

Spring 2017 Newsletter

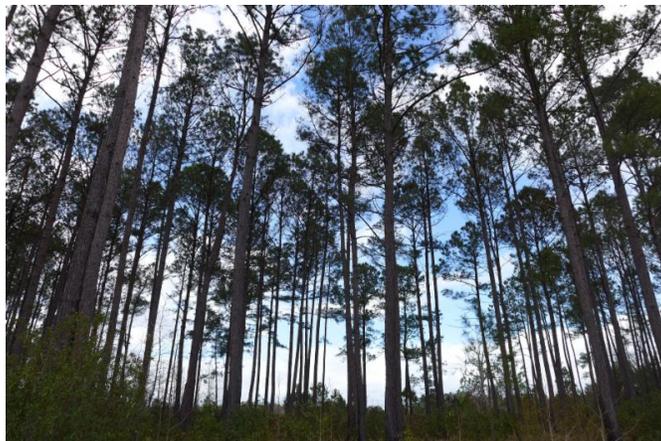
Welcome to the 2017 Spring Newsletter. We have had a successful academic year and are happy to report on exciting new happenings within the E-IPER community.

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News Features

PhD/MS Collaboration: Counting California Forest Carbon Offsets



[Christa Anderson](#) (PhD 3rd) and [Jason Perkins](#) (MS-JD 3rd) recently completed research into the State of California's cap-and-trade forest carbon offset program. Their research was generously funded by the 2016-17 E-IPER Collaboration Grant from the Anne and Reid Buckley Fund. Christa

and Jason's research produced: 1) a policy [paper](#) for the State and the forest carbon program stakeholders, 2) a public comment [letter](#) about the implications of their research for setting climate change mitigation goals in the State's Natural and Working Lands sector, 3) one journal article in review, and 4) another journal article titled "Forest offsets partner climate change mitigation with conservation" published in *Frontiers in Ecology and the Environment* (in press).



This research drew upon forest carbon project documents, project owner and developer surveys, and a series of interviews and site visits in California and the southeastern United States. Christa and Jason found that California's innovative forest carbon offset program has gone much further than past efforts to assure its projects

represent measurable climate mitigation. For the most part, however, the environmental co-benefits of offset projects are not currently being monetized, and the future of the program is uncertain.

New Assistant Director Joins E-IPER



Ann Marie Pettigrew joined E-IPER in May as the new Assistant Director. For the past six years, she worked as the Student Services Officer for the Department of Linguistics and the Symbolic Systems Program at Stanford University. Ann Marie's familiarity with Stanford and with interdisciplinary graduate programs gives her a great head start in the work she'll be doing at E-IPER.

A graduate of the University of California, Davis (BS in Human Development) and the University of San Diego (MA in Counseling), Ann Marie has many years of experience working with students in higher education. She brings an innovative approach to her work, and is known for creative problem-solving in the programs she has served. She is eager to work with students who are excited about addressing environmental problems and with faculty members from across the University who are drawn to this interdisciplinary work.

Ann Marie grew up in Marin County, just north of the Golden Gate Bridge. She now lives in San Mateo with her husband, Ben, and children, JT (4) and Joey (2), and their dog, Archie (7). Outside of work, she enjoys reading during her train commute and staying active: boot camp classes, running, hiking, as well as other outdoor activities. Welcome, Ann Marie!

Winter Joint MS Capstone Symposium

The Winter 2017 Capstone Symposium was held on March 16, 2017. Ten presentations from E-IPER/Law and E-IPER/Business students focused on policy recommendations, legal strategies, and business opportunities. Law-focused topics included: carbon emissions regulations, carbon emissions from forest offsets, zero-emission heavy duty vehicles, behavior-based carbon mitigation strategies, incentivizing sustainable animal agriculture operations, nitrate pollution from dairy operations, and incentivizing renewable energy transmission. Business-focused topics included: community supported fisheries, decision support tools for environmental data, and understanding machine learning for the energy sector.

Many projects were created and implemented in partnership with organizations such NextGen Climate America, Earthjustice, and Community Water Center.



