

## CURRICULUM VITAE

# Lisa Rennels

lrennels@berkeley.edu • (650)-387-4486  
1035 Euclid Ave, Berkeley, CA 94708  
<https://github.com/lrennels>

### EDUCATION

#### **MS/Ph.D Candidate at the Energy and Resources Group – August 2017 – present**

University of California, Berkeley CA

- Data Sciences for the 21st Century (DS421) National Science Foundation Research Traineeship program member and NSF Fellow in DS421
- Graduate Student Researcher (GSR) position focused on software development to support integrated assessment models including user interface design, uncertainty analysis, and sensitivity analysis, among other sections of the code base
- Master's project titled Global Sensitivity Analysis of Integrated Assessment Models

#### **Post-Baccalaureate Computer Science Minor – January 2015 – July 2017**

Tufts University, Medford, MA

- GPA 3.95/4.0
- Coursework: Data Structures (C++), Discrete Mathematics, Fundamentals of Computational Design (Optimization; MATLAB), Introduction to Algorithms, Computational Biology, Theory of Computation, Linear Algebra

#### **BA (High Honors, Cum Laude) in Environmental Studies – September 2010 – June 2014**

Dartmouth College, Hanover, NH

- GPA 3.69/4.0; Major GPA 3.84/4.0
- Downey Family Prize for Excellence in Independent Research (Environmental Studies Department) for senior thesis
- Research Topics: Payments for Ecosystem Services; Payments for Watershed Services; Climate Change and Public Health in Small Island States
- Relevant Coursework: natural sciences, environmental economics, introductory computer science (Python) and introduction to environmental modelling (MATLAB)

#### **Dartmouth College Study Foreign Study Abroad Program – September 2012 – November 2012**

South Africa, Namibia, and Lesotho

- Coursework Topics: Natural Resources and Environmental Issues in South Africa; Development and Conservation in South Africa
- Research Topic: Water Allocation Reform in South Africa (culminating paper and presentation)

### WORK EXPERIENCE

#### **Graduate Student Researcher – August, 2018 – present**

Energy Resources Group at University of California, Berkeley

Berkeley, CA

UC Berkeley PI: Professor David Anthoff

Grantee Organization: Resources for the Future

- Work on a three-person team including my PI, an independent contractor, and myself
- design, deploy, and document a computing platform, written in Julia, for the new social cost of carbon (SCC) estimation framework, and use it to implement the socioeconomic, climate system, climate damages, and discounting components of the updated SCC estimation process per the new National Academy of Sciences (NAS) recommendations

#### **Research Analyst – July 2014 – present**

Industrial Economics Inc.

Cambridge, MA

- Climate Change, Water Resources, Economic Valuation, and Implications for Policy Decisions
  - evaluate effects of changes in water availability and allocation; evaluate the physical and economic impacts of climate change, as well as mitigation options and various adaptation responses, and evaluate potential policy responses to these impacts based on economics and country-specific factors
  - data processing and analysis tasks using MATLAB, Geospatial Informatics Software (ArcGIS), and Excel as part of a larger set of processes involving biophysical and economic models
  - project work in the United States, Sub-Saharan Africa, and Central Asia

- requires work with large climatological datasets understanding of climate modelling
  - communication with sub-contractors and clients
- Natural Resource Damage Assessments
  - perform verification and holistic validation of datasets
  - Excel and Geospatial Informatics Software (ArcGIS)
- member of Recruiting Team

**Teaching Assistant – January 2014 – March 2014**

Dartmouth College Environmental Studies Dpt. (course: Ecological Economics)  
Hanover, MA

- lead weekly office hours for undergraduate students
- grade student assignments and exams

**Research Assistant – January 2013 – January 2014**

Dartmouth College Environmental Studies Dpt. - funded by New Hampshire Experimental Program to Stimulate Cooperative Research (NH EPSCoR)  
Hanover, MA

- review scholarly literature on market-based solutions for framing and valuing ecosystem service, specifically those related to payments for watershed services (PWS) and forest management in the Northern Forest
- culminated in an independent study paper summarizing eight Northern Forest PWS schemes and their implications for PWS schemes in the Northern Forest.
- meet bi-weekly with a team of professors and graduate students to discuss team member's research and upcoming opportunities for further research and application of findings

**Community Engagement Associate – June 2013 – August 2013**

The Academy of Medical and Public Health Services  
Brooklyn, NY

- plan and execute research project on best possible use of social media by nonprofit organizations
- literature review, community observation, and personal interviews
- survey assistant at health screening events, translator (Spanish), and general volunteer at health screening events

**Teaching Assistant – April 2012 – June 2012**

Dartmouth College Chemistry Dpt. (course: Inorganic Chemistry)  
Hanover, MA

- supervise and instructed weekly 6-hour lab section for twenty undergraduate students
- lead weekly office hours for undergraduate students
- grade student assignments
- meet bi-weekly with staff to discuss improvements to coursework and roles of TAs

