focused on the short- and long-term impacts of the Deepwater Horizon oil spill. Scientific advancements achieved through GoMRI enabled new fundamental understanding of the dynamics of oil spills and their resulting environmental stresses and public health implications. Within this session, representatives of academia, industry, federal agencies, and the general public will explore the GoMRI model and highlight examples of how its scientific results have influenced the way different sectors manage, mitigate, prepare, and communicate about future environmental disasters.

As GoMRI reaches its conclusion in 2020, this session will explore not only how its results bridge the science, policy, and decision-making sectors, but also highlight the benefits of a large-scale coordinated research collaboration. This multi-institution and cross-disciplinary initiative produced an exceptional number of peer reviewed publications in the scientific literature, trained more than 500 Ph.D. candidates and 300 post-doctoral fellows, and established a legacy of data sharing and community outreach that will live well beyond the end of the program. The unique design, leadership, and consistency of an independent research initiative like GoMRI enabled even more productivity than initially imagined and offers a model for responding to future complex environmental challenges, whether natural or human-induced.

SESSION DETAILS • WEDNESDAY, JANUARY 9

PRESENTERS:

Michael Feldman, GoMRI Program Manager, GoMRI/Consortium for Ocean Leadership

Rita Colwell, GoMRI Research Board Chair, Gulf of Mexico Research Initiative; NCSE Board Director

Antionietta Quigg, Senior Associate Vice President for Research and Graduate Studies, Texas A&M University at Galveston

Steve Sempier, Oil Spill Science Outreach Manager, Sea Grant

Lisa DiPinto, Senior Scientist, Office of Response and Restoration, National Oceanic and Atmospheric Administration

Paul Schuler, Director for Regional External Affairs, Oil Spill Response Ltd.

C4: COASTAL ADAPTATION IN HAMPTON ROADS: PRACTICE, ENGAGEMENT, & EDUCATION

Location: Forum Room

The Hampton Roads region is experiencing sea level rise at twice the global rate and is a rich test bed offering approaches for the evaluation of risk and adaptation responses. This session showcases a range of projects across the region illustrating these approaches and responses. In particular, the session highlights how universities can act as boundary spanning entities. Presented projects include: 1) cross-university, cross-disciplinary program developing real world interventions for communities impacted by sea level rise; 2) integration of science with legal policy and analysis to provide solutions to solve coastal management issues, including working with individual communities to help them assess and increase their resilience; 3) process to guide acquisition of residential parcels for green space in an urban landscape; and 4) two case studies, a study assessing current and future risk from sea level rise posed to structural assets at the Port of Virginia, and another study focused on risk assessment and adaptive design solutions for communities in a shared watershed. Partnerships for these projects cross sectoral boundaries and include educational institutions, private industry, and multiple municipalities. As demonstrated by these efforts, coastal cities are working toward adaptation, and multi-sectoral collaboration projects have the ability to fill resource gaps and bring expertise from all sectors for successful adaptation response.

PRESENTERS:

Carol Considine, Associate Professor, Old Dominion University

Joshua Behr, Research Professor, Old Dominion University

Thomas Allen, Professor, Old Dominion University

Mason Andrews, Associate Professor, Department of Architecture, Hampton University

Elizabeth Andrews, Professor of the Practice and Director, Virginia Coastal Policy Center, William and Mary Law School

Christopher Chope, Vice President, Virginia Port Authority

Katerina Oskarsson, Chief Strategy Officer, RISE, City of Norfolk

Dave Imburgia, Resiliency Officer, City of Hampton

C5: TRANSLATIONAL SCIENCE, ECOSYSTEM SERVICES, AND ENVIRONMENTAL LAW AND GOVERNANCE

Location: Senate Room

A significant amount of science falls into the category of “data rich, but information poor,” with science produced without sufficient consideration of the use or decision context and without processes in place to translate information for specific environmental decision-making, or adaptive governance and management decisions. This session will

utilize an ecosystem services context to examine the issue of transfer of data into useful/useable knowledge (through translational science frameworks), and explore serving up effective ecosystem services science from both a policy (e.g., environmental governance and environmental law) and resource management (via several case studies) perspective. This session is targeted to several primary audiences, including decision-makers and a range of scientists (e.g., environmental scientists, social scientists, decision scientists, ecosystem-based management implementation scientists, etc.) looking to present their important science in impactful ways to inform environmental decision-making as well as environmental decision-making practitioners wanting to learn more about environmental law, governance, and ecosystem services.

PRESENTERS:

Matthew Harwell, Senior Ecologist and Special Assistant, U.S. Environmental Protection Agency - Gulf Ecology Division

Emily Eisenhauer, Social Scientist, Oak Ridge Institute for Science and Education

Kathleen Williams, Social Scientist, Oak Ridge Institute for Science and Education

Donna Harwell, Adjunct Professor of Environmental Law, Palm Beach State College

Phil Page, Lead Attorney-Advisor, U.S. Environmental Protection Agency - Office of Site Remediation Enforcement

Elisabeth Freed, Environmental Protection Specialist, U.S. Environmental Protection Agency - Office of Site Remediation Enforcement

Jewel Tomasula, Graduate Student, Georgetown University

C6: URBAN HEAT ISLANDS: A SYSTEMS APPROACH TO BOUNDARY SPANNING

Location: Congressional A

As we move into a future of increased extreme weather and greater uncertainty about environmental change variability, science will need to more effectively support policy and government decision-making. Ultimately, the system of boundary spanning between science and policy must change. However, by its very nature, systems change is complex, non-linear and very difficult to accomplish. Using Steve Waddell's four archetypes of societal change strategies, we will look specifically at how the issues of Urban Heat Islands inspire action by these complimentary, yet unique systems players. The different approaches by these archetypes—innovators, activists, institutions, and organizers—are all important and engage the broader system in unique ways. Engaging with each other, we hope to learn how to more deliberately design effective boundary spanning that serves the needs of citizens.

PRESENTERS:

Jason Kessler, Director, Global Knowledge Initiative

Marc Imhoff, Visiting Research Scientist, University of Maryland's Earth System Science Interdisciplinary Center

James Favors, Earth Science Division Partnerships Director, National Aeronautics and Space Administration

Kurt Schickman, Executive Director, Global Cool Cities Alliance

Stephen Burrington, Executive Director, Groundwork USA

C7: FLASH TALK SESSION - POWER OF EDUCATION AND INFORMATION

Location: Congressional B

Flash talk sessions take place during the 90-minute concurrent session blocks and feature seven to nine presenters who each have five minutes to present and two minutes of Q&A on a novel and inspiring topic relevant to those attending the NCSE Annual Conference. Presentations focus on a similar theme.

Moderator: Robert Franco, Director, Office for Institutional Effectiveness, Kapi'olani Community College

It Starts With Students: Setting a Foundation With Information Literacy & Audio

Laura Guertin, Professor of Earth Science, Penn State Brandywine

Using Administrative Data to Boost Public Participation

Michael Hand, Research Economist, U.S. Department of Agriculture

The 2020 Community College Handbook: Decision-Making

Brandon Morton, Sustainability Project Coordinator, North Lake College

Asthma: Perspectives From School to Health Department

Kelly Jones, Postdoctoral Fellow, National Socio-Environmental Synthesis Center

Regional Centers of Expertise on Education for Sustainable Development

Brandon Morton, Sustainability Project Coordinator, North Lake College

Pennsylvania-Themed Podcasts on Reversing Global Warming

Anna Nguyen, Undergraduate Researcher, Penn State Brandywine

Monitoring Crop Water Use From Space

Martha Anderson, Research Physical Scientist, U.S. Department of Agriculture

Shifting Towards Competency-Based Sustainability-Related Courses and Curricula: Proposed Project to Support NCSE Member Institutions

Jordan King and Jacqueline Kolb, Graduate Students, Arizona State University

KEYNOTE INTRODUCTION:

A SNAPSHOT FROM THE STATE DEPARTMENT ON SCIENCE DIPLOMACY TODAY

Regency Ballroom - 12:00-1:30 p.m.



Marcia Bernicat, Principal Deputy Assistant Secretary, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State

Marcia Bernicat, a career member of the Foreign Service, Class of Minister-Counselor, served as Ambassador to Bangladesh from 2015-2018 and to Senegal and Guinea-Bissau from 2008-2011. Previously she was Deputy Assistant Secretary in the Bureau of Human Resources, a position she held from 2012-2015. Domestically she served in the Department of State as Office Director for India, Nepal, Sri Lanka, Maldives and Bhutan in the Bureau of South Asian Affairs from 2006 to 2008; and from 2004 to 2006 as the Senior-Level Director and Career Development Officer in the Bureau of Human Resources. Bernicat was Deputy Chief of Mission at the U.S. Embassy in Bridgetown, Barbados from 2001 to 2004, and Deputy Chief of Mission at the U.S. Embassy in Lilongwe, Malawi from 1998 to 2001. She was Principal Officer at the U.S. Consulate in Casablanca, Morocco from 1995 to 1998, Deputy Political Counselor at the U.S.

Embassy in New Delhi, India from 1992 to 1995, and Desk Officer for Nepal and India in the Bureau of Near East and South Asian Affairs from 1988 to 1990. She is the recipient of the Secretary of State's Distinguished Service Award and numerous other Department awards.

A native of New Jersey, Bernicat received a Bachelor of Arts in History from Lafayette College and a Master of Science in Foreign Service from Georgetown University. In 2018 she was awarded an honorary degree of Doctor of Public Service by Lafayette College.

PLENARY:

21ST CENTURY SCIENCE-POLICY PASSPORT: THE INTERNATIONAL PERSPECTIVE

Regency Ballroom - 12:00-1:30 p.m.

Multilateralism is key to effectively addressing today's environmental challenges. Air, water, and other natural resources cannot be limited by country or other geographic boundaries, thereby requiring collaboration and knowledge sharing by governments, universities, and research institutions around the world. While environmental challenges today are staggering, international collaborations by scientists in higher education are rich in content and highly productive in service to society.

MODERATOR



**Randy Burd, Ph.D., Senior Vice President for Academic Affairs, Long Island University;
NCSE Board Director**

Randy Burd, Ph.D., is the Senior Vice President for Academic Affairs at Long Island University. Previously, Burd was the Associate Vice President for Global Research Alliances in the office of Research, Discovery and Innovation. He also served as the Assistant Director of Distance and Global Initiatives in the College of Agriculture and Life Sciences, where he held a faculty appointment as a Professor of Nutritional Sciences. His role in these linked positions is to lead the expansion of programs and initiatives to increase global research and connect faculty to new international research opportunities. He also has extensive expertise in technology, innovation and distance education, and in developing international research and academic programs. His current research efforts focus on bioactive food compounds and he also publishes in the areas of technology and innovation.

