Parks Climate Challenge 2009 Program Assessment

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Executive Summary

The Parks Climate Challenge was created in 2009 by the National Park Foundation with funding from Pacific Gas and Electric (PG & E) in to address three major challenges facing National Parks: environmental threats related to climate change, a declining national trend of nature based recreation particularly in younger people and a lack of connection of National Parks to diverse urban communities. Using concern for the environmental threat posed by climate change and the opportunity to spend a summer learning in a National Park as a recruitment focus, a diverse group of high school youth from five cities competed to participate in the program's pilot. The 19 youth selected formed the nucleus for the creation of a group of climate ambassadors, moving from direct study and experience of climate change impacts in North Cascades National Park into multiple forums to present and share their stories, experiences and perspectives with a variety of audiences at the North Cascades Environmental Learning Center, and events in Seattle and Washington DC. Digital audio and visual documentary footage gathered by students while in the North Cascades was generated for use in presentations and for circulation on the web. After project planning sessions and service project participation in North Cascades and Washington DC, the program culminated with the implementation of five distinct student led service projects for elementary youth in four local National Parks and one city park which served to amplify the program's reach in these urban communities.

The Parks Climate Challenge was organized around 4 main goals. These goals are:
1. Educate urban, diverse high school-aged youth about conservation, energy, climate change, and stewardship.
2. Prepare youth to become leaders in climate change awareness.
3. Build a bridge between urban youth, their communities and their National Parks.
4. Help urban youth develop the skills to help instill a conservation ethic in elementary school-aged children.

Measuring outcomes based on project goals was the basis for the program assessment. The assessment included both formative and summative components. Formative components took place during the program planning process in order to document the process, design assessment tools and monitor the implementation of the program. Summative components focused on assessing the overall performance and effectiveness of each program element based on participant outcomes. Recommendations for program improvement are made based on assessment activities.

Formative assessment activities determined that the design of the Parks Climate Challenge program has a solid base in the experiential and environmental education literature and research. By beginning with the Park immersion experience, the program is able to apply best practices from experiential education for leadership development such as the inclusion of physical challenge, the practice of living in a tightly interdependent community and the integration of leadership as a theme for discussion and exploration. This program element also applies best practices from the field of environmental education such as a progression which moves students from awareness to knowledge to action, a curriculum built on a foundation of immersion in nature, learning from adult mentors with specific, deep knowledge of a place and built in time for personal reflection. The Park wilderness emersion program element is designed to create experiences for youth which have been demonstrated through social science research as key to the development of an environmental ethic in adults.

Building on the connection to nature and National Parks created during the the wilderness immersion experience, the program design ensures that students are provided with opportunities to apply and continue to evolve their newly gained leadership skills within the framework of a current environmental problem. Exposure to government climate change initiatives and exploration of the role of government combined with the service project requirement gives students multiple venues to apply their skills in new situations and with different audiences. Inclusion of the service project allows for authentic assessment of leadership goals and the continued acquisition of communication and organization skills. On going support for students to design and implement service projects provides a valuable service to students and schools seeking increased support for service learning high school graduation requirements and introduces climate change as a service project focus.

In it's initial year the Parks Climate Challenge was able to meet the goals of recruiting a diverse range of youth with leadership potential from the 5 selected cities. Assessment activities determined that the students were highly motivated to participate by their concern and desire to learn more about climate change as well as their desire to camp, hike and spend time in a wilderness National Park. Prior to participation, half of the students were able to demonstrate basic knowledge of National Parks and their importance, but in only a few cases from direct experience. The other half demonstrated a low level of knowledge and no experience in Parks prior to participation.

Pre program survey data indicates that the participants were motivated by an already present awareness of climate change and a desire to learn/do more about it. Despite this apparent interest, opportunities for learning about climate change are extremely limited for youth. These students are representative of a population of young people who have general awareness about the issue but feel that they lack specific knowledge that would allow them to become engaged in something that they are concerned about. This program appealed to them because it tapped into a desire to learn more about something they perceive as relevant to their future making the educational and service aspects of the program meaningful for them.

The 19 high school students spent over 600 participant days (# of students x number of direct program days) involved in program activities. This should be considered as an indicator of the depth of their learning experience. While the number of individual participants appears small when taken in isolation, the number of participant days is significantly larger than the majority of environmental education programs for this age group. Because of the amount of participant contact time, the expectations of the students could be quite high with the inclusion of presentation and service project requirements. The creation of a video of student gathered images and audio will be an excellent recruiting tool for the program in the future as well as an inspiring and informative snap shot of the program for anyone that views it on the web. Through web based materials the students will reach their peers around the world in a peer to peer story format which is a highly successful outreach tool for this generation.

Summative assessment of participant outcomes was focused on the three major program activities: the Park immersion, the trip to Washington DC, and the service project implementation. The North Cascades immersion field trip was highly successful at achieving two program goals 1) educating youth about conservation, energy, climate change and stewardship and 2) preparing youth to become climate change leaders. In addition, a foundation was laid for goals 3 and 4 by helping students form a connection to National Parks and providing inspiration, confidence and skills for taking leadership of a service project.

Measurable gains were made as a result of the Park immersion experience including:

- awareness of the importance of National Parks as climate change laboratories
- acquisition of specific and concrete knowledge of climate change impacts
- an increased feeling of connection with nature and compelling personal stories gained by experience
- the development of leadership skills and the perception of self as a leader

While all program elements were interrelated and designed to build upon one another to create a strong program design, the inclusion of the climate change focused wilderness immersion experience in a National Park provided an essential foundation for achieving the programs goals of leadership development, connection to Parks, acquisition on concrete knowledge of climate change impacts and inspiration to undertake a service project. The North Cascades portion of the program also met a wide range of learner objectives for the program related to knowledge, attitudes and behaviors. The foundation built by achieving these objectives was essential in preparing students to be climate change ambassadors for their generation and undertake the work of planning and executing climate change related service project and outreach activities.

The existing partnership between North Cascades National Park and a non-profit educational program provider, North Cascades Institute, ensured that a high level of education and adult mentorship was present in this formative experience. Exposure and involvement in ongoing scientific studies and monitoring activities in North Cascades provided the opportunity for students to witness impacts of climate change first hand giving them stories to tell from direct experience. Combining the wilderness experience with a base at the North Cascades

Environmental Learning Center provided the opportunity for visits from community leaders active in climate change initiatives, the opportunity for students to present to youth and adults visiting the Park and the opportunity to see strategies for reducing carbon footprint in action such as food composting, recycling, energy conservation, green building design and operations.

The program could be expanded to include more experiences for youth in other Parks in the future. It would be difficult to replicate all of the factors that made North Cascades such an outstanding venue for the Parks Climate Challenge in it's initial year, however there are several factors that would be important to look for when considering replicating the program in other parks and these are discussed in the assessment.

Outcomes from the trip to Washington DC emerged as those related to building the momentum of confidence and support that was generated during the North Cascades field trip while providing additional learning about the role of government. Student's confidence in their ability to undertake service projects took a significant dip after returning home from the Park immersion. Students benefitted from concentrated project development time led by the National Park Foundation and confidence to carry out projects was restored as a result. Opportunities to present to and meet with important people continued to strengthen student's confidence in their leadership potential as well as their belief that they can make a difference in increasing awareness of climate change.

Outcomes from the Washington DC field trip included:

- ongoing support for students both from one another as well as their adult mentors in developing specific service project plans
- student participation in a service project on the National Mall which was designed as a model for their own service projects
- increased understanding of the role of government in climate change issues and outreach
- continued evolution of the perception of self as a leader through opportunities to present to and meet with important people which strengthened their confidence in their leadership potential as well as their belief that they could make a difference in increasing awareness of climate change

Service projects were an important aspect of the overall program design and in the pilot program provided the opportunity for a built in assessment of program goals relating to the development of leadership skills in high school participants. As the students learned, designing and carrying out a service project is no small task and requires a great degree of organization, perseverance and motivation. Students required and received support throughout the process which resulted in successful implementation for all city groups.

Outcomes derived from service project implementation included:

- confidence to carry out a project and demonstration of leadership
- skills for project planning including communication and organization

- evidence of an evolution of thinking about service projects and the importance of education in increasing climate change awareness
- reaching into communities, making new connections with local National Parks, community groups and schools
- reaching elementary age youth and their teachers with climate change activities

The projects created a means through which outreach to community groups, local government, public schools and National Parks could take place with the potential to create increased connectivity and opportunity for continued activities related to environmental stewardship and climate change. Further assessment of the program's goal to instill a conservation ethic in elementary students and impacts on elementary teacher's curriculum is an opportunity for better understanding of the impacts of this program activity in the future.

Assessment activities focused on the participating high school youth documented measurable increases in concrete knowledge and concern about climate change and in post program surveys students ranked climate change as the number one environmental problem facing the world today, a difference from pre program surveys. Significantly, marked increases were also documented in students belief that humans can solve this problem. Polls have shown that one of the greatest challenges around dealing with climate change is people's belief that it cannot be solved, that it will take some distant political powers to do something and all the rest of us can do is wait, and that nothing we can do will make any difference. Students in this program came out with a quite opposite belief not only articulating in several different ways their belief that humans can solve this problem but also their conviction that individuals, and even youth, can do something to contribute to the solutions. Students reported a strong motivation to be involved in education and outreach and strongly agreed with statements like "all youth should be educated about climate change."

Students formed relationships with National Parks and developed a strong base of appreciation for nature. This formed the basis for the motivation toward the difficult work of organizing and leading service projects. Leadership skill acquisition began with the National Park immersion and continued through the Washington DC field trip and service project design and implementation activities. Students consistently demonstrated gains in communication and organizational skills as a result of program activities and gained confidence in their ability to implement service projects. They made direct connections to education program leaders in their local National Parks and community service leaders in their home communities.

The programs impacts extended well beyond the 19 individual high school youth, 5 National Parks and 500 elementary youth, and was amplified via public presentations, media coverage and web presence of student documentary materials. Outreach to community groups, high school and elementary teachers in diverse urban communities that did not previously have any connection to National Parks were reached and served through the program.

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I. Program Overview

In it's first year the Parks Climate Challenge was initiated by recruiting 19 diverse, urban high school students from 5 cities around the country to come to North Cascades National Park for a one-month intensive educational experience studying the effects of climate change on National Parks. Created and implemented by the National Park Foundation with funding from Pacific Gas and Electric, the immersion aspects of the program were led by North Cascades Institute in collaboration with North Cascades National Park. Students experienced the Park through camping, hiking and canoeing while participating in a variety of activities to understand first hand the impacts of climate change on the North Cascades and the surrounding region. Students spent time with Park scientists and community members active in climate change issues and engaged in discussions about leadership and environmental stewardship. While in the North Cascades students participated in a service project where they collected data for scientific studies currently underway to monitor the effects of warming water temperatures on aquatic ecosystems in the Park. During their stay, students presented to groups of adults and youth participating in programs at the North Cascades Environmental Learning Center, sharing their experiences and perspectives with a wide array of Park visitors. Students also presented their experiences at a culminating event for the public in Seattle.

One month after the immersion experience the North Cascades, students traveled to Washington DC for three days where they met with leaders of federal agencies to learn about climate change initiatives and had the opportunity to present to an audience of program supporters, agency leads and representatives of elected officials. While in DC students participated in a service project on the National Mall and developed detailed proposals for a service project in their home community.

Upon return to their home communities, participants worked with local elementary school classes and their teachers to share information about carbon as a source of pollution and things that people can do to reduce their carbon emissions. National Park Foundation staff provided on going support for student project planning and design for culminating service learning projects. Participants worked with teachers, community groups and representatives of local and National Parks to design and carry out service projects that brought elementary students out into the field to experience the natural

world while learning more about climate change, energy conservation and National Parks.

Summary of the Problem

The Parks Climate Challenge was created to address three major challenges facing National Parks: environmental threats related to climate change, a declining national trend of nature based recreation particularly in younger people and a lack of connection of National Parks to diverse urban communities.

National Parks are facing unprecedented environmental threats, many of which are related to the impacts of climate change—landscapes compromised by invasive species, coral reefs in distress, land and rock slides, flooding, drought, changes in wildfire regimes and habitat destruction. Long term monitoring in Parks like North Cascades has contributed greatly to understanding the impacts of climate change on natural ecosystems as data accumulates demonstrating historical species composition and migratory patterns shifting, glaciers melting, hydrologic regimes changing and water temperatures rising. Being able to connect climate change to environmental conservation and stewardship of National Parks is critical to preserving not only the natural resources of the Parks but the very idea of the value of Parks themselves within the context of future environmental challenges.

Climate change is not the only challenge that Parks currently face. Per capita visits to National Parks have declined by about 20% since 1988. (Pergams and Zaradic, 2006) Related studies have found that nature based recreation peaked in the United States between 1981 and 1991 and has been on a steady decline ever since including, but not limited to, National Parks (Pergams and Zaradic, 2008). This decline in Park visitation and nature based recreation is amplified when placed in the context of what it means for youth and their relationship with Parks and their resources into the future. It is the responsibility of the current generation to pass on the values of stewardship of the environment and America's National Parks.

This challenge exists in a time when the demographics of the country are shifting toward urban centers. The countries biggest cities contain the highest diversity of anytime in our nation's history. Many of these communities are composed of recent immigrants who do not have any connection to the role of National Parks in the country's history and identity. These diverse, urban youth, who hold the potential to become future Park stewards, are often unaware that National Parks exist. Even if they are made aware of National Parks via electronic media they often lack the resources to visit even nearby Parks.

