

ENVIRONMENTAL SCIENCE AND POLICY PROGRAM

FALL RESEARCH SYMPOSIUM

FEATURING DR. JAY LUND

DETAILS

Date: October 27, 2023

Time: 8:30 AM -2:00 PM

Kellogg Hotel & Conference Center

Lincoln Room

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science+
policy PROGRAM

Thank you!

Tina Bird

ESPP Administrative Business
Analyst

Hannah Hawes

ESPP Student Assistant

The ESPP Fall Research Symposium Student Organizing Committee:

Graham Diedrich, Department of Statistics and
Probability

Marcela Tabaresruiz, Department of
Microbiology & Molecular Genetics

Abhinav Kapoor, School of Planning, Design, and
Construction

Leigh Anne Tiffany, Department of Advertising
and Public Relations & School of Journalism

Emily Milton, Department of Anthropology

Additional funding provided by:

The Graduate School

The College of Agriculture and
Natural Resources

The College of Social Science

The College of Natural Science

Fall Research Symposium

8:30 – 9am	Registration and Continental Breakfast Poster: Peri-Urban Transformation: A Meta-Analysis of Global Research on Development and Landcover Change, Abhinav Kapoor
8:45 – 9am	Welcoming Remarks <i>Dr. Joe Hamm, ESPP Graduate Program Director</i>
9 – 10am	MSU Plenary Talk: Reviewing the Literature on Interventions to Address Conflict after Climate-Influenced Migration <i>Dr. Mark Axelrod, James Madison College & Department of Fisheries and Wildlife</i>
10 – 10:15am	Break
10:15 – 11:55am	Student Breakout Sessions (table below)
12 – 1:30pm	Invited Plenary Talk: Challenges and Directions for Water Policy and Engineering for the Coming Decades <i>Dr. Jay Lund, University of California - Davis</i>
1:30 – 2pm	Closing Remarks <i>Dr. Lifeng Luo, ESPP Director</i>

Time	Session 1: Room 101	Session 2: Room 102
10:15	Nan Jia - Polycrisis: A Framework for Understanding Metacoupled Crisis in the World	Alaina Bur - Contemporary Ecological Knowledge: Understanding Traditional Knowledge in Light of the Present in Western Kenya
10:35	Graham Diedrich – Assessing the Interplay between State Climate Plans and the SDGs: A Case Study in the Great Lakes Region	Kathleen Rockwell - Gravitropic Response to Transgenic Tobacco with WEEP Overexpression
10:55	Abhinav Kapoor - Impact of Land-Cover Changes on Ecosystem Services of Peri-Urban Metro Manila	Natalie Overton – Who’s Going Green
11:15	Liang Zhao - Wastewater-based Epidemiology for COVID-19 and Beyond in Detroit, Michigan: What Has Been Achieved during the Pandemic and What’s Next?	Corinn Rutkoski – Are Prairie Strips Insecticide Sinks? Examining Insecticide Transport in Rowcrop Agricultural Fields with Prairie Strips
11:35	Pei-Jyun Lu - Efficacy of Cloud Seeding Policy in Kansas	Snehalata Sainjoo – The Spatial-Temporal Impact of Dams on Farming Communities’ Resource Accessibility: Case Studies from Cambodia

Welcome from the Director

Dr. Lifeng Luo

Director, Environmental Science and Policy Program

Professor, Department of Geography, Environment &
Spatial Sciences

Michigan State University



ESPP's Student Research Symposium is an annual event organized by our students, a platform dedicated to showcasing the remarkable research efforts and talents of our students. The symposium is a testament to the dedication, innovation, and hard work that each one of you has invested in your research journey. It is a momentous occasion where you have the opportunity to share your discoveries, insights, and expertise with your peers, faculty members, and the broader academic community. The symposium is more than just an event; it is a reflection of our program's commitment to fostering intellectual growth, multidisciplinary collaboration, and the pursuit of knowledge.

During the symposium, you will have the chance to present your research, engage in meaningful discussions, and receive constructive feedback from your peers and faculty mentors. I encourage all of you to actively participate, whether as presenters or as attendees. Take this opportunity to learn from one another, network, and broaden your horizons. Your contributions are what make our program thrive, and I have no doubt that this symposium will be a testament to your academic excellence.

I would like to extend my heartfelt gratitude to Tina Bird and Hannah Hawes; Graham Diedrich, Abhinav Kapoor, Emily Milton, Marcela Tabaresruiz, and Leigh Anne Tiffany who served on the student organizing committee led by the Graduate Program Director, Dr. Joe Hamm; and all those who have worked tirelessly to make this event possible.

Once again, welcome to the ESPP Student Research Symposium.