SPEAKERS



Hannele Pokka, Permanent Secretary, Ministry of the Environment, Finland

Hannele Pokka serves as Permanent Secretary for the Ministry of the Environment. She is the highest-ranking public servant within the Ministry. Pokka is also Docent of Environmental Law at the University of Lapland. Previously, she has served as governor of the Province of Lapland and the Minister of Justice. From 1979 to 1994, Pokka was a Member of Parliament. She has special interest and expertise in Arctic issues and has held the position of chair of the Barents Regional Council and the Northern Forum. Pokka holds a doctoral degree in environmental law. She is an honorary doctor of environment and forestry at the University of Eastern Finland (previously, University of Joensuu).



Alfonso Silva, Ambassador of Chile to the United States

Alfonso Silva has served as Ambassador of Chile to the United States since September 2018. In Chile, Ambassador Silva has served as the Under-Secretary of Foreign Affairs Secretary and in the Ministry of Foreign Affairs and in multiple other positions. Abroad, he has performed as: Secretary at the Embassy of Chile in the United States of America, Counselor at the Embassy of Chile in the United States of America, Counselor at the Embassy of Chile in Brazil, Minister Counselor at the Embassy of Chile in South Africa, Consul General in Barcelona, Delegate to the Latin American Integration Association in Montevideo, Uruguay, Ambassador of Chile to Jamaica and Concurrent in Antigua and Barbuda, the Commonwealth of Dominica, Cooperative Republic of Guyana, Saint Vincent and the Grenadines, Saint Kilt's and Nevis, Grenada, Saint Lucia. He has been Permanent Representative to the Caribbean Community (CARICOM) and

Permanent Representative to the International Maritime Soil Authority, and Ambassador of Chile to India and Canada. Silva is a graduate of the Law School of the University of Chile.



Brennan Van Dyke, Chief, Capacity Development and Innovation Branch, Science Division, UN Environment Programme

Brennan Van Dyke is currently the Chief of the Capacity Development and Innovation Branch of UN Environment's Science Division. Prior to assuming these responsibilities, she served as the Executive Coordinator of the Strategic Donor Partnerships and Global Funds section in UN Environment, established an Environmental Management System for the United Nations Secretariat, and held the position of UN Environment's Regional Director for North America. Van Dyke also served as Senior Advisor to the CEO of the Global Environment Facility and Secretary of the Global Environment Facility Council and worked in the U.S. Senate. She began her international career working on trade and investment issues for the Center for International Environmental Law.

CONCURRENT SESSIONS GROUP D

2:15–3:45 p.m.

D1: ADVANCING SCIENCE AND INFORMING DECISIONS: 30 YEARS OF USGCRP

Location: Diplomat Ballroom

Since its establishment in 1990, the U.S. Global Change Research Program (USGCRP) has coordinated global change research across the federal agencies named in its founding legislation, the Global Change Research Act. Tasked with “assist[ing] the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change,” USGCRP now enters its fourth decade as a federal program, and as it does, it looks to continue advancing scientific understanding of global environmental change. In addition, with the recent release of the Fourth National Climate Assessment and the development of a framework for sustained assessment, USGCRP continues its key role in synthesizing diverse research findings to provide accessible and useful information to decision-makers and the public.

This session will look at the history of USGCRP and its successes in interagency collaboration. It will consider the evolving information needs of stakeholders, the development and role of policy-neutral science to inform decision-making, and look to the next 30 years of global change research. The session will conclude with an opportunity for the NCSE community to share ideas for future research direction.

PRESENTERS:

Katie Reeves, Engagement and Communications Lead, U.S. Global Change Research Program

Andy Miller, Associate Director for Climate, Office of Research and Development, U.S. Environmental Protection Agency

Virginia Burkett, Co-Chair, Subcommittee on Global Change Research and Chief Scientist for Climate and Land-Use Change, U.S. Geological Survey

Jack Kaye, Associate Director for Research, Earth Science Division, National Aeronautics and Space Administration

D2: SCIENCE ADVISING FOR A NEW GLOBAL MARINE BIODIVERSITY TREATY

Location: Executive Room

Decision-making for marine waters, seabed, and air space “beyond national jurisdiction”—about 45% of Earth’s surface (and influencing the entire world ocean, about 70% of the planet’s surface)—demands the best scientific support possible. In March 2020, negotiators are scheduled to deliver a new treaty for these areas, focused on the conservation and sustainable use of biodiversity. In this session, scientists, lawyers, and policy analysts who have experience in science advising and who have participated in the negotiation of this treaty will discuss what successful science-based policy and resource management require, the pitfalls, best practices, and the current state of the negotiations.

The treaty will cover several aspects of biodiversity use and protection that rely on the best science, including designation of marine protected areas, environmental impact assessment of human activities and the effect of greenhouse gas emissions, and how marine genetic resources are exploited. The form, authority, and composition of the scientific body or network will be determined in the text. The challenge is how to deliver on the global commitment to using the best science in the face of the immensity of the task and the need to allocate authority between scientists (and other relevant experts) and political decision-makers. The experience from other national and international regulatory bodies represented by these speakers provides guidance to effective approaches.

PRESENTERS:

Cymie Payne, Associate Professor, Rutgers University

Andrew Rosenberg, Director, Center for Science and Democracy, Union of Concerned Scientists

Olaf Jensen, Associate Professor, Rutgers University

Harriet Harden-Davies, Research Fellow, University of Wollongong

D3: NEW SCIENCE FOR OIL SPILL ASSESSMENT

Location: Cabinet Room

Destruction of the Taylor Energy platform by Hurricane Ivan initiated a long-term oil spill about 10 miles off the coast of Louisiana, Gulf of Mexico (Mississippi Canyon 20). Assessment of the rate and impact of the spill was hampered by existing technological capabilities and by legal liability issues with the responsible partner. The Bureau of Safety and Environmental Enforcement (BSEE) teamed with the National Oceanic and Atmospheric Administration to tackle assessment with innovative technology and multidisciplinary science. Resulting findings led the U.S. Coast Guard to alter their approach to the response and take independent (successful) measures to contain the flow of oil. Panelists will consider how these results should inform response to long-term oil spills and similar threats to trust resources.

PRESENTERS:

Ian MacDonald, Professor of Oceanography, Florida State University

David Fish, Chief, Environmental Compliance Division, Bureau of Safety and Environmental Enforcement

Andrew Mason, Physical Scientist, Unit Diving Supervisor, National Ocean Service

Lisa DiPinto, Senior Scientist, Office of Response and Restoration, National Oceanic and Atmospheric Administration

D4: BRIDGING SCIENCE AND POLICY FOR IMPROVED WILDFIRE RESILIENCE AND HEALTHY FORESTS

Location: Forum Room

Wildfires are a common and natural occurrence in many ecosystems around the world. However, wildfires can also significantly threaten lives and infrastructure. Several regions around the world have recently suffered record-breaking destructive wildfires, including Australia, Greece, Portugal, Russia, and the United States. The severity of wildfires are predicted to worsen with climate change in some regions, creating an urgent need to leverage science and technology to mitigate increasing wildfire risk while fostering healthy natural environments.

The 2018 California wildfire season was the most destructive and deadliest on record raising a number of complex policy issues for the state. A broad network of stakeholders, researchers, and decision-makers are working together to prepare for and respond to the new reality. This symposium will explore several examples where cross-cutting partnerships are leveraging advances in science and technology to better manage natural lands, improve emergency response, and respond to environmental impacts such as reduced air and water quality.

PRESENTERS:

Teresa Feo, Program Associate, California Council on Science and Technology

Angela Phillips Diaz, Executive Director of Government Research Relations, University of California, San Diego

Scott Stephens, Professor of Fire Science, University of California, Berkeley

Michelle Newcomer, Research Scientist, Lawrence Berkeley National Lab

Jennifer Montgomery, Director, Governor of California's Forest Management Task Force

D5: BEST PRACTICES AND PRIORITIES FOR SCIENCE-INFORMED DECISION-MAKING

Location: Senate Room

Earth and environmental scientists are often told to make their research more immediately relevant to management and policy decisions. Indeed, as human-induced and natural perturbations in the ecological and hydrological cycles of the earth increase in magnitude and frequency, the sense of urgency to not "Fiddle while Rome burns" is understandable. However, success at effectively generating science information that directly and profoundly influences decision-making has often been elusive. Ecosystems are complex, decision support tools that offer general tendencies and forecasts may not represent ecological conditions at specific locations and times to be managed, and human behavior is unpredictable. Resource management and policymaking is likewise complex, so scientific investigations often yield outcomes that are not immediately seen to be relevant to the legal, cultural, economic, or jurisdictional conditions where and when resource issues occur. Recent efforts at co-production of scientific investigations, the establishment of baseline measurements of ecological and socio-economic conditions for early detection of change, and the testing of potential study outcomes for their efficacy in aiding decisions, are showing promise for improving science and decision-making linkages. In this session, we will present examples of science-informed decision making that attempt to inform management or policy outcomes. Speakers will discuss potential factors that affect success or failure. How did the application of science make a difference? What processes enabled (or disabled) the successful linkage of science to a decision? How can we measure success and compare science-informed decision efforts to define best practices for building resilience or mitigating disturbance events? What science is needed to provide early performance evaluations of future policy or management actions? What are the most pressing decisions that need to be informed with more science information? What are best practices for engaging the public so that science is integrated into decision-making culture.

PRESENTERS:

Carl Shapiro, Director, Science and Decisions Center, U.S. Geological Survey

Peter Murdoch, Science Advisor, Northeast Region, U.S. Geological Survey

Scott Chiavacci, Interdisciplinary Ecologist, Science and Decisions Center, U.S. Geological Survey

Jennifer Graham, Harmful Algal Bloom Coordinator, Water Mission Area, U.S. Geological Survey

Emily Pindilli, Natural Resource Economics Lead, Science and Decisions Center, U.S. Geological Survey

Michael Runge, Research Ecologist, Patuxent Wildlife Research Center, U.S. Geological Survey

D6: REASSESSING SCIENTIFIC AND SOCIAL DETERMINANTS IN LOWERING LEAD RISKS

Location: Congressional A

For 40 years, research on lead exposure has documented the adverse effects on children during developmental years. Once in the body, lead destroys nerve cells in the brain, producing impaired neuron-signal conduction, and interfering with both thinking and behavioral patterns. Lead further blocks the production of hemoglobin, leading to anemia, fatigue, and lethargy. There is no effective treatment after exposure to lead, and damage is permanent. In the U.S., children with elevated blood lead levels (EBLLs), i.e., at or above the CDC reference level of 5 μ g/dL, consistently score lower in reading and math tests. Every year in Philadelphia, about 2400 children with EBLLs are identified. Primary prevention by eliminating exposure to lead is the most effective strategy in lowering risks.