Program Goals

The Parks Climate Challenge was organized around 4 main goals.
These goals are:

1) Educate urban, diverse high school-aged youth about conservation, energy, climate change, and stewardship.
2) Prepare youth to become leaders in climate change awareness.
3) Build a bridge between urban youth, their communities and their National Parks.
4) Help urban youth develop the skills to help instill a conservation ethic in elementary school-aged children.

II. Program Assessment: Summary of Methods

Measuring outcomes based on project goals was the basis for this program assessment. The assessment included both formative and summative components. Formative components take place during the program planning process in order to document the process, design assessment tools and monitor the implementation of the program. Summative components focus on assessing the overall performance and effectiveness of each program element and the overall program and recommendations for program improvement.

Evaluation tools used in the formative program components included analysis and summary of the situation or problem which the program is designed to address; analysis of the program design; and analysis of program activities related to existing research regarding educational best practices as they relate to achieving stated program goals and learner objectives. Data for formative assessment was gathered through direct observation, interviews with program partners, review of program materials and literature review.

Summative assessment focuses on the participant outcomes beginning with an analysis of the number and demographics of participants and recruitment strategies used in order to measure success toward reaching the target audience for the program. Data related to measuring impacts of program activities on the participants was gathered through pre- and post-program participant surveys and interviews to measure differences in knowledge, attitudes and skills related to program goals. A complete list of research questions are listed in Appendix C. An assessment matrix is included in Appendix D.

III. Formative Assessment: Program Design

The Parks Climate Challenge consisted of three main activities for the participating students: a month long intensive wilderness experience in North Cascades National Park

where the students witnessed the effects of climate change first hand in the company of experts while having a significant life experience, a reunion and visit to Washington DC and implementation of student led service projects in their own communities and local National Parks. All of these activities are related directly to stated program goals and are tied together by the theme of climate change. The design of the program followed the foundational progression recommended for environmental education curriculum which is to move students from general awareness of a topic or issue (evidence of this was present in student's applications for program participation) into the accumulation of concrete knowledge via direct experience and observation (North Cascades and Washington DC field experiences) and finally toward informed personal action (service projects in home communities). In addition to this progression several other programmatic elements were characteristic of the program design and are described in this section.

Experiential Learning in a Wilderness Setting

Program goals related to creating leaders and instilling a stewardship ethic are supported by learner objectives that go beyond knowledge into the realm of attitudes, behaviors and abilities. Program partners sought to create an increased appreciation of the outdoors, an increased desire to recreate outdoors in National Parks, an increased outdoor skill set and an increased desire to participate in stewardship activities, particularly as they relate to climate change. In addition, several learner objectives were related to how to effect change, how to effect and work with youth and peers and an understanding of an individual's ability to create change in society. In order to meet these goals and objectives the program must include activities that develop self-confidence, self-esteem and skills for working in a group alongside opportunities to make a personal connection to the natural world. Students must be given challenge, camaraderie, support from peers as well as adult mentors and most importantly inspiration before they will be prepared to organize and implement a service project.

The basis for beginning the program with an intensive wilderness experience is grounded in research. Several studies published in the 1990's confirmed the hypothesis that direct experience in the outdoors at a young age is the most significant category of influence in the development of an environmental ethic, followed closely by the influence of family or other adults. Also notable was the widespread influence of education, especially programs that take place at the secondary and tertiary levels. This last category of influence includes not only the stimulation of increasing factual knowledge, but also the influence of teacher's modeling enthusiasm and concern for the environment. More recent research builds on these studies and looks at factors that contribute to individuals choosing to take action to benefit the environment when they are adults. These studies have concluded that significant life experiences gained through direct experience in the natural world could effectively distinguish environmentally committed people from those apathetic to environmental protection. An annotated bibliography of some of these studies can be found in Appendix A.

Another body of research has examined the effects on teenage youth of participation in outdoor education, specifically wilderness-based programs. Participants have repeatedly reported positive effects on their personal, intellectual and, in some cases, spiritual development. Pronounced results are documented in enhanced self-esteem, self-confidence, independence, autonomy and initiative. A few longitudinal studies have demonstrated that these results persisted through many years. Based on the review of relevant research the inclusion of the month long wilderness experience for participating urban high school youth is a critical component of the program with regard to the program goals related to leadership development and the learner objectives related to attitudes toward nature, motivation for stewardship and outdoor skills.

While other wilderness based programs for teens exist in the United States this program was unique in several ways. First, the program specifically targets diverse, urban youth and does not charge a fee for participation making the program broadly accessible by removing the barrier of tuition. Second, the program specifically targets youth with demonstrated leadership abilities. Third, the program is targeted to National Parks. Fourth, the program has an educational theme of climate change rather than a theme of personal challenge or skill acquisition which is more common in wilderness based programs for this age group.

The wilderness experience meets the need to provide youth not only with a strong experience based understanding of climate change and it's impacts on National Parks, but more importantly a foundation of both inspiration and motivation to undertake the hard work of designing and carrying out a service project in their home community. The use of novelty, which is a powerful element in the creation of influential long term memories, the presence of mentors and the physical and emotional challenges of spending a month together in the wilderness would provide a basis for the increase in self-esteem needed to perceive oneself as a capable leader as well as the social and peer acceptance that allows self-confident expression of this developing concern for the environment. The act of bringing youth together from around the country provides a sense of unity of purpose existing across a broad cultural and geographic spectrum which helps alleviate feelings of helplessness caused by the perception of being surrounded by apathy toward an issue students care about. Experiential learning in a wilderness setting provides the vehicle to combine all of these elements within the initial activity of the program creating a necessary foundation of confidence, motivation and inspiration.

An Education Partnership Facilitates Park Immersion: North Cascades National Park and North Cascades Institute

"Because the partnership with North Cascades Institute was in place we were able to say yes to this opportunity and in addition leverage other resources in order to take advantage of it. The North Cascades is a perfect place to both be studying and educating about climate change. Everything from glaciers to hydropower to salmon to the

partnership with the Institute make it a perfect combination for a place to educate the public about climate change."

—Chip Jenkins, North Cascades National Park Superintendent

"We'd been toying all around with teaching about climate change and we had some history of success with it, but we didn't take that kind of a plunge at that kind of scale until the Park Foundation came to us with support."

—Saul Weisberg, Executive Director North Cascades Institute

The National Park Foundation approached at least one other Park prior to contacting North Cascades regarding hosting the immersion portion of the pilot program in it's first year. North Cascades was interested and eager to host the program for several reasons, the foremost being the audience and the theme, but also significant was it's ability to provide qualified education staff through an existing non-profit education partner, North Cascades Institute, operating within the park. The Institute could take the lead on organizing program activities and logistics and working directly with the students. In addition, as a non-profit organization the Institute was able to perform the work required to leverage additional funds needed to implement this important program element.

North Cascades National Park had an ongoing commitment to an existing Institute summer youth program, North Cascades Wild, which targets urban underserved youth in the Seattle area. As a result of this program being in place the Park and the Institute had a working template which could provide the foundation for the integration of park staff and, most importantly, the staff expertise in youth programming—from risk management plans to outdoor skills to experience managing adolescents—necessary for bringing the Parks Climate Challenge to life. In addition, the park and the Institute had a history of working together to share the scientific research related to monitoring the park's glaciers. Several public events, the first taking place in Seattle in 2006, had featured park scientist Jon Reidel sharing his research on trends of the glaciers in the park. The data was also incorporated in the Institute's Mountain School curriculum, so the park and Institute had some experience with teaching climate science to young people. The funding provided for the program from the National Park Foundation had the impact of moving the partners to take on a larger climate-themed programmatic initiative for high school youth building on work that had been going on for several years. The funding allowed the partners. particularly the Institute. to commit a range of staff resources to the program including substantial efforts in media and community outreach. The Institute also committed resources to fundraising for the additional funds needed to support it's significant portion of the program.

North Cascades also had several important landscape and infrastructure features that made it an excellent venue. Being a wilderness park the opportunities for learning outdoor skills like canoeing and hiking were ample, and the stunning wilderness landscape fit the criteria for providing a lure for the participants of a memorable,

impactful experience. In addition, the presence of the Environmental Learning Center gave the program the ability to have a base camp where the students could come out of the backcountry to contact family, consolidate ideas, do presentations to groups of younger students and adults and feel part of a larger effort to teach people about conservation and stewardship. It also provided the opportunity to have presenters from the community visit the students without having to travel into the backcountry. Lastly, because of the green design and operations of the Learning Center, the students were able to see many of their ideas in action creating an inspiring vision of what they could accomplish with their service projects.

Once program coordinators began to construct the activities for the program itself, the benefits of hosting the program in the Northwest Region became evident. The Northwest and the Seattle metropolitan area have a strong commitment to climate change solutions, a population with fairly broad awareness of the issue and a myriad of organizations working on various aspects of climate change science, social justice issues and community based initiatives to reduce carbon. Participants benefitted by being exposed to some of the individuals in the larger community and were able to see a diverse group of real people working on the issue from many different angles.

Climate Change as a Theme

While there remains some debate about the underlying causes and potential impacts of climate change there is broad consensus that climate change is taking place based on a steadily growing body of observable scientific evidence. While climate change is being accepted as a reality by societies around the world the formulation of a broadly agreed upon political response to the phenomena remains elusive. One of the things that is certain is that climate change, and the evidence which supports it, is a complex issue to understand. Although young people in this country have a broad awareness of and concern about climate change obtained through media and community there is a lack of programs and curricula that allow young people to fully explore the science in order to formulate their own thinking on the issue, and even less opportunity to explore potential solutions. Furthermore, there is a regrettable lack of a national conversation that includes young people about what society can do to ameliorate and adapt to the reality of a warming climate and prepare for the social and environmental consequences. This combination of concern and lack of knowledge is a recipe for cynicism and apathy, or conversely, uninformed or counterproductive activism.

Unique to this program, particularly within the wilderness based element of the program design, is the overarching theme of climate change. Program partners hoped to use the climate change focus for several purposes: to recruit students by offering an opportunity to learn more about an issue that is of importance to the younger generation, to expand appreciation of National Parks by seeing them as laboratories for scientific research, and to inspire youth toward service and stewardship in National Parks and in their home

communities by modernizing the conservation message in the context of a new generation's biggest environmental challenge.

The presence of an overarching theme has been shown in educational research to effectively piece together separate educational activities into larger, transferable understandings and higher level thinking skills. This higher level thinking is enhanced greatly when the educational activities are interdisciplinary, allowing students to explore a topic from multiple disciplines, for example science, civics, literature and communications. Like all environmental issues, climate change requires learners to look through multiple lenses in order to reach a depth of understanding. It provides a excellent theme to accomplish the program goals of understanding the scientific process, appreciation of National Parks as living laboratories and places to learn, the development of leadership skills as applied to making a difference in your community, and the role of individuals and society in stewardship of shared natural resources.

Leadership as a Goal

Many wilderness based and outdoor environmental education programs have leadership development as a central theme. These programs have proven successful in developing leadership skills in both youth and adults because of their ability to provide personal challenge, solitude, reflection and skills for working in groups. Instead of using leadership as an overarching theme, this program places leadership within the framework of a current issue. In doing this, the focus is taken away from the individual and placed on something greater—the future of the natural environment. Built into the program is an application of the leadership skills gained as students are expected to undertake a service project related to climate change in their home community. Having this direct application for leadership is a strong element of program design because it provides a built-in assessment tool to measure what students were able to accomplish in their communities as a result of program participation.

Service Learning Culmination Project

Service learning is a teaching and learning methodology that connects classroom curriculum with identified community issues and needs. Service learning engages students in projects that serve the community and build their social and academic capacities. (Chicago Public Schools, Service Learning Newsletter, 2005). Increasingly, both public and private institutions of secondary learning are implementing a student led service learning project as a requirement for high school graduation in an effort to instill an ethic of public service in youth. Despite the growing enthusiasm for the benefits of service learning, it is widely agreed in education circles that there is a lack of support structure and in some cases a lack of skill base that inhibits many student's ability to carry out independent projects and meet the requirement. The inclusion of a service project as a culminating program activity not only provides the opportunity for students to demonstrate and build on their evolving leadership skills. By providing on going support to students in the design and implementation of projects, the program benefits

both students and schools in providing structure and facilitating connections with community resources in order to realize success toward service learning goals. An added impact is the injection of projects related to environmental stewardship, climate change and National Parks into the service project spectrum.

Summary and Recommendations Related to Program Design

The design of the Parks Climate Challenge program has a solid base in the experiential and environmental education literature and research. The program applies best practices from experiential education for leadership development such as the inclusion of physical challenge, the practice of living in a tightly interdependent community and the integration of leadership as a theme for discussion and exploration. The program also applies best practices from the field of environmental education such as the progression from awareness to knowledge to action, a curriculum built around immersion in nature, learning from adult mentors with specific, deep knowledge of a place and built in time for personal reflection.

Building on the foundation laid in the immersion experience, the program design ensures that students are provided with opportunities to apply and continue to evolve their newly gained leadership skills. Exposure to government climate change initiatives and exploration of the role of government combined with the service project requirement gives students venues to apply their skills in new situations and with different audiences. Inclusion of the service project allows for a built in assessment of leadership goals and the continued acquisition of communication and organization skills. On going support for students to design and implement service projects provides a valuable service to students and schools seeking increased support for service learning graduation requirements and introduces climate change as a service project focus.

The inclusion of the climate change focused wilderness immersion experience in a National Park provides an essential foundation for achieving the programs goals of leadership development, connection to Parks and inspiration to undertake a service project. The program could be expanded to include experiences in other parks in the future. It would be difficult to replicate all of the factors that made North Cascades such an outstanding venue for the Parks Climate Challenge in it's initial year, however there are several factors that would be important to look for when considering replicating the program in other parks.

