

# Climate Literacy Zoo Education Network (CliZEN)

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## Climate Literacy Zoo Education Network CliZEN

Climate change education has been largely didactic: Experts relay information to the public through various media channels. Despite decades of this approach, the proportion of Americans who believe there is solid evidence that climate change is occurring actually decreased by 14% in the last few years. Data also indicate that the public at large relies on more associative and affect-driven processes to assess the risk of climate change rather than the traditional reliance on the scientific evidence that is common to scientists.

### Project Phase 1 Activities

We achieved the original goals of our Planning Phase CCEP-1 through these activities:

- Partnership capacity building
- Literature Review and information dissemination
- Prototype education interventions 'test-bed activities': youth interpretation and an interactive technology-based activity
- Survey of zoo&aquarium audiences regarding Climate Change



## Survey of Zoo and Aquarium audiences regarding Climate Change

We conducted a large national survey of zoo and aquarium visitors to explore how visitors perceive the issue of climate change, their current actions, and barriers in contributing to environmental efforts. The survey took place during 2011 at 15 United States zoos and aquariums with two independent survey forms: (a) primarily focused on attitudes [using segmentation procedures of Global Warming's Six Americas] (N=3,594) and (b) survey primarily focused on behaviors (N=3,588)

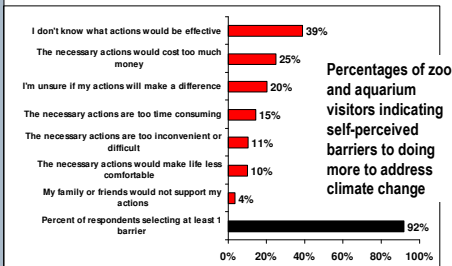
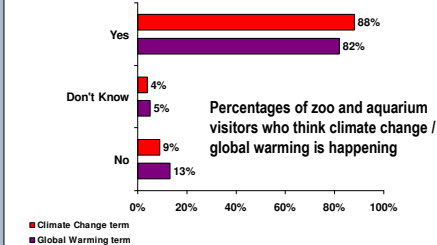
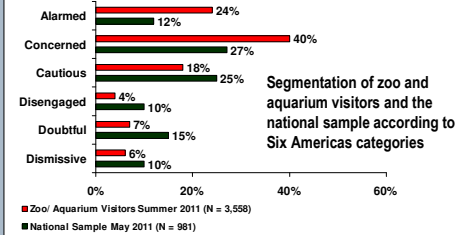


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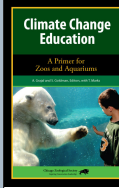
## Key Zoo and Aquarium Audience Findings

Zoo and Aquarium Audiences:

1. Are very favorable audiences for climate change education
2. Want to do more to address climate change, yet perceive barriers to doing so, particularly ignorance about what behaviors will be effective
3. Use these venues as socially supportive contexts for discussions about animal exhibits and connections to nature
4. Have access to and experience with virtual social networks and other Internet technology platforms
5. Concern about climate change and participation in behaviors to address climate change correlate with their sense of connection with animals



## Literature Review and information dissemination



Synthesized a multi-disciplinary review regarding climate change. Results presented in an eBook titled *'Climate Change Education: A Primer for Zoos and Aquariums'* (Grajal & Goldman, 2012). Aimed at non-technical audiences, particularly zoo and aquarium education professionals, it is expected to be distributed for free by late April 2012 on major e-reader platforms.

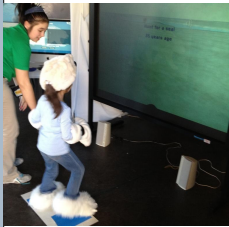
## Prototype education interventions



### Youth-led interpretation:

This activity increased teens' climate literacy. Pre-post surveys confirmed that participating teens showed an increase of their **'empowerment variables'** such as self efficacy, locus of control, knowledge

and skills in using action strategies. Teens showed increased thinking about climate change and its effects, and increased the frequency of reported conservation behaviors. Results also showed significant gains in the teens' **STEM indicators** reflected by **'ownership variables'** such as increased in-depth knowledge about climate change and stronger confidence as science content interpreters.



### A Mile in my Paws:

A high-tech *videogame-style first-person simulation* that invites visitors to be a polar bear hunting for a seal in the shortest time and with the lowest metabolic expenditure. The game presents past, present and future projections of sea ice cover. Visitors stand in front of a

large projection screen showing a first-person view of the arctic Beaufort Sea region, wear gloves with motion actuators and step on a pressure pad, simulating with their movements bears walking across ice floes and swimming between them. The game is a useful teaching tool in helping visitors develop personal connections with polar bears that can be leveraged to motivate changes in climate change attitudes and knowledge. Visitors can select future environments for their bear, based on their own possible actions toward climate change; this allows immediate and personal comparisons of future projections and the role of the human system on the climate system.

## Principal Investigators and Research Team

- **Alejandro Grajal, PI**, Director of the Center for Conservation Leadership and Senior Vice-President for Conservation & Education at the Chicago Zoological Society (CZS)
- **Susan Goldman, Co-PI**, Distinguished Professor of Liberal Arts and Sciences, Psychology and Education and Co-Director of the Learning Sciences Research Institute at the University of Illinois at Chicago (UIC).
- **Michael Mann, Co-PI**, Professor at Pennsylvania State University, and Director of the Earth System Science Center
- **Ricardo Stanoss Co-PI**, Director of Education and International Training at CZS
- **Lisa-Anne Kelly**, CliZEN's Project Coordinator and Research Scientist at CZS
- **Tom Moher**, Assoc. Professor of Computer Science, Learning Sciences, and Education at UIC.
- **Lillah Lyons**, Assist. Professor of Computer Science & Learning Sciences at UIC.
- **James Pellegrino**, Distinguished Professor of Liberal Arts and Sciences, Psychology, and Education at UIC and Co-Director of the Learning Sciences Research Institute.
- **Susan Clayton**, Whitmore-Williams Professor of Psychology and Chair of Environmental Studies at the College of Wooster.
- **Jerry Luebke**, Senior Manager of Audience Research at CZS
- **Thomas Theis**, Director of the Institute for Environmental Science and Policy and Professor, Civil and Materials Engineering at UIC
- **Steven Forman**, Professor, Department of Earth & Environmental Sciences at UIC
- **Jim Minstrell and Ruth Anderson**, External Evaluators, FACET Innovations

## Partners

The partners receive 13 million visitors annually : Polar Bears International; Brookfield Zoo, IL; Columbus Zoo and Aquarium, OH; Como Zoo & Conservatory, St. Paul, MN; Indianapolis Zoo, IN; Louisville Zoological Garden, KY; Oregon Zoo, Portland, OR; Pittsburgh Zoo & PPG Aquarium, PA; Toledo Zoo, OH; and Roger Williams Park Zoo, Providence, RI



## Coordination with CCEP-1 projects and others

- National Network for Ocean and Climate Change Interpretation (NNOCCI)
- Building Place-Based Climate Change Education through the Lens of National Parks and Wildlife Refuges
- Making the Global Local: Unusual Weather Events as Climate Change Educational Opportunities
- Six Americas team (Yale U. and George Mason U.)
- Communicating Climate Change and the Oceans 2012 Summit
- Public Understanding and Public Engagement with Science NSF and Deutsche Forschungsgemeinschaft (DFG)
- European Communication Research & Education Association (ECREA)
- Latin American Zoo and Aquarium Association (ALPZA)
- [www.ClimateInterpreter.org](http://www.ClimateInterpreter.org) and The Climate Literacy Network <http://cleanet.org>