

# Cascades Climate Challenge: Taking home the lessons of glaciers

By Megan McGinty

## THE NORTH CASCADES NATIONAL

Park Complex (Washington) is in the heart of the most heavily glaciated area in the contiguous United States. Iconic and defining features of the Pacific Northwest, these glaciers are places where physical evidence of climate change in North America is most easily seen and interpreted. However, given the difficulty of accessing the North Cascades backcountry, few of the people affected by the glaciers' recession ever see them, and of those, fewer still fully understand the effects of their disappearance.

A new outreach model is working to change that. The Cascades Climate Challenge (CCC) program brings youth from across the Pacific Northwest to the North Cascades, where they can witness firsthand the glaciers and their effects on surrounding ecosystems. After a three-week field experience, they are charged with taking the message back by way of a service project in their home communities, teaching others about climate change. The program was born in 2009 from a partnership among the National Park Foundation, the North Cascades National Park Complex, and North Cascades Institute, a private nonprofit educational organization. Today the program is run by North Cascades Institute, fulfilling the goal of creating teen ambassadors who can relay the message of climate change in effective and credible terms, especially to younger audiences. Each summer, 40 high school students participate in a field session based at North Cascades Institute's campus in the park, the North Cascades

## Abstract

Communicating climate change and its effects is a complicated and politically challenging issue (Pew Research Center 2010). Recent research has shown that data alone are not sufficient to engage audiences on the topic of climate change (Center for Research on Environmental Decisions 2009). In addition, places where climate change is manifesting itself most dramatically, such as the glaciers of the North Cascades National Park Complex, Washington, are often perceived as irrelevant. In other cases, an informed perspective is needed to explain the significance of the data collected and the trends they indicate. North Cascades Institute and North Cascades National Park seek to address this disconnect between the scientific facts of climate change and lack of public awareness and response with the Cascades Climate Challenge. This program is cultivating the next generation of America's climate change leaders using experiential field science, study of climate change impacts, and community service. High school students from diverse communities across the Pacific Northwest spend three weeks in North Cascades National Park studying climate change with researchers in the field and developing their presentation skills. In the fall, the students return to their home communities and lead a service project based on teaching other youth in their area how climate change will affect them and what they can do to address it. Students leave the program more informed about climate science, with a better understanding of its impacts on the environment, communities, human health, and the economy, and prepared to engage their communities in strategies to alleviate the effects. By equipping emerging leaders with the skills to begin addressing climate change, we hope the people who will be most affected by it will also be better able to shape the future.

**Key words:** climate change, environmental education, North Cascades Institute, North Cascades National Park, partnership, service learning, youth

Environmental Learning Center. Half attend in July and the second half go in August. In exchange for the tuition-free trip, each participant agrees to reach 20 other people in his or her home community. "We try to recruit kids who are going to speak to audiences that we have difficulty reaching, whether it's a religious community, English-as-a-second-language populations, or just other teenagers," said CCC lead instructor Aneka Singlaub. "This way, not only do 40 students reach 800 other people, they reach 800 people who weren't likely to see [the park] in the first place."

## Immersion

A central tenet of the program is that people value and take ownership of their public lands if they have had a chance to see and explore them on their own terms. The students spend three weeks camping in the park, immersed in the terrain they are learning about. At each turn they take advantage of their location, examining in detail different aspects of the mountain environment:

A hike up to the alpine meadows of Cascade Pass with Mignonne Bivin, NPS plant



**Figure 1.** NPS aquatic ecologist Ashley Rawhouser shows Cascades Climate Challenge participant Olivia Groethe and instructor Justin McWethy a fresh zooplankton sample from Ross Lake.

NPS/MICHAEL SILVERMAN

ecologist, who discusses alpine plants and their adaptations. An instructor then delivers a lesson on pikas, small alpine mammal residents who rely on the availability of specific plants in order to survive the winter. Later, students participate in a mock debate regarding whether the pika should be listed as an endangered species.

