



Responding to the Challenge of Climate Change

Background

Climate change affects landscapes, species, and the cultural and natural systems upon which civilization depends. Our Nations' parks are already witnessing visible impacts to resources, infrastructure and visitor experience. The National Park Service is responding to the challenge of climate change through the use of best available science, sustainable operations, resource planning and adaptation, and effective communication. The efforts are 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 2012, the NPS released several climate change initiatives. Director Jarvis issued a policy memorandum entitled, **Applying NPS Management Policies in the Context of Climate Change** that provides broad direction for decision making with respect to impairment and natural conditions. The **Green Parks Plan** provides a blueprint for reducing the operational footprint of NPS and illustrates best practices for sustainable operations. *Revisiting Leopold: Resource Stewardship in the National Parks* calls for new strategies that go beyond park boundaries and for the NPS to steward resources "for continuous change that is not yet fully understood.

Additionally, in November 2012 the NPS released its **Climate Change Action Plan 2012-2014** that describes high-priority actions to which the NPS is committed in the near term while providing a flexible road map for preparing for and adapting to the needs of the future.

More Information

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The NPS Climate Change Action Plan describes high-priority action items the NPS is committed to undertake through 2014 and beyond. Highlights of accomplishments were summarized in 2014.

About Us

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 adaptation 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.

Ongoing projects include:

- Analyze and deliver observations and downscaled climate trends 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.



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

- Revise the *Climate Change Action Plan* through the celebration of the National Park Service centennial in 2016.
- 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.
- Put a structure in place to employ the next generation of climate change stewards through a young leaders initiative.
- Incorporate climate change in all levels of NPS planning.

Recent NPS Climate Change Accomplishments

Science for Parks

- Provided climate change science, ecological impact and vulnerability information to 109 parks that was included in 80 Foundation Documents, 19 State of the Park reports, 4 Resource Stewardship Strategies, and 5 General Management Plans.
- The NPS, in collaboration with scientists from universities, the U.S. Geological Survey, USDA Forest Service, and other partners has completed climate change vulnerability assessments for selected resources in more than 130 national parks.
- Authored portions of reports for the National Climate Assessment and the Intergovernmental Panel on Climate Change released in 2013 and 2014.

Adaptation Planning & Implementation

- In partnership with the Center for the Study of Developed Shorelines at Western Carolina University, the NPS assessed the vulnerability of assets (facilities) in 40 coastal park units to 1 m of sea level rise and storm events. Additional coastal parks will be assessed in 2014 in conjunction with a coastal adaptation handbook currently in progress.
- Supporting the Joint Interagency Working Group for the *National Fish, Wildlife and Plants Climate Adaptation Strategy* to implement goals of the strategy, and heighten cross-agency collaboration in climate change adaptation at landscape scales.
- Co-authored the *Climate-Smart Conservation* guide that provides practical steps for crafting conservation actions to enhance the resilience of the natural ecosystems on which wildlife and people depend, and complements the *National Fish, Wildlife, and Plants Climate Adaptation Strategy*.
- 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.

- Issued in March 2012, the policy memo *Applying National Park Service Management Policies in the Context of Climate Change* clarifies that although climate change is beyond the control of individual managers, park superintendents have a responsibility to engage partners and apply the best available science to conserve park resources.
- *Climate Change and Stewardship of Cultural Resources* is the second policy memo released in February 2014 and provides broad guidance for the management of cultural resources for climate change adaptation.

Building Workforce Capacity

- Incorporated climate change case studies into the New Superintendent's Academy and initiated a community of practice among park managers.
- Developed an online self-study framework for the *Interpreting Climate Change* competency. The virtual classroom course is offered twice per year.

Public Outreach & Communication

- Produced 16 short climate change videos that highlight management decision-making case studies, climate science being conducted in national parks, climate science demonstrations and leadership messages.
- Partnered with the U.S. Fish & Wildlife Service to develop and implement the Climate Academy – a climate change training course for federal, state, and other conservation practitioners.
- Initiated an exhibit project that has brought 13 parks together to develop 24 waysides that highlight park specific impacts of climate change from sea level rise to phenology. The waysides will utilize quick response (QR) codes, smart phone apps, micro-websites and an overarching website to connect each wayside to one another allowing visitors learning about glacier melt in Alaska to see how that affects sea level rise in Florida.