This session will present the latest thinking on the pathology of childhood lead poisoning, and on significant environmental exposures from both national and global perspectives. The sources of these exposures will be discussed, as well as the policy and technical underpinnings that allow these risks to continue often unabated by many levels of governance. The session will also examine alternative strategies in communication, funding, and community engagement, including the work of the Global Alliance to Eliminate Lead Paint, and aims at starting a dialog between NCSE, U.S. Environmental Protection Agency, and other stakeholders in order to find efficient strategies to lower risks within all affected populations globally. Better science and collaboration between universities, governments, industry, and international institutions as well as additional funding are required to remove barriers to addressing continuing risks.

PRESENTERS:

Reto Gieré, Professor and Department Chair, University of Pennsylvania

Richard Pepino, Deputy Director, Community Engagement Core, Center of Excellence in Environmental Toxicology, University of Pennsylvania

Marilyn Howarth, Adjunct Associate Professor, Perelman School of Medicine, University of Pennsylvania

Walker Smith, Director, Office of Global Affairs and Policy, U.S. Environmental Protection Agency

D7: FLASH TALK SESSION - PLACE-BASED CASE STUDIES: LAND, WATER, AND ENERGY

Location: Congressional B

Flash talk sessions take place during the 90-minute concurrent session blocks and feature seven to nine presenters who each have five minutes to present and two minutes of Q&A on a novel and inspiring topic relevant to those attending the NCSE Annual Conference. Presentations focus on a similar theme.

Moderator: Antje Danielson, Director of Education, MIT Energy Initiative, NCSE Board Director

Local Data, Knowledge, and Engagement to Improve Disaster Preparedness

Susan Anenberg, Associate Professor, The George Washington University

Power of Place: Land Conservation and Clean Energy Pathways for California

Maya Batres, Project Manager, Energy and Land Use, The Nature Conservancy

Contingent Valuation of Loma Miranda: Analysis of Social Preferences

Victor Gómez-Valenzuela, Research Professor, Instituto Tecnológico de Santo Domingo (INTEC)

Integrating Needs of Underresourced Communities in Climate Change Policy

Jeanne Herb, Executive Director, Environmental Analysis and Communications Group, Rutgers University

Competition for Scarce Water Resources: Climate Change Science Informing Policy

Yehuda Klein, Professor and Chair, Brooklyn College Department of Economics

Trust and Cooperative Decision-Making Over Transboundary Water: A Pilot Project

Lindsay Sansom, Research Assistant Professor, Texas A&M University

Revisiting Knowledge Systems for Sustainable Development

Frank Alcock, Associate Professor, New College of Florida

Strengthening Local Climate Commitments: Adding the Local Faith Voice and Science-Based Practices to Unite and Focus Community Efforts

Doris Marlin, Lay Leader, Unitarian Universalist Ministry for the Earth

JOHN H. CHAFEE MEMORIAL LECTURE ON SCIENCE, POLICY AND THE ENVIRONMENT

Regency Ballroom - 4:00–5:30 p.m.

The Chafee Memorial Lecture is dedicated in the memory of the Honorable Senator John H. Chafee who, in his 23 years representing Rhode Island in the U.S. Senate, was a leader in promoting a bipartisan, science-based approach to environmental issues.

**SCIENCE SERVING SOCIETY:
FEDERAL PERSPECTIVES ON ENVIRONMENTAL DECISION-MAKING**

The NCSE 2020 Chafee Memorial Lecture will focus on Science Serving Society: Federal Perspectives on Environmental Decision-Making. For the first time, NCSE is doing a panel-style Chafee Lecture to recognize the work and acknowledge the longstanding leadership of federal agencies at the intersection of the environment, policy, and decision-making. A diverse cross section of federal agencies will discuss topics such as air, water, toxics, climate, weather, oceans and coasts, agriculture, and human health.

MODERATOR

**Lynn Scarlett, Chief External Affairs Officer, The Nature Conservancy**

Former Deputy Secretary and Chief Operating Officer of the U.S. Department of the Interior, Lynn Scarlett serves on the CEO management leadership team as Chief External Affairs Officer at The Nature Conservancy, overseeing all global public policy influence and corporate engagement, as well as serving as the Conservancy's Global Climate Strategy Lead. In these roles, Scarlett directs all public policy strategies in the United States and the 79 countries in which TNC operates. Scarlett also served at Interior as the Acting Secretary of the Interior in 2006. While Interior's Deputy Secretary, Scarlett initiated, chaired the Department's Cooperative Conservation Working Group and its first-ever Climate Change Task Force, and oversaw development, with the U.S. Geological Survey, of the Department's first guidance on adaptive management. She chairs the Science Advisory Board of NOAA, recently co-chaired

the Landscape Conservation Cooperatives Council of the U.S. Department of the Interior and is a member of the National Academy of Sciences Sustainability Roundtable.

SPEAKERS

**Alex Beehler, Assistant Secretary of the United States Army Installations, Energy and Environment, U.S. Army**

In his role as the Assistant Secretary of the Army for Installations, Energy and Environment, Mr. Beehler is the primary advisor to the Secretary of the Army and Chief of Staff of the Army for all matters related to Army installation policy and oversight, and coordination of energy security and management. In addition, he is responsible for policy and oversight of sustainability and environmental initiatives; resource management, including design, military construction, operations, and maintenance; Base Realignment and Closure (BRAC); privatization of the Army real estate portfolio and installations' Safety and Occupational Health programs. Before joining IE&E, Beehler served in the Office of the Under Secretary of Defense for Installations and Environment. He was also the first Chief Sustainability Officer (CSO) of the Department of Defense and served in the Department of Justice, at the Environmental Protection Agency,

and served on the U.S. Senate Judiciary Committee.

**Tim Gallaudet, Ph.D., USN Ret., Assistant Secretary of Commerce for Oceans and Atmosphere, Deputy NOAA Administrator**

Timothy Gallaudet, Ph.D., was confirmed by the U.S. Senate on October 5, 2017, as the assistant secretary of commerce for oceans and atmosphere for the Department of Commerce in the National Oceanic and Atmospheric Administration. Gallaudet was previously a rear admiral in the U.S. Navy, where his most recent assignment was Oceanographer of the Navy and Commander of the Navy Meteorology and Oceanography Command. During his 32 years of military service, Gallaudet has had experience in weather and ocean forecasting, hydrographic surveying, developing policy and plans to counter illegal, unregulated, and unreported fishing, and assessing the national security impacts of climate change. He has led teams of Navy sailors and civilians performing such diverse functions as overseeing aircraft carrier combat operations, planning and conducting humanitarian assistance and disaster response efforts,

assisting Navy SEAL Teams during high visibility counter-terrorism operations, and developing the Navy's annual \$52 billion information technology, cyber security, and intelligence budget. Gallaudet masters' and doctoral degrees from Scripps Institution of Oceanography.



Gerald Geernaert, Ph.D., Director, Climate and Environmental Sciences Division, U.S. Department of Energy

Gerald (Gary) Geernaert, Ph.D., is Director, Climate and Environmental Sciences Division, in the U.S. Department of Energy (DOE). He oversees and directs basic scientific research at DOE National Laboratories and Universities, involving atmospheric, climate, and environmental sciences. In addition, he is the federal official responsible for two DOE scientific user facilities, i.e., the Atmospheric Radiation Measurement (ARM) research facility and the Environmental Molecular Science Laboratory (EMSL). Besides his DOE duties, Geernaert serves as Vice-Chair and/or as DOE principal to four science interagency subcommittees under the National Science and Technology Council (NSTC), that in turn is part of the White House Office of Science and Technology Policy. Before joining DOE in 2010, Geernaert was Director, Institute of Geophysics and Planetary Physics at Los Alamos National Laboratory (LANL) during 2002–2010. Geernaert is a Fellow of the American Meteorological Society. Geernaert holds a Ph.D. in Atmospheric Sciences from the University of Washington.



James Green, Ph.D., Chief Scientist, National Aeronautics and Space Administration

James (Jim) Green, Ph.D. has served in multiple positions at National Aeronautics and Space Administration (NASA), including as head of the National Space Science Data Center at Goddard Space Flight Center, Chief of the Space Science Data Operations Office, and Chief of the Science Proposal Support Office. In August 2006, Green became the Director of the Planetary Science Division at NASA Headquarters. Under his leadership at the Planetary Science Division, several missions have been successfully executed, including the New Horizons spacecraft flyby of Pluto, the MESSENGER spacecraft to Mercury, the Juno spacecraft to Jupiter, the Grail A and B spacecraft to the Moon, the Dawn spacecraft to Vesta and Ceres, and the landing of the Curiosity rover and the InSight lander on Mars. In 2015, Green was a part of the NASA involvement with the film “The Martian.” He received his Ph.D. in Space Physics from the University of Iowa.



Steven Kappes, Ph.D., Agricultural Research Service Associate Administrator for National Programs, U.S. Department of Agriculture

Steven Kappes, Ph.D., became the Agricultural Research Service (ARS), Associate Administrator for the Office of National Programs in August 2016. The Office of National Program sets the research direction and develops budgets for the ARS research portfolio which includes plants, animals, natural resources, human nutrition, insects, and microbial pathogens. The Office of National Programs also includes the international research program. Currently, Kappes is leading the ARS Big Data Initiative. He has served as a senior advisor for Animal Protection and Production in the USDA, Office of the Chief Scientist. He has worked with USDA agencies on issues related to animal health and production, herbicide resistance, and biosafety and biocontainment in high and maximum biocontainment laboratories. Previously he co-chaired a U.S. Government Interagency Biosafety Taskforce and was a co-chair of the National Science and Technology Council Subcommittee on Foreign Animal Disease Threats. Kappes received his B.S. and M.S. from South Dakota State University and his Ph.D. from the University of Missouri-Columbia.



Cynthia Lodge, Deputy Director, U.S. Geological Survey

Cindy Lodge is currently serving as the Deputy Director, assisting the Director in leading the U.S. Geological Survey (USGS) and managing the business operations of the bureau. Prior to her Deputy Director role, Cindy served as the Associate Director of the Office of Budget, Planning and Integration in the Office of the Director of the USGS. She is the Bureau's chief adviser for all matters related to strategic budgetary and financial strategies, budget formulation, presentation and advocacy; guidance and oversight for budget execution, internal controls, and working capital funds; leadership and oversight for the Bureau's Strategic Plan and supporting the Department of the Interior's Strategic Plan; leadership for performance management and enterprise risk management; and reports to these activities to the Department of Interior, Office of Management and Budget and Congress.



Jennifer Orme-Zavaleta, Ph.D., Office of Research and Development Principal Deputy Assistant Administrator, U.S. Environmental Protection Agency

Jennifer Orme-Zavaleta, Ph.D., is the Principal Deputy Assistant Administrator for Science for the Office of Research and Development (ORD) with the U.S. Environmental Protection Agency and the Agency's Science Advisor. Orme-Zavaleta has been with EPA since 1981, working in the areas of human health and ecological research, risk assessment, policy and regulation development, strategic planning, and program implementation. The focus of her experience includes the evaluation of risks to human and ecosystem health, and the influence of environmental change on human health in response to a variety of stressors including synthetic organic and inorganic chemicals, radionuclides, microorganisms, and vector-borne disease. Orme-Zavaleta received her B.A. in Zoology from Ohio Wesleyan University, M.S. in Zoology and Toxicology from Miami University, and Ph.D. in Wildlife Science and Public Health from Oregon State University.

