

Climate Change Summits for Teens

Increase global awareness by hosting a climate and environmental change summit with teenagers



By **Janice McDonnell, Laura Bovitz, Carrie Ferraro, Rachel Lyons, and David Robinson**

THE IMPACTS OF HUMAN-INDUCED global warming on the natural environment are drastically affecting, and will continue to drastically affect, every aspect of our economy and our daily lives. We now have a fundamental scientific understanding of global warming, and nearly universal acceptance in the scientific community that anthropogenic greenhouse gas emissions are affecting global climate and ocean properties (IPCC, 2007). Despite this, much of the general public is becoming more confused and less concerned about global warming amidst a barrage of frightening (and sometimes conflicting) data, and media spin. Public comprehension and acceptance of the authenticity of global warming is woefully lacking, hovering around 50% (Leiserowitz et al., 2009).

Global warming is the most publicized and broadly debated consequence of greenhouse gas emissions. Just as significant, but less well-known, are other adverse consequences ranging from sea level rise to biodiversity loss. With a huge portion of the world's population living in coastal areas, sea level rise alone will directly affect perhaps billions of people, not to mention its global economic consequences. For effective change to occur, the public urgently needs at least a basic grasp of the science behind climate change and global warming, and a realization of their present and future effects. This urgent need should be a clarion call for education and research communities to come together to transform how young people, and the general

public, are educated on these issues.

In an effort to contribute to climate education and literacy, we created the Climate and Environmental Change (CEC) Summit. CEC is a two day Science Technology Engineering & Mathematics (STEM) event for middle and high school students (ages 12-18), designed to increase knowledge and understanding of climate change science through interaction with climate scientists at Rutgers University. The event, which takes place on the university campus, begins with interactions with climate change scientists, and then uses an action planning process to help youth apply this knowledge to community-service projects. School teams create Action Plans for community involvement and present the results of their projects through group presentations and videos. Teams are recognized for their achievements and success in communicating with their communities. In this article we will describe how you can host a CEC Summit in your school or community to help support climate literacy.

Program Goal

The overall objective of the CEC Summit is to provide participants with both scientific knowledge about climate change and the decision-making skills needed to improve application of this knowledge as active citizens and in their personal lives. The project was also designed to enhance interdisciplinary collaborations between natural and social scientists involved in the Rutgers University Climate and Environmental Change Initiative, and between the participating teens and high school teachers.



Program Outline

Our first step was to create a planning team of educational, scientific, and logistical professionals who would oversee the program and curriculum development for the Summit. The team was led by education professionals from the New Jersey Department of 4-H¹ Youth Development at Rutgers University. 4-H county and state faculty focus on creating positive educational experiences for youth, geared towards building leadership skills. The scientist members of the planning team were from the Institute of Marine & Coastal Sciences at Rutgers, a world-class oceanographic research center. These research scientists focused on science content and on facilitating scientist participation in the project. Lastly, to assist with recruiting and registering school teams, we engaged an independent logistics coordinator.

The planning team chose to create a hands-on experiential program that culminated in a community service project. Learning that is experiential and engaging sets the stage for rewarding habits, accumulation of knowledge, and confident application of skills (Eccles and Gootman, 2002). We chose to focus the program towards grades 8-11 (ages 13-17); research has shown that students at these ages have the cognitive ability to engage in the interdisciplinary connections required to comprehend climate change science (Roseman and De Boer, 2007). Having the program on university campus afforded students the opportunity to feel like they were part of a college learning experience.

In the first workshop of the CEC Summit, *Climate Change 101*, students meet with Rutgers University faculty to enhance their understanding of climate and environmental science. This full-day program is offered in mid-January during the school day. In 45 minute workshops, faculty guide students through hands-on lessons that focus on the com-

plex nature of climate-ocean-land interactions. The workshops are designed to help students understand the interplay of biological, geological, physical, chemical, economic, and ‘human dimension’ factors and their effect on the climate (NOAA, 2009). Workshop topics include scientific uncertainty, weather and climate, and the impacts of climate change (sea level rise, human disease and vector biology, and extreme weather). In the second half of the day, we focus on providing students with skills in using video and other media to communicate scientific information, and on working in school teams to develop a community plan of action. The plans of action focus on how students can more broadly share what they have learned with their faculty mentors.