**LEADERSHIP ROLES**

**Program Co-Chair, Awards Manager – January 2012 – Spring 2014**

Special Olympics Club at Dartmouth College, Hanover, NH

- manage logistics, fundraising, and communication with Tucker Foundation at Dartmouth College for our program in connection with Upper Valley Special Olympics
- supervise the awards ceremony and delegate ceremony responsibilities during the bi-annual Special Olympics Games
- organize and attend weekly events with adult athletes

**Team Captain – June 2012 – May 2014**

Dartmouth Women's Club Water Polo  
Hanover NH

- facilitate recruitment and hiring of coach
- organize logistics of daily practice, training trip in California, and various competitions
- manage team budget (~\$45,000)
- organize fundraising events and solicitations
- engage in organized meetings with Collegiate Water Polo Association

**SKILLS**

Language: English (native), Spanish (intermediate)

Computer Languages/Software Programs: MATLAB, C++, Java, Julia, ArcGIS, Microsoft Office

## **REFERENCES**

References are available on request.

## **PEER-REVIEWED PUBLICATIONS**

- Chapra, S. C., Boehlert, B., Fant, C., Bierman Jr, V. J., Henderson, J., Mills, D., Mas, D., Rennels, L., Jantarasami, L., Martinich, J., Strzepek, K. M., Bierman, V., and Paerl, H.. (2017). Climate change impacts on harmful algal blooms in US freshwaters: a screening-level assessment. *Environmental Science & Technology*, 51(16), 8933-8943.
- Fant, C., Srinivasan, R., Boehlert, B., Rennels, L., Chapra, S. C., Strzepek, K. M., ... and Martinich, J. (2017). Climate change impacts on US water quality using two models: HAWQS and US basins. *Water*, 9(2), 118.
- Larsen, P. H., Boehlert, B., Eto, J., Hamachi-LaCommare, K., Martinich, J., and Rennels, L. (2018). Projecting future costs to US electric utility customers from power interruptions. *Energy*, 147, 1256-1277.
- Melvin, A.M., Larsen, P., Boehlert, B., Neumann, J.E., Chinowsky, P., Espinet, X., Martinich, J., Baumann, M.S., Rennels, L., Bothner, A. and Nicolsky, D.J. (2017). Climate change damages to Alaska public infrastructure and the economics of proactive adaptation. *Proceedings of the National Academy of Sciences*, 114(2), E122-E131.
- Melvin, A. M., Murray, J., Boehlert, B., Martinich, J. A., Rennels, L., and Rupp, T. S. (2017). Estimating wildfire response costs in Alaska's changing climate. *Climatic Change*, 141(4), 783-795.

## **SELECTED REPORTS**

The following reports present a sample of projects I contributed to during my work at Industrial Economics Inc.

The Contribution of Water Resources Development and Environmental Management to Uganda's Economy. Kenneth Strzepek, Brent Boehlert, Jacqueline Willwerth, and James Neumann. August 16, 2016.

*Most sectors of the Ugandan Economy rely on environmental and natural resources goods and services for enhancing their productivity, providing the necessary raw materials, and reducing the cost of public expenditure for providing the services in those sectors. The objective of this assignment is to assess the economic value of water and environmental goods and services – and the costs of degradation and insufficient action in the sector to assist the Ministry of Water and Environment (MWE) in establishing and clearly articulating the value of their management services. This assessment seeks to value these goods and services through a series of impact channels which trace raw resources such as arable land, water (as runoff and lakes), and wetlands and forest from their sources, through MWE management, and into the economy. Biophysical models are used to estimate the interaction of natural systems and MWE intervention. The results of these models are then fed into an economy wide model to estimate a variety of economic indicators related to the specified management regime.*

The Costs of Climate Change Impacts and Responses on DOI Sites in the Southeastern United States. Brent Boehlert and Jessica Murray. March 8, 2016.

*This report presents the results of a regional climate change impact analysis to Department of the Interior (DOI) sites in the U.S. southeast. Our goal was to estimate to what degree climate change physical and economic impacts to site-level resources (infrastructure, ecosystems and habitats, and recreation) may accrue to DOI in a future in which current greenhouse gas (GHG) emissions continue to grow unchecked.*

Climate Change in the United States: Benefits of Global Action. Available for Download: <https://www.epa.gov/cira/downloads-cira-report>. (<https://www.epa.gov/cira>) \*NOTE that my primary contributions have been to a second edition of this project which is in process to be published in early 2017

*Climate Change in the United States: Benefits of Global Action, estimates the physical and monetary benefits to the U.S. of reducing global greenhouse gas emissions. This report summarizes results from the Climate Change Impacts and Risks Analysis (CIRA) project, a peer-reviewed study comparing impacts in a future with significant global action on climate change to a future in which current greenhouse gas emissions continue to rise.*

EPA. 2017. Avoiding and Reducing Long-term Risks of Climate Change: A Technical Report for the Fourth National Climate Assessment. United States Environmental Protection Agency, Office of Atmospheric Programs, EPA 430-R-17-001.