University, and Ph.D. in Wildlife Science and Public Health from Oregon State University.



About Senator John H. Chafee (1922 - 1999)

Senator John. H. Chafee earned degrees from Yale University and Harvard Law School. After six years in the Rhode Island House of Representatives, Chafee was elected Governor in 1962 and re-elected in 1964 and 1966. In January 1969, he was appointed Secretary of the Navy and served in that post until he was elected to the United States Senate in 1976. As Chairman of the Environment and Public Works Committee, the Senator was a leading voice in crafting the Clean Air Act of 1990. He led successful efforts to enact oil spill prevention and response legislation and a bill to strengthen the Safe Drinking Water Act. Senator Chafee was a long-

time advocate for wetlands conservation and open space preservation and was the recipient of every major environmental award. John Chafee was a Republican, committed conservationist, and a political leader who worked across party lines to advance environmental protection.

THURSDAY, JANUARY 9

BREAKFAST BOOK TALK

Executive Room - 7:30-8:20 a.m.

Join Max Boykoff, University of Colorado Boulder, to learn more about his recent book, “Creative (Climate) Communications.” This book integrates lessons from the social sciences and humanities so readers can more effectively connect with diverse audiences. Discover why there is no ‘silver bullet’ to communications about climate change and why a ‘silver buckshot’ approach is needed. Explore strategies to have productive conversations about climate change and the importance of being creative in communications about climate change.

PRESENTER:

Max Boykoff, Director of the Center for Science and Technology Policy, Cooperative Institute for Research in Environmental Sciences; Associate Professor, Environmental Studies Program, University of Colorado Boulder

KEYNOTE INTRODUCTION: FIRES AND FLOODS: REFLECTIONS FROM THE FRONTLINES OF CLIMATE IMPACTS IN NORTHERN CALIFORNIA

Regency Ballroom - 8:30-8:45 a.m.



Hon. Shirlee Zane, Supervisor, County of Sonoma, California, Sonoma Water; NCSE Board Director

Sonoma County Supervisor Shirlee Zane took office in January 2009. Prior to her election she served for 10 years as CEO for Council on Aging. Supervisor Zane serves on several countywide and regional boards, including the Bay Area Air Quality Management District, Sonoma County Agricultural Preservation and Open Space District, Sonoma County Transportation Authority/Regional Climate Protection Authority and the Sonoma County Water Agency, among others. The Supervisor is leading Sonoma County’s Water Agency on atmospheric rivers, related weather forecasting technology, and their potential benefits to the future of water management. Through her advocacy and leadership, Supervisor Zane has developed a well-earned reputation for strong conservation values in addition to her environmental and social justice ethics. She holds an M.A. in Theology from Chicago Trinity Divinity School, an M.A. in family counseling from Sonoma State University, and a B.A. in Speech Pathology and Audiology from Chico State University.

ACTION PLENARY: INTEGRATING ACADEMIC SCIENCE IN LONG-TERM DISASTER RECOVERY AND RESILIENCE

Regency Ballroom - 8:45-10:00 a.m.

This interactive session will identify gaps in community long-term disaster recovery that could be enhanced by academic solutions. The panel will discuss the traditional recovery process from the perspective of various levels of government, highlighting past experiences, and posing difficult questions that could benefit from innovative solutions from academic researchers. The goal of the session is to identify a pathway forward to enable academic scientists to coordinate with local, state, and the federal government during “peacetime” to enable action through innovative solutions following a disaster and throughout the long-term recovery process.

SPEAKERS

**Michael Mahoney, Senior Geophysicist, Federal Emergency Management Agency**

Michael Mahoney is a Senior Geophysicist with the Federal Emergency Management Agency, a position he has held for 35 years. He currently leads FEMA's seismic problem-focused studies and has investigated a variety of earthquake-related issues to develop design and construction guidance under the National Earthquake Hazards Reduction Program (NEHRP). His current projects includes the development of FEMA's seven volume Performance-Based Seismic Design Guidelines series (FEMA P-58) and Seismic Evaluation of Older Concrete Buildings for Collapse Potential (FEMA P-2018). Mahoney is also responsible for FEMA's earthquake-related work with the International Codes and has been involved in the model code development process dating back to 1984. He serves as the FEMA Headquarters representative to the National Tsunami Hazard Mitigation Program, where he led a project to develop guidelines for vertical evacuation refuge structures. He holds a Masters and Bachelor's degrees in physics.

**Alice Pennaz, Ph.D., Program Analyst, Natural Hazards Mission Area, U.S. Geological Survey**

Alice Pennaz, Ph.D. is a social scientist in the U.S. Geological Survey's (USGS) Natural Hazards Mission Area, where she works on a variety of efforts related to risk research and applications, as well as science during crisis. Pennaz co-leads a collaborative project between USGS and the Department of the Interior's (DOI) Office of Emergency Management to identify risk to DOI lands and resources. She also staffs the DOI Strategic Sciences Group that takes a unique approach to disaster response by quickly deploying multi-disciplinary groups of experts to consider the cascading economic, environmental, and social consequences of disasters. Pennaz is a member of the USGS Emergency Management team, working to improve scientific response to disaster events. She is the executive secretary for the interagency working group, Science for Disaster Reduction (SDR) where she co-leads US reporting to

the United Nations Sendai Monitor on disaster losses as well as an effort to examine current and potential uses for science during disaster response. Pennaz earned her Ph.D. in Environmental Science, Policy and Management at the University of California Berkeley.

**Adam Parris, Deputy Director of Climate Science and Risk Communication, Office of the Mayor, New York City**

Adam Parris has over 15 years experience working with scientists, governments, and communities to advance climate resilience and adaptation. Currently, he is the Deputy Director of Climate Science and Risk Communication at the Mayor's Office of Resiliency in New York. Previously, he led the Science and Resilience Institute at Jamaica Bay, a partnership aimed at improving resilience in New York City. Parris has supported coastal planning for Federal agencies, as well as the states of California, Maryland, New York, and New Jersey. Parris also directed NOAA's Regional Integrated Sciences and Assessments (RISA) program, a network of 10 regional centers that help expand the nation's capacity to prepare for and adapt to climate. He has co-edited two books and co-authored nearly a dozen papers both research

and nonfiction. He holds a Bachelor's degree in English Literature and Environmental Geology from Bucknell University and a Master of Science in Geology from the University of Vermont.



Darlene Tocktoo Turner, Migrant Educational Aide, The Shishmaref School

Darlene Tocktoo Turner was born and raised in Shishmaref, Alaska. Her parents, Vincent Tocktoo, Sr. and late Molly Tocktoo, raised her to live and survive with their subsistence way of life. She currently works for the Bering Strait School District as a Migrant Educational Aide and Librarian, where she has worked for the last 30 years. She enjoys working with students and watching them grow in their education at the Shishmaref School. Turner has also been involved with the Shishmaref IRA, Shishmaref Native Corporation and her regional Kawerak, Inc., Bering Straits Regional Housing Authority, and Norton Sound Health Corporation for nearly 20 years. Her passion is to work and help her community members to live in a safe and healthy environment.

Hon. Shirlee Zane, Supervisor, County of Sonoma, California, Sonoma Water; NCSE Board Director

See Keynote Introduction

Facilitated by Nicole Meyer-Morse, Quality Assurance, Lane Manager, FEMA CRC-West and Jeffery Lusk, Deputy Director, U.S. Small Business Administration



Nicole Meyer-Morse, Ph.D., Quality Assurance, Lane Manager, FEMA CRC-West

Nicole Meyer-Morse currently works as one of the quality assurance supervisors for the Federal Emergency Management Agency (FEMA) in Public Assistance (PA), which is FEMA's largest grant program. Before serving in her current position, Nicole was the Science and Technology Advisor for the California Governor's Office of Emergency Services (Cal OES) where she spearheaded an effort to identify innovative hazard mitigation projects targeting drought, sea-level-rise, and wildfire. In collaboration with local, state, and federal partners, she and a small team identified five managed aquifer recharge projects targeting drought in California's Central Valley; these projects were the first of their kind in the United States to use FEMA hazard mitigation funding to target drought. Meyer-Morse was an American Association for the Advancement of Science Fellow with the Department of Defense in Chemical and Biological

Defense and a California Council of Science and Technology Policy Fellow with Cal OES. She received her Ph.D. from the University of California at Berkeley.



Jeffery Lusk, Deputy Director, U.S. Small Business Administration

Jeff Lusk is the Deputy Director of the U.S. Small Business Administration's (SBA) Field Operations Center (FOC) West. Following a disaster, FOC-West coordinates preliminary damage assessments (PDAs), and the Office of Disaster Assistance's (ODA) declaration process with FEMA and the states. SBA provides low interest disaster loans for uninsured loss to homeowners, renters, and businesses of any size. Prior to joining SBA, Lusk worked with FEMA's Region IX office in Oakland, CA for 22 years. During his tenure at FEMA, Jeff served in several positions, including the Regional Earthquake Specialist, the Response Operations Manager, Deputy Chief of National Preparedness, and as the Director of Mitigation Division. In 2006 and 2008, Lusk received the Shoemaker Award from the USGS for external communications, and in 2012 he received the Federal Manager of the Year award from the San Francisco Federal

Executive Board. Most notably in 2005 for his actions on Hurricane Katrina, Jeff received the Homeland Security Gold Medal, the highest decoration in the Department of Homeland Security. Lusk studied International Relations and Physical Geography at California State University, Chico, and Geology and Natural Hazards at University of California Berkeley. He is also a graduate of the Harvard Kennedy School of Government's Senior Executive Fellows program.

CONCURRENT SESSIONS GROUP E**10:30 a.m-12:00 p.m.****E1: STATE POLICY AND INDEPENDENT STATE ACADEMIES OF SCIENCE: EXAMPLES FROM WA AND CA****Location: Executive Room**

In states across the nation, scientists and engineers from academia, industry, and federal laboratories are using their expertise to inform policy decisions in state legislatures and agencies. In very real and immediate ways, those policy decisions impact a state's natural resources (water, air, agriculture, and forests); jobs and infrastructure; and medical and behavioral health, education at all levels, and worker preparation. Those policies also create and incentivize the economic and educational environment for research and innovation to thrive—or not.

