

# Integrating Global Perspectives on Climate Change into Science Teaching and Learning

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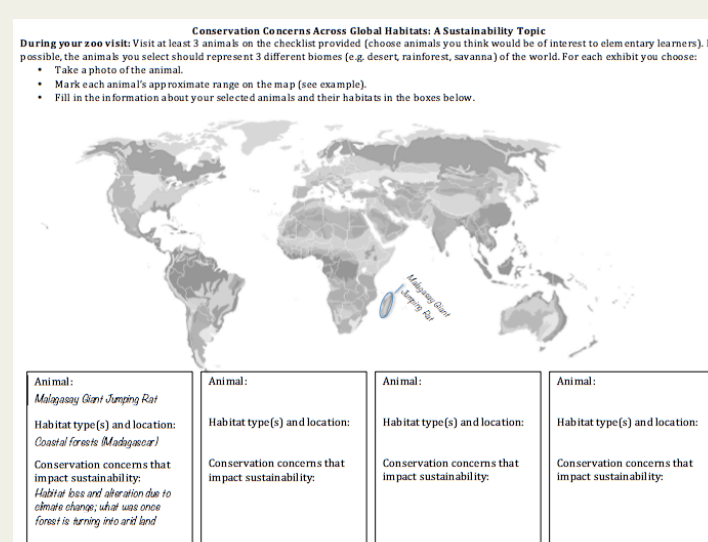
The Next Generation Science Standards (Achieve, 2013) are the first U.S. national science standards to explicitly include global climate change. To support preservice teachers in preparing to address the topic, we redesigned aspects of an undergraduate science teaching methods course (3 class sections, N = 80 preservice teachers). Innovations promoted global awareness through the lens of environmental sustainability, particularly related to the topic of climate change and its local and global impacts.

## Innovation 1: Global habitat conservation investigation at the Smithsonian National Zoo

Interns investigated how changes to habitats impact sustainability across world regions.



EDCI 372 group Flickr photos



Portion of field trip activity guide

### Sample participant response:

*"It's important as science teachers to be able to show our students both the positive and negative impacts we are making on the rest of the world. A trip to the zoo could be used to raise our students' awareness about the consequences of our resource consumption, and the efforts we can make to help conserve these habitats and protect the unique animal species that live there."*

## Observations and Next Steps

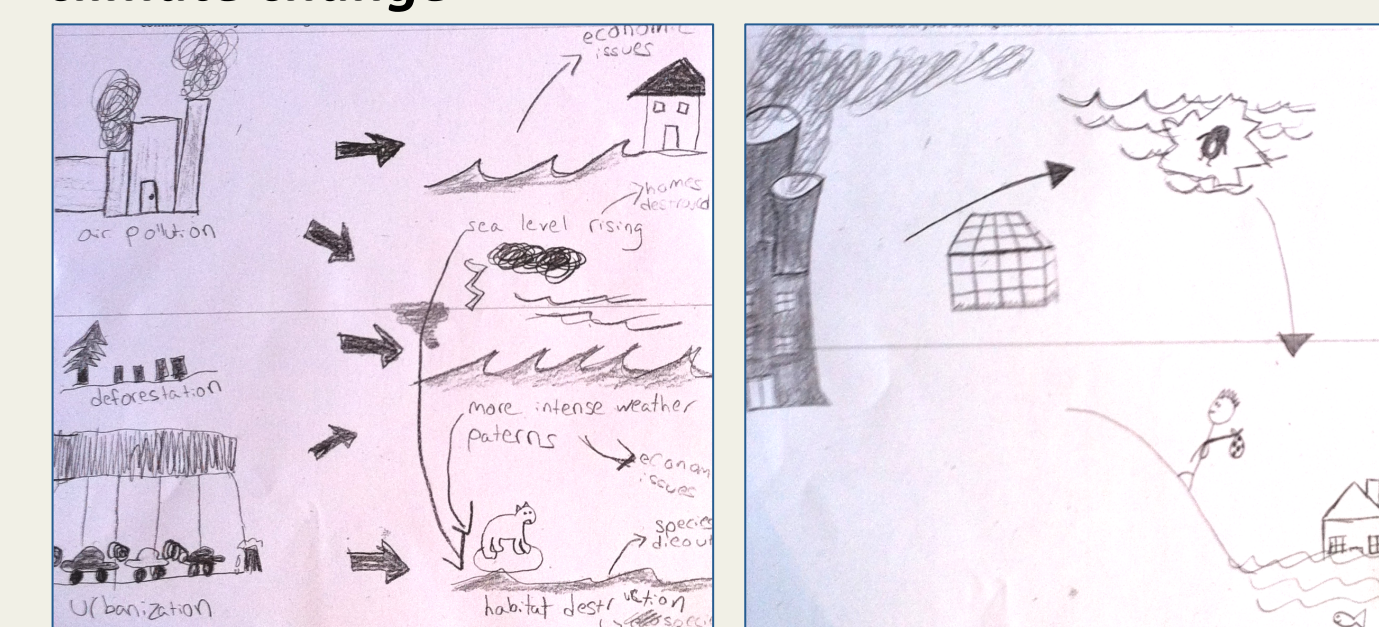
By the end of the course, participants showed evidence of global awareness in several ways:

### Sample end-of-course journal excerpts:

*"I began to take a broader look at [sustainability] and think globally. I was much more self-centered in my thinking about sustainability before the activities that we took part in."*

*"My understandings shifted from thinking about how sustainability affects myself to how it will affect the world. I am thinking more about the future than about the present effects."*

### Sample end-of-course responses to: Draw all that you know about the causes and effects of global climate change



Future iterations of the course will expand upon these interventions to promote interns' preparedness to integrate global perspectives into their science teaching.

### Acknowledgments

With appreciation to Dr. J. Randy McGinnis and Dr. Wayne Breslyn. \*The regionally-focused online sea level rise investigation was developed for the MADE CLEAR project, NSF Grant No. 1043262.

[www.ClimateEdResearch.org/science-methods](http://www.ClimateEdResearch.org/science-methods)

## Innovation 2: Online examination of regional and global sea level rise projections

Interns considered potential effects of sea level rise on human safety, economy, and ecosystems.



MADE CLEAR\* sea level rise investigation module <http://www.climateedresearch.org/EDCI372/>



National Geographic's *If all the Ice Melted* maps <http://ngm.nationalgeographic.com/2013/09/rising-seas/if-ice-melted-map>

### Sample participant response:

*"I never thought about the domino effect [climate change] would have on the economy, tourism, housing, and people's lives in general... I also didn't really think about the effects of climate change in worldwide terms, since I've never really traveled outside the USA and don't know much about the weather and climate conditions in other countries."*

## Innovation 3: Video case study of climate change impacts in the Pacific Islands

Interns discussed the value of making real-world connections in the science classroom.



Instructor-led presentation introducing current international discussions surrounding climate change



Sea Level Rise in the Pacific: Loss of Land and Culture <http://www.unmultimedia.org/tv/webcast/2012/03/sea-level-rise-in-the-pacific-loss-of-land-and-culture>

### Sample participant responses:

*"It gives students a real world connection to how people are actually being affected. If they can't see impacts here, but can see other parts of the world being affected now, it can help them to understand."*

*"It gives them a real personal context. What if your home was going underwater? What would you do?"*