Winter 2017 Capstone Students (from left to right): [Greg Stillman](#) (MS-MBA), [Michelle Wu](#) (MS-JD), [Mary Rock](#) (MS-JD), [Jason Perkins](#) (MS-JD), [Laurel Mills](#) (MS-JD), [Lauren Tarpey](#) (MS-JD), [Alison Gocke](#) (MS-JD), [Rylee Kercher Olm](#) (MS-JD), [Jana Hennig](#) (MS-MBA), [Alexandre Spitz](#) (MS-MBA), [Elizabeth Vissers](#) (MS-JD). Not pictured: [Eugene Nho](#) (MS-MBA)

Generously funded by the Feigenbaum Nii Foundation, the Capstone Symposium is held twice a year. The winner of the Winter 2017 Feigenbaum Nii award is [Jana Hennig](#) (MS-MBA 3rd) for her project titled "Can U.S. Community-Supported Fisheries Scale?"

New Frontiers and Opportunities in Sustainability



Alumnus Christoph Frehsee with Tom Steyer of NextGen Climate

E-IPER alumnus [Christoph Frehsee](#) (MS-MBA 2012) of Amour Vert has developed a new course, "New Frontiers and Opportunities in Sustainability," an interdisciplinary exploration of how companies, government and non-profit organizations address some of the world's most significant environmental and resource sustainability challenges. Each week of the Spring Quarter, experienced sustainability-thought leaders, including many E-IPER alumni, explain how they are innovating for the future and addressing the current state of sustainability in their respective industries.

E-IPER alumni speakers include: [Nick Halla](#) (MS-MBA 2012) of [Impossible Foods](#); [David Mount](#) (MS-MBA 2008) of [Kleiner Perkins Caufield and Byers](#); and [Kenneth Alston](#) (MS-MBA 2012) of the [California Clean Energy Fund](#).

The speaking roster also includes Tom Steyer of [NextGen Climate](#), Kate Brandt of [Google](#), Fran Weld of the [San Francisco Giants](#), and Karen Behnke of [Juice Beauty](#).

2017 PhD/MS Collaboration Grants Awarded



Savannah Fletcher and Kristen Green's fieldwork

Two student teams have been awarded E-IPER PhD/MS Collaboration Grants this Spring. Now in its third year, the award is part of a unique initiative to encourage and incentivize PhD and Joint MS students to collaboratively address significant environmental issues, working in ways that are ultimately more productive and effective than working individually. This structured PhD/MS collaboration model is one way that E-IPER is

exploring and demonstrating avenues for interdisciplinary partnerships that take advantage of the research rigor of an E-IPER PhD student and the applied lens of an E-IPER Joint MS student.

This year, with the generous support of Dan and Rae Emmett and matching funds from alumni donations, the scope of project topics was expanded to include all student research interests. The Anne and Reid Buckley Fund continues to support projects focused on renewable energy and/or climate change.

[Savannah Fletcher](#) (MS-JD 2nd) and [Kristen Green](#) (PhD 1st) are being funded for their proposed project "Access to coastal resources in Cape Krusenstern National Monument, Alaska: Implications for land use policies."

Savannah and Kristen's project, in cooperation with the National Park Service (NPS), will document changes to subsistence users' access to coastal resources under warming temperatures in Northwest Arctic Parklands, and determine legally viable options to address changing access and land use needs within park boundaries. This study will focus on Cape Krusenstern National Monument (CAKR), and the study results will help the NPS anticipate shifts in access to resources and provide a model for adaptive management in all Northwest Arctic Parklands.

[Timothy Latimer](#) (MS-MBA 2nd) and [Nathan Ratledge](#) (PhD 1st) are receiving funds for their proposed project "Evaluating the Potential for Geothermal Electricity Generation in East Africa: A Mixed Methods Analysis."



President Kagame of Rwanda and President Kenyatta of Kenya commission major geothermal development (Photo credit: [The New Times](#))

Tim and Nathan's project will investigate how recent advances in geothermal technology and innovations in the oil and gas industry have the potential to reduce costs and expand geothermal electricity generation potential beyond historical estimates. Through interviews and revised cost analyses, their study will examine Kenya's successes and explore ways that other countries in the region can spur development, using Rwanda and Uganda as case studies. The goal will be to uncover factors that could allow both countries to increase their energy access with a baseload, renewable resource.

Welcome New E-IPER Joint MS Cohort

E-IPER welcomed 28 new Joint MS students this Spring Quarter, including 5 MS-JD students and 23 MS-MBA students. The students are from the United States, India, China, Korea, Chile, Ghana, Cote D'Ivoire, Lebanon, Russia, Germany, and Austria.