In this session, speakers will discuss specific examples from two states with boundary spanning organizations created specifically to enable scientists and engineers to advise state policymakers over time—California and Washington. Presenters from the California Council on Science and Technology will discuss the policy impacts of its peer reviewed report on hydraulic fracturing stimulations in the oil and gas industry (2015), as well as ongoing collaborations between scientists and policymakers based on the report findings. Presenters from the Washington State Academy of Sciences will discuss its evaluation of a newly created state agency's (Puget Sound Partnership (PSP)) system of indicators of ecosystem condition, and human health and well-being within and around the Puget Sound, as well as ongoing interactions to advise and recommend how PSP might most effectively continue the process of refining and selecting indicators. Both sets of presentations will include brief descriptions of how the organizations were created to provide scientific and technical advice to state policymakers.

PRESENTERS:

Sarah Brady, Deputy Director, California Council on Science and Technology

Jane Long, Senior Fellow, California Council on Science and Technology

Donna Gerardi Riordan, Executive Director, Washington State Academy of Sciences

E2: IMPROVING ENVIRONMENTAL DECISION-MAKING THROUGH BOUNDARY SPANNING PARTNERSHIPS**Location: Cabinet Room**

Complex environmental problems are best addressed by policies that are grounded in science and offer practical pathways to implementation. Boundary spanning at the science-society interface describes the theory and practice of constructing systems of knowledge exchange to help address “wicked” problems such as energy and climate change, sustainable development, fisheries management, and global health.

In recent decades, major shifts have occurred in the role of boundary spanning practices in academic institutions from “add-on” activities that fall in the service category of academic advancement to activities that are increasingly part of researchers' core programs to activities that shape research on the front-end. Such programs often also involve co-production to increase the relevance, uptake, and impact of science in decision-making. Alongside these developments, boundary spanning practitioners in academic and research institutions (and those advocating for boundary spanning practices) are drawing from both theory and practice to develop frameworks for building the institutional culture and capacity for linking science with environmental decision-making. These frameworks apply to programs for training the next generation of scientists, embedding public engagement into the cultures of research institutions, and designing strategies for front-line interactions with decision-makers at scales ranging from city decision-making to international diplomacy.

SESSION DETAILS • THURSDAY, JANUARY 9

In this session, boundary spanning professionals who work in academia explore the evolution of boundary spanning practices and roles within the academic settings and articulate the emergence of new frameworks and scholarship to guide evidence-based practices inside the classroom. Experts from Harvard University, Duke University, and Dartmouth College will discuss ongoing boundary spanning efforts to develop policy solutions to address critical sustainability challenges. Presenters will discuss the science and policy frameworks they draw upon and provide a narrative of their partnership.

PRESENTERS:

Kathy Fallon Lambert, Senior Advisor, Center of Climate, Health, and the Global Environment, Harvard T.H. Chan School of Public Health

John Viridin, Director, Ocean and Coastal Policy Program, Nicholas Institute for Environmental Policy Solutions, Duke University

Deb Gallagher, Professor, Nicholas School of the Environment, Duke University

Melody Brown Burkins, Associate Director, Dickey Center for International Understanding, Dartmouth College

E3: REFINED COAL AND THE ENVIRONMENTAL IMPLICATIONS OF A BILLION DOLLAR TAX CREDIT

Location: Senate Room

Despite an overall decline in U.S. coal consumption, refined coal has accounted for an increasing portion of U.S. coal consumption in recent years, reaching nearly 20% in 2018. A federal tax credit has incentivized the use of refined coal since the mid-2000s with subsidies totaling nearly \$1 billion annually. The additives used for refining, typically halogens and cement kiln dust, are applied with the intended purpose of reducing nitrogen oxides (NO_x) by at least 20% and sulfur dioxide (SO₂) or mercury (Hg) by at least 40% compared to standard coal on a thermal energy basis. Firms typically demonstrate tax credit eligibility through a laboratory test, which can diverge from actual operational conditions. A recent analysis using boiler-level power plant emissions data in a panel regression framework suggests that the purported reductions are not achieved in practice. In addition to questionable benefits for air quality, increased use of refined coal in the electric power sector is increasing uncertainty in the effects of wastewater discharges from flue gas desulfurization (FGD) units on downstream drinking water quality. This wastewater contains residual halogens from the refining, and these chemicals alter the formation of carcinogenic disinfection byproducts in drinking water. This session has immediate policy- and decision-maker relevance since the tax credit is up for reauthorization in 2021 and since the U.S. Environmental Protection Agency is currently revisiting the effluent limitations guidelines and standards (ELGs) for FGD wastewater.

PRESENTERS:

Kelly Good, Visiting Assistant Professor, Villanova University

Jeanne VanBriesen, Vice Provost for Faculty, Duquesne Light Company Professor, Carnegie Mellon University

Brian Prest, Economist, Resources for the Future

Alan Krupnick, Senior Fellow, Resources for the Future

Dan Dudis, Environmental Counsel, Staff-U.S. Senator Sheldon Whitehouse

E4: RESILIENT COMMUNITIES IN THE FACE OF RISING RIVERS

Location: Council Room

The massive flooding during 2019 in many regions of the country illustrates the impact of riverine flooding: both short duration flash floods and the much longer lasting and wider geographic impact of the Mississippi River system

flooding. Managing such impacts and building community resilience depends on the integration of science into local decision-making. This session will highlight how communities in Pennsylvania—a state with one of the highest number of stream miles and the most flood-prone rivers—are working to incorporate science related to future flood impacts—from larger rivers, smaller streams, and local creeks—into their planning and infrastructure investments. The Commonwealth of Pennsylvania has more than 2,500 municipalities; most of these are small, rural municipalities and boroughs—an overlooked, but important area for relating natural, built, and social infrastructure. One major limitation, especially in small municipalities, is a lack of communication and sharing of information between decision-makers. How to go from communities in peril to resilient communities is a critical challenge that depends on the integration of science into decision-making. After addressing the current and predicted flood dynamics, this session will highlight how the Borough of Selinsgrove and the City of Philadelphia are working to manage flood impacts. The resilience of a community to prepare for such storms, and to bounce back afterward, is an increasingly urgent question across the United States and the globe. This session and discussion will focus on the challenges, needs, and opportunities of smaller, riverine communities using these communities as examples.

PRESENTERS:

Robert Nicholas, Associate Research Professor and Assistant Director, Earth and Environmental Systems Institute, The Pennsylvania State University

Lisa Iulo, Associate Professor and Director of Hamer Center for Community Design, Department of Architecture, The Pennsylvania State University

Josh Lippert, Floodplain Manager, City of Philadelphia

Klaus Keller, Professor of Geosciences, The Pennsylvania State University

Nancy Tuana, Professor of Philosophy, The Pennsylvania State University

E5: DOING AND LEARNING IN A NOISY, COMPLEX WORLD: THE ADAPTIVE MANAGEMENT CARD GAME

Location: Hampton Ballroom

Effectively bridging science and policy requires finding a balance between doing and learning. However, scientists, decision-makers, policymakers, and stakeholders face many challenges that limit their ability to implement interventions and learn about their effectiveness. These challenges include increasing need to demonstrate results quickly due to the urgency to address critical social-environmental problems and increasing scrutiny of decisions and needs for public transparency—among others. At a fundamental level, these challenges reflect difficulties with either getting things done and/or effectively learning about whether interventions/actions are achieving intended outcomes.

Adaptive Management (AM) provides a way to address these challenges. AM has greatly advanced since the 1978 publication of C.S. “Buzz” Holling’s book, “Adaptive Environmental Assessment and Management.” While there are widely varying approaches and interpretations (some rigorous in methods, some deficient) regarding how to apply AM, there remains strong support for it as demonstrated by its sustained and even increasing popularity as a tool for confronting uncertainties in different environmental contexts.

In this interactive session, participants will learn about AM by playing a card game developed by the facilitators and others at ESSA Technologies Ltd., a private consulting firm based in Vancouver, Canada, that has applied AM as a cornerstone of its work since 1979. Participants will reflect on their personal experience and how AM could have been used to improve a current or previous challenge related to how science is/was used in policy- or decision-making. They will receive their own cards and a reading list to support future discovery and understanding of AM. The session will leverage the insights and experience of the facilitators, two senior practitioners from ESSA, and their colleagues, who have developed AM plans across a range of situations and sectors, including endangered species recovery, habitat and ecosystem restoration, fisheries and water management, and management of industrial projects.

PRESENTERS:

Marc Nelitz, Adaptive Management Lead, ESSA Technologies Ltd.

Jimena Eyzaguirre, International Team Director and Climate Change Adaptation Lead, ESSA Technologies Ltd.

E6: EDUCATING FUTURE DECISION-MAKERS: SUSTAINABILITY AS A PATHWAY K-12 TO UNIVERSITY

Location: Forum Room

There are many policies that do not solve public problems and many problems that are not being addressed with good policies. As the planet faces challenges to house and feed healthy communities, we can ask the following questions:

- Why is science being done in prestigious institutions and policymakers are not using this data for decision-making?
- Why is the media and policymakers paying attention to Greta Thunberg, a 15-year-old climate activist from Sweden?
- Are we creating viable pathways for our children who are in K-12 to succeed in a community college and then transfer to four-year universities and forming them as good stewards of our planet?
- How can we all contribute to the formation of future citizens that can influence policymakers?
- How can we form our future policymakers to understand the benefit of making science based decisions?
- Why does the gap or bridge between science and policymaking vary from one state to another in the U.S.?
- Are there best practices of forming students to bridge science and decision-makers?

The answers to these questions will be addressed by a panel of educators of higher education (community colleges and universities) from the states of Hawai'i, Florida, and Texas where major floods, droughts, and storms have affected the livelihood of these communities.

PRESENTERS:

Maria Boccalandro, Director of Sustainability, Cedar Valley College

Brandon Morton, Sustainability Project Coordinator, North Lake College

Kara Casy, Senior Manager of Grant Project, El Centro College

Marianella Franklin, Chief Sustainability Officer, The University of Texas Rio Grande Valley

Stephen Summers, Associate Vice President School of Arts & Sciences, Seminole State College of Florida

Robert Franco, Director, Office for Institutional Effectiveness, Kapi'olani Community College

E7: USING SCIENCE TO HELP LOCAL GOVERNMENTS PREPARE FOR CLIMATE CHANGE

Location: Diplomat Ballroom

Most rural towns and small and mid-sized cities do not have direct access to climate scientists to help them understand their specific climate change vulnerabilities, which vary by location, geography, and local assets. These communities face both the impacts of the climate change crisis as well as technical and financial capacity constraints that often leave them without the resources to hire consultants or the staff capacity to lead essential planning and implementation processes. Boundary organizations are addressing these gaps by offering cohort-training programs,

community-specific geospatial analysis tools, and decision-support frameworks that merge climate science with visual representations and support analysis and decision-making in local government.

In this session, participants will hear about three climate resources developed for small and mid-sized local governments in the U.S. Presenters will focus on the misalignments between available science and what local governments need; communication difficulties; and how local leaders are using these tools to prepare their communities and most vulnerable residents for the impacts of climate change.