On Ross Lake they travel by canoe to meet NPS aquatic ecologist Ashley Rawhouser, who lays out the complexities of fish populations responding to changes in water temperature (fig. 1). Students conduct snorkel surveys of fish populations in the lake and discuss their findings.

During a hike along the edge of Mount Baker's Easton Glacier, NPS geologist Jon Riedel explains the patterns of glacial advance and recession over the past several thousand years, pointing out new moraines and ancient debris flows. Students ask questions about paleoecology and ice cores, trying to comprehend the role glaciers play in recording climate history.

Through these experiences the students come to see the North Cascades as an intricate, interrelated system, with small shifts precipitating a whole chain of effects. They begin to draw parallels to their local ecosystems, asking questions about the effects climate change will have on their communities.

The students are teachers too, each one presenting to the group on the topic of his or her home community. Throughout the program they create lessons based on

interviews with park staff. They practice these lessons in front of the group, giving each other feedback and brainstorming the best ways to get a message across to their respective audiences.

As the students begin to explore adaptation to climate change, resource managers personify the leadership of the National Park Service. A firefighter explains the effects of hotter, drier summers and how NPS firefighting methods have changed in response. Presentations by staff implementing the Climate Friendly Parks program show the students examples of people and organizations currently working to anticipate and mitigate climate change.

Once the students are back home, they are eager to share stories of their trip and to tell others what they have learned. "We want to teach two fifth grade class-

rooms at a local elementary school about climate change and our own personal experiences,” said Sierra Carey, a junior from Pendleton, Oregon. “It’s important for people to be educated about climate change.”

## Support

The program would not be possible without the participation of many partners. The program costs \$200,000 a year, but a significant portion of that is accounted for by in-kind support from the North Cascades National Park Complex, Mount Baker–Snoqualmie National Forest, and graduate residents at North Cascades Institute. The remainder of the cost is met through fundraising by North Cascades Institute. In 2010 and 2011, the Paul G. Allen Family Foundation was a primary funder.

The National Park Foundation was instrumental in the program’s inception and continues to play an important role, funding the development of a national park–focused climate change curriculum in 2010 and a teacher training workshop in 2011. The North Cascades National Park Complex provides not only an exemplary classroom but also access to resource managers, interpreters, and maintenance staff, who make time in their busy schedules for the students, sharing their views and concerns with them. “It’s rewarding and hopeful to see future leaders looking at solving these complicated issues,” said Rawhouser.

North Cascades Institute runs the program, providing the administrative, logistical, and instructional service for the program, from recruiting the students to accompanying them through the field program to mentoring them afterward as they apply for college and jobs. The Mount Baker–Snoqualmie National Forest provides funds to help with campsites and

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encourages staff to accompany students on day hikes. Partner organizations in the students’ hometowns help them line up their service projects and gain access to audiences.

## Impact

Students from Astoria, Oregon, worked with their local national park to share what they learned in the North Cascades. Lewis and Clark National Historical Park (Oregon) staff helped recruit students from the area, kept in touch with them throughout the field experience, and accompanied them to their classroom presentations. After a recent presentation to elementary school students, “Kids gathered around [the CCC students] like they were rock stars and asked them question after question,” said Cathy Peterson, education program coordinator at Lewis and Clark.

Cascades Climate Challenge students are invited back to the North Cascades Environmental Learning Center in the fall to attend the Youth Leadership Summit. During this three-day gathering, students learn about one another’s progress in executing their projects, network with other youth, and collect information about future internships and jobs with federal agencies and partner organizations. While not every student aspires to be a ranger, all leave with a strong connection to the

North Cascades and an understanding of the importance of public lands in addressing climate change.

For more information about the Cascades Climate Challenge, go to [http://www.ncascades.org/programs/youth/climate\\_challenge/](http://www.ncascades.org/programs/youth/climate_challenge/).

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