Responding to the Challenge of Climate Change

Background

Climate change presents significant risks and challenges to park resources, infrastructure, and visitor experience. While some effects of climate change are known and are already visible on the landscape, many are just beginning to be understood. Most climate change impacts are complex and far-reaching. Some of the known and future effects include:

- Warming temperatures
- Accelerated melting of mountain glaciers, permafrost, and sea ice
- Sea level rise & ocean acidification
- Changing weather patterns
- Expanded fire seasons
- Species range and migration shifts
- More frequent precursor conditions for pests, pathogens, disease, and exotic species invasion

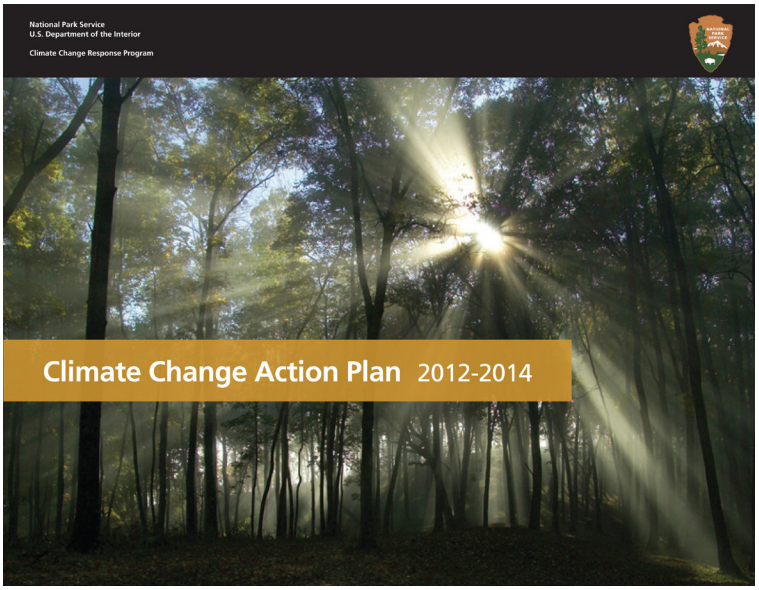
The uncertainty of how climate change is impacting resources in national parks makes responding a challenge. However, the lack of certainty about specific impacts does not mean we should not act. In fact, inaction may be the riskiest decision of all because climate change is a long-term problem that carries a huge procrastination penalty. The NPS is now responding through use of the best available science, sustainable operations, resource planning and adaptation, and effective communication. The effort is coordinated across all levels of the organization and with our partners.

Guiding Documents

Meeting the challenge of global climate change requires a scientific approach, innovative thinking and an unprecedented level of collaboration and communication. Released in September 2010, the **NPS Climate Change Response Strategy** describes a vision around four integrated climate change components: Science, Adaptation, Mitigation, and Communication. All four components consider the overarching legal and policy implications for climate change, as well as ways to incorporate this issue into long range planning.

In March 2012 NPS Director Jon Jarvis issued a policy memorandum entitled, **Applying NPS Management Policies in the Context of Climate Change** which provides broad direction for decision making with respect to impairment and natural conditions.

Additionally, in November 2012 the NPS released its **Climate Change Action Plan 2012–2014** which describes high-priority actions underway and/or that the National Park Service is committed to undertake in the next two years, and provides guidance to help focus and integrate actions across the Service.



The NPS Climate Change Action Plan describes high-priority action items the NPS is committed to undertake in the next two years.

Each NPS guiding document was developed and is being implemented in a manner consistent with NPS policy and Department of the Interior (DOI) guidelines set forth by **Secretarial Order 3289** entitled *Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources*. Issued on September 14, 2009, the order calls upon all DOI bureaus to participate in a departmental climate change initiative.

Ongoing projects include:

- Develop and package downscaled climate trends and provide to every national park unit.
- Conduct inclusive strategic planning and training involving parks, regions, and national offices and links with partner organizations.
- Offer opportunities for youth and diverse audiences to be involved with climate change research and education in national parks.
- Integrate climate change into NPS planning processes.
- Develop adaptation strategies for all 85 coastal parks.