Alumni Spotlight

Alumni Spotlight: Mike Mastrandrea and Danny Cullenward



Mike Mastrandrea

E-IPER graduates are known for their creative interdisciplinary approaches to environmental problem-solving. When they collaborate on solving those problems, the results are often extraordinary, as [Mike Mastrandrea](#) (PhD 2004) and [Danny Cullenward](#) (PhD-JD 2013) have found. Mike is the director and Danny a research associate at [Near Zero](#), a climate and energy research organization at the Carnegie Institution for Science, based on Stanford's campus.

Near Zero's interdisciplinary team combines legal and technical analysis to inform the design of effective and robust climate policies. They generate original research and analysis, and, using insights from other researchers' perspectives, create timely information that influences policy processes. Currently, Near Zero focuses on climate policy, especially in California, where the State is in the process of developing policies and regulations to meet the next phase of its ambitious emission reduction goals. The team interacts directly with decision-makers and stakeholders in the policy process. Danny, for example, has been advising California State Senate President Kevin de León and his staff on the development of a new proposal to extend and update California's cap-



Danny Cullenward

and-trade system for greenhouse gas emissions; this [proposal](#) was recently presented as SB 775.

Before joining Near Zero, Mike was Co-Director of Science for the Intergovernmental Panel on Climate Change Working Group II Technical Support Unit, working with Professor Chris Field to help coordinate the IPCC Fifth Assessment Report. He has always been passionate about working at the science-policy interface, and his IPCC and Near Zero roles have given him that opportunity. Prior to his work at Near Zero, Danny taught climate law and policy at UC Berkeley and had the opportunity to represent environmental scientists in the Ninth Circuit Court of Appeals and U.S. Supreme Court.

Mike and Danny both note that one of the best things about working together is that their shared E-IPER training gives them a great deal of common ground. "It's hugely rewarding to work with a fellow interdisciplinarian who is always thinking about integrative research and where our work can add value in real-world policy processes," says Mike. "Also, Danny is an amazing and hilarious storyteller."

At home, Mike and his wife, Annabelle, spend most of their time outside work trying to keep up with the boundless energy of their sons Keyan (5) and Jasper (3). They live up the peninsula from Stanford in Millbrae, and love taking the boys out to parks, beaches, and museums around the area, as well as participating in musical activities, a passion of Mike's since his own school days. Danny lives in San Francisco with his partner, Nina, and their two cats. They enjoy cooking, succulent gardening, and spending weekends in west Sonoma County.

Career Forum: Advice from Mike and Danny

There are many ways to gain a good understanding of interactions between scientific research and decision-making processes, but direct experience is invaluable. Even if you are interested in traditional academic paths rather than a role at the science-policy interface, you can benefit by gaining a deeper understanding of policy-relevant research questions and how research feeds into policy processes.

It is possible for you to get experience as a graduate student. For example, you can examine public documents that relate to your research area and participate in public comment processes. Or you can talk with people involved in policy work to learn how research in your area is used in specific decision-making processes (e.g., regulatory processes or resource management planning). This information might suggest new research questions or opportunities to bring new or updated science into policy decision-making.

As another example, many chapters in the IPCC Working Groups' reports have been supported by "chapter scientists"--graduate students and postdocs who helped senior authors as their chapters went through review and revision, and who had the opportunity to attend author meetings and to witness the translation of research into high-level messages for governments.

Student News

Starting the 2017-18 academic year, [Cassandra Brooks](#) (PhD 5th) will begin her new position as Assistant Professor in Environmental Studies at the University of Colorado Boulder. Cassandra recently participated in a Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) workshop in Rome, Italy, working towards developing a research and monitoring plan for the Ross Sea marine protected area.

[Tannis Thorlakson](#) (PhD 3rd) and [Emily Grubert](#) (PhD 4th) participated in the Rising Environmental Leaders Program (RELP) in Washington, D.C.



From left to right: Holmes Hummel (PhD 2006), A.R. Siders (PhD 4th), Tannis Thorlakson (PhD 3rd), Rose Stanley (MS-JD 2016), Emily Grubert (PhD 4th), Rebecca Miller (incoming PhD 1st) at the RELP reception

Awards & Honors

[Joanne Gaskell](#) (PhD 2012) won the Ecological Society of America's Sustainability Science Award, which recognizes the authors of the scholarly work that makes the greatest contribution to the emerging science of ecosystem and regional sustainability through the integration of ecological and social sciences. News coverage may be found on the [Science website](#).