Sincerely,

Dr. Lifeng Luo, ESPP Director



MSU Plenary Speaker

Dr. Mark Axelrod

Professor, Department of Fisheries and Wildlife &
James Madison College

Michigan State University

Title: Reviewing the Literature on Interventions to
Address Conflict after Climate-Influenced Migration

*Linlang He, Elizabeth Kreske, Stephanie J. Nawyn, Amber
L. Pearson, Mark Axelrod, Yadu Pokhrel, Stephen
Gasteyer, Sean Lawrie, and Anthony D. Kendall*

Abstract: Existing scholarship and media coverage shows how climate change affects resource availability, leading to forced migration and conflict risks in some host communities. Limited research, however, synthesizes findings about the efficacy of interventions to alleviate conflict over scarce natural resources in those communities.

Our systematic literature review identified and analyzed 33 studies that explore interventions contributing to climate conflict resolution and environmental peacebuilding in receiving and migrant communities. Despite limitations, the review shows that multiscale and cross-sectoral interventions are necessary though challenging to establish. Community-level initiatives and local support networks that create social capital are key interventions leading from conflict to cooperation between climate-driven migrants and host communities. However, such interventions often require external resources that come with strings attached. Our analysis also identifies gaps in the extant literature and sets the stage for future research needs.

This next stage of research therefore presents hypotheses about: 1) how power relations among stakeholders in newly formed communities influence the evolution of individual and community adaptive capacity to climate and other threat factors; and 2) how and under what conditions external interventions can help climate refugees gain access rights to natural resources for long-term conflict avoidance. We present new approaches to evaluating these interventions, along with an agenda for future research.

Biography: Mark's current research centers around institutional change in international environmental law, local implementation of international environmental principles in India, policy impacts of scientific uncertainty, and gendered impacts of marine fisheries policy in India. His most recent work is published in *World Development*, *Marine Policy*, and *International Environmental Agreements*.

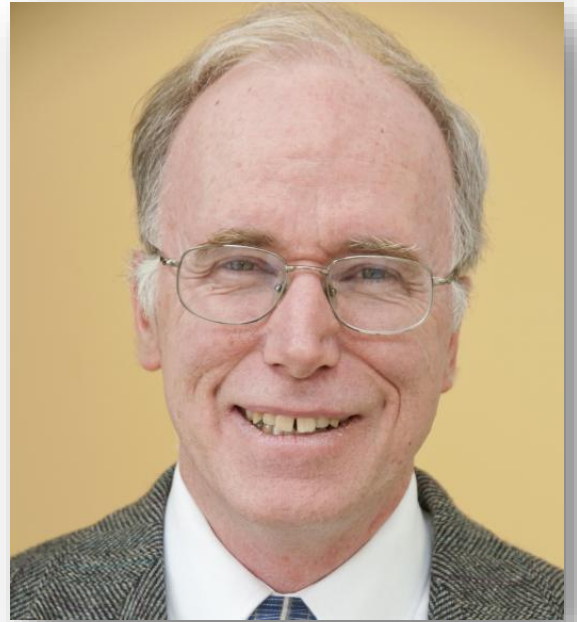
Invited Plenary Speaker

Dr. Jay Lund

Distinguished Professor Emeritus of Civil and Environmental Engineering, Geography, Hydrology, and Environmental Policy and Management

University of California - Davis

Title: Challenges and Directions for Water Policy and Engineering for the Coming Decades



Abstract: We live in challenging times and will have a challenging future. This is especially true for water and environmental policy and management. As if climate change were not enough, there are also major changes in technology (“artificial” intelligence, water treatment for wastewater reuse and even direct potable reuse, water quality and biological sensors, water use efficiency, computer modeling, etc.), economic structure (more growth in sectors that use less water), demography, and political trends. These changes altogether pose both challenges and opportunities for water and environmental management.

This talk will review these many challenges, and some opportunities that arise from them. Some promising approaches for addressing these challenges are briefly discussed, as well as implications for how universities organize education and research for water and environmental engineering, policy, and management. Some examples will be presented of water and environmental systems that have been more (and less) successful at adapting to changes.

Biography: Dr. Jay Lund is a Distinguished Professor Emeritus of Civil and Environmental Engineering, Geography, Hydrology, and Environmental Policy and Management at the University of California – Davis. He has long enjoyed teaching, research, and engagement on many aspects of theory and practice for water and environmental management, usually trying to integrate economics and operations research with traditional engineering.

He has a B.A. in International Relations and Regional Planning from the University of Delaware (1979) and a BS in Civil Engineering, MA in Geography, and PhD in Civil Engineering from the University of Washington (Seattle). He has advised over 150 graduate students and has over 400 publications and reports.