



Responding to the Challenge of Climate Change

Background

Responding to climate change is the greatest challenge facing the National Park Service (NPS) today. Our national parks contain some of the most treasured landscapes and important historical sites in this country. They are also among the most vulnerable. National parks have always helped us better understand the workings of our planet, the lessons of history, and our relationship to the world around us. Even under the threat of climate change, these natural and cultural resources can teach us how our planet is changing and teach us about conservation for future generations.

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.

Between 2012 and 2015, the NPS released several policy and guidance documents. 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. *Climate Change and Stewardship of Cultural Resources*, and *Climate Change and Natural Hazards for Facilities* provide policy direction for cultural resources and facilities, respectively. The *Green Parks Plan* provides a blueprint for reducing the operational footprint of the NPS and illustrates best practices for sustainable operations.

The *2015 Action Plan Highlights* describes accomplishments relevant to high-priority actions described in the *Climate Change Action Plan*.

More Information

Cat Hawkins Hoffman

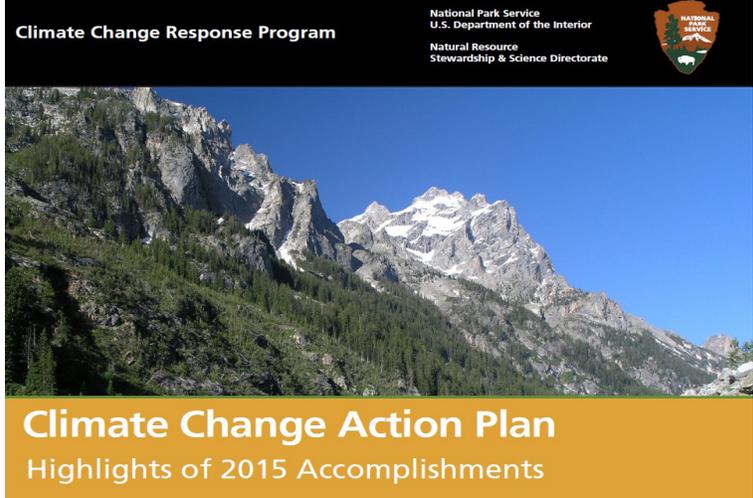
Acting Chief
Climate Change Response Program
ph: (970) 225-3567
email: Cat_Hawkins_Hoffman@nps.gov

Ray Sauvajot, Ph.D.

Acting Associate Director
Natural Resource Stewardship & Science
ph: (202) 208-3884
email: Ray_Sauvajot@nps.gov

Program website: <http://www.nps.gov/climatechange>

YouTube page: <https://www.youtube.com/NPSClimateChange/>



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 2015.

About Us

The Climate Change Response Program (CCRP) includes a small staff who serve the NPS in climate change science and modeling, interpretation and education, resource management, 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. Priority actions address 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 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

- The CCRP provides data on ecosystem carbon to parks to help determine whether resource management actions reduce or add to climate change. In 2015, the journal *Forest Ecology and Management* published research by NPS scientist Patrick Gonzalez and colleagues quantifying ecosystem carbon across the State of California. Redwood National Park contains carbon at the highest density of any ecosystem in the world, but wildfires across the state caused a net carbon loss from 2001 to 2010. The NPS Pacific West Region used the data to help identify high carbon ecosystems as priority areas for new land acquisition.
- The CCRP and the Sustainable Operations and Climate Change Branch of the Park Facility Management Division released an initial *Coastal Assets Report* in June of 2015. In partnership with Western Carolina University, the report provides vulnerability assessments for natural features, cultural resources, and facilities across 40 parks to 1 meter of sea level rise. Phase 2 of this project, is underway and will examine the vulnerability of 30 more NPS units.
- An new online collection of site-specific information on climate change effects and projections was developed in 2015. The site currently hosts hundreds of briefs on climate exposure, eastern forest vulnerability, and park visitation.

Adaptation Planning & Implementation

- Over 2015, the CCRP worked with multiple parks to examine climate projections and associated future conditions and implications for management. Workshops considered dock design at Apostle Islands National Seashore, ecosystem restoration at Acadia National Park, riverbank erosion at Knife River Indian Villages National Historic Site, bison management at Badlands National Park, and forest management at Marsh-Billings-Rockefeller National Historical Park.

- The NPS has worked to incorporate climate change considerations into the development of over 200 Foundation Documents to date, towards a goal of completed Foundation Documents for all park sites by the 100th anniversary of the NPS in 2016.
- Released in 2015, the *Coastal Adaptation Strategies: Case Studies* report describes adaptation actions currently underway across 21 coastal parks and programs. As a companion to this report, a coastal adaptation strategies handbook is under development. The draft handbook highlights new and emerging strategies and provides examples of approaches the NPS is using to address coastal vulnerabilities and climate change impacts. The handbook is currently in review, and release is expected in 2016.

Building Workforce Capacity

- To date, over 100 superintendents and senior park managers have participated in the webinar-based New Superintendents Academy Climate Change Leadership Series since 2012. The training includes four modules that highlight climate-related management challenges that often face decision-makers.
- A new climate change e-learning module under the Natural Resource Academy was completed in conjunction with the Stephen Mather Training Center in 2015. The online module is now available through DOI Learn.

Public Outreach & Communication

- The *National Climate Change Interpretation and Education Strategy* is in the final review phase at the time of publication. The strategy provides a framework for the integration of climate change topics into existing NPS interpretation and education efforts. The strategy is anticipated to be released in Spring 2016.