Recommendations for replicating the immersion experience in other National Parks:

- a wilderness location offering the opportunity for physical challenge, reflection and extended immersion in nature for the purpose of recruitment, development of leadership skills and inspiration for service projects

- a park history of youth programming, including risk management plans in place, ideally carried out with a partner that has a staff of experienced outdoor educators to work as adult mentors with the youth throughout their experience
- a base of park specific climate change science and monitoring efforts which can be shared and in which students can participate
- the presence of a base camp facility for staging and meeting with guest presenters from the larger community

IV. Summative Assessment: Program Impacts

A. Target audience

The target audience for the program was 20 urban youth who were representative of the ethnic diversity found in the target cities of Seattle, San Francisco Bay Area, Denver, Chicago and Washington DC. Target cities were identified in the project proposal based on existing connections between program partners and these urban communities or community organizations who could help to recruit the target audience of diverse, high school youth leaders. The goal was to have 4 students from each city participate in the program.

Equal in importance to diversity was evidence of an aptitude for leadership in the participating youth. Evidence of an aptitude for leadership was garnered from essay question responses, school transcripts, letter of recommendation from teachers and interviews which were part of the application process. Leadership potential was an important characteristic for participants because of the program's service project requirement and a key program goal for participating youth to build a bridge between their communities and National Parks.

Data for assessment of goals related to target audience was based on interviews of program coordinators from North Cascades Institute and the National Park Foundation (program partners), participant applications and a pre-program survey administered to participants selected for program participation upon arrival at the Seattle airport and prior to their arrival at the North Cascades Environmental Learning Center.

Recruitment and selection of participants

Recruitment of students for the Parks Climate Challenge was led by the National Park Foundation using existing relationships with community partners in target cities and neighborhoods along with outreach through phone calls, list serves and other electronic media sites to get the word out about the program. North Cascades Institute assisted with recruitment of participants from Seattle and Pacific Gas and Electric assisted with recruitment of participants from the San Francisco Bay Area. Science coordinators and teachers at schools serving diverse populations were contacted and outreach took place

through existing community service and environmental education programs working with youth from the target demographic.

Students were required to submit a written application including written responses to essay questions, letters of recommendation from a sponsoring mentor teacher, school transcripts and a parental consent form. A total of 49 applications were received: 20 from Seattle, 15 from Denver, 6 from Chicago, 4 from the Washington DC and 4 from the San Francisco area extending as far northeast as Napa. For the final selection program coordinators conducted interviews by phone.

Program coordinators reported a less than ideal late start to the recruitment process which resulted in outreach continuing through the end of the school year in June for a program which began in July. In addition, there was more competition for spaces in some target cities and not enough applications to meet the audience target in others. Coordinators felt that an earlier identification of students would have allowed a smoother process in working with the participants more in advance of the program.

Based on student applications, 17 of the 20 participants reported that they heard about the program from their teacher. 13 of the 17 specified their biology, environmental studies or environmental science teacher. One student heard about the program from a community program worker and two students heard about the program via email to a parent.

Participant profiles

The final participant group was composed of 5 students from Seattle, the city from which the most applications were received, 4 students from Denver, 4 students from the San Francisco/Bay Area with 3 from the Napa Valley, 4 from Washington DC and 2 from Chicago. Three students were selected to participate from Chicago but one participant did not attend the program. Based on pre-program survey data from the participants 6 students self-identified as Caucasian, 5 as Asian, 4 as Hispanic, and 4 as African-American. Student authored bios are included in Appendix E.

Participant Ethnicity
4 Hispanic (2 Denver, 1 Chicago, 1 San Francisco)
5 Asian/SE Asian (3 Seattle, 1 San Francisco, 1 DC)
4 African American (1 Chicago, 3 DC)
6 Caucasian (2 Denver, 2 San Francisco, 2 Seattle)

Participant Ethnicity by City
Seattle (5): 3 Asian, 2 Caucasian
San Francisco (4): 1 Asian, 2 Caucasian, 1 Hispanic
Denver (4): 2 Caucasian, 2 Hispanic
Chicago (2): 1 Hispanic, 1 African-American
DC (4): 1 Asian, 3 African-American

Community profiles

An important factor to consider when looking at diversity is socioeconomic diversity. This can be difficult to measure without obtaining information about family income which itself can be a deterrent to parental support for participation. Information on family incomes was not obtained as part of the application process and was not requested as part of this assessment. Based on student addresses the evaluator looked at median income data of neighborhoods where the students live. These ranged from being described as "working class" to "middle class." Areas of greatest socioeconomic distress are generally considered "underserved" in terms of opportunities for youth, particularly around leadership and outdoor experiences. Two students were residing in areas fitting this characterization, one in Chicago and one in Washington DC.

The remaining participants were residing in neighborhoods with middle to higher average median incomes although this says nothing about their individual family situation. All neighborhoods had ethnically diverse populations but in varying degrees and compositions. Based on the data available it can be concluded that the goal of diversity was met for ethnicity, and that at least 3 students would be appropriately identified as underserved due to a lack of economic opportunity and resources in their communities.

Participants motivation for applying

When asked to rank the reasons why they applied to the program, students ranked the choices related to climate change as the most important. Most consistent across all students was ranking concern about climate change and improving knowledge about climate change as the #1 reason for their interest in participating in the program. This indicates that the climate change theme was a motivating program element for these target youth. Also ranked consistently high was the opportunity to visit North Cascades National Park. One of the learner objectives for the program is to create an increased desire to visit National Parks. The existence of the program and the application materials themselves provided significant progress toward this goal as applicants researched North Cascades and developed their essays and interview question responses.

In the mid-range of responses, the items "resume for college" and "ability to lead service projects in their home communities" were skewed toward the top 5 for the Chicago and DC students but were ranked at least important, in the bottom 5, for the other students. Consistently ranked lowest by all students were the opportunity to visit Washington DC, improving presentation skills and summer job. The later could be used as an indicator of economic need as students were paid to participate in the program and students who needed to bring in needed family income in the summer months would not be able to participate without direct financial benefit. Summer jobs may be scarce for youth in some communities which would make the summer job element rise as a recruitment tool. The intent was that students who are required by family financial need to earn income during the summer would not be precluded, and in fact would be encouraged, to apply for the program. It appears that for this particular group this was not a determining factor for all

but three students. These students, two from Chicago and one from DC, ranked summer job in their top four for motivations for applying. This correlates with the neighborhood data and interview data that at least three participants were from economically struggling families and needed the stipend in order to consider participation. The summer job was the single outstanding anomaly in the rankings and other factors were ranked consistently across cities and ethnicities.

Ranking data was combined with open questions regarding personal goals for participation. Again, the most common answer was to learn more about climate change followed closely by becoming involved in reducing the negative impacts of climate change. Students expressed a desire to learn enough to be able to talk to others about climate change and to become a more confident leader and/or presenter. Other frequently mentioned goals were to experience wilderness, to hike and camp, and to know more about or become closer to nature. This supports the conclusions that concern about climate change was present in these urban youth across the 5 cities and that the opportunity to learn more about the issue was a strong motivator for the applicants. It also indicates that these urban youth are eager to have the opportunity to experience wilderness and gain outdoor skills.

The program goal most relevant to recruitment is goal #3: Create a bridge between urban youth, their communities and their National Parks. Through pre-program participant surveys data was gathered to determine whether these students had prior knowledge and experience in local National Parks as an indicator of the connection between their urban community and their local National Parks. Slightly more than half (11) of the participants reported that they had visited National Parks and were able to name them. Eight participants reported never having visited a National Park and five participants could not name any National Parks. Interestingly, the same students who could not name any National Parks ranked visiting North Cascades National Park as one of their top three motivators for applying to the program. Again, the application and recruitment process raised awareness of National Parks among the applicants and of a specific park, North Cascades, in particular. It also indicates that in the majority of the urban communities in which the students live there does not exist a strong connection to local National Parks.

Summary of Audience

In it's initial year the Parks Climate Challenge was able to meet the goals of recruiting a diverse range of youth leaders from the five selected cities. In addition, the participating youth were able to demonstrate a high degree of leadership potential in the application process. The students were highly motivated to participate by their concern and desire to learn more about climate change as well as their desire to camp, hike and spend time in a wilderness National Park. The number of students who were able to demonstrate basic knowledge of National Parks and their importance, in only a few cases from direct experience, was only slightly more than the number who demonstrated a low level of knowledge and no experience in Parks. Being paid for participation was not a highly

ranked motivator for most students but for at least three students it was extremely important.

Pre program survey data indicates that the participants were motivated by an already present awareness of the issue of climate change and a desire to learn more about it. Despite this apparent interest, opportunities for learning about climate change are extremely limited for youth. It is sometimes argued that teaching youth about climate change is inappropriate because it is too scary or depressing. These students are representative of a population of young people who know about the issue but feel that they lack specific knowledge that would allow them to become engaged in something that they are concerned about. This program appealed to them because it tapped into a desire to learn more about something they were concerned about which made the educational and service aspects of the program meaningful for them.

Participant Days and Audience Amplification

In it's first year the Parks Climate Challenge reached it's target of 19 urban, diverse high school youth as participants in intensive experiential learning. These 19 students spent over 600 participant days (# of students x number of direct program days) which should be considered as an indicator of the depth of their learning. While larger numbers of students can be reached through media or through shorter programs such as assemblies, it has not been demonstrated through assessment activities that these types of outreach activities can have the same well documented impacts on individuals as programs with a larger number of participant contact days, especially those programs that include overnight and experiential components. While the number of individual participants may have been quite small when taken in isolation, the number of participant days is significantly larger than the majority of environmental education programs for this age group.

Because of the amount of participant contact time the expectations of the students were higher with the inclusion of presentation and service project requirements. The creation of a video of student gathered images and audio will be an excellent recruiting tool for the program in the future as well as an inspiring snap shot of the program for anyone that views it on the web. Through web based materials the students will reach their peers around the world in a peer to peer format which is highly successful outreach tool for this generation.

Built into the program were opportunities for the youth to demonstrate their leadership potential as climate change ambassadors for their generation. Some activities took place within the the context of the program: teaching youth at the North Cascades Environmental Learning Center, a student led presentation for the public at Klondike Goldrush National Park in Seattle, a reception in Washington DC where students shared their experiences and concerns with agency heads, government employees and elected officials. In addition, student led service projects reaching elementary school aged

children took place. In designing and executing the service projects, students facilitated connections with National Park Service resource staff and elementary school teachers which will likely lead to more collaboration in the future. Including presentations, classroom visits and service projects, the 19 participants reached well over 1,000 youth and adults who were involved in direct program activities. This number is dwarfed by the number of people around the world who will view the web-based materials generated from the program.

Recommendations related to defining and reaching target audience:

- Start the recruiting process earlier with a goal of getting more applications in order to have more choice for creating the desired composition of diversity as well as maximizing the potential of recruitment activities to raise awareness among youth of National Parks and climate change.
- Define diversity goals for target audience and consider developing ways to include and measure socioeconomic diversity.
- Have students apply for funding as part of application process as a way to determine financial need and socioeconomic status.
- Continue building a web based presence for the program with student generated materials for use in recruitment.

Recommendations related to recruitment activities:

- Continue to conduct outreach activities through teachers, especially environmental science and biology, in schools that serve target demographics.
- Emphasize the immersion experience and outdoor activities in the Park and the opportunity to learn more about climate change in recruitment materials.
- Increase the degree of involvement of mentor teachers in the program so that they can increase their ability to be advocates for participation with youth and families.

Recommendations related to audience amplification:

- Develop ways to quantify the full reach of the program by looking at impacts of recruitment activities on schools, impacts on participating elementary school teachers' curriculum, lasting connections between parks and new schools as a result of service projects.
- Enhance the reach to this demographic even further by placing program centered video broadly on various web sites such as YouTube and include links to National Park sites and virtual field trips in order to enhance existing materials by injecting a youth voice and current topic of concern to youth and Parks.

B. North Cascades National Park Field Trip

"I believe the biggest obstacle to caring is underexposure to the raw land. Not many people have seen the impacts of the change in the climate on the ground in natural ecosystems like we were able to and I believe that if we could expose more people to that than more people would join our cause." —Parks Climate Challenge 2009 Participant

Key Program Elements

Upon acceptance into the program participants received materials for study and travel plans for their trip to North Cascades National Park. Students from Denver, San Francisco, Chicago and Washington DC traveled by air to Seattle where they were met by program leads from North Cascades Institute, joined by the students from Seattle and traveled together 2 hours north and east to North Cascades National Park. An important focus for the early days of the program was to create an atmosphere of community support and teamwork and to allow the students to get to know each other. North Cascades Institute's lessons for the program integrated a broad range of learning activities based on the learner objectives for the program (Appendix B). Activities began with students sharing their ideas on leadership, the role of youth in environmental stewardship and introductory sessions with Park Rangers to get oriented to North Cascades National Park. Students used the Environmental Learning Center as a base but spent the majority of their time camping in group sites in different locations around the Park which allowed for access to a variety of habitats and backcountry activities. Students were actively engaged at all times in group activities around cooking, hauling water, camping using Leave No Trace skills, hiking and shared responsibility to facilitate daily discussion groups.

Outdoor Skills

Learner objectives for outdoor skills were an important aspect of building individual confidence, group cohesion and connection to the place. Students spent a portion of the trip canoe camping on Ross Lake during which they successfully climbed Desolation Peak, site of a historic fire lookout. Students also hiked to one of the glaciers on Mount Baker and visited the village of Stehekin which lies in the remote northeast of the Park and is accessible only by boat or by hiking over a mountain pass. As they traveled to these various sites in the park students learned about the history, ecology and management issues from Park and Institute staff from these diverse vantage points.