Indiana University's Environmental Resilience Institute will provide an analysis of local governments' use of the Hoosier Resilience Index, a tool to help town, city, and county government employees understand the climate change vulnerabilities specific to their communities, and evaluate and improve progress toward resilience using science-based solutions. Headwaters Economics, an independent, nonprofit research group, will discuss the local government feedback they received during the development of their Neighborhoods at Risk tool, which provides a platform for individual cities and counties in the U.S. to geospatially analyze how climate change and existing land use patterns impact socially vulnerable neighborhoods differently. Finally, the Geos Institute will share experiences working with mid-sized and small local governments through the Climate Ready Communities assisted do-it-yourself model.

PRESENTERS:

Andrea Webster, Implementation Manager, Environmental Resilience Institute, Indiana University

Patty Gude, Associate Director, Headwaters Economics

Tonya Graham, Executive Director, Geos Institute

Janet McCabe, Director, Environmental Resilience Institute, Indiana University

ARMCHAIR KEYNOTE: SUSTAINABILITY AND A BOLD PATH TO A CLEAN ENERGY ECONOMY

Regency Ballroom - 12:00-1:30 p.m.

Disruptive thinking is the earliest stage of high impact interventions. Taking risks on new thinking and designs takes courage; however, the impact/loss ratio with history as an indicator suggests these times call for high risk and high reward. Where does sustainability science fit into the design of the clean energy economy of the future?

MODERATOR



Paul Shrivastava, Ph.D., Chief Sustainability Officer, The Pennsylvania State University

Paul Shrivastava, Ph.D., is Chief Sustainability Officer at Penn State University, Director of the Sustainability Institute and Professor of Organizations at the Smeal School of Business. Prior to this role, he served as Executive Director of Future Earth, a global research platform for environmental change and transformation to sustainability. Earlier Shrivastava was David O'Brien Distinguished Professor of Sustainable Enterprise, and the Director of the David O'Brien Centre for Sustainable Enterprise, at the John Molson School of Business, Concordia University, Montreal. Shrivastava was part of the management team that launched Hindustan Computer Ltd. He founded the non-profit Industrial Crisis Institute, Inc. in New York, and published the Industrial Crisis Quarterly. He founded Organization and Environment, a journal of Sage Publications. He was founding Chair of the Organizations and Natural Environment (ONE) Division of the Academy of Management. He was founder President and CEO of eSocrates, Inc., a knowledge management company, and Founding Executive Director of Future Earth. Shrivastava received his Ph. D. from the University of Pittsburgh.

SPEAKERS



Rohan Patel, Director, Policy and Business Development, Tesla; NCSE Board Director

Rohan Patel serves as the director of policy and business development at Tesla, where he oversees regulatory and legislative efforts throughout North America. Previously, he served as Special Assistant to the President and Senior Advisor for Climate and Energy Policy, where he worked on a range of power sector and transportation policies. In addition, Patel was President Obama's primary liaison with city and county officials. He also served as Associate Director at the White House Council on Environmental Quality, overseeing climate change and conservation issues. After the 2008 inauguration, he joined the Obama administration as Senior Policy Advisor to Secretary Vilsack at the United States Department of Agriculture. Patel is a graduate of Northwestern University and a native of Goshen, Indiana.



Holmes Hummel, Ph.D., Founder, Clean Energy Works

Holmes Hummel, Ph.D., is the founder of Clean Energy Works, which works to accelerate investments in the clean energy economy with inclusive financing. As a champion for inclusive financing to deploy all cost effective grid edge technologies, Hummel has led Clean Energy Works to win endorsement from the Global Innovation Lab for Climate Finance for breakthroughs in the transportation sector that are also applicable to rooftop solar, energy efficiency, and more. Previously, Hummel served as the Senior Policy Advisor in the Department of Energy's Office of Policy & International Affairs from 2009-2013. Hummel served as an AAAS Congressional Science Fellow for then Representative Jay Inslee, rejoining Inslee's policy team this year for his presidential campaign that sparked more ambitious climate policy across the field. Hummel earned a doctorate degree from Stanford University for interdisciplinary research on energy

technology scenarios that achieve 100% clean energy for all, and later taught climate policy design at UC-Berkeley's Energy Resources Group.

INTRODUCTION TO WORKSHOPS

Regency Ballroom - 1:30-2:00 p.m.

Each workshop leader will present a two- to three-minute snapshot of their workshop to all conference attendees. Learn new skills for communicating with diverse audiences. Trained and experienced professionals will lead the workshops on a range of topics, from science communication and media training to story maps and policy engagement.

PRESENTERS:

Erica Goldman, Ph.D., Science Policy Director, National Council for Science and the Environment

Diana Brazzell, Co-Founder & Executive Editor, Footnote

David Helvarg, Senior Fellow, Executive Director, Blue Frontier Campaign

Ben Miyamoto, Director of Membership & Research, Scholars Strategy Network

Mark Bayer, President, Bayer Strategic Consulting

Kristen Hocutt, GIS Solution Engineer, Esri

Rachel McMonagle, Program Manager, Climate Change, American Public Health Association

WORKSHOPS

2:00–3:30 p.m.

F1: COMMUNICATING FOR IMPACT: HOW TO SHARE SCIENCE WITH DECISION-MAKERS

Location: Diplomat Ballroom

Effective communication is essential to ensure scientific research is integrated into decisions on environmental issues such as climate change, water management, and clean energy. However, communicating with lay audiences is not something scientists are traditionally trained to do.

How can you communicate science effectively to decision-makers, policymakers, practitioners, and the general public? Come learn from a skilled science communicator who has collaborated with nearly 200 academics to create articles showcasing their research in media outlets including The Boston Globe, Fast Company, Fortune, Harvard Business Review, The Hill, Inside Higher Ed, and The Washington Post.

We'll share general principles for effective science communication as well as specific techniques for writing about science in a way that is accessible and engaging for lay audiences. We'll draw on real examples of effective science communication and discuss how to communicate to create impact. The workshop will be highly interactive, with numerous opportunities for participants to explore how what they learn applies to their own science communication efforts. Participants will leave with a clear set of principles and practices for effectively communicating scientific knowledge to decision-makers.

PRESENTER:

Diana Brazzell, Co-Founder & Executive Editor, Footnote

F2: MEDIA TRAINING FOR SCIENCE COMMUNICATORS

Location: Executive Room

First given at the last IUCN World Conservation Congress in Hawai'i for 125 scientists and most recently presented at 2019's EarthX in Dallas, the Blue Beat Media workshop is designed to engage and mobilize different key audiences, including scientists, to help broaden their effectiveness in developing ways to communicate key environmental issues they are working on. The workshop will offer a set of practical examples on how to form and promote participants' issues and findings as engaging stories for journalists, policymakers, and society in general. The panel leaders, including two long-time journalists, a public relations professional, and two video producers, will provide useful insights, take story "pitches" based on attendees work and critique them, do hands on training for use of cell phones as video production tools, and break down the audience into different media forums (print, broadcast, social media) to generate story ideas, then critique them and engage in feedback and Q&A before providing handouts based on the workshop.

PRESENTERS:

David Helvarg, Senior Fellow, Executive Director, Blue Frontier Campaign

Eleanor Kerlow, Senior Communications Advisor, Blue Frontier Campaign

Bill Gentile, Director, Journalism and Broadcast Production Program, American University

F3: SCHOLARS STRATEGY NETWORK'S TRAINING RESEARCHERS TO INFORM POLICY WORKSHOP

Location: Cabinet Room

At every level, public debates and policy decisions are rarely informed by the best research and evidence. Too often public debates are not even grounded in facts. Poorly informed policy decisions may do more harm than good. Researchers and research institutions can help—if they are equipped with the skills and support. Scholars Strategy Network's signature workshop, "Training Research to Inform Policy," empowers scholars to become powerful players in policy debates. This workshop gives scholars the tools to map the policy landscape and build relationships with the leaders who work on the issues they study.

"Training Researchers to Inform Policy" (TRIP) is often hosted as a one-day, six-hour workshop. For this event, a few key modules will be offered to give scholars quick-paced hands-on introduction to effective strategies for policy engagement. This workshop is focused on one thing: practical, evidence-based steps researchers can take to ensure that research findings and researchers' perspectives inform policy. Designed for accomplished senior professors and advanced graduate students alike, scholars leave TRIP workshops with tools to become powerful players in policy and build relationships with policymakers, civic leaders, and journalists. These relationships can make research matter to policy, spur evidence-based policy reform and innovation, and lead to rich new research directions and partnerships.

"Training Researchers to Inform Policy" is based on research about when policymakers use research—and when they don't. The curriculum draws on an in depth literature review and dozens of interviews with researchers and practitioners. It also draws on six years of organizational learning by the Scholars Strategy Network, a nationwide interdisciplinary community of over 1,000 researchers dedicated to using research to improve public policy and strengthen democracy.

PRESENTER:

Ben Miyamoto, Director of Membership & Research, Scholars Strategy Network

F4: THE SOUNDS OF SCIENCE: GETTING YOUR RESEARCH AND POLICY GOALS HEARD IN CONGRESS

Location: Forum Room

This workshop will teach specific, actionable messaging skills to participants interested in how to engage with policymakers on issues they're passionate about; craft and deliver compelling communications on policy-related matters; and sequence and calibrate their messaging to support productive relationships with policymakers and staff members in their priority research and policy areas.

The workshop's subject matter is shaped by lessons and experience the presenter gained throughout 20 years of work on Capitol Hill, including service as Chief of Staff in the Senate and House of Representatives and informed by collaborating with, and conducting workshops for, AAAS Science and Technology Policy Fellows as well as hosting a weekly podcast, "When Science Speaks," that interviews scientists and engineers engaged in the public policy and communication realms.

The workshop will teach participants the insider, behind-the-scenes techniques for getting their voices heard and advancing their policy goals in Congress. It responds to intensifying interest in science policy and engagement with policymakers among many natural and social scientists. Despite the escalation of interest, grad students, Ph.D.s, and Postdocs in the sciences often do not have access to the training to be effective in public policy environments. Mentors may not have knowledge of, or contact with, resources to help students and trainees identify opportunities in public policy fields. Responsibilities to lab work and aggressive deadlines may frustrate efforts to find and participate in training and/or fellowships that could enable greater understanding and sophistication about how to influence and shape public policy.

PRESENTER:

Mark Bayer, President, Bayer Strategic Consulting

F5: USING STORY MAPS FOR EFFECTIVE COMMUNICATION

Location: Congressional A/B

Learn the basics of how to use Esri's storytelling apps to plan, build, and publish stories for your organization. In this workshop, you will explore different kinds of story maps and learn how to create your own. Topics covered include conceptualizing your stories; choosing which storytelling app to use based on your requirements; and building, editing, and publishing your stories in a story map template. Whether your goal is to share information with the public, present research findings, or showcase points of interest, you will learn useful tips to create an engaging story map more quickly and easily.

