

2009 Research Projects

In the first year, the Environmental Change Institute committed \$60,000 in funding for research.

The Impact of Environmental Change on the Tualatin River Cleanup – Issues of Urban Development and Climate Change

Investigator: Jennifer Nelson, JD, Master's Candidate, Department of Natural Resources and Environmental Sciences (NRES)

For nearly two decades, managers in the Tualatin River basin have been crafting and refining one of the nation's first total maximum daily load allocations (TMDLs). Their goal like that of the Clean Water Act is a river that is fishable, drinkable and swimmable. However, summertime algal blooms resulting from low stream flows, warm waters, abundant sunlight and high levels of phosphorus continue to impair use of the river both for human recreation and for ecological functioning. This research begins by surveying the extensive scientific literature to paint a picture of the background conditions which control water quality within the basin. It then evaluates the success of some of the most notable management decisions made under this 'watershed approach', applying promising frameworks for considering the sustainability of these decisions. Finally, the research considers the impacts of future environmental change in land use and climate on management of water quality in the area. [Read More](#)

Predicting Human Behavior in Mitigating and Adapting to Climate Change: A Basis for Policy Design

Investigators: Dr. Steven Seitz, Department of Political Science and Computer Science; Dr. Don Wuebbles, Department of Atmospheric Sciences; and Dr. Praveen Kumar, Department of Civil and Environmental Engineering

The study seeks to showcase the use of both computational models and behavioral models in social science approaches to global warming policy. These models are used to examine global warming as a collective action policy problem.

The Tambora Project: An Historical Case-Study in Abrupt Climate Change

Investigator: Dr. Gillen Wood, Department of English

Approaching the 200th anniversary of the massive 1815 eruption of Mt. Tambora, the Tambora Project reconstructs on a global scale the most destructive multi-year episode—1815 to 1817—of worldwide climate change in modern history. Components of the project include a highly sophisticated computer simulation of the eruption, an economic assessment of the damages incurred by the disaster on a current scale, an online digital visualization and interactive website, a video documentary, and a book.

Illini Carbon Registry

Faculty Leads: Drs. Anton Endress and Wesley Jarrell, Department of NRES

The Illini Carbon Registry is a University of Illinois student-run carbon registry, and was born out of a new class—NRES 199. The program aims to promote a culture of sustainability on campus and in the community by encouraging local investment in carbon-offsetting projects to reduce the University's carbon footprint. This year's projects include a sensor-based lighting system for public classrooms; a miniature, energy efficient computer (Thin Client PC); and a student-run farm that produces food for dining hall consumption.

Change in the Heartland- Climate, Environment, Energy and Food

Faculty Lead: Dr. Michelle Wander, and Project Assistant: Mr. John Marlin, Jr., Department of NRES

This publication explores 'key terms' and concepts utilized in describing environmental change. ECI and partner organizations will develop a primer by pairing key terms, such as 'Carbon Credits' or 'Sequestration,' with a representative collection of stories written by UIUC faculty and experts.

Student Organic Farm and Composting Projects

Faculty Leads: Dr. Wesley Jarrell, Department of NRES; Dr. Todd Rusk, Illinois Sustainability Technology Center; and Project Assistant: Mr. Matt Luedtke

Current Research Projects

During the first year of operation, 2009-2010, the Environmental Change Institute awarded \$125,000 in seed grants for research meeting the interdisciplinary criteria as defined within the Request for Proposals.

Environmental Change Institute Student Ambassadors for Global Change Research -

Principal Investigator: Dr. Elizabeth Ainsworth, Department of Crop Sciences and Institute for Genomic Biology (IGB). Co-Principal Investigators: Dr. Carl Bernacchi, Department of Plant Biology, Dr. Evan Delucia, Department of Plant Biology, Dr. Don Ort, Department of Crop Sciences (\$25,000)