Climate Change Science

The climate change theme was a constant touchstone for all discussions and presentations. Learner objectives for understanding and gaining concrete knowledge in climate change science formed the foundation for study of the carbon cycle and the greenhouse effect and the environmental impacts on aquatic systems, native species, alpine areas and forests. National Park scientists and resource managers spent time with

students sharing their research and monitoring data. Students explored their own thinking about climate change as their knowledge grew. In addition students learned about human actions that influence climate change, such as carbon emissions, and discussed the concept of carbon footprints and the social and economic impacts of climate change.

National Parks and Service Project

Participants met and actively learned from a variety of National Park employees from throughout the organizational structure. They met the Park Superintendent on several occasions and became very comfortable with his presence. Interpreters, natural resource managers and maintenance staff visited the students in the field regularly offering insights based on their familiarity with the Park as well as modeling careers in the Park Service. As a service project, students participated in gathering data for a fisheries study on Ross Lake looking at changing species composition, water temperature and endangered species. Students reviewed data gathered on rising water temperatures and correlated it with fish biology and survey data. Students then gathered additional data by conducting fish population surveys snorkeling alongshore.

Opportunities provided by the learning center

Between approximately week long camping stints students spend one or two nights at the Learning Center where they were able to meet with community members, contact family and friends and work on project ideas. During one of these stays at the Learning Center students were able to teach a group of elementary age students from the nearby community of Mount Vernon. These students were part of a program designed to reach out to an underserved community of largely Hispanic youth living in the Kulshan Creek Apartments complex where gang activity is a concern and alternative activities for youth are few. Many participants indicated the experience of working with these youth as one of the highlights of their North Cascades trip and felt that it gave them inspiration for their service projects.

Adult Mentors

Strong bonds were formed with adult mentors during the program. North Cascades Institute's program lead was Megan McGinty, an experienced wilderness educator with an extensive backcountry teaching resume. In addition to participating in student recruitment, Megan had primary responsibility for developing the itinerary, logistics and lessons for the program in the North Cascades. In addition to Megan, two seasonal outdoor educators and a student in the Institute's graduate program shared responsibility for the students during their entire month in the North Cascades. All staff had background teaching youth in outdoor settings, a high level of naturalist skills, experience developing leadership skills through experiential education and Wilderness First Responder training.

Field support was also provided by staff at the North Cascades Environmental Learning Center which students used as a base camp. Although the program was largely camping based, the Learning Center provided a place for the students where they felt like they

belonged. Many students called the Learning Center "home" and expressed deep feelings of connection with the campus and the other programming taking place there. By staying at the Learning Center between forays into the backcountry, students were able to witness many of their ideas for what people can do to ameliorate the impacts of climate change in action such as food waste composting, recycling, sustainable building design, energy conservation and eating from local food sources.

Final Event in Seattle

An important element of the month long park stay was to encourage and prepare students to take on leadership roles regarding climate change action in their local communities and regional National Parks. The inclusion of a culminating event in Seattle provided the students with an opportunity to design and present information they had learned and experiences they had with a larger audience made up of community members, parents, program funders, media representatives and their instructors. Throughout the program students worked with their Institute mentors to process and organize their knowledge as well as understand and explore elements of powerful and persuasive presentations. Students were given time and materials to organize their presentation and feedback and support from their instructors and adult mentors. The event included both student presentation and time for audience questions to the students.

Outcomes

Importance of National Parks

"No matter how hard I try I could never forget this experience and the beauty of the Park so I will have that pushing me through my whole life."

"I have been thinking about becoming an environmental lawyer or environmental policy maker. Going to the park opened my eyes to opportunities within the National Park Service. Now I am thinking about whether I want to be behind the scenes or right in the environment that I want to protect."

" I have been thinking for awhile about getting into biology but I didn't know if there would be work in that field. Now I know that I could be a Park biologist and that is what I'd like to be."

"I've always wanted to be teacher. Now I'm really excited about it because I want to take that to National Parks and be an interpreter or work with youth programs."

—Parks Climate Challenge 2009 participants

Students demonstrated significant development in their understanding of the importance of Parks. Results from the pre-field trip survey indicate that most students felt that the importance of National Parks was "preserve nature and it's beauty" and "to provide a place for people to experience nature." The Parks role in helping people learn about nature was mentioned by only 4 participants in the pre-program survey. Only one student

mentioned research as something important that takes place in Parks. Two students could not name any reasons that Parks were important and replied "don't know." In post-trip program surveys, participants were asked the same question and several new concepts were present in the responses. Protecting and preserving land in a natural state for future generations was listed by 15 participants as a reason that National Parks are important. In addition, 10 participants responded that the Parks are important because they provide places to educate and inspire people toward protecting nature. Four participants responded that Parks are important as places for research and studies related to climate change and three respondents said that Parks are important because they get people involved in stewardship. The concept of Parks being important to people, both now and in the future, reflects an understanding that people belong in Parks and that people and society stand to gain from a relationship to Parks.

In addition to the professional education staff that lived and worked with the students several Park staff representing different divisions spent time with the students in the field. Park staff were essential for providing the exposure to what it means to manage a National Park and the different skills needed in the National Park Service. Park scientists who spent time with the students sharing their research exposed the students to the idea of Parks as places where important scientific research takes place as well as provided a scientific basis for understanding how climate change impacts can be observed and measured.

In addition, participants demonstrated gains in awareness of careers in National Parks. Students were asked about career aspirations and plans in the application process and while a broad range of careers aspirations were represented no students specifically mentioned working for the National Park Service. In post trip surveys 5 students specifically articulated working for the Park Service as a career goal in educational and/or scientific fields. New careers listed in post trip surveys that were not mentioned in pre trip surveys included field biologist and field educator/interpretor.

Knowledge of climate change and it's impacts

"Lack of education is the biggest problem. More needs to be done as far as people obtaining the means to enhance their knowledge about climate change and it's impacts."

"My confidence in my ability to talk to people about climate change is much greater now because I have seen the impacts with my own eyes and I have had the opportunity to learn from scientists that have been studying the ecosystem for a long time and have measured the changes taking place. Before I was concerned but I felt like I didn't know enough to really talk to people about it."

"*We heard everyone from glaciologists to firefighter's perspectives on global warming and this allowed us to see and understand a large spectrum of the effects. I really can't imagine a better way to learn about climate change or a more motivating experience.*

Now when I think of climate change I won't be thinking of polar bears but of Mount Baker's glaciers and all the dead tress from infestations of pine beetles, and the communities threatened by the fires caused by those same trees."

—Parks Climate Challenge 2009 participants

Participants were asked both before and after the field experience a series of questions to gage the depth of their knowledge about evidence of climate change, it's impact on National Parks and what can be done by youth and by society to alleviate impacts. Significant gains were demonstrated in all of these areas.

Post survey data indicates that student's understanding of climate change was deepened tremendously. While pre-trip surveys indicated a broad but surficial understanding of climate change and it's impacts, post survey responses were more detailed, more specific to a place (the North Cascades) and in all cases included an understanding of the connections within ecosystems and how changes reverberate throughout a food web. Pre trip responses to the question "how do we know climate change is happening" were generally along the lines of "because we hear it in the news" or "changing weather." In pre-trip surveys 6 students listed ice/glaciers/ice caps melting as one of the ways we know climate change is happening. In post program surveys responses to the same question were much more detailed and specific with 11 students mentioning glaciers melting as evidence of climate change that they were not aware of prior to participation in the program. In pre trip surveys students listed a total of 10 reasons that we know climate change is happening most of them very general and some inaccurate confusing weather with climate. In post trip surveys students were able to list 25 distinctly different scientific observations as specific evidence and accuracy was increased.

The service project in North Cascades was especially impactful in this regard. Students were taught about the temperature range of bull trout, an endangered species in the Skagit River Watershed, and participated in bull trout surveys during a canoe trip on Ross Lake. Warming water temperatures as well as an impressive population explosion of a non-native fish species in the lake were mentioned by all students as evidence of climate change in post trip surveys along with the knowledge that warming water temperatures cause impacts to aquatic ecosystems and food chains. There was no evidence of this type of ecosystem understanding related to climate change impacts in the pre survey responses.

In addition to specific knowledge gain of climate change evidence and impacts, students also showed gains in their spectrum of ideas regarding what youth and society can do to alleviate the impacts of climate change. Pre trip surveys demonstrated broad knowledge among participants of actions like reducing carbon emissions, conserving energy and reducing consumption as important actions to reduce the impacts of climate change. Post survey results demonstrated broader knowledge among a greater number of students of these types of actions but included another significant action: raising awareness and

educating others. Together these two responses were mentioned by more students in post trip responses when asked specifically *"what can youth do about climate change?"*

Connection to nature

"There is something about living in nature without technology that creates such change. I have also learned more about who I am and how to show it."

"I think it's really important to get people outside and in touch with the beauty of the natural world. If they experience it they will want to protect it. That is what happened for me." —Parks Climate Challenge 2009 participants

Several questions asked students to rank on a numerical scale (Likert Scale) their feelings of connection to nature, the outdoors and outdoor skills both before and after the field experience. With 1 being "strongly agree" and 10 being "strongly disagree" students were asked to respond to a series of statements. About half of the participants reported "strongly agree" to statements relating to feeling a connection to nature and enjoyment in being outdoors on pre trip surveys. Fewer students, about one third, agreed with statements that they possessed skills to camp alone or with friends in a park prior to participation in the program. In post trip surveys every participant ranked "strongly agree" to having a strong connection with nature, enjoying being outdoors and having the skills and desire to go camping on their own or with a group of friends. Evidence of inspiration to act on behalf on the environment grew from this increased connection and was evident in student quotes and interviews.

Development of leadership skills/perception of self as a leader

"I will take away the idea of community and how we can all work together to accomplish something. I will take away the dedication of all the people who work at the Institute and in the Park, and all of the other people who came and talked with us and I will attempt to be just as dedicated in my own work."

"I know we will need to work past the bumps we run into as we work to spread education to people about climate change. We must have determination and believe in the potential of ourselves and others."

"When I got home from the North Cascades people were so excited about what I did that it really cemented my idea that the majority of people are willing to help--they just need a little push. I realized that we can have more of an influence than I'd thought."
—Parks Climate Challenge 2009 participants

The increased connection to nature provided the inspiration for action and the knowledge gained contributed to student's confidence to present and share information about climate change. Together these gains stood out to students as the most important outcomes of their time in the North Cascades. The most common answers to the question "what is the

most important thing you gained from this experience?" were (1) inspiration to be more environmentally responsible, (2) knowledge and passion to act on behalf of the environment and (3) better public speaking skills and more confidence to speak to people or in front of groups. In pre trip surveys the highest ranking goals for participation were those related to learning more about climate change and experiencing North Cascades National Park. Prior to the trip student goals did not include inspiration, connection to nature or increased presentation skills so the fact that these were mentioned as outcomes across the board make this a significant result.

Summary

The North Cascades field trip was highly successful at reaching two program goals 1) educating youth about conservation, energy, climate change and stewardship and 2) preparing youth to become climate change leaders. In addition, progress was made toward goal 3 by helping students form a connection to National Parks and goal 4 by helping inspire and equip students with skills and confidence for taking leadership of a service project. In addition, the North Cascades portion of the program met a wide range of learner objectives for the program related to knowledge, attitudes and behaviors. The program solidified connections between students and adult mentors that would be essential to success in carrying out service projects.

Recommendations specific to Park immersion field trip:

- Review program goals and consider strengthening goals and learner objectives based on the unique benefits and outcomes of the inclusion of a wilderness experience.
- Continue to integrate opportunities to interact with elementary age students as part of the field program.
- Build on the success of the first year of the program by making materials and expertise developed for the pilot available to new Park program coordinators. This would help ensure the ability of new sites to maintain the high level of program quality achieved in the pilot. Consider designating North Cascades Institute as the program lead for training staff at new Park sites as they are added and develop program materials such as syllabus and curricula that can be shared.

C. Washington DC Field Trip

"I really enjoyed telling people our story and what we learned over the summer because they seemed genuinely interested in what we had to say and really listened."

"The role of government is crucial because the government creates policies to combat climate change. We are the future leaders and we know that we are extremely passionate about combatting climate change but if the government chooses to ignore us their apathy

makes our efforts worthless. American youth need to be involved but the government needs to be supportive."

"The government is there to serve the people so when the people make enough noise about climate change and show they really care then the government will pass laws to help protect the planet and the people." —Parks Climate Challenge 2009 participants

Key Program Elements

The second activity that took place in the Parks Climate Challenge was a four day visit to Washington DC where the students met with experts to discuss climate change and community engagement strategies for engaging more youth in climate change awareness. Students were accompanied by instructors from North Cascades Institute and participated in activities coordinated by the National Park Foundation including a reception, a forum with agency leaders and a service project on the National Mall.

Reception at Capitol Hill Visitor Center

Students shared their experiences by showing the video that was compiled from digital audio and visual from their trip in the North Cascades at a reception at the Capitol Hill Visitor Center. In attendance were representatives from the National Park Foundation and Pacific Gas and Electric, the major funders of the Parks Climate Challenge, as well as elected officials and agency leads. This gave students another opportunity to share their stories, their knowledge and their passion with an audience made up of decision makers and program funders.