Joann also received an Award of Excellence from the World Bank for work she led on strategies to increase agricultural productivity in Mali's drylands. Her analyses, presented to Mali's Minister of Agriculture, helped lead to the implementation of a \$30M investment project based on the recommendations.

[Tannis Thorlakson](#) (PhD 3rd) placed 2nd with her presentation titled "Improving Environmental Practices in Agricultural Supply Chains: The role of company standards" at the Stanford School of Earth, Energy, and Environmental Sciences 14th Annual Research Review.

Publications

[Cassandra Brooks](#) (PhD 5th) published a [paper](#) in *PLOS Biology* titled "Antarctica and the Strategic Plan for Biodiversity 2011-2020."

[Amanda Cravens](#) (PhD 2014) published a [paper](#) in *Society & Natural*

Resources titled "Crossing Boundaries in a Collaborative Modeling Workspace."

[Miyuki Hino](#) (PhD 2nd) published a [paper](#) in *Nature Climate Change* titled "Managed retreat as a response to natural hazard risk." News coverage found via [NPR](#) and [The New Yorker](#).

As part of a larger study of Mongolian urbanization, [Michael Hooper](#) (PhD 2010) published an [article](#) in *International Development Planning Review* titled "Competing organisational perspectives on rapid urbanisation and its management: a case study of Ulaanbaatar, Mongolia."

[Justin Mankin](#) (PhD 2015) published two papers. [One](#) in *Proceedings of the National Academy of Sciences* titled "Quantifying the influence of global warming on unprecedented extreme climate events." Some of the news coverage includes the [Stanford News](#), [The Washington Post](#), and [The New York Times](#). The second [paper](#) was published in *Environmental Research Letters* titled "Influence of internal variability on population exposure to hydroclimatic changes."

[Fran Moore](#) (PhD 2015) published a [paper](#) in *Environmental Research Letters* titled "Economic impacts of climate change on agriculture: a comparison of process-based and statistical yield models."

[Caroline Scruggs](#) (PhD 2012) published two articles. [One](#) in the *Journal of Water Resources Planning and Management* titled "Opportunities and challenges for direct potable water reuse in arid inland communities." The [second](#) was a professional report for the New Mexico Water Resources Research Institute titled "The Cost of Direct and Indirect Potable Water Reuse in a Medium-Sized Arid Inland Community."

[Anne Siders](#) (PhD 4th) published a [paper](#) in *Regional Environmental Change* titled "A role for strategies in urban climate change adaptation planning: Lessons from London."

Presentations

[Cassandra Brooks](#) (PhD 5th) recently gave three presentations. One titled "Marine Protected Areas in Antarctica: Conservation and Collaboration in the Ross Sea" at the Korean Society of Oceanography meeting in Busan, South Korea. A second titled "International cooperation in Antarctica: Protecting the world's most pristine ocean in the Ross Sea" as an invited presenter at the Shanghai American Center in Shanghai, China. And a third titled "Competing values and political complexity in the Southern Ocean: CCAMLR and the challenge of marine protected areas" at the Conservation of Marine Living Resources in the Polar Regions: Science, Politics and Law Conference at Wuhan University in Wuhan, China.



Cassandra Brooks presenting at the Shanghai American Center in Shanghai, China

[Caroline Scruggs](#) (PhD 2012) gave a presentation titled "Potable Water Reuse in the Arid Southwest: The Effect of Educational Strategies on Public Acceptance" at the Emerging Researchers National (ERN) Conference in STEM. One of Caroline's graduate students, Lauren Distler, won first place in the social science category for her presentation at the ERN Conference.

[Anne Siders](#) (PhD 4th) presented her paper titled "Who Stays and Who Goes? Transparency and social justice in U.S. managed retreat buyout criteria" at an Adapting to Climate Change workshop at Notre Dame University.

Thank you to our major contributors for this issue:

Christa Anderson and Jason Perkins
Mike Mastrandrea and Danny Cullenward
Anjana Richards
Susannah Barsom and Benjamin Ha

Edited by:

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