In the ensuing months back at school, students work on their plans of action and on developing their community education and outreach projects. Students work either in class or in an after-school club to implement their action plans. During this time, teachers email questions and ideas to university faculty.

In the final workshop, *Knowledge to Action*, conducted in the spring (May-June), students learn about ongoing environmental initiatives at Rutgers University—this includes

tours of the university solar farm and information on green purchasing and recycling programs. School teams then present the results of their Action Plans through group presentations and educational videos they produce. The student teams are recognized for their achievements and communication success within their communities. Student teams have exceeded our expectations with their projects. Examples of 2009 and 2010 projects include:

- **Behavior and Policy Changes in Schools and Communities:** Several of our collaborating schools focused on implementing behavioral and policy changes in their schools and communities. They led school-wide campaigns like “Ban the Bottle” to reduce the consumption of wasteful plastic water bottles by distributing reusable ones. One of our schools, Bergen Academies, was highlighted in the Nickelodeon program *Our Thirsty World*. And one underserved and underrepresented middle school group from Camden, NJ worked with local Cooperative Extension Specialists to install a rain garden and conducted education programs to help their community understand the importance of water consumption and conservation.
- **Environmental Education “Teach In” Events:** Many of our schools, including home school groups, have developed programs with nature centers, community centers and after-school program providers to raise climate change awareness and promote behavior change in students. Some groups concentrated on dispelling misconceptions about weather and climate by providing information on how rainfall patterns are predicted to change in the Northeast with a changing climate. Yet another group of high school students developed a

hands-on educational program for their school district's 4th grade students to learn about the importance of reducing, reusing and recycling. They continue to volunteer to teach this program in the district's elementary schools. All of these programs include information on the scientific basis of climate change and how scientists are researching and modeling its impacts.

Results: Fruits of Our Labor

Over two years, 104 youths attended the two-day Summit. A total of 15 Rutgers University scientists presented to the groups. We have evaluated our students' perception of climate change by asking them an open-ended question on how they feel about climate change and what they think they can do about it. In 2010, 80% of the students reported their fundamental perception of climate change changed as a result of the Summit, and 99% indicated that climate change was an important issue to address. 97% of participants indicated they improved their understanding of the science concepts. All students agreed in their follow-up survey that they could make a positive impact on the global climate by reducing their carbon footprint and encouraging others (family, school, and friends) to do the same. Students reported significant improvements in their ability to work as part of a team and in adult-youth partnerships, to plan and organize, be leaders, serve their community, and develop plans of action. Overall, scientists, teachers and students all report the experience as life-changing and enlightening.

Looking Ahead

While we develop a program guide for conducting climate change summits elsewhere, the New Jersey 4-H program is seeking to include more schools in the Climate and Environmental Teen Summit. Our hope is that many more *Climate Change Ambassadors* will soon be sharing their knowledge and experiences with other students as well as members of their communities. These young people surely will be among "the one million new scientists and one million new ideas" envisioned by the national 4-H program.

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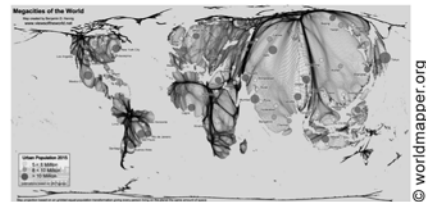
VISIT www.greenteacher.com/contents93 for an example of a Plan of Action developed by the environmental club of one high school. It includes the goals, timelines and resources needed to complete the project.

Notes

1. Nationally, 4-H serves 6 million children ages 8-18 in 3,150 counties across the United States, including at-risk youth, with a history of strengthening essential life skills. Our hope is to encourage and support a new generation of scientists through the 4-H *One Million New Scientists One Million New Ideas* campaign. Our CEC program focuses both on understanding the science of climate change and breaking through what can be perceived as insurmountable challenges of develop strategies for mitigation of, and adaptation to, the consequences of climate change.

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