Service Project on the National Mall

Students helped to staff a service project on the National Mall for 100 students from schools in the DC area. Parks Climate Challenge participants helped to staff a series of stations where students assembled kits containing list of farmers markets, tire gauge, seeds (vegetable), tip sheet on energy conservation in homes, power strip, and a CFL light bulb in recycled and reusable bags that they take with them and for use in their own homes. Other stations included a mural/art project with a climate change theme, native seed planting and second art project where students signed a pledge to make a commitment to do something about climate change. One of the goals of participation for the students was to gain experience with the details of organizing a large service project in preparation for leading a similar project in their home communities.

Symposium for Agency Heads

Participants attended a symposium with representatives from federal agencies with climate change initiatives including NASA, NOAA, USFS, NPS, BLM and EPA. Agencies made presentations to the students about their initiatives and students shared ideas about the importance of engaging youth. Students were exposed to the many efforts currently underway at the federal government level to deal with climate change and acted as a focus group for agency representatives.

Workshop for Service Project Design and Planning

As a final activity in DC students were able to work with program leads and instructors to share their progress on their service projects, develop written statements and project plans including budget and time line. Students were split into city groups and organized to work in teams to carry out a service project in their city.

Outcomes

On going support for students

"I felt really homesick for the North Cascades and alone realizing my friends were in other states."

"I had a hard time trying to cope and get my head around the actual fact that I was home and that the best month of my life had come to an end."

"I was used to doing everything myself and out in nature. I'm not sure my family realized how much I had changed and we had to come to terms. It was hard being away from all my new friends and the lifestyle. I missed everything so much. It was hard going home."
—Parks Climate Challenge 2009 participants

The most important part of the visit to Washington DC as reported by the participants was the opportunity for a reconnecting with the group that they had spent a month with in the North Cascades. Through the surveys participants reported significant challenges upon returning home from their intensive experience in the wilderness functioning as a tightly knit and supportive group with common interests and concerns. Students reported feeling lonely, feeling overwhelmed by the responsibility of carrying out the service project and being back in an urban environment after a month living close to nature. Students also expressed feelings related to their communities level of pollution, lack of knowledge or concern about climate change and vulnerability to impacts of climate change. The opportunity to come back together with their support group was highly valued as an outcome of the trip to DC. The most common response to the question "what do you wish you could have done while in DC?" was "spend more time talking and relating as a group" and "enjoying each other's company."

Service project development

"My biggest challenge was juggling school with work on my service project. I felt really stressed out about it."

"The worst stressing was worrying about connections with National Parks. I was worrying constantly about how and when the National Parks would contact us."

"Most of my questions were answered and I saw other groups ideas and tried using similar ones. Doing the service project on the Mall helped me to see how it might be like with my project."

"We had time set aside to meet with our city groups and one adult leader to discuss details and formulate a plan for the resources we will need, transportation and the activities we will be doing. We had to be pretty specific and this helped us think critically about what still needed to be done."

"We left DC with a full set of activities, agenda and budgets. For my group it's important to be in one place where instructors can help you because we live pretty far apart and we need help."

"I felt so much more confident and organized about our project. We got some planning done and I got encouraged and I felt like the responsibility was really on me because I got to see important people actually proud of us."

—Parks Climate Challenge 2009 participants

Another significant aspect of the trip to DC for the participants was the opportunity to meet with program leads and adult mentors in their city groups and plan their projects. Roughly half of the students reported a high degree of confidence in their ability to carry out service projects in initial pre-program surveys and application materials and the remaining half expressed that they were concerned about their ability to carry out projects. The number of students that expressed a high degree of confidence in their ability to carry out service projects increased dramatically immediately after the North Cascades field trip but prior to returning home. Once students returned to their home communities that confidence took a dip to less than half feeling confident in their ability to lead a project citing becoming busy with school and other activities and the reality of making a project happen now seeming overwhelming.

Initially, students believed that they were to conduct individual service projects. As the National Park Foundation realized that more support would be needed in order to carry out the projects within the designated time frame the decision was made to have participants work in city "teams" to carry out projects. In addition, students needed help to make contacts with National Parks in order to fulfill the program goal that the projects help connect communities to local National Parks. In an instructional and interactive setting students were divided into city teams and were able to work in a concentrated session with adult guidance. They were given specific assignments and were able to create detailed project plans that they did not have prior to the DC trip. Students expressed a high degree of satisfaction and relief in the team approach due to the fact that they had others to work with and were not "on their own."

As a result of the DC trip all participants reported a high degree of confidence in their ability to carry out the project. All students strongly agreed with the statement "I have support to carry out my service project," "my service project is on schedule and on track" and strongly disagreed with the statement "I am worried about my ability to carry out a service project." They expressed a high level of appreciation and gratitude for having the opportunity to work with program leads and adult mentors in a focused setting and being given tools and contacts for moving their projects forward. However, all students agreed with the statement "I need more help to carry out my service project" indicating a need for continued support as they returned to their home communities to organize projects. In addition all students strongly agreed with the statement "putting together a service project is harder than I thought."

Continued evolution of the perception of self as leader

"I really enjoyed telling people our story and what we learned over the summer because they seemed genuinely interested in what we had to say and really listened."

—Parks Climate Challenge 2009 participant

Continued opportunities to present to groups about their experiences and knowledge of climate change were a key factor in developing the students' perception of themselves as leaders. Students continually indicated that the interest of others, particularly adults, in hearing about their experiences helped them to gain confidence that their ideas were important and feel that they could make a difference.

Summary

Outcomes from the trip to Washington DC emerged as those related to keeping the momentum of confidence and support that was generated during the North Cascades field trip. While all students listed seeing the city's monuments among the highlights of the trip, other common responses were centered around reuniting with friends and instructors and getting the chance to further their service project plans both through participation in a service project and having dedicated time to work as a team and get specific help from program leads. Opportunities to present to and meet with important people continued to strengthen their confidence in their leadership potential as well as their belief that they could make a difference in increasing awareness of climate change.

Recommendations specific to the Washington DC field trip

- Develop goals and learner objectives specific to the DC field trip and design program activities around these goals. Consider the integration of goals and learner objectives for civics.
- Create more space in the experience for students to reconnect, reflect on challenges and support each other.
- Continue to integrate opportunities for students to present and/or actively discuss their experiences. Design meetings so that students are not being presented to but rather are active participants sharing their perspectives.

- Keep service project planning workshop as part of the program or find other ways of ensuring that adult mentors are working closely with students to plan projects.
- Consider using the trip to enhance understanding of citizens role in the democratic political process by having students meet with elected representatives as well as interest groups working on climate change issues.

D. Participant Led Community Service Projects

Key Program Elements

A requirement for participants in the Parks Climate Challenge was to plan and implement a service learning project in their own community based focused on climate change and environmental stewardship which involved elementary age school children. These projects gave participants the opportunity to demonstrate the leadership skills that they had gained during their intensive immersion in North Cascades and their trip to Washington DC. Program goals related to this activity were to build a bridge between urban youth, their communities and their National Parks and to help urban youth instill a conservation ethic in elementary school-aged children.

Working with elementary schools and teachers, participants were responsible to create activities for both classroom and field trip settings as well as plan the logistics for the field trip. Working with elementary teachers, high school participants drew on their experiences in North Cascades to create hands-on, age appropriate content based activities for use with elementary school students in both the classroom and the field. Throughout the program, students were assisted by adult program leads, initially staff from North Cascades Institute, who worked with students to think about what makes a good field trip, what does good teaching look like, what is service learning, how to engage younger students in learning and how to keep them safe while in the field.

Implementing service projects was a time consuming job and students worked closely with cooperating elementary school teachers and Matt Ferris at the National Park Foundation. Despite detailed plans developed during the project design workshop which took place during the Washington DC trip students continued to require additional assistance in making connections to local community groups and National Park resources. Conference calls led by Matt Ferris were an important tool in moving projects along and facilitating the connection of students with resources in National Parks who could help lay the groundwork and provide staff for field trips and projects. All projects included in-class presentations and activities to introduce the concept of climate change and carbon footprint. Field trips built on this knowledge and took place during October and November reaching approximately 500 youth, their teachers, parents and schools.

Outcomes

Confidence to carry out project

"My thinking changed as I experienced more. I have learned more about who I am and how to share it. I was only slightly interested in the service project before but now after my experiences I am more proactive and responsible."

"I'm way more into the service project than I was at the start because I've experienced it myself. I really feel like I have something to share and I know how to communicate it."

"When I first applied to the program the service project was an afterthought to me, something I didn't want to do that I would deal with when the time came. Now it is something I am thrilled to do, especially when people come up to me and ask me to work with their child's school."

—Parks Climate Challenge 2009 participants

Participants entered the program reporting a high degree of confidence in their ability to execute a service project. This level of confidence was maintained and slightly increased at the end of the North Cascades experience where students enhanced their knowledge about climate change, had the opportunity to present to a group of elementary age youth and debrief with adult mentors about strengths and challenges working with this age group. Participants were also able to participate in service projects themselves and discuss the concept of environmental stewardship. Students left the North Cascades experience with a high degree of enthusiasm and confidence toward their service projects.

The level of confidence took a steep dip after students returned to their home communities. Students reported feeling overwhelmed by the project planning, feeling daunted by it and not knowing where to start in making contact with National Park staff in order to plan the field trips. Fortunately, the relationship with Matt Ferris from the National Park Foundation was strong enough and communication open enough that he was able to respond to the situation in a proactive way. Matt grouped the students into teams from each city, asking them to work together on a single, larger project as a group. This gave students the ability to collaborate and draw support from one another. In addition, Matt included a workshop for project planning in the DC field trip which allowed students to get concentrated help and encouragement from their adult mentors. After the DC trip all students strongly agreed with the statement "putting together a project is harder than I thought." Participants also universally strongly agreed with the statement "I need more help to carry out my service project."

The fact that the projects were successfully implemented in the tight targeted time frame was due in large part to Matt's continued work with the students through conference calls which helped to link them with National Park staff and community groups who could

help to implement their projects. Challenges with the timeframe included the time of year. Projects were targeted to take place in the late fall when many Parks are winding down their operations and many seasonal interpretive staff are no longer available to facilitate school group visits. Matt was able to advocate for project implementation and push past barriers in a way that students were not.

Skills gained for project planning

"At first I thought 'this will be easy. Just teach the kids three questions and put them on a bus and we will be done.' But it's not that easy and I don't want it to be because it's inspiring me more."

"Getting everything together, making the dates work with everyone's schedules and keeping the kids engaged and under control. I've learned what it really takes to put together a project and what are the components of a good one."

—Parks Climate Challenge 2009 participants

A continued evolution of leadership took place as students designed and implemented their service projects. Creation of written project plans and budgets was a significant learning experience but, as students learned, implementation provided a whole different set of challenges. Students were responsible to identify and contact elementary school teachers and obtain permission to present climate change information and activities in their classrooms. Students had to demonstrate an ability to present written lesson plans in advance, schedule times and be responsible for following through on committments. In addition, students applied skills of organization and communication as they planned their service learning field trips working alongside cooperating teachers to schedule transportation, communicate with and obtain permission from parents and recruit parent chaperones. In addition, students participated in conference calls organized by the National Park Foundation which served to connect them to the National Park staff and community resources which formed their project team. Students practiced professional communication skills and had to be responsible and responsive to project collaborators.

Evolution of student thinking about projects

"At first I didn't really grasp the concept. Now I understand better what I need to do."

"My ideas have evolved a lot. I've been able to think about climate change both locally and globally. It enabled me to understand how I can help mitigate climate change as an individual and share that with other kids."

—Parks Climate Challenge 2009 participants

In pre-program surveys, participant descriptions for their service learning projects varied widely. Some were very specific to a particular school or field trip site but most were very general just describing "taking elementary kids on a field trip to teach them about climate change." After the North Cascades experience, all students included in their

evolving project descriptions "getting kids outdoors to experience the natural world." They expressed their greatest concern being to keep the kids engaged and having fun while learning.

As students actively participated in activities and discussions designed to facilitate their understanding about content, curriculum and teaching methods project plans became more similar as they became more detailed. After participating in the service project on the National Mall and as students and began working in city teams their project plans for service learning field trips conformed to a basic template of 100 kids rotating through several activity stations. The process of experiential education unfolded for participants as they applied their own learning experiences to the challenges of designing learning experiences for others.

Reaching into communities, making new connections

"*I think I speak for a lot of people here in the Chicago region when I say that the Parks Climate Challenge has been a great catalyst for both individual development and for new relationships and partnerships among a number of different organizations and agencies.*

—Rebecca Blazer, CIMBY, The Calumet is My Backyard,
a community service organization in Chicago

Many introductions and connections were initiated through design and implementation of the service projects. Projects took place at five National Park sites: Golden Gate National Recreation Area, Rocky Mountain National Park, Indiana Dunes National Lakeshore, George Washington Memorial Parkway and the National Mall. These Parks were introduced to the Parks Climate Challenge and worked with the youth to identify service projects and provide support staff for field trips.

Several non-profit community groups became engaged in service project implementation including the Golden Gate National Parks Conservancy, CIMBY (The Calumet is my Backyard), Indiana Dunes Learning Center and the Center for Urban Ecology in Washington DC.On the local and state government level Seattle City Parks and Chicago Public Schools Service Learning Center were engaged. Chicago Public Schools are currently working with the National Park Foundation to develop a peer to peer training model for potential implementation in the program next year.

Participating elementary schools provided teacher and administrative support to students as they worked through the process of planning field trips for public school students. Twelve elementary schools in the 5 cities participated in the program through hosting class presentations and sending students on field trips. These schools were also exposed to new resources by being connected to project partners and National Park staff. The single most important program element allowing schools to attend field trips was the monetary stipend provided by the National Park Foundation directly to schools to pay for buses to transport students.

Larger non-profit organizations expressed interest in program collaboration in the future including Nature Bridge, American Camping Association and the National Environmental Education Foundation.

