



# Natural Notes

## Dealing with Climate Change

A GLANCE THROUGH this edition of Natural Notes may prove eye-opening: floods, fires and the increasing loss of glacier mass. Change is inevitable and events such as fires and climate change are inherent processes of nature. Recently, however, studies show an increasing rise in temperature and researchers have concluded that both natural and human actions are factors.



Upper Lake Chelan in the Stehekin Valley

The earth's surface temperature has risen 1.4 degrees in the last 100 years, with 20 percent of that change occurring in the last decade, according to a report by researchers at Glacier National Park. Research also shows that higher elevation areas, such as where glaciers are located, and northern environments are being affected most by warmer weather. These changes are having noticeable effects in national parks. The high number of glaciers in the North Cascades National Park Service Complex (more than 300) can serve as indicators of climate change.

Researchers study the park to monitor the impact of global climate change through projects such as glacier monitoring (see page 2) and weather stations. At the Marblemount weather station, weather is documented by recording precipitation, snow depth, snow water content, temperature, relative humidity and wind speed and direction; ultimately, this record of daily weather measurements contributes to understanding climate change.

The National Park Service is taking action to reduce its carbon impact, and thus reduce the anthropogenic factor contributing to climate change. With support of the U.S. Environmental Protection Agency, the Park Service has started the Climate Friendly Parks Program. The National Park Service has pledged to reduce its fossil fuel use by 20 percent in 2008.

North Cascades National Park Service Complex is taking strides to reduce its carbon footprint by using solar energy, electric hybrid cars, bio-based fuel and lubricants, and composting. The park is also implementing green building techniques, such as using recycled wood and carpet, for numerous buildings, including the North Cascades Environmental Learning Center, which is certified by Leadership in Energy and Environmental Design. Through these measures, the park complex can move into the future with nature as its guide to reduce human impacts.

For more information on global climate change, visit:  
[www.nature.nps.gov/criticalissues/globalclimatechange.cfm](http://www.nature.nps.gov/criticalissues/globalclimatechange.cfm)  
[www.nps.gov/climatefriendlyparks](http://www.nps.gov/climatefriendlyparks)

### Minimize Your Impact

- Use energy efficient light bulbs and appliances.
- Wash clothes in cold water and air dry clothes during summer.
- Unplug electronic devices when not in use.
- Make use of public transportation, walk, bike or carpool.
- Keep vehicles well-tuned to reduce emissions.
- Buy local and avoid products with unnecessary packaging.

For more ways to reduce your impact, visit:  
[www.climatesolutions.org](http://www.climatesolutions.org)  
[www.pewclimate.org](http://www.pewclimate.org)

## Studying Parks, Making Partners

DYNAMIC CHANGES ARE VISITING THE North Cascades. Three of the five largest recorded floods of the Stehekin River have occurred within the last 12 years. Throughout the park, an estimated 13 percent of glacier area has melted since 1971. Large wildfires burned more acres in 2006 than anytime in the last 45 years. Along with damage from insects and disease to native plants, non-native invasive plants are penetrating wilderness along streams and roadways.

With these changes and more, park researchers are finding ways to study the ecosystem and document long-term trends along with the North Coast and Cascades Network. NCCN joins Pacific Northwest parks to assist each other in monitoring and research projects. For example, North Cascades and Olympic and Mount Rainier National Parks ended a collaborative study in 2004 on high elevation archeological sites (see page 7). 2006 proved to be an innovative year for research in the North Cascades, with completion of several species inventories and monitoring protocols. Park researchers are currently working on projects that address floods, fires and glacier loss, and others that study threatened and endangered species and restore native plants to the area.

North Cascades has also been working to share its research with the community through partnerships. In partnership with North Cascades Institute, the National Park Service has participated in Mountain School, a national award-winning three-day program that shares what researchers have learned about the North Cascades with elementary school students. The school, which is held at the North Cascades Environmental Learning Center, offers students the chance to participate in field-based science projects that mirror those of researchers, and is expanding to high school and middle school students.

Looking forward to the National Park Service's Centennial in 2016, new studies and partnerships will flourish. These will help North Cascades National Park Service Complex staff discover better ways to care for the 684,313 acres of mountainous landscape comprised of trails, lakes, streams and abundant wildlife at the heart of this world-class ecosystem.  
[www.nps.gov/noca/nature-science/index.htm](http://www.nps.gov/noca/nature-science/index.htm)

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