PRESENTERS:

Kristen Hocutt, GIS Solution Engineer, Esri

Lain Graham, Solution Engineer, Esri

F6: MAKING CLIMATE CHANGE PERSONAL FOR EFFECTIVE COMMUNICATION

Location: Hampton Ballroom

Climate change poses many risks to human health. Communities in the U.S. are already experiencing the adverse health consequences that are projected to only worsen. Yet, the connection between climate change and health is largely undiscussed and represents an opportunity for strengthening the case for wider understanding of how climate change affects our health. Communicating climate and health effects through personal storytelling is a powerful tool for advocacy. Many advocates struggle to effectively articulate how climate change affects them personally, their families, and their communities on the ground. Equipping individuals with effective storytelling techniques and climate and health data will lead to more empowered advocates who can drive policy change to build community health resilience.

PRESENTERS:

Rachel McMonagle, Program Manager, Climate Change, American Public Health Association

Surili Sutaria Patel, Deputy Director, Public Health Policy, American Public Health Association

Gabriella Witte, Senior Manager, Government Relations, American Public Health Association

Louise Dettman, Communications Specialist, American Public Health Association

WORKSHOP REFLECTIONS AND CONFERENCE CLOSING

Regency Ballroom - 3:30–4:00 p.m.



Michelle Wyman, Executive Director, National Council for Science and the Environment

Michelle Wyman has worked on energy and environmental policy with states and local governments for over 15 years, developing strategic and tactical solutions to their energy planning, climate mitigation, and adaptation challenges. Before joining NCSE, she served as the Director of Intergovernmental Affairs at the U.S. Department of Energy. She founded Applied Solutions-Local Governments Building a Clean Economy and led ICLEI USA, both of which are nonprofits engaging directly with cities, counties, and states on clean energy, environmental, and sustainability issues. She has served in a wide variety of leadership capacities including with the World Bank and the United Nations. She was Natural Resources Director of the city of Fort Collins, Colorado, and established a public sector practice focused on the environment and sustainable development working with states, local governments, and related national nonprofits based in Washington, D.C.



Erica Goldman, Ph.D., Science Policy Director, National Council for Science and the Environment

Erica Goldman is the science policy director at NCSE. In this role, she leads NCSE and its Member Institutions in building capacity to bridge science and policy to improve the scientific basis of environmental decision-making. Erica has a varied background that includes science writing, policy, and academic research. Previously, Erica served as the director of policy engagement for COMPASS, a nonprofit organization that helps environmental scientists effectively share their knowledge in the public discourse and decision-making. She also served in a six-month position in the White House Council on Environmental Quality on the Land & Water Ecosystems Team. She has worked as a science writer for the Maryland Sea Grant College Program; served as a Knauss marine policy fellow in the Natural Resources Committee of the U.S. House of

Representatives; and worked as a news intern at Science Magazine. She received her doctorate in biology from the University of Washington and her bachelor's degree from Yale University.

Join the poster presenters in the Ambassador Ballroom to learn more about their projects:

Tuesday, January 7, 3:15–4:15 p.m.

Wednesday, January 8, 1:30–2:15 p.m.

1. Advancing “Strategic Communication” in Environmental Decision-Making

Matthew Harwell, Senior Ecologist and Special Assistant, U.S. Environmental Protection Agency

2. Bias and the Peer Review of Potential Research

Stephen Gallo, Chief Scientist, American Institute of Biological Sciences

3. Developing International University Research Partnerships

Timothy Filley, Professor, Director of Purdue’s Center for the Environment, Purdue University

Henry Polanco, Universidad Nacional de San Augustin

Victor Maquette, Purdue University

4. Economic Benefits of Increasing Soil Organic Matter on California Rangelands

Frank Casey, Ecosystem Services Theme Leader, U.S. Geological Survey

5. Economic Valuation of the National System of Protected Areas: Dominican Republic

Victor Gómez-Valenzuela, Research Professor, Instituto Tecnológico de Santo Domingo (INTEC)

6. Using Systematic Reviews to Support Environmental Decisions

Sylvia Lee, ORISE Research Participant – Postdoctoral Fellow, U.S. Environmental Protection Agency

7. Developing a Child Care Siting Program in NC to Prevent Environmental Exposures

Jamie Pritchett, Program Coordinator/Health Assessor, North Carolina Department of Health and Human Services

8. Bridging Silos: Collaborating for Environmental Health and Justice

Katrina Korfmacher, Associate Professor of Environmental Medicine, University of Rochester

9. Groundwater Governance and Outreach in the Ogallala Aquifer Region

Hannah Moshay, Masters Student, Tufts University

10. Boundary Spanning Between Science and Policy: Lessons Learned From South Florida

Pamela Fletcher, Assistant Professor, Broward College

11. Improving Environmental Justice Analysis of Urban Tree Ecosystem Services

David Martin, Professor of Economics and Environmental Studies, Davidson College

12. Identifying the Determinants of Recycling Rates in US: A Multi-Level Analysis

Yoonsung Kim, Associate Professor, George Mason University

13. Improving Manufacturing Productivity: The Industrial Assessment Center Program

Patrick Phelan, Professor, Arizona State University

14. Evidence Assessment in the Environmental Management Arena

Kate Schofield, Ecologist, U.S. Environmental Protection Agency

15. Putting Data to Work

Claire O’Dea, Assessment Program Manager, USDA Forest Service

16. Modeling and Forecasting Energy Consumption for Residential Buildings in Kuwait

Turki Alajmi, Research Associate, Kuwait Institute for Scientific Research

17. Going Solar? Economics and Psychology of Choosing Residential vs Community Solar

Suchandra Basu, Associate Professor of Economics, Rhode Island College

POSTER PRESENTATIONS

18. The Challenge of Consensus: Exploring Participation in Environmental Governance

Hali Moreland, Graduate Student, Dalhousie University, Halifax, Canada

19. Supporting Faculty, Staff, and Administrators to Develop Robust Sustainability-Related Programs: Research-Based Designs of an NCSE Proposed Project

Jordan King and Jacqueline Kolb, Graduate Students, Arizona State University

20a. All Signs Point to Canada: Climate Change Migration and the Imminent Threat of Rising Sea Levels

Jessica Daze, Manjot Kaur, Riley Lepp, Caprial Purdy, Students, Fleming College

20b. A Roof Over Their Heads: Integrating Traditional Knowledge into a New Building Code for First Nations Communities in Canada

Megan Morey, Hayden Neilsen, Ashley Prince, James Reive, Students, Fleming College

21a. Buy, Eat, Throw Out, Repeat: Canada's Need for Food Waste Policy

Nicole Bitter, Ciara Dunne, Corey Hurren, Jade Schwartzentruber, Students, Fleming College

21b. Moving Towards a Circular Economy: Rethinking Current Waste Disposal Policies in Growth-Oriented Economies

Miranda Floreano, Joel Grandmont, Dustin Lepage, and Ben St. Onge-Shank, Students, Fleming College

22a. Fuel for Thought: Standardizing Industrial Gas Flaring Protocol

Ashley Smith, Sam Sommer, Rachel Stephens, and Michaela Ward, Students, Fleming College

22b. The Unseen Pollutant: Acoustical Radiation Mitigation Strategies in Urban Planning and Policy Initiatives

Steven Lee, Reegan Sargent, Madeline Tregenza, and David-Angelo Williams, Students, Fleming College

23a. How the Water Quality of the Flint River Water Affects the Development of Minnows

Brianna Horne, Student, Mott Community College

23b. How Does Water Pollution Affect Plant Growth

Steven Brown and Jaquay Renfro, Student, Mott Community College

24a. Influence of Water Quality on Frog Growth

Autumn Holland, Student, Mott Community College

24b. Water Analysis of Microbial Agents: Legionella, Salmonella, and E. Coli

Jacqueline Leader, Student, Mott Community College

25. What Heavy Metals are Absorbed by Plants, If Any?

Raven Hupp-Andrews and Khadija Briggs, Student, Mott Community College

26. Climate Biases Can Affect the U.S. Intelligence Community

Jordan Beauregard, Student, National Intelligence University

27. Sustainable Stories: Linking Art and the Environment to Inform, Educate, and Inspire

Shannon Stanforth, Student, University of Dayton

28. Managed Retreat Visualizations for Land Use Planning in Coastal Communities

Yao Wang, Student, SUNY-ESF

29. The NOAA GeoPlatform: A Tool for Scientific Collaboration and Marine Management

Adele Birkenes, Undergraduate Student / Ernest F. Hollings Scholar, Vassar College / NOAA

30. Air Pollutants and Childhood Asthma in the Bronx

Jovan Gonzalez, Student, Manhattan College

31. Heavy Metal Pollution in Tibbetts Brook in the Bronx, New York City

Tatianna Peralta, Student Researcher, Manhattan College

CONFERENCE COLLABORATORS

We would like to recognize and thank our conference collaborators for their promotional support of the NCSE 2020 Annual Conference.

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Security and Sustainability Forum

TenAcross (10X)

The International Network for Government Science Advice

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The Security and Sustainability Forum has been a supporter of NCSE for nearly 11 years. We have a common interest in sound science informing environmental and energy policy. SSF is a public interest educational organization that convenes global experts in free webinars to address the impacts to society from environmental disruptions, including climate change. Over 20,000 sustainability professionals subscribe to their webinar programs. Higher education faculty use the live webinars and archived videos for curriculum enrichment. If you are not a subscriber, you can sign up for email alerts on the SSF website.

www.ssfonline.org

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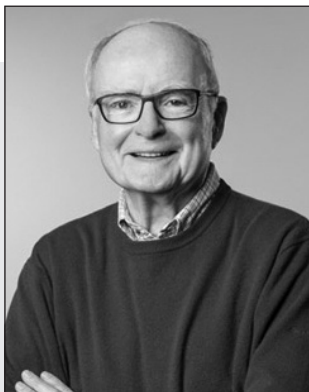
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WILLIAM D. RUCKELSHAUS

In Memory, 1932-2019

**First and Fifth Administrator,
U.S. Environmental Protection Agency**

**Honorary Board Director,
National Council for Science and the Environment**

William Ruckelshaus was a true visionary whose contributions to improving our planet and oversight of foundational environmental laws will have a lasting effect on all. He was passionate about environmental protection, a leader in bipartisanship, and an honorable public servant. Ruckelshaus delivered the John H. Chafee Memorial Lecture on Science, Policy, and the Environment at the National Council for Science and the Environment (NCSE) Annual Conference in 2005. For his steadfast passion for the environment, Ruckelshaus served as an Honorary NCSE Board Director. Recognized throughout the world as a leader bridging law and the environment, Ruckelshaus will forever be remembered for his integrity and public service as well as his commitment to the NCSE mission of improving the scientific basis of environmental decision-making.

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2019 PHOTO CONTEST WINNER

NCSE held a photography contest in 2019 that invited photographers to share their most inspired work that demonstrated their interpretation of how science is used in service to the environment and society. The contest winner is Preston McLaughlin, a graduate student at the University of Texas at Austin.