While there was tremendous support and enthusiasm from these many partners for the program it is unknown at this point in time whether these relationships will continue or deepen. If projects are repeated over time the connections between pubic schools and these resources will likely grow. National Park staff interviewed expressed a desire to begin project planning earlier and to integrate the field trips better into existing youth programs in order to better serve participating schools and teachers as well as better support the high school participants in planning the activities. This could have the impact of reaching a larger audience with climate change education and stewardship activities by integrating the activities into existing park based youth programs.

Impact of participation on elementary students

"I realized that there is hope. The older people don't care too much about what's going on but I see a lot of kids around where I live. They can be taught and they would grow up and be the adults that would actually do something about it."

"It has to be engaging to the students yet educational at the same time. If it's fun but the students didn't learn anything then there was no point to it but if it's not fun they won't remember it."

—Parks Climate Challenge 2009 participants

The numbers of youth reached was greatly amplified by the service projects with 500 elementary school students being directly reached with classroom presentations and field trips. While the numbers are impressive there is little data on the impact of the experiences on the students that participated in terms of the goal of instilling a conservation ethic. Assessment of impacts on elementary participants was not included as an element of service project design and was not a focus of program assessment in the initial year.

The combination of classroom based activities with a field experience follows guidelines for best practices in education research which demonstrates that when classroom learning is combined with field based learning the potential for large gains in higher level thinking is increased. In order to determine how elementary youth were impacted by their experiences participating in activities designed and led by high school students an assessment strategy targeting participating elementary teachers could be implemented in the future. Teachers could be asked a series of questions before and after the educational activities related to their observations of impacts on students perceptions of themselves and their environment, as well as impacts on their own curriculum and teaching as a result of the introduction of content relating to environmental stewardship, National Parks

and climate change. This could be implemented by high school youth as an aspect of program planning and synthesized in their final project report. This final project report could also survey high school participants regarding their feelings about the success of the service projects. Measurable goals for elementary students would need to be developed as guidelines for assessment of outcomes.

Project descriptions compiled by project teams are included as Appendix J.

Summary

Service projects were an important aspect of the overall program design and in the pilot program provided the opportunity for a built in assessment of program goals relating to the development of leadership skills in high school participants. As the students learned, designing and carrying out a service project is no small task and requires a great degree of organization, perseverance and motivation. Students required and received support throughout the process which resulted in successful implementation for all city groups.

In addition, the projects created a means through which outreach to community groups, local government, public schools and National Parks could take place with the potential to create increased connectivity and opportunity for continued activities related to environmental stewardship and climate change. Assessment of the program's goal of instilling a conservation ethic in elementary students provides an opportunity for refinement of this program activity in the future.

Recommendations related to high school project leaders:

- Continue to provide ongoing support, structure and encouragement for students throughout the process of implementing projects, particularly with regard to making connections with National Park staff and other community resources. Consider having students introduced to Park contacts immediately upon acceptance into the program.
- Continue to have students work in teams to carry out service projects.
- Begin service project planning earlier with partner Parks. Have students visit the Parks where they will take elementary students prior to the field trip. Where possible consider working with existing youth programs taking place in Parks to increase potential impacts by designing activities about climate change that can easily be integrated into existing programs thereby reaching more students.
- Consider improving quality of field trips by allowing students to implement projects in the spring or even fall of the following school year. Projects could take place on the September 11 National Day of Service.
- Ask that students integrate assessment activities into service project design in order to understand impacts on participating elementary school children, parents and teachers. Have students report evidence of impacts as part of their final project report.

- Award stipend to students after program reports are completed to ensure that data is received for better reporting of project impacts.

Recommendations related to schools participating in service projects:

- Increase participating elementary teachers involvement in the program by providing training for them which covers the goals of the Parks Climate Challenge, introduces them to National Park staff and resources and outlines their critical role in the program. Training should also include elementary level curriculum for teaching climate change science, guidelines on mentoring high school participants, evaluating classroom presentations and service projects and assessment strategies for measuring impacts on their students.
- Continue to provide bus stipends to participating schools as these are critical to their ability to participate in field trips.

Recommendations related to service project partners:

- Work with participating Parks to identify service projects in advance. Link projects to Climate Friendly Parks plans where possible and appropriate.
- Require high school students to visit Parks where projects will take place as part of project planning.
- Encourage Parks to consider the collection of scientific data on impacts of climate change as a service project containing valuable science learning. Activities like helping students to measure the amount of carbon dioxide a hectare of forest absorbs would help to convey understanding of the role public lands can play in ameliorating effects of climate change.
- Consider allowing some service projects to take place in communities and focusing on identified community needs, as opposed to requiring that they take place in National Parks. National Park staff could still be involved in planning and facilitating and this would have the benefit of getting Park staff into communities and familiar with community needs while reducing the costs and time for transporting kids to more distant National Parks for a single day.

V. Program Assessment Summary

The Parks Climate Challenge met and exceeded the goals and learner objectives around which the program was designed. Measurable increases were documented in participating students concern about climate change and in post program surveys students ranked climate change as the number one environmental problem facing the world today, a difference from pre program surveys. Significantly, marked increases were also documented in students belief that humans can solve this problem. Polls have shown that one of the greatest challenges around dealing with climate change is people's belief that it cannot be solved, that it will take some distant political powers to do something and all the rest of us can do is wait, and that nothing we can do will make any difference. Students in this program came out with a quite opposite belief not only articulating in

several different ways their belief that humans can solve this problem but also their conviction that individuals, and even youth, can do something to contribute to the solutions. Students reported a strong motivation to be involved in education and outreach and strongly agreed with statements like "all youth should be educated about climate change."

Students formed relationships with National Parks and developed a strong base of appreciation for nature. This formed the basis for the motivation toward the difficult work of organizing and leading service projects. Leadership skill acquisition continued through the Washington DC field trip and service project design and implementation activities. Students demonstrated gains in communication and organizational skills and gained confidence in their ability to implement service projects. They made direct connections to education program leaders in their local National Parks and community service leaders in their home communities.

Longer term impacts on elementary youth who participated in shorter experiences which took place just a few weeks ago were not measured within the scope of this assessment but the program did succeed in getting kids out into the field and introduced the topic of climate change to classrooms where it was likely not otherwise being discussed. Assessment of impacts on participating teachers and their curriculum in another area of potential impact which could be a focus of future assessment activities.

The programs impacts extended well beyond the 19 individual high school youth and 500 elementary youth through public presentations, media coverage and web presence of student documentary materials. Community groups and high school and elementary teachers in diverse urban communities that did not previously have any connection to National Parks were reached and served in varying degrees through the program. Other agencies have expressed interest in the program and the potential for inter-agency collaboration is being explored.

Summary Recommendations

- Review program goals and refine based on outcomes from the pilot program and plans for expansion in 2010. Consider strengthening goals and learner objectives based on the unique benefits of the inclusion of the wilderness experience.
- Create/refine learner objectives specific to DC trip and consider including goals for civics.
- Create goals for elementary schools that participate in the service projects and share with teachers. This would help determine if new relationships were formed that led to additional connection to Parks as educational resources or if climate change is being integrated into curriculum as a result of program participation.
- Create/refine realistic measurable goals related to elementary school students that participate in the service projects to determine impacts on perceptions of self and

the environment and the issue of climate change. Use post service project teacher observations of students behaviors and attitudes to measure impacts.

- Consider measurement of long term impacts by following high school participants over a 5 year period of time in order to determine what relationship exists, if any, with regard to the pursuit of higher education, the choice of program of study and the career aspirations of the participants as a result of program participation. This information could also be used to identify barriers to students as they pursue the career goals they stated immediately after program participation and allow for the creation of initiatives targeted to remove these barriers.
- Model carbon footprint reduction strategies by conducting a carbon audit for the program and create strategies for carbon reduction. Purchase carbon credits for airplane travel and conduct tree planting as a standard service project activity as ways to off set carbon emissions from program activities. Reduce airline travel by creating regional groupings of youth who could travel by train or bus to meeting sites for the National Park immersion experiences. Share these strategies with students and engage them in measurement activities.

VII. Appendices

Appendix A: Annotated Bibliography of Research Cited

Direct Experience and Mentoring Are Key Elements

The focus of this recent research from Dr. Louise Chawla is on those factors that contribute to individuals choosing to take action to benefit the environment when they are adults. This is a reprise of earlier research by Dr. Chawla in the 1990s (Journal of Environmental Education, 1998, 1999). Positive, direct experience in the out-of-doors and being taken outdoors by someone close to the child—a parent, grand parent, or other trusted guardian—are the two most significant contributing factors. While lifelong activism is the primary focus of Dr. Chawla's inquiry, as reported in this article, her well-documented study includes citations and explanations of many additional benefits to young people from early experiences in the out-of-doors. Creativity, physical competence, social skills, environmental knowledge, confidence, and problem-solving ability are among those benefits to development. Given the important role of adults in taking children into the out-of-doors, Dr. Chawla is specific about the attributes of the experiences those adult mentors provide. She states, the "adults gave attention to their surroundings in four ways—care for the land as a limited resource essential for people's well-being; a disapproval of destructive practices; simple pleasure at being out in nature; and a fascination with the details of other living things and elements of the earth and sky." Modeling those attributes while in the presence of the young person does even more. As Dr. Chawla states, "The very fact that an adult choses to take the child with them to a place where they themselves found fascination and pleasure, to share what engaged them there, suggests not only care for the natural world, but, equally, care for the child."

Chawla, Louise. "Learning to Love the Natural World Enough to Protect It," in Barn nr. 2 2006:57-58. © 2006 Norsk center for barneforskning. Barn is a quarterly published by the Norwegian Centre for Child Research at the Norwegian University of Science and Technology, Trondheim, Norway. This article was written for a special issue in honor of the Norwegian child psychologist, Per Olav Tiller.

Outdoor Experience for Teens Has Self-Reported Life-Changing Results

A classic 1998 study by Dr. Stephen R. Kellert of Yale University, with assistance from Victoria Derr, remains the most comprehensive research to date to examine the effects on teenage youth of participation in outdoor education, specifically wilderness-based programs. Subjects were participants in programs offered through three old and well-respected organizations: the Student Conservation Association (SCA), the National Outdoor Leadership School (NOLS), and Outward Bound. The researchers used quantitative and qualitative research techniques, and parallel use of both retrospective and longitudinal study techniques. Results indicate that the majority of respondents found this outdoor experience to be "one of the best in their life." Participants report positive effects on their personal, intellectual, and, in some cases, spiritual development. Pronounced results were found in enhanced self-esteem, self-confidence,

independence, autonomy and initiative. These impacts occurred among both the retrospective and longitudinal respondents in this study, which means, in part, that these results persisted through many years.

Kellert, Stephen R.; with the assistance of Victoria Derr. "A National Study of Outdoor Wilderness Experience." New Haven: Yale University, 1998. Available at the National Outdoor Leadership School web site.

We are visiting U.S. National Parks less often

Since 1988, per capita visits to U.S. national parks have declined by about 20%. In this study, Drs. Oliver Pergams and Patricia Zardic investigated some potential reasons for this decline. While there are many possible contributing factors, they focused on those related to how Americans spend their time and specifically time associated with electronic entertainment media (e.g., hours of television, video games, home movies, and Internet use). Drs. Pergams and Zardic note that since 1988 there has been a dramatic shift in Americans' time. For example, in 2003 the average person spent 327 more hours per year with entertainment media than in 1987. This shift in time clearly impacts time devoted to other activities, one activity of which could be national park visits. In their analysis, Drs. Pergrams and Zardic found that a number of entertainment media variables, as well as inflation-adjusted oil prices, appeared to explain almost all of the decline in national park visits. While this study only looked at association between factors, and not causation, it is an important first step in beginning to understand why U.S. national park attendance has and is continuing to decline and what this might mean for children's exposure to nature.

Pergams, O. R. W., & Zaradic, P. A. "Is Love of Nature in the US Becoming Love of Electronic Media? 16-year Downtrend in National Park Visits Explained by Watching Movies, Playing Video Games, Internet Use, and Oil Prices." Journal of Environmental Management, 80(4), 387-393, 2006.

There is an on-going national movement away from nature-based recreation

As a follow-up to their recent work demonstrating about a 25% decline in per capita visits to U.S. National Parks between 1987 and 2003, in this study, Oliver R.W. Pergams and Patricia A. Zaradic test whether this decline in U.S. National Park visits is an isolated incident or a good indicator with regard to how much people are visiting natural areas more generally. The authors examined 16 large national and international nature-related visitor and activity data sets, including visitation to Japanese national parks, recreational visits to all U.S. state parks, and total number of U.S. hunting and fishing licenses. In analyzing these data sets, Pergams and Zaradic found that nature-based recreation peaked between 1981 and 1991, and has been declining at a rate of between 1 and 1.3% per year since this peak, for a total decline of 18-25% to date. The similarities among these multiple and different measures suggest a general decline in visits to natural areas in the U.S. and potentially in other countries, such as Japan. It is important to note that the impact of this decline varies for each variable. For example, many more people visit National Parks per year than finish the Appalachian Trail. The authors found that the most popular nature-based recreation activity in the U.S. is camping, followed by fishing and hunting,

all of which show a declining trend. Pergams and Zaradic found only one countertrend to nature use decline: a slight increase in hiking and backpacking. While the cause(s) for this over-arching decline requires further investigation, this study demonstrates a fundamental shift away from visits to natural areas, with potentially important implications for health, well-being, and conservation.

Pergams, O. R. W., & Zaradic, P. A. (2008). "Evidence for a fundamental and pervasive shift away from nature-based recreation." Proceedings of the National Academy of Sciences of the United States of America, 105(7), 2295-2300.