More Information

Leigh Welling, Ph.D.
Chief
Climate Change Response Program
ph: (970) 225-3513
email: Leigh_Welling@nps.gov

Bert Frost, Ph.D.
Associate Director
Natural Resource Stewardship & Science
ph: (202) 208-3884
email: Bert_Frost@nps.gov

http://www.nps.gov/climatechange

About Us & Next Steps

The Climate Change Response Program (CCRP) includes a small staff who serve the National Park Service in climate change science and modeling, interpretation and education, resource management, landscape connectivity, monitoring, planning, coastal hazards, cultural anthropology, and renewable and efficient energy use.

The CCRP supports servicewide initiatives to implement the *NPS Climate Change Response Strategy* and *Climate Change Action Plan*, and to work with partners to develop methods for assessing resource vulnerability, monitoring change, developing adaption strategies for natural and cultural resources and facilities in climate-sensitive areas, and including climate change in NPS planning frameworks. The 2012 priority actions addressed climate literacy and training, science-based planning and policy development, and collaboration across jurisdictions and organizations to promote shared conservation goals and values.

Consistent with the NPS, *A Call to Action* and the *Revisiting Leopold report*, the CCRP embraces a renewed emphasis on science in decision-making, enhancing workforce climate literacy, and reaching youth and providing career opportunities through our George Melendez Wright climate change internship and fellowship programs. Over the past three years CCRP staff have authored portions of reports for the National Climate Assessment and Intergovernmental Panel on Climate Change (IPCC) 2013, included climate change considerations in the new planning framework, offered several internal trainings for NPS staff, created innovative communication products, and placed 100 students in parks and offices across the country through the internship and fellowship programs.

Resources and structures in coastal parks are especially vulnerable to climate change as rising seas bring impacts such as increases in erosion, salt water intrusion, and storm surges. Photo Credit: Stephanie Toothman, Kaloko-Honokohau National Historic Park.

Next Steps:

- Make significant progress on all the action items in the *Climate Change Action Plan 2012-2014*.
- Support servicewide climate change training initiatives.
- Increase efforts to *plan for* and *communicate about* climate change.
- Emphasize adaptation actions at all levels of the NPS and develop an adaptation communication campaign.

Recent NPS Climate Change Accomplishments

- Provided climate change science to more than thirty parks entering the Foundation Document planning process.
- Scenario planning workshops at Pinnacles NM and Catoctin Mountain NP directly applied the process of scenario planning to park management.
- Initiated development of a comprehensive listing of NPS assets vulnerable to sea level rise as well as long-term coastal adaptation strategies to increase resiliency in all 85 coastal parks.
- Complementing the coastal adaptation strategies, a high-level risk screening tool was also initiated for facilities, historic structures, and other resources in coastal parks to characterize vulnerability and identify parks with assets most at risk.
- Contributed to the interagency *National Fish, Wildlife and Plant Climate Adaptation Strategy* to conserve ecosystems and human benefits of those systems in a changing climate.
- Completed 3 climate change vulnerability assessments addressing 5 parks.
- Incorporated climate change training curricula into the New Superintendent's Academy.
- Produced a video series that highlights management decision-making case studies from four different national parks.
- Developed the online framework for the Interpreting Climate Change competency.
- Developed a climate science video series articulating the research being done in national parks to increase staff and public awareness of how the NPS is addressing this issue.
- Partnered with the U.S. Fish & Wildlife Service to develop and implement the Climate Academy – a 10-month climate change training course for federal, state, and other conservation practitioners.
- Initiated development of 10 interactive park exhibits that connect sea level rise and coastal adaptation themes in an online network of national parks across the country.
- Authored portions of reports for the National Climate Assessment and the Intergovernmental Panel on Climate Change to be released in 2013.
- Integration of cultural resources into adaptation planning; targeted research in climatic tolerances of historic materials; and development of cultural resource vulnerability assessment techniques and policy response.
- Developed a cultural resources climate change impacts handbook illustrated with case studies and photos.