His photo, **“Where the Ocean Meets the Sky,”** depicts an estuarine wetland landscape located in West Side National Park in the Bahamas.





United States Department of Agriculture



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Putting Science to
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The U.S. Department of Agriculture (USDA) ensures our nation has access to safe, nutritious, high quality, and affordable food. USDA scientists create and innovate technology and knowledge that leads to new wood and agriculture-based products; fosters ecological stewardship of our nation's farms, forests, and grasslands; and strengthens rural prosperity and economic development.

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Innovative Science for Sound Environmental Decisions



A Half Century of Critical Research Support

This year marks EPA's 50th Anniversary. Research has played an integral role throughout our history: providing the data, information, and knowledge the Agency needs to meet our mission to protect public health and safeguard the natural environment. In doing so, EPA researchers have pioneered the field of environmental science.

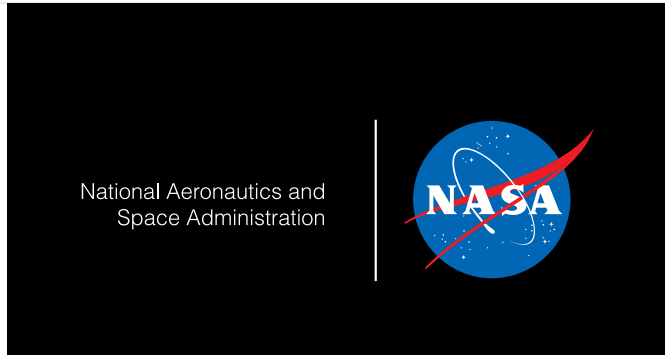
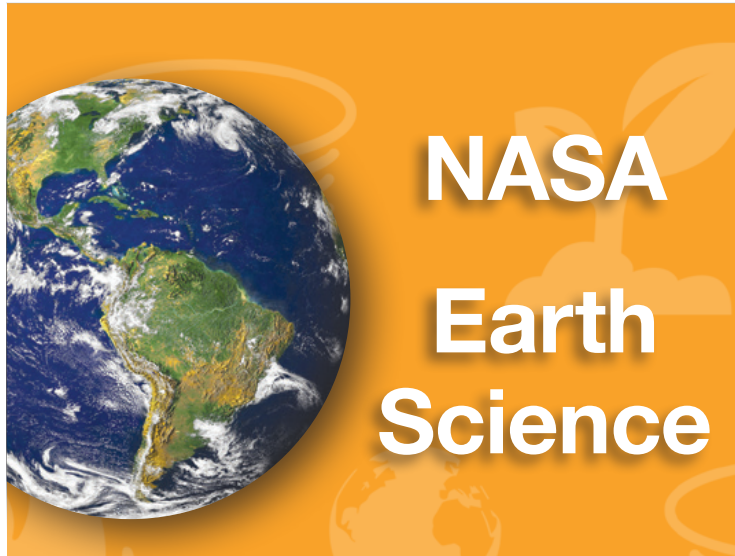


Today, EPA's Office of Research and Development continues that work by advancing innovation and discovery in ways that enable sound environmental decision-making while sowing the seeds for a healthier, cleaner, and more prosperous future.



The Office of Research and Development is currently looking for top environmental scientists and engineers to join us as we tackle the most complex and pressing environmental challenges. We are actively seeking a diversity of expertise and candidates to further strengthen our world class workforce. To learn more, visit: www.epa.gov/careers/science-careers-epa

www.epa.gov/research



Providing New Perspectives of Earth's Environment and Health

Please plan to visit the NASA Booth during the NCSE 2020 Annual Conference, January 7-9.

NASA's Earth Science Division uses unique global observations from space, air, sea, and land. This data enables informed decision-making for agriculture, water and food security, urban planning, disaster preparedness and response, transportation, climate and weather, and myriad other things that benefit life on Earth.

Daily Hyperwall presentations will cover a diverse range of science topics including an overview of NASA's Earth Science missions, Landsat science, the GLOBE Program, health and air quality applications, Earth science data and tools, and more.

Our Planet in a Whole New Light



The booth will also feature NASA's new 200-page eBook.

**The book is now available online at:
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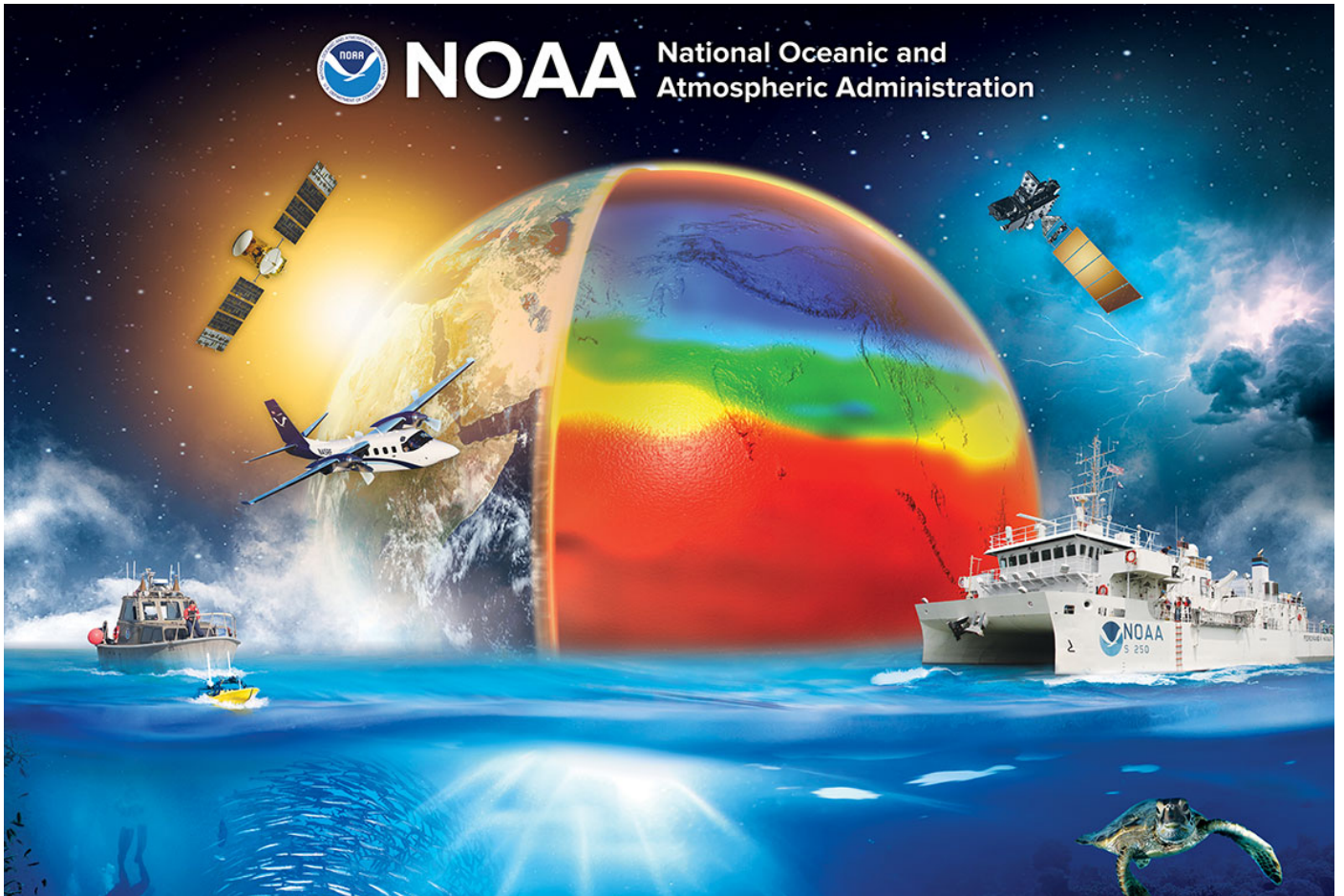
Includes more than 150 images of our planet in darkness as captured from space by Earth-observing satellites and astronauts on the International Space Station over the past 25 years.

science.nasa.gov

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
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I encourage you to contribute a research or comprehensive review article for consideration for publication in *Sustainability*, an international open access journal which provides an advanced forum for research findings in areas related to sustainability and sustainable development. The journal publishes original research articles, reviews, conference proceedings (peer reviewed full articles) and communications. I am confident you will find the journal contributes to enhancing understanding of sustainability and fostering initiatives and applications of sustainability-based measures and activities.

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Aims and Scope

Our aim is to encourage experts to publish their experimental, computational and theoretical research on sustainability. This encompasses topics related to of social sciences, natural and applied science and engineering, in order to enable the application and development of sustainability.

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EPA's Climate Change Adaptation Resource Center: An Opportunity for Universities

The USEPA's Climate Change Adaptation Resource Center (ARC-X) is an innovative system designed to help all 40,000 communities across the United States anticipate, prepare for, and adapt to the impacts of climate change (www.epa.gov/arc-x). It supports local government officials in every community, from those with extensive experience and expertise dealing with the impacts of climate change to those working in communities who are just beginning to meet those challenges.

The ARC-X provides users with an integrated package of information tailored specifically to their needs, based on where they live and the specific issues of concern to them, including:

1. the risks posed by climate change to the issues they are concerned about in their communities;
2. adaptation strategies to address the risks posed by climate change;
3. case studies that illustrate how other communities with similar concerns have already successfully adapted, along with instructions on how to replicate their successful efforts;
4. tools available from EPA to help implement the adaptation strategies;
5. sources of funding from EPA and other federal agencies.

The ARC-X is a nationwide system that lacks a lot of detailed case studies for any one state. EPA is therefore looking for opportunities to work with a university in each state to develop a state-level version of the ARC-X containing more detailed content relevant to its communities. EPA is prepared to share the entire system (content and computer code) with each university at no cost so it can use it as a platform for building its state-level version.

IN 1970 THE FIRST EARTH DAY BROUGHT ABOUT DRAMATIC ENVIRONMENTAL IMPROVEMENTS THROUGH POLLUTION CONTROLS BASED ON SCIENCE.

NOW, ON THE 50TH ANNIVERSARY OF EARTH DAY, WE NEED SCIENCE TO GUIDE THE WORLD IN ADDRESSING THE CLIMATE CRISIS.



#EARTHRISE





UNEP invites NCSE contributions
to Foresight Analyses and the
World Environment Situation Room



The World Environment Situation Room through the open data platform Environment Live provides the UN Member States open access to information and knowledge on the environment at the global, regional and national levels. It supports Environmental Policy through Foresight, Outlooks and Assessments and providing Capacity Building for countries to achieve the Goals of Agenda 2030 and Sustainable Development. The World Environment Situation Room provides up-to-date information for citizen science, communities of practice and impact stories and case studies on the environment and people. It is impacting people and livelihoods across countries, regions and the world.



World Environment Situation Room:
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