Appendix B: Program Goals and Learning Objectives for Parks Climate Challenge 2009

Goals:

1. Educate high school-aged youth about conservation, energy, climate change, and stewardship.
2. Prepare youth to become leaders in climate change awareness.
3. Build a bridge between urban youth, their communities and their National Parks
4. Help urban youth develop the skills to help instill a conservation ethic in elementary school-aged children

Learner Objectives:

- Write a proposal for a service-learning project, assisted by a mentoring teacher from their local high school.
- Prepare for their trip by researching the National Park System, North Cascades National Park, their local National Park, climate change, and energy conservation.
- Take a month-long trip to North Cascades National Park in July of 2009 to study climate change in National Parks in the field with experts. Spend four weeks experiencing the park firsthand by completing service projects, exploring the park, talking to resource managers, making observations.
- Discuss their project ideas, work on developing those ideas within their groups and hone their presentation skills.
- Travel to Washington, DC to meet with experts to discuss National Parks, climate change, and community engagement strategies for engaging other youth in climate change awareness.
- Visit with elementary students to share their experience and teach them about climate change, energy conservation, and National Parks.
- Design and execute a service project involving elementary school-aged children at a local National Park that will teach their community about climate change and how it is impacting them.

Knowledge

- Understand process responsible for climate change and role of humans
- Understand impact of climate change on North Cascades to date and in future
- Understand impact of climate change on National Park Service
- Understand impact of climate change on human society
- Understand attempts to address impacts of climate change
- Understand role of science in parks management
- Understanding of ecosystem
- Understanding of scientific measurements of impacts of climate change
- Understanding of climate's role in ecosystem
- Understand role of youth in addressing climate change
- Understand value of youth stewardship

- Understand how to affect change in attitude of youth/know how to influence and lead peers
- Understanding of an individuals and groups ability to address climate change

Attitude

- Increased appreciation of outdoors
- Increased desire to visit national parks
- Increased desire to participate in climate change issues after program

Behavior/Ability

- Ability to present information on climate change to leaders in national parks
- Ability to develop ideas on how to engage peers in addressing climate change
- Ability to present lessons to elementary school on parks and climate change
- Ability to plan a service project with youth in their community
- Increased outdoor skill set

Appendix C: Research Questions

Formulation of specific assessment questions was done through a review of the following: 1) the stated goals and objectives of the Climate Change Challenge Program, 2) program and target audience descriptions from the participant recruitment materials, 3) communications with program coordinators at the National Park Foundation and North Cascades Institute.

Goal #1: Educate high school-aged youth about conservation, energy, climate change, and stewardship.

How many students participated in the North Cascades field trip and what is the demographic breakdown of participants?
Do students have a better understanding of the impacts of climate change in National Parks after participating in the month long program in North Cascades National Park?
Do students have better understanding of the interconnectedness of climate change, energy and conservation?
Do students perceive that stewardship is an element of addressing climate change?

Goal #2: Prepare youth to become leaders in climate change awareness.

After participating in the DC portion of the program do youth perceive themselves as prepared to be leaders in their community for climate change awareness?
What specific skills or understandings did youth gain from the experience that they will apply in their home communities?

Goal #3: Build a bridge between urban youth, their communities and their national parks.

Were the service projects in their home communities successful?
Were new connections made between their communities and local national parks?

Goal #4: Help urban youth develop the skills to help instill a conservation ethic in elementary school-aged children.

Were participants successful in working with elementary school children in their communities?
Did elementary school children participating in activities led by students in the climate change challenge program demonstrate an understanding of or interest in conservation as a result of the activities?

Appendix D

Parks Climate Challenge Assessment Plan Matrix

Goal	Student Activities	Measurements
Educate urban, high school-aged youth about conservation, energy, climate change, and stewardship.	Prepare for their trip by researching the National Park System, North Cascades National Park, their local National Park, climate change, and energy conservation. Take a month-long trip to North Cascades National Park in July of 2009 to study climate change in National Parks in the field with experts. Spend four weeks experiencing the park firsthand by completing service projects, exploring the park, talking to resource managers, making observations.	Document participant recruitment strategies and summarize demographics of participants: geographic, socio-economic, racial identity and gender. Research communities and schools in which students live. Use information to determine success in reaching target demographic. Review, observe and evaluate North Cascades curriculum based on learning objectives for Parks Climate Challenge. Use digital audio recorders throughout the North Cascades trip to gather evidence of student thought processes and reactions to their experiences. Focus on evidence of conceptual and attitudinal changes over time as a result of participation in program activities. Pre and post assessments to determine changes in climate change understanding, impacts of climate change on National Parks, attitudes toward National Parks and evolution of thinking regarding stewardship and service project ideas related to climate change.
Prepare youth to become leaders in climate change awareness.	Discuss their project ideas, work on developing those ideas within their groups and hone their presentation skills. Travel to Washington, DC to meet with experts to discuss National Parks, climate change, and community engagement strategies for engaging other youth in climate change awareness.	Observe group discussions and student presentations during the North Cascades trip to assess attitudes and presentation skills. Document and evaluate Washington DC symposium and activities related to program goals and objectives. Post symposium assessment to determine how the experience impacted their thinking regarding service projects in their communities and increased understanding of what is being done by government agencies and what can be done by communities to deal with climate change.
Build a bridge between urban youth, their communities and their National Parks.	Write a proposal for a service-learning project, assisted by a mentoring teacher from their local high school. Design and execute a service project involving elementary school-aged children at a local National Park that will teach their community about climate change and how it is impacting them.	Review and summarize service project plans and final project reports to gather evidence on increased perception of connections between parks, communities and climate change action. Observe at least one service project in action and informally interview participants to determine attitudes toward participation.
Help urban youth develop the skills to help instill a conservation ethic in elementary school-aged children.	Visit with elementary students to share their experience and teach them about climate change, energy conservation, and National Parks.	Survey participating elementary teachers on overall quality and effectiveness of high school student classroom visits and service project. Post project survey of participating elementary school children on attitudes toward participating in service project, national parks and conservation.

Environmental Education Consulting Services, Johannessen, 7/15/09

Appendix E: 2009 Participant Authored Bios

Jordan Bell hails from Washington DC and is a 15 year old junior thrill seeker who wants to make an impact on the world. In his spare time he plays soccer, practices martial arts, runs and participates in armed drill. He hopes to complete over 500 hours of community service this year and inform his fellow teens how to the improve the earth.

Audrey Lang is a 17 year old senior from Silver Spring, Maryland. She attends St. John's College High School in Washington DC. She is a member of her school's eco club, French club and choir. In her free time, she enjoys traveling, music and watching soccer. She decided to participate in the Parks Climate Challenge program because she feels our earth is in a dire strait characterized by tendencies that promote the disregard of nature.

Ying Yu Chen is a 15 year old junior from Washington DC. She participated in the state science fair twice and her group project, which was centered on the object of carbon dioxide sinks, won third place in the group category. She is also a member of the Model UN Club in school and an active member in her community.

Donya Gorham is a 15 year old sophomore at Washington Mathematics Science and Technology public charter school in Washington DC. She enjoys hanging out with her friends and learning new things. She is happy to be a part of the Parks Climate Challenge program because she wants to help out with a major problem affecting the world.

Laura Humes is a 15 year old sophomore at Shorewood High School in Shoreline, Washington where she is the head of a service club and mentors other students. She enjoys acting, music and art and is excited to be a part of the Parks Climate Challenge program so that she can discover a connection with nature and make changes in her community.

Heather McPherson is a 16 year old junior at Shorewood High School in Shoreline, Washington. She likes playing soccer and being involved in groups such as Amnesty International and Black Student Union at her school. Heather applied to be part of the Parks Climate Challenge program because she is passionate about world issues and wants to help in any way she can. She cares deeply about the environment and its inhabitants and feels as though many overlook the issues facing them.

Sydney Jarol is a 16 year old junior from Seattle, Washington who hopes to become a filmmaker. She is active in her community, volunteering at a fair trade store and helping prevent youth suicide through the SLAM club at her school. She wants to change the world and hopes to do so through socially conscious films.

Yvonne Chan is a 15 year old sophomore from Shoreline, Washington who plays select soccer and is a varsity gymnast. She is passionate about drawing, cartooning, graphic design and art of all kinds. She is the head of her school Interact Club.

Sarah Salvador is a 15 year old sophomore from Shoreline, Washington who loves to play soccer and be involved in drama. She also submits writings to websites and during free time practices her saxophone and guitar.

Daniel Cuevas is a 17 year old senior from Chicago, Illinois who has wrestled, played soccer and volleyball for his high school for three years. He has contributed to his high school service learning team for three years. He loves all kinds of sports from soccer, football and basketball to ping pong and everything in between.

Steven Washington is a 17 year old senior from Chicago, Illinois attending Harlan High School. Steven enjoys sports and is on his high school lacrosse and wrestling team. He wants to study communication and journalism so he can one day be an announcer for a sports team, movies, commercials, etc. He participates in a program in his school that helps clean and restore the environment.

Jane Culkin is a 17 year old senior from Denver, Colorado who is looking to get inspired from the other students at camp after starting her schools recycling program and being an avid part in several other environmental groups. Though climate change is a large part of her life, she also enjoys playing sax and the guitar in a small band and running, biking, skiing and being outdoors.

Anna Gonzalez is a 15 year old sophomore from Denver, Colorado that loves to help out anyone and everybody. She especially enjoys being a translator in schools and stores. It is a daily routine of hers to be positive everyday.

Hannah Lazo is a 15 year old sophomore from Denver, Colorado. She is an active member in the school club dedicated to ending the cycle of relationship abuse. She loves to do ballet, run, sing, enjoy nature and have fun with friends. She is super excited to be participating in the Parks Climate Challenge program and is even more excited to see where this experience takes her.

Meghan Reimann is a 15 year old sophomore from Denver, Colorado attending East High School. She has been involved in competitive gymnastics for most of her life and loves the outdoors which influences her desire to preserve wildlife and help climate change. She also enjoys hanging out with her friends and listening to music.

Araceli Diaz is from Napa Valley, California, also known as the Bay Area. She is currently attending New Technology High School as a senior and is a local participant toward environmental change in her community. She is currently in an environmental club and an AVID tutor.

Colin Ridgley is a 15 year old sophomore from Napa, California attending New Tech High School. He works hard in school, plays lacrosse and loves outdoor activities like mountain biking, skiing and backpacking.

Jenny So is a 14 year old sophomore from Cupertino, California who loves music. She attends a choir out of school, plays piano and ukulele and intends to learn more instruments. She currently is working as a piano teacher, but plans to have music only as a hobby.

Grady Weber is a 15 year old sophomore from Napa, California attending New Tech High School. He likes to play guitar and tennis. He had tutored students in math and enjoys riding his bike.

Appendix F: Final Reports for Service Projects from Participants

City: Washington DC
Project location: George Washington Parkway @ Daingerfield Island

Project leaders names: Audrey Lang, Donya Gorham, Jordan Bell, Ying Yu Chen
Project date: 11/20/2009

School(s) worked with:
Scott Montgomery Elementary School
421 P St Nw
Washington, DC 20001
Emily Koerner's 4th grade class

Community Academy Public Charter School
Butler Elementary Campus
5 Thomas Cr. NW, Washington, DC 20005

Stephenie Brown 3rd Grade Class

Jacqueline Peart 4th Grade Class

Describe what took place on the day of your service project, including how many students and parent volunteers attended.
The service project consisted of a nature walk leading to a greenhouse tour, pulling of invasive species, shaking of bushes to examine the wildlife within, and a planting of trees. There was only one parent volunteer with the approximately 52 students.

What was the best thing about your project?
The best thing about the project was feeling as though we'd made a difference in these children's lives & had imparted them with knowledge about the environment and national parks.

What surprised you about your project?
To teach children, it's critical for an individual to keep them engaged.

What was the hardest thing about your project?
The fact that one individual in our group was left with a lot of work because of our schedules, time management, and various other circumstances.

Besides the members of your group, who were the people who helped you most in carrying out your project?
We were helped most by Matt Ferris, Audrey Lang's teacher, Emily Boyer, and the rangers at the National Park like Barry & Jackie.

Did you use grant funds for your project? If so, what did you use the funds for?

Yes, the funds were used for candy for the children as well as the items needed for the Climate Change Sticker (Stamp) Activity.

Did the schools you worked with use grant funds? If so, what for?
Yes, the funds were used for their transportation to the National Park.

If you were going to do your project again what would you do different?
We'd involve 1 or 2 more schools, we'd all partake more in the project, and we'd teach both schools more & equal amounts of information. We'd have a little more time at the Park to engage in activities.

What do you think is the most important thing you got out of participating in the Parks Climate Challenge?
There's no way we can pinpoint just one thing, but in an effort to answer the question, it would, probably, be the fact that it's so much more evident that more people need to get involved in solving the problem of climate change and we have a strong bond with our new family.

What recommendations do you have for the program coordinators to improve the Parks Climate Challenge program next year?
Perhaps, the students shouldn't be paid all of their money until after they've completed the service project. It gives more of an incentive for work to be done.
In DC, more time should be allowed for the students to bond together as a family, for the last time.
It should be made apparent that the most critical part of the journey & the reason why it's being taken is, ultimately, for the elementary school students to be educated & partake in a service project.

City: Chicago
Project location: Indiana Dunes

Project leaders names: Steven Washington, Daniel Cuevas
Project date: 11/17/2009

School(s) worked with:
Gillespie Elementary School, Chicago, IL, Mrs. Varnado

Describe what took place on the day of your service project, including how many students and parent volunteers attended.
Park Rangers introduced themselves, we gave a speech explaining what we would be doing. We cut brush and did a few activities afterwards.

What was the best thing about your project?

The best thing bout the project was that the kids actually learned what we were teaching and were able to teach others.

What surprised you about your project?
The surprising thing was Danny's school was unable to go.

What was the hardest thing about your project?
Organizing the project.

Besides the members of your group, who were the people who helped you most in carrying out your project?
Rebecca Blazer, Matt Ferris and Park Rangers from Indiana Dunes.

Did you use grant funds for your project? If so, what did you use the funds for?
Yes. We used them for the bus, lunches and project materials.

Did the schools you worked with use grant funds? If so, what for?
No.

If you were going to do your project again what would you do different?
Plan the project better.

What do you think is the most important thing you got out of participating in the Parks Climate Challenge?
Knowledge, presentation skills, camping skills, new friends

What recommendations do you have for the program coordinators to improve the Parks Climate Challenge program next year?
Open the project up to people in more cities.

City: Seattle
Project location: Carkeek Park

Project leaders names: Sydney Joral, Laura Humes, Yvonne Chan, Heather Mcpherson and Sarah Salvador
Project date: 11/03/2009

School(s) worked with:
Whittier from Seattle with a fourth grade teacher Ms. Engel. Two Shoreline schools: Parkwood, 5th grade teacher Mrs. Pembrooke and Echo Lake, 5th grade teacher Mrs. Bowhay

Describe what took place on the day of your service project, including how many students and parent volunteers attended.
What happened on November 3rd were a lot of things. To summarize things, the two shoreline schools showed up around 10;00ish with about 10 parent volunteers. Later on, the Seattle school showed up and soon Sydney did a quick introduction. Soon, all five of us were in our groups and leading the kids to the stations. There were four stations that were: cup in a seed/composting, nature walk, planting trees and salmon run. Each of us had about a group of 20 kids with at least 3 parent volunteers. Around 12;00pm, everybody was done with the four stations and it was lunchtime. Having the kids go crazy, we quickly planned of what was going to happen next and finally decided to do the closing speech. Afterwards, while waiting for the buses, we got back into our groups and played some pretty epic games.

What was the best thing about your project?
At the end of the project, I felt accomplished of giving these elementary kids a better understanding of how climate change was impacting us globally and locally and what people have been doing in order to stop this issue. Not only that, but inspiring them to also help stop climate change by doing little things such as conserving water, recycling, etc. That was the best part of the project, where at the end of the day the kids going home and share their new information with their family. Who in turn, would hopefully start conserving water or do little things to reduce the impact of climate change.

What surprised you about your project?
How everything went smoothly. What I pictured was totally chaos and losing some kids in the park. But fortunately, everything went really well with the help of parents and staff of North Cascades along with the Carkeek staff.

What was the hardest thing about your project?
Teaching the kids about climate change without any lectures. Since they were 4th-5th graders, it was hard to teach them because you had to use a lot of hands on lessons and visual aids.

Besides the members of your group, who were the people who helped you most in carrying out your project?
The people that really helped us get this project going were Belinda Chin who worked at Carkeek and helped us pick a spot for our project. The elementary teachers allowing us to come to class and teach their students. Tammy Fawcett who got us the buses, kept us updated on how it was going and just supporting the team by being there during the project. Finally, the North Cascades Institute staff that came down with the composting station idea.

Did you use grant funds for your project? If so, what did you use the funds for?
We used the funds for getting degradable cups, index cards and I think granola bars.

Did the schools you worked with use grant funds? If so, what for?
The schools used the funds for buses.

If you were going to do your project again what would you do different?
Have more time on the stations or more games to do. Towards the end of the station, the kids got restless because of boredom and having nothing to do. So, basically time management or games that would be active for them.

What do you think is the most important thing you got out of participating in the Parks Climate Challenge?
To be honest, when I started this program I hardly knew anything about climate change. But during that one month of hiking, socializing with people that had experience in the field and just spending time in the wild, I learned more information than sitting at a desk and being lectured. This experience taught me a lot about climate change, communication skills, survival and many more. But the one thing that really came through was how the environment around us has so many interconnections that if one factor is affected, it will cause a domino affect on the rest. This thought basically changed my view because I used think that everything in nature was going good. But until now after seeing the impact of climate change, I want to be able to do something in order to preserve nature for the future generation, so that they too can see the way it was in my time.

What recommendations do you have for the program coordinators to improve the Parks Climate Challenge program next year?
PCC was the best thing that happened to me during that summer not because of swimming in cold rivers, hiking 24/7 or camping, but because I became part of a family who shared a common interest: reducing climate change. This program has an amazing staff that taught me a lot from the different plants growing in a forest to the history of a once amazing glacier that has now shrunk by the impact of climate change. PCC shouldn't change anything at all but to just get more people involved.

City: San Francisco
Project location: Golden Gate National Recreation Area

Project leaders names: Jenny So, Grady Webber, Araceli Diaz, Colin Ridgely
Project date: 11/12/09

School(s) worked with:
Alta Heights, Napa, CA , Mr. Dekker, 4th/ 5th grade

Describe what took place on the day of your service project, including how many students and parent volunteers attended.
My class of about twenty-eight kids (one teacher and three chaperones) and I boarded a bus in the morning and rode to Inspiration Point Overlook in the park where we meet up with Brett Stevenson the project leader. We then walked down towards the area we would be doing habitat restoration on. As we walked Brett talked to the kids about the state rock witch could be seen from the trail and some of the local wildlife. When we got to the site Brett took some time to

explain to the kids exactly what we were going to be doing and why we are doing it (e.g. Where the invasive species came from). Then we handed out gloves and split up into groups with an adult for each group. The kids picked invasive species for roughly an hour and a half and managed to fill several containers. I thought they did really well at staying focused for a group of fourth and fifth graders it was nice to see that they really wanted to help. After picking the invasive species the kids got a snack (provided by the park) and Brett explained the benefits of removing these non-native species from the area (e.g. what animals were helped by this). Then the kids did an activity where they wrote thank you letters to themselves from the point of view of an animal or plant that they helped. I think a lot of the kids felt like they made a difference and helped the habitat. Then we boarded the bus and took it to the amphitheater at Crissy Field and meet up with the other classes. Due to a logistical issue my students had to leave shortly after eating lunch at the amphitheater but I stayed behind to help my teammates and clean up afterwards. After a lunch break and a short time to prepare all the classes gathered at the amphitheater and performed a skit based around climate change that the other class watched. The skits demonstrated things like the greenhouse affect and rising sea levels from melting sea ice. After the skit the students boarded their busses and headed home Grady and I stayed behind with his class (who stayed a little longer) we picked up all the trash in the area, there wasn't much but because it's a public area (we had a permit from the park) most of the trash didn't come from us so I think we ended up leaving it nicer than we found it. I then got a ride home with Grady and his class. I think it was a successful day because we did everything we had planed successfully.

What was the best thing about your project?
I liked seeing that the kids we're interested and learning something. Hopefully the presentations I gave them in class and the field trip to the park is something they will remember in the future and it will impact their future decisions.

What surprised you about your project?
How attentively the kids listened to me when I was presenting to them and how they were willing to learn new things and seemed genuinely interested.

What was the hardest thing about your project?
Probably having to miss classes to give presentations at the school and organizing transportation to the park because it was so far away.

Besides the members of your group, who were the people who helped you most in carrying out your project?
I would have to say both Matt and the teacher of my elementary school class where extremely helpful. When it came to organizing transportation they both went above and beyond to help me get a bus at the last minute when I didn't really know who to contact or how to pay. Also my Elementary classes teacher was a big help in getting permission slips and talking to the kids.

Did you use grant funds for your project? If so, what did you use the funds for?
Personally? no

Did the schools you worked with use grant funds? If so, what for?
Yes. They used grant funds to pay for a charter bus to get the Class to and from the park.

If you were going to do your project again what would you do different?
I would have started organizing transportation first thing (although that was difficult this time because the date kept moving around) . I think I would also prepare better for my presentations to the class although I felt like all my presentations went well I think they could have been better things like worksheets maybe some more games and props could have made them more interesting.

What do you think is the most important thing you got out of participating in the Parks Climate Challenge?
I feel like I've made a difference and now that I've helped to educate these kids (and anyone else who will listen) I know it's diffidently something I want to continue doing and I'm sure I will be involved in more service projects if not as an organizer than as a participant. I think the most important thing I got from The Parks Climate Challenge is a feeling that I really can do something about climate change and Its impact on the environment I can make a difference and I can help others make a difference. I also feel like I gained a better understanding of what's going on and a stronger desire to limit the repercussions of what's going on after seeing first hand its impacts on the environment.

What recommendations do you have for the program coordinators to improve the Parks Climate Challenge program next year?
I think this years program in North Cascades went extremely well other than a few logistical bumps and I really cant imagine a better way to learn about the impacts of climate change. One of the things that I don't think should change is the diversity of people we talked to. We heard everyone from glaciologists to firefighter's perspectives on global warming this allowed us to see and understand a large spectrum of the affects. I really can't imagine a better way to learn about climate change or a more motivating experience now when I think of climate change I won't be thinking of polar bears but of MT. Baker and all the dead tress from infestations of pine beetles, and the communities threatened by the fires cause by those same trees.

I felt like the D.C. portion of the trip went well. It felt like we were extremely busy the whole time but I guess that just means we were being productive so that's more of an observation. The one thing I would have changed about the D.C trip would be spending more time on planning service projects, I also think we should have spent some time talking about things like how to organize transportation and how to present information to younger kids. I understand that it was more of a business trip than anything else but it would have been cool if we had gotten to visit some of the museums and other stuff (aren't the museums free?).

For the actual service project I felt like mine could have been more based in climate change. The person from the park that we worked with was really pushing for the habitat restoration and in the end we had to give up most of the climate change related issues so that we could do the

habitat restoration(This also forced us to split up for the morning and made logistics a little more difficult). Other than that I think it went well I can't speak for everyone because we each taught a different class but I felt like the kids really learned something and will hopefully be a more aware of their impact and what they can do in the future.

City: Denver
Project location: Rocky Mountain National Park

Project date: 10/23/2009
Project leaders names: Hannah Lazo, Meghan Reimann, Jane Culkin and Anna Gonzales

School(s) worked with:
Hannah and Meghan: Henry Teller Elementary School, Denver
Katheryne Sackett and Kathren Hoffman- 4th grade

Jane: Asbury Elementary, Denver - 5th grade

Anna: Valley View, Mapleton Public Schools – 3rd grade

Describe what took place on the day of your service project, including how many students and parent volunteers attended.
In total, we had about 110 students, 5-10 parents and the students teachers. At the park, the students rotated through 3 stations that we designed. Each station was lead by the PCC youth. The first station was a planting station where the kids each planted native grasses in a compostable cup and also put together a "seed kit" that contained vegetables or flowers to plant in their own yards. The second station was a banner making station where each school created their own banner that pledged the students commitment to Climate Change action and awareness. The banners were hung in the three schools to remind them of the cause and inspire action. The final station was a nature hike around the visitor center. They observed scat, various kinds of plant species, wildlife and most importantly, formed a personal relationship to the park.
In addition to the stations, the students listened to the park rangers who answered many of their questions. We also shared stories and memories that we had in the park in order to make the park seem more accessible and an intriguing place to explore. During lunch the students watched RMNP's introduction video in order to see the land in all seasons and farther than the area around the visitor center. Finally, we wrapped the day up with a closing reflection and group pictures in the shadow of a snowy continental divide.

What was the best thing about your project?
The best part of the project was knowing that we had just changed these kids lives. We had brought them to a place we most of them had never been and never seen anything like it. Due to budget cuts, Anna's students had never even been on a field trip before. It was amazing to see the looks on their faces as they made connections between what we had taught them in their classrooms and the real world. We could see that they would never forget what they learned and

would continue to spread the word about taking action against climate change and the importance of national parks.

What surprised you about your project?
What really caught us all off guard was that WE had done it. We planned it meticulously and we did it. The project elapsed without much more of a problem then late buses.

What was the hardest thing about your project?
The hardest part was in the planning stages. By the time that we left the North Cascades, we were all confident that we could lead the project and knew what we wanted to do, but now we had to make it happen.

Besides the members of your group, who were the people who helped you most in carrying out your project?
The help that we received from all the teachers was immeasurable. Also, the curiosity of the kids as well as their selflessness and willing to help gave us inspiration. Finally, Matt was pretty much the guy that kept us all from losing it and helped us at every step of the process, including flying to Denver to be with us on the day of. Without the assistance of these people, the project would not have been as big of a success.

Did you use grant funds for your project? If so, what did you use the funds for?
We did use grant funds. We used them for buying supplies for the day in the park.

Did the schools you worked with use grant funds? If so, what for?
Yes, for transportation to and from the park.

If you were going to do your project again what would you do different?
If we could have made the time in the park longer would be ideal. This would allow for more connection to the park which is vital if we want these kids to grow up and protect it.

What do you think is the most important thing you got out of participating in the Parks Climate Challenge?
To name just one thing would be impossible. To name some: confidence in ourselves and our abilities to do meaningful things, knowledge of climate change and the detrimental effects, and a permanent connection and urge to be in the parks as well as protect them.

What recommendations do you have for the program coordinators to improve the Parks Climate Challenge program next year?
Keep the groups small!! No more than twenty people. It may not be possible, but finding instructors that are as amazing as ours were. Definitely add water shoes to the list of things to bring(sandals like Tevas). All of our sneakers reeked of mildew by the end of the month, trust us it wasn't good, at all. Also, don't pay people before everything is done. We can